

Hardware roadmap

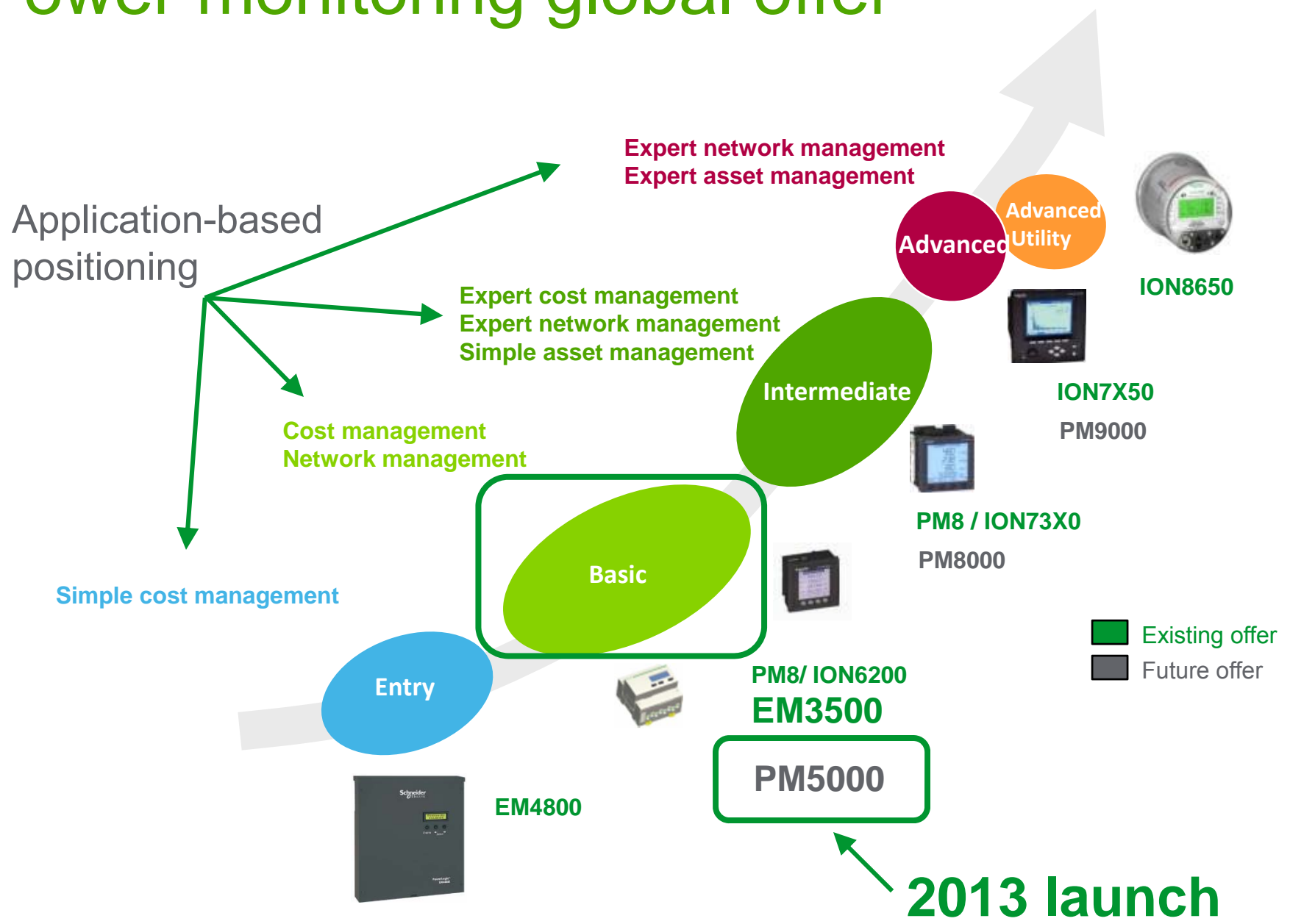
EM3500 / PM5000



PLUG Toronto – October 2012
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Schneider
Electric

Power monitoring global offer



Where and why use Entry / Basic
range meters?

COST MANAGEMENT

Three main applications:

Sub billing

- System that allows a multi-tenant property to bill tenants for individual measured utility (electricity) usage.

