



TECHNICAL NOTE TNO106

Title: Interfacing to an Allen Bradley ControlLogix PLC

Product(s): Any Red Lion Paradigm HMI, ControlLogix PLC

Problem Description: Due to the large number on driver requests continuously being received by RLC and the workload of our engineers, writing a driver for every PLC on the market would be impossible. We have a large selection of drivers available but certainly not all. Due to its popularity, there have been a number of requests for the Allen Bradley ControlLogix driver. The ControlLogix's primary communication protocol is a passive data-bus back plane. We do not currently have a driver to support that protocol. However, the ControlLogix PLC does have a DF1 port that makes it possible for us to communicate with the ControlLogix. There are some differences between the SLC DF1 protocol and the ControlLogix DF1 protocol that must be addressed before communication can be established.

Cause of the Problem: Parameters that we look to have set up are not listed in the PLC port-set up. The ControlLogix PLC uses what can best be described as "Named Data" throughout the data tables so the file types N,C,I,O etc., that are already established in the SLC PLC, are not available in the ControlLogix PLC. Because of this, the data cannot be addressed properly from the RLC Paradigm HMI.

Corrective Action: Since we can use the DF1 port on the ControlLogix PLC, our standard DF1 cable (P895005Z) will work as the interface between the RLC Paradigm HMI and the ControlLogix PLC. In EDICT-97 choose the Allen Bradley SLC via DF1 driver, 19200 baud. In the PLC, create an array and map it to a register that the RLC HMI DF1 driver will understand.

Corrective Action Implementation: The following is how to set up an array and map it to the N7:000 register which the Allen Bradley SLC via DF1 driver can access

In the PLC configuration software set up an array called "Data". From the toolbar select Logic>Map PLC/SLC Messages. Enter 7 for the SLC file number and Data, the name of the array, as the Tag Name. In this way, the array data will be mapped to N7 data register.

Data[0] --- N7:000

Data[1] --- N7:001

Data[X] ---N7:00X

For individual words, in the array listing, aliases can be given to array elements. For example:

Element Alias

Data[3] --- B3:000

You may have to create multiple arrays, in the same manner as Comms Blocks in EDICT-97, for different data types.

***This procedure has not been verified at RLC. This procedure was only developed through discussions between RLC and Allen Bradley personnel.**