Effective January 2022 Supersedes March 2021

# Power Xpert Meter 3000 Series







#### **General description**

The Power Xpert<sup>®</sup> Meter 3000 Series power quality and energy meters monitor the most critical aspects of an electrical distribution system. This premier metering instrument uses the latest in advanced technology to make it simple to use, powerful, scalable, and highly flexible.

## **Applications**

Identify power quality problems to help:

- Protect motors from damage
- Preserve the integrity of processes and batches
- Prevent blown capacitor bank fuses
- Protect transformers and conductors from overheating

Monitor circuit loading to help:

- · Avoid overloads and nuisance overload trips
- Maximize equipment utilization
- Manage emergency overloads

Manage energy utilization to help:

- Reduce peak demand charges and power factor penalties
- Identify excessive energy consumption

## Features

- 100 ms refresh, true rms measurement
- ANSI C12.20 (0.2 Class) and IEC 62053-22 (0.2S Class)
- 1.5 GB onboard memory
- Power quality analysis Sag/Swell recording
- Over/under limit alarm
- Supports Modbus<sup>®</sup> RTU, DNP 3.0 via RS-485
- Modbus TCP and BACnet/IP
- Digital Input status monitoring via webpage and remote communication
- Waveform capture (128 points per cycle), waveform captures in COMTRADE file format.
- Measure individual harmonics from 2nd to 63rd
- 50/60 Hz rated frequency metering
- Modular design
- Integrated data logging plus three custom data logs
- TOU (time of use), 4 tariffs, 12 seasons, 14 schedules

## Technical Data TD0262032EN

#### Metering

- Voltage V1, V2, V3, VLNavg, V12, V23, V31, VLLavg
- Current I1, I2, I3, In, lavg
- Power P1, P2, P3, Psum
- Reactive power Q1, Q2, Q3, Qsum
- Apparent power S1, S2, S3, Ssum
- Frequency F
- Power factor PF1, PF2, PF3, PF
- Energy EP\_imp, EP\_exp, EP\_total, EP\_net, EPa\_imp, EPa\_exp, EPb\_imp\_EPb\_exp, EPc\_imp, EPc\_exp
- Reactive energy EQ\_imp, EQ\_exp, EQ\_total, EQ\_net, EQa\_imp, EQa\_exp, EQb\_imp, EQb\_exp, EQc\_imp, EQc\_exp
- Apparent energy ES, ESa, ESb, ESc
- Demand Dmd\_P, Dmd\_Q, Dmd\_S, Dmd\_I1, Dmd\_I2, Dmd\_I3
- · Load type, inductive or capacitive
- Four quadrant power

#### Monitoring

- Power quality
- Voltage harmonics 2nd to 63rd and THD
- Current harmonics 2nd to 63rd and THD
- Voltage crest factor
- Telephone interference factor (TIF)
- Current K factor
- Voltage unbalance factor U\_unbl
- Current unbalance factor I\_unbl
- Max./min. statistics with time stamps

#### Alarms

Limits can be set for up to 16 parameters and can be set with a specified pickup delay time interval. If any input of the indicated parameters is over or under its setting limit and persists over the specified time interval, the event will be recorded with time stamps and trigger the alarm DO output. The 16 parameters can be selected from any of the 80 parameters available.

#### I/O option module

A maximum of two modules can be used for one meter.

#### Time of use

Users can assign up to four different tariffs (sharp, peak, valley, and normal) to different time periods within a day according to the Utility TOU rate structure. The meter will calculate and accumulate energy for the programmed rate periods based on the TOU settings.

#### Power quality event logging

When a power quality event happens, such as voltage sag and swell, PXM 3000 will record the timestamp and the triggering condition of the event. It can save up to 50,000 power quality events.

#### Automatic frequency adaptation

Rated frequency is adjusted automatically to local frequency such as 50 Hz or 60 Hz. The same meter can be applied in countries with different electrical frequencies.

