kamstrup

Data sheet

OMNICON® data concentrator

- Standardised wireless technology
- Easy plug and play installation
- Prepared for smart grid
- Multi-utility integration
- Automatic collection of metering data
- Support of firmware upgrade for the entire system
- Linux-based open source platform
- Integrated security and tamper detection
- Integrated VPN
- TCP/IP or 2G/4G

Part of the OMNIA SUITE

General description

OMNICON® data concentrator is the foundation of every radio mesh network.

It is based on a powerful Linux computer platform, enabling a high degree of distributed intelligence.

The concentrator automatically collects metering values and power quality events from meters in a neighborhood area network (NAN) throughout the day by using a standardised radio mesh network, which uses wirelss forwarding.

In addition to automatic collection of metering data, there is enough capacity to make wireless firmware upgrades for all connected meters and carry out further on-demand services such as turning loads on and off, sending out a large disconnect order, etc.

The concentrator even has capacity in surplus to maintain the network.

The ability to independently collect data from all connected meters means that the concentrator always has values available for the head-end system OMNISOFT® UtiliDriver® for collection via the wide area network (WAN) by using the fixed TCP/IP default interface or the optional, mobile (2G/4G) IP interface.

It is also possible for the concentrator to send the values to the head-end system when the values are ready.

The concentrator contains an own web server (local) and thus enables configuration and service through an ordinary web browser.

Data security and data protection are integrated in OMNIA® Suite and must prevent unauthorized persons from obtaining access to sensitive, personal information or to the meter infrastructure to disconnect the supply or tamper with metering values for billing purposes. OMNICON® data concentrator is equipped with Security Suite 2.0 integrated with the newest security technologies and standards, and this suite contains individual encryption of each concentrator, data confidentiality package, data authentification, protection against repeated attacks and tamper detection.