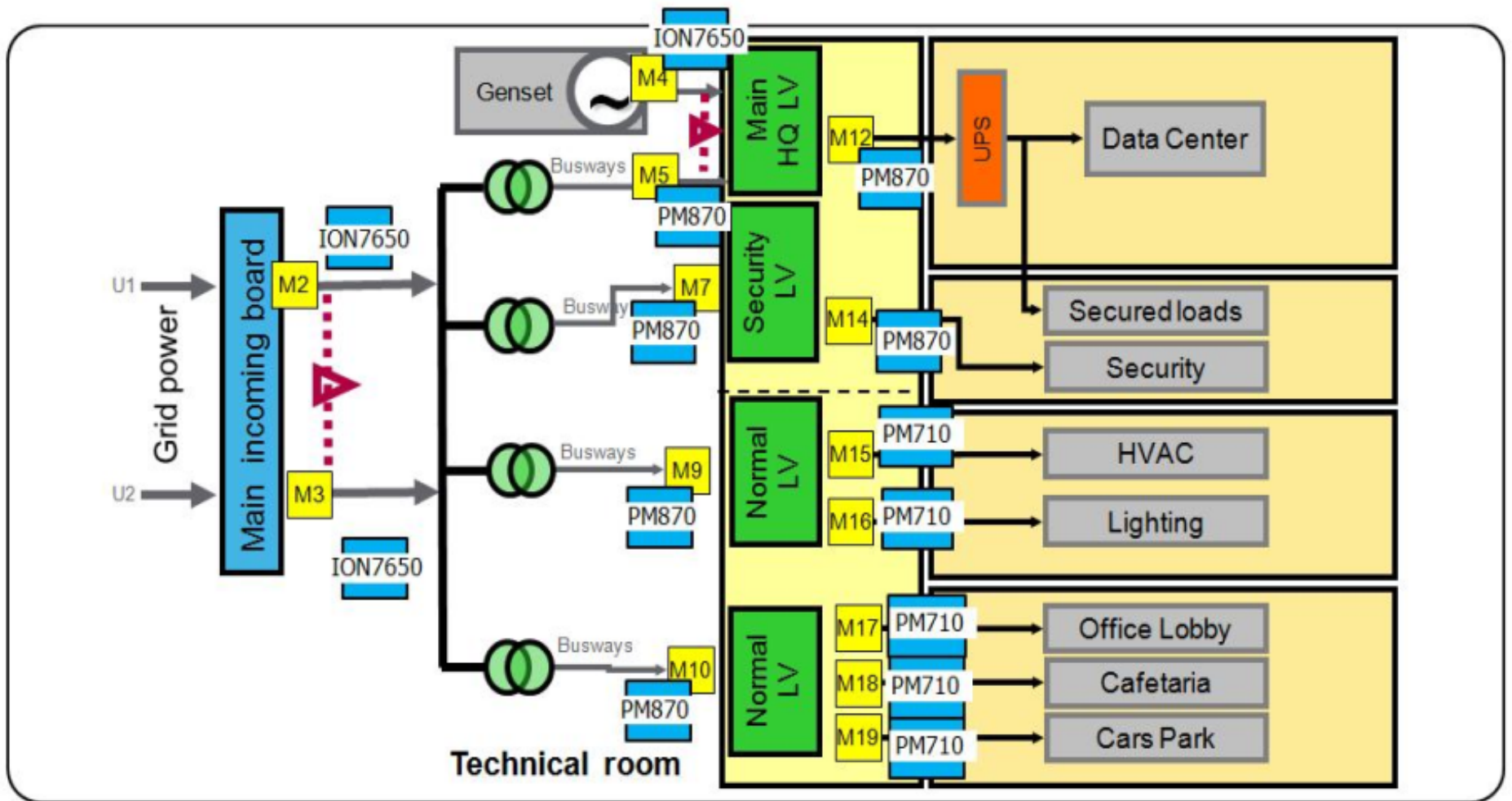
Sub metering

- Monitoring of the electrical consumption of individual equipment within a building, such as HVAC, indoor and outdoor lighting, refrigeration, kitchen equipment and more.

Cost allocation

- System that allows a industry to allocate energy costs between different phases of the industrial process, different departments or different cost centers.

