



Firmware for Enhanced PLC-5 Programmable Controllers

Series E, Revision J
Series D, Revision K
Series C, Revision T
Series B, Revision R
Series A, Revision R
Series A, Revision Q

Introduction

Use these release notes with the following PLC-5[®] programmable controllers:

Catalog Number	Series A	Series A	Series B	Series C	Series D	Series E
Enhanced	Revision	Revision	Revision	Revision	Revision	Revision
1785-L11B	Q			T	K	J
1785-L20B	Q			T	K	J
1785-L30B		R		T	K	J
1785-L40B			R	T	K	J
1785-L40L			R	T	K	J
1785-L60B			R	T	K	J
1785-L60L			R	T	K	J
1785-L80B				T	K	J
Protected	Revision	Revision	Revision	Revision	Revision	Revision
1785-L26B	Q			T	K	J
1785-L46B			R	T	K	J
1785-L46L			R	T		
1785-L86B				T	K	J

What This Document Describes

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Corrected Anomalies for this Release

Series E, Revision J
 Series D, Revision K
 Series C, Revision T
 Series B, Revision R
 Series A, Revision R
 Series A, Revision Q

The following table describes corrected anomalies in this release of Enhanced PLC-5 programmable controllers.

Anomaly:	Description:
Enhanced PLC-5 may fault with memory loss on powerup with channel configured at 230Kbaud.	Occasionally, the PLC-5 may fault with memory loss during powerup when channel 1A is configured for 230Kbaud, and is configured as either DH+ or adapter mode, and another node on the channel is sending traffic on channel 1A. This anomaly has been corrected in Revision R of the DH+/RIO communication plug firmware so that the PLC-5 will no longer fault with memory loss on powerup.
Duplicate DH+ nodes would cause the programmable controller to fault with memory loss.	If the programmable controller detects duplicate DH+ nodes and the condition is not corrected, the controller may eventually fault with memory loss. The fault may occur immediately, or over an extended period of time. This anomaly has been corrected in Revision S of the DH+/RIO communication plug firmware so that if there are uncorrected duplicate DH+ nodes, the programmable controller will not fault with memory loss.
Multiple retries on Remote I/O scanner when configured to 230Kbaud	On the remote I/O scanner, when channel 1B or 2B is configured at 230Kbaud and the corresponding channel 1A or 2A is configured to DH+ or Remote I/O adapter mode at 230Kbaud, excessive retries may occur. The Revision T firmware of the DH+/RIO communication plug was revised to minimize the number of retries in this configuration.
Setting .TO bit may lock-up Ethernet Sidecar message	Setting the .TO bit of an active Ethernet Sidecar message may cause the message to lock-up with the .EN and .ST bit set. This anomaly has been corrected so that when you set the .TO bit of an active message, it properly aborts the message with an .ER bit set and the .ST bit reset.
Writing to the Global Status flags file causes fault with memory loss	If you write through a communication channel to the Global Status Flags file, the PLC-5 processor may fault with memory loss. This anomaly has been corrected.

Corrected Anomalies for the Previous Release

Series E, Revision F
 Series D, Revision G
 Series C, Revision Q
 Series B, Revision Q
 Series A, Revision Q
 Series A, Revision P

The following anomalies were corrected in the previous release:

Corrected anomaly:	Description:
Occasionally, when the serial port (CH 0) DSR signal is lost, one or more anomalies may occur.	When the processor is configured for DF1 master or slave mode operation on the serial port, and the DSR signal is lost from the modem, the processor may clear diagnostic counters, lose memory buffers or fault with memory loss. This anomaly has been corrected.
Memory card restore may not restore Ethernet [®] sidecar module IP address.	When a memory card is used to restore a user's application (including channel configuration), it may not restore the Ethernet sidecar module's configuration, including its IP address. This anomaly only occurs with the 1785-ENET Series B, Revision B release. This anomaly has been corrected.
Processor fault with memory loss when writing to a protected processor with uninitialized RAM.	Writing to a 1785-L46C15 protected processor with uninitialized RAM would cause the processor to fault with memory loss. This anomaly has been corrected.
PLC-5 faulted with memory loss when writing data to resident I/O module through RSLogix5 [™] I/O configuration utility	After modifying a module's configuration, the RSLogix5 I/O configuration utility prompts the user to download the new configuration immediately to the module. If the download is performed to a resident I/O module (in the local chassis), the processor may fault with memory loss. This fault only occurred if a corresponding block transfer read was being performed to the same resident module. This anomaly has been corrected.
Certain faults with memory loss could not be traced.	Previously, saved diagnostic information was incomplete for certain faults with memory loss. This release corrects this anomaly.

Corrected Anomalies for Series E, Revision E.2 Release

The following anomalies were corrected in the Series E, Revision E.2 release of Series E programmable controllers only:

Corrected anomaly:	Description:
Programmable controllers may fail to complete powerup.	Upon powerup without battery connected, programmable controllers may fail to powerup. This anomaly has been corrected.
Ladder MSG instructions may randomly timeout.	When 32 or more ladder MSG instructions are executing, one of the MSG instructions may timeout with an error code 55. This anomaly has been corrected.

