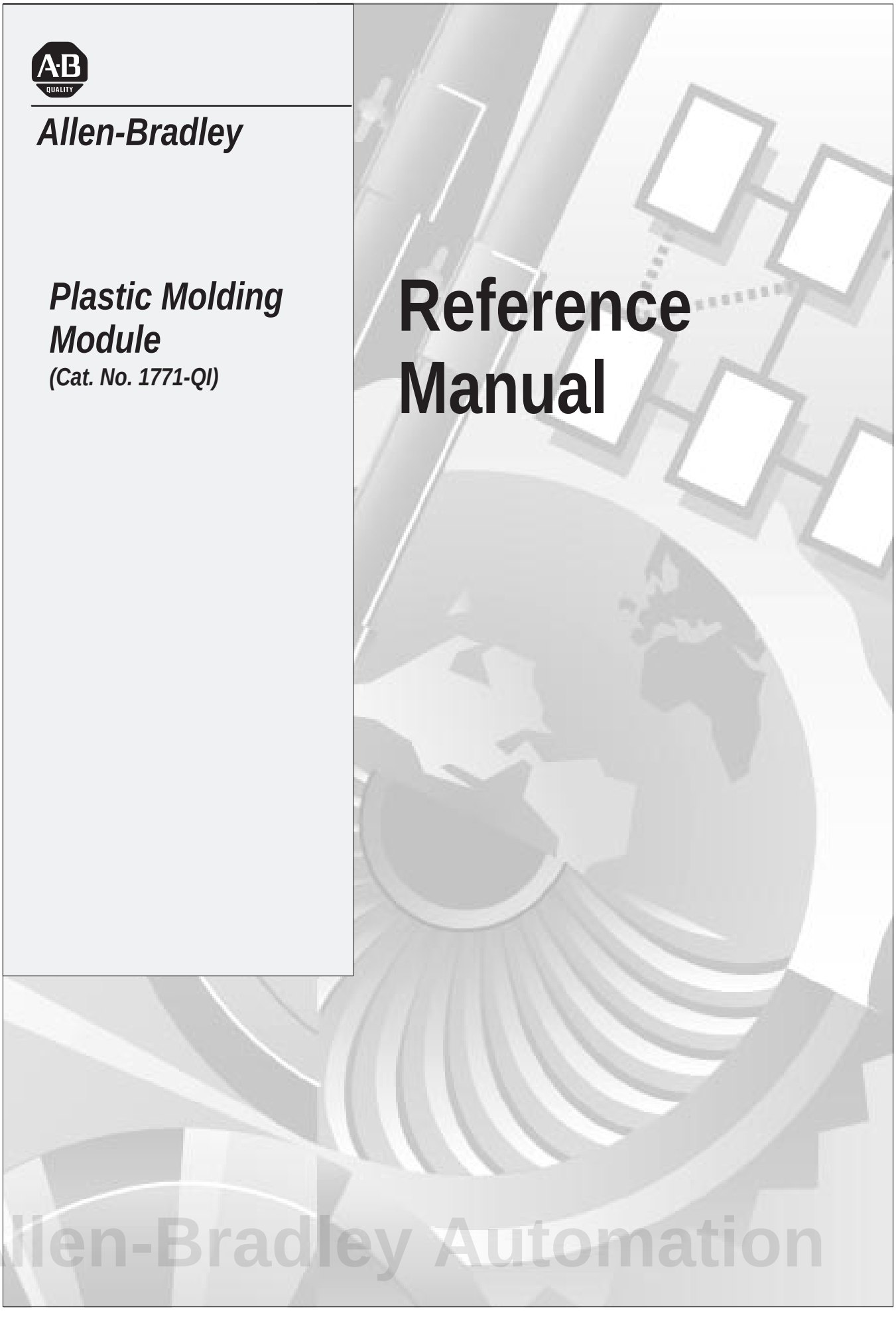


Allen-Bradley

Plastic Molding Module

(Cat. No. 1771-QI)

Reference Manual

Important User Information

Solid state equipment has operational characteristics differing from those of electromechanical equipment. “Safety Guidelines for the Application, Installation and Maintenance of Solid State Controls” (Publication SGI-1.1) describes some important differences between solid state equipment and hard-wired electromechanical devices. Because of this difference, and also because of the wide variety of uses for solid state equipment, all persons responsible for applying this equipment must satisfy themselves that each intended application of this equipment is acceptable.

In no event will the Allen-Bradley Company be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many variables and requirements associated with any particular installation, the Allen-Bradley Company cannot assume responsibility or liability for actual use based on the examples and diagrams.

No patent liability is assumed by Allen-Bradley Company with respect to use of information, circuits, equipment, or software described in this manual.

Throughout this manual we use notes to make you aware of safety considerations.

ATTENTION: Identifies information about practices or circumstances that can lead to personal injury or death, property damage, or economic loss.

Attentions help you

- identify a hazard
- avoid the hazard
- recognize the consequences

Important: Identifies information that is especially important for successful application and understanding of the product.

Preface

Read this preface to familiarize yourself with the manual. This preface covers the following topics:

- the purpose of this manual
- Related Publications
- Terms
- Allen-Bradley support

Purpose of this Manual

This manual provides reference information for the 1771-QI Plastic Molding Module. It provides lists of words, bits, addresses, and error codes needed for all applications. It also describes procedures you use to calibrate the module. The contents include:

Chapter	Title	Contents
1	Abbreviated Command and Status Blocks	A summary list of command and status block words with Pro-Set addresses used by the QDC module.
2	Word/Bit Descriptions for Command Blocks	A detailed list of command block words with word/bit descriptions.
3	Word/Bit Descriptions for Status Blocks	A detailed list of status block words with word/bit descriptions.
4	Programming Error Codes	A list of all possible error codes that could be presented when you enter invalid data in command blocks.
5	Specifications	Provides physical, electrical, environmental, and functional specifications for the QDC module.
6	Calibration Instructions	Provides procedures for calibrating the QDC module.

Related Publications

The 1771-QI module is similar the 1771-QDC module configured for Inject Mode, but with additional co-injection capabilities. We recommend that you use the following publications:

For	Read This Document	Pub Number
Installing your QI module to control inject operations	Plastic Molding Module User Manual 1771-QDC Inject Mode Operation	1771-6.5.85
Selecting instructions and organizing memory when writing ladder logic to run your machine	1785 PLC-5 Programmable Controller Instruction Set Reference	1785-6.1
Installing Pro-Set 700 injection molding software	Pro-Set 700 Installation Instructions	6500-5.4
Installing your Pro-Set 700 operator interface	Pro-Set 700 Operator Interface Installation Manual	6500-6.2.1
Customizing Pro-Set 700 software for your application	Pro-Set 700 Software Release 2.1 Reference Mnl	6500-6.4.3
Setting up your molding machine for use with Pro-Set 700 software	Pro-Set 700 Software Release 2.1 User Manual	6500-6.5.18
Using co-injection software	Pro-Set 700 Co-injection Software User Manual	6500-6.5.19
Inputting injection molding system setpoints and actuals	Pro-Set 700 Systems Jobsetting Guide	6500-6.9.3
Installing modules for co–injection applications	Installing Co-injection and Plastic Molding Modules	6500-10.1
A complete listing of current Allen-Bradley documentation	Allen-Bradley Publication Index	SD499

Terms

The following terms are specific to this product or commonly used:

Term:	Definition:
BTR	Block-transfer Read
BTW	Block-transfer Write
Command Block (MCC)	Downloaded from the PLC data table to the QI module to initiate or change machine operation. It must accompany every configuration or profile block transferred to the QI module.
Configuration Blocks	Data blocks containing machine-specific setpoints.
Profile Blocks	Data blocks with setpoints used to control profiles.
Status Blocks	Module status returned by the QI module to the PLC data table.
Direct Acting and Reverse Acting Valves	An analog control valve that delivers increasing velocity or pressure with increasing signal input. A reverse acting valve delivers increasing velocity or pressure with decreasing signal.
FF	Feed Forward
in.(mm)/s	inches (millimeters) per second
PID	Proportional-Integral-Derivative
Profile	A group of mold/part setpoints which define a given machine operation to the QI module
RFU	Reserved for future use
Selected and Unselected Valves	When executing a profile in a multi-valve system, the QI module controls one valve and presets the remaining valves. We call the valve being controlled by the QI module's algorithms the selected valve, and the valves that are preset with an open loop percentage setpoint the unselected valves.
Unselected Valves	When executing a profile in a multi-valve system, the QI module controls one valve and presets the remaining valves.
SWTL	Software travel limit

Allen-Bradley Support

Allen-Bradley offers support services worldwide, with over 75 Sales/Support Offices, 512 authorized Distributors and 260 authorized Systems Integrators located throughout the United States alone, plus Allen-Bradley representatives in every major country in the world.

Local Product Support

Contact your local Allen-Bradley representative for:

- sales and order support
- product technical training
- warranty support
- support service agreements

Technical Product Assistance

If you need to contact Allen-Bradley for technical assistance, please review the information in the Troubleshooting chapter of User Manual 1771-6.85 before calling your local Allen-Bradley representative.

Table of Contents

Abbreviated Command and Status Block

Chapter 1

Command Word/Bit Descriptions

Chapter 2

Publication 1771-6.5.126– March 1998

Status Word/Bit Descriptions

Chapter 3

Programming Error Codes

Chapter 4

Sequencing Co-injection

Chapter 5

Module Specifications

Chapter 6

Calibration Instructions

Chapter 7

Abbreviated Command and Status Blocks

Chapter Contents

Use this chapter as a quick reference to *word descriptions* and *Pro-Set addresses* of all data blocks used by the QI module.

For complete word and bit descriptions of these data blocks, see Chapter 2 (command) and Chapter 3 (status).

The following tables list command and status blocks in this chapter by page number. Blocks are presented in abbreviated format.

Command Block:	Block ID:	Page:	Status Block:	Block ID:	Page:
DYC	25	1-2			
HDC	11	1-2			
HPC	12	1-3	HPS	12	1-15
INC	8	1-4			
IPC	9	1-6	IPS	9	1-16
JGC	2	1-7			
MCC	1	1-8	SYS	1	1-21
PKC	10	1-9			
PLC	14	1-10			
PPC	15	1-11	PPS	15	1-18
PRC	13	1-12			
PSC	16	1-13			
PTC	28	1-14	PTS	28	1-19
RLC	26	1-14	RLS	26	1-20

Important: Addresses are identical for both Pro-Set 600 (1771-QDC) and Pro-Set 700 except where noted for the following:
MCC05-08 and SYS23, 24

Important: In the listings that follow, we use the term RFU for reserved for future use. Do not program the use of these words.

DYC – Dynamic Command Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
DYC01	B34:24	Block ID 00011001 and jog commands
DYC02	B34:25	Action-execution commands
DYC03	B34:26	Miscellaneous commands
DYC04	B34:27	Status request and status clear commands
DYC05-06	B34:28-29	RFU
DYC07	B34:30	Process trace commands (Series D and newer only)
DYC08	B34:31	Process trace data block request (Series D and newer only)
Direct Set-output Values		
DYC09	N40:121	Output #1
DYC10	N40:122	Output #2
DYC11	N40:123	Output #3
DYC12	N40:124	Output #4
DYC131-16	N40:125-128	RFU
Acceleration Ramp Rates		
DYC17	N40:129	Output #1
DYC18	N40:130	Output #2
DYC19	N40:131	Output #3
DYC20	N40:132	Output #4
DYC21-24	N40:133-136	RFU
Deceleration Ramp Rates		
DYC25	N40:137	Output #1
DYC26	N40:138	Output #2
DYC27	N40:139	Output #3
DYC28	N40:140	Output #4
DYC29-32	N40:141-144	RFU
DYC33-60	N40:145-172	RFU
Request for Programming Error		
DYC61	N40:173	Fetch SYS61 and SYS62
DYC62-64	N40:174-176	RFU

HDC – Hold Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
HDC01	B38:12	Block ID 00000000 00001011
HDC02	B38:13	Selected valve configurations
HDC03-04	B38:14-15	RFU
Expert Response Compensation Percentage		
HDC05	N44:181	ERC % minimum cavity pressure
HDC06	N44:182	ERC % minimum ram pressure
HDC07-08	N44:183-184	RFU
Set-output Values for Unselected Valves (During Profile)		
HDC09	N44:185	Output #1
HDC10	N44:186	Output #2
HDC11	N44:187	Output #3
HDC12	N44:188	Output #4
HDC13-16	N44:189-192	RFU

Acceleration Ramp Rates		
HDC17	N44:193	Output #1
HDC18	N44:194	Output #2
HDC19	N44:195	Output #3
HDC20	N44:196	Output #4
HDC21-24	N44:197-200	RFU
Deceleration Ramp Rates		
HDC25	N44:201	Output #1
HDC26	N44:202	Output #2
HDC27	N44:203	Output #3
HDC28	N44:204	Output #4
HDC29-32	N44:205-208	RFU
End of Profile Set-output Values		
HDC33	N44:209	Output #1
HDC34	N44:210	Output #2
HDC35	N44:211	Output #3
HDC36	N44:212	Output #4
HDC37-40	N44:213-216	RFU
Ram (Screw) Pressure Control Limits		
HDC41	N44:217	Minimum limit
HDC42	N44:218	Maximum limit
HDC43	N44:219	% output for minimum
HDC44	N44:220	% output for maximum
Cavity Pressure Control Limits		
HDC45	N44:221	Minimum limit
HDC46	N44:222	Maximum limit
HDC47	N44:223	% output for minimum
HDC48	N44:224	% output for maximum
Profile Tuning Constants		
HDC49	N44:225	Proportional gain, ram (screw) pressure control
HDC50	N44:226	Integral gain, ram (screw) pressure control
HDC51	N44:227	Derivative gain, ram (screw) pressure control
HDC52	N44:228	Proportional gain, cavity pressure control
HDC53	N44:229	Integral gain, cavity pressure control
HDC54	N44:230	Derivative gain, cavity pressure control
HDC55-56	N44:231-232	RFU
Setpoints for Profile Pressure Alarms		
HDC57	N44:233	High ram (screw) pressure alarm
HDC58	N44:234	High cavity pressure alarm
HDC59-64	N44:235-240	RFU

HPC – Pack/Hold Profile Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
HPC01	B38:16	Block ID 00000000 00001100
HPC02	B38:17	RFU
HPC03	B38:18	Algorithm and logical bridging selections
HPC04	B38:19	Open/closed loop and ERC selections

Setpoints for Pack Profile		
HPC05-08	N44:241-244	RFU
HPC09	N44:245	Segment 1 cavity pressure
HPC10	N44:246	Segment 1 ram (screw) pressure
HPC11	N44:247	Segment 1 time
HPC12	N44:248	Segment 2 cavity pressure
HPC13	N44:249	Segment 2 ram (screw) pressure
HPC14	N44:250	Segment 2 time
HPC15	N44:251	Segment 3 cavity pressure
HPC16	N44:252	Segment 3 ram (screw) pressure
HPC17	N44:253	Segment 3 time
HPC18	N44:254	Segment 4 cavity pressure
HPC19	N44:255	Segment 4 ram (screw) pressure
HPC20	N44:256	Segment 4 time
HPC21	N44:257	Segment 5 cavity pressure
HPC22	N44:258	Segment 5 ram (screw) pressure
HPC23	N44:259	Segment 5 time
Pack Profile Offsets		
HPC24	N44:260	Cavity pressure
HPC25	N44:261	Ram (screw) pressure
Setpoints for Hold Profile		
HPC26	N44:262	Segment 1 cavity pressure
HPC27	N44:263	Segment 1 ram (screw) pressure
HPC28	N44:264	Segment 1 time
HPC29	N44:265	Segment 2 cavity pressure
HPC30	N44:266	Segment 2 ram (screw) pressure
HPC31	N44:267	Segment 2 time
HPC32	N44:268	Segment 3 cavity pressure
HPC33	N44:269	Segment 3 ram (screw) pressure
HPC34	N44:270	Segment 3 time
HPC35	N44:271	Segment 4 cavity pressure
HPC36	N44:272	Segment 4 ram (screw) pressure
HPC37	N44:273	Segment 4 time
HPC38	N44:274	Segment 5 cavity pressure
HPC39	N44:275	Segment 5 ram (screw) pressure
HPC40	N44:276	Segment 5 time
Hold Profile Offsets		
HPC41	N44:277	Cavity pressure
HPC42	N44:278	Ram (screw) pressure
HPC43-60	N44:279-296	RFU
Critical Process Setpoints		
HPC61	N44:297	Cure timer preset
HPC62-64	N44:298-300	RFU

INC – Injection Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
INC01	B38:0	Block ID 00000000 00001000
INC02	B38:1	Selected valve configurations
INC03-04	B38:2-3	RFU

Expert Response Compensation Percentage		
INC05	N44:1	ERC % minimum velocity
INC06	N44:2	ERC % minimum pressure
INC07, 08	N44:3, 4	RFU
Set-output Values for Unselected Valves (During Profile)		
INC09	N44:5	Output #1
INC10	N44:6	Output #2
INC11	N44:7	Output #3
INC12	N44:8	Output #4
INC13-16	N44:9-12	RFU
Acceleration Ramp Rates		
INC17	N44:13	Output #1
INC18	N44:14	Output #2
INC19	N44:15	Output #3
INC20	N44:16	Output #4
INC21-24	N44:17-20	RFU
Deceleration Ramp Rates		
INC25	N44:21	Output #1
INC26	N44:22	Output #2
INC27	N44:23	Output #3
INC28	N44:24	Output #4
INC29-32	N44:25-28	RFU
End of Profile Set-output Values		
INC33	N44:29	Output #1
INC34	N44:30	Output #2
INC35	N44:31	Output #3
INC36	N44:32	Output #4
INC37-40	N44:32-36	RFU
Pressure Control Limits		
INC41	N44:37	Minimum limit
INC42	N44:38	Maximum limit
INC43	N44:39	% output for minimum
INC44	N44:40	% output for maximum
Velocity Control Limits		
INC45	N44:41	Minimum limit
INC46	N44:42	Maximum limit
INC47	N44:43	% output for minimum
INC48	N44:44	% output for maximum
Profile Tuning Constants		
INC49	N44:45	Proportional gain, pressure control
INC50	N44:46	Integral gain, pressure control
INC51	N44:47	Derivative gain, pressure control
INC52	N44:48	Proportional gain, velocity control
INC53	N44:49	Feedforward gain, velocity control
INC54-56	N44:50-52	RFU
Setpoints for Profile Pressure Alarms		
INC57	N44:53	High ram (screw) pressure alarm
INC58	N44:54	High cavity pressure alarm
INC59-60	N44:55-56	RFU

Set-outputs During Suspended Injection

INC:61	N44:57	Output #1
INC:62	N44:58	Output #2
INC:63	N44:59	Output #3
INC:64	N44:60	Output #4

IPC – Injection Profile Block

Word	Pro-Set Addr	Description
Bit-mapped Control Words		
IPC01	B38:4	Block ID 00000000 00001001
Bit-mapped Control Words		
IPC02	B38:5	RFU
IPC03	B38:6	Algorithm and offset polarity selections
IPC04	B38:7	Open/closed loop and ERC selections
Co-injection Parameters		
IPC05-06	N44:61-62	RFU
IPC07	N44:63	Time delay after reaching opposite screw position, co-inject
IPC08	N44:64	Screw position to exit injection suspension, co-injection
Injection Profile Setpoints		
IPC09	N44:65	Segment 1 velocity
IPC10	N44:66	Segment 1 pressure
IPC11	N44:67	End of Segment 1 position
IPC12	N44:68	Segment 1 time
IPC13	N44:69	Segment 2 velocity
IPC14	N44:70	Segment 2 pressure
IPC15	N44:71	End of Segment 2 position
IPC16	N44:72	Segment 2 time
IPC17	N44:73	Segment 3 velocity
IPC18	N44:74	Segment 3 pressure
IPC19	N44:75	End of Segment 3 position
IPC20	N44:76	Segment 3 time
IPC21	N44:77	Segment 4 velocity
IPC22	N44:78	Segment 4 pressure
IPC23	N44:79	End of Segment 4 position
IPC24	N44:80	Segment 4 time
IPC25	N44:81	Segment 5 velocity
IPC26	N44:82	Segment 5 pressure
IPC27	N44:83	End of Segment 5 position
IPC28	N44:84	Segment 5 time
IPC29	N44:85	Segment 6 velocity
IPC30	N44:86	Segment 6 pressure
IPC31	N44:87	End of Segment 6 position
IPC32	N44:88	Segment 6 time
IPC33	N44:89	Segment 7 velocity
IPC34	N44:90	Segment 7 pressure
IPC35	N44:91	End of Segment 7 position
IPC36	N44:92	Segment 7 time
IPC37	N44:93	Segment 8 velocity
IPC38	N44:94	Segment 8 pressure
IPC39	N44:95	End of Segment 8 position
IPC40	N44:96	Segment 8 time

Setpoints for Injection Profile (continued)		
IPC41	N44:97	Segment 9 velocity
IPC42	N44:98	Segment 9 pressure
IPC43	N44:99	End of Segment 9 position
IPC44	N44:100	Segment 9 time
IPC45	N44:101	Segment 10 velocity
IPC46	N44:102	Segment 10 pressure
IPC47	N44:103	End of Segment 10 position
IPC48	N44:104	Segment 10 time
IPC49	N44:105	Segment 11 velocity
IPC50	N44:106	Segment 11 pressure
Profile Offsets		
IPC51	N44:107	Velocity Profile
IPC52	N44:108	Pressure Profile
IPC53	N44:109	RFU
Setpoints for Suspended Injection		
IPC54	N44:110	Closed-loop velocity setpoint during suspended injection
IPC55	N44:111	Closed-loop pressure setpoint during suspended injection
IPC56	N44:112	Screw position (of own) to start suspension
Pressure Limiting Values		
IPC57	N44:113	Ram (Screw) pressure, LimVel/Pos profile
IPC58	N44:114	Ram (Screw) position to begin pressure limiting
IPC59	N44:115	Time delay for change in algorithm
Transition (Transfer) Values		
IPC60	N44:116	Time
IPC61	N44:117	Ram (Screw) position
IPC62	N44:118	Ram (Screw) pressure
IPC63	N44:119	Cavity pressure
Transition (Transfer) Pressure Inhibit		
IPC64	N44:120	Ram (Screw) position

JGC – Jog Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
JGC01	B34:36	Block ID 00000000 00000010
JGC02-04	B34:37-39	RFU
Jog Alarm Setpoints		
JGC05	N40:61	Screw jog RPM alarm
JGC06	N40:62	Ram jog pressure alarm
JGC07	N40:63	RFU
JGC08	N40:64	RFU
Screw-rotate Jog Set-output Values		
JGC09	N40:65	Output #1
JGC10	N40:66	Output #2
JGC11	N40:67	Output #3
JGC12	N40:68	Output #4
JGC13-16	N40:69-72	RFU

Ram(Screw) Forward-jog Set-output Values		
JGC17	N40:73	Output #1
JGC18	N40:74	Output #2
JGC19	N40:75	Output #3
JGC20	N40:76	Output #4
JGC21-24	N40:77-80	RFU
Ram(Screw) Reverse-jog Set-output Values		
JGC25	N40:81	Output #1
JGC26	N40:82	Output #2
JGC27	N40:83	Output #3
JGC28	N40:84	Output #4
JGC29-64	N40:85-120	RFU

MCC – Module Configuration Command Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
MCC01	B34:32	Block ID 00000000 00000001
MCC02	B34:33	Module density and operating modes
MCC03	B34:34	Input range selection
MCC04	B34:35	Output range selection
Output Stop-position Adjustment		
MCC05*_0**	N40:1* N24:72**	Output #1 stop position adjustment
MCC06*_0**	N40:2 N24:73**	Output #2 stop position adjustment
MCC07*_0**	N40:3 N24:74**	Output #3 stop position adjustment
MCC08*_0**	N40:4 N24:75**	Output #4 stop position adjustment
*Pro-set 600	**Pro-Set 700	For example, MCC05_0 is correct for Pro-Set 700.
Ram (Screw) Position Sensor Configuration		
MCC09	N40:5	Minimum position
MCC10	N40:6	Maximum position
MCC11	N40:7	Analog signal @ min position
MCC12	N40:8	Analog signal @ max position
MCC13	N40:9	Minimum SWTL (software travel limit)
MCC14	N40:10	Maximum SWTL
MCC15	N40:11	SWTL alarm deadband
MCC16	N40:12	Digital filter
MCC17	N40:13	Minimum pressure
MCC18	N40:14	Maximum pressure
MCC19	N40:15	Analog signal @ min pressure
MCC20	N40:16	Analog signal @ max pressure
MCC21	N40:17	High pressure alarm setpoint
MCC22	N40:18	Time delay for pressure alarms
MCC43	N40:39	SWTL alarm deadband
MCC44	N40:40	Digital filter
MCC50	N40:46	Time delay for pressure alarms
Screw RPM Sensor Configuration		
MCC51	N40:47	Minimum RPM
MCC52	N40:48	Maximum RPM
MCC53	N40:49	Analog signal @ min RPM
MCC54	N40:50	Analog signal @ max RPM
MCC55	N40:51	High RPM alarm setpoint
MCC56	N40:52	Time delay for RPM alarms

Cavity Pressure Sensor Configuration		
MCC57	N40:53	Minimum pressure
MCC58	N40:54	Maximum pressure
MCC59	N40:55	Analog signal @ min pressure
MCC60	N40:56	Analog signal @ max pressure
MCC61	N40:57	High pressure alarm setpoint
MCC62	N40:58	Time delay for pressure alarms
MCC63	N40:59	Switchover time delay, input 3: cavity pressure/RPM
MCC64	N40:60	Number of input samples for loss-of-sensor alarms

PKC – Pack Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PKC01	B38:8	Block ID 00000000 00001010
PKC02	B38:9	Selected valve configurations
PKC03-04	B38:10-11	RFU
Expert Response Compensation Percentage		
PKC05	N44:121	ERC % minimum cavity pressure
PKC06	N44:122	ERC % minimum ram pressure
PKC07-08	N44:123-124	RFU
Set-output Values for Unselected Valves (During Profile)		
PKC09	N44:125	Output #1
PKC10	N44:126	Output #2
PKC11	N44:127	Output #3
PKC12	N44:128	Output #4
PKC13-16	N44:129-132	RFU
Acceleration Ramp Rates		
PKC17	N44:133	Output #1
PKC18	N44:134	Output #2
PKC19	N44:135	Output #3
PKC20	N44:136	Output #4
PKC21-24	N44:137-140	RFU
Deceleration Ramp Rates		
PKC25	N44:141	Output #1
PKC26	N44:142	Output #2
PKC27	N44:143	Output #3
PKC28	N44:144	Output #4
PKC29-40	N44:145-156	RFU
Ram (Screw) Pressure Control Limits		
PKC41	N44:157	Minimum limit
PKC42	N44:158	Maximum limit
PKC43	N44:159	% output for minimum
PKC44	N44:160	% output for maximum
Cavity Pressure Control Limits		
PKC45	N44:161	Minimum limit
PKC46	N44:162	Maximum limit
PKC47	N44:163	% output for minimum
PKC48	N44:164	% output for maximum

Profile Tuning Constants		
PKC49	N44:165	Proportional gain, ram (screw) pressure control
PKC50	N44:166	Integral gain, ram (screw) pressure control
PKC51	N44:167	Derivative gain, ram (screw) pressure control
PKC52	N44:168	Proportional gain, cavity pressure control
PKC53	N44:169	Integral gain, cavity pressure control
PKC54	N44:170	Derivative gain, cavity pressure control
Setpoints for Profile Pressure Alarms		
PKC55-56	N44:171-172	RFU
PKC57	N44:173	High ram (screw) pressure alarm
PKC58	N44:174	High cavity pressure alarm
PKC59-64	N44:175-180	RFU

PLC – Plastication Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PLC01	B38:24	Block ID 00000000 00001110
PLC02	B38:25	Selected valve configurations
PLC03-04	B38:26-27	RFU
Expert Response Compensation Percentage		
PLC05	N44:361	ERC % minimum RPM
PLC06	N44:362	ERC % minimum pressure
PLC07	N44:363	RFU
Watchdog Timer		
PLC08	N44:364	Profile timer preset
Set-output Values for Unselected Valves (During Profile)		
PLC09	N44:365	Output #1
PLC10	N44:366	Output #2
PLC11	N44:367	Output #3
PLC12	N44:368	Output #4
PLC13-16	N44:369-372	RFU
Acceleration Ramp Rates		
PLC17	N44:373	Output #1
PLC18	N44:374	Output #2
PLC19	N44:375	Output #3
PLC20	N44:376	Output #4
PLC21-24	N44:377-380	RFU
Deceleration Ramp Rates		
PLC25	N44:381	Output #1
PLC26	N44:382	Output #2
PLC27	N44:383	Output #3
PLC28	N44:384	Output #4
PLC29-32	N44:385-388	RFU
End of Profile Set-output Values		
PLC33	N44:389	Output #1
PLC34	N44:390	Output #2
PLC35	N44:391	Output #3
PLC36	N44:392	Output #4
PLC37-40	N44:393-396	RFU

Pressure Control Limits		
PLC41	N44:397	Minimum limit
PLC42	N44:398	Maximum limit
PLC43	N44:399	% output for minimum
PLC44	N44:400	% output for maximum
RPM Control Limits		
PLC45	N44:401	Minimum limit
PLC46	N44:402	Maximum limit
PLC47	N44:403	% output for minimum
PLC48	N44:404	% output for maximum
Profile Tuning Constants		
PLC49	N44:405	Proportional gain, pressure control
PLC50	N44:406	Integral gain, pressure control
PLC51	N44:407	Derivative gain, pressure control
PLC52	N44:408	Proportional gain, RPM control
PLC53	N44:409	Integral gain, RPM control
PLC54	N44:410	Derivative gain, RPM control
PLC55-56	N44:411-412	Open
Setpoint for Profile Pressure Alarm		
PLC57	N44:413	High pressure alarm
PLC58-64	N44:414-420	RFU

PPC – Plastication Profile Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PPC01	B38:28	Block ID 00000000 00001111
PPC02	B38:29	RFU
PPC03	B38:30	Algorithm and logical bridging selections
PPC04	B38:31	Open/closed loop and ERC selections
Setpoints for Plastication Profile		
PPC05-08	N44:421-424	RFU
PPC09	N44:425	Segment 1 RPM
PPC10	N44:426	Segment 1 pressure
PPC11	N44:427	End of Segment 1 position
PPC12	N44:428	Segment 1 time
PPC13	N44:429	Segment 2 RPM
PPC14	N44:430	Segment 2 pressure
PPC15	N44:431	End of Segment 2 position
PPC16	N44:432	Segment 2 time
PPC17	N44:433	Segment 3 RPM
PPC18	N44:434	Segment 3 pressure
PPC19	N44:435	End of Segment 3 position
PPC20	N44:436	Segment 3 time
PPC21	N44:437	Segment 4 RPM
PPC22	N44:438	Segment 4 pressure
PPC23	N44:439	End of Segment 4 position
PPC24	N44:440	Segment 4 time
PPC25	N44:441	Segment 5 RPM
PPC26	N44:442	Segment 5 pressure
PPC27	N44:443	End of Segment 5 position
PPC28	N44:444	Segment 5 time

Setpoints for Plastication Profile (continued)		
PPC29	N044:445	Segment 6 RPM
PPC30	N44:446	Segment 6 pressure
PPC31	N44:447	End of Segment 6 position
PPC32	N44:448	Segment 6 time
PPC33	N44:449	Segment 7 RPM
PPC34	N44:450	Segment 7 pressure
PPC35	N44:451	End of Segment 7 position
PPC36	N44:452	Segment 7 time
PPC37	N44:453	Segment 8 RPM
PPC38	N44:454	Segment 8 pressure
PPC39	N44:455	End of Segment 8 position
PPC40	N44:456	Segment 8 time
PPC41	N44:457	Segment 9 RPM
PPC42	N44:458	Segment 9 pressure
PPC43	N44:459	End of Segment 9 position
PPC44	N44:460	Segment 9 time
PPC45	N44:461	Segment 10 RPM
PPC46	N44:462	Segment 10 pressure
PPC47	N44:463	End of Segment 10 position
PPC48	N44:464	Segment 10 time
PPC49	N44:465	Segment 11 RPM
PPC50	N44:466	Segment 11 pressure
Profile Offsets		
PPC51	N44:467	RPM
PPC52	N44:468	Pressure
PPC53-60	N44:469-476	RFU
Critical Process Setpoints		
PPC61	N44:477	Cushion
PPC62	N44:478	Shot size
PPC63-64	N44:479-480	RFU

PRC – Pre-decompression Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PRC01	B38:20	Block ID 00000000 00001101
PRC02-04	B38:21-23	RFU
Movement Length		
PRC05	N44:301	Length of pre-decompress movement
PRC06-07	N44:302-303	RFU
Watchdog Timer		
PRC08	N44:304	Movement timer preset
Set-output Values During Movement		
PRC09	N44:305	Output #1
PRC10	N44:306	Output #2
PRC11	N44:307	Output #3
PRC12	N44:308	Output #4
PRC13-16	N44:309-312	RFU

Acceleration Ramp Rates		
PRC17	N44:313	Output #1
PRC18	N44:314	Output #2
PRC19	N44:315	Output #3
PRC20	N44:316	Output #4
Deceleration Ramp Rates		
PRC25	N44:321	Output #1
PRC26	N44:322	Output #2
PRC27	N44:323	Output #3
PRC28	N44:324	Output #4
PRC29-32	N44:325-328	RFU
End of Movement Set-output Values		
PRC33	N44:329	Output #1
PRC34	N44:330	Output #2
PRC35	N44:331	Output #3
PRC36	N44:332	Output #4
PRC37-56	N44:333-352	RFU
Setpoint for Movement Pressure Alarm		
PRC57	N44:353	High pressure alarm
PRC58-64	N44:354-360	RFU

PSC – Post-decompression Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PSC01	B38:32	Block ID 00000000 00010000
PSC02-04	B38:33-35	RFU
Movement Length		
PSC05	N44:481	Length of post-decompress movement
PSC06-07	N44:482-483	RFU
Watchdog Timer		
PSC08	N44:484	Movement timer preset
Set-output Values During Movement		
PSC09	N44:485	Output #1
PSC10	N44:486	Output #2
PSC11	N44:487	Output #3
PSC12	N44:488	Output #4
PSC13-16	N44:489-492	RFU
Acceleration Ramp Rates		
PSC17	N44:493	Output #1
PSC18	N44:494	Output #2
PSC19	N44:495	Output #3
PSC20	N44:496	Output #4
PSC21-24	N44:497-500	RFU
Deceleration Ramp Rates		
PSC25	N44:501	Output #1
PSC26	N44:502	Output #2
PSC27	N44:503	Output #3
PSC28	N44:504	Output #4
PSC29-32	N44:505-508	RFU

End of Movement Set-output Values		
PSC33	N44:509	Output #1
PSC34	N44:510	Output #2
PSC35	N44:511	Output #3
PSC36	N44:512	Output #4
PSC37-56	N44:513-532	RFU
Setpoint for Movement Pressure Alarm		
PSC57	N44:533	High pressure alarm
PSC58-64	N44:534-40	RFU

PTC – Process Trace Configuration Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
PTC01	B131:9	Block ID 00000000 00011100
PTC02	B131:10	Process trace and trigger control
PTC03-04	B131:11-12	Open
PTC05	N132:0	Trigger delay
PTC06	N132:1	Trigger position
PTC07	N132:2	Trace data collection sample rate
PTC08	N132:3	Trace 1 selection
PTC09	N132:4	Trace 2 selection
PTC10	N132:5	Trace 3 selection
PTC11	N132:6	Trace 4 selection
PTC12-64	N132:7-59	RFU

RLC – Inject ERC Values Block

Word	Pro-Set Address	Description
Bit-mapped Control Words		
RLC01	B38:36	Block ID 00000000 00011010
RLC02-04	B38:37-39	RFU
ERC Values for Injection Profile		
RLC05-08	N44:541-544	RFU
RLC09	N44:545	Injection segment 1
RLC10	N44:546	Injection segment 2
RLC11	N44:547	Injection segment 3
RLC12	N44:548	Injection segment 4
RLC13	N44:549	Injection segment 5
RLC14	N44:550	Injection segment 6
RLC15	N44:551	Injection segment 7
RLC16	N44:552	Injection segment 8
RLC17	N44:553	Injection segment 9
RLC18	N44:554	Injection segment 10
RLC19	N44:555	Injection segment 11
ERC Values for Pack Profile		
RLC20	N44:556	Pack segment 1
RLC21	N44:557	Pack segment 2
RLC22	N44:558	Pack segment 3
RLC23	N44:559	Pack segment 4
RLC24	N44:560	Pack segment 5

ERC Values for Hold Profile		
RLC25	N44:561	Hold segment 1
RLC26	N44:562	Hold segment 2
RLC27	N44:563	Hold segment 3
RLC28	N44:564	Hold segment 4
RLC29	N44:565	Hold segment 5
ERC Values for Plastication Profile		
RLC30	N44:566	Plastication segment 1
RLC31	N44:567	Plastication segment 2
RLC32	N44:568	Plastication segment 3
RLC33	N44:569	Plastication segment 4
RLC34	N44:570	Plastication segment 5
RLC35	N44:571	Plastication segment 6
RLC36	N44:572	Plastication segment 7
RLC37	N44:573	Plastication segment 8
RLC38	N44:574	Plastication segment 9
RLC39	N44:575	Plastication segment 10
RLC40	N44:576	Plastication segment 11
RLC41-64	N44:577-600	RFU

HPS – Pack/Hold Profile Status Block

Word	Pro-Set Address	Description
Bit-mapped Status Words		
HPS01	B34:0	Block ID 00000100 (lower byte)
HPS01	B34:0	Jog status (upper byte)
HPS02	B34:1	Status of profile execution
HPS03	B34:2	Miscellaneous status
HPS04	B34:3	Status of watchdog timers
HPS05-06	B38:44-45	RFU
HPS07	B38:46	CV high limit alarms
HPS08	B38:47	CV low limit alarms
Actuals from Pack Profile		
HPS09	N44:657	Segment 1 cavity pressure
HPS10	N44:658	Segment 1 ram (screw) pressure
HPS11	N44:659	End of Segment 1 position
HPS12	N44:660	Segment 2 cavity pressure
HPS13	N44:661	Segment 2 ram (screw) pressure
HPS14	N44:662	End of Segment 2 position
HPS15	N44:663	Segment 3 cavity pressure
HPS16	N44:664	Segment 3 ram (screw) pressure
HPS17	N44:665	End of Segment 3 position
HPS18	N44:666	Segment 4 cavity pressure
HPS19	N44:667	Segment 4 ram (screw) pressure
HPS20	N44:668	End of Segment 4 position
HPS21	N44:669	Segment 5 cavity pressure
HPS22	N44:670	Segment 5 ram (screw) pressure
HPS23	N44:671	End of Segment 5 position
HPS24-25	N44:672	RFU

Actuals from Hold Profile		
HPS26	N44:674	Segment 1 cavity pressure
HPS27	N44:675	Segment 1 ram (screw) pressure
HPS28	N44:676	End of Segment 1 position
HPS29	N44:677	Segment 2 cavity pressure
HPS30	N44:678	Segment 2 ram (screw) pressure
HPS31	N44:679	End of Segment 2 position
HPS32	N44:680	Segment 3 cavity pressure
HPS33	N44:681	Segment 3 ram (screw) pressure
HPS34	N44:682	End of Segment 3 position
HPS35	N44:6834	Segment 4 cavity pressure
HPS36	N44:684	Segment 4 ram (screw) pressure
HPS37	N44:685	End of Segment 4 position
HPS38	N44:686	Segment 5 cavity pressure
HPS39	N44:687	Segment 5 ram (screw) pressure
HPS40	N44:688	End of Segment 5 position
HPS41-50	N44:689-698	RFU
Maximum Pressures During Pack		
HPS51	N44:699	Ram (screw)
HPS52	N44:700	Cavity
Maximum Pressures During Hold		
HPS53	N44:701	Ram (screw)
HPS54	N44:702	Cavity
Maximum Pressure During Pre-decompression		
HPS55	N44:703	Ram (screw)
HPS56	N44:704	RFU
Profile Execution Times		
HPS57	N44:705	During pack
HPS58	N44:706	During hold
HPS59	N44:707	During pre-decompression
HPS60	N44:708	RFU
Actuals from Pre-decompression Movement		
HPS61	N44:709	Velocity
HPS62	N44:710	Pressure
End of Hold Ram (Screw) Position		
HPS63	N44:711	Position at End of-hold
HPS64	N44:712	RFU

IPS – Injection Profile Status Block

Word	Pro-Set Address	Description
Bit-mapped Status Words		
IPS01	B34:0	Block ID 00000011 (lower byte)
IPS01	B34:0	Jog status (upper byte)
IPS02	B34:1	Status of profile execution
IPS03	B34:2	Miscellaneous status
IPS04	B34:3	Status of watchdog timers
IPS05	B38:40	Status of pressure limit alarms
IPS06	B38:41	Status of injection transitions
IPS07	B38:42	CV high limit alarms
IPS08	B38:43	CV low limit alarms

Injection Profile Actuals		
IPS09	N44:601	Segment 1 velocity
IPS10	N44:602	Segment 1 pressure
IPS11	N44:603	Segment 1 execution time
IPS12	N44:604	End of Segment 1 position
IPS13	N44:605	Segment 2 velocity
IPS14	N44:606	Segment 2 pressure
IPS15	N44:607	Segment 2 execution time
IPS16	N44:608	End of Segment 2 position
IPS17	N44:609	Segment 3 velocity
IPS18	N44:610	Segment 3 pressure
IPS19	N44:611	Segment 3 execution time
IPS20	N44:612	End of Segment 3 position
IPS21	N44:613	Segment 4 velocity
IPS22	N44:614	Segment 4 pressure
IPS23	N44:615	Segment 4 execution time
IPS24	N44:616	End of Segment 4 position
IPS25	N44:617	Segment 5 velocity
IPS26	N44:618	Segment 5 pressure
IPS27	N44:619	Segment 5 execution time
IPS28	N44:620	End of Segment 5 position
IPS29	N44:621	Segment 6 velocity
IPS30	N44:622	Segment 6 pressure
IPS31	N44:623	Segment 6 execution time
IPS32	N44:624	End of Segment 6 position
IPS33	N44:625	Segment 7 velocity
IPS34	N44:626	Segment 7 pressure
IPS35	N44:627	Segment 7 execution time
IPS36	N44:628	End of Segment 7 position
IPS37	N44:629	Segment 8 velocity
IPS38	N44:630	Segment 8 pressure
IPS39	N44:631	Segment 8 execution time
IPS40	N44:632	End of Segment 8 position
IPS41	N44:633	Segment 9 velocity
IPS42	N44:634	Segment 9 pressure
IPS43	N44:635	Segment 9 execution time
IPS44	N44:636	End of Segment 9 position
IPS45	N44:637	Segment 10 velocity
IPS46	N44:638	Segment 10 pressure
IPS47	N44:639	Segment 10 execution time
IPS48	N44:640	End of Segment 10 position
IPS49	N44:641	Segment 11 velocity
IPS50	N44:642	Segment 11 pressure
IPS51	N44:643	Segment 11 execution time
IPS52	N44:644	RFU
Maximum Pressures During Injection		
IPS53	N44:645	Ram (screw)
IPS54	N44:646	Cavity
IPS55-60	N44:647-652	RFU

Transition (Transfer) Actuals		
IPS61	N44:653	Time
IPS62	N44:654	Position
IPS63	N44:655	Ram (screw) pressure
IPS64	N44:656	Cavity pressure

