User Manual

smartincations

Connectivity to Industrial Networks Third Party Compatible PROFIBUS Solutions



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Prosoft Technologies MVI56-PDPMV1 PROFIBUS Scanner Card for ControlLogix PLC[®] Prosoft Technologies PTQ-PDPMV1 PROFIBUS Scanner Card for Quantum PLC[®]

Hilscher RIF 1769 for CompactLogix PLC®

HMS Anybus Gateway-X PROFIBUS Master[®] HMS Anybus NetTool[®]

This instruction manual contains procedures for commissioning industrial control networks. These procedures must be performed on systems that are not in operation. That is to say, all required equipment for the procedure must be operational, but not in a state of active use with "live" or running equipment.

While following these instructions you may have to either:

- A. Cycle power to the devices
- B. Cycle between the "RUN" and "PROGRAMMING" modes

Only qualified personnel with proper training on PLC programming maintenance, and full access to the required equipment should perform these procedures. Within the context of this manual, qualified persons are defined as persons who have the skills and knowledge related to the construction and operation of the equipment and the equipment on which it is installed, and have received safety training to recognize and avoid any hazards involved.

These procedures assume technical skill and familiarity with Rockwell Automation ControlLogix PLC, Rockwell Software RSLogix5000, Rockwell Software RSNetworx for Devicenet, Modicon Quantum PLC, Concept 2.6XL programming software, Windows Hyperterminal software, Ethernet wiring practices, and Ethernet IP/Subnet addressing ranges available for the installation.

Lack of knowledge or experience with these programming environments may create potentially unsafe operating conditions, which may result in death, severe personal injury or serious property damage.

NOTE

THESE INSTRUCTIONS DO NOT PURPORT TO COVER ALL DETAILS OR VARIATIONS IN EQUIPMENT, OR TO PROVIDE FOR EVERY POSSIBLE CONTINGENCY TO BE MET IN CONNECTION WITH INSTALLATION, OPERATION OR MAINTENANCE. SHOULD FURTHER INFORMATION BE DESIRED OR SHOULD PARTICULAR PROBLEMS ARISE, WHICH ARE NOT COVERED SUFFICIENTLY FOR THE PURCHASER'S PURPOSES, THE MATTER SHOULD BE REFERRED TO THE LOCAL SIEMENS SALES OFFICE. THE CONTENTS OF THIS INSTRUCTION MANUAL SHALL NOT BECOME PART OF OR MODIFY ANY PRIOR OR EXISTING AGREEMENT, COMMITMENT OR RELATIONSHIP. THE SALES CONTRACT CONTAINS THE ENTIRE OBLIGATION OF SIEMENS. THE WARRANTY CONTAINED IN THE CONTRACT BETWEEN THE PARTIES IS THE SOLE WARRANTY OF SIEMENS. ANY STATEMENTS CONTAINED HEREIN DO NOT CREATE NEW WARRANTIES OR MODIFY THE EXISTING WARRANTY.

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1. Introduction

The goal of this manual is to review the Siemens Smart MCC offering, and define the most common ways to

1.1. TIAStar MCC

A TIAStar (Smart) MCC is an MCC with the following characteristics:

- Internal PROFIBUS and/or ASi wiring to connect equipment together
- May or may not have PROFIBUS repeaters or gateways to competitive networks

connect to and control the individual motors wired to the MCC.

- Has more than one of the following devices installed:
 SIMOCODE Smart Overload Controllers
 - MM440 or 6SED VFD with PROFIBUS communication boards installed
 - 3RW44 Soft-starters with PROFIBUS Communication board installed









1.2 TIAStar MCC Overview

1.2.1. MCC Design

The MCC will be designed as a series of sections, each section containing individual units, or "buckets."



1.2.2. MCC Network Installation

The basic communication backbone for the Smart MCC is Siemens PROFIBUS Network. This is a high-speed, two-wire network capable of delivering deterministic data and control to the controlling processor. You may get additional information on PROFIBUS at www.pto.com This network is used to connect all of the devices in the MCC. Each device in the MCC has its own node number on the network.



1.2.3. Default Configuration

The following network testing and configuration will be completed prior to shipment:

- Setting of the node address for every device. The node address is determined from the starting address of 2, unless specified differently by the customer, and then incremented by one for every node attached to the network. The node number is incremented in the order that it is attached to the network cable starting from the first node beginning in the upper left of the first MCC section in the order.
- A VFD drive is set to the default settings with the following exceptions:
 - Node number
 - Speed command source (from communications network)
 - Start / Stop command source (from communications network)

- A SIMOCODE overload is set to the default settings with the following exceptions:
 - Node number
 - Motor overload is set to maximum value
- A 3RW44 soft-start is set to the default settings with the following exceptions:
 - Node number
- Verification that the network itself is properly installed and all devices connected to the network are powered and active on the network.

Please note that these default configuration comments are not true for all configurations that are available, and may be changed at any time by the production engineering group to facilitate production or field requests.

1.3. Communication to a TIAStar MCC

The Siemens Smart MCC with integrated PROFIBUS is capable of being controlled by every major supplier of PLC today. Of course, the most powerful option is to use a Siemens PLC for control of the MCC, but it may not be possible in all environments to use a Siemens PLC for the controller.

Siemens has qualified a limited number of 3rd party cards for use in competitor PLC's that will work with a Siemens Smart MCC, and currently has available a series

1.3.1. Siemens PLC or PCS System

The best performance combination in terms of speed and ease of integration is to connect a Siemens Smart MCC with a Siemens PLC or PCS network master. This can be any S7-300, S7-400, or PCS-7 system that is capable if controlling the number of devices installed in the Siemens Smart MCC. of gateways that can be installed and configured by Siemens to allow a Siemens Smart MCC to be installed into a non-PROFIBUS control network.

Further details on the 3rd party cards and gateway are included in subsequent sections of this manual.

The combination of a Siemens Controller with a Siemens TIAStar MCC is a powerful, flexible, system that will provide you with information and control unlike any other motor control center on the market today.



1.3.2. Recommended PLC Cards

The following PLC cards have been tested and certified to properly control Siemens TIAStar via PROFIBUS-DP. These

cards are not included as part of the Siemens MCC solution, and should be purchased separately.

Manufacturer	Processor	PROFIBUS Scanner for Pi	rocessor	
Allen-Bradley	ControlLogix	ProSoft Technology 1756-PDPMV1	Woodhead Industries SST-PFB-CLX-RLL	
Allen-Bradley	CompactLogix, or Micrologix 1500	Hilscher RIF1769-DPM		
Modicon	Quantum	ProSoft Technology PTQ-PDP-MV1		Pr
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1.3.3. Recommended Gateways

These gateways can be supplied by Siemens as part of a Smart MCC order. When Siemens supplies one of these gateway modules, it will typically be mounted in a 12-inch bucket with necessary power supply and additional wiring terminations. Siemens will connect the internal PROFIBUS network to the "scanner" side of the gateway, leaving the "adapter" side of the gateway to be terminated by the customer upon installation in the field.

I/O Network	Gateway	
DeviceNet	HMS Anybus AB7802	
Ethernet/IP	HMS Anybus AB7800	
Modbus TCP/IP	HMS Anybus AB7800	
Modbus	HMS Anybus AB7808	



Industrial Network



1.4. Scope of Responsibilities

Customer Scope of Supply

Customer responsible for: Installation of PROFIBUS or competitor network from MCC to PLC Installation, programming, and configuration of PLC network card

Programming of PLC and competitor network connected to gateway



1.5. Fieldbus Definitions

1.5.1. Devicenet, Controlnet, Ethernet/IP

DeviceNet, ControlNet, Ethernet/IP, which are based on Common Industrial Protocol (CIP) upper-layer protocol Developer/ support organizations: ODVA (Open DeviceNet Vendor Association) and ControlNet International (CI), which co-manage EtherNet/IP

Installed base: approximately 3.5 million nodes, total for all CIP networks

Topology: linear (trunkline/dropline) for DeviceNet; linear, tree, star or combination (ControlNet); active star with devices connected to an Ethernet switch (Ethernet/IP)

Physical media: twisted-pair for signal and power (DeviceNet); coaxial or fiber (ControlNet); 10/100-base T twisted-pair Cat 5E (Ethernet/IP)

Max. devices: 64 nodes (DeviceNet); 99 nodes (ControlNet), no limit (EtherNet/IP)

Max. distance: 500 meters at 125 kbps, depending on data rate (DeviceNet); 1 km via coax with two nodes, 3 km over fiber with 99 nodes, 30 km over fiber or coax with repeaters up to 99 nodes (ControlNet); no limit (EtherNet/IP)

Communication method: producer/consumer with peer-to-peer and master/slave option for DeviceNet and ControlNet Data Rate: 500 kbps, 250 kbps or 125 kbps (DeviceNet); 5 Mbps (ControlNet); 10/100 Mbps (Ethernet/IP)

Data packet size: 0-8 bytes variable (DeviceNet); 0-510 bytes variable (ControlNet); 0 to 65,511 bytes variable (Ethernet/IP)

1.5.2. Modbus

Modbus

Modbus RTU/ASCII, Modbus Plus, Modbus TCP/IP

Developer/originator: Modicon, Schneider Electric

Support organization: Modbus-IDA

Topology: linear; line, star, tree with segments

Physical media: twisted-pair; RS-232 and RS-485

Max devices: 32 nodes per segment and 64 segments for Modbus Plus; 250 nodes per segment for RTU/ASCII

Max distance: 500 meters per segment for Modbus Plus; 350 m for RTU/ASCII; 100 m for TCP/IP between switches Communication method: master/slave or client/server

Transmission properties: 1 Mbps for Modbus Plus; 300 bps-38.4 kbps for RTU/ASCII; 100 Mbps for TCP/IP Data packet size: variable for Modbus Plus; 0-254 bytes for RTU/ASCII; 1,500 bytes for TCP/IP

1.5.3. PROFIBUS

PROFIBUS
Name: PROFIBUS-PA, PROFIBUS-DP, Profinet, ProfiSafe
Developer/originator: Siemens AG
Support organization: PROFIBUS Nutzerorganisation e.V. (PNO) and the PROFIBUS Trade Organization (PTO)
Installed base: more than 10 million nodes
Topology: line, star, ring, or bus
Physical media: twisted-pair or fiber
Max devices: 127 nodes in four segments with three repeaters, plus three masters
Max distance: 100 meters between segments at 12 Mbps, or 12 km with fiber
Communication method: master/slave, peer-to-peer
Transmission properties: 500 kbps, 1.5 or 12, Mbps for PROFIBUS DP; 31.25 kbps for PROFIBUS PA
Data packet size: 256 bytes
Cycle time: configuration dependent, less than 2 msec

2. **PROFIBUS Integration Overview**

2.1. **PROFIBUS Network Basics**



Important Concepts:

- 1. CYCLIC INPUTS AND OUTPUTS are transferred once per I/O scan.
- 2. An I/O scan is transfer of cyclic inputs and outputs for every PROFIBUS slave from Node 1 to the Highest Station Address configured (default is 126, but is usually manually reset in the PROFIBUS Class 1 master to the last slave node on the network.)
- 3. The size of the byte package to transfer between the master and the slave is determined by the slave configuration and the configuration in the master. This configuration usually must match, but in some cases the master configuration will determine the actual bytes transferred. (The slave adapts to the master request.).

