Prometer 100
precision metering series

Best in class accuracy

User friendly multilingual display

Field configurable for various installations

in-built IEC 61850 support

Prometer 100 is a series of next generation energy meters designed for power transfer points requiring precise measurements and revenue transactions. Multiple communication options ensure easy integration with AMR/AMI/SCADA systems and upgrade to future sub-station automation systems. Four-quadrant energy measurement allows monitoring of generation, transmission and bulk power transfer points.

Applications

- Energy transfer measurement and reconciliation
- Power plants, feeder monitoring, grid substations, wind turbines
- On-line monitoring of energy exchange at various interface points
- Energy accounting, automation and system integration

Benefits

- Minimal integration cost through multiple communication interfaces
- Suitable for diverse applications through wide-range voltage, current and auxiliary supply inputs
- Support of industry standard DLMS, MODBUS and IEC 61850 reading protocols
- Meter reading and display viewing under power outage
- Multi-lingual support on display (English, Swedish, German, French, Spanish, Italian, Russian and Arabic)

Features

- 0.2s / 0.5s accuracy for active and reactive measurement
- Wide-range dual auxiliary supply with options for AC/
- DC and self-power (VT powered)
- Power quality features including THD, sag, swell, voltage unbalance and interruption recording
- Dynamic error compensation for CT/VT
- Transformer/line loss adjustment (copper and iron losses)
- Intuitive graphical display including vector diagram, wave forms and bar chart for consumption
- Remote configuration of communication ports
- Simultaneous DLMS and MODBUS over Ethernet port
- Supports meter reading and display using field replaceable battery
- In built IEC61850/RS232 port along with RS485 and Ethernet ports in a single product, with simultaneous communication capability
- Dual loggers for energy and instantaneous parameters
- Flexible time-of-day tariff, maximum demand,
- DST (Daylight saving time) support, with automatic billing dates

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Prometer 100

System architecture

Prometer 100 offers various communication ports, such as RS-232, RS-485 for multi-drop connectivity and Ethernet for integrating into communication bus. The communication ports can be configured locally and remotely for ids and IP addresses. Dual-socket support on Ethernet allows for simultaneous communication over MODBUS and DLMS through different clients. All communication ports can simultaneously transfer data at high speeds.

RS-485 and Ethernet port scheme station
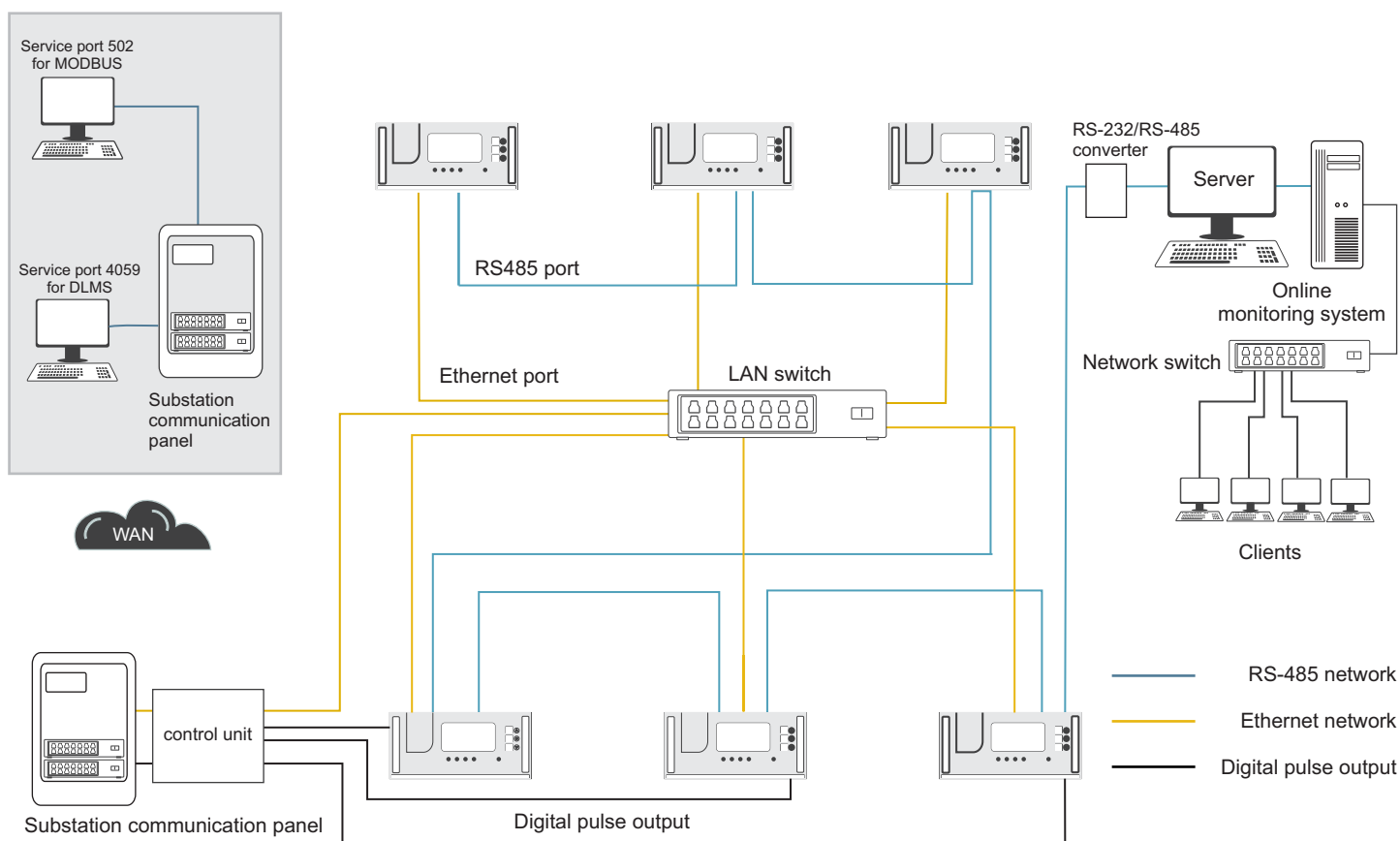
Product options*

