

**smart** **ESOX**

# Three-Phase Electricity Meter

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 functionality is complemented by multiple communication options. It is an optimal solution for advanced power management systems (EMS). Typical use: commercial/industrial meter; balancing meter.

## FUNCTIONAL FEATURES

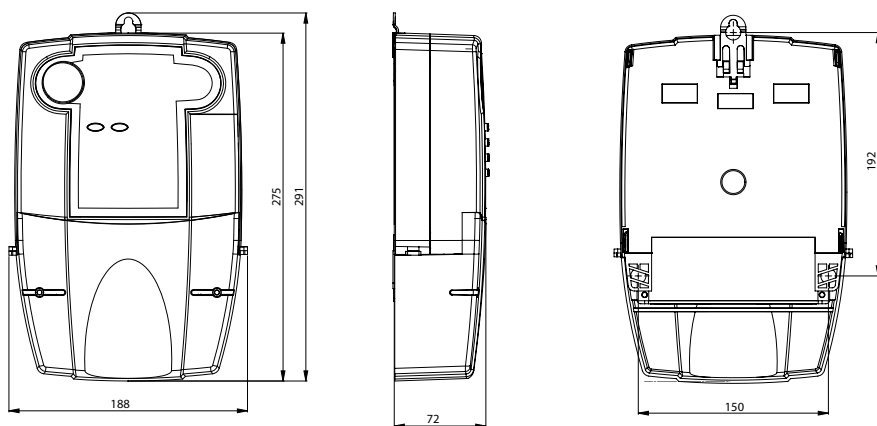
- Measurement of active, reactive and apparent energy
- Measurement of instantaneous, minimum/maximum, cumulative power; excess demand
- Measurement of transformer losses: OLA, NLA, OLR, NLR, I<sup>2</sup>t, U<sup>2</sup>t
- Measurement of power grid parameters, including: voltages, currents, voltage and current harmonics, frequency, THD, asymmetry factor, neutral wire current
- Monitoring power grid parameters: voltage dips and swells; long power outages; current and voltage asymmetry; current flow with no applied voltage; the lack of current flow; current over the limit
- Direct connection (smartESOX B), CT or CT/VT connection (smartESOX P)
- Registering energy in six tariff zones switched by a built-in real-time clock (RTC)
- Wide abilities to register measured parameters:
  - 4 independent profiles for registering energy, power, power quality parameters
  - High memory capacity: registering 20 parameters with 15-minutes interval for 200 days
  - Billing period recording – up to 50 parameters
- Enhanced event logging
  - 7 groups of events recorded in independent registers
  - 500 events in every register
  - Sending instant event notifications to a host device/system
- Communication protocol DLMS/COSEM
- Three built-in communication ports: optical port compliant EN 62056-21, two serial ports (RS485/RS232)
- Interchangeable communication module: 3G/GPRS, PLC, Ethernet
- Auxiliary AC power supply
- Ability to read out energy registers on a display in the case of power outage – built-in or replaceable AA battery



Versatile,  
Multifunctional, Modern

# TECHNICAL DATA

| Model                                   |               | smartESOX B   | smartESOX P            |
|---|---------------|---|------------------------|
| Connection method                       |               | direct  | CT or CT/VT connected  |
| Rated voltage $U_n$                     | [V]           | 3x230/400   | 3 x 58/100...3x230/400 |
| Reference current $I_{ref}$             | [A]           | 5   | 1 or 5                 |
| Reference current $I_{max}$             | [A]           | 120   | 6                      |
| Measurement accuracy of active energy   |               | B   | B or C                 |
| Measurement accuracy of reactive energy |               | 3 or 2  | 3 or 2                 |
| Electric strength                       | [kV]          | 4 (AC 50 Hz), 6 (surges 1.2/50 $\mu$ s)   |                        |
| Impulse frequency                       | [imp/kWh]     | 2 500   | 20 000                 |
| Clock                                   |               | Built-in, accuracy not worse than 0.5 s/24 h at 23 °C, synchronised by external signal or by communication port.  |                        |
| Communication                           |               | Protocol support DLMS/COSEM (EN 62056-5-3, EN 62056-6-2) optional reading out the data from serial ports with protocol EN 62056-21 (IEC1107)<br>Ports: <ul style="list-style-type: none"> <li>• Optical connector (EN 62056-21), up to 19200 Bd.</li> <li>• Two independent serial ports (2x RS485 or 1x RS-485 and 1xRS-232), 300 Bd to 57,600 Bd.</li> <li>• Interchangeable communication module - 3G/GPRS, PLC, Ethernet</li> </ul> |                        |
| Inputs                                  |               | Two optically isolated inputs (features: control of: registration, tariffs, synchronised real-time clock; alarm input, pulse counting).   |                        |
| Outputs                                 |               | Up to six pulse outputs (for energy counting).<br>Two programmable relay outputs.   |                        |
| Event logging                           |               | Dips and swells of phase voltages, long power outages, opening and closing cover of terminal box and case, magnetic field influence, 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 date and time.   |                        |
| Display                                 |               | Segment display compliant with VDEW requirements  |                        |
| Temperature of operation                |               | from -40 °C to 70 °C  |                        |
| Casing                                  | acc. EN 60529 | II protection class IP 54   |                        |
| Standards                               |               | EN 50470-1<br>EN 50470-3<br>EN 62053-23<br>EN 62053-11  |                        |



This publication has been made exclusively for information purposes and shall not constitute an offer under the civil law. The designs are presented as an example; functions of the meter can be customised.

