

P2 Configuration Guide

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1. Physical Connections

The B1285-P2 module has a single RS232 connector, a single RS485 connector, and three Ethernet connectors. The Ethernet connectors allow connection onto two separate networks with unique network address and subnet masks.

The PLC NETWORK has two connectors that are bridged together. This allows daisy-chain or ring networks to be configured. When "One Network" is selected in the configuration software a single network cable can be plugged into either the A or B connector of the PLC Network. All communications are available on this network connection:

ModbusTCP EtherNet/IP Webserver Email PC Link Configuration Software

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HARDWARE OPERATION GONNECT Add / Remove (0) B1285-M1 (2) B1285-P2		Modi Eth	erties: B1285-P2 ule Settings erNet/IP	PLC Comm Settin Modbus/TCP	• RS2	Adapter Connection Assembly	Size Size Size
(6) B1285-T1	Modul		Address	Name	1	Туре	PLC and Emal/Web Network Addressing Device IP Addr. 010.010.111.002
	0-1	1	40001	Input Supply	1	/oltage Input	Subnet Mask: 255.255.255.000
	0-2	2	40002	Power Failure	1	Digital Input	Default Gateway: 010.010.111.250
	0-3	3	40003	System Alarm		nternal Status	DNS Server: 010.010.111.251
	0-4	4	40004	Module Major		nternal Status	
	0-5	5	40005	Module Minor		nternal Status	
	0-6	1	40006	Auto Relay 1		Auto Relay	When configured for ONE network, all
	0-7	2	40007	Auto Relay 2		Auto Relay	connections are to be made through one
	0-8		40008	Active Shift		Shift Status	of the PLC Network ports.
	0-9		40009	Group 1 Status		Group Status	The Email/Web port is not used.
	0-10		40010	Group 2 Status		Group Status	
	0-11		40011	Group 3 Status		Group Status	
	0-12		40012	Group 4 Status		Group Status	
	0-13		40013	Group 5 Status		Group Status	
	0-14		40014	Group 6 Status		Group Status	
	0-15		40015	Group 7 Status		Group Status Group Status	OK Cancel
	0-16		40016	Group 8 Status			

Figure 1-1: Single Ethernet Configuration

The EMAIL/WEB connector is used when "Use separate networks" is selected in the Link Configuration software. Using this configuration, cables from 2 separate networks are connected to the P2 module, one to the Email/Web connector and the other to either the A or B connector of the PLC Network. This setup is typically used when the PLC's are on an isolated internal network and e-mail alarm notifications to an external server are required.

The following are the connections available for each network.

PLC NETWORK:

Modbus TCP EtherNet/IP PC Link Configuration Software E-mail (if email server on this network specified) Webserver

EMAIL/WEB:

PC Link Configuration Software E-mail (if external email server specified) Webserver

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1 HARDWARE 2 OPERATION 3 CONNECT Add / Remove (0) (0) B1285-M1 ▶ (2) B1285-P2	Mod + Eth Local	perties: B1285-P. tule Settings merNet/IP PLC Network ce IP Addr: 010.	PLC Comm Setting Modbus/TCP	+ RS232	dapter Connection Assembly 110 • 32 • 0	Size Bit B1285-P2 Network Properties C All Phemet connections are on ONE network
(6) B1285-T1	Module I/O Ref 1/0	Address	Name	Typ		Device IP Addr: 010.010.111.002
	0-1 1	40001	Input Supply		age Input	Subnet Mask: 255.255.255.000
	0.2 2	40002	Power Failure		tal Input	-
	0.2 2	40002	System Alarm		mal Status	
	0.4 4	40004	Module Major		mal Status	
	0.5 5	40005	Module Minor	Inte	mal Status	
	0.6 1	40006	Auto Relay 1	Aut	o Relay	Email/Web Network Addressing
	0-7 2	40007	Auto Relay 2	Aut	o Relay	
	0-8	40008	Active Shift		t Status	
	0-9	40009	Group 1 Status		up Status	Device IP Addr: 010.010.222.001
	0-10	40010	Group 2 Status		up Status	Subnet Mask: 255.255.255.000
	0-11	40011	Group 3 Status		up Status	Default Gateway: 010.010.222.250
	0-12	40012	Group 4 Status		up Status	
	0-13	40013	Group 5 Status		up Status	DNS Server: 010.010.222.251
	0-14	40014	Group 6 Status		up Status	
	0-15	40015	Group 7 Status		up Status	OK Cancel
	0-16	40016	Group 8 Status	Gro	up Status	
	,					

Figure 1-2: Dual Ethernet Configuration

2. Protocol Assignments

The ProTalk Link is a modular system that supports 512 alarm points. These are divided into 32 blocks of 16 points. Each hardware module consumes one block with all the remaining blocks assigned to the P2 module. Each block assigned to the P2 module can be individually configured for connection to a remote PLC using a specified protocol where the default for each block is unassigned.

The P2 module can be configured to run one or several protocols simultaneously connecting to the remote equipment. The combinations are:

RS232: Modbus RTU master, or Modbus RTU slave, or AB DF1 (both PLC5 and SLC500 series devices) – master only

RS485: Modbus RTU master, or Modbus RTU slave, or AB DF1 (both PLC5 and SLC500 series devices) – master only

- plus Ethernet: Modbus TCP/IP master, or Modbus TCP/IP slave
- plus Ethernet EtherNet/IP

plus

with the restriction that the same protocol cannot be run over both the RS232 and RS485 networks.

3. Remote Status and Control Registers - Master

Even when the system is configured to use a protocol where the PLC is a slave unit, there are provisions for the PLC to receive status information as well as write control values. This is useful where it is desired for the PLC to acknowledge alarms, for instance.

To accomplish this, 16 consecutive analog registers must be allocated in the PLC to reflect the 16 alarm points in the M1 module. Then, using the Configuration Software and navigating to the Block Address tab of the P2 module, set Block 0 for the protocol, the remote PLC ID, and the Start Address of this set of registers.

Now, during normal operation, nine points in the M1 module (the Active Shift and Group Statuses 1 through 8) will be written to the PLC beginning at the allocated registers' Start Address + 7 allowing the PLC to monitor the operating state of the Link system.

The address and contents of the status registers, as found in the M1 module, are shown in Table 3-1. These values will be regularly written to the PLC as part of the Link's polling cycle.

Ref	Name	Written to PLC Address	Value written to PLC
0-1	Write Control Register	Start + 0	Only write 0 to clear
0-2		Start + 1	Not written
0-3		Start + 2	Not written
0-4		Start + 3	Not written
0-5		Start + 4	Not written
0-6		Start + 5	Not written
0-7		Start + 6	Not written
0-8	Active Shift	Start + 7	1 to 8
0-9	Group 1 Status	Start + 8	0 to 3 *
0-10	Group 2 Status	Start + 9	0 to 3 *
0-11	Group 3 Status	Start + 10	0 to 3 *
0-12	Group 4 Status	Start + 11	0 to 3 *
0-13	Group 5 Status	Start + 12	0 to 3 *
0-14	Group 6 Status	Start + 13	0 to 3 *
0-15	Group 7 Status	Start + 14	0 to 3 *
0-16	Group 8 Status	Start + 15	0 to 3 *

Table 3-1: Status registers written to the PLC

* Group Status value:

- 0 = Disabled
- 1 = Idle
- 2 = Alarming
- 3 = Acknowledged

The register located at the Start Address + 0 is used by the PLC to send control signals into the Link system. This register contains a 16-bit number interpreted where the lower 8 bits contain the destination point in the Link alarm memory and the upper 8 bits contain the new value.

- bits 0..7 = point offset, calculated as (block * 16) + point ref offset
- bits 8..15 = new value (0 to 255)

The address and contents of register used by the Link system for control is shown in Table 3-2. This value will be continuously read as part of the polling cycle. If a non-zero value is detected, the Link attempts to execute the control and then re-writes the register to zero indicating completion (whether the request was valid or not).

Table 3-2: Control register read from the PLC

Ref	Name	PLC Address	Read Value
0-1	Write Control Register	Start + 0	Only write 0 to clear

As an example, for the PLC to change the active shift to using Shift 4:

- Current Shift is at Ref 0-8, so offset = (0*16) + 8 = 0x08
- New shift value = 0x04
- Register = Value | offset = 0x 04 | 08 = 0x0408

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OPERATION	Block	Module	Poling		Туре	IP Address	PLC U	Start		
	0	M1	Modbus	TCP Master	analog	0.0.0.0	1	4000	1	
CONNECT	1	P2			unused		-			
<u> </u>	2	P2			unused	-	-	-		
	3	P2			unused	-	-	-		
Add / Remove	4	P2			unused		-	-		
	5	P2			unused		-	-		
(0) B1285-M1	6	T1			-		-	-		
	7	P2			unused					
(2) B1285-P2 (6) B1285-T1	Module	1/0			lunusen		-			
	Module	1/0 1/0 Addr	ress	Name	Unusen	Type	-	Group	Description	
	Module			Name Input Supply	linised	Voltage Input	-	Group	Description	
	Module Ref 0-1 0-2	1/0 Addr 1 4000 2 4000	01 02	Input Supply Power Failure	1	Voltage Input Digital Input	-		disabled disabled	
	Module Ref 0-1 0-2 0-3	1/0 Addr 1 4000 2 4000 3 4000	01 02 03	Input Supply Power Failure System Alarm	1	Voltage Input Digital Input Internal Status	-		disabled disabled Internally generated	
	Module Ref 0-1 0-2 0-3 0-4	1/O Addr 1 4000 2 4000 3 4000 4 4000	01 02 03 04	Input Supply Power Failure System Alarm Module Major		Voltage Input Digital Input Internal Status Internal Status		•	disabled disabled Internally generated Internally generated	
	Module Ref 0-1 0-2 0-3 0-4 0-5	1/O Addr 1 4000 2 4000 3 4000 4 4000 5 4000	01 02 03 04 05	Input Supply Power Failure System Alarm Module Major Module Minor		Voltage Input Digital Input Internal Status Internal Status Internal Status	-	•	disabled disabled Internally generated Internally generated Internally generated	
	Module Ref 0-1 0-2 0-3 0-4 0-5	1/O Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000	01 02 03 04 05 06	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1		Voltage Input Digital Input Internal Status Internal Status Internal Status Auto Relay	-	•	disabled disabled Internally generated Internally generated Internally generated New Alam Exists in Group 1	
	Module Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-7	1/O Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 2 4000	01 02 03 04 05 06 07	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2		Voltage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay	-	•	disabled disabled Internally generated Internally generated Internally generated New Alarm Exists in Group 1 Error Condition Exists	
	Module Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-6	1/0 Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 1 4000 1 4000 1 4000	01 02 03 04 05 06 07 07	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift		Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status		•	disabled disabled Internally generated Internally generated Internally generated New Nam Exists in Group 1 Error Condition Exists Courrent Shift	
	Module Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-8 0-9	1/0 Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 4 40	01 02 03 04 05 06 07 09 09	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Statu	: - - 19	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status		•	disabled disabled htemally generated Internally generated Internally generated New Alam Exists in Group 1 Error Condition Exists Control 1914 Cond Status	
	Module Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-6 0-6 0-6 0-10	I/O Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 4 4000 4 4000 4 4000 4 4000 4 4000 4000 4000	01 02 03 04 05 06 07 03 09 09 10	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Statu Group 2 Statu	· · · · ·	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status		•	deabled deabled internally generated internally generated internally generated internally generated New Aam Exists in Group 1 Error Condition Exists Coded Status Coded Status	
	Module Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-5 0-6 0-7 0-8 0-9 0-10 0-11	I/O Addr 1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 4 40	01 02 03 04 05 06 07 09 09 10 11	Input Supply Power Failure System Alarm Module Major Auto Relay 1 Auto Relay 2 Active Shift Group 1 Statu Group 2 Statu Group 3 Statu	:	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shifi Status Group Status Group Status Group Status		•	deabled deabled internally generated internally generated internally generated Internally generated New Nam Exits in Group 1 Error Condition Exits Error Condition Exits Condet Status Coded Status Coded Status	
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Figure 3-1: Active Shift is at Ref 0-8 and Control Register is Modbus address 40001.

Other points in the ProTalk LINK system can be read or written the same way using the same destination formula. Common examples might be:

Acknowledge Group 1:

- Group 1 Status = Ref 0-9, offset 9 (0*16) + 9 = 0x09
- New value = 3 (acknowledge) (note: this is the only permitted value)
- Write register value = 0x 03 | 09 = 0x0309
- Turn on Relay 2 of a T1 module found at block position 6:
 - Relay output 104 = Ref 6-10, offset = (6*16) + 10 = 0x6A
 - New value = 1 (on)
 - Write register value = 0x 01 | 6A = 0x016A

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		2. No dial	tone detected				
Add / Remove							
(0) B1285-M1							
(2) B1285-P2							
(6) B1285-T1							
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		e I/O I/O Address	Name	Туре	Group	Description	
	Ref 6-1	1/0 Address	digital input 96	Digital Input	Group	disabled	
	Ref 6-1 6-2	1/0 Address 1 2	digital input 96 digital input 97	Digital Input Digital Input		disabled disabled	
	Ref 6-1 6-2 6-3	1/O Address 1 2 3	digital input 96 digital input 97 digital input 98	Digital Input Digital Input Digital Input		disabled disabled disabled	
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Figure 3-2: Relay 2 is at Ref 6-10

4. Remote Status and Control Registers – Slave/Server

When configured as a Modus TCP slave, Modbus RTU slave, or EtherNet/IP Adapter, the Link presents to the PLC a fixed address for each block.

For Modbus, the block zero registers 40001 to 40016 can all be read by the PLC and registers 40008 to 40016 can be written to change shifts and acknowledge alarms.

The value of the Group Status register can be interpreted as:

- 0 = disabled
- -1 = Idle
- 2 = Alarming
- 3 = Acknowledged (note: this is the only value that can be written)

For example, if you wanted to acknowledge the alarms in group 2, the PLC would write 0x03 to Modbus address 40010.

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	0-1 0-2	1 4000	01 02	Input Supply		Voltage Input			disabled	
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	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8	1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 4000 4000 4000 4000	01 02 03 04 05 06 07 08 09 10	Input Supply Power Failure System Alam Module Mino Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 2 Stat	28 7 8 8	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status			disabled disabled internally generated internally generated internally generated New Aam Exists in Group 1 Error Condition Exists Condel Status Coded Status	
	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9	1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 4000 4000 4000 4000	01 02 03 04 05 06 07 08 09 10	Input Supply Power Failurd System Alarm Module Majo Module Mino Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 2 Stat Group 3 Stat	1 7 7 8 8 8 8 8	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status			deabler deabler internsty generated internsty generated internsty generated linensty generated New Alam Exits in Group 1 Emr Condton Exits Endre Charlon Exits Coded Status Coded Status Coded Status	
	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9 0-10 0-11 0-12	1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 400	01 02 03 04 05 06 07 08 09 10 11 12	Input Supply Power Failure System Aarm Module Majo Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 2 Stat Group 3 Stat	1 7 7 8 8 8 8 8 8 8	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status			deabled deabled internally generated internally generated internally generated internally generated New Alam Exits in Group 1 Error Condition Exits Current Shift Coded Status Coded Status Coded Status Coded Status	Ĩ
	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-10 0-11 0-12 0-13	1 4000 2 4000 3 4000 4 4000 5 4000 1 4000 2 4000 4000 4000 4000 4000	01 02 03 04 05 06 07 08 09 10 11 12	Input Supply Power Failure System Alam Module Majo Module Mino Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 2 Stat Group 3 Stat Group 5 Stat	1 7 7 8 8 8 8 8 8 8 8 8	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status			deabler deabler internsty generated internsty generated internsty generated linensty generated New Alam Exits in Group 1 Emr Condton Exits Endre Charlon Exits Coded Status Coded Status Coded Status	
	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9 0-10 0-11 0-12	1 4000 2 4000 3 4000 5 4000 5 4000 1 4000 4000 4000 4000 4000 4000 4000 4000 4000	01 02 03 04 05 06 07 07 08 09 09 10 11 12 13 14	Input Supply Power Failure System Aam Module Majo Module Mino Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 2 Stat Group 4 Stat Group 5 Stat Group 6 Stat	1 7 7 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status			deabled deabled internally generated internally generated internally generated internally generated New Alam Exits in Group 1 Error Condition Exits Current Shift Coded Status Coded Status Coded Status Coded Status	
	0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-10 0-11 0-12 0-13	1 4000 2 4000 3 4000 5 4000 5 4000 1 4000 4 000 4000 4000 4000 4000 4000 4000 4000	01 02 03 04 05 06 07 07 08 09 09 10 11 12 13 14	Input Supply Power Failure System Alam Module Majo Module Mino Auto Relay 1 Auto Relay 2 Active Shift Group 1 Stat Group 3 Stat Group 4 Stat Group 5 Stat	21 21 21 21 21 21 21 22 22	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status			deabled deabled internally generated internally generated internally generated learnally generated New Alam Exits in Group 1 Error Condton Exits Current Shrit Coded Status Coded Status Coded Status Coded Status	

Figure 4-1: Acknowledge Group 2 by writing to Modbus address 40010.