PPS – Plastication Profile Status Block

Word	Pro-Set Address	Description
Bit-mapped Status Words		
PPS01	B34:0	Block ID 00000101 (lower byte)
PPS01	B34:0	Jog status (upper byte)
PPS02	B34:1	Status of profile execution
PPS03	B34:2	Miscellaneous status
PPS04	B34:3	Status of watchdog timers
PPS05-06	B38:48-49	RFU
PPS07	B38:50	CV high limit alarms
PPS08	B38:51	CV low limit alarms
Plastication Profile Actuals		
PPS09	N44:713	Segment 1 RPM
PPS10	N44:714	Segment 1 pressure
PPS11	N44:715	Segment 1 execution time
PPS12	N44:716	End of Segment 1 position
PPS13	N44:717	Segment 2 RPM
PPS14	N44:718	Segment 2 pressure
PPS15	N44:719	Segment 2 execution time
PPS16	N44:720	End of Segment 2 position
PPS17	N44:721	Segment 3 RPM
PPS18	N44:722	Segment 3 pressure
PPS19	N44:723	Segment 3 execution time
PPS20	N44:724	End of Segment 3 position
PPS21	N44:725	Segment 4 RPM
PPS22	N44:726	Segment 4 pressure
PPS23	N44:727	Segment 4 execution time
PPS24	N44:728	End of Segment 4 position
PPS25	N44:729	Segment 5 RPM
PPS26	N44:730	Segment 5 pressure
PPS27	N44:731	Segment 5 execution time
PPS28	N44:732	End of Segment 5 position
PPS29	N44:733	Segment 6 RPM
PPS30	N44:734	Segment 6 pressure
PPS31	N44:735	Segment 6 execution time
PPS32	N44:736	End of Segment 6 position
PPS33	N44:737	Segment 7 RPM
PPS34	N44:738	Segment 7 pressure
PPS35	N44:739	Segment 7 execution time
PPS36	N44:740	End of Segment 7 position
PPS37	N44:741	Segment 8 RPM
PPS38	N44:742	Segment 8 pressure
PPS39	N44:743	Segment 8 execution time
PPS40	N44:744	End of Segment 8 position

Plastication Profile Actuals (continued)		
PPS41	N44:745	Segment 9 RPM
PPS42	N44:746	Segment 9 pressure
PPS43	N44:747	Segment 9 execution time
PPS44	N44:748	End of Segment 9 position
PPS45	N44:749	Segment 10 RPM
PPS46	N44:750	Segment 10 pressure
PPS47	N44:751	Segment 10 execution time
PPS48	N44:752	End of Segment 10 position
PPS49	N44:753	Segment 11 RPM
PPS50	N44:754	Segment 11 pressure
PPS51	N44:755	Segment 11 execution time
PPS52	N44:756	RFU
Maximum Plastication Pressure		
PPS53	N44:757	Ram (screw)
Maximum Post-decompression Pressure		
PPS54	N44:758	Ram (screw)
PPS55-56	N44:759-760	RFU
Profile Execution Times		
PPS57	N44:761	During plastication
PPS58	N44:762	During post-decompression
PPS59-60	N44:763-764	RFU
Actuals from Post-decompression Movement		
PPS61	N44:765	Velocity
PPS62	N44:766	Pressure
Actual Shot Size		
PPS63	N44:767	Total length
PPS64	N44:768	RFU

PTS – Process Trace Status Block

Word	Pro-Set Address	Description
Bit-mapped Status Words		
PTS01	B131:0	Block ID 00001010 (lower byte)
PTS01	B131:1	Power up, jog execution status (hi byte)
PTS02	B131:2	Status of profile execution
PTS03	B131:3	Miscellaneous status
PTS04	B131:4	Status of watchdog timers
PTS05	B131:5	Trace selection
PTS06	B131:6	Trace data block number
PTS07-08	B131:7-8	RFU
Data Point Time/Count		
PTS09	N132:60	Time to first trace data point
PTS10	N132:61	Trace data point count
PTS11-14	N132:62-65	RFU
Starting Data Points from Injection Profile		
PTS15	N132:66	Inject segment 1 start data point
PTS16	N132:67	Inject segment 2 start data point
PTS17	N132:68	Inject segment 3 start data point
PTS18	N132:69	Inject segment 4 start data point
PTS19	N132:70	Inject segment 5 start data point

Starting Data Points from Injection Profile (continued)		
PTS20	N132:71	Inject segment 6 start data point
PTS21	N132:72	Inject segment 7 start data point
PTS22	N132:73	Inject segment 8 start data point
PTS23	N132:74	Inject segment 9 start data point
PTS24	N132:75	Inject segment 10 start data point
PTS25	N132:76	Inject segment 11 start data point
Starting Data Points from Pack/Hold Profiles		
PTS26	N132:77	Pack segment 1 start data point
PTS27	N132:78	Pack segment 2 start data point
PTS28	N132:79	Pack segment 3 start data point
PTS29	N132:80	Pack segment 4 start data point
PTS30	N132:81	Pack segment 5 start data point
PTS31	N132:82	Hold segment 1 start data point
PTS32	N132:83	Hold segment 2 start data point
PTS33	N132:84	Hold segment 3 start data point
PTS34	N132:85	Hold segment 4 start data point
PTS35	N132:86	Hold segment 5 start data point
PTS36	N132:87	Pre-decompress start data point
Starting Data Points from Plastication Profile		
PTS37	N132:88	Plastication segment 1 start data point
PTS38	N132:89	Plastication segment 2 start data point
PTS39	N132:90	Plastication segment 3 start data point
PTS40	N132:91	Plastication segment 4 start data point
PTS41	N132:92	Plastication segment 5 start data point
PTS42	N132:93	Plastication segment 6 start data point
PTS43	N132:94	Plastication segment 7 start data point
PTS44	N132:95	Plastication segment 8 start data point
PTS45	N132:96	Plastication segment 9 start data point
PTS46	N132:97	Plastication segment 10 start data point
PTS47	N132:98	Plastication segment 11 start data point
PTS48	N132:99	Post-decompress start data point
PTS49 - 64	N132:100-115	RFU

RLS – Inject ERC Values Status Block

Word	Pro-Set Address	Description
Bit-mapped Status Words		
RLS01	B34:0	Block ID 00001000 (lower byte)
RLS01	B34:0	Jog status (upper byte)
RLS02	B34:1	Status of profile execution
RLS03	B34:2	Miscellaneous status
RLS04	B34:3	Status of watchdog timers
ERC Actuals from Injection Profile		
RLS05-08	N44:541-544	RFU
RLS09	N44:545	Injection segment 1
RLS10	N44:546	Injection segment 2
RLS11	N44:547	Injection segment 3
RLS12	N44:548	Injection segment 4
RLS13	N44:549	Injection segment 5

ERC Actuals from Injection Profile (continued)		
RLS14	N44:550	Injection segment 6
RLS15	N44:551	Injection segment 7
RLS16	N44:552	Injection segment 8
RLS17	N44:553	Injection segment 9
RLS18	N44:554	Injection segment 10
RLS19	N44:555	Injection segment 11
ERC Actuals from Pack Profile		
RLS20	N44:556	Pack segment 1
RLS21	N44:557	Pack segment 2
RLS22	N44:558	Pack segment 3
RLS23	N44:559	Pack segment 4
RLS24	N44:560	Pack segment 5
ERC Actuals from Hold Profile		
RLS25	N44:561	Hold segment 1
RLS26	N44:562	Hold segment 2
RLS27	N44:563	Hold segment 3
RLS28	N44:564	Hold segment 4
RLS29	N44:565	Hold segment 5
ERC Actuals from Plastication Profile		
RLS30	N44:566	Plastication segment 1
RLS31	N44:567	Plastication segment 2
RLS32	N44:568	Plastication segment 3
RLS33	N44:569	Plastication segment 4
RLS34	N44:570	Plastication segment 5
RLS35	N44:571	Plastication segment 6
RLS36	N44:572	Plastication segment 7
RLS37	N44:573	Plastication segment 8
RLS38	N44:574	Plastication segment 9
RLS39	N44:575	Plastication segment 10
RLS40	N44:576	Plastication segment 11
RLS41-64	N44:577-600	RFU

SYS - System Status Block

Word	Pro-Set Address	Description
Bit-Mapped Status Words		
SYS01	B34:0	Block ID 00000001 (lower byte)
SYS01	B34:0	Jog status (upper byte)
SYS02	B34:1	Status of profile execution
SYS03	B34:2	Miscellaneous status
SYS04	B34:3	Status of watchdog timers
SYS05-08	B34:4-7	Status of real-time alarms
SYS09-12	B34:8-11	Status of latched alarms
SYS13-14	B34:12-13	Command errors
SYS15-16	B34:14-15	Status of transferred command blocks
SYS17-18	B34:16-17	Status of last block decoding
SYS19-20	B34:18-19	Programming error alarms
SYS21	B34:20	Status of profile execution
SYS22	B34:21	Status of End of Profile action

Bit-Mapped Status Words (continued)

SYS23*_0**	B34:22* B21:18**	Status of trace data collection in progress
SYS24*_0**	B34:23* B21:19**	Status of process trace data collected
*Pro-set 600 **Pro-Set 700 For example, MCC05_0 is correct for Pro-Set 700.		
Input Level in Engineering Units		
SYS25	N40:177	Input #1
SYS26	N40:178	Input #2
SYS27	N40:179	Input #3
SYS28	N40:180	Input #4
SYS29-32	N40:181-184	RFU
Input Level, Raw Signal Level at A/D Converter		
SYS33	N40:185	Input #1
SYS34	N40:186	Input #2
SYS35	N40:187	Input #3
SYS36	N40:188	Input #4
SYS37-40	N40:189-192	RFU
Output Level in Percent		
SYS41	N40:193	Output #1
SYS42	N40:194	Output #2
SYS43	N40:195	Output #3
SYS44	N40:196	Output #4
SYS45-48	N40:197-200	RFU
Maximum Pressures of Each Cycle		
SYS49	N40:201	Maximum ram (screw) pressure, last cycle
SYS50, 51	N40:202, 203	RFU
SYS52	N40:204	Maximum cavity pressure, last cycle
SYS53	N40:205	RFU
Process Trace		
SYS54	N40:206	Process trace data collection in progress
SYS55	N40:207	Process trace data collection done
SYS56	N40:208	RFU
Accumulated Process Times		
SYS57	N40:209	Tonnage
SYS58	N40:210	Cure
SYS59	N40:211	Mold open dwell
SYS60	N40:212	Cycle
Programming Error Codes		
SYS61	N40:213	ID of data block with error
SYS62	N40:214	Programming error code
Firmware ID		
SYS63	N40:215	Module Series/Revision
Confirmation of New Status		
SYS64	N40:216	Counter accumulated value, each new SYS

Command Word/Bit Descriptions

Alphabetical List of Command Blocks and Block ID Codes

Command blocks provide the parameters that control machine operation. Command blocks are transferred from the PLC processor to the QI module by block transfer write (BTW) instructions in software ladder logic.

Acronym:	Block ID Binary:	Decimal:	Description:	Page:
DYC	00011001	25	Dynamic Command Block	2-4
HDC	00001011	11	Hold Configuration Block	2-10
HPC	00001100	12	Pack/Hold Profile Block	2-13
INC	00001000	8	Injection Configuration Block	2-16
IPC	00001001	9	Injection Profile Block	2-19
JGC	00000010	2	Jog Configuration Block	2-25
MCC	00000001	1	Module Configuration Command Block	2-26
PKC	00001010	10	Pack Configuration Block	2-30
PLC	00001110	14	Plastication Configuration Block	2-32
PPC	00001111	15	Plastication Profile Block	2-35
PRC	00001101	13	Pre-Decompression Configuration Block	2-38
PSC	00010000	16	Post-Decompression Configuration Block	2-40
PTC	00011100	28	Process Trace Configuration Block	2-41
RLC	00011010	26	Inject ERC Values Block	2-42

Refer to chapter 3 for the word/bit descriptions of status blocks.

List of Data Words

The listings of command blocks use five types of data words:

- Block ID
- Bit-mapped
- Stored-value
- Reserved (RFU)

Block ID Word

The first word in each command block contains a binary number code in the low byte that identifies the block. The QI module uses block IDs to identify command blocks sent from the PLC processor, while the PLC processor uses them to identify status blocks received from the QI module.

Bit-mapped Words

The first several words in any data block are bit-mapped. For bit-mapped command words, you must set/reset or latch/ unlatch command bits to set QI module operating configurations.

Stored-value Words

These words establish operating conditions for the QI module, such as:

- output values for certain conditions
- minimum and maximum pressures, positions, and velocities
- alarm setpoints

Reserved Words (RFU)

These words are Reserved for Future Use. Do not use them.

Engineering Units

In the listings of command blocks, each stored-value word is followed by a bracketed [ ] 2-digit number code denoting the engineering units and range associated with the value as shown in the following table:

#Code	Type of Block	Units and Range
01	Ram (Screw)	Pressure (0000.0 to 9999.0 PSI or 000.0 to 999.9 Bar)
04	Cavity	Pressure (00000.0 to 20000.0 PSI or 0000.0 to 2000.0 Bar)
05	Ram (Screw)	Percent of maximum velocity (00.00 to 99.99%)
06	Ram (Screw)	Velocity along axis (00.00 to 99.99 in. per sec. or 000.0 to 999.9 mm per sec.)
11	Ram (Screw) Measured from zero	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
12	Ram (Screw) Measured from MCC13	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
17	Measured as noted in text	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
18	Measured as noted in text	Incremental distance (00.00 to 00.99 in. or 000.0 to 009.9 mm.)
19		Percent signal output (00.00 to 99.99%)
20		Percent signal output per second (0000. To 9999.)
21		Time measured in seconds (00.00 to 99.99)
22		Time measured in seconds (000.0 to 999.9)
23		Time measured in seconds (00.00 to 00.99)
24		Input signal range (00.00 to 10.00 or 01.00 to 05.00 or 04.00 to 20.00)
25		Screw rotational speed (000.0 to 999.9 RPM)
26		Time (algorithm) (00.00 to 9.99 minutes)
27		Inverse time (algorithm) (00.00 to 99.99 inverse minutes)
28		Inverse time (algorithm) (00.00 to 99.99 inverse seconds)
29		Unit-less
30		Binary Bit Map: bit value of 0 or 1; range of 00-15
31		Percent (00.00 to 99.99%)

Data Blocks Require I/O Configuration

The QI module decodes its own I/O configuration based on parameters that you provide in the Module Configuration Command Block (MCC). I/O configuration determines which of the command and status blocks the module supports. For the module to support command and status blocks, you must establish the following position input:

- Connect a ram (screw) position sensor to input 1.

Notes: For [ ] engineering units, see page 2.

Data Blocks for System Control

Command Blocks for system level control are:

Block	Description
MCC	Module Configuration Command Block
JGC	Jog Configuration Command Block
DYC	Dynamic Command Block

You must establish the QI module's I/O configuration before it can decide which command blocks to support. Although the module always accepts the Module Configuration Command Block (MCC), the module considers all other command blocks unrecognizable until it has received, processed, and successfully error checked an MCC download from the host processor. After you configure the QI module with a valid MCC, the module always accepts and processes (considers them recognizable) either of the two basic command blocks JGC and DYC when received.

The module reports system status in the system status block (SYS). The module can always return the System Status Block to the host processor. It returns this block after each block transfer read (BTR) request from the PLC processor unless the previous block transfer write (BTW) to the module was a valid dynamic command block (DYC) containing a request for some other status block.

Data Blocks for Controlling Ram (Screw) Position

The host processor can write any of these command blocks to the QI module to control ram (screw) position:

Command Block	Description	Corresponding Status Block
INC	Injection Configuration Block	–
IPC	Injection Profile Block	IPS
PKC	Pack Configuration Block	–
HDC	Hold Configuration Block	–
HPC	Pack/Hold Profile Block	HPS
PRC	Pre-decompression Configuration Block	–
PLC	Plastication Configuration Block	–
PPC	Plastication Profile Block	PPS
PSC	Post-decompression Configuration Block	–
PTC	Process Trace Configuration Block	PTS
RLC	Inject ERC Values Block	RLS

After you configure the QI module with a valid MCC, the module determines if it has access to ram (screw) position data from the ram (screw) position sensor. The module considers these command blocks recognizable and can return these status blocks when it has an analog input reserved for a ram (screw) position sensor, and the sensor is physically connected to input 1.

DYC – Dynamic Command Block

The module will not accept or process the Dynamic Command Block unless it has a valid MCC installed.

Bit-mapped Control Words

Word	Bit	Description
DYC01		Block ID = 00011001 (low byte)
		Action Execution Commands in high byte Bits DYC01-B08 - DYC01-B15 and all 16 bits in DYC02 are the 24 *action execution* commands to control the module. Because the module cannot respond to more than one action execution command at a time, it ceases all action execution and sets its outputs to zero when it decodes a valid dynamic command block with more than one of these bits SET. The module senses this invalid request and latches alarm status bit SYS14-B00, and unlatches SYS14-B00 when it decodes a valid Dynamic Command Block with one or none of the action execution bits SET.
	B08	Set-output Command = 0 Normal = 1 Execute Set-output When the module decodes a valid DYC having this bit SET, it sets its outputs to DYC09–12. The outputs remain at these values as long as this bit is SET, and return to zero when this bit is RESET.
		Jog Commands
	B09	= 0 Normal = 1 Execute Screw Rotate Jog When the module decodes a valid DYC having this bit SET, it sets its outputs to JGC09–12. The outputs remain at these values as long as this bit is SET, and return to zero when this bit is RESET.
	B10	= 0 Normal = 1 Execute Ram (Screw) Forward Jog When the module decodes a valid DYC having this bit SET, it set its outputs to JGC17–20. The outputs remain at these values as long as this bit is SET, and return to zero when this bit is RESET.
	B11	= 0 Normal = 1 Execute Ram (Screw) Reverse Jog When the module decodes a valid DYC having this bit SET, it sets its outputs to JGC25–28. The outputs remain at these values as long as this bit is SET, and return to zero when this bit is RESET.
	B12-15	RFU

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
DYC02		**Action Execution Commands** Bits DYC01-B08 - DYC01-B15 and all 16 bits in DYC02 are the 24 *action execution* commands to control the module. Because the module cannot respond to more than one action execution command at a time, it ceases all action execution and sets its outputs to zero when it decodes a valid Dynamic Command Block with more than one of these SET. The module senses this invalid request and latches alarm status bit SYS14-B00, and unlatches SYS14-B00 when it decodes a valid Dynamic Command Block having one or none of the action execution bits SET.
	B00-03	RFU
		Ram (Screw) Profiles Execution Commands Bits DYC02-B04 - DYC02-B09 are the six *action execution* commands available to initiate all profiled ram (screw) movements (including both decompression movements). You may logically link all six in a single integrated machine movement if all three Logical Bridge Bits are RESET. These three bits are: HPC03-B08 - Link Inj/Pack/Hold and Pre-decompress (Inj/Pack/Hold always linked) HPC03-B09 - Link Pre-decompress and Plastication PPC03-B08 - Link Plastication and Post-decompress If all three of these bits are RESET, transfer only DYC02-B04 to the module to force the entire Ram (Screw) portion of an automatic machine cycle.
	B04	= 0 Normal = 1 Execute Injection Profile A false-to-true transition of this bit forces the module to do *one* of the following, attempted in the order listed.
		if: / **then the module:**
		any of SYS07-B00 through B05 are SET / ignores any profile commands
		SYS15-B08 is RESET / latches SYS13-B05
		either of the following are true: – ram (screw) position exceeds non-zero IPC61 – IPC61 is zero / terminates any action in progress and starts the Injection Profile
		both of the following are true: – ram (screw) position equals or is less than non-zero IPC61 – HPC11 is not zero / terminates any action in progress and starts the Pack Profile
		both of the following are true: – ram (screw) position equals or is less than non-zero IPC61 – HPC11 is zero / terminates any action in progress and starts the Hold Profile
	B05	**if:** / **then the module:**
		= 0 Normal = 1 Execute Pack Profile A false-to-true transition of this bit forces the module to do *one* of the following, attempted in the order listed.
		if: / **then the module:**
		any of SYS07-B00 through B05 are SET / ignores any profile commands
		SYS15-B11 is RESET / latches SYS13-B06
		HPC11 is not zero / terminates any action in progress and starts the Pack Profile
		HPC11 is zero / terminates any action in progress and starts the Hold Profile
	B06	= 0 Normal = 1 Execute Hold Profile A false-to-true transition of this bit forces the module to do *one* of the following, attempted in the order listed.
		if: / **then the module:**
		any of SYS07-B00 through B05 are SET / ignores any profile commands
		SYS15-B11 is RESET / latches SYS13-B07
		this bit (B06) is SET / terminates any action in progress and starts the Hold Profile

<table>
<tr><th>Word</th><th>Bit</th><th>Description</th></tr>
<tr><td>DYC02</td><td>B07</td><td>= 0 Normal
= 1 Execute Pre-decompression Movement
A false-to-true transition of this bit forces the module to do one of the following, attempted in the order listed.
<table>
<tr><th>if:</th><th>then the module:</th></tr>
<tr><td>any of SYS07-B00 through B05 are SET</td><td>ignores any movement commands</td></tr>
<tr><td>either of the following are true:
– SYS15-B11 is RESET
– HPC03-B09 is SET and SYS15-B12 is RESET</td><td>latches SYS13-B08</td></tr>
<tr><td>all of the following are true:
– PRC05 equals zero or SYS15-B12 is RESET
– HPC03-B09 is RESET
– SYS15-B14 is RESET</td><td>latches SYS13-B09</td></tr>
<tr><td>PRC05 is not zero</td><td>terminates any action in progress and
starts the Pre-decompression Movement</td></tr>
<tr><td>both of the following are true:
– PRC05 is zero
– HPC03-B09 is SET</td><td>terminates any action in progress and
sets outputs to PRC33–36</td></tr>
<tr><td>either pair of the following are true:
– PRC05 is zero or – SYS15-B12 is RESET
– HPC03-B09 is RESET – HPC03-B09 is RESET</td><td>terminates any action in progress and
starts the Plastication Profile</td></tr>
</table></td></tr>
<tr><td></td><td>B08</td><td>= 0 Normal
= 1 Execute Plastication Profile
A false-to-true transition of this bit forces the module to do one of the following, attempted in the order listed.
<table>
<tr><th>if:</th><th>then the module:</th></tr>
<tr><td>any of SYS07-B00 through B05 are SET</td><td>ignores any profile commands</td></tr>
<tr><td>SYS15-B14 is RESET</td><td>latches SYS13-B09</td></tr>
<tr><td>all of the following are true:
– ram (screw) position equals or exceeds sum of PPC61 + PPC62
– PPC03-B08 is RESET
– SYS15-B15 is RESET</td><td>latches SYS13-B10</td></tr>
<tr><td>ram (screw) position is less than the sum of PPC61 + PPC62</td><td>terminates any action in progress and
starts the Plastication Profile</td></tr>
<tr><td>both of the following are true:
– ram (screw) position equals or exceeds sum of PPC61 + PPC62
– PPC03-B08 is SET</td><td>terminates any action in progress and
sets outputs to PLC33–36</td></tr>
<tr><td>all of the following are true:
– ram (screw) position equals or exceeds sum of PPC61 + PPC62
– PPC03-B08 is SET
– PSC05 is not zero</td><td>terminates any action in progress and
starts Post-decompression Movement</td></tr>
<tr><td>all of the following are true:
– ram (screw) position equals or exceeds sum of PPC61 + PPC62
– PPC03-B08 is SET
– PSC05 is zero</td><td>terminates any action in progress and
sets outputs to PSC33–36</td></tr>
</table></td></tr>
<tr><td></td><td>B09</td><td>= 0 Normal
= 1 Execute Post-decompression Movement
A false-to-true transition of this bit forces the module to do one of the following, attempted in the order listed.
<table>
<tr><th>if:</th><th>then the module:</th></tr>
<tr><td>any of SYS07-B00 through B05 are SET</td><td>ignores any movement commands</td></tr>
<tr><td>SYS15-B15 is RESET</td><td>latches SYS13-B10</td></tr>
<tr><td>PSC05 is not zero</td><td>terminates any action in progress and
starts Post-decompression Movement</td></tr>
<tr><td>PSC05 is zero</td><td>terminates any action in progress and
sets outputs to PSC33–36</td></tr>
</table></td></tr>
<tr><td></td><td>B10-14</td><td>RFU</td></tr>
</table>

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
DYC02	B15	**Stop Command** = 0 Outputs Enabled = 1 Outputs Disabled When the module decodes a valid DYC having this bit SET, it halts any ongoing profile or jog movement and set its outputs to zero. The module will not respond to any new jog or profile execution commands as long as this bit remains SET. This bit may be latched by the end user to serve as a module Stop command, or may be momentarily asserted to force the module to terminate an ongoing profile.
DYC03		**Timer Reset Commands**
	B00	= 0 Normal = 1 Reset Tonnage Watchdog Timer A false-to-true transition of this bit forces the module to zero the accumulated value of the Tonnage Watchdog Timer in SYS57.
	B01	= 0 Normal = 1 Reset Cure Timer A false-to-true transition of this bit forces the module to: reset master status bit SYS03-B03, reset master status bit SYS03-B05, and reset SYS58 to zero
	B02-03	RFU
		Co-injection Parameters
	B04	DYC03.B04 for QI(A) DYCB03.B04 for QI(B) **Start Delayed Injection** Starts delayed injection of A when the screw position of B reaches IPCB08 after both QI modules are commanded to start injection (DYC0**2**.B04 = 1): 0 = QI(A) starts injection regardless of the B's screw position. If reset before B reaches IPCB08, A starts injection immediately. 1 = QI(A) suspends its inject profile until B's preset position is reached. Suspended injection is indicated by SYS03:B00 (SYSB03:B00). During suspension, IPC02:B11 and .B12 determine the status of outputs. **Important:** Program permissive logic that prevents starting the injection profile with this bit set in SETUP or MANUAL mode.
	B05	DYC03.B05 for QI(A) DYCB03.B05 for QI(B) **Select the Mode for Input #3:** 0 (default) = screw RPM 1 = cavity pressure You may switch the input mode dynamically when the machine is idle, never during the injection phase. You must NOT bridge directly to plastication to use this bit. If toggled during injection, the QI module will halt operation and return error codes in SYS61, 62. You may use time delay (MCC63) to allow for relay signal settling and disable alarms during the switch-over.
		Reset Commands
	B08	**Power Start-up Reset Command** = 0 Normal = 1 Reset Power Start-up Bit A false-to-true transition of this bit forces the module to unlatch SYS01-B08.
	B09	**Alarm Reset Command** = 0 Normal = 1 Reset Latched Alarms A false-to-true transition of this bit forces the module to unlatch all bits in SYS09, SYS10, SYS11, and SYS12.
	B10	**Profile Status Bits Reset Command** = 0 Normal = 1 Reset Profile Status Bits A false-to-true transition of this bit forces the module to unlatch the 15 *profile complete* status bits, SYS02-B00 – B14 inclusive.
	B11-15	RFU

DYC04		**Status Request Commands**
		Bits DYC04-B00 - DYC04-B07 are the eight command bits available to request the Status Blocks that the module returns with the next BTR to the PLC processor. The module does *not* respond to any bit associated with an unsupported status block (based on Module I/O configuration). The module defaults to returning System Status Block (SYS) if none of these eight bits are set or if the last BTW received at the module was not the Dynamic Command Block (DYC). If more than one of these eight bits are set, the module prioritizes BTR service by responding to the lowest-numbered bit.
	B00	RFU
	B01	= 0 Normal = 1 Return IPS with next BTR
	B02	= 0 Normal = 1 Return HPS with next BTR
	B03	= 0 Normal = 1 Return PPS with next BTR
	B04, 05	RFU
	B06	= 0 Normal = 1 Return RLS with next BTR
	B07	RFU
		Profile Status Block Clear Commands
	B08	RFU
	B09	= 0 Normal = 1 Clear IPS A false-to-true transition of this bit forces the module to zero all words in IPS buffer (except Master Status Words IPS01 - IPS04). The module does not respond to this bit if the IPS is an unsupported status block based upon Module I/O configuration.
	B10	= 0 Normal = 1 Clear HPS A false-to-true transition of this bit forces module to zero all words in HPS buffer (except Master Status Words HPS01 – HPS04) The module does not respond to this bit if the HPS is an unsupported status block based upon Module I/O configuration.
	B11	= 0 Normal = 1 Clear PPS A false-to-true transition of this bit forces module to zero all words in PPS buffer (except Master Status Words PPS01 - PPS04). The module does not respond to this bit if the PPS is an unsupported status block based upon Module I/O configuration.
	B12-14	RFU
	B15	= 0 Normal = 1 Clear PTS (Same description as B13, but for PTS.)
DYC05		**ERC Re-initialize Commands**
	B00-03	RFU
	B04	= 0 Normal = 1 Re-initialize Injection Profile ERC Values A false-to-true transition of this bit forces module to re-initialize the 11 ERC values associated with the Injection Profile.
	B05	= 0 Normal = 1 Re-initialize Pack Profile ERC Values A false-to-true transition of this bit forces the module to re-initialize the five ERC values associated with Pack Profile.
	B06	= 0 Normal = 1 Re-initialize Hold Profile ERC Values A false-to-true transition of this bit forces the module to re-initialize the five ERC values associated with the Hold Profile.
	B07	= 0 Normal = 1 Open
	B08	= 0 Normal = 1 Re-initialize Plastication Profile ERC Values A false-to-true transition of this bit forces module to re-initialize the 11 ERC values associated with Plastication Profile.
	B09-14	RFU
	B15	= 0 Normal = 1 Re-initialize All ERC Values A false-to-true transition of this bit forces the module to re-initialize the 62 ERC values associated with all profiles.
DYC06		RFU

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
DYC07		**Process Trace Commands**
	B00	Process trace data collection inhibited (examined at beginning of injection phase)
	B01	Return injection position trace data in next PTS block
	B02	Return trace #1 data in next PTS block
	B03	Return trace #2 data in next PTS block
	B04	Return trace #3 data in next PTS block
	B05	Return trace #4 data in next PTS block
	B06-14	RFU
	B15	Return phase/segment start information in next PTS block
DYC08		**Process Trace Data Block Request**
	B00	Return trace data points 1 to 50 in next PTS block
	B01	Return trace data points 51 to 100 in next PTS block
	B02	Return trace data points 101 to 150 in next PTS block
	B03	Return trace data points 151 to 200 in next PTS block
	B04	Return trace data points 201 to 250 in next PTS block
	B05	Return trace data points 251 to 300 in next PTS block
	B06	Return trace data points 301 to 350 in next PTS block
	B07	Return trace data points 351 to 400 in next PTS block
	B08-15	RFU

Direct Set-output Values

The module sets its outputs to the following values when responding to command bit DYC01-B08 = 1. The module uses ramp rates DYC17-20 and DYC25-28 when moving the outputs to these values after DYC01-B08 is SET, and will also use the ramps when one of DYC09-12 is changed while DYC01-B08 is SET.

Word	Description
DYC09	Output #1 Direct Set-output Value [19]
DYC10	Output #2 Direct Set-output Value [19]
DYC11	Output #3 Direct Set-output Value [19]
DYC12	Output #4 Direct Set-output Value [19]
DYC13-16	RFU

Direct Set-output Ramp Rates

Word	Description
DYC17	Output #1 Accel Ramp Rate for Direct Set-output Moves [20]
DYC18	Output #2 Accel Ramp Rate for Direct Set-output Moves [20]
DYC19	Output #3 Accel Ramp Rate for Direct Set-output Moves [20]
DYC20	Output #4 Accel Ramp Rate for Direct Set-output Moves [20]
DYC21-24	RFU
DYC25	Output #1 Decel Ramp Rate for Direct Set-output Moves [20]
DYC26	Output #2 Decel Ramp Rate for Direct Set-output Moves [20]
DYC27	Output #3 Decel Ramp Rate for Direct Set-output Moves [20]
DYC28	Output #4 Decel Ramp Rate for Direct Set-output Moves [20]
DYC29-60	RFU

Word	Description
DYC61	Programming Error Return Request [29] When the module has a valid MCC and DYC installed, it responds to any non-zero command block ID to the lower byte of this word by returning the identical command block ID in SYS61. In SYS62, it also returns the existing programming error code associated with the command block. If the module does not have a current programming error associated with the requested command block, or if this entry is zero, the module reports values in SYS61 and SYS62 in the order that programming errors were received.
DYC62 - 64	RFU

HDC – Hold Configuration Block

Bit-mapped Control Words

Word	Bit	Description
HDC01		Block ID = 00001011 (Low byte). High byte reserved for the module. Do not use.
HDC02		**Configuration Selections**
	B00-02	Selected Cavity Pressure Control Valve The module uses its algorithm to drive the following output during any Cav Press/Time Hold Profile. **B02 B01 B00** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B03	Cavity Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B04-06	Selected Ram (Screw) Pressure Control Valve The module uses its algorithm to drive the following output during any Ram Press/Time Hold Profile. **B06 B05 B04** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B07	Ram (Screw) Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B08-15	RFU
HDC03 - 04		RFU

Expert Response Compensation (ERC) Percentage

Word	Description
HDC05	Minimum Cav Press Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
HDC06	Minimum Ram Press Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
HDC07-08	RFU

Notes: For [ ] engineering units, see page 2.

Unselected Valve Set-output Values

When the module starts the Hold Profile, it:

- ignores the unselected value of the selected output
- uses ramp rates HDC17-20 and HDC25-28 to ramp unselected outputs
- sets its unselected outputs to the values listed below

Word	Description
HDC09	Output #1 Set-output Value during Profile [19]
HDC10	Output #2 Set-output Value during Profile [19]
HDC11	Output #3 Set-output Value during Profile [19]
HDC12	Output #4 Set-output Value during Profile [19]
HDC13-16	RFU

Output Ramp Rates

The module uses the following ramp rates when moving its outputs from setpoint to setpoint during the Hold Profile. The module interprets a ramp rate of zero as a step function ramp (ramp disable).

Word	Description
HDC17	Output #1 Acceleration Ramp Rate during Profile [20]
HDC18	Output #2 Acceleration Ramp Rate during Profile [20]
HDC19	Output #3 Acceleration Ramp Rate during Profile [20]
HDC20	Output #4 Acceleration Ramp Rate during Profile [20]
HDC21-24	RFU
HDC25	Output #1 Deceleration Ramp Rate during Profile [20]
HDC26	Output #2 Deceleration Ramp Rate during Profile [20]
HDC27	Output #3 Deceleration Ramp Rate during Profile [20]
HDC28	Output #4 Deceleration Ramp Rate during Profile [20]
HDC29-32	RFU

End of Profile Set-output Values

When the module completes the Hold Profile and HPC03-B08 is SET, it:

- sets status bit SYS22-B06
- uses ramp rates HDC17-20 and HDC25-28 when changing outputs
- sets its outputs to the following values

Word	Description
HDC33	Output #1 Set-output Value at End of Profile [19]
HDC34	Output #2 Set-output Value at End of Profile [19]
HDC35	Output #3 Set-output Value at End of Profile [19]
HDC36	Output #4 Set-output Value at End of Profile [19]
HDC37-40	RFU

Ram (Screw) Pressure Control Limits

Word	Description
HDC41	Ram (Screw) Pressure Minimum Control Limit [01] Minimum controllable ram (screw) pressure attainable during any Ram Press/Time Hold Profile. The module expects this ram (screw) pressure when setting its selected ram (screw) pressure valve to the %-output in HDC43.
HDC42	Ram (Screw) Pressure Maximum Control Limit [01] Maximum controllable ram (screw) pressure attainable during any Ram Press/Time Hold Profile. The module expects this ram (screw) pressure when setting its selected ram (screw) pressure valve to the %-output in HDC44.
HDC43	Selected Ram (Screw) Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Ram Press/Time Hold Profile. The module expects a pressure equal to HDC41 when setting the selected ram (screw) pressure valve to this %-output during profile execution. Ram Press/Time Hold Profile will be executed as a reverse-acting algorithm if this entry is greater than HDC44.
HDC44	Selected Ram (Screw) Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Ram Press/Time Hold Profile. The module expects a pressure equal to HDC42 when setting the selected ram (screw) pressure valve to this %-output during profile execution. Ram Press/Time Hold Profile will be executed as a reverse-acting algorithm if this entry is less than HDC43.

Cavity Pressure Control Limits

Word	Description
HDC45	Cavity Pressure Minimum Control Limit [04] Minimum controllable cavity pressure attainable during any Cav Press/Time Hold Profile. The module expects this cavity pressure when setting its selected cavity pressure valve to the %-output in HDC47.
HDC46	Cavity Pressure Maximum Control Limit [04] Maximum controllable cavity pressure attainable during any Cav Press/Time Hold Profile . The module expects this cavity pressure when setting its selected cavity pressure valve to the %-output in HDC48.
HDC47	Selected Cavity Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Cav Press/Time Hold Profile. The module expects a pressure equal to HDC45 when setting the selected cavity pressure valve to this %-output during profile execution. The Cav Press/Time Hold Profile will be executed as a reverse-acting algorithm if this entry is greater than HDC48.
HDC48	Selected Cavity Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Cav Press/Time Hold Profile. The module expects a pressure equal to HDC46 when setting the selected cavity pressure valve to this %-output during profile execution. The Cav Press/Time Hold Profile will be executed as a reverse-acting algorithm if this entry is less than HDC47.

Profile Tuning Constants

Word	Description
HDC49	Proportional Gain for Ram Press Control [30]
HDC50	Integral Gain for Ram Press Control [27] or [28]
HDC51	Derivative Gain for Ram Press Control [26] or [21]
HDC52	Proportional Gain for Cav Press Control [30]
HDC53	Integral Gain for Cav Press Control [27] or [28]
HDC54	Derivative Gain for Cav Press Control [26] or [21]
HDC55 - 56	RFU

Profile Pressure Alarm Setpoint

Word	Description
HDC57	Profile High Ram (Screw) Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when executing the Hold Profile. The module sets alarm status bit SYS06-B04 when ram (screw) pressure equals or exceeds this entry during the Hold Profile. A zero entry inhibits SYS06-B04.
HDC58	Profile High Cavity Pressure Alarm Setpoint [04] The module compares real-time cavity pressure against this entry when executing the Hold Profile. The module sets alarm status bit SYS06-B05 when cavity pressure equals or exceeds this entry during the Hold Profile. A zero entry inhibits SYS06-B05.
HDC59 - 64	RFU

Notes: For [ ] engineering units, see page 2.

HPC – Pack/Hold Profile Block

Bit-mapped Control Words

Word	Bit	Description
HPC01		Block ID = 00001100 (Low byte). High byte reserved for the module. Do not use.
HPC02		RFU
HPC03		**Configuration Selections**
		Profile Algorithm Selections
	B00	= 0 Ram Press/Time selected for Pack Profile = 1 Cav Press/Time selected for Pack Profile
	B01	RFU
	B02	= 0 Ram Press/Time selected for Hold Profile = 1 Cav Press/Time selected for Hold Profile
	B03-07	RFU
	B08	Hold/Pre-decompression Logical Bridge Selection = 0 Start Pre-decompression Movement at End of Hold Profile = 1 Stop and Set-output at End of Hold Profile The module checks the state of this pause bit upon completion of Hold Profile to determine what further action to take: **if:** — **then the module:** SET — sets its outputs to HDC33–36 RESET, SYS15-B12 = 1, and PRC05 > 00000 — immediately begins the Pre-decompression Movement RESET, SYS15-B12 = 1, and PRC05 = 00000 — reacts as if it had just completed the Pre-decompression Movement and continues operation based on the state of HPC03-B09 RESET, SYS15-B12 = 0, and HPC03-B09 = 0 — reacts as if it had just received an F-to-T transition of DYC02-B08 RESET, SYS15-B12 = 0, and HPC03-B09 = 1 — sets its outputs to zero and latches SYS13-B08
	B09	Pre-decompression/Plastication Logical Bridge Selection = 0 Start Plastication Profile at End of Pre-decompression Movement = 1 Stop and Set-output at End of Pre-decompression Movement The module checks the state of this pause bit after completing the Pre-decompression Movement to determine what further action to take: **if:** — **then the module:** SET — sets its outputs to PRC33–36 RESET and SYS15-B14 = 1 — immediately begins the Plastication Profile RESET and SYS15-B14 = 0 — sets its outputs to zero and latches SYS13-B09
	B10-11	RFU
		Profile Offset Sign Selection
	B12	= 0 Pack Cav Press Profile Offset is Positive = 1 Pack Cav Press Profile Offset is Negative
	B13	= 0 Pack Ram Press Profile Offset is Positive = 1 Pack Ram Press Profile Offset is Negative
	B14	= 0 Hold Cav Press Profile Offset is Positive = 1 Hold Cav Press Profile Offset is Negative
	B15	= 0 Hold Ram Press Profile Offset is Positive = 1 Hold Ram Press Profile Offset is Negative
HPC04		Configuration Selections
		Open/Closed Loop Selection
	B00	= 0 Ram Press/Time Pack Profiles Closed Loop = 1 Ram Press/Time Pack Profiles Open Loop
	B01	= 0 Cav Press/Time Pack Profiles Closed Loop = 1 Cav Press/Time Pack Profiles Open Loop
	B02	= 0 Ram Press/Time Hold Profiles Closed Loop = 1 Ram Press/Time Hold Profiles Open Loop
	B03	= 0 Cav Press/Time Hold Profiles Closed Loop = 1 Cav Press/Time Hold Profiles Open Loop

Word	Bit	Description
HPC04	B04-07	RFU
		ERC Enabled/Disabled Selection
	B08	= 0 Ram Press/Time Pack Profiles ERC On = 1 Ram Press/Time Pack Profiles ERC Off
	B09	= 0 Cav Press/Time Pack Profiles ERC On = 1 Cav Press/Time Pack Profiles ERC Off
	B10	= 0 Ram Press/Time Hold Profiles ERC On = 1 Ram Press/Time Hold Profiles ERC Off
	B11	= 0 Cav Press/Time Hold Profiles ERC On = 1 Cav Press/Time Hold Profiles ERC Off
	B12-15	RFU
HPC05 - 08		RFU

Pack Profile Setpoints

Word	Description
HPC09	Pack Segment 1 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint after starting the Pack Profile for time period specified by HPC11.
HPC10	Pack Segment 1 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint after starting the Pack Profile for time period specified by HPC11.
HPC11	Pack Segment 1 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC09 or HPC10 for this time period beginning with initiation of the Pack Profile.
HPC12	Pack Segment 2 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 1 for time period specified by HPC14.
HPC13	Pack Segment 2 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 1 for time period specified by HPC14.
HPC14	Pack Segment 2 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC12 or HPC13 for this time period beginning at completion of Segment 1.
HPC15	Pack Segment 3 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 2 for time period specified by HPC17.
HPC16	Pack Segment 3 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 2 for time period specified by HPC17.
HPC17	Pack Segment 3 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC15 or HPC16 for this time period beginning at completion of Segment 2.
HPC18	Pack Segment 4 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 3 for time period specified by HPC20.
HPC19	Pack Segment 4 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 3 for time period specified by HPC20.
HPC20	Pack Segment 4 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC18 or HPC19 for this time period beginning at completion of Segment 3.
HPC21	Pack Segment 5 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 4 for time period specified by HPC23.
HPC22	Pack Segment 5 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 4 for time period specified by HPC23.
HPC23	Pack Segment 5 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC21 or HPC22 for this time period beginning at completion of Segment 4.

Pack Profile Offsets

Word	Description
HPC24	Pack Profile Cavity Pressure Offset [04] If you select Cav Press/Time profile execution , the module applies this entry (after reading the sign bit) to each cavity pressure profile setpoint.
HPC25	Pack Profile Ram (Screw) Pressure Offset [01] If you select Ram Press/Time profile execution, the module applies this entry (after reading the sign bit) to each ram (screw) pressure profile setpoint.

Notes: For [ ] engineering units, see page 2.

