



# **Allen-Bradley PLC-3 Controller Assistance Messages**

(Cat. No. 1775-ZB)

## Product Data



## **Introduction**

Assistance messages on the PLC-3 Help Message Cartridge (cat. no. 1771-ZB) provide brief descriptions of commands and instructions recognized by the PLC-3 system. Data stored on tape must be loaded into PLC-3 controller memory. Once this is done, you can “call up” the desired message for information on a particular command or instruction. By entering a few keystrokes on the industrial terminal keyboard, you can view the appropriate help message on the CRT.

Help tapes are not meant to replace explanations in the PLC-3 Controller Programming Manual (publication 1775-801). Help tapes are memory aids you can use to refresh your memory on the operation of specific commands and instructions. Assistance messages may prove especially helpful during your initial interactions with the PLC-3 controller and industrial terminal.

Assistance messages are part of the total message capabilities of the PLC-3 controller. PLC-3 controller message capabilities include:

- Report generation (MR)
- Comments to rung logic (MC)
- Terminal (MACRO) messages (MT)
- Data highway messages (MH)
- Assistance messages (MA)

Each of the five types of messages are created, modified, and deleted with the same commands (described later in this publication).

## **Features**

When loaded into PLC-3 controller memory, help tapes contribute the following features:

- Brief command descriptions
- Brief instruction descriptions
- Convenient display of information on CRT
- Help messages are easily modified, created, or deleted
- You can customize existing help messages or create entirely new ones
- Easy to determine amount of memory occupied by help messages

## **Memory Requirements**

A PLC-3 help tape requires 26K words of memory. Be sure your PLC-3 controller has a large enough memory capacity to store this many words.

Messages are stored in area 5 of PLC-3 controller memory. Each word of memory stores two message characters. Memory allocation can be determined with the MAP command. For example, to determine the number of words in memory allocated to help messages type:

MAP, MA [ENTER]

To determine the total number of words used in the various sections of the message area, type:

MAP, M [ENTER]

## **Recorder Operation**

In order to display help messages on the industrial terminal CRT, you must first load the contents of the help tape messages into PLC-3 controller memory. The following paragraphs describe how to use the Data Cartridge Recorder (cat. no. 1770-SB) to load and dump data on a PLC-3 help tape.

To load or dump the help tape, you must make all the proper connections between the PLC-3 controller, industrial terminal, and the recorder. (Refer to Data Cartridge Recorder User's Manual, publication 1770-806.)

### **Load From Tape**

The following steps outline the procedure required to load help tape data into PLC-3 controller memory.

**Step 1** — Set the BAUD RATE switch on the recorder to 9600 baud. Set the TRACK SELECT switch to the continuous (CONT) position.

**Step 2** — Set the power ON/OFF switch to the ON position.

**Step 3** — Verify that the RECORD tab on the data cartridge is positioned to the right (protected position) or has been removed. Insert the cartridge into the recorder.

**Step 4** — Wait for the recorder to complete the repacking operation.

**Step 5** — Put the PLC-3 controller into program load mode.

**Step 6** — Type LOAD [ENTER] on the industrial terminal keyboard.

**Step 7** — Press [ENTER] twice and allow the recorder to process the tape name and file name and display them on the CRT.

**Step 8** — Respond to the prompt, APPEND, by typing Y [ENTER] on the keyboard to add the recorded help message data to existing information in memory. Or type N [ENTER] to replace existing information with the recorded information.

**Step 9** — The load from tape function is complete when tape motion stops and the recorder's READ FROM TAPE LED goes off. FILE COMPLETE, ENTER NEXT FILE NAME is displayed on the CRT. To end the tape load function, type E [ENTER] on the keyboard. FUNCTION COMPLETED is now displayed.

### **Dump To Tape**

The following steps outline the procedure required to dump help messages in memory to tape.

**Step 1** — Set the BAUD RATE switch on the recorder to 9600 baud. Set the TRACK SELECT switch to the continuous (CONT) position.

