

PMC-1380-3

Communications Processor

User Manual

Version: V3.2A

30/03/2015



Ceiec Electric Technology

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DANGER

Failure to observe the following instructions may result in severe injury or death and/or equipment damage.

- Before connecting the device to the power source, check the label of the device to ensure that it is equipped with the appropriate power supply.
- Under no circumstances should the device be connected to a power source if it is damaged.
- Make sure the device is mounted to a well-grounded mounting surface.
- To prevent potential fire or shock hazard, do not expose the device to rain or moisture.
- DO NOT open or repair the device under any circumstances, unless it is clearly specified in the manual.

Limited warranty

- Ceiec Electric Technology (CET) offers the customer a minimum of 12-month functional warranty on the device for faulty parts or workmanship from the date of dispatch from the distributor. This warranty is on a return to factory for repair basis.
- CET does not accept liability for any damage caused by device malfunctions. CET accepts no responsibility for the suitability of the device to the application for which it was purchased.
- Failure to install, set up or operate the device according to the instructions herein will void the warranty.
- Only CET's duly authorized representative may open your device. The unit should only be opened in a fully anti-static environment. Failure to do so may damage the electronic components and will void the warranty.

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Chapter 1 Introduction

This manual explains how to use the PMC-1380-3 Communications Processor. Throughout the manual the term “PMC-1380-3” generally refers to all models. Differences between models are indicated with the appropriate model number.

This chapter provides an overview of the PMC-1380-3 Communications Processor and summarizes many of its key features.

1.1 Overview

The PMC-1380-3 is the ideal embedded equipment for connecting serial devices to an IP-based LAN, making it possible for SCADA or other applications to access serial devices over a LAN for monitoring and control applications. The Basic Model (PMC-1380-3-RT) supports the Transparent Ethernet Gateway function which allows the efficient transfer of serial packets between network-based Master applications and downstream serial devices via a direct TCP/IP connection, independent of the serial protocol and operating system. The RTU model (PMC-1380-3-RR) provides Modbus Mastering and Local Data Logging capabilities with 4GB of non-volatile memory which can support a maximum of 1024 (16x64) Slave IEDs or 64 Slave IEDs per RS-485 port. The RTU model (PMC-1380-3-RR) provides an additional level of redundancy by supporting data logging of economical downstream Slave IEDs at pre-defined intervals and implementing data caching for simultaneous access by multiple master applications via Modbus TCP connections.

The PMC-1380-3 comes with Tx/Rx LEDs for the serial ports on the front panel, and 16 DB9 female connectors on the rear panel. The LEDs not only indicate the network status but also help to monitor the communications activities of the attached serial devices. The PMC-1380-3 comes in the standard 19-inch rack mount form factor which makes it easy to install and operate. The PMC-1380-3 has been specifically designed with industrial automation in mind and therefore provides unsurpassed performance and reliability under the harshest industrial or commercial environments.

The PMC-1380-3 can be setup through its user-friendly web console. Besides, the PMC-1380-3 has a LCD display and buttons on its front panel to allow the user to easily view all communications parameters.

1.2 Features

- 16xRS-485 ports or 12xRS-485 ports and 4xRS-232 ports
- 1.5 kV isolation protection for Ethernet port
- 3kV isolation protection for RS485 Ports
- Option for two additional 10/100BaseT or 100BaseFx ports
- Automatic Data Direction Control
- Collect real-time data (as well as SOE and waveform records from IEDs made by CET)
- 4GB of non-volatile memory for the optional RTU Model
- 8 independent transmissible channels to different masters
- Easy configuration via the web console
- Standard 19-inch rack mount

1.3 Getting more information

Additional information is available from CET via the following sources:

- Visit www.cet-global.com
- Contact your local representative
- Contact CET directly via email or telephone

Chapter 2 Installation

2.1 Appearance



Figure 2-1 Front Panel

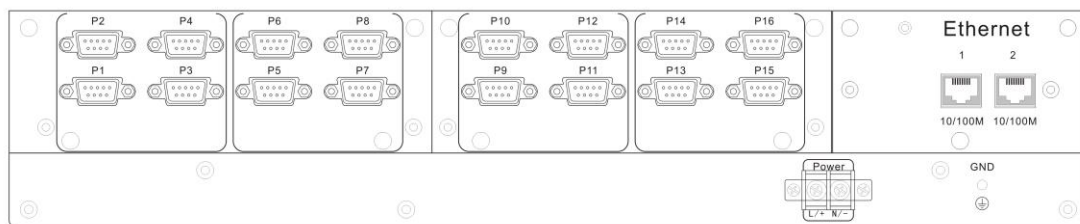


Figure 2-2 Rear Panel

2.2 Mounting

The PMC-1380-3 should be installed in a dry environment with no dust and kept away from heat, radiation and electrical noise source.

Installation steps:

- Fit the device through the cutout as shown in Figure 2-3
- Use four screws to fix the device tightly against the panel

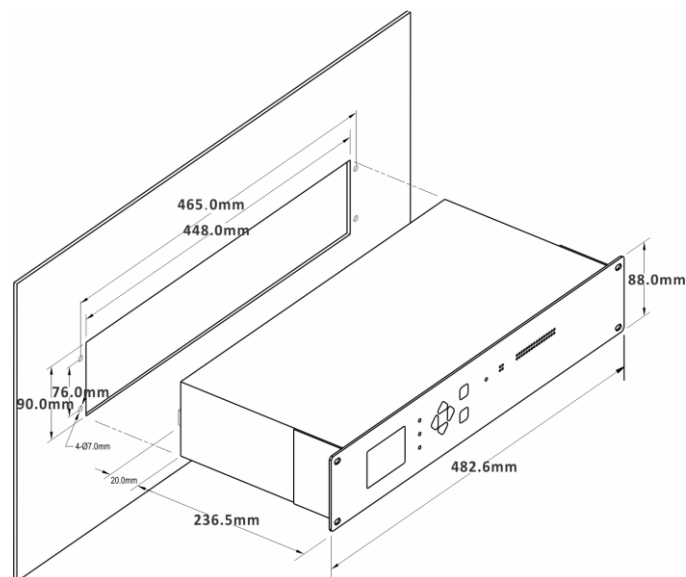


Figure 2-3 Panel Cutout

2.3 Power Supply Wiring

Please consult the serial number label to ensure that the supply voltage is within the range of the PMC-1380-3's power supply specifications.

For AC supply, connect the live wire to the L/+ terminal and the neutral wire to the N/- terminal. For DC supply, connect the positive wire to the L/+ terminal and the negative wire to the N/- terminal.



Figure 2-4 Power Supply Connections

2.4 Chassis Ground Wiring

Installation:

- Connect one end of the ground wire to the Chassis Ground terminal on the PMC-1380-3 using a spade connector
- Connect the other end of the ground wire to an Earth ground

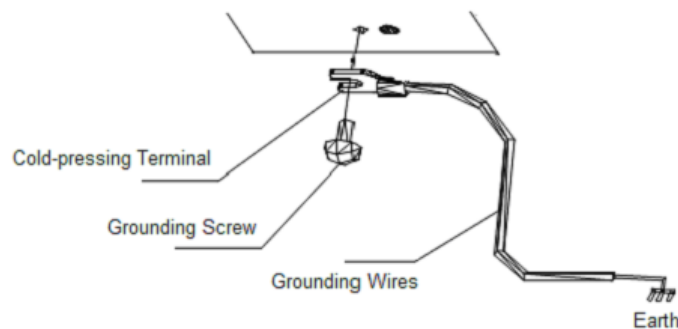


Figure 2-5 Chassis Ground Connection

2.5 Ethernet Port Wiring

Connect one end of the Ethernet cable to PMC-1380-3 Ethernet port and the other end of the cable to the Ethernet network.