2.2 **Default Cyclic Interface**

2.2.1. SIMOCODE Pro Cyclic Interface

SIMOCODE Pro V Type 1				SIMOCODE Pro V Type 2			
Inputs (E	Device to Master)	Outputs	(Master to Device)	Inputs (Device to Master)		Outputs	(Master to Device)
Address	Description	Address	Description	Address	Description	Address	Description
0.0	DP - Status = ON<	0.0	DP - ON<	0.0	DP - Status - On<	0.0	DP - On<
0.1	DP - Status - OFF	0.1	DP - OFF	0.1	DP - Status - OFF	0.1	DP - OFF
0.2	DP - Status - ON>	0.2	DP - ON>	0.2	DP - Status - ON>	0.2	DP - ON>
0.3	DP - Overload	0.3	DP - Test1	0.3	DP - Overload	0.3	DP - Test1
0.4	DP - Interlocking	0.4	DP - Emer Start	0.4	DP - Interlocking	0.4	DP - Emer Start
	Time Active				Time Active		
0.5	DP - Remote Mode	0.5	DP - Remote Mode	0.5	DP - Remote Mode	0.5	DP - Remote Mode
0.6	DP - Fault	0.6	DP - Reset	0.6	DP - Fault	0.6	DP - Reset
0.7	DP - Warning	0.7	Unused Cyclic Bit	0.7	DP - Warning	0.7	Unused Cyclic Bit
1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit
1.1	Unused Cyclic Bit	1.1	Unused Cyclic Bit	1.1	Unused Cyclic Bit	1.1	Unused Cyclic Bit
1.2	Unused Cyclic Bit	1.2	Unused Cyclic Bit	1.2	Unused Cyclic Bit	1.2	Unused Cyclic Bit
1.3	Unused Cyclic Bit	1.3	Unused Cyclic Bit	1.3	Unused Cyclic Bit	1.3	Unused Cyclic Bit
1.4	Unused Cyclic Bit	1.4	Unused Cyclic Bit	1.4	Unused Cyclic Bit	1.4	Unused Cyclic Bit
1.5	Unused Cyclic Bit	1.5	Unused Cyclic Bit	1.5	Unused Cyclic Bit	1.5	Unused Cyclic Bit
1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit	1.0	Unused Cyclic Bit
1./		1./	Unused Cyclic Bit	1./		1./	Onused Cyclic Bit
2.0	2.0 Max Current	2.0	Unused Cyclic Word Byte 0	2.0	2.0 Max Current		
2.1	2.1 Max Current	2.1	Unused Cyclic Word Byte 0	2.1	2.1 Max Current		
2.2	2.2 Max Current	2.2	Unused Cyclic Word Byte 0	2.2	2.2 Max Current		
2.5	2.3 Max Current	2.5	Unused Cyclic Word Byte 0	2.5	2.3 Max Current		
2.4	2.4 Max Current	2.4	Unused Cyclic Word Byte 0	2.4	2.4 Max Current		
2.5	2.5 Max Current	2.5	Unused Cyclic Word Byte 0	2.5	2.5 Max Current		
2.0	2.0 Max Current	2.0	Unused Cyclic Word Byte 0	2.0	2.0 Max Current		
3.0	3 0 Max Current	3.0	Unused Cyclic Word Byte 0	3.0	3.0 Max Current		
3.0	3.1 Max Current	3.0	Unused Cyclic Word Byte 1	3.0	3.1 Max Current		
3.2	3.2 Max Current	3.7	Unused Cyclic Word Byte 1	3.7	3.2 Max Current		
3.3	3.3 Max Current	3.3	Unused Cyclic Word Byte 1	3.3	3.3 Max Current		
3.4	3.4 Max Current	3.4	Unused Cyclic Word Byte 1	3.4	3.4 Max Current		
3.5	3.5 Max Current	3.5	Unused Cyclic Word Byte 1	3.5	3.5 Max Current		
3.6	3.6 Max Current	3.6	Unused Cyclic Word Byte 1	3.6	3.6 Max Current		
3.7	3.7 Max Current	3.7	Unused Cyclic Word Byte 1	3.7	3.7 Max Current		
4.0	Unused Cyclic Word Byte 0						
4.1	Unused Cyclic Word Byte 0	1					
4.2	Unused Cyclic Word Byte 0	1					
4.3	Unused Cyclic Word Byte 0]					
4.4	Unused Cyclic Word Byte 0]					
4.5	Unused Cyclic Word Byte 0]					
4.6	Unused Cyclic Word Byte 0						
4.7	Unused Cyclic Word Byte 0						
5.0	Unused Cyclic Word Byte 1						
5.1	Unused Cyclic Word Byte 1						
5.2	Unused Cyclic Word Byte 1	-					
5.3	Unused Cyclic Word Byte 1						
5.4	Unused Cyclic Word Byte 1						
5.5	Unused Cyclic Word Byte 1	-					
5.6	Unused Cyclic Word Byte 1	4					
5./	Unused Cyclic Word Byte I	-					
6.0	Unused Cyclic Word Byte U	-					
6.2	Unused Cyclic Word Byte 0	4					
6.2	Unused Cyclic Word Byte U	-					
6.0	Unused Cyclic Word Byte O	4					
6.5	Unused Cyclic Word Byte O	4					
6.6	Unused Cyclic Word Byte O	-					
6.7	Unused Cyclic Word Byte 0	1					

SIMOCODE Pro V Type 1			
Address	Description		
7.0	Unused Cyclic Word Byte 1		
7.1	Unused Cyclic Word Byte 1		
7.2	Unused Cyclic Word Byte 1		
7.3	Unused Cyclic Word Byte 1		
7.4	Unused Cyclic Word Byte 1		
7.5	Unused Cyclic Word Byte 1		
7.6	Unused Cyclic Word Byte 1		
7.7	Unused Cyclic Word Byte 1		
8.0	Unused Cyclic Word Byte 0		
8.1	Unused Cyclic Word Byte 0		
8.2	Unused Cyclic Word Byte 0		
8.3	Unused Cyclic Word Byte 0		
8.4	Unused Cyclic Word Byte 0		
8.5	Unused Cyclic Word Byte 0		
8.6	Unused Cyclic Word Byte 0		
8.7	Unused Cyclic Word Byte 0		
9.0	Unused Cyclic Word Byte 1		
9.1	Unused Cyclic Word Byte 1		
9.2	Unused Cyclic Word Byte 1		
9.3	Unused Cyclic Word Byte 1		
9.4	Unused Cyclic Word Byte 1		
9.5	Unused Cyclic Word Byte 1		
9.6	Unused Cyclic Word Byte 1		
9.7	Unused Cyclic Word Byte 1		

2.2.1. SIMOCODE Pro Cyclic Interface (cont'd)

2.2.2. MM440 VFD Cyclic Interface

Inputs (D	evice to Master)	Outputs ((Master to Device)
Address	Description	Address	Description
0.0	PWK Input 0.0	0.0	PWK Output 0.0
0.1	PWK Input 0.1	0.1	PWK Output 0.1
0.2	PWK Input 0.2	0.2	PWK Output 0.2
0.3	PWK Input 0.3	0.3	PWK Output 0.3
0.4	PWK Input 0.4	0.4	PWK Output 0.4
0.5	PWK Input 0.5	0.5	PWK Output 0.5
0.6	PWK Input 0.6	0.6	PWK Output 0.6
0.7	PWK Input 0.7	0.7	PWK Output 0.7
1.0	PWK Input 1.0	1.0	PWK Output 1.0
1.1	PWK Input 1.1	1.1	PWK Output 1.1
1.2	PWK Input 1.2	1.2	PWK Output 1.2
1.3	PWK Input 1.3	1.3	PWK Output 1.3
1.4	PWK Input 1.4	1.4	PWK Output 1.4
1.5	PWK Input 1.5	1.5	PWK Output 1.5
1.6	PWK Input 1.6	1.6	PWK Output 1.6
1./	PWK Input 1.7	1./	PWK Output 1.7
2.0	PWK Input 2.0	2.0	PWK Output 2.0
2.1	PWK Input 2.1	2.1	PWK Output 2.1
2.2	PWK Input 2.2	2.2	PWK Output 2.2
2.5	PWK IIIput 2.5	2.5	PWK Output 2.5
2.4	PWK IIIput 2.4	2.4	PWK Output 2.4
2.5	PWK Input 2.5	2.5	PWK Output 2.5
2.0	PWK Input 2.0	2.0	PWK Output 2.7
3.0	PWK Input 3.0	3.0	PWK Output 3.0
3.0	PWK Input 3.1	3.0	PWK Output 3.1
3.2	PWK Input 3.2	3.2	PWK Output 3.2
3.3	PWK Input 3.3	3.3	PWK Output 3.3
3.4	PWK Input 3.4	3.4	PWK Output 3.4
3.5	PWK Input 3.5	3.5	PWK Output 3.5
3.6	PWK Input 3.6	3.6	PWK Output 3.6
3.7	PWK Input 3.7	3.7	PWK Output 3.7
4.0	PWK Input 4.0	4.0	PWK Output 4.0
4.1	PWK Input 4.1	4.1	PWK Output 4.1
4.2	PWK Input 4.2	4.2	PWK Output 4.2
4.3	PWK Input 4.3	4.3	PWK Output 4.3
4.4	PWK Input 4.4	4.4	PWK Output 4.4
4.5	PWK Input 4.5	4.5	PWK Output 4.5
4.6	PWK Input 4.6	4.6	PWK Output 4.6
4.7	PWK Input 4.7	4.7	PWK Output 4.7
5.0	PWK Input 5.0	5.0	PWK Output 5.0
5.1	PWK Input 5.1	5.1	PWK Output 5.1
D.2	PWK Input 5.2	5.2	
5.5	PWK Input 5.5	D.3	PWK Output 5.3
5.5	PWK Input 5.4	5.4	PWK Output 5.5
5.5	PWK Input 5.5	5.5	PWK Output 5.6
5.7	PWK Input 5.7	5.0	PWK Output 5.7
60	PWK Input 6.0	5.7	
6.1	PWK Input 6.1	6.0	PWK Output 6.1
6.2	PWK Input 6.2	6.7	PWK Output 6.2
6.3	PWK Input 6 3	6.3	PWK Output 6 3
6.4	PWK Input 6.4	6.4	PWK Output 6.4
6.5	PWK Input 6.5	6.5	PWK Output 6.5
6.6	PWK Input 6.6	6.6	PWK Output 6.6
6.7	PWK Input 6.7	6.7	PWK Output 6.7
7.0	PWK Input 7.0	7.0	PWK Output 7.0
7.1	PWK Input 7.1	7.1	PWK Output 7.1
7.2	PWK Input 7.2	7.2	PWK Output 7.2

Inputs (D	evice to Master)	Outputs	(Master to Device)
Address Description		Address	Description
7.3	PWK Input 7.3	7.3	PWK Output 7.3
7.4	PWK Input 7.4	7.4	PWK Output 7.4
7.5	PWK Input 7.5	7.5	PWK Output 7.5
7.6	PWK Input 7.6	7.6	PWK Output 7.6
7.7	PWK Input 7.7	7.7	PWK Output 7.7
8.0	Ready for ON=1	8.0	1=ON 0=OFF1
8.1	Ready for Run=1	8.1	1=Operate 0=0FF2
8.2	Operation	8.2	1=Operate 0=OFF3
	Enabled=1		
8.3	Fault is Active=1	8.3	1=Enable
8.4	OFF Command	8.4	1=Operate
	Applied=0		
8.5	OFF Command	8.5	1=Ramp
	Applied=0		0=Ramp Hold
8.6	Starting Lockout=1	8.6	1=Enable Support
8.7	Alarm Is Active=1	8.7	1=Ack Fault
9.0	Setpoint Reached=1	9.0	1=CW Inching
9.1	Local Control	9.1	1=CCW Inching
	Active=0		
9.2	Max Freq=1	9.2	1=Setpoint Valid
9.3	Current Limit	9.3	1=Setpoint
0.4	Alarm=1	0.4	Inverted
9.4	Motor Brake	9.4	
0.5	Enabled=1		1 Matan Datilla
9.5	Wotor Overload=1	9.5	1=Motor Pot Up
9.0		9.6	1=IVIOLOF POL DOWN
9.7	Converter Overland 1	9.7	Operation
10.0	Overiodu= i	10.0	Ciperation Encod Command
10.0	Speed Feedback	10.0	Speed Command
10.1	Speed Feedback	10.1	Speed Command
10.2	Speed Feedback	10.2	Speed Command
10.5	Speed Feedback	10.5	Speed Command
10.4	Speed Feedback	10.4	Speed Command
10.5	Speed Feedback	10.5	Speed Command
10.0	Speed Feedback	10.0	Speed Command
11.0	Speed Feedback	11.0	Speed Command
11.1	Speed Feedback	11.1	Speed Command
11.2	Speed Feedback	11.2	Speed Command
11.3	Speed Feedback	11.3	Speed Command
11.4	Speed Feedback	11.4	Speed Command
11.5	Speed Feedback	11.5	Speed Command
11.6	Speed Feedback	11.6	Speed Command
11.7	Speed Feedback	11.7	Speed Command