**Step 2** — Set the power ON/OFF switch to the ON position.

**Step 3** — Verify that the RECORD tab on the data cartridge is positioned to the left (unprotected position). Insert the cartridge into the recorder.

**Step 4** — Wait for the recorder to complete the repacking operation.

**Step 5** — Type DUMP [ENTER] on the industrial terminal keyboard.

**Step 6** — Respond to prompts for tape and file names by typing the desired names.

**Step 7** — Respond to the prompt, DUMP SYSTEM, by typing Y,5 [ENTER] on the keyboard. CURRENT ADDRESS changes to E5.

**Step 8** — Respond to the prompt, ENTER TAPE COMMAND, by typing N [ENTER] two times. CURRENT ADDRESS changes to E5.1.

**Step 9** — Respond to the prompt, ENTER TAPE COMMAND, by typing A,5,5 [ENTER]. Tape motion begins and the message DUMPING TO TAPE is displayed on the CRT.

**Step 10** — Respond to the prompt, ENTER TAPE COMMAND, by typing E [ENTER] two times to end the file, verify the tape, and exit the record function. FUNCTION COMPLETED is now displayed on the CRT.

**Step 11** — When finished recording, remove the data cartridge. To protect the tape, either move the RECORD tab to the right (protect position) or remove it.

After help messages have been loaded into controller memory, you should make a duplicate tape. Check that the PLC-3 help message data cartridge has been removed from the recorder. Insert a blank tape into the recorder. Next, perform the steps outlined above for dumping to tape.

## Help Message Generation

Help messages can be incorporated into your PLC-3 controller by loading a help tape or by entering your own customized messages. If you choose to enter your own messages and help messages have been loaded into memory, select help message numbers that are not used in the help message tape. Available help message numbers are easily determined with the MAP command. Figure 1 lists the message number associated with instructions and commands, respectively.

If you choose to enter your own messages and help messages are not stored in memory, you can select message numbers MA0 to MA65,535. To save memory, use the lower message numbers.

The following paragraphs describe how to use the general message editor to generate and modify help messages (when the industrial terminal is connected to an I/O scanner - programmer interface module).

**Figure 1**  
**Help Message Numbers for Instructions and Commands**

PLC-3 INSTRUCTION MNEMONICS									
ADD 77	ADF 93	AND 72	ANP 98	BIN 21	BIS 20	BIR 19	BGL 140		
BSR 141	BTR 153	BTW 132	CTD 59	CTU 60	DDT 136	DIV 74	DVF 90		
END 122	EGU 111	EXT 51	FBC 137	FPL 138	FPU 139	GEQ 108	GRT 109		
JMP 126	JSR 125	LBL 127	LEQ 106	LES 107	LIM 105	MCR 123	MLF 91		
MMP 94	MOV 79	MSG 135	MUL 75	MVM 78	MVS 134	MVF 95	NEG 69		
NEG 110	NGF 95	NOP 121	NOT 68	NTF 84	OR 71	ORF 87	OTE 29		
OTL 28	OTU 27	SSS 58	RET 124	RTO 61	SBF 92	SEQ 103	SGE 100		
SGR 101	SLE 98	SLS 99	SNE 102	SQF 89	SQR 73	SUB 76	TOP 62		
TOR 63	TOS 57	XIO 31	XIF 22	XIN 23	XIO 30	XOP 86	XOR 70		
COMMANDS									
APP 288	ASMB 258	BR 286	BND 281	RST 280	CD 296	CE 275	CL 259		
COM 316	CON 351	CBE 304	CSW 350	D 268	DD 289	DFL 305	DP 290		
DT 294	DUMP 318	RE 273	ER 263	FT 261	FC 327	FD 324	FE 328		
POFI 321	PONI 356	FR 322	H 267	HELP 314	IBB 260	IFC 325	INS 285		
IR 277	IS 337	L 270	LIST 313	LOAD 317	LS 338	M 309	MAP 306		
MAPP 307	ME 310	MP 311	N 265	O 266	OFC 326	OSB 298	P 264		
PORT 319	PR 339	RAE 257	R 271	RBST 279	RE 276	REM 284	REP 283		
RP 291	RE 262	RS 336	RSR 278	RUN 340	RUNG 293	S 302	SB 282		
SC 303	SRD 287	SR 297	ST 272	T 341	U 269	XPER 274			

### Message Editor Mode

To enter the message editor mode for help messages type:

ME, MA(help message number) [ENTER]

At this point, the actual help message appears on the CRT.