#### Display

- Clear and large character LCD screen display with white backlight
- · Wide environmental temperature endurance
- Display load percentage, four quadrant power, and load type, inductive or capacitive
- Small size 96  $\times$  96 DIN or 4-inch ANSI round panel cutouts

## Power Xpert Meter 3000 embedded web server

The Power Xpert Meter 3000 embedded Web server offers Eaton® customers accessibility to the critical information required to manage their electrical distribution system. The web server includes real-time information in both numeric and graphical visual formats to help monitor parameters such as current loading, voltage and power levels, power factor, THD, and more. The web server also provides energy and demand readings with graphic usage plots to help analyze energy usage patterns. Energy readings include kWh, kvarh, delivered and received and kVAh. Webserver also provides ability to view Sag/Swell waveforms.

## Waveform recording

The Power Xpert Meter 3000 can record waveforms for 20 cycles up to 128 samples per cycle.

n Overview 🥓		III Timeline			
Alarms Events	Waveforms				Choose an Action
Naveform Parameters		Waveform			ŧ
ewest Waveform Record No: 4		100 V			Reset auors
/aveform List		50 V	$\wedge \wedge$		2000 A
Voltage Sag on ( A B C )	2019-10-01 12:59:09	1	$( \setminus )$		
Voltage Sag on (ABC)	2019-10-01 14:50:09	3			1000 A
2 Voltage Sag on (A.B.C.)	2019-10-01 14:48:15	-50 V			
Voltage Sag on (ABC)	2019-10-01 14:45:10	-100 Y	-		-3000 A
		0.00	20 ms 40 ms 60	na 60 ma 100 ma 120 ma 140 m Tana	a 160 ma 160 ma
				3 + 1 + M + 2 + 2 + 1 + 2 + 2 + 2 + 2 + 2 + 2 + 2	
		Waveform D	etalls		
		ID:		004	
		Description :		Voltage Sag on ( A B C )	

## Waveform capture

PXM 3000 can record 100 groups of voltage and current waveforms. It logs at 64 points per cycle. (200 groups of voltage and current waveforms in case of 64 points per cycle and 100 groups of voltage and current waveform in case of 128 points per cycle). It provides the waveform record of 10 cycles before and after the triggering point.

It also supports a settable triggering condition.

Waveform captures are automatically stored on the FTP server in the IEEE standard COMTRADE file format. This allows users to view and analyze the waveforms in any standard free-of-charge or commercial COMTRADE file viewer.

## **Historical trend logging**

The Power Xpert Meter 3000 records historical data for graphical viewing from the embedded Web server. Graphical views of historical data support pan and zoom. Over 100 standard metering parameters are logged as part of the standard meter functionality including min/max and average for each parameter. The averages are calculated over the interval period. In addition to the standard logs, the PXM3000 also includes three custom data logs that can be configured and viewed via the web interface.

## Load profile data

The Power Xpert Meter 3000 records average real, reactive and apparent power. These readings are stored on a fixed five minute interval. Up to four status inputs can be configured as energy accumulators for counting KYZ pulse inputs.

## **Demand comparisons**

Demand usage patterns can be analyzed with the month-to-month, week-to-week, day-to-day comparison chart built into the meter. Raw data can be exported as a .csv file with the "download" option to other applications for further analysis and graphing.