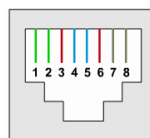


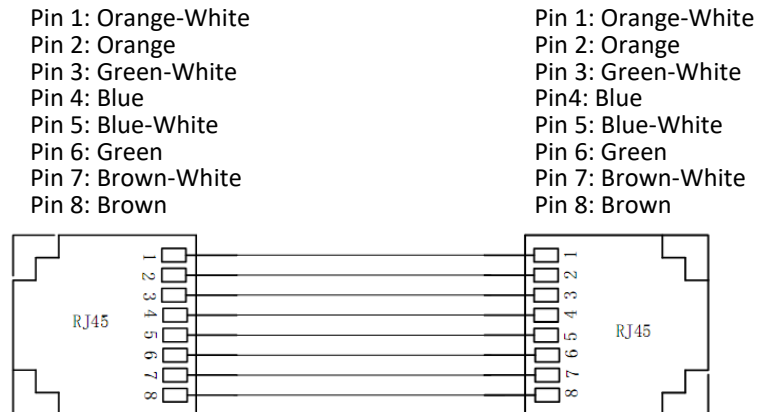
Figure 2-6 RJ45 Connector

Pin	Meaning
1	Transmit Data+
2	Transmit Data-
3	Receive Data+

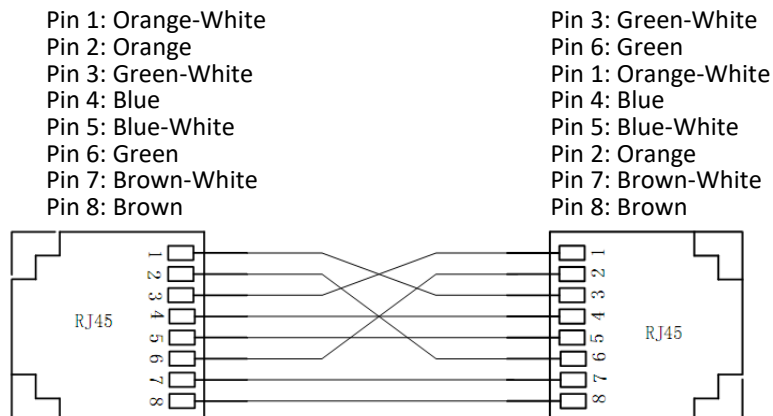
4,5,7,8	NC
6	Receive Data-

Table 2-1 RJ45 Connector Pin Description for 10/100BaseT Applications**2.5.1 Straight through Connection**

A straight through RJ45 cable should be used if the PMC-1380 is connected to an Ethernet switch or hub. The following figure illustrates the definition of an 8-pin RJ45 straight through cable. The color-coded wires should be connected to the pins of the RJ45 connector as follows:

**Figure 2-7 Straight through Connection****2.5.2 Cross-over Connection**

A cross-over RJ45 cable should be used if the PMC-1380 is connected directly to a PC's Ethernet port. The following figure illustrates the definition of an 8-pin RJ45 cross-over cable. The color-coded wires should be connected to the pins of the RJ45 connector as follows:

**Figure 2-8 Cross-over Connection****2.6 Serial Port Wiring**

Connect the serial data cable between the PMC-1380 and the connected serial device(s) depending on the serial mode.

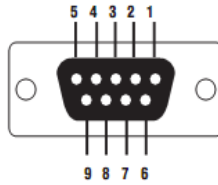


Figure 2-9 DB9 Female Connector

2.6.1 RS-232 (DTE) Pin Definition

Pin	RS-232	Description
1	NC	No Connect
2	RxD	Receive Data
3	TxD	Transmit Data
4	NC	No connect
5	GND	Ground
6	NC	No connect
7	NC	No connect
8	NC	No connect
9	NC	No connect

Table 2-2 RS-232 Pin Definition

2.6.2 RS-485 Pin Definition

Pin	RS-485	Description
1	NC	No Connect
2	Rx+	Receive Data +
3	Tx+	Transmit Data +
4	NC	No connect
5	SHIELD	Shield
6	NC	No connect
7	Rx-	Received Data -
8	Tx-	Transmit Data -
9	NC	No connect

Table 2-3 RS-485 Pin Definition

Chapter 3 Operating the PMC-1380-3

3.1 Front Panel

3.1.1 LED Indicators

There are several LED indicators on the PMC-1380-3's front panel as described in the following table.

LED Indicator	Color	Function
Run	Green	Power is on and the PMC-1380-3 is running normally
Link/Act	Green	Ethernet Connection Indicator Network Status Indicator
100Mbps	Yellow	100 Mbps Connection Indicator
Rx	Green	The specific serial port is receiving data
Tx	Yellow	The specific serial port is transmitting data

Table 3-1 LED Indicators

3.1.2 Reset Button

The front panel has a **Reset** button. Use a pointed object, such as a straightened paper clip or the tip of a ball-point pen to access the **Reset** button. Press and hold the **Reset** button for 1 second will cause the PMC-1380-3 to initiate a reboot sequence. The reboot process would complete in approximately 30 seconds.

3.1.3 Buttons

The PMC-1380-3 has six buttons on the front panel : <△>, <▽>, <◁>, <▷>, <Enter>, and <Esc>. Use the <△>, <▽>, <◁> and <▷> buttons to navigate the menu system. Use the <Enter> button to enter into a sub-menu and the <Esc> key to return to the previous menu.

3.1.4 LCD Display

The LCD display on the PMC-1380-3 allows the user to view its setup parameters. The default screen is shown in Figure 3-1.

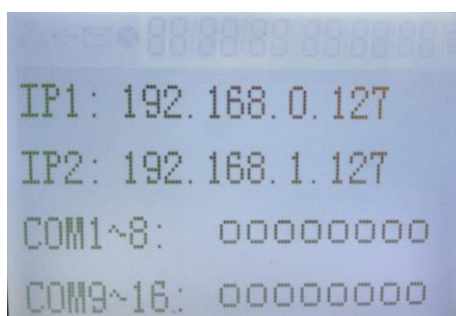
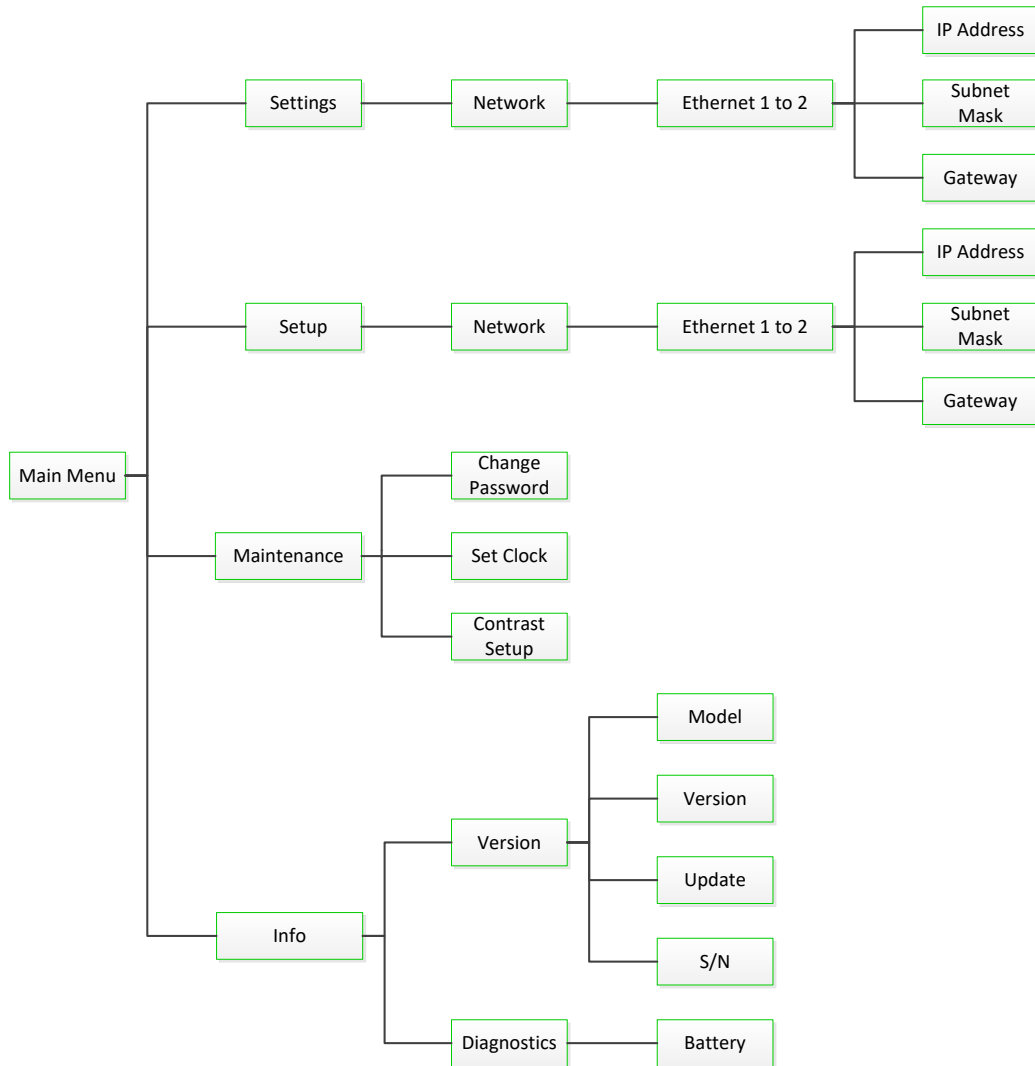


Figure 3-1 Default Screen

The main menu has four options – Settings, Setup, Maintenance and Info. Figure 3-2 below shows the menu structure for the PMC-1380-3. Pressing the <Enter> button from the default screen enters the main menu.