Hold Profile Setpoints

Word	Description
HPC26	Hold Segment 1 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint after starting the Hold Profile for time period specified by HPC28.
HPC27	Hold Segment 1 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint after starting the Hold Profile for time period specified by HPC28.
HPC28	Hold Segment 1 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC26 or HPC27 for this time period beginning with initiation of the Hold Profile.
HPC29	Hold Segment 2 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 1 for time period specified by HPC31.
HPC30	Hold Segment 2 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 1 for time period specified by HPC31.
HPC31	Hold Segment 2 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC29 or HPC30 for this time period beginning at completion of Segment 1.
HPC32	Hold Segment 3 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 2 for time period specified by HPC34.
HPC33	Hold Segment 3 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 2 for time period specified by HPC34.
HPC34	Hold Segment 3 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC32 or HPC33 for this time period beginning at completion of Segment 2.
HPC35	Hold Segment 4 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 3 for time period specified by HPC37.
HPC36	Hold Segment 4 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 3 for time period specified by HPC37.
HPC37	Hold Segment 4 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC35 or HPC36 for this time period beginning at completion of Segment 3.
HPC38	Hold Segment 5 Cavity Pressure Setpoint [04] If you select Cav Press/Time profile execution, the module controls cavity pressure to this setpoint at completion of segment 4 for time period specified by HPC40.
HPC39	Hold Segment 5 Ram (Screw) Pressure Setpoint [01] If you select Ram Press/Time profile execution, the module controls ram (screw) pressure to this setpoint at completion of segment 4 for time period specified by HPC40.
HPC40	Hold Segment 5 Time Setpoint [21] The module controls the selected process pressure to the setpoint HPC38 or HPC39 for this time period beginning at completion of Segment 4.

Hold Profile Offsets

Word	Description
HPC41	Hold Profile Cavity Pressure Offset [04] If you select Cav Press/Time profile execution, the module applies this entry (after reading the sign bit) to each cavity pressure profile setpoint.
HPC42	Hold Profile Ram (Screw) Pressure Offset [01] If you select Ram Press/Time profile execution, the module applies this entry (after reading the sign bit) to each ram (screw) pressure profile setpoint.
HPC43 - 60	RFU

Critical Process Setpoints

Word	Description
HPC61	Cure Timer Preset [22] At completion of the Hold Profile, the module: • starts an internal Cure Timer • sets master status bit SYS03-B03 • reports the accumulated time in SYS58 When the Cure Timer accumulated value in SYS58 equals this entry, the module: • resets master status bit SYS03-B03 • sets master status bit SYS03-B05 • stops accumulating time in SYS58 If it receives an F-to-T transition of DYC02-B00, -B01, -B02, -B03 or DYC03-B01, the module: • resets master status bit SYS03-B03 • resets master status bit SYS03-B05 • resets SYS58 to zero
HPC62 - 64	RFU

INC – Injection Configuration Block

Bit-mapped Control Words

Word	Bit	Description
INC01		Block ID = 00001000 (Low byte). High byte reserved for the module. Do not use.
INC02		**Configuration Selections**
	B00-02	Selected Velocity Control Valve The module uses its algorithm to drive the following output during any Vel/Pos or LimVel/Pos Injection Profile. **B02 B01 B00** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B03	RFU
	B04-06	Selected Pressure Control Valve The module uses its algorithm to drive the following output during any Press/Pos or Press/Time Injection Profile. **B06 B05 B04** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B07	Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B08-15	RFU
INC03 - 04		RFU

Expert Response Compensation (ERC) Percentage

Word	Description
INC05	Minimum Velocity Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
INC06	Minimum Pressure Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
INC07, 08	RFU

Unselected Valve Set-output Values

When the module starts the Injection Profile, it:

- ignores the unselected value of the selected output
- uses ramp rates INC17-20 and INC25-28 to ramp unselected outputs
- sets its unselected outputs to the values listed below

Word	Description
INC09	Output #1 Set-output Value during Profile [19]
INC10	Output #2 Set-output Value during Profile [19]
INC11	Output #3 Set-output Value during Profile [19]
INC12	Output #4 Set-output Value during Profile [19]
INC13-16	RFU

Notes: For [ ] engineering units, see page 2.

Output Ramp Rates

The module uses the following ramp rates when moving its outputs from setpoint to setpoint during the Injection Profile. The module interprets a ramp rate of zero as a step function ramp (ramp disable).

Word	Description
INC17	Output #1 Acceleration Ramp Rate during Profile [20]
INC18	Output #2 Acceleration Ramp Rate during Profile [20]
INC19	Output #3 Acceleration Ramp Rate during Profile [20]
INC20	Output #4 Acceleration Ramp Rate during Profile [20]
INC21-24	RFU
INC25	Output #1 Deceleration Ramp Rate during Profile [20]
INC26	Output #2 Deceleration Ramp Rate during Profile [20]
INC27	Output #3 Deceleration Ramp Rate during Profile [20]
INC28	Output #4 Deceleration Ramp Rate during Profile [20]
INC29-32	RFU

End of Profile Set-output Values

When module completes the Injection Profile and IPC02-B08 is SET, it:

- sets status bit SYS02-B04
- uses ramp rates INC17-20 and INC25-28 when changing outputs
- sets its outputs to the following values

Word	Description
INC33	Output #1 Set-output Value at End of Profile [19]
INC34	Output #2 Set-output Value at End of Profile [19]
INC35	Output #3 Set-output Value at End of Profile [19]
INC36	Output #4 Set-output Value at End of Profile [19]
INC37-40	RFU

Pressure Control Limits

Word	Description
INC41	Pressure Minimum Control Limit [01] Minimum controllable ram (screw) pressure attainable during any Press/Pos or Press/Time Injection Profile. The module expects this ram (screw) pressure when setting its selected pressure valve to the %-output in INC43.
INC42	Pressure Maximum Control Limit [01] Maximum controllable ram (screw) pressure attainable during any Press/Pos or Press/Time Injection Profile. The module expects this ram (screw) pressure when setting its selected pressure valve to the %-output in INC44.
INC43	Selected Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Press/Pos or Press/Time Injection Profile. The module expects a pressure equal to INC41 when setting the selected pressure valve to this %-output during profile execution. The Press/Pos or Press/Time Injection Profile will be executed as a reverse-acting algorithm if this entry is greater than INC44.
INC44	Selected Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Press/Pos or Press/Time Injection Profile. The module expects a pressure equal to INC42 when setting the selected pressure valve to this %-output during profile execution. The Press/Pos or Press/Time Injection Profile will be executed as a reverse-acting algorithm if this entry is less than INC43.

Velocity Control Limits

Word	Description
INC45	Velocity Minimum Control Limit [06] Minimum controllable ram (screw) velocity attainable during any Vel/Pos Injection Profile. The module expects this ram (screw) velocity when setting its selected velocity valve to the %-output in INC47.
INC46	Velocity Maximum Control Limit [06] Maximum controllable ram (screw) velocity attainable during any Vel/Pos Injection Profile. The module expects this ram (screw) velocity when setting its selected velocity valve to the %-output in INC48.
INC47	Selected Velocity Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected velocity valve during any Vel/Pos or LimVel/Pos Injection Profile. The module expects a velocity equal to INC45 when setting the selected velocity valve to this %-output during profile execution. The Vel/Pos or LimVel/Pos Injection Profile will be executed as a reverse-acting algorithm if this entry is greater than INC48.
INC48	Selected Velocity Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected velocity valve during any Vel/Pos or LimVel/Pos Injection Profile. The module expects a velocity equal to INC46 when setting the selected velocity valve to this %-output during profile execution. The Vel/Pos or LimVel/Pos Injection Profile will be executed as a reverse-acting algorithm if this entry is less than INC47.

Profile Tuning Constants

Word	Description
INC49	Proportional Gain for Pressure Control [30]
INC50	Integral Gain for Pressure Control [27] or [28]
INC51	Derivative Gain for Pressure Control [26] or [21]
INC52	Proportional Gain for Velocity Control [28]
INC53	Feed Forward Gain for Velocity Control [30]
INC54 - 56	RFU

Profile Pressure Alarm Setpoint

Word	Description
INC57	Profile High Ram (screw) Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when executing the Injection Profile. The module sets alarm status bit SYS06-B00 when ram (screw) pressure equals or exceeds this entry during the Injection Profile. A zero entry inhibits SYS06-B00.
INC58	Profile High Cavity Pressure Alarm Setpoint [04] The module compares real-time cavity pressure against this entry when executing the Injection Profile. The module sets alarm status bit SYS06-B01 when cavity pressure equals or exceeds this entry during the Injection Profile. A zero entry inhibits SYS06-B01.
INC59 - 60	RFU

Set-outputs During Suspended Injection

Word	Description
INC61	Output #1 Set-output value during suspended injection [19] During suspension, IPC02:B11, B12 determine the status of outputs.
INC62	Output #2 Set-output value during suspended injection [19] During suspension, IPC02:B11, B12 determine the status of outputs.
INC63	Output #3 Set-output value during suspended injection [19] During suspension, IPC02:B11, B12 determine the status of outputs.
INC64	Output #4 Set-output value during suspended injection [19] During suspension, IPC02:B11, B12 determine the status of outputs.

Notes: For [ ] engineering units, see page 2.

IPC – Injection Profile Block

Bit-mapped Control Words

Word	Bit	Description
IPC01		Block ID = 00001001 (Low byte). High byte reserved for the module. Do not use.
IPC02		Co-injection Parameters
	B00-07	RFU
	B08	Selection bit IPC02:B08 for QI(A) IPCB02:B08 for QI(B) Select whether to inhibit or allow bridging from injection to pack 0 = bridge from injection to pack 1 = disabled bridging. Your logic must continue the process.
	B09	RFU
	B10	Command bit IPC02:B10 for QI(A) IPCB02:B10 for QI(B) Upon reaching screw position (in IPC56), QI(A) suspends its injection profile until B's screw position (in ICPB08) is reached. Then QI(A) resumes injection. 0 = command inhibited 1 = enables the command IPC56 *and* IPCB08 must have valid non-zero values for this command. During suspension, IPC02:B11, B12 determine the status of outputs.
	B11, B12	Selection bits IPC02:B11, B12 for QI(A) IPCB02:B11, B12 for QI(B) Select the module's output mode during suspended injection. When using closed-loop pressure or velocity control of the injection valve, the other three outputs are set-outputs in INC61–64. **B12 B11** 0 0 = control all four outputs with set-outputs stored in INC61–64 0 1 = control injection valve with pressure setpoint in IPC55 1 0 = control injection valve with velocity setpoint in IPC54 1 1 = error condition
	B13-15	RFU
IPC03		Configuration Selections
	B00-01	Profile Algorithm Selection
		B01 B00 0 0 Vel/Pos selected 0 1 Vel/Pos (pressure limited) selected 1 0 Press/Pos selected 1 1 Press/Time selected
	B02-11	RFU
		Profile Offset Sign Selection
	B12	= 0 Injection Velocity Profile Offset is Positive = 1 Injection Velocity Profile Offset is Negative
	B13	= 0 Injection Pressure Profile Offset is Positive = 1 Injection Pressure Profile Offset is Negative
		Velocity Units Selection
	B14	= 0 Velocity Parameters in Percent Velocity = 1 Velocity Parameters in in.(mm)/s **if:** **then the module:** RESET returns all segment velocity actuals (and assumes all velocity setpoints) in percent velocity where INC46 represents 100% velocity SET returns all velocity actuals (and assumes all velocity setpoints) in in.(mm)/s
	B15	RFU
IPC04		Configuration Selections
		Open/Closed Loop Selection
	B00	= 0 Vel/Pos Injection Profiles Closed Loop = 1 Vel/Pos Injection Profiles Open Loop
	B01	= 0 Vel/Pos (limited) Injection Profiles Closed Loop = 1 Vel/Pos (limited) Injection Profiles Open Loop
	B02	= 0 Press/Pos Injection Profiles Closed Loop = 1 Press/Pos Injection Profiles Open Loop
	B03	= 0 Press/Time Injection Profiles Closed Loop = 1 Press/Time Injection Profiles Open Loop

Word	Bit	Description
IPC04		Selections to Inhibit Closed Loop Up To Shot Size
	B04	= 0 Allow Closed Loop Vel/Pos During Entire Profile = 1 Inhibit Closed Loop Vel/Pos Until 100% Shot Size **if:** — **then the module:** SET when IPC04-B00 is SET — inhibits closed-loop control of all Vel/Pos Injection Profiles until ram (screw) position equals or is less than the 100% shot size position RESET when IPC04-B00 is SET — performs closed-loop control of the entire Vel/Pos Injection Profile. If IPC04-B00 is RESET — ignores the state of this bit.
	B05	= 0 Allow Closed Loop LimVel/Pos During = 1 Inhibit Closed Loop LimVel/Pos Until 100% **if:** — **then the module:** SET when IPC04-B01 is SET — inhibits closed-loop control of all LimVel/Pos Injection Profiles until ram (screw) position equals or is less than the 100% shot size position RESET when IPC04-B01 is SET — performs closed-loop control of the entire LimVel/Pos Injection Profile IPC04-B01 is RESET — ignores the state of this bit
	B06	= 0 Allow Closed Loop Press/Pos During Entire Profile = 1 Inhibit Closed Loop Press/Pos Until 100% Shot Size **if:** — **then the module:** SET when IPC04-B02 is SET — inhibits closed-loop control of all Press/Pos Injection Profiles until ram (screw) position equals or is less than the 100% shot size position RESET when IPC04-B02 is SET — performs closed-loop control of the entire Press/Pos Injection Profile IPC04-B02 is RESET — ignores the state of this bit
	B07	= 0 Allow Closed Loop Press/Time During Entire Profile = 1 Inhibit Closed Loop Press/Time Until 100% Shot Size **if:** — **then the module:** SET when IPC04-B03 is SET — inhibits closed-loop control of all Press/Time Injection Profiles until ram (screw) positionequals or is less than the 100% shot size position RESET when IPC04-B03 is SET — performs closed-loop control of the entire Press/Time Injection Profile IPC04-B03 is RESET — ignores the state of this bit
		ERC Enabled/Disabled Selection
	B08	= 0 Vel/Pos ERC On = 1 Vel/Pos ERC Off
	B09	= 0 Vel/Pos (limited) ERC On = 1 Vel/Pos (limited) ERC Off
	B10	= 0 Press/Pos ERC On = 1 Press/Pos ERC Off
	B11	= 0 Press/Time ERC On = 1 Press/Time ERC Off
	B12-15	RFU
IPC05 - 06		RFU

Co-injection Parameters

Word	Description
IPC07	IPC07 for QI(A) IPCB07 for QI(B) Time delay for resuming injection after reaching screw position (IPC08). Units are 0.01 sec. Zero disables the time delay.
IPC08	IPC08 for QI(A) IPCB08 for QI(B) Screw position at which *opposite* injection starts after suspension.

Notes: For [ ] engineering units, see page 2.

IPC

Injection Profile Setpoints

Word	Description
IPC09	Segment 1 Velocity Setpoint [05] or [06] **if:** / **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint after starting the Injection Profile until ram (screw) position reaches IPC11 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC10	Segment 1 Pressure Setpoint [01] **if:** / **then the module:** If you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint after starting the Injection Profile until ram (screw) position reaches IPC11 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint after starting the Injection Profile for time period IPC12 (or until transition if sooner)
IPC11	End of Segment 1 Position Setpoint [12]
IPC12	Segment 1 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to the setpoint IPC10 for this time period (or until transition if sooner) after starting the Injection Profile.
IPC13	Segment 2 Velocity Setpoint [05] or [06] **if:** / **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC11 until ram (screw) position reaches IPC15 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC14	Segment 2 Pressure Setpoint [01] **if:** / **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC11 until ram (screw) position reaches IPC15 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 1 for time period IPC16 period IPC16 (or until transition if sooner)
IPC15	End of Segment 2 Position Setpoint [12]
IPC16	Segment 2 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC14 for this time period (or until transition if sooner) beginning at completion of Segment 1.
IPC17	Segment 3 Velocity Setpoint [05] or [06] **if:** / **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC15 until ram (screw) position reaches IPC19 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC18	Segment 3 Pressure Setpoint [01] **if:** / **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC15 until ram (screw) position reaches IPC19 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 2 for time period IPC20 (or until transition if sooner)
IPC19	End of Segment 3 Position Setpoint [12]
IPC20	Segment 3 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC18 for this time period (or until transition if sooner) beginning at completion of Segment 2.
IPC21	Segment 4 Velocity Setpoint [05] or [06] **if:** / **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC19 until ram (screw) position reaches IPC23 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s

Word	Description
IPC22	Segment 4 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC19 until ram (screw) position reaches IPC23 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 3 for time period IPC24 (or until transition if sooner)
IPC23	End of Segment 4 Position Setpoint [12]
IPC24	Segment 4 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC22 for this time period (or until transition if sooner) beginning at completion of Segment 3.
IPC25	Segment 5 Velocity Setpoint [05] or [06] Segment 4 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC23 until ram (screw) position reaches IPC27 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC26	Segment 5 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC23 until ram (screw) position reaches IPC27 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 4 for time period IPC28 (or until transition if sooner)
IPC27	End of Segment 5 Position Setpoint [12]
IPC28	Segment 5 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC26 for this time period (or until transition if sooner) beginning at completion of Segment 4.
IPC29	Segment 6 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC27 until ram (screw) position reaches IPC31 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC30	Segment 6 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC27 until ram (screw) position reaches IPC31 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 5 for time period IPC32 (or until transition if sooner)
IPC31	End of Segment 6 Position Setpoint [12]
IPC32	Segment 6 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC30 for this time period (or until transition if sooner) beginning at completion of Segment 5.
IPC33	Segment 7 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC31 until ram (screw) position reaches IPC35 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC34	Segment 7 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC31 until ram (screw) position reaches IPC35 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 6 for time period IPC36 (or until transition if sooner)
IPC35	End of Segment 7 Position Setpoint [12]
IPC36	Segment 7 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC34 for this time period (or until transition if sooner) beginning at completion of Segment 6.

Notes: For [ ] engineering units, see page 2.

IPC37	Segment 8 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC35 until ram (screw) position reaches IPC39 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC38	Segment 8 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC35 until ram (screw) position reaches IPC39 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 7 for time period IPC40 (or until transition if sooner)
IPC39	End of Segment 8 Position Setpoint [12]
IPC40	Segment 8 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC38 for this time period (or until transition if sooner) beginning at completion of Segment 7.
IPC41	Segment 9 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC39 until ram (screw) position reaches IPC43 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC42	Segment 9 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC39 until ram (screw) position reaches IPC43 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 8 for time period IPC44 (or until transition if sooner)
IPC43	End of Segment 9 Position Setpoint [12]
IPC44	Segment 9 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC42 for this time period (or until transition if sooner) beginning at completion of Segment 8.
IPC45	Segment 10 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC43 until ram (screw) position reaches IPC47 (or until transition if sooner) IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC46	Segment 10 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC43 until ram (screw) position reaches IPC47 (or until transition if sooner) you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 9 for time period IPC48 (or until transition if sooner)
IPC47	End of Segment 10 Position Setpoint [12]
IPC48	Segment 10 Time Setpoint [21] If you select Press/Time profile execution, the module controls ram (screw) pressure to setpoint IPC46 for this time period (or until transition if sooner) beginning at completion of Segment 9.

IPC49	Segment 11 Velocity Setpoint [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — controls ram (screw) forward speed to this setpoint from ram (screw) position IPC47 until transition IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC50	Segment 11 Pressure Setpoint [01] **if:** — **then the module:** you select Press/Pos profile execution — controls ram (screw) pressure to this setpoint from ram (screw) position IPC47 until transition you select Press/Time profile execution — controls ram (screw) pressure to this setpoint at completion of Segment 10 until transition

Injection Profile Offsets

Word	Description
IPC51	Profile Velocity Offset [05] or [06] **if:** — **then the module:** you select Vel/Pos profile execution — applies this entry (after reading the sign bit) to each velocity profile setpoint IPC03-B14 is RESET — reads this parameter in percent velocity IPC03-B14 is SET — reads it in in.(mm)/s
IPC52	Profile Pressure Offset [01] If you select Press/Pos or Press/Time profile execution, the module applies this entry (after reading the sign bit) to each pressure profile setpoint.
IPC53	RFU

Setpoints for Suspended Injection

Word	Description
IPC54	IPC54 for QI(A) IPCB54 for QI(B) Closed-loop velocity setpoint for the injection valve during suspended injection (IPC02.B12 = 1). The remaining three set-outputs (in IPC61-64) are also applied. If not using closed–loop velocity-control, all four set-outputs are applied.
IPC55	IPC55 for QI(A) IPCB55 for QI(B) Closed-loop pressure setpoint for the injection valve during suspended injection (IPC02.B11 = 1). The remaining three set-outputs (in IPC61-64) are also applied. If not using closed–loop pressure-control, all four set-outputs are applied.
IPC56	IPC56 for QI(A) IPCB56 for QI(B) Screw position at which the QI suspends its own injection profile.

Pressure Limited Injection Parameters

Word	Description	
IPC57	Ram (Screw) Pressure Limit for Vel/Pos Injection Profile [01], Profile Velocity Offset [05] or [06]	
	if:	**then the module:**
	you select Pressure Limited Vel/Pos profile execution	limits action of the selected valve(s) during the Injection Profile to maintain ram (screw) pressure equal to or below this entry
	ram (screw) pressure equals or exceeds this entry during a Pressure Limited Injection Profile and ram (screw) position is equal to or less than IPC58	sets the applicable status bit in IPS05 and freezes output to selected *velocity* valve for time period IPC59
	ram (screw) pressure equals or exceeds this entry after expiration of time delay IPC59	continues Injection Profile execution using its PID algorithm with this entry as the algorithm setpoint
	the module switches to PID control during a Pressure Limited Injection Profile, and bit pattern in INC02 requires the module to control injection velocity and pressure with different outputs	returns the selected velocity valve to its profile Set-output value as defined in INC09–12
	the module switches to the PID algorithm during a Pressure Limited Injection Profile, and the actual ram (screw) velocity equals or exceeds the velocity setpoint for the segment under execution	freezes output to selected *pressure* valve for time period IPC59
	the actual ram (screw) velocity equals or exceeds the velocity setpoint after expiration of time delay IPC59	returns to the VelFF mode of profile execution to drive the selected *velocity* valve using the segment's programmed setpoint
	the module returns to VelFF control during a Pressure Limited Injection Profile, and bit pattern in INC02 requires the module to control injection velocity and pressure with different outputs	returns the selected *pressure* valve to its profile Set-output value as defined in INC09–12

Notes: For [ ] engineering units, see page 2.

Word	Description
IPC58	Ram (Screw) Position for Pressure Limiting Inhibit [12] A non-zero entry forces the module to ignore the magnitude of ram (screw) pressure during a Pressure Limited Vel/Pos Injection Profile until ram (screw) position is equal to or less than this entry. A zero entry forces the module to pressure limit the entire Injection Profile if you have selected Pressure Limited Vel/Pos as the profile mode.
IPC59	Algorithm Change Time Delay During Pressure Limit [23] Total time that the module must monitor a continuous ram (screw) pressure in excess of the non-zero entry in IPC57 before changing to its internal PID algorithm for continuing a Pressure Limited Vel/Pos Injection Profile. Also the total time that the module must monitor a continuous ram (screw) velocity greater than the programmed setpoint before changing back to its internal VelFF algorithm during a Pressure Limited Vel/Pos Injection Profile that has entered pressure limit. Use a non-zero entry to filter out early ram (screw) pressure spikes of short duration to avoid pressure limiting during the Injection Profile.

Injection Transition Parameters

Injection transition-to-pack or hold occurs when the four words in this table go to a state of non-zero. If you want the module to ignore one or more parameters when monitoring the Injection Profile for transition, enter zero for that parameter.

Word	Description
IPC60	Time Limit for Transition [21] The module immediately terminates the Injection Profile and begins the Pack(Hold) Profile if the total Injection Profile execution time equals or exceeds the non-zero entry in this word. The module ignores this parameter if zero.
IPC61	Ram (Screw) Position for Transition [12] The module immediately terminates the Injection Profile and begins the Pack(Hold) Profile if real-time ram (screw) position is less than or equal to the non-zero entry in this word. The module ignores this parameter if zero.
IPC62	Ram (Screw) Pressure for Transition [01] If real-time ram (screw) position is less than or equal to any non-zero entry in IPC64, the module immediately terminates the Injection Profile and begins the Pack(Hold) Profile if real-time ram (screw) pressure equals or exceeds this non-zero entry. The module ignores this parameter if zero.
IPC63	Cavity Pressure for Transition [04] If real-time ram (screw) position is less than or equal to any non-zero entry in IPC64, the module immediately terminates the Injection Profile and begins the Pack(Hold) Profile if real-time cavity pressure equals or exceeds this non-zero entry. The module ignores this setpoint if zero.

Pressure Transition Inhibit

Word	Description
IPC64	Ram (Screw) Position for Pressure Transition Inhibit [12] A non-zero entry forces the module to ignore any non-zero IPC62 and IPC63 until ram (screw) position is equal to or less than this entry. A zero entry forces the module to use any non-zero entry in IPC62 and IPC63 during the entire Injection Profile.

JGC – Jog Configuration Block

The The module will not accept or process the Jog Configuration Command Block unless it has a valid MCC installed.

Bit-mapped Control Words

Word	Description
JGC01	Block ID = 00000010 (Low byte). High byte reserved for the module. Do not use
JGC02 - 04	RFU

Jog Alarm Setpoints

Word	Description
JGC05	Screw Rotate Jog RPM Alarm Setpoint [25] The module compares real-time screw RPM against this entry when responding to command bit DYC01-B09 = 1. The module sets alarm status bit SYS05-B08 when screw RPM equals or exceeds this entry during a Screw Rotate Jog. A zero entry inhibits SYS05-B08.
JGC06	Ram (Screw) Jog Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when responding to command bit DYC01-B10 = 1 or DYC01-B11 = 1. The module sets alarm status bit SYS05-B09 when ram (screw) pressure equals or exceeds this entry during a Ram (Screw) Jog. A zero entry inhibits SYS05-B09.
JGC07, 08	RFU

Screw Rotate Jog Set-output Values

The module sets its outputs to these values when DYC01-B09 = 1.

Word	Description
JGC09	Output #1 Set-output Value for Screw Rotate Jogs [19]
JGC10	Output #2 Set-output Value for Screw Rotate Jogs [19]
JGC11	Output #3 Set-output Value for Screw Rotate Jogs [19]
JGC12	Output #4 Set-output Value for Screw Rotate Jogs [19]
JGC13-16	RFU

Ram (Screw) Forward Jog Set-output Values

The module sets its outputs to these values when DYC01-B10 = 1.

Word	Description
JGC17	Output #1 Set-output Value for Ram (Screw) Forward Jogs [19]
JGC18	Output #2 Set-output Value for Ram (Screw) Forward Jogs [19]
JGC19	Output #3 Set-output Value for Ram (Screw) Forward Jogs [19]
JGC20	Output #4 Set-output Value for Ram (Screw) Forward Jogs [19]
JGC21-24	RFU

Ram (Screw) Reverse Jog Set-output Values

The module sets its outputs to these values when DYC01-B11 = 1.

Word	Description
JGC25	Output #1 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC26	Output #2 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC27	Output #3 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC28	Output #4 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC29	Output #5 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC30	Output #6 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC31	Output #7 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC32	Output #8 Set-output Value for Ram (Screw) Reverse Jogs [19]
JGC33-64	RFU

MCC – Module Configuration Command Block

Bit-mapped Control Words

Word	Bit	Description
MCC01	B00 - B07	Block ID 00000001
	B08-15	Reserved for the module. Do not use.
MCC02		**MCC Configuration Selections**
	B00	Data Range Selection 0 = English Units (Inches and PSI) 1 = Metric Units (Millimeters and Bar)
	B01	Module designation for co-injection 0 = QIA 1 = QIB
	B02	RFU
	B03	Module Inputs 0 = Invalid 1 = Required selection The module configures itself as a 1-slot module containing four inputs and four outputs, and accesses bits MCC02-B04 and MCC02-B05 to determine layout of its inputs.

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
MCC02	B04-05	**B05** **B04** **Input Configuration** 0 0 Inject Control (both bits must be zero) **Input #1** **Input #2** **Input #3** **Input #4** Ram (Screw) Position Ram (Screw) Pressure Screw RPM Cavity Pressure
	B06	MCC02.B06 for QI(A) MCCB02.B06 for QI(B) Configuration bit 0 = module not configured for screw RPM 1 = tells the module to verify screw RPM configuration or declare a fault Input 3 must be connected to a sensor and this bit must be set whenever the MCC contains valid screw RPM parameters.
	B07	MCC02.B07 for QI(A) MCCB02.B07 for QI(B) Configuration bit 0 = module not configured for cavity pressure 1 = tells the module to verify cavity pressure configuration or declare a fault Input 3 must be connected to a sensor and this bit must be set whenever MCC contains valid cavity pressure parameters.
	B08	Inhibit (override) loss of sensor protection for screw position input
	B09	Inhibit (override) loss of sensor protection for screw pressure input
	B10-13	RFU
	B14	Inhibit (override) loss of sensor protection for screw RPM input
	B15	Inhibit (override) loss of sensor protection for cavity pressure input
MCC03		MCC Input Range Selection All inputs have the following range selections: **Byy** **Bxx** **Range** 0 0 0 to 10 V dc 0 1 1 to 5 V dc 1 0 4 to 20 mA dc 1 1 Not Connected
	Use these bit pairs to select the input range:	
	B01-00	Input #1
	B03-02	Input #2
	B05-04	Input #3
	B07-06	Input #4
	B08-15	**Important:** These bits must be SET.
MCC04		MCC Output Range Selection All outputs have the following range selections: **Byy** **Bxx** **Range** 0 0 –10 to +10 V dc 0 1 0 to +10 V dc 1 0 4 to 20 mA dc 1 1 Not Connected
	Use these bit pairs to select the output range:	
	B01-00	Output #1
	B03-02	Output #2
	B05-04	Output #3
	B07-06	Output #4
	B08 – 15	**Important:** These bits must be SET.
MCC05		Adds percentage offset up to ± 10% (–1000 to +1000) to Stop Position of Output #1 (0 V dc or 4 mA).
MCC06		Adds percentage offset up to ± 10% (–1000 to +1000) to Stop Position of Output #2 (0 V dc or 4 mA).
MCC07		Adds percentage offset up to ± 10% (–1000 to +1000) to Stop Position of Output #3 (0 V dc or 4 mA).
MCC08		Adds percentage offset up to ± 10% (–1000 to +1000) to Stop Position of Output #4 (0 V dc or 4 mA).

Ram (Screw) Position Transducer Configuration (own injection head)

The module accesses data in MCC09-16 if bit patterns in MCC02, 03 indicate that the module is connected to a ram (screw) position sensor.

Word	Description
MCC09	Minimum Ram (Screw) Position [11]
MCC10	Maximum Ram (Screw) Position [11]
MCC11	Analog Signal at Minimum Ram (Screw) Position [24]
MCC12	Analog Signal at Maximum Ram (Screw) Position [24] The module continuously compares real-time ram (screw) position against this entry. The module sets alarm status bit SYS07-B00 and forces all of its outputs to zero when executing a ram (screw) forward profile (Injection, Pack, Hold) and ram (screw) position is less than or equals this entry. A zero entry inhibits SYS07-B00.
MCC13	Ram (Screw) Position Minimum Software Travel Limit [11]
MCC14	Ram (Screw) Position Maximum Software Travel Limit [11] The module continuously compares real-time ram (screw) position against this entry. The module sets alarm status bit SYS07-B01 and forces all of its outputs to zero when executing a ram (screw) reverse profile or movement (Pre-decompression, Plastication, Post-decompression) and ram (screw) position equals or exceeds this entry. A zero entry inhibits SYS07-B01.
MCC15	Ram (Screw) Software Travel Limit Alarm Deadband [17] After sensing a ram (screw) overtravel and latching alarm status bit SYS07-B00 or SYS07-B01, the module will not unlatch bit until real-time ram (screw) position is inside the overtravel setpoint by an incremental length equal to this entry. This incremental position is added to MCC13 in order to determine ram (screw) position required to unlatch SYS07-B00. This incremental position is subtracted from MCC14 in order to determine ram (screw) position required to unlatch SYS07-B01.
MCC16	Ram (Screw) Position Transducer Digital Filter [23] A non-zero entry forces the module to filter the input before using the result for ram (screw) position calculations. Use this parameter when required to soften the input signal from a linear potentiometer.

Ram (Screw) Pressure Transducer Configuration

The module accesses data in MCC17-22 if bit patterns in MCC02, 03 indicate that the module is connected to a ram (screw) pressure sensor.

Word	Description
MCC17	Minimum Ram (Screw) Pressure [01]
MCC18	Maximum Ram (Screw) Pressure [01]
MCC19	Analog Signal at Minimum Ram (Screw) Pressure [24]
MCC20	Analog Signal at Maximum Ram (Screw) Pressure [24]
MCC21	High Ram (Screw) Pressure Alarm Setpoint [01] The module continuously compares real-time ram (screw) pressure against this entry. The module sets alarm status bit SYS05-B00 when ram (screw) pressure equals or exceeds this entry. A zero entry inhibits SYS05-B00.
MCC22	Ram (Screw) Pressure Alarm Time Delay [23] Total time the module must monitor a continuous ram (screw) pressure in excess of the non-zero entry in all ram (screw) pressure alarm setpoints before setting the associated alarm status bit. Setpoint/bit pairs affected are: **Setpoint** — **Alarm Status Bit** MCC21 — SYS05-B00 JGC06 — SYS05-B09 INC57 — SYS06-B00 PKC57 — SYS06-B02 HDC57 — SYS06-B04 PRC57 — SYS06-B06 PLC57 — SYS06-B07 PSC57 — SYS06-B08 Use non-zero entry to filter out ram (screw) pressure spikes of short enough duration that they should not be considered an alarm.

Notes: For [ ] engineering units, see page 2.

Ram (Screw) Position Transducer Configuration (other injection head)

The module accesses data in MCC09-16 if bit patterns in MCC02, 03 indicate that the module is connected to a ram (screw) position sensor.

Word	Description
MCC23	Minimum Ram (Screw) Position [11]
MCC24	Maximum Ram (Screw) Position [11]
MCC25	Analog Signal at Minimum Ram (Screw) Position [24]
MCC26	Analog Signal at Maximum Ram (Screw) Position [24] The module continuously compares real-time ram (screw) position against this entry. The module sets alarm status bit SYS07-B00 and forces all of its outputs to zero when executing a ram (screw) forward profile (Injection, Pack, Hold) and ram (screw) position is less than or equals this entry. A zero entry inhibits SYS07-B00.
MCC27-29	RFU
MCC30	Ram (Screw) Position Transducer Digital Filter [23] A non-zero entry forces the module to filter the input before using the result for ram (screw) position calculations. Use this parameter when required to soften the input signal from a linear potentiometer.

Screw RPM Transducer Configuration

The module accesses data in MCC51-56 if bit patterns in MCC02 and MCC03 indicate that the module is connected to a screw RPM sensor.

Word	Description
MCC51	Minimum Screw RPM [25]
MCC52	Maximum Screw RPM [25]
MCC53	Analog Signal at Minimum Screw RPM [24]
MCC54	Analog Signal at Maximum Screw RPM [24]
MCC55	High Screw RPM Alarm Setpoint [25] The module continuously compares real-time screw RPM against this entry. The module sets alarm status bit SYS05-B03 when screw RPM equals or exceeds this entry. A zero entry inhibits SYS05-B03.
MCC56	High Screw RPM Alarm Time Delay [23] Total time the module must monitor a continuous screw RPM in excess of the non-zero entry in all screw RPM alarm setpoints before setting the associated alarm status bit. Setpoint/bitpairs affected are: **Setpoint** **Alarm Status Bit** MCC55 SYS05-B03 JGC05 SYS05-B08 Use a non-zero entry in this word to filter out screw RPM spikes of short enough duration to avoid nuisance alarms.

Cavity Pressure Transducer Configuration

The module accesses data in MCC57-62 if bit patterns in MCC02, 03 indicate that the module is connected to a cavity pressure sensor.

Word	Description
MCC57	Minimum Cavity Pressure [04]
MCC58	Maximum Cavity Pressure [04]
MCC59	Analog Signal at Minimum Cavity Pressure [24]
MCC60	Analog Signal at Maximum Cavity Pressure [24]
MCC61	High Cavity Pressure Alarm Setpoint [04] The module continuously compares real-time cavity (or system) pressure against this entry. The module sets alarm status bit SYS05-B04 when cavity (or system) pressure equals or exceeds this entry. A zero entry inhibits SYS05-B04.
MCC62	High Cavity Pressure Alarm Time Delay [23] Total time the module must monitor a continuous cavity (or system) pressure in excess of the non-zero entry in all cavity (or system) pressure alarm setpoints before setting the associated alarm status bit. If bit patterns in MCC02 and MCC03 indicate that the module is connected to a cavity pressure sensor, setpoint/bit pairs affected are: **Setpoint** **Alarm Status Bit** MCC61 SYS05-B04 INC58 SYS06-B01 PKC58 SYS06-B03 HDC58 SYS06-B05 Use a non-zero entry in this word to filter out cavity pressure spikes of short enough duration to avoid nuisance alarms.

Other

Word	Description
MCC63	MCC63 for QI(A) MCCB63 for QI(B) Switch-over time delay required to switch the mode of input 3 from screw RPM to cavity pressure (or vice versa) before processing data or setting alarms. Units of 0.01 sec.
MCC64	Number of Input Samples for Loss-of-sensor Alarms [29] Range of 0-200. The module monitors sensor inputs for out-of-range signals. To avoid nuisance alarms caused by electrical noise, enter a non-zero value. When the module detects a number of consecutive *out-of-range* input scans (consecutive loss-of-sensor samples) equal to or greater than this value, it sets the loss-of-sensor alarm. Setting to zero gives no protection against nuisance alarms.

PKC – Pack Configuration Block

Bit-mapped Control Words

Word	Bit	Description
PKC01		Block ID = 00001010 (Low byte). High byte reserved for the module. Do not use.
PKC02		**Configuration Selections**
	B00-B02	Selected Cavity Pressure Control Valve The module uses its algorithm to drive the following output during any Cav Press/Time Pack Profile. **B02 B01 B00** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B03	Cavity Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B04-06	Selected Ram (Screw) Pressure Control Valve The module uses its algorithm to drive the following output during any Ram Press/Time Pack Profile. **B06 B05 B04** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B07	Ram (Screw) Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B08-15	RFU
PKC03 - 04		RFU

Expert Response Compensation (ERC) Percentage

Word	Description
PKC05	Minimum Cav Press Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
PKC06	Minimum Ram Press Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
PKC07 - 08	RFU

Unselected Valve Set-output Values

When the module starts the Pack Profile, it:

- sets its unselected outputs to the values listed below
- ignores the unselected value of the selected output
- uses ramp rates PKC17-20 and PKC25-28 to ramp unselected outputs

Notes: For [ ] engineering units, see page 2.

Word	Description
PKC09	Output #1 Set-output Value during Profile [19]
PKC10	Output #2 Set-output Value during Profile [19]
PKC11	Output #3 Set-output Value during Profile [19]
PKC12	Output #4 Set-output Value during Profile [19]
PKC13–16	RFU

Output Ramp Rates

The module uses the following ramp rates when moving its outputs from setpoint to setpoint during the Pack Profile. The module interprets a ramp rate of zero as a step function ramp (ramp disable).

Word	Description
PKC17	Output #1 Acceleration Ramp Rate during Profile [20]
PKC18	Output #2 Acceleration Ramp Rate during Profile [20]
PKC19	Output #3 Acceleration Ramp Rate during Profile [20]
PKC20	Output #4 Acceleration Ramp Rate during Profile [20]
PKC21-24	RFU
PKC25	Output #1 Deceleration Ramp Rate during Profile [20]
PKC26	Output #2 Deceleration Ramp Rate during Profile [20]
PKC27	Output #3 Deceleration Ramp Rate during Profile [20]
PKC28	Output #4 Deceleration Ramp Rate during Profile [20]
PKC29-40	RFU

Ram (Screw) Pressure Control Limits

Word	Description
PKC41	Ram (Screw) Pressure Min Control Limit [01] Min controllable ram (screw) pressure attainable during any Ram Press/Time Pack Profile. Module expects this ram (screw) pressure when setting its selected ram (screw) pressure valve to the %-output in PKC43.
PKC42	Ram (Screw) Pressure Max Control Limit [01] Maxi controllable ram (screw) pressure attainable during any Ram Press/Time Pack Profile. Module expects this ram (screw) pressure when setting its selected ram (screw) pressure valve to the %-output in PKC44.
PKC43	Selected Ram (Screw) Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Ram Press/Time Pack Profile. The module expects a pressure equal to PKC41 when setting the selected ram (screw) pressure valve to this %-output during profile execution. Ram Press/Time Pack Profile will be executed as a reverse-acting algorithm if this entry is greater than PKC44.
PKC44	Selected Ram (Screw) Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Ram Press/Time Pack Profile. The module expects a pressure equal to PKC42 when setting the selected ram (screw) pressure valve to this %-output during profile execution. Ram Press/Time Pack Profile will be executed as a reverse-acting algorithm if this entry is less than PKC43.

Cavity Pressure Control Limits

Word	Description
PKC45	Cavity Pressure Minimum Control Limit [04] Minimum controllable cavity pressure attainable during any Cav Press/Time Pack Profile . The module expects this cavity pressure when setting its selected cavity pressure valve to the %-output in PKC47.
PKC46	Cavity Pressure Maximum Control Limit [04] Maximum controllable cavity pressure attainable during any Cav Press/Time Pack Profile . The module expects this cavity pressure when setting its selected cavity pressure valve to the %-output in PKC48.
PKC47	Selected Cavity Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Cav Press/Time Pack Profile. The module expects a pressure equal to PKC45 when setting the selected cavity pressure valve to this %-output during profile execution. The Cav Press/Time Pack Profile will be executed as a reverse-acting algorithm if this entry is greater than PKC48.
PKC48	Selected Cavity Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Cav Press/Time Pack Profile. The module expects a pressure equal to PKC46 when setting the selected cavity pressure valve to this %-output during profile execution. The Cav Press/Time Pack Profile will be executed as a reverse-acting algorithm if this entry is less than PKC47.

Profile Tuning Constants

Word	Description
PKC49	Proportional Gain for Ram Press Control [30]
PKC50	Integral Gain for Ram Press Control [27] or [28]
PKC51	Derivative Gain for Ram Press Control [26] or [21]
PKC52	Proportional Gain for Cav Press Control [30]
PKC53	Integral Gain for Cav Press Control [27] or [28]
PKC54	Derivative Gain for Cav Press Control [26] or [21]
PKC55 - 56	RFU

Profile Pressure Alarm Setpoint

Word	Description
PKC57	Profile High Ram (Screw) Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when executing the Pack Profile. The module sets alarm status bit SYS06-B02 when ram (screw) pressure equals or exceeds this entry during the Pack Profile. A zero entry inhibits SYS06-B02.
PKC58	Profile High Cavity Pressure Alarm Setpoint [04] The module compares real-time cavity pressure against this entry when executing Pack Profile. The module sets alarm status bit SYS06-B03 when cavity pressure equals or exceeds this entry during the Pack Profile. A zero entry inhibits SYS06-B03.
PKC59 - 64	RFU

Plastication Configuration Command Block (PLC)

Bit-mapped Control Words

Word	Bit	Description
PLC01		Block ID = 00001110 (Low byte). High byte reserved for the module. Do not use.
PLC02		**Configuration Selections**
	B00-B02	Selected RPM Control Valve The module uses its algorithm to drive the following output during any RPM/Pos or RPM/Time Plastication Profile. **B02 B01 B00** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
PLC02	B03	RPM Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B04-B06	Selected Pressure Control Valve The module uses its algorithm to drive the following output during any RPM/Pos or RPM/Time Plastication Profile. **B06 B05 B04** 0 0 0 Output #1 0 0 1 Output #2 0 1 0 Output #3 0 1 1 Output #4 1 x x Invalid
	B07	Pressure Algorithm Selection = 0 Dependent Gains (ISA) = 1 Independent Gains (A-B)
	B08-B15	RFU
PLC03 - 04		RFU

Notes: For [ ] engineering units, see page 2.