				0						Participant Partic						
Overview	~* Trends	di Coergy	= Timel			-		C Data Lo	٤							
															Choose an A	ution _
ergy/Demand			Phase A												Dem	and Compariso
livergy			10/14/2	15			10/15/2015	- 60			1	oday With	Yesterday		2	
() kith			70 A	and the second sec				C. Lad								
) xxxRn				*****		Sand Sand	n.n									~
0 100			E SA				M	The		Å				a.		
Display Demands in Amps			9 60 A					N . MA	A	and		n	not	Sec.	and the second	
Phase A													<b>~</b> ++			
O Phase D			55 A -	12:00	14:00	16:00	18:00	20.00	22'00	16.00	62:00		14.00	06:00	08.00	16:00
O Phase C										today						
Power Demand				12:00	14,00	16:00	18:00	26-00	22:00	15. Cell	62/00	Q °	14 (00	06-00	08.00	10.00
0 ==									· today	- venterfer						
O xxxx																
O 818			A													
			Data Tab	•												
			Point	Timestam	1	Value1		Timestamp2		falue2						
				October 15	2019 11:30 A	a 67.2		October 14, 2019	11:30 AM (	15.0						
			2	October 15	2019 11:45 A	A 66.8		October 14, 2011	11:85 AM 0	8.1						
			3	October 15	2015 12:00 Pt	4 66.1		October 14, 2015	12:00 PM 6	6.1						
			4	October 15	2019 12:15 P	A 66.6		October 14, 2019	12:15 PM (	6.9						
			4	October 15 October 15	2019 12:15 Pi 2019 12:30 Pi	A 66.6 A 66.6		October 14, 2011 October 14, 2011	12:15 PM (	6.9 16.5						

## **Alarm triggers**

The Power Xpert Meter 3000 has configurable alarm triggers.

The meter limits can be set for any measured parameter, for up to 16 limits. If any of the 16 limits are exceeded, an alarm condition will be present and can cause the backlight to flash on the meter faceplate if desired. The meter out of limits can also be used to energize a relay output, when meter is equipped with optional I/O module.

## **Event logging**

The Power Xpert Meter 3000 embedded web server allows the user to view a list of triggered events. In addition, a separate system log records system operations such as resets. Monitoring and time stamping of digital inputs enables the user to compare the sequence of digital input transitions.

## Email

The Power Xpert Meter 3000 contains the ability to send emails based on an event and / or alarm that has been triggered or cleared.

## **Displayed information**

- Monitored information is available locally through the display, the web browser or system power management software.
- True rms values through 63rd harmonic.
- ANSI C12.20 Class 0.2% revenue metering specification.

#### Power Xpert Meter 3000 web browser views

								Welcome ad	teent 91043000 Chevrington Der	ne 10/16/2019 11/2418 AM EDT	😧 Heb 🗘 Settings PAMAK Mean Č	© F:T•N
<b>n</b> •	verview		di teegy			• =		O Cota Log				
											Choose an Action _	0
Gauge												
Freq 60.55 59.95 59.42 60.02 Hz		6.9 0.0V 0.0		VUN 146.3 149.4 139.9 V		11.0 6.4 1.9	66.4 61.4 A		66.4 61.4 A	N 8.3 - 4.1	FF 0.00 Lead 1.00 Lag 0.05 Lag	
Meter				×	Power				► Energy			×
Average VLL	: 0.0	V.			Apparent I	25.8 kVA			Apparent	: 45.325.7 kt/A		
Average Current	1 61.	44			Real	11.8 kw			Real	22,915.1 kmh		
Frequency	60.	00 Hz			Reactive	0.0 kvar			Reactive	-449.8 kvarh		
Demand Com	parison						•	Events				Þ
Peak 25-07	7.3	11 673.5	55.4	77.0	77.0	77.0		Alarm 16	Volts UN Average (V)		2019-10-16 11:23:0:640	
1		1	₩i i	N.	N.	N.		Alarm 15	Volts LN Average (V)		2019-10-16 11:22:59:811	- 1
					1	1		Alarm 14	Volts LN Average (V)		2019-10-16 11:15:7:293	_
				- 1				Alarm 13	Volts LN Average (V)		2019-10-16 11:15:6:320	_
New 26 022	2 kVA	11 859.6 kW	49.4 lotar	62.5 A	62.6 A	62.6 A		Event 75	Voltage Sag A Voltage Sag	B Voltage Sag C	2019-10-01 13:48:15 839	_
								Event 77	Voltage Sag A Voltage Sag	B Voltage Sag C	2019-10-01 13:59:09 779	
								Event 76	Voltage Sag A Voltage Sag	B Voltage Sag C	2019-10-01 13:50:09 729	

Power Xpert Meter 3000's embedded web server Overview screen allows a quick view of critical electrical parameters. These parameters are placed on a chart that allows customers to easily identify real time, as well as the mean with +/- 3 standard deviation values. They also can see the events log and demand.