2.2.3. 3RW44 Soft Starter

Inputs (Device to Master)		Outputs (Master to Device)	
Address	Description	Address	Description
0.0	Ready (Automatic)	0.0	Motor Right
0.1	Motor On	0.1	Motor Left
0.2	Group Error	0.2	
0.3	Group Warning	0.3	Tip Reset
0.4	Input 1	0.4	Emergency Start
0.5	Input 2	0.5	
0.6	Input 3	0.6	Slow Speed
0.7	Input 4	0.7	
1.0	Motor Current Bit 0	1.0	Output 1
1.1	Motor Current Bit 1	1.1	Output 2
1.2	Motor Current Bit 2	1.2	Parameter Set Bit 0
1.3	Motor Current Bit 3	1.3	Parameter Set Bit 1
1.4	Motor Current Bit 4	1.4	
1.5	Motor Current Bit 5	1.5	
1.6	Manual Operation (Local)	1.6	
1.7	Ramp Operation	1.7	Disable Quick Stop

2.2.4. 9300 Power Meter

Inputs (D	evice to Master)	Outputs	(Master to Device)
Address	Description	Address	Description
0.0	Data - Byte O	0.0	Data - Byte 0
0.1	Data - Byte 0	0.1	Data - Byte 0
0.2	Data - Byte O	0.2	Data - Byte O
0.3	Data - Byte 0	0.3	Data - Byte O
0.4	Data - Byte O	0.4	Data - Byte O
0.5	Data - Byte 0	0.5	Data - Byte 0
0.6	Data - Byte O	0.6	Data - Byte O
0.7	Data - Byte O	0.7	Data - Byte O
1.0	Data - Byte 1	1.0	Data - Byte 1
1.1	Data - Byte I	1.1	Data - Byte I
1.2	Data - Byte 1	1.2	Data - Byte 1
1.5	Dala - Dyle I	1.5	Data - Byte 1
1.4	Data - Byte 1	1.4	Data - Byte 1
1.5	Data - Byte 1	1.5	Data - Byte 1
1.7	Data - Byte 1	1.7	Data - Byte 1
2.0	Data - Byte 2	2.0	Data - Byte 2
2.1	Data - Byte 2	2.1	Data - Byte 2
2.2	Data - Byte 2	2.2	Data - Byte 2
2.3	Data - Byte 2	2.3	Data - Byte 2
2.4	Data - Byte 2	2.4	Data - Byte 2
2.5	Data - Byte 2	2.5	Data - Byte 2
2.6	Data - Byte 2	2.6	Data - Byte 2
2.7	Data - Byte 2	2.7	Data - Byte 2
3.0	Data - Byte 3	3.0	Data - Byte 3
3.1	Data - Byte 3	3.1	Data - Byte 3
3.2	Data - Byte 3	3.2	Data - Byte 3
3.3	Data - Byte 3	3.3	Data - Byte 3
3.4	Dala - Byle 3	3.4	Data Byte 3
3.5	Data - Byte 3	3.5	Data - Byte 3
3.7	Data - Byte 3	3.0	Data - Byte 3
4.0	Register - Byte 0	4.0	Register - Byte 0
4.1	Register - Byte 0	4.1	Register - Byte 0
4.2	Register - Byte 0	4.2	Register - Byte O
4.3	Register - Byte 0	4.3	Register - Byte O
4.4	Register - Byte 0	4.4	Register - Byte 0
4.5	Register - Byte 0	4.5	Register - Byte O
4.6	Register - Byte 0	4.6	Register - Byte O
4.7	Register - Byte O	4.7	Register - Byte O
5.0	Register - Byte 1	5.0	Register - Byte 1
5.1	Register - Byte I	5.1	Register - Byte I
5.2	Register - Byte 1	D.Z	Register - Byte 1
5.0	Register - Byte 1	5.5	Register - Byte 1
5.5	Register - Byte 1	5.5	Register - Byte 1
5.6	Register - Ryte 1	5.6	Register - Byte 1
5.7	Register - Byte 1	5.7	Register - Ryte 1
6.0	Register Ack - 0	6.0	Register Ack - 0
	(01=Ack)		(01=Ack)
6.1	Register Ack - 1	6.1	Register Ack - 1
	(01=Ack)		(01=Ack)
6.2	Block Ack - 0	6.2	Block Ack - 0
	(01=Ack)		(01=Ack)
6.3	Block Ack - 1	6.3	Block Ack - 1
<u> </u>	(U1=Ack)		(U1=Ack)
6.4	Command - 0	6.4	Command - 0
6 6	(I=K,Z=VV)	6.5	(I=K,Z=VV)
0.0	(1 - P - 2 - W)	0.0	
6.6	$(1=\pi, 2=vv)$	6.6	$(1=\pi, 2=W)$
0.0	(1=R 2=W)	5.0	(1=R 2=W)
6.7	Command -3	6.7	Command - 3
	(1=R,2=W)		(1=R,2=W)

Inputs (D	evice to Master)	Outputs	(Master to Device)
Address	Description	Address	Description
7.0	Block Number	7.0	Block Number
/.1	Block Number	/.1	Block Number
7.2	Block Number	7.2	Block Number
7.5	Block Number	7.5	Block Number
7.5	Block Number	7.5	Block Number
7.6	Block Number	7.6	Block Number
7.7	Block Number	7.7	Block Number
8.0	Item #1 Data - Byte 0		
8.1	Item #1 Data - Byte 0		
8.2	Item #1 Data - Byte 0		
8.4	Item #1 Data - Byte 0		
8.5	Item #1 Data - Byte 0		
8.6	Item #1 Data - Byte 0		
8.7	Item #1 Data - Byte 0		
9.0	Item #1 Data - Byte 1		
9.1	Item #1 Data - Byte 1		
9.2	Item #1 Data - Byte 1		
9.3 Q /	Item #1 Data - Byte 1		
9.4	Item #1 Data - Byte 1		
9.6	Item #1 Data - Byte 1		
9.7	Item #1 Data - Byte 1		
10.0	Item #1 Data - Byte 2		
10.1	Item #1 Data - Byte 2		
10.2	Item #1 Data - Byte 2		
10.3	Item #1 Data - Byte 2		
10.4	Item #1 Data - Byte 2		
10.6	Item #1 Data - Byte 2		
10.7	Item #1 Data - Byte 2		
11.0	Item #1 Data - Byte 3		
11.1	Item #1 Data - Byte 3		
11.2	Item #1 Data - Byte 3		
11.3	Item #1 Data - Byte 3		
11.5	Item #1 Data - Byte 3		
11.6	Item #1 Data - Byte 3		
11.7	Item #1 Data - Byte 3		
12.0	Item #2 Data - Byte 0		
12.1	Item #2 Data - Byte 0		
12.2	Item #2 Data - Byte 0		
12.5	Item #2 Data - Byte 0		
12.5	Item #2 Data - Byte 0		
12.6	Item #2 Data - Byte 0		
12.7	Item #2 Data - Byte 0		
13.0	Item #2 Data - Byte 1		
13.1	Item #2 Data - Byte 1		
13.2	Item #2 Data - Byte 1		
13.5	Item #2 Data - Byle 1		
13.5	Item #2 Data - Byte 1		
13.6	Item #2 Data - Byte 1		
13.7	Item #2 Data - Byte 1		
14.0	Item #2 Data - Byte 2		
14.1	Item #2 Data - Byte 2		
14.2	Item #2 Data - Byte 2		
14.3	Item #2 Data - Byte 2		
14.4	Item #2 Data - Byle 2		
14.6	Item #2 Data - Byte 2		
14.7	Item #2 Data - Byte 2		

2.2.4. 9300 Power Meter (cont'd)

Inputs (D	evice to Master)
Address	Description
15.0	Item #2 Data - Byte 3
15.1	Item #2 Data - Byte 3
15.2	Item #2 Data - Byte 3
15.3	Item #2 Data - Byte 3
15.4	Item #2 Data - Byte 3
15.5	Item #2 Data - Byte 3
15.6	Item #2 Data - Byte 3
15./	Item #2 Data - Byte 3
16.0	Item #3 Data - Byte 0
16.1	Item #3 Data - Byte 0
16.2	Item #2 Data - Byte 0
16.5	Item #3 Data - Byte 0
16.5	Item #3 Data - Byte 0
16.6	Item #3 Data - Byte 0
16.7	Item #3 Data - Byte 0
17.0	Item #3 Data - Byte 1
17.1	Item #3 Data - Byte 1
17.2	Item #3 Data - Byte 1
17.3	Item #3 Data - Byte 1
17.4	Item #3 Data - Byte 1
17.5	Item #3 Data - Byte 1
17.6	Item #3 Data - Byte 1
17.7	Item #3 Data - Byte 1
18.0	Item #3 Data - Byte 2
18.1	Item #3 Data - Byte 2
18.2	Item #3 Data - Byte 2
18.3	Item #3 Data - Byte 2
18.4	Item #3 Data - Byte 2
18.5	Item #3 Data Byte 2
18.0	Item #3 Data - Byte 2
19.0	Item #3 Data - Byte 3
19.0	Item #3 Data - Byte 3
19.2	Item #3 Data - Byte 3
19.3	Item #3 Data - Byte 3
19.4	Item #3 Data - Byte 3
19.5	Item #3 Data - Byte 3
19.6	Item #3 Data - Byte 3
19.7	Item #3 Data - Byte 3
20.0	Item #4 Data - Byte 0
20.1	Item #4 Data - Byte 0
20.2	Item #4 Data - Byte 0
20.3	Item #4 Data - Byte 0
20.4	Item #4 Data - Byte 0
20.5	Item #4 Data Byte 0
20.0	Item #4 Data - Byte 0
20.7	Item #4 Data - Byte 0
21.0	Item #4 Data - Byte 1
21.2	Item #4 Data - Byte 1
21.3	Item #4 Data - Byte 1
21.4	Item #4 Data - Byte 1
21.5	Item #4 Data - Byte 1
21.6	Item #4 Data - Byte 1
21.7	Item #4 Data - Byte 1
22.0	Item #4 Data - Byte 2
22.1	Item #4 Data - Byte 2
22.2	Item #4 Data - Byte 2
22.3	Item #4 Data - Byte 2
22.4	Item #4 Data - Byte 2
22.5	Item #4 Data - Byte 2
22.0	Item #4 Data - Byte 2
22.1	I ICIII # T Data Dyte Z

