

English

Driver for Giddings & Lewis PiC/MMC

Manual

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1 Introduction

This manual describes how to connect the Giddings & Lewis PiC controllers to the operator terminals, and how to install and handle the driver Giddings & Lewis PiC/MMC.

The functions in the operator terminals and in the programming tool for the operator terminals are described in the manual for the operator terminals and the programming tool.

For information about the controller we refer to the manual for the current system.

The driver supports serial and Ethernet connections.

2 Install and update driver

When installing the programming tool the drivers available at the time of release are installed too. A new driver can be added into the programming tool either with the programming tool using an Internet connection or from disk. A driver can be updated to a newer version similarly.

2.1 Installation of driver using Internet

To update available drivers to the latest version or to install new drivers, the function **File/Update terminal drivers/from Internet** in the programming tool can be used. All projects must be closed prior to using this function, and the computer must be able to connect to Internet. A browser is not required. When the connection is established all drivers that can be downloaded to the computer from Internet are listed. The list states the version number of available and installed drivers. Select which drivers to install, and then click **Download**. The function **Mark Newer** will mark all drivers available in a newer version than the ones installed, and the drivers not installed. Each driver is approximately 500 kb, and ready to use when the download is finished.

2.2 Installation of driver from disk

To update available drivers to the latest version or to install new drivers, the function **File/Update terminal drivers/from Disk** in the programming tool can be used. All projects must be closed prior to using this function. Select the folder with the new driver and open the mpd-file. All drivers that can be installed are listed, and the version number of available drivers and the version number of installed drivers are stated. Select which drivers to install into the programming tool, and then select **Install**. The function **Mark Newer** will mark all drivers available in a newer version than the ones installed, and the drivers not installed.

3 Connecting the operator terminal to the controller

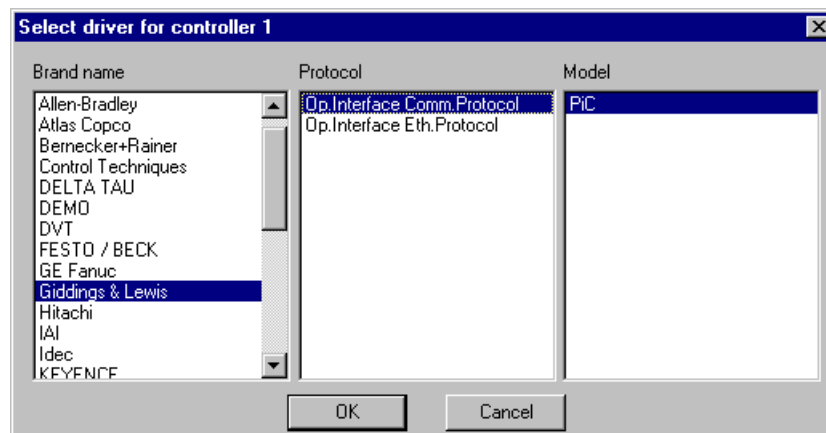
3.1 Settings in the programming tool

For communication with Giddings & Lewis controllers via the Op. Interface Comm. Protocol or via the Op. Interface Eth. Protocol the following settings must be made in the programming tool for the operator terminals.

Driver selection

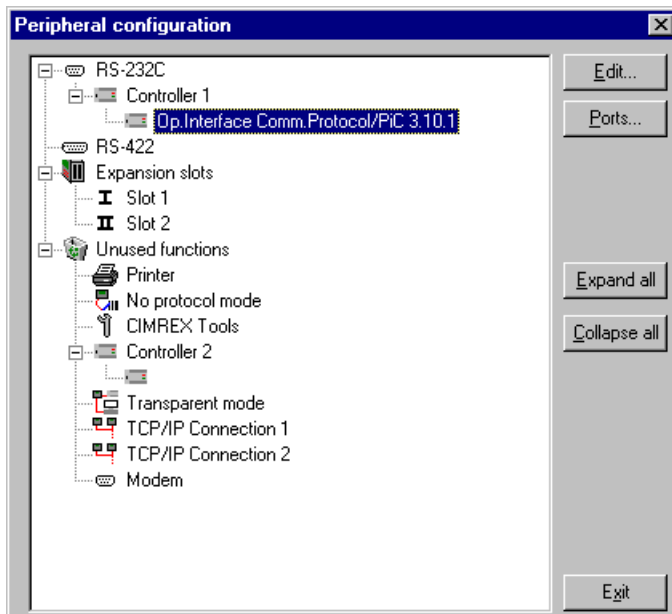
Choosing **File/New** creates a new project and displays the dialog **Project Settings**. In an existing project, the dialog is displayed by selecting **File/Project Settings**.

