



Allen-Bradley Data Highway Plus Communications Interface Module (Cat. No. 1785-KE)

When to Use this Document

Use this document as a supplement to the Allen-Bradley 1785-KE Data Highway Plus Communication Interface Module User's Manual (publication 1785-6.5.2).

What this Document Contains

This document provides information on the Set Asynchronous Port parameter enhancements now provided for the 1785-KE Interface Module. This includes:

- configuring parameters from a remote location
- configuring parameters from a local location
- selecting data for the Integer File

Important: These enhancements apply only to the 1785-KE Series B, revision D and later.

Setting the Asynchronous RS-232 Port Parameters

The 1785-KE Series B, revision D and later can change and configure asynchronous RS-232 port parameters through a message instruction in a PLC-5 family controller. You can set one, two, or all three of the following parameters with a single message instruction in the PLC-5.

- **Acknowledgement Timeout.** This is the amount of time the module waits for a response after it transmits a message out of the RS-232 asynchronous port. The timeout is adjustable from 35 milliseconds to 8 seconds.
- **NAK (No Acknowledgement).** This is the maximum amount of NAK sequences the 1785-KE accepts per transmitted message. NAK is also the maximum number of retries the module attempts with a range of 1 to 255 decimal.
- **ENQ (Message Inquiry).** This is the maximum number of ENQ sequences the 1785-KE transmits with a range of 1 to 255 decimal.

Configuring a Parameter from a Remote Location

When a PLC-5 processor is in a remote Data Highway Plus (DH+) configuration (figure 1), it can set a user-selected asynchronous port parameter when the 1785-KE is on a local DH+ link.

Figure 1
 A PLC-5 processor in a remote Data Highway Plus configuration

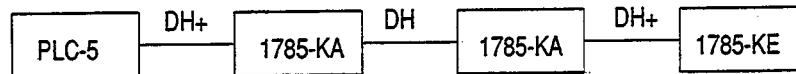


Table A shows you how to format message instructions for off-link messages.

Important: The 1785-KE must be set to the remote mode via the dip switches for the "Set Parameters" command to function.

Table A
 Message instruction format for off-link messages

Set this Parameter	To
READ/WRITE	WRITE
PLC-5 DATA TABLE ADDRESS	N10:0 ¹
SIZE IN ELEMENTS	2
LOCAL/REMOTE	REMOTE
REMOTE STATION	(Address of the 1785-KE)
LINK ID	00
REMOTE LINK TYPE	DATA HIGHWAY
LOCAL NODE ADDRESS	(Address of the 1785-KA)
PROCESSOR TYPE	PLC-2
DESTINATION DATA TABLE ADDRESS	010 ²

¹The Local Data Table file should be an integer type, starting at word zero. The file number has no significance, although the data within the file is important. The file should be two elements in size (We used N10:0 in our example).

²The destination data table address can be any value within the legal PLC-2 address. The address does not affect the operation (We used 010 in our example).

Configuring a Parameter from a Local Location

When a PLC-5 processor is in a local configuration (figure 2), it can set a user-selected asynchronous port parameter on the 1785-KE when the 1785-KE is on the same local DH+ link.

Figure 2
A PLC-5 processor in a local Data Highway Plus configuration

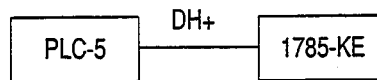


Table B shows you how to format message instructions for local link messages.

Table B
Formatting message instructions for local link messages

Set this Parameter	To
READ/WRITE	WRITE
PLC-5 DATA TABLE ADDRESS	N10:0 ¹
SIZE IN ELEMENTS	2
LOCAL/REMOTE	LOCAL
REMOTE STATION	N/A
LINK ID	N/A
REMOTE LINK TYPE	N/A
LOCAL NODE ADDRESS	(Address of the 1785-KE)
PROCESSOR TYPE	PLC-2
DESTINATION DATA TABLE ADDRESS	010 ²

¹The Local Data Table file should be an integer type, starting at word zero. The file number has no significance, although the data within the file is important. The file should be two elements in size (N10:0 is used for our example).

²The destination data table address can be any value within the legal PLC-2 address. The address does not affect the operation (010 is used in our example).

Selecting the Data for the Integer File

The first two words within the integer file represent the data that will set the desired value for the parameter. Therefore, it is important that you select the data carefully.