PLC

Expert Response Compensation (ERC) Percentage

Word	Description
PLC05	Minimum RPM Control ERC Percentage [31]
PLC06	Minimum Pressure Control ERC Percentage [31] Although error coding allows range of 00000 to 09999, the module limits it to a minimum of 01000.
PLC07	RFU

Watchdog Timer

Word	Description
PLC08	Profile Watchdog Timer Preset [21] When the module starts Plastication Profile, it: • starts an internal Profile Watchdog timer • stops this timer and reset its accumulated value to zero (after reporting total execution time in PPS57) when it completes the profile • sets master status bit SYS04-B08 when the accumulated value of this timer equals or exceeds this entry A zero entry inhibits SYS04-B08.

Unselected Valve Set-output Values

When the module starts the Plastication Profile, it:

- ignores the unselected value of the selected output
- uses ramp rates PLC17-20 and PLC25-28 to ramp unselected outputs
- sets its unselected outputs to the values listed below

Word	Description
PLC09	Output #1 Set-output Value during Profile [19]
PLC10	Output #2 Set-output Value during Profile [19]
PLC11	Output #3 Set-output Value during Profile [19]
PLC12	Output #4 Set-output Value during Profile [19]
PLC13-16	Reserved for Future Use

Output Ramp Rates

The module uses the following ramp rates when moving its outputs from setpoint to setpoint during the Plastication Profile. The module interprets a ramp rate of zero as a step function ramp (ramp disable).

Word	Description
PLC17	Output #1 Acceleration Ramp Rate during Profile [20]
PLC18	Output #2 Acceleration Ramp Rate during Profile [20]
PLC19	Output #3 Acceleration Ramp Rate during Profile [20]
PLC20	Output #4 Acceleration Ramp Rate during Profile [20]
PLC21-24	RFU
PLC25	Output #1 Deceleration Ramp Rate during Profile [20]
PLC26	Output #2 Deceleration Ramp Rate during Profile [20]
PLC27	Output #3 Deceleration Ramp Rate during Profile [20]
PLC28	Output #4 Deceleration Ramp Rate during Profile [20]
PLC29-32	RFU

End of Profile Set-output Values

When module completes Plastication Profile and PPC03-B08 is set, it:

- sets status bit SYS22-B08
- uses ramp rates PLC17-20 and PLC25-28 when changing outputs
- sets its outputs to the following values

Word	Description
PLC33	Output #1 Set-output Value at End of Profile [19]
PLC34	Output #2 Set-output Value at End of Profile [19]
PLC35	Output #3 Set-output Value at End of Profile [19]
PLC36	Output #4 Set-output Value at End of Profile [19]
PLC37-40	RFU

Pressure Control Limits

Word	Description
PLC41	Pressure Minimum Control Limit [01] Minimum controllable ram (screw) pressure attainable during any Press/Pos or Press/Time Plastication Profile. The module expects this ram (screw) pressure when setting its selected valve to the %-output in PLC43.
PLC42	Pressure Maximum Control Limit [01] Maximum controllable ram (screw) pressure attainable during any Press/Pos or Press/Time Plastication Profile. The module expects this ram (screw) pressure when setting its selected valve to the %-output in PLC44.
PLC43	Selected Pressure Valve Output for Minimum [19] 0% CV output percentage that the module uses to drive the selected pressure valve during any Press/Pos or Press/Time Plastication Profile. The module expects a pressure equal to PLC41 when setting the selected pressure valve to this %-output during profile execution. The profile will be executed as a reverse-acting algorithm if this entry is greater than PLC44.
PLC44	Selected Pressure Valve Output for Maximum [19] 100% CV output percentage that the module uses to drive the selected pressure valve during any Press/Position or Press/Time Plastication Profile. The module expects a pressure equal to PLC42 when setting the selected pressure valve to this %-output during profile execution. The profile will be executed as a reverse-acting algorithm if this entry is less than PLC43.

RPM Control Limits

Word	Description
PLC45	RPM Minimum Control Limit [25] Minimum controllable RPM attainable during any RPM/Pos or RPM/Time Plastication Profile. The module expects this RPM when setting its selected valve to the %-output in PLC47.
PLC46	RPM Maximum Control Limit [25] Maximum controllable RPM attainable during any RPM/Pos or RPM/Time Plastication Profile. The module expects this RPM when setting its selected valve to the %-output in PLC48.
PLC47	Selected RPM Valve Output for Minimum [19] 0% CV output (%) that the module uses to drive the selected RPM valve during any Press/Position or Press/Time Plastication Profile. The module expects an RPM equal to PLC45 when setting the selected RPM valve to this %-output during profile execution. The profile will be executed as reverse-acting if this entry is greater than PLC48.
PLC48	Selected RPM Valve Output for Maximum [19] 100% CV output (%) that the module uses to drive the selected RPM valve during any Press/Position or Press/Time Plastication Profile. The module expects an RPM equal to PLC46 when setting the selected RPM valve to this %-output during profile execution. The profile will be executed as reverse-acting if this entry is less than PLC47.

Profile Tuning Constants

Word	Description
PLC49	Proportional Gain for Pressure Control [30]
PLC50	Integral Gain for Pressure Control [27] or [28]
PLC51	Derivative Gain for Pressure Control [26] or [21]
PLC52	Proportional Gain for RPM Control [30]
PLC53	Integral Gain for RPM Control [27] or [28]
PLC54	Derivative Gain for RPM Control [26] or [21]
PLC55 - 56	RFU

Notes: For [ ] engineering units, see page 2.

Profile Pressure Alarm Setpoint

Word	Description
PLC57	Profile High Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when executing the Plastication Profile. The module sets alarm status bit SYS06-B07 when ram (screw) pressure equals or exceeds this entry during the Plastication Profile. A zero entry inhibits SYS06-B07.
PLC58 - 64	RFU

PPC – Plastication Profile Block

Bit-mapped Control Words

Word	Bit	Description
PPC01		Block ID = 00001111 (Low byte). High byte reserved for the module. Do not use.
PPC02		RFU
PPC03		**Configuration Selections**
	B00-B01	Profile Algorithm Selection **B01 B00** 0 0 Ram (Screw) Press/Pos 0 1 Ram (Screw) Press/Time 1 0 RPM/Pos 1 1 RPM/Time
	B02-B07	RFU
	B08	Plastication/Post-decompression Logical Bridge Selection End of Plastication Profile = 0 Start Post-decompression Movement at End of Plastication Profile = 1 Stop and Set-output at End of Plastication Profile Module checks the state of this pause bit at completion of Plastication Profile to determine what further action to take: **if:** — **then the module:** SET — sets its outputs to PLC33–36 RESET, SYS15-B15 = 1, and PSC05 > 00000 — immediately begins the Post-decompression Movement RESET, SYS15-B15 = 1, and PRC05 = 00000 — sets its outputs to PSC33–36 RESET and SYS15-B12 = 0 — sets its outputs to zero and latches SYS13-B10
	B09-B11	RFU
		Profile Offset Sign Selection
	B12	= 0 Plastication RPM Profile Offset is Positive = 1 Plastication RPM Profile Offset is Negative
	B13	= 0 Plastication Pressure Profile Offset is Positive = 1 Plastication Pressure Profile Offset is Negative
	B14-B15	RFU
PPC04		Configuration Selections
		Open/Closed Loop Selection
	B00	= 0 Press/Pos Plastication Profiles Closed Loop = 1 Press/Pos Plastication Profiles Open Loop
	B01	= 0 Press/Time Plastication Profiles Closed Loop = 1 Press/Time Plastication Profiles Open Loop
	B02	= 0 RPM/Pos Plastication Profiles Closed Loop = 1 RPM/Pos Plastication Profiles Open Loop
	B03	= 0 RPM/Time Plastication Profiles Closed Loop = 1 RPM/Time Plastication Profiles Open Loop
	B04-B07	RFU
		ERC Enabled/Disabled Selection
	B08	= 0 Press/Pos Plastication ERC On = 1 Press/Pos Plastication ERC Off
	B09	= 0 Press/Time Plastication ERC On = 1 Press/Time Plastication ERC Off

Word	Bit	Description
	B10	= 0 RPM/Pos Plastication ERC On = 1 RPM/Pos Plastication ERC Off
	B11	= 0 RPM/Time Plastication ERC On = 1 RPM/Time Plastication ERC Off
	B12-B15	RFU
PPC05 - 08		RFU

Plastication Profile Setpoints

Word	Description
PPC09	Segment 1 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint after starting the Plastication Profile until ram (screw) position reaches PPC11 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint after starting the Plastication Profile for time period PPC12 (or until 100% shot size if sooner).
PPC10	Segment 1 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint after starting the Plastication Profile until ram (screw) position reaches PPC11 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint after starting the Plastication Profile for time period PPC12 (or until 100% shot size if sooner).
PPC11	End of Segment 1 Position Setpoint [12]
PPC12	Segment 1 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC09 or ram (screw) backpressure to PPC10 for this time period (or until 100% shot size if sooner) beginning with initiation of Plastication Profile.
PPC13	Segment 2 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC11 to position PPC15 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC12 (or until 100% shot size if sooner).
PPC14	Segment 2 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC11 to position PPC15 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 1 for time period PPC16 (or until 100% shot size if sooner).
PPC15	End of Segment 2 Position Setpoint [12]
PPC16	Segment 2 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC13 or ram (screw) backpressure to PPC14 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 1.
PPC17	Segment 3 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC15 to position PPC19 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC20 (or until 100% shot size if sooner).
PPC18	Segment 3 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC15 to position PPC19 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 2 for time period PPC20 (or until 100% shot size if sooner).
PPC19	End of Segment 3 Position Setpoint [12]
PPC20	Segment 3 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC17 or ram (screw) backpressure to PPC18 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 2.
PPC21	Segment 4 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC19 to position PPC23 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls ram (screw) RPM to this setpoint for time period PPC24 (or until 100% shot size if sooner).
PPC22	Segment 4 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC19 to position PPC23 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 3 for time period PPC24 (or until 100% shot size if sooner).
PPC23	End of Segment 4 Position Setpoint [12]
PPC24	Segment 4 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC21 or ram (screw) backpressure to PPC22 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 4.
PPC25	Segment 5 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC23 to position PPC27 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC28 (or until 100% shot size if sooner).
PPC26	Segment 5 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC23 to position PPC27 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 4 for time period PPC28 (or until 100% shot size if sooner).

Notes: For [ ] engineering units, see page 2.

PPC

Word	Description
PPC27	End of Segment 5 Position Setpoint [12]
PPC28	Segment 5 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC25 or ram (screw) backpressure to PPC26 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 4.
PPC29	Segment 6 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC27 to position PPC31 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC32 (or until 100% shot size if sooner).
PPC30	Segment 6 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC27 to position PPC31 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 5 for time period PPC32 (or until 100% shot size if sooner).
PPC31	End of Segment 6 Position Setpoint [12]
PPC32	Segment 6 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC29 or back-pressure to PPC30 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 5.
PPC33	Segment 7 Ram (Screw) RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC31 to position PPC35 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC36 (or until 100% shot size if sooner).
PPC34	Segment 7 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC31 to position PPC35 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 6 for time period PPC36 (or until 100% shot size if sooner).
PPC35	End of Segment 7 Position Setpoint [12]
PPC36	Segment 7 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC33 or ram (screw) backpressure to PPC34 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 6.
PPC37	Segment 8 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC35 to position PPC39 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC40 (or until 100% shot size if sooner).
PPC38	Segment 8 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC35 to position PPC39 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 7 for time period PPC40 (or until 100% shot size if sooner).
PPC39	End of Segment 8 Position Setpoint [12]
PPC40	Segment 8 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC37 or ram (screw) backpressure to PPC38 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 7.
PPC41	Segment 9 RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC39 to position PPC43 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC44 (or until 100% shot size if sooner).
PPC42	Segment 9 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC39 to position PPC43 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint starting at completion of Segment 8 for time period PPC44 (or until 100% shot size if sooner.
PPC43	End of Segment 9 Position Setpoint [12]
PPC44	Segment 9 Time Setpoint [21] If you select RPM/Time or Press/Time profile execution, the module controls ram (screw) RPM to PPC41 or ram (screw) backpressure to PPC42 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 8.
PPC45	Segment 10 Ram (Screw) RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC43 to position PPC47 (or until 100% shot size if sooner). If you select RPM/Time profile execution, the module controls RPM to this setpoint for time period PPC48 (or until 100% shot size if sooner).
PPC46	Segment 10 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC43 to position PPC47 (or until 100% shot size if sooner). If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint at completion of Segment 9 for time period PPC48 (or until 100% shot size if sooner).
PPC47	End of Segment 10 Position Setpoint [12]
PPC48	Segment 10 Time Setpoint If you select RPM/Time or Press/Time profile execution, the module controls RPM to PPC45 or ram (screw) backpressure to PPC46 for this time period (or until 100% shot size if sooner) beginning at completion of Segment 9.

Word	Description
PPC49	Segment 11 Ram (Screw) RPM Setpoint [25] If you select RPM/Pos profile execution, the module controls RPM to this setpoint from ram (screw) position PPC47 until 100% shot size. If you select RPM/Time profile execution, the module controls RPM to this set-point at completion or segment 10 until 100% shot size.
PPC50	Segment 11 Pressure Setpoint [01] If you select Press/Pos profile execution, the module controls ram (screw) backpressure to this setpoint from ram (screw) position PPC47 until 100% shot size. If you select Press/Time profile execution, the module controls ram (screw) backpressure to this setpoint at completion of Segment 10 until 100% shot size.

Plastication Profile Offsets

Word	Description
PPC51	Profile RPM Offset [01] If you select RPM/Pos or RPM/Time profile execution, the module applies this entry (after reading the sign bit) to each RPM profile setpoint.
PPC52	Profile Pressure Offset [01] If you select Press/Pos or Press/Time profile execution, the module applies this entry (after reading the sign bit) to each pressure profile setpoint.
PPC53 - 60	RFU

Critical Process Setpoints

These two entries let the module establish the 100% shot size position, defined at ram (screw) position of MCC13 + PPC61 + PPC62. The module terminates all Plastication Profiles at 100% shot size position.

Word	Description
PPC61	Cushion Size [12] Informs the module of the nominal length of molten plastic that should remain in the barrel at conclusion of the Hold Profile. The module uses it only to calculate the 100% shot size position.
PPC62	Shot Size [17] Informs the module of the nominal length of molten plastic that should be drawn during the Plastication Profile. The module uses it only to calculate the 100% shot size position.
PPC63 - 64	RFU

PRC – Pre-decompression Configuration Block

Bit-mapped Control Words

Word	Description
PRC01	Block ID = 00001101 (Low byte). High byte reserved for the module. Do not use.
PRC02 - 04	RFU

Movement Length

Word	Description
PRC05	Incremental Movement Length [17] When the module starts the Pre-decompression Movement, it adds this entry to the current ram (screw) position to establish the End of Pre-decompression position. The module uses the End of pre-decompression position as the termination point of all pre-decompression movements.
PRC06 - 07	RFU

Watchdog Timer

Word	Description
PRC08	Movement Watchdog Timer Preset [21] When the module starts the Pre-decompression Movement, it: • starts an internal Movement Watchdog timer • stops this timer and resets its accumulated value to zero (after reporting total execution time in HPS59) when it completes the movement • sets master status bit SYS04-B07 when the accumulated value of this timer equals or exceeds this entry. A zero entry inhibits SYS04-B07.

Notes: For [ ] engineering units, see page 2.

Movement Set-output Values

When the module starts the Pre-decompression Movement, it:

- uses ramp rates PRC17-20 and PRC25-28 to ramp outputs
- sets its outputs to the values listed below

Word	Description
PRC09	Output #1 Set-output Value during Movement [19]
PRC10	Output #2 Set-output Value during Movement [19]
PRC11	Output #3 Set-output Value during Movement [19]
PRC12	Output #4 Set-output Value during Movement [19]
PRC13-16	RFU

Output Ramp Rates

The module uses the following ramp rates when moving its outputs from setpoint to setpoint during the Pre-decompression Movement. A ramp rate entry of zero gives a step function ramp (ramp disable).

Word	Description
PRC17	Output #1 Acceleration Ramp Rate during Movement [20]
PRC18	Output #2 Acceleration Ramp Rate during Movement [20]
PRC19	Output #3 Acceleration Ramp Rate during Movement [20]
PRC20	Output #4 Acceleration Ramp Rate during Movement [20]
PRC21-24	RFU
PRC25	Output #1 Deceleration Ramp Rate during Movement [20]
PRC26	Output #2 Deceleration Ramp Rate during Movement [20]
PRC27	Output #3 Deceleration Ramp Rate during Movement [20]
PRC28	Output #4 Deceleration Ramp Rate during Movement [20]
PRC29-32	RFU

End of Movement Set-output Values

When the module completes the Pre-decompression Movement and HPC03-B09 is SET, it:

- sets status bit SYS22-B07
- uses ramp rates PRC17-20 and PRC25-28 when changing outputs
- sets its outputs to the following values

Word	Description
PRC33	Output #1 Set-output Value at End of Movement [19]
PRC34	Output #2 Set-output Value at End of Movement [19]
PRC35	Output #3 Set-output Value at End of Movement [19]
PRC36	Output #4 Set-output Value at End of Movement [19]
PRC37-56	RFU

Movement Pressure Alarm Setpoint

Word	Description
PRC57	Movement High Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry during the Pre-decompression Movement. The module sets alarm status bit SYS06-B06 when ram (screw) pressure equals or exceeds this entry during the Pre- decompression Movement. A zero entry inhibits SYS06-B06.
PRC58 - 64	RFU

PSC – Post-decompression Configuration Block

Bit-mapped Control Words

Word	Bit	Description
PSC01		Block ID = 00010000 (Low byte). High byte reserved for the module. Do not use.
PSC02 - 04		RFU

Movement Length

Word	Description
PSC05	Incremental Movement Length [17] When the module starts the Post-decompression Movement, it adds this entry to the sum of cushion size (PPC61) + shot size (PPC62) to establish the End of Post-decompression ram (screw) position. The module uses End of Post-decompression position as termination point of all Post-decompression Movements.
PSC06 - 07	RFU

Watchdog Timer

Word	Description
PSC08	Movement Watchdog Timer Preset [21] When the module starts the Post-decompression Movement, it: • starts an internal Movement Watchdog timer • stops timer and resets accumulated value to zero (after reporting total execution time in PPS58) when it completes the movement • sets master status bit SYS04-B09 when the accumulated value of this timer equals or exceeds this entry. A zero entry inhibits SYS04-B09.

Movement Set-output Values

When the module starts the Post-decompression Movement, it:

- uses ramp rates PRC17-20 and PRC25-28 to ramp outputs
- sets its outputs to the values listed below

Word	Description
PSC09	Output #1 Set-output Value during Movement [19]
PSC10	Output #2 Set-output Value during Movement [19]
PSC11	Output #3 Set-output Value during Movement [19]
PSC12	Output #4 Set-output Value during Movement [19]
PSC13-16	RFU

Output Ramp Rates

The module uses the following ramp rates when moving its outputs between setpoints during Post-decompression Movement. The module interprets a ramp rate of zero as a step function ramp (ramp disable).

Word	Description
PSC17	Output #1 Acceleration Ramp Rate during Movement [20]
PSC18	Output #2 Acceleration Ramp Rate during Movement [20]
PSC19	Output #3 Acceleration Ramp Rate during Movement [20]
PSC20	Output #4 Acceleration Ramp Rate during Movement [20]
PSC21-24	RFU
PSC25	Output #1 Deceleration Ramp Rate during Movement [20]
PSC26	Output #2 Deceleration Ramp Rate during Movement [20]
PSC27	Output #3 Deceleration Ramp Rate during Movement [20]
PSC28	Output #4 Deceleration Ramp Rate during Movement [20]
PSC29-32	RFU

Notes: For [ ] engineering units, see page 2.

End of Movement Set-output Values

When the module completes the Post-decompression Movement, it:

- sets status bit SYS22-B09
- uses ramp rates PSC17-20 and PSC25-28 when changing outputs
- sets its outputs to the following values

Use these values for-pulling cores if applied before starting the first clamp open profile.

Word	Description
PSC33	Output #1 Set-output Value at End of Movement [19]
PSC34	Output #2 Set-output Value at End of Movement [19]
PSC35	Output #3 Set-output Value at End of Movement [19]
PSC36	Output #4 Set-output Value at End of Movement [19]
PSC37-56	RFU

Movement Pressure Alarm Setpoint

Word	Description
PSC57	Movement High Pressure Alarm Setpoint [01] The module compares real-time ram (screw) pressure against this entry when executing the Post-decompression Movement. The module sets alarm status bit SYS06-B08 when ram (screw) pressure equals or exceeds this entry during the Post-decompression Movement. A zero entry inhibits SYS06-B08.
PSC58 - 64	RFU

PTC – Process Trace Configuration Block

Bit-mapped Control Words

Word	Bit	Description
PTC01		Block ID = 00011100 (Low Byte). High byte reserved for the module. Do not use.
PTC02		**Control bits**
	B00	0 = Process trace disabled 1 = Process trace enabled
	B01	0 = Trigger on time delay 1 = Trigger on position
PTC03, 04		RFU
PTC05		Trigger delay (in hundredths of seconds) for data collection after injection begins (when PTC02-B01 = 0)
PTC06		Trigger position (in hundredths of inches or tenths of millimeters) on which to collect data when PTC02-B01 = 1
PTC07		Sample rate at which the module collects trace data in milliseconds (must be an even number between 2 and 230)
PTC08		Trace #1 selection
	B01	Injection position
	B02	Injection pressure
	B03	Injection velocity The module will return unscaled injection position data if injection velocity is selected. The process trace screen uses this position information to calculate and display velocity.
	B04	Cavity pressure
	B05	Screw RPM
	B06	Injection flow valve output
	B07	Injection pressure valve output
	B08 - B15	RFU

Word	Bit	Description
PTC09		Trace #2 selection
	B01	Injection position
	B02	Injection pressure
	B03	Injection velocity The module will return unscaled injection position data if injection velocity is selected. The process trace screen uses this position information to calculate and display velocity.
	B04	Cavity pressure
	B05	Screw RPM
	B06	Injection flow valve output
	B07	Injection pressure valve output
	B08-15	Reserved Do not use.
PTC10		Trace #3 selection
	B01	Injection position
	B02	Injection pressure
	B03	Injection velocity The module will return unscaled injection position data if injection velocity is selected. The process trace screen uses this position information to calculate and display velocity.
	B04	Cavity pressure
	B05	Screw RPM
	B06	Injection flow valve output
	B07	Injection pressure valve output
PTC11		Trace #4 selection
	B01	Injection position
	B02	Injection pressure
	B03	Injection velocity The module will return unscaled injection position data if injection velocity is selected. The process trace screen uses this position information to calculate and display velocity.
	B04	Cavity pressure
	B05	Screw RPM
	B06	Injection flow valve output
	B07	Injection pressure valve output
	B08 - B15	Reserved Do not use.
PTC12 - 64		RFU

RLC – Inject ERC Values Block

Bit-mapped Control Words

Word	Description
RLC01	Block ID = 00011010 (Low byte). High byte reserved for the module. Do not use.
RLC02 - 08	RFU

Injection Profile ERC Values

Word	Description
RLC09	Injection Segment 1
RLC10	Injection Segment 2
RLC11	Injection Segment 3
RLC12	Injection Segment 4
RLC13	Injection Segment 5

Notes: For [ ] engineering units, see page 2.

Word	Description
RLC14	Injection Segment 6
RLC15	Injection Segment 7
RLC16	Injection Segment 8
RLC17	Injection Segment 9
RLC18	Injection Segment 10
RLC19	Injection Segment 11

Pack Profile ERC Values

Word	Description
RLC20	Pack Segment 1
RLC21	Pack Segment 2
RLC22	Pack Segment 3
RLC23	Pack Segment 4
RLC24	Pack Segment 5

Hold Profile ERC Values

Word	Description
RLC25	Hold Segment 1
RLC26	Hold Segment 2
RLC27	Hold Segment 3
RLC28	Hold Segment 4
RLC29	Hold Segment 5

Plastication Profile ERC Values

Word	Description
RLC30	Plastication Segment 1
RLC31	Plastication Segment 2
RLC32	Plastication Segment 3
RLC33	Plastication Segment 4
RLC34	Plastication Segment 5
RLC35	Plastication Segment 6
RLC36	Plastication Segment 7
RLC37	Plastication Segment 8
RLC38	Plastication Segment 9
RLC39	Plastication Segment 10
RLC40	Plastication Segment 11
RLC41 - 64	RFU

Notes:

Notes: For [ ] engineering units, see page 2.

Status Word/Bit Descriptions

List of Status Blocks and Block ID Codes

Status blocks report current status of molding machine operation. They are returned from the QI module to the PLC processor by means of block transfer read (BTR) instructions in software ladder logic.

Acronym:	Block ID Binary:	Decimal:	Description:	Page:
HPS	00000100	12	Pack/Hold Profile Status Block	3-3
IPS	00000011	9	Injection Profile Status Block	3-5
PPS	00000101	15	Plastication Profile Status Block	3-8
PTS	00001010	28	Process Trace Status Block	3-11
RLS	00001000	26	Inject ERC Values Status Block	3-13
SYS	00000001	1	System Status Block	3-14

List of Data Words

The listings of status blocks use five types of data words:

- Block ID
- Bit-mapped
- Stored-value
- Reserved (RFU)

Block ID Word

The first word in each status block contains a binary number code in the low byte that identifies the block. The PLC processor uses them to identify status blocks received from the QI module.

For all status block ID words, the high byte is identical to the high byte of the system status word SYS01, and contains jog-execution and power start-up status.

Bit-mapped Words

The first several words in any data block are bit-mapped. As the QI module monitors and detects changes in events of machine cycles, it sets/resets or latches/unlatches status bits to inform the PLC-5 processor that these events have occurred.

Stored-value Words

The QI module reports actual values of machine operation obtained from sensor devices that you connect to its input terminals. The values are transferred to the PLC processor for data processing and alarm purposes. These values include positions, pressures, and velocities.

Reserved Words (RFU)

These words are Reserved for Future Use. Do not use them.

Data Blocks Require I/O Configuration

The QI module decodes its own I/O configuration based on parameters that you provide in the Module Configuration Command Block (MCC). I/O configuration determines which of the command and status blocks the module supports. For the module to support command and status blocks, you must establish the following position input:

- Connect a ram (screw) position sensor to input 1.

Engineering Units

In the listings of status blocks, each stored-value word is followed by a bracketed [ ] 2-digit number code denoting the engineering units and range associated with the value as shown in the following table:

#Code	Type of Block	Units and Range
01	Ram (Screw)	Pressure (0000.0 to 9999.0 PSI or 000.0 to 999.9 Bar)
04	Cavity	Pressure (00000.0 to 20000.0 PSI or 0000.0 to 2000.0 Bar)
05	Ram (Screw)	Percent of maximum velocity (00.00 to 99.99%)
06	Ram (Screw)	Velocity along axis (00.00 to 99.99 in. per sec. or 000.0 to 999.9 mm per sec.)
11	Ram (Screw) Measured from zero	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
12	Ram (Screw) Measured from MCC13	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
17	Measured as noted in text	Incremental distance (00.00 to 99.99 in. or 000.0 to 999.9 mm.)
18	Measured as noted in text	Incremental distance (00.00 to 00.99 in. or 000.0 to 009.9 mm.)
19		Percent signal output (00.00 to 99.99%)
20		Percent signal output per second (0000. To 9999.)
21		Time measured in seconds (00.00 to 99.99)
22		Time measured in seconds (000.0 to 999.9)
23		Time measured in seconds (00.00 to 00.99)
24		Input signal range (00.00 to 10.00 or 01.00 to 05.00 or 04.00 to 20.00)
25		Screw rotational speed (000.0 to 999.9 RPM)
26		Time (algorithm) (00.00 to 9.99 minutes)
27		Inverse time (algorithm) (00.00 to 99.99 inverse minutes)
28		Inverse time (algorithm) (00.00 to 99.99 inverse seconds)
31		Percent (00.00 to 99.99%)

Status Blocks for Reporting System and Ram (Screw) Position Status

The System Status Block (SYS) reports system status.

The module can always return the System Status Block to the host processor. It returns this block after each block transfer read (BTR) request from the PLC processor unless the previous block transfer write (BTW) to the module was a valid dynamic command block (DYC) containing a request for some other status block.

The QI module can return any of these status blocks:

Block	Description
IPS	Injection Profile Status Block
HPS	Pack/Hold Profile Status Block
PPS	Plastication Profile Status Block
PTS	Process Trace Status Block
RLS	Inject ERC Values Status Block

After you configure the QI module with a valid MCC, the module determines if it has access to ram (screw) position data from the ram (screw) position sensor connected to input 1.

Notes: For [ ] engineering units, see page 2.

HPS – Pack/Hold Profile Status Block

Bit-mapped Status Words

Word	Bit	Description
HPS01		Block ID = 00000100 (Low byte). High byte identical to SYS01
HPS02		See SYS02
HPS03		See SYS03
HPS04		See SYS04
HPS05, 06		RFU
HPS07		CV High Limit Alarms
		For Pack Phase
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to maximum (100%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to maximum (100%).
	This bit latched ON:	**when algorithm CV is maximum during:**
	B00	Pack Segment 1
	B01	Pack Segment 2
	B02	Pack Segment 3
	B03	Pack Segment 4
	B04	Pack Segment 5
	B05-B07	RFU
		For Hold Phase
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to maximum (100%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to maximum (100%).
	This bit latched ON:	**when algorithm CV is maximum during:**
	B08	Hold Segment 1
	B09	Hold Segment 2
	B10	Hold Segment 3
	B11	Hold Segment 4
	B12	Hold Segment 5
	B13-B15	RFU
HPS08		CV Low Limit Alarms
		For Pack Phase
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to minimum (0%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to minimum (0%).
	This bit latched ON:	**when algorithm CV is minimum during:**
	B00	Pack Segment 1
	B01	Pack Segment 2
	B02	Pack Segment 3
	B03	Pack Segment 4
	B04	Pack Segment 5
	B05-B07	RFU

Word	Bit	Description
		For Hold Phase
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to minimum (0%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to minimum (0%).
	This bit-latched ON:	**when algorithm CV is minimum during:**
	B08	Hold Segment 1
	B09	Hold Segment 2
	B10	Hold Segment 3
	B11	Hold Segment 4
	B12	Hold Segment 5
	B13-B15	RFU

Pack Profile Actuals

Word	Description
HPS09	Actual Pack Segment 1 Cavity Pressure [04] Average cavity pressure during last Segment 1.
HPS10	Actual Pack Segment 1 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 1.
HPS11	Actual Pack End of Segment 1 Position [12] Ram (Screw) position at completion of last Segment 1.
HPS12	Actual Pack Segment 2 Cavity Pressure [04] Average cavity pressure during last Segment 2.
HPS13	Actual Pack Segment 2 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 2.
HPS14	Actual Pack End of Segment 2 Position [12] Ram (Screw) position at completion of last Segment 2.
HPS15	Actual Pack Segment 3 Cavity Pressure [04] Average cavity pressure during last Segment 3.
HPS16	Actual Pack Segment 3 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 3.
HPS17	Actual Pack End of Segment 3 Position [12] Ram (Screw) position at completion of last Segment 3.
HPS18	Actual Pack Segment 4 Cavity Pressure [04] Average cavity pressure during last Segment 4.
HPS19	Actual Pack Segment 4 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 4.
HPS20	Actual Pack End of Segment 4 Position [12] Ram (Screw) position at completion of last Segment 4.
HPS21	Actual Pack Segment 5 Cavity Pressure [04] Average cavity pressure during last Segment 5.
HPS22	Actual Pack Segment 5 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 5.
HPS23	Actual Pack End of Segment 5 Position [12] Ram (Screw) position at completion of last Segment 5.
HPS24 - 25	RFU

Hold Profile Actuals

Word	Description
HPS26	Actual Hold Segment 1 Cavity Pressure [04] Average cavity pressure during last Segment 1.
HPS27	Actual Hold Segment 1 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 1.
HPS28	Actual Hold End of Segment 1 Position [12] Ram (Screw) position at completion of last Segment 1.
HPS29	Actual Hold Segment 2 Cavity Pressure [04] Average cavity pressure during last Segment 2.
HPS30	Actual Hold Segment 2 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 2.
HPS31	Actual Hold End of Segment 2 Position [12] Ram (Screw) position at completion of last Segment 2.
HPS32	Actual Hold Segment 3 Cavity Pressure [04] Average cavity pressure during last Segment 3.
HPS33	Actual Hold Segment 3 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 3.
HPS34	Actual Hold End of Segment 3 Position [12] Ram (Screw) position at completion of last Segment 3.
HPS35	Actual Hold Segment 4 Cavity Pressure [04] Average cavity pressure during last Segment 4.
HPS36	Actual Hold Segment 4 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 4
HPS37	Actual Hold End of Segment 4 Position [12] Ram (Screw) position at completion of last Segment 4.
HPS38	Actual Hold Segment 5 Cavity Pressure [04] Average cavity pressure during last Segment 5.
HPS39	Actual Hold Segment 5 Ram (Screw) Pressure [01] Average ram (screw) pressure during last Segment 5.
HPS40	Actual Hold End of Segment 5 Position [12] Ram (Screw) position at completion of last Segment 5
HPS41 - 50	RFU

Notes: For [ ] engineering units, see page 2.

Pack Maximum Pressures

Word	Description
HPS51	Maximum Ram (Screw) Pressure During Pack [01] Maximum instantaneous ram (screw) pressure during last profile.
HPS52	Maximum Cavity Pressure During Pack [04] Maximum instantaneous cavity pressure during last profile.

Hold Maximum Pressures

Word	Description
HPS53	Maximum Ram (Screw) Pressure During Hold [01] Maximum instantaneous ram (screw) pressure during last profile.
HPS54	Maximum Cavity Pressure During Hold [04] Maximum instantaneous cavity pressure during last profile.

Pre-decompression Maximum Pressure

Word	Description
HPS55	Maximum Ram (Screw) Pressure During Pre-decompression [01] Max instantaneous ram (screw) pressure during last movement.
HPS56	RFU

Execution Times

Word	Description
HPS57	Pack Profile Execution Time [21] Total time required for last profile.
HPS58	Hold Profile Execution Time [21] Total time required for last profile.
HPS59	Pre-decompression Movement Execution Time [21] Total time required for last movement.
HPS60	RFU

Pre-decompression Movement Actuals

Word	Description
HPS61	Pre-decompression Movement Actual Velocity [06] Average ram (screw) velocity during last movement, reported in in.(mm)/s.
HPS62	Pre-decompression Movement Actual Pressure [01] Average ram (screw) pressure during last movement.

End of Hold Ram (Screw) Position

Word	Description
HPS63	Position at End of Hold [12] Instantaneous ram (screw) position at completion of last profile.
HPS64	RFU

IPS – Injection Profile Status Block

Bit-mapped Status Words

Word	Bit	Description
IPS01		Block ID = 00000011 (Low byte). High byte identical to SYS01
IPS02		See SYS02
IPS03		See SYS03
IPS04		See SYS04
IPS05		Pressure Limit Alarms
		Module latches bits individually when executing a pressure-limited Vel/Pos Injection Profile and monitors a real-time ram (screw) pressure equal to or greater than IPC57 during the subject profile segment. The module unlatches each bit when it completes the segment without monitoring a real-time ram (screw) pressure equal to or greater than IPC57.
	This bit latched ON:	**at pressure limit for this LimVel/Pos segment:**
	B00	Segment 1
	B01	Segment 2
	B02	Segment 3
	B03	Segment 4
	B04	Segment 5

Word	Bit	Description
	B05	Segment 6
	B06	Segment 7
	B07	Segment 8
	B08	Segment 9
	B09	Segment 10
	B10	Segment 11
	B11-B15	RFU
IPS06		Injection Transition Status
	B00	= 0 Normal = 1 Injection Transition on Time The module sets this bit when the Transition Time Setpoint (IPC60) triggered completion of last Injection Profile.
	B01	= 0 Normal = 1 Injection Transition on Ram (Screw) Position Module sets this bit when Transition Ram (Screw) Position Setpoint (IPC61) triggered completion of last Injection Profile
	B02	= 0 Normal = 1 Injection Transition on Ram (Screw) Pressure Module sets bit when Transition Ram (Screw) Pressure Setpoint (IPC62) triggered completion of last Injection Profile.
	B03	= 0 Normal = 1 Injection Transition on Cavity Pressure Module sets this bit when the Transition Cavity Pressure Setpoint (IPC63) triggered completion of last Injection Profile.
	B04-B15	RFU
IPS07		CV High Limit Alarms
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to maximum (100%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to maximum (100%).
	This bit latched ON:	**when algorithm CV is maximum during:**
	B00	Segment 1
	B01	Segment 2
	B02	Segment 3
	B03	Segment 4
	B04	Segment 5
	B05	Segment 6
	B06	Segment 7
	B07	Segment 8
	B08	Segment 9
	B09	Segment 10
	B10	Segment 11
	B11-B15	RFU
IPS08		CV Low Limit Alarms
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to minimum (0%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to minimum (0%).
	This bit latched ON:	**when algorithm CV is maximum during:**
	B00	Segment 1
	B01	Segment 2
	B02	Segment 3
	B03	Segment 4
	B04	Segment 5
	B05	Segment 6

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
	B06	Segment 7
	B07	Segment 8
	B08	Segment 9
	B09	Segment 10
	B10	Segment 11
	B11-B15	RFU

Injection Profile Actuals

Word	Description
IPS09	Actual Segment 1 Velocity [05] or [06] Average ram (screw) velocity during last Segment 1. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS10	Actual Segment 1 Pressure [01] Average ram (screw) pressure during last Segment 1.
IPS11	Actual Segment 1 Execution Time [21] Time required for last Segment 1.
IPS12	Actual End of Segment 1 Position [12] Ram (Screw) position at completion of last Segment 1.
IPS13	Actual Segment 2 Velocity [05] or [06] Average ram (screw) velocity during last Segment 2. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS14	Actual Segment 2 Pressure [01] Average ram (screw) pressure during last Segment 2.
IPS15	Actual Segment 2 Execution Time [21] Time required for last Segment 2.
IPS16	Actual End of Segment 2 Position [12] Ram (Screw) position at completion of last Segment 2.
IPS17	Actual Segment 3 Velocity [05] or [06] Average ram (screw) velocity during last Segment 3. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS18	Actual Segment 3 Pressure [01] Average ram (screw) pressure during last Segment 3.
IPS19	Actual Segment 3 Execution Time [21] Time required for last Segment 3.
IPS20	Actual End of Segment 3 Position [12] Ram (Screw) position at completion of last Segment 3.
IPS21	Actual Segment 4 Velocity [05] or [06] Average ram (screw) velocity during last Segment 4. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS22	Actual Segment 4 Pressure [01] Average ram (screw) pressure during last Segment 4.
IPS23	Actual Segment 4 Execution Time [21] Time required for last Segment 4.
IPS24	Actual End of Segment 4 Position [12] Ram (Screw) position at completion of last Segment 4.
IPS25	Actual Segment 5 Velocity [05] or [06] Average ram (screw) velocity during last Segment 5. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS26	Actual Segment 5 Pressure [01] Average ram (screw) pressure during last Segment 5.
IPS27	Actual Segment 5 Execution Time [21] Time required for last Segment 5.
IPS28	Actual End of Segment 5 Position [12] Ram (Screw) position at completion of last Segment 5.
IPS29	Actual Segment 6 Velocity [05] or [06] Average ram (screw) velocity during last Segment 6. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS30	Actual Segment 6 Pressure [01] Average ram (screw) pressure during last Segment 6.
IPS31	Actual Segment 6 Execution Time [21] Time required for last Segment 6.
IPS32	Actual End of Segment 6 Position [12] Ram (Screw) position at completion of last Segment 6.
IPS33	Actual Segment 7 Velocity [05] or [06] Average ram (screw) velocity during last Segment 7. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS34	Actual Segment 7 Pressure [01] Average ram (screw) pressure during last Segment 7.
IPS35	Actual Segment 7 Execution Time [21] Time required for last Segment 7.
IPS36	Actual End of Segment 7 Position [12] Ram (Screw) position at completion of last Segment 7.

Word	Description
IPS37	Actual Segment 8 Velocity [05] or [06] Average ram (screw) velocity during last Segment 8. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS38	Actual Segment 8 Pressure [01] Average ram (screw) pressure during last Segment 8.
IPS39	Actual Segment 8 Execution Time [21] Time required for last Segment 8.
IPS40	Actual End of Segment 8 Position [12] Ram (Screw) position at completion of last Segment 8.
IPS41	Actual Segment 9 Velocity [05] or [06] Average ram (screw) velocity during last Segment 9. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS42	Actual Segment 9 Pressure [01] Average ram (screw) pressure during last Segment 9.
IPS43	Actual Segment 9 Execution Time [21] Time required for last Segment 9.
IPS44	Actual End of Segment 9 Position [12] Ram (Screw) position at completion of last Segment 9.
IPS45	Actual Segment 10 Velocity [05] or [06] Average ram (screw) velocity during last Segment 10. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS46	Actual Segment 10 Pressure [01] Ram (screw) pressure during last Segment 10.
IPS47	Actual Segment 10 Execution Time [21] Time required for last Segment 10.
IPS48	Actual End of Segment 10 Position [12] Ram (Screw) position at completion of last Segment 10.
IPS49	Actual Segment 11 Velocity [05] or [06] Average ram (screw) velocity during last Segment 11. If IPC03-B14 is RESET, the module reports this average in percent velocity. If IPC03-B14 is SET, it reports it in in.(mm)/s.
IPS50	Actual Segment 11 Pressure [01] Average ram (screw) pressure during last Segment 11.
IPS51	Actual Segment 11 Execution Time [21] Time required for last Segment 11.
IPS52	RFU

Injection Maximum Pressures

Word	Description
IPS53	Maximum Ram (Screw) Pressure During Injection [01] Maximum instantaneous ram (screw) pressure during last profile.
IPS54	Maximum Cavity Pressure During Injection [04] Maximum instantaneous cavity pressure during last profile.
IPS55 - 60	RFU

Injection Transition Actuals

Word	Description
IPS61	Actual Time to Transition [21] Total time required for last Injection Profile.
IPS62	Actual Ram (Screw) Position at Transition [12] Instantaneous ram (screw) position at completion of last Injection Profile.
IPS63	Actual Ram (Screw) Pressure at Transition [01] Instantaneous ram (screw) pressure at completion of last Injection Profile.
IPS64	Actual Cavity Pressure at Transition [04] Instantaneous cavity pressure at completion of last Injection Profile.

PPS – Plastication Profile Status Block

Bit-mapped Status Words

Word	Bit	Description
PPS01		Block ID = 00000101 (Low byte). High byte identical to SYS01
PPS02		See SYS02
PPS03		See SYS03
PPS04		See SYS04
PPS05, 06		RFU

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
PPS07		CV High Limit Alarms
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to maximum (100%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to maximum (100%).
	This bit latched ON:	**when algorithm CV is maximum during:**
	B00	Segment 1
	B01	Segment 2
	B02	Segment 3
	B03	Segment 4
	B04	Segment 5
	B05	Segment 6
	B06	Segment 7
	B07	Segment 8
	B08	Segment 9
	B09	Segment 10
	B10	Segment 11
	B11-B15	RFU
PPS08		CV Low Limit Alarms
		The module latches each bit when executing the subject profile segment in closed loop, and drives its algorithm CV to minimum (0%) in an attempt to control the profile setpoint. The module unlatches each bit when it completes execution of the subject profile segment in open loop, or in closed loop without driving its algorithm CV to minimum (0%).
	This bit latched ON:	**when algorithm CV is minimum during:**
	B00	Segment 1
	B01	Segment 2
	B02	Segment 3
	B03	Segment 4
	B04	Segment 5
	B05	Segment 6
	B06	Segment 7
	B07	Segment 8
	B08	Segment 9
	B09	Segment 10
	B10	Segment 11
	B11-B15	RFU

Plastication Profile Actuals

Word	Description
PPS09	Actual Segment 1 RPM [25] Average RPM during last Segment 1.
PPS10	Actual Segment 1 Pressure [01] Average ram (screw) pressure during last Segment 1.
PPS11	Actual Segment 1 Execution Time [21] Time required for last Segment 1.
PPS12	Actual End of Segment 1 Position [12] Ram (Screw) position at completion of last Segment 1.
PPS13	Actual Segment 2 RPM [25] Average RPM during last Segment 2.
PPS14	Actual Segment 2 Pressure [01] Average ram (screw) pressure during last Segment 2.
PPS15	Actual Segment 2 Execution Time [21] Time required for last Segment 2.
PPS16	Actual End of Segment 2 Position [12] Ram (Screw) position at completion of last Segment 2.