	+ #/timeline/wzveforms = 201	🗶 Deshboard 💠 D.	eshboard 🗙 PIXV3000	🚦 РЭМЗООО 🔶 РЭММ-	460X 🗙 PX0000 🗶 PX	15 UserDocs 💥 Janus 🌖 Zeo	as 💥 Zeus 💠 Zeus-Sas 🚱 eSade	- C 🖈 🛛 🖤 🔝   nyOnine	• ×
1 Overview	A* Trends	di toeny	i Timeline	t <sub>a</sub> vo	soe soe	C Data Log	200320 MM EDE 🦉 MMD 🧕 20	ngo 1934 (K. Meler 100)	L'AQ
Alarms Events	Waveforms		Wineform				Chee	ise an Action	\$
Newest Waveform Record No:	1		200 V	AWWWW	MMMM	MANA. //	MMMMMMMM	300 A	
Waveform List ID Description C01 Voltage Sag on (AB)	Date ar 2020-03-09 17	nd Time (UTC) 7:38:09	* 800 V			exeel (		0 A 000 A 00	
			-100 V -200 V			150 ma 200 m	250 ms 350	-200 A -200 A	
					◆ VA →	Time	R → K		

The web server offers a waveform view to visualize disturbances such as voltage sags that can cause costly business interruptions.



The harmonic spectral plot displays harmonics up to the 63rd order. Individual harmonics and THD are displayed for diagnostic purposes.

						Welcome admin: P1	M3000 Olivington Demo - 5317/2219 10/11/1 AM EOT - 🕐 Heb - 🤨 Settings - PAMAR Meter - 🐼 - 🚰 🕇 •
A Overview	A Trends	dt forsy	= Inteloe	t₄ vo	= 506	O Data Log	
Meter	Power Quality	Phasor					Choose an Action
Voltage			Phase 8 Current				1 • 4
Une-Line		-	00.0 A				
O Vil Average	0.0 V						~~~~
O 48	0.0 V		92.0 A	and .		- " hu	manna
OK	0.0 V		· · · · ·	am		m	manna
0 a	0.0 V		4	Marrie Marrie			·
			12.0 A				
Current							
O Average	60.0 A						
O Phase A	67.9 A					• Aug	
Phase B	68.2 A		Present		60.2 A		
O Phase C	68.1 A		Min		21.0 A		Sep 13. 2019. 7:27:27 AM
O Nevral	0.0 A		Max		112.0 A		5ep 2, 2019, 1:53:49 AM
Frequency			Data Table				
O freevency	60.00 Hz		Point Timest	tamp	Avg	Min	Max
			1 Octobe	rr 16, 2019 10:45 AM	61.3	58.4	64.3
			2 Octobe	r 16. 2019 10:50 AM	61.3	59.4	66.6
			3 Octobe	r 16, 2019 10:55 AM	62.2	60.4	67.2
			4 Octobe	r 16.2019 11:00 AM	62.5	58.6	67.1
			5 Octobe	r 16. 2019 11:05 AM	62.8	61.1	67.7
			6 Octobe	H 16, 2019 11:10 AM	63.1	61.0	68.2

#### Graphical trending of data

The Power Xpert Meter 3000 embedded web server supports graphical trend charts of key circuit measurements such as current, voltage, power and energy. The trend chart supports a zoom feature that allows the user to view data over a short period of 16 hours or a longer period of 48 months. The trend chart has a horizontal slider bar control to manage scrolling forward and backward through the data. Trend charts of basic readings include minimum, maximum, and average readings. Trend charts of energy data also display demand values.