Figure 3 contains an example of the integer file's first two words and their exact meaning. It shows File N10:0 as it appears on the T-50 Industrial Terminal:

Figure 3
Integer file example

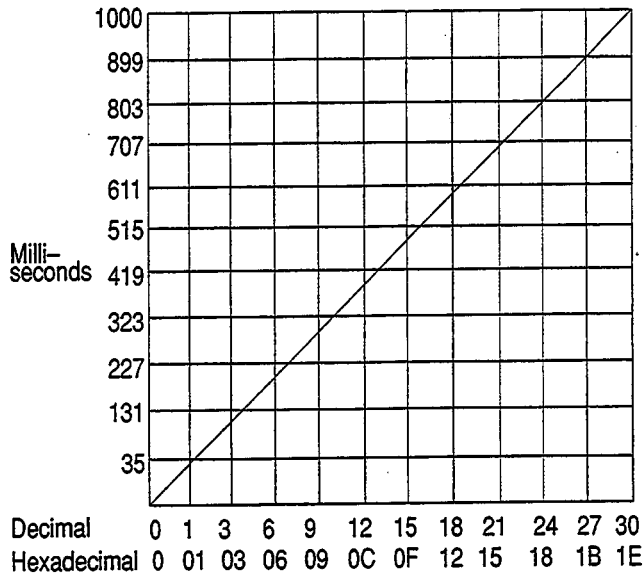
ADDRESS	0	1
N10:0	02xx	yyzz

File N10 must display data in HEX/BCD radix. In figure 3, the most significant byte of element 0 is 02. Any other value is declared illegal and an error code of 10 Hex is returned to the PLC-5 (illegal command).

The least significant byte of element 0, labeled xx, is the ACK timeout value with a range of 1 to 254 decimal, or 1 to FE hexadecimal. The power-up default is 3 seconds. Timeout is expressed in cycles, where 10 cycles equals 1 second.

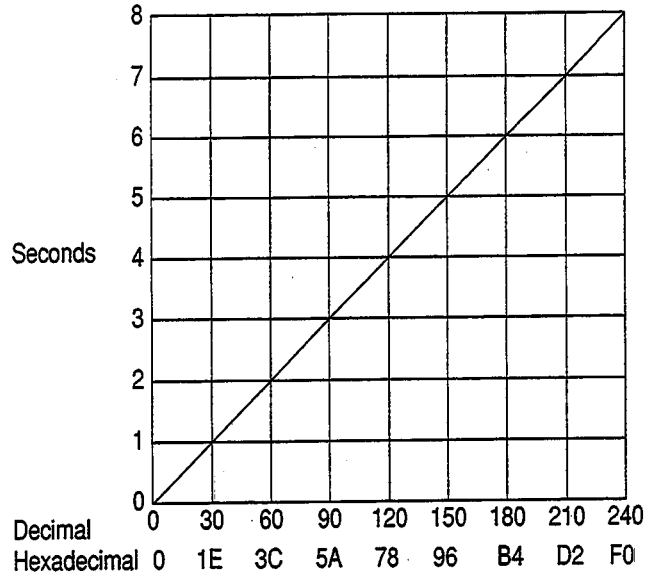
The charts in figure 4 on the next page show the different timeout values related to the value in the data word. Use these charts to select the desired value.

Figure 4
Timeout values relative to the data word value



(3A)

Value for location xx for 35 to 1000 milliseconds



(3B)

Value for location xx for 1 to 8 seconds

In element 1, the *most significant byte* is yy. Location yy is the quantity of NAK sequences the 1785-KE accepts to its message transmission (with a range of 1 to 255 decimal, or 1 to FF hexadecimal). Every time a 1785-KE receives a NAK, it retries the message. The power-up default is 3.

The *least significant byte* in element 1 is zz. The location of zz is the quantity of ENQ sequences the 1785-KE sends per message transmission (with a range of 1 to 255 decimal, or 1 to FF hexadecimal). The power-up default is 10.

If the value of 00 is used for location xx, yy, or zz, the parameter remains at the default or unchanged.

When you power-up the 1785-KE, all settings are at the default. Once the PLC-5 processor sends the set parameter message, the 1785-KE is set-up based on the integer file. If the 1785-KE is power-cycled, the setting returns to the default. You should have some type of ladder logic mechanism that lets the PLC-5 processor automatically send the set parameter message when a power-cycle occurs.



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