Power supply 1	Power supply 2	Pulse input / output
60-240 V AC/DC (±20%)	60-240 V AC/DC (±20%)	4 configurable I/O
Self-powered	24-48 V DC (±20%)	4 configurable I/O and 8 fixed pulse O/P

Technical specifications

Electrical

Connection type	HV3/HV4/LV4
Measurement voltage range	100 V to 415 V (L-L) ±30% 3P 4W, 100 V to 240 V (L-L) ±30% 3P 3W
Measurement current range	1-10 A (configurable)
Frequency	50/60 Hz
Burden with auxiliary / self-powered (VT)	Current circuit: < 0.1 VA/phase @ 1 A < 0.5 VA/phase @ 5 A Voltage circuit in case of Aux power: < 0.1 VA/phase Voltage circuit in case of internal/self power: <6 VA/phase
Accuracy	Class 0.2s or class 0.5s
Maximum withstand voltage	1.5 times of nominal voltage continuously 2 times of nominal voltage for 0.5 second
Maximum withstand current	1.5 times of Imax continuously 10 times Imax for 1 second 20 times Imax for 0.5 second

Compliance

Standards	IEC 62052-11, IEC 62052-31, IEC 62053-22, IEC 62053-23, IEC 62053-24, IEC 62056-52, IEC 61010-1, IEC 61010-2-030, CE, IEC 61850-6, 7-1, 7-2, 7-3, 7-4, 8-1 (as per edition 1 and 2)

Environmental

	IP51, IP53 over front facia
Operating temperature	-25°C to +60°C
Limit range of operation	-25°C to +70°C
Storage temperature	-40°C to +80°C
Temperature coefficient	<0.3%/10°C (UPF) for class 0.5
Temperature coefficient	<0.1%/10°C (UPF) for class 0.2

Mechanical

Dimension	428 x 133 x 260 mm approx. (meter with 19" rack) 299 x 133 x 260 mm approx. (meter with 11" rack)
Weight	Meter – 3.8 kg approx. (± 0.1 kg) 11" rack – 2.1 kg (± 0.1 kg), 19" rack – 3.3 kg (± 0.1 kg)

Software

Two data loggers:
- Maximum 50 parameters configurable in each logger
- Logging of up to 34 energy channels and 80+ instantaneous values, with integration period 1 to 60 minutes
- ~4800 Parameter-days capacity at 30 minute interval in each logger

Configurable parameters:
- 16 time-of-use tariffs, 16 seasons, 16 days types and 16 time zones, 53 billing dates, DST dates for 25 years
- Logging of up to 100 day for daily energy snapshots
- 7 configurable display sequences along with fixed, auto and sealed button sequences
- 50+ alarms and 10+compartments for event logging
- Logging of up to 15 sets of historical data logging
- Up to 31st individual harmonic component measurement
- Power quality features, including voltage sag, swell, unbalance recording
- Code of Practice (UK BSCP) security protection