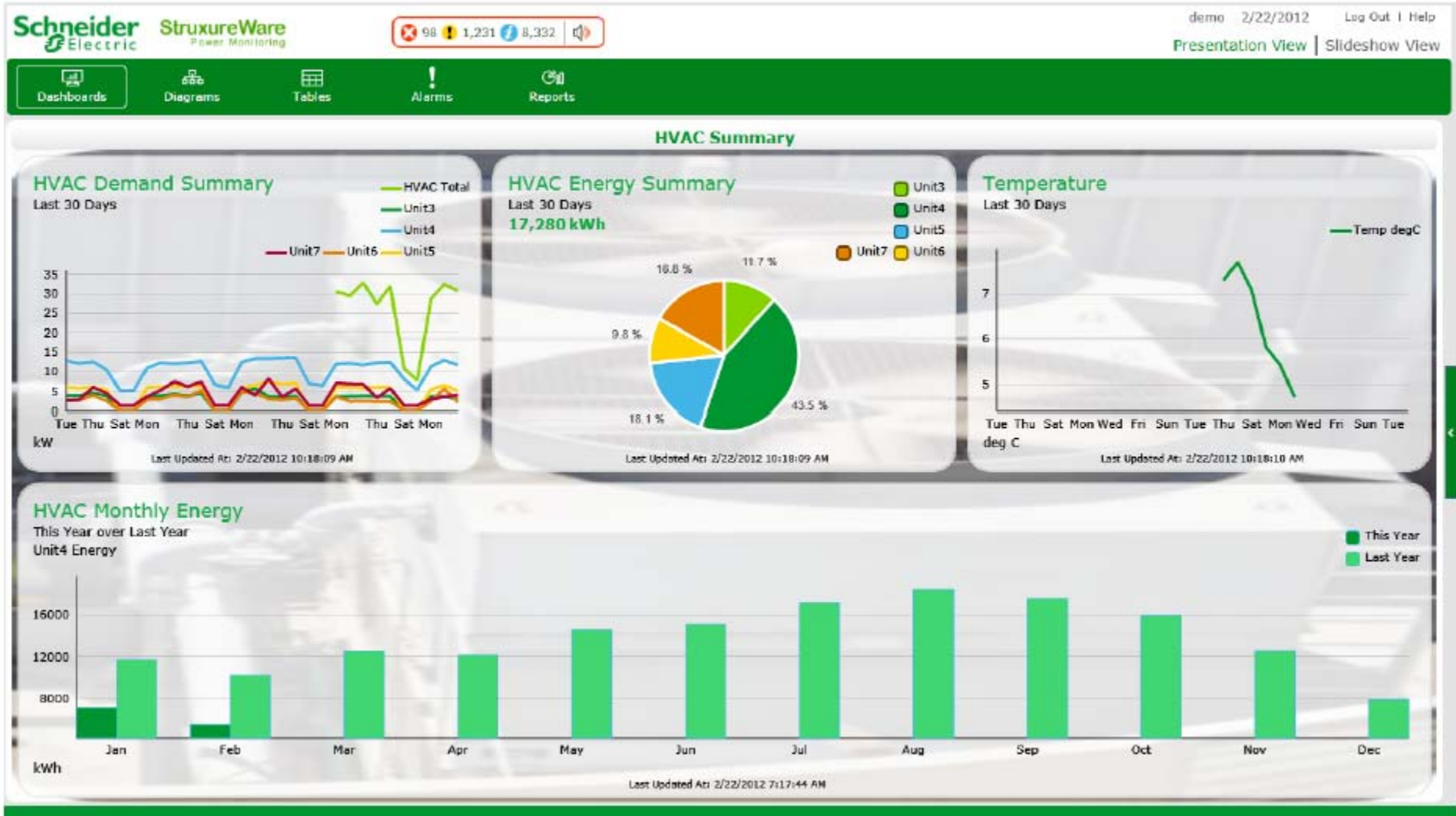
Sub-metering in a building



Sub-metering in a building



Sub-metering in a building



PowerLogic New Offers

EM3500

PM5000

PowerLogic new offers



	EM350	PM500
Form Factor	Din rail	Panel
Range	Basic	Basic
Accuracy	0.5S	0.5S or 0.2S
Current input	LVCT (1/3V)	CT (5A)
Voltage input	90-600 V L-L	90 - 600 V L-L
Comm port	RS-485 or pulse	RS-485 or ETH
Comm protocols	Modbus Bacnet LON (coming)	Modbus Bacnet (2014)
Availability	Now	Q2 2013

EM3500 - Offer presentation

Offer highlights:

- Compact meter with ANSI 12.20 0.5% accuracy
- DIN-rail or wall mounting
- Built in backlit LCD display
- Modbus, BACnet & LON (coming soon)
- Uses low-voltage CTs (1V or 1/3V)
- Separate 90-600V control power for maximum flexibility