**Figure 3-2 Main Menu**

3.2 Typical Applications

The PMC-1380-3 is an ideal instrument to connect serial devices to an IP based Ethernet LAN for any industrial automation systems that require insulation protection as well as high reliability. With its built-in dual Ethernet ports, the PMC-1380-3 is capable of operating under a Single Networking or Dual Networking architecture.

3.2.1 Single Networking

This architecture shown in Figure 3-3 below is typically used in smaller applications where there is only a single networking backbone. This networking topology features a simple structure that is easy to maintain, cost-effective and suitable for applications where redundant networking is not available or required.

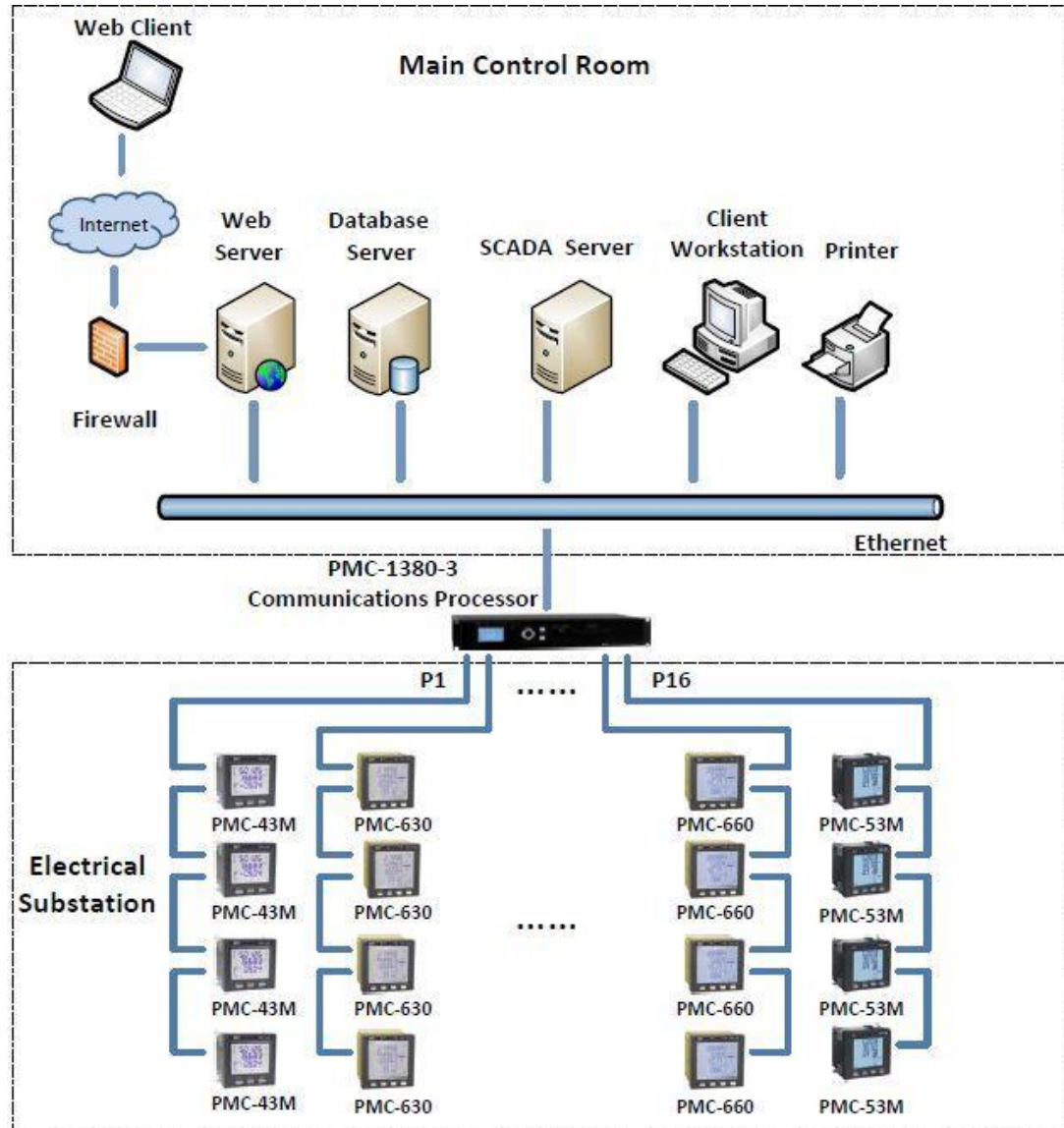


Figure 3-3 Single Networking

3.2.2 Dual Networking

The architecture shown in Figure 3-4 provides physical networking redundancy for applications where data availability and security are of critical importance. The dual networking topology provides a backup backbone which allows communications to be re-routed at the application level in the event that the main backbone fails. The dual Ethernet configuration is slightly different from the “true” redundant configuration where in the case of a “true” redundant configuration the failure in one of the backbones will not affect system communications because existing connections will be automatically re-routed from the faulty network to the redundant network transparently in such a way that the system never experiences any interruptions.