					weekeek admit: P102300	Colempto Deno 1016/07/011	CERIAM EDT 🔮 Helb 📮 Settings 2000/2004eeer 🖎	AC.
ft Overview	di teegy	= Timeline						
							Choose an Action _	0
Energy/Demand		kW					Demand Profile	•
Energy		10/16/2015	m				3 -	
O KIIN		11500 km	<u> </u>					
O KUNAN								
() xxxx		13000 km	m	m	M	m	me MM	
Display Demands in Amps		12900 km			-		ktt: 12069.7 kW	
O Phase A								
O Phase 0		• 12000 km	000		where	~~~~	···· (W	"
O Phase C		11500 km	12.00 10.04 1	100 1100 1	11 04 11 04	11 02 1102 14 02	1100 1100 1100 1100 1100	
Power Demand					D	late Time		
(i) en					+ ha			
O sout								_
O 818	 	Data Table						
		Point Time	stamp	Value				i.
		1 Octo	per 9, 2019 12:00 PM	12914.9				
		2 Octo	ser 9, 2019 1:00 PM	12832.8				
		3 Octo	per 9, 2019 2:00 PM	12892.7				
		4 Octo	per 9, 2019 3:00 PM	12807.0				
		5 Octo	ber 9, 2019 4:00 PM	12941.9				

Energy Managers can view load profile data compared against the peak demand.

## **Data logging**

The PXM 3000 meters contain 1.5GB of memory for data logging and historical trending. Since each meter contains a real-time clock, all events and logged data will be time stamped.

The PXM 3000 meters have three sets of historical data logs. Each log can be independently programmed with individual settings, meaning that each can be used to monitor different parameters. The user can program up to 117 parameters per log.

## Web server device configuration

Special software is not required to configure a Power Xpert Meter 3000. The embedded web server includes a comprehensive device configuration engine.

## Communications

The communications card provides one ethernet connection via a 10/100Base-T port (copper only) that can be used for the following applications:

- Monitoring, managing, and configuring the meter remotely using a standard web browser interface.
- Alarm notifications via email, SMTP.
- Providing Modbus TCP/IP, and BACnet/IP communications to BMS systems.
- Providing SNMP communications to NMS systems.
- Synchronizing with an NTP server.
- Updating firmware on the meter.

The card also contains a micro USB port for programming and monitoring. The USB port allows access to the meter's web interface.



