

# Multilin™ EPM 7000P

## High Performance Power Quality Metering System

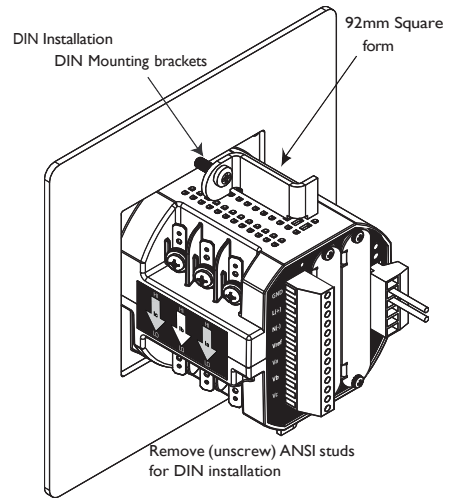
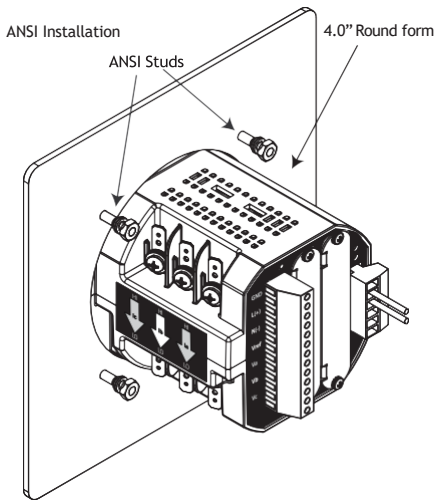


## Quick Start Guide

Software Revision: 1.0x  
Manual P/N: 1601-0247-A2  
Manual Order Code: GEK-131078A  
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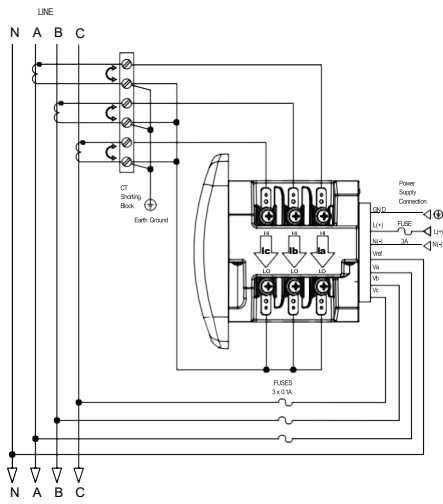


### Mechanical Installation

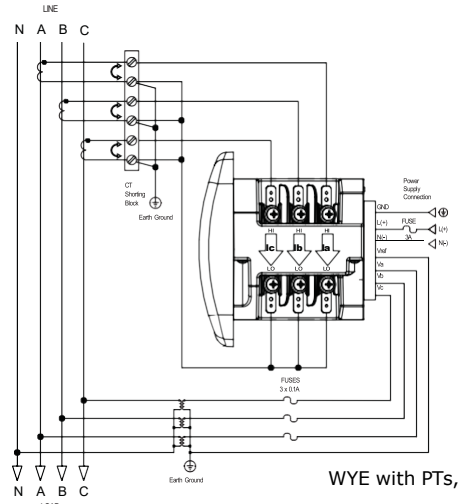


Do not over-tighten the nuts. The maximum installation torque is 0.4 Newton-Meter.

