

# Three-phase electricity meter smartESOX P

## Application

Multi-tariff, four-quadrant electricity meter in three-phase, 3- or 4-wire network for HV-, MV- or LV-powered consumers of all tariff groups. Extended measuring and registering functionalities are complemented by multiple communication options. It is an optimal solution for advanced power management systems (EMS). Typical use: commercial/industrial meter; balancing meter.



## 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 sags 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 6 tariff zones, switched by an internal 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 EN 62056-21 (IEC1107) protocol
- 3 built-in communication ports: one optical, two serial
- Interchangeable communication module: GPRS, 3G, 4G
- 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 AA size battery

## Basic technical parameters

|                                    |  |   |
|------------------------------------|--|---|
| Model                              | smartESOX P  |   |
| 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   |
| Accuracy class for active energy   | B or C   |   |
| Accuracy class for reactive energy | 3 or 2   |   |
| Insulation                         | [kV]   | 4 (AC 50 Hz), 6 or 8 - optional (surges 1,2/50 $\mu$ s) |
| Meter constant                     | [imp/kWh]<br>[imp/kvarh]   | 20 000  |
| RTC                                | Internal, accuracy not lower than 0.5 s/24 h at 23 °C, synchronised by external signal or by communication port.   |   |
| Communication                      | DLMS/COSEM protocol support (EN 62056-5-3, EN 62056-6-2) optional data reading through serial ports with IEC protocol (EN 62056-21) (IEC1107)<br>Ports:<br><ul style="list-style-type: none"> <li>• Optical port (EN 62056-21), up to 19200 Bd.</li> <li>• 2 independent serial ports (2x RS485 or 1x RS-485 and 1xRS-232), 300 Bd to 57,600 Bd.</li> <li>• Interchangeable communication module - GPRS, 3G, 4G</li> </ul> |   |
| Inputs                             | 2 optically isolated inputs (features: control of registration, tariffs, synchronised RTC, alarm input, pulse counter).  |   |
| Outputs                            | Up to 6 pulse outputs (for energy counting).<br>2 programmable relay outputs.  |   |
| Event logging                      | Sags and swells of phase voltages, long power outages, opening and closing of the terminal cover and meter case, magnetic field influences, exceedance of $I_{max}$ , $P_{max}$ , non-voltage current, configuration, deleting events, critical error, change of RTC settings, events on digital inputs. Events are registered with their date and time.   |   |
| Display                            | Segment display compliant with VDEW requirements   |   |
| Operating temperature              | from -40 °C to 70 °C   |   |
| Housing                            | II protection class  |   |
| Ingress protection rating          | IP 54  |   |
| Standards                          | EN 50470-1<br>EN 50470-3<br>EN 62053-23<br>EN 62053-11   |   |

