

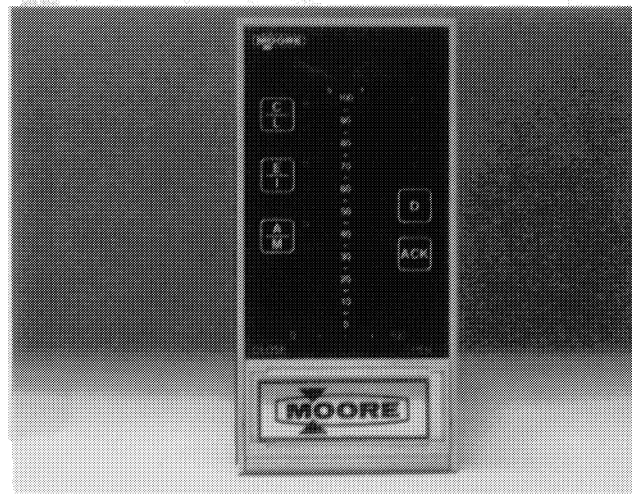
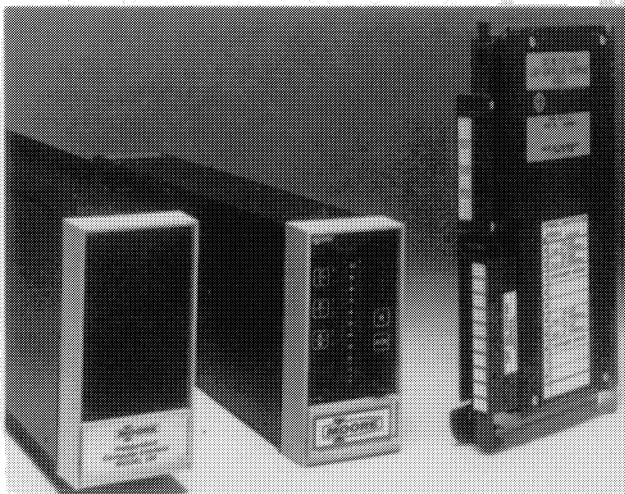


ALLEN-BRADLEY

Loop Controller Interface Module

(Cat. No. 1771-LIA2)

Product Data



Now your PLC-2, PLC-3 and PLC-5 family programmable controllers can communicate with Moore Products Model 352 single-loop PID controllers (SLDC) through the Moore Products Model 320 Independent Computer Interface (ICI).

Generates the necessary link to the loop controllers – The loop controller interface module receives generic and controller specific commands from the programmable controller and interprets, verifies and processes them by generating the link to the loop controllers. The 1771-LIA2 can communicate with up to 61 loop controllers through an RS-422 serial link.

With the loop controller interface module, you can monitor or change setpoint, valve, and operating modes; acknowledge, enable and disable alarms; define station address/loop numbers for status reporting to the programmable controller; examine or change PID parameters, alarm points and output limits; transfer configuration to a loop controller or programmable controller, or receive a configuration from a programmable controller.

Allen-Bradley Spares

Address	17	0	Hex		Address	17	0	Hex		
010	0100	0000	0000	0000	4000	044	0000	0000	0000	
011	0000	0000	0100	0000	0040	045	0000	0000	0000	
012	0000	0000	0000	0000	0000	046	0000	0000	0000	
013	0000	0000	0000	0000	0000	047	0000	0000	0000	
014	0000	0000	0000	0000	0000	050	0000	0000	0000	
015	0000	0000	0000	0000	0000	051	0000	0000	0000	
016	0000	0000	0000	0000	0000	052	0000	0000	0000	
017	0000	0000	0000	0000	0000	053	0000	0000	0000	
020	0000	0000	0000	0000	0000	054	0000	0000	0000	
021	0000	0000	0000	0000	0000	055	0000	0000	0000	
022	0000	0000	0000	0000	0000	056	0000	0000	0000	
023	0000	0000	0000	0000	0000	057	0000	0000	0000	
024	0000	0000	0000	0000	0000	060	0000	0000	0001	
025	0000	0000	0000	0000	0000	061	0000	0000	0000	
026	0000	0000	0000	0000	0000	062	0000	0000	0000	
027	0000	0000	0000	0000	0000	063	0000	1001	0000	0901
030	0100	0001	0010	0000	4120	064	0000	0000	0000	
031	1000	0001	0010	0000	8120	065	0000	0000	0000	
032	0000	0000	0000	0000	0000	066	0000	0000	0000	
033	1010	0000	0110	0100	A064	067	0000	0000	0000	
034	0000	0000	0000	0001	0001	070	0000	0000	0000	
035	0000	0000	0000	0001	0001	071	0000	0000	0000	
036	0000	0000	0000	0000	0000	072	0000	0000	0000	
037	0000	0000	0000	0000	0000	073	0000	0000	0000	
040	0000	0000	0000	0001	0001	074	0000	0000	0000	
041	0000	0000	0000	0000	0000	075	0000	0000	0000	
042	0000	0000	0000	0000	0000	076	0000	0000	0000	
043	0000	0000	0000	0000	0000	077	0000	0000	0000	

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex		
110	0000	0000	0000	0000	4000					
111	0000	0000	0000	0000	0040					
112	0000	0000	1000	1000	0000					
113	0000	0000	0000	0010	0000					
114	0000	0000	0000	0000	0000					
115	0000	0000	0000	0000	0000					
116	0000	0000	0000	0000	0000					
117	0000	0000	0000	0000	0000					
120	0000	0000	0000	0000	0000					
121	0000	0000	0000	0000	0000					
122	0000	0000	0000	0000	0000					
123	0000	0000	0000	0000	0000					
124	0000	0000	0000	0000	0000					
125	0000	0000	0000	0000	0000					
126	0000	0000	0000	0000	0000					
127	0000	0000	0000	0000	0000					
130	0000	0010	0000	0000	4120					
131	0000	0011	0000	0000	8120					
132	0000	0000	0110	0100	0000					
133	0000	0000	0110	0100	A064					
134	0000	0000	0000	1001	0001					
135	0000	0000	0000	0100	0001					
136	0000	0000	0000	1001	0000					
137	0000	0000	0110	0100	0000					
140	0000	0000	0000	1000	0001					
					141	0000	0000	0000	1000	0008
					142	0000	0000	0000	0000	0000
					143	0000	0000	0000	0000	0000
					144	0000	0000	0000	0000	0000
					145	0000	0000	0000	0000	0000
					146	0000	0000	0000	0000	0000
					147	0000	0000	0000	0000	0000
					150	0000	0000	0000	0000	0000
					151	0000	0000	0000	0000	0000
					152	0000	0000	0000	0000	0000
					153	0000	0000	0000	0000	0000
					154	0000	0000	0000	0000	0000
					155	0000	0000	0000	0000	0000
					156	0000	0000	0000	0000	0000
					157	0000	0000	0000	0000	0000
					160	0000	0000	0000	0000	0000
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					165	0000	0000	0000	0000	0000
					166	0000	0000	0000	0000	0000
					167	0000	0000	0000	0000	0000
					170	0000	0000	0000	0000	0000
					171	0000	0000	0000	0000	0000

Allen-Bradley Spares

Address	17	0	Hex	Address	17	0	Hex
172	0000	0000	0000	0000	230	0000	0000
173	0000	0000	0000	0000	231	0000	0000
174	0000	0000	0000	0000	232	0000	0000
175	0000	0000	0000	0000	233	0000	0000
176	0000	0000	0000	0000	234	0000	0000
177	0000	0000	0000	0000	235	0000	0000
200	0000	0000	1001	0009	236	0000	0000
201	0000	0000	0111	0007	237	0000	0000
202	1111	1111	1111	FFFF	240	0000	0000
203	0000	0000	0001	0001	241	0000	0000
204	0000	0000	0111	0007	242	0000	0000
205	0101	0101	0101	5555	243	0000	0000
206	0000	0000	0000	0000	244	0000	0000
207	0000	0000	0000	0000	245	0000	0000
210	0000	0000	0000	0000	246	0000	0000
211	0000	0000	0000	0000	247	0000	0000
212	0000	0000	0000	0000	250	0000	0000
213	0000	0000	0000	0000	251	0000	0000
214	0000	0000	0000	0000	252	0000	0000
215	0000	0000	0000	0000	253	0000	0000
216	0000	0000	0000	0000	254	0000	0000
217	0000	0000	0000	0000	255	0000	0000
220	0000	0000	0000	0000	256	0000	0000
221	0000	0000	0000	0000	257	0000	0000
222	0000	0000	0000	0000	260	0000	0000
223	0000	0000	0000	0000	261	0000	0000
224	0000	0000	0000	0000	262	0000	0000
225	0000	0000	0000	0000	263	0000	0000
226	0000	0000	0000	0000	264	0000	0000
227	0000	0000	0000	0000	265	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex	
266	0000	0000	0000	0000	324	0000	0000	0000	
267	0000	0000	0000	0000	325	0000	0000	0000	
270	0000	0000	0000	0000	326	0000	0000	0000	
271	0000	0000	0000	0000	327	0000	0000	0000	
272	0000	0000	0000	0000	330	0000	0000	0000	
273	0000	0000	0000	0000	331	0000	0000	0000	
274	0000	0000	0000	0000	332	0000	0000	0000	
275	0000	0000	0000	0000	333	0000	0000	0000	
276	0000	0000	0000	0000	334	0000	0000	0000	
277	0000	0000	0000	0000	335	0000	0000	0000	
300	0000	0000	0000	1001	0009	336	0000	0000	0000
301	0000	0000	0000	0000	337	0000	0000	0000	
302	0000	0000	0000	0000	340	0000	0000	0000	
303	0000	0000	0000	0000	341	0000	0000	0000	
304	0000	0000	1100	0011	00C3	342	0000	0000	0000
305	0000	0000	0000	0000	343	0000	0000	0000	
306	0000	0000	0000	0000	344	0000	0000	0000	
307	0000	0000	0000	0000	345	0000	0000	0000	
310	1000	0000	0011	0011	8033	346	0000	0000	0000
311	0000	0000	0000	0000	347	0000	0000	0000	
312	0000	0000	0000	0000	350	0000	0000	0000	
313	0000	0000	0000	0000	351	0000	0000	0000	
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315	0000	0000	0000	0000	353	0000	0000	0000	
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317	0000	0000	0000	0000	355	0000	0000	0000	
320	0000	0000	0000	0000	356	0000	0000	0000	
321	0000	0000	0000	0000	357	0000	0000	0000	
322	0000	0000	0000	0000	360	0000	0000	0000	
323	0000	0000	0000	0000	361	0000	0000	0000	

Address	17	0	Hex	Address	17	0	Hex
362	0000	0000	0000	420	0000	0000	0000
363	0000	0000	0000	421	0000	0000	0000
364	0000	0000	0000	422	0000	0000	0000
365	0000	0000	0000	423	0000	0000	0000
366	0000	0000	0000	424	0000	0000	0000
367	0000	0000	0000	425	0000	0000	0000
370	0000	0000	0000	426	0000	0000	0000
371	0000	0000	0000	427	0000	0000	0000
372	0000	0000	0000	430	0000	0000	0000
373	0000	0000	0000	431	0000	0000	0000
374	0000	0000	0000	432	0000	0000	0000
375	0000	0000	0000	433	0000	0000	0000
376	0000	0000	0000	434	0000	0000	0000
377	0000	0000	0000	435	0000	0000	0000
400	0000	0000	1001	436	0000	0000	0000
401	0000	0000	0000	437	0000	0000	0000
402	0000	0000	0000	440	0000	0000	0000
403	0000	0000	0000	441	0000	0000	0000
404	0000	0000	1100 0011	442	0000	0000	0000
405	0000	0000	0000	443	0000	0000	0000
406	0000	0000	0000	444	0000	0000	0000
407	0000	0000	0000	445	0000	0000	0000
410	1000	0000	0011 0011	446	0000	0000	0000
411	0000	0000	0000	447	0000	0000	0000
412	0000	0000	0000	450	0000	0000	0000
413	0000	0000	0000	451	0000	0000	0000
414	0000	0000	0000	452	0000	0000	0000
415	0000	0000	0000	453	0000	0000	0000
416	0000	0000	0000	454	0000	0000	0000
417	0000	0000	0000	455	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex		
456	0000	0000	0000	0000	514	0000	0001	0000	0101	
457	0000	0000	0000	0000	515	0000	0000	0000	0000	
460	0000	0000	0000	0000	516	0000	0000	0000	0000	
461	0000	0000	0000	0000	517	1000	0000	0011	0011	8033
462	0000	0000	0000	0000	520	1000	0000	0011	0011	8033
463	0000	0000	0000	0000	521	0000	0000	0000	0000	0000
464	0000	0000	0000	0000	522	0000	0000	0000	0000	0000
465	0000	0000	0000	0000	523	0000	0000	0000	0000	0000
466	0000	0000	0000	0000	524	0000	0000	0000	0000	0000
467	0000	0000	0000	0000	525	0000	0000	0000	0000	0000
470	0000	0000	0000	0000	526	0000	0000	0000	0000	0000
471	0000	0000	0000	0000	527	0000	0000	0000	0000	0000
472	0000	0000	0000	0000	530	0000	0000	0000	0011	0003
473	0000	0000	0000	0000	531	0000	0000	0000	0001	0001
474	0000	0000	0000	0000	532	0000	0000	0000	0000	0000
475	0000	0000	0000	0000	533	1000	1101	0000	0000	8D00
476	0000	0000	0000	0000	534	0000	0000	0000	0000	0000
477	0000	0000	0000	0000	535	0000	0000	0000	0000	0000
500	0000	0000	0000	0000	536	0000	0000	0000	0000	0000
501	0000	0000	0000	0011	0003	537	0000	0000	0000	0000
502	0000	0000	0000	1001	0009	540	0000	0000	0000	0001
503	0000	0000	0000	0000	0000	541	0000	0000	0000	0000
504	0000	0000	0000	0000	0000	542	0000	0000	0000	0001
505	0000	0000	0000	0000	0000	543	0000	0000	0000	0000
506	0000	0000	0000	0000	0000	544	0000	0001	0000	0101
507	0000	0000	0000	0000	0000	545	0000	0000	0000	0000
510	0000	0000	0000	0001	0001	546	0000	0000	0000	0000
511	0000	0000	0000	0000	0000	547	0000	0000	0000	0000
512	0001	0000	0000	0001	1001	550	0000	0000	0000	0000
513	0000	0000	0000	0000	0000	551	0000	0000	0000	0000

Address	17	0	Hex	Address	17	0	Hex		
552	0000	0000	0000	610	0000	0000	1000	0001	0081
553	0000	0000	0000	611	0000	0000	0000	0000	0000
554	0000	0000	0000	612	0000	0000	0000	0000	0000
555	0000	0000	0000	613	0000	0000	0000	0000	0000
556	0000	0000	0000	614	0000	0000	0000	0000	0000
557	0000	0000	0000	615	0000	0000	0000	0000	0000
560	0000	0000	0000	1001	0000	0000	0000	0000	0000
561	0000	0000	0000	0010	0000	0000	0000	0000	0000
562	0000	0000	0000	0000	0000	0000	0000	0000	0000
563	0000	0000	0000	0000	0000	0000	0000	0000	0000
564	0000	0000	1100	0011	0000	0000	0000	0000	0000
565	0000	0000	0000	0001	0000	0000	0000	0000	0000
566	0000	0010	0101	0110	0000	0000	0000	0000	0000
567	0011	0011	0011	0011	0000	0000	0000	0000	0000
570	0000	0000	0000	1001	0000	0000	0000	0000	0000
571	0000	0000	0000	0111	0000	0000	0000	0000	0000
572	1111	1111	1111	1111	0000	0000	0000	0000	0000
573	0000	0000	0000	0001	0000	0000	0000	0000	0000
574	0000	0000	0000	0111	0000	0000	0000	0000	0000
575	0101	0101	0101	0101	0000	0000	0000	0000	0000
576	0000	0000	0000	0000	0000	0000	0000	0000	0000
577	0000	0000	0000	0000	0000	0000	0000	0000	0000
600	0000	0000	0000	0011	0000	0000	0000	0000	0000
601	0000	0000	0000	0001	0000	0000	0000	0000	0000
602	0000	0000	0000	0010	0000	0000	0000	0000	0000
603	0000	0110	0000	0001	0000	0000	0000	0000	0000
604	0001	0101	0000	0001	0000	0000	0000	0000	0000
605	0000	1111	1000	0000	0000	0000	0000	0000	0000
606	0001	0110	0000	0010	0000	0000	0000	0000	0000
607	0001	0101	0000	0001	0000	0000	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex
646	0000	0000	0000	0000	704	0000	0000	0000
647	0000	0000	0000	0000	705	0000	0000	0000
650	0000	0000	0000	0000	706	0000	0000	0000
651	0000	0000	0000	0000	707	0000	0000	0000
652	0000	0000	0000	0000	710	0000	0000	0000
653	0000	0000	0000	0000	711	0000	0000	0000
654	0000	0000	0000	0000	712	0000	0000	0000
655	0000	0000	0000	0000	713	0000	0000	0000
656	0000	0000	0000	0000	714	0000	0000	0000
657	0000	0000	0000	0000	715	0000	0000	0000
660	0000	0000	0000	0000	716	0000	0000	0000
661	0000	0000	0000	0000	717	0000	0000	0000
662	0000	0000	0000	0000	720	0000	0000	0000
663	0000	0000	0000	0000	721	0000	0000	0000
664	0000	0000	0000	0000	722	0000	0000	0000
665	0000	0000	0000	0000	723	0000	0000	0000
666	0000	0000	0000	0000	724	0000	0000	0000
667	0000	0000	0000	0000	725	0000	0000	0000
670	0000	0000	0000	0000	726	0000	0000	0000
671	0000	0000	0000	0000	727	0000	0000	0000
672	0000	0000	0000	0000	730	0000	0000	0000
673	0000	0000	0000	0000	731	0000	0000	0000
674	0000	0000	0000	0000	732	0000	0000	0000
675	0000	0000	0000	0000	733	0000	0000	0000
676	0000	0000	0000	0000	734	0000	0000	0000
677	0000	0000	0000	0000	735	0000	0000	0000
700	0000	0000	0000	0000	736	0000	0000	0000
701	0000	0000	0000	0000	737	0000	0000	0000
702	0000	0000	0000	0000	740	0000	0000	0000
703	0000	0000	0000	0000	741	0000	0000	0000

Address	17	0	Hex	
742	0000	0000	0000	
743	0000	0000	0000	
744	0000	0000	0000	
745	0000	0000	0000	
746	0000	0000	0000	
747	0000	0000	0000	
750	0000	0000	0000	
751	0000	0000	0000	
752	0000	0000	0000	
753	0000	0000	0000	
754	0000	0000	0000	
755	0000	0000	0000	
756	0000	0000	0000	
757	0000	0000	0011	0003
760	0000	0000	0000	0000
761	0000	0000	0000	0000
762	0000	0000	0000	0000
763	0000	0000	0000	0000
764	0000	0000	0000	0000
765	0000	0000	0000	0000
766	0000	0000	0000	0000
767	0000	0000	0000	0000
770	0000	0000	0000	0000
771	0000	0000	0000	0000
772	0000	0000	0000	0000
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776	0000	0000	0000	0000
777	0000	0000	0000	0000

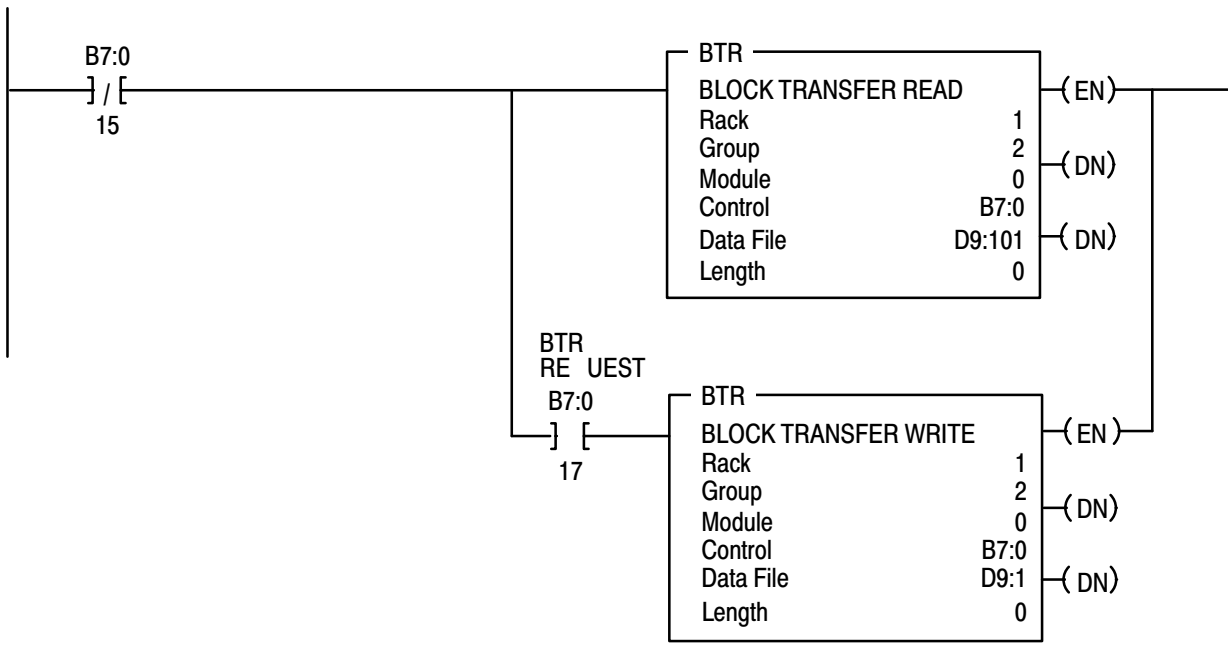
Sample Program for PLC-3 Family Programmable Controllers

Rung M:0

This sample program is set up to allow the use of the set control command, the modify parameter command, and the global access command for the Moore 352 defined as station 1. In this example, the modify parameter command is used to download a target setpoint of 100% and a ramp time of 1 minute.

