

# Synchrophasor measurement unit

# PMU-101

## Product overview

PMU-101 is a highly accurate synchronized measurement device for wide area monitoring, control and protection systems. It can be applied to obtain a reliable picture of power grid states in real time. Global satellite navigation is used for precision time synchronization (GPS/GLONASS). IEC 61850 compliance ensures compatibility with other vendors solutions.



	Phase A	Phase B	Phase C	Sum
P, kW	55 494.904	55 576.536	55 419.472	166 490.912
Q, kVar	9 259.822	9 262.728	9 259.637	27 782.188
S, kVA	56 262.144	56 340.340	56 187.712	168 792.192
PF	0.99	0.99	0.99	0.99

## Features:

- Full support of IEC 61850-8-1 data transmission and IEC 61850-7-X logical data structure;
- Measurements with process bus IEC-61850-9-2 SV;
- IEEE C37.118.1-2011 P-class synchrophasor measurements;
- Reliable high performance hardware platform;
- Remote operation and monitoring via web-interface;
- Built-in self diagnostics and archiving system.
- Easy-to-use color touch screen based on human-machine interface.

Ethernet Interface	100 Base-TX (RJ-45) or 100 Base-FX(ST)	Dimensions (W x H x D)	144 x 144 x 213 mm (ANSI 6' block)
Synchronization port	IEEE 422 NMEA, 1PPS IEC 60044-8	Operating temperatures	+5 °C to +55 °C
Programmable Outputs	8 x Dry contact DO 1 Arms	Weight	< 2kg (4.4 lbs)
Event Inputs	8 x DI 220 Vrms	Enclosure rating	IP20
Protocols	IEC 61850-8-1 and 9-2, IEC 60870-5-104, IEEE C37.118	Power requirements	90 to 264 Vac (47-440 Hz) 120 to 370 Vdc Consumed power < 15 W

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Synchronization protocols	NMEA 0183 1PPS IEC 60044-8 + NTP	Frequency	±0.001 Hz
Synchronization accuracy	UTC ± 1 μs	ROCOF (df/dt)	±0.02 Hz/s
Synchrophasor reporting	IEEE C37.118 (UDP and TCP)	TVE	±1%
Number of clients	Up to 5 independent clients (ind. settings)	Phase angle	±0.1°
Rate	10,25,50/sec for 50 Hz 10,12,15,20,30,60/sec for 60 Hz	Arms Vrms Wh, Vah, VARh	±0.2% ±0.15% ±0.2%, ±0.2%, ±1.0%

## ORDERING INFORMATION:

PMU-101.	-	-	-	-	-	-	
							M1 «Copper» Ethernet and 1PPS interfaces
							M2 «Optical» Ethernet and 1PPS interfaces
							F1 Nominal frequency - 50 Hz
							F2 Nominal frequency - 60 Hz
							I0 No digital inputs module
							I1 8 digital inputs
							D0 No digital outputs module
							D1 8 digital outputs
							A0 No current inputs module
							A1 4 current inputs, rated current - 1A
							A2 4 current inputs, rated current - 2A
							A3 4 current inputs, rated current - 5A
							V0 No voltage inputs module
							V1 4 voltage inputs, rated voltage - 57.7 V
							V2 4 voltage inputs, rated voltage - 100 V
							V3 4 voltage inputs, rated voltage - 110 V
							V4 4 voltage inputs, rated voltage - 115 V
							V5 4 voltage inputs, rated voltage - 120 V