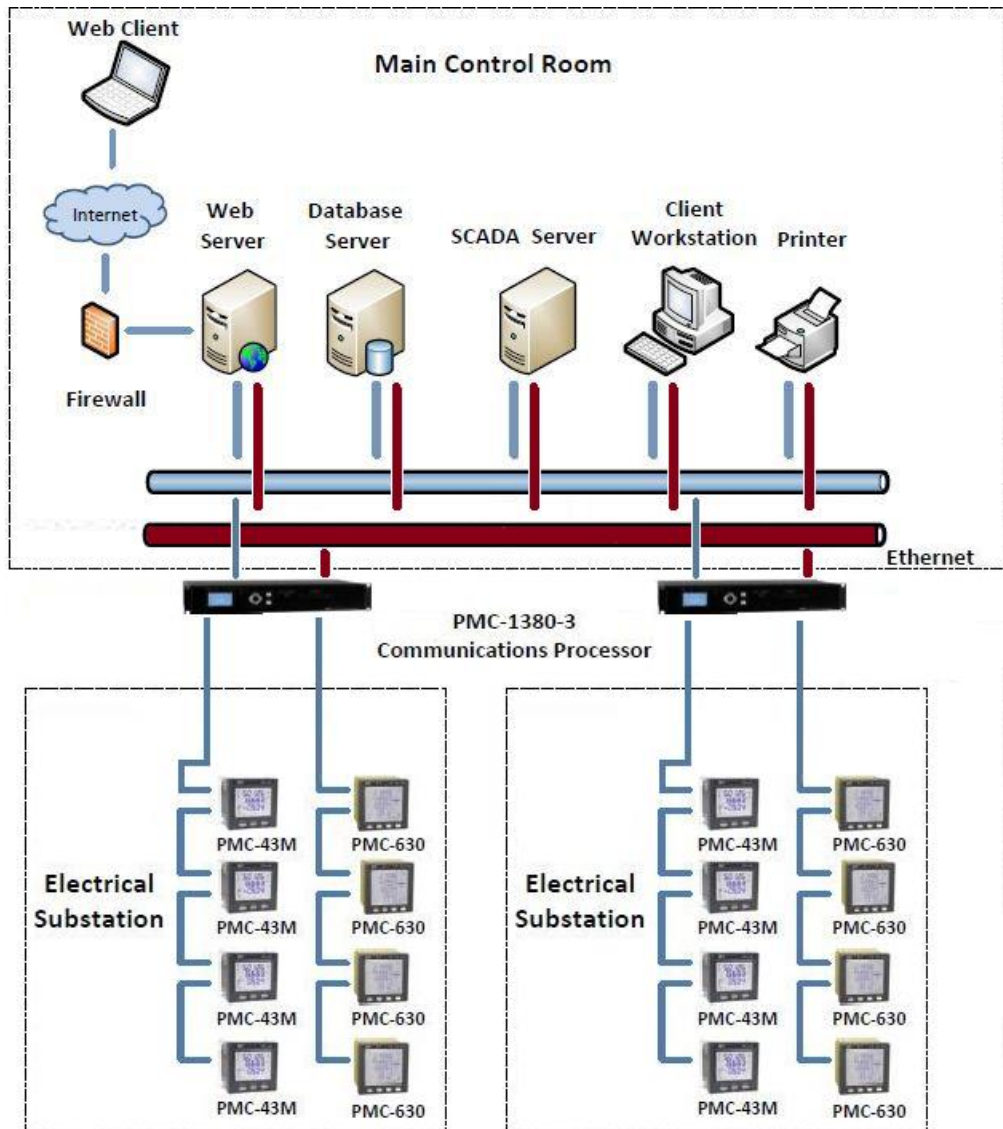


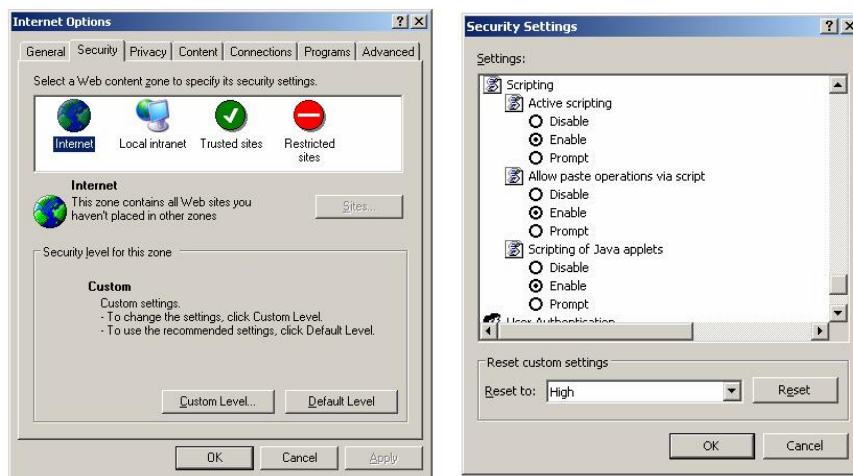
Figure 3-4 Dual Networking

Chapter 4 Configuring the PMC-1380-3 via the Web Console

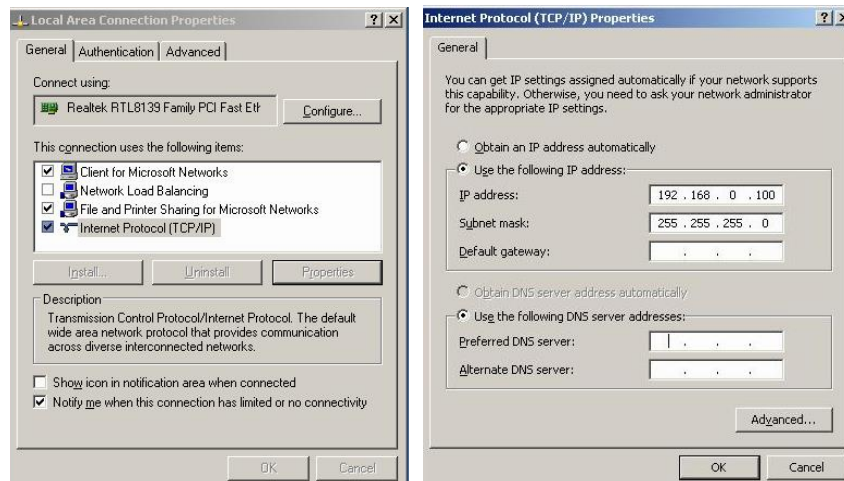
PMC-1380-3 Web Console has two programming modes: On-Line and Off-Line. The On-Line mode is used to query and configure a connected PMC-1380-3, while the Off-Line mode is used to configure a PMC-1380-3 without physically connecting to a PMC-1380-3.

4.1 On-line Web Console Login

1) Open your Internet Explorer with the scripting function enabled. To enable scripting for your browser, right click on your Internet Explorer icon and select Properties from the pop-up dialog box. The **Internet Options** window appears. Select the Security tab and then click on the **Custom Level** button near the bottom of the window. The **Security Settings** window appears. Enable the three options as shown below and then click **OK**.



2) The default IP Addresses of the PMC-1380-3's two Ethernet Ports are 192.168.0.127 and 192.168.1.127, respectively. Configure the IP address of the PC to the same network segment as the connected Ethernet port. For example, configure the IP Address and the Subnet Mask of the PC as 192.168.0.100 and 255.255.255.0 as shown below, if connected to Ethernet Port 1 192.168.0.127. If connecting to Ethernet Port 2 of the PMC-1380-3, the PC's IP address and Subnet Mask should be configured as 192.168.1.100 and 255.255.255.0, respectively.



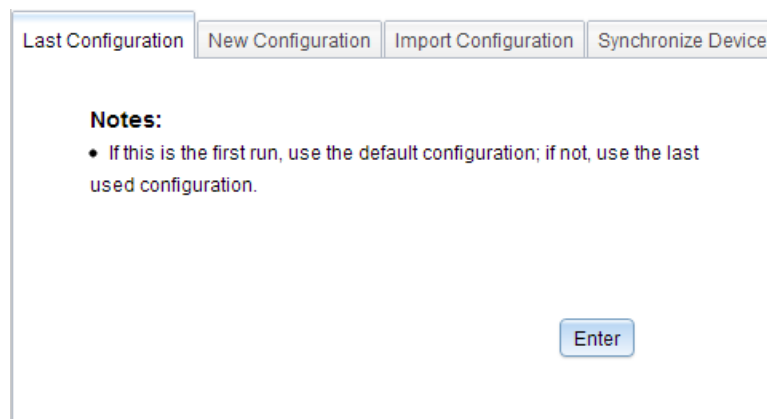
3) Enter the IP Address of the PMC-1380-3 in the Address input box of the Internet Protocol (TCP/IP) Properties dialog box and then press <Enter>. The default IP address is 192.168.0.127 for Ethernet 1 and 192.168.1.127 for Ethernet 2.

4) The PMC-1380-3's On-line Web Console's Login page appears. Enter the User name and Password. The default user name is "user", and the default password is "123456".



4.2 Off-line Web Console Login

To run the PMC-1380-3 Off-Line Web Console, first install the program by double clicking the "PMC-1380 Web Console _v2.0_install.exe". After installation, double click the "PMC-1380-3 Web Console.exe" to open Off-Line Web Console. The PMC-1380-3's Off-line Web Console's Login page appears. Enter the User name and Password. The default user name is "user", and the default password is "123456". Click "Login" to choose the way to enter the Web Console.



Option	Description	Setting
Last Configuration	If the user is running it for first time, the New Configuration should be used; otherwise, select Last Configuration	
New Configuration	Select the model and then perform configuration based on its default one	Default: PMC-1380-3-RR-00-16-2-N-F0T2-XX-XXXX-E
Import Configuration	Import a backup configuration file	
Synchronize Device	Synchronize the PMC-1380-3's device configuration to Off-Line Web Console via an Ethernet connection	
IP Address	Enter the static IP address of PMC-1380-3 to synchronize device configuration	0.0.0.0 to 255.255.255.255
Discover PMC-1380	Discover the IP addresses of all PMC-1380-3 in LAN to choose	
<Enter>	Enter the selected configuration page	

4.3 Network Settings

This option exists in both the On-Line and Off-Line programming modes.

Click on **Network** under **Device Settings** on the left-hand pane and the following screen appears. Modify the networking settings based on the actual situation. Click **Submit** and **Save** to save your changes. Please be reminded that the IP addresses for the two Ethernet ports should not be in the same subnet.

The screenshot shows the 'PMC-1380 Web Console' interface. On the left, a sidebar menu lists 'Device Settings' with sub-items: 'Network' (selected), 'Time', 'Channel Management', 'Data Cache Management', and 'System Maintenance'. The main area is titled 'Network' and contains a 'Submit' button. Below this, there are two sections for 'Ethernet 1' and 'Ethernet 2'. Each section has input fields for 'IP Address' and 'Subnet Mask'. For Ethernet 1, the IP Address is 192.168.0.127 and the Subnet Mask is 255.255.255.0. For Ethernet 2, the IP Address is 192.168.1.127 and the Subnet Mask is 255.255.255.0. Below these, there is an 'Others' section with a 'Default Gateway' field set to 192.168.0.1. At the top right of the main area, there are 'Save' and 'Quit' buttons.

Option	Description	Setting
IP Address	Configure the PMC-1380-3's IP address	Default IP1 = 192.168.0.127 Default IP2 = 192.168.1.127
Subnet Mask	Configure the Subnet Mask	Default = 255.255.255.0
Default Gateway	Configure the Default Gateway's IP address	Default = 192.168.0.1

Notes:

- 1) The IP addresses for the two Ethernet ports must be in different subnets.
- 2) The Default Gateway must be in the same subnet as one of the IP addresses.