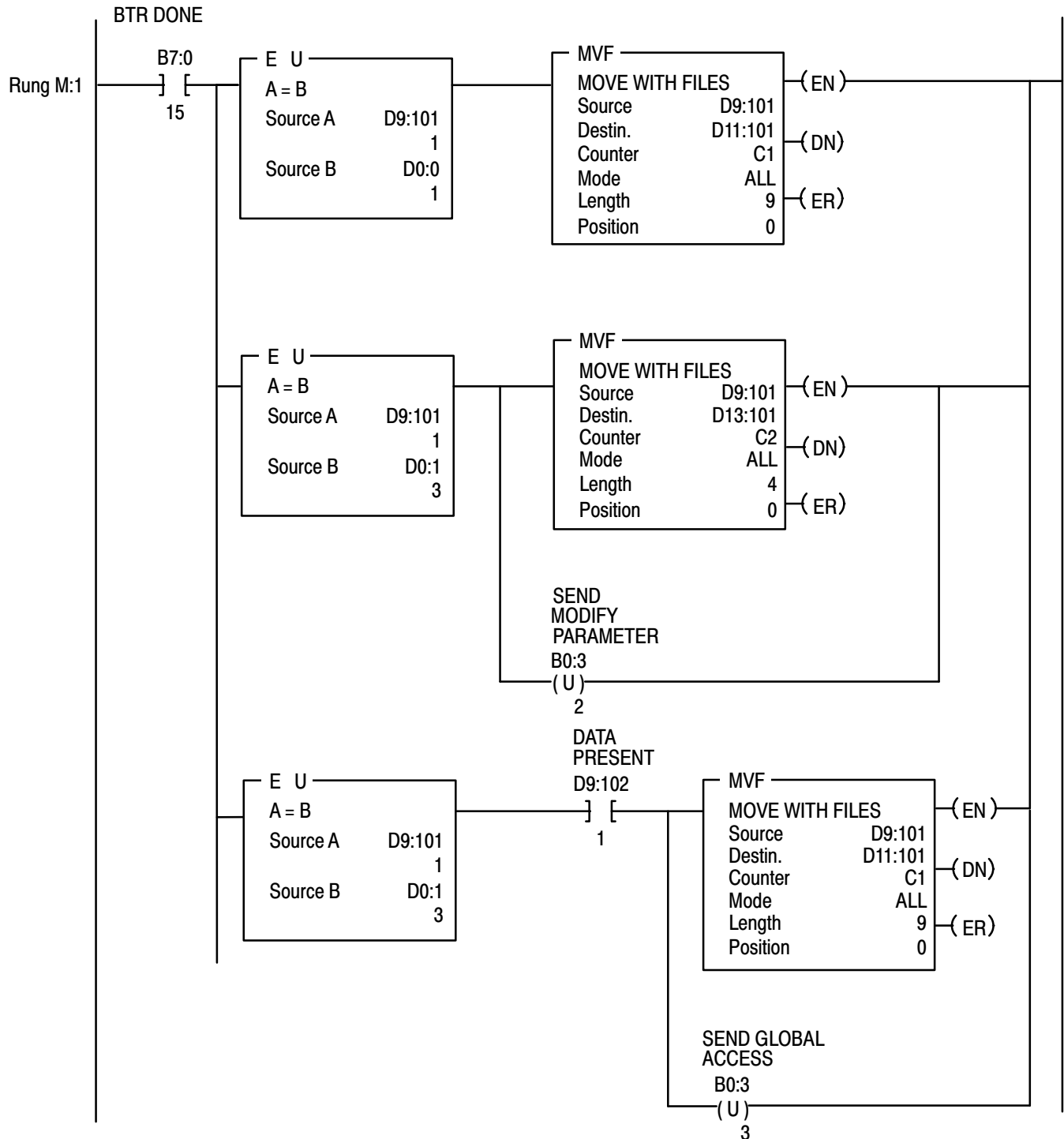
Continuously alternate block transfer reads and writes for the 1771 LIA2.

-
-
- BTR DONE



Whenever a block transfer read is complete, check whether the BTR data is loop status, modify parameter acknowledge, or global access command acknowledge and copy the BTR data to the appropriate data file. If the BTR data is a modify parameter acknowledge or a global access acknowledge, unlatch the appropriate bit to allow set control commands (and loop status) to automatically resume.

(D0:0, D0:1, and D0:2 must contain the constraints 1, 3, and 9 respectively).

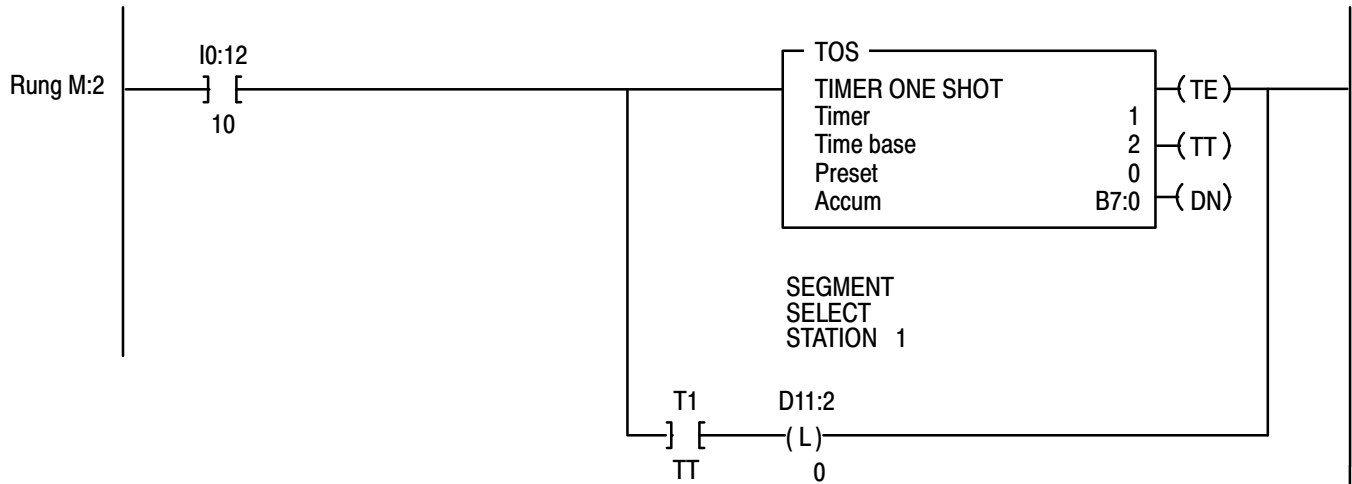


Product Data
Loop Controller Interface Module
 (Cat. No. 1771-LIA2)

If a set control command for station 1 is requested, then latch the segment select bit for station 1.

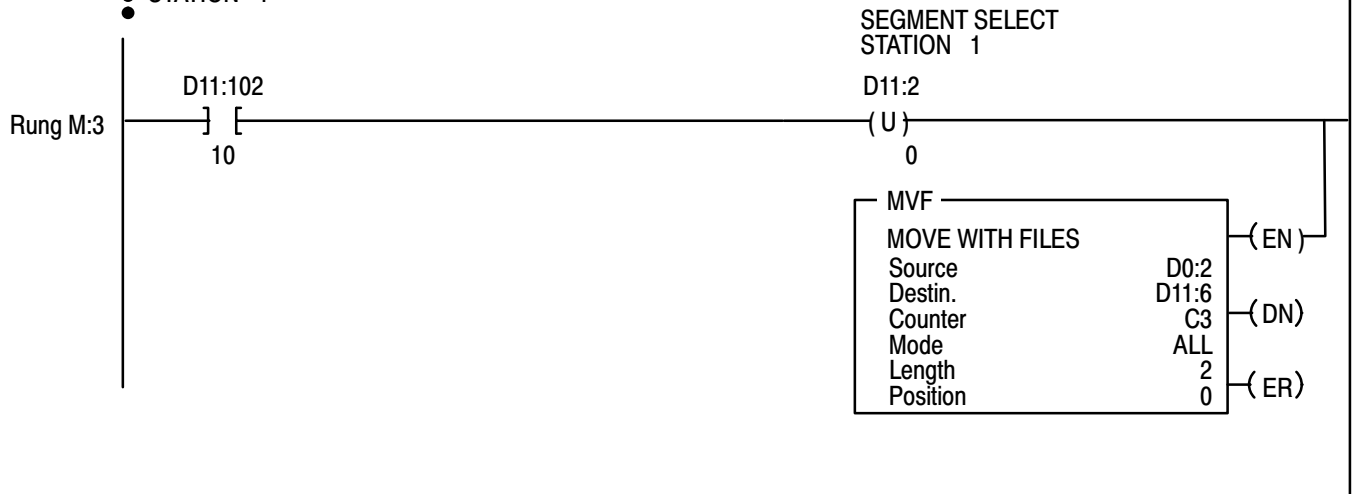
Continuously alternate block transfer reads and writes for the 1771 LIA2.

- SET CONT.
- COMMAND SWITCH



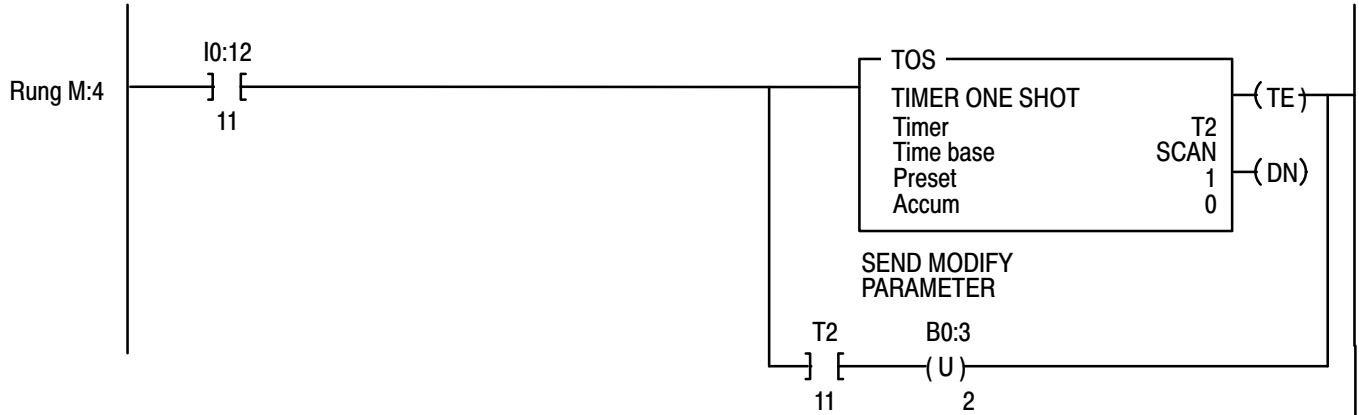
If a set control acknowledge is received for station 1, then unlatch the segment select bit and zero out the alarm and loop control bits for station 1 in the set control command. This ensures that set control commands will not inadvertently carry out functions already performed by previous set control commands (D0:2 is a constant and must be set to 2).

- SEGMENT ACK.
- STATION 1



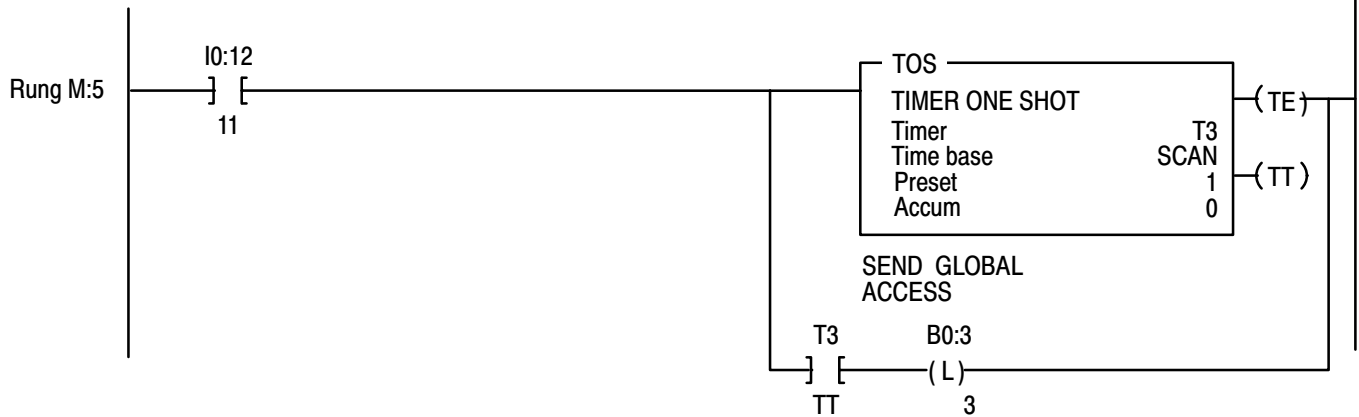
If a modify parameter command is requested, then latch the send modify parameter bit.

- MODIFY
- PARAMETER
- SWITCH



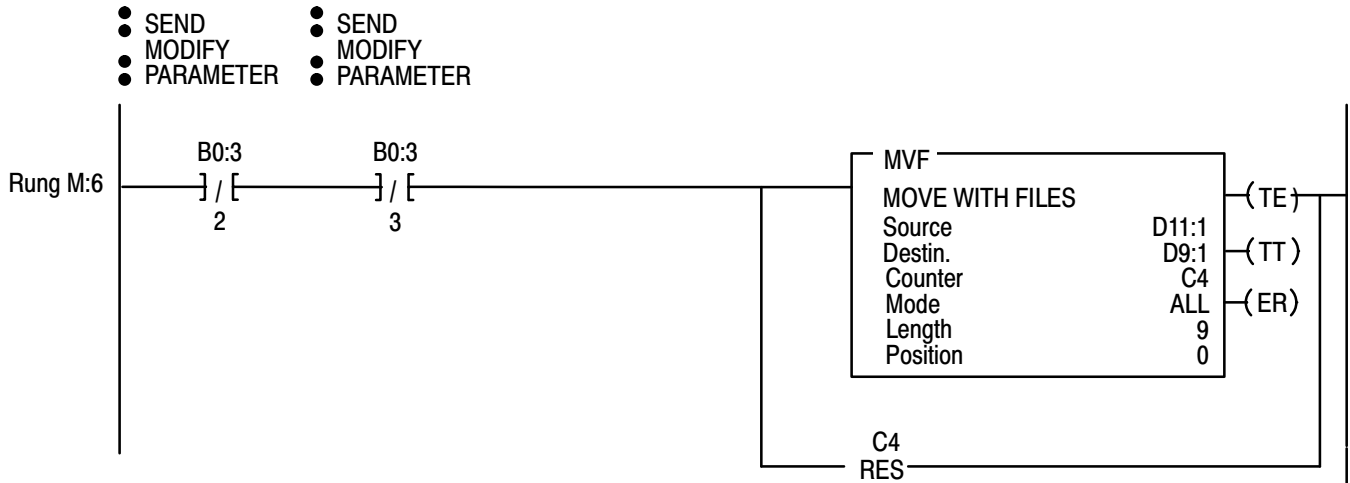
If a global access command is required, then latch the send global access command bit.

- GLOBAL
- ACCESS
- SWITCH

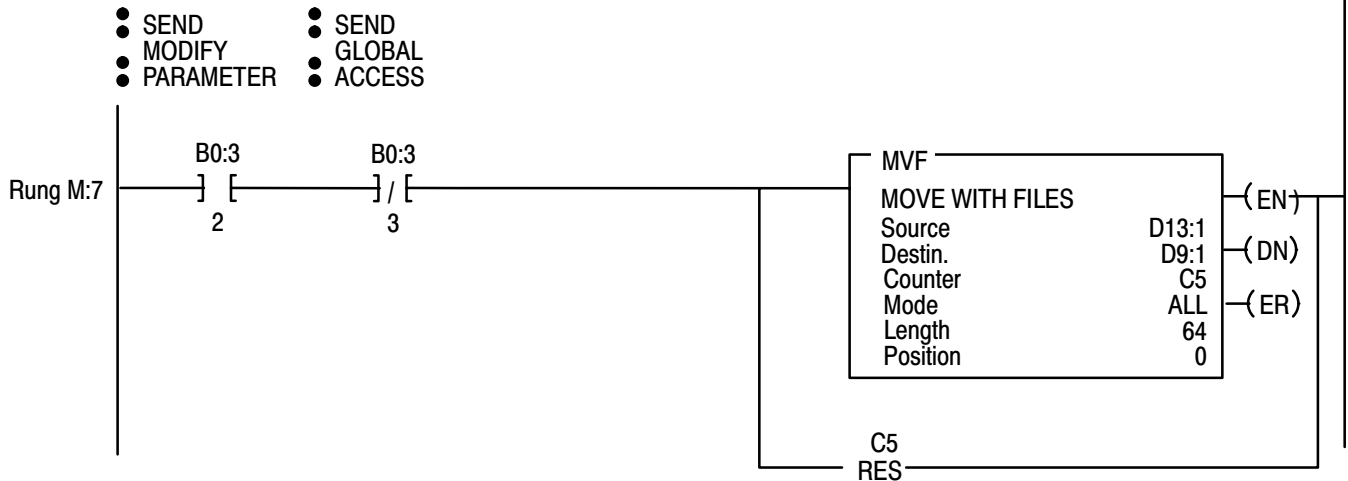


Product Data
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(Cat. No. 1771-LIA2)

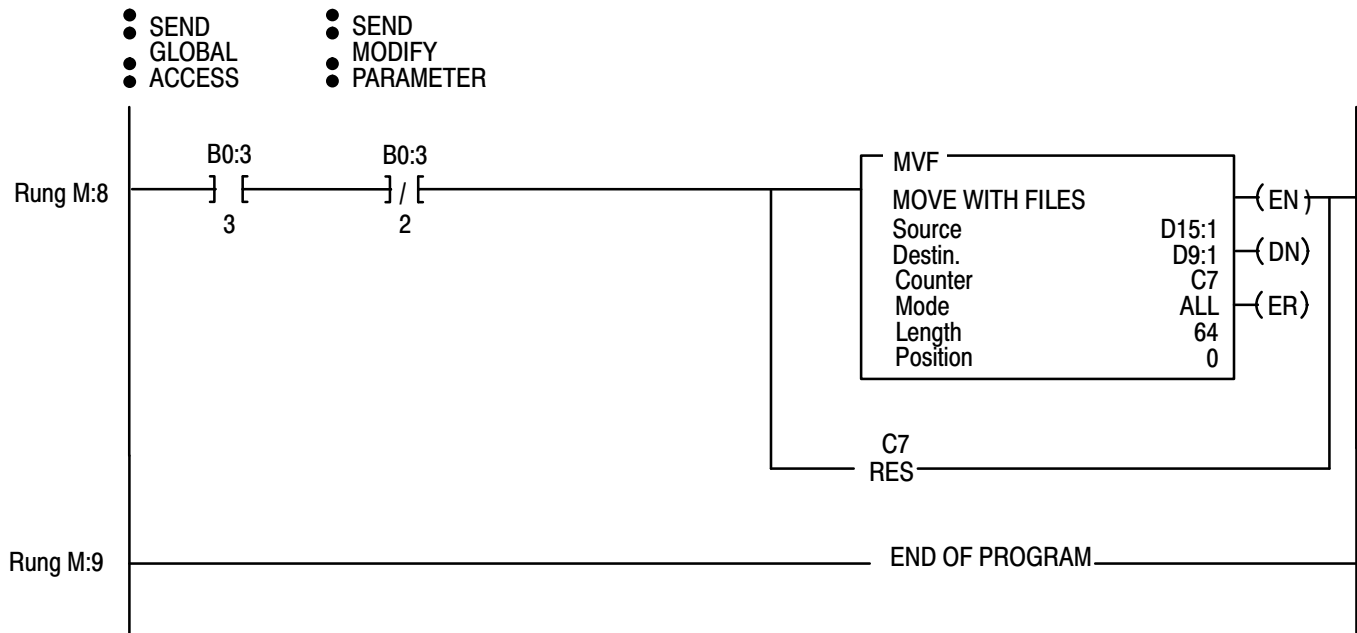
If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Decimal Addresses Hex/BCD data

Address	0	1	2	3	4	5	6	7	8	9
D9:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D9:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:100	0000	0001	0000	1001	0000	0101	0C00	0585	0662	0589
D11:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D11:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D13:0	0000	0003	0001	0002	0601	1501	0F80	0602	1501	0081
D13:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
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D13:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

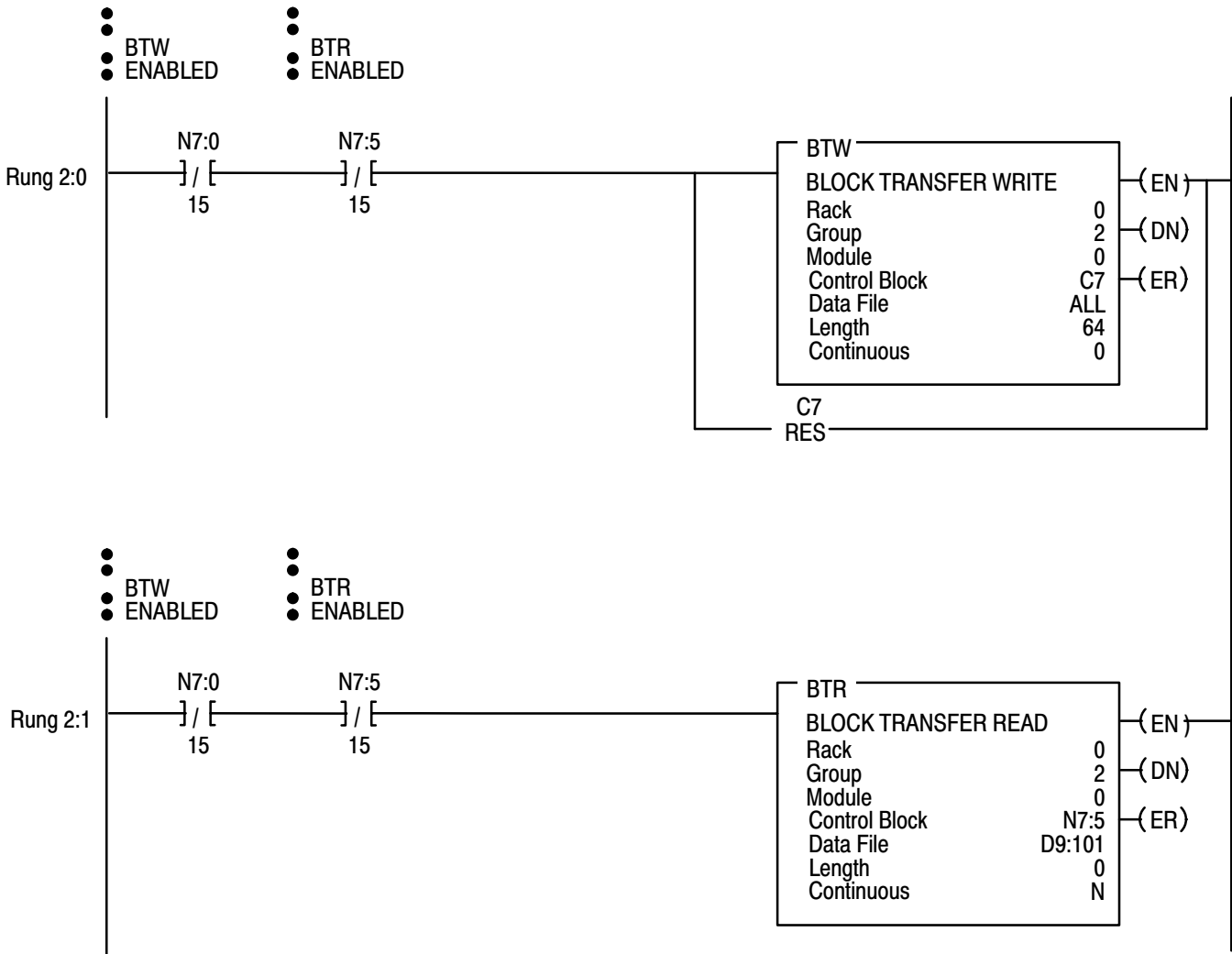
Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	0	1	2	3	4	5	6	7	8	9
D13:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:100	0000	0003	0001	0000	A200					
D15:0	0000	0009	0007	FFFF	0001	0007	5555	0000	0000	0000
D15:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:100	0000	0009	0002	0000	0000	00C3	0001	0007	2222	