Word	Description
PPS17	Actual Segment 3 RPM [25] Average RPM during last Segment 3.
PPS18	Actual Segment 3 Pressure [01] Average ram (screw) pressure during last Segment 3.
PPS19	Actual Segment 3 Execution Time [21] Time required for last Segment 3.
PPS20	Actual End of Segment 3 Position [12] Ram (Screw) position at completion of last Segment 3.
PPS21	Actual Segment 4 RPM [25] Average RPM during last Segment 4.
PPS22	Actual Segment 4 Pressure [01] Average ram (screw) pressure during last Segment 4.
PPS23	Actual Segment 4 Execution Time [21] Time required for last Segment 4.
PPS24	Actual End of Segment 4 Position [12] Ram (Screw) position at completion of last Segment 4.
PPS25	Actual Segment 5 RPM [25] Average RPM during last Segment 5.
PPS26	Actual Segment 5 Pressure [01] Average ram (screw) pressure during last Segment 5.
PPS27	Actual Segment 5 Execution Time [21] Time required for last Segment 5.
PPS28	Actual End of Segment 5 Position [12] Ram (Screw) position at completion of last Segment 5.
PPS29	Actual Segment 6 RPM [25] Average RPM during last Segment 6.
PPS30	Actual Segment 6 Pressure [01] Average ram (screw) pressure during last Segment 6.
PPS31	Actual Segment 6 Execution Time [21] Time required for last Segment 6.
PPS32	Actual End of Segment 6 Position [12] Ram (Screw) position at completion of last Segment 6.
PPS33	Actual Segment 7 RPM [25] Average RPM during last Segment 7.
PPS34	Actual Segment 7 Pressure [01] Average ram (screw) pressure during last Segment 7.
PPS35	Actual Segment 7 Execution Time [21] Time required for last Segment 7.
PPS36	Actual End of Segment 7 Position [12] Ram (Screw) position at completion of last Segment 7.
PPS37	Actual Segment 8 RPM [25] Average RPM during last Segment 8.
PPS38	Actual Segment 8 Pressure [01] Average ram (screw) pressure during last Segment 8.
PPS39	Actual Segment 8 Execution Time [21] Time required for last Segment 8.
PPS40	Actual End of Segment 8 Position [12] Ram (Screw) position at completion of last Segment 8.
PPS41	Actual Segment 9 RPM [25] Average RPM during last Segment 9.
PPS42	Actual Segment 9 Pressure [01] Average ram (screw) pressure during last Segment 9.
PPS43	Actual Segment 9 Execution Time [21] Time required for last Segment 9.
PPS44	Actual End of Segment 9 Position [12] Ram (Screw) position at completion of last Segment 9.
PPS45	Actual Segment 10 RPM [25] Average RPM during last Segment 10.
PPS46	Actual Segment 10 Pressure [01] Average ram (screw) pressure during last Segment 10.
PPS47	Actual Segment 10 Execution Time [21] Time required for last Segment 10.
PPS48	Actual End of Segment 10 Position [12] Ram (Screw) position at completion of last Segment 10.
PPS49	Actual Segment 11 RPM [25] Average RPM during last Segment 11.
PPS50	Actual Segment 11 Pressure [01] Average ram (screw) pressure during last Segment 11.
PPS51	Actual Segment 11 Execution Time [21] Time required for last Segment 11.
PPS52	RFU

Plastication Maximum Pressure

Word	Description
PPS53	Maximum Ram (Screw) Pressure During Plastication [01] Maximum instantaneous ram (screw) pressure during last profile.

Post-decompression Maximum Pressure

Word	Description
PPS54	Maximum Ram (Screw) Pressure During Post-decompression [01] Max instantaneous ram (screw) pressure during last movement.
PPS55 - 56	RFU

Notes: For [ ] engineering units, see page 2.

Execution Times

Word	Description
PPS57	Plastication Profile Execution Time [21] Total time required for last profile.
PPS58	Post-decompression Movement Execution Time [21] Total time required for last movement.
PPS59 - 60	RFU

Post-decompression Movement Actuals

Word	Description
PPS61	Post-decompression Movement Actual Velocity [06] Average ram (screw) velocity during last movement, reported in in.(mm)/s.
PPS62	Post-decompression Movement Actual Pressure [01] Average ram (screw) pressure during last movement.

Shot Size Actual

Word	Description
PPS63	Actual Shot Size Extruded [17] Total shot size length drawn at completion of last Plastication Profile. The module measures total shot size as an incremental length from the End of Hold position (HPS63).
PPS64	RFU

PTS – Process Trace Status Block

Bit-mapped Status Words

Word	Bit	Description
PTS01	B00-B07	Block ID = 00001010 (Low byte).
	B08-B15	Power start-up and jog execution status (refer to bit description for SYS01)
PTS02		Profile execution status (refer to bit description for SYS02)
PTS03		Miscellaneous status (refer to bit description for SYS03)
PTS04		Watchdog timeout status (refer to bit description for SYS04)
PTS05		Trace selection If one of PTS05-B01 to B05 is set, PTS15 to PTS64 contain trace data. If PTS05-B15 is set, PTS15 to PTS48 contain phase/segment start information. Each word contains starting data point (1 - 400) for the listed phase or segment. If the phase or segment was not executed, this value will be zero.
	B00	RFU
	B01	Block contains injection position trace data
	B02	Block contains trace #1 data
	B03	Block contains trace #2 data
	B04	Block contains trace #3 data
	B05	Block contains trace #4 data
	B06-B14	RFU
	B15	Block contains phase/segment start information
PTS06		Trace data block number
	B00	Block contains trace data points 1 to 50
	B01	Block contains trace data points 51 to 100
	B02	Block contains trace data points 101 to 150
	B03	Block contains trace data points 151 to 200
	B04	Block contains trace data points 201 to 250
	B05	Block contains trace data points 251 to 300
	B06	Block contains trace data points 301 to 350
	B07	Block contains trace data points 351 to 400
	B08-B15	RFU
PTS07, 08		RFU

Word	Bit	Description
PTS09		Reports the time (in hundredths of seconds) after injection starts until the first trace data point is recorded.
PTS10		Reports how many data points (0 to 400) have been collected for the trace indicated in PTS05 and PTS06. This value will not exceed the last data point for the block indicated in PTS06.
PTS11-14		RFU
PTS15		Injection Segment 1 starting data point If one of PTS05-B01 to -B05 is set, PTS15 to PTS64 contain trace data. If PTS05-B15 is set, PTS15 to PTS48 contain phase/segment start information. Each word contains starting data point (1 - 400) for the listed phase or segment. If the phase or segment was not executed, this value will be zero.
PTS16		Injection Segment 2 starting data point
PTS17		Injection Segment 3 starting data point
PTS18		Injection Segment 4 starting data point
PTS19		Injection Segment 5 starting data point
PTS20		Injection Segment 6 starting data point
PTS21		Injection Segment 7 starting data point
PTS22		Injection Segment 8 starting data point
PTS23		Injection Segment 9 starting data point
PTS24		Injection Segment 10 starting data point
PTS25		Injection Segment 11 starting data point
PTS26		Pack Segment 1 starting data point
PTS27		Pack Segment 2 starting data point
PTS28		Pack Segment 3 starting data point
PTS29		Pack Segment 4 starting data point
PTS30		Pack Segment 5 starting data point
PTS31		Hold Segment 1 starting data point
PTS32		Hold Segment 2 starting data point
PTS33		Hold Segment 3 starting data point
PTS34		Hold Segment 4 starting data point
PTS35		Hold Segment 5 starting data point
PTS36		Pre-decompress starting data point
PTS37		Plastication Segment 1 starting data point
PTS38		Plastication Segment 2 starting data point
PTS39		Plastication Segment 3 starting data point
PTS40		Plastication Segment 4 starting data point
PTS41		Plastication Segment 5 starting data point
PTS42		Plastication Segment 6 starting data point
PTS43		Plastication Segment 7 starting data point
PTS44		Plastication Segment 8 starting data point
PTS45		Plastication Segment 9 starting data point
PTS46		Plastication Segment 10 starting data point
PTS47		Plastication Segment 11 starting data point
PTS48		Post-decompress starting data point
PTS49-64		RFU

Notes: For [ ] engineering units, see page 2.

RLS – Inject ERC Values Status Block

Bit-mapped Status Words

Word	Description
RLS01	Block ID = 00001000 (Low byte). High byte identical to SYS01
RLS02	See SYS02
RLS03	See SYS03
RLS04	See SYS04
RLS05-08	RFU

Injection Profile ERC Actuals

Word	Description
RLS09	Injection Segment 1
RLS10	Injection Segment 2
RLS11	Injection Segment 3
RLS12	Injection Segment 4
RLS13	Injection Segment 5
RLS14	Injection Segment 6
RLS15	Injection Segment 7
RLS16	Injection Segment 8
RLS17	Injection Segment 9
RLS18	Injection Segment 10
RLS19	Injection Segment 11

Pack Profile ERC Actuals

Word	Description
RLS20	Pack Segment 1
RLS21	Pack Segment 2
RLS22	Pack Segment 3
RLS23	Pack Segment 4
RLS24	Pack Segment 5

Hold Profile ERC Actuals

Word	Description
RLS25	Hold Segment 1
RLS26	Hold Segment 2
RLS27	Hold Segment 3
RLS28	Hold Segment 4
RLS29	Hold Segment 5

Plastication Profile ERC Actuals

Word	Description
RLS30	Plastication Segment 1
RLS31	Plastication Segment 2
RLS32	Plastication Segment 3
RLS33	Plastication Segment 4
RLS34	Plastication Segment 5
RLS35	Plastication Segment 6
RLS36	Plastication Segment 7

Word	Description
RLS37	Plastication Segment 8
RLS38	Plastication Segment 9
RLS39	Plastication Segment 10
RLS40	Plastication Segment 11
RLS41 - 64	RFU

SYS – System Status Block Bit-mapped Status Words

Word	Bit	Description
SYS01	B00-B07	Block ID = 00000001
	B08-B15	Power-up Status
	B08	= 0 The module Wants Complete Download = 1 Valid MCC on Board
		Jog Execution Status
	B09	= 0 Normal = 1 Executing Screw Rotate Jog The module sets this bit when responding to command bit DYC01-B09 = 1 and sets its outputs to JGC09–12.
	B10	= 0 Normal = 1 Executing Ram (Screw) Jog Forward The module sets this bit when responding to command bit DYC01-B10 = 1 and sets its outputs to JGC17–20
	B11	= 0 Normal = 1 Executing Ram (Screw) Jog Reverse The module sets this bit when responding to command bit DYC01-B11 = 1 and sets its outputs to JGC25–28
	B12-15	RFU
SYS02		Profile Execution Status The module sets each bit, SYS02 - B00 through B14 when: • it completes the profile or movement, or • it receives a new action execution command that terminates the profile or movement The module resets each bit, SYS02 - B00 through B14 when: • it starts the profile or movement, or • it receives a valid DYC with DYC03-B10 SET
	B00-03	RFU
	B04	SYS02.B04 for QI(A) SYSB02.B04 for QI(B) = 0 Normal = 1 Injection Profile Complete **Important:** The QI module will not set this bit during suspended injection.
	B05	= 0 Normal = 1 Pack Profile Complete
	B06	= 0 Normal = 1 Hold Profile Complete
	B07	= 0 Normal = 1 Pre-decompression Movement Complete
	B08	= 0 Normal = 1 Plastication Profile Complete
	B09	= 0 Normal = 1 Post-decompression Movement Complete
	B10-14	RFU
		Module Busy Status
	B15	= 0 Normal = 1 No Action in Progress The module resets this bit when it is performing one of the following: • executing a profile or decompression movement • holding its outputs at any End of phase values • executing any jog movement

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
SYS03		Miscellaneous Status
	B00	SYS03:B00 for QI(A) SYSB03:B00 for QI(B) When set, indicates that injection has been suspended Injection suspension applies to these conditions: • when A reaches screw position (IPC56), QI(A) suspends injection until B reaches screw position (IPCB08) to let QI(A) resume injection. • upon a start command, QI(A) suspends injection until B reaches screw position (IPCB08) to let QI(A) start its injection profile. This bit is reset when the machine cycle is in progress.
	B01, 02	RFU
	B03	= 0 Normal = 1 Cure Timer Timing If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) position transducer, the module sets this bit when the internal Cure Timer is timing and the accumulated Cure Time (SYS58) is less than the Cure Timer preset (HPC61).
	B04	= 0 Normal = 1 Ram (Screw) Retracted If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) position transducer, the module sets this bit when ram (screw) position equals or exceeds the Full Retract position of Cushion + Shot Size + Post-decompression (PPC61 + PPC62 + PSC05).
	B05	= 0 Normal = 1 Cure Time Complete If bit patterns in MCC02 and MCC03 indicate the module is connected to a ram (screw) position transducer, the module sets this bit when the accumulated value of its internal Cure Timer (SYS58) equals the Cure Timer preset (HPC61).
	B06-15	RFU
SYS04		Watchdog Time-Out Status
	B00-B06	RFU
	B07	= 0 Normal = 1 Pre-decompression Movement Watchdog Time-Out Module sets this bit when the time required for the movement equals or exceeds the Watchdog Timer preset (PRC08). The module resets this bit when: • it completes the movement, or • it receives a new action execution command that terminates the movement The module does not leave this bit set when holding its outputs to PRC33–36 at completion of this movement.
	B08	= 0 Normal = 1 Plastication Profile Watchdog Time-Out The module sets this bit when the time required for the profile equals or exceeds the Watchdog Timer preset (PLC08). The module resets this bit when: • it completes the profile, or • it receives a new action execution command that terminates the profile The module does not leave this bit set when holding its outputs to PLC33–36 at completion of this profile.
	B09	= 0 Normal = 1 Post-decompression Movement Watchdog Time-Out The module sets this bit when the time required for the movement equals or exceeds the Watchdog Timer preset (PSC08). The module resets this bit when: • it completes the movement, or • it receives a new action execution command that terminates the movement The module does not leave this bit set when holding its outputs to PSC33–36 at completion of this movement.
	B10-15	RFU
SYS05		High Pressure Alarm Status (Real Time) The module sets alarm bits on a real-time basis. These bits are not latched. You can inhibit each bit by setting its associated alarm setpoint to zero.
	B00	= 0 Normal = 1 High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds MCC21.
	B01, 02	RFU

Word	Bit	Description
SYS05	B03	= 0 Normal = 1 High Screw RPM The module sets this bit when real-time screw RPM equals or exceeds MCC55.
	B04	= 0 Normal = 1 High Cavity Pressure The module sets this bit when real-time cavity pressure equals or exceeds MCC61.
	B05-B07	RFU
	B08	= 0 Normal = 1 High Screw Rotate Jog RPM Module sets this bit when responding to command DYC01-B09 = 1 and real-time screw RPM equals or exceeds JGC05
	B09	= 0 Normal = 1 High Ram (Screw) Jog Pressure The module sets this bit when responding to command DYC01-B10 = 1 or DYC01-B11 = 1 and real-time ram (screw) pressure equals or exceeds JGC06.
	B10-15	RFU
SYS06		High Pressure Alarm Status (Real Time) The module sets alarm bits on a real-time basis. These bits are not latched. You can inhibit each bit by setting its associated alarm setpoint to zero.
	B00	= 0 Normal = 1 Injection Profile High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds INC57.
	B01	= 0 Normal = 1 Injection Profile High Cavity Pressure The module sets this bit when real-time cavity pressure equals or exceeds INC58.
	B02	= 0 Normal = 1 Pack Profile High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds PKC57.
	B03	= 0 Normal = 1 Pack Profile High Cavity Pressure The module sets this bit when real-time cavity pressure equals or exceeds PKC58.
	B04	= 0 Normal = 1 Hold Profile High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds HDC57.
	B05	= 0 Normal = 1 Hold Profile High Cavity Pressure The module sets this bit when real-time cavity pressure equals or exceeds HDC58.
	B06	= 0 Normal = 1 Pre-decompress Movement High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds PRC57.
	B07	= 0 Normal = 1 Plastication Profile High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds PLC57.
	B08	= 0 Normal = 1 Post-decompress Movement High Ram (Screw) Pressure The module sets this bit when real-time ram (screw) pressure equals or exceeds PSC57.
	B09-15	RFU
SYS07		Overtravel Alarm Status (Real Time) The module sets alarm bits in real time. These bits are not latched. You can inhibit each bit by setting its associated alarm setpoint to zero.
	B00	= 0 Normal = 1 Ram (Screw) Overtravel at Bottom The module sets this bit when real-time ram (screw) position is less than or equal to MCC13. The module resets this bit when real-time position equals or exceeds the position defined by MCC13 + MCC15. When SET, the module ignores any profile action execution command in DYC02.

Notes: For [ ] engineering units, see page 2.

SYS

Word	Bit	Description
SYS07	B01	= 0 Normal = 1 Ram (Screw) Overtravel at Top The module sets this bit when real-time ram (screw) position equals or exceeds MCC14. The module resets this bit when real-time position is less than or equal to the position defined by MCC14 – MCC15. When SET, the module ignores any profile action execution command in DYC02.
	B02-15	RFU
SYS08		Alarm Status for Loss of Input Sensor (Real Time). The module sets alarm bits in real time. These bits are not latched.
	B00	= 0 Normal = 1 Loss of Ram (Screw) Position Sensor (Set MCC64 to inhibit) If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) position transducer, the module sets this bit when it detects a loss of signal input from the transducer. When SET, module stops profile in progress and ignores action execution command in DYC02 unless MCC64 is SET.
	B01	= 0 Normal = 1 Loss of Ram (Screw) Pressure Sensor (Set MCC64 to inhibit) If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) pressure transducer, the module sets this bit when it detects a loss of signal input from the transducer. When SET, module stops profile in progress and ignores action execution command in DYC02 unless MCC64 is SET.
	B02-05	RFU
	B06	= 0 Normal = 1 Loss of Ram (Screw) RPM Sensor (Set MCC64 to inhibit) If bit patterns in MCC02 and MCC03 indicate that the module is connected to a screw RPM transducer, the module sets this bit when it detects a loss of signal input from the transducer. When SET, module stops profile in progress and ignores action execution command in DYC02 unless MCC64 is SET.
	B07	= 0 Normal = 1 Loss of Cavity Pressure Sensor (Set MCC64 to inhibit) If bit patterns in MCC02 and MCC03 indicate that the module is connected to a cavity pressure transducer, the module sets this bit when it detects a loss of signal input from the transducer. When SET, module stops profile in progress and ignores action execution command in DYC02 unless MCC64 is SET.
	B08-B15	RFU
SYS09		High Pressure Alarm Status (Latched) Module latches alarm bits on each false-to-true transition of the corresponding real-time alarm bit in SYS05. Module unlatches all 16 bits when it receives a false- to-true transition of DYC03-B09. You can inhibit each bit by setting its associated alarm setpoint to zero.
	This bit latched ON:	**when the module detected this alarm:**
	B00	High Ram (Screw) Pressure
	B01, 02	RFU
	B03	High Screw RPM
	B04	System Pressure
	B05-B07	RFU
	B08	High Screw Rotate Jog RPM
	B09	High Ram (Screw) Jog Pressure
	B10-15	RFU
SYS10		High Pressure Alarm Status (Latched) Module latches alarm bits on each false-to-true transition of the corresponding real-time alarm bit in SYS06. Module unlatches all 16 bits when it receives a false-to-true transition of DYC03-B09. You can inhibit each bit by setting its associated alarm setpoint to zero.
	This bit latched ON:	**when the module detected this alarm:**
	B00	Injection Profile High Ram (Screw) Pressure
	B01	Injection Profile High Cavity Pressure
	B02	Pack Profile High Ram (Screw) Pressure
	B03	Pack Profile High Cavity Pressure
	B04	Hold Profile High Ram (Screw) Pressure

Word	Bit	Description
SYS10	B05	Hold Profile High Cavity Pressure
	B06	Pre-decompress Movement High Ram (Screw) Pressure
	B07	Plastication Profile High Ram (Screw) Pressure
	B08	Post-decompress Movement High Ram (Screw) Pressure
	B09-15	RFU
SYS11		Overtravel Alarm Status (Latched) Module latches alarm bits on each false-to-true transition of the corresponding real-time alarm bit in SYS07. Module unlatches all 16 bits when it receives a false-to-true transition of DYC03-B09. You can inhibit each bit by setting its associated alarm setpoint to zero.
	This bit latched ON:	**when the module detected this alarm:**
	B00	Ram (Screw) Overtravel at Bottom
	B01	Ram (Screw) Overtravel at Top
	B02-07	RFU
	B08-B15	Reserved for the module. Do not use.
SYS12		Alarm Status for Loss of Input Sensor (Latched) Module latches alarm bits on each false-to-true transition of the corresponding real-time alarm bit in SYS08. Module unlatches all 16 bits when it receives a false-to-true transition of DYC03-B09.
	This bit latched ON:	**when the module detected this alarm**
	B00	Loss of Ram (Screw) Position Sensor (except when MCC64 is SET)
	B01	Loss of Ram (Screw) Pressure Sensor (except when MCC64 is SET)
	B02-05	RFU
	B06	Loss of Screw RPM Sensor (except when MCC64 is SET)
	B07	Loss of Cavity Pressure Sensor (except when MCC64 is SET)
	B08-B15	RFU
SYS13		Action-execution Command Errors
	B00	= 0 Normal = 1 Jog Command Error The module latches this bit when SYS15-B01 is RESET and one of the following is true: • DYC01-B09 is SET • DYC01-B10 is SET • DYC01-B11 is SET • DYC01-B12 is SET • DYC01-B13 is SET • DYC01-B14 is SET • DYC01-B15 is SET Module unlatches this bit when it decodes a valid DYC Block with any SET action execution bit other than listed above.
	B01-04	RFU
	B05	= 0 Normal = 1 Injection Profile Command Error The module latches this bit when both of the following are true: • DYC02-B04 is SET • SYS15-B08 is RESET The module unlatches this bit when it decodes a valid Dynamic Command Block with any SET action execution bit other than DYC02-B04.
	B06	= 0 Normal = 1 Pack Profile Command Error The module latches this bit when both of the following are true: • DYC02-B05 is SET • the Injection Profile completes The module unlatches this bit when it decodes a valid Dynamic Command Block with any SET action execution bit other than DYC02-B05.

Notes: For [ ] engineering units, see page 2.

SYS

Word	Bit	Description
SYS13	B07	= 0 Normal = 1 Hold Profile Command Error The module latches this bit when both of the following are true: • DYC02-B06 is SET • SYS15-B11 is RESET The module unlatches this bit when it decodes a valid Dynamic Command Block with any SET action execution bit other than DYC02-B06.
	B08	= 0 Normal = 1 Pre-decompression Movement Command Error The module latches this bit at completion of the Hold Profile if all of the following are true: • HPC03-B08 is RESET • HPC03-B09 is SET • SYS15-B12 is RESET The module also latches this bit if all of the following are true: • DYC02-B07 is SET • HPC03-B09 is SET • SYS15-B12 is RESET The module also latches this bit if both of the following are true: • DYC02-B07 is SET • SYS15-B11 is RESET The module also latches this bit if both of the following are true: • DYC02-B07 is SET • PRC05 added to the actual ram (screw) position equals or exceeds MCC12 Module unlatches this bit when it decodes a valid DYC Block with any SET action execution bit other than DYC02-B07.
	B09	= 0 Normal = 1 Plastication Profile Command Error The module latches this bit at completion of the Hold Profile if all of the following are true: • HPC03-B08 is RESET • SYS15-B12 is RESET • HPC03-B09 is RESET • SYS15-B14 is RESET The module also latches this bit at completion of the Pre-decompression Movement if both of the following are true: • HPC03-B09 is RESET • SYS15-B14 is RESET The module also latches this bit if all of the following are true: • DYC02-B07 is RESET • PRC05 equal zero • HPC03-B09 is RESET • SYS15-B14 is RESET The module also latches this bit if all of the following are true: • DYC02-B07 is RESET • SYS15-B12 is RESET • HPC03-B09 is RESET • SYS15-B14 is RESET The module also latches this bit if both of the following are true: • DYC02-B08 is SET • SYS15-B14 is RESET The module unlatches this bit when it decodes a valid DYC Block with any SET action execution bit other than DYC02-B07 or DYC02-B08.

Word	Bit	Description
	B10	= 0 Normal = 1 Post-decompression Movement Command Error The module latches this bit at completion of the Plastication Profile if both of the following are true: • PPC03-B08 is RESET • SYS15-B15 is RESET The module also latches this bit if all of the following are true: • Ram (screw) position equals or exceeds the sum of PPC61 and PPC62 • PPC03-B08 is RESET • SYS15-B15 is RESET The module also latches this bit if both of the following are true: • DYC02-B09 is SET • SYS15-B15 is RESET The module also latches this bit if both of the following are true: • DYC02-B09 is SET • PSC05 added to the actual ram (screw) position equals or exceeds MCC12 The module unlatches this bit when it decodes a valid Dynamic Command Block with any SET action execution bit other than DYC02-B08 or DYC02-B09.
	B11-15	RFU
SYS14		Miscellaneous
	B00	= 0 Normal = 1 Dual-command Error The module latches this bit when it decodes a valid Dynamic Command Block having more than one action execution command bit SET. Bits DYC01-B08 thru B11 and selected bits in DYC02 are the action execution command bits. The module unlatches this bit when it decodes a valid Dynamic Command Block having one or none of the action execution bits SET.
	B01	RFU
		Command Block Rejection Errors Module discards and does not attempt to decode any command block associated with a profiled movement in progress.
	B02	RFU
	B03	= 0 Normal = 1 Injection Command Block Rejected The module latches this bit when it receives an INC or IPC for decode and SYS21-B04 is SET. The module unlatches this bit when it receives an INC or IPC for decode and SYS21-B04 is RESET.
	B04	= 0 Normal = 1 Pack/Hold Command Block Rejected The module latches this bit when it receives a PKC, HDC, HPC, or PRC for decode and any one of SYS21-B05 - SYS21-B07 is SET. The module unlatches this bit when it receives a PKC, HDC, HPC, or PRC for decode and all of SYS21-B05 - SYS21-B07 are RESET.
	B05	= 0 Normal = 1 Plastication Command Block Rejected The module latches this bit when it receives a PLC, PPC, or PSC for decode and SYS21-B08 or SYS21-B09 is SET. The module unlatches this bit when it receives a PLC, PPC, or PSC for decode and both SYS21-B08 and SYS21-B09 are RESET.
	B06-13	RFU
	B14	= 0 Invalid Input = 1 Valid Ram (Screw) Position at Input 3 (Used with SYS14-B15 and MCC63 for change-over handshaking, input 3) The module latches this bit when it detects that a ram (screw) position transducer is connected to input 3. The module unlatches this bit when it detects that the position transducer has been disconnected during change-over or that a cavity pressure transducer is permanently connected to input 3.
	B15	= 0 Invalid Input = 1 Valid Ram Cavity Pressure at Input 3 (Used with SYS14-B14 and MCC63 for change-over handshaking, input 3) The module latches this bit when it detects that a cavity pressure transducer is connected to input 3. The module unlatches this bit when it detects that the pressure transducer has been disconnected during change-over or that a ram (screw) position transducer is permanently connected to input 3.

Notes: For [ ] engineering units, see page 2.

Word	Bit	Description
SYS15		Status of On-board Command Blocks Module latches bits individually when it successfully decodes the referenced command block and places new data into operational memory. The module does not latch any bit associated with an unrecognizable command block. Module unlatches all bits in this word: • on power start-up, or • when it receives a new MCC for decode
	This bit latched ON:	**when this on-board block is valid:**
	B00	MCC
	B01	JGC
	B02-06	RFU
	B07	INC
	B08	IPC The module also unlatches this bit when it successfully decodes a new INC.
	B09	PKC
	B10	HDC
	B11	HPC The module also unlatches this bit when it successfully decodes a new PKC or HDC.
	B12	PRC
	B13	PLC
	B14	PPC The module also unlatches this bit when it successfully decodes a new PLC.
	B15	PSC
SYS16		Status of On-board Command Block The module latches bits individually when it successfully decodes the referenced command block and places new data into operational memory. The module does not latch any bit associated with an unrecognizable command block. The module unlatches all bits in this word on power start-up or when it receives a new MCC for decoding.
	This bit latched ON:	**when this on-board block is valid:**
	B00-07	RFU
	B08	DYC
	B09	RLC
	B10	RFU
	B11	PTC
	B12-B15	RFU
SYS17		Status of Last Successful Decode The module latches one of the bits in SYS17 and SYS18 (while unlatching all others) when it successfully decodes the referenced command block and places the new data into operational memory. The module does not latch any bit associated with an unrecognizable command block. Set no more than one bit at a time in SYS17 and SYS18.
	This bit latched ON:	**when last successful decode was:**
	B00	MCC
	B01	JCC
	B02-06	RFU
	B07	INC
	B08	IPC
	B09	PKC
	B10	HDC
	B11	HPC
	B12	PRC
	B13	PLC
	B14	PPC
	B15	PSC

Word	Bit	Description
SYS18		Status of Last Successful Decode The module latches one of the bits in SYS17 and SYS18 (while unlatching all others) when it successfully decodes the referenced command block and places the new data into operational memory. The module does not latch any bit associated with an unrecognizable command block. Set no more than one bit at a time in SYS17 and SYS18.
	This bit latched ON:	**when last successful decode was:**
	B00-07	RFU
	B08	DYC
	B09	RLC
	B10	RFU
	B11	PTC
	B12-B15	RFU
SYS19		Programming-error Alarms The module latches bits when it attempts to decode a newly received copy of the subject command block and is forced to discard the data due to the presence of a programming error in the newly received block. The module does not latch any bit associated with an unrecognizable command block. The module unlatches each bit when it successfully decodes the referenced command block and places the new data into operational memory.
	This bit latched ON:	**when the module detected a programming error in:**
	B00	MCC The module ceases all action execution and sets its outputs to zero when forced to set this bit. The module does not respond to any action execution commands as long as this bit remains SET.
	B01	JGC
	B02-06	RFU
	B07	INC
	B08	IPC
	B09	PKC
	B10	HDC
	B11	HPC
	B12	PRC
	B13	PLC
	B14	PPC
	B15	PSC
SYS20		Programming-error Alarms The module latches bits when it attempts to decode a newly received copy of the subject command block and is forced to discard the data due to the presence of a programming error in the newly received block. The module does not latch any bit associated with an unrecognizable command block. The module unlatches each bit when it successfully decodes the referenced command block and places the new data into operational memory.
	This bit latched ON:	**when the module detected a programming error in:**
	B00-07	RFU
	B08	DYC The module ceases all action execution and sets its outputs to zero when forced to set this bit. The module does not respond to any action execution commands as long as this bit remains SET.
	B09	RLC
	B10	RFU
	B11	PTC
	B12-B15	RFU

Notes: For [ ] engineering units, see page 2.

SYS

Word	Bit	Description
SYS21		Status of Profile Execution
	B00-03	RFU
	B04	SYS21.B04 for QI(A) SYSB21.B04 for QI(B) = 0 Normal = 1 Injection Profile in Progress The module sets this bit when it starts the profile. **Important:** This bit remains set independent of injection suspensions. The module resets this bit when: • it completes the profile, or • it receives a new action execution command that terminates the profile
	B05	= 0 Normal = 1 Pack Profile in Progress The module sets this bit when it starts the profile. The module resets this bit when: • it completes the profile, or • it receives a new action execution command that terminates the profile
	B06	= 0 Normal = 1 Hold Profile in Progress The module sets this bit when it starts the profile. The module resets this bit when: • it completes the profile, or • it receives a new action execution command that terminates the profile The module does not leave this bit set when holding outputs to HDC33–36 at completion of the hold profile.
	B07	= 0 Normal = 1 Pre-decompression Movement in Progress The module sets this bit when it starts the movement. The module resets this bit when: • it completes the movement, or • it receives a new action execution command that terminates the movement Module does not leave this bit set when holding outputs to PRC33–36 at completion of Pre-decompression movement.
	B08	= 0 Normal = 1 Plastication Profile in Progress The module sets this bit when it starts the profile. The module resets this bit when: • it completes the profile, or • it receives a new action execution command that terminates the profile Module does not leave this bit set when holding outputs to PLC33–36 at completion of the plastication profile.
	B09	= 0 Normal = 1 Post-decompression Movement in Progress The module sets this bit when it starts the movement. The module resets this bit when: • it completes the movement, or • it receives a new action execution command that terminates the movement Module does not leave this bit set when holding outputs to PSC33–36 at completion of Post-decompression movement
	B10-15	RFU
SYS22		Status of End of Profile Set-Output Execution
	B00-03	RFU
	B04	= 0 Normal = 1 End of Injection Profile Set-Output in Progress The module sets this bit when holding its outputs to INC33–36 after completion of the profile. The module resets this bit when it receives any new action execution command bit.
	B05	RFU

Word	Bit	Description
	B06	= 0 Normal = 1 End of Hold Profile Set-Output in Progress The module sets this bit when holding its outputs to HDC33-36 after completion of the profile. The module resets this bit when it receives any new action execution command bit.
	B07	= 0 Normal = 1 End of Pre-decompression Movement Set-Output in Progress The module sets this bit when holding its outputs to PRC33-36 after completion of the movement. The module resets this bit when it receives any new action execution command bit.
	B08	= 0 Normal = 1 End of Plastication Profile Set-Output in Progress The module sets this bit when holding its outputs to PLC33-36 after completion of the profile. The module resets this bit when it receives any new action execution command bit.
	B09	= 0 Normal = 1 End of Post-decompression Movement Set-Output in Progress The module sets this bit when holding its outputs in PSC33-36 after completion of the movement. The module resets this bit when it receives any new action execution command bit.
	B10-15	RFU
SYS23		Double command error. You can determine from DYC01 which bits were set or downloaded at the same time.
SYS24		Double command error. You can determine from DYC02 which bits were set or downloaded at the same time.

Input Level In Engineering Units

The module reports real-time input levels scaled to engineering units.

Word	Description
SYS25	Input #1 [11]
SYS26	Input #2 [01]
SYS27	Input #3 [25]
SYS28	Input #4 [04] or [25]
SYS29-32	RFU

Input Level, Raw Signal

Module reports real-time signals at the input to each A/D input converter.

Word	Description
SYS33	Input #1 [24]
SYS34	Input #2 [24]
SYS35	Input #3 [24]
SYS36	Input #4 [24]
SYS37-40	RFU

Output Level in Percentage

Module reports real-time %-output it sends to each D/A output converter.

Word	Description
SYS41	Output #1 [19]
SYS42	Output #2 [19]
SYS43	Output #3 [19]
SYS44	Output #4 [19]
SYS45-48	RFU

Notes: For [ ] engineering units, see page 2.

SYS

Cycle Maximum Pressures

Word	Description
SYS49	Maximum Ram (Screw) Pressure During Last Cycle [01] If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) pressure transducer, the module reports the highest ram (screw) pressure it detected since the last F-to-T transition of DYC02-B04.
SYS50, 51	RFU
SYS52	Maximum Cavity Pressure During Last Cycle [04] If bit patterns in MCC02 and MCC03 indicate that the module is connected to a cavity pressure transducer, the module reports the highest cavity pressure it detected since the last F-to-T transition of DYC02-B04.

Process Trace Data Collection Status

Word	Bit	Description
SYS53		Process Trace status
	B00	Process Trace data collection in progress.
	B01	Process Trace data collection complete.
	B02 - B15	RFU
SYS54		Process Trace data collection in progress
	B00	The module is collecting trace data points 1 to 50.
	B01	The module is collecting trace data points 51 to 100.
	B02	The module is collecting trace data points 101 to 150.
	B03	The module is collecting trace data points 151 to 200.
	B04	The module is collecting trace data points 201 to 250.
	B05	The module is collecting trace data points 251 to 300.
	B06	The module is collecting trace data points 301 to 350.
	B07	The module is collecting trace data points 351 to 400.
	B08 - B15	RFU
SYS55		Process Trace data collection done
	B00	The module has collected trace data points 1 to 50.
	B01	The module has collected trace data points 51 to 100.
	B02	The module has collected trace data points 101 to 150.
	B03	The module has collected trace data points 151 to 200.
	B04	The module has collected trace data points 201 to 250.
	B05	The module has collected trace data points 251 to 300.
	B06	The module has collected trace data points 301 to 350.
	B07	The module has collected trace data points 351 to 400.
	B08 - B15	RFU
SYS56		RFU

Process Times

Word	Description
SYS57	RFU
SYS58	Accumulated Cure Time [22] If bit patterns in MCC02 and MCC03 indicate that the module is connected to a ram (screw) position transducer, the module: At completion of the Hold Profile: • starts an internal cure timer • sets master status bit SYS03-B03 • reports the accumulated time in this word When the value in this word equals the cure timer preset (HPC61): • resets master status bit SYS03-B03 • sets master status bit SYS03-B05 • stops accumulating time in this word When it receives an F-to-T transition of DYC03-B01 • resets master status bit SYS03-B03 • resets master status bit SYS03-B05 resets this word to zero
SYS59, 60	RFU

Diagnostics

Word	Description
SYS61	Programming Error Block Module reports in the lower byte of this word a bit pattern copy of the block id associated with the command block that contained the error referred to in SYS62. The priority order to be used by the module when reporting programming error codes will be as follows: • any MCC programming error • any DYC programming error • any programming error associated with DYC61 • any other current programming error
SYS62	Programming Error Code
SYS63	Module Series/Revision Upper byte - The module reports its firmware series in ASCII. Lower byte - The module reports its firmware revision in ASCII.

New Status Confirmation

Word	Description
SYS64	New data counter. The module sets this counter to zero on power start-up or above 9999, and increments this counter when it sends a new SYS to its internal TIC chip. Use this value to indicate that a most recent BTR of SYS is old data (last SYS64 equals new SYS64) or new data (last SYS64 is less than new SYS64). You may also monitor the value to determine if you are missing any data (last SYS + 1 is less than new SYS64).

Notes: For [ ] engineering units, see page 2.

Programming Error Codes

Programming error codes indicate that you entered invalid data in a command block. This chapter lists programming error codes for all command blocks.

Important: Refer to the block ID returned in SYS61 to determine the command block to which the error code relates. Then refer to SYS62 for the error code.

How to Read Error Codes

You read error codes on your programming terminal by examining system status words in the PLC data table:

- SYS61 = ID of the block that contains the error
- SYS62 = error code

You can interpret most error codes by memorizing 9 basic types and knowing how the codes are organized.

The 4-digit code, xxyy, has two parts:

- xx = type description
- yy = word in the command block that contains the error

Here we list the type descriptions, each with an example error code.

Type	Example	Description
02	0222	Outside fixed limits MCC22 is out of range. Valid range is 00000 ≤ MCC22 ≤ 00099.
03	0311	Cannot be equal MCC11 is equal to MCC12. They must not be equal.
04	0427	Outside range established by another entry MCC27 is out of range. If MCC28 is non-zero, MCC27 must be within MCC23 ≤ MCC27 ≤ MCC28. If MCC28 is zero, MCC27 must be within MCC23 ≤ MCC27 ≤ MCC24.
05	0502	Bit selection error MCC02-B04=1 and/or MCC02-B05=1 are illegal configurations.
06	0600	Block-related configuration error Your entire IPC block has been rejected because the QI module does not have a valid MCC block on-board (SYS15-B07 = 0)
07	0712	Required non-zero entry IPC12 cannot be zero when IPC14 > 00000.
08	0816	Entry must be zero IPC16 must be 00000 when IPC12 = 00000.
09	0960	Entry combination error (group is outside fixed limits) Your entry combination is illegal: IPC60 = IPC61 = IPC62 = IPC63 = 00000.
10	1015	Error in entry order IPC is not in decreasing positional order. If non-zero, IPC15 must be less than IPC11.

