



PMU Karl's Meter Anatomy and Selection
Metering Comparison Chart

Advanced		Int.	Basic		
ION7650	ION7550	PM8000	PM5500	PM5300	PM5100

Inputs, outputs and control power

✓ 3-phase / ✓ single-phase	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓
• Digital in and out / • Analog in and out	20 8	20 8	36 24	1 0	4 0	6 0
Power supply options	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC	AC/DC

Power and energy measurements

Voltage, current, frequency and power factor	✓	✓	✓	✓	✓	✓
✓ Power / ✓ Demand	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓
✓ Energy / ✓ Time-of-use (energy per shift)	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ ✓	✓ -
• IEC / ANSI energy accuracy class (% of reading)	0.2	0.2	0.2	0.2	0.5	0.5
✓ Loss Compensation	✓	✓	-	-	-	-

Power Quality Analysis

✓ EN50160 compliance reporting / • IEC 61000-4-30 Class A or S	✓ A	- -	✓ S	-	-	-
✓ Flicker measurement	✓	-	-	-	-	-
• Transient detection duration	17 μs	-	-	-	-	-
✓ Sag and swell monitoring / ✓ Disturbance direction detection	✓ ✓	✓ ✓	✓ ✓	✓ -	✓ -	✓ -
Harmonic distortion: ✓ total / ✓ individual / ✓ inter	✓ ✓ ✓	✓ ✓ -	✓ ✓ -	✓ ✓ -	✓ ✓ -	✓ ✓ -
✓ Waveform capture	✓	✓	✓	-	-	-

On-board data and event logging

✓ Trending / ✓ Forecasting / ✓ Billing	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ ✓	✓ ✓ -	- - -	- - -
✓ Minimum and maximum	✓	✓	✓	✓	✓	✓
✓ Events and alarms with timestamps	✓	✓	✓	-	-	-
• Timestamp resolution (seconds)	0.001	0.001	0.001	1	1	1
Time synch: ✓ Network / ✓ GPS / ✓ IRIG-B / ✓ DCF77-B	✓ ✓ - -	✓ ✓ - -	✓ ✓ ✓ -	-	-	-

Setpoints, alarms and control

✓ Log alarm conditions / ✓ call out on alarm	✓ ✓	✓ ✓	✓ ✓	✓ -	✓ -	✓ -
✓ Trigger data logging / ✓ waveform capture	✓ ✓	✓ ✓	✓ ✓	✓ -	✓ -	✓ -
✓ Trigger relay or digital output	✓	✓	✓	-	-	-

Special features

✓ Custom programming	✓	✓	✓	-	-	-
✓ Downloadable firmware	✓	✓	✓	✓	✓	✓

Communications

Ports:						
✓ Ethernet: Copper / ✓ Fiber	✓ ✓	✓ ✓	2 -	2 -	1 -	✓ ✓
✓ Ethernet-to-serial gateway	✓	✓	✓	✓	-	-
✓ Telephone modem	✓	✓	-	-	-	-
✓ Modem-to-serial gateway	✓	✓	-	-	-	-
✓ Infrared port	✓	✓	✓	-	-	-
✓ RS-485 / ✓ RS-232	✓ ✓	✓ ✓	✓ ✓	✓ -	✓ -	✓ -
Misc: ✓ Web server / ✓ Email / ✓ SNMP / ✓ XML	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ ✓ ✓ ✓	✓ - - -	-	-
Protocols*: ✓ Modbus / ✓ DNP / ✓ MV-90 / ✓ DLMS	✓ ✓ ✓ -	✓ ✓ ✓ -	✓ ✓ ✓ -	✓ - - -	✓ - - -	✓ - - -
Protocols*: ✓ IEC61850 / ✓ Jbus / ✓ M-Bus / ✓ LON / ✓ BACnet	✓ - - -	✓ - - -	✓ - - -	-	-	-

*Protocols cannot be mixed within a single daisy chain network