

Data concentrator for communication between smart meters and AMI center



CODA11 data concentrator provides communication between AMI center and electricity meters. Communication between concentrator and electricity meters is carried over the low-voltage distribution network (PLC). Communication between concentrator and AMI center is carried over GPRS/3G network or Ethernet port using TCP/IP protocol. CODA11 provides reading, parameterization and load management,

either automatically by a pre-defined schedule, or on request of the AMI center. Collected data is stored in the concentrator's permanent memory and forwarded to the AMI center. CODA11 automatically detects newly installed meters on the PLC network and maintains active meters list. Concentrator is equipped with ports for local communication with meters, as well as for communication with external devices.

### Key features

- PLC (S-FSK or G3-PLC) channel for communication with meters
- GPRS/3G channel for communication with AMI center
- USB port for communication with an external device
- Ethernet port for communication with AMI center or local access
- RS485 port for local communication with meters and external devices
- RS232 port for communication with an external device
- Plug&Play
- Storing data in permanent memory
- Working with up to 1 024 meters
- Remote monitoring and control of the operation of the concentrator
- Automatic communication with meters by pre-defined schedule
- Communication with meters upon request from AMI center
- Firmware update
- Security
- Visual indication
- Automatic recovery
- Internal Real-Time Clock



## Technical data

### CODA11

#### PLC channel for communication with meters

- Communication over low-voltage distribution network, using all three phases
- S-FSK or G3-PLC modulation in CELENEC A frequency range
- Signal level in accordance with IEC 50065-1
- DLMS/COSEM application layer
- Speed up to 2 400 bit/s (S-FSK) or up to 33 600 bit/s (G3-PLC)
- Two-way communication with meters over PLC channel

#### GPRS/3G channel for communication with AMI center

- Two-way communication with AMI center over GPRS/3G network
- Web service communication method
- Remote desktop access

#### Ethernet port for communication with AMI center or local access

- Two-way communication with AMI center via Ethernet port
- Local access through Ethernet port for management and parameterization of concentrator
- TCP/IP protocol

- Web service communication method
- Remote desktop access

#### USB port for communication with external devices

- Local data exchange over USB port
- Possible future functionality enhancements: enabling communication between concentrator and other devices, such as devices for control and monitoring of power stations, communication modules, etc.

#### RS232 port for communication with external device

- Local data exchange over RS232 port
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#### Plug&Play

CODA11 data concentrator can automatically:

- detect and register newly installed meters on PLC network
- maintain PLC communication with meters
- keep and update registry of active meters

#### Storing data in permanent memory

- Collected data is stored in a local SQL Compact database
- Permanent memory provides storage in case of power failure
- While in operation, data concentrator memorizes the following: meter data readings (on request/by schedule), detected meter alarms, operations carried out on meters, system events, operation execution schedule, concentrator communication parameters and Log communication over PLC network. Memory capacity is 4GB and is expandable. In standard configuration, when billing profile, load profile and standard event log are read from meters, memory capacity is sufficient to store data from 1.024 meters for a period of 12 months.

Remote monitoring and control of concentrator operation

- Remote monitoring and control of the entire concentrator operation is done through GPRS/3G or Ethernet port using web service or Remote desktop connection.

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#### Firmware update

- Data concentrator firmware update is enabled locally or remotely, without affecting the configuration parameters or stored data.

#### Automatic communication with meters according to pre-defined schedule

- Concentrator automatically performs the action of reading, management and parameterization of meters by pre-defined schedule, previously remotely defined from AMI center or locally. Concentrator stores data and action history in a local SQL Compact database.

#### Communication with meters on AMI center request

- On request from AMI center, data concentrator performs requested

meter reading, parameterization or management actions and immediately forwards collected data to AMI center using web services. Data concentrator stores data and action history in a local SQL Compact database.

#### Security

- Access to web service functions is protected by username and password
- Remote desktop access is protected by username and password

#### Visual indication

- Concentrator has 8 LEDs for indication of power supply presence and application status, alarm, Ethernet communication, operation mode of internal GPRS/3G modem, received GPRS/3G signal level, GPRS/3G communication, transmission and reception of PLC communication data

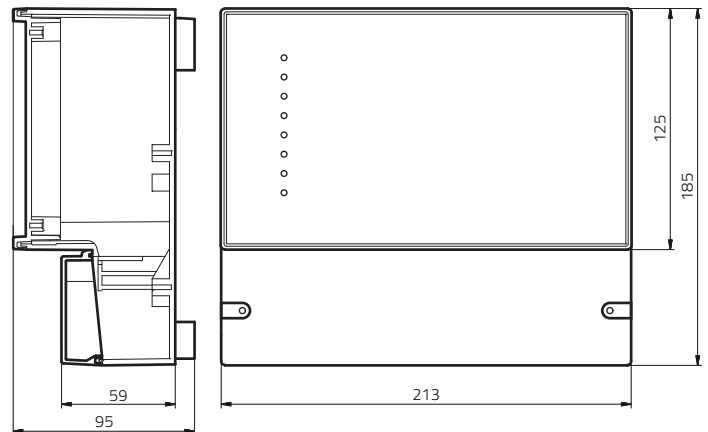
#### Automatic recovery

- In the event of irregular concentrator state, hardware reset function (watchdog) is activated, allowing the recovery and return to normal operation state. Concentrator parameters remain unchanged during reset.

#### Internal Real-Time Clock

- Automatic DST time switching
- Power backup provides up to 7 days of power supply for the clock in absence of grid power
- AMI center synchronizes data concentrator RTC
- Data concentrator synchronizes RTC on all registered meters

Nominal voltage	3 x 230/400 V
Voltage range	80-115% Un
Frequency	50Hz
Self-consumption	15 W; 20 VA
Suppression of radio interference (GPRS/3G)	CISPR 22 class B
Communication frequency range	
GPRS/3G	Quad-band GPRS/3G: 850/900/1800/1900 MHz
PLC	9 kHz - 95 kHz
Communication ports and channels	PLC, GPRS/3G, Ethernet, USB, RS485, RS232
Communication protocols and methods	
PLC	DLMS/COSEM, S-FSK, G3-PLC
GPRS/3G and Ethernet	web service, remote desktop, TCP/IP
LED indicators	ON, Alarm, Ethernet, OPM, RSL, GPRS/3G, PLC Tx, PLC Rx
SIM card	Changeable
Antenna connector	SMA
Operational temperature range	-20°C to +70°C
Storage temperature range	-40°C to +85°C
Protection class	2, according to IEC 6050-131
Water and dust protection	IP54
Dimensions	213 x 185 x 95 mm
Weight	0.9 kg



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Solutions for smart  
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