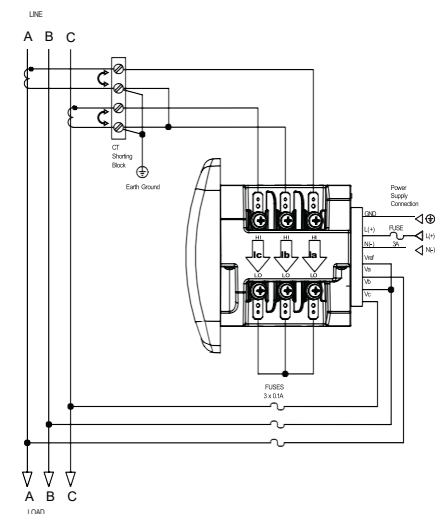
### Electrical Installation



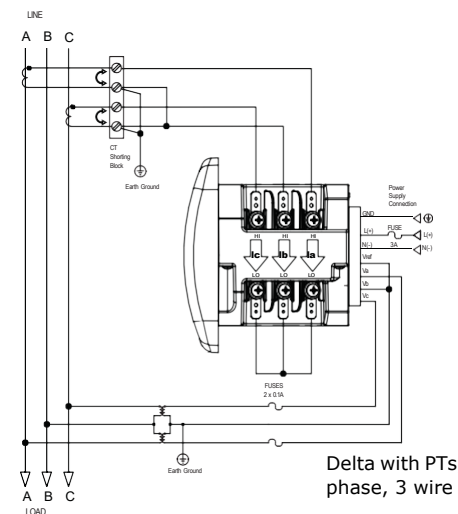
WYE direct, 3 phase, 4 wire



WYE with PTs



Delta direct, 3 phase, 3 wire



Delta with PTs, 3 phase, 3 wire



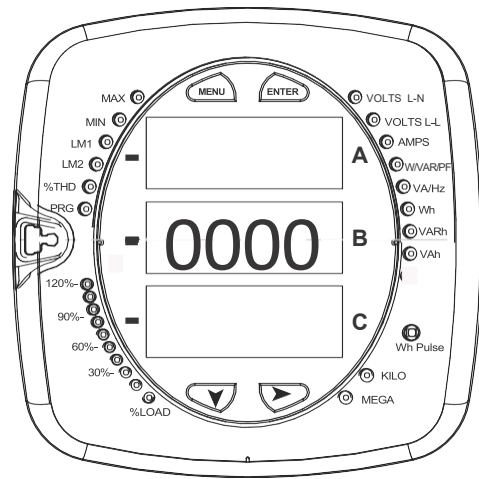
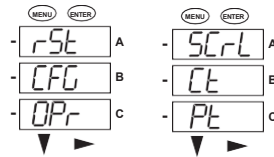
Other wiring configurations are available. Find the full manual and software online at: <https://www.governova.com/grid-solutions/automation/protection-control-metering/epm-7000p>

### Program Settings Using the Faceplate Buttons

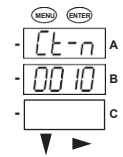
(MENU, ENTER, DOWN ARROW, RIGHT ARROW)

#### Access Configuration Mode

1. Push the **MENU** button - you will see the display below left; rSt will be blinking.

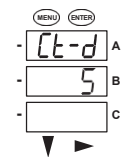


2. Press the **DOWN ARROW** once. CFG (Configuration) moves to the top of the display (shown above right).

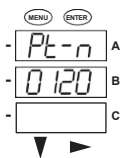


3. Press the **ENTER** button. You will see the Configuration menu, shown on the right.

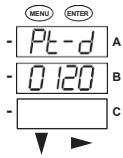
4. Press the **DOWN ARROW** and then press the **ENTER** button. You will see the CT numerator setting screen (Ct-n). The current CT numerator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.



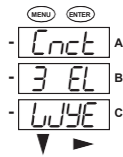
5. Press the **ENTER** button to go to the CT denominator screen (CT-d). This setting is display only - it can't be changed. **Example:** 2,000/5 Amps: Set the Ct-n value for 2000. **NOTE:** Ct-n is dictated by primary current; Ct-d is secondary current.



6. Press the **ENTER** button to go to the PT numerator setting screen (Pt-n). The current PT numerator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.



7. Press the **ENTER** button to go to the PT-denominator screen (Pt-d). The current PT denominator is shown in the second line. To change the setting, press the **DOWN ARROW** until the value you want is displayed. Then press the **RIGHT ARROW** to move to the next digit. Repeat until the setting is done.



**Example:** 277/277 Volts: Pt-n value is 277, Pt-d value is 277.

Pt-n is dictated by primary voltage; Pt-d is secondary voltage.



8. Press the **ENTER** button to go to the Connection setting screen (Cnct). The current setting is shown in the second line. Press the **DOWN ARROW** to choose another value. You can choose 3 EL (element) WYE, 2 Ct del (Delta), or 2.5 EL WYE.
9. Press the **ENTER** button to go to the Scroll setting screen (SCrL). The current setting is shown in the second line. Press the **DOWN ARROW** to choose another setting. You can choose YES (the meter readings will scroll on the display) or no (the meter readings will not scroll on the display).
10. Press the **MENU** button twice. You will see the Store Settings screen (Stor ALL?) The default setting is YES. To save the settings you've made, press the **ENTER** button. You will see the confirmation screen (Stor ALL done) and then the meter resets

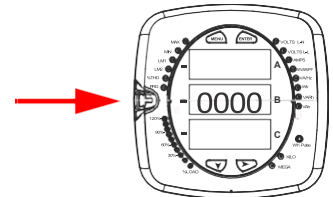


If you do not want to save your settings, press the **RIGHT ARROW**. YES changes to no. Press the **ENTER** button.