MCC – Module Configuration Command Block ID = 1

Error Code	Description MCC ID = 1
0211	MCC11 is out of range. MCC11 must be within: 00000 ≤ MCC11 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC11 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC11 ≤ 02000 (4 to 20 mA dc sensor)
0212	MCC12 is out of range. MCC12 must be within: 00000 ≤ MCC12 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC12 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC12 ≤ 02000 (4 to 20 mA dc sensor)
0215	MCC15 is out of range. Valid range is 00000 ≤ MCC15 ≤ 00099
0216	MCC16 is out of range. Valid range is 00000 ≤ MCC16 ≤ 00099
0219	MCC19 is out of range. MCC19 must be within: 00000 ≤ MCC19 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC19 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC19 ≤ 02000 (4 to 20 mA dc sensor)
0220	MCC20 is out of range. MCC20 must be within: 00000 ≤ MCC20 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC20 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC20 ≤ 02000 (4 to 20 mA dc sensor)
0222	MCC22 is out of range. Valid range is 00000 ≤ MCC22 ≤ 00099
0225	MCC25 is out of range. MCC25 must be within: 00000 ≤ MCC25 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC25 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC25 ≤ 02000 (4 to 20 mA dc sensor)
0226	MCC26 is out of range. MCC26 must be within: 00000 ≤ MCC26 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC26 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC26 ≤ 02000 (4 to 20 mA dc sensor)
0229	MCC29 is out of range. Valid range is 00000 ≤ MCC29 ≤ 00099
0230	MCC30 is out of range. Valid range is 00000 ≤ MCC30 ≤ 00099
0233	MCC33 is out of range. MCC33 must be within: 00000 ≤ MCC33 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC33 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC33 ≤ 02000 (4 to 20 mA dc sensor)
0234	MCC34 is out of range. MCC34 must be within: 00000 ≤ MCC34 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC34 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC34 ≤ 02000 (4 to 20 mA dc sensor)
0236	MCC36 is out of range. Valid range is 00000 ≤ MCC36 ≤ 00099
0239	MCC39 is out of range. MCC39 must be within: 00000 ≤ MCC39 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC39 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC39 ≤ 02000 (4 to 20 mA dc sensor)
0240	MCC40 is out of range. MCC40 must be within: 00000 ≤ MCC40 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC40 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC40 ≤ 02000 (4 to 20 mA dc sensor)
0243	MCC43 is out of range. Valid range is 00000 ≤ MCC43 ≤ 00099
0244	MCC44 is out of range. Valid range is 00000 ≤ MCC44 ≤ 00099
0247	MCC47 is out of range. MCC47 must be within: 00000 ≤ MCC47 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC47 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC47 ≤ 02000 (4 to 20 mA dc sensor)

Error Code	Description MCC ID = 1
0248	MCC48 is out of range. MCC48 must be within: 00000 ≤ MCC48 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC48 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC48 ≤ 02000 (4 to 20 mA dc sensor)
0250	MCC50 is out of range. Valid range is 00000 ≤ MCC50 ≤ 00099
0253	MCC53 is out of range. MCC53 must be within: 00000 ≤ MCC53 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC53 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC53 ≤ 02000 (4 to 20 mA dc sensor)
0254	MCC54 is out of range. MCC54 must be within: 00000 ≤ MCC54 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC54 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC54 ≤ 02000 (4 to 20 mA dc sensor)
0256	MCC56 is out of range. Valid range is 00000 ≤ MCC56 ≤ 00099
0259	MCC59 is out of range. MCC59 must be within: 00000 ≤ MCC59 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC59 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC59 ≤ 02000 (4 to 20 mA dc sensor)
0260	MCC60 is out of range. MCC60 must be within 00000 ≤ MCC60 ≤ 01000 (0 to 10 V dc sensor) 00100 ≤ MCC60 ≤ 00500 (1 to 5 V dc sensor) 00400 ≤ MCC60 ≤ 02000 (4 to 20 mA dc sensor)
0262	MCC62 is out of range. Valid range is 00000 ≤ MCC62 ≤ 00099
0263	MCC63 is out of range. Valid range is 00000 ≤ MCC63 ≤ 00099
0311	MCC11 is equal to MCC12. They must not be equal.
0319	MCC19 is equal to MCC20. They must not be equal.
0325	MCC25 is equal to MCC26. They must not be equal.
0333	MCC33 is equal to MCC34. They must not be equal.
0339	MCC39 is equal to MCC40. They must not be equal.
0347	MCC47 is equal to MCC48. They must not be equal.
0353	MCC53 is equal to MCC54. They must not be equal.
0359	MCC59 is equal to MCC60. They must not be equal.
0405-0408	Your entry for MCC05-MCC08 is out of range. Valid range is –1000 ≤ entry ≤ +1000.
0409	MCC09 is out of range. Valid range is 00000 ≤ MCC09 < MCC10
0410	MCC10 is out of range. Valid range is MCC09 < MCC10 ≤ 09999
0413	Your non-zero entry for MCC13 is out of range. If MCC14 is non-zero, MCC13 must be within MCC09 ≤ MCC13 < MCC14 If MCC14 is zero, MCC13 must be within MCC09 ≤ MCC13 < MCC10
0414	Your non-zero entry for MCC14 is out of range. If MCC13 is non-zero, MCC14 must be within MCC13 < MCC14 ≤ MCC10 If MCC13 is zero, MCC14 must be within MCC09 < MCC14 ≤ MCC10
0417	MCC17 is out of range. Valid range is 00000 ≤ MCC17 < MCC18
0418	MCC18 is out of range. Valid range is MCC17 < MCC18 ≤ 09999
0421	MCC21 is out of range. If non-zero, MCC21 must be within MCC17 < MCC21 ≤ MCC18
0423	MCC23 is out of range. Valid range is 00000 ≤ MCC23 < MCC24
0424	MCC24 is out of range. Valid range is MCC23 < MCC24 ≤ 09999
0427	Your non-zero entry for MCC27 is out of range. If MCC28 is non-zero, MCC27 must be within MCC23 ≤ MCC27 < MCC28 If MCC28 is zero, MCC27 must be within MCC23 ≤ MCC27 < MCC24

Error Code	Description MCC ID = 1	
0428	Your non-zero entry for MCC28 is out of range. If MCC27 is non-zero, MCC28 must be within MCC27 < MCC28 ≤ MCC24 If MCC27 is zero, MCC28 must be within MCC23 < MCC28 ≤ MCC24	
0431	MCC31 is out of range. Valid range is 00000 ≤ MCC31 < MCC32	
0432	MCC32 is out of range. Valid range is MCC31 < MCC32 ≤ 09999	
0435	MCC35 is out of range. If non-zero, MCC35 must be within MCC31 < MCC35 ≤ MCC32	
0437	MCC37 is out of range. Valid range is 00000 ≤ MCC37 < MCC38	
0438	MCC38 is out of range. Valid range is MCC37 < MCC38 ≤ 09999	
0441	Your non-zero entry for MCC41 is out of range. If MCC42 is non-zero, MCC41 must be within MCC37 ≤ MCC41 < MCC42 If MCC42 is zero, MCC41 must be within MCC37 ≤ MCC41 < MCC38	
0442	Your non-zero entry for MCC42 is out of range. If MCC41 is non-zero, MCC42 must be within MCC41 < MCC42 ≤ MCC38 If MCC41 is zero, MCC42 must be within MCC37 < MCC42 ≤ MCC38	
0445	MCC45 is out of range. Valid range is 00000 ≤ MCC45 < MCC46	
0446	MCC46 is out of range. Valid range is MCC45 < MCC46 ≤ 09999	
0449	MCC49 is out of range. If non-zero, MCC49 must be within MCC45 < MCC49 ≤ MCC46	
0451	MCC51 is out of range. Valid range is 00000 ≤ MCC51 < MCC52	
0452	MCC52 is out of range. Valid range is MCC51 < MCC52 ≤ 09999	
0455	MCC55 is out of range. If non-zero, MCC55 must be within MCC51 < MCC55 ≤ MCC52	
0457	MCC57 is out of range. Valid range is 00000 ≤ MCC57 < MCC58	
0458	MCC58 is out of range. Valid range is MCC57 < MCC58 ≤ 20000	
0461	MCC61 is out of range. If non-zero, MCC61 must be within MCC57 < MCC61 ≤ MCC58	
0502	MCC02-B04 = 1 and/or MCC02-B05 = 1 are illegal conffigurations.	
0503	Your bit pattern in the upper byte of MCC03 must be 11111111.	
0504	Your bit pattern in the upper byte of MCC04 must be 11111111.	
0507	Your settings for MCC02-B03, B04, and B05 indicate that module input #1 or #4 is reserved for a ram (screw) position transducer. Therefore MCC03-B00 and B01 cannot both = 1.	
0511	Your settings for MCC02-B03, B04, and B05 indicate that module input #3 is reserved for a screw RPM transducer. Therefore MCC03-B00 and B01 cannot both = 1.	
0602	Your Module Configuration Command block has been rejected. MCC02-B03 must = 1.	
0915	MCC15 is too large.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	MCC15 must be within MCC13 + MCC15 < MCC14 – MCC15
	MCC13 is zero and MCC14 is non-zero	MCC15 must be within MCC09 + MCC15 < MCC14 – MCC15
	MCC13 is non-zero and MCC14 is zero	MCC15 must be within MCC13 + MCC15 < MCC10 – MCC15

Error Code	Description MCC ID = 1	
0929	MCC29 is too large.	
	if:	**then:**
	MCC27 and MCC28 are both non-zero	MCC29 must be within MCC27 + MCC29 < MCC28 – MCC29
	MCC27 is zero and MCC28 is non-zero	MCC29 must be within MCC23 + MCC29 < MCC28 – MCC29
	MCC27 is non-zero and MCC28 is zero	MCC29 must be within MCC27 + MCC29 < MCC24 – MCC29
0943	MCC43 is too large.	
	if:	**then:**
	MCC41 and MCC42 are both non-zero	MCC43 must be within MCC41 + MCC43 < MCC42 – MCC43
	MCC41 is zero and MCC42 is non-zero	MCC43 must be within MCC37 + MCC43 < MCC42 – MCC43
	MCC41 is non-zero and MCC42 is zero	MCC43 must be within MCC41 + MCC43 < MCC38 – MCC43

ID = 2

JGC – Jog Configuration Block

Error Code	Description JGC ID = 2
0209	JGC09 is out of range. Valid range is 00000 ≤ JGC09 ≤ 09999
0210	JGC10 is out of range. Valid range is 00000 ≤ JGC10 ≤ 09999
0211	JGC11 is out of range. Valid range is 00000 ≤ JGC11 ≤ 09999
0212	JGC12 is out of range. Valid range is 00000 ≤ JGC12 ≤ 09999
0213	JGC13 is out of range. Valid range is 00000 ≤ JGC13 ≤ 09999
0214	JGC14 is out of range. Valid range is 00000 ≤ JGC14 ≤ 09999
0215	JGC15 is out of range. Valid range is 00000 ≤ JGC15 ≤ 09999
0216	JGC16 is out of range. Valid range is 00000 ≤ JGC16 ≤ 09999
0217	JGC17 is out of range. Valid range is 00000 ≤ JGC17 ≤ 09999
0218	JGC18 is out of range. Valid range is 00000 ≤ JGC18 ≤ 09999
0219	JGC19 is out of range. Valid range is 00000 ≤ JGC19 ≤ 09999
0220	JGC20 is out of range. Valid range is 00000 ≤ JGC20 ≤ 09999
0221	JGC21 is out of range. Valid range is 00000 ≤ JGC21 ≤ 09999
0222	JGC22 is out of range. Valid range is 00000 ≤ JGC22 ≤ 09999
0223	JGC23 is out of range. Valid range is 00000 ≤ JGC23 ≤ 09999
0224	JGC24 is out of range. Valid range is 00000 ≤ JGC24 ≤ 09999
0225	JGC25 is out of range. Valid range is 00000 ≤ JGC25 ≤ 09999
0226	JGC26 is out of range. Valid range is 00000 ≤ JGC26 ≤ 09999
0227	JGC27 is out of range. Valid range is 00000 ≤ JGC27 ≤ 09999
0228	JGC28 is out of range. Valid range is 00000 ≤ JGC28 ≤ 09999
0229	JGC29 is out of range. Valid range is 00000 ≤ JGC29 ≤ 09999
0230	JGC30 is out of range. Valid range is 00000 ≤ JGC30 ≤ 09999
0231	JGC31 is out of range. Valid range is 00000 ≤ JGC31 ≤ 09999
0232	JGC32 is out of range. Valid range is 00000 ≤ JGC32 ≤ 09999
0233	JGC33 is out of range. Valid range is 00000 ≤ JGC33 ≤ 09999
0234	JGC34 is out of range. Valid range is 00000 ≤ JGC34 ≤ 09999
0235	JGC35 is out of range. Valid range is 00000 ≤ JGC35 ≤ 09999
0236	JGC36 is out of range. Valid range is 00000 ≤ JGC36 ≤ 09999
0237	JGC37 is out of range. Valid range is 00000 ≤ JGC37 ≤ 09999

Error Code	Description JGC ID = 2
0238	JGC38 is out of range. Valid range is 00000 ≤ JGC38 ≤ 09999
0239	JGC39 is out of range. Valid range is 00000 ≤ JGC39 ≤ 09999
0240	JGC40 is out of range. Valid range is 00000 ≤ JGC40 ≤ 09999
0241	JGC41 is out of range. Valid range is 00000 ≤ JGC41 ≤ 09999
0242	JGC42 is out of range. Valid range is 00000 ≤ JGC42 ≤ 09999
0243	JGC43 is out of range. Valid range is 00000 ≤ JGC43 ≤ 09999
0244	JGC44 is out of range. Valid range is 00000 ≤ JGC44 ≤ 09999
0245	JGC45 is out of range. Valid range is 00000 ≤ JGC45 ≤ 09999
0246	JGC46 is out of range. Valid range is 00000 ≤ JGC46 ≤ 09999
0247	JGC47 is out of range. Valid range is 00000 ≤ JGC47 ≤ 09999
0248	JGC48 is out of range. Valid range is 00000 ≤ JGC48 ≤ 09999
0249	JGC49 is out of range. Valid range is 00000 ≤ JGC49 ≤ 09999
0250	JGC50 is out of range. Valid range is 00000 ≤ JGC50 ≤ 09999
0251	JGC51 is out of range. Valid range is 00000 ≤ JGC51 ≤ 09999
0252	JGC52 is out of range. Valid range is 00000 ≤ JGC52 ≤ 09999
0253	JGC53 is out of range. Valid range is 00000 ≤ JGC53 ≤ 09999
0254	JGC54 is out of range. Valid range is 00000 ≤ JGC54 ≤ 09999
0255	JGC55 is out of range. Valid range is 00000 ≤ JGC55 ≤ 09999
0256	JGC56 is out of range. Valid range is 00000 ≤ JGC56 ≤ 09999
0257	JGC57 is out of range. Valid range is 00000 ≤ JGC57 ≤ 09999
0258	JGC58 is out of range. Valid range is 00000 ≤ JGC58 ≤ 09999
0259	JGC59 is out of range. Valid range is 00000 ≤ JGC59 ≤ 09999
0260	JGC60 is out of range. Valid range is 00000 ≤ JGC60 ≤ 09999
0261	JGC61 is out of range. Valid range is 00000 ≤ JGC61 ≤ 09999
0262	JGC62 is out of range. Valid range is 00000 ≤ JGC62 ≤ 09999
0263	JGC63 is out of range. Valid range is 00000 ≤ JGC63 ≤ 09999
0264	JGC64 is out of range. Valid range is 00000 ≤ JGC64 ≤ 09999
0405	JGC05 is out of range. If non-zero, JGC05 must be within MCC51 < JGC05 ≤ MCC52
0406	JGC06 is out of range. If non-zero, JGC06 must be within MCC17 < JGC06 ≤ MCC18
0407	JGC07 is out of range. If non-zero, JGC07 must be within MCC31 < JGC07 ≤ MCC32
0408	JGC08 is out of range. If non-zero, JGC08 must be within MCC45 < JGC08 ≤ MCC46

ID = 8

INC – Injection Configuration Block

Error Code	Description INC ID = 8
0205	INC05 is out of range. Valid range is 00000 ≤ INC05 ≤ 09999
0206	INC06 is out of range. Valid range is 00000 ≤ INC06 ≤ 09999
0209	INC09 is out of range. Valid range is 00000 ≤ INC09 ≤ 09999
0210	INC10 is out of range. Valid range is 00000 ≤ INC10 ≤ 09999
0211	INC11 is out of range. Valid range is 00000 ≤ INC11 ≤ 09999
0212	INC12 is out of range. Valid range is 00000 ≤ INC12 ≤ 09999
0213	INC13 is out of range. Valid range is 00000 ≤ INC13 ≤ 09999
0214	INC14 is out of range. Valid range is 00000 ≤ INC14 ≤ 09999

Error Code	Description INC ID = 8
0215	INC15 is out of range. Valid range is 00000 ≤ INC15 ≤ 09999
0216	INC16 is out of range. Valid range is 00000 ≤ INC16 ≤ 09999
0217	INC17 is out of range. Valid range is 00000 ≤ INC17 ≤ 09999
0218	INC18 is out of range. Valid range is 00000 ≤ INC18 ≤ 09999
0219	INC19 is out of range. Valid range is 00000 ≤ INC19 ≤ 09999
0220	INC20 is out of range. Valid range is 00000 ≤ INC20 ≤ 09999
0221	INC21 is out of range. Valid range is 00000 ≤ INC21 ≤ 09999
0222	INC22 is out of range. Valid range is 00000 ≤ INC22 ≤ 09999
0223	INC23 is out of range. Valid range is 00000 ≤ INC23 ≤ 09999
0224	INC24 is out of range. Valid range is 00000 ≤ INC24 ≤ 09999
0225	INC25 is out of range. Valid range is 00000 ≤ INC25 ≤ 09999
0226	INC26 is out of range. Valid range is 00000 ≤ INC26 ≤ 09999
0227	INC27 is out of range. Valid range is 00000 ≤ INC27 ≤ 09999
0228	INC28 is out of range. Valid range is 00000 ≤ INC28 ≤ 09999
0229	INC29 is out of range. Valid range is 00000 ≤ INC29 ≤ 09999
0230	INC30 is out of range. Valid range is 00000 ≤ INC30 ≤ 09999
0231	INC31 is out of range. Valid range is 00000 ≤ INC31 ≤ 09999
0232	INC32 is out of range. Valid range is 00000 ≤ INC32 ≤ 09999
0243	INC43 is out of range. Valid range is 00000 ≤ INC43 ≤ 09999
0244	INC44 is out of range. Valid range is 00000 ≤ INC44 ≤ 09999
0247	INC47 is out of range. Valid range is 00000 ≤ INC47 ≤ 09999
0248	INC48 is out of range. Valid range is 00000 ≤ INC48 ≤ 09999
0249	INC49 is out of range. Valid range is 00000 ≤ INC49 ≤ 09999
0250	INC50 is out of range. Valid range is 00000 ≤ INC50 ≤ 09999
0251	INC51 is out of range. Valid range is 00000 ≤ INC51 ≤ 09999
0252	INC52 is out of range. Valid range is 00000 ≤ INC52 ≤ 09999
0253	INC53 is out of range. Valid range is 00000 ≤ INC53 ≤ 09999
0261	INC61 is out of range. Valid range is 00000 ≤ INC61 ≤ 09999
0262	INC62 is out of range. Valid range is 00000 ≤ INC62 ≤ 09999
0263	INC63 is out of range. Valid range is 00000 ≤ INC63 ≤ 09999
0264	INC64 is out of range. Valid range is 00000 ≤ INC64 ≤ 09999
0343	INC43 is equal to INC44. They must not be equal.
0347	INC47 is equal to INC48. They must not be equal.
0442	INC42 is out of range. Valid range is INC41 < INC42 ≤ 09999
0445	INC45 is out of range. Valid range is 00000 ≤ INC45 < INC46
0446	INC46 is out of range. Valid range is INC45 < INC46 ≤ 09999
0457	INC57 is out of range. If non-zero, INC57 must be within MCC17 < INC57 ≤ MCC18
0458	INC58 is out of range. If non-zero, INC58 must be within MCC57 < INC58 ≤ MCC58
0502	Your bit pattern in INC02-B02, INC02-B01, and INC02-B00 indicates a selected ram (screw) velocity control valve that is unconnected according to your entries in MCC02 and MCC04.
0506	Your bit pattern in INC02-B06, INC02-B05, and INC02-B04 indicates a selected ram (screw) pressure control valve that is unconnected according to your entries in MCC02 and MCC04.

ID = 9

IPC – Injection Profile Block

Error Code	Description IPC ID = 9
0207	IPC07 is out of range. When IPC03-B01 = 0, IPC09 must be within 00000 ≤ IPC07 ≤ 09999
0209	IPC09 is out of range. When IPC03-B01 = 0, IPC09 must be within 00000 ≤ IPC09 ≤ 09999
0209	IPC09 is out of range. When IPC03-B01 = 0, IPC09 must be within 00000 ≤ IPC09 ≤ 09999
0212	IPC12 is out of range. Valid range is 00000 ≤ IPC12 ≤ 09999
0213	IPC13 is out of range. When IPC03-B01 = 0, IPC13 must be within 00000 ≤ IPC13 ≤ 09999
0216	IPC16 is out of range. Valid range is 00000 ≤ IPC16 ≤ 09999
0217	IPC17 is out of range. When IPC03-B01 = 0, IPC17 must be within 00000 ≤ IPC17 ≤ 09999
0220	IPC20 is out of range. Valid range is 00000 ≤ IPC20 ≤ 09999
0221	IPC21 is out of range. When IPC03-B01 = 0, IPC21 must be within 00000 ≤ IPC21 ≤ 09999
0224	IPC24 is out of range. Valid range is 00000 ≤ IPC24 ≤ 09999
0225	IPC25 is out of range. When IPC03-B01 = 0, IPC25 must be within 00000 ≤ IPC25 ≤ 09999
0228	IPC28 is out of range. Valid range is 00000 ≤ IPC28 ≤ 09999
0229	IPC29 is out of range. When IPC03-B01 = 0, IPC29 must be within 00000 ≤ IPC29 ≤ 09999
0232	IPC32 is out of range. Valid range is 00000 ≤ IPC32 ≤ 09999
0233	IPC33 is out of range. When IPC03-B01 = 0, IPC33 must be within 00000 ≤ IPC33 ≤ 09999
0236	IPC36 is out of range. Valid range is 00000 ≤ IPC36 ≤ 09999
0237	IPC37 is out of range. When IPC03-B01 = 0, IPC37 must be within 00000 ≤ IPC37 ≤ 09999
0240	IPC40 is out of range. Valid range is 00000 ≤ IPC40 ≤ 09999
0241	IPC41 is out of range. When IPC03-B01 = 0, IPC41 must be within 00000 ≤ IPC41 ≤ 09999
0244	IPC44 is out of range. Valid range is 00000 ≤ IPC44 ≤ 09999
0245	IPC45 is out of range. When IPC03-B01 = 0, IPC45 must be within 00000 ≤ IPC45 ≤ 09999
0248	IPC48 is out of range. Valid range is 00000 ≤ IPC48 ≤ 09999
0249	IPC49 is out of range. When IPC03-B01 = 0, IPC49 must be within 00000 ≤ IPC49 ≤ 09999
0251	IPC51 is out of range. When IPC03-B01 = 0, IPC51 must be within 00000 ≤ IPC51 ≤ 09999
0259	IPC59 is out of range. Valid range is 00000 ≤ IPC59 ≤ 00099
0260	IPC60 is out of range. Valid range is 00000 ≤ IPC60 ≤ 09999
0408	IPC08 is out of range. When IPC03-B14 = 1, a non-zero entry for IPC08 must be within INC23 ≤ IPC08 ≤ INC24
0409	IPC09 is out of range. When IPC03-B14 = 1, a non-zero entry for IPC09 must be within INC45 ≤ IPC09 ≤ INC46
0410	IPC10 is out of range. If non-zero, IPC10 must be within INC41 ≤ IPC10 ≤ INC42

Error Code	Description **IPC ID = 9**	
0411	IPC11 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC11 must be within 00000 ≤ IPC11 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC11 must be within 00000 ≤ IPC11 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC11 must be within 00000 ≤ IPC11 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC11 must be within 00000 ≤ IPC11 ≤ MCC10 – MCC09
0413	IPC13 is out of range. When IPC03-B14 = 1, a non-zero IPC13 must be within INC45 ≤ IPC13 ≤ INC46	
0414	IPC14 is out of range. If non-zero, IPC14 must be within INC41 ≤ IPC14 ≤ INC42	
0415	IPC15 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC15 must be within 00000 ≤ IPC15 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC15 must be within 00000 ≤ IPC15 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC15 must be within 00000 ≤ IPC15 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	IPC15 must be within 00000 ≤ IPC15 ≤ MCC10 – MCC09
0417	IPC17 is out of range. When IPC03-B14 = 1, a non-zero IPC17 must be within INC45 ≤ IPC17 ≤ INC46	
0418	IPC18 is out of range. If non-zero, IPC18 must be within INC41 ≤ IPC18 ≤ INC42	
0419	IPC19 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC19 must be within 00000 ≤ IPC19 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PC19 must be within 00000 ≤ IPC19 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC19 must be within 00000 ≤ IPC19 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC19 must be within 00000 ≤ IPC19 ≤ MCC10 – MCC09
0421	IPC21 is out of range. When IPC03-B14 = 1, a non-zero IPC21 must be within INC45 ≤ IPC21 ≤ INC46	
0422	IPC22 is out of range. If non-zero, IPC22 must be within INC41 ≤ IPC22 ≤ INC42	
0423	IPC23 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC23 must be within 00000 ≤ IPC23 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero .	IPC23 must be within 00000 ≤ IPC23 ≤ MCC10 – MCC13
	MCC13 is zero and MCC14 is non-zero	IPC23 must be within 00000 ≤ IPC23 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC23 must be within 00000 ≤ IPC23 ≤ MCC10 – MCC09
0425	IPC25 is out of range. When IPC03-B14 = 1, a non-zero IPC25 must be within INC45 ≤ IPC25 ≤ INC46	

Error Code	Description IPC ID = 9	
0426	IPC26 is out of range. If non-zero, IPC26 must be within INC41 ≤ IPC26 ≤ INC42	
0427	IPC27 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC27 must be within 00000 ≤ IPC27 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC27 must be within 00000 ≤ IPC27 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC27 must be within 00000 ≤ IPC27 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC27 must be within 00000 ≤ IPC27 ≤ MCC10 – MCC09
0429	IPC29 is out of range. When IPC03-B14 = 1, a non-zero IPC29 must be within INC45 ≤ IPC29 ≤ INC46	
0430	IPC30 is out of range. If non-zero, IPC30 must be within INC41 ≤ IPC30 ≤ INC42	
0431	IPC31 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC31 must be within 00000 ≤ IPC31 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC31 must be within 00000 ≤ IPC31 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero .	IPC31 must be within 00000 ≤ IPC31 ≤ MCC14 – MCC09
	If MCC13 and MCC14 are both zero	IPC31 must be within 00000 ≤ IPC31 ≤ MCC10 – MCC09
0433	IPC33 is out of range. When IPC03-B14 = 1, a non-zero IPC33 must be within INC45 ≤ IPC33 ≤ INC46	
0434	IPC34 is out of range. If non-zero, IPC34 must be within INC41 ≤ IPC34 ≤ INC42	
0435	IPC35 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC35 must be within 00000 ≤ IPC35 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC35 must be within 00000 ≤ IPC35 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC35 must be within 00000 ≤ IPC35 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	IPC35 must be within 00000 ≤ IPC35 ≤ MCC10 – MCC09
0437	IPC37 is out of range. When IPC03-B14 = 1, a non-zero IPC37 must be within INC45 ≤ IPC37 ≤ INC46	
0438	IPC38 is out of range. If non-zero, IPC38 must be within INC41 ≤ IPC38 ≤ INC42	
0439	IPC39 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC39 must be within 00000 ≤ IPC39 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC39 must be within 00000 ≤ IPC39 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC39 must be within 00000 ≤ IPC39 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC39 must be within 00000 ≤ IPC39 ≤ MCC10 – MCC09

Error Code	Description **IPC ID = 9**	
0441	IPC41 is out of range. When IPC03-B14 = 1, a non-zero IPC41 must be within INC45 ≤ IPC41 ≤ INC46	
0442	IPC42 is out of range. If non-zero, IPC42 must be within INC41 ≤ IPC42 ≤ INC42	
0443	IPC43 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC43 must be within 00000 ≤ IPC43 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC43 must be within 00000 ≤ IPC43 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC43 must be within 00000 ≤ IPC43 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC43 must be within 00000 ≤ IPC43 ≤ MCC10 – MCC09
0445	IPC45 is out of range. When IPC03-B14 = 1, a non-zero IPC45 must be within INC45 ≤ IPC45 ≤ INC46	
0446	IPC46 is out of range. If non-zero, IPC46 must be within INC41 ≤ IPC46 ≤ INC42	
0447	IPC47 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC47 must be within 00000 ≤ IPC47 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC47 must be within 00000 ≤ IPC47 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC47 must be within 00000 ≤ IPC47 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC47 must be within 00000 ≤ IPC47≤ MCC10 – MCC09
0449	IPC49 is out of range. When IPC03-B14 = 1, a non-zero IPC49 must be within INC45 ≤ IPC49 ≤ INC46	
0450	IPC50 is out of range. If non-zero, IPC50 must be within INC41 ≤ IPC50 ≤ INC42	
0451	IPC51 is out of range. When IPC03-B14 = 1, IPC51 must be within 00000 ≤ IPC51 ≤ INC46	
0452	IPC52 is out of range. Valid range is 00000 ≤ IPC52 ≤ INC42	
0454	IPC54 is out of range. Valid range is INC45 ≤ IPC54 ≤ INC46	
0455	IPC55 is out of range. Valid range is INC41 ≤ IPC55 ≤ INC42	
0456	IPC56 is out of range. Valid range must be compatible with min/max ram (screw) position limits (MCC09/MCC10) and min/max software travel limits (MCC13/MCC14)	
0457	You have selected Pressure Limited Vel/Pos execution for the Injection Profile by IPC03-B01 = 0 and IPC03-B00 = 1; however, IPC57 is out of range. IPC57 must be within MCC17 < IPC57 ≤ MCC18	
0458	You have selected Pressure Limited Vel/Pos execution for the Injection Profile by IPC03-B01 = 0 and IPC03-B00 = 1. IPC58 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	IPC58 must be within 00000 ≤ IPC58 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC58 must be within 00000 ≤ IPC58 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC58 must be within 00000 ≤ IPC58 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC58 must be within 00000 ≤ IPC58 ≤ MCC10 – MCC09

Error Code	Description IPC ID = 9	
0461	Your non-zero entry for IPC61 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	IPC61 must be within 00000 ≤ IPC61 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC61 must be within 00000 ≤ IPC61 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero .	IPC61 must be within 00000 ≤ IPC61 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	IPC61 must be within 00000 ≤ IPC61 ≤ MCC10 – MCC09
0462	IPC62 is out of range. If non-zero, IPC62 must be within MCC17 ≤ IPC62 ≤ MCC18	
0463	IPC63 is out of range. If non-zero, IPC63 must be within MCC57 ≤ IPC63 ≤ MCC58	
0464	IPC64 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	IPC64 must be within 00000 ≤ IPC64 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	IPC64 must be within 00000 ≤ IPC64 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	IPC64 must be within 00000 ≤ IPC64 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	IPC64 must be within 00000 ≤ IPC64 ≤ MCC10 – MCC09
0503	You have selected Pressure Limited Vel/Pos execution for the Injection Profile by IPC03-B01 = 0 and IPC03-B00 = 1; however, your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a ram (screw) pressure transducer.	
0504	You have selected closed-loop Press/Pos execution for the Injection Profile by IPC04-B02 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a ram (screw) pressure transducer.	
0508	You have selected closed-loop Press/Time execution for the Injection Profile by IPC04-B03 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a ram (screw) pressure transducer.	
0600	Your entire Injection Profile Block has been rejected because the QI module does not have a valid Injection Configuration Block on-board (SYS15-B07 = 0).	
0711	IPC11 cannot be 00000 because it conflicts with one of: IPC13 > 00000 when IPC03-B01 = 0 IPC14 > 00000 when IPC03-B01 = 1	
0712	IPC12 cannot be 00000 when IPC14 > 00000.	
0715	IPC15 cannot be 00000 because it conflicts with one of: IPC17 > 00000 when IPC03-B01 = 0 IPC18 > 00000 when IPC03-B01 = 1	
0716	IPC16 cannot be 00000 when IPC18 > 00000.	
0719	IPC19 cannot be 00000 because it conflicts with one of: IPC21 > 00000 when IPC03-B01 = 0 IPC22 > 00000 when IPC03-B01 = 1	
0720	IPC20 cannot be 00000 when IPC22 > 00000.	
0723	IPC23 cannot be 00000 because it conflicts with one of: IPC25 > 00000 when IPC03-B01 = 0 IPC26 > 00000 when IPC03-B01 = 1	
0724	IPC24 cannot be 00000 when IPC26 > 00000.	
0727	IPC27 cannot be 00000 because it conflicts with one of: IPC29 > 00000 when IPC03-B01 = 0 IPC30 > 00000 when IPC03-B01 = 1	

Error Code	Description IPC ID = 9
0728	IPC28 cannot be 00000 when IPC30 > 00000.
0731	IPC31 cannot be 00000 because it conflicts with one of: IPC33 > 00000 when IPC03-B01 = 0 IPC34 > 00000 when IPC03-B01 = 1
0732	IPC32 cannot be 00000 when IPC34 > 00000.
0735	IPC35 cannot be 00000 because it conflicts with one of: IPC37 > 00000 when IPC03-B01 = 0 IPC38 > 00000 when IPC03-B01 = 1
0736	IPC36 cannot be 00000 when IPC38 > 00000.
0739	IPC39 cannot be 00000 because it conflicts with one of: IPC41 > 00000 when IPC03-B01 = 0 IPC42 > 00000 when IPC03-B01 = 1
0740	IPC40 cannot be 00000 when IPC42 > 00000.
0743	IPC43 cannot be 00000 because it conflicts with one of: IPC45 > 00000 when IPC03-B01 = 0 IPC46 > 00000 when IPC03-B01 = 1
0744	IPC44 cannot be 00000 when IPC46 > 00000.
0747	IPC47 cannot be 00000 because it conflicts with one of: IPC49 > 00000 when IPC03-B01 = 0 IPC50 > 00000 when IPC03-B01 = 1
0748	IPC48 cannot be 00000 when IPC50 > 00000.
0757	You have selected Pressure Limited Vel/Pos execution for the Injection Profile by IPC03-B01 = 0 and IPC03-B00 = 1. This mode of Injection Profile execution does not allow a 00000 entry for IPC57.
0815	IPC15 must be 00000 when IPC11 = 00000.
0816	IPC16 must be 00000 when IPC12 = 00000.
0819	IPC19 must be 00000 when IPC15 = 00000.
0820	IPC20 must be 00000 when IPC16 = 00000.
0823	IPC23 must be 00000 when IPC19 = 00000.
0824	IPC24 must be 00000 when IPC20 = 00000.
0827	IPC27 must be 00000 when IPC23 = 00000.
0828	IPC28 must be 00000 when IPC24 = 00000.
0831	IPC31 must be 00000 when IPC27 = 00000.
0832	IPC32 must be 00000 when IPC28 = 00000.
0835	IPC35 must be 00000 when IPC31 = 00000.
0836	IPC36 must be 00000 when IPC32 = 00000.
0839	IPC39 must be 00000 when IPC35 = 00000.
0840	IPC40 must be 00000 when IPC36 = 00000.
0843	IPC43 must be 00000 when IPC39 = 00000.
0844	IPC44 must be 00000 when IPC40 = 00000.
0847	IPC47 must be 00000 when IPC43 = 00000.
0848	IPC48 must be 00000 when IPC44 = 00000.
0862	IPC62 must be zero because your bit patterns in MCC02 and MCC03 indicate that the QI module does not have access to a connected ram (screw) pressure transducer.
0863	IPC63 must be zero because your bit patterns in MCC02 and MCC03 indicate that the QI module has no access to a connected cavity pressure transducer.
0960	Your entry combination as follows is illegal: IPC60 = IPC61 = IPC62 = IPC63 = 00000
1015	IPC15 is not in decreasing positional order. If non-zero, IPC15 must be less than IPC11.
1019	IPC19 is not in decreasing positional order. If non-zero, IPC19 must be less than IPC15.

Error Code	Description IPC ID = 9
1023	IPC23 is not in decreasing positional order. If non-zero, IPC23 must be less than IPC19.
1027	IPC27 is not in decreasing positional order. If non-zero, IPC27 must be less than IPC23.
1031	IPC31 is not in decreasing positional order. If non-zero, IPC31 must be less than IPC27.
1035	IPC35 is not in decreasing positional order. If non-zero, IPC35 must be less than IPC31.
1039	IPC39 is not in decreasing positional order. If non-zero, IPC39 must be less than IPC35.
1043	IPC43 is not in decreasing positional order. If non-zero, IPC43 must be less than IPC39.
1047	IPC47 is not in decreasing positional order. If non-zero, IPC47 must be less than IPC43.

ID = 10

PKC – Pack Configuration Block

Error Code	Description PKC ID = 10
0205	PKC05 is out of range. Valid range is 00000 ≤ PKC05 ≤ 09999
0206	PKC06 is out of range. Valid range is 00000 ≤ PKC06 ≤ 09999
0209	PKC09 is out of range. Valid range is 00000 ≤ PKC09 ≤ 09999
0210	PKC10 is out of range. Valid range is 00000 ≤ PKC10 ≤ 09999
0211	PKC11 is out of range. Valid range is 00000 ≤ PKC11 ≤ 09999
0212	PKC12 is out of range. Valid range is 00000 ≤ PKC12 ≤ 09999
0213	PKC13 is out of range. Valid range is 00000 ≤ PKC13 ≤ 09999
0214	PKC14 is out of range. Valid range is 00000 ≤ PKC14 ≤ 09999
0215	PKC15 is out of range. Valid range is 00000 ≤ PKC15 ≤ 09999
0216	PKC16 is out of range. Valid range is 00000 ≤ PKC16 ≤ 09999
0217	PKC17 is out of range. Valid range is 00000 ≤ PKC17 ≤ 09999
0218	PKC18 is out of range. Valid range is 00000 ≤ PKC18 ≤ 09999
0219	PKC19 is out of range. Valid range is 00000 ≤ PKC19 ≤ 09999
0220	PKC20 is out of range. Valid range is 00000 ≤ PKC20 ≤ 09999
0221	PKC21 is out of range. Valid range is 00000 ≤ PKC21 ≤ 09999
0222	PKC22 is out of range. Valid range is 00000 ≤ PKC22 ≤ 09999
0223	PKC23 is out of range. Valid range is 00000 ≤ PKC23 ≤ 09999
0224	PKC24 is out of range. Valid range is 00000 ≤ PKC24 ≤ 09999
0225	PKC25 is out of range. Valid range is 00000 ≤ PKC25 ≤ 09999
0226	PKC26 is out of range. Valid range is 00000 ≤ PKC26 ≤ 09999
0227	PKC27 is out of range. Valid range is 00000 ≤ PKC27 ≤ 09999
0228	PKC28 is out of range. Valid range is 00000 ≤ PKC28 ≤ 09999
0229	PKC29 is out of range. Valid range is 00000 ≤ PKC29 ≤ 09999
0230	PKC30 is out of range. Valid range is 00000 ≤ PKC30 ≤ 09999
0231	PKC31 is out of range. Valid range is 00000 ≤ PKC31 ≤ 09999
0232	PKC32 is out of range. Valid range is 00000 ≤ PKC32 ≤ 09999
0243	PKC43 is out of range. Valid range is 00000 ≤ PKC43 ≤ 09999
0244	PKC44 is out of range. Valid range is 00000 ≤ PKC44 ≤ 09999
0247	PKC47 is out of range. Valid range is 00000 ≤ PKC47 ≤ 09999
0248	PKC48 is out of range. Valid range is 00000 ≤ PKC48 ≤ 09999

Error Code	Description PKC ID = 10
0249	PKC49 is out of range. Valid range is 00000 ≤ PKC49 ≤ 09999
0250	PKC50 is out of range. Valid range is 00000 ≤ PKC50 ≤ 09999
0251	PKC51 is out of range. Valid range is 00000 ≤ PKC51 ≤ 09999
0252	PKC52 is out of range. Valid range is 00000 ≤ PKC52 ≤ 09999
0253	PKC53 is out of range. Valid range is 00000 ≤ PKC53 ≤ 09999
0254	PKC54 is out of range. Valid range is 00000 ≤ PKC54 ≤ 09999
0343	PKC43 is equal to PKC44. They must not be equal.
0347	PKC47 is equal to PKC48. They must not be equal.
0441	PKC41 is out of range. Valid range is 00000 ≤ PKC41 < PKC42
0442	PKC42 is out of range. Valid range is PKC41 < PKC42 ≤ 09999
0445	PKC45 is out of range. Valid range is 00000 ≤ PKC45 < PKC46
0446	PKC46 is out of range. Valid range is PKC45 < PKC46 ≤ 20000
0457	PKC57 is out of range. If non-zero, PKC57 must be within MCC17 < PKC57 ≤ MCC18
0458	PKC58 is out of range. If non-zero, PKC58 must be within MCC57 < PKC58 ≤ MCC58
0502	Your bit pattern in PKC02-B02, -B01, and -B00 indicates a selected cavity pressure control valve that is unconnected according to your entries in MCC02 and MCC04.
0506	Your bit pattern in PKC02-B06, -B05, and -B04 indicates a selected ram (screw) pressure control valve that is unconnected according to your entries in MCC02 and MCC04.

ID = 11

HDC – Hold Configuration Block

Error Code	Description HDC ID = 11
0205	HDC05 is out of range. Valid range is 00000 ≤ HDC05 ≤ 09999
0206	HDC06 is out of range. Valid range is 00000 ≤ HDC06 ≤ 09999
0209	HDC09 is out of range. Valid range is 00000 ≤ HDC09 ≤ 09999
0210	HDC10 is out of range. Valid range is 00000 ≤ HDC10 ≤ 09999
0211	HDC11 is out of range. Valid range is 00000 ≤ HDC11 ≤ 09999
0212	HDC12 is out of range. Valid range is 00000 ≤ HDC12 ≤ 09999
0213	HDC13 is out of range. Valid range is 00000 ≤ HDC13 ≤ 09999
0214	HDC14 is out of range. Valid range is 00000 ≤ HDC14 ≤ 09999
0215	HDC15 is out of range. Valid range is 00000 ≤ HDC15 ≤ 09999
0216	HDC16 is out of range. Valid range is 00000 ≤ HDC16 ≤ 09999
0217	HDC17 is out of range. Valid range is 00000 ≤ HDC17 ≤ 09999
0218	HDC18 is out of range. Valid range is 00000 ≤ HDC18 ≤ 09999
0219	HDC19 is out of range. Valid range is 00000 ≤ HDC19 ≤ 09999
0220	HDC20 is out of range. Valid range is 00000 ≤ HDC20 ≤ 09999
0221	HDC21 is out of range. Valid range is 00000 ≤ HDC21 ≤ 09999
0222	HDC22 is out of range. Valid range is 00000 ≤ HDC22 ≤ 09999
0223	HDC23 is out of range. Valid range is 00000 ≤ HDC23 ≤ 09999
0224	HDC24 is out of range. Valid range is 00000 ≤ HDC24 ≤ 09999
0225	HDC25 is out of range. Valid range is 00000 ≤ HDC25 ≤ 09999
0226	HDC26 is out of range. Valid range is 00000 ≤ HDC26 ≤ 09999
0227	HDC27 is out of range. Valid range is 00000 ≤ HDC27 ≤ 09999
0228	HDC28 is out of range. Valid range is 00000 ≤ HDC28 ≤ 09999
0229	HDC29 is out of range. Valid range is 00000 ≤ HDC29 ≤ 09999

Error Code	Description HDC ID = 11
0230	HDC30 is out of range. Valid range is 00000 ≤ HDC30 ≤ 09999
0231	HDC31 is out of range. Valid range is 00000 ≤ HDC31 ≤ 09999
0232	HDC32 is out of range. Valid range is 00000 ≤ HDC32 ≤ 09999
0233	HDC33 is out of range. Valid range is 00000 ≤ HDC33 ≤ 09999
0234	HDC34 is out of range. Valid range is 00000 ≤ HDC34 ≤ 09999
0235	HDC35 is out of range. Valid range is 00000 ≤ HDC35 ≤ 09999
0236	HDC36 is out of range. Valid range is 00000 ≤ HDC36 ≤ 09999
0237	HDC37 is out of range. Valid range is 00000 ≤ HDC37 ≤ 09999
0238	HDC38 is out of range. Valid range is 00000 ≤ HDC38 ≤ 09999
0239	HDC39 is out of range. Valid range is 00000 ≤ HDC39 ≤ 09999
0240	HDC40 is out of range. Valid range is 00000 ≤ HDC40 ≤ 09999
0243	HDC43 is out of range. Valid range is 00000 ≤ HDC43 ≤ 09999
0244	HDC44 is out of range. Valid range is 00000 ≤ HDC44 ≤ 09999
0247	HDC47 is out of range. Valid range is 00000 ≤ HDC47 ≤ 09999
0248	HDC48 is out of range. Valid range is 00000 ≤ HDC48 > 09999
0249	HDC49 is out of range. Valid range is 00000 ≤ HDC49 ≤ 09999
0250	HDC50 is out of range. Valid range is 00000 ≤ HDC50 ≤ 09999
0251	HDC51 is out of range. Valid range is 00000 ≤ HDC51 ≤ 09999
0252	HDC52 is out of range. Valid range is 00000 ≤ HDC52 ≤ 09999
0253	HDC53 is out of range. Valid range is 00000 ≤ HDC53 ≤ 09999
0254	HDC54 is out of range. Valid range is 00000 ≤ HDC54 ≤ 09999
0253	HDC53 is out of range. Valid range is 00000 ≤ HDC53 ≤ 09999
0254	HDC54 is out of range. Valid range is 00000 ≤ HDC54 ≤ 09999
0343	HDC43 is equal to HDC44. They must not be equal.
0347	HDC47 is equal to HDC48. They must not be equal.
0441	HDC41 is out of range. Valid range is 00000 ≤ HDC41 < HDC42
0442	HDC42 is out of range. Valid range is HDC41 < HDC42 ≤ 09999
0445	HDC45 is out of range. Valid range is 00000 ≤ HDC45 < HDC46
0446	HDC46 is out of range. Valid range is HDC45 < HDC46 ≤ 20000
0457	HDC57 is out of range. If non-zero, HDC57 must be within MCC17 < HDC57 ≤ MCC18
0458	HDC58 is out of range. If non-zero, HDC58 must be within MCC57 < HDC58 ≤ MCC58
0502	Your bit pattern in HDC02-B02, -B01, and -B00 indicates a selected cavity pressure control valve that is unconnected according to your entries in MCC02 and MCC04.
0506	Your bit pattern in HDC02-B06, -B05, and -B04 indicates a selected ram (screw) pressure control valve that is unconnected according to your entries in MCC02 and MCC04.