In the message editor mode, you can use the following commands:

[→] moves the cursor right one character.

[←] moves the cursor left one character.

[↑] moves the cursor up one line.

[↓] moves the cursor down one line.

[RUNG ↑] moves the cursor up ten lines.

[RUNG ↓] moves the cursor down ten lines.

[DELETE] deletes one character at the cursor position.

[CTRL] D deletes the entire message (when followed by a YES response to the prompt on the screen).

[SHIFT] [TRUNC] deletes from the cursor position to the end of the current line (including the carriage return).

[INSERT] inserts the next character entered left of the cursor. No other control commands are valid immediately after [INSERT] because they will be stored.

To exit the message editor mode and return to the user program display, press:

[CANCEL CMD]

### **Delete All Messages**

All help messages can be deleted from controller memory. To do so, type:

DEL, E5.1.5..0 [ENTER]

To complete the function, you must follow the delete command with a YES response. Once you have deleted all help messages, they can't be viewed on the CRT unless you reload help messages into PLC-3 memory.

## **Help Message Examples**

A help message for an instruction or command can be obtained by typing:

[HELP], (instruction mnemonic or command from figure 1)  
[ENTER]

or

HELP, (instruction mnemonic or command) [ENTER]

For example, to view the help message for a timer on-delay instruction, type:

[HELP], TON [ENTER]

The display shown in figure 2 appears.

To use the instruction mnemonic or command entry method, the message must be stored under the proper message number. The rest of the 65,535 available assistance messages can be used to display any desired messages.

Assistance messages can use tags to display more than one message at a time. By entering [SHIFT] @ (help message number) at the end of one message, the help message specified by the tag is displayed along with the current help message. The help message number must be entered immediately after the @ sign. If a space separates the @ sign from the help message number, it is not recognized as a tag. For example, @12 will be recognized as a tag, but @ 12 will not.

If you know the number of the message which you want to see, you can type:

[HELP], message number [ENTER]

or

HELP, message number [ENTER]

As another example, if you want to see help message 512, type:

HELP, 512 [ENTER]

Help message 512 is known as the help directory. The display shown in figure 3 appears. This help message can be used as a guide to other help messages. Notice the last line in figure 3. It directs you to more help commands (figure 4). The help directory can also be called up by typing:

[HELP] [ENTER]

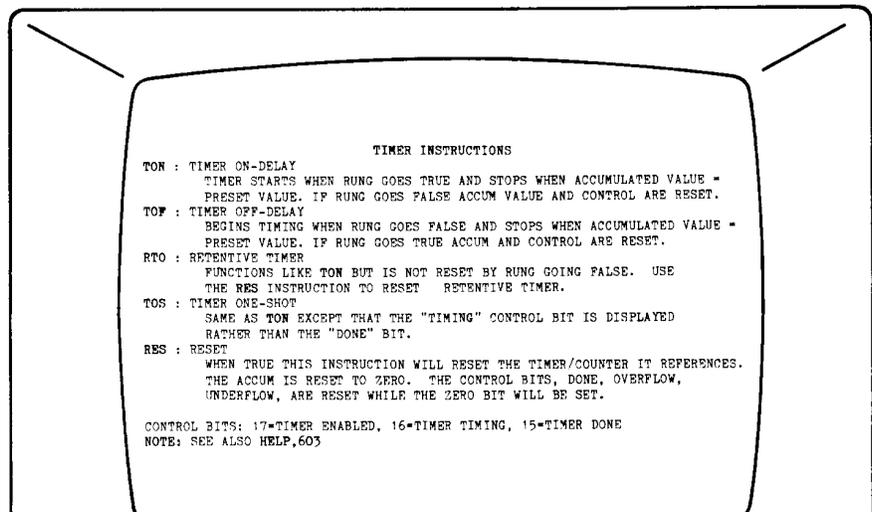
## Tape Version

A record is stored on the help tape which indicates the tape's version. Once you have loaded the help tape into controller memory, you can determine tape version by typing:

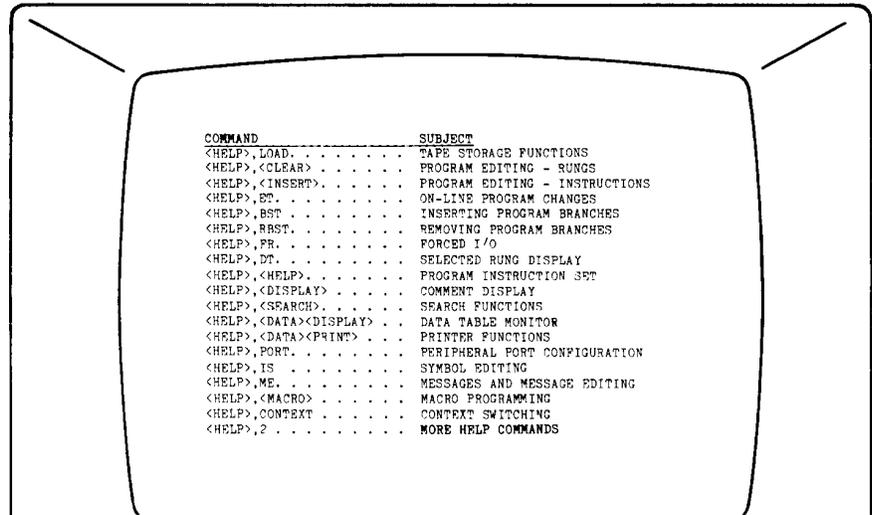
[HELP], 606 [ENTER]

You should not edit or change this message. It provides a means of determining whether or not the tape is the most current version available from Allen-Bradley.

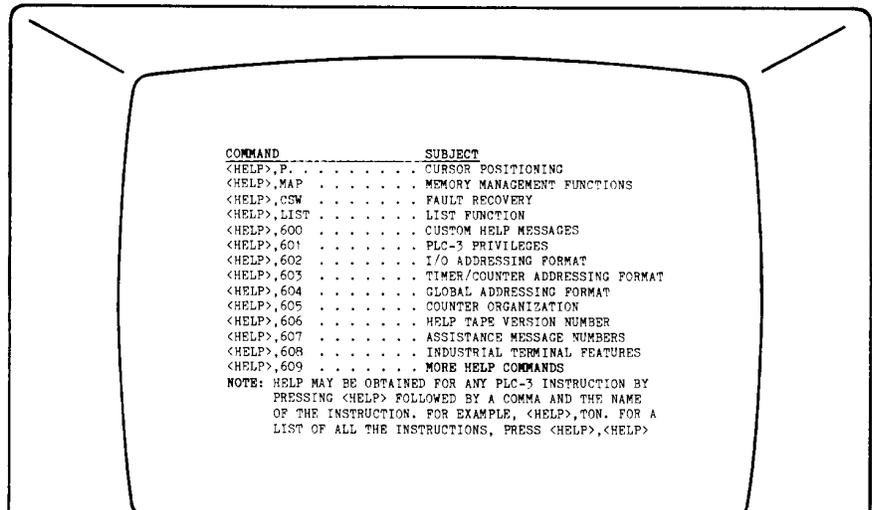
**Figure 2**  
**TON Instruction Help Message**



**Figure 3**  
**Example Help Message**



**Figure 4**  
**Help Message MA2**





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