For additional faceplate programming instructions, see the *EPM 7000P Instruction Manual*, on GE Vernova's website: <https://www.governova.com/grid-solutions/automation/protection-control-metering/epm-7000p>

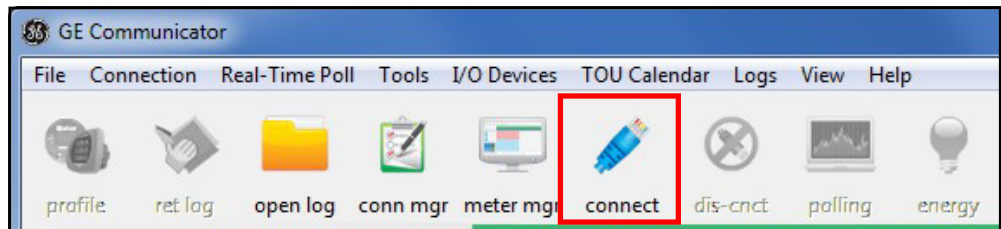
### Connect to the Meter through the USB Port

The EPM 7000P meter has a standard USB port that makes connection between the meter and a laptop PC very simple.



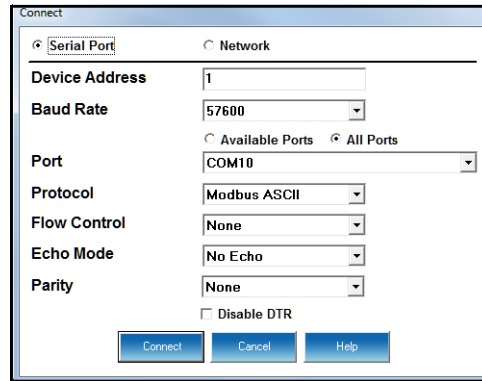
Follow these steps:

1. Connect the meter to the PC, using the USB cable. The meter's connection uses a USB mini-B plug. A USB-Type A plug to USB mini-B plug cable may be required.
2. Download, install, and open GE Vernova Communicator software. (Click **Software** on left side of EPM 7000P page <https://www.governova.com/grid-solutions/automation/protection-control-metering/epm-7000p>).
3. Click **Connect** in the Icon Bar.



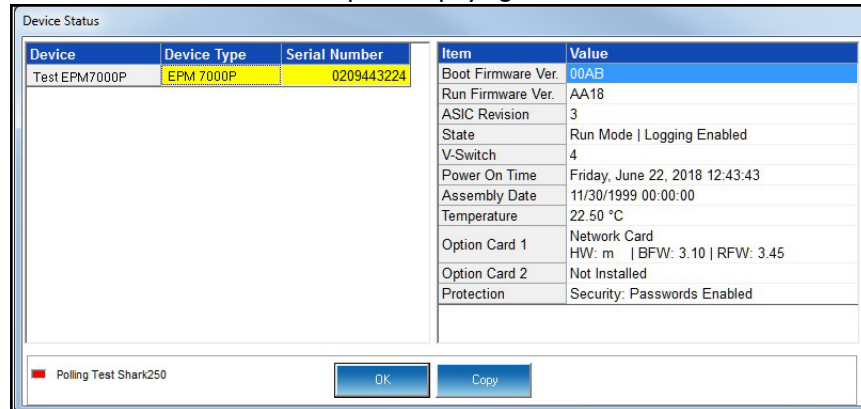
4. You will see the Connect screen. The default settings are shown in the following example screen.