Inputs (D	evice to Master)
Address	Description
23.0	Item #4 Data - Byte 3
23.1	Item #4 Data - Byte 3
23.2	Item #4 Data - Byte 3
23.3	Item #4 Data - Byte 3
23.4	Item #4 Data - Byte 3
23.5	Item #4 Data - Byte 3
23.6	Item #4 Data - Byte 3
23.7	Item #4 Data - Byte 3
24.0	Item #5 Data - Byte 0
24.1	Item #5 Data - Byte 0
24.2	Item #5 Data - Byte 0
24.5	Item #5 Data - Byte 0
24.5	Item #5 Data - Byte 0
24.5	Item #5 Data - Byte 0
24.7	Item #5 Data - Byte 0
25.0	Item #5 Data - Byte 0
25.1	Item #5 Data - Byte 1
25.2	Item #5 Data - Byte 1
25.3	Item #5 Data - Byte 1
25.4	Item #5 Data - Byte 1
25.5	Item #5 Data - Byte 1
25.6	ltem #5 Data - Byte 1
25.7	Item #5 Data - Byte 1
26.0	Item #5 Data - Byte 2
26.1	Item #5 Data - Byte 2
26.2	Item #5 Data - Byte 2
20.3	Item #5 Data - Byte 2
26.5	Item #5 Data - Byte 2
20.5	Item #5 Data - Byte 2
26.7	Item #5 Data - Byte 2
27.0	Item #5 Data - Byte 3
27.1	Item #5 Data - Byte 3
27.2	Item #5 Data - Byte 3
27.3	Item #5 Data - Byte 3
27.4	Item #5 Data - Byte 3
27.5	Item #5 Data - Byte 3
27.6	Item #5 Data - Byte 3
27.7	Item #5 Data - Byte 3
28.0	Item #6 Data - Byte 0
28.1	Item #6 Data - Byte 0
20.2	Item #6 Data - Byte 0
28.5	Item #6 Data - Byte 0
28.5	Item #6 Data - Byte 0
28.6	Item #6 Data - Byte 0
28.7	Item #6 Data - Byte 0
29.0	Item #6 Data - Byte 1
29.1	Item #6 Data - Byte 1
29.2	Item #6 Data - Byte 1
29.3	Item #6 Data - Byte 1
29.4	Item #6 Data - Byte 1
29.5	Item #6 Data - Byte 1
29.0	Item #6 Data - Byte 1
30.0	Itom #6 Data - Byte 1
30.0	Item #6 Data - Byte 2
30.2	Item #6 Data - Byte 2
30.3	Item #6 Data - Byte 2
30.4	Item #6 Data - Byte 2
30.5	Item #6 Data - Byte 2
30.6	Item #6 Data - Byte 2
30.7	Item #6 Data - Byte 2

Inputs (Device to Master)				
Address	Description			
31.0	Item #6 Data - Byte 3			
31.1	Item #6 Data - Byte 3			
31.2	Item #6 Data - Byte 3			
31.3	Item #6 Data - Byte 3			
31.4	Item #6 Data - Byte 3			
31.5	Item #6 Data - Byte 3			
31.6	Item #6 Data - Byte 3			
31.7	Item #6 Data - Byte 3			

2.3. **ProSoft and HMS PROFIBUS Network Configuration** This configuration process can be used for the ProSoft

PROFIBUS Master cards, and the HMS Anybus PROFIBUS gateways.



2.3.1. Install GSD Files

Before the network can be properly configured, all of the GSD files for the devices on the network need to be installed into the software.

A GSD file is a text file with the extension .GSD (but may have the extension .GSE for English). This text file defines the properties of the device to the PROFIBUS master (Scanner). Each device must have the correct GSD file installed prior to configuration and use.

The Siemens Smart MCC GSD files may be obtained from the Siemens Support web site, a CD that came with the Smart MCC Documentation Package, or from Siemens Smart MCC support services.

🗹 ProSoft Configuration Builder for PRC	FIBUS - PTQ	PDPMV1			
Project View PROFIBUS Online Option		-			
	SSD viewer				
VProsoftVGSD PROFIBUS DP PROFIBUS Master ABM-DPV / AB-PCI-DPV1-M ProSoft	Install new GS*-fi Antis com (1) ProSoft Master				
	<				2
	But addr	Туре	Name	Vendor	Commer 🔿
	0 1 2 3 4 5	Master	ProSoft	ProSoft Technology	
	6 7	-			2
	-	_		_	

PROFIBUS Integration Overview

Smart MCC Network Communications

This shows a list of common components used in Siemens short MCC configurations.



2.3.2. Add Devices to Network Configuration

- When creating a network configuration, you must: 1. Add a "master" to network. The PROFIBUS master
- can be either a ProSoft Gateway or Gateway device.
- 2. Add all devices (slaves) to the network.

The procedure to add devices to the network configuration is to single-click on the device and drag the item to the bus configuration window on the right. This procedure is shown in the screenshot below.

VProtoff\GSD	··· S Bus Cont	figuration 1			
A PROFIBUS DP A PROFIBUS DP A Gateway Goteway Controller Switching devices SWItching devices SIMOCODE pro C (GSD V1) Basic Type 1 Basic Type 2 SIRULS 38W444	[1] ProSoft Master		Drag a device to t network "line" to add it to the netw	he rork	
SIEMENS AG SENTRON WL/VL SIMOCODE-DPV1 General PROFIBUS Master ABM-DPV / AB-PCI-DPV1-M ProSolt	Bus add: 0 1 2 3 4	Type Master	Name ProSoft	Vendor ProSott Technolog	Com 2/
Î Î ∎	5 6 7				

PROFIBUS Integration Overview

Smart MCC Network Communications

2.3.3. Setting Network Master (Scanner) Configuration

The master node is usually node 1 The default baud rate is 1500 Kbit/sec These values may be user adjusted



Each profile defines a bus timing calculation for transmitting and receiving messages between the master and all slaves. Due to limitations on some slaves, not all profiles will work with all baud rates and all slaves. To most closely mimic the bus bit timing used by Siemens S7 PLC's, select the Multi-Master DP profile. This will allow the widest selection of baud rates for most slaves, and still allow programming stations to be connected to the PROFIBUS-DP network.

2.3.4. Setting Device Properties

Each device will automatically be given a node address. This node number may be manually reset.



PROFIBUS Integration Overview

Smart MCC Network Communications

2.3.5. Setting Device Cyclic Data

Most devices have a net number of cyclic bytes that are exchanged with the master.

However, there are two devices that have adjustable number of bytes: MM440 VFD and SIMOCODE PRO V

MM440 VFD

- Chose setting PP01 for the device configuration
- Choosing something other than PP01, will require reconfiguring the VFD. i.e., PP01 is a VFD default setting
- PP01 allocates 12 bytes input and 12 bytes output data to and from the PROFIBUS master

- The first 8 bytes of input and output can effectively be ignored for basic configuration. Refer to the PROFIBUS Manual for the MM440 for more information
- The last 4 bytes of input and output are used for network control of the drive. Refer to Section 2.2 for data breakdown.

SIMOCODE PRO V

- Type 1 is 10 bytes of input and 4 bytes of output
- Type 2 is 4 bytes of input and 2 bytes of output
- Refer to Section 2.2 for data breakdown



Procedure to set the cyclic data type for the device:

- 1. Single-click on the device icon to select
- 2. Drag the data type to the slot number

Project View PROFIBUS	Online Option	Tools Windows Help	MARCE		روري
	Download confi	iguration			
.\Prosoft\GSD	Monator / Mode	y 1			
PROFIBUS DP	Set slave addre	255			المتعالية المتعالية المارية ال المارية المارية
ti T PRUFIBUS Master	Online properti	Min.			
		Tol oundede			
	Slave: [3	SIMOCODE pro V	Device path PROFIBUS DP\Sv	witching devices\SIEMENS	SIMOCODE pro V
	Slave: (3 Slot	SIMOCODE pro V CFG data	Device path: PROFIBUS DP\Sv Order number/ designation	witching devices\SIEMENS	SIMOCODE pro V
	Slave: (3 Slot D	SIMOCODE pro V CFG data 0xCD_0x63_0x69	Device path: PROFIBUS DP\Sv Order number/ designation Basic Type 1	witching devices\SIEMENS Input address 0.9	SIMOCODE pro Output addre 03
	Slave: [3 Slot D	SIMOCODE pro V CFG data 0xCD_0x63_0x69	Device path PROFIBUS DP\Sv Order number/ designation Basic Type 1	witching devices\SIEMENS Input address 0.9	SIMOCODE pro \ Output addres 03

2.3.6. Download/Monitor PROFIBUS Network Configuration

Important Point to Remember:

The download / monitor mechanism is set prior to launching the network configuration. You may either use the serial port or the Ethernet connection. Siemens recommends the use of the Ethernet connection.

Refer to the following sections depending on the type of module you are configuring: Modicon Quantum Section 3.3.4. Rockwell ControlLogix Section 4.1.3.

3. Modicon Quantum PLC

The modicon PLC in this section contains integration examples for the ProSoft PTQ-PDPM card (which is a PROFIBUS Scanner for the Quantum PLC), a Modbus TCP gateway, and a Modbus RTU gateway.

3.1. Introduction

The equipment and programming software for these examples in this section are:

- 1. Programming Software Concept 2.6XL,
- 2. Quantum CPU (140CPU43412A),
- 3. ProSoft Technologies PROFIBUS Scanner card (PTQ-PDPM),
- 4. Schneider Ethernet card (140NOE77111).



- 5. Modbus TCP gateway HMS Anybus ABX-PDPM-EIPS (AB7800)
- 6. Modbus RTU gateway HMS Anybus ABX-PDPM-RTUS (AB7808).

Download EXEC q5rv131e.bin to CPU

3.2. PTQ to Quantum Integration

This is an overview of the process to integrate the PTQ module to Modicon Quantum PLC. Subsequent sections will have more details about some of these steps in the sequence, but other details may be elsewhere in this manual.



3.2.1. Setup Concept Software

- 1. Install the CONCEPT 2.6XL software, if not already installed.
- 2. Get the PTQ module .MDC file from ProSoft (CD or Web) [ptq_2_60.mdc] for concept 2.6
- 3. Run the conversion software to load MDC into programming software:

ModConnect Modsoft Conv Momentum He Quantum Help	Select the "ModConnect Tool" from the menu Perter	File Modules He Open Installation Save Changes Exit	dule Installation
		Module Details Provider Version: Copyright	ProLinx Communication Gateways 1.00.00 Copyright 2002-2003
The Modules Help File Modules Help Installed Modules in PTO-PDPMV1	dule Install Sion o Concept Database: Profibus Master Module		When the MDC file for the PTQ card is installed, it should look something like this
Module Details Provider Version: Copyright	ProLinx Communication Gateways 1.00.00 Copyright 2002-2003		

3.2.2. Create Project

Using CONCEPT 2.6XL programming software, create the project you want to use with the PTQ module. For our example, we will create



	Local Quantur	n Drop				
	Drop Modules: Bits In: Bits Out Status Table:	6 ASI 16 16	II Port #	Module Bits In: Bits Out:	0 0	Pareme
	Prev	Next	Clear	Delete	Eu	Eopy Paste
	Rack-Slot	Module	In Ref In End	Out Ref	OutEnd	Description 4
	1.1	CPS-114-x0				AC PS 115V/230 8A, CPS114
	1.2	CPU-434-12	1			CPU 2MB 1xMB+ 2xModbus
Set un modules	1.3	NOE-771-11]			ENET 10/100 TCP/IP FACTO
in chassis	1-4	DDI-841-00	100001 100016	-		DC Input 10-60V 8x2
	1.5	DRA-840-00		000001	000016	Relay Output 16x1 NO
-	1.6	PDPMV1				Profibus Master Module
	1.7					
	1-8	411				
	1.9	211-				
	1-10	144-				
	1-11					
	1.12					
	1.13					
	4		114	4		•
			OK Car	ncel He	lp	IT Pol

3.3. ProSoft and PROFIBUS Configuration Software

Install the ProSoft Configuration Builder for the PTQ module. This software will come on a CD with module, or may be downloaded from the web.

3.3.1. Create a new configuration

🖬 Untitled - ProSoft Configuration	Builder				
File Edit View Project Tools Help					
🖃 🧰 Default Project		Name	Status	Information	^
Default Location R Default Module	ľ	Default Module Unknown Product Line -1	Please Select Module Type		
	<				15
Ready	-	Upd	ating data from new database	NUM	1

Double click on the "Default Module" to set the module type.

se Module Type				
oduct Line Filter	PLX4K PLX5K PLX6K	TQ IVI 46	C MVI 56 C MVI 69	C MVI 71 C MVI 94
Step 1 : Select Mo	dule Type			
No. of Concession, Name	E N	Search Mod	dule Type	
PTQ-PDPMV1	T	Enable I	Hot Standby	
Step 2 : Define Po	Status	A	ction Required	
Comment	Used			
V PDPM	Used			

3.3.2. Configure the Ethernet Port



3.3.3. Edit Quantum Chassis Slot Number



3.3.4. Initial Configuration Download

The initial configuration download that sets the IP address for the Ethernet port and slot number needs to be downloaded via the serial port first.