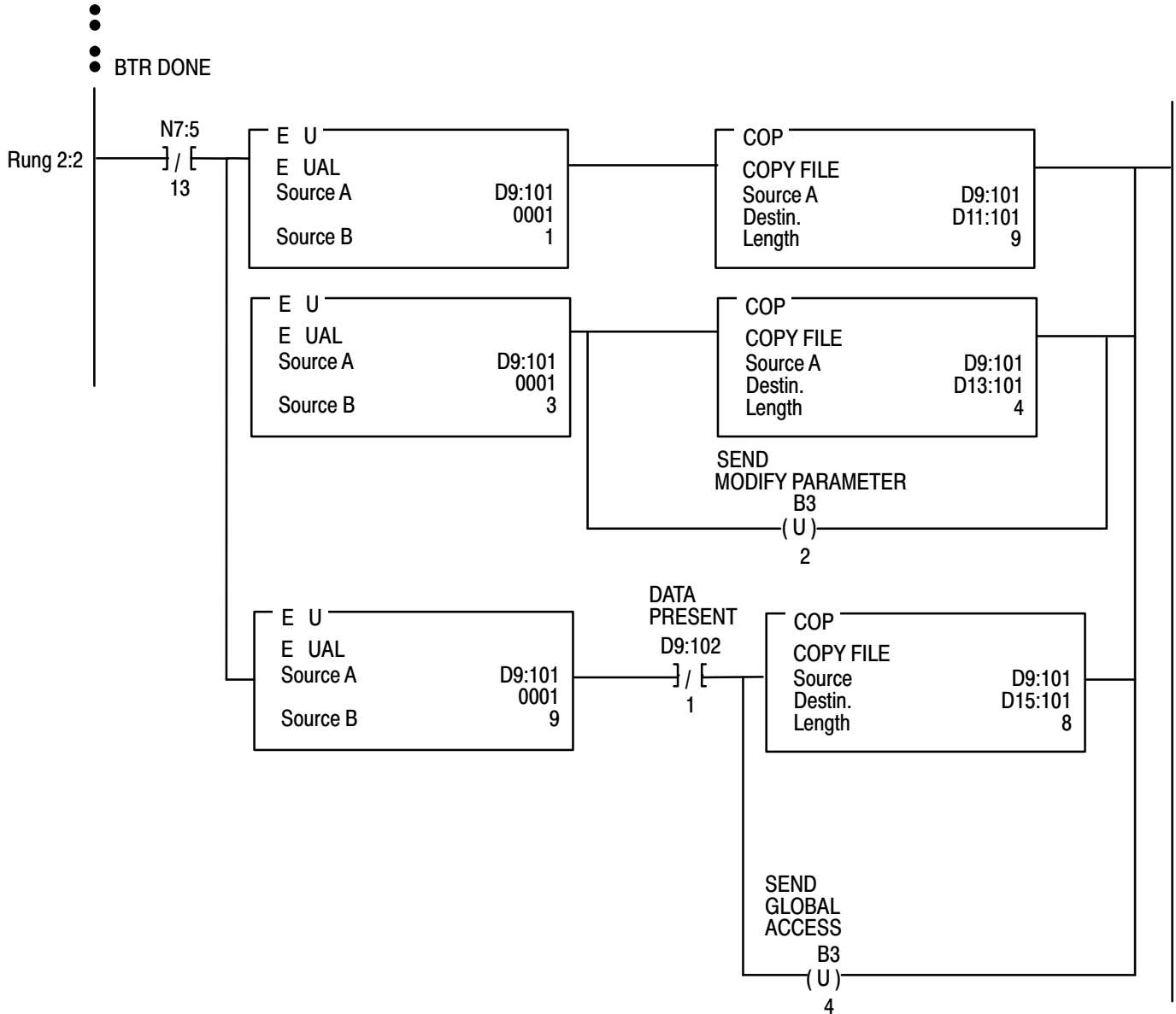
Sample Program for PLC-5 Family Programmable Controllers

This sample program is set up to allow the use of the set control command, the modify parameter command, and the global access command for one Moore 352 defined as station 1. In this example, the modify parameter command is used to download a target setpoint of 100% and a ramp time of 1 minute.

CONTINUOUSLY ALTERNATE BLOCK TRANSFER WRITES AND READS FOR THE 1771 LIA.



Whenever a block transfer read is complete, check whether the BTR data is loop status, modify parameter acknowledge, or global access command acknowledge and copy the BTR data to the appropriate data file. If the BTR data is a modify parameter or a global access acknowledge, unlatch the send modify parameter bit or the send global access command bit to allow set control commands (and loop status) to automatically resume.

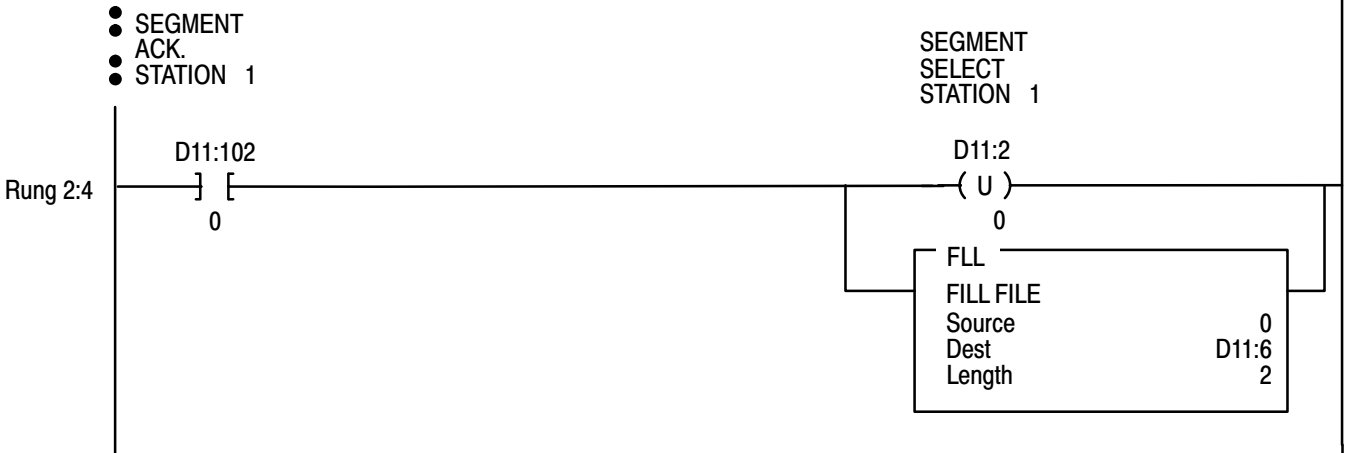


Product Data
Loop Controller Interface Module
 (Cat. No. 1771-LIA2)

If a set control command for station 1 is requested, then latch the segment select bit for station 1.



If a set control command is received for station 1, then unlatch the segment select bit and zero out the alarm and loop control bits for station 1 in the set control command. This ensures that set control commands will not inadvertently carry out functions already performed by previous set control commands.



If a modify parameter command is requested, then latch the send modify parameter bit.



If a global access command is required, then latch the send global access command bit.



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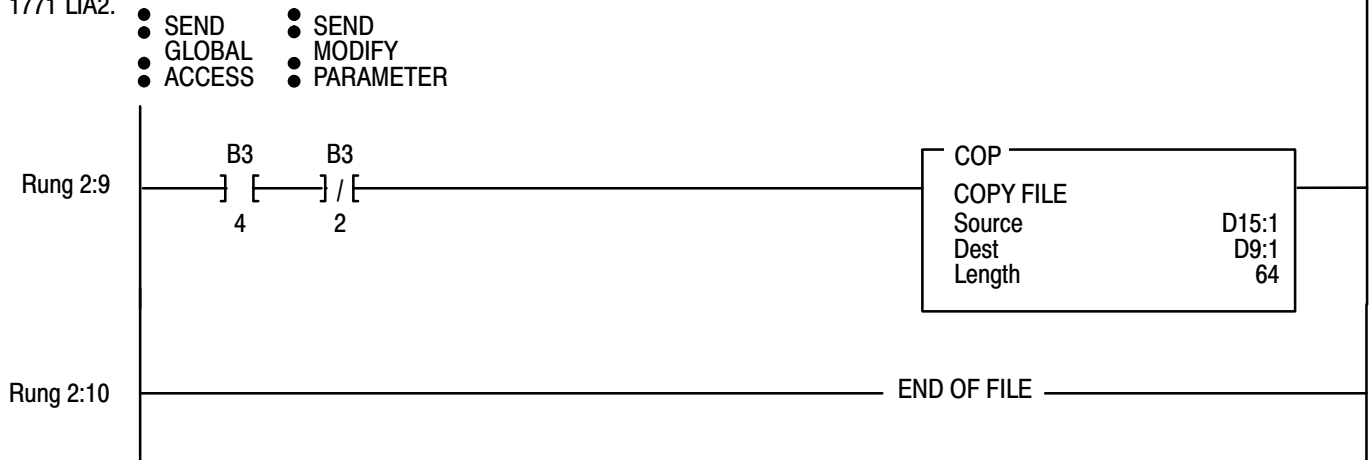
If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Decimal Addresses Hex/BCD data

Address	0	1	2	3	4	5	6	7	8	9
D9:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D9:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D9:110	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:120	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:130	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:140	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:150	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:160	0000	0000	0000	0000	0000					
D11:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D11:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

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Product Data
Loop Controller Interface Module
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Address	0	1	2	3	4	5	6	7	8	9
D11:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D13:0	0000	0003	0001	0002	0601	1501	0F80	0602	1501	0081
D13:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:100	0000	0003	0001	1001	A200					
D15:0	0000	0009	0007	FFFF	0001	0007	5555	0000	0000	0000
D15:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:100	0000	0009	0002	0000	0000	00C3	0001	0007	2222	0000
D15:110	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:120	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

**Description of the Loop
Controller Interface Module**

The Loop Controller is shown in figure 1. Interface Module commands are shown in table A.

Figure 1
Loop Controller Interface Module (Cat. No. 1771-LIA2)

Table A
Loop Controller Interface Module (1771-LIA2) Commands

Function	Command	Code	Response
Change the setpoint, output, operating mode, acknowledge, enable, disable alarms	SET CONTROL	01H	LOOP STATUS
Examine PID parameters, alarm limits, and output limits	READ PARAMETER	02H	READ PARAM ACK
Change PID parameters, alarm limits and output limits	MODIFY PARAMETER	03H	MOD PARAM ACK
Transfer a configuration from a station to a 1771-LIA	UPLOAD	04H	UPLOAD ACK
Transfer a configuration from a 1771-LIA2 to a station	DOWNLOAD	05H	DOWNLOAD ACK
Transfer a configuration from a 1771-LIA2 to a PC	READ CONFIG	06H	READ CONF ACK
Transfer a configuration from the PC to the 1771-LIA	WRITE CONFIG	07H	WRITE CONF ACK
Sends an ICI command to the ICI	ICI COMMAND	08H	ICI ACK
Contribute PLC data to ICI global database and allow devices on ICI to change PLC data	GLOBAL ACCESS	09H	GLOBAL ACCESS ACK

Compatibility

The user must be familiar with the terminology, configuration and operation of Moore Products Model 352 Single Loop Digital Controller (SLDC) and Model 320 Independent Computer Interface (ICI). Depending on the application, you must also be familiar with Moore Products Model 321 Local Expansion Satellite (LES).

Proper operation of the Loop Controller Interface Module depends upon correct setup of the Model 320 ICI. Set the ICI as follows:

Parameter	Setup	Switch Location
ICI link address	(see note)	serial board SW1, 2
Baud rate	9600	serial board W7
RS-232-C/RS-422	RS-422	serial board W5, W6
Transmission method	Binary	MPU board SW5 closed
Link Acknowledgement Delay	Enabled	MPU board SW4 open
Null filling	Enabled	MPU board SW3 open
Send command security	Disabled	MPU board SW1, 2
Format	1 start, 8 data, 1 stop, no parity	SW2 - 8 off, SW2 - 4 on

Note: The 1771-LIA2 provides an interface with up to 61 Moore Products 352 controllers, depending on the Moore hardware configuration.

Refer to Moore Products publications AD320-10 (Local Instrument Link Computer Interface User's Manual), AD352-10 (MYCRO 352 Single Loop Digital Controller User's Manual) and AD321-40 (Model 321 Expansion Satellite Link Interface Communication User's Manual).

Installing the Loop Controller Interface Module

In this section we tell you how to initially handle your loop controller interface module, key your I/O chassis, install your your module and make your wiring connections.

Initial Handling



WARNING Remove power from the 1771 I/O chassis backplane and wiring arm before removing or installing the loop controller interface module.

- Failure to remove power from the backplane or wiring arm could cause module damage, degradation of performance, or injury.
- Failure to remove power from the backplane could cause injury or equipment damage due to possible unexpected operation.

Electrostatic Discharge Damage

The loop controller interface module contains components which can be damaged by electrostatic discharge. The module is shipped in an electrostatic shielded bag for protection. Follow the handling procedures outlined below to guard against damage to your module.



WARNING Under some conditions, electrostatic discharge can degrade performance or damage the module. Read and observe the following precautions to guard against electrostatic damage.

- Touch a grounded object to discharge yourself before handling the module.
- Do not touch the backplane connector or connector pins.
- If you configure or replace internal components, do not touch other circuit components inside the module. If available, use a static-safe work station.

When not in use, keep the module in its static-free shield bag.

Keying the I/O Chassis

Use the plastic keying bands, shipped with each I/O chassis, to key your I/O slots to accept only this type of module. Place the keying bands on the chassis backplane between:

- 12 and 14
- 16 and 18

Slots on the rear edge of the circuit board (figure 1) are matched to these slots to allow insertion of this type of module. You can key any connector in an I/O chassis to receive this module except for the left-most connector reserved for adapter or processor modules.

Inserting the Module Into the Chassis

1. Position the module so that the circuit board on the rear of the module lines up with the top and bottom card guides in the chassis.
2. Slide the module into the chassis.
3. Press firmly to seat the module in the chassis backplane connector.
4. Swing the module locking latch down into place over the front edge of the module.

Connecting the Loop Controller to the Module

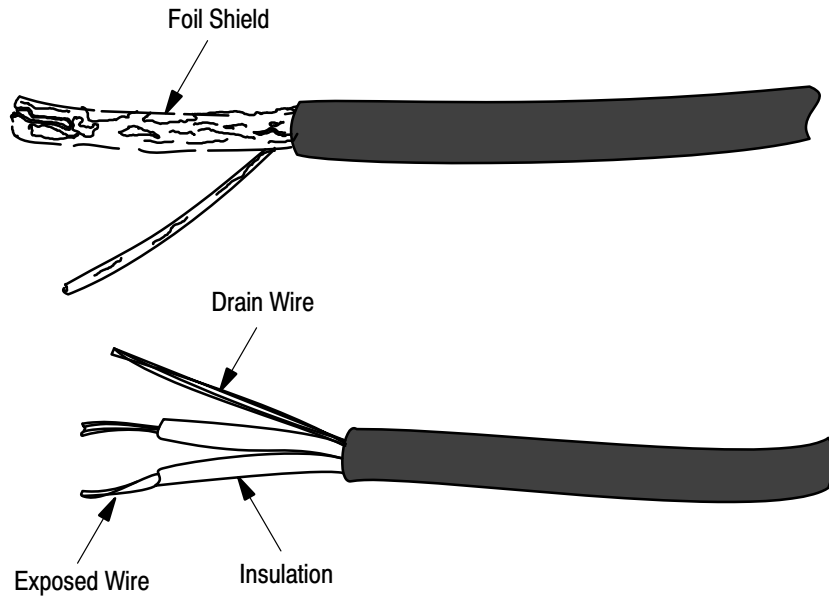
You make connections to the module through the 1771-WA field wiring arm. The arm pivots on the I/O chassis to connect with terminals on the front of the module and acts as a terminal strip. The wiring arm allows the module to be removed from the chassis without disconnecting wiring.

Make certain all power is removed from the module before making wiring connections.

1. Swing the wiring arm up into position on the front of the module. The locking tab on the module will secure it into place.
2. Make your connections to the field wiring arm as shown in figure 2. (Use the label on the front of the wiring arm to identify your wiring.)

NOTE: Use twinaxial cable (cat. no. 1770-CD), or an equivalent shielded twisted-pair cable with a minimum impedance of 60 ohms and a maximum capacitance of 75pF per meter, for the serial link. Do not exceed 4000 ft.

Figure 2
Preparing the Connecting Wiring



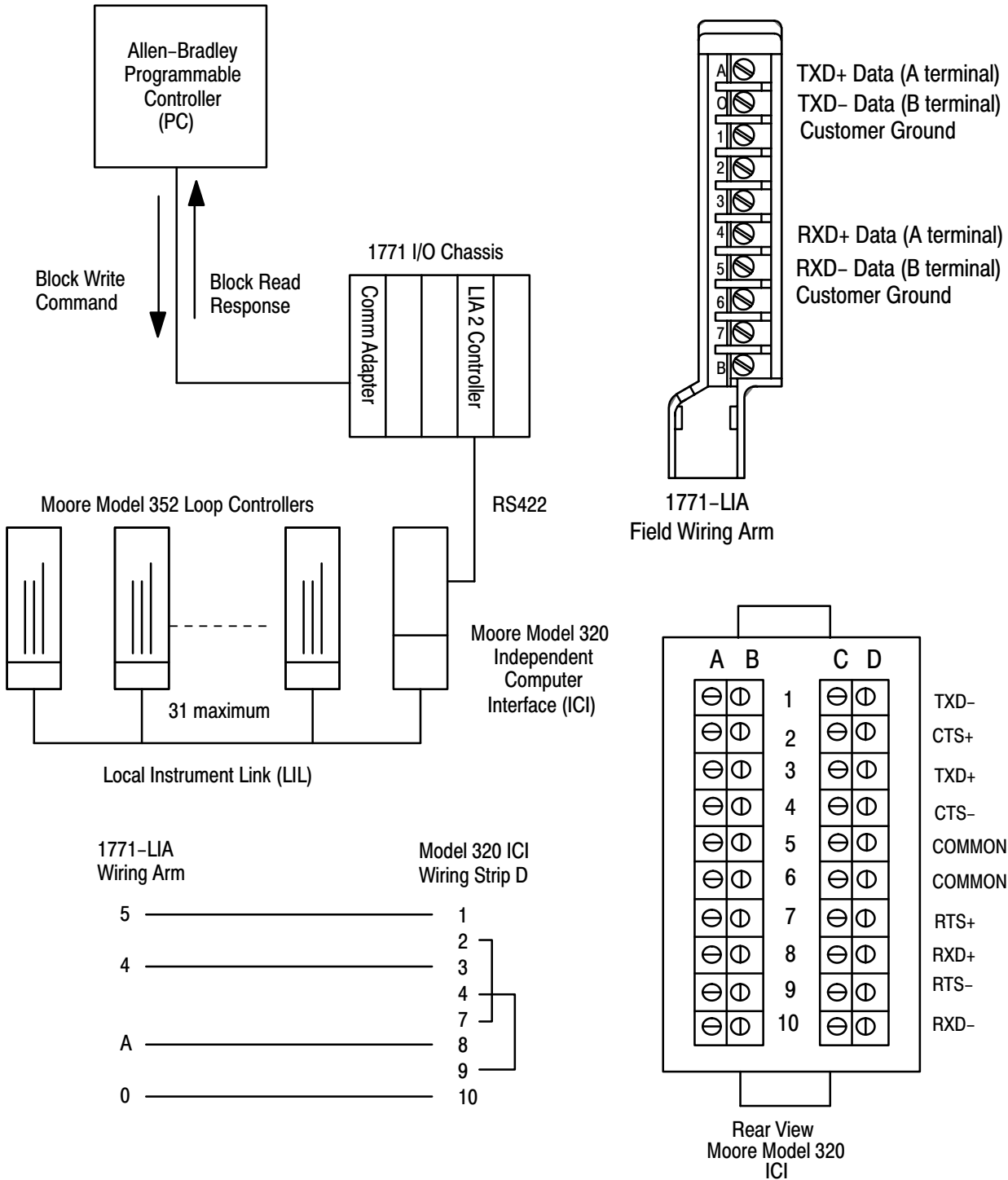
18085

3. Refer to figure 2. Strip 2 inches of the outer insulation from the cable end which will connect to the wiring arm.
4. Remove exposed foil.
5. Strip 3/8 inch of insulation from the end of each wire.
6. Connect the wires to the swing arm as shown in figure 3.



CAUTION: The field wiring arm terminal identification number is not the same as the number of the bit which controls that output.

Figure 3
Wiring the Loop Controller Interface Module and the Model 320 Independent Computer Interface



Programmable Controller Data Table Requirements

You must allocate two blocks of memory within the programmable controller's data table for use by the interface module. The module requires this memory for block transfer read and write files. Refer to the appropriate programmable controller user's manual for information on how to set up the data table.

The maximum length of the block transfer write (BTW) file is 64 words. Set the length of the write file to the default value of 00.

The maximum length of the block transfer read (BTR) file is 64 words. Set the length of the read file to the default value of 00.

Setting the length of the files to the default value of 00 allows the module to determine the proper file length.

You will also need to allocate portions of the data table for the files related to the module's commands.

Set Control Command

The Set Control command is used to supply basic control and status command changes to one or more loop controllers connected to the local instrument link (LIL). It also determines what information is returned in LOOP STATUS. A single set control block may be used to address up to 12 loops. Multiple set control commands must be used to address more than 12 loops. The set control command enables the programmable controller to:

- select the operating mode of the SLDC
- enter the value of a new setpoint or valve
- enable and acknowledge alarms
- select SLDC status information

The programmable controller sends the set control command to the LIA2 module via block transfer write instructions. The module interprets the command and sends the appropriate message out to the loop controller over the RS-422 serial link through the ICI.

Important: The loop controller must be in the manual mode to change a valve. The loop controller must be in automatic mode when changing a setpoint.

Word 1 of the set control file (figures 4 and 5) is the block header. This word indicates the beginning of the set control file.

Word 2 identifies the page and loop segment selected. The page number (in hex) is used to identify this particular set control command and its status. Loop segment data bits allow the user to select which loop segment is to be executed for this particular set control command.

Word 3 contains the data and number of loops information. The data bit value identifies the data type being sent. Data is in BCD or binary. Number of loops identifies how many loop segments are being used by this set control command.

Word 4 is reserved for future use.

Word 5 is used to identify the physical station address and loop being accessed, and whose status is being returned. **Note:** If this loop segment data bit is not set, status will still be returned for this station loop (see word 2 above).

Word 6 contains the bits that enable, disable or acknowledge alarms. Refer to figure 5 for an explanation of these bits.