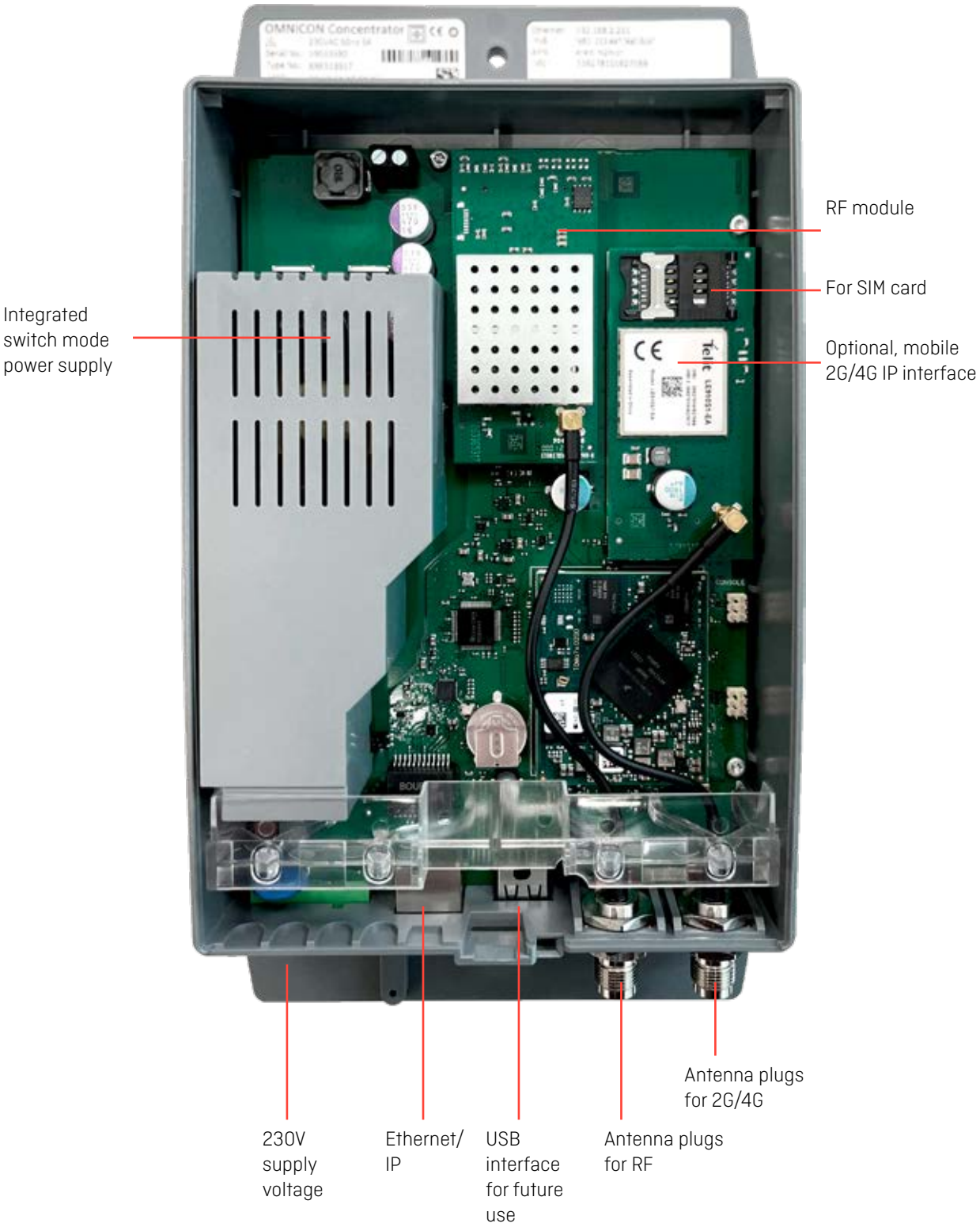
Interfaces

- OMNICON® radio mesh interface (NAN)
  Gateway for communication with the radio mesh network.

- TCP/IP interface (WAN)
  Default Ethernet interface for two-way communication with the head-end system OMNISOFT® UtiliDriver®.

- 2G/4G interface (WAN)
  Optional, mobile IP interface for two-way communication with the head-end system OMNISOFT® UtiliDriver®.

Overview


RF module
For SIM card
Optional, mobile 2G/4G IP interface
Integrated switch mode power supply
Antenna plugs for 2G/4G
230V supply voltage
Ethernet/ IP
USB interface for future use
Antenna plugs for RF

The primary functions of OMNICON® data concentrator

Meter data collection
The concentrator is delivered with default data about the OMNIPOWER® meter and automatically starts the collection of relevant data and events when the encryption keys of the connected meter have been received from the head-end system.

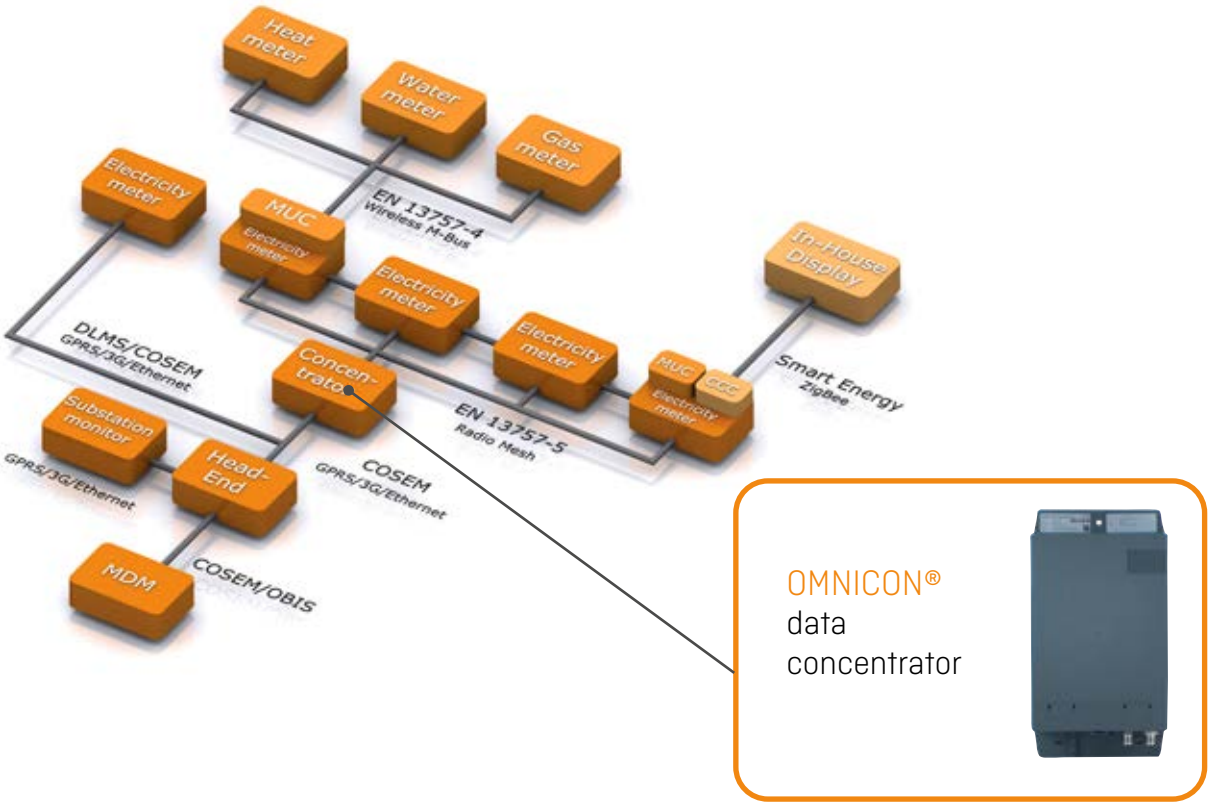
Network maintenance
The concentrator knows the network within its responsibility area and monitors and maintains a reliable and stable communication.