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Enhancements to the Series E, Revision E.2 Release

The following enhancement for Ethernet[®] Channel diagnostics - channel 3A when using a Series B, Revision B or later Ethernet sidecar module was included in the Series E, Revision E.2 release:

- Additional diagnostics are available for use within a user program as words 44 through 49 of the Ethernet diagnostic file:

This word:	Displays:
44	Network storm counter
45-47	Ethernet hardware address
48-49	Assigned Internet Protocol Address

Words 48 and 49 contain 4 bytes of data, with each byte holding one of the numbers of the address in hex in the dot address format. For example, an IP address of 142.169.124.1 will be displayed as 8EA97C01.

- Series C, revision H and later programmable controllers limit the amount of messages they will accept under extremely high levels of Ethernet traffic (storms). This is designed to prevent a fault with memory loss.

To complement this enhancement, Series E, revision E.1 programmable controllers include diagnostics with a network storm counter (word 44 of Ethernet diagnostic file). At the beginning of each storm, the network storm counter is incremented once, independent of the length of the storm.

For example, when the processor receives more than 16 Ethernet frames within 10ms, it goes into storm mode and increments the network storm counter. In this mode, the processor disables receive interrupts for 6ms. After 6ms, the processor enables the input interrupts, and sets the input limit to 8 frames in 10ms. After 10ms (and without the input limit being exceeded), the processor returns the input limit to 16 frames.

During certain times (such as when the processor encounters mode changes), the input limit is further reduced to 5 frames for 10ms and interrupts are disabled for 10ms.

To access these additional words, you must create the diagnostic file in the channel configuration and manually expand the data table file from 44 to 50 words.

Series E, Revisions E, E.1 and E.2 Programmable Controllers Only

The following enhancements were included in the Series E, Revision E, E.1 and E.2 programmable controllers only:

- Support for the 1785-RC Relay Cartridge

The relay cartridge serves as an interface from the PLC-5 to a user-supplied external device such as the Allen-Bradley™ 700P relay. When the PLC-5 is in Run mode, it monitors online ladder program edits and I/O forcing activity. When either of these is detected, the processor opens the relay on the relay cartridge for one second.

- **Memory Card ID** - status word 68 displays the installed memory card type.

The four most-significant bits indicate the memory card type:

Value	Memory card type
0	No memory card installed
1	1785-ME16 installed
2	1785-ME32 installed
3	1785-ME64 installed
4	1785-ME100 installed
5	1785-CHBM installed
6	1785-RC installed
7-15	Reserved

When the 1785-RC module is installed, the eight least-significant bits indicate the memory card's status:

Bit:	Is set when:
3	the 1785-RC memory card is installed in the processor
2	contact is detected closed. The bit resets when contact is detected open ⁸
1	the relay is driven open. The bit resets when the relay is closed.
0	120V AC is present on the memory card. The bit resets when 120V AC is not present on the card.

When any other memory card is installed, the bits are undefined.

Corrected Anomalies for Series E, Revision E.1 Release

The following anomalies were corrected in the Series E, Revision E.1 release:

Corrected anomaly:	Description:
Memory card store to EEPROM (burn) failure	Prior to this release, some memory cards fail to store to EEPROM. This was indicated by an RSLogix5 error prompt: "Memory Module Too Small, Not Programmable or Write Protected." The memory card store to EEPROM process has been modified to eliminate this problem.
Initial major fault code overwritten by second major fault	If the processor detected a major fault followed by another major fault, the second fault would overwrite the first, thus making the first fault difficult to identify and correct. This anomaly has been corrected so that after a major fault, a subsequent major fault will only be written after the first major fault bits and code value are cleared.

Corrected Anomalies for Series E, Revision E Release

The following anomalies were corrected in the Series E, Revision E release:

Corrected anomaly:	Description:
Processor failure with 1785-PFB/B module	When using a processor with the Profibus module (1785-PFB/B), processor failure occurs upon powerup. This anomaly occurs in Revision D.1 only, and has been corrected.
Password class change denied with 8 nodes	When 8 different nodes or workstations are logged into a processor with a class password through one channel, and one node wants to change its class, the processor would deny it and RSLogix5 would send an invalid password message. This anomaly has been corrected.
MSG Status bits may not clear in some error cases	invalid entry in the MG control file would cause the DN, ST, EW, and NR status bits to not clear when MSG erred. This anomaly has been corrected.
Cycling power may cause major fault with memory loss	when cycling power, PLC-5/40, -5/46, -5/60, -5/80, -5/86 programmable controllers may fault with memory loss. This anomaly has been corrected.
Using "remove all forces" command on SFCs may cause checksum error	when using this command while there are no actions in the SFC chart, a checksum error may occur. This has been corrected to only remove SFC forces in the current SFC file, even if the SFC chart does not contain any actions.
Mode change causes loss of SFC subchart highlighting	An active SFC subchart loses its highlighting because of a mode change. The mode could be changed via software, keyswitch or power cycle. Upon return to run mode, the active step in the subchart is no longer highlighted. This anomaly has been corrected.

Corrected Anomalies for the Earlier Release

Series D, Revision G

Series C, Revision Q

Series B, Revision Q

Series A, Revision Q

Series A, Revision P

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Programmable controllers may fail to complete powerup.	Upon powerup without battery connected, programmable controllers may fail to powerup. This anomaly has been corrected.
Ladder MSG instructions may randomly timeout.	When 32 or more ladder MSG instructions are executing, one of the MSG instructions may timeout with an error code 55. This anomaly has been corrected.

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If you experience a problem with a hardware module within the first 24 hours of installation, please review the information that's contained in this manual. You can also contact a special Customer Support number for initial help in getting your module up and running:

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Outside United States	Please contact your local Rockwell Automation representative for any technical support issues.

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