EM3500 models

EM3502

- *Pulse and Alarm outputs only*
- *2 quadrant meter*
- *NO Logging*

EM3550

- *Modbus, Pulse & Alarm outputs*
- *2 quadrant meter*
- *NO logging*

EM3555

- *Modbus, Pulse & Alarm outputs*
- *4 quadrant meter*
- *Logging*

EM3560

- *BACnet MS/TP, 2 Pulse inputs*
- *2 quadrant meter*
- *Logging*

EM3570 (future)

- *LON FT, 2 Pulse inputs*
- *4 quadrant meter*
- *Logging*



PM5000 - Offer presentation

A complete refresh of the basic metering range with 3 new product families:

PM5100

- Basic metering with class 0.5S accuracy + pulse output + serial comm

PM5300

- Basic metering with class 0.5S accuracy + DI/DO + Multi-tariff + Logging + Ethernet or Serial comms

PM5500

- Basic metering with class 0.2S accuracy + DI/DO + Multi-tariff + Logging + Tran + Ethernet and serial comms

PM5000 - Offer presentation

Part numbers and features

- PM5100 (2 part numbers)

Part number	VAF, PQS, PF, DM, THD	Accuracy Class	Ind Harmonics	Alarms	RS485	Ethernet	Multi tariff	DI/DO	RELAY	Logging	Tran
METSEPM5100	✓	0.5	15	10	x	x	x	x	x	x	x
METSEPM5110	✓	0.5	15	10	✓	x	x	x	x	x	x

- PM5300 (4 part numbers)

Part number	VAF, PQS, PF, DM, THD	Accuracy Class	Ind Harmonics	Alarms	RS485	Ethernet	Multi tariff	DI/DO	RELAY	Logging	Tran
METSEPM5310	✓	0.5	31	30	✓	x	✓	2 DI / 2DO	x	✓	x
METSEPM5330	✓	0.5	31	30	✓	x	✓	2 DI / 2DO	✓	✓	x
METSEPM5320	✓	0.5	31	30	x	✓	✓	2 DI / 2DO	x	✓	x
METSEPM5340	✓	0.5	31	30	x	✓	✓	2 DI / 2DO	✓	✓	x

- PM5500 (2 part numbers)

Part number	VAF, PQS, PF, DM, THD	Accuracy Class	Ind Harmonics	Alarms	RS485	Ethernet	Multi tariff	DI/DO	RELAY	Logging	Tran
METSEPM5560	✓	0.2	63	48	✓	✓	✓	4DI / 4DO	x	✓	x
METSEPM5563	✓	0.2	63	48	✓	✓	✓	4DI / 4DO	x	✓	✓

PM5000 - Offer presentation

Key features / differentiators

- **Multi-tariff** → up to 8 different tariffs to provide billing flexibility. Tariffs can be controlled by external pulse or comms.
- **Logging memory (5300 / 5500)** → internal memory provides reliability for energy logs.
- **Comms flexibility** → Serial (PM5100), Serial or Ethernet (PM5300), serial and Ethernet (PM5500). Two Ethernet ports for daisy chain in the 5500 family.
- **Individual harmonics measurement** → 15th order (5100), 31st order (5300) and 63rd order in 5500 family

PM5000 - Offer presentation

Same look and feel for the entire range



PM820



Feature	PM820	PM5300	PM5500
Energy accuracy	0.5%	0.5%	0.2%
Multi tariff	No	4 tariffs	8 tariffs
Harmonics	Individual - 31 st , THD – V&I per ph	Individual - 31 st THD – V&I per ph	Individual - 63 rd THD – V&I per ph
Alarms	40	30	48
Communications	RS485 or ETH (external module)	RS485 or ETH	RS485 and ETH
I/O	Std - 1 DI & 1 DO Opt - 12 DI, 4 DO, 4 AI, 4 AO	2DO, 2DI, 2relay	4DO, 4DI, 2relay
Logging	6 parameters for 96 logs @ 5 min	2 parameters for 60days@ 15 min	6 parameters for 365 days@ 15 min.
Voltage inputs	10 – 600 V L-L CA	90 to 600 V L-L CA	90 to 600 V L-L CA
Control power	110 – 415 VCA 125 – 250 VCC	110 – 480 Vac 125 – 250 Vcc	110 – 480 Vac 125 – 250 Vcc