CONNECT TO THE METER THROUGH THE USB PORT

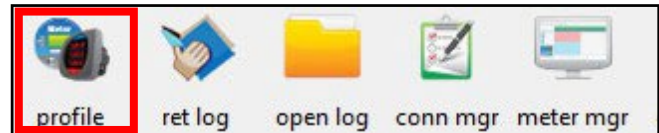


- a. Click the Serial Port button.
- b. Enter the Device Address (from I-247).
- c. Select the Baud Rate of 57600.
- d. Click the Available Ports button.
- e. Select the USB Com port.
- f. Select Modbus ASCII protocol.
- g. Keep Flow Control, Echo Mode, and Parity as is shown here.
- h. Click Connect.

5. The Device Status screen opens, displaying information about the meter.



6. Click **OK** to close the Device Status screen, and then click the Profile icon in the Icon Bar.



7. The meter's Device Profile screen opens, giving you access to the programmable settings for the meter.

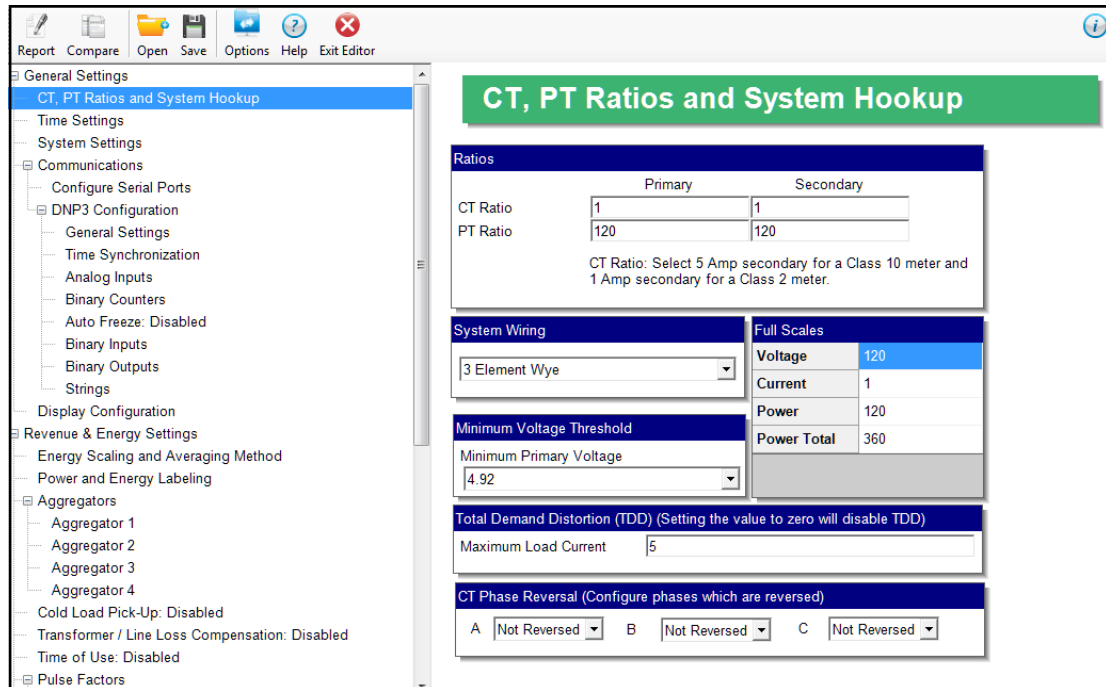


NOTE

Refer to the *EPM 7000P Instruction Manual* and the *GE Vernova Communicator Instruction Manual* online at <https://www.governova.com/grid-solutions/automation/protection-control-metering/epm-7000p>. You can also view the software manual by clicking the **Help** button on a settings screen, or by selecting **Help > Contents** from the top of the GE Vernova Communicator software Main screen.

## Program CT, PT Ratios

- The first Device Profile screen is the CT, PT Ratios and System Hookup. If you were on another setting screen, double-click **General Settings > CT, PT Ratios and System Hookup > one of the items in the list** to display this screen.



- CT Ratio, enter:
  - Primary (CT Numerator): 1 - 9999
  - Secondary (CT Denominator): 5 or 1 Amp
- PT Ratio, enter:
  - Primary (PT Numerator): 1 - 9999
  - Secondary (PT Denominator): 1 - 9999

### Example Settings:

For a CT of 2000/5 A, set the following CT Ratios in the entry fields:

CT Numerator (Primary)      2000

CT Denominator (Secondary)    5

The Current Full Scale field will read 2000.

