Advanced Metering Update

ION9000 and PM8000

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Agenda

1	**Supply Chain Update**
2	**Offer Updates**
3	**Upcoming Releases**
4	**Future Direction**

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What's Happened Since 2022?

Supply Chain Resilience

What Happened:

- Massive shortages occurred on IC's such as memory, CPUs, FPGAs; while standard "off-the-shelf" components were less impacted

- Increase in Demand -> Shortage in raw materials -> Long lead-times

How We Responded:

- Can now increase and flex our production capacity up to 50% when needed

- Dedicated Engineering team to sourcing alternative

- Developed a supply chain resiliency plan which requires:

  - Increased supplier commitment requirements – secured stock of critical components

  - New more stringent supplier qualifications (i.e. alternate manufacturing locations and detailed disaster recovery plans)

THANK YOU.

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Offer Updates

PM8000 and ION9000 V4.0.0

- Measurement Canada Approved

- Secure ION which encrypts ION communication end to end
    - Server-only authentication
    - Support for both self-signed and custom certificates

- Support for longer passwords: up to 16 alphanumeric characters

- Support for new FPGA to support supply chain resilience

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Introducing the New Variants

PM8000

Introducing the New Variants

PM8000 Essential   PM8000 Standard   PM8000 Advanced

Introducing the New Variants

	PM8000 Essential	PM8000 Standard	PM8000 Advanced
Active Energy accuracy	Class 0.2	Class 0.2	Class 0.2
PQ compliance	No compliance	IEC61000-4-30 class S	IEC61000-4-30 class A
PQ measurements	THD, individual harmonics Sag / swell Waveform capture	THD, individual harmonics Sag / swell Waveform capture DDD RVC	THD, individual harmonics Sag / swell Waveform capture DDD Flicker RVC
Memory / Data Recorders	64 MB 10 data recorders	512 MB 50 data recorders	512 MB 64 data recorders
Waveform Sampling rate	128 samples per cycle	256 samples per cycle	512 samples per cycle
ION programmability	Yes	Yes	Yes

Public

Introducing the New Variants

	PM8000 Essential	PM8000 Standard	PM8000 Advanced	ION9000
Active Energy accuracy	Class 0.2	Class 0.2	Class 0.2	Class 0.1
PQ compliance	No compliance	IEC61000-4-30 class S	IEC61000-4-30 class A	PQI class A
PQ measurements	THD, individual harmonics Sag / swell Waveform capture	THD, individual harmonics Sag / swell Waveform capture DDD RVC	THD, individual harmonics Sag / swell Waveform capture DDD Flicker RVC	THD, individual harmonics Sag / swell Extended waveform capture DDD Flicker Transients
Memory / Data Recorders	64 MB 10 data recorders	512 MB 50 data recorders	512 MB 64 data recorders	2 GB 100 data recorders
Sampling rate	128 samples per cycle	256 samples per cycle	512 samples per cycle	1024 samples per cycle
ION programmability	Yes	Yes	Yes	Yes

Introducing the New Variants

	PM8000 Essential	**PM8000 Standard**	**PM8000 Advanced**
Standard	PM8140 PM8143 PM8144	PM8240 PM8243 PM8244	PM8340 PM8343 PM8344
LVDC	PM8110 PM8113 PM8114	PM8210 PM8213 PM8214	PM8310 PM8313 PM8314
RMICAN	PM81404	PM82404 PM82403	PM83404 PM83403

Introducing the New Variants

Firmware Version 4.5.0

Summary of Changes

- Memory reduction is done through firmware limiting – no hardware change; future upgradeability for feature sets

- Feature Set will be identifiable through the Nameplate Screen and via ION Setup in Feature Set register

- Standard feature set will include RVC, while advanced variant has ported all algorithms required for IEC61000-4-30 Ed.3 Class A Compliance

- Measurement Canada Approved

Upcoming Releases

PM8000 and ION9000 V4.6.0

- Support for BACnet/IP by default

  - ObjectID list to match existing values available over Modbus

- Strong password enforcement – option to customize and enforce strong passwords at device level

- Tentative - Data recorder Enhancements: Increasing the number of inputs supported from 16 to 50 (across all products)