Word 7 determines if a new setpoint or valve value will be sent for this loop segment. Word 7 also contains the loop control bits, which control the operating conditions for this station/loop.

Word 8 holds the new setpoint value (in BCD or binary) to be sent.

Word 9 contains the valve value (in BCD or binary) to be sent.

Setpoint or valve values are 4-digit BCD or Hex numbers which represent percent of scale. These values range between -3.3 (0H) and +103.3% (FFFH). Negative values have their most significant bit set. For example, a setpoint of 50 (BCD) would be entered as 0500. The decimal point is implied before the least significant bit. A value of -3.3% would be entered as 8033 (the most significant bit represents the negative sign).

If an error is encountered during processing of a set control command for a particular station, the set control command will bypass the loop segment in error and attempt to complete the process. Loop status will be returned to the PLC indicating the error and the segment number it occurred in.

Figure 4
Set Control Format (Block Transfer Write)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0	
1	0				0				0				1				
2	Page number				Loop segment select												
3	Data	Reserved						Number of loops									
4	Reserved																
..... Loop Segment																	
5	Reserved				Loop number				Station number								
6	Reserved		Alarms in service	Alarms out of service	Alarm disable				Alarm enable				Alarm acknowledge				
7	Valve	Set-point	Reserved						Loop control								
8	Setpoint																
9	Valve																
..... Loop Segment																	
60	Reserved				Loop number				Station number								
61	Reserved		Alarms in service	Alarms out of service	Alarm disable				Alarm enable				Alarm acknowledge				
62	Valve	Set-point	Reserved						Loop control								
63	Setpoint																
64	Valve																

Figure 5
Set Control Command Word/Bit Definitions

Word No.	Description	Data format	Range
1	Block header	BCD (always 0001)	
2	Loop segment select	Bit 1 = output this loop segment data 0 = ignore this loop segment data	0 to 11
	Page number	Hex (bit 12 - 15)	0 to BH
3	Number of loops	BCD (Bit 8 - 14 reserved)	1 to 12

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Word No.	Description	Data format	Range
	Data	Bit 15 0 = data format BCD 1 = data format binary	
4	Reserved	0000	
5	Station number	BCD	1 to 64
	Loop	BCD 1 = loop 1 2 = loop 2	1 to 2
6	Alarm ack	Bits 0 1 = alarm 1 ack / 0 = no action 1 1 = alarm 2 ack / 0 = no action 2 1 = alarm 3 ack / 0 = no action 3 1 = alarm 4 ack / 0 = no action	
	Alarm enable	Bit 4 1 = alarm 1 enable/0 = no action 5 1 = alarm 2 enable/0 = no action 6 1 = alarm 3 enable/0 = no action 7 1 = alarm 4 enable/0 = no action	
	Alarm disable	Bit 8 1 = alarm 1 disable/0 = no action 9 1 = alarm 2 disable/0 = no action 10 1 = alarm 3 disable/0 = no action 11 1 = alarm 4 disable/0 = no action	
	Alarms out of service	Bit 12 1 = alarms out of service/0 = no action	
	Alarms in service	Bit 13 1 = alarms in service/0 = no action 14 - 15 Reserved	
	7	Loop control	Bit 0 1 = local source/0 = no action 1 1 = console source/0 = no action 2 1 = auto mode/0 = no action 3 1 = manual mode/0 = no action 4 1 = external/0 = no action 5 1 = internal/0 = no action 6 1 = ramp on/0 = no action 7 1 = ramp off/0 = no action 8-13 Reserved
	Setpoint	Bit 14 1 = use word 8 (new setpoint)	
	Valve	Bit 15 1 = use word 9 (new valve)	

Word No.	Description	Data format	Range
8	New setpoint	BCD/binary	-3.3 to +103.3% (0H to FFFH)
9	New valve	BCD/binary	-3.3 to 103.3% (0H to FFFH)

Loop Status

Loop status is returned for each set control command. Loop status contains information for up to 12 individual control loops (determined by the station and loop numbers entered in the set control command).

The data in this file represents each specified loop controller's current process, setpoint, valve, alarms and status. The status of the 1771-LIA2 and the Model 320 ICI is also presented in this file. Loop status file format is shown in figure 6.

Loop Status File

Refer to figures 6 and 7. Word 1 (block header) indicates that this is the beginning of the loop status file.

Word 2 contains page number, which identifies this status information with its parent set control command, and loop segment acknowledge bits that indicate if the loop segment selected in the set control command executed properly.

Word 3 contains bits which indicate whether a station is responding (no response) and if no stations in this status page are responding (global response).

Word 4 contains a diagnostic code identifying any error condition, and the loop segment number indicating what segment in the set control command was in error (if applicable). Refer to table C at the rear of this publication for definitions of the diagnostic codes.

Word 5 displays loop status bits, loop number and station number whose status is displayed in a particular segment. Up to 12 loops can be monitored at a time.

Word 6 contains loop status and alarm bits for this station/loop.

Words 7, 8 and 9 contain the station/loop process, setpoint, and valve data. These values are 4-digit BCD or binary numbers which represent percent of scale (-3.3 to 103.3%). Negative values have their most significant bit set.

Figure 6
Loop Status File Format (BTR)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				1			
2	Page number				Loop segment acknowledge											
3	Data	Reserved		Global response	Segment response											
4	Diagnostic code								Loop segment number							
.....																
5	Loop status				Reserved	Loop number			Station number							
6	Loop status								Alarm on/off				Alarm acknowledge			
7	Process															
8	Setpoint															
9	Valve															

Figure 7
Loop Status Command Word/Bit Definition

Word number	Description	Data format	Range
1	Block header		
2	Loop segment acknowledge	Bit 1 = ack 0 = No ack	0 to 11
	Page number	Hex (bit 12 - 15)	
3	Segment response	Bit 1 = Station response 0 = No station response	0 to 11
	Global response	Bit 12 0 = no stations responding 1 = normal conditions Bits 13 - 14 reserved	

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Word number	Description	Data format	Range
	Data	Bit 15 0 = data in BCD format 1 = data in binary format	
4	Diagnostic	Hex	
	Segment number	Hex	01H-0CH (1-12)
5	Station number	BCD	1 to 64
	Loop number	BCD Bit 10 – 11 reserved	1 to 2
	Loop status	Bit 12 1 = override 13 1 = high setpoint limit 14 1 = low setpoint limit 15 1 = configuration hold	
6	Alarm acknowledge	Bits 0 1 = alarm 1 not acknowledged/0 = ack 1 1 = alarm 2 not acknowledged/0 = ack 2 1 = alarm 3 not acknowledged/0 = ack 3 1 = alarm 4 not acknowledged/0 = ack	
	Alarm on/off	Bit 4 1 = alarms 1/0 = no alarm 5 1 = alarms 2/0 = no alarm 6 1 = alarms 3/0 = no alarm 7 1 = alarms 4/0 = no alarm	
	Loop status	Bit 8 1 = Alarms disabled 9 1 = local source 10 1 = console source 11 1 = auto mode / 0 = manual mode 12 0 = external / 1 = internal 13 1 = ramp on/0 = ramp off 14 1 = standby sync 15 1 = emergency manual	8-15
7	Process	BCD/binary	-3.3 to +103.3% (0H to FFFH)
8	Setpoint	BCD/binary	-3.3 to 103.3% (0H to FFFH)
9	Valve	BCD/binary	-3.3 to 103.3% (0H to FFFH)

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Read Parameter

The read parameter allows the examination of parameters such as PID parameters, alarm limits and output limits. Up to 20 parameters from a user specified station address can be sent back to the programmable controller. You specify the number of parameters in BCD format (1 to 20). The channel/parameter identifies the particular parameter to be read. Specify the channel and parameter numbers as 1 less than their actual value. For example, channel 1, parameter 1 would be 0000H; channel 256, parameter 256 would be FFFFH. Refer to Moore Products LIL Computer Interface User Manual (AD320) for a description of channel/parameters.

Figure 8
Read Parameters Command File (BTW) and Word/Bit Definitions

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0			0			0			2						
2	0			0			Station address									
3	Number of parameters															
4	Reserved															
Data																
5	Channel								Parameter							
: : :																
24	Channel								Parameter							

Figure 9
Read Parameter Word/Bit Definitions

Word number	Description	Data format	Range
1	Block header		
2	Station address	BCD	1 to 64
3	Number of parameters	BCD	1 to 20
4	Reserved		
5	Channel Parameter	Binary Binary	0 - 255 0 - 255

Read Parameter Acknowledge

The acknowledge block will be returned to the PLC via block transfer read indicating a good response or an error condition after processing the read parameter command. The 1771-LIA2 will return the requested parameter data in the form shown in the following table. The diagnostic code in word 4 identifies any error condition resulting from the read parameter command. Refer to table C at the rear of this publication for definitions of the diagnostic codes.

Figure 10
Read Parameter Acknowledge Format and Word /Bit Definitions

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0			0			0			2						
2	0			0			Station address									
3	0			0			Number of parameters									
4	Diagnostic						0			0						
Data																
5	Parameter data 1															
:																
24	Parameter data 20															

Figure 11
Read Parameter Acknowledge Word/Bit Definitions

Word number	Description	Data format	Range
5-24	Parameter data	Binary	

Modify Parameters

The modify parameters command allows you to modify parameters such as PID parameters, alarm limits, and output limits. You can specify up to 10 parameters to alter for a specified station. Note that the total length of the modify parameter command cannot exceed 64 words.

You must specify the “channel” and “parameter” to be modified. “Data type” and “command” must be provided to specify the parameter data type and source of the parameter data. Refer to Moore Products publication AD320 for definition of these terms. In general, channel and parameter addresses are specified as 1 less than their actual numeric value. For example, channel 1, parameter 1 would be 0000H. Refer to Moore Products LIL Computer Interface User Manual (AD320-10) for a description of channel/parameters.

Figure 12
Modify Parameters Command File Format (BTW)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				3			
2	0				0				Station address							
3	0				0				Number of parameters							
: : : :																
4	Channel								Parameter							
5	Type				Command				Number of data words							
6	Data value word 1															
: : : :																
n + 5	Data value word n															
: : : :																
n + 6	Channel								Parameter							
n + 7	Type				Command				Number of data words							
n + 8	Data value word 1															
: : : :																
m + n + 7	Data value word m															

Figure 13
Modify Parameters Command Word/Bit Definitions

Word number	Description	Data format	Range
1	Block header		
2	Station address	BCD	1 to 64
3	Number of parameters	BCD	1 to 10
4	Channel	Binary	0 to 255
	Parameter	Binary	0 to 255

Word number	Description	Data format	Range
5	Type	Hex (bits 12-15) 0 - Record send acknowledge 1 - 16-bit integer, absolute 2 - 16-bit integer, relative 3 - 16-bit multi-discrete mask on 4 - 16-bit multi-discrete mask off 5 - Reserved 6 - 32-bit floating point, absolute 7 - 32-bit floating point, relative 8 - multibyte data (messages) 9 - 32-bit integer, absolute A - 12-bit integer plus range, absolute B-F - not used	
	Command	Hex (bits 8-11) 0-3 - not used 4 - parameter send from a local source 5 - parameter send from a console source 6 - parameter send from a computer source 7 - parameter send from any source 8-F - not used	
	Data words	BCD	1 to 10
6	Parameter data	Binary	

Modify Parameter Acknowledge

An acknowledge block is returned to the PLC by the 1771-LIA2 after every modify parameter command. The acknowledge block indicates either a good response or an error condition. The diagnostics code in word 4 identifies any error condition resulting from the modify parameter command. Refer to table C at the rear of this publication for definitions of the diagnostic codes. Block format is shown below.

Figure 14
Modify Parameters Response File (BTR)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0			0			0			3						
2	0			0			Station address									
3	Reserved															
4	Diagnostic						0			0						

Upload

The upload function is used to transfer configuration data from the specified loop controller to the configuration buffer on the 1771-LIA2.

The full database consists of a 1Kbyte buffer with 4 records of 256 bytes each. The upload command will trigger generation of a record request to the ICI. An acknowledgement of the upload command is returned in the form of a block transfer file similar to the upload command block .

Start and End specify the starting and ending addresses of the records to be uploaded. Station address is the address of the station whose data is to be recorded. For example, if all four records are to be uploaded, the start address would be 08H, and the end address would be 0BH.

Figure 15
Upload Configuration Command File (BTW)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				4			
2	End				Start				Station address							

Figure 16
Upload Configuration Command File (BTW)

Word	Description	Data format	Range
1	Block header		
2	End Start Station address	Binary Binary BCD	00 - 0FH 00 - 0FH 1 to 64

Upload Acknowledge

An upload acknowledge block is returned to the PLC by the 1771-LIA2 after every upload command. The upload acknowledge block indicates either a good response or an error condition. The upload acknowledge block format is shown below.

Figure 17
Upload Acknowledge Command Format

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				4			
2	End				Start				Station address							
3	Reserved															
4	Diagnostic								0				0			

Download

The download function is used to transfer the contents of the 1771-LIA2 configuration buffer to the specified loop controller. It results in a record send transaction to the ICI for each configuration record. END specifies the ending record to down load. If all 4 records of a Moore 352 controller are to be transferred, START would equal 08H and END would equal 0BH. NOTE: The receiving station must be in the configuration hold mode prior to execution of this command. The format of the download command is shown below.

Figure 18
Download Configuration Block

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				5			
2	End				Start				Station address							

Figure 19
Download Command Word/Bit Definitions

Word number	Description	Data format	Range
1	Block header		
2	End	Binary	0-FH
	Start	Binary	0-FH
	Station address	BCD	1 to 64

Download Acknowledge

The format of the download acknowledge block is shown below.

Figure 20
Download Acknowledge Block Format

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				4			
2	End				Start				Station address							
3	Reserved															
4	Diagnostic								0				0			

Read Configuration

The read configuration command allows transfer of information from the 1771-LIA2 configuration buffer to the programmable controller. This command must be preceded by an **upload** command.

The configuration data for the loop controller can be found on four 256 byte records. The maximum file length allowed for a BT is 64 words. A complete record request requires 256 bytes (128 words). Since an overhead of 4 words is required for the upload file, a single record request cannot exceed 60 words (120 bytes). Therefore, 12 block transfers need to be performed if a complete configuration upload (1Kbytes) is desired.

The record number is the record address containing the data to be returned. It has a maximum range of 0-FH. The offset is the offset from the beginning of the record where the data transfer begins, and has a range of 00H to FFH (figure 20).

The number of bytes transferred is the number of bytes beginning at the record plus the offset (figure 20). This is in the range of 01H to 78H. The offset plus (number of bytes – 1) must not exceed 256.

Figure 21
Read Configuration Command File (BTW)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				6			
2	0				0				Station address							
3	0				Record number				Offset							
4	0				0				Number of bytes							

Figure 22
Read Configuration Word/Bit Definition

Word number	Description	Data format	Range
1	Block header		
2	Station address	BCD	1 to 64
3	Record number	Binary	0 to FH
	Offset	Binary	00 to FFH
4	Number of bytes	Binary	01H to 78H

Read Configuration Acknowledge

An acknowledge block will be returned to the PLC indicating either a good response or an error condition in obtaining the requested data from the 1771-LIA2 configuration buffer. The acknowledge block format is shown below.

Figure 23
Read Configuration Acknowledge Block

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				6			
2	0				0				Station address							
3	Reserved															
4	Diagnostic								0				0			
	:				:				:				:			
5	Record byte 1								Record byte 2							
	:				:				:				:			
n	Record byte n															

Write Configuration

The write configuration command allows the transfer of information from the programmable controller to the 1771-LIA2 configuration buffer. The length of the record being transferred cannot exceed 60 words (120 bytes). The station address is the station whose data record is in the 1771-LIA2 buffer. This address must match the address stored in the LIA2 configuration buffer in order for processing to be completed. The record number is record address containing the data to be returned. The maximum range is 0-FH. The offset is the offset from the beginning of the record where the data transfer is to begin. Offset range is 00H to FFH. The number of bytes is the number of bytes beginning at the record plus the offset to be transferred. This range is 01H to 78H (1 to 120). The offset plus (number of bytes - 1) cannot exceed 256.

Figure 24
Modify Configuration Command File (BTW)

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				7			
2	0				0				Station address							
3	0				Record number				Offset							
4	0				0				Number of bytes							

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
5	Record byte 1								Record byte 2							
	:								:							
n	Record byte n															

Figure 25
Write Configuration Word/Bit Definition

Word number	Description	Data format	Range
1	Block header		
2	Station address	BCD	1 to 64
3	Record number	Binary	0 to 0FH
	Offset	Binary	00 to FFH
4	Number of bytes	Binary	01H to 78H

Write Configuration Acknowledge

An acknowledge block will be returned to the PLC indicating either a good response or an error condition in sending the data to the 1771-LIA2 configuration buffer. The acknowledge block format is shown below.

Figure 26
Write Configuration Acknowledge Block

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				7			
2	0				0				Station address							
3	Reserved															
4	Diagnostic								0				0			

ICI Command

The 1771-LIA2 ICI command allows the user to send a Moore ICI command to the ICI. The ICI performs the necessary byte reversal and adds the command checksum word. Page number is a hex value that can be used by the operator to identify multiple command operations. No other modification of the command is performed. Note: The command word count cannot exceed 60 words, due to block transfer limitations. The ICI command format is shown below.

Figure 27
ICI Command Block Format

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				8			
2	Page number				0				Command word count							
3	ICI command code															
.....																
n																

ICI Acknowledge

The ICI acknowledge block will be returned to the PLC indicating either a good response or an error condition. The ICI acknowledge block will contain the following information.

Figure 28
ICI Acknowledge Block Format

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				8			
2	Page number				0				0				0			
3	Reserved															
4	Diagnostic								0				0			
.....																
5	Response status word															
.....																
n																

Global Access Command

The global access command allows the 1771-LIA2 module to contribute PLC data to the local instrument link (LIL) global data base, and allows devices on the LIL to change values in the PLC data base.

The number of channels represents the total number of global data words (7–256), including the 6 fixed status words used in the LIL data base. The page number allows the operator to assign a unique code to each page of information since block transfers are limited to 64 words, but 250 words can be written. Thus, if all 250 words are transferred, you would use 5 block transfers. The watchdog timer monitors communication between the

PLC and the ICI. This value is entered in Hex, with each count equal to 1/2 second. The number of PLC words is the total number of binary words that will be sent to the LIL for that particular page. The starting channel number indicates the first channel in the ICI data table that will receive the PLC data.

Figure 29
Global Access Command File

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				9			
2	Page				Number of Channels											
3	Watchdog Timer Value															
4	Reserved				0				Number of PLC Words							
5	Reserved				Starting Channel Number											
6	PLC Channel Data															
: : : :																
60																

Figure 30
Global Access Word/Bit Definition

Word number	Description	Data format	Range
1	Block header		
2	Number of Channels	BCD	7 to 256
	Page Number	Hex (bit 12 - 15)	0 to 5H
3	Watchdog Timer	Binary	0 to 65535
4	Number of PLC words	BCD	1 to 59
5	Starting Channel Number	BCD	7 to 256
6	PLC Channel Data	Binary	

Global Access Command Acknowledge Block

This block returns error and status information to indicate if the command has executed successfully. It also returns the source station number, destination channel and a new data value when a command is sent from a LIL device to change a PLC value.

The page number identifies the acknowledge block with the page of data that was previously sent. The data present flag indicates that data is currently available to the PLC. The data type flag indicates whether the data present is analog or control to the PLC. The diagnostic code indicates the command or ICI error conditions. The response status word indicates current ICI status. The station number indicates the source of the new PLC data. The channel number indicates the destination of the new data to the PLC.

Figure 31
Global Access Command Acknowledge Block Format

Word Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
1	0				0				0				9			
2	Page number				Reserved								Data Present/Data Type			
3	Reserved															
4	Diagnostic								Reserved							
5	Response status word															
6	Reserved								Station Number							
7	Reserved				Channel Number											
8	New PLC Data															

Figure 32
Global Access Command Acknowledge Block Word/Bit Definition

Word number	Description	Data format	Range
1	Block header		
2	Page Number	Hex (bit 12 - 15)	0 to 5H
	Data Present/Data Type	Bit 0 0=Data type is analog 1=Data type is control Bit 1 1 = Data present	
3	Reserved	Binary	0 to 65535
4	Diagnostic	Hex	1 to A5H
5	Response Status Word	Hex	See below
6	Station Number	BCD	1 to 64

Word number	Description	Data format	Range
7	Channel Number	BCD	1 to 256
8	New PLC Data	Binary	User defined

Figure 33
Global Access Command Response Status Word Bit Assignments

Bit	15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
	Error or failure	LIL data base updating	Error class			Error code			Not used			Data not ready	Input buffers not ready	Unsolicited record available	Global inputs configured	LIL interface on line

Data Formats

The 1771-LIA2 can interpret two types of data from the PLC; Binary and BCD. In BCD, the value is expressed as a series of four decimal digits, 1 digit per nibble. The high order digit is restricted in value so that its high order bit can be used as a sign bit. This allows indication of a negative value. The decimal point is assumed to be one place from the right. The 1771-LIA2 module converts this BCD value to a binary data format for the ICI.

For example, the value 100.2 would be expressed as:

1	0	0	2
---	---	---	---

The value -3.1 would be expressed as:

8	0	3	1
---	---	---	---

In the Binary format, data is used directly by the Loop Controller. When specifying an absolute value, the input range is -3.3 to 103.3%. This is represented by a value ranging from 0 to 4095, with 0% being 128. For example, the value 103.3% would be:

0	F	F	F
---	---	---	---

The value 0% would be:

0	0	8	0
---	---	---	---

A value of 20% would be:

0	3	8	0
---	---	---	---

Relative values are in the range of -50% to 0 to +50%. For example:

0%	0	0	0	0
50%	0	7	F	F
-50%	0	8	0	0
1 bit	0	F	F	F

Interpreting the Status Indicators

Three LED indicators on the front of the loop controller interface module indicate the operating status of the module (figure 34). Use these indicators to aid in troubleshooting.

The red MODULE FAULT indicator lights when a communication problem exists (either the ICI or 1771-LIA). The yellow CHANNEL ACTIVE indicator blinks during normal operation. It is on when the module receives data and is off when the module is sending data. The green MODULE ACTIVE indicator lights when power is applied and the module passes its power up test.

Figure 34
Loop Controller Interface Module Diagnostic Indicators

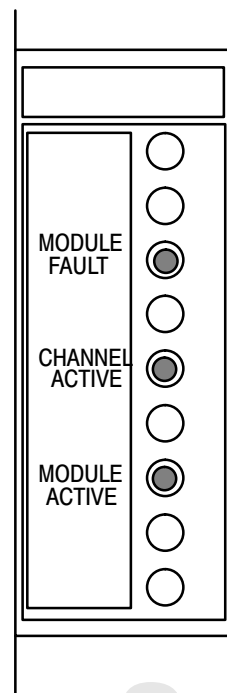


Table B
Interpreting the Indicator Lights on the Loop Controller Interface Module

Indication	Probable cause	Corrective action
MOD ACTIVE (green) ON MOD FAULT (red) OFF CHANNEL ACTIVE (yellow) flashing	Normal operation	
MOD ACTIVE (green) OFF MOD FAULT (red) OFF CHANNEL ACTIVE (yellow) OFF	Module has failed to power up correctly.	Cycle power to module. Check power connections on field wiring arm. Replace faulty 1771-LIA2 module.
MOD ACTIVE (green) ON MOD FAULT (red) ON CHANNEL ACTIVE (yellow) ON or OFF	Communications have been lost between the 1771-LIA2 and the ICI.	Check field wiring arm connections. Check operation of the ICI.

