Allen Bradley SLC500 or MicroLogix

Application Note

This document describes how to configure a Paradigm operator interface terminal to allow communications with an Allen Bradley SLC500 or MicroLogix. The communications protocol supports access to numeric registers, flags, and control actions. Please read this document carefully before attempting to configure communications with these devices.

SLC500 using DF1 with cable P895005Z

Channel 0 Configuration
Current Communication Mode   :SYSTEM
System Mode Driver   :DF1 Full-Duplex
User Mode Driver   :SHUTDOWN
Write Protect   :Disabled
Mode Changes   :Disabled
Mode Attention Character   :\1b
System Mode Character   :S
User Mode Character   :U
Edit Resource/File Owner Timeout   :60 (seconds)
Passthru Link ID   :1

Channel 0 System Mode Configuration
Communication Driver   :DF1 Full-Duplex
Diagnostic File   :Reserved

Baud Rate	: 9600	Parity	:EVEN
Duplicate Detect	:ENABLED	Error Detect	:BCC
ACK Timeout [x20ms]	:50	NAK Retries	:3
		ENQ Retries	:3
Source ID	:9	Embedded Responses	:AUTO-DETECT

Paradigm Settings:
Comms Port:
2 RS-232 Comms Port   Allen Bradley SLC via DF1   Direct Connection   8E1 9600

SLC500 using DH-485 with cable P895013Z

Channel 1 Configuration
System Mode Driver   :DH-485 Master
Write Protect   :Disabled
Edit Resource/File Owner Timeout   :60 (seconds)
Passthru Link ID   :2

Channel 1 System Mode Configuration
Communication Driver   :DH-485
Diagnostic File   :Reserved

Baud Rate   :19200 (Note 1)
Node Address   :1
Max Node Address   :31
Token Hold Factor   :1

Note 1: The baud rate must be 19200 for reliable communication.

Paradigm Setting:
Comms Port:
3 RS-485 Comms Port   Allen Bradley SLC via DH-485   Direct Connection   8E1 19200

MicroLogix using DH-485 with cable P895047Z (1000 must be series C or higher)

Select Micro FULL-DUPLEX in programming Software.

Use bridge cable P895047Z to connect to a 1761-CBL-PM02 if a direct connection to the PLC is desired.

Paradigm Setting:
Comms Port:
2 RS-232 Comms Port   Allen Bradley SLC via DH-485   Direct Connection   8N1 19200

Proper communications in a system of a MicroLogix, SLC, via AIC modules to Paradigm operator interfaces can be obtained by making the MicroLogix node address the highest of the three. If more than one MicroLogix is present, see http://www.ab.com/support choose MicroLogix and look at technical documents 9106 and 10519, to assist in configuring the PLC's.

MicroLogix using driver "MicroLogix via DF-1" with cable P895047Z

Use bridge cable P895047Z to connect to a 1761-CBL-PM02 if a direct connection to the PLC is desired.

To use the RS-485 connector on a Net-AIC:
Paradigm terminals 6 and 8 connect to B
Paradigm terminals 7 and 9 connect to A
In addition a 1K resistor must be fitted between terminals 9 and 10 on the Paradigm.

Select, appropriately, BCC or CRC error checking under Options in COMMS DEVICES.

Configuring Timers and Counters

Timers and Counters comprise 3 words. Therefore, one cannot use the Direct PLC Reference method to obtain the Preset and Accumulated values. Instead, use Comms Blocks, selecting T4, and enter the address of the first Timer. In the Size column, enter 3 times the number of Timers desired. Do likewise for Counters. The first word will be the Status word, the register that holds the Enable bit, Done bit, etc. The second word is the Preset value, and the third word is the Accumulated value.

We recommend the following approach:

In COMMS BLOCKS
    Comms Block A:
    Address = T4:0
    Size = 9 (3 Timers)

In NAMED DATA:
    Name = T0STAT
    Maps To = A[0]
    Name = T0PRS
    Maps To = A[1]
    Name = T0ACC
    Maps To = A[2]
    Name = T1STAT
    Maps To = A[3]
    Name = T1PRS
    Maps To = A[4]
    Name = T1ACC
    Maps To = A[5]
    etc.
    Of course, you do not have to define a name if you don't need to use the register.

When inserting a display item, you then set Value to T1PRS to select the preset of T4:1.