Click **Change...** under **Controller systems** to display available drivers. Choose **Brand name**, **Protocol** and **Model**, and click **OK**. Click **OK** once more to confirm the project settings.



3.2 Serial communication setup

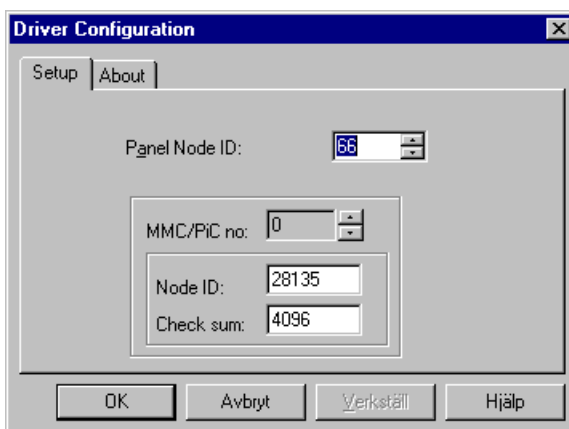
After selecting **Op. Interface Comm. Protocol**, settings for serial communication between the terminal and the controller are made under **Setup/Peripherals**. To change the port the controller is connected to, mark **Controller 1** (or **Controller 2**) and hold left mouse button down and drag to move the controller to another communication port. Mark the selected communication port and click **Edit** to change the settings.



Correct settings:

Parameter	Setting
Port	RS-232C or RS-422
Baud rate	9600
Data bits	8
Stop bits	1
Parity	None

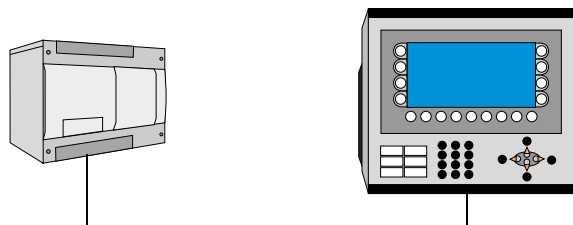
To make specific settings for the selected driver, mark the driver name and click **Edit**.



State the station number for the terminal in the field **Panel Node ID**. The entries for **Node ID** and **Check Sum** are automatically filled in when the OID-file is imported.

Serial connection to the controller

The connection can be of the types multidrop (only RS-232) or Point-to-Point.



A cable according to chapter Drawings is connected between Giddings & Lewis PiC 900/90/MMC user port and the RS-232C port on the operator terminal.

For further information about connections we refer to the manual for the controller.

3.3 Ethernet communication setup

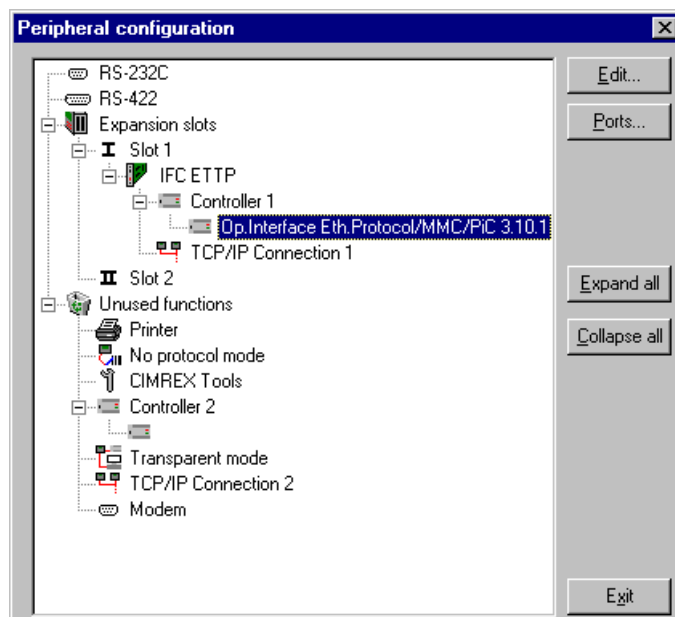
For Ethernet communication between the Giddings & Lewis controller and the operator terminal, an Ethernet expansion card has to be installed in the terminal. To install the Ethernet expansion card, see the instructions in the manual for the expansion card.