Diagnostic Codes

The following table describes the diagnostic and ICI error codes returned in the Acknowledge block when an error occurs. The diagnostic code provides you with a quick reference to the problem.

Table C
Diagnostic Command Summary

Diagnostic Code	Description	Explanation
	GENERAL COMMAND ERRORS	
01H	Invalid command	Attempted to process an invalid command from the PLC
02H	Invalid station address	Attempted to access a station address outside the 64 allowed
03H	Invalid number of loops	Attempted to process more than 12 loops, or 0 loops with a set control command
04H	Data value out of range	Attempted to process a setpoint or valve value greater than 103.3% with a set control command
05H	Dual command error	Attempted to place the loop controller in 2 opposite modes at the same time with the set control command
06H	Invalid loop number	Attempted to process a loop number outside the range of 1 or 2 with the set control command
07H	Invalid BCD digit	Attempted to process an invalid BCD value with the set control command
08H	Number of parameters invalid	Attempted to request or send too many parameters
09H	Too much read data	Execution of command resulted in too much data to be returned in a single block transfer
0AH	Too much write data	Attempt to process an LIA2 command with a word count greater than allowed
26H	Unknown error code	The LIA2 is unable to determine an error code returned by the ICI
2AH	Invalid data type	An attempt by the LIL to send a nonsupported data type in the global access command
2BH	Invalid source type from LIL	An attempt by a nonsupported device on the LIL to access the PLC database

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Diagnostic Code	Description	Explanation
2CH	Invalid database access by the LIL	An attempt by the LIL to access nonaccessible location in the LIA2 internal database
2DH	Invalid database access by the PLC	An attempt by the PLC to access the LIA2 internal database that is out of range
28H	Invalid number of channels	An attempt to process an illegal number of channels in the global access command
29H	Invalid number of PLC words	An attempt to process an illegal number of PLC words in the global access command
COMMUNICATION ERRORS		
0CH	Checksum error	Checksum calculated by the LIA2 does not match the checksum returned by the ICI for data being returned by the ICI
0DH	Data overrun	Byte count calculated by the LIA2 does not match the count being returned by the ICI
0EH	Communications timeout	Attempted to read an expected response from the ICI for more than 1 second
0FH	Buffer overrun	Storage capacity in LIA2 receive buffer exceeded
RECORD HANDLING ERRORS (1771-LIA)		
13H	Non-matching station address	PLC attempted to modify or read configuration record using a station address that does not match the station configuration record that was loaded
14H	Invalid record number	Attempted to process a record number greater than maximum allowed, or attempted to read records in wrong order
15H	Too many requested records	Attempted to read more than 4 records at one time (exceeds LIA2 record storage capacity)
16H	Buffer boundary exceeded	Attempted to read or modify data in a record storage area within the LIA2 that is out of the storage area for that record
ICI OPERATIONAL CODES		
19H	LIL database not updating	Return of the response status word from the ICI indicating the LIL data base is not being updated
25H	ICI Download error	Attempted to download a record to a station that is unable to accept it
1AH	LIL interface not online	Return of the response status word from the ICI indicating the local instrument link is not present
1CH	Data not ready	Return of the response status word from the ICI indicating that data has been requested from a station but has not been received by the ICI
ICI Codes		
ICI TRANSMISSION ERRORS		
80H	Timeout between characters	
81H	Invalid data or bad character	
82H	Invalid command	
83H	Invalid request	
84H	Word count error	
85H	Checksum error	
86H	Message overflow	

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Diagnostic Code	Description	Explanation
87H	Parity or framing error	
	LIL INTERFACE ERRORS	
88H	Transfer prevents command execution	
89H	Station not in global database	
8AH	Data not available	
8BH	Local link buffers full	
8CH	Global database not ready	
8DH	Parameter send abort (timeout)	
8EH	Record transfer abort (timeout)	
8FH	Record transfer abort (not ready)	
	LIL HARDWARE FAILURES	
90H	Link not present	
91H	On-board dual-port board	
92H	Local RAM	
93H	ROM check	
94H	Link physical interface failure	
97H	Off-board dual-port RAM	
	ICI HARDWARE FAILURE	
99H	ICI buffer RAM	
9AH	Local RAM	
9BH	ROM check	
9CH	Piggyback board	
9DH	Receive timeout	
9EH	Transmit timeout	
	LINK COMMAND ERRORS	
A1H	Transmission problem	
A2H	Destination buffers full	
A3H	Destination station offline	
A4H	Gateway offline	
A5H	Link command checksum error	

Address	0	1	2	3	4	5	6	7	8	9
D15:130	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:140	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:150	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:160	0000	0000	0000	0000	0000					

Specifications

Module Location	1771 I/O Chassis
Output Voltage Range	0 – 5V
Output Load Current	60mA maximum
Maximum Surge Current	1.2A
Minimum Load Current	0.72A
Power Dissipation	4.5W normal
Thermal Dissipation	0.256 BTU/minimum
Environmental Conditions	
Operational Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-40° to 85°C (-40° to 185°F)
Relative Humidity	5% to 95% (without condensation)
Conductors	Wire size
	14 ga. stranded (max)
	3/64 inch insulation (max)
	Category
	1 ¹
Keying Band Positions	Between 12 and 14 Between 16 and 18
Wiring Arm Screw Torque	9 pound-inches

¹ Refer to publication 1770-4.1, Programmable Controller Wiring and Grounding Guidelines



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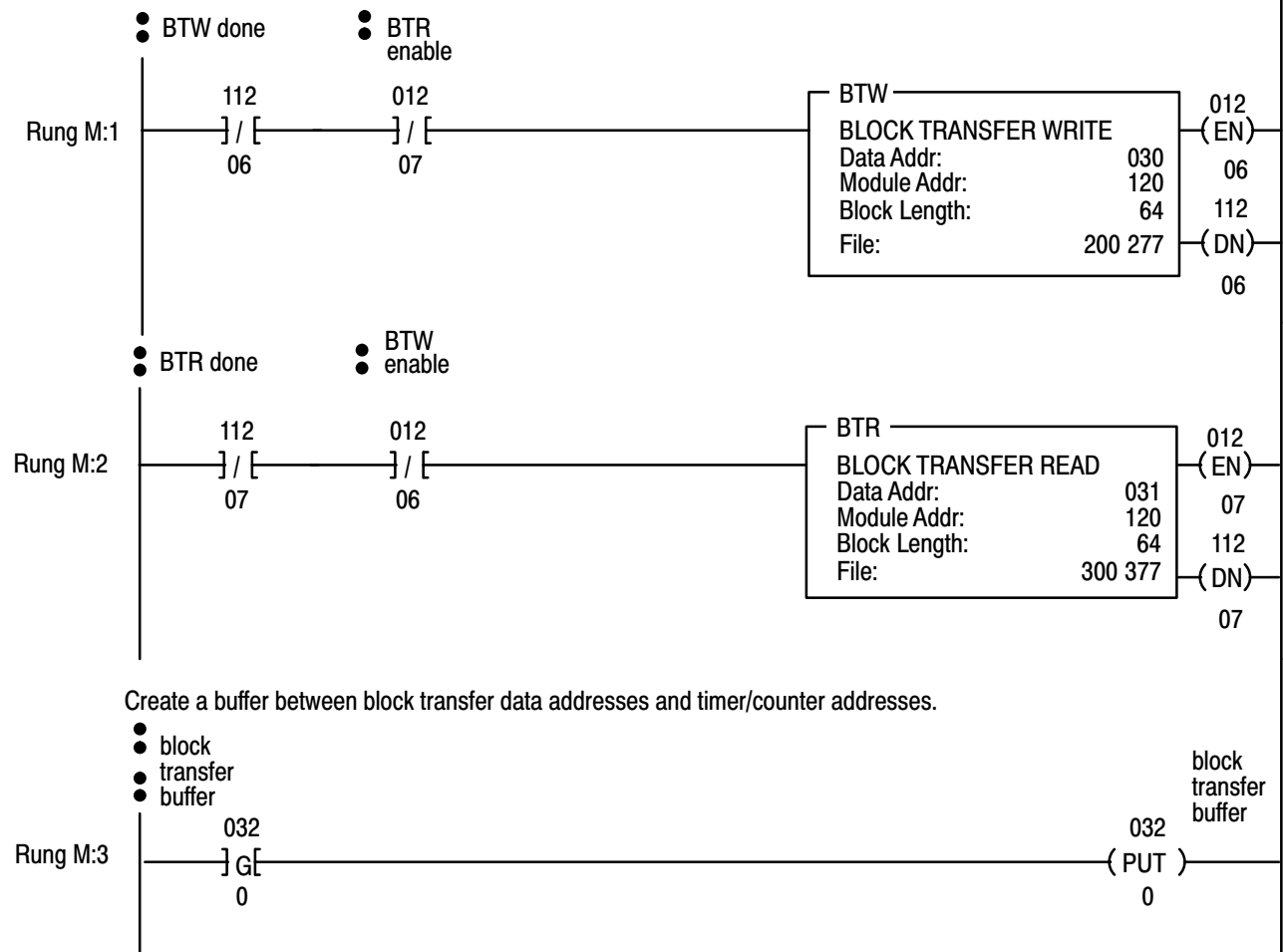
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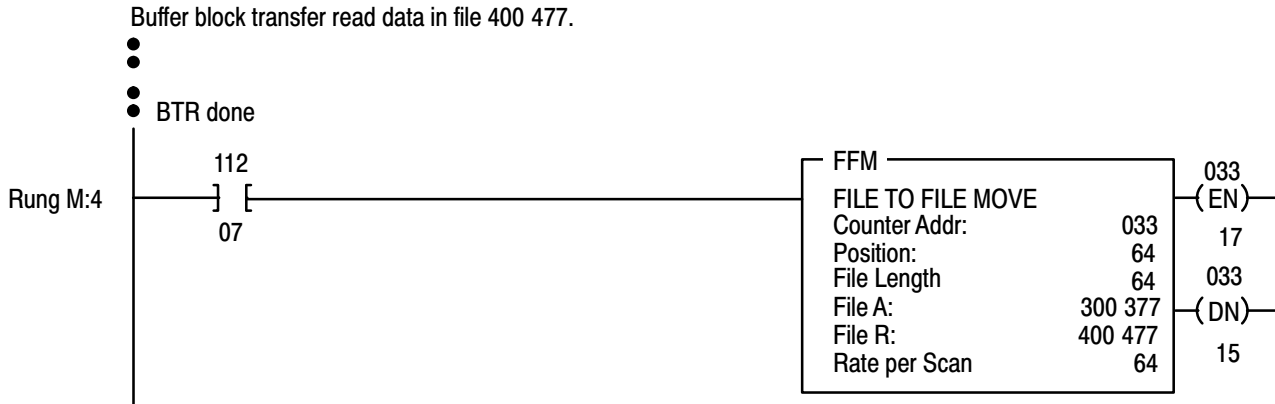
Sample Program for PLC-2 Family Programmable Controllers

Rung M:0 |----- START OF PROGRAM -----|

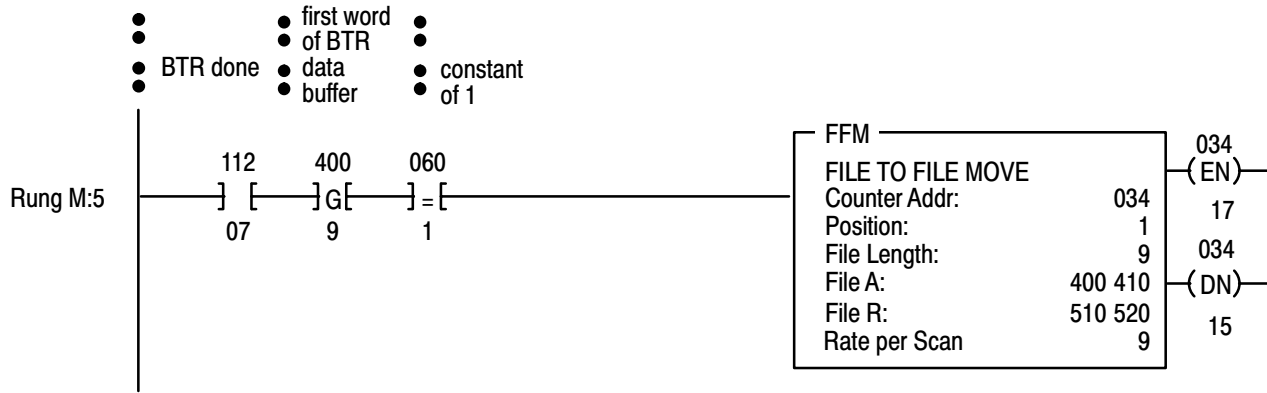
This sample program is set up to allow the use of the set control, modify parameter, and global access commands for Moore 352 defined as station 1. In this example, the modify parameter command is used to download a target setpoint of 100% and a ramp time of 1 minute.

Continuously alternate block transfer writes and reads for the 1771 LIA2.

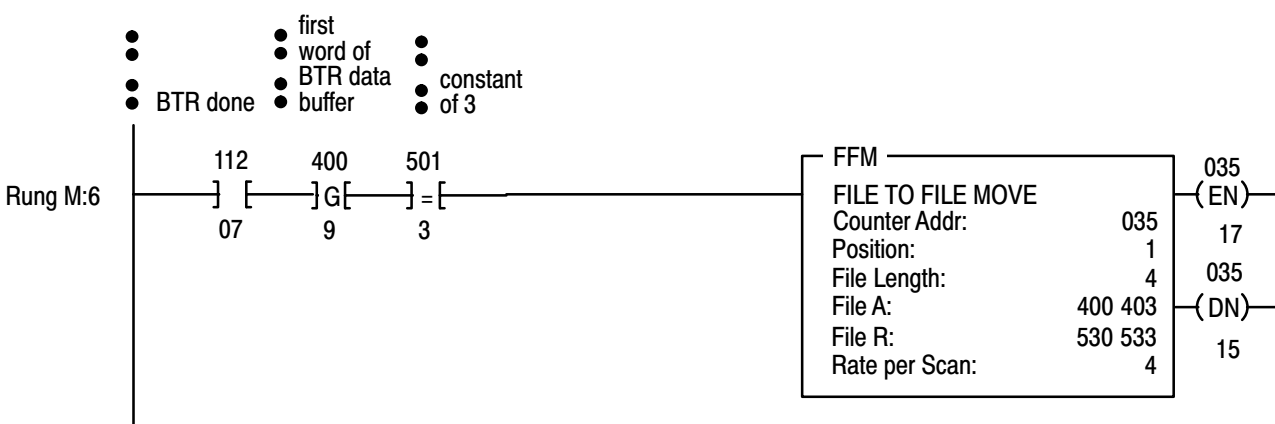




When BTR is complete, if the BTR data is loop status, copy 9 words of the BTR data to file 510 520.

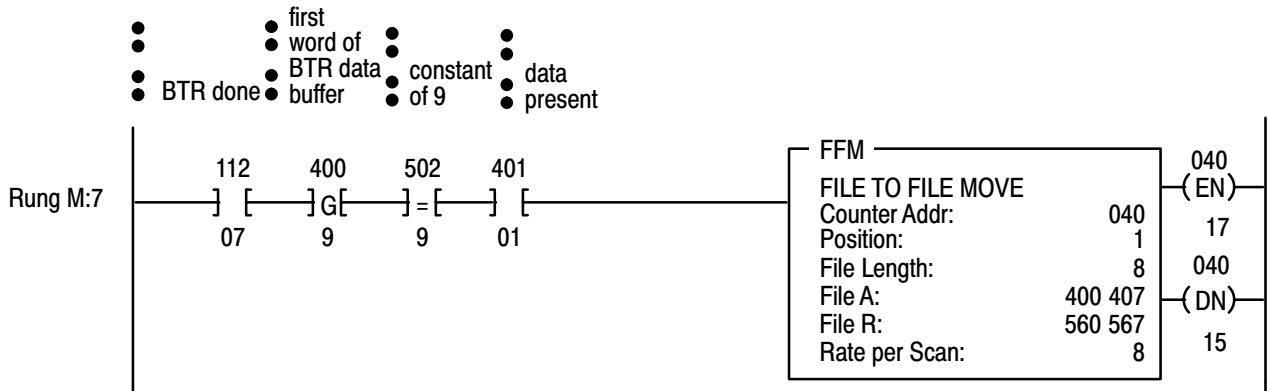


When BTR is complete, see if the BTR data is modify parameter acknowledge. If so, copy 4 words to file 530 533.

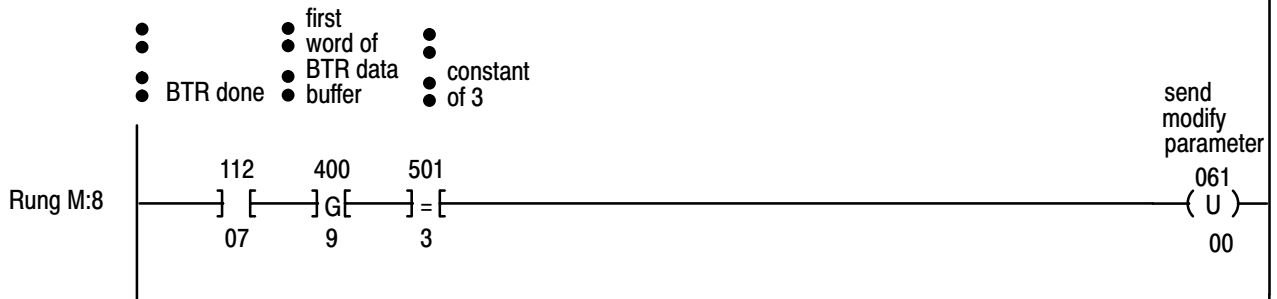


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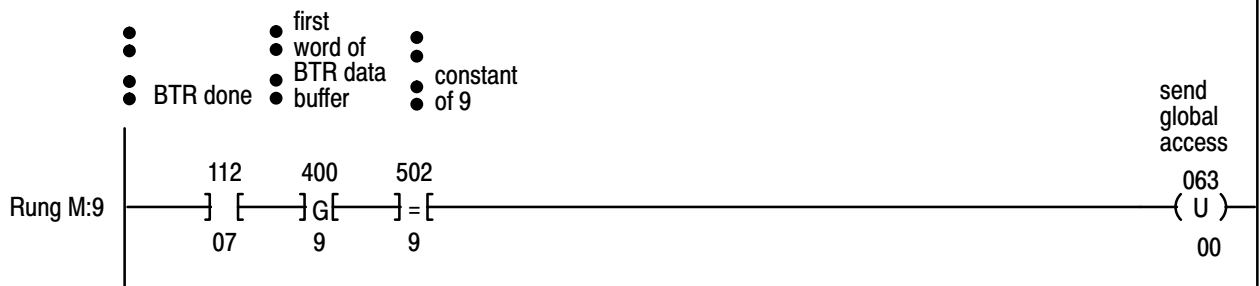
When BTR is complete, see if the BTR data is global access acknowledge. If so, copy 8 words to file 560 567.



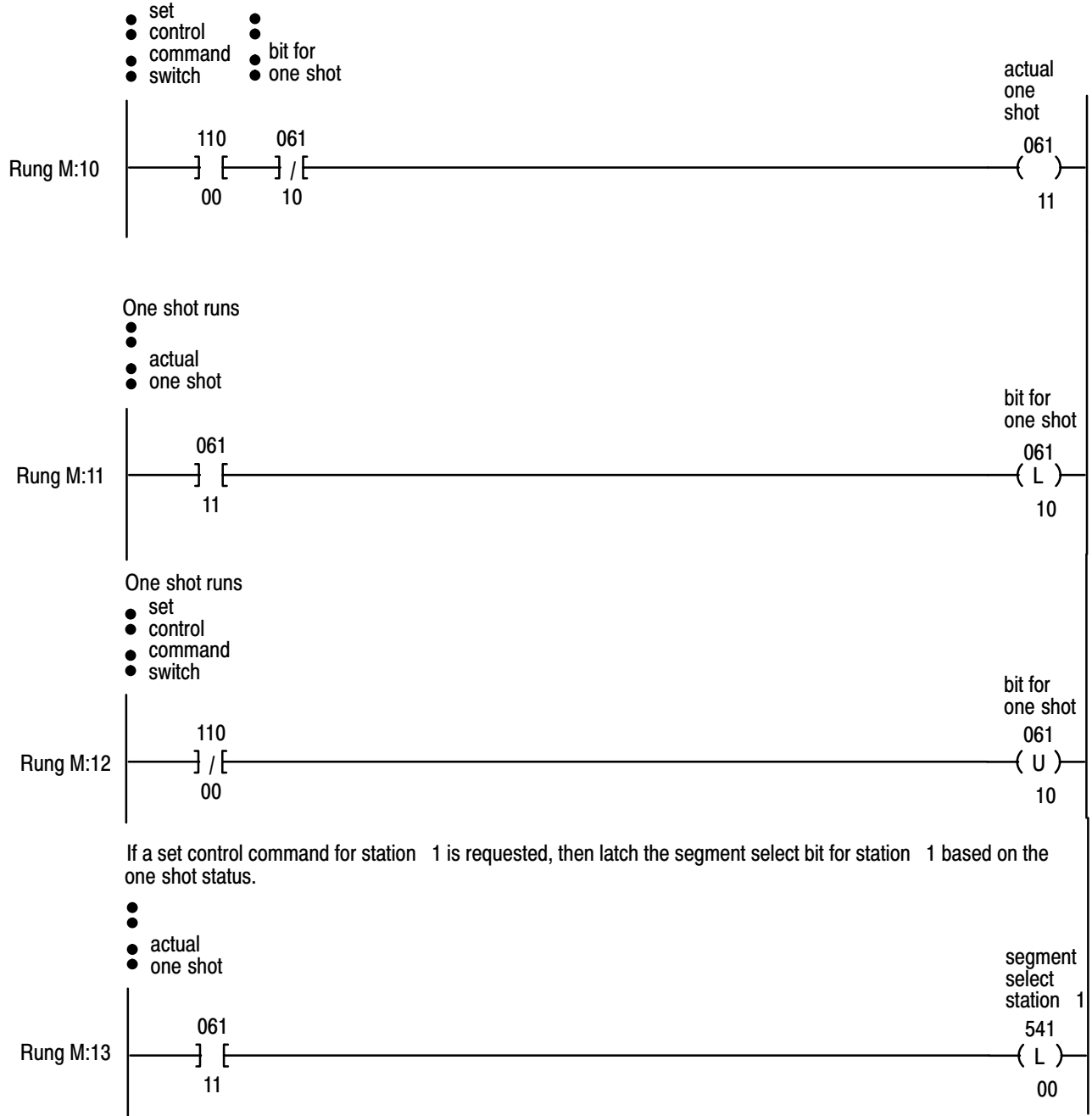
When BTR is complete, see if the BTR data is modify parameter acknowledge. If so, unlatch the send modify parameter bit to allow set control commands (and loop status) to automatically resume.