#### Figure 1. PXM 3000 rear view.

- Power supply inputs
- RS-485
- Current inputs
- Micro USB
- Ethernet

1

2

3

4

5

## **Parameters**

Category		ltem	Parameters	PXM 3000
Metering	Real-time	Phase voltage	V1, V2, V3, VLnavg	
	metering	Line voltage	V12, V23, V31, VIlavg	
		Current	I1, I2, I3, In, lavg	
		Power	P1, P2, P3, Psum	
		Reactive power	Q1, Q2, Q3, Qsum	
		Apparent power	S1, S2, S3, Ssum	
		Power factor	PF1, PF2, PF3, PF	
		Frequency	F	
	Energy and demand	Energy	Ep_imp, Ep_exp, Ep_total, Ep_net, Epa_imp, Epa_exp, Epb_imp, Epb_exp, Epc_imp, Epc_exp	
		Reactive energy	Eq_imp, Eq_exp, Eq_total, Eq_net, Eqa_imp, Eqa_exp, Eqb_imp, Eqb_exp, Eqc_imp, Eqc_exp	•
		Apparent energy	Es, Esa, Esb, Esc	
		Demand	Dmd_P, Dmd_Q, Dmd_S, Dmd_11, Dmd_12, Dmd_13	
TOU	Time of use	Energy/max. demand	TOU, 4 tariffs, 12 seasons, 14 schedules	
	Daylight saving time	Two adjustable formats	Month/day/hour/minute Month/week/first few weeks/hour/minute	
Monitoring	Waveform Voltage and current waveform*		Trigger, manual, DI change, sag/dips, swell, overcurrent	•
	Power quality	Voltage unbalance factor	U_unbl	•
		Current unbalance factor	I_unbl	
		Voltage THD	THD_V1,THD_V2,THD_V3, THD_Vavg	
		Current THD	THD_I1, THD_I2, THD_I, THD_lavg	
		Individual harmonics	Harmonics 2nd to 63rd (50 Hz or 60 Hz)	
		Voltage crest factor	Crest factor	
		TIF	Telephone interference factor	
		Current K factor	K factor	
	Statistics	MAX with time stamp MIN with time stamp	Each phase of V & I; Total of P, Q, S, PF & F; demand of I1, I2, I3, P, Q&S each phase THD of V & I; unbalance factor of V & I	
Others	Alarm	Over/under limit alarm	V, I, P, Q, S, PF, V_THD and I_THD each phase and total or average; unbalance factor of V and I; load type; analog input of each channel; demand of I1, I2, I3, P, Q&S reverse phase sequence; DI1~DI28	•
	Power quality event logging	Sag/dips, swell	Voltage	
	Data logging	Data logging 1 Data logging 2 Data logging 3	F, V1/2/3/avg, V12/23/13/avg, I1/2/3/n/avg, P1/2/3/sum, Q1/2/3/sum, S1/2/3/sum, PF1/2/3, PF, U_unbl, I_unbl, Load Type, Ep_imp, Ep_exp, Ep_total, Ep_net, Eq_imp, Eq_exp, Eq_total, Eq_net, Es, Epa_imp, Epa_exp, Epb_imp,Epb_exp, Epc_imp, Epc_exp, Eqa_imp, Eqa_exp, Eqb_imp, Eqb_exp, Eqc_imp, Eqc_exp, Esa, Esb, Esc, THD_V1/2/3/avg, THD_I1/2/3/avg, harmonics 2nd to 63rd, crest factor, THFF, K factor, sequence and phase angles, DI counter, AI, AO, Dmd P/Q/S, Dmd I1/2/3	•
	Onboard memory size	Memory	Bytes	1.5 GB
	Communication	RS-485 port, half duplex, optical isolated, RJ-45 Ethernet, Micro USB	Modbus®-RTU protocol/DNP3.0, Modbus TCP, BACNet IP	
	Time	Real-time clock	Year month date hour minute second	

## Technical Data TD0262032EN

Effective January 2022

## Accessories

#### Digital/analog I/O

Integrate data to/from other devices with field expandable plug-in I/O modules. A maximum of two I/O cards may be added to the PXM3000 meter.

#### PXM1K-1XX



- 6x digital inputs
- 24 Vdc power for digital inputs
- 2x relay outputs

#### PXM1K-2XX



- 4x digital inputs
- 2x digital outputs
- 2x analog outputs

#### PXM1K-3XX



- 4x digital inputs
- 2x relay outputs
- 2x analog inputs

#### Panel mount remote display

PXM 3000 panel mount remote display (PXM3K-DISP) for DIN rail mount transducer version (eg. PXM3000TA15). The remote display includes 6ft cable for the connection.



## **Meter input wiring**



Figure 2. Three-phase, four-wire (3LN, 3CT).



Figure 3. Three-phase, three-wire (3LL, 3CT).



Figure 4. Three-phase, four-wire with PT (3LN, 3CT).

\* 1A fuse typical



Figure 5. Three-phase, three-wire with PT and 2CT (2LL, 3CT).



Figure 6. Single-phase, three-wire (1LL, 2CT).



Figure 7. Single-phase, two-wire (1LN, 1CT).

## I/O cards wiring



#### Figure 8. PXM1K-X1X

#### Figure 9. PXM1K-X2X/X3X

## **Dimensions in inches (mm)**



#### Figure 10. PXM 3000



Figure 11. DIN mount meter





0.39

-(10.0)

Figure 13. I/O module

## **Ordering information**

To order a Power Xpert Meter 3000, the catalog number should be determined using **Table 1**. The table illustrates how to include the desired factory options as part of a catalog number. I/O option modules are separate and field installable. Each type of I/O module also has two addresses, logic address 1 and logic address 2. Up to 2 I/O modules per meter can be installed. Power Xpert Meter modules include panel mounting brackets.