For EtherNet/IP, Assembly 101 or 110 map over Block 0 and the values written to locations data[7] to data[15] will initiate a control operation.

5. Modbus TCP/IP Master

On any Modbus network, queries are initiated by a single master device and responded to by one of possibly many slave devices. The ProTalk Link B1285-P2 module can be configured to be the Modbus master device using an Ethernet network (Modbus TCP/IP) communicating to one or many slave devices.

Protocol	LED	State	Description
TCP Master	TCP	Off	Protocol is not used
		Yellow	Receive an invalid response
		Green	Receive a valid response
		Red	Transmit a query

When the ProTalk Link module is configured as the master device, it regularly reads from remote devices to obtain the data that will be evaluated for alarm conditions. In this configuration, the PLC program does not need to be modified; the ProTalk Link is programmed with the location of the relevant data in the remote slave PLCs.

The ProTalk Link can monitor 512 alarms that are divided into 32 blocks. A few of these blocks will be populated by local I/O in the Link hardware. The remainder are available to create alarms from the memory contents of remote PLCs.

The alarm data can be read as a discrete value where the value dictates alarming or not, or the data can be read as an integer value. The ProTalk Link compares the integer against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A hybrid type (bit array) makes all 16 points in the block Input Bit types but communicates with the PLC using a register message. The 16-bit register value is in bit-packed format where the least significant bit maps to the first alarm in the block.

As a master device, the B1285-P2 polls remote devices using the following rules:

- One poll for each block with enabled alarms
- The poll length is calculated from the starting address of the block to the highest enabled alarm in the block
- TCP sockets are opened as needed and remain open
- TCP sockets are closed on no-response or an exception response
- the Poll Interval is the time from a valid response to the start of a new query

The following example illustrates polling for Modbus Coil type alarms. Here, the B1285-P2 will poll for 5 bits starting at address 00033. (start address of block to highest enabled alarm)

	2						Quick setup check list. Press START to begin.	•
Mode	le Prop	eties: B1285-P	2 (address=2)					
RE		le Settings	PLC Comm Settings	Block Address			/ Web Server	
							I / Web Server	
DN Elos		tule Poling	Type	IP Address	PLC ID	Rert		
0	M1							
r 1	T1		· · · · · ·					
2	P2	Modbus	TCP Master bit	10.0.101.11	1	0003	33	
3	P2		unused					
rð 4	P2		unused					
5	P2		unused					
M1 6	P2		unused					
T1 7	P2		inised					
-P2 Mode								
Ref	100	Address	Name	Туре		Group	Description	
Ref 2-1	100	Address 00033	PLC digital 32	PLC Bit Register		Group	disabled	
Modu Ref 2-1 2-2	1	60033	PLC digital 32 PLC digital 33	PLC Bit Register PLC Bit Register		Group 1	deabled Nam when input is 1, momentary operation	
Mode Ref 2-1 2-2 2-3	1 2 3	00033 00035	PLC digital 32 PLC digital 33 PLC digital 33	PLC Bit Register PLC Bit Register PLC Bit Register		Group 1	disabled Alam when input is 1, momentary operation disabled	
Modk Ref 2-1 2-2 2-3 2-4	1 2 3 4	00033 00035 00036	PLC digital 32 PLC digital 33 PLC digital 34 PLC digital 34 PLC digital 35	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		Group - 1 -	disabled Alam when input is 1, momentary operation disabled disabled	
Modk Ref 2-1 2-2 2-3 2-4 2-5	1 2 3 4 5	00033 00035 00036 00037	PLC digital 32 PLC digital 33 PLC digital 34 PLC digital 34 PLC digital 35 PLC digital 36	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		Group - 1 - 1	deabled Aam when input is 1, momentary operation deabled deabled Mam when input is 1, momentary operation	
Modk Ref 2-1 2-2 2-3 2-4 2-5 2-6	1 2 3 4	00033 00035 00036 00037 00038	PLC digital 32 PLC digital 33 PLC digital 34 PLC digital 35 PLC digital 36 PLC digital 36	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		Group - 1 - -	deabed Aminuhan ingut 1. tementary aperation deabed Alamiked Alamiked 1. tementary aperation deabed	
Modk Ref 2-1 2-2 2-3 2-4 2-5	1 2 3 4 5 6	00033 00035 00036 00037	PLC digital 32 PLC digital 33 PLC digital 34 PLC digital 35 PLC digital 36 PLC digital 36 PLC digital 38	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		Group - 1 - - - -	deabled Aram when rput is 1, momentary operation deabled Mam when rput is 1, momentary operation deabled deabled	
Mode Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7	1 2 3 4 5 6 7	00033 00035 00036 00037 00038 00039	PLC digtal 32 PLC digtal 33 PLC digtal 34 PLC digtal 34 PLC digtal 35 PLC digtal 36 PLC digtal 36 PLC digtal 38 PLC digtal 39	PLC Bt Register PLC Bt Register		Group - 1 - - - - - - -	deabed Aminuhan ingut 1. tementary aperation deabed Alamiked Alamiked 1. tementary aperation deabed	
Modk Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	U0 1 2 3 4 5 6 7 8	00033 00035 00035 00036 00037 00038 00039 00040	PLC digtal 32 PLC digtal 33 PLC digtal 33 PLC digtal 34 PLC digtal 35 PLC digtal 36 PLC digtal 38 PLC digtal 39 PLC digtal 40	PLC Bt Register PLC Bt Register		Group - 1 - - - - - - - - - - - - - - - - -	deabled Annumber noguli 1. enomentary operation disabled Alam when noguli 1. enomentary operation disabled disabled disabled	
Mode Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9	1 2 3 4 5 6 7 8 9 10	00033 00035 00035 00036 00037 00038 00039 00040 00041	PLC digtal 32 PLC digtal 33 PLC digtal 34 PLC digtal 34 PLC digtal 35 PLC digtal 36 PLC digtal 36 PLC digtal 38 PLC digtal 39	PLC Bt Register PLC Bt Register		Group - - - - - - - - - - - - - - - - - - -	Andered Amm Wahn rout is 1, anonentary quantion disabled Amm Wahn rout is 1, anonentary quantion disabled disabled disabled	
Mode Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	1 2 3 4 5 6 7 8 9 10	00033 00035 00036 00037 00038 00039 00040 00041 00041	PLC digtal 32 PLC digtal 33 PLC digtal 34 PLC digtal 35 PLC digtal 35 PLC digtal 36 PLC digtal 38 PLC digtal 38 PLC digtal 39 PLC digtal 40 PLC digtal 41	PLC Bit Register PLC Bit Register		Group - 1 - - - - - - - - - - - - - - - - -	Anabide Anam Hon Ingel Li, anoretary oparation disabled Anam Hon Ingel Li, anoretary oparation disabled disabled disabled disabled	
Mode Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-10 2-11	1 2 3 4 5 6 7 8 9 10 11	00033 00035 00036 00037 00038 00039 00040 00041 00041 00042 00043	PLC digital 32 PLC digital 33 PLC digital 33 PLC digital 35 PLC digital 35 PLC digital 36 PLC digital 38 PLC digital 38 PLC digital 38 PLC digital 38 PLC digital 41 PLC digital 42	PLC Bit Register PLC Bit Register		Group - - - - - - - - - - - - - - - - - - -	Andered Amerikaning of the Instrumentary operation disabled Amerikaning of the Instrumentary operation disabled disabled disabled disabled disabled	
Mode Ref 2-1 2-2 2-3 2-4 2-5 2-5 2-6 2-7 2-8 2-9 2-10 2-112 2-12	UO 1 2 3 4 5 6 7 8 9 10 11 11 12 13	00033 00035 00036 00037 00038 00040 00041 00042 00042 00043 00044	PLC digital 32 PLC digital 33 PLC digital 34 PLC digital 34 PLC digital 36 PLC digital 36 PLC digital 36 PLC digital 38 PLC digital 39 PLC digital 40 PLC digital 43	PLC Bit Register PLC Bit Register		Group - - - - - - - - - - - - - - - - - - -	Another Annumhan rugu ta L, annuntary operation databed databed databed databed databed databed databed databed databed databed databed	

Figure 5-1: Modbus TCP Master polls for 5 coils

6. Modbus TCP/IP Slave

On any Modbus network, queries are initiated by a single master device and responded to by one of possibly many slave devices. The ProTalk Link P2 module can be configured to be one of the Modbus slave devices using an Ethernet network (Modbus TCP/IP). This protocol can be assigned on individual blocks

Protocol	LED	State	Description
TCP Slave	TCP	Off	Protocol is not used
		Yellow	Transmit an exception response
		Green	Transmit a valid response
		Red	After 1 second of inactivity

When the B1285-P2 module is configured as a slave device, it is expected to receive Modbus write commands from a remote master that contains the alarm data. In this configuration, the remote PLC must be programmed to write alarm information on regular intervals or when a condition changes.

The ProTalk Link can monitor 512 alarms, divided into 32 blocks. A few of these blocks will be populated by local I/O in the Link hardware. The remainder are available to create alarms from the memory contents of remote PLCs.

The alarm data can be written as a discrete value (bit) where the value dictates alarming or not, or the data can be written as an integer value (analog). The ProTalk Link compares the integer against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A hybrid type (bit array) makes all 16 points in the block Input Bit types but communicates with the PLC using a register message. The 16-bit register value is in bit-packed format where the least significant bit maps to the first alarm in the block.

An alternate set of register addresses can be selected when assigning the block as a bit array. This allows multiple blocks to be accessed sequentially.

Where the B1285-P2 module is configured as a slave device, a block of alarms that is mapped to local I/O can be read or written to by a remote PLC. The hardwired inputs on a Link module (T1, W2, W3, D1, A1 modules) can be read by accessing the assigned memory location but cannot be written to. The hardwired outputs on a Link module, however, can be read or written to through the assigned memory location. Outputs are defined as the relays on T1, W2, or W3 modules and as the upper 9

locations on the M1 module (block 0) consisting of the Current Shift and the Group Statuses.

As a slave device, the B1285-P2 receives messages from remote devices:

- The following commands are supported:
 - o READ_COILS
 - READ_HOLDING_REGISTERS
 - WRITE_SINGLE_REGISTER
 - WRITE_MULTIPLE_REGISTERS
 - o WRITE_AND_READ_REGISTERS
 - WRITE_SINGLE_COIL
 - WRITE_MULTIPLE_COILS
- disabled alarms are still considered allocated memory
- Contiguous blocks can be read or written with a single read or write command
- exception responses are returned for invalid memory addresses and commands
- two TCP sockets are available for connection with remote devices

Bit Array blocks use a single register to represent 16 digital alarms. The default slave addressing places these registers 16 addresses apart. Multiple contiguous bit array blocks would require a separate Modbus poll for each block.

A duplicate set of contiguous registers is provided allowing a single read or write operation to span multiple bit array blocks. The duplicate registers can optionally be displayed as shown below.