3.3.5. Module Debug Mode

After the initial configuration download to the PTQ module, you can use hyperterminal to create a TCP connection to the module. The module has a series of debug screens for configuration, testing, and

troubleshooting the operation of the module. These screens and their functions are documented in the user manual for the module.

te Edit veer Cel Transfer Heb.		- 101
New Connection Properties Connect To Settings New Connection Change Icon. Host address: 10.2.20 Pott number: 23 Connect using: TCP/IP [Winsock] OK	s.2.	

3.3.6. Configure the PROFIBUS Network

Double-click on the PROFIBUS DP entry to configure the PROFIBUS network.

YPTQ_Nodes12_56.ppf - ProSoft Co	nfigur	ation Builder			
File Edit View Project Tools Help			-		
	1	PROFIBUS DP Field Network PDPM-V1	Configured OK	Type: 1	
PROFIBUS DP	5				
Ready		Up	dating data from new da	atabase	NUM

The following dialog box appears to select the communications method to the module.

ROFIBUS Master - Module Communications	
Frondus Ealtor : Not started	
Select Port Ethernet	Firmware Update
10 . 0 . 2 . 20	Cancel Update
Cancel Monitor/Modify Calculate PROFIBUS	S Module
Show Concept Map Show L	Inity Map

- 1. Select the method for downloading and monitoring the PROFIBUS network configuration.
 - A) COM1

Select Port	11	Firmware Update

B) Ethernet

-			Ject Change	u
	[mil.			Firmware Update
Select Port	Ethernet	1	-	

2. Then click on the Configure PROFTBUS button.

3.3.7. Export Files for Concept

Important Note:

The PROFIBUS Network configuration must have been created prior to this step, and downloaded to the PTQ card.

PMV1 PROFIBUS Master	Setup			
PROFIBUS Master - Modu Profibus Editor : Termin	le Commu ated	nications		
Select Port Ethernet	•			Firmware Update
192 . 168	. 0	. 100	_	Cancel Update
Configure PROFIBUS Cencel Monitor/Modify		Calculate	PROFIBUS	Module 37278F2A
Processor Network Memo Show Concep	ory Map ot Map) [Show Unity	Map
Export Master Config				ОК

ncept Mem	ory Map		
Address	Slave	Slot	# Wor
3×1000	Module Status	Module ID string	5
3X1005	Module Status	Ouantum Slot Number	1
3X1006	Module Status	Profibus Input Data size	1
3X1007	Module Status	Profibus Output Data size	1
3×1008	Module Status	Input Data Start Address	1
3X1009	Module Status	Output Data Start Address	1
3X1010	Module Status	ReservedO	1
3X1011	Module Status	Byte Swap H = Input L = Output Data	1
3×1012	Module Status	Module software major version number	1
3X1013	Module Status	Profibus Slave Configured List	8
3×1021	Module Status	Profibus Data Transfer Status	8
3X1029	Module Status	Profibus Slave Diagnostic Status	8
3X1037	Module Status	Profibus Master Operating State	1
3X1038	Module Status	Profibus Ident Number	1
3X1039	Module Status	Profibus Master Serial Number	2
3X1041	Module Status	Profibus Software Version	1
3X1042	Module Status	Profibus Master Module Status	1
3X1043	Module Status	Profibus CRC32	2
3X1045	Module Status	PTQ Module CRC32	2
3X1047	Module Status	Application program scan counter	1
3X1048	Module Status	Module Profibus output image data update counter	1
3X1049	Module Status	Module Profibus input image data update counter	1
3×1050	Module Status	Module out mailbox counter	1
3X1051	Module Status	Module in mailbox counter	1
3X1052	Module Status	Module alarm IND receive counter	1
3X1053	Module Status	Module alarm CON receive counter	1
3×1054	Module Status	Reserved1	1
3X1055	Module Status	Reserved2	1 .
	** 1.1		1
			1
Display	1	El character de character de character	
G Innuts	Contraste	expand module Data IV Show Slot Numbers	
s- inputs	Outputs	Expand Config Status Data	
	-	in exhaura cound oracias hara in councils whereas	
		Company and and a second secon	0.01
		Export Processor Files Print	OK

Pressing the **Export Processor Files** button will create a .DTY file that must be stored in the project folder.

Save As	N		? 🛛	
Save in: 👘	DFB IV1.dty	- + E (* 圃-	Desktop My Documents My Computer System (C:) Desktop Concept PROJ DEE MO02 VLP (D:) memory_card on 'Hp000d9d0a2492' (Discupation Shell
File name:	PTQ-PDPMV1.dty		Save	Testing Documentation
Save as type:	Concept Variable Files (*,dty)	•	Cancel	

3.3.8. Import Files to Concept DFB

When the file [PTQ-PDPMV1.dty] was saved in the project folder, there are additional critical files with the extension [.asc] that are created. These [.asc] files are text files that must be imported into the CONCEPT programming software before the project can continue to be edited. The Concept Converter must be used to import the [.asc] files into DFB subroutines.



Running the concept converter, then selecting import function.

🗯 Concept Converter	- 🗆 ×
File Help	
Export •	
Import Exit	
File> Database	

When "Import" is selected, then a list of available function to import will appear. Double-clicking on the [.asc] file will start the import process.

ile open			? ×		
File name:	R	Folders: c:\concept\proi\dfb	OK		
	-		Cancel	ACCREAD.ASC> project	×
ACCWRITE.asc GETALARM.asc GETCFG.asc GETDIAGN.asc	-	CONCEPT	Network	Project: ACCREAD Action: line 144 : DFB Errors: 0 Warnings: 1	
GETLIVE.asc SETADDRS.asc SETCRC.asc	-	-		15%	
List files of type:		Drives:		Cancel	
Project/DFB (*.asc)	*	c: System 🔹			

When finished importing all of the [.asc] files, there should then be a list of available DFB functions in the project folder, as shown below.

		_
Open DFB/Macro		? ×
File name: *.dtb ACCREAD.DFB ACCWRITE.DFB GETALARM.DFB GETCFG.DFB GETCFG.DFB GETLIVE.DFB SETADDRS.DFB SETCRC.DFB	Folders: c:\concept\proj\dfb Concept PROJ FB	OK Cancel Network
List files of type:	0 Drives:	
Concept DFBs (*.dfb)	C: System	•

Final step is to import the variable list into the program that has been previously created.



After importing the variable list ([.txt]) file, then the following variables will be created in the PLC program.

	Exp	Variable Name	Data Type		Address	InitValue
1	1	PTQPDPMV1_IN_DATA	PTQPDPMV1_IN_DATAF	*	301223	
2	I	PTQPDPMV1_In_Mail	PTQ_IN_MAILBOX	*	301079	
3		PTQPDPMV1_In_Stat	PTQ_IN_STATUS	*	301000	
4		PTQPDPMV1_OUT_DATA	PTQPDPMV1_OUT_DATAF	•	403150	Set
5	1	PTQPDPMV1_Out_Mail	PTQ_OUT_MAILBOX	-	403006	Set
6	1	PTQPDPMV1_Out_Stat	PTQ_OUT_STATUS	*	403000	Set
7	11			-		
8	11			-		

3.3.9. Add DFB Routines to Program

The final step of the integration, is to add the DFB routines to the PLC program that are required by the application.



You must have at least the SETOPMD DFB in the application program. In this example we have the operating mode, retrieve the live nodes on

PROFIBUS, and read acyclic data from a slave DFB installed.

3.4 MODICON Ethernet (140NOE77111) to **MODBUS TCP Gateway**





PROFIBUS Status LED's

LED	State	Indication
MS	Green	Operate mode
	Green, flashing	Clear mode
	Red	Stop mode
	Off	Offline
DB	Green	Database OK
	Green, flashing	Database download in progress
	Red	Database invalid
COM	Green	Data exchange with all configured slaves
	Green, flashing	Data exchange with at least one slave
	Red	Bus control error
ТОК	Green	The Master Interface has the token

3.4.1. Add the Ethernet Module

The ethernet module needs to be added to the current PLC chassis by opening the dialog box PLC configuration.



Must set the TCP/IP Ethernet numeric selection to 1. This is the number of Ethernet cards (Optional NOE cards) that have been installed in the chassis. In this example, we have only installed one card, so we set this value to one.

3.4.2. Configure the Ethernet Module

PLC Configuration		-
Summary: PLC Selection PLC Memory Partition	PLC Type: 140 CPU 434 12 IEC Enabled	Available Logic Area: 0 IEC Heap Size 892
Loadables Specials Config Extensions Select Extensions Peer Cop Quantum Security Para	PLC Memory Partition Coils: 000001 001536 Discrete Inputs: 100001 100512 Input Registers: 300001 303000 Holding Registers: 400001 406000	Loadables Number installed: 0
Ethernet ///O Sconner /O Map Segment Scheduler /odbus Port Settings ASCII	Specials 000017 Battery Coil 000017 Timer Register: 400001 Time of Day: 400002	Segment Scheduler Segments: 32
	Config Extensions Data Protection. Disabled Peer Cop: Enabled Hot Standby: Disabled Ethernet: 1 Profibus DP: 0	ASCII Number of Messages: 0 Message Area Size: 0 Number of Ports: 0
Den Dialog		Help
Thernet / I/O Scenner enet Configuration		
Use Bootp Server	Culeurs	e 10.0210 Go Subret Mark (255.55.0 y 000.0 Frame Type: ETHERNET I
Score of Computation Mill der Module (SMI) Slot 2: 140/HOE Heil & Ellicok (15//36) 100003 Diegnei of Elicok (15//36) 400010	771-11 <u>-</u> -100760 -400137	Cay Cir Perio In
addressing		Select the address of the gateway.

3.4.3. Configure the Ethernet Gateway IP Address

A summary of the process is given here, with a fuller explanation of each step detailed subsequently. For our example, the gateway will be configured to IP 10.0.2.11 to match the same octet sequence as the Ethernet card we are trying to talk to. (Reminder: Ethernet card has been set to 10.0.2.10 in prior steps).

- 1. Set the computer Ethernet port IP address to 192.168.0.100 (first three octets must match the gateway default IP address, or 192.168.0)
- 2. Turn off any proxy server in the internet browser configuration.

- 3. Turn on the IP address LSB switch to the ON position on the gateway, and cycle power to the gateway.
- 4. Open the internet browser, and enter address 192.168.0.1
- 5. When the HMS Anybus page opens, select the configuration page.
- 6. Enter the IP address of 10.0.2.11 for the gateway.
- 7. Turn off the IP address LSB switch on the gateway and cycle power.
- 8. Type the IP address 10.0.2.11 in the internet browser and make sure that the gateway web page opens.

On the Ethernet gateway, set the switch position for the default IP address:

(851)	(85)()	
14 2 5	Paddress:	192.168.0.1
Turn this switch to the ON position to	Subnet mask:	255 . 255 . 255 . 0
allow browser to connect to the	Default gateway:	· · · · · · · · · · · · · · · · · · ·
gateway		

In the internet browser configuration, turn off any configuration that has a proxy server defined. The following example is for Microsoft Internet Explorer.

	Local Area Network (LAN) Settings
Make sure that your browser properties	Automatic configuration Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.
have this UNCHECKED	Automatically detect settings
	Address
	Proxy server Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections). Address: Isaproxy.usD02 Portr 8080 Advanced Bypass proxy server for local addresses
	OK Cancel

On the computer used for programming the Ethernet gateway, set the computer IP address to talk to the gateway.