For a system that has 14400 V primary with a 120 V secondary line to neutral (PT Ratio of 120:1), set the following PT Ratios in the entry fields:

PT Numerator (Primary) 1440

PT Denominator (Secondary) 120

The Voltage Full Scale field will read 14.4k.

- System Wiring, select from pull-down menu:
  - 3 Element Wye; 2.5 Element Wye; 2 CT Delta

This value must be set properly for the meter to calculate readings correctly.

Use the Minimum Voltage Threshold box to enter the minimum voltage threshold, which is a percentage of the voltage full scale. This setting adjusts the pick up threshold for the voltage. You set a percentage of the PT primary (PT numerator X PT multiplier) up to 12.7 in the entry field, to configure when the meter will start reading values above 0 voltage.

**Total Demand Distortion (TDD Setting):** This setting of the Device Profile allows you to set the maximum value for current, which is used for the TDD (Total Demand Distortion) calculation. TDD is an index used to measure harmonics. In this field enter the maximum load current for TDD. To disable TDD, enter 0 in the field.

**CT Reversal Phase Enables:** Use this setting to enable CT reversal for any phase. This feature is useful if a CT is wired the wrong way and you do not want to (or cannot) change the wiring. This setting is only available for a three element WYE hookup. For any other hookup, this setting will be ignored.

## Program Communications Setting

1. From the Device Profile screen, double-click **General Settings > Communications > a listed port.**

The screenshot shows the 'Communications' settings window. It has a green header with the title 'Communications'. Below the header, there are two sections for configuring serial ports:

- COM1 (USB):**
  - Address: 1
  - Protocol: Modbus ASCII
  - Baud Rate: 57600
  - Response Delay: 0 milliseconds
  - Parity: None
- COM2 (RS-485):**
  - Address: 1
  - Protocol: Modbus RTU
  - Baud Rate: 57600
  - Response Delay: 0 milliseconds
  - Parity: None

2. The settings shown here are for the meter's serial ports.  
For the RS485 port, enter:
  - Address (1-247 for Modbus); (1-65520 for DNP)
  - Protocol (Modbus RTU, Modbus ASCII, or DNP3)
  - Baud Rate (1200, 2400, 4800, 9600, 19200, 38400, or 57600)
  - Response Delay (0 - 750 in 50 ms increments)  
(Response Delay is the delay the meter should use before responding to queries.)
  - Parity (Odd, Even, or None)

## Program Meter Time

The meter is preset to Eastern time. To change the meter time:

1. From the Main screen's Title bar, click **Tools > Set Device Time**.
2. You can either enter the time in the Time fields, or click **Use PC Time** to set the time using your PC's time.
3. Click **Send**.

Set Device On-Board Clock

	Month	Day	Year
Date	06	19	2018
	Hour	Minute	Second
Time	16	20	18

Use PC Time

Send Cancel



NOTE

The meter offers multiple Time Synchronization methods. See the software manual (click **Help > Contents** from the Main screen to open the manual) for instructions on setting up Time Sync for the meter.

## Program Meter Name

To enter an name/ID for the meter:

1. From the Device Profile screen, double-click **General Settings > System Settings**.

System Settings

Meter Identification

Meter Designation: 250-3A

Profile Name: [Empty]

User Memo: [Empty]

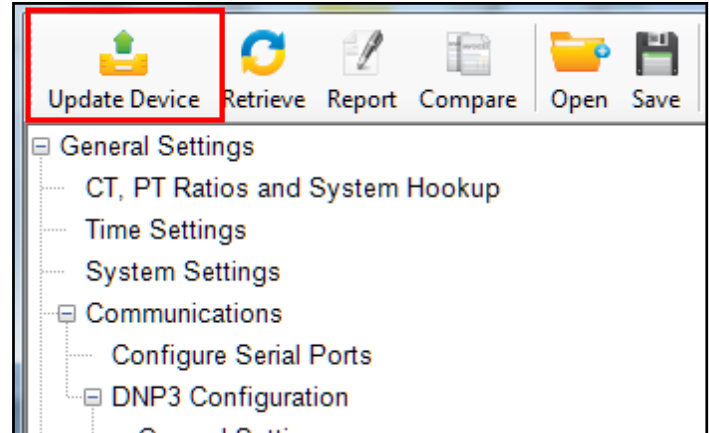
Test Mode Options: Exit Test Mode after 5 minutes of inactivity

VA/Vah Computation Method: Vector Sum

2. Input a new meter designation into the field. Note that it is important to name each meter individually, since the meter name is used to name the log databases when logs are downloaded.