Communication setup

After selecting **Op. Interface Eth. Protocol**, settings for Ethernet communication between the terminal and the controller are made under **Setup/Peripherals**.

Connect the Ethernet expansion card to **Slot 1** or **Slot 2** according to the instructions in the manual for the expansion card.

To change the port or expansion card the controller is connected to, mark **Controller 1** (or **Controller 2**) and hold left mouse button down and drag to move the controller to another communication port or expansion card. Drop the controller where the Ethernet card is installed.



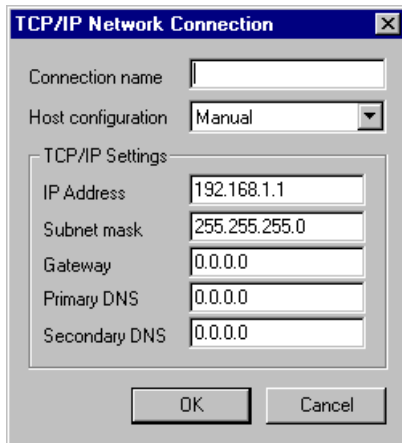
To make specific settings for the selected driver, mark the driver name and click **Edit**.

Parameter	Description
Time out (100 ms)	Global time-out - applies to communication with the controller system.
Controller port	The Ethernet port number for the controller
My port	The Ethernet port number for the terminal
MMC/PiC no	Index 1 - 3 corresponds to index of TCP/IP addr .
Node ID	The entries for Node ID and Check Sum are automatically filled in when the OID-file is imported. See chapter 4.
Check sum	
TCP/IP addr	The IP addresses to the controllers that the terminal communicates with. Initiation of communication towards all specified IP addresses is made at startup. The controller with TCP/IP addr 1 is displayed at startup. TCP/IP addr 1 must always be used.

Settings for TCP/IP connection

A TCP/IP connection has to be added to the slot where the Ethernet expansion card is connected. The settings are made under **Setup/Peripherals** in the programming tool. Drag **TCP/IP Connection 1** from **Unused functions** and drop it on the slot with the expansion card.

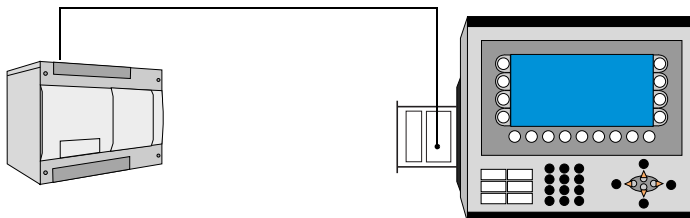
Mark **TCP/IP Connection 1** and click **Edit** to make the settings for the TCP/IP network. Normally only the IP address needs to be changed.



State the IP address for the operator terminal in the **IP Address** field.

For further details we refer to the manuals for the controller, for the operator terminals, and for the Ethernet expansion card.

Ethernet connection to the controller



An Ethernet expansion card is used in the operator terminal in order to connect the terminal to an Ethernet network. Ethernet expansion cards for connection via twisted pair cable (TP) or via coaxial cable (CX) are available. The expansion cards are standard products.

A Point-to-Point connection to an expansion card (only with twisted pair cable) is made according to the illustration above.

Connection in a network is made according to Ethernet standards.

For further information about settings in the controller, cable specifications and how to connect the controller to the operator terminal we refer to the manual for the current system.

3.4 Transfer the driver to the operator terminal

The selected driver is downloaded to the operator terminal when the project is transferred to the terminal. Select **Transfer/Project**.

There are three alternatives when the driver is downloaded to the terminal.

Function	Description
Never	The driver is not downloaded and the existing driver in the terminal is used.
Always	The driver is downloaded every time the project is transferred.
Automatic	The driver is downloaded only if the driver in the terminal is not the same as the selected driver in the project.

4 Addressing

4.1 Importing the OID-file

1. To choose variables from the application in PiCPro for Windows, set the attribute of the variables to **Global** in the dialog **Software Declarations**, and select **Construct data file** under **Compile/Settings**. This will create an OID-file to import into the programming tool for the operator terminals.
2. Create a new project in programming tool, and select an operator terminal and the Giddings & Lewis driver.
3. Then select **View/Name list/Import**, and point out the OID-file with the desired variables for the operator terminal.
4. The next dialog box displays import settings, which should be the correct settings for an OID-file import. (**Space**, **1**, **2**, **5**). Click **OK**. The node id is added to the variable names, e.g. **5:VariableName**. It is possible to import 15 different OID-files with controllers connected in a multidrop network, or three different OID-files with controllers connected through Ethernet.
5. The answer to the question “**Do you want to rebind all I/O values?**” that appears next, would normally be **Yes**. If indexes differ between two OID-file imports, the rebind function connects the object in the terminal project to the new index, with the same variable name as before.
6. **Node ID** and **Check sum** can be verified by right-clicking on the PiC controller under **Setup/Peripherals**.
7. Finally create the terminal project.