Biolic Regioner: FUESPE addresse: Nodale Regioner:	120	2					Quick setup check list. Press START to begin.
Made Serge PLC Care Serge Rol: Adverse End / WE Sere Bit / Mole Targe Type PLANE Care / WE Sere Bit / Mole Targe Type PLANE Care / WE Sere Bit / Mole Targe Type PLANE Care / WE Sere Bit / Mole Targe Type PLANE Care / WE Sere Bit / Mole Targe Type PLANE Care / WE Sere Bit / Mole Targe Type PLANE Dir / Mole Targe Bit / Mole Targe Type PLANE Dir / Mole Targe Bit / Mole Targe Type PLANE Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe Bit / Mole Targe Type Dir / Mole Targe Dir / Mole Targe <th>Module</th> <th>Properties: B1285-P2</th> <th>2 (address=2)</th> <th></th> <th>_</th> <th></th> <th></th>	Module	Properties: B1285-P2	2 (address=2)		_		
N Back Module / Pairsy Type P Adhese C/C 0 Sat 1		Mark de Settinos	PLC Comm Settinge	Flock Addresses	1 End	d / Web Server	
Image: Constraint of the second sec				lip address lip c			
Image: Second	DOCK.		Type	P ADDRESS PLL	it star		
Image: Process and Procest and Process and Process and Process and Process and	0					~	
Image: Process and			700 0	10050100	-	10 4 - 4 40000	
Image: Second						16 (and 40049)	
Image: Solution of the	4						lock Reference
Image: Section of the sectio	5						lack Number 2
Image:	6				1		
Image: State of the s	7	P2 -	unused				
Ref Light Market ID Tanie Tanie Tanie Struct Description Ref Light Market ID Ref Market ID Ref Light Market ID						A	farm Numbers 2-1 to 2-16
Arr Control (C) Table Table Table Resol (Connuction) 31 1 62557 11/2 Strate		1.0					
Rot Log Name Tope Grace Bendpoint Pathout Default Control Default Default <thdefault< th=""> Default <thdefault< th=""> Default <thdefault< th=""></thdefault<></thdefault<></thdefault<>						-0	lack Communications
1 2 1 243150 11.0.000000000000000000000000000000000		VO Million			Group		
23 3 00152 PLC Sign M PLC Bright M PLC Bright M Acaded 24 4 50150 PLC Sign M PLC Bright M Acaded Block Location 25 6 60150 PLC Sign 36 PLC Bright M deaded Block Location 25 6 60154 PLC Sign 36 PLC Bright M deaded IP dates 25 6 60154 PLC Bright M deaded IP dates ILD (100,100,100,100,100,100,100,100,100,100						dsaped	
24 4 405192 PLC Brigger 35 PLC Brigger 4 Catalog Biols Locator 25 5 6 65544 PLC Brigger 35 PLC Brigger 4 Catalog PLOBE							late Type bit array 💌
25 5 05154 C/C grap 16 P/C file Program c endeded PPC file Program 26 6	2-3						
Col Col <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>tech Landier</td>							tech Landier
27 7 245155 PLC Sign 38 PLC Brights 1 Address and 24 1				PLC Bit Register		deabled	
10 0.515/7 0.12 Sign 39 0.12 E Hoger 6 added 0.40 E 100 E<	2.5						
24 6 4/315/2 If C diple 39 If C diple 40 If C d	2.5	6 40515/5	PLC digital 37				Address 010.000.050.168
310 10 403150 PLC dyst #1 PLC bit heyder - daabled Ar Address 10335 CP (w////////////////////////////////////	2-5 2-6 2-7	6 40515/5 7 40515/6	PLC digital 37 PLC digital 38	PLC Bit Register		disabled	hit ID 1 An alternate set of registers is provide
211 11 4.0551/10 II.C.Gapt 42 II.C.B.Roger 4.64864 212 21.6551/11 II.C.Gapt 43 II.C.B.Roger 4.64864 213 21.6551/12 II.C.Gapt 43 II.C.B.Roger 4.64864 213 21.6551/12 II.C.Gapt 44 II.C.B.Roger 4.64864 214 14.6551/12 II.C.Gapt 45 II.D.B.Roger 4.64864 214 14.6551/12 II.C.Gapt 45 II.D.B.Roger 4.64864	2-5 2-6 2-7 2-8	6 40515/5 7 40515/6 8 40515/7	PLC digital 37 PLC digital 38 PLC digital 39	PLC Bit Register PLC Bit Register	•	disabled Uk	Init ID 1. An alternate set of registers is provide so bit arrays can b
212 40515/11 PLC dgtal 43 PLC Br Register - dstabled 213 15 40515/12 PLC dgtal 44 PLC Br Register - dstabled 214 14 40515/12 PLC Br Register - dstabled 214 40515/12 PLC Br Register - dstabled	2.5 2.6 2.7 2.8 2.9	6 40515/5 7 40515/6 8 40515/7 9 40515/8	PLC digital 37 PLC digital 38 PLC digital 39 PLC digital 40	PLC Bit Register PLC Bit Register PLC Bit Register	•	dsabled Us dsabled St dsabled St	kit ID 1 registers is provide Rati Address 40033 accessed sequent
2-13 12 40515/12 PLC digital 44 PLC Bit Register - disabled 2-14 14 40515/13 PLC digital 45 PLC Bit Register - disabled	2-5 2-6 2-7 2-8 2-9 2-10	6 40515/5 7 40515/6 8 40515/7 9 40515/8 10 40515/9	PLC digtal 37 PLC digtal 38 PLC digtal 39 PLC digtal 40 PLC digtal 41	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	•	disabled Ui disabled St disabled At	kit ID 1 registers is provide Rati Address 40033 accessed sequent
2-14 14 40515/13 PLC digital 45 PLC Bit Register - disabled Help OK Canoe	2-5 2-6 2-7 2-8 2-9 2-10 2-11	6 40515/5 7 40515/6 8 40515/7 9 40515/7 10 40515/9 11 40515/10	PLC digital 37 PLC digital 38 PLC digital 39 PLC digital 40 PLC digital 41 PLC digital 42	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	• • • •	disabled Ui disabled Ui disabled St disabled Ak disabled Ak	kit ID 1 registers is provide Rati Address 40033 accessed sequent
	2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12	6 40515/5 7 40515/6 8 40515/7 9 40515/8 10 40515/9 11 40515/10 12 40515/11	PLC digital 37 PLC digital 38 PLC digital 39 PLC digital 39 PLC digital 40 PLC digital 41 PLC digital 42 PLC digital 43	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	* * * *	dashied Ui dashied Si dashied At dashied At dashied	kit ID 1 registers is provide Rati Address 40033 accessed sequent
	2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12 2-13	6 40515/5 7 40515/6 8 40515/7 9 40515/7 10 40515/9 11 40515/10 12 40515/11 13 40515/12	PLC digital 37 PLC digital 38 PLC digital 38 PLC digital 39 PLC digital 40 PLC digital 41 PLC digital 42 PLC digital 43 PLC digital 44	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	* * * * *	daabled Uk daabled Skabled Ak daabled Ak daabled Ak daabled daabled daabled	Init ID 2 An alternates and 2 An alternates an
	2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12 2-13	6 40515/5 7 40515/6 8 40515/7 9 40515/7 10 40515/9 11 40515/10 12 40515/11 13 40515/12	PLC digital 37 PLC digital 38 PLC digital 38 PLC digital 39 PLC digital 40 PLC digital 41 PLC digital 42 PLC digital 43 PLC digital 44	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	* * * * * *	daabled Uk daabled Skabled Ak daabled Ak daabled Ak daabled daabled daabled	Init ID 2 An alternates and 2 An alternates an

Figure 6-1: Modbus TCP Slave Bit Arrays have an alternate address.

7. Modbus RTU Master

On any Modbus network, queries are initiated by a single master device and responded to by one of possibly many slave devices. The ProTalk Link B1285-P2 module can be configured as a Modbus master device on an RS232 or RS485 network (Modbus RTU).

Protocol	LED	State	Description
RTU Master	RS232	Off	Protocol is not used
	or	Yellow	Receive an invalid response
	RS485	Green	Receive a valid response
		Red	Transmit a query

When the ProTalk Link module is configured as the master device, it regularly reads from remote devices to obtain the data that will be evaluated for alarm conditions. In this configuration, the PLC program does not need to be modified; the ProTalk Link is programmed with the location of the relevant data in the remote slave PLCs.

The ProTalk Link can monitor 512 alarms that are divided into 32 blocks. A few of these blocks will be populated by local I/O in the Link hardware. The remainder are available to create alarms from the memory contents of remote PLCs.

The alarm data can be read as a discrete value where the value dictates alarming or not, or the data can be read as an integer value where the ProTalk Link compares it against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A hybrid type (bit array) makes all 16 points in the block Input Bit types but communicates with the PLC using a register message. The 16-bit register value is in bit-packed format where the least significant bit maps to the first alarm in the block.

As a master device, the B1285-P2 polls remote devices using the following rules:

- 1 poll for each block with enabled alarms
- The poll length is calculated from the starting address of the block to the highest enabled alarm in the block
- the Poll Interval is the time from a valid response to the start of a new query
- hardware handshaking is not used

The following example illustrates polling for Modbus Register type alarms. Here, the B1285-P2 module will poll for 5 registers starting at address 40033 (start address of block to highest enabled alarm).

201	L.				lance serb	check list. Press START to begin.
Module Pr	operties: B12	85-P2 (address=2)		-		
Ma	dule Settings	PLC Comm Settings	Block Addresses	1	Email / Web Server	
Block IN			IP Address F	PLCID	Sat	
	41 -	-g				
1 7						
2 6		Ibus RTU Master analog			40033	
	2 .	unused			1000	
	2 .	unued				
	-2 -	unused				
6 F	2 .	unused				
7 F	. 20	unused				
Module 1/0		(blown	17.00	10	- Development	
Ref 1/0	Address	Name	Туре	G		
Ref 1/0	Address 40033	PLC register 32	PLC Integer Register	r •	disabled	
Ref 1/0 2-1 1 2-2 2	Address 40033 40054	PLC register 32 PLC register 33	PLC Integer Register PLC Integer Register	r - r 1	disabled Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation	
Ref UC 2-1 1 2-2 2 2-3 3	40033 40034 40035	PLC register 32 PLC register 33 PLC register 34	PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r -	disabled Setport Low: 25.0, Setpoint High: 75.0, momentary operation disabled	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4	40033 40034 40035 40035 40035	PLC register 32 PLC register 33 PLC register 34 PLC register 35	PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r -	disabled Setpore Low: 25.0. Setpore High: 75.0, momentary operation disabled disabled	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5	40033 40034 40035 40035 40035 40035 40035	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35	PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r - r - r 1	deabled Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation deabled deabled Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4	40033 40034 40035 40035 40035	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 36 PLC register 37	PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r - r - r 1 r -	disabled Setpore Low: 25.0. Setpore High: 75.0, momentary operation disabled disabled	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6	40033 40034 40035 40036 40037 40038	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35 PLC register 35 PLC register 37 PLC register 37	PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r - r - r 1 r 1	deabled Serport Low: 25.0. Setport High: 75.0. momentary operation deabled deabled Serport Low: 25.0. Setport High: 75.0. momentary operation deabled	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6 20/ 7	40035 40035 40035 40035 40035 40036 40037 40038	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 36 PLC register 37	PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register PLC Integer Register	r - r 1 r - r - r 1 r 1 r -	disabled Seport Low: 25.0. Seport High: 75.0. momentary operation disabled disabled Serport Low: 25.0. Seport High: 75.0. momentary operation disabled directived	
Ref UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6 22-8 8	40033 40035 40035 40035 40035 40036 40037 40038 40038 40059 40040 40041 40042	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35 PLC register 37 PLC register 39 PLC register 40 PLC register 40	PLC Integer Register PLC Integer Register	r - r 1 r - r - r 1 r - r - r - r -	dashed Settorn Low 25.0. Setoure High: 75.0. momentary operation dashed dashed Setone Low 25.0. Setoure High: 75.0. momentary operation dashed dashed	
Pof U0 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6 2-7 7 2-8 8 2-9 9 2-10 10 2-11 11	40033 40033 40035 40035 40035 40036 40037 40038 40040 40040 40040 40041 40041	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35 PLC register 35 PLC register 35 PLC register 40 PLC register 42 PLC register 42	PLC Integer Registe PLC Integer Registe	r : r : r : r : r : r : r : r :	dobled Steport Lou 25.0. Separat Hyb. 75.0. monentary operation diabled diabled Steport Low 25.0. Separat Hyb. 75.0. momentary operation diabled diabled diabled diabled diabled diabled	
Pef UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6 2-7 7 2-8 8 2-9 9 2-10 10 2-11 11 2-12 12	40033 40035 40035 40035 40036 40037 40038 40040 40040 40041 40041 40042 40043 40044	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35 PLC register 35 PLC register 30 PLC register 41 PLC register 42 PLC register 42	PLC Integer Registe PLC Integer Registe	r - 1 r - 1 r r - 1 r - 1	davled Stopper (Law 26, Separat Hyb, 750, mometay operation davled davled davled davled davled davled davled davled davled davled davled davled	
Pef UC 2-1 1 2-2 2 2-3 3 2-4 4 2-5 5 2-6 6 2-7 7 2-8 8 2-9 9 2-10 10 2-11 11 2-12 12 2-13 13	40035 40035 40035 40036 40037 40038 40040 40040 40041 40042 40043 40043	PLC register 32 PLC register 33 PLC register 34 PLC register 35 PLC register 35 PLC register 35 PLC register 37 PLC register 43 PLC register 42 PLC register 42 PLC register 42 PLC register 42	PLC Integer Registe PLC Integer Registe	r - r 1 r - r - r 1 r - r - r - r - r - r - r - r - r - r - r - r - r - r - r - r -	deabled Septors Lie ar-2, 50, Septors High 75,0, momentary operation deabled deabled Septors Lie ar-2, 50, Septors High 75,0, momentary operation deabled deabled deabled deabled deabled deabled deabled	
Perf UC 2-1 1 2-2 2-3 3 2-4 4 2-5 2-3 3 2-4 2-5 5 2-6 2-6 6 2-7 2-8 8 2-9 9 2-10 10 2-11 11 2-12 12 2-21-3 13 2-14 14 14 14	40033 40035 40035 40035 40036 40037 40036 40040 40040 40040 40041 40042 40043 40043 40045	PLC register 32 PLC register 33 PLC register 34 PLC register 34 PLC register 35 PLC register 35 PLC register 37 PLC register 37 PLC register 40 PLC register 41 PLC register 42 PLC register 43 PLC register 45	PLC Integer Registe PLC Integer Registe	r - r -	dashed Septor Liu 2: 30. Septor Hyb. 75.0. nonestay spention dashed dashed (asked liu 2: 50. Septor Hyb. 75.0. nonestay spention (dashed dashed dashed dashed dashed dashed dashed	
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Figure 7-1: Modbus RTU Master polls for 5 coils

The Modbus RTU Master protocol can be setup to run on either the RS232 or RS485 interface.

10 1					Quick setup check list. Press START to begin.
Module Properties: 812	IS.P2 (advisor=2)				
Module Settings	PLC Comm Settings	Block Addresses	Em	al / Web Server	
BherNet/IP	Modbus/TCP	• R5232 • R	\$485		
Protocol	Port Settings	Commun	nications Set	lings	
C None	Baud Rate: 9	9500 • Pol	Interval: 10	o maec	
C Modbus RTU	Save Puter		Timeout: 26		
Modbus RTU	Vaster Vaster				
C AB DF1 (P to	9	Pol	Retries: 2	-	
Module I/O					
Ref 1/0 Address	Name	Туре	Group	Description	
Ref UO Address 0-1 1 1	Input Supply	Votage Input	Group	disabled	
Ref UD Address 0-1 1 1 0-2 2 2	Input Supply Power Failure	Votage Input Digital Input	Group	disabled disabled	
Ref I/D Address 0-1 1	Input Supply Power Failure System Alarm	Voltage Input Digital Input Internal Statue	Group	disabled disabled Internally generated	
Ref UD Address 0-1 1	Input Supply Power Failure System Alarm Module Major	Voltage input Digital input Internal Status Internal Status	Group	disbled disbled Internally generated Internally generated	
Ref UO Address 0-1 1 1 0-2 2 1 0-3 3 0 0-4 4 0 0-5 5 1	Input Supply Power Failure System Alarm Module Major Module Minor	Votage Input Digital Input Internal Status Internal Status Internal Status	Group	disabled disabled Internally generated Internally generated Internally generated	
Ref UO Address 0-1 1	Input Supply Power Failure System Alarm Module Major Module Minor Auto Belay 1	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay	Group	disabled disabled Internally generated Internally generated Internally generated New Alarm Exists in Group 1	
Ref UD Address 0-1 1 1 0-2 2	Input Susply Power Failure System Alarm Module Major Auto Relay 1 Auto Relay 2	Votage input Digtal input Internal Status Internal Status Auto Relay Auto Relay	Group	disbled disbled Internally generated Internally generated Internally generated New Alarm Exists in Group 1 Error Condition Exists	
Ref UD Address 0-1 1 0 0-2 2 0 0-3 3 0 0-4 4 0 0-5 5 0 0-6 1 0 0-7 2 0 0-8 0 0	Input Supply Power Falune System Alarm Module Minor Auto Relay 1 Auto Relay 2 Active Shift	Votage input Digital input Internal Statue Internal Statue Auto Relay Auto Relay Shift Statue	Group	disabled disabled Internally generated Internally generated Internally generated Internally generated New Xiam Exists in Group 1 Error Candison Exists Current Shifts	
Ref UD Address 0.1 1 1 0.2 2 2 0.3 3 0 0.4 4 0 0.5 5 0 0.6 1 0.7 0.8 0.9 0	Input Supply Power Failure System Aiam Module Mejor Module Mejor Auto Relay 1 Auto Relay 2 Active Shift Graup 1 Statua	Votage Input Digtal Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status	Group - - - -	deabled deabled Internally generated Internally generated Internally generated New Vam Deats & Group 1 Emor Candition Exists Current Shift Corted Statue	
Ref UD Address 0-1 1 0-2 2 0-3 3 0-4 4 0-5 5 0-6 1 <	Input Supply Power Faluno System Alam Module Major Module Major Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 2 Shitus	Votege input Digital input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status	Group - - - -	deabled deabled Infermally generated Infermally generated Infermally generated New Karm Edits in Group 1 Emer Cardison Exists Cardet Status Coded Status Coded Status	
Ref UD Address D-1 1 0.2 2 0.3 3 0.4 4 0.5 5 0.6 1 0.7 2 0.8 0.9 0.10	Input Supply Prover Fakine System Nam Module Hajar Module Hajar Module Hajar Auto Relay 2 Active Shift Group 1 Status Group 2 Setus Group 3 Setus	Votege input Digital input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status	Group - - -	disabled deabled histonially generated histonially generated histonially generated have Aam Exists in Group 1 Emr Candion Exists Current Shit Coded Status Coded Status Coded Status	
Ref U0 Address 0-1 1	Input Supply Power Falkino System Nam Module Major Module Minor Auto Palay 1 Auto Relay 2 Active Shift Graup 1 Status Graup 3 Status Graup 4 Status	Votage input Dipti Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status	Group	deabled deabled internally generated Internally generated Internally generated Internally generated Internall generated Gamet Shift Coded Stace Coded Stace Coded Stace Coded Stace	
Ref UO Address 0-1 1 1 0-2 2 0 0-3 3 0 0-4 4 0 0-5 5 0 0-6 1 0 0-7 2 0 0-8 0 0 0-10 0 11 0-12 0 13	Input Supply Power Falure System Kaim Module Hajor Module Hinor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 3 Status Group 3 Status Group 3 Status	Votage input Digiti Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status Group Status	Group 	dealed dealed beenally generated herenally generated herenally generated heren Zamm Exits a Group 1 Eren Candion Bistas Cannet Shitt Coded Status Coded Status Coded Status Coded Status Coded Status Coded Status	
Ref U0 Address 0-1 1	Input Supply Power Falkino System Nam Module Major Module Minor Auto Palay 1 Auto Relay 2 Active Shift Graup 1 Status Graup 3 Status Graup 4 Status	Votage input Dipti Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status	Group - - - -	deabled deabled internally generated Internally generated Internally generated Internally generated Internall generated Gamet Shift Coded Stace Coded Stace Coded Stace Coded Stace	

Figure 7-2: Modbus RTU Master serial configuration screen

8. Modbus RTU Slave

On any Modbus network, queries are initiated by a single master device and responded to by one of possibly many slave devices. The ProTalk Link P2 module can be configured to be either the master or one of the slaves on a network.