ION6200



Feature	ION6200	PM5100	PM5300
Energy accuracy	0.5%	0.5%	0.5%
Multi tariff	No	No	8 tariffs
Harmonics	THD – V&I	Individual - 15 th THD – V&I per ph	Individual - 31 st THD – V&I per ph
Alarms	--	10	30
Communications	RS-485	RS-485	RS485 or ETH
I/O	2 DO for kWh / kVARh	1 DO for kWh	2DO, 2DI, 2relay
Logging	No	No	2 parameters for 60days@ 15 min
Voltage inputs	90 to 690 Vac	90 to 600 V L-L CA	90 to 600 V L-L CA
Control power	100 – 240 VCA 110 – 310 VCC	110 – 480 Vac 125 – 250 Vcc	110 – 480 Vac 125 – 250 Vcc
Remote display opt.	Yes	No	No

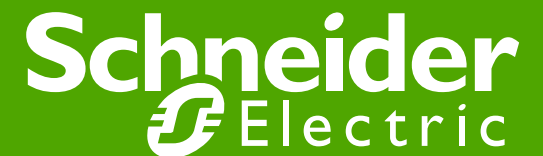
ION7330



Feature	ION7330	PM5300	PM5500
Energy accuracy	0.5%	0.5%	0.2%
Multi tariff	Yes	4 tariffs	8 tariffs
Harmonics	Individual – 15 th , THD – V&I per ph	Individual - 31 st THD – V&I per ph	Individual - 63 rd THD – V&I per ph
Alarms	Varies	30	48
Communications	RS485 and ETH	RS485 or ETH	RS485 and ETH
I/O	4DI, 4DO, optional analog	2DO, 2DI, 2relay	4DO, 4DI
Logging	300kB	2 parameters for 60days@ 15 min	6 parameters for 365 days@ 15 min.
Voltage inputs	90 to 600 V L-L CA	90 to 600 V L-L CA	90 to 600 V L-L CA
Control power	95 – 240 VCA 120 – 310 VCC	110 – 480 Vac 125 – 250 Vcc	110 – 480 Vac 125 – 250 Vcc

Questions?

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Appendix

Features

Energy meter for tariffs metering
+ MID
+ 4 tariffs
+ saved Internal clock

Basic energy meter
+ Communication

Basic energy meter
+ MID
+ pulse output

Basic energy meter

Advanced energy meter
+ Power meter by comm.
+ Multi tariffs
+ internal clock
+ 1xDI, 1xDO
+ MID

Basic power meter
+ pulse output
+ demand Power
+ THD
+ alarms

Advanced power meter
+ Customized Alarms
+ Tariffs
+ communication
+ 2xDI, 2xDO
+ load profile

Basic power meter
+ Communication
+ demand Power

Basic power meter

	Energy Meters					Power Meters			
	iEM3100	iEM3110	iEM3150	iEM3115	iEM3155				
	iEM3200	iEM3210	iEM3250	iEM3215	iEM3255	PM3200	PM3210	PM3250	PM3255
Self powered	◆	◆	◆	◆	◆				
240 V ext. power						◆	◆	◆	◆
Pulse output		◆			P*		◆		P*
Communication Modbus			◆		◆			◆	◆
Digital Inputs				2	1				2
Digital Outputs		1			1		1		2
Multi-tariffs (internal clock)				4	4	4	4	4	4
Multi-tariffs (ext. signal)				4	2(P)		2		4
MID (Legal metrology certif.)		◆		◆	◆				

* Programmable

63A

1A/5A

iEM3000 series product differentiation

Energy Meters				
EM3100 EM3200	EM3110 EM3210	EM3150 EM3250	EM3115 EM3215	EM3155 EM3255
<ul style="list-style-type: none"> •Direct measure 63A •Replace ME3/ME4 •Total kWh •Partial kWh •Self powered 	<ul style="list-style-type: none"> •Direct measure 63A replace ME3zr/ME4zr •1A/5A inputs replace ME4zrt •Total kWh •Partial kWh + date and time of last reset •Pulse output up to 1000pulse/kWh •Date and time of last reset •MID legal metrology certification 	<ul style="list-style-type: none"> •Direct measure 63A •1A/5A inputs CTs •Modbus communication •Total kWh •Partial kWh + date and time of last reset •Self powered •By communication: kWh, A, V, kW, PF 	<ul style="list-style-type: none"> •Direct measure 63A •1A/5A inputs for CTs •Total kWh •Partial kWh + date and time of last reset •Up to 4 different tariffs •Internal Clock can be saved during 48h •Tariffs can be changed by digital inputs •MID legal metrology certification 	<ul style="list-style-type: none"> •Direct measure 63A •1A/5A inputs CTs •Modbus communication •Total kWh •Total kVAR •Four quadrant •Partial kWh+ date and time of last reset •Self powered •Up to four tariffs •By communication: kWh, kVARh, P,Q, S, PF, 4 tariffs, digital input status, date/clock •1 DI for circuit breaker status, input WAGES •Smart alarm: Power overload •MID: Legal metrology certification

Highlight the features in bold.