When BTR is complete, see if the BTR is global access acknowledge. If so, unlatch the send global access bit to allow set control commands (and loop status) to automatically resume.



If a set control command for station 1 is requested, initiate the logic for a leading edge one shot to be performed.



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If a set control acknowledge is received for station 1, then unlatch the segment select bit.



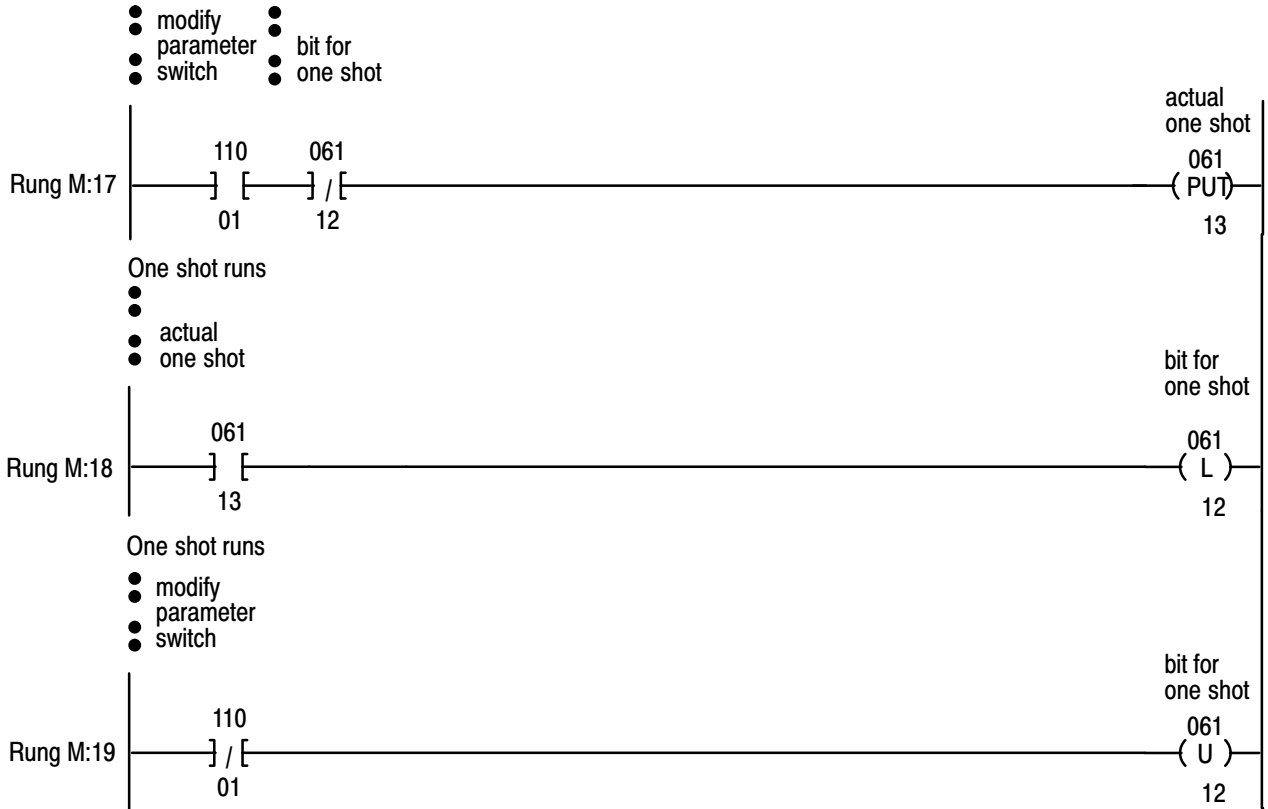
If a set control acknowledge is received for station 1, zero the alarm bits for station 1 in the set control command. This ensures that set control commands will not carry out functions performed by previous set control commands.



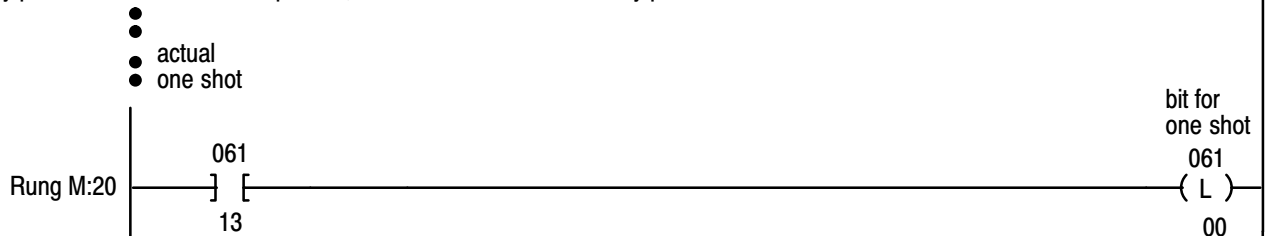
If a set control acknowledge is received for station 1, zero the loop control bits for station 1 in the set control command. This ensures that set control commands will not carry out functions performed by previous set control commands.



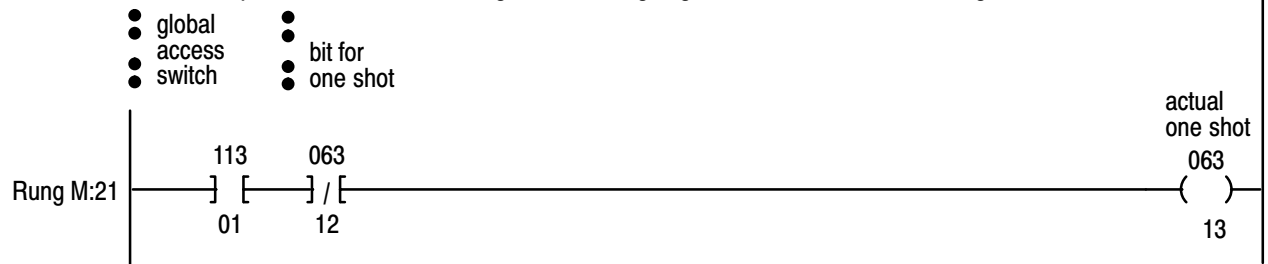
If a modify parameter command is requested, then initiate the logic for a leading edge one shot to latch the send modify parameter bit.



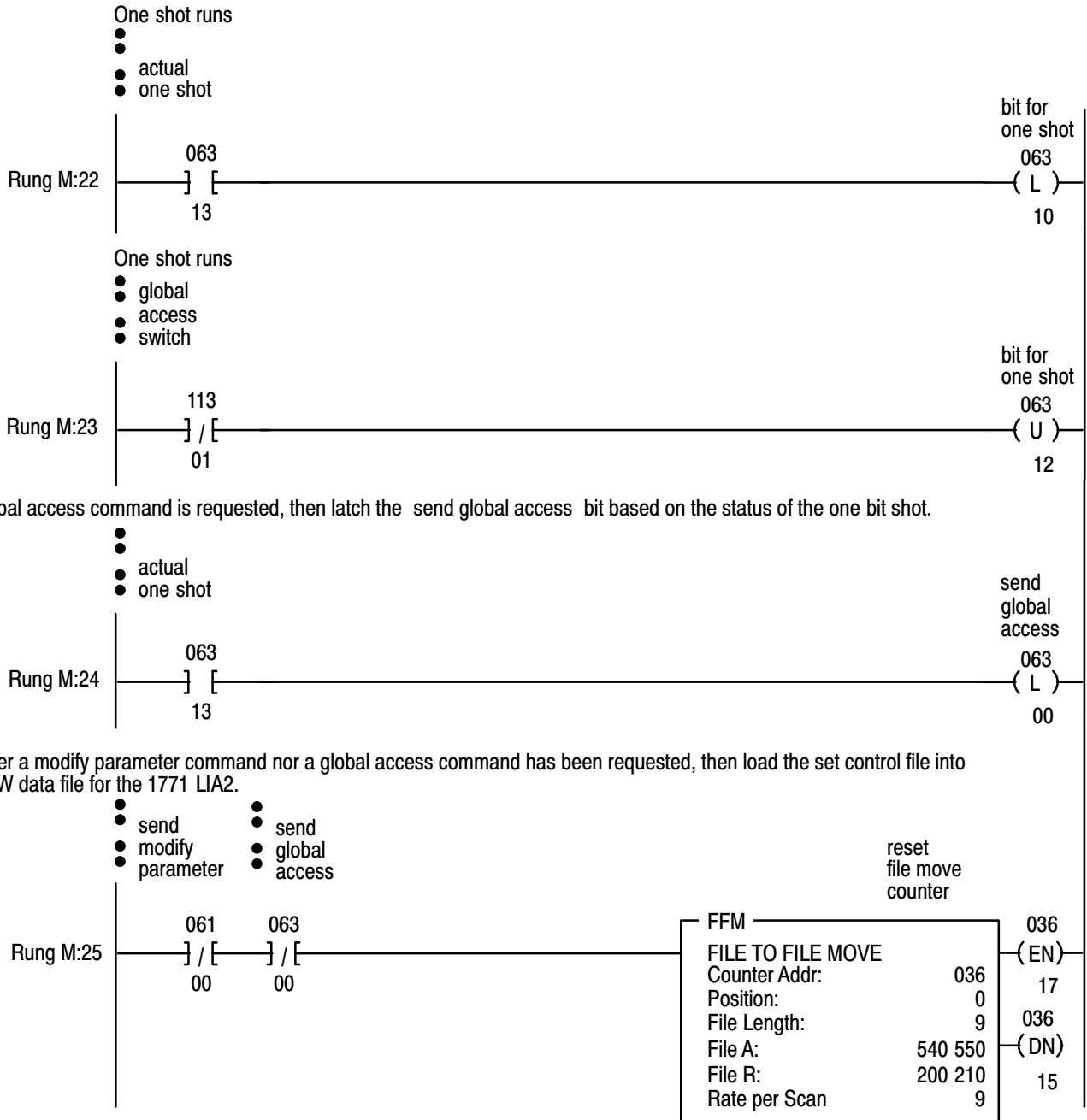
If a modify parameter command is requested, then latch the second modify parameter bit based on the status of the one shot bit.



If a global access command is requested, then initiate the logic for a leading edge one shot to latch the send global access bit.

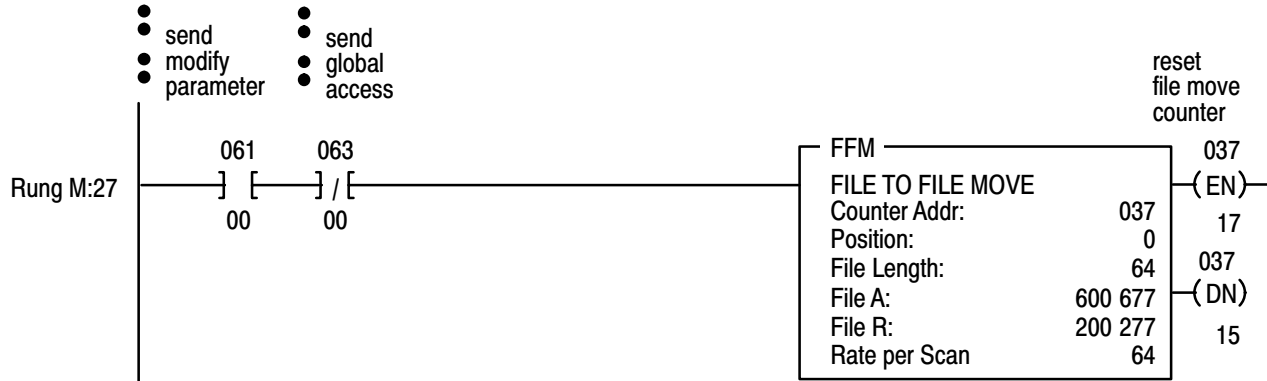


Product Data
Loop Controller Interface Module
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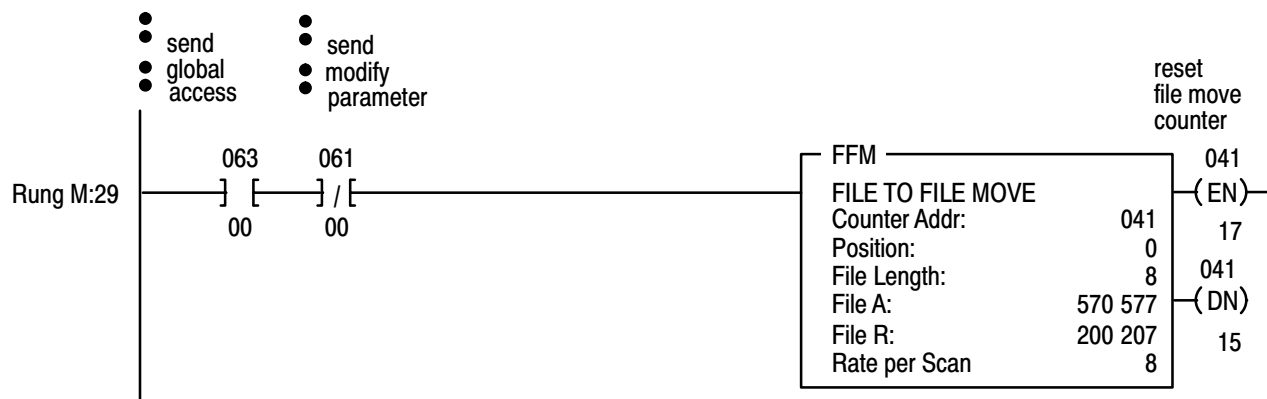




If a modify parameter command has been requested, then load the modify parameter file into the BTW data file for the 1771 LIA2.



If a global access command has been requested, then load the global access file into the BTW file for the 1771 LIA2.



Address	17	0	Hex	Address	17	0	Hex
010	0100	0000	0000	0000	0000	0000	4000
011	0000	0000	0100	0000	0000	0000	0040
012	0000	0000	0000	0000	0000	0000	0000
013	0000	0000	0000	0000	0000	0000	0000
014	0000	0000	0000	0000	0000	0000	0000
015	0000	0000	0000	0000	0000	0000	0000
016	0000	0000	0000	0000	0000	0000	0000
017	0000	0000	0000	0000	0000	0000	0000
020	0000	0000	0000	0000	0000	0000	0000
021	0000	0000	0000	0000	0000	0000	0000
022	0000	0000	0000	0000	0000	0000	0000
023	0000	0000	0000	0000	0000	0000	0000
024	0000	0000	0000	0000	0000	0000	0000
025	0000	0000	0000	0000	0000	0000	0000
026	0000	0000	0000	0000	0000	0000	0000
027	0000	0000	0000	0000	0000	0000	0000
030	0100	0001	0010	0000	0000	0000	4120
031	1000	0001	0010	0000	0000	0000	8120
032	0000	0000	0000	0000	0000	0000	0000
033	1010	0000	0110	0100	0000	0000	A064
034	0000	0000	0000	0001	0000	0000	0001
035	0000	0000	0000	0001	0000	0000	0001
036	0000	0000	0000	0000	0000	0000	0000
037	0000	0000	0000	0000	0000	0000	0000
040	0000	0000	0000	0001	0000	0000	0001
041	0000	0000	0000	0000	0000	0000	0000
042	0000	0000	0000	0000	0000	0000	0000
043	0000	0000	0000	0000	0000	0000	0000
				044	0000	0000	0000
				045	0000	0000	0000
				046	0000	0000	0000
				047	0000	0000	0000
				050	0000	0000	0000
				051	0000	0000	0000
				052	0000	0000	0000
				053	0000	0000	0000
				054	0000	0000	0000
				055	0000	0000	0000
				056	0000	0000	0000
				057	0000	0000	0000
				060	0000	0000	0001
				061	0000	0000	0000
				062	0000	0000	0000
				063	0000	1001	0000
				064	0000	0000	0000
				065	0000	0000	0000
				066	0000	0000	0000
				067	0000	0000	0000
				070	0000	0000	0000
				071	0000	0000	0000
				072	0000	0000	0000
				073	0000	0000	0000
				074	0000	0000	0000
				075	0000	0000	0000
				076	0000	0000	0000
				077	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex		
110	0000	0000	0000	0000	4000					
111	0000	0000	0000	0000	0040					
112	0000	0000	1000	1000	0000					
113	0000	0000	0000	0010	0000					
114	0000	0000	0000	0000	0000					
115	0000	0000	0000	0000	0000					
116	0000	0000	0000	0000	0000					
117	0000	0000	0000	0000	0000					
120	0000	0000	0000	0000	0000					
121	0000	0000	0000	0000	0000					
122	0000	0000	0000	0000	0000					
123	0000	0000	0000	0000	0000					
124	0000	0000	0000	0000	0000					
125	0000	0000	0000	0000	0000					
126	0000	0000	0000	0000	0000					
127	0000	0000	0000	0000	0000					
130	0000	0010	0000	0000	4120					
131	0000	0011	0000	0000	8120					
132	0000	0000	0110	0100	0000					
133	0000	0000	0110	0100	A064					
134	0000	0000	0000	1001	0001					
135	0000	0000	0000	0100	0001					
136	0000	0000	0000	1001	0000					
137	0000	0000	0110	0100	0000					
140	0000	0000	0000	1000	0001					
					141	0000	0000	0000	1000	0008
					142	0000	0000	0000	0000	0000
					143	0000	0000	0000	0000	0000
					144	0000	0000	0000	0000	0000
					145	0000	0000	0000	0000	0000
					146	0000	0000	0000	0000	0000
					147	0000	0000	0000	0000	0000
					150	0000	0000	0000	0000	0000
					151	0000	0000	0000	0000	0000
					152	0000	0000	0000	0000	0000
					153	0000	0000	0000	0000	0000
					154	0000	0000	0000	0000	0000
					155	0000	0000	0000	0000	0000
					156	0000	0000	0000	0000	0000
					157	0000	0000	0000	0000	0000
					160	0000	0000	0000	0000	0000
					161	0000	0000	0000	0000	0000
					162	0000	0000	0000	0000	0000
					163	0000	0000	0000	0000	0000
					164	0000	0000	0000	0000	0000
					165	0000	0000	0000	0000	0000
					166	0000	0000	0000	0000	0000
					167	0000	0000	0000	0000	0000
					170	0000	0000	0000	0000	0000
					171	0000	0000	0000	0000	0000

Address	17	0	Hex	Address	17	0	Hex
172	0000	0000	0000	0000	230	0000	0000
173	0000	0000	0000	0000	231	0000	0000
174	0000	0000	0000	0000	232	0000	0000
175	0000	0000	0000	0000	233	0000	0000
176	0000	0000	0000	0000	234	0000	0000
177	0000	0000	0000	0000	235	0000	0000
200	0000	0000	1001	0009	236	0000	0000
201	0000	0000	0111	0007	237	0000	0000
202	1111	1111	1111	FFFF	240	0000	0000
203	0000	0000	0001	0001	241	0000	0000
204	0000	0000	0111	0007	242	0000	0000
205	0101	0101	0101	5555	243	0000	0000
206	0000	0000	0000	0000	244	0000	0000
207	0000	0000	0000	0000	245	0000	0000
210	0000	0000	0000	0000	246	0000	0000
211	0000	0000	0000	0000	247	0000	0000
212	0000	0000	0000	0000	250	0000	0000
213	0000	0000	0000	0000	251	0000	0000
214	0000	0000	0000	0000	252	0000	0000
215	0000	0000	0000	0000	253	0000	0000
216	0000	0000	0000	0000	254	0000	0000
217	0000	0000	0000	0000	255	0000	0000
220	0000	0000	0000	0000	256	0000	0000
221	0000	0000	0000	0000	257	0000	0000
222	0000	0000	0000	0000	260	0000	0000
223	0000	0000	0000	0000	261	0000	0000
224	0000	0000	0000	0000	262	0000	0000
225	0000	0000	0000	0000	263	0000	0000
226	0000	0000	0000	0000	264	0000	0000
227	0000	0000	0000	0000	265	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex	Address	17	0	Hex
266	0000	0000	0000	0000	324	0000	0000
267	0000	0000	0000	0000	325	0000	0000
270	0000	0000	0000	0000	326	0000	0000
271	0000	0000	0000	0000	327	0000	0000
272	0000	0000	0000	0000	330	0000	0000
273	0000	0000	0000	0000	331	0000	0000
274	0000	0000	0000	0000	332	0000	0000
275	0000	0000	0000	0000	333	0000	0000
276	0000	0000	0000	0000	334	0000	0000
277	0000	0000	0000	0000	335	0000	0000
300	0000	0000	1001	0009	336	0000	0000
301	0000	0000	0000	0000	337	0000	0000
302	0000	0000	0000	0000	340	0000	0000
303	0000	0000	0000	0000	341	0000	0000
304	0000	0000	1100 0011	00C3	342	0000	0000
305	0000	0000	0000	0000	343	0000	0000
306	0000	0000	0000	0000	344	0000	0000
307	0000	0000	0000	0000	345	0000	0000
310	1000	0000	0011 0011	8033	346	0000	0000
311	0000	0000	0000	0000	347	0000	0000
312	0000	0000	0000	0000	350	0000	0000
313	0000	0000	0000	0000	351	0000	0000
314	0000	0000	0000	0000	352	0000	0000
315	0000	0000	0000	0000	353	0000	0000
316	0000	0000	0000	0000	354	0000	0000
317	0000	0000	0000	0000	355	0000	0000
320	0000	0000	0000	0000	356	0000	0000
321	0000	0000	0000	0000	357	0000	0000
322	0000	0000	0000	0000	360	0000	0000
323	0000	0000	0000	0000	361	0000	0000