Protocol	LED	State	Description
RTU Slave	RS232	Off	Protocol is not used
	or	Yellow	Transmit an exception response
	RS485	Green	Transmit a valid response
		Red	After 1 second of inactivity

When the B1285-P2 module is configured as a slave device, it is expected to receive Modbus write commands from a remote master that contains the alarm data. In this configuration, the remote PLC must be programmed to write alarm information on regular intervals or when a condition changes.

The ProTalk Link can monitor 512 alarms, divided into 32 blocks. A few of these blocks will be populated by local I/O in the Link hardware. The remainder are available to create alarms from the memory contents of remote PLCs.

The alarm data can be written as a discrete value (bit) where the value dictates alarming or not, or the data can be written as an integer value (analog) where the ProTalk Link compares it against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A hybrid type (bit array) makes all 16 points in the block Input Bit types but communicates with the plc using a register message. The 16-bit register value is in bit packed format where the least significant bit maps to the first alarm in the block.

An alternate set of registers can be selected when assigning the block as a bit array.

This allows multiple blocks to be accessed sequentially.

Where the B1285-P2 module is configured as a slave device, a block of alarms that is mapped to local I/O can be read or written to by a remote PLC. The hardwired inputs on a Link module (T1, W2, W3, D1, A1 modules) can be read by accessing the assigned memory location but cannot be written to. The outputs on a Link module can be read or written to by accessing the assigned memory location. Outputs are defined as the relays on T1, W2, or W3 modules and as the upper 9 locations on the M1 module (block 0) consisting of the Current Shift and the Group Statuses.

As a slave device, the B1285-P2 receives messages from remote devices:

- The following commands are supported:
 - READ_COILS
 - READ_HOLDING_REGISTERS
 - WRITE_SINGLE_REGISTER
 - WRITE_MULTIPLE_REGISTERS
 - o WRITE_AND_READ_REGISTERS
 - WRITE_SINGLE_COIL
 - WRITE_MULTIPLE_COILS
- disabled alarms are still considered allocated memory
- Contiguous blocks can be read or written with a single read or write command
- exception responses are returned for invalid memory addresses and commands

Bit Array blocks use a single register to represent 16 digital alarms. The default slave addressing places these registers 16 addresses apart. Multiple contiguous bit array blocks would require a separate Modbus poll for each block.

A duplicate set of contiguous registers is provided allowing a single read or write operation to span multiple bit array blocks. The duplicate registers can optionally be displayed as shown below.

210 0 055/5 PLC Starket CE Bingter - datelet AP demo 1/111 CE Bingter - Starket No NO NO Address 1/111 CE Bingter - Starket NO NO AP Address 1/111 CE Bingter - Starket NO NO AP Address 1/111 CE Bingter - Starket NO NO AP Address 1/111 CE Bingter - Starket NO NO AP Address 1/111 CE Bingter - Starket - - Starket - - Starket - Starket	201					Quick setup check list. Press START to begin.
Back Notate PLED <	Module Pro-	perties: B1285-P3	2 (address=2)			
Mile Construction Mark Construction Construction <th< th=""><th>Mac</th><th>ule Settings</th><th>PLC Comm Settings</th><th>Block Addresses</th><th>Email / Web Server</th><th></th></th<>	Mac	ule Settings	PLC Comm Settings	Block Addresses	Email / Web Server	
Mile Construction Mark Construction Mark Construction 1 1 22 Module H10 Bare Mark 1 4051 bird 4003 Mark	Block M	dule Polina	Type	IP Address IPLC ID	Sert	
Image: State of the s			1779-0			
Image: Second						
Image: Section 1 4435 (sect 4038) Image: Section 4005 Image: Section 4005 Image: Section 4005 P2 Medua ETU Shee Image: Section 4005 Image: Section 4005 Image: Section 4005 Image: Section 4005 P2 Medua ETU Shee Image: Section 4005			RTU Slave bit array	-	40515 (and 40033)	C D C Block Address
Image: Processing of the procesing of the processing of the processing of the processing of the p				- 1		
Bit P2 Module RTD Stare Learny 1 4038 and 4031 Bits And 40311 Bits And 40311 Bits And 403	4 P.	Modbut		- 1		Block Reference
Dir Dir Innext Dir Modal 100 Mark 100 Dir			RTU Slave bit array	- 1	40518 (and 40081)	Block Number 2
Notation IO Name Topic Image: Initial Control Initini Control Initial Control Initiane Control Initiane Control Init			unused			Hadde Wares and the
Model LO Model	7 P.		unuand			
Image: Type: Type: <t< th=""><th>1</th><th></th><th></th><th></th><th></th><th>Karm Numbers 2-1 to 2-16</th></t<>	1					Karm Numbers 2-1 to 2-16
Image: Type: Type: <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
Image Dear Spect Spect Spect Spect Pethods 28 1 63551 PLC days 32 PLC Bingstorn - dealed- 28 2 45551 PLC days 33 PLC Bingstorn - dealed- 28 2 45551 PLC days 33 PLC Bingstorn - dealed- 28 5 45555 PLC days 33 PLC Bingstorn - dealed- 28 5 45555 PLC days 34 PLC Bingstorn - dealed- 29 5 45555 PLC days 37 PLC Bingstorn - dealed- 29 7 45555 PLC days 30 PLC Bingstorn - dealed- 29 8 45555 PLC days 30 PLC Bingstorn - dealed- 29 7 45555 PLC days 40 PLC Bingstorn - dealed- 29 7 45555 PLC days 40 PLC Bingstorn - dealed- 29 8 45555 PLC days 40 PLC Bingstorn - dealed- 29 1 45555 PLC days 40 PLC Bingstorn - dealed- 2111 45555 PLC days 40 PLC Bingstorn - dealed- 2111 4555172 PLC days 40 PLC Bing						- Book Communications
C1 2 45551 71.62 Bringer 45561 71.62 Bringer 456661 70.61 Bringer 45661 70.61 Bringer 456661 70.61 Bringer </td <td>Ref 1/0</td> <td>T NOTICOT</td> <td></td> <td></td> <td></td> <td></td>	Ref 1/0	T NOTICOT				
12 3 05952 PLC Suppl M PLC Bit Register - datablet Book Location 24 4 05952 PLC Suppl M PLC Bit Register - datablet Book Location 25 6 05952 PLC Suppl M PLC Bit Register - datablet Book Location 26 6 0555 PLC Suppl M PLC Bit Register - datablet Dut D - appl m and model - appl m and model Book Location - Appl m and model - Appl m and model - Appl m and and m and and and m and m and and and m and m and and and m and						Protocol Modous RTU Slave
124 4 0550 PLC day 35 PLC Binger - deteid 24 6 0550 PLC day 37 PLC Binger - deteid Book Loator 24 6 0555 PLC day 37 PLC Binger - deteid Ut ID						Data Type bt aray 💌
25 5 45514 PLC Straget 36 PLC Bringer dealed Bioc Location 24 6 4555 PLC data 38 PLC Bringer dealed Unit 0						
C6 4 45515 10 Copies 07 0.42 Bi Nayour 10 Bislow 28 6 45515 10 Copies 07 0.42 Bi Nayour 10 Bislow 28 6 45515 10 Copies 07 0.42 Bi Nayour doalad 28 6 45555 10 Copies 07 0.42 Bi Nayour doalad 28 6 45555 10 Copies 07 0.42 Bi Nayour doalad 210 10 45556 10 Copies 07 0.42 Bi Nayour doalad 210 10 45556 10 Copies 07 0.42 Bi Nayour doalad 211 10 455156 10 Copies 07 0.42 Bi Nayour doalad 211 10 455157 10 Copies 04 2.12 Bi Nayour doalad 212 10 455157 10 Copies 04 2.12 Bi Nayour doalad 212 10 455171 10 Copies 04 2.12 Bi Nayour doalad 214 4 455147 10 Copies 04 P.12 Bi Nayour doalad						Part I was
27 7 405154 PLC day 28 PLC Bit Regionr - diaded UH D - A standard and D 28 6 405154 PLC day 28 PLC Bit Regionr - diaded UH D - A standard and D 28 6 405154 PLC day 40 PLC Bit Regionr - diaded Diaded Diaded - Diaded						Block Location
1 4 4/35/5 PLC days 10 PLC Bit Region: detailed UN D 1 regions a problem 28 6 6/5/5 PLC days 10 PLC Bit Region: detailed State	2.6 6					
21 9 4050-9 P1C dpt 30 P1C dpt 100 P1C dpt 30 P1C dpt 40						
210 0 05150 PLC days at 1 PLC B Regionr datalist AV detail VUITI P oral R Addess 211 11 05150 PLC days at 2 PLC B Regionr datalist AV Addess VUITI P oral R Addess 212 051511 PLC days 43 PLC B Regionr datalist datalist AV Addess VUITI P oral R Addess 214 14 051512 PLC days 44 PLC B Regionr datalist AV Addess VUITI P oral R Addess 214 14 051517 PLC days 44 PLC B Regionr datalist Help OX Canced 214 14 051514 PLC days 44 PLC B Regionr datalist Help OX Canced						make arrange can be
311 11 455/510 PLC Brillingerr - dealed M Addess 312 12 455/512 PLC brillingerr - dealed - dealed 313 10 655/512 PLC brillingerr - dealed - dealed 314 455/512 PLC brillingerr - dealed - dealed - dealed 314 455/512 PLC brillingerr - dealed - dealed - dealed 314 455/512 PLC brillingerr - dealed - dealed - dealed 314 455/512 PLC brillingerr - dealed - dealed - dealed 315 16 455/514 PLC brillingerr - dealed - dealed	2.8 8					Start Address 40033 accessed sequential
211 11 4551/18 PLC spin 42 PLC Bringsow dealed 212 10 6551/18 PLC spin 42 PLC Bringsow dealed 213 10 6551/18 PLC spin 42 PLC Bringsow dealed 214 14 4551/11 PLC spin 44 PLC Bringsow dealed 214 14 4551/11 PLC spin 44 PLC Bringsow dealed 214 14 4551/11 PLC spin 44 PLC Bringsow dealed	2-8 8 2-9 9	40515/8				
2-13 13 4/2515/12 PLC dgta 44 PLC Bt Register - databled 2-14 14 4/2515/12 PLC dgta 45 PLC Ib Register - databled 2-14 14 4/2515/12 PLC dgta 45 PLC Ib Register - databled 2-15 15 4/2514 PLC dgta 46 PLC Bt Register - databled	2-8 8 2-9 9 2-10 10	40515/8 40515/9	PLC digital 41	PLC Bit Register		At Address 40515 V Sow At Address
214 14 40515/13 PLC dgtal 45 PLC Bit Register - dsabled Heip	2-8 8 2-9 9 2-10 10 2-11 11	40515/8 40515/9 40515/10	PLC digital 41 PLC digital 42	PLC Bt Register PLC Bt Register	- disabled	At Address 40515 Sow At Address
2-15 15 40515/14 PLC digital 46 PLC Bit Register - disabled	2-8 8 2-9 9 2-10 10 2-11 11 2-12 12	40515/8 40515/9 40515/10 40515/11	PLC digital 41 PLC digital 42 PLC digital 43	PLC Bit Register PLC Bit Register PLC Bit Register	- disabled - disabled	At Address 40815 C Sow At Address
2-15 15 40515/14 PLC digtal 46 PLC Bt Register - disabled	2-8 8 2-9 9 2-10 10 2-11 11 2-12 12 2-13 13	40515/8 40515/9 40515/10 40515/11 40515/12	PLC digital 41 PLC digital 42 PLC digital 43 PLC digital 44	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	disabled disabled disabled	
	2-8 8 2-9 9 2-10 10 2-11 11 2-12 12 2-13 13 2-14 14	40515/8 40515/9 40515/10 40515/11 40515/12 40515/13	PLC digital 41 PLC digital 42 PLC digital 43 PLC digital 44 PLC digital 44	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register	daabied daabied daabied daabied daabied	

Figure 8-1: Modbus RTU Slave Bit Arrays have an alternate address.

The Modbus RTU Slave protocol can be setup to run on either the RS232 or RS485 interface. The Unit ID is the address assigned to the Link when operating as a slave.

RDWARE							Quick setup check list. Press START to begin.	
ROWARE	Module Pr							
		poeties: B1285-P	2 (address=Z)					
	M	dule Settings	PLC Comm Settings	Block Addresses	Eva	/ Web Server		
RATION		berNet/IP	Modbus/TCP	• R5232 • R	0.405			
	_							
INECT	Proto	col loo	Po	et Settings				
	C	None		Baud Rate: 9600 💌				
	G	Modbus RTU Slav	a uante					
Remove		Modeus RTU Mart		Party: None 💌				
		AB DF1 (P to P)						
1285-M1		10 De 1 (F (D F)						
1285-T1	_	_						
B1285-P2	Nodule V	5						
	Bef LUC	Address	IName	Type	IGene	Description		
	0.1 1		Input Supply	Votege Input	- Caroop	daabied		
	0.2 2			Digtal Input		daded		
			Power Falure Sustain Alarm					
	0.3 3		System Alarm	Internal Status		Internally generated		
	0.3 3		System Alarm Module Major	Internal Status Internal Status		Internally generated		
	0.3 3		System Alarm	Internal Status				
	0-3 3 0-4 4 0-5 5		System Alarm Module Major Module Minor	Internal Status Internal Status Internal Status		Internally generated Internally generated		
	0-3 3 0-4 4 0-5 5 0-6 1		System Alarm Module Major Module Minor Auto Relay 1	Internal Status Internal Status Internal Status Auto Relay		Internally generated Internally generated New Asem Exists in Group 1		
	0-3 3 0-4 4 0-5 5 0-6 1 0-7 2		System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2	Internal Status Internal Status Internal Status Auto Relay Auto Relay		Internally generated Internally generated New Alarm Exits in Group 1 Error Condition Exits		
	0.3 3 0.4 4 0.5 5 0.6 1 0.7 2 0.8		System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift	Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status		Internally pervented Internally pervented New Xerm Exotes In Cleaup 1 Ener Condition Edites Convert Shift		
	0.3 3 0.4 4 0.5 5 0.6 1 0.7 2 0.8 0.9 0.9 0.10 0.11		System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Natus	Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status		Internal provested Internal provested Internal provested Internal provested Internal Provided Internal Internal Provided Internal Internal Provided Internal		
	0.3 3 0.4 4 0.5 5 0.6 1 0.7 2 0.8 0.9 0.10 0.11 0.12		System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 2 Status	Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status		Internally promoted Internally promoted Internally promoted Inter Amn Data I Data I Data I Data Data I Data I Data Data I Data I Data I Data Data I Data I Data I Data I Data Data I Data I Data I Data I Data I Data Data I Data		
	0.3 3 0.4 4 0.5 5 0.6 1 0.7 2 0.8 0.9 0.9 0.10 0.11		System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 2 Status Group 3 Status	Internal Status Internal Status Internal Status Auto Peley Auto Peley Suft Status Group Status Group Status Group Status		Internal provested Internal provested Internal provested Internal provested Internal Provided Internal Internal Provided Internal Internal Provided Internal		

Figure 8-2: Modbus RTU Slave serial configuration screen

9. AB-DF1 – Full-duplex Master to PLC5 or SLC500 devices

When connecting with an Allen-Bradley PLC over an RS232 or RS485 network, the ProTalk Link B1285-P2 module can be used as a DF1 full duplex master device. In this configuration, the ProTalk Link connects point-to-point and will regularly read data from remote PLC5 or SLC500 series PLCs to obtain the alarm data. The PLC5 and SLC500 series PLCs use slightly different commands, so the type of device must be specified at the same time as the address of the remote data.