	Internet Protocol (TCP/IP) Prop	erties 🛛 🛛 🔀
Initial gateway configuration IP address	General You can get IP settings assigned aut this capability. Otherwise, you need to the appropriate IP settings. O Obtain an IP address automatic	omatically if your network supports o ask your network administrator for ally
	IP address: Subnet mask: O Use the following IP address:	192.168.0.10 255.255.255.0
Set the IP address to match the first 3 octets of the gateway (10.0.2) in this example, when the gateway	IP address: Subnet mask: Default gateway: <u>A</u> lternate DNS server:	
nas aiready been configured		Ad <u>v</u> anced OK Cancel



3.4.4. Configure the Ethernet Gateway Fieldbus

Using hyperterminal (for windows), and connect to the gateway configuration port with a null modem cable.

Press <ESC> to display the configuration menu interface for the gateway. Sometimes it may be necessary to cycle power to the gateway to allow hyperterminal to properly work with the gateway. Press option 4 to get the PROFIBUS configuration size, then press 6 to set the I/O size to the same values for the Ethernet interface, as shown in the example below.



important to keep the "Modbus Address Mode" as "Disabled"

3.4.5. Configure the Ethernet Module Commands

Configure the read and write Ethernet requests in the Ethernet I/O scanner (Modicon Concept Software). These requests will transfer data between the gateway and the PLC via Modbus TCP.



3.5. Modbus RTU Gateway



PROFII	BUS Status LED's	
LED	State	Indication
MS	Green	Operate mode
	Green, flashing	Clear mode
	Red	Stop mode
	Off	Offline
DB	Green	Database OK
	Green, flashing	Database download in progress
	Red	Database invalid
COM	Green	Data exchange with all configured slaves
	Green, flashing	Data exchange with at least one slave
	Red	Bus control error
TOK	Green	The Master Interface has the token

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3.5.1. Modbus Addressing for Gateway

Outgoing Data Exchange (Gateway to Modbus)

Outgoing data is mapped to Modbus register 1 and forward. The same data is mapped to Input Registers, Holding Registers and Coil Registers.

Word Address ^a	Bit Address ^b	Contents
001h	0001h 0010h	Outgoing Data word 1
002h	00011h 0020h	Outgoing Data word 2
003h	0021h 0030h	Outgoing Data word 3
200h	2000h 2010h	Outgoing Data word 256

a. Used for input-and Holding-Register access.

b. Used for Coil Register access.

Depending on the type of gateway and how it has been set up to operate, up to 5 words (registers 1 to 5) may be occupied by the Status Word and the Live List, see below. The table below specifies how the data is mapped in the Modbus address space.

(For further information about the Status Word and the Live List, consult the main user manual).



Example A: I/O Data Size = 12 words (24 bytes) Live List = Enabled Control and Status Word = Enabled



Example B: I/O Data Size = 12 words (24 bytes) Live List = Disabled Control and Status Word = Enabled

Incoming Data Exchange (Modbus to Gateway)

Increasing data is mapped to Modbus register 401h and forward. The same data is mapped to Input Registers, Holding Registers and Coil Registers.

The table below specifies how the data is mapped in the Modbus address space.

Word Address ^a	Bit Address b	Contents
401h	4001h 4010h	Incoming Data word 1
402h	4011h 4020h	Incoming Data word 2
403h	4021h 4030h	Incoming Data word 3
600h	6000h 6010h	Outgoing Data word 256

a. Used for Input-and Holding-Register access.

b. Used for Coil Register access.

Depending on the type of gateway is set to operate, register address 401h may be occupied by the Control Word, see below. (For further information about the Control Word, consult the main user manual).



Example A: I/O Data Size = 12 words (24 bytes) Control Word = Enabled



Example B: I/O Data Size = 11 words (22 bytes) Control Word = Disabled

3.5.2. Modbus RTU Gateway Switch Configuration



3.5.3. Modbus Message Commands Via the XXMIT Block

Name	T	pe	V	alue	stor addro	cc in d
XXMIT_VRITE_MSGOUT	WordArr128			(15	501 using t	he DE
XXMIT_VRITE_MSGOUT[1]	VORD		16#10	in	the referen	ice dat
XXMIT_VRITE_MSGOUT[2]	VORD		1646	2		
XXMIT_VRITE_MSGOUT[3]	VORD		2			
XXMIT_VRITE_MSGOUT[4]	VORD		401			
XXMIT_WRITE_MSGOUT[5]	VORD		1501			
RDE Template (MOD_RTU.RDF) - Ani	mation ON					
Variable Name	Data Type	Address	Value	Set Value	Form	nat
Tarrobis Hume	10044-000		960ms		Time	-
03 DB55[199]	TIME					10000
03 DB55[199] 04 XXMIT_WRITE_MSGOUT[4]	WORD		401	0	Hex	
03 DB55[199] 04 XMIT_WRITE_MSGOUT[4] 05 XMIT_WRITE_MSGOUT[5]	WORD		401 1501	0 0	Hex -	-
203 DB55[199] 204 XXMIT_WRITE_MSGOUT[4] 205 XXMIT_WRITE_MSGOUT[5] 206 XXMIT_READ_MSGOUT[4]	WORD WORD WORD		401 1501 1	0 0	Hex Dec Hex	-

Name	Туре	Value
XXMIT_READ_MSGOUT	VordArr128	l.
XXMIT_READ_MSGOUT[1]	VORD	16#3
XXMIT_READ_MSGOUT[2]	VORD	16862
XXMIT_READ_MSGOUT[3]	VORD	2
XXMIT_READ_MSGOUT[4]	VORD	1
XXMIT_READ_MSGOUT[5]	VORD	1681401

Important note:

The slave address must be in HEX, but the master PLC address must be entered in DECIMAL. Please note how the values are shown in the variable initial values table, versus the display in the reference data editor. (RFD Template Window).

4. Rockwell Automation

4.1. ProSoft MV156-PDPMVI (ControlLogix)

This is an overview of the process to integrate the MV156-PDPMV1 to the ControLogix PLC. Subsequent sections will have more details about some of these steps in the sequence, but other details may be elsewhere in this manual.



4.1.1. ProSoft PROFIBUS Configuration Software

Install the ProSoft Configuration Builder for the PTQ module. This software will come on a CD with the module, or may be downloaded from the web.

4.1.2. Create a New Configuration

💕 Untitled - ProSoft Configuratio	on Builder	-			
File Edit View Project Tools Help					
🖃 🧰 Default Project		Name	Status	Information	-
Con Default Location Sefault Module K	^	Default Module Unknown Product Line -1	Please Select Module Type		
	<			- 1	5
Ready	_	Upd	ating data from new database	NUM	

Double click on the "Default Module" to set the module type.

All PLX4K PTQ NVI 56 C PLX5K MVI 46 NVI 56 C PLX6K Step 1 : Select Module Type Search Module Type VI56-PDPMVI Step 2 : Define Ports Section Status Action Required PDPM Used						JE .	ise Module Type
roduct Line Filter All CPLX5K PTQ MVI 56 C PLX5K MVI 46 MVI 56 C PLX6K Step 1 : Select Module Type Search Module Type VI56-PDPMVI Step 2 : Define Ports Section Status Action Required Comment Used PDPM Used							
All CPLX4K CPTQ MVI 56 C PLX5K MVI 46 MVI 56 C PLX6K Step 2 : Define Ports Section Status Action Required V DPPM Used			-			r	oduct Line Filter
PLX5K MVI 46 PLX6K Step 1 : Select Module Type Section Step 2 : Define Ports Section Step 2 : Define Ports Section Status Action Required PDPM Used	MVI 71	CM	MVI 56	Q	CP	C PLX4K	All
C PLX6K	MVI 94	CM	MVI 09	146	CN	C PLX5K	
Step 1: Select Module Type Search Module Type NUISE-PDPMVI Step 2: Define Ports Section Status Action Required Comment Used PDPM Used			N. I. C. N.			C PLX6K	
Search Module Type						Module Type	Step 1 : Select I
Step 2 : Define Ports Section Status Comment Used PDPM			Туре	Search M			
Step 2 : Define Ports Section Status Action Required Comment Used PDPM Used				0	-	1	NVIS6-PDPMV1
Step 2 : Define Ports Section Status Action Required Comment Used PDPM Used				12			Julie Contraction
Step 2 : Define Ports Section Status Action Required Comment Used PDPM Used							
Section Status Action Required Comment Used PDPM Used						Porte	Step 2 - Define I
Comment Used			Required	1	tatur	ePorts	Section
V PDPM Used			Required	2	sed	1	Comment
					sed		V PDPM
		-	-				

4.1.3. Configure the PROFIBUS Network

Double-click on the PROFIBUS DP entry to configure the PROFIBUS network.

PTO_Nodes12_56.ppf - ProSoft Co File Edit View Project Tools Help	onfiguratio	n Builder			
	✓ PR	OFIBUS DP Field Network PDPM-V1	Configured OK	Type: 1	
Ready	-	Up	dating data from new da	itabase	NUM

The following dialog box appears to select the communications method to the module.

PDPMV1 PROFIBUS Master Setup		3
PROFIBUS Master - Module Communications		
Fronbas Ealton - Not started		
Select Port Com 1	Firmware Update	
R	Cancel Update	
PROFIBUS Setup and Monitor Configure PROFIBUS Cancel Monitor/Modify Processor Network Memory Map Show Memory Map	Module	Click here to export files Section 4.1.4.

4.1.4. Export Files for ControlLogix

ogix 500	0 Data Type	_		_
Offset	Slave	S	ot	# Byte
2	Address 3 : MICROMASTER 4	S	ot 0:4 PKW, 2 PZD (PPO 1)	12
.6	Address 5 : SENTRON WL/VL	S	ot 0 : Basic type 1: 4 values	2
		Save in: 🛍	DFB 💌	+ C 📸 🛄 -
	1	File name:	MVI56/PDFMV1.5x	Save

RSLogix 5000 - ControlLogixTestR1 in ControlLogix_PhaseII_R2.ACD [1756:L55] - 🗆 🛛 File Edit View Search Logic Communications Tools Window Help B B B B X B B - C DomOutputArray OutputData · & & & & B B B B Q Q Path AB_ETHIP-1\10.0.2.10\Backplane\0 Offline 0. ERUN - -P. E OK No Forces 2 = 1/0 4 H KH H H No Edit: + + Fawarita & St. A 0 100 Controller Tags Module Properties: Local 5 (1756-MODULE 1.1) 1 Controller Fault Handler General Connection Module Into Backplane Dower-Up Handler Tasks 1756-MODULE Generic 1756 Module Type: 🗄 😼 MainTask E DEMO Parent Local Connection Parameters Unscheduled Programs / Phases A senibly Instance Motion Groups Size: Ungrouped Axes 250 MVI56_PROFIBUS ÷ (16-64) Name: Input. · Trends 🗄 🔠 Data Types 248 - (16-bi) Description Output: E User-Defined E Strings Configuration 4 ÷ (8-bir) + Predefined Comm Format: 4 E At Module-Defined Ca 1/O Configuration ÷ 5 Sigt E 🗂 1756 Backplane, 1756-A7 1756-LS5 ControlLogisTestR1 E 1 [1] 1756-ENBT/A ENBT ΠK. Ethernet Status: Offine Cancel Helpi [2] 1756-IB16I INPUTS đ [3] 1756-OW161 OUTPUTS Ð 5 1756-MODULE MVI56_PROFIBUS 8 [6] 1756-DNB DNB 123 1 a DeviceNet with Add the "1756-Generic Module," and configure the input, output, and configuration Assembly Instance and Size per the example above. Configure as: Right click Assembly Size 250 (16 bit) Select new module Select slot module Input: 1 Output: 2 248 (16 bit) Choose "1756-Module Generic" is inserted into Configuration: 4 0 (16 bit)

4.1.5. Add MV156-PDPMV1 to I/O Configuration



4.1.6. Import PROFIBUS Configuration Files

Select Rung Right click to get menu

4.2. Hilscher 1769-DPM (CompactLogix)

An overview of the process to follow for installation, configuration, and operation of the Hilscher PROFIBUS Scanner module is:

A. Install the PROFIBUS configuration software.

- B. Download the template PLC program from the Hilscher web site.
- C. Install the module in the PLC.
- D. Create the module configuration in the PLC program.