**IMPORTANT!** When you have made changes to the meter's Device Profile, click Update Device at the top left of the Device Profile screen's Icon Bar, to send the new settings to the meter. The meter will reboot and then you can reconnect to it.



### For further assistance

For product support, contact the information and call center as follows:

GE Vernova Grid Solutions	Worldwide telephone: +1 905 927 7070
650 Markland Street	Europe/Middle East/Africa telephone: +34 94 485 88 54
Markham, Ontario	North America toll-free: 1 800 547 8629
Canada L6C 0M1	Fax: +1 905 927 5098

Worldwide e-mail: [multilin.tech@gevernova.com](mailto:multilin.tech@gevernova.com)

Europe e-mail: [multilin.tech.euro@gevernova.com](mailto:multilin.tech.euro@gevernova.com)

Website: <https://www.gevernova.com/grid-solutions/automation/protection-control-metering>

Manuals and software: <https://www.gevernova.com/grid-solutions/automation/protection-control-metering>

# EU Declaration of Conformity

**Declaration number** EPM7000/T-EPM7000P/PT-MRK-DOC-C-11072K19

**Name of the manufacturer** GE MULTILIN INC.

**Address of the manufacturer** 650 Markland Street, Markham , Ontario, L6C 0M1, Canada

**Address of authorised representative** GE POWER MANAGEMENT S.L. , Avenida Pinoa 10, 48170 Zamudio, Spain

**This declaration of conformity is issued under the sole responsibility of the manufacturer.**

**Product / model** EPM7000, EPM7000T, EPM7000P, EPM7000PT

**Object of the declaration** Power Quality Metering system

**The object of the declaration described above is in conformity with the relevant Union harmonisation legislation:**

2014/30/EU	EMC Directive	February 26, 2014
2014/35/EU	Low voltage Directive	February 26, 2014
2011/65/EU	ROHS Directive	July 21, 2011

**References to the relevant harmonised standards used or references to the other technical specifications in relation to which conformity is declared:**

Document Name	Issue
EN61010-1 Safety Requirements for Electrical equipment for measurement control and laboratory use. 3rd edition, October 1, 2013	2013
EN61000-6-4 EMC -Generic Standards-Emission Standard for Industrial Environments	2007
EN61000-6-2 EMC-Generic standards-Immunity Standard for Industrial Environments	2005

**Signed for and on behalf of:** **Place and Date:** Markham Ont , 11/07/2019

**Name:** Roy Mao

**Name:** Boris Kacmar

**Function:** Engineering Manager, GE Vernova Multilin Inc

**Function:** Grid Solutions, Regulatory

**Function:** Compliance, Manager

**Signature:**



**Signature:**



Declaration number

EPM7000/T-EPM7000P/PT-MRK-DOC-C-11072K19

Additional Information

Table 2-1: EPM7000n:let" Codes

<b>Base Unit</b>	PL7000				IEPM7000 Pov,er UIJ5ty Met-er
<b>Enclosure Option</b>	ENCIW				NH1AI Rated -I door, Sin,gle Meter Enc sure. 12W
	ENC277				NEMP.I Rated -I door, Sin,gle Meter Enc sure. 27N
<b>Frequency</b>		5			50 Hz AC frequency system
		6			60 Hz AC frequency system
<b>Current Input</b>			1A		2Aseaiooary
			5A		10A secondGJY
<b>Software</b>				A	M 'imeter functio ooly
				B	ota Logging memo!}
				C	Power Qualify alTOOlics
				D	linrrs antd Coobcl
				IE	64 samples/cycle Waveform Rel:gt; ng
				f	512 samples/cyde VwLvefoon Recording
<b>Power Supply</b>					90, to 2,155 VA.C; 100 to 370 vocl
				LDC	I8to60VOC
<b>1/0 Modules</b>					X None
				EI	IE1 IOIBas:...eTE em [see ote tek:J,.,,1
				E2	IE2 IOIBaseTE ermel: wt IEC'618:50 Protocol[see Nore below]
				C1	CM.Jr Channel I-directionoal Oto 1 mA Outputs
				C20	r Channel Bi-directionoal O o 20 mA Outputs
				RS1	Two Relay Status Outputs f Two Srorus Inputs
				PS1	foJr Pulse Outputs I foJr Status Inputs
				F1	Fiber Op- :Inteiface ...,ft ST Terminfom
				F2	F2] iher Optic: Interface ...,ith Versortile Termin:ioos