Protocol	LED	State	Description
DF1 Master	RS232	Off	Protocol is not used
	or	Yellow	Receive an invalid response
	RS485	Green	Receive a valid response
		Red	Transmit a query

When the ProTalk Link module is configured as the master device, it regularly reads from remote devices to obtain the data that will be evaluated for alarm conditions. In this configuration, the PLC program does not need to be modified; the ProTalk Link is programmed with the location of the relevant data in the remote slave PLCs.

The ProTalk Link can monitor 512 alarms that are divided into 32 blocks. A few of these will be populated by local I/O in the Link hardware. The remainder are available to create alarms from the memory contents of remote PLCs.

The alarm data can be read as a discrete value where the value dictates alarming or not, or the data can be read as an integer value where the ProTalk Link compares it against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A hybrid type (bit array) makes all 16 points in the block Input Bit types but communicates with the PLC using a 16-bit Integer register message. The 16bit register value is in bit-packed format where the least significant bit maps to the first alarm in the block.

As a master device, the B1285-P2 polls remote devices using the following rules:

- 1 poll for each block with enabled alarms
- The poll length is calculated from the starting address of the block to the highest enabled alarm in the block
- the Poll Interval is the time from a valid response to the start of a new query.
- the Poll Timeout is the length of time the P2 will wait for a response.

- the Poll Retries is the number of times the poll query or write command will be reissued.

The following example illustrates AB DF1 register type alarms for a PLC5. Note that even though only 2 alarms are enabled the poll length will be 5. (start address of block to highest enabled alarm)

V 🛛 🔊	٦,					Quick setup check list. Press START to	o begin. 💌 🐓
Modul	e Propertie	: B1285-P2 (a	ddress=2)				
		- 1		Block Addresses	. 1 .		
	Module S		PLC Comm Settings			mail / Web Server	
Bloc	< Module	Polling	Type	IP Address	PLC ID S	at	
0	M1						
1	T1	-	-				
2	P2	AB DF1 - PU			3	32.0	
3	P2		unused				
4	P2		unused				
5	P2		unused				
6	P2 P2		unused				
Ref		iress []	Namo	Tune	IGn		
	0 1/0	ireas 🗍	Namo	Type	Gro	p Description	
Ref 2-1	1 N30		PLC register 32	PLC Integer Registe	er 1	Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation	
Ref 2-1 2-2	1 N33		PLC register 32 PLC register 33	PLC Integer Registe PLC Integer Registe	er 1 er -	Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation disabled	
Ref 2-1 2-2 2-3	10 Add 1 N30 2 N30 3 N30		PLC register 32 PLC register 33 PLC register 34	PLC Integer Registe PLC Integer Registe PLC Integer Registe	er 1 er - er -	Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation disabled disabled	
Ref 2-1 2-2 2-3 2-4	1 N33 2 N33 3 N33 4 N33		PLC register 32 PLC register 33 PLC register 34 PLC register 35	PLC Integer Registe PLC Integer Registe PLC Integer Registe PLC Integer Registe	er 1 er - er - er -	Setpoint Low: 25.0, Setpoint High: 75.0, momentary operation disabled disabled disabled	
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Figure 9-1: AB DF1 polls for 5 coils

The Allen Bradley DF1 protocol can be setup to run on either the RS232 or RS485 interface. The Node Num is the Node Address assigned to the Link system.

n Qonn IPPIa						Quick setup check list, Press START to begin	
	2	<u> </u>				pulick setup check list. Press 51 AH I to begin.	
-14	-	Properties: B1285	27 Indiana - 7				
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Figure 9-2: AB DF1 serial configuration screen

10. EtherNet/IP – Remote I/O Adapter

When connecting to a device that communicates using CIP over EtherNet, the ProTalk Link B1285-P2 module can be treated as a Generic EtherNet Module where it functions as a Remote I/O Adapter. In this configuration, the ProTalk Link acts as a server that receives data from remote devices to indicate the alarm conditions.

Protocol	LED	State	Description
EtherNet/IP	CIP	Off	Protocol is not used
		Green	Transmit Input Assembly
			contents
		Green	Receive changed Output
			Assembly contents
		Red	After 1 second of inactivity

The B1285-P2 module contains several Output Assemblies for use in different applications. By knowing how many alarms are desired in the system, the minimum sized Output Assembly can be used; any unused Assemblies will be ignored. This offers the flexibility of having multiple devices connect to separate Output Assemblies on this module.

The alarm data can be written as a discrete value where the value dictates alarming or not, or the data can be written as an integer value where the ProTalk Link compares it against programmed setpoints and generates alarm conditions if the value is considered too high or too low.

A list of all available assemblies is found in Table 10-1 thru 10-4.

Along with writing data to the B1285-P2, important status data can also be read from this module. When setting up an EtherNet/IP connection, the required Input Assembly will be the block of integers that contains the data found in Block 0 (mapped to the B1285-M1 module) of the available alarms. A description of these integers is found in Table 10-5 and Table 10-6.

Table 10-1: A	Assemblies availa	ble on the B1285-P	2 module
Assembly	Size	Function	Description
_	(word=16		_
	bits)		
101	16 words	Input	Read Block 0
			information
102	10 bytes	Configuration	reads all 0's
103	0	Heartbeat Input	not used
104	0	Heartbeat	not used
		Output	
105	32 bytes	Explicit	not used
		Messaging	
110	32 words	Input	Assy 101 + seconds
			clock
201-216	various	Output Integer	N blocks of analog
			alarms
301-316	various	Output Bit	N blocks of discrete
			alarms
401-402	dynamic	Control +	control plus alarm
		Output	data

Table 10-1: Assemblies available on the B1285-P2 module

Table 10-2: Output Integer Assemblies

Assembly	Size (word=16 bits)	Function	Description
201	16 words	Output Integer	1 block of analog alarms
202	16 words	Output Integer	1 block of analog alarms
203	16 words	Output Integer	1 block of analog alarms
204	16 words	Output Integer	1 block of analog alarms
205	32 words	Output Integer	2 blocks of analog alarms
206	32 words	Output Integer	2 blocks of analog alarms
207	32 words	Output Integer	2 blocks of analog alarms
208	32 words	Output Integer	2 blocks of analog alarms
209	64 words	Output Integer	4 blocks of analog alarms
210	64 words	Output Integer	4 blocks of analog alarms

EtherNet/IP – Remote I/O Adapter

211	128 words	Output Integer	8 blocks of analog alarms
212	128 words	Output Integer	8 blocks of analog alarms
213	192 words	Output Integer	12 blocks of analog alarms
214	192 words	Output Integer	12 blocks of analog alarms
215	240 words	Output Integer	15 blocks of analog alarms
216	240 words	Output Integer	15 blocks of analog alarms

Table 10-3: Output Bit Assemblies

Assembly	Size (word=16	Function	Description
	bits)		
301	16 bits	Output Bit	1 block of discrete
			alarms
302	16 bits	Output Bit	1 block of discrete
			alarms
303	16 bits	Output Bit	1 block of discrete
			alarms
304	16 bits	Output Bit	1 block of discrete
			alarms
305	32 bits	Output Bit	2 blocks of discrete
			alarms
306	32 bits	Output Bit	2 blocks of discrete
			alarms
307	32 bits	Output Bit	2 blocks of discrete
			alarms
308	32 bits	Output Bit	2 blocks of discrete
			alarms
309	64 bits	Output Bit	4 blocks of discrete
			alarms
310	64 bits	Output Bit	4 blocks of discrete
			alarms
311	128 bits	Output Bit	8 blocks of discrete
			alarms
312	128 bits	Output Bit	8 blocks of discrete
			alarms
313	192 bits	Output Bit	12 blocks of discrete
			alarms
314	192 bits	Output Bit	12 blocks of discrete
			alarms

315	256 bits	Output Bit	16 blocks of discrete
			alarms
316	512 bits	Output Bit	32 blocks of discrete
			alarms

Table 10-4: Output Assemblies with Control

Assembly	Size (word=16 bits)	Function	Description
401	dynamic	control plus Output Bits	write control integers for block 0 registers plus write discrete alarms
402	dynamic	control plus Output Bits or Integers	write control integers for block 0 registers plus write discrete or analog alarms

Table 10-5: Assembly 101 Contents

Word (16	Name	Value
bit)		
data[0]	Input Supply	0 (0.0V) to 4095 (30.0V)
	Voltage	
data[1]	Power Fail Alarm	0 (idle), 1 (alarm)
data[2]	System Alarm	0 (idle)
data[2].0	Vocabulary	0x01 (memory fail)
data[2].1	Database	0x02 (memory fail)
data[2].2	User voice	0x04 (memory fail)
data[2].3	Clock	0x08 (memory fail)
data[2].4	Expander	0x10 (fail)
data[3]	Major Alarm	0 (idle), 1 (alarm)
data[4]	Minor Alarm	0 (idle), 1 (alarm)
data[5]	Auto Relay 1	0 (off), 1 (on)
data[6]	Auto Relay 2	0 (off), 1 (on)
data[7]	Active Shift	1 to 8
data[8]	Group 1 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[9]	Group 2 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[10]	Group 3 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[11]	Group 4 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[12]	Group 5 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)

EtherNet/IP - Remote I/O Adapter

data[13]	Group 6 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
data[14]	Group 7 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
data[15]	Group 8 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)

Table 10-6: Assembly 110 Contents

Word (16	Name	Value
bit)		
data[0]	Input Supply	0 (0.0V) to 4095 (30.0V)
	Voltage	
data[1]	Power Fail Alarm	0 (idle), 1 (alarm)
data[2]	System Alarm	0 (idle)
data[2].0	Vocabulary	0x01 (memory fail)
data[2].1	Database	0x02 (memory fail)
data[2].2	User voice	0x04 (memory fail)
data[2].3	Clock	0x08 (memory fail)
data[2].4	Expander	0x10 (fail)
data[3]	Major Alarm	0 (idle), 1 (alarm)
data[4]	Minor Alarm	0 (idle), 1 (alarm)
data[5]	Auto Relay 1	0 (off), 1 (on)
data[6]	Auto Relay 2	0 (off), 1 (on)
data[7]	Active Shift	1 to 8
data[8]	Group 1 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[9]	Group 2 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[10]	Group 3 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[11]	Group 4 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[12]	Group 5 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[13]	Group 6 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[14]	Group 7 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[15]	Group 8 Status	0 (disabled), 1 (idle), 2
		(alarming), 3 (acked)
data[16]	Clock Seconds	value increments each second
data[17]	reserved	not defined
data[18]	reserved	not defined
data[19]	reserved	not defined
data[20]	reserved	not defined

data[21]	reserved	not defined
data[22]	reserved	not defined
data[23]	reserved	not defined
data[24]	reserved	not defined
data[25]	reserved	not defined
data[26]	reserved	not defined
data[27]	reserved	not defined
data[28]	reserved	not defined
data[29]	reserved	not defined
data[30]	reserved	not defined
data[30]	reserved	not defined

Table 10-6: Contents of Assembly 401/402 (first 16 words)

Word (16	Name	Value
bit)		
data[0]	Input Supply	unused
	Voltage	
data[1]	Power Fail Alarm	unused
data[2]	System Alarm	unused
data[3]	Major Alarm	unused
data[4]	Minor Alarm	unused
data[5]	Auto Relay 1	unused
data[6]	Auto Relay 2	unused
data[7]	Active Shift	0 (no change), 1 to 8
data[8]	Group 1 Status	0 (no change), 3 (acknowledge
		alarms)
data[9]	Group 2 Status	0 (no change), 3 (acknowledge
		alarms)
data[10]	Group 3 Status	0 (no change), 3 (acknowledge
		alarms)
data[11]	Group 4 Status	0 (no change), 3 (acknowledge
		alarms)
data[12]	Group 5 Status	0 (no change), 3 (acknowledge
		alarms)
data[13]	Group 6 Status	0 (no change), 3 (acknowledge
		alarms)
data[14]	Group 7 Status	0 (no change), 3 (acknowledge
		alarms)
data[15]	Group 8 Status	0 (no change), 3 (acknowledge
		alarms)

11. Configurating a Link for EtherNet/IP

The B1285-P2 has several features that make it quite flexible. Even for a basic EtherNet/IP setup, a few key steps are required to create a working database.

The minimum setup requires:

- 1. Configure the list of modules in this Link system to include a B1285-P2 module.
 - a. In the Hardware Menu select Add/Remove.
 - b. Choose a Module Address and set the Module Type to be B1285-P2.

	0 •	1-1				Quick setup check list. Press START to be	egin.
		_					-
Mo	dule P	operties: B12	IS-P2 (address=2)				
		dule Settings	PLC Comm Settings	Block Addresses	1 -	/ Web Server	
		-	PLC Comm Settings	BIOCK Addresses	cms	/ web server	
	Modu	le Alarris					
	Major	Mnor					
	É	E 1. Ema	i/Web Network failure				
	-	=	i undeliverable				
	Г	3. PLC	Network failure				
-							
	dule I/						
Ref	10		Name	Type	Group	Description	
Ref 0-1	1		Input Supply	Voltage Input	Group	dsabled	
Ref 0-1 0-2	1 2		Input Supply Power Failure	Votage Input Digital Input	Group	disabled disabled	
Ref 0-1 0-2 0-3	1 2 3		Input Supply Power Fallure System Alarm	Voltage Input Digital Input Internal Status	Group - -	disabild disabild Internally generated	
Ref 0-1 0-2 0-3 0-4	1 2 3 4		Input Supply Power Failure System Alarm Module Major	Voltage Input Digital Input Internal Status Internal Status	Group - - -	dasbled dasbled Internaly generated Internaly generated Internaly generated	
Ref 0-1 0-2 0-3 0-4 0-5	1 2 3 4 5		Input Supply Power Fallure System Alern Module Major Module Minor	Voltage Input Digital Input Internal Status Internal Status Internal Status	Group - - -	dabiled dabiled internaly generated internaly generated internaly generated	
Ref 0-1 0-2 0-3 0-4 0-5 0-6	1 2 3 4 5 1		Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1	Voltage Input Digital Input Internal Status Internal Status Internal Status Auto Relay	Group	deabled deabled internativg onerested internativg onerested internativg onerested New Atom Exects n Close 1	
Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-7	1 2 3 4 5		Input Supply Power Fallure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay	Group - - -	drabled drabled livernally generated livernally generated livernally generated New Am Exits in Group 1 Error Condeto Todas	
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Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-7 0-8 0-9	1 2 3 4 5 1 2		Input Supply Power Falure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status	Voltage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status	Group	dealed dealed Vironally proveded Vironally proveded Vironally proveded Vironally proveded Vironally proveded Vironally of the Oracle Oursel Shit	
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Figure 11-1: EtherNet/IP setup - Add a B1285-P2 module

- 2. Configure the IP Address of this unit on your network.
 - a. In the Module Properties area of the screen, select then PLC Comm Settings and EtherNet/IP tabs.
 - b. In the Local PLC Network section click on the Device IP Addr box. A Network Properties box will appear.
 - c. Enter at least an IP Address and Subnet Mask for this device on the network.

