

PN# tn168-1.doc - 21-Mar-02 - Ver. 1.01

Connecting UniOP to Control Logix 5550 via A-B DF1

This Technical Note contains the information needed to connect UniOP to the A-B Control Logix 5550 controllers using the A-B DF1 serial communication protocol.

Contents

1. Introduction	1
2. Designer Configuration	1
3. PLC Configuration	2

1. Introduction

The UniOP operator panels can be connected to the Allen-Bradley Control Logix 5000 series controllers via Ethernet. In addition to the Ethernet connection it is possible to use the standard A-B DF1 communication protocol to connect UniOP panels to the controller serial port.

2. Designer Configuration

Designer has to be configured to use the standard A-B DF1 driver selecting the "PLC5/60/60L" controller model.

Allen-Bradley - PLC Setup	X
PLC Mode 0 Checksum type BCC I	OK Cancel PLC <u>C</u> omm
PLC3 PLC5/10 - 25 PLC5/40/40L PLC5/60/60L SLC500 Fixed I/0	

Figure 1



PN# tn168-1.doc - 21-Mar-02 - Ver. 1.01

Communication parameters have to match the settings done on the Control Logix controller concerning its serial port. Please see next chapter for additional information.

3. PLC Configuration

The PLC Serial Port must be properly configured to support the Full Duplex DF1 protocol according to the configuration example shown in the following figures.

Communication parameters selected in the controller must match the communication parameters selected in the Designer project.

o Controller Prope	rties - FirstCPU			
Major Faults General	Minor Faults Serial Port	Date/Time System Proto	Advanced	I File
Mode:	System 💌			
Baud Rate:	19200 💌			
Data Bits:	8 💌			
Parity:	None 💌			
Stop Bits:	1			
Control Line:	Full Duplex	•		
	Continuous Carrier			
RTS Send Delay:	0 (x20 ms)			
RTS Off Delay:	0 (x20 ms)			
		-	1	
	OK	Cancel	Apply	Help

Figure 2

EXDR[°] Tech-note

PN# tn168-1.doc - 21-Mar-02 - Ver. 1.01

o Controller Propertie	s - FirstCPU		
Major Faults General	Minor Faults	Date/Time Adv. System Protocol	anced File User Protocol
Protocol: Station Address:	DF1 Point to Point	Error Detect	© CRC
NAK Receive Limit: ENQ Transmit Limit:	3		
ACK Timeout: Embedded Responses:	50 (x20 ms) Enabled	-	
	OK	Cancel A	pply Help



A proper mapping rule must be created between the standard DF1 data types and the "tag oriented" memory organization of the Control Logix controllers.

From the "Logic" menu of the RSLogix 5000 programming tool, select the "Map PLC/SLC Messages". The dialog box shown below will be displayed.

EXDR[®] Tech-note

PN# tn168-1.doc - 21-Mar-02 - Ver. 1.01

PLC	2,3,5 / SLC Mapping		×		
Γ	PLC <u>3</u> ,5 / SLC Mapping		ОК		
	File Number	Tag Name	Cancel		
	7	OP_IN 🗾			
		Delete Map			
PLC 2 Mapping					
	Tag Name :	•			
L	,				



The "File Number" identifies the number of the file referred from Designer application. It is the number indicated in the "File Num." box of the Designer define field dialog box shown in Figure 5.

The "Tag Name" identifies a name of a tag created to match the File Type indicated in the "File Type" box of the Designer Define Filed dialog shown in Figure 5.

Due to the structure of the Allen-Bradley "File", the tag must be a mono-dimensional array.

The "Element" box of the Designer Define Field dialog indicates the variable index of that array. Element number must be less or equal to the array dimension.

Figure 4 shows the case in which the Integer File number 7 is mapped to an array of Integers called "OP_IN".



PN# tn168-1.doc - 21-Mar-02 - Ver. 1.01

Allen-Bradley - ver. 3.10			×
PLC Reference File <u>T</u> ype F <u>i</u> le Num	Element Sub Elem	Logical <u>A</u> ddress	OK
Integer 7 7 : Data <u>F</u> ormat	0 🛉 . 0	N7:0 PL <u>C</u> Node	Cancel
WORD(Bin)			<u>D</u> elete
C Low Priority C High Pri	iority		<u>H</u> elp
Dis <u>p</u> lay Format	Field Dimensions		
NUMERIC	Field <u>W</u> idth 4	Max. 61	
N <u>u</u> meric Base	Field Height 1	Max. 1	
• Decimal	<u>S</u> caling		
C Hexadecimal	Y= 1 / 1	× + 0	Scaling
Data Access	C Fixed point Placeme	ont 0	
• <u>R</u> ead Only	Min value	May value	References
C Read/Write			Min/Max

Figure 5