5 Efficient communication

To make the communication between the terminal and the controller quick and efficient the following should be noted about how the signals are read and how the reading can be optimized.

5.1 Signals affecting the communication time

Only signals to objects in the current block are read continuously. Signals to objects in other blocks are not read, thus the number of blocks does not affect the communication time.

Besides the signals to objects in the current block, the terminal reads the following signals from the controller continuously:

- Display signals (Block Header)
- Print signals (Block Header)
- LED registers
- Alarm signals
- Remote acknowledge signals on alarms and alarm groups
- Login signal (Passwords)
- Logout signal (Passwords)
- Registers for trend curves
- Bargraph registers if using min/max indicators
- New display register
- Buzzer register
- Backlight signal
- Cursor control block
- Recipe control block
- Library index register
- Index Registers
- Controller clock register if the controller clock is used in the terminal
- List erase signal (Alarm Settings)
- No protocol control register
- No protocol on signal

Signals not affecting the communication time

The following signals do not affect the communication time:

- Signals linked to function keys
- Time channels
- Objects in the alarm messages

5.2 How to make the communication more efficient

Efficient block changes

Block changes are carried out most rapidly and efficiently through the block jump function for the function keys or through a jump object. **Display** signals in the block header should only be used when the controller is to force the presentation of another block. The **New display** register can also be used if the controller is to change the block. This does not affect communication as much as a large number of **Display** signals.

6 Drawings

RS-232

Pin no	Name	Signal direction Terminal ←→ XXX
1 ⁴⁾	+5V >200mA	↖
2	TxD	↗
3	RxD	↖
5	0V	
7	CTS	↖
8	RTS	↗
9		

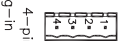
D-sub
9-pin Male



4) Only for units with one serial port (RS-422) and 232-25-ADP (adapter). On all other terminals, not connected.

RS-485

Pin no	Name	Signal direction Terminal ←→ XXX
1	Tx/Rx+	↖↗
2	Tx/Rx-	↗↖
3	0V	
4	±	



4-pin
Plug-in block

RS-422

Pin no	Name	Signal direction Terminal ←→ XXX
2	+TxD	↗
15	-TxD	
3	+RxD	↖
16	-RxD	
4	+RTS	↖
17	-RTS	
5	+CTS	↖
18	-CTS	
20	1)	
21	1)	
7,8	0V	
14	+5V	↗
12,13	2) +5V	↖
24,25	>200mA	
9	3) TxD	↗
10	3) RxD	↖
22	3) CTS	↖
23	3) RTS	↗