There are two key manuals to get from Hilscher:

A. RIF1769DPM....PDF

This is the manual on the module itself. Section 4.1 contains the process to configure the module in the I/O configuration of the PLC program.

B. DTMMPD....PDF

This manual is on the software used to configure the PROFIBUS network. This software is critical to the operation of the scanner module.

4.2.1. Default PLC Configuration for 1769-DPM Module

A complete description of the process to add the module to the PLC I/O configuration can be found in the Hilscher Manual RIF 1769-DPM. A summary process is:

Add a generic module to the I/O configuration. Configure the Input, Output, and Configuration Instance and Size Values.



General Con	nection					
Type:	1769-MODULE Ge	neric 1769 Module				
Parent	Local	Ĩ	Connection Pa	rameters Assembly	Size:	
Name:	DPM		Input	101	64	÷ (16-bit)
Description		2	Output	100	64	÷ (16-bit)
		-		102	0	÷ (16-bit)
Comm Formal	t Data INT	2				
Slot	1 ÷					

E Droject: CompactLogix_PhaseII_HILSHER_CARD E [RIF 1769-DPM]<2>(#1) [SIMOCODE pro C (GSD V1.2)]<11> Add the required devices to the network configurations [SIMOCODE pro C (GSD V1.2)]<12> 듕 [SIMOCODE pro C (GSD V1.2)]<13> 듕 [SIMOCODE pro C (GSD V1.2)]<14> -[SIMOCODE pro C (GSD V1.2)]<15> -[SIMOCODE pro C (GSD V1.2)]<16> Profilevice - Configuration (\$1600000), pro C (0250 ¥1.2)(-11 -. [SIMOCODE pro C (GSD V1.2)]<17> USD File utilitie per SIMOCODE pro C (GSD V1.2) 5 [SIMOCODE pro C (GSD V1.2)]<18> SIEMENS Ident Number wide 5 Configure the [SIMOCODE pro C (GSD V1.2)]<19> Configuration | Parameter | Dexar | Extensions | DPV1 | -Deriva Catego devices [SIMOCODE pro C (GSD V1.2)]<20> 쥼 Etabon Address 11 H P Engle watching corecil Watching Interval 200 Node # [SIMOCODE pro C (GSD V1.2)]<21> 쑵 Data Type Module Configuration [SIMOCODE pro C (GSD V1.2)]<22> 363 Byte Length of equil/hadput data 344 Byte Length of equil-hadput data 344 Byte Length of output data Max length of equil-todayst data Max length of equil data. Max length of output data. Max rundar of nuclules: 5 AR 3 AR 3 AR 1 4 2 1 [SIMOCODE pro C (GSD V1.2)]<23> [SIMOCODE pro C (GSD V1.2)]<24> Number of modules Available Moduler: [SIMOCODE pro C (GSD V1.2)]<25> 啬 Module Name Basic Type 2 Module Configure [SIMOCODE pro C (GSD V1.2)]<26> -[SIMOCODE pro C (GSD V1.2)]<27> -5 [SIMOCODE pro C (GSD V1.2)]<28> -8 [SIMOCODE pro C (GSD V1.2)]<29> Truett Append 8 [SIMOCODE pro C (GSD V1.2)]<30> Configurent Modules ÷ Slat Module Norm [SIMOCODE pro C (GSD V1.2)]<31> Hodule Configuration M Banic Type 3 GHC0.5-81 G [SIMOCODE pro C (GSD V1.2)]<32> [SIMOCODE pro C (GSD V1.2)]<33> 믕 [SIMOCODE pro C (GSD V1.2)]<34> 놂 Real [SIMOCODE pro C (GSD V1.2)]<35> ÷ [MICROMASTER 4]<36> DC Cansal Help 10 [MICROMASTER 4]<37> netDevice - Configuration [MICEOMASTER 4]-26-- - 8 MCRICHASTER 4 SID File eber 04065 Service. links ALC: ANT Configuration | Parameter | Group | Externant | DPVY | Davies Settings Steam Address 13 + 19 Enable watchdog control Watchdog Weekal (200 -Hodde Configuration Max longth of equilibrium data Max longth of equilibrium data Max longth of output data Max longth of output data Max rearder of codular: Street Langth of epid/output data 29 Byte Langth of reput data 28 Byte Langth of reput data 29 Byte Langth of reput data 1 Number of Hoddler 減位は Byte Byte Byte Configure the drives Node # Data Type Avaidile Modules Midule Name Module Configuration Identi Mandad Telegram 1 4 PRW, 2 P2D (PPO 1) 0 PRW, 2 P2D (PPO 3) 4 PRW, 4 P2D whole cor 4 PRW, 4 P2D whole cor 040.041.0401 047.041 040.041 047.043.040 047.043.040 047.043.045 31 \$140 Act ent. Circles and Modules Shit Module Name 1 4 POW, 2 P2D (PP0 1) Module Configuration Idea DeF3.DeF1 Revent . OK. Cance Male

4.2.2. Example PROFIBUS Configuration for 1769-DPM Module

The input and output sizes need to be adjusted to match the PROFIBUS input and output address space defined in the module configuration software.

	in the second se						
Enat	Ne Auto Addressing						
teniory	ayou.		In	Linia	lat	Lot 14	
Addres	SIMOCODE via CIG	Module Name	Titype	14.000	OP	UADD.	=1
11	SIMOCODE pro C (G	4 byte output	19	1	U/D	<u>u</u>	_
12	SIMOCODE pro C /G	2 bute output	10		QB	5	- 11
12	SIMOCODE pro C (G	4 byte input	18	5			
13	SIMOCODE pro C (G.	2 byte output			QB	9	
13	SIMOCODE pro C (G.	4 byte input	18	9			
14	SIMOCODE pro C (G	2 byte output	14	1.00	QB	13	
14	SIMOCODE pro C (G	4 byte input	18	13	-		
15	SIMOCODE pro C (G.	2 byte output	10		QB	17	
15	SIMOCODE pro C [G	4 byte input	18	1/	00	-	
16	SIMOCODE pro C IG	2 byte output	10	21	QB.	21	
17	SIMOCODE pro C IG	2 byte mput	10	61	08	25	
17	SIMOCODE pro C (G	4 byte input	18	25	qu	20	
18	SIMOCODE pro C (G	2 byte output			QB	29	
18	SIMOCODE pro C (G.	4 byte input	18	29	-		
19	SIMOCODE pro C (G	2 byte output			QB	33	
19	SIMOCODE pro C (G	4 byte input	18	33			
20	SIMOCODE pro C (G	2 byte output			QB	37	
20	SIMOCODE pro C (G	4 byte input	18	37		1	
21	SIMOCODE pro C (G	2 byte output	10		QB	41	
21	SIMUCUDE pro C (G	4 byte input	18	41	00	45	
22	SIMOCODE pro C (G.	2 byte output	10	45	QB	45	
22	SIMOCODE pro C (G	4 byte mpta 2 byte rudrud	10	40	OP	49	
23	SIMOCODE pro C IG	4 byte input	IB	49	QD.	43	
24	SIMOCODE pro C IG	2 bute output	10	45	OB	53	
24	SIMOCODE pro C (G	4 byte input	18	53	40		
25	SIMOCODE pro C (G	2 byte output			QB	57	
25	SIMOCODE pro C (G	4 byte input	18	57			
26	SIMOCODE pro C (G	2 byte output			QB	61	
26	SIMOCODE pro C (G	4 byte input	18	61			
27	SIMOCODE pro C [G	2 byte output	10	-	QB	55	
20	SIMULUDE pro C [G.	4 byte input	18	60	00	20	
20	SIMOCODE pro C IG	2 byte output	10	60	C4B	63	
20	SIMOCODE pro C IG	2 bute outrait	10	65	OB	73	
29	SIMOCODE pro C IG	4 hute innut	19	73	an	10	
30	SIMOCODE pro C IG	2 bute output	14		QB	77	
30	SIMOCODE pro C (G.	4 byte input	18	77			
31	SIMOCODE pro C (G	2 byte output			QB	81	
31	SIMOCODE pro C (G	4 byte input	18	81			
32	SIMOCODE pro C (G.	2 byte output			QB	85	
32	SIMOCODE pro C (G	4 byte input	18	85			
33	SIMOCODE pro C (G	2 byte output	10	-	QB	89	
33	SIMUCUDE pro C (G.	4 byte input	18	88	-	-	
34	SIMULUUE pro L [G.	2 byte output	10	02	UB.	33	
34 26	SIMOCODE pro C (G	4 byte input	10	33	OP.	97	
35	SIMOCODE pro C IG	d hate input	IR	97	QD.	31	
36	MICBOMASTER 4	4 word input/output	IW	101	DW/	101	
36	MICROMASTER 4	2 word input/output	IW	109	0W	109	
37	MICROMASTER 4	4 word input/output	Pw/	113	QW	113	
37	MICROMASTER 4	2 word input/output	IW	121	QW	121	Y
e -						-	10
-							C.C.C.

The default configuration is 44 words plus 20 words of slave device input information (details in Hilsher manual). This leads

	Assembly Instance:	Size:		
[nput:	101	64	÷	(16-bit)
O <u>u</u> tput:	100	64	÷.	(16-bit)
Configuration:	102	0	-	(16-bit)

But, our test network has 124 input bytes, and 124 output bytes, or 62 input words and 62 output words.

to the 64 word (16 bit int) configuration definition in the I/O module configuration.

We need to reset the module configuration to:

44 words + 62 words = 106 words of input slave data And

8 words + 62 words = 70 words of output slave data.

-					
lype:	1759-MUDULE Generic 1759 Module				
Parent:	Local	- Connection Pa	rameters Assembly Instance:	Size:	
Na <u>m</u> e:	DPM	Input:	101	106	(16-bit)
Description:	0	Output:	100	70	(16-bit)
	4	Configuration:	102	0	(16-bit)
Comm Eormal	t Data-INT				
Sl <u>o</u> t:	1				

For the output data, you also need to change the output copy rung in file SR_Copy_Output:



You also need to readjust the input and output data space in the data type in the PLC.



4.3. Devicenet Gateway



PROFIBUS Sta	atus LED's
---------------------	------------

LED	State	Indication
MS	Green	Operate mode
	Green, flashing	Clear mode
	Red	Stop mode
	Off	Offline
DB	Green	Database OK
	Green, flashing	Database download in progress
	Red	Database invalid
COM	Green	Data exchange with all configured slaves
	Green, flashing	Data exchange with at least one slave
	Red	Bus control error
ТОК	Green	The Master Interface has the token

4.3.1. Gateway Configuration Process Overview


4.3.2. Configure Devicenet Scanner

Prerequisites for this step:

- 1. Install the EDS file for the gateway in RSNetwork for Devicenet.
- 2. Configure the PROFIBUS network, and download to the gateway.
- 3. Configure the Devicenet side of the gateway
- 4. Perform node commissioning on the scanner to match the baud rate set for the gateway (if required).
- 5. Attach the gateway to the devicenet network. The scanner must not be operational for the next series of steps. This implies that the system is NOT operational.



Step 1: Browse the Devicenet Network with RSNetworks for Devicenet.