Example: PXM3000MA15 (PXM 3000 meter/display, 5 A, 100-277 Vac or 100-250 Vdc)

#### Table 1. Power Xpert Meter 3000 catalog numbering system.



Table 2. Power Xpert Meter 1000/3000 I/O module.

Description	Catalog number
PXM 1000 I/O module logic address 1; 2 RO, 6DI with DI power supply 24 Vdc	PXM1K-110
PXM 1000 I/O module logic address 2; 2 RO, 6DI with DI power supply 24 Vdc	PXM1K-120
PXM 1000 I/O module logic address 1; 4 DI, 2 DO, 2 AO (4–20 mA)	PXM1K-210
PXM 1000 I/O module logic address 1; 4 DI, 2 DO, 2 AO (0-20 mA)	PXM1K-211
PXM 1000 I/O module logic address 1; 4 DI, 2 DO, 2 AO (1–5 V)	PXM1K-212
PXM 1000 I/O module logic address 1; 4 DI, 2 DO, 2 AO (0–5 V)	PXM1K-213
PXM 1000 I/O module logic address 2; 4 DI, 2 DO, 2 AO (4–20 mA)	PXM1K-220
PXM 1000 I/O module logic address 2; 4 DI, 2 DO, 2 AO (0–20 mA)	PXM1K-221
PXM 1000 I/O module logic address 2; 4 DI, 2 DO, 2 AO (1–5 V)	PXM1K-222
PXM 1000 I/O module logic address 2; 4 DI, 2 DO, 2 AO (0–5 V)	PXM1K-223
PXM 1000 I/O module logic address 1; 4 DI, 2 RO, 2 AI (4–20 mA)	PXM1K-310
PXM 1000 I/O module logic address 1; 4 DI, 2 RO, 2 AI (0–20 mA)	PXM1K-311
PXM 1000 I/O module logic address 1; 4 DI, 2 RO, 2 AI (1–5 V)	PXM1K-312
PXM 1000 I/O module logic address 1; 4 DI, 2 RO, 2 AI (0–5 V)	PXM1K-313
PXM 1000 I/O module logic address 2; 4 DI, 2 RO, 2 AI (4–20 mA)	PXM1K-320
PXM 1000 I/O module logic address 2; 4 DI, 2 RO, 2 AI (0–20 mA)	PXM1K-321
PXM 1000 I/O module logic address 2; 4 DI, 2 RO, 2 AI (1–5 V)	PXM1K-322
PXM 1000 I/O module logic address 2; 4 DI, 2 RO, 2 AI (0–5 V)	PXM1K-323

Table 3. Power Xpert Meter 3000 accessories.

Description	Catalog number
PXM 3000 panel mount remote display for DIN rail mount transducer version; include one 6 ft cable	PXM3K-DISP-3
Din rail mounting adapter	PXM1K-DINADPT
Terminal plug kit	РХМ1К-ТРК
Display cable (6ft)	PXM1K-DISPCBL-6
Display cable (15ft)	PXM1K-DISPCBL-15