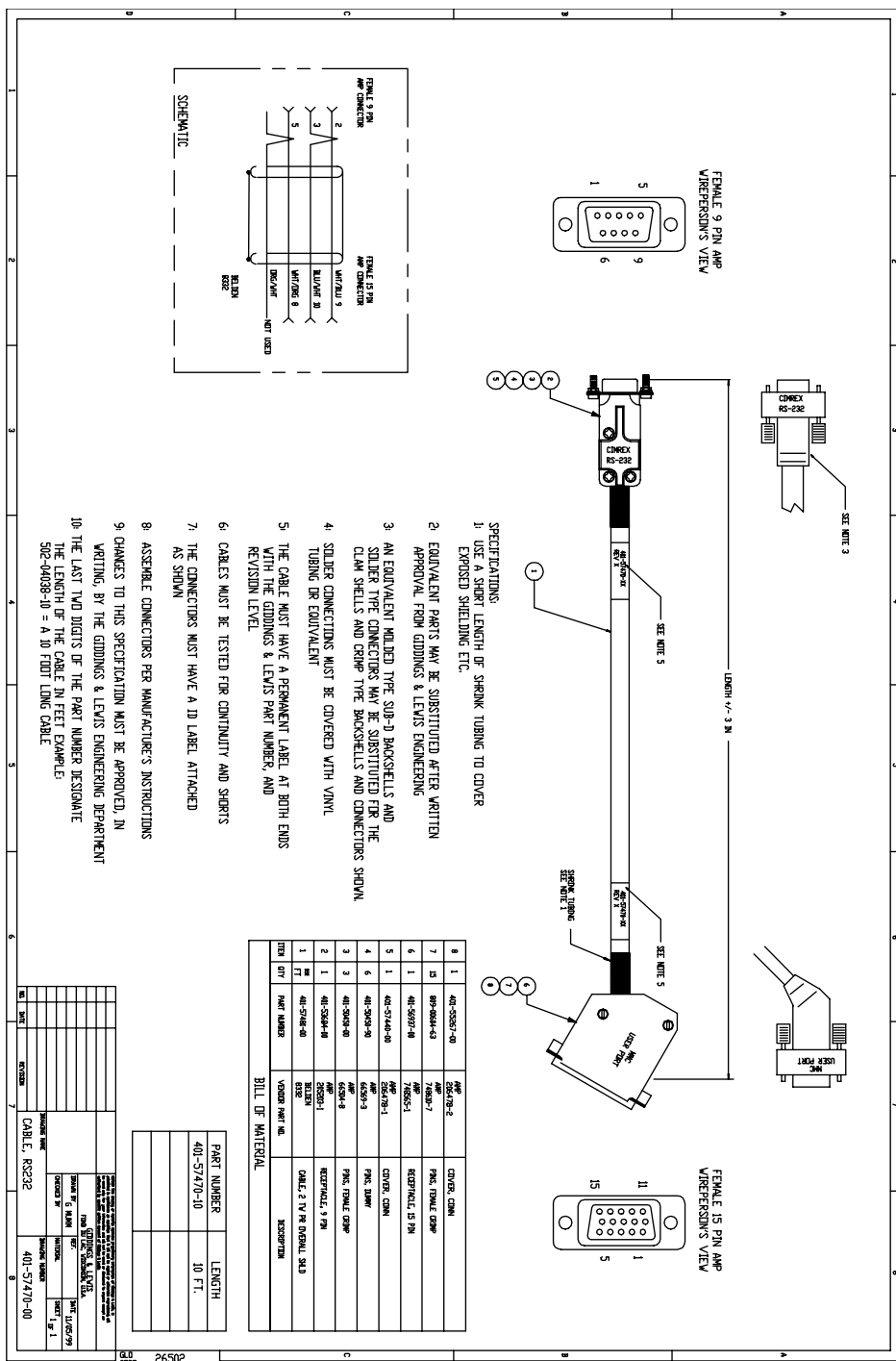


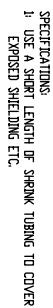
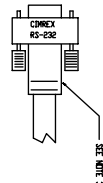
D-sub
25-pin Female

1) Pin no 20 connected to pin no 21 internal in the terminal
2) Only for units with SWDC voltage feed
3) Only for units with one serial port (RS-422)

Drawn		Date		Rev.		Revision		Page		Text		Drawing No.	
SLG		1998-12-01		-		2001-03-29		1		-		S-02467	

RS-232/RS-422/RS485





2) EQUIVALENT PARTS MAY BE SUBSTITUTED AFTER WRITTEN APPROVAL FROM GIDDINGS & LEWIS ENGINEERING

3: AN EQUIVALENT WELDED TYPE SUB-D BACKSHELL AND SOLDER TYPE CONNECTOR MAY BE SUBSTITUTED FOR THE CLAM SHELL AND CRIMP TYPE BACKSHELL AND CONNECTOR SHOWN

4. SOLDER CONNECTIONS MUST BE COVERED WITH VINYL TUBING OR EQUIVALENT

5) THE CABLE MUST HAVE A PERMANENT LABEL AT BOTH ENDS WITH THE GIDDINGS & LEVIS PART NUMBER, AND REVISION LEVEL

6: CABLES MUST BE TESTED FOR CONTINUITY AND SHORTS

7: THE CONNECTORS MUST HAVE A ID LABEL ATTACHED AS SHOWN

8: ASSEMBLE CONNECTORS PER MANUFACTURE'S INSTRUCTIONS

9. CHANGES TO THIS SPECIFICATION MUST BE APPROVED, IN

10: THE LAST TWO DIGITS OF THE PART NUMBER DESIGNATE THE LENGTH OF THE CABLE IN FEET EXAMPLE:



BILL OF MATERIAL

PART NUMBER	LENGTH
401-57472-10	10 FT.

[illegible]