₩ - 品 ~ 🏭					Doub AnyB the p	ole-click on Bus icon to barameter l	th ge list.
PCMCIA D Interface					Reco lengt lengt	rd the Inpu th and Out th	ut 1 put
62 1	01	Devicet	Net	_		ſ	?
Ger	neral Pa	rameters	1/0 Data	a EDS File that you want tr	o configure and	d initiate an	1
E	act act	tion using t	he toolb	ar,	r contriguie e te	a minaro an	
E	Groups	1	1	All	Anniter Moniter		5
	Groups ID	Param	eter	All 💌	Current V. Ju	Je	S
	Groups ID	Param	neter 1 length	All 💌	Current V. Ju	e.	1
	ID 7 8	Param	neter 1 length 2 offset		Current V. Ju 197 bytes	Je	1
	ID 7 8 9	Param Param Input Input: Input:	neter 1 length 2 offset 2 length		Current Vilu 197 bytes 0 0 bytes	Je	3
	ID 7 8 9 10	Param Param Input Input: Input:	neter 1 length 2 offset 2 length 3 offset		➡ Monitur Current V. Ju 197 bytes 0 0 bytes 0	Je	5 JB
	Eroup: ID 7 8 9 10 11	Param Param Input	neter 1 length 2 offset 2 length 3 offset 3 length		➡ Monitor Current Value 197 bytes 0 0 bytes 0 0 bytes	Je	2
	Eroups ID 7 8 9 10 11 12	Param Input Input: Input: Input: Input: Input: Input: Input: Input:	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset	All	➡ Monitur Current V. Ju 197 bytes 0 0 bytes 0 0 bytes 0 0 bytes 0	Je	JB S
	Eroup: ID 7 8 9 10 11 12 13	Param Param Input: Input: Input: Input: Input: Input: Input:	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length	All	➡ Monitor Current Value 197 bytes 0 0 bytes	Je	Service Servic
	Eroup: ID 7 8 9 10 11 12 13 14	Param Param Input Input:	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset	All	➡ Monitor Current Value 197 bytes 0 0 bytes 0	Je	III III
	Eroup: ID 7 8 9 10 11 12 13 14 15	Param Param Input:	eter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length	All	➡ Monitor Current V. Ju 197 bytes 0 0 bytes	Je Se	S JB
	Eroup: ID 7 8 9 10 11 12 13 14 15 16	Param Param Param Input	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length 6 offset		➡ Monitor Current Value 197 bytes 0 0 bytes 0	Je	In In In
	Eroup: ID 7 8 9 10 11 12 13 14 15 16 17	 Param Param Input: 	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length 6 offset 6 length		➡ Monitor Current Value 197 bytes 0 0 bytes 0	Je	In International
	Eroups ID 7 8 9 10 11 12 13 14 15 16 17 18	Param Param Input:	eter l length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length 6 offset 6 length 11 offse	All 💌	➡ Monitor Current Value 197 bytes 0 0 bytes 0	Je	S IS
	Eroup: ID 7 8 9 10 11 12 13 14 15 16 17 18 19	Param Param Param Param Input Outpu Outpu Outpu	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length 5 length 6 length 11 lengt	All •	➡ Monitor Current Value 197 bytes 0 0 bytes 0 197 bytes	Je	S S S
	Eroup: ID 7 8 9 10 11 12 13 14 15 16 17 18 19 20	 Param Param Input: Output Output Output 	neter 1 length 2 offset 2 length 3 offset 3 length 4 offset 4 length 5 offset 5 length 6 offset 6 length 11 offse 11 lengt 11 lengt	All •	➡ Monitor Current V.lu 197 bytes 0 0 bytes 0 197 bytes 0	Je	S IN IS

Step 2: Record the number of input and output bytes.

Step 3: Double-click on the scanner icon, and add the AnyBus device to the scanlist.

Availa <u>b</u> le Devices:	Scanlist	
✓ Automap on Add Upload from Scanner Download to Scanner Edit I/O Parameters OK	Image: Node Agtive Electronic Key: Image: Device Lype Image: Product Code Image: Devision Image	
nter the input and utput bytes recorded n the previous step	Input Size: 197 - 5	C Change of State / Cyclic C Change of State / Cyclic C Change of State C Cyclic Input Size: Dutput Size: Heartbeat Rate: 250

4.4. Ethernet/IP Gateway



PROFI	BUS Status LED's	
LED	State	Indication
MS	Green	Operate mode
	Green, flashing	Clear mode
	Red	Stop mode
	Off	Offline
DB	Green	Database OK
	Green, flashing	Database download in progress
	Red	Database invalid
COM	Green	Data exchange with all configured slaves
	Green, flashing	Data exchange with at least one slave
	Red	Bus control error
TOK	Green	The Master Interface has the token

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4.4.1. Configure the Ethernet Gateway IP Address

A summary of the process is given here, with a fuller explanation of each step detailed subsequently. For our example, the gateway will be configured to IP 10.0.2.11 to match the same octet sequence as the Ethernet card we are trying to talk to. (Reminder: Ethernet card has been set to 10.0.2.10 in prior steps)

- 1. Set the computer Ethernet port IP address to 192.168.0.100 (first three octets must match the gateway default IP address, or 192.168.0)
- 2. Turn off any proxy server in the internet browser configuration.

- 3. Turn on the IP address LSB switch to the ON position on the gateway, and cycle power to the gateway.
- 4. Open the internet browser, and enter address 192.168.0.1
- 5. When the HMS Anybus page opens, select the configuration page.
- 6. Enter the IP address of 10.0.2.11 for the gateway.
- 7. Turn off the IP address LSB switch on the gateway and cycle power.
- 8. Type the IP address 10.0.2.11 in the internet browser and make sure that the gateway web page opens.

On the Ethernet gateway, set the switch position for the default IP address:

Turn this quitch to the ON	(W28) (F28) 00 11 5 2 1 2 1 2 1 2	IP address:	192. 168. 0 . 1
position to allow browser to connect to the gateway		Subnet mask:	255 . 255 . 255 . 0
		Default gateway:	

In the internet browser configuration, turn off any configuration that has a proxy server defined. The following example is for Microsoft Internet Explorer.

	Local Area Network (LAN) Settings
	Automatically detect settings
Make sure that your browser properties have this UNCHECKED	Use automatic configuration script Address Proxy server Use a proxy server for your LAN (These settings will not apply to dial-up or VPN connections).
	Address: Isaproxy.us002 Port 8080 Advanced

On the computer used for programming the Ethernet gateway, set the computer IP address to talk to the gateway.

	Internet Protocol (TCP/IP) Pro	operties ?	×
	General		
	You can get IP settings assigned at this capability. Otherwise, you need the appropriate IP settings.	utomatically if your network supports to ask your network administrator for	
Initial gateway configuration IP	O Obtain an IP address automati	ically	
address	C Use the following IP address:		
	IP address:	192 . 168 . 0 . 10	
	Subnet mask:	255 . 255 . 255 . 0	
Set the IP address to	O Use the following IP address:	-	
match the first 3 octets of	IP address:	10 . 0 . 2 . 100	
example, when the gateway	Subnet mask:	255 . 255 . 255 . 0	
has already been comigured.	Default gateway:	· · · · ·	
	Alternate DNS server:	· · · ·	
		Advanced	
		OK Cancel	כ



4.4.2. Configure the Ethernet Gateway Fieldbus

Using hyperterminal (for windows), and connect to the gateway configuration port with a null modem cable.

Press <ESC> to display the configuration menu interface for the gateway. Sometimes it may be necessary to cycle power to the gateway to allow hyperterminal to properly work with the gateway. Press option 4 to get the PROFIBUS configuration size, then press 6 to set the I/O size to the same values for the Ethernet interface, as shown in the example below.



important to keep the "Modbus Address Mode" as "Disabled"

4.4.3.	Add Ethernet / IP Gateway to	I/O Config	uration	
	The next step is to add the HMS Et to the PLC I/O configuration so tha be crafted to read and write the da	t the instru- t the instru- ata to the m	ateway ctions can nodules.	
	I/O Configuration Backplane, CompactLog 1769-L32E Compact 1769-L32E Ethernet Backplane, CompactLog 1769-L32E Ethernet Backplane, CompactLog 1769-L32E Ethernet Backplane, CompactLog Transact Backplane, Compact Backplane, Compact Transact Backplane, Compact Transact Backplane, Compact Backplane, Compact C	gix System tLogix t Port Locali Ethernet Po BRIDGE HM	Add an Et and give ir (10.0.2.17 rt LocalENB 5_ETHERNET	nernet bridge to the PLC I/O configuration the IP address set above in the web page in this example.)
	-	Module Pr	operties: LocalENB (E <mark>.</mark> HERNET-I	BRIDGE 1.1) 🔀
		Type: Parent	inection Module Info Port Configuratio ETHERNET-BRIDGE Generic EtherNe LocalENB	n Port Diagnostics Backplane MP CIP Bridge
		Name:	HMS ETHERNET	Address / Host Name
		Description	-	6 IP Address 10 0 2 11
				C Host Name:
		Status: Runnin	gОК	Cancel Apply Help

4.4.4. Add PLC Program MSG Instructions

We need to add the message instructions to read and write the Ethernet/IP data to the gateway. The message instructions are executed every 1000ms in this example.

📕 MainP	Program - FC5	
- 西	副田 門田刻 田刻 高麗 和然 西州 📦	
0	MSO_CYCLEDN	Timer On Delay Timer MSO_CVCLE Presel 1000 + Accum 591 +
ł	MSO_CYCLEDN	MSG- Type - CP Generic Message Control MSG_READ (EN)- (EN)- (ER)-
2	MSO_CYCLEDN	MSG
(End)	-	
<u>+[+[\</u> FC	C6 /	<u>×</u>

CIP message read configuration

	Message Configuration - MSG_READ2 Configuration Communication Message Type: CIP Generic	
Input Instance of 64 hex equals 100 decimal	Service Get Attribute Single Source Element 0 Service e (Hex) Class: 4 (Hex) Destination ENET Netance: 100 Attribute: 3 (Hex) Service Netance:	(Bytes) _INPUTS[0] ↓ Tag
	Enable Enable Waiting Start Done Done Leng Error Code: Timed Error Path: Error Text: OK Cancel Apply	th: 197 Dut • Help

CIP message write configuration

	Configuration - MSG_WRITE
Output Instance of 96 hex equals 150 decimal	Message Type: CIP Generic • Service Set Attribute Single • Source Element: ENET_OUTPUTS[0] • Service 10 (Hex) Class: 4 (Hex) Destination • Service: 10 (Hex) Class: 4 (Hex) Destination • New Tag New Tag New Tag • • •
	Enable Enable Waiting Start Done Done Length: 0 Error Code: Timed Out Error Path Error Text:

4.4.5. Ethernet / IP Interface Notes

Implemented Objects — EtherNet/IP requires some mandatory objects; these are implemented as well as some vendor specific objects. The mandatory objects are the ones in the specification from ODVA.

The following vendor specific objects are implemented: I/O Data Representation

The Input and Output buffers can be accessed from EtherNet/IP via the Assembly Object, instances 64h (Input) and 96h (Output). For more information, see 6-3 "Assembly Object, Class 04h." Note that this data can also be accessed via Modbus/TCP, the email client, or the built in web server.

Class Nar	Class Name Contents				
01h	Identity Object	Holds general information and status about the interface			
04h	Assembly Object	Holds the Input and Output data buffers			
AAh	Diagnostic Object	Contains diagnostic information about the ethernet interface			
F5h	TCP/IP Interface Object	Holds the IP settings of the interface			
F6h	Ethernet Link Object	Holds the low level communication properties of the interface			

Instance Attributes, Instance 64th

#	Access	Name	Туре	Value	Description
3	Get	Input Buffer	Array of BYTE	—	Mapped to Input Buffer

Depending on the type of gateway and how it has been set up to operate, up to 10 bytes (bytes 0...9) may be occupied by the Status Word and the Live List, see below.



I/O Data Size = 24 bytes Live List = Enabled Control and Status Word = Enabled (For further information about the Status Word and the Live List, consult the main user manual).



I/O Data Size = 24 bytes Live List = Disabled Control and Status Word = Enabled

Instance Attributes, Instance 96th

#	Access	Name	Туре	Value	Description
3	Get	Output Buffer	Array of BYTE	_	Mapped to Output Buffer

Depending on how the gateway is set to operate, the first 2 bytes (bytes 0...1) may be occupied by the Control Word, see



Example A: I/O Data Size = 24 bytes Control Word = Enabled

below. (For more information about the Control Word, consult the main user manual.)



Example B: I/O Data Size = 22 bytes Control Word = Disabled



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