PM3200 series product differentiation

Power Meters			
PM3200	PM3210	PM3250	PM3255
<ul style="list-style-type: none"> •Replacement of PM9 •1A/5A inputs CTs •Electrical parameters I, In, U, V, PQS, E, PF, Hz •Power/current demand •Min/max •Class 0.5S •Auxiliary power supply 	<ul style="list-style-type: none"> •Replacement of PM9P •1A/5A inputs CTs •Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD •Power/current demand and peak demand •Class 0.5S •Min/max and 5 alarms with time stamping •Auxiliary power supply 	<ul style="list-style-type: none"> •Replacement of PM9C •1A / 5A inputs CTs •Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD •Power/current demand and peak demand •Min/max and 14 alarms with time stamping •LED to indicate communications •Class 0.5S •Auxiliary power supply •Up to 4 tariffs •Wrong wiring detection •Display Multi-languages 	<ul style="list-style-type: none"> •Replacement of PM9C •1A / 5A inputs CTs •Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD •Power/current demand and peak demand •Min/max and 14 alarms with time stamping •LED to indicate communications •Class 0.5S •Auxiliary power supply •Up to 4 tariffs •Memory for load profile (Demand 10mn to 60mn) •Saving of weekly and monthly consumption •2 DI and 2 DO •Wrong wiring detection •Wages management •Collect circuit breakers status •Display Multi-languages

Highlight the features in bold.

Three new offers in 2013



	iEM3000	PM3000	PM5000
Form Factor	Din rail	Din rail	Panel
Range	Entry	Basic	Basic
Accuracy	0.5S	0.5S	0.5S or 0.2S
Current input	Direct (63A) CT (5A)	CT (5A)	CT (5A)
Voltage input	173 – 480 V L-L	173 – 480 V L-L	90 - 690 V L-L
Comm port	RS-485 or pulse	RS-485 or pulse	RS-485 or ETH
Comm protocols	Modbus Bacnet	Modbus Bacnet	Modbus Bacnet (2014)
Availability	Q3 2013	Q3 2013	Q2 2013

EM3500 Family of Energy Meters

- *Compact meter with ANSI 12.20 0.5% accuracy*
 - *Reactive energy class 2%*
- *DIN-rail or wall mounting*
- *Built in backlit LCD display*
 - Simplifies set-up
 - Allows you to easily verify installation and troubleshoot problems
 - Provides easy access to all measurement data
- *All models support a wide range of measurement applications*
 - 90-600V CATIII directly, up to 32,000V w/PTs
 - 5-32,000 Amps
 - Single phase, split-phase, 3—phase (delta or wye)
- *All Models provide a full range of data measurements*
- *Models with the output configurations & protocol to meet your needs*
 - *Modbus, BACnet & LON (coming soon)*
- *Uses low-voltage CTs (1V or 1/3V)*
 - Eliminates safety hazard of current-output CTs
 - Do not require shorting bars
- *Separate 90-600V control power for maximum flexibility*
 - Use any measurement voltage or separate source, UPS, etc.
- *Operating Temperature -30°C to 70°C*



Output/Protocol Configurations

- **Pulse output (EM3502)**

- *Pulse outputs of real and reactive energy consumption*
- *Real-time alarm output*
- *All other measurements are available on the built-in display*

- **Modbus output (EM355x)**

- *2-wire RS-485 serial communication with Modbus RTU protocol*
- *1200 baud to 38,400 baud*
- *Also has Pulse Outputs for real energy consumption and real-time alarms*

- **BACnet output (EM3560)**

- *2-wire RS-485 serial comm with BACnet MS/TP protocol*
- *9600 baud to 115,200 baud*
- *Also has two Pulse Inputs to accommodate sensors measuring other forms of energy*



- **LON (EM3570 – coming soon)**

- *Bi-direction model with on board data logging*
- *2-wire LON FT10 serial communication with LONworks protocol*
- *Supports the new LONmark SmartEnergy2 utility meter profile*
- *Includes Lonworks Plug-in for remote configuration, measurement overview & logging data access*
- *Also has two Pulse Inputs to accommodate sensors measuring other forms of energy*



Sub-metering in a building