ID = 12

HPC – Pack/Hold Profile Block

Error Code	Description HPC ID = 12
0211	HPC11 is out of range. Valid range is 00000 ≤ HPC11 ≤ 09999
0214	HPC14 is out of range. Valid range is 00000 ≤ HPC14 ≤ 09999
0217	HPC17 is out of range. Valid range is 00000 ≤ HPC17 ≤ 09999
0220	HPC20 is out of range. Valid range is 00000 ≤ HPC20 ≤ 09999
0223	HPC23 is out of range. Valid range is 00000 ≤ HPC23 ≤ 09999
0228	HPC28 is out of range. Valid range is 00000 ≤ HPC28 ≤ 09999

Error Code	Description HPC ID = 12
0231	HPC31 is out of range. Valid range is 00000 ≤ HPC31 ≤ 09999
0234	HPC34 is out of range. Valid range is 00000 ≤ HPC34 ≤ 09999
0237	HPC37 is out of range. Valid range is 00000 ≤ HPC37 ≤ 09999
0240	HPC40 is out of range. Valid range is 00000 ≤ HPC40 ≤ 09999
0261	HPC61 is out of range. Valid range is 00000 ≤ HPC61 ≤ 09999
0409	HPC09 is out of range. If non-zero, HPC09 must be within PKC45 ≤ HPC09 ≤ PKC46
0410	HPC10 is out of range. If non-zero, HPC10 must be within PKC41 ≤ HPC10 ≤ PKC42
0412	HPC12 is out of range. If non-zero, HPC12 must be within PKC45 ≤ HPC12 ≤ PKC46
0413	HPC13 is out of range. If non-zero, HPC13 must be within PKC41 ≤ HPC13 ≤ PKC42
0415	HPC15 is out of range. If non-zero, HPC15 must be within PKC45 ≤ HPC15 ≤ PKC46
0416	HPC16 is out of range. If non-zero, HPC16 must be within PKC41 ≤ HPC16 ≤ PKC42
0418	HPC18 is out of range. If non-zero, HPC18 must be within PKC45 ≤ HPC18 ≤ PKC46
0419	HPC19 is out of range. If non-zero, HPC19 must be within PKC41 ≤ HPC19 ≤ PKC42
0421	HPC21 is out of range. If non-zero, HPC21 must be within PKC45 ≤ HPC21 ≤ PKC46
0422	HPC22 is out of range. If non-zero, HPC22 must be within PKC41 ≤ HPC22 ≤ PKC42
0424	HPC24 is out of range. Valid range is 00000 ≤ HPC24 ≤ PKC46
0425	HPC25 is out of range. Valid range is 00000 ≤ HPC25 ≤ PKC42
0426	HPC26 is out of range. If non-zero, HPC26 must be within HDC45 ≤ HPC26 ≤ HDC46
0427	HPC27 is out of range. If non-zero, HPC27 must be within HDC41 ≤ HPC27 ≤ HDC42
0429	HPC29 is out of range. If non-zero, HPC29 must be within HDC45 ≤ HPC29 ≤ HDC46
0430	HPC30 is out of range. If non-zero, HPC30 must be within HDC41 ≤ HPC30 ≤ HDC42
0432	HPC32 is out of range. If non-zero, HPC32 must be within HDC45 ≤ HPC32 ≤ HDC46
0433	HPC33 is out of range. If non-zero, HPC33 must be within HDC41 ≤ HPC33 ≤ HDC42
0435	HPC35 is out of range. If non-zero, HPC35 must be within HDC45 ≤ HPC35 ≤ HDC46
0436	HPC36 is out of range. If non-zero, HPC36 must be within HDC41 ≤ HPC36 ≤ HDC42
0438	HPC38 is out of range. If non-zero, HPC38 must be within HDC45 ≤ HPC38 ≤ HDC46
0439	HPC39 is out of range. If non-zero, HPC39 must be within HDC41 ≤ HPC39 ≤ HDC42
0441	HPC41 is out of range. Valid range is 00000 ≤ HPC41 ≤ HDC46
0442	HPC42 is out of range. Valid range is 00000 ≤ HPC42 ≤ HDC42
0503	You have selected CavPress/Time execution for the Pack Profile by HPC03-B00 = 1; however, your bit pattern in MCC02 indicates that your QI module is not configured for connection of a cavity pressure sensor.

Error Code	Description HPC ID = 12
0504	You have selected closed-loop RamPress/Time execution for the Pack Profile by HPC04-B00 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module does not have access to a connected ram (screw) pressure transducer.
0507	You have selected CavPress/Time execution for the Hold Profile by HPC03-B02 = 1; however, your bit pattern in MCC02 indicates that your QI module is not configured for connection of a cavity pressure sensor.
0508	You have selected closed-loop CavPress/Time execution for the Pack Profile by HPC04-B01 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module does not have access to a connected cavity pressure transducer.
0512	You have selected closed-loop RamPress/Time execution for the Hold Profile by HPC04-B02 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module does not have access to a connected ram (screw) pressure transducer.
0516	You have selected closed-loop CavPress/Time execution for the Hold Profile by HPC04-B03 = 0; however, your bit patterns in MCC02 and MCC03 indicate that the QI module does not have access to a connected cavity pressure transducer.
0600	Your entire Pack/Hold Profile Block has been rejected because the QI module does not have a valid Hold Configuration Block on-board (SYS15-B10 = 0).
0609	Your HPC09 must be zero because PKC is invalid (SYS15-B09 = 0).
0610	Your HPC10 must be zero because PKC is invalid (SYS15-B09 = 0).
0611	Your HPC11 must be zero because PKC is invalid (SYS15-B09 = 0).
0612	Your HPC12 must be zero because PKC is invalid (SYS15-B09 = 0).
0613	Your HPC13 must be zero because PKC is invalid (SYS15-B09 = 0).
0614	Your HPC14 must be zero because PKC is invalid (SYS15-B09 = 0).
0615	Your HPC15 must be zero because PKC is invalid (SYS15-B09 = 0).
0616	Your HPC16 must be zero because PKC is invalid (SYS15-B09 = 0).
0617	Your HPC17 must be zero because PKC is invalid (SYS15-B09 = 0).
0618	Your HPC18 must be zero because PKC is invalid (SYS15-B09 = 0).
0619	Your HPC19 must be zero because PKC is invalid (SYS15-B09 = 0).
0620	Your HPC20 must be zero because PKC is invalid (SYS15-B09 = 0).
0621	Your HPC21 must be zero because PKC is invalid (SYS15-B09 = 0).
0622	Your HPC22 must be zero because PKC is invalid (SYS15-B09 = 0).
0623	Your HPC23 must be zero because PKC is invalid (SYS15-B09 = 0).
0624	Your HPC24 must be zero because PKC is invalid (SYS15-B09 = 0).
0625	Your HPC25 must be zero because PKC is invalid (SYS15-B09 = 0).
0711	HPC11 cannot be 00000 because HPC14 > 00000.
0714	HPC14 cannot be 00000 because HPC17 > 00000.
0717	HPC17 cannot be 00000 because HPC20 > 00000.
0720	HPC20 cannot be 00000 because HPC23 > 00000.
0728	HPC28 cannot be 00000.
0731	HPC31 cannot be 00000 because HPC34 > 00000.
0734	HPC34 cannot be 00000 because HPC37 > 00000.
0737	HPC37 cannot be 00000 because HPC40 > 00000.
0809	HPC09 must be 00000 when HPC11 = 00000.
0810	HPC10 must be 00000 when HPC11 = 00000.
0812	HPC12 must be 00000 when HPC14 = 00000.
0813	HPC13 must be 00000 when HPC14 = 00000.
0815	HPC15 must be 00000 when HPC17 = 00000.
0816	HPC16 must be 00000 when HPC17 = 00000.
0818	HPC18 must be 00000 when HPC20 = 00000.
0819	HPC19 must be 00000 when HPC20 = 00000.
0821	HPC21 must be 00000 when HPC23 = 00000.

Error Code	Description HPC ID = 12
0822	HPC22 must be 00000 when HPC23 = 00000.
0829	HPC29 must be 00000 when HPC31 = 00000.
0830	HPC30 must be 00000 when HPC31 = 00000.
0832	HPC32 must be 00000 when HPC34 = 00000.
0833	HPC33 must be 00000 when HPC34 = 00000.
0835	HPC35 must be 00000 when HPC37 = 00000.
0836	HPC36 must be 00000 when HPC37 = 00000.
0838	HPC38 must be 00000 when HPC40 = 00000.
0839	HPC39 must be 00000 when HPC40 = 00000.

ID = 13

PRC – Pre-Decompression Configuration Block

Error Code	Description PRC ID = 13
0208	PRC08 is out of range. Valid range is 00000 ≤ PRC08 ≤ 09999
0209	PRC09 is out of range. Valid range is 00000 ≤ PRC09 ≤ 09999
0210	PRC10 is out of range. Valid range is 00000 ≤ PRC10 ≤ 09999
0211	PRC11 is out of range. Valid range is 00000 ≤ PRC11 ≤ 09999
0212	PRC12 is out of range. Valid range is 00000 ≤ PRC12 ≤ 09999
0213	PRC13 is out of range. Valid range is 00000 ≤ PRC13 ≤ 09999
0214	PRC14 is out of range. Valid range is 00000 ≤ PRC14 ≤ 09999
0215	PRC15 is out of range. Valid range is 00000 ≤ PRC15 ≤ 09999
0216	PRC16 is out of range. Valid range is 00000 ≤ PRC16 ≤ 09999
0217	PRC17 is out of range. Valid range is 00000 ≤ PRC17 ≤ 09999
0218	PRC18 is out of range. Valid range is 00000 ≤ PRC18 ≤ 09999
0219	PRC19 is out of range. Valid range is 00000 ≤ PRC19 ≤ 09999
0220	PRC20 is out of range. Valid range is 00000 ≤ PRC20 ≤ 09999
0221	PRC21 is out of range. Valid range is 00000 ≤ PRC21 ≤ 09999
0222	PRC22 is out of range. Valid range is 00000 ≤ PRC22 ≤ 09999
0223	PRC23 is out of range. Valid range is 00000 ≤ PRC23 ≤ 09999
0224	PRC24 is out of range. Valid range is 00000 ≤ PRC24 ≤ 09999
0225	PRC25 is out of range. Valid range is 00000 ≤ PRC25 ≤ 09999
0226	PRC25 is out of range. Valid range is 00000 ≤ PRC26 ≤ 09999
0227	PRC27 is out of range. Valid range is 00000 ≤ PRC27 ≤ 09999
0228	PRC28 is out of range. Valid range is 00000 ≤ PRC28 ≤ 09999
0229	PRC29 is out of range. Valid range is 00000 ≤ PRC29 ≤ 09999
0230	PRC30 is out of range. Valid range is 00000 ≤ PRC30 ≤ 09999
0231	PRC31 is out of range. Valid range is 00000 ≤ PRC31 ≤ 09999
0232	PRC32 is out of range. Valid range is 00000 ≤ PRC32 ≤ 09999
0233	PRC33 is out of range. Valid range is 00000 ≤ PRC33 ≤ 09999
0234	PRC34 is out of range. Valid range is 00000 ≤ PRC34 ≤ 09999
0235	PRC35 is out of range. Valid range is 00000 ≤ PRC35 ≤ 09999
0236	PRC36 is out of range. Valid range is 00000 ≤ PRC36 ≤ 09999
0237	PRC37 is out of range. Valid range is 00000 ≤ PRC37 ≤ 09999
0238	PRC38 is out of range. Valid range is 00000 ≤ PRC38 ≤ 09999
0239	PRC39 is out of range. Valid range is 00000 ≤ PRC39 ≤ 09999
0240	PRC40 is out of range. Valid range is 00000 ≤ PRC40 ≤ 09999

Error Code	Description PRC ID = 13	
0405	PRC05 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PRC05 must be within 00000 ≤ PRC05 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PRC05 must be within 00000 ≤ PRC05 ≤ MCC10 – MCC13
	MCC13 is zero and MCC14 is non-zero	PRC05 must be within 00000 ≤ PRC05 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PRC05 must be within 00000 ≤ PRC05 ≤ MCC10 – MCC09
0457	PRC57 is out of range. If non-zero, PRC57 must be within MCC17 < PRC57 ≤ MCC18	
0905	PRC05 is too large. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PRC05 must be within MCC13 + PPC61 + PRC05 ≤ MCC14
	MCC13 is zero and MCC14 is non-zero	PRC05 must be within MCC09 + PPC61 + PRC05 ≤ MCC14
	MCC13 is non-zero and MCC14 is zero	PRC05 must be within MCC13 + PPC61 + PRC05 ≤ MCC10
	MCC13 and MCC14 are both zero	PRC05 must be within MCC09 + PPC61 + PRC05 ≤ MCC10

ID = 14

PLC – Plastication Configuration Block

Error Code	Description PLC ID = 14
0206	PLC06 is out of range. Valid range is 00000 ≤ PLC06 ≤ 09999
0208	PLC08 is out of range. Valid range is 00000 ≤ PLC08 ≤ 09999
0209	PLC09 is out of range. Valid range is 00000 ≤ PLC09 ≤ 09999
0210	PLC10 is out of range. Valid range is 00000 ≤ PLC10 ≤ 09999
0211	PLC11 is out of range. Valid range is 00000 ≤ PLC11 ≤ 09999
0212	PLC12 is out of range. Valid range is 00000 ≤ PLC12 ≤ 09999
0213	PLC13 is out of range. Valid range is 00000 ≤ PLC13 ≤ 09999
0214	PLC14 is out of range. Valid range is 00000 ≤ PLC14 ≤ 09999
0215	PLC15 is out of range. Valid range is 00000 ≤ PLC15 ≤ 09999
0216	PLC16 is out of range. Valid range is 00000 ≤ PLC16 ≤ 09999
0217	PLC17 is out of range. Valid range is 00000 ≤ PLC17 ≤ 09999
0218	PLC18 is out of range. Valid range is 00000 ≤ PLC18 ≤ 09999
0219	PLC19 is out of range. Valid range is 00000 ≤ PLC19 ≤ 09999
0220	PLC20 is out of range. Valid range is 00000 ≤ PLC20 ≤ 09999
0221	PLC21 is out of range. Valid range is 00000 ≤ PLC21 ≤ 09999
0222	PLC22 is out of range. Valid range is 00000 ≤ PLC22 ≤ 09999
0223	PLC23 is out of range. Valid range is 00000 ≤ PLC23 ≤ 09999
0224	PLC24 is out of range. Valid range is 00000 ≤ PLC24 ≤ 09999
0225	PLC25 is out of range. Valid range is 00000 ≤ PLC25 ≤ 09999
0226	PLC26 is out of range. Valid range is 00000 ≤ PLC26 ≤ 09999
0227	PLC27 is out of range. Valid range is 00000 ≤ PLC27 ≤ 09999
0228	PLC28 is out of range. Valid range is 00000 ≤ PLC28 ≤ 09999
0229	PLC29 is out of range. Valid range is 00000 ≤ PLC29 ≤ 09999

Error Code	Description PLC ID = 14
0230	PLC30 is out of range. Valid range is 00000 ≤ PLC30 ≤ 09999
0231	PLC31 is out of range. Valid range is 00000 ≤ PLC31 ≤ 09999
0232	PLC32 is out of range. Valid range is 00000 ≤ PLC32 ≤ 09999
0233	PLC33 is out of range. Valid range is 00000 ≤ PLC33 ≤ 09999
0234	PLC34 is out of range. Valid range is 00000 ≤ PLC34 ≤ 09999
0235	PLC35 is out of range. Valid range is 00000 ≤ PLC35 ≤ 09999
0236	PLC36 is out of range. Valid range is 00000 ≤ PLC36 ≤ 09999
0237	PLC37 is out of range. Valid range is 00000 ≤ PLC37 ≤ 09999
0238	PLC38 is out of range. Valid range is 00000 ≤ PLC38 ≤ 09999
0239	PLC39 is out of range. Valid range is 00000 ≤ PLC39 ≤ 09999
0240	PLC40 is out of range. Valid range is 00000 ≤ PLC40 ≤ 09999
0243	PLC43 is out of range. Valid range is 00000 ≤ PLC43 ≤ 09999
0244	PLC44 is out of range. Valid range is 00000 ≤ PLC44 ≤ 09999
0247	PLC47 is out of range. Valid range is 00000 ≤ PLC47 ≤ 09999
0248	PLC48 is out of range. Valid range is 00000 ≤ PLC48 ≤ 09999
0249	PLC49 is out of range. Valid range is 00000 ≤ PLC49 ≤ 09999
0250	PLC50 is out of range. Valid range is 00000 ≤ PLC50 ≤ 09999
0251	PLC51 is out of range. Valid range is 00000 ≤ PLC51 ≤ 09999
0252	PLC52 is out of range. Valid range is 00000 ≤ PLC52 ≤ 09999
0253	PLC53 is out of range. Valid range is 00000 ≤ PLC53 ≤ 09999
0254	PLC54 is out of range. Valid range is 00000 ≤ PLC54 ≤ 09999
0343	PLC43 is equal to PLC44. They must not be equal.
0347	PLC47 is equal to PLC48. They must not be equal.
0441	PLC41 is out of range. Valid range is 00000 ≤ PLC41 < PLC42
0442	PLC42 is out of range. Valid range is PLC41 < PLC42 ≤ 09999
0445	PLC45 is out of range. Valid range is 00000 ≤ PLC45 < INC46
0446	PLC46 is out of range. Valid range is PLC45 < PLC46 ≤ 09999
0457	PLC57 is out of range. If non-zero, PLC57 must be within MCC17 < PLC57 ≤ MCC18
0502	Your bit pattern in PLC02-B02, -B01, and -B00 indicates a selected screw RPM control valve that is unconnected according to your entries in MCC02 and MCC04.
0506	Your bit pattern in PLC02-B06, -B05, and -B04 indicates a selected ram (screw) backpressure control valve that is unconnected according to your entries in MCC02 and MCC04.

ID = 15

PPC – Plastication Profile Block

Error Code	Description PPC ID = 15
0209	PPC09 is out of range. Valid range is 00000 ≤ PPC09 ≤ 09999
0212	PPC12 is out of range. Valid range is 00000 ≤ PPC12 ≤ 09999
0213	PPC13 is out of range. Valid range is 00000 ≤ PPC13 ≤ 09999
0216	PPC16 is out of range. Valid range is 00000 ≤ PPC16 ≤ 09999
0217	PPC17 is out of range. Valid range is 00000 ≤ PPC17 ≤ 09999
0220	PPC20 is out of range. Valid range is PPC20 ≤ PPC20 ≤ 09999
0221	PPC21 is out of range. Valid range is PPC20 ≤ PPC21 ≤ 09999
0224	PPC24 is out of range. Valid range is 00000 ≤ PPC24 ≤ 09999
0225	PPC25 is out of range. Valid range is 00000 ≤ PPC25 ≤ 09999
0228	PPC28 is out of range. Valid range is 00000 ≤ PPC28 ≤ 09999

Error Code	Description PPC ID = 15	
0229	PPC29 is out of range. Valid range is 00000 ≤ PPC29 ≤ 09999	
0232	PPC32 is out of range. Valid range is 00000 ≤ PPC32 ≤ 09999	
0233	PPC33 is out of range. Valid range is 00000 ≤ PPC33 ≤ 09999	
0236	PPC36 is out of range. Valid range is 00000 ≤ PPC36 ≤ 09999	
0237	PPC37 is out of range. Valid range is 00000 ≤ PPC37 ≤ 09999	
0240	PPC40 is out of range. Valid range is PPC40 ≤ PPC40 ≤ 09999	
0241	PPC41 is out of range. Valid range is PPC41 ≤ PPC40 ≤ 09999	
0244	PPC44 is out of range. Valid range is 00000 ≤ PPC44 ≤ 09999	
0245	PPC45 is out of range. Valid range is 00000 ≤ PPC45 ≤ 09999	
0248	PPC48 is out of range. Valid range is 00000 ≤ PPC48 ≤ 09999	
0249	PPC49 is out of range. Valid range is 00000 ≤ PPC49 ≤ 09999	
0251	PPC51 is out of range. Valid range is 00000 ≤ PPC51 ≤ 09999	
0410	PPC10 is out of range. If non-zero, PPC10 must be within PLC41 ≤ PPC10 ≤ PLC42	
0411	PPC11 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC11 must be within 00000 ≤ PPC11 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC11 must be within 00000 ≤ PPC11 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC11 must be within 00000 ≤ PPC11 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC11 must be within 00000 ≤ PPC11 ≤ MCC10 – MCC09
0414	PPC14 is out of range. If non-zero, PPC14 must be within PLC41 ≤ PPC14 ≤ PLC42	
0415	PPC15 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC15 must be within 00000 ≤ PPC15 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC15 must be within 00000 ≤ PPC15 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero .	PPC15 must be within 00000 ≤ PPC15 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PPC15 must be within 00000 ≤ PPC15 ≤ MCC10 – MCC09
0418	PPC18 is out of range. If non-zero, PPC18 must be within PLC41 ≤ PPC18 ≤ PLC42	
0419	PPC19 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC19 must be within 00000 ≤ PPC19 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC19 must be within 00000 ≤ PPC19 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC19 must be within 00000 ≤ PPC19 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC19 must be within 00000 ≤ PPC19 ≤ MCC10 – MCC09
0422	PPC22 is out of range. If non-zero, PPC22 must be within PLC41 ≤ PPC22 ≤ PLC42	

Error Code	Description **PPC ID = 15**	
0423	PPC23 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC23 must be within 00000 ≤ PPC23 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC23 must be within 00000 ≤ PPC23 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero .	PPC23 must be within 00000 ≤ PPC23 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PPC23 must be within 00000 ≤ PPC23 ≤ MCC10 – MCC09
0426	PPC26 is out of range. If non-zero, PPC26 must be within PLC41 ≤ PPC26 ≤ PLC42	
0427	PPC27 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC27 must be within 00000 ≤ PPC27 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC27 must be within 00000 ≤ PPC27 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC27 must be within 00000 ≤ PPC27 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC27 must be within 00000 ≤ PPC27 ≤ MCC10 – MCC09
0430	PPC30 is out of range. If non-zero, PPC30 must be within PLC41 ≤ PPC30 ≤ PLC42	
0431	PPC31 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC31 must be within 00000 ≤ PPC31 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC31 must be within 00000 ≤ PPC31 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC31 must be within 00000 ≤ PPC31 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC31 must be within 00000 ≤ PPC31 ≤ MCC10 – MCC09
0434	PPC34 is out of range. If non-zero, PPC34 must be within PLC41 ≤ PPC34 ≤ PLC42	
0435	PPC35 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC35 must be within 00000 ≤ PPC35 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC35 must be within 00000 ≤ PPC35 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC35 must be within 00000 ≤ PPC35 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC35 must be within 00000 ≤ PPC35 ≤ MCC10 – MCC09
0438	PPC38 is out of range. If non-zero, PPC38 must be within PLC41 ≤ PPC38 ≤ PLC42	

Error Code	Description PPC ID = 15	
0439	PPC39 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC39 must be within 00000 ≤ PPC39 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC39 must be within 00000 ≤ PPC39 ≤ MCC10 – MCC13
	MCC13 is zero and MCC14 is non-zero .	PPC39 must be within 00000 ≤ PPC39 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PPC39 must be within 00000 ≤ PPC39 ≤ MCC10 – MCC09
0442	PPC42 is out of range. If non-zero, PPC42 must be within PLC41 ≤ PPC42 ≤ PLC42	
0443	PPC43 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC43 must be within 00000 ≤ PPC43 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC43 must be within 00000 ≤ PPC43 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC43 must be within 00000 ≤ PPC43 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC43 must be within 00000 ≤ PPC43 ≤ MCC10 – MCC09
0446	PPC46 is out of range. If non-zero, PPC46 must be within PLC41 ≤ PPC46 ≤ PLC42	
0447	PPC47 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC47 must be within 00000 ≤ PPC47 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC47 must be within 00000 ≤ PPC47 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC47 must be within 00000 ≤ PPC47 ≤ MCC14 – MCC09.
	MCC13 and MCC14 are both zero	PPC47 must be within 00000 ≤ PPC47 ≤ MCC10 – MCC09
0450	PPC50 is out of range. If non-zero, PPC50 must be within PLC41 ≤ PPC50 ≤ PLC42	
0452	PPC52 is out of range. Valid range is 00000 ≤ PPC52 ≤ PLC42	
0461	PPC61 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC61 must be within 00000 ≤ PPC61 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC61 must be within 00000 ≤ PPC61 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero .	PPC61 must be within 00000 ≤ PPC61 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PPC61 must be within 00000 ≤ PPC61 ≤ MCC10 – MCC09

Error Code	Description **PPC ID = 15**	
0462	PPC62 is out of range. **if:**	**then:**
	MCC13 and MCC14 are both non-zero	PPC62 must be within 00000 ≤ PPC62 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PPC62 must be within 00000 ≤ PPC62 ≤ MCC10 – MCC13.
	MCC13 is zero and MCC14 is non-zero	PPC62 must be within 00000 ≤ PPC62 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PPC62 must be within 00000 ≤ PPC62 ≤ MCC10 – MCC09
0503	You have selected RPM/Pos execution of the Plastication profile by PPC03-B01 = 1 and PPC03 -B00 = 0, but your bit pattern in MCC02 indicates that the QI module is not configured for connection of a screw RPM sensor.	
0504	You have selected closed-loop Press/Pos execution for the Plastication Profile by PPC04-B00 = 0, but your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a ram (screw) pressure transducer.	
0507	You have selected RPM/Time execution of the Plastication profile by PPC03-B01 = 1 and PPC03-B00 = 1, but your bit pattern in MCC02 indicates that the QI module is not configured for connection of a screw RPM sensor.	
0508	You have selected closed-loop Press/Time execution of the Plastication Profile by PPC04-B01 = 0, but your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a ram (screw) pressure transducer.	
0512	You have selected closed-loop RPM/Pos execution of the Plastication profile by PPC04-B02 = 0, but your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a screw RPM sensor.	
0516	You have selected closed-loop RPM/Time execution of the Plastication profile by PPC04-B03 = 0, but your bit patterns in MCC02 and MCC03 indicate that the QI module is not connected to a screw RPM sensor.	
0600	Your entire Plastication Profile Block has been rejected because the QI module module does not have a valid Plastication Configuration Block on-board (SYS15-B13 = 0).	
0711	PPC11 cannot be 00000 when PPC14 > 00000.	
0712	PPC12 cannot be 00000 when PPC14 > 00000.	
0715	PPC15 cannot be 00000 when PPC18 > 00000.	
0716	PPC16 cannot be 00000 when PPC18 > 00000.	
0719	PPC19 cannot be 00000 when PPC22 > 00000.	
0720	PPC20 cannot be 00000 when PPC22 > 00000.	
0723	PPC23 cannot be 00000 when PPC26 > 00000.	
0724	PPC24 cannot be 00000 when PPC26 > 00000.	
0727	PPC27 cannot be 00000 when PPC30 > 00000.	
0728	PPC28 cannot be 00000 when PPC30 > 00000.	
0731	PPC31 cannot be 00000 when PPC34 > 00000.	
0732	PPC32 cannot be 00000 when PPC34 > 00000.	
0735	PPC35 cannot be 00000 when PPC38 > 00000.	
0736	PPC36 cannot be 00000 when PPC38 > 00000.	
0739	PPC39 cannot be 00000 when PPC42 > 00000.	
0740	PPC40 cannot be 00000 when PPC42 > 00000.	
0743	PPC43 cannot be 00000 when PPC46 > 00000.	
0744	PPC44 cannot be 00000 when PPC46 > 00000.	
0747	PPC47 cannot be 00000 when PPC50 > 00000.	
0748	PPC48 cannot be 00000 when PPC50 > 00000.	
0815	PPC15 must be 00000 when PPC11 = 00000.	
0816	PPC16 must be 00000 when PPC12 = 00000.	
0819	PPC19 must be 00000 when PPC15 = 00000.	

Error Code	Description PPC ID = 15	
0820	PPC20 must be 00000 when PPC16 = 00000.	
0823	PPC23 must be 00000 when PPC19 = 00000.	
0824	PPC24 must be 00000 when PPC20 = 00000.	
0827	PPC27 must be 00000 when PPC23 = 00000.	
0828	PPC28 must be 00000 when PPC24 = 00000.	
0831	PPC31 must be 00000 when PPC27 = 00000.	
0832	PPC32 must be 00000 when PPC28 = 00000.	
0835	PPC35 must be 00000 when PPC31 = 00000.	
0836	PPC36 must be 00000 when PPC32 = 00000.	
0839	PPC39 must be 00000 when PPC35 = 00000.	
0840	PPC40 must be 00000 when PPC36 = 00000.	
0843	PPC43 must be 00000 when PPC39 = 00000.	
0844	PPC44 must be 00000 when PPC40 = 00000.	
0847	PPC47 must be 00000 when PPC43 = 00000.	
0848	PPC48 must be 00000 when PPC44 = 00000.	
0961	PPC61 is too large.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC61 must be within MCC13 + PPC61 + PRC05 ≤ MCC14
	MCC13 is zero and is non-zero	PPC61 must be within MCC09 + PPC61 + PRC05 ≤ MCC14
	MCC13 is non-zero and MCC14 is zero	PPC61 must be within MCC13 + PPC61 + PRC05 ≤ MCC10
	MCC13 and MCC14 are both zero	PPC61 must be within MCC09 + PPC61 + PRC05 ≤ MCC10
0962	PPC62 is too large.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PPC62 must be within MCC13 + PPC61 + PPC62 + PSC05 ≤ MCC14
	MCC13 is zero and MCC14 is non-zero	PPC62 must be within MCC09 + PPC61 + PPC62 + PSC05 ≤ MCC14
	MCC13 is non-zero and MCC14 is zero	PPC62 must be within MCC13 + PPC61 + PPC62 + PSC05 ≤ MCC10
	MCC13 and MCC14 are both zero	PPC62 must be within MCC09 + PPC61 + PPC62 + PSC05 ≤ MCC10
1015	PPC15 is not in increasing positional order. If non-zero, PPC15 must be greater than PPC11.	
1019	PPC19 is not in increasing positional order. If non-zero, PPC19 must be greater than PPC15.	
1023	PPC23 is not in increasing positional order. If non-zero, PPC23 must be greater than PPC19.	
1027	PPC27 is not in increasing positional order. If non-zero, PPC27 must be greater than PPC23.	
1031	PPC31 is not in increasing positional order. If non-zero, PPC31 must be greater than PPC27.	
1035	PPC35 is not in increasing positional order. If non-zero, PPC35 must be greater than PPC31.	
1039	PPC39 is not in increasing positional order. If non-zero, PPC39 must be greater than PPC35.	
1043	PPC43 is not in increasing positional order. If non-zero, PPC43 must be greater than PPC39.	
1047	PPC47 is not in increasing positional order. If non-zero, PPC47 must be greater than PPC43.	

ID = 16

PSC – Post-Decompression Configuration Block

Error Code	Description PSC ID = 16	
0208	PSC08 is out of range. Valid range is 00000 ≤ PSC08 ≤ 09999	
0209	PSC09 is out of range. Valid range is 00000 ≤ PSC09 ≤ 09999	
0210	PSC10 is out of range. Valid range is 00000 ≤ PSC10 ≤ 09999	
0211	PSC11 is out of range. Valid range is 00000 ≤ PSC11 ≤ 09999	
0212	PSC12 is out of range. Valid range is 00000 ≤ PSC12 ≤ 09999	
0213	PSC13 is out of range. Valid range is 00000 ≤ PSC13 ≤ 09999	
0214	PSC14 is out of range. Valid range is 00000 ≤ PSC14 ≤ 09999	
0215	PSC15 is out of range. Valid range is 00000 ≤ PSC15 ≤ 09999	
0216	PSC16 is out of range. Valid range is 00000 ≤ PSC16 ≤ 09999	
0217	PSC17 is out of range. Valid range is 00000 ≤ PSC17 ≤ 09999	
0218	PSC18 is out of range. Valid range is 00000 ≤ PSC18 ≤ 09999	
0219	PSC19 is out of range. Valid range is 00000 ≤ PSC19 ≤ 09999	
0220	PSC20 is out of range. Valid range is 00000 ≤ PSC20 ≤ 09999	
0221	PSC21 is out of range. Valid range is 00000 ≤ PSC21 ≤ 09999	
0222	PSC22 is out of range. Valid range is 00000 ≤ PSC22 ≤ 09999	
0223	PSC23 is out of range. Valid range is 00000 ≤ PSC23 ≤ 09999	
0224	PSC24 is out of range. Valid range is 00000 ≤ PSC24 ≤ 09999	
0225	PSC25 is out of range. Valid range is 00000 ≤ PSC25 ≤ 09999	
0226	PSC26 is out of range. Valid range is 00000 ≤ PSC26 ≤ 09999	
0227	PSC27 is out of range. Valid range is 00000 ≤ PSC27 ≤ 09999	
0228	PSC28 is out of range. Valid range is 00000 ≤ PSC28 ≤ 09999	
0229	PSC29 is out of range. Valid range is 00000 ≤ PSC29 ≤ 09999	
0230	PSC30 is out of range. Valid range is 00000 ≤ PSC30 ≤ 09999	
0231	PSC31 is out of range. Valid range is 00000 ≤ PSC31 ≤ 09999	
0232	PSC32 is out of range. Valid range is 00000 ≤ PSC32 ≤ 09999	
0233	PSC33 is out of range. Valid range is 00000 ≤ PSC33 ≤ 09999	
0234	PSC34 is out of range. Valid range is 00000 ≤ PSC34 ≤ 09999	
0235	PSC35 is out of range. Valid range is 00000 ≤ PSC35 ≤ 09999	
0236	PSC36 is out of range. Valid range is 00000 ≤ PSC36 ≤ 09999	
0237	PSC37 is out of range. Valid range is 00000 ≤ PSC37 ≤ 09999	
0238	PSC38 is out of range. Valid range is 00000 ≤ PSC38 ≤ 09999	
0239	PSC39 is out of range. Valid range is 00000 ≤ PSC39 ≤ 09999	
0240	PSC40 is out of range. Valid range is 00000 ≤ PSC40 ≤ 09999	
0405	PSC05 is out of range.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PSC05 must be within 00000 ≤ PSC05 ≤ MCC14 – MCC13
	MCC13 is non-zero and MCC14 is zero	PSC05 must be within 00000 ≤ PSC05 ≤ MCC10 – MCC13
	MCC13 is zero and MCC14 is non-zero	PSC05 must be within 00000 ≤ PSC05 ≤ MCC14 – MCC09
	MCC13 and MCC14 are both zero	PSC05 must be within 00000 ≤ PSC05 ≤ MCC10 – MCC09
0457	PSC57 is out of range. If non-zero, PSC57 must be within MCC17 < PSC57 ≤ MCC18	

Error Code	Description PSC ID = 16	
0905	PSC05 is too large.	
	if:	**then:**
	MCC13 and MCC14 are both non-zero	PSC05 must be within MCC13 + PPC61 + PPC62 + PSC05 ≤ MCC14
	MCC13 is zero and MCC14 is non-zero	PSC05 must be within MCC09 + PPC61 + PPC62 + PSC05 ≤ MCC14
	MCC13 is non-zero and MCC14 is zero	PSC05 must be within MCC13 + PPC61 + PPC62 + PSC05 ≤ MCC10
	MCC13 and MCC14 are both zero	PSC05 must be within MCC09 + PPC61 + PPC62 + PSC05 ≤ MCC10

ID = 25

DYC – Dynamic Command Block

Error Code	Description DYC ID = 25
0209	DYC09 is out of range. Valid range is 00000 ≤ DYC09 ≤ 09999
0210	DYC10 is out of range. Valid range is 00000 ≤ DYC10 ≤ 09999
0211	DYC11 is out of range. Valid range is 00000 ≤ DYC11 ≤ 09999
0212	DYC12 is out of range. Valid range is 00000 ≤ DYC12 ≤ 09999
0213	DYC13 is out of range. Valid range is 00000 ≤ DYC13 ≤ 09999
0214	DYC14 is out of range. Valid range is 00000 ≤ DYC14 ≤ 09999
0215	DYC15 is out of range. Valid range is 00000 ≤ DYC15 ≤ 09999
0216	DYC16 is out of range. Valid range is 00000 ≤ DYC16 ≤ 09999
0217	DYC17 is out of range. Valid range is 00000 ≤ DYC17 ≤ 09999
0218	DYC18 is out of range. Valid range is 00000 ≤ DYC18 ≤ 09999
0219	DYC19 is out of range. Valid range is 00000 ≤ DYC19 ≤ 09999
0220	DYC20 is out of range. Valid range is 00000 ≤ DYC20 ≤ 09999
0221	DYC21 is out of range. Valid range is 00000 ≤ DYC21 ≤ 09999
0222	DYC22 is out of range. Valid range is 00000 ≤ DYC22 ≤ 09999
0223	DYC23 is out of range. Valid range is 00000 ≤ DYC23 ≤ 09999
0224	DYC24 is out of range. Valid range is 00000 ≤ DYC24 ≤ 09999
0225	DYC25 is out of range. Valid range is 00000 ≤ DYC25 ≤ 09999
0226	DYC26 is out of range. Valid range is 00000 ≤ DYC26 ≤ 09999
0227	DYC27 is out of range. Valid range is 00000 ≤ DYC27 ≤ 09999
0228	DYC28 is out of range. Valid range is 00000 ≤ DYC28 ≤ 09999
0229	DYC29 is out of range. Valid range is 00000 ≤ DYC29 ≤ 09999
0230	DYC30 is out of range. Valid range is 00000 ≤ DYC30 ≤ 09999
0231	DYC31 is out of range. Valid range is 00000 ≤ DYC31 ≤ 09999
0232	DYC32 is out of range. Valid range is 00000 ≤ DYC32 ≤ 09999
0261	DYC61 is out of range. Valid range is 00000 ≤ DYC61 ≤ 00027
0503	DYC03.B05 selected an invalid cavity input
0569	DYC03.B05 was switched during time delay IPC07 or while profile was active

ID = 26

RLC – Inject ERC Values Block

Error Code	Description RLC ID = 26
0209	RLC09 is out of range. Valid range is 00000 ≤ RLC09 ≤ 09999
0210	RLC10 is out of range. Valid range is 00000 ≤ RLC10 ≤ 09999
0211	RLC11 is out of range. Valid range is 00000 ≤ RLC11 ≤ 09999

Error Code	Description RLC ID = 26
0212	RLC12 is out of range. Valid range is 00000 ≤ RLC12 ≤ 09999
0213	RLC13 is out of range. Valid range is 00000 ≤ RLC13 ≤ 09999
0214	RLC14 is out of range. Valid range is 00000 ≤ RLC14 ≤ 09999
0215	RLC15 is out of range. Valid range is 00000 ≤ RLC15 ≤ 09999
0216	RLC16 is out of range. Valid range is 00000 ≤ RLC16 ≤ 09999
0217	RLC17 is out of range. Valid range is 00000 ≤ RLC17 ≤ 09999
0218	RLC18 is out of range. Valid range is 00000 ≤ RLC18 ≤ 09999
0219	RLC19 is out of range. Valid range is 00000 ≤ RLC19 ≤ 09999
0220	RLC20 is out of range. Valid range is 00000 ≤ RLC20 ≤ 09999
0221	RLC21 is out of range. Valid range is 00000 ≤ RLC21 ≤ 09999
0222	RLC22 is out of range. Valid range is 00000 ≤ RLC22 ≤ 09999
0223	RLC23 is out of range. Valid range is 00000 ≤ RLC23 ≤ 09999
0224	RLC24 is out of range. Valid range is 00000 ≤ RLC24 ≤ 09999
0225	RLC25 is out of range. Valid range is 00000 ≤ RLC25 ≤ 09999
0226	RLC26 is out of range. Valid range is 00000 ≤ RLC26 ≤ 09999
0227	RLC27 is out of range. Valid range is 00000 ≤ RLC27 ≤ 09999
0228	RLC28 is out of range. Valid range is 00000 ≤ RLC28 ≤ 09999
0229	RLC29 is out of range. Valid range is 00000 ≤ RLC29 ≤ 09999
0230	RLC30 is out of range. Valid range is 00000 ≤ RLC30 ≤ 09999
0231	RLC31 is out of range. Valid range is 00000 ≤ RLC31 ≤ 09999
0232	RLC32 is out of range. Valid range is 00000 ≤ RLC32 ≤ 09999
0233	RLC33 is out of range. Valid range is 00000 ≤ RLC33 ≤ 09999
0234	RLC34 is out of range. Valid range is 00000 ≤ RLC34 ≤ 09999
0235	RLC35 is out of range. Valid range is 00000 ≤ RLC35 ≤ 09999
0236	RLC36 is out of range. Valid range is 00000 ≤ RLC36 ≤ 09999
0237	RLC37 is out of range. Valid range is 00000 ≤ RLC37 ≤ 09999
0238	RLC38 is out of range. Valid range is 00000 ≤ RLC38 ≤ 09999
0239	RLC39 is out of range. Valid range is 00000 ≤ RLC39 ≤ 09999
0240	RLC40 is out of range. Valid range is 00000 ≤ RLC40 ≤ 09999

ID = 28

PTC – Process Trace Configuration Block

Error Code	Description PTC ID = 28
0205	PTC05 (trigger delay) is out of range. Valid range is 00000 ≤ PTC05 ≤ 09999.
0206	PTC06 (trigger position) is out of range. Valid range is IPC61 ≤ PTC06 ≤ PPC61 + PPC62 + PSC05
0207	PTC07 (sample rate) is out of range. Valid range is 00002 ≤ PTC07 ≤ 00230.
0407	PTC07 (sample rate) is not an even number.
0208	PTC08 (trace #1 selection) is invalid.
0209	PTC09 (trace #2 selection) is invalid.
0210	PTC10 (trace #3 selection) is invalid.
0211	PTC11 (trace #4 selection) is invalid.

Sequencing Co-injection

Chapter Objective

This chapter describes how you program the operation of screws A and B for the following co-injection sequences:

- A only, or B only
- A and B
- A then B (standard programming)
  – inject all of A
  – inject all of B
- A then B (co-injection programming)
  – suspend the start of B
  – inject A to completion
  – from some point in A, inject B to completion
- ABA
  – inject A to some point
  – from some point in A, inject B to completion
  – resume A to completion

You can reverse the role of A and B for another set of valid sequences.

We give you explanations with example bit/word values for various combinations. You can achieve similar results in a variety of ways.

A Only, or B Only

Co-injection parameters are not used. You set up for standard injection where you inject a single material from a single head.

A and B

You determine which QI module will be used as the "master" to control cycle operation. Only one module will transition to pack/hold. In this example, we let QI(A) be master, so we disable QI(B)'s automatic sequence into pack/hold (IPC**B**02/B08 = 1).

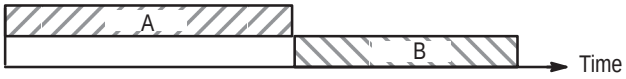
We programmed only one co-injection parameter.

Description:	QI(A) setup	QI(B) setup	Co-inj. word/bit:
enable injection cycle suspension on start	No	No	DYC03-BO4 = 0
disable automatic sequence into pack/hold	No	Yes	IPC**B**02-B08 = 1
enable injection cycle suspension on screw position	No	No	IPC02-B10 = 0
screw position (of other) to exit suspended injection	No	No	IPC08 = zero
screw position to suspend own injection	No	No	IPC56 = zero

Important: We identify addresses associated with QI(B) with the letter **B** inserted as shown. For example, IPC**B**02-B08.

A then B

You can use either standard or co-injection programming for this sequence.