## **Technical information**

#### Input Current inputs (each channel)

5A/1A nominal input range	e settings:	
Current sensor input options	5 A	1 A
Nominal configuration selection	5 A	1 A
Metering range (%of nominal)	200%	200%
Pickup current (%of nominal)	0.1%	0.1%
Withstand: 20 A rms conti	inuous, 100 A rms for 1 s	econd, non-recurring
Burden: 0.05 VA (typical) a	nt 5 A rms	
Accuracy: 0.2% IEC 61557	-12 class 0.2	
Voltage inputs (each ch	annel)	
Nominal full scale: 400 Va	c L-N, 690 Vac L-L (+20%	.)
Withstand: 1500 Vac cont	inuous, 2500 Vac, 50/60	Hz for 1 minute
Input impedance: 2 mohm	per phase	
Metering frequency: 45-6	5 Hz	
Pickup voltage: 10 Vac		
Accuracy: 0.2% IEC 61557	-12 class 0.2	
Energy accuracy		
Active: Class 0.2 s (accord	ling to IEC 62053-22), Cla	ass 0.2 s (according to ANSI C12.20)
Reactive: Class 2 (accordin	ng to IEC 62053-23)	
Harmonic resolution		
Metered value: 63rd harm	onic (50 Hz or 60 Hz type	.)
Communication		
RS-485 (standard)		
Modbus RTU and DNP 3.0		
Two-wire shielded twisted	d pair cable connection	
Baud rate: 1200-38,400 b	ps	
Standard compliance		
Measurement standard: IE	C 62053-22; ANSI C12.2	0
Environmental standard: II	EC 60068-2	
Safety standard: IEC 6101	0-1, UL 61010-1, IEC 6155	57-12
EMC standard: IEC 61000- 2/4	4/-2-3-4-5-6-8-11, CISPF	22, IEC 61000-3-2, IEC 61000-6-
Outlines standard: DIN 43	700, ANSI C39.1	
Operating environment	nt	
Operation temperature: -2	25 °C to +70 °C	
Storage temperature: -40	°C to +85 °C	

Storage temperature: -40 °C to +85 °C Relative humidity: 5% to 95% noncondensing Protection level: IP54 (front), IP30 (cover)

Approvals

UL File E185559 RoHS

	I/O option
1	Digital input
l	nput voltage range: 20–160 Vac/Vdc
li	nput current (max.): 2 mA
S	tart voltage: 15 V
S	top voltage: 5 V
F	ulse frequency (max.): 100 Hz, 50% duty ratio (5 ms ON and 5 ms OFF)
S	OE resolution: 2 ms
C	)igital output (DO) (photo-MOS)
٧	′oltage range: 0–250 Vac/Vdc
L	oad current: 100 mA (max.)
C	)utput frequency: 25 Hz, 50% duty ratio (20 ms ON, 20 ms OFF)
ŀ	solation voltage: 2500 Vac
F	Relay output (RO)
S	witching voltage (max.): 250 Vac, 30 Vdc
L	oad current: 5 A (resistive), 2 A (inductive)
S	et time: 10 ms (max.)
C	Contact resistance 30 mohm (max.)
k	solation voltage: 2500 Vac
N	Nechanical life: 1.5 x 10 <sup>7</sup>
ŀ	Analog output (AO)
C	)utput range: 0–5 V / 1–5 V, 0–20 mA / 4–20 mA (optional)
A	Accuracy: 0.5% Full scale accuracy
T	emperature drift: 50 ppm / °C typical
:	solation voltage: 500 Vdc
0	Dpen circuit voltage: 15 V
ŀ	Analog input (AI)
	nput range: 0–5 V / 1–5 V, 0–20 mA / 4–20 mA (optional)
A	Accuracy: U.2%
, ſ	emperature drift: 50 ppm / °C typical
	solation voltage: 500 Vdc
F	Yower supply for DI (24 Vdc)
(	Jutput voltage: 24 Vdc
, C	Jutput current: 42 mA
L	oad (max.): 21 UIs
ļ	
1	Iniversal: AU or DU
F	VC/DC control power
E	iperating range: IUU—Z// Vac, 5U/6U HZ; IUU—Z5U Vdc Iurdon: 5 W/
F	requency: 50/60 Hz
V	Vithstand: 3250 Vac. 50/60 Hz for 1 minute
l	nstallation category III (distribution)
ī	ow voltage DC control power (optional)
0	)perating range: 20–60 Vdc
E	lurden: 5W

Eaton 1000 Eaton Boulevard Cleveland, OH 44122 United States Eaton.com

© 2022 Eaton All Rights Reserved Printed in USA Publication No. TD0262032EN / TBG001478 January 2022

Eaton is a registered trademark.

All other trademarks are property of their respective owners.

**EATON** Powering Business Worldwide