- 3) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 4) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 5) Click **<Quit>** to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.4 Time Settings

This option exists in both the On-Line and Off-Line programming modes.

Click on **Time** under **Device Settings** on the left-hand pane and the following screen appears. Click **Submit** and then **Save** to save your changes after modification.

Option	Description	Setting
Time Zone	Configure the Time Zone	Default = UTC + 08:00
Clock Source	Select the clock source for Time Sync. RTC: Internal RTC GPS: GPS inputs SNTP: Simple Network Time Protocol	Default = RTC
Server IP	Specify the SNTP Server's IP address	Default = 127.0.0.1
Time Sync. Interval (min)	Specify how often the PMC-1380-3 contacts the NTP server for the correct time	1 to 300 minutes Default = 60
Accept Time Broadcast	Allow the PMC-1380-3 to accept time broadcast	Default = disable

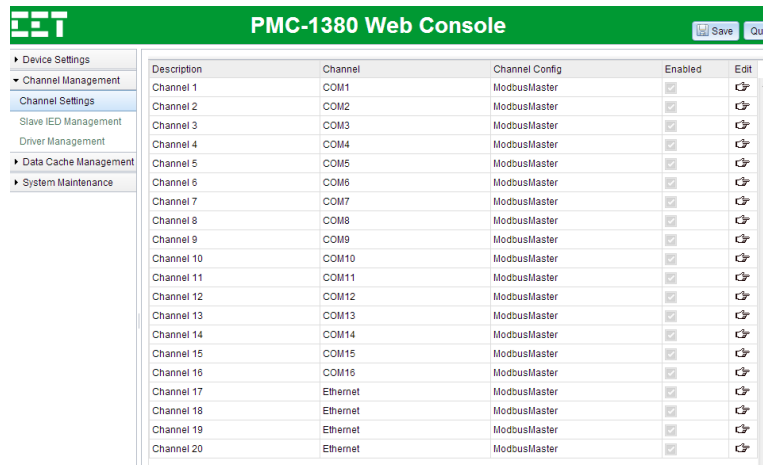
Notes:

- 1) The Default Gateway must be properly configured if the SNTP Server is not located on the same subnet as one of the Ethernet ports.
- 2) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 3) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 4) Click **<Quit>** to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.5 Channel Settings


This option exists in both the On-Line and Off-Line programming modes.

Click on **Channel Settings** under **Channel Management** on the left-hand pane and the following screen appears.

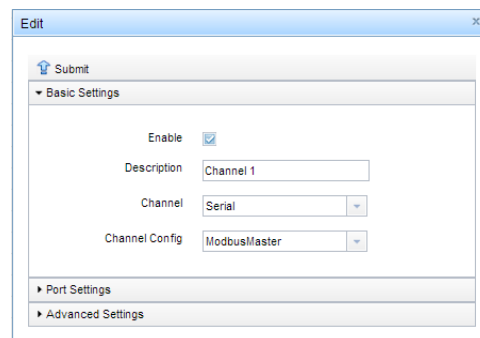


The screenshot shows the 'PMC-1380 Web Console' interface. On the left is a navigation menu with options: Device Settings, Channel Management (selected), Channel Settings (highlighted), Slave IED Management, Driver Management, Data Cache Management, and System Maintenance. The main area displays a table of 20 channels. Each row includes a Description, Channel ID, Channel Config, an Enabled checkbox, and an Edit icon.

Description	Channel	Channel Config	Enabled	Edit
Channel 1	COM1	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 2	COM2	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 3	COM3	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 4	COM4	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 5	COM5	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 6	COM6	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 7	COM7	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 8	COM8	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 9	COM9	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 10	COM10	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 11	COM11	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 12	COM12	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 13	COM13	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 14	COM14	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 15	COM15	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 16	COM16	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 17	Ethernet	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 18	Ethernet	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 19	Ethernet	ModbusMaster	<input checked="" type="checkbox"/>	
Channel 20	Ethernet	ModbusMaster	<input checked="" type="checkbox"/>	

Double-click on a particular channel or click  on the right to modify the channel settings. The **Edit** dialog box is shown below.

Basic Settings



The 'Edit' dialog box has a 'Submit' button at the top left. Under 'Basic Settings', there is an 'Enable' checkbox which is checked. Below it are three fields: 'Description' (text box with 'Channel 1'), 'Channel' (dropdown menu with 'Serial' selected), and 'Channel Config' (dropdown menu with 'ModbusMaster' selected). At the bottom, there are expandable sections for 'Port Settings' and 'Advanced Settings'.

Option	Description	Setting
Enable	Checked if the Channel is enabled	Enabled by default
Description	Channel description	Default = "Channel X"
Channel	Channel 1 to 16 can be set as Serial or Ethernet, channel 17 to 20 can only be set as Ethernet	Serial, Ethernet Channel 1 to 16 = Serial* Channel 17 to 20 = Ethernet*
Channel Config.	Configure a Channel to be a Modbus Master or Transparent	ModbusMaster*, Transparent

*Default

Notes:

- 1) **Channel Config** is reset to their default values when **Channel** is changed.
- 2) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.

- 3) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 4) Click **<Quit>** to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

Port Settings

Option	Description	Setting
Port	Select the Serial Port	NULL or COM X Default = COM X
Baudrate	Select the Baudrate	300, 600, 1200, 2400, 4800, 9600*, 19200, 38400, 57600, 115200
Data Bits	Select the number of Data Bits	5, 6, 7, 8*
Parity	Select the Parity setting	None, Odd, Even*, Mark, Space
Stop Bits	Select the number of Stop Bits	1*, 2
IP Port	Specify the IP port number that corresponds with the Channel	1 to 65535
Response Timeout (s)	The TCP/IP connection will be released if there has been no communication activities for a period longer than the specified time. This would prevent a TCP/IP connection to be un-necessarily occupied by a master application that has stopped working for some unknown reasons.	1 to 60000 (s) Default = 3 (s)
Reserved	Enter extended parameters	Default = res

*Default

Notes:

- 1) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 2) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the

new configuration to the PMC-1380-3 for On-Line programming.

- 3) Click <Quit> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

Advanced Settings

Option	Description	Setting
Polling Delay	Time delay between the requests of consecutive Slave IEDs	0 to 60000 ms Default = 30
Packet Timeout	The maximum waiting time for a response packet	0 to 60000 ms Default = 1000
Byte Timeout	Specify the maximum amount of time between the reception of two consecutive bytes before a packet frame is considered to have ended	0 to 60000 ms Default = 20
Transmit Delay	Time delay for sending the next request packet after the last response packet has been received	0 to 60000 ms Default = 0
Time Sync. Interval	Select how often the Time Sync. Packets are sent	0 to 60000 s Default = 300
Loop Delay	Time delay between successive scans of the entire loop of Slave IEDs	0 to 60000 s Default = 0
Reserved	Enter extended parameters	Null = Default

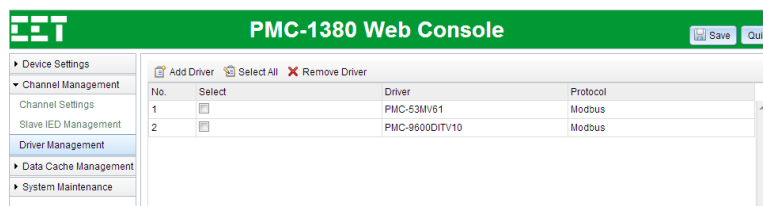
Notes:

- 1) Only experienced personnel should modify the Advanced Settings of the PMC-1380-3.
- 2) Click <Submit> at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 3) Click <Save> at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 4) Click <Quit> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.6 Driver Management

This option exists in both the On-Line and Off-Line programming modes.

Click on **Driver Management** under **Channel Management** on the left-hand pane and the following screen appears.



Option	Description	Setting
Add Driver	Add a new Driver	
Select All	Select all drivers	
Remove Driver	Remove the selected (checked) driver(s)	
Select	Select a Driver by checking the check box	Default = Un-checked
Driver	Driver Description	
Protocol	The Protocol implemented for the Driver	

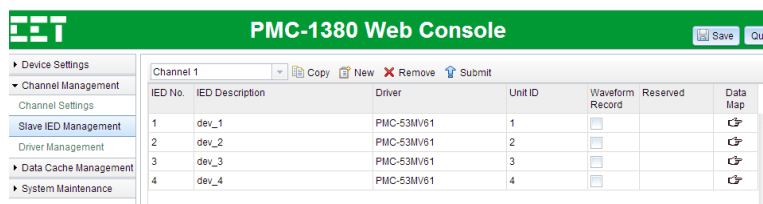
Notes:

- 1) Once the driver has been removed, all devices requiring this driver will be removed, and their corresponding data will become N/A.
- 2) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 3) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 4) Click **<Quit>** to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.7 Slave IED Management

This option exists in both On-Line and Off-Line programming modes.

