

# Communication modules CMxyS series



Plug-in communication modules for easy integration of modular meters into AMI system

## CM13S / CM14S

PLC modules with S-FSK or G3-PLC protocol

## CM23S / CM24S / CM25S

GPRS/3G/LTE modules for direct communication with AMI center



CM1yS and CM2yS are plug-in communication modules designed for installation in modular smart meters. They provide data exchange between electricity meters and data concentrators (CM1yS) over low-voltage network (S-FSK or G3-PLC) or direct communication of meters with AMI center (CM2yS) over GPRS/3G/LTE network.

Communication modules are simply mounted under the terminal protective cover and use RS485 port for communication with meter. Meters with installed communication modules are ready for integration into AMI systems and are compliant with IEC 62052-11 and IEC 62053-21. All modules support DLMS/COSEM protocol.

### Key features

- Auto-configuration according to the parameters stored in meters
- Automatic recovery
- RS485 port for communication with meter
- Additional port for connecting to RS485 bus
- Channel for communication with AMI center
- Visual communication LED
- Call identification
- Data protection
- Independent power supply
- Plug-in

**Auto-configuration**

- Upon connecting to the meter, modules are self-configured according to the parameters stored in the meter
- Parameterization of modules can be executed remotely from AMI center

- DLMS/COSEM communication protocol

**Additional port for connecting to RS485 bus (CM2yS)**

- Modules are equipped with additional RS485 connector which provides connection of multiple meters to a local RS485 bus

**Automatic recovery**

- Hardware reset (watchdog function) is automatically activated in case of an irregular state of the module, which provides module recovery and restoring of normal operation. After resetting, module parameters remain unchanged

**Communication options CM13S (S-FSK) / CM14S (G3-PLC)**

- Communication with data concentrator over low-voltage network (PLC)
- S-FSK or G3-PLC modulation in CENELEC A frequency range
- Speed up to 2,400 bit/s (S-FSK) or 33,600 bit/s (G3-PLC)
- Two-way, half-duplex channel

**RS485 port for communication with meter**

- Module connects to the meter via RS485 port (optionally RS232)

Nominal voltage $U_n$	
CM1yS	230 V
CM2yS	58 V - 230 V
Voltage range	80% - 115% $U_n$
Frequency	50 Hz
Self-consumption	
CM1yS	2,2 W; 6,6 VA with meter
CM2yS	1,5 W; 2,8 VA with meter
Output power	
CM1yS	in accordance with CENELEC EN 50065-1
CM2yS	2 W, class 4 (GSM 850/900) 1 W, class 1 (DCS 1800/PCS 1900)
RFI suppression	CISPR 22, class B
Communication frequency range	
PLC	9 kHz - 95 kHz
GPRS/3G/LTE	Quad-band GPRS/3G/LTE: 850/900/1800/1900 MHz
GPRS modem (CM2xS)	GPRS multi slot class: 10 GPRS mobile station class: B
Operational temperature range	-40 °C - +70 °C
Storage temperature range	-40 °C - +80 °C
IP protection	IP54, with meter
Accuracy class	2, according to IEC 6050-131
Insulation voltage	4 kV, 50 Hz, 1 min
Shock voltage	6 kV, 1,2/50 $\mu$ s
Burst	4 kV
Electrostatic discharge	8 kV contact 15 kV air
Communication ports and channels	RS485 port (DLMS/COSEM)
CM1yS	PLC (DLMS/COSEM, EN 61334-4-511, EN 61334-4-32, EN 61334-5-1)
CM2yS	GPRS/3G/LTE (DLMS/COSEM, HDLC)
PLC communication speed	up to 2,400 bit/s (S-FSK), up to 33,600 bit/s (G3/PLC)
LED indicators	
CM1yS	NEW state, synchronization
CM2yS	operating mode, GPRS/3G/LTE communication / received signal level
Antenna connector (CM2yS)	SMA
Dimensions	128 mm x 77 mm x 33 mm
Weight	0,16 kg (CM1yS) 0,17 kg (CM2yS)

**CM23S (GPRS), CM24S (3G), CM25S (LTE) - direct communication with AMI center**

- Modules support GPRS, 3G and LTE connection
- Support for static and dynamic IP addresses, depending on GPRS parameters settings
- DLMS/COSEM communication protocol
- Communication options in accordance with DLMS/COSEM protocol:
  - COSEM Wrapper through UDP
  - COSEM Wrapper through TCP
  - HDLC through UDP
  - HDLC through TCP

- protection of PLC communication parameters
- SIM card PIN code
- Access from the same APN
- APN access credentials
- approved numbers list
- protection mechanisms provided by the meter

**Independent power supply**

- Modules are powered directly from power line voltage

**Plug-in mounting and connection**

- Modules are designed for mounting in ST100, ST300 and ST310 meters, under the terminal cover
- Easy plug-in connection to communication port and power line
- Resistant to overvoltage and reverse power connection

**Case and protection**

- High-quality, reinforced case made of self-extinguishing polycarbonate
- Electricity meter with built-in communication module is compliant with DIN 43857 standards on dimensions and mounting points
- IP54 protection level against water and dust (in accordance with IEC 60529)
- The installation of communication modules does not affect meter's protection against water and dust; the declared IP54 protection level is, therefore, valid for meters with built-in modules

**Visual indication**

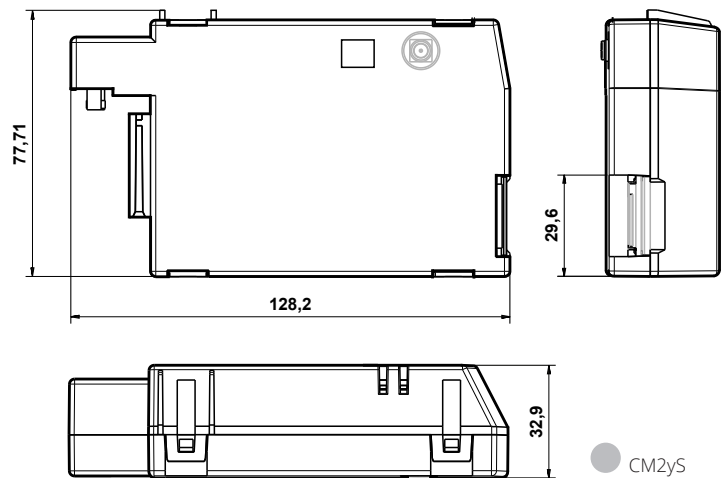
- Modules are equipped with two LED indicators:
- CM1yS: synchronization and concentrator connection status (NEW state)
- CM2yS: operation mode indication, GPRS/3G/LTE communication and received signal level

**Call identification (CM2yS)**

- Checks the caller ID and accepts only calls from the approved numbers list
- Allows defining up to 5 approved numbers
- List of approved numbers is defined during meter parameterization

**Data protection**

- Protection from unauthorized communication is achieved by:



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