Prometer 100

Technical specifications

Features

Power supply	Dual/single auxiliary supply Range: 60-240 V AC/DC (±20%), burden: <10 VA* Optional range: 24-48 V DC (±20%), burden: <10 VA*
Display	Graphical, with green backlight Extended temperature range -20 °C to +70 °C Size: 69 x 39 mm (W x H), 128 x 80 pixels, pixel size: 0.5 mm² Max display character size 10 x 5 mm (H x W)
Battery	Field-replaceable battery for RTC backup and meter reading/display viewing during power outage

Inputs and Outputs

	8 fixed pulse outputs 4 configurable as pulse inputs/outputs
Pulse outputs	Type: volt-free, 100 mA Voltage: 48-240 V AC/DC, option for 24-40 V DC, Pulse width: 20 - 1000 ms (for 50Hz); 16 - 1000 ms (for 60Hz)
Configurable as pulse input/output	Pulse output type: volt-free, 100mA Pulse input type: optical isolator Voltage: 24-240 V AC/DC
Indicator	Six LEDs: 2 for metrology, 2 for pulse outputs, 2 for alarms/events

Communication

Optical 1107 port	Protocol: DLMS, Baud rate: 1200 – 19200 bps, Half duplex
RS232 port	Protocol: DLMS, Baud rate: 1200 –57600 bps, Half duplex
RS485 port	Protocol: Configurable DLMS/MODBUS RTU, Baud rate: 1200 – 57600 bps, Half duplex
Ethernet port	10/100 Mbps, Protocol: DLMS and MODBUS TCP simultaneous client Full duplex
Inbuilt IEC61850	Logical nodes: LLNO, LPHD, MMXU, MMTR, MHAI, MABT Reports (RCB) Up to 5 clients Time synchronization – SNTP
Connector type	Standard RJ45 for all the ports except optical

Accessories (optional)

	11" rack, 19" rack, software

* Electrical, compliance, mechanical, software and features options depend on variant selected.

Specifications are subject to change without prior notice

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User friendly multilingual display

Field configurable for various installations

Hot pluggable communication modules

in-built IEC 61850 support

Prometer 100, series of next generation energy meter designed for power transfer points requiring precise measurements and revenue transactions. Flexible and modular communications ensure integration with AMR / AMI / SCADA systems and upgrade to future sub-station automation systems. 4 quadrant energy measurement allows monitoring of generation, transmission and distribution loads.

Applications

- Energy transfer measurement and reconciliation
- Power plants, feeder monitoring, grid substations, wind turbines, renewable/PV, industrial and commercial premises
- On-line monitoring of energy exchange at various interface points
- Energy accounting, automation and system integration

Benefits

- Minimal integration cost through multiple communication interfaces
- Suitable for diverse applications through wide-range voltage, current and auxiliary supply inputs
- Support of industry standard DLMS, MODBUS and IEC 61850 reading protocols
- Meter reading and display viewing under power outage
- Field replaceable hot pluggable communication modules
- Multi-lingual support on display (English, Swedish, German, French, Spanish, Italian, Russian and Arabic)

Features

- 0.2S/0.5S accuracy for active and reactive measurement
- Wide-range dual auxiliary supply with options for AC/DC and self-power (VT powered)
- Power quality features including THD, sag, swell, voltage unbalance and interruption recording
- Dynamic error compensation for CT/VT
- Transformer/Line loss adjustment (Copper and Iron losses)
- Intuitive graphical display including vector diagram, wave forms and bar chart for consumption
- Remote configuration of communication ports
- Simultaneous DLMS and MODBUS over Ethernet port
- Support of meter reading / display over field replaceable battery
- In built IEC61850 along with RS232/RS485 and Ethernet ports in a single product & capability of simultaneous communication through all these ports
- Dual loggers for energy and instantaneous parameters
- Flexible time-of-day tariff, maximum demand support, DST (Daylight saving time) support with automatic billing dates
- Meter cover and terminal cover open detection
- RS232 port compatible with meter-powered modem