	P	٦						Quick setup check list. Press START to begin.
ARE	odule	Prop	erties: B1285-	P2 (address=2)				
		Mod.	le Settings	PLC Comm Settings	Block Addresses	I Ena	I / Web Server	
ION F								1 81285-P2 Network Properties
	•	Bhe	rNet/1P	Modbus/TCP	• RS232 • R	IS485		Al Ethernet connections are on ONE network
т			LC Network	.000.080.168	neric I/O Adapter Connection Assembly put: 132	Size	n	Val contents connectors are on Unit network Use separate networks; one for PLC and one for Emal/Web PLC and Emal/Web Network Addressing
ove					utput: VIII	(16b	n) Assembly	
					onfiguration: 102 10			Device IP Addr: 010.000.050.168
5-M1					and a second here here	1000		Subnet Maek: 255,255,000,000
5-T1	_	-						Default Gateway: 010.000.100.002
5-P2	dule	10						DNS Server: 010.000.100.007
Be	εl	1 01	Address	Nama	Type	1 Gran	Description	
Rel			Address	Name Insuit Sumply	Type Votace input	Group	Description	
Rel 0-1			Address	Name Input Supply Power Falkin	Votage input	Group	Description disabled disabled	When configured for ONE network, all
0-1		2	Address	Input Supply		Group	disabled disabled	connections are to be made through one
0-1		2	Address	Input Supply Power Failure	Votage input Digital input	Group	disabled	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3		2	Address	Input Supply Power Failure System Alarm	Votage Input Digital Input Internal Statue	Group - - -	disabled disabled Internally generated	connections are to be made through one
0-1 0-2 0-3 0-4		2	Address	Input Supply Power Failure System Alarm Module Major	Votage Input Digital Input Internal Statue Internal Status	Group - - - -	disabled disabled Internally generated Internally generated	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3 0-4 0-5		5	Address	Input Supply Power Failure System Alarm Module Major Module Minor	Votage Input Digital Input Internal Status Internal Status Internal Status	Group - - - -	disabled disabled Internally generated Internally generated Internally generated	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8		5	Addrees	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1	Votage input Digital input Internal Status Internal Status Auto Relay	Group - - - -	disabled disabled Internally generated Internally generated Internally generated New Aam Exists in Group 1	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9		5	Addrees	Input Supply Power Falune System Alarm Module Minor Auto Relay 1 Auto Relay 2	Votage input Digtel input Internal Status Internal Status Auto Relay Auto Relay	Group - - - -	disabled disabled Internally generated Internally generated Internally generated New Aarm Exists in Group 1 Error Cardiston Exists	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9 0-1		5	Addrees	Input Supply Power Failure System Alarm Module Minor Auto Relay 1 Auto Relay 2 Active Shift	Votage input Digital input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status	Group - - - -	disabled disabled Internally generated Internally generated Internally generated New Alam Datas in Group 1 Error Condition Exists Ourrent Shift	connections are to be made through one of the JLG Metwork port. The Basil/Web port is not used.
01 02 03 04 05 06 07 08 09 01 01	0	5	Address	Input Supply Power Falure System Alarm Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Satus Group 3 Setus Group 3 Setus	Votage input Digital input Internal Statue Internal Status Auto Relay Auto Relay Shift Status Group Status	Group - - - - -	disabled deabled hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated Coded Status Coded Status	connections are to be made through one of the PLC Network ports.
0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9 0-9 0-9 0-1 0-1 0-1 0-1	0	5	Address	Input Supply Prover Folume System Aiam Module Major Module Major Module Major Auto Relay 1 Auto Relay 1 Auto Relay 2 Autore Shift Girsup 3 Status Girsup 3 Status Girsup 3 Status	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status	Group - - - -	deskied deskied hitemäily generated hitemäily generated hitemäily generated New Kam Botas in Group 1 Einer Canstein Biste Curient Shift Coded Statue Coded Statue Coded Statue	connections are to be made through one of the JLG Metwork port. The Basil/Web port is not used.
0-1 0-2 0-3 0-5 0-6 0-7 0-6 0-9 0-9 0-1 0-1 0-1 0-1 0-1	0 1 2 3	5	Address	Input Supply Power Falure System Alarm Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Satus Group 3 Setus Group 3 Setus	Votage input Digitel input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status	Group - - - - -	disabled deabled hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated hitemaily generated Coded Status Coded Status	connections are to be made through one of the JLG Metwork port. The Basil/Web port is not used.
0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9 0-9 0-9 0-1 0-1 0-1 0-1	0 1 2 3	5	Address	Input Supply Prover Folume System Aiam Module Major Module Major Module Major Auto Relay 1 Auto Relay 1 Auto Relay 2 Autore Shift Girsup 3 Status Girsup 3 Status Girsup 3 Status	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status	Group - - - - -	deskied deskied hitemäily generated hitemäily generated hitemäily generated New Kam Botas in Group 1 Einer Canstein Biste Curient Shift Coded Statue Coded Statue Coded Statue	connections are to be made through one of the JLG Network port. The Emmil/Web port is not used.
0-1 0-2 0-3 0-5 0-6 0-7 0-6 0-9 0-9 0-1 0-1 0-1 0-1 0-1	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	5	Addrees	Input Supply Power Fakare System Aam Module Major Module Minor Auto Relay 1 Auto Relay 2 Autor Shift Group 1 Satua Group 3 Setua Group 3 Setua Group 3 Setua	Votage Input Digiti Input Internal Status Internal Status Auto Relay Auto Relay Shrih Status Group Status Group Status Group Status Group Status Group Status	Group - - - - - -	deabled deabled htemaily generated htemaily generated htemaily generated htem 2 and the annotation of the New A sam Exists in Group 1 Emr Candidon Exists Current Shit Caded Status Caded Status Coded Status Coded Status	connections are to be made through one of the Di Seturni port The Insil/Web port is not used.

Figure 11-2: EtherNet/IP setup – Configure the IP address

Configure the mapping of the starting block of alarms.

- d. Select the Block Addresses tab.
- e. Double click a line to open a PLC Block Address configuration window. Blocks starting at this line will be mapped to an assembly.
- f. In the Block Communications area of the new window, change the Protocol to use "EtherNet/IP Adapter".
- g. The default Data Type should show "bit". If not, change it.
- h. In the Block Location section, the IP Address should reflect the address entered in the previous step.
- i. In the Assembly control, choose an assembly that is sufficiently large for your system. Choosing an assembly that is larger than you need will not cause problems but will result in unused data being transferred.
- j. The data offset for this block defaults to 0, the beginning of the assembly.

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Configuring a Link for EtherNet/IP

2 6	<u>ı</u>							ſ	Quick setup check I	ist. Press START to	begin.
Mor	Jule Prop	verties: B1285-F	2 (address=2)								
	Mad	ule Settings	PLC Comm Se	tings Block Addre	1 404	Enal	/Web Server				
		dule Poling	Ty		IPLC ID	Sat	in the series of				
0	MI MI			pe in Address	PLLID	Jun					
0	T1										
	P2		1/IP Adapter bit	10.0.50.168			01.0	PLC Block Add	ress		1
	P2			used -			01.0	Block Reference			
1	P2			used -				Block Heference			
5	P2			used -				Block Number	2		
6	P2			used -				Module Type	22		
7	P2			used -							
								Ham Numbers	2-1 to 2-	-16	
	tule L/O										
1000								Bock Communica	stions		
Rof	VO	Address	Namo	Туре		Group	Description	Protocol	BherNet/IP Adapt	er 💌	
2.1	1	311[0].0	PLC digital 32	PLC Bit Regist			disabled	Data Type	bt		
2.2	2	311[0].1	PLC digital 33	PLC Bit Regist			disabled	Data Type	pt	-	
2-3	3	311[0].2	PLC digital 34	PLC Bit Regist			disabled				
2-4	4	311[0].3	PLC digital 35	PLC Bit Regist			disabled	Block Location			
2.5	5	311[0].4	PLC digital 36	PLC Bt Regist			disabled	IP Address	010.000.050.1	60	Assembly
2.6	6	311[0].5	PLC digital 37	PLC Bt Regist			disabled disabled				Reference
2.7	1	311[0].6	PLC digital 38	PLC Bit Regist			disabled disabled	Output Assembly	311 (128 bit		
2.8	8	311[0].7	PLC digital 39	PLC Bt Regist				Data Offset	0	bits	
2-9	9	311[0].8	PLC digital 40	PLC Bt Regist			disabled		,		
		311[0].9	PLC digital 41	PLC Bt Regist			disabled				
2-11		311[0].10	PLC digital 42	PLC Bit Regist			disabled				
2.12		311[0].11 311[0].12	PLC digital 43 PLC digital 44	PLC Bt Regist			disabled				
				PLC Bt Regist			disabled	1		1	
2.13											
	14	311[0].13	PLC digital 45 PLC digital 46	PLC Bit Regist PLC Bit Regist			disabled disabled	Help		OK	Cancel

Figure 11-3: EtherNet/IP setup - Selecting an assembly to use

- 3. Configure the mapping of subsequent blocks.
 - a. Double click the line showing the next block of alarms.
 - b. In the configuration window that pops up, select the Protocol to be "EtherNet/IP".
 - c. The software should 'assume' you are continuing from the previous block and fill in the Assembly number and Data Offset automatically.
 - d. Continue until you have enough alarm points mapped or until the size of the assembly has been reached.

No. Model Potentin: F125F2 laddews-2 Model Sating: FCC Care: Sating: Box Address Packet N1 T Box Model Potentin: For Potentin: For Potentin: N1 T T For Potentin: For Potentin: For Potentin: N1 T T T For Potentin: For Potentin: For Potentin: N1 T		1							[au	ick setup check list.	Press START to	o begin.
No. No. <th>Max</th> <th>ule Pro</th> <th>perties: 81285-F</th> <th>2 (address=2)</th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>	Max	ule Pro	perties: 81285-F	2 (address=2)								
No. Desc Product of Table Product	VIE		i da Calificas	DIC Comm Catto	Book Address		Engl (Web Server 1				
T T								Web Server				
T T				Type	P' ADDress	PLCID	Start					
2 P2 Bits Med/M Mask No No No 2 P2 Bits Med/M Mask Mask No No<												
No. 1 P2 The stand P Market	т 1			-	-							
No. Image: Construction of the constructin of the construction of the construction of the construction of	- 2					•			m a c ale el e date		-	
No. 9 P2 Normal 0 Normal <	1									55	_	A
HIT I	2V/8							1.0	Block Reference			
Image: Control of the state of the									Block Number			
111 Interface 1000 (1) (0) Model (1) Model (1) <thm< td=""><td>7</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></thm<>	7											
Product IO Module IO Module IO Module IO Module IO Module IO FM IO Address Harris Topic Grade Necrotion Block Connectorie 4 I 311(2) H.C.C.gold 64 H.C.E.B.Rogers - double Patcol TherMed/H Adgers Module IO 44 I 311(2) H.C.C.Gold 64 H.C.E.B.Rogers - double Dist Type Mice 44 I 311(2) H.C.C.Gold 64 H.C.E.B.Rogers - double Dist Type Mice 44 B 311(2) H.C.C.Gold 70 H.C.E.B.Rogers - double Dist Type Mice 44 B 311(2) H.C.C.Gold 70 H.C.E.B.Rogers - double Dist Type Mice Mice 44 B 311(2) H.C.C.Gold 70 H.C.E.B.Rogers - double Dist Type Mice Mice Mice Disp/ Ammithy Ammithy Ammithy Ammithy Ammithy Ammithy Ammithy Ammithy Ammithy	5-T1	_			nu (r				Module Type	12		
Node II O Address Name Type Grace Oscotation Fel 100 Address Mick Option 4 Mick Option 4 Mick Option 4 42 2 21121 Pick Option 5 Mick Option 4 Mick Option 4 43 3 11212 Pick Option 5 Mick Option 4 Mick Option 4 44 4 311213 Pick Option 5 Pick Diff Ngater Mick Address Des Type De	5.82								Alarm Numbers	1-1 to 5-16	8	
4 1 11(2) PL Clipté 4 PLC LIP Registre Andreid Photometrical 42 2 2 12(2) PL Clipté 45 PLC LIP Registre deabled Data Synce Machine Data Synce Machine Data Synce Data Synce Machine Data Synce Data Synce Data Synce Data Synce Data Synce Da	Moc	ule I/O										
4 1 11212 PL Cigde 44 PLC III: Plagter - dasbid 42 2 23122 PL Cigde 45 PLC III: Plagter - dasbid 43 3<13122	Bef	Ivo	Address	Name	Type	1	Group	Description	- Black Communicate			
4 2 311(2) PLC digit 45 PLC Bit Regist were leaded adapted Pattodie Pattodie Pattodie Pattodie 4 4 311(2) 2 PLC digit 45 PLC Bit Regist were pattodie Adaptod Dist Nygers * Adaptod 4 4 311(2) 2 PLC digit 45 PLC Bit Regist were pattodie Adaptod Dist Nygers * Adaptod Adaptod Dist Nygers * Adaptod	61	1	311/21.0	PLC diatal 64	PLC Bt Beginte							
4 3 3112 2 PLC dipite 65 PLC Bit Pigets - databel Data Type M M 44 4 3112 3 PLC dipite 67 PLC Bit Pigets - databel Data Type M M 45 6 3112 3 PLC dipite 67 PLC Bit Pigets - databel Data Type M M 46 6 3112 5 PLC dipite 67 PLC Bit Pigets - databel PLC dipite 75 P	4.2	2						disabled	Protocol	therNet/IP Adapter	-	
45 6 511(2) 4 PIC dipti 61 PIC Di Plograv atabidi Mok Acation 46 6 311(2) 5 PIC dipti 61 PIC Di Plograv atabidi PIC dipti 61		3						disabled	Data Type	.e	*	
46 6 311 (2) 8 HC digute 30 PLC Bit Register 6 6430d IRXX content Amenty Reference Amenty Adapted 101 (2) 6 HC digute 30 PLC Bit Register 6 6430d IRXX content 7 Amenty Reference Amenty Reference Amenty Adapted 101 (2) 10 (2) Amenty Reference Amenty Adapted Amenty Adapted Amenty Content Adapted Amenty Conte	4-4	4	311[2].3	PLC digital 67	PLC Bit Registe			disabled				
64 6 3112.1.5 PLC data 49 PLC Bit Registre - data/ed PL Address PL Address Anomity	4.5	5	311[2].4	PLC digital 68	PLC Bt Registe			deabled				
44 6 311(2) 7 PLC (ppl 4) PLC (b) Regare	4-6	6	311[2].5	PLC digital 69	PLC Bt Registe			disabled				1
44 B 311(2) P. (Coglet 7) P. (Coglet 7) Coglet Aventity Data		7	311[2].6	PLC digital 70	PLC Bit Registe			disabled	IP Address	10.000.050.168	1	
64 9 311(2) PLC dayla 2 PLC Bit Registre - dasked 640 10 312(2) PLC dayla 2 PLC Bit Registre - dasked 641 11 312(2) PLC dayla 2 PLC Bit Registre - dasked 452 12 212(2) PLC dayla 2 PLC Bit Registre - dasked 451 13 312(2) PLC dayla 2 PLC Bit Registre - dasked 454 14 11 312(2) PLC dayla 2 PLC Bit Registre - dasked 454 14 11 312(2) PLC dayla 2 PLC Bit Registre - dasked		8							Outrust Assembly	11 (120 bits)	-	Hatererice
411 11 3112 13 12 12 12 12 12 12 12 12 12 12 12 12 12												
4-12 12 311 [2]. 11 PLC diptal 75 PLC Bit Register - disabled 6-13 13 311 [2]. 12 PLC diptal 76 PLC Bit Register - disabled 6-14 14 311 [2]. 12 PLC diptal 76 PLC Bit Register - disabled 6-14 14 311 [2]. 12 PLC diptal 76 PLC Bit Register - disabled									Data Offset	al constant	bts	
6-13 13 311 [2], 12 PLC digital 76 PLC Bit Register - disabled 6-14 14 311 [2], 13 PLC digital 77 PLC Bit Register - disabled												
4-14 14 3111/21 13 PLC data 77 PLC Bit Benster - disabled												
4-14 14 311 [2] 13 PLC digtal 77 PLC Bit Register - disabled												
		14	311[2].13	PLC digital 77	PLC Bit Register			disabled				

Figure 11-4: EtherNet/IP setup – Adding subsequent blocks to the same assembly

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- 4. Programming the PLC.
 - a. Refer to the Assembly Map or EtherNet/IP Connection Settings screen to verify the assembly instance numbers and size for configuring the PLC.