Click on **Slave IED Management** under **Channel Management** on the left-hand pane and the following screen appears.




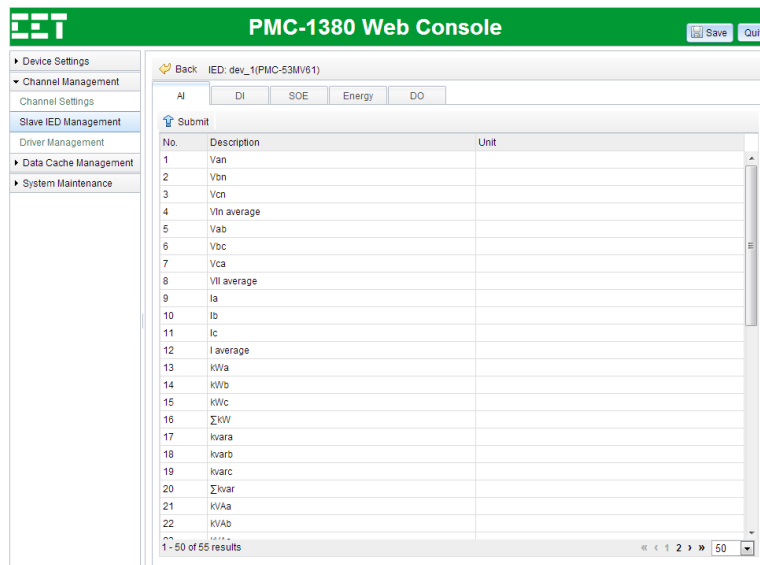
Option	Description	Setting
Channel X	Select the Channel to modify	Channel 1 to 20
Copy	Copy from this Channel to another	
New	Add a new Slave IED	
Remove	Remove the selected Device	
IED No.	IED number	
IED Description	IED description	Maximum 51 characters

Driver	Driver description	
Unit ID	Slave IED Unit ID	
Waveform Record	Enable the collection of Waveform Records for CET devices that support this feature	Enable or Disable Default = Disable
Reserved	Enter extended parameters	NULL = Default
Data Map	View Driver's Data Map for the IED	

Notes:

- 1) Once the slave IED has been removed, its corresponding data will become N/A.
- 2) Use <Shift> and <Ctrl> keys to select multiple devices.
- 3) Click <Submit> at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 4) Click <Save> at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 5) Click <Quit> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

Click on  icon on the right side to reveal the data mapping information for a particular Driver as illustrated below. The data mapping is divided into five categories: AI (Analog Input), DI (Digital Input), SOE (Sequence of Event), Energy (Electrical energy), DO (Digital Output).



No.	Description	Unit
1	V _{an}	
2	V _{bn}	
3	V _{cn}	
4	V _{in} average	
5	V _{ab}	
6	V _{bc}	
7	V _{ca}	
8	V _{ll} average	
9	I _a	
10	I _b	
11	I _c	
12	I average	
13	kW _a	
14	kW _b	
15	kW _c	
16	ΣkW	
17	kvar _a	
18	kvar _b	
19	kvar _c	
20	Σkvar	
21	KV _{aa}	
22	KV _{ab}	

Option	Description	Setting
<Back>	Return to Slave IED Management page	
IED: XXXX	IED's name and Driver info.	
AI	Analog Input data	
DI	Digital Input data	
SOE	Sequence of Event	
Energy	Electrical energy data	

DO	Digital Output data	
Description	Parameter name	Maximum 31 characters
Unit	Measurement unit	

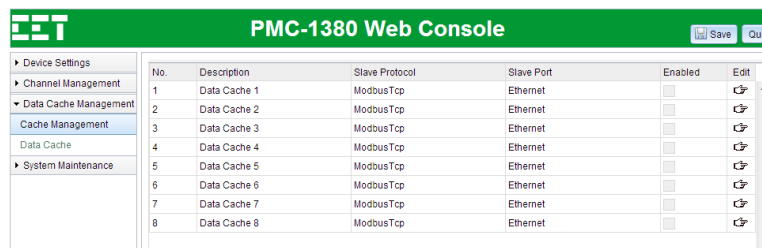
Notes:

- 1) Click <**Submit**> at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 2) Click <**Save**> at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 3) Click <**Quit**> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.8 Data Cache Management


This option exists in both the On-Line and Off-Line programming modes.

Click on **Cache Management** under **Data Cache Management** on the left-hand pane and the following screen appears.

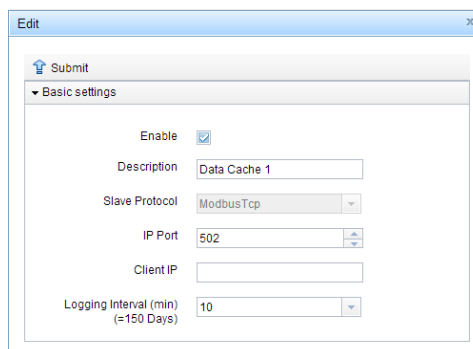


No.	Description	Slave Protocol	Slave Port	Enabled	Edit
1	Data Cache 1	ModbusTcp	Ethernet	<input type="checkbox"/>	
2	Data Cache 2	ModbusTcp	Ethernet	<input type="checkbox"/>	
3	Data Cache 3	ModbusTcp	Ethernet	<input type="checkbox"/>	
4	Data Cache 4	ModbusTcp	Ethernet	<input type="checkbox"/>	
5	Data Cache 5	ModbusTcp	Ethernet	<input type="checkbox"/>	
6	Data Cache 6	ModbusTcp	Ethernet	<input type="checkbox"/>	
7	Data Cache 7	ModbusTcp	Ethernet	<input type="checkbox"/>	
8	Data Cache 8	ModbusTcp	Ethernet	<input type="checkbox"/>	

Option	Description	Setting
Description	Data Cache Name	Default = Data Cache X
Slave Protocol	Slave Protocol	Default = Modbus TCP
Slave Port	Slave Communications Port	Default = Ethernet
Enabled	Enable the Data Cache	Enable or Disable Default = Disable

Double-click on the Data Cache or click on the  icon on the right to edit the Data Cache configuration.

The following dialog box displays in the Basic Settings when the Slave Port is set to Ethernet.



Edit

Submit

Basic settings

Enable ☒

Description

Slave Protocol

IP Port

Client IP

Logging Interval (min) (=150 Days)

Option	Description	Setting
Enable	Enable the Data Cache	Enable or Disable Default = Disable
Description	Data Cache Name	Default = Data Cache X
Slave Protocol	Slave Protocol	Default = Modbus TCP
IP Port	IP Port number	1 to 65535 Default = 502 (Modbus TCP)
Client IP	If the IP address is entered, only the Client with the specified IP Address will have access to this particular Data Cache. Otherwise, enter 0.0.0.0 or keep it empty to allow access by any Clients.	0.0.0.0 to 255.255.255.255
Logging Interval	If the Logging Interval parameter is set to 15 (minutes), the recording will take place at 00:15, 00:30, 00:45, 01:00 ...etc.	0, 1, 5, 10, 15, 20, 30, 60 Default = 0 (Disable)

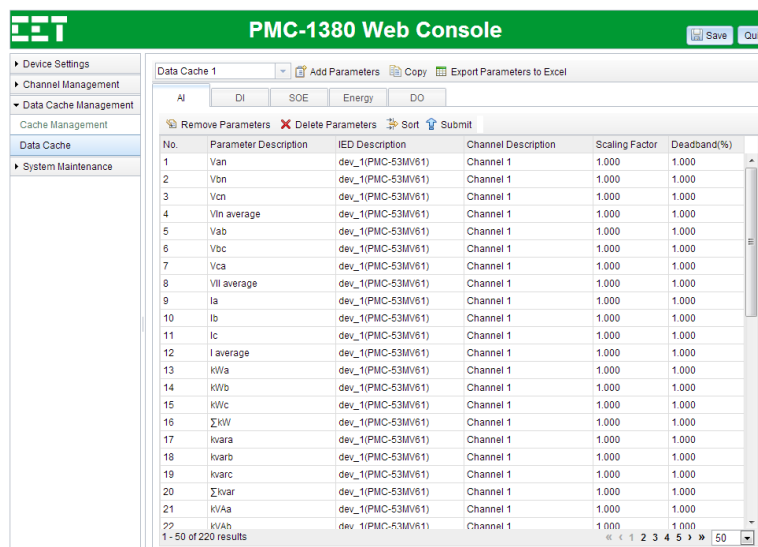
Notes:

- 1) PMC-1380-3 supports up to 16 TCP connections for Client access over Ethernet.
- 2) Click <Submit> at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 3) Click <Save> at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 4) Click <Quit> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.9 Data Cache

This option exists in both the On-Line and Off-Line programming modes.