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Prometer 100

System architecture

The Prometer 100 offers various communication modules such as RS232 with output to power up terminal modem, RS485 for multi-drop connectivity and Ethernet for integrating into communication bus. The communication modules can be hot plugged in field and locally or remotely configured for ids, IP addresses. Dual socket support on Ethernet allows for simultaneous communication over MODBUS and DLMS through different clients. All communication ports can simultaneously transfer data at high speeds.
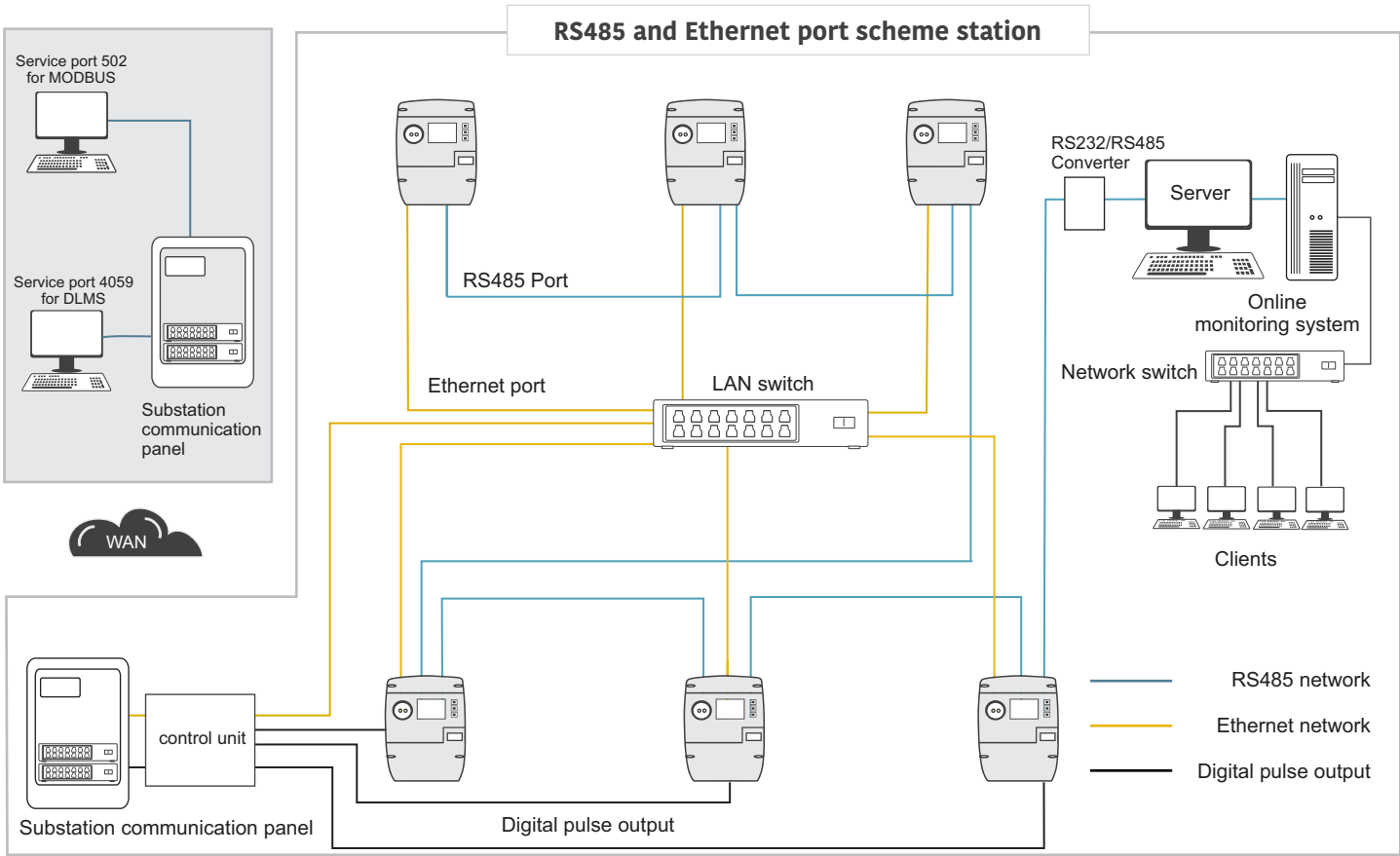
Product options*

Class	Measurement	Power supply 1	Power supply 2
0.2S	HV3 / HV4 / LV4	Self power	60-240 V AC/DC (±20%)
0.5S	LV4	60-240 V AC/DC (±20%)	24-48 V DC (±20%)
			none

Communication port 1	Communication port 2	Communication port 3	Pulse input / output
Ethernet	RS232	RS232	No pulse I/O
	RS485	RS485	4 configurable I/O
	IEC61850		4 configurable I/O and 7 fixed pulse O/P