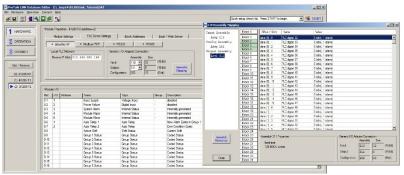


Figure 11-5: EtherNet/IP setup – View Assembly details to program the PLC

12. EtherNet/IP Example 1

The following example sets up an assembly with 32 discrete alarms and allows the PLC to acknowledge alarms and change shifts.

Referring to Table 10-4, either assembly 401 or 402 can be used to transfer both control information and alarm data. Assembly 401 is for discrete (digital) alarms only. Assembly 402 can have a mix of both digital and analog alarms. For this example, we will use assembly 401.

- 20	2							Quick setup check list. Press START to begin.	
Modu	le Propert	es: B1285-P2	(address=2)						
RE	Module	o =-	PLC Com	o	Block Address			/ Web Server	
DN Bloc			PLC Com		IP Address	PLC ID	Start	17 Web Server	
	k Modu			Type		PLC ID			
0	P2	EtherNet/	/IP Adapter	analog	10.0.50.168		401	[0]	
r 1	T1								
2	P2 P2		/IP Adapter	bē bē	10.0.50.168			17].0	
3	P2 P2	EsnerNet/	/IP Adapter	bt	10.0.50.168	-	401	[18].0	
re 4	P2			unused		1	1		
M1 6	P2	-		unused		1	1		
7	P2			unused					
Ref 2-1		dress	Name PLC digital 33	2	Type PLC Bit Register		Group	Description Alam when input is 1, momentary operation	
	2 4	11171 1	PLC dioital 3	1			1		
2-2		01[17].1	PLC digital 33 PLC digital 34		PLC Bit Register		1 1 1	Alarm when input is 1, momentary operation	
2-2	3 4			4			1		
2-2 2-3 2-4 2-5	3 4 4 4 5 4	01[17].2 01[17].3 01[17].4	PLC digital 3	4 5	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		1	Aam when input is 1. momentary operation Aam when input is 1. momentary operation disabled disabled	
2-2 2-3 2-4 2-5 2-6	3 4 4 4 5 4 6 4	01 [17].2 01 [17].3 01 [17].4 01 [17].5	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3	4 5 5 7	PLC Bt Register PLC Bt Register PLC Bt Register PLC Bt Register PLC Bt Register		1	Alam when input is 1. momentary operation Alam when input is 1. momentary operation deabled deabled deabled	
2-2 2-3 2-4 2-5 2-6 2-7	3 4 4 4 5 4 6 4 7 4	01 [17].2 01 [17].3 01 [17].4 01 [17].5 01 [17].6	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3	4 5 7 8	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		1	Atam when input is 1, momertary operation Atam when input is 1, momertary operation deabled deabled deabled deabled	
22 23 24 25 26 27 28	3 4 4 4 5 4 6 4 7 4 8 4	01 [17].2 01 [17].3 01 [17].4 01 [17].5 01 [17].6 01 [17].7	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3	4 5 7 3	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		1 1 - -	Atem when rout & 1. momentary operation databled databled databled databled databled databled databled	
22 23 24 25 26 27 28 29	3 4 4 4 5 4 6 4 7 4 8 4 9 4	01 [17] . 2 01 [17] . 3 01 [17] . 4 01 [17] . 4 01 [17] . 6 01 [17] . 7 01 [17] . 8	PLC digital 3 PLC digital 3	4 5 7 8 9	PLC Bit Register PLC Bit Register		1 - - - -	Aim whering Li II. Imomertary operation Ababbed deabled deabled deabled deabled deabled deabled	
2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	3 4 4 4 5 4 6 4 7 4 8 4 9 4 10 4	01 [17] . 2 01 [17] . 3 01 [17] . 4 01 [17] . 4 01 [17] . 5 01 [17] . 6 01 [17] . 7 01 [17] . 8 01 [17] . 9	PLC digital 3 PLC digital 4 PLC digital 4	4 5 7 3 9 0	PLC Bit Register PLC Bit Register		1 1 - -	Alem when rough at 1. momentary operation Anabeled Alem when rough at 1. momentary operation deabled deabled deabled deabled deabled	
2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	3 4 4 4 5 4 6 4 7 4 8 4 9 4 10 4 11 4	01 [17] . 2 01 [17] . 3 01 [17] . 4 01 [17] . 5 01 [17] . 6 01 [17] . 7 01 [17] . 8 01 [17] . 9 01 [17] . 9 01 [17] . 9 01 [17] . 10	PLC digtal 3- PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 4 PLC digtal 4 PLC digtal 4	4 5 7 3 9 0 1 2	PLC Bt Register PLC Bt Register		1 - - - -	Aim when poly is 1. momentary operation Adaption detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed	
2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12	3 44 4 44 5 44 6 44 7 44 8 44 9 44 10 44 11 44 12 44	01 [17].2 01 [17].3 01 [17].4 01 [17].5 01 [17].6 01 [17].7 01 [17].8 01 [17].9 01 [17].9 01 [17].10	PLC digtal 3 PLC digtal 4 PLC digtal 4 PLC digtal 4 PLC digtal 4	4 5 7 3 9 1 2 3	PLC Bt Register PLC Bt Register		1 - - - -	Am when rough at 1momertary operation Amabient of 1momertary operation deabled deabled deabled deabled deabled deabled deabled deabled	
2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11	3 44 4 44 5 44 6 44 7 44 8 44 9 44 10 44 11 44 12 44 13 44	01 [17] . 2 01 [17] . 3 01 [17] . 4 01 [17] . 5 01 [17] . 6 01 [17] . 7 01 [17] . 8 01 [17] . 9 01 [17] . 9 01 [17] . 9 01 [17] . 10	PLC digtal 3- PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 3 PLC digtal 4 PLC digtal 4 PLC digtal 4	4 5 7 8 9 0 1 2 3 4	PLC Bt Register PLC Bt Register		1 - - - -	Aim when poly is 1. momentary operation Adaption detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed detailed	

Figure 12-1: EtherNet/IP Example 1 – Choosing Assembly 401

Assembly 401 is the output assembly. Data written by the PLC to this assembly can be used to change shifts, acknowledge or trip alarms.

The first 16 16-bit words starting at offset zero are mapped to M1 module (block 0). The PLC can change the shift by writing the new shift number to the word at offset 7. To acknowledge an alarm in group 3, the PLC would write the value 3 (acknowledge) to the word at offset 10.

The 17th word "data[16]" maps to the T1 module and is unused. Data written to this location will be ignored.

The 18th and 19th words are expanded into bits with the LSB of each word mapping to the first alarm in the corresponding block.

PAGE 30					Ethe	rNet/II	PExa	ample 1
CIP Assembly Mapping	g							_ 🗆 X
Input Assembly	Block 0	Offset (16 bit)	Name	Value				
Assy 101	Block 1	data [0]	Input Supply	not defined				A
Config Assembly	Block 2	data [1]	Power Failure	not defined				
Assy 102	Block 3	data [2]	System Alarm	not defined				
Output Assembly	Block 4	data [3]	Module Major	not defined				
Assy 401	Block 5	data [4]	Module Minor	not defined				
	Block 6 Block 7	data [5]	Auto Relay 1	not defined				
	Block 8	data [6]	Auto Relay 2	not defined				
	Block 9	data [7]	Active Shift	0 (no change), 1 to	8			
	Block 10	data [8]	Group 1 Status	0 (no change), 3 (a	cknowledge)			
	Block 11	data [9]	Group 2 Status	0 (no change), 3 (a	cknowledge)			
	Block 12	data [10]	Group 3 Status	0 (no change), 3 (a	cknowledge)			
	Block 13	data [11]	Group 4 Status	0 (no change), 3 (a	cknowledge)			
	Block 14	data [12]	Group 5 Status	0 (no change), 3 (a	cknowledge)			
	Block 15	data [13]	Group 6 Status	0 (no change), 3 (a	cknowledge)			
	Block 16	data [14]	Group 7 Status	0 (no change), 3 (a	cknowledge)			
	Block 17	data [15]	Group 8 Status	0 (no change), 3 (a	cknowledge)			
	Block 18	data [16]	unused	not defined				
	Block 19	data [17] . 0	PLC digital 32	0 (idle), 1 (alarm)				
	Block 20	data [17] . 1	PLC digital 33	0 (idle), 1 (alarm)				
	Block 21	data [17] . 2	PLC digital 34	0 (idle), 1 (alam)				
	Block 22	data [17] . 3	PLC digital 35	0 (idle), 1 (alam)				
	Block 23	data [17]_4	PLC digital 36	0 (idle) 1 (alam)				-
	Block 24 Block 25							
Assembly	Block 25 Block 26	Assembly 401 P	roperties		Generic I/O Ad			
Reference	Block 20	dynamically a	sized - as blocks are allo	cated		Assembly	Size	
	Block 28	BOOL alarms			Input:	101	16	(16 bit)
	Block 28	allows writing	Active Shift		Output:	401	19	(16 bit)
	Block 30	allows ackno	wledging alarms (write to	Group N Status)				_ ` `
Close	Block 31				Configuration:	102	10	(8 bit)

Figure 12-2: EtherNet/IP Example 1 – Assembly 401 mapping

The Input Assembly 101 is read by the PLC and allows the PLC to monitor the status of the Link system.

📑 CIP Assembly Mappi	ng			
Input Assembly	Block 0	Offset (16 bit)	Name	Value
Assy 101	Block 1	data [0]	Input Supply	0 to 4095 (0.0 to 30.0V)
Config Assembly	Block 2	data [1]	Power Failure	0 (idle), 1 (alarm)
Assy 102	Block 3	data [2]	System Alarm	0 (idle)
Output Assembly	Block 4	data [2] . 0	Vocabulary	0x01 (memory fail)
Assy 401	Block 5	data [2] . 1	Database	0x02 (memory fail)
	Block 6	data [2] . 2	User voice	0x04 (memory fail)
	Block 7 Block 8	data [2] . 3	Clock	0x08 (memory fail)
	Block 9	data [2] . 4	Expander	Ox10 (memory fail)
	Block 10	data [3]	Module Major	0 (idle), 1 (alarm)
	Block 11	data [4]	Module Minor	0 (idle), 1 (alam)
	Block 12	data [5]	Auto Relay 1	0 (off), 1 (on)
	Block 13	data [6]	Auto Relay 2	0 (off), 1 (on)
	Block 14	data [7]	Active Shift	1 to 8
	Block 15	data [8]	Group 1 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 16	data [9]	Group 2 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 17	data [10]	Group 3 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 18	data [11]	Group 4 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 19	data [12]	Group 5 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 20	data [13]	Group 6 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 21	data [14]	Group 7 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 22	data [15]	Group 8 Status	0 (disabled), 1 (idle), 2 (alarming), 3 (acked)
	Block 23 Block 24			
	Block 24			
Assembly	Block 25 Block 26	Assembly 101 P	roperties	Generic I/O Adapter Connection
Reference	Block 27	16 INT		Assembly Size
	Block 28	provides bas	ic run-time status	Input: 101 16 (16 bit)
	Block 29			Output: (16 bit)
	Block 30			
Close	Block 31			Configuration: 102 10 (8 bit)
Close				Configuration: 102 10 (8 bit)

Figure 12-3: EtherNet/IP Example 1 – Assembly 101 mapping

Optionally Input Assembly 110 can be chosen. This assembly adds another 16 registers that get read by the PLC. The 17th word "data[16] contains a value that gets incremented every 1 second by the Link system. The PLC can watch this value to verify that the Link system is still operational.

The remaining 15 words of Assembly 110 are reserved and unused.

Once the alarm configuration is complete the assembly size is calculated and displayed in Hardware -> B1285P2 -> PLC Comm Settings. These numbers are needed in RSLogix so that the PLC and Link both agree on the size of the assembly data block that gets transferred.

Click on the "Assembly Mapping" button to see the detailed assembly map.

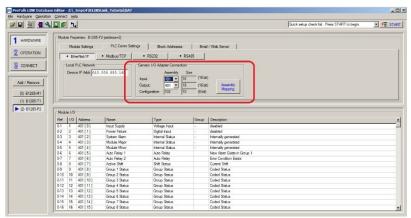


Figure 12-4: EtherNet/IP Example 1 – Adapter size

13. EtherNet/IP Example 2

This example uses assembly 311 to set up 128 discrete alarms.