Address	17	0	Hex	Address	17	0	Hex
362	0000	0000	0000	420	0000	0000	0000
363	0000	0000	0000	421	0000	0000	0000
364	0000	0000	0000	422	0000	0000	0000
365	0000	0000	0000	423	0000	0000	0000
366	0000	0000	0000	424	0000	0000	0000
367	0000	0000	0000	425	0000	0000	0000
370	0000	0000	0000	426	0000	0000	0000
371	0000	0000	0000	427	0000	0000	0000
372	0000	0000	0000	430	0000	0000	0000
373	0000	0000	0000	431	0000	0000	0000
374	0000	0000	0000	432	0000	0000	0000
375	0000	0000	0000	433	0000	0000	0000
376	0000	0000	0000	434	0000	0000	0000
377	0000	0000	0000	435	0000	0000	0000
400	0000	0000	1001	436	0000	0000	0000
401	0000	0000	0000	437	0000	0000	0000
402	0000	0000	0000	440	0000	0000	0000
403	0000	0000	0000	441	0000	0000	0000
404	0000	0000	1100 0011	442	0000	0000	0000
405	0000	0000	0000	443	0000	0000	0000
406	0000	0000	0000	444	0000	0000	0000
407	0000	0000	0000	445	0000	0000	0000
410	1000	0000	0011 0011	446	0000	0000	0000
411	0000	0000	0000	447	0000	0000	0000
412	0000	0000	0000	450	0000	0000	0000
413	0000	0000	0000	451	0000	0000	0000
414	0000	0000	0000	452	0000	0000	0000
415	0000	0000	0000	453	0000	0000	0000
416	0000	0000	0000	454	0000	0000	0000
417	0000	0000	0000	455	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex		
456	0000	0000	0000	0000	514	0000	0001	0000	0101	
457	0000	0000	0000	0000	515	0000	0000	0000	0000	
460	0000	0000	0000	0000	516	0000	0000	0000	0000	
461	0000	0000	0000	0000	517	1000	0000	0011	0011	8033
462	0000	0000	0000	0000	520	1000	0000	0011	0011	8033
463	0000	0000	0000	0000	521	0000	0000	0000	0000	0000
464	0000	0000	0000	0000	522	0000	0000	0000	0000	0000
465	0000	0000	0000	0000	523	0000	0000	0000	0000	0000
466	0000	0000	0000	0000	524	0000	0000	0000	0000	0000
467	0000	0000	0000	0000	525	0000	0000	0000	0000	0000
470	0000	0000	0000	0000	526	0000	0000	0000	0000	0000
471	0000	0000	0000	0000	527	0000	0000	0000	0000	0000
472	0000	0000	0000	0000	530	0000	0000	0000	0011	0003
473	0000	0000	0000	0000	531	0000	0000	0000	0001	0001
474	0000	0000	0000	0000	532	0000	0000	0000	0000	0000
475	0000	0000	0000	0000	533	1000	1101	0000	0000	8D00
476	0000	0000	0000	0000	534	0000	0000	0000	0000	0000
477	0000	0000	0000	0000	535	0000	0000	0000	0000	0000
500	0000	0000	0000	0000	536	0000	0000	0000	0000	0000
501	0000	0000	0000	0011	0003	537	0000	0000	0000	0000
502	0000	0000	0000	1001	0009	540	0000	0000	0000	0001
503	0000	0000	0000	0000	0000	541	0000	0000	0000	0000
504	0000	0000	0000	0000	0000	542	0000	0000	0000	0001
505	0000	0000	0000	0000	0000	543	0000	0000	0000	0000
506	0000	0000	0000	0000	0000	544	0000	0001	0000	0001
507	0000	0000	0000	0000	0000	545	0000	0000	0000	0000
510	0000	0000	0000	0001	0001	546	0000	0000	0000	0000
511	0000	0000	0000	0000	0000	547	0000	0000	0000	0000
512	0001	0000	0000	0001	1001	550	0000	0000	0000	0000
513	0000	0000	0000	0000	0000	551	0000	0000	0000	0000

Address	17	0	Hex	Address	17	0	Hex		
552	0000	0000	0000	610	0000	0000	1000	0001	0081
553	0000	0000	0000	611	0000	0000	0000	0000	0000
554	0000	0000	0000	612	0000	0000	0000	0000	0000
555	0000	0000	0000	613	0000	0000	0000	0000	0000
556	0000	0000	0000	614	0000	0000	0000	0000	0000
557	0000	0000	0000	615	0000	0000	0000	0000	0000
560	0000	0000	0000	616	0000	0000	0000	0000	0000
561	0000	0000	0000	617	0000	0000	0000	0000	0000
562	0000	0000	0000	620	0000	0000	0000	0000	0000
563	0000	0000	0000	621	0000	0000	0000	0000	0000
564	0000	0000	1100	622	0000	0000	0000	0000	0000
565	0000	0000	0000	623	0000	0000	0000	0000	0000
566	0000	0010	0101	624	0000	0000	0000	0000	0000
567	0011	0011	0011	625	0000	0000	0000	0000	0000
570	0000	0000	0000	626	0000	0000	0000	0000	0000
571	0000	0000	0000	627	0000	0000	0000	0000	0000
572	1111	1111	1111	630	0000	0000	0000	0000	0000
573	0000	0000	0000	631	0000	0000	0000	0000	0000
574	0000	0000	0000	632	0000	0000	0000	0000	0000
575	0101	0101	0101	633	0000	0000	0000	0000	0000
576	0000	0000	0000	634	0000	0000	0000	0000	0000
577	0000	0000	0000	635	0000	0000	0000	0000	0000
600	0000	0000	0000	636	0000	0000	0000	0000	0000
601	0000	0000	0000	637	0000	0000	0000	0000	0000
602	0000	0000	0000	640	0000	0000	0000	0000	0000
603	0000	0110	0000	641	0000	0000	0000	0000	0000
604	0001	0101	0000	642	0000	0000	0000	0000	0000
605	0000	1111	1000	643	0000	0000	0000	0000	0000
606	0001	0110	0000	644	0000	0000	0000	0000	0000
607	0001	0101	0000	645	0000	0000	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	17	0	Hex		Address	17	0	Hex
646	0000	0000	0000	0000	704	0000	0000	0000
647	0000	0000	0000	0000	705	0000	0000	0000
650	0000	0000	0000	0000	706	0000	0000	0000
651	0000	0000	0000	0000	707	0000	0000	0000
652	0000	0000	0000	0000	710	0000	0000	0000
653	0000	0000	0000	0000	711	0000	0000	0000
654	0000	0000	0000	0000	712	0000	0000	0000
655	0000	0000	0000	0000	713	0000	0000	0000
656	0000	0000	0000	0000	714	0000	0000	0000
657	0000	0000	0000	0000	715	0000	0000	0000
660	0000	0000	0000	0000	716	0000	0000	0000
661	0000	0000	0000	0000	717	0000	0000	0000
662	0000	0000	0000	0000	720	0000	0000	0000
663	0000	0000	0000	0000	721	0000	0000	0000
664	0000	0000	0000	0000	722	0000	0000	0000
665	0000	0000	0000	0000	723	0000	0000	0000
666	0000	0000	0000	0000	724	0000	0000	0000
667	0000	0000	0000	0000	725	0000	0000	0000
670	0000	0000	0000	0000	726	0000	0000	0000
671	0000	0000	0000	0000	727	0000	0000	0000
672	0000	0000	0000	0000	730	0000	0000	0000
673	0000	0000	0000	0000	731	0000	0000	0000
674	0000	0000	0000	0000	732	0000	0000	0000
675	0000	0000	0000	0000	733	0000	0000	0000
676	0000	0000	0000	0000	734	0000	0000	0000
677	0000	0000	0000	0000	735	0000	0000	0000
700	0000	0000	0000	0000	736	0000	0000	0000
701	0000	0000	0000	0000	737	0000	0000	0000
702	0000	0000	0000	0000	740	0000	0000	0000
703	0000	0000	0000	0000	741	0000	0000	0000

Address	17	0	Hex	
742	0000	0000	0000	
743	0000	0000	0000	
744	0000	0000	0000	
745	0000	0000	0000	
746	0000	0000	0000	
747	0000	0000	0000	
750	0000	0000	0000	
751	0000	0000	0000	
752	0000	0000	0000	
753	0000	0000	0000	
754	0000	0000	0000	
755	0000	0000	0000	
756	0000	0000	0000	
757	0000	0000	0011	0003
760	0000	0000	0000	0000
761	0000	0000	0000	0000
762	0000	0000	0000	0000
763	0000	0000	0000	0000
764	0000	0000	0000	0000
765	0000	0000	0000	0000
766	0000	0000	0000	0000
767	0000	0000	0000	0000
770	0000	0000	0000	0000
771	0000	0000	0000	0000
772	0000	0000	0000	0000
773	0000	0000	0000	0000
774	0000	0000	0000	0000
775	0000	0000	0000	0000
776	0000	0000	0000	0000
777	0000	0000	0000	0000

Sample Program for PLC-3 Family Programmable Controllers

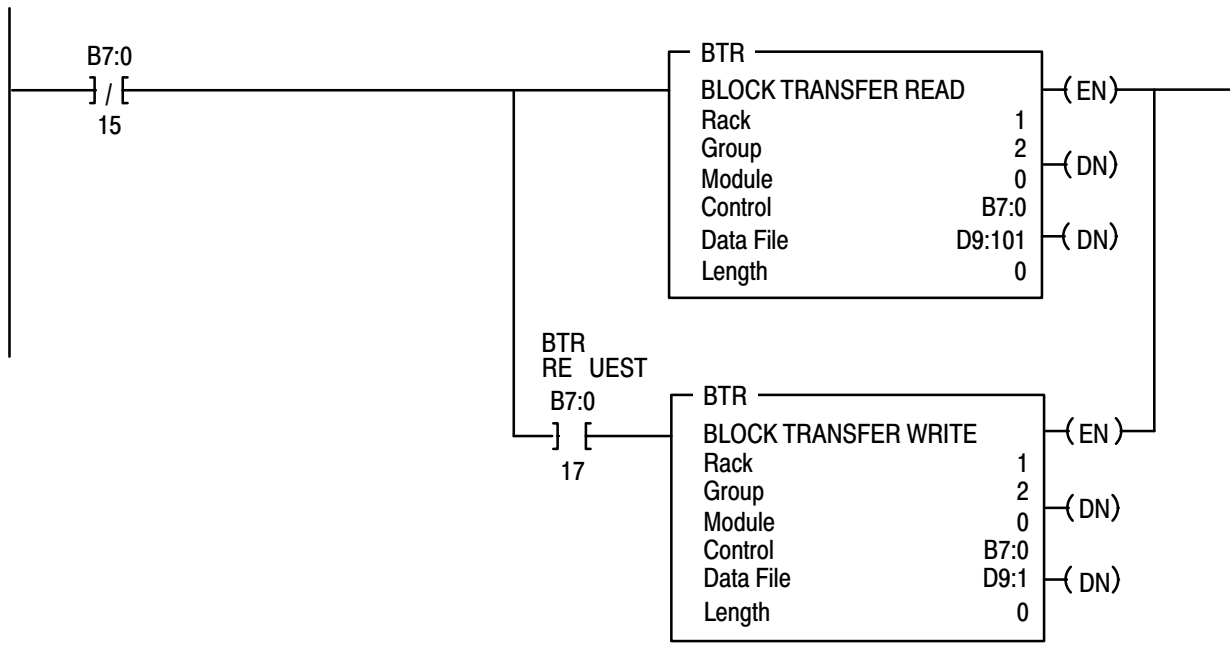
Rung M:0

This sample program is set up to allow the use of the set control command, the modify parameter command, and the global access command for the Moore 352 defined as station 1. In this example, the modify parameter command is used to download a target setpoint of 100% and a ramp time of 1 minute.

Continuously alternate block transfer reads and writes for the 1771 LIA2.

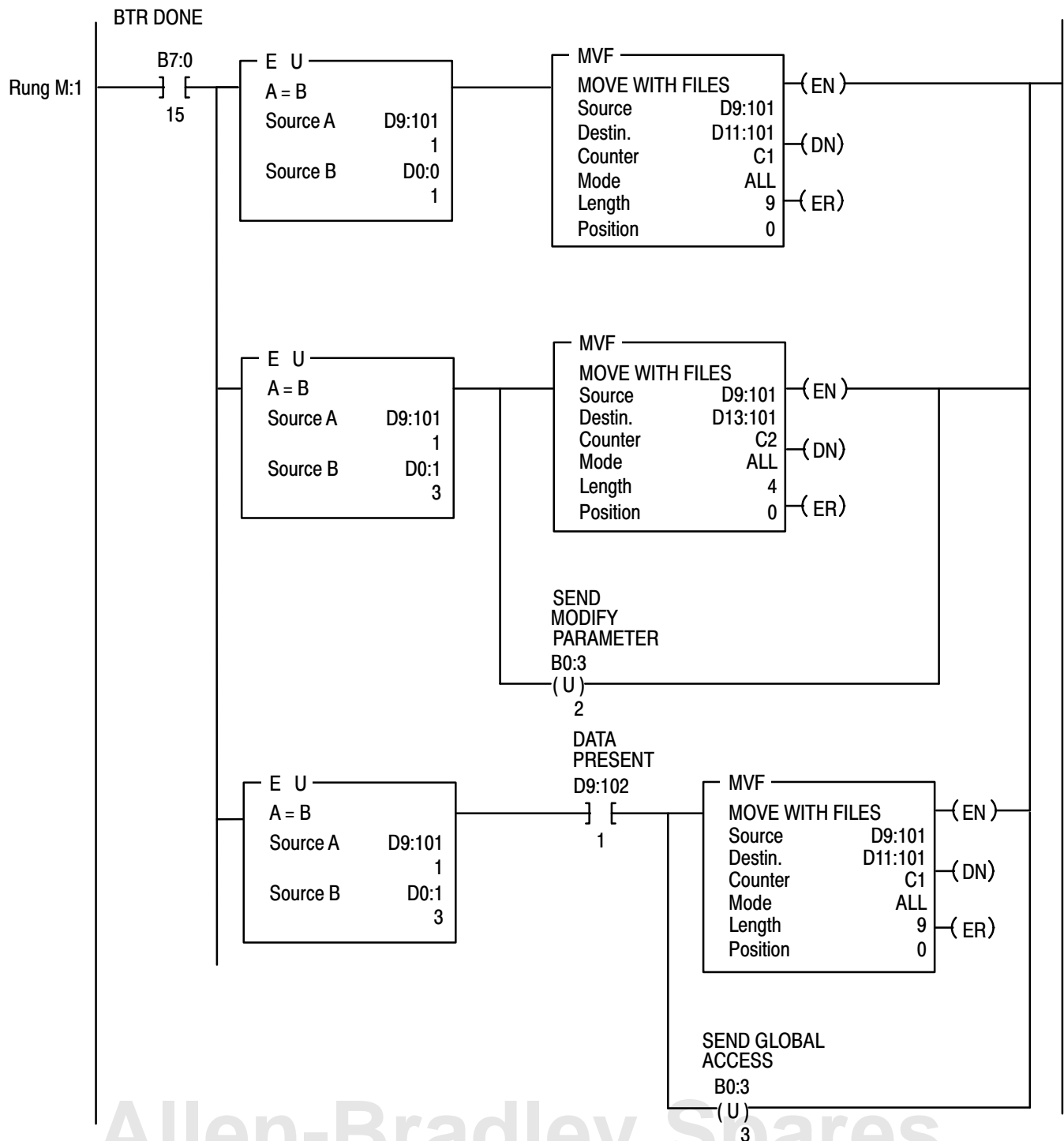
•

• BTR DONE



Whenever a block transfer read is complete, check whether the BTR data is loop status, modify parameter acknowledge, or global access command acknowledge and copy the BTR data to the appropriate data file. If the BTR data is a modify parameter acknowledge or a global access acknowledge, unlatch the appropriate bit to allow set control commands (and loop status) to automatically resume.

(D0:0, D0:1, and D0:2 must contain the constraints 1, 3, and 9 respectively).

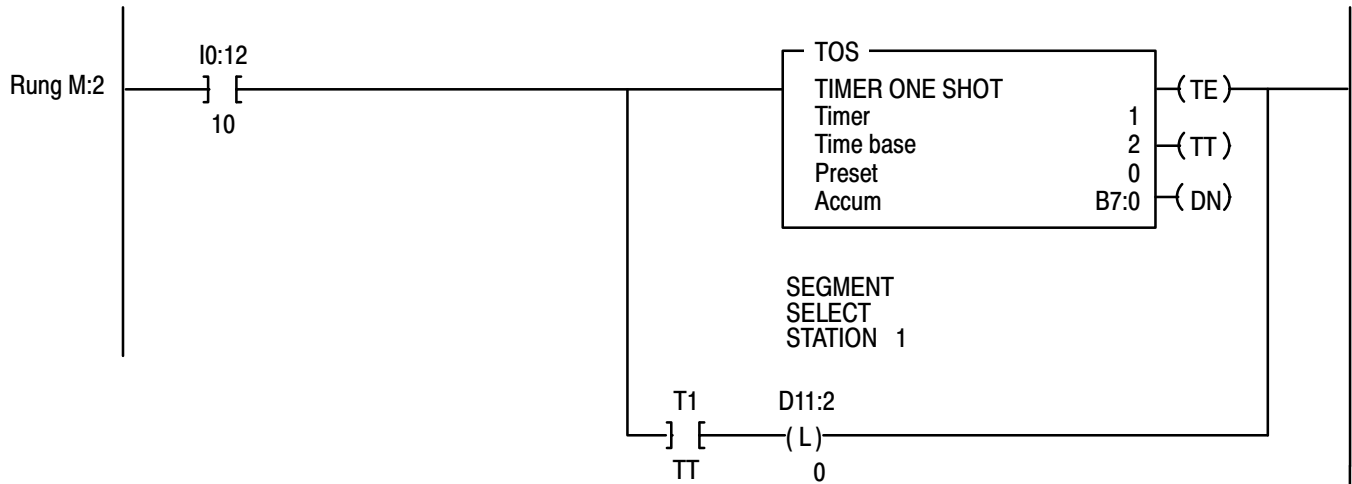


Product Data
Loop Controller Interface Module
 (Cat. No. 1771-LIA2)

If a set control command for station 1 is requested, then latch the segment select bit for station 1.

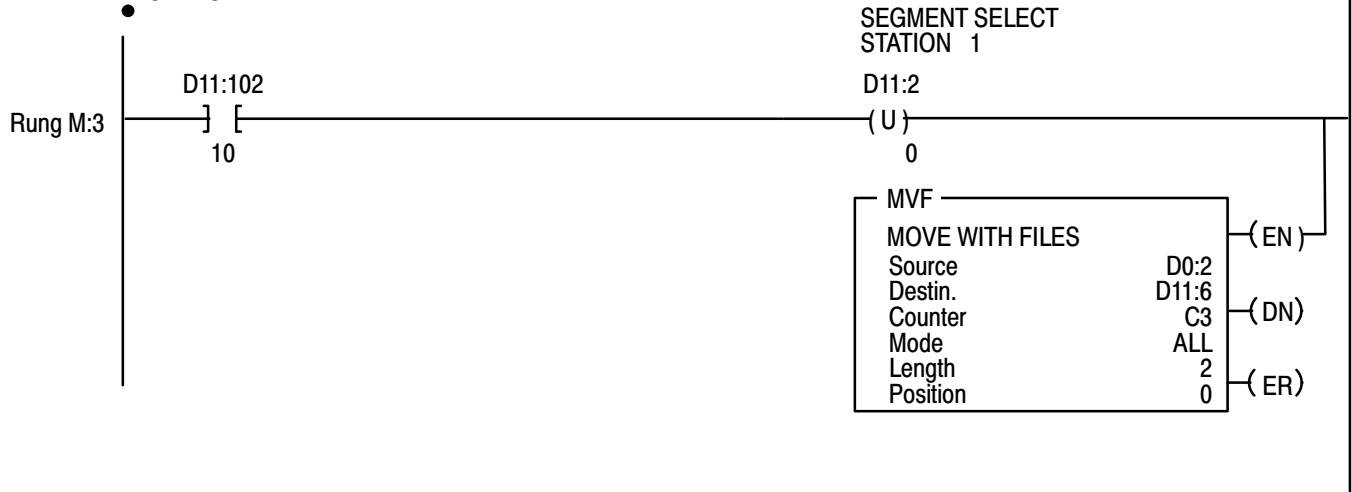
Continuously alternate block transfer reads and writes for the 1771 LIA2.

- SET CONT.
- COMMAND SWITCH



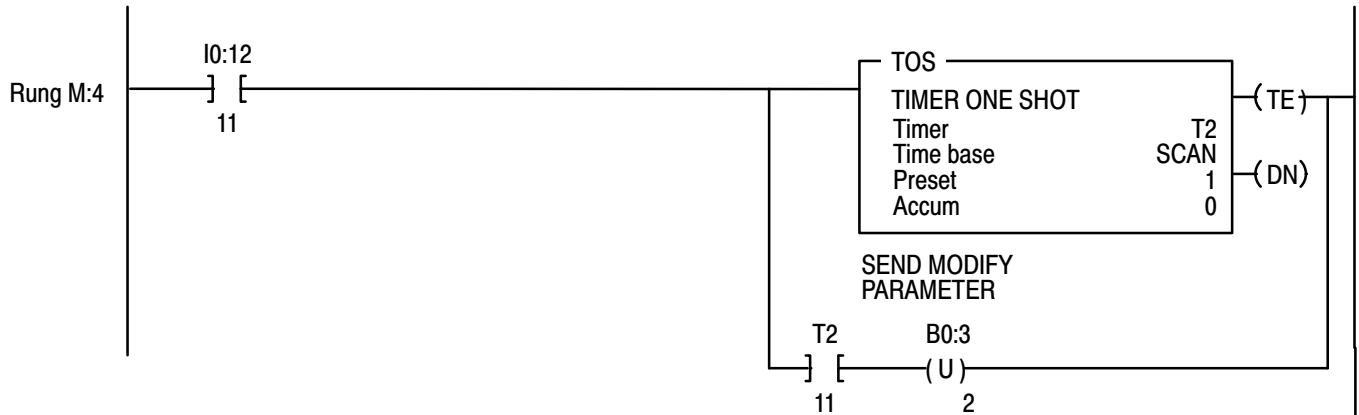
If a set control acknowledge is received for station 1, then unlatch the segment select bit and zero out the alarm and loop control bits for station 1 in the set control command. This ensures that set control commands will not inadvertently carry out functions already performed by previous set control commands (D0:2 is a constant and must be set to 2).

- SEGMENT ACK.
- STATION 1



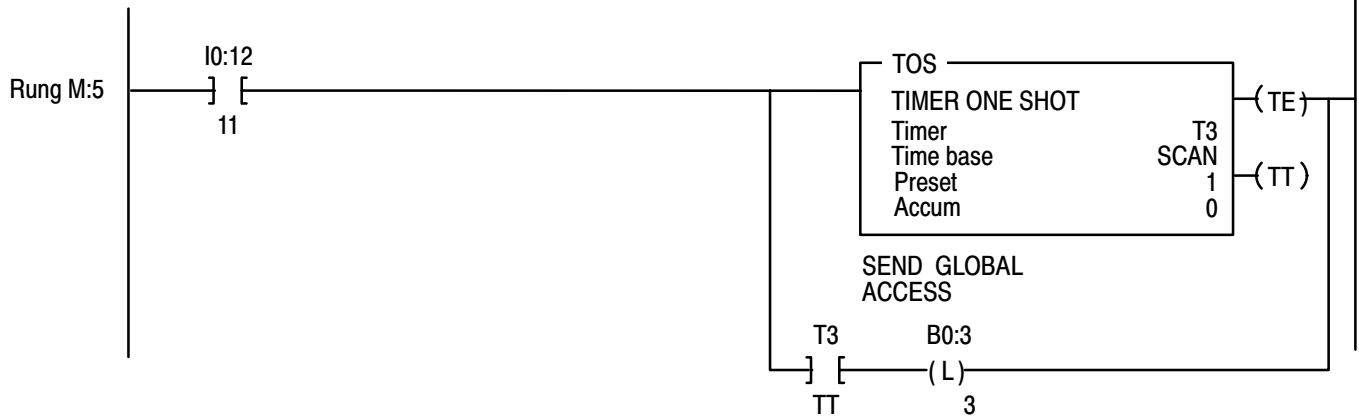
If a modify parameter command is requested, then latch the send modify parameter bit.