Standard Programming

Set up QI(A) to wait at the end of its injection profile, and QI(B) to bridge into pack/hold. You command QI(A) to inject to completion and wait. Once your ladder code sees injection complete bit (SYS02:B04) transition from F to T, your code commands QI(B) to start injection. When QI(B) completes injection, it will automatically bridge to pack/hold and complete the cycle.

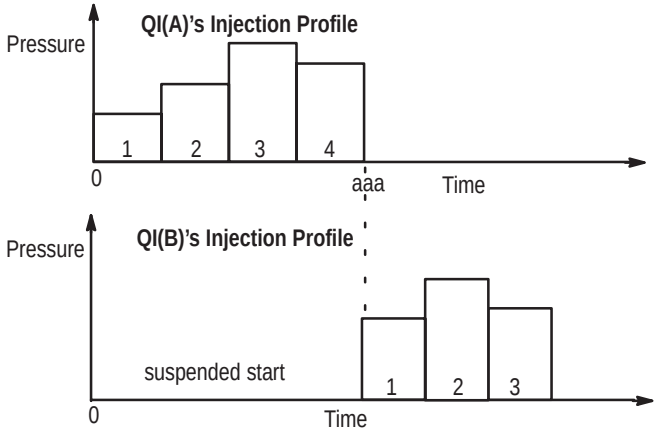
This technique requires one program scan (20 to 50 msec) before QI(B) is commanded to start injection. If you require a faster response, use co-injection programming.

Co-injection Programming

Use co-injection parameter IPCB08 to define the screw position of A at the end of its profile at which to start QI(B)'s injection. You command QI(A) and (B) to start at the same time. QI(A) completes first and waits at the end of its profile. QI(B) starts injection when A reaches screw position (aaa) set in IPCB08. Once QI(B) completes injection, it goes into pack/hold and completes the cycle.

This technique starts QI(B)'s profile within 2 msec of seeing screw position (IPCB08) at the end of QI(A)'s profile.

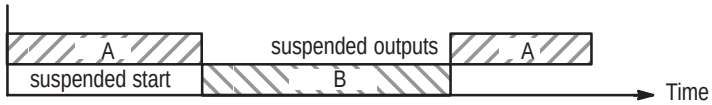
Description:	QI(A) setup:	QI(B) setup:	Co–inj. word/bit:
enable injection cycle suspension on start	No	Yes	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	Yes	No	IPC02-B08 = 1
enable injection cycle suspension on screw position	No	No	IPC02-B10 = 0
screw position (of other) to exit suspended injection	No	at aaa	IPC**B**08 = aaa
screw position to suspend own injection	No	No	IPC56 = zero



ABA

We present two examples:

- QI(A)'s suspended outputs are turned off
- QI(A)'s suspended outputs are programmed

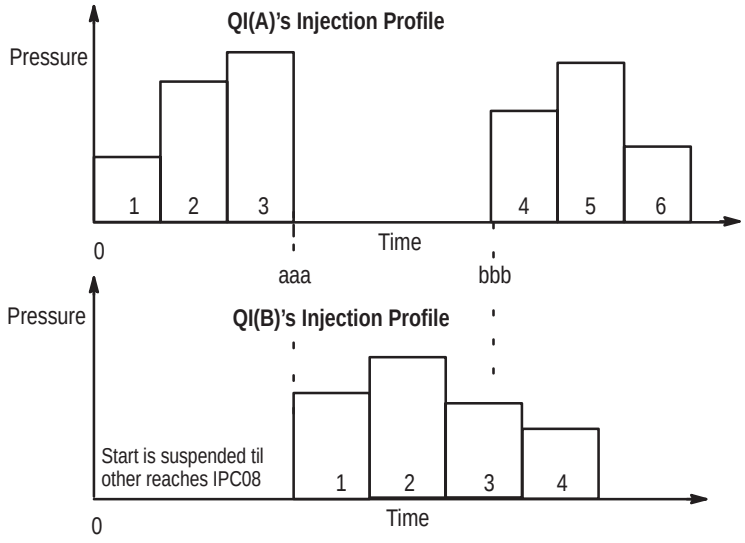


Suspended Outputs are Turned Off

You command QI(A) and QI(B) to start at the same time. QI(B) suspends start of injection, then starts on screw position of A when QI(A) suspends injection. Then QI(A) resumes injection on screw position of B. QI(B) is disabled from bridging to pack/hold. QI(A)'s outputs go off during suspended injection. The sequence is:

– suspend start of B
– inject part of A
– from some point (aaa) in A, suspend A and inject B to completion
– from some point (bbb) in B, resume A to completion

Description:	QI(A) setup:	QI(B) setup:	Co-inj. word/bit:
enable injection cycle suspension on start (start injection at other screw position IPC08)	No	Yes	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	No	Yes	IPC**B**02-B08 = 1
enable injection suspension on own screw position IPC56	Yes	No	IPC02-B10 = 1
screw position of other to exit suspension	at bbb	at aaa	IPC08 = bbb IPC**B**08 = aaa
own screw position to suspend own injection	at aaa	No	IPC56 = aaa



Suspended Outputs are Programmed

Co-injection lets you program suspended outputs with these choices:

- suspended outputs are turned off (previous example)
- suspended outputs are your set-outputs in INC61-64 (example 1)
- the injection output is closed-loop controlled (example 2)

For these examples, refer to the diagram on the next page.

Example 1, You suspend QI(A)'s outputs with set-outputs:

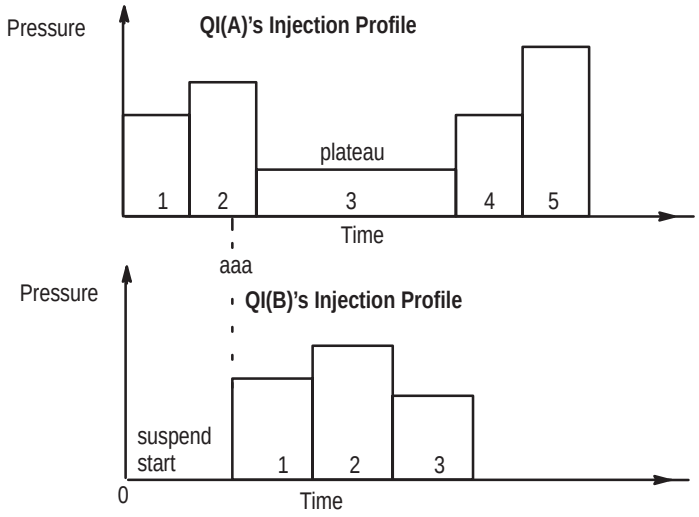
Description:	QI(A) setup:	QI(B) setup:	Co-inj. word/bit:
enable injection cycle suspension on start	No	Yes	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	No	Yes	IPC**B**02-B08 = 1
enable injection cycle suspension on screw position	Yes	No	IPC02-B10 = 1
During suspended injection, when using closed-loop control of the injection valve, the other three outputs are set-outputs in INC61-64. B12 B11 0 0 = control *all four* outputs with set-outputs stored in INC61-64 0 1 = control injection valve with pressure setpoint in IPC55 1 0 = control injection valve with velocity setpoint in IPC54 1 1 = error condition	all four outputs are set-outputs	n/a	IPC02-B11 = 0 IPC02-B12 = 0
screw position (of other) to exit suspended injection	at bbb	at aaa	IPC08 = bbb IPC**B**08 = aaa
velocity setpoint for closed-loop control during suspended injection	No	No	IPC54 = zero
pressure setpoint for closed-loop control during suspended injection	No	No	IPC55 = zero
screw position to suspend own injection	at aaa	No	IPC56 = aaa
your velocity or pressure set-outputs during suspended injection	in INC61-64	n/a	INC61-64

Example 2, You suspend QI(A)'s outputs with a closed-loop injection pressure control setpoint (ppp.p) in IPC55 and your set-outputs in INC61-64. (IPC55 overrides its equivalent set-output in INC61-64.)

Description:	QI(A) setup:	QI(B) setup:	Co-inj. word/bit:
enable injection cycle suspension on start	No	Yes	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	No	Yes	IPC**B**02-B08 = 1
enable injection cycle suspension on screw position	Yes	No	IPC02-B10 = 1
During suspended injection, when using closed-loop control of the injection valve, the other three outputs are set-outputs in INC61-64. B12 B11 0 0 = control *all four* outputs with set-outputs stored in INC61-64 0 1 = control injection valve with pressure setpoint in IPC55 1 0 = control injection valve with velocity setpoint in IPC54 1 1 = error condition	Closed-loop pressure setpoint	n/a	IPC02-B11 = 1 IPC02-B12 = 0
screw position (of other) to exit suspended injection	at bbb	at aaa	IPC08 = bbb IPC**B**08 = aaa
velocity setpoint for closed-loop control during suspended injection	No	No	IPC54 = zero
setpoint for pressure control during suspended injection	at ppp.p	n/a	IPC55 = ppp.p
screw position to suspend own injection	at aaa	n/a	IPC56 = aaa
your set-outputs during suspended injection	at INC61-64	n/a	INC61-64

During B, A Maintains Low Pressure or Flow (plateau).

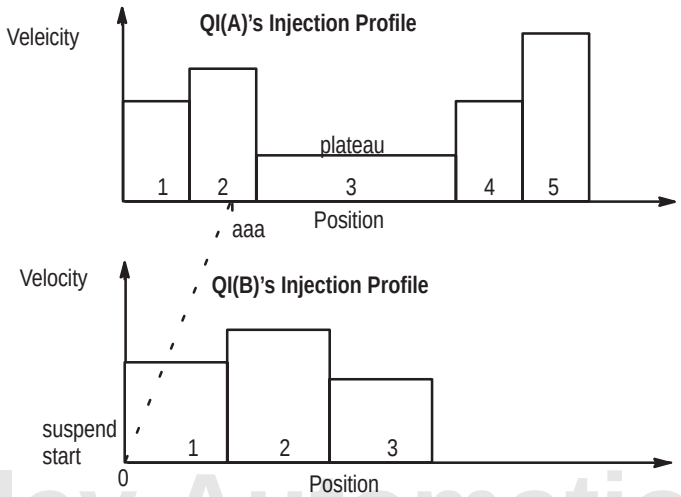
In this sequence, QI(A) maintains low pressure or flow with its profile which is NOT interrupted. QI(B) starts and completes its profile while QI(A)'s profile is at a low plateau.



QI(B) is set up to suspend injection at the start, but start injection at A's screw position (aaa) that you determine. QI(B) is set up to inhibit transition to pack/hold. QI(A) has NO co-injection setup. Both are commanded to start at the same time.

Description:	QI(A) setup:	QI(B) setup:	Co–inj. word/bit:
enable injection cycle suspension on start	No	Yes	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	No	Yes	IPC**B**02-B08 = 1
enable injection cycle suspension on screw position	No	No	IPC02-B10 = 0
screw position (of other) to exit suspended injection	No	at aaa	IPC**B**08 = aaa
screw position to suspend own injection	No	No	IPC56 = zero

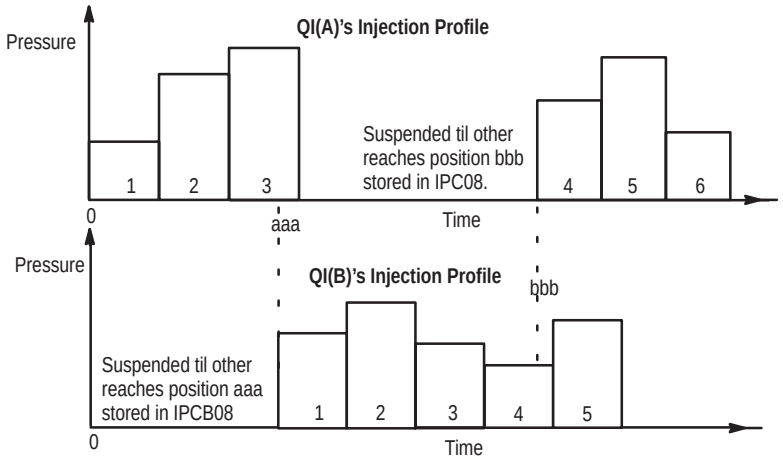
We show the same ABA sequence, plotted against position.



Flow Chart for Co-injection Programming

Your ladder logic must monitor conditions and set command bits for QI modules to step through the various algorithms of co-injection. For the example of ABA, we present a list of parameters, a diagram, and a flow chart that indicates the logic that QI modules expect to see. (Remember that screw position values *decrease* going toward the mold.)

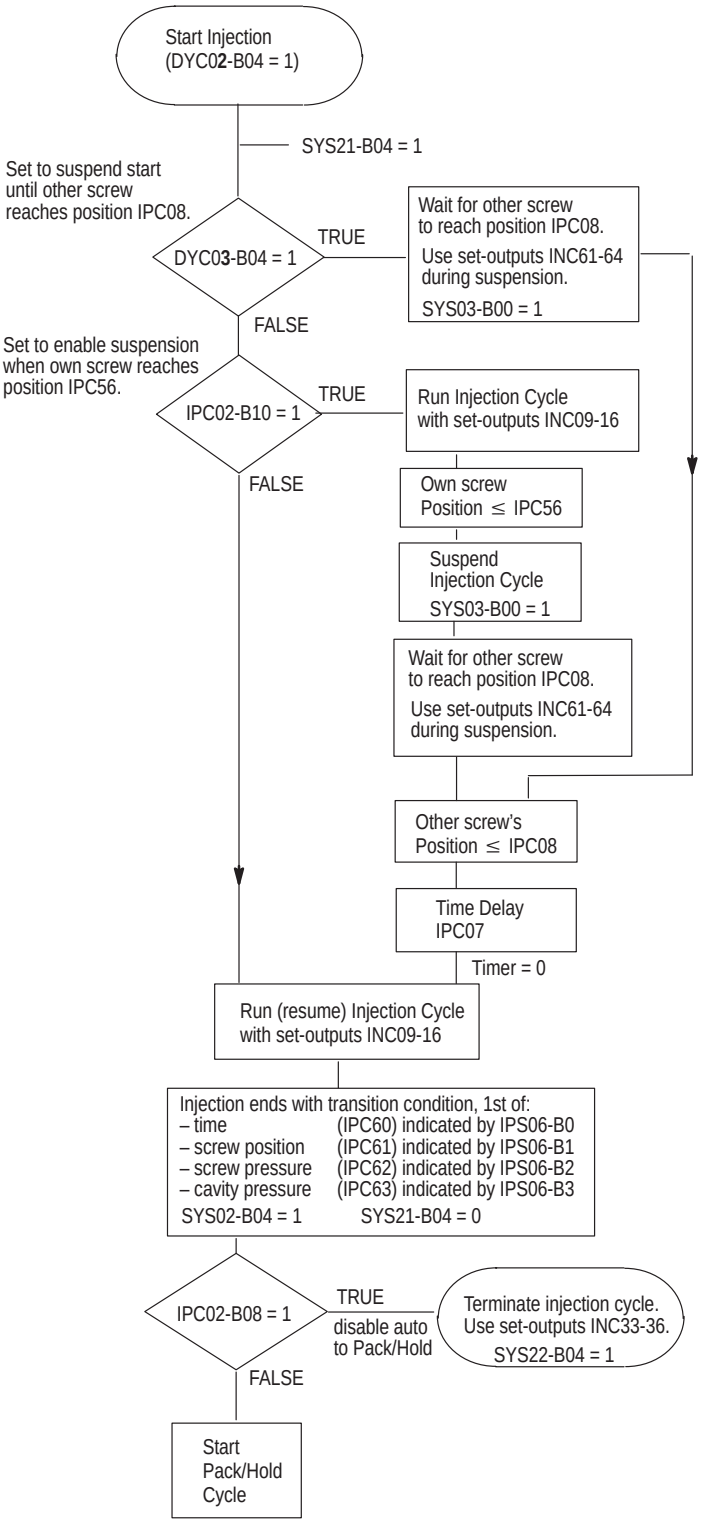
Co-injection Diagram for ABA



List of Co-injection Parameters for ABA

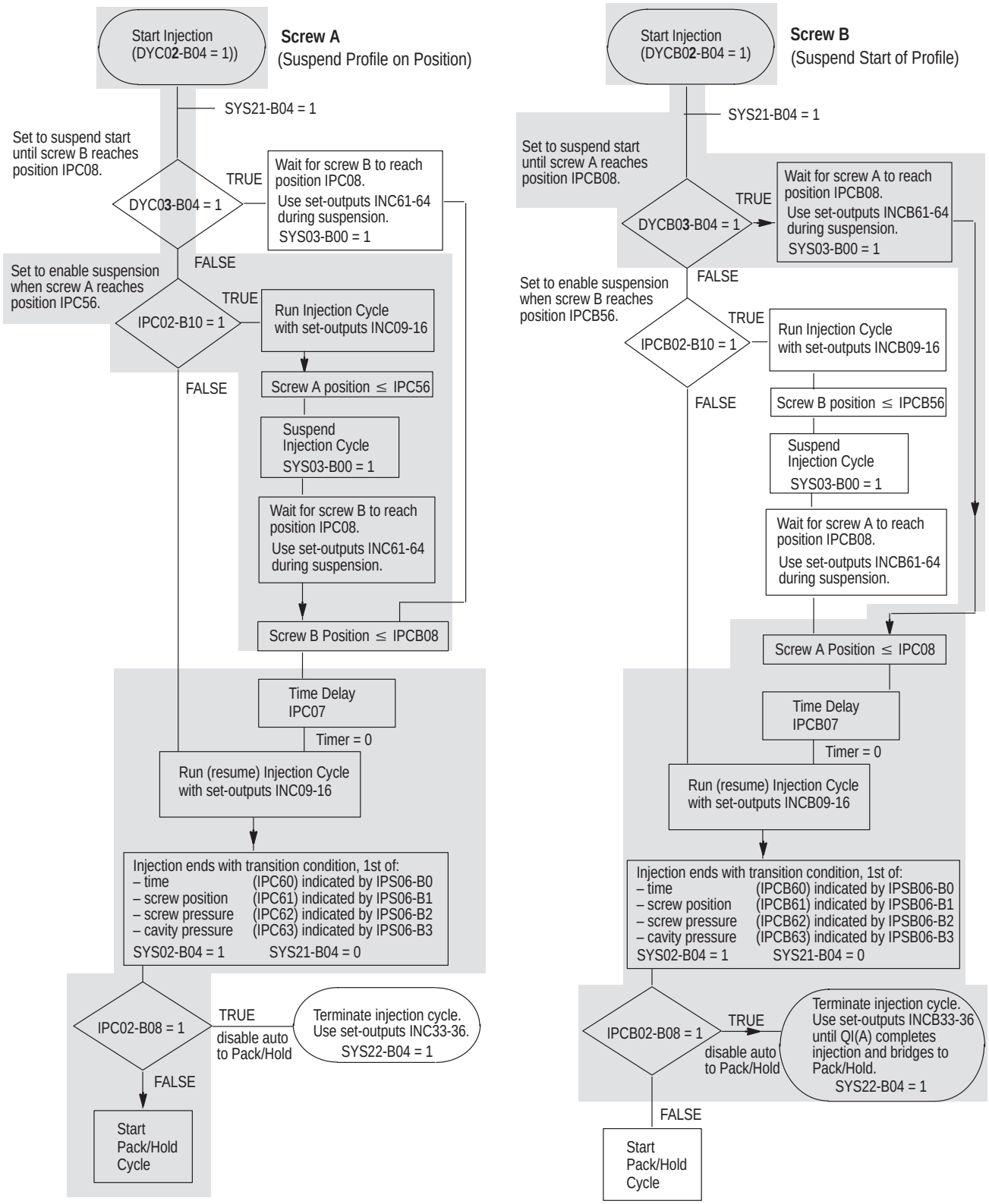
Description (for suspension of injection profile):	with Word/Bit:
start injection sequence	DYC02-BO4 = 1 or DYC**B**02-BO4 = 1
enable suspension at start (Start at opposite screw position IPC08.)	DYC**B**03-BO4 = 1
disable automatic sequence into pack/hold	IPC**B**02-B08 = 1
enable own suspension on own screw position IPC56	IPC02-B10 = 1
optional time delay after reaching opposite screw position	IPC07 and IPC**B**07
screw position of other to exit suspension	IPC**B**08 = aaa or IPC08 = bbb
set-outputs during injection	INC09-16 or INC**B**09-16
set outputs during pause before other goes automatically to P/H	INC**B**33-36
set-outputs during suspended injection	INC61-64
screw position of own to start suspension	IPC56 = aaa
set-output mode during suspended injection B12 B11 (IPC54 or 55 *overrides corresponding value* in INC61-64) 0 0 = apply *all four* set-outputs stored in INC61-64 0 1 = control injection valve with pressure setpoint in IPC55 1 0 = control injection valve with velocity setpoint in IPC54 1 1 = error condition	IPC02-B12, B11 IPC**B**02-B12, B11
velocity setpoint for closed-loop control during suspended injection	IPC54
pressure setpoint for closed-loop control during suspended injection	IPC55
time limit for injection transition (indicated by IPS06.B00)	IPC60 & IPC**B**60
screw position limit for injection transition (indicated by IPS06.B01)	IPC61 & IPC**B**61
screw pressure limit for injection transition (indicated by IPS06.B02)	IPC62 & IPC**B**62
cavity pressure limit for injection transition (indicated by IPS06.B03)	IPC63 & IPC**B**63
status bit: injection profile complete	SYS02-B04
status bit: injection suspended	SYS03-B00
status bits: handshaking for change-over of input #3	SYS14-B14, -B15
status bit: injection profile in progress	SYS21-B04
status bit: end of injection profile, set-outputs in progress	SYS22-B04

Flow Chart for A in Sequence ABA



Note: Screw position values decrease going toward the mold.

Flow Chart for Sequence ABA



Note: Screw position values decrease going toward the mold.

Module Specifications

This chapter gives 1771-QI module specifications including:

- I/O specifications
- environmental conditions
- hardware requirements
- process control options

I/O Specifications

The following table lists the I/O specifications.

Inputs	4 analog (4-20 mA, 1 to +5V dc, 0 to +10V dc selectable)
Outputs	4 analog (4-20 mA, 0 to +10V dc, –10 to +10V dc selectable)
I/O Resolution	12-bit binary
I/O Isolation	1500V rms between chassis and swingarm terminals, and between input and output terminals
I/O Accuracy (linearity, gain, and offset)	0.1% full scale @ 25ºC, and +/–50ppm/ºC of full scale range
Input Impedance	Voltage Input: 50K ohms, differential mode 25K ohms, common mode Current Input: 250 ohms
Loss of Input Detection	Detects loss of position, pressure, and RPM input sensors: out of range 4-20 mA sensors out of range 1-5V dc sensors out of range 0-10V dc sensors
Output Loading	Voltage: 5 mA max for any range Current: 15V dc compliance (supports a max current-loop impedance of 750 ohms)
Output Overload Protection	Protects against short circuit for one minute, maximum

Environmental Conditions

The following table lists environmental conditions.

Operational Temperature	0 to 85ºC (32 to 140ºF)
Thermal Dissipation	21 BTU/hr (outputs full ON)
Storage Temperature	–40 to +85ºC (–40 to +140ºF)
Relative Humidity	5 to 95% (without condensation)

Hardware Requirements

The following table lists the hardware requirements.

Compatible I/O Chassis	Allen-Bradley Series B
Slot Size	Any single I/O slot in 1771-I/O chassis
Power Requirements (Backplane)	1.2 amps at 5V dc
Swingarm Style	1771-WF
Keying Bands	Between: 20-22 and 26-28

Process Control Options

The following table lists process control options.

Phase:	Type of Profile:	Mode:
Injection phase: 10-step profile with selectable transition	velocity vs. position or velocity vs. position pressure limited or injection pressure vs. position or injection pressure vs. time	open/closed with ERC open/closed with ERC open/closed with ERC open/closed with ERC
Selectable Transition dependent on: • Time • Ram (screw) pressure • Cavity pressure • or Ram (screw) position	N/A	N/A
Pack phase: 5-step profile	ram (screw) pressure vs. time or cavity pressure vs. time	open/closed with ERC open/closed with ERC
Hold phase: 5-step profile	ram (screw) pressure vs. time or cavity pressure vs. time	open/closed with ERC open/closed with ERC
Plastication phase: 10-step profile	backpressure vs. position or backpressure vs. time or screw RPM vs. position or screw RPM vs. time	open/closed with ERC open/closed with ERC open/closed with ERC open/closed with ERC
Alarms	Process Programming	N/A
Control Options	P, I, PI, PD, PID, and FF Expert Response Compensation Open/Closed Loop	N/A

Calibration Instructions

Use this section to calibrate your 1771-QI module.
You should calibrate it once a year.

Calibration Equipment Required

Calibrate the QI module with the following equipment:

- digital dc voltage source (1 mV accuracy)
- Allen-Bradley programming device
- digital dc voltmeter (1 mV accuracy)

To calibrate the QI module in a location away from your control application, we recommend this additional equipment:

- spare PLC-5 processor
- spare I/O chassis
- extender card (1771-EX)
- two spare wiring arms (1771-WF)

If you do not have the optional equipment to calibrate the QI module in a location away from your control application, do the following:

If you do *not* have this optional equipment:	you must:
PLC-5 processor	inhibit your application program with jump/label instructions (Jump prior to the first rung to a label after the last rung)
I/O chassis	remove all I/O modules from the application I/O chassis
two wiring arms (1771-WF)	• disconnect application wiring, then rewire after calibration • rewire for input calibration, then rewire for output calibration
extender card (1771-EX)	install the QI module (without covers) in the right-most I/O slot, so you can access the jumper plugs from inside the I/O chassis (removing the module invalidates the procedure)
digital DC voltmeter	omit verifying calibration accuracy

About This Procedure

The QI module has no potentiometers to adjust. Instead, you apply precision input voltages and corresponding reference values to the QI module so it can calibrate itself. You must:

- map two data blocks: one for BTW and one for BTR
- write calibration ladder logic
- set internal jumpers beforehand and afterwards
- follow the calibration procedures without error

Important: If the QI module detects an error during calibration, it reports it in the BTR status byte. Then you must restart the procedure.

Map Your BTW and BTR Data Blocks

Create BTR and BTW calibration data blocks in your PLC-5 data table.

word	BTW file		description
1	–	1C	ID that you enter
2	Command Word		Command codes that you enter
3	Output 1		Codes that you enter during the calibration procedure
4	Output 2		
5	Output 3		
6	Output 4		

word	BTR file		description
1	Status	0A	Status and ID that you observe
2	–	Min Input	Values that you observe during the calibration procedure
3	–	Max Input	
4	–	Min Output	
5	–	Max Output	
6	Actual Input 1		Raw data from D/A converter (useful but not required during calibration)
7	Actual Input 2		
8	Actual Input 3		
9	Actual Input 4		
10	Calibrated Input 1		Values that you observe during the calibration procedure
11	Calibrated Input 2		
12	Calibrated Input 3		
13	Calibrated Input 4		
15	Echo of your command		Indicates the transfer of data blocks

Record BTR and BTW file addresses for use in your calibration logic.

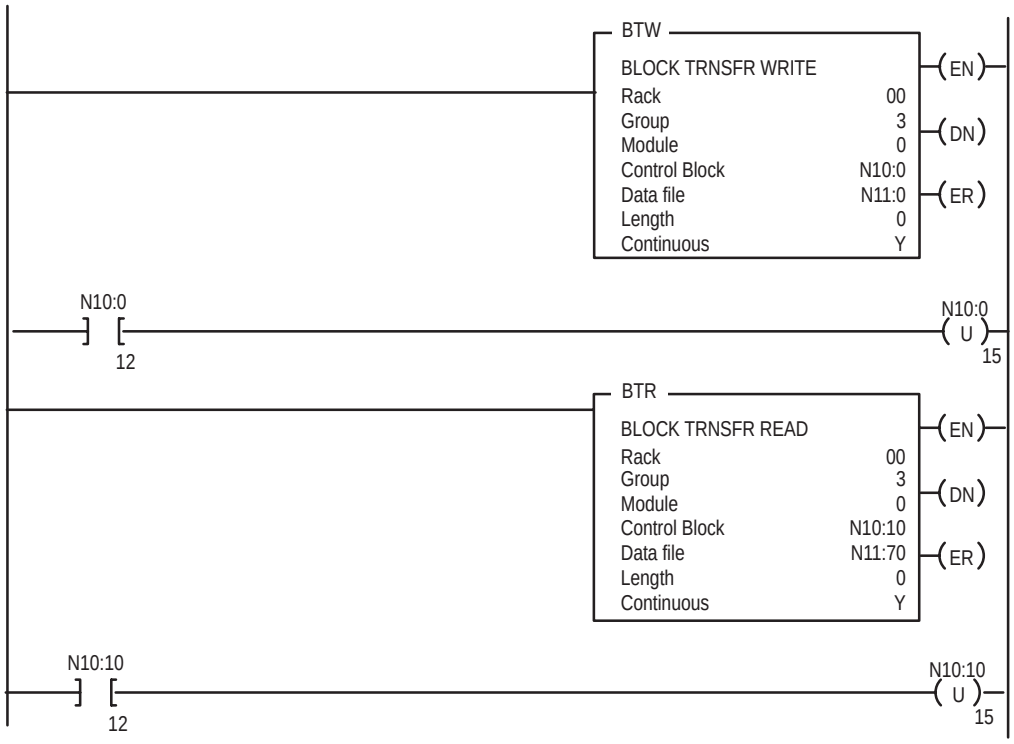
Write Your Calibration Logic

Write your calibration logic as follows:

1. Write unconditional BTW and BTR instructions (use a block length of 0 for processor-controlled length).
2. Unlatch BTW and BTR enable bits with BTW and BTR done bits.
3. Assign the module address and data table addresses.

Important: The module address of your BTR and BTW instructions depends on the location of the QI module in the I/O chassis. If you do *not* have an extender card that lets you access jumpers on the QI module circuit board, place the module in the right-most slot and access the jumpers from inside the I/O chassis. Change the slot block transfer address to match the I/O chassis slot location of the module.

We present example calibration logic for instructional purposes only.



Set Internal Jumpers

Set jumpers on the circuit board inside the QI module as follows:

Important: To avoid electrostatic damage to internal electronic circuits, rid yourself of electric charge by touching a grounded object before opening the module. Avoid touching circuit components or conductor surfaces. We recommend that you use a static-free workstation.

1. Remove the label-side cover by removing the corner screws.
2. Remove the circuit board by removing the two screws located front-center. Then place it on a table, component-side down.
3. Record jumper settings on figure 6.1 before changing them.

ATTENTION: If you reset the jumpers improperly after calibration, unexpected operation could occur with possible personal injury or equipment damage.

Jumper settings of left, right, top, or bottom represent the position of the jumper on the 3-pin connector (figure 6.1).

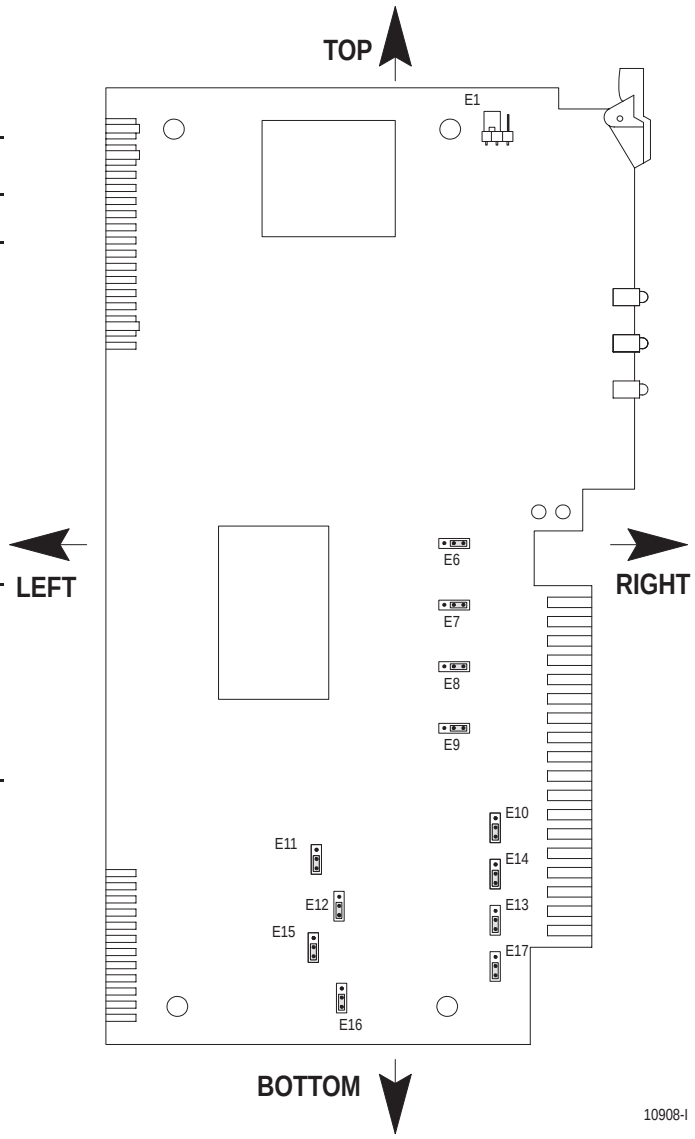
4. Set all jumpers within each group the same way:
   (E6-E9) to voltage
   (E10, E14, E13, E17) to voltage
   (E11, E12, E15, E16) to –10 to +10V

Figure 7.1 Jumper Settings and Locations on the Circuit Board

Record Operational Jumper Settings Here:

	Operational Setting		Calibration	
Jumper	**Left**	**Right**	**Left**	**Right**
E1				X
E6			Current	Voltage
E7				
E8				
E9				

Jumper	**Top**	**Bottom**	**Top**	**Bottom**
E10			Current	Voltage
E14				
E13				
E17				
E11			–10 to	0 to 10V
E12			+10 V	or
E15				4-20mA
E16				



5. Install the circuit board on an extender card.
6. Install the extender card and circuit board in the I/O chassis using the module slot that corresponds to the address you assigned to the module in your calibration ladder logic.
7. If you do not have an extender card, install the circuit board in the right-most module slot so you can access the jumper plugs by reaching inside the I/O chassis. The module address must match the slot location in the I/O chassis.

Wire the Wiring Arms

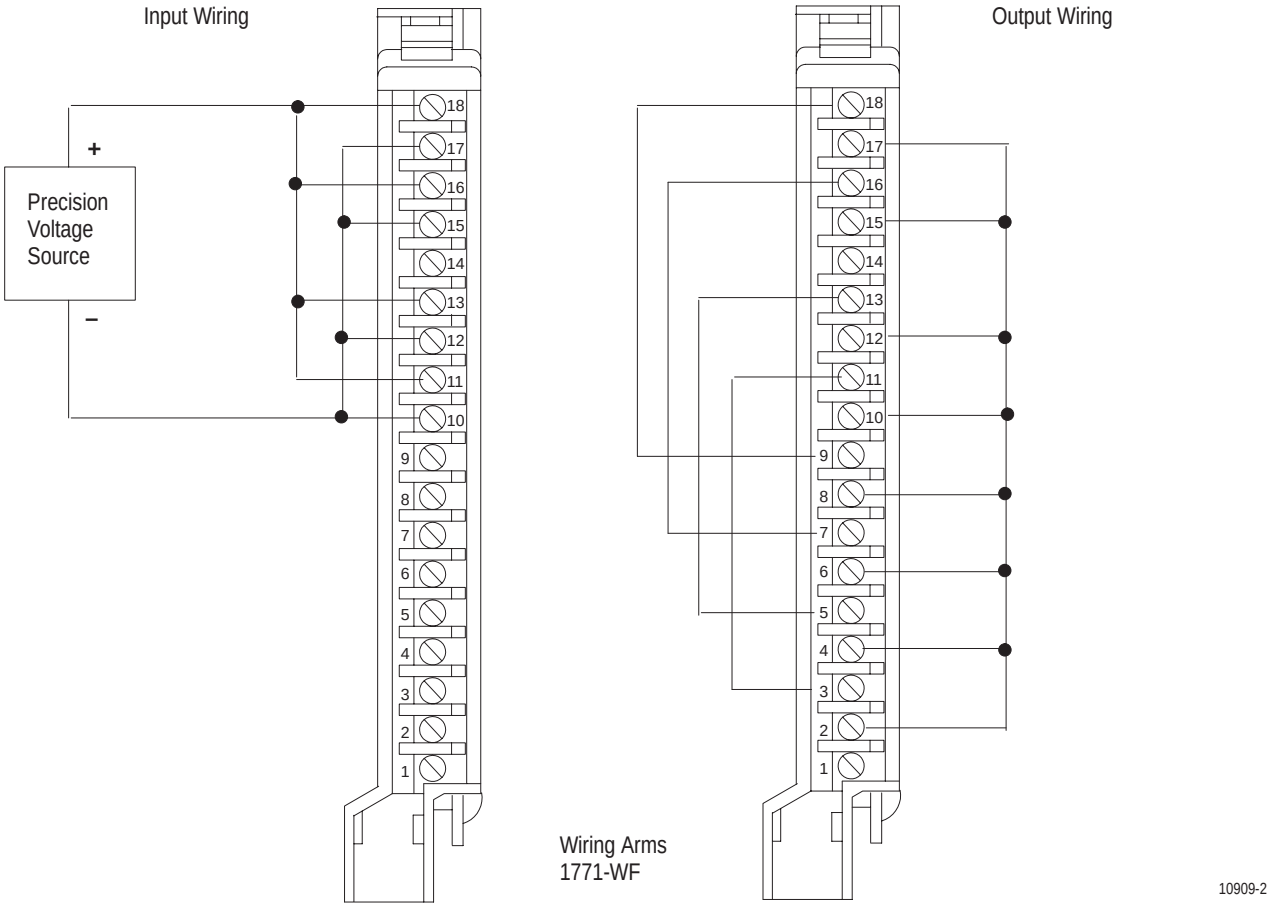
If you have extra wiring arms, wire them in advance to save time. Otherwise, remove system wiring and rewire for this procedure.

Input Wiring

1. Connect all four (+) input terminals (18, 16, 13, 11) to the (+) terminal of the precision voltage source.
2. Connect all four (–) input terminals (17, 15, 12, 10) to the (–) terminal of the precision voltage source.

Output Wiring

1. Wrap all four (+) output terminals (9, 7, 5, 3) back to their corresponding (+) input terminals (18, 16, 13, 11), respectively.
2. Connect all input and output commons together: (17, 15, 12, 10, 8, 6, 4, 2).



Calibration Setup Using Optional Equipment

Set up your calibration equipment at a remote location as follows:

1. Install the PLC-5 processor in the I/O chassis.
2. Verify that you set all the QI module's jumpers to initial calibration settings (see Set Internal Jumpers, above).
3. Install the QI module circuit board with extender card in the I/O chassis slot location corresponding to the module address of your BTR and BTW instructions.

   If you do not have an extender card, place the module circuit board in the right-most slot so you can access the jumpers by reaching inside the I/O chassis.
4. Connect the pre-wired input wiring arm to the module circuit board.
5. Connect other wiring as needed for the calibration setup.
6. Apply power.
7. Switch the PLC-5 processor to program mode and enter your calibration ladder logic.

Calibration Setup at the Machine Location

Set up your calibration equipment at your machine location as follows:

1. Remove all I/O modules from the I/O chassis.
2. Verify that you set all the QI module's jumpers to initial calibration settings (see Set Internal Jumpers).
3. Install the QI module circuit board in the right-most slot so you can access the jumpers by reaching inside the I/O chassis. Be sure the module address of your BTR and BTW instructions matches the module's slot location in the I/O chassis.
4. Wire the wiring arm and connect it to the QI module circuit board (see Wire the Wiring Arms, above).
5. Connect other wiring as needed for the calibration setup.
6. Apply power.
7. Switch the PLC-5 processor to program mode and disable your entire ladder logic program by inserting a jump to label around the application program.
8. Enter your calibration ladder logic.

Calibration Procedure for Inputs

Important: Calibrate inputs before outputs. Follow this procedure for:

- calibrating the QI module's inputs
- verifying the calibration

For each calibration below, you will:

- apply precise voltages using the input wiring arm
- enter command codes in BTW word 2 with your programming terminal

For each verification below, you will:

- apply precise voltages using the input wiring arm
- read verification codes in BTR words 10-13

1. To calibrate the 0 to +10V dc range:

Step	Enter Command Code (BTW 2):	With Applied Voltage	and Read in BTR:
1	0000H	000.0	word 2 = 000F
2	8000H		
3	0008H		
4	8008H		
5	0008H	10.000	word 3 = 000F
6	8008H		

2. To verify 0 to +10V range, enter command codes 0100H and 8100H. Then apply the following voltages:

Step	Apply this Voltage	and Read Verification Code (BTR 10-13):
1	000.0	000H
2	5.000	800H
3	9.997	FFFH

3. To calibrate the 1 to 5V dc range:

Step	Enter Command Code (BTW 2):	With Applied Voltage	and Read in BTR
1	0010H	1.000	word 2 = 00FF
2	8010H		
3	0010H	5.000	word 3 = 00FF
4	8010H		

4. To verify 1 to 5V range, enter command codes 0400H and 8400H. Then apply the following voltages:

Step	Apply this Voltage	and Read Verification Code (BTR 10-13):
1	1.000	000H
2	3.000	800H
3	5.000	FFFH

Calibration Procedure for Outputs

After calibrating inputs, calibrate outputs as follows:

- change jumpers as required (with power ON)
- enter command codes in BTW word 2
- enter voltage codes in BTW words 3, 4, 5, and 6
- read verification codes in BTR words 10, 11, 12, and 13

Important: Do not remove module from the I/O chassis or turn off power. Loss of power voids the procedure and requires that you repeat the entire calibration procedure starting with inputs.

1. With the power remaining ON, connect the output wiring arm.

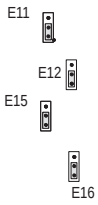
2. To calibrate the –10 to +10V dc output range, follow these steps:

Step	Enter Command Code (BTW 2):	and Read in BTR:
1	0020H	word 4 = 000F
2	8020H	word 5 = 000F

3. To verify –10 to +10V range, enter command codes 0100H and 8100H. Then enter voltage codes:

Step	Enter Voltage Code (BTW 3-6):	and Read Verification Code (BTR 10-13):
1	000H (for 0 volts)	000H
2	0400H (for +5 volts)	0800H
3	7FFH (for +10 volts)	FFFH

4. To calibrate the 0 to +10V dc range, first change these jumpers with power ON: E11, E12, E15, E16 to the 0 to +10V dc position (bottom)



Step	Enter Command Code (BTW 2):	and Read in BTR:
1	0040H	word 4 = 00FF
2	8040H	word 5 = 00FF

5. To verify 0 to +10V range, enter command codes 0400H and 8400H. Then enter voltage codes:

Step	Enter Voltage Code (BTW 3-6):	and Read Verification Code (BTR 10-13):
1	000H (for 0 volts)	000H
2	0800H (for +5 volts)	0800H
3	FFFH (for +10 volts)	FFFH

6. To calibrate the 4-20mA output range, first change the following jumpers with power ON, then calibrate:

- E6-E9 to the current position (left)

- E10, E14, E13, E17 to the current position (top)

Step	Enter Command Code (BTW 2):	and Read in BTR:
1	0080H	word 4 = 0FFF
2	8080H	word 5 = 0FFF

7. To verify 4-20mA range, enter command codes 0400H and 8400H. Then apply these codes for current:

Step	Apply Code for Current (BTW 3-6):	and Read Verification Code (BTR 10-13):
1	000H (4mA)	000H
2	0800H (12mA)	0800H
3	FFFH (20mA)	FFFH

8. To store the calibration data in EEPROM, follow these steps:

Step	Enter this Command Code (BTW 2):
1	0800H
2	8800H
3	0000H

ATTENTION: To avoid possible injury or machine damage when you return the QI module for service, make sure you reset the jumpers to the original *pre-calibration settings*.

9. If there is no error in the BTR status byte, you completed the procedure. Reset jumpers, re-assemble the module, and return it for service.

Notes:

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