Technical specifications

Electrical

Connection type	HV3/HV4/LV4
Measurement voltage range	100 V to 415 V (L-L) ±30% 3P 4W, 100 V to 240 V (L-L) ±30% 3P 3W,
Measurement current range	1-10 A (configurable)
Frequency	50/60 Hz
Burden with auxiliary / Self (VT) powered	Current circuit: < 0.1 VA/phase @ 1A, < 0.5 VA/phase @ 5A Voltage circuit in case of Aux power: < 0.1 VA/phase Voltage circuit in case of internal / self power: < 6 VA/phase
Accuracy	Class 0.2S / class 0.5S / class C
Maximum withstand Voltage	1.5 times of nominal voltage continuously 2 times of nominal voltage for 0.5 second
Maximum withstand current	1.5 times of Imax continuously 10 times Imax for 1 second 20 times Imax for 0.5 second

Compliance

Standards	IEC 62052-11, IEC 62052-31, IEC 62059-31-1 , IEC 62053-22, IEC 62053-23, IEC 62053-24, IEC 62056-52, IEC 61010-1, IEC 61010-2-030, CE, MID (EN 50470-1, EN 50470-3), IEC 61850-6, 7-1, 7-2, 7-3, 7-4, 8-1 (as per edition 1 and 2)

Environmental

Ingress protection	IP54
Operating temperature	-25°C to + 60°C
Limit range of operation	-25°C to + 70°C
Storage temperature	-40°C to + 80°C
Temperature coefficient	<0.3%/10^{0}C (UPF) for class 0.5
Temperature coefficient	<0.1%/10^{0}C (UPF) for class 0.2

Mechanical

Dimension	292.7 x 201.5 x 105.2 mm (± 0.5 mm) (H x W x D)
Weight	2 kg (+/- 200 gm)

Software

- Two data loggers:
    Maximum 50 parameters configurable in each logger
    Logging of up to 34 energy channels and 80+ instantaneous values, with integration period 1 to 60 minutes
    ~4800 Parameter-days capacity at 30 minute interval in each logger

- Configurable parameters:
    16 time-of-use tariffs, 16 Seasons, 16 Day types and 16 Time zones, 53 Billing dates, DST dates for 25 years
    Logging of up to 100 day for daily energy snapshots
    7 configurable display sequences along with fixed, auto and sealed button sequences
    50+ alarms and 10+compartments for event logging

- Logging of up to 15 sets of historical data logging

- Up to 31st individual harmonic component measurement

- Power quality features, including voltage sag, swell, unbalance recording

- Delta values monitored and logged

Prometer 100

Technical specifications

Features

Power supply	Dual / Single auxiliary supply Range: 60-240 V AC/DC (±20%), Burden: <10VA * Optional range: 24-48 V DC (±20%),Burden: <10VA*
Display	Graphical, with green backlight extended temperature range -20^{0}C to +70^{0}C Size: 69 x 39 mm (H x W), 128x80 pixels Pixel size: 0.5 mm² Max display character size 10 x 5 mm (H x W)
Battery	Field-replaceable battery for RTC backup and meter reading/display viewing during power outage

Inputs and Outputs

7 fixed pulse outputs
4 configurable as pulse inputs/outputs

- Pulse outputs:
  Type: Volt-free, 100 mA
  Voltage: 48-240 V AC/DC, Option for 24-40 V DC,
  Pulse width: 20 - 1000 ms (for 50Hz); 16 - 1000 ms (for 60Hz)
- Configurable as pulse input/output:
  Pulse output Type: Volt-free, 100mA
  Pulse input type: Optical isolator
  Voltage: 24-240 V AC/DC
- Indicator
  Six LEDs: 2 for metrology, 2 for pulse outputs, 2 for alarms/events

Communication

Optical 1107 port	Protocol: DLMS, Baud rate: 1200 – 19200 bps, Half duplex
RS232 port	Built-in supply of 4 V @ 550 mA, Protocol: DLMS, Baud rate: 1200 –57600 bps, Half duplex
RS485 port	Protocol: Configurable DLMS/MODBUS RTU, Baud rate: 1200 – 57600 bps, Half duplex
Ethernet port	10/100 Mbps, Protocol: DLMS and MODBUS TCP simultaneous client Full duplex
Inbuilt IEC61850	Logical nodes: LLNO, LPHD, MMXU, MMTR, MHAI, MABT Reports (RCB) Up to 5 clients Time synchronization – SNTP
Connector type	standard RJ45 for all the ports except optical

Accessories (optional)

Panel mounting kit / RS232 communication module /
RS485 communication module / Terminal modem / Software

* Electrical, compliance, mechanical, software, features options depend on variant selected.

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