

Three-phase electricity meter smartESOX pro

Application

smartESOX pro for RES is a three-phase electricity meter designed for high-power photovoltaic installations that operate in the power grid, ensuring the settlement of prosumers using the net energy metering (NEM) method. The meter works well in autonomous or stand-alone installations.



Functionality

- Measurement of active, reactive and apparent energy
- Measurement of instantaneous, maximum, redundant and cumulative power
- Measurement of transformer losses: OLA, NLA, OLR, NLR, I^2t , U^2t
- Measurement of network parameters, including: voltages, currents, voltage and current harmonics, frequencies, THD, asymmetry factor and neutral wire current
- Monitoring of power grid parameters: voltage dips and swells; long power outages; current and voltage asymmetry; current flow with no applied voltage; no current flow; exceeded current limit
- Direct, semi-direct and indirect connection through current transformers, optionally also through voltage transformers
- Recording of energy in six tariff zones, switched by a built-in real time clock
- Wide range of recording capabilities for measured parameters:
 - independently configurable profiles with different recording intervals
 - ability to configure a different set of recorded data for each profile
- Enhanced event logging
 - 7 groups of events, recorded in independent logs
 - Sending immediate event notifications to the host device/system
- Wide range of recording capabilities for measured parameters in reference periods
 - Up to 50 parameters recorded in reference periods
- DLMS/COSEM communication protocol, possibility to read measurement data through the PN-EN 62056-21 (IEC1107) protocol
- Three built-in communication ports: one optical, two serial
- Interchangeable communication module: 3G/GPRS or Ethernet
- Built-in emergency power supply connected to an external power source
- Ability to read energy registers on the display in case of power outage - powered by a replaceable AA battery.
- Ability to read profiles and reference periods on the LCD

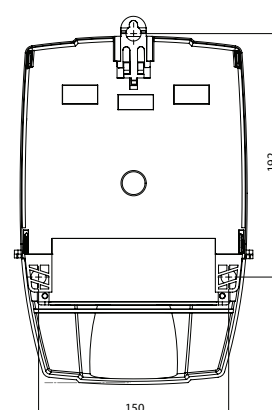
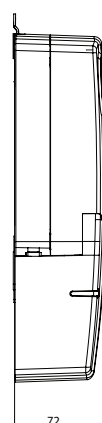
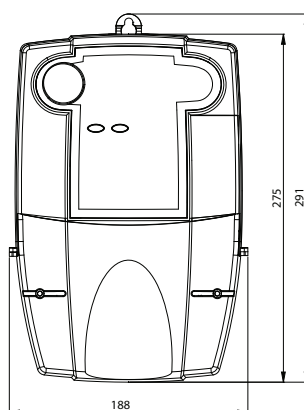


Do you know that...

ESOX means a **PIKE**
in Latin: commonly
considered to be
a long-living fish.

Basic technical parameters

Model	smartESOX pro	
Connection method	CT or CT/VT connected	
Rated voltage U_n	[V]	3 x 58/100...3x230/400
Reference current I_{ref}	[A]	1 or 5
Maximum current I_{max}	[A]	6
Measurement accuracy of active energy	class 0.2 S (EN 62053-22), class C (EN 50470-3)	
Measurement accuracy of reactive energy	class 2 (EN 62053-23), class 0.5%	
Electric strength	[kV]	4 (AC 50 Hz), 6 or 8 - optional (surges 1,2/50 μ s)
Pulse frequency	$\frac{[imp/kWh]}{[imp/kvarh]}$	20 000
Clock	Internal, accuracy of at least 0.5 s/24 h at 23°C, synchronised by an external signal or communication port.	
Communication	DLMS/COSEM (PN-EN 62056-5-3, PN-EN 62056-6-2) protocol support Reading of data through serial ports with PN-EN 62056-21 (IEC1107) protocol Ports: - Optical port (PN-EN 62056-21), speed up to 19200 Bd - Two independent serial ports (2x RS-485 lub 1x RS-485 i 1x RS-232), speed from 300 Bd to 57600 Bd - Interchangeable communication module: 3G/GPRS or Ethernet	
Inputs	Two optically isolated inputs (features: recording, tariff and real time clock synchronisation control; alarm input; impulse).	
Outputs	Up to six impulse outputs (for measured energy). Two programmable relay outputs.	
Event logging	Logging of events related to illegal power consumption, the contractor, change of firmware, energy quality, functioning of interfaces, clock management, power outages along with time and date of the event.	
Display	Segment display compliant with VDEW requirements.	
Operating temperature	from -40°C to 70°C	
Housing	IP 54, II protection class	
Standards	PN-EN 50470-1 PN-EN 50470-3 PN-EN 62053-22 PN-EN 62053-23 PN-EN 62053-11	



kWh

kvarh

φ

$P_{(t)}$

P_{max}

P_{ill}

$\frac{h}{u} f$

$\frac{I^2 h}{U^2 h}$