- MODIFY
- PARAMETER
- SWITCH



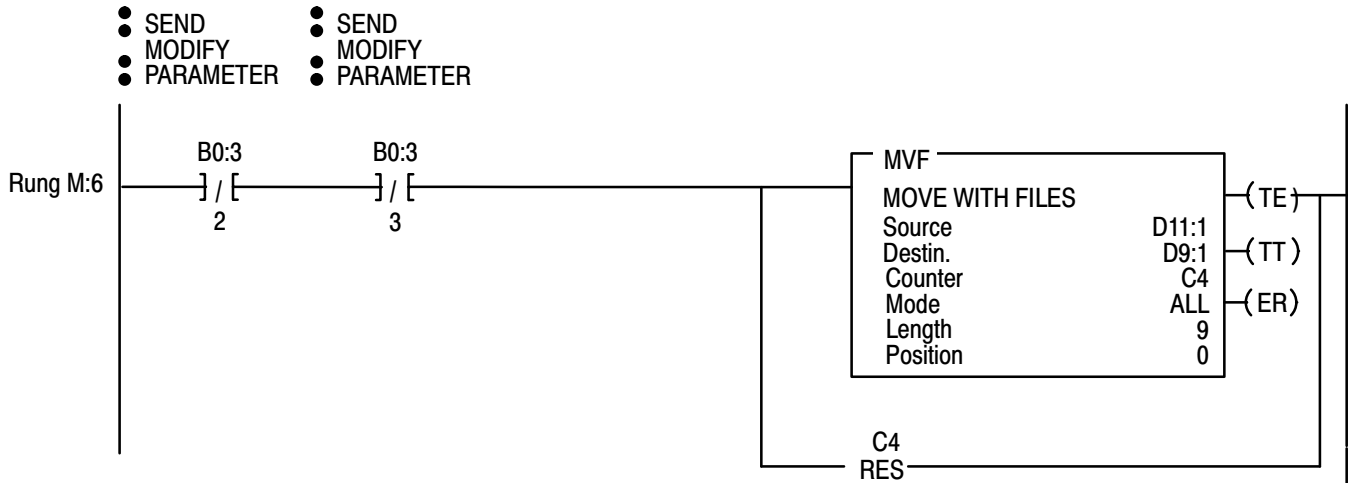
If a global access command is required, then latch the send global access command bit.

- GLOBAL
- ACCESS
- SWITCH

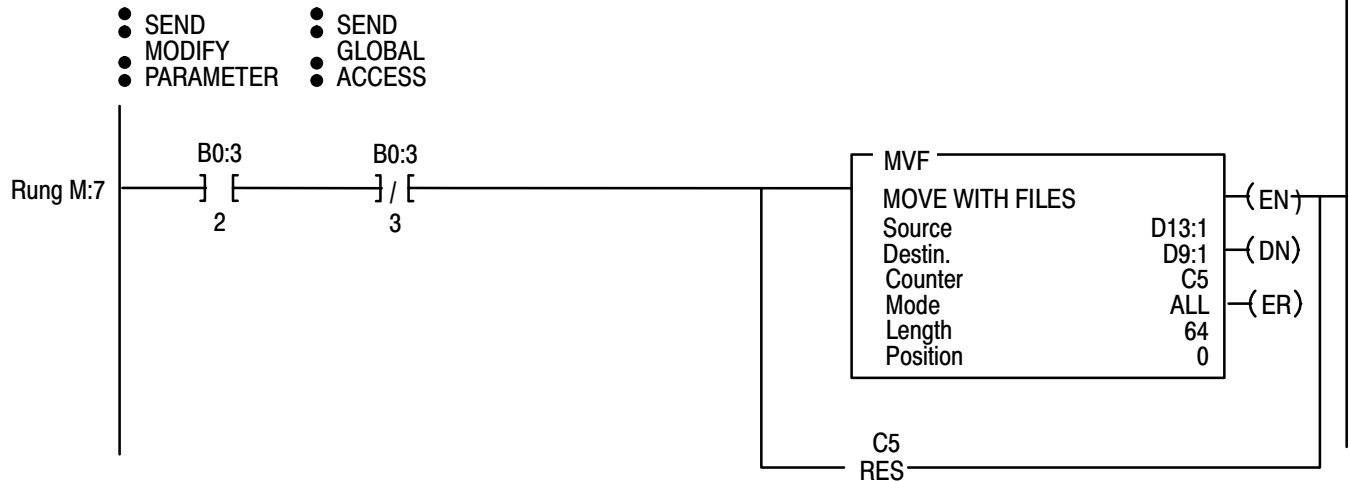


Product Data
Loop Controller Interface Module
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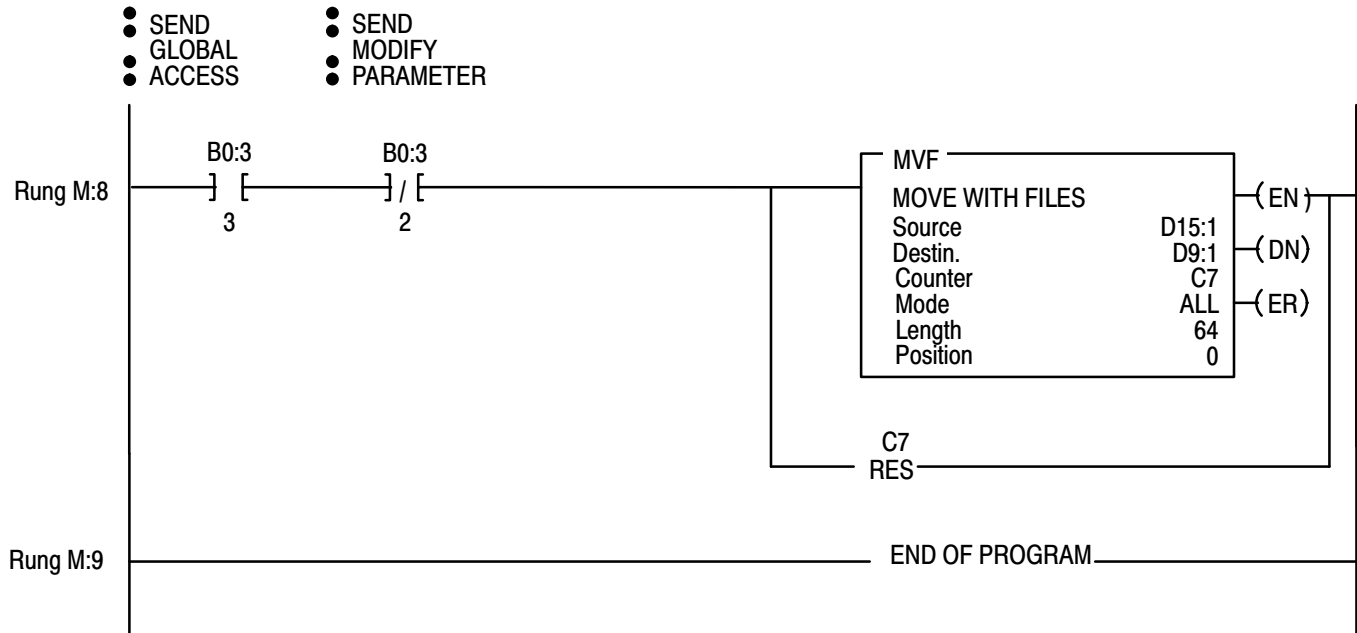
If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



Decimal Addresses Hex/BCD data

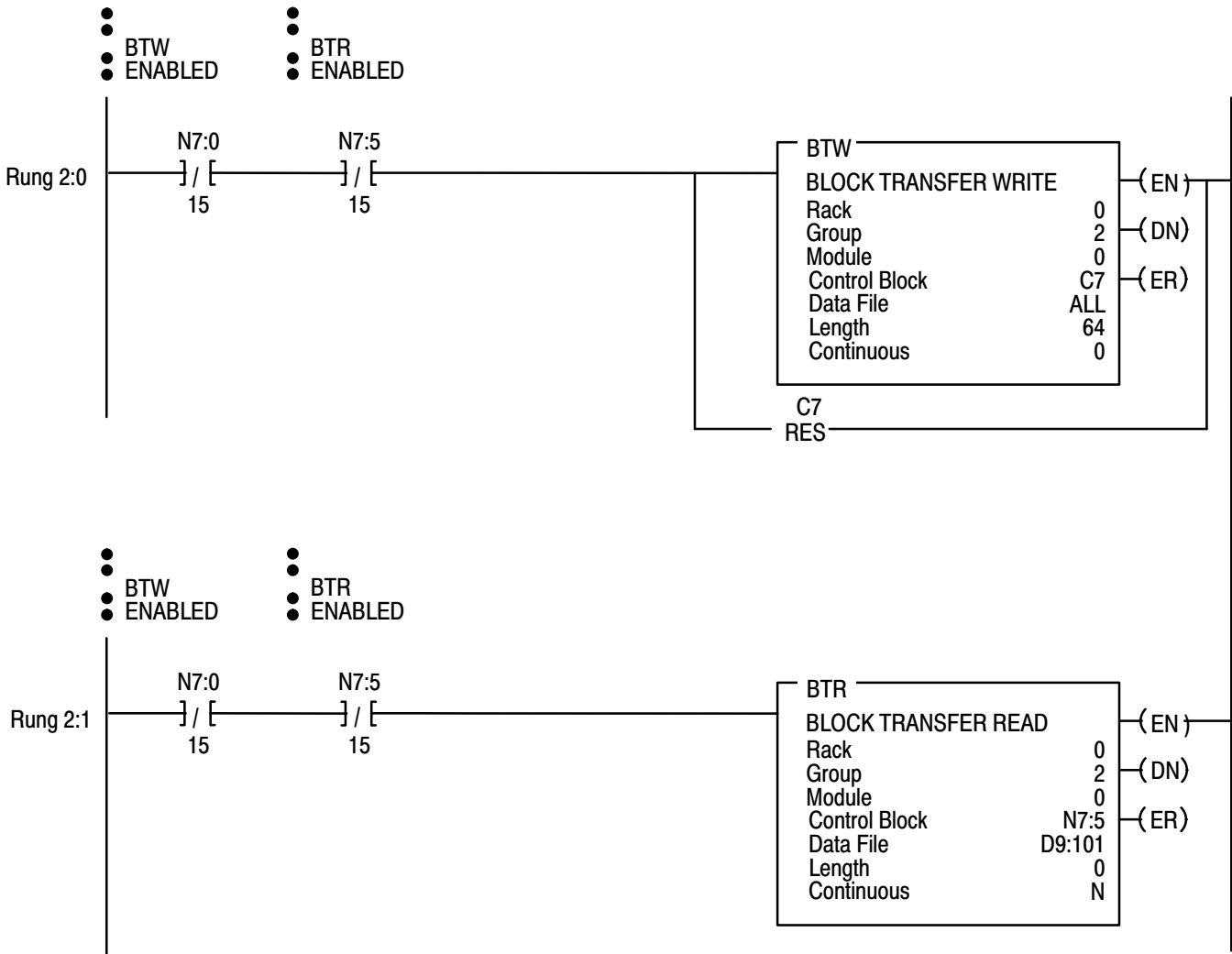
Address	0	1	2	3	4	5	6	7	8	9
D9:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D9:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:100	0000	0001	0000	1001	0000	0101	0C00	0585	0662	0589
D11:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D11:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D13:0	0000	0003	0001	0002	0601	1501	0F80	0602	1501	0081
D13:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Address	0	1	2	3	4	5	6	7	8	9
D13:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:100	0000	0003	0001	0000	A200					
D15:0	0000	0009	0007	FFFF	0001	0007	5555	0000	0000	0000
D15:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:100	0000	0009	0002	0000	0000	00C3	0001	0007	2222	

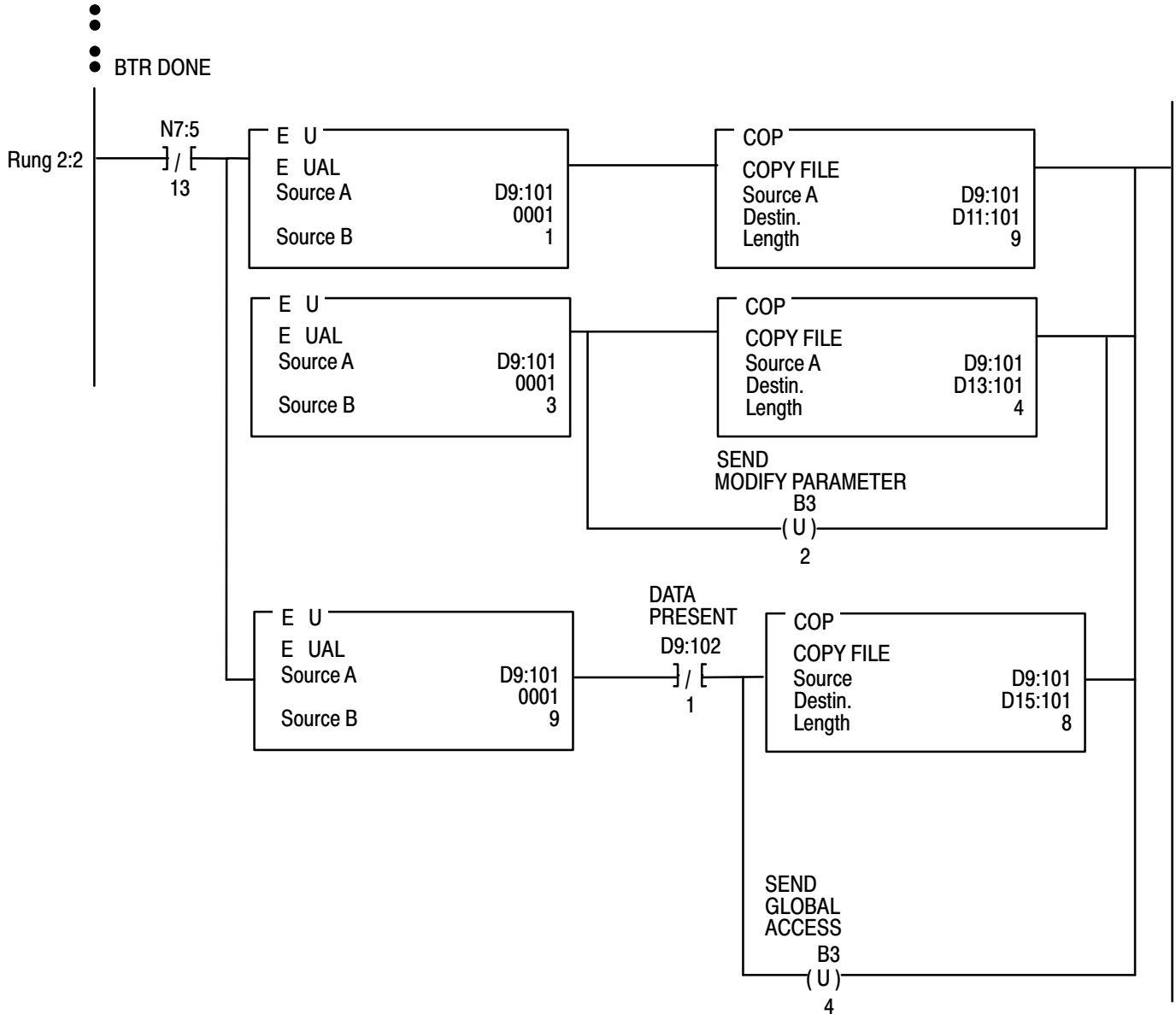
Sample Program for PLC-5 Family Programmable Controllers

This sample program is set up to allow the use of the set control command, the modify parameter command, and the global access command for one Moore 352 defined as station 1. In this example, the modify parameter command is used to download a target setpoint of 100% and a ramp time of 1 minute.

CONTINUOUSLY ALTERNATE BLOCK TRANSFER WRITES AND READS FOR THE 1771 LIA.



Whenever a block transfer read is complete, check whether the BTR data is loop status, modify parameter acknowledge, or global access command acknowledge and copy the BTR data to the appropriate data file. If the BTR data is a modify parameter or a global access acknowledge, unlatch the send modify parameter bit or the send global access command bit to allow set control commands (and loop status) to automatically resume.

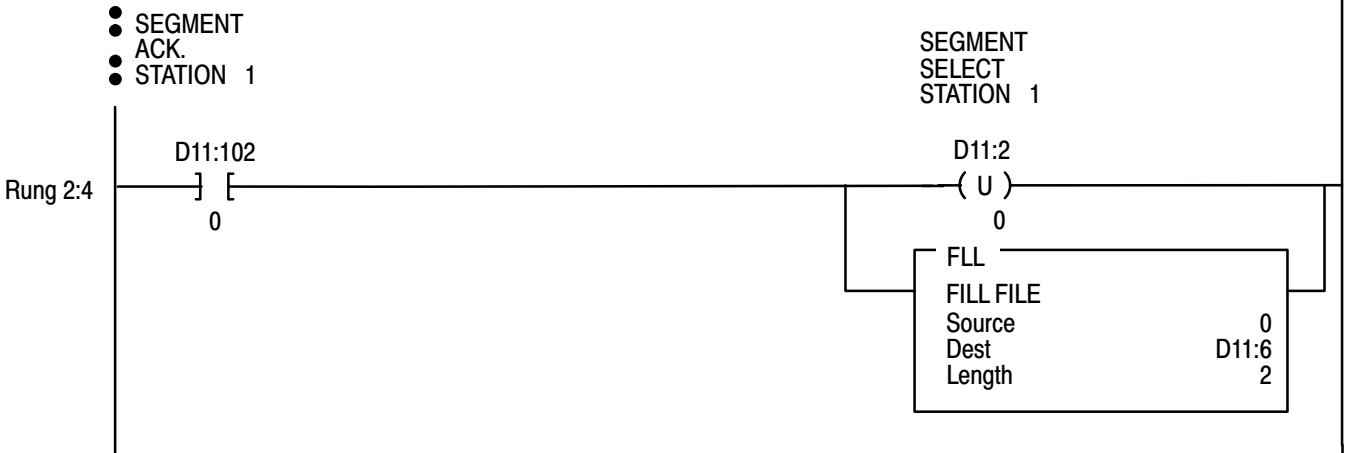


Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

If a set control command for station 1 is requested, then latch the segment select bit for station 1.



If a set control command is received for station 1, then unlatch the segment select bit and zero out the alarm and loop control bits for station 1 in the set control command. This ensures that set control commands will not inadvertently carry out functions already performed by previous set control commands.



If a modify parameter command is requested, then latch the send modify parameter bit.



If a global access command is required, then latch the send global access command bit.



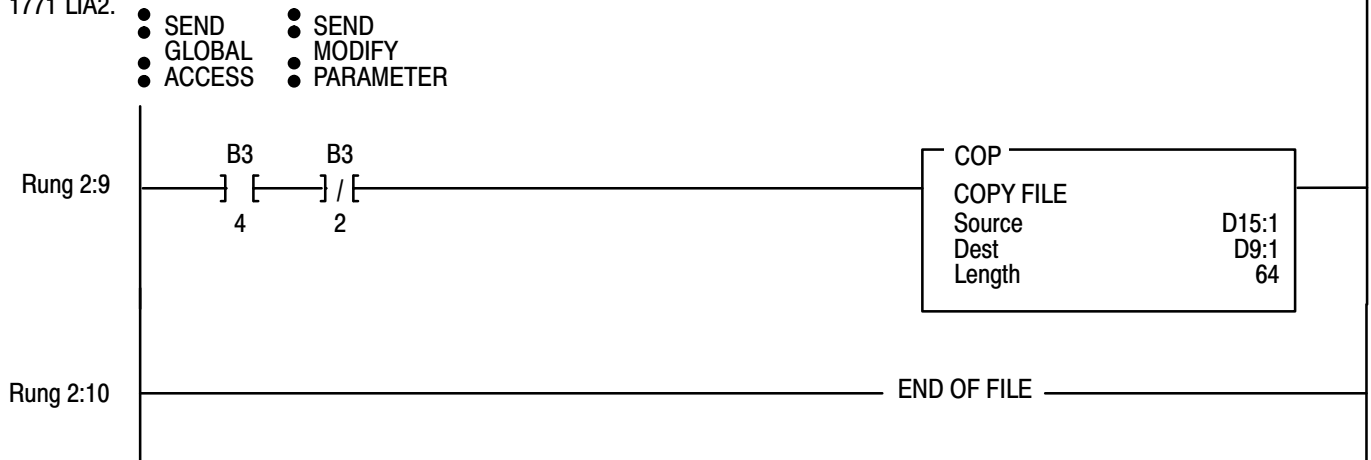
If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



If neither a modify parameter command nor a global access command has been requested, then load the set control file into the BTW data file for the 1771 LIA. Otherwise, load either the modify parameter file or the global access file into the BTW data file for the 1771 LIA2.



Decimal Addresses Hex/BCD data

Address	0	1	2	3	4	5	6	7	8	9
D9:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D9:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D9:110	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:120	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:130	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:140	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:150	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D9:160	0000	0000	0000	0000	0000					
<hr/>										
D11:0	0000	0001	0000	0001	0000	0101	0000	0000	0000	0000
D11:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	0	1	2	3	4	5	6	7	8	9
D11:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D11:100	0000	0001	0000	1001	0000	0101	0000	0000	8033	8033
D13:0	0000	0003	0001	0002	0601	1501	0F80	0602	1501	0081
D13:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D13:100	0000	0003	0001	1001	A200					
D15:0	0000	0009	0007	FFFF	0001	0007	5555	0000	0000	0000
D15:10	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:20	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:30	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:40	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:50	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:60	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:70	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:80	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:90	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:100	0000	0009	0002	0000	0000	00C3	0001	0007	2222	0000
D15:110	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:120	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000

Product Data
Loop Controller Interface Module
(Cat. No. 1771-LIA2)

Address	0	1	2	3	4	5	6	7	8	9
D15:130	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:140	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:150	0000	0000	0000	0000	0000	0000	0000	0000	0000	0000
D15:160	0000	0000	0000	0000	0000					

Specifications

Module Location	1771 I/O Chassis
Output Voltage Range	0 – 5V
Output Load Current	60mA maximum
Maximum Surge Current	1.2A
Minimum Load Current	0.72A
Power Dissipation	4.5W normal
Thermal Dissipation	0.256 BTU/minimum
Environmental Conditions	
Operational Temperature	0° to 60°C (32° to 140°F)
Storage Temperature	-40° to 85°C (-40° to 185°F)
Relative Humidity	5% to 95% (without condensation)
Conductors	Wire size
	14 ga. stranded (max)
	3/64 inch insulation (max)
	Category
	1 ¹
Keying Band Positions	Between 12 and 14 Between 16 and 18
Wiring Arm Screw Torque	9 pound-inches

¹ Refer to publication 1770-4.1, Programmable Controller Wiring and Grounding Guidelines



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