Click on **Data Cache** under **Data Cache Management** on the left-hand pane and the following screen appears.



Option	Description	Setting
Data Cache X	Select which Cache to modify	
Add Parameters	Add parameters to the selected Data Cache	
Copy	Copy parameters from the selected Data Cache to another Data Cache	
Export Parameters to Excel	Export all the parameters in selected Data Cache to Excel	
AI ¹	Analog Input data for the selected Data Cache	
DI ²	Digital Input data for the selected Data Cache	
SOE ³	Sequence Of Events for the selected Data Cache	
Energy ⁴	Electrical Energy data for the selected Data Cache	
DO ⁵	Digital Output data for the selected Data Cache	
Remove Parameters	Remove the selected parameters and fill the original position with N/A, a null parameter	
Delete Parameters	Delete the selected parameters to delete shift the next parameters up by one position	
Sort	Move all the null parameters to the end of the list	
No.	Parameter index	
Parameter Description	View-only Parameter name	
IED Description	View-only IED name	
Channel Description	The Channel to which a parameter belongs	

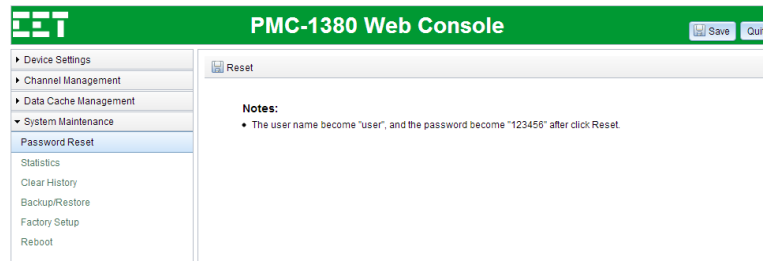
Notes:

- 1) The maximum no. of AI in each Data Cache is 2048.
- 2) The maximum no. of DI in each Data Cache is 2048.
- 3) The maximum no. of SOE in each Data Cache is 1024.
- 4) The maximum no. of Energy in each Data Cache is 1024.
- 5) The maximum no. of DO in each Data Cache is 512.
- 6) Use <Shift> and <Ctrl> keys to select multiple devices.
- 7) Click <Submit> at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 8) Click <Save> at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 9) Click <Quit> to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.10 Password Reset

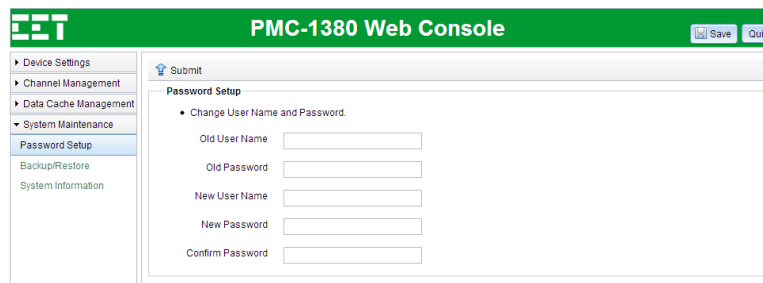
The **Password Reset** page exists only in the On-Line programming mode, and the **Password Setup** page exists only in the Off-Line programming mode.

Click on **Password Reset** under **System Maintenance** on the left-hand pane and the following screen appears. Click **Reset** to reset the user name and password to the factory default settings.



After **Reset**, the **User Name** and **Password** become **user** and **123456**, respectively.

Click on **Password Setup** under **System Maintenance** on the left-hand pane and the following screen appears. Click **Submit** and then **Save** to save your changes after modification.



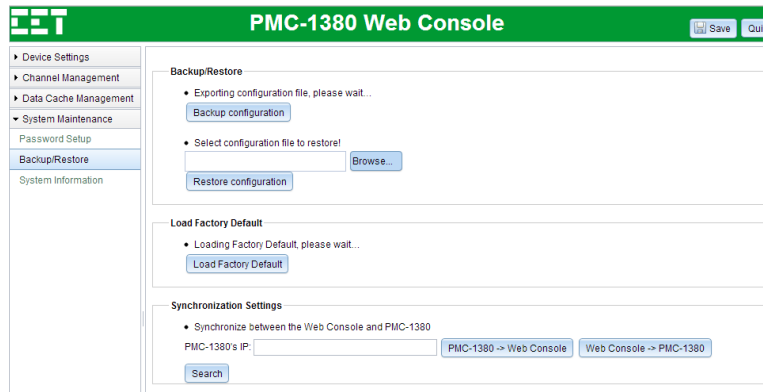
Option	Description	Setting
Old User Name	Enter the old user name	
Old Password	Enter the old password	
New User Name	Enter the new user name*	
New Password	Enter the new password	
Confirm Password	Confirm the new password	

*The new User Name cannot be **admin**.

4.11 Backup/Restore

This option exists in both the On-Line and Off-Line programming modes.

Click on **Backup/Restore** under **System Maintenance** on the left-hand pane and the following screen appears.



Option	Description	Setting
Backup Configuration	Create a backup copy, named “cmdata.cfg”, of the Web Console’s configuration on the local computer.	
Browse	Select a configuration file on the local computer to restore to the Web Console	
Restore Configuration	Restore the selected configuration to the Web Console	
Load Factory Default	Reset all settings of the Web Console’s configuration file to factory default. All previous settings are overwritten.	
PMC-1380’s IP	Specify the IP address of the PMC-1380-3 to synchronize*	0.0.0.0 to 255.255.255.255
PMC-1380 → Web Console	Upload the complete configuration from the connected PMC-1380-3 to the Web Console*	
Web Console → PMC-1380	Download the complete configuration from the Web Console to the connected PMC-1380-3*	
Discover PMC-1380	Discover if there are any PMC-1380-3 devices on the LAN and list their IP addresses*	

* This option exists only in the Off-Line programming mode.

4.12 System Information

This option exists only in the Off-Line programming mode.

Click on **System Information** under **System Maintenance** on the left-hand pane and the following screen appears. The user will need to select the correct PMC-1380-3 model by specifying the requested information here to create a factory default configuration for making further changes. It’s not recommended for the user to use this option to create an off-line configuration file for a PMC-1380-3. It would be easier and safer for the user to first connect to a real PMC-1380-3 and then to upload its configuration for future off-line changes.

Option	Description	Setting
Model	Select the correct model for configuration	Default = PMC-1380-3-RR-00-16-2-N-F0T2-XX -XXXX-E
Name	Specify a name for the PMC-1380-3	Default = PMC-1380-3 (Max. 31 characters)
Version	Firmware Version	
Date	Firmware's Date and Time	
S/N	Device's Serial Number	
MAC1	MAC address of Ethernet Port 1	
MAC2	MAC address of Ethernet Port 2	

Notes:

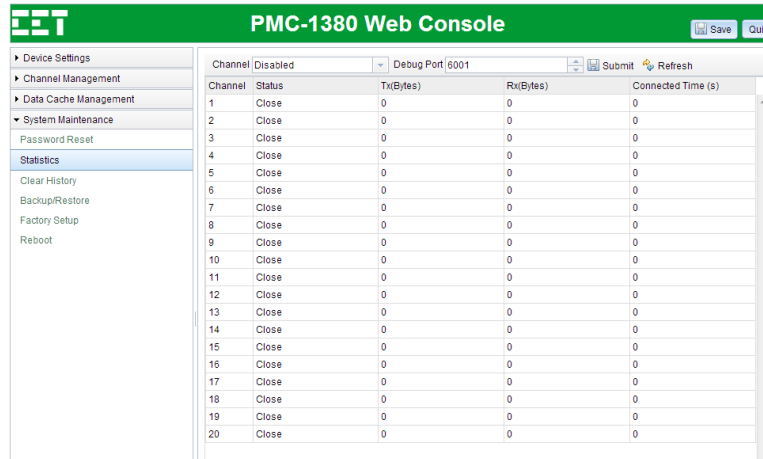
- 1) Click **<Submit>** at the upper left-hand corner of the right-hand pane to store the new configuration in a local cache before leaving this page.
- 2) Click **<Save>** at the upper right-hand corner of the web page to save the new configuration to the device's configuration file that is stored on the PC for Off-Line programming or to download the new configuration to the PMC-1380-3 for On-Line programming.
- 3) Click **<Quit>** to leave the PMC-1380-3 Web Console. Please ensure that your changes have been saved before leaving.