20	٦								Quick setup check list. Press START to begin.	- 2
Module	Propert	es: B1285-P2	(address+2)							
	Module	Patrice .	1 1000-	m Settings	Block Address	an 1	Freed	I / Web Server		
			PLC Com		IP Address	PLC ID		17 Web Server		
	c Modu	e Polling		Туре	IP Address	PLCID	Start			
0	M1									
1	T1									
2	P2		/IP Adapter /IP Adapter	bt	10.0.50.168			[0].0		
3	P2 P2		/IP Adapter /IP Adapter	bt	10.0.50.168	-		[1].0 [2].0		
	P2		/IP Adapter /IP Adapter	bit	10.0.50.168			[2].0		
6	P2		/IP Adapter /IP Adapter	bit	10.0.50.168			[4].0		
7	P2		/IP Adapter	bit	10.0.50.168			(4).0		
Ref		idress	Name		Туре		Group	Description		
Ref	1/0 A			2						
Ref 2-1	1/0 A	idress 1 [0] . 0 1 [0] . 1	Name PLC digtal 3 PLC digtal 3		Type PLC Bt Register PLC Bt Register	_	Group 1	Alam when input is 1, momentary operation		
Ref 2.1 2.2	1/0 A 1 3 2 3	1[0].0	PLC digital 3	13	PLC Bt Register	_	1			
Ref 2-1 2-2 2-3	1/0 A 1 3 2 3 3 3	1[0].0	PLC digital 3 PLC digital 3	13 14	PLC Bit Register PLC Bit Register	-	1	Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation		
Ref 2:1 2:2 2:3 2:4 2:5	1/0 A 1 3 2 3 3 3 4 3 5 3	1[0].0 1[0].1 1[0].2 1[0].3 1[0].4	PLC digital 3 PLC digital 3 PLC digital 3	13 14 15	PLC Bt Register PLC Bt Register PLC Bt Register PLC Bt Register PLC Bt Register		1 1 1	Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6	I/O A 1 3 2 3 3 3 4 3 5 3 6 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3	13 14 15 16	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1	Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5 1 [0].6	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3	13 14 15 16 17 18	PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1	Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5 1 [0].6 1 [0].7	PLC digital 3 PLC digital 3	13 14 15 16 17 18 19	PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1 1	Alarm when input is 1, momentary operation Alarm when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3 9 3	1 [0] . 0 1 [0] . 1 1 [0] . 2 1 [0] . 3 1 [0] . 4 1 [0] . 5 1 [0] . 6 1 [0] . 7 1 [0] . 8	PLC digital 3 PLC digital 4	13 15 16 17 18 19 10	PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1 1 1	Altern when input is 1, momentary operation Altern when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3 9 3 10 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5 1 [0].6 1 [0].7 1 [0].8 1 [0].9	PLC digital 3 PLC digital 4 PLC digital 4	13 15 16 17 18 19 10 11	PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1 1 1 1	Aiam when input is 1, momentary operation Aiam when input is 1, momentary operation		
Ref 2:1 2:2 2:3 2:4 2:5 2:6 2:7 2:8 2:9 2:10 2:11	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3 9 3 10 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5 1 [0].6 1 [0].7 1 [0].8 1 [0].9 1 [0].10	PLC digital 3 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4	13 14 15 16 17 18 19 10 11 12	PLC Bt Register PLC Bt Register		1 1 1 1 1 1 1 1 1 1 1 1 1	Alam when input is 1, monetary operation Alam when input is 1, momentary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12	I/O A 1 3' 2 3' 3 3 4 3' 5 3' 6 3' 7 3' 8 3' 9 3' 10 3' 11 3' 12 3'	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].6 1 [0].7 1 [0].8 1 [0].9 1 [0].10 1 [0].11	PLC digital 3 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4	13 14 15 16 17 18 19 10 11 12 13	PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Altern when input is 1, mometary operation Altern when input is 1, mometary operation		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12 2-13	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3 9 3 10 3 11 3 12 3 13 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].5 1 [0].6 1 [0].7 1 [0].8 1 [0].9 1 [0].10 1 [0].11 1 [0].12	PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 3 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4	13 14 15 16 17 18 19 10 10 11 12 13 14	PLC Bt Register PLC Bt Register		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Alam when input. In :		
Ref 2-1 2-2 2-3 2-4 2-5 2-6 2-7 2-8 2-9 2-10 2-11 2-12 2-13 2-14	I/O A 1 3 2 3 3 3 4 3 5 3 6 3 7 3 8 3 9 3 10 3 11 3 12 3 13 3 14 3	1 [0].0 1 [0].1 1 [0].2 1 [0].3 1 [0].4 1 [0].6 1 [0].7 1 [0].8 1 [0].9 1 [0].10 1 [0].11	PLC digital 3 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4 PLC digital 4	13 14 15 16 17 18 19 10 10 11 12 23 3 44 15	PLC Bit Register PLC Bit Register		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Altern when input is 1, mometary operation Altern when input is 1, mometary operation		

Figure 13-1: EtherNet/IP Example 2 – Assign Assembly 311 to blocks 2 thru 9

peration Conne							
2 🔌 🖸 🖻	<u>ا</u> 1	l			I	Quick setup check list. Press START to begin.	- *
Mod	ule Pror	perties: B1285-P	2 (address=2)				
E							
	Mod	ule Settings	PLC Comm Settings	Block Addresses	Ema	il / Web Server	
۹ I I 🗖	+ Ph	erNet/IP	Modbus/TCP	• RS232 + R	S485 (
=							
	Local	PLC Network	Ge	neric I/O Adapter Connection			
	Devic	e IP Addr: 010.	000.050.168	Assembly S	Size		
			Ing	put: 101 🔻 16	(16 bi	t)	
:			0	tput: 311 - 8	(16 bi	t) Assembly	
-				onfiguration: 102 10		Manajan	
1			- u	inguration. [102]10	(o Dit)		
1 –							
2	01.0						
2 Mod	ule 1/0	1	1	1~	10	(m	
2 Mod Ref	1/0	Address	Name	Туре	Group	Description	
2 Ref 0-1	1/0	Address	Input Supply	Voltage Input		disabled	
2 Mod Ref 0-1 0-2	1/0 1 2	Address	Input Supply Power Failure	Voltage Input Digital Input		disabled disabled	
2 Mod Ref 0.1 0.2 0.3	1/0 1 2 3	Address	Input Supply Power Failure System Alarm	Voltage Input Digital Input Internal Status		disabled disabled Internally generated	
2 Mod Ref 0-1 0-2 0-3 0-4	1/0 1 2 3 4	Address	Input Supply Power Failure System Alarm Module Major	Voltage Input Digital Input Internal Status Internal Status		disabled disabled internally generated internally generated	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5	1/0 1 2 3 4 5	Address	Input Supply Power Failure System Alarm Module Major Module Minor	Voltage Input Digital Input Internal Status Internal Status Internal Status		disabled disabled Internally generated Internally generated Internally generated	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-6	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1	Voltage Input Digital Input Internal Status Internal Status Internal Status Auto Relay		disabled disabled Internally generated Internally generated Internally generated New Alam Exists in Group 1	
2 Mod Ref 0.1 0.2 0.3 0.4 0.5 0.6 0.7	1/0 1 2 3 4 5	Address	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay		disabled disabled Internally generated Internally generated Internally generated New Alarm Exists in Group 1 Error Condition: Exists	
2 Nod 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-7 0-8	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status		deabled deabled htemally generated htemally generated htemally generated htem Alam Exists in Group 1 Error Condition Exist Currert Shift	
2 Mod Ref 0.1 0.2 0.3 0.4 0.5 0.6 0.7	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2	Votage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status		disabled disabled Internally generated Internally generated Internally generated New Alarm Exists in Group 1 Error Condition: Exists	
2 Nod 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-7 0-8	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Major Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 2 Status	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status		deabled deabled htemally generated htemally generated htemally generated htem Alam Exists in Group 1 Error Condition Exist Currert Shift	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-9	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Minor Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status	Votage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status		deabled disabled Internally generated Internally generated Internally generated Ternar Condition Exists in Group 1 Error Condition Exists Current Shrft Cocked Status	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-5 0-6 0-7 0-8 0-9 0-10	1/0 1 2 3 4 5 1	Address	Input Supply Power Failure System Alarm Module Major Module Major Auto Relay 1 Auto Relay 2 Active Shift Group 1 Status Group 2 Status	Voltage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status		disabled disabled Hermally generated Hermally generated Hermally generated Hermally generated New Alam Exist in Group 1 Error Condition Exist Coded Status Coded Status	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-6 0-7 0-8 0-9 0-10 0-11 0-11 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-7 0-8 0-7 0-7 0-8 0-7 0-7 0-7 0-8 0-7 0-7 0-7 0-7 0-7 0-7 0-7 0-7	1/0 1 2 3 4 5 1	Address	Input Supply Power Falure System Alam Module Major Module Major Auto Roley 1 Acto Roley 2 Active Shift Group 1 Status Group 2 Status	Votage Input Digital Input Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status		deabled disabled Harmaly percented Harmaly percented Harmaly percented Farmaly percented New Name Stats n Group 1 Entre Condition Eleast Current Shrit Coded Status Coded Status Coded Status	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-5 0-5 0-5 0-5 0-5 0-5 0-7 0-8 0-9 0-10 0-11 0-12 0-10 0-10 0-10 0-10 0-10 0-10 0-5 0-5 0-5 0-5 0-5 0-5 0-5 0-	1/0 1 2 3 4 5 1	Address	Input Supply Power Falure System Alarm Module Major Module Major Auto Relay 1 Auto Relay 1 Auto Relay 1 Auto Relay 2 Active Shift Group 2 Status Group 2 Status Group 2 Status	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Auto Relay Group Status Group Status Group Status Group Status		disabled disabled Hermally generated Hermally generated Hermally generated Hermally generated Rew Alam Exits in Group 1 Error Condition Exits Conder Shift Coded Status Coded Status Coded Status Coded Status	
2 Mod Ref 0-1 0-2 0-3 0-4 0-5 0-6 0-7 0-8 0-9 0-10 0-11 0-12 0-13 0-10 0-11 0-12 0-3 0-5 0-5 0-5 0-5 0-5 0-5 0-5 0-5	1/0 1 2 3 4 5 1	Address	Input Supply Power Falure System Alam Module Major Auto Relay 1 Auto Relay 1 Active Shift Group 1 Status Group 2 Status Group 3 Status Group 4 Status	Votage Input Digital Input Internal Status Internal Status Internal Status Auto Relay Auto Relay Shift Status Group Status Group Status Group Status Group Status Group Status		deabled disabled Hamaly percented Hamaly percented Hamaly percented Entromaly percented Rew Name Exists in Group 1 Entro Conden Deats Cornert Shrit Coded Status Coded Status Coded Status Coded Status Coded Status	

Figure 13-2: EtherNet/IP Example 2 – Noting the Adapters used and their sizes

14. EtherNet/IP PLC Configuration

The following series of RSLogix 5000 screenshots shows a representative PLC configuration for connection to the B1285-P2.

Note: Firmware for Rockwell controllers must be a minimum of Rev 18 to show the "Use Unicast Connection over EtherNet/IP" option. Older firmware may indicate error code 16#0203.

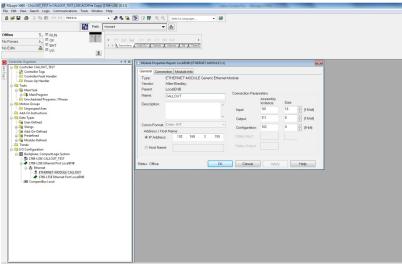


Figure 14-1: RSLogix Screenshot 1

RSLogix 5000 - CALLOUT_TEST in CALLOUT_TEST_L3SE.ACD(File Copy) [1769-L3SE 20.11] File Edit View Search Logic Communications Tools Window Help	Mariante Rog PR.	
	The Ly 📴 Q, Q, Select a Language 💌 😡	
Path: (none)	▼ Å	
No Edits A E VO	(-() - () - () - () - () - () - () - (
Controller Organizer + # X	Module Properties Report: LocalENB (ETHERNET-MODULE 1.1)	
Comparing CLOPT, 101	Decense Standar Maddar Mail Respected Pickat Hanced (2P) 200 mm (13-2000 mm) Intel Model Mail France (2000 mm) Intel Model Mail France (2000 mm) Model Fault Model Fault Status: Office OK Cencell Appring	

Figure 14-2: RSLogix Screenshot 2

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Path: Coone>	▼ 28							
	terorites & Add de & Safety & Alerem & S4 &) Tenerili						
	- 0 X Scope: BCALLOUT_TEST	- Phone All Texts		- X -	Enter Alexee Filter .			-
Controller CALLOUT_TEST	Name	allo Alles For	Base Teq	Data Type	Description	External Access	Constent	
- Controller Fault Handler	* CALLOUT C	AR- 140710	Conteriog	ABETHERNET_MODULE.C0	Corolpion	Read/Write		
Power-Up Handler	+ CALLOUTI			ABETHERNET_MODULE_INT_32Bytes10		Read/Write		
B G MainTask	* CALLOUT O			ABETHERNET MODULE INT 160Aps:0.0		Read/Write		
A MainProgram	CALLTEST			BOOL	Toggle this bit High it.		1	7
Unscheduled Programs / Phases Motion Groups	a contrast			0001	rogge tils bir right.	Presidentine		-
Medut-Defined Tinds Ti								

Figure 14-3: RSLogix Screenshot 3

	$(\cdot \cdot - (\cdot) - (\cdot) - (u) - (u))$	•							
dundency R-3	Add-On 🔏 Alarms 🔏 Bit 🔏 Ti	men/Counter 🔏 🛛							
Controller Organizer + # X	troller Tags - PerpetualWestWolfL								
25imReset *							_		
	: Depetuativestw - Show:	All Tags					• 7.	callout	
B 100 PIDTask	DR	Value	a standard of the		ck00 ET01 (ETHER!	IET MODULE 1.1			
B A PIDProgram	CALLOUT:C	()	- Module Ph	operaes report in	ICNOD_ETOX (ETHEN)	AEL-MODOLE IT	1		
System_Diagnostics	- CALLOUT: C.D.ata	()	General Co	nection Module I	nio				
Processor_and_Redundancy Sommunications	CALLOUTS	[]	Type:	ETHERNETMO	III E Generic Ethern	et Module			
Gommunications Modules	CALLOUT: I.D.ata	[]	Vendor	Aleo-Biadev	and an Are Laren				
Unscheduled Programs / Phases	+ CALLOUTI.DataI01	3231	Parent	Reck00 ET01					
Motion Groups	+ CALLOUTI.Data[1]			CALLOUT		Connection Par	ameters		
Unprouped Axes	+ CALLOUTI.Date[2]	9		CALLOUT			Assembly Instance:	Size	
Add-On Instructions	+ CALLOUT I Date 3	9	Description		~		101	16	
- Ga Compressor ASD	+ CALLOUT I. Datal41	9				Input:	101	16	÷ (16-bk)
- Compressor Motor	+ CALLOUTI.Data/51	0			*	Output	305	2	÷ (16-bi)
+ C IBC4	+ CALLOUTI.Datal61			at Data - INT			102	-	
e-Ga ILMR	+ CALLOUTI.Data/71			Host Name		Configuration	102	0	(8-64)
Ramp_Block	+ CALLOUTI.Datal81	1		Neter 10 21	0 . 202 . 114				
E CP_REAL	+ CALLOUTI.Data(9)	1	- C						
🕀 📇 Data Types	+ CALLOUTI.Data[10]		C Host N	ane:		Sjatus Output			
🗄 🙀 User-Defined	+ CALLOUTI.Data[11]								
🖶 🙀 Strings	+ CALLOUTI.Data[12]		+ I -						
🕫 🙀 Add-On-Defined	+ CALLOUTI.Data[13]	-	Status: Runnie	10	DK	Cancel	Appl		Help
Generation Generation	+ CALLOUTI.Data[14]	-	-	Decimal	INT			_	
Module-Defined	+ CALLOUT J. Data[15]	-		Decimal	INT				
- Can Trends	CALLOUTIO	[]				MODULE INT 48	later 0.0		-
	- CALLOUT: D.D.Ma	()	(INT[2]		,,		_
I/30 Backplane, 1/30-A1/	E CALLOUT O Data(0)	255	(Decinal	INT				
- 10 [0] 1756-L72 PerpetualWestWolfLake	CALLOUT:0.Datalog	1		Decinal	BOOL				
- 1 [1] 1/36-EN21 Kack00_E101	- CALLOUT: 0.Data[0] 0	1		Decimal	BOOL				
- SS Ethernet	- CALLOUT:0.Data(0)1	1	1	Decinal	BOOL				-
1756-EN2T Rack00_ET01	- CALLOUT:0.Data(0)2	1		Decimal	BOOL				-
igure 14-3: RSLogix			1	locong	0000				