Table 2-2: EIPM7000IT 0.-det" Codes

<b>Base Unit</b>	PL7000					EPIM7000T Po,.,.,er uor Heter-- n,o lay
<b>Frequency</b>		5				50 Hz ;oC. freq ericy system
		6				60 Hz N::. frequency system
<b>Current Input</b>			1A			2 A secCK"ldmy
			5A			IOAsecondor...o-
<b>Software</b>						imeter functio CIClly
				B		Oraro Logging memory
				C		Power uai- mCK1ic:s
				D		Lim- a d Co trol
				IE		64 samples/cycle Waveform Recoctling
<b>Power Supply</b>						512 samJ:les/C)Ule Wa,.,,ef"o.-m Recording
						go, to 265 VA.C; 100 to 3,70 VDC
<b>1/0 Modules</b>						1s to 60 v=
				LDC		Nkl4le
				X	X	
				E1	E1	1.00BaseT Etliemet tsee Nore belo.-.1
				E2	E2	IOOBas:eT Etti net witi IEC 61..850 Aroto:::a.lIsee below!
				C1	C1	F>our Chm1rnel i:li-directio11CJIO to 1 mA Outputs
				C20	C20	F>our Cha net ;-directio11CJIO t 20 mA Outiputs
				RS1	RS1	T'NO Relay S.to:h.IISOutiputs / T'NO starus Il'iputs
				PS1	PS1	F>our Pulse Oufpurts I fo.ur starus Inputs
				F1	F1	Fiber Optk: Inteiface ...,-'Jth ST Termin:ioills
				F2	F2	Riber ptic Interface w'ith Versatile Termin: r s

**Declaration number**

EPM7000/T-EPM7000P/PT-MRK-DOC-C-11072K19

**Additional Information**

Bose Unit	<p><b>PL7000P</b></p> <p>PL7000P</p> <p>PL7000PT</p>	<p>5</p> <p>6</p>	<p>1A</p> <p>SA</p>	<p><b>A</b></p> <p><b>B</b></p> <p><b>C</b></p> <p><b>D</b></p>	<p>EPM 7000P Meter Power Quality Meter</p> <p>EPM 7000P Meter Power Quality Meter - No Display</p> <p>NEMA1 Roted - Indoor. Single Meter Endosure. 120V</p> <p>NEMA1 Roted - Indoor, Single Meter Endosure. 277V</p> <p>None</p> <p>50 Hz AC frequency system</p> <p>60 Hz AC frequency system</p> <p>1 A secondary</p> <p>5 A secondary</p> <p>Multimeter function only</p> <p>Dot Logging, 2 MB memory</p> <p>128 Samples/Channel Waveform Recording, 10 MB Memory</p> <p>512 Samples/Channel Waveform Recording, 128 MB Memory</p> <p>90 to 265 VAC; 100 to 370 VDC</p> <p>18 to 60 VDC</p>
Enclosure	<p>ENC120</p> <p>ENC277</p> <p><b>XXXXXX</b></p>				
Frequency					
Current Input					
Software					
Power Supply				<p>HI</p> <p>LO</p>	
I/O Modules				<p><b>)(</b></p> <p><b>XX</b></p>	<p>None</p> <p>IOBoseT Ethern</p> <p>IOBoseT Ethern with IEC 61850 Protocol</p> <p>Four Channel Bi-directional 0 to 1 mA Outputs</p> <p>Four Channel Bi-directional 4 to 20 mA outputs</p> <p>Two Relay Status outputs/Two Sub.I.s Inputs</p> <p>Four Pulse Outputs/ Four status Inputs</p> <p>Fiber Optic Interlace with ST Terminations</p> <p>Fiber Optic Interlace with Versatile Terminations</p> <p>RS232/RS485 cord</p>
				<p>E1</p> <p>E2</p> <p>C1</p> <p>C2</p> <p>RS</p> <p>PS</p> <p>F1</p> <p>F2</p> <p>S1</p>	