4.13 Statistics

This option only exists in the On-Line Web Console.

Click on **Statistics** under **System Maintenance** on the left-hand pane and the following screen appears on the right-hand pane where the communications statistics such as Port Status, Tx (Bytes), Rx (Bytes) and Connected Time(s) are shown. Click **Refresh** to toggle the automatic refreshing of the statistical data.

The PMC-1380-3 supports advanced debugging on a per Channel basis by allowing the user to specify the Channel to debug and the IP port number. The user will need to save the changes and then reboot the PMC-1380-3 for this to take effect. Once debugging is enabled, the user can monitor all the received and transmitted messages on the specified Channel using a HyperTerminal program that connects to the Debug IP port number with the IP address of the PMC-1380-3's connected Ethernet port.

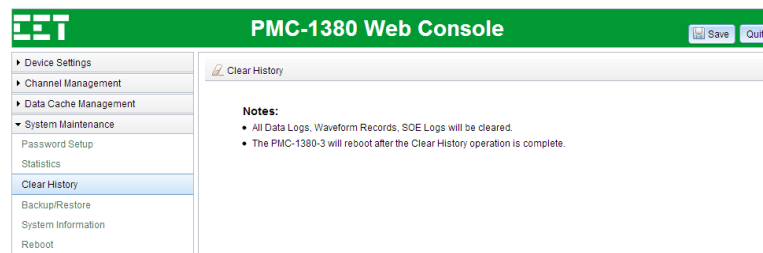


Channel	Status	Tx(Bytes)	Rx(Bytes)	Connected Time (s)
1	Close	0	0	0
2	Close	0	0	0
3	Close	0	0	0
4	Close	0	0	0
5	Close	0	0	0
6	Close	0	0	0
7	Close	0	0	0
8	Close	0	0	0
9	Close	0	0	0
10	Close	0	0	0
11	Close	0	0	0
12	Close	0	0	0
13	Close	0	0	0
14	Close	0	0	0
15	Close	0	0	0
16	Close	0	0	0
17	Close	0	0	0
18	Close	0	0	0
19	Close	0	0	0
20	Close	0	0	0

4.14 Clear History

This option only exists in the On-Line Web Console.

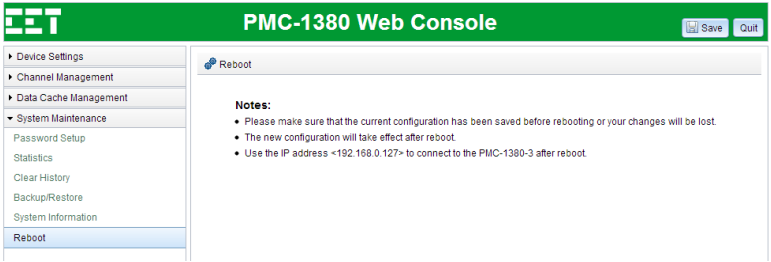
Click on **Clear History** under **System Maintenance** on the left-hand pane and the following screen appears. Click on **Clear History** at the upper left-hand corner of the right-hand pane to execute the **Clear History** operation, which would clear all Data Logs, Waveform Records and SOE Logs. The PMC-1380-3 will reboot after the history has been completely cleared. Please make sure that your configuration changes are saved before clearing the history or your changes will be lost.



4.15 Reboot

This option only exists in the On-Line Web Console.

Click on **Reboot** under **System Maintenance** on the left-hand pane and the following screen appears. Any configuration changes will not take effect until the **Save** and **Reboot** operations have been performed. Click **Save** first to download your changes into the PMC-1380-3. Please be informed that the **Save** operation may take several minutes to complete. Then click on the **Reboot** icon at the top left-hand corner of the right-hand pane to execute a cold reboot for the PMC-1380-3. After reboot, please re-connect to the PMC-1380-3 with the IP address of the connected Ethernet port and then log back into the PMC-1380-3's Web Console with the **user name** and **password**.




Appendix A Technical Specifications

Ethernet Ports (1, 2, 3, 4)	
Number	2
Connector	RJ45
Ports 1, 2	10/100BaseT
Ports 3, 4 (Optional)	10/100BaseT
Ports 3, 4 (Optional)	100BaseFX (ST Connector)
Serial Ports	
Number	16
Type	RS-232 (DTE) / RS-485
Connector	DB9 Female
Comm. Parameters	
Data bits	5, 6, 7, 8
Stop bits	1, 2
Parity	None, Even, Odd, Mark, Space
Baudrate	300 to 115,200 bps
Front Panel LED Indicators	
Run (Green)	System Status
Link / Act (Green)	Ethernet Connection Indication Network Activity Indicator
100Mbps (Yellow)	100 Mbps Connection Indication
Rx (Green)	Receive Activities
Tx (Yellow)	Transmit Activities
Power Supply (L+, N-, GND)	
Standard	95 to 250VAC/DC $\pm 10\%$, 47~440Hz
Burden	13W
Protection	
ESD Protection	6kV for all serial signals
Isolation Protection	3kV for RS-485 ports
Environmental Conditions	
Operating Temp.	-25°C to +70°C
Storage Temp.	-40°C to 85°C
Humidity	5% to 95% non-condensing
Atmospheric pressure	70 kPa to 106 kPa
Mechanical Characteristics	
Housing	Aluminum Alloy
Unit Dimensions	482.6 (L)×236.5 (D)×88 (H) mm
Shipping Weight	7.90kg
Shipping Dimensions	655×365×250mm

Appendix B Standards Compliance

Safety Requirements			
Insulation		IEC 60255-5-2000	
Dielectric Test		2kV @ 1 minute	
Insulation Resistance		>100MΩ	
Impulse Voltage		5kV	
Electromagnetic Compatibility			
Electrostatic Discharge		IEC 61000-4-2:2008 Level IV	
Radiated Fields		IEC 61000-4-3:2008 Level III	
Fast Transients		IEC 61000-4-4:2004 Level IV	
Surges		IEC 61000-4-5:2005 Level IV	
Conducted Disturbances		IEC 61000-4-6:2008 Level III	
Magnetic Fields		IEC 61000-4-8:2009 Level IV	
Oscillatory waves		IEC 61000-4-12:2006 Level III	
Mechanical Tests			
Vibration Test	Response	IEC 255-21-1:1988	Level I
	Endurance	IEC 255-21-1:1988	Level I
Shock Test	Response	IEC 255-21-2:1988	Level I
	Endurance	IEC 255-21-2:1988	Level I
Bump Test		IEC 255-21-2:1988	Level I

Appendix C Ordering Guide



Ceiec

Electric

Technology

Version 20141223

Product Code		Description										
PMC-1380-3 Communications Processor (LCD, 2U, 19" Rack-Mount)												
Basic Function												
RT ^{1,2}		Transparent Gateway										
RR [*]		Supporting Mastering protocols for Modbus RTU, Modbus TCP as well as Slave protocol for Modbus TCP										
Serial Port												
00-16		0xRS-232, 16xRS-485										
04-12		4xRS-232, 12xRS-485										
Power Supply												
2		95-250VAC/DC, 47-440Hz										
4		2x95-250VAC/DC, 47-440Hz										
B		2x9-30VDC										
GPS												
N		None										
G [*]		GPS										
Ethernet Port												
F0T2-XX-XXXX		2x10/100BaseT										
F0T4-XX-XXXX [*]		4x10/100BaseT										
F2T2-ST-M002 [*]		P1/P2 - 10/100BaseT P3/P4 - 100BaseFX, Multi-mode, 2km (ST connector)										
F2T2-ST-S060 [*]		P1/P2 - 10/100BaseT P3/P4 - 100BaseFX, Single-mode, 60km (ST connector)										
Interface Language												
E		English										
PMC-1380-3	-	RT	-	00-16	-	2	N	-	F0T2-XX-XXXX	-	E	PMC-1380-3-RT-00-16-2N-F0T2-XX-XXXX-E (Standard Model)

Notes:

1. RT Model does not support GPS
2. RT Model only supports F0T2 Ethernet option.

* Additional charges apply

Contact us

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