  - Better alignment for PQ monitoring/reports

BACnet MS/TP

TIME IT TAKES A HACKER TO BRUTE FORCE YOUR PASSWORD

Number of Characters	Numbers Only	Lowercase Letters	Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters	Numbers, Upper and Lowercase Letters, Symbols
4	Instantly	Instantly	Instantly	Instantly	Instantly
5	Instantly	Instantly	Instantly	Instantly	Instantly
6	Instantly	Instantly	Instantly	1 sec	5 secs
7	Instantly	Instantly	25 secs	1 min	6 mins
8	Instantly	5 secs	22 mins	1 hour	8 hours
9	Instantly	2 mins	19 hours	3 days	3 weeks
10	Instantly	58 mins	1 month	7 months	5 years
11	2 secs	1 day	5 years	41 years	400 years
12	25 secs	3 weeks	300 years	2k years	34k years
13	4 mins	1 year	16k years	100k years	2m years
14	41 mins	51 years	800k years	9m years	200m years
15	6 hours	1k years	43m years	600m years	15 bn years
16	2 days	34k years	2bn years	37bn years	1tn years
17	4 weeks	800k years	100bn years	2tn years	93tn years
18	9 months	23m years	6tn years	100 tn years	7qd years

Offer Overview

The PowerLogic™ EM3570 series DIN Rail mount power meters with Ethernet port are the new benchmark for affordable and precision metering application

- Engineered on the trusted PowerLogic platform, Ethernet-enabled EM3570 DIN rail meters are designed to install easily and integrate seamlessly with existing BACnet/IP and Modbus TCP/IP

- Wide range CT compatibility, high reliability, IEC 61557-12 and UL2808 compliance, as well as ASHRAE 90.1 for power and energy logging capability

Manufacturing Location : SEIPL, Bangalore, INDIA

Applications : Capable of essential cost management

- Energy monitoring in building automation systems

- Renewable energy

- Energy management

- Commercial sub-metering

- Industrial monitoring

- Cost allocation

Also ideal for electrical network management:

- Track real-time power conditions

- Monitor control functions

- Provide basic power quality values

- Extended data log feature support up to 3 years

- Analyse equipment and network status

- BACnet/IP and Ethernet TCP/IP protocol support

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Specs & Features I Standard Compliance

Key Specifications

- Accuracy Class 0.5
- Control Power – 24 VDC
- Current Input – CTs supported
  - ✓ LVCT - 0.333 V or 1V
  - ✓ Rogowski Coil
- Voltage Input - 90VLN - 347 VLN (600 VLL)
- Frequency - 50/60 Hz ±10%
- Operating Temp. -25 to 70 °C (-13 to 158 °F)

Standards Compliance

- ✓ BS/EN/IEC 61557-12: 2018
- ✓ BS/EN/IEC 61326-1: Edition 3
- ✓ cULus as per UL 61010-1 Edition 3
- ✓ CE and UKCA as per IEC/BS 61010-1 edition 3
- ✓ UL2808 (PI Report Done. Final Cert. awaited)
- ✓ Align with cyber security guidelines as per IEC 62443
- ✓ CSA 22.3 61010-2-030:2017

Key Features

- Open, robust communications
  - ✓ Ethernet protocol and daisy-chain functionality with two RJ45 connectors at 10/100 Mbps
  - ✓ Supports HTTPS, SNMP, DHCP, Modbus TCP/IP, BACnet/IP
  - ✓ Easy remote management through web/ mobile devices
- Easy installation
  - ✓ DIN-mounted form factor option for easy, plug-in installation
  - ✓ Industry standard Modbus register and BACnet object list
- ASHRAE 90.1 compliant data logging
  - ✓ Two (2) GB capacity power and energy data logging in 15-minute increments over a 36-month period
  - ✓ Wide CT compatibility: LVCTs (0.333 V and 1 V), and Rogowski Coils (up to 5000 A)
- Cybersecurity
  - ✓ Adheres to IEC 62443 SL1 requirements
- BTL-certified BACnet communication
  - ✓ Conformance based on independent testing
- Backlit LCD – Multi Line
- Customisable Current Suppression Feature
- Full Meter Configuration using webpage … Planned to release by Q4'24

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The Future

Topics we are exploring

Looking Beyond

Cybersecurity	Virtualization	Power Quality
Secure Boot	Digital Substation	Supraharmonics (2kHz – 9kHz)
Encrypted Firmware	Virtual Meter	Sub-Synchronous Oscillations
RBAC	Standalone Merging Units	Continuous PQ Recording
Active Directory	IEC61850-9-2: SV	
Mutual Authentication		

General Announcement

Utility Open House
Summit – Victoria, BC

Dates: Summer 2025

Victoria Open House

Share
our strengths

Learn
from each other

Build
our future