Detection and alarm
The concentrator detects events and alarms from the meters, Multi-Utility Controller (MUC) and other communication units and sends these to the head-end system OMNISOFT® UtiliDriver®.

Storage at WAN interruptions
If no WAN connection is available, the concentrator stores values for this for up to 3 days, and when the WAN connection has been re-established, it sends these values to the head-end system.

Data security
The concentrator is part of the complete end-to-end data encryption scheme for OMNIA® Suite, and this means that the concentrator uses an AES128 encryption algorithm towards the radio mesh network (NAN communication) with individual keys for each meter and other communication units.

The concentrator also uses an AES256 encryption algorithm towards the head-end system OMNISOFT® UtiliDriver® (WAN communication) with individual keys for each concentrator. Also the access to web servers and service ports of the concentrators is protected by encrypted user administration and passwords.



Technical data

Capacity
Up to 900 metering points. Typically 600 metering points

Real-time clock (RTC)
Battery backup. Max 12 months in stock without power

Frequency (see order information for further details)
444 MHz area, 500 mW

Radio communication standards
EN13757-5
Communication system for meters and remote reading of meters

Ethernet
10 + 100 MBit

2G/4G communication standards
Quad-band GPRS and EDGE class 12
HSPA data 900/2100 MHz
LTE CAT-4

Supply

230, switch mode supply	VAC +/- 10 %, 50/60 Hz max 5 A
Recommended supply cable	2 x 0.75 mm²

Current consumption

Ethernet	4.2W
2G/4G, idle	5.5W (optional, mobile 2G/4G IP interface installed)
2G/4G transmission	7.5W (optional, mobile 2G/4G IP interface installed)
Breaker/fuse	Internal fuse: 4A @ 300V, max breaking capacity 100A @ 300V Kamstrup recommends a 10A class-C auto breaker for the installation due to inrush (as in the outdoor box)

Antenna information

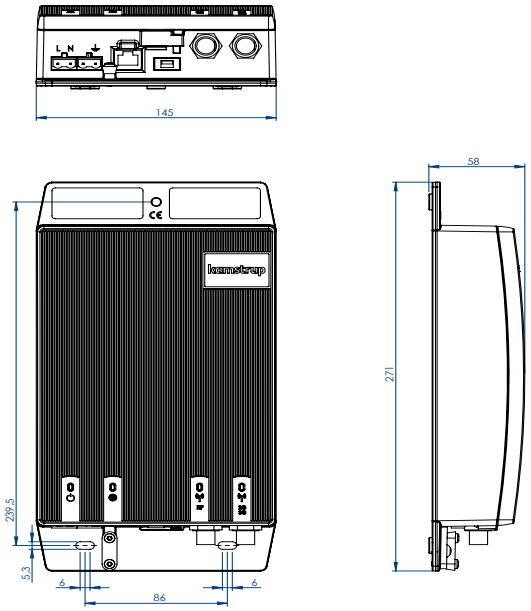
Connector on antenna cable	TNC (f)
Connector on concentrator for external antenna	TNC (m)
Cable	COAX H155 PVC 19x0.28/3.9 PHYS 180T5.4, length: 7.5 m
Antenna	See OMNIA® antenna guide

Range between radio units
Up to 20,000 m

Mechanical data

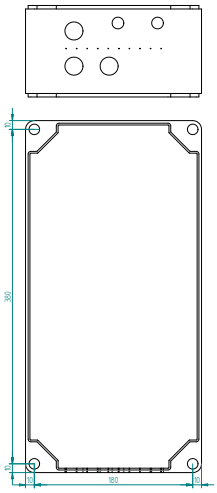
Indoor installation

Dimensions (L x B x H)	261 x 145 x 58 mm
Weight	740 g
Temperature range	
Operation	-40 °C...+70 °C
Storage	-40 °C...+85 °C
Protection class	
IP class	IP20
Antenna plug type	
RF and 2G/4G	TNC (f)



Outdoor installation

Dimensions [LxBxH]	400 x 200 x 135 mm
Weight	3.5 kg
– incl. installation kit	5.0 kg
Temperature range	
Operation	-40 °C...+70 °C
Storage	-40 °C...+85 °C
Protection class	
IP class	IP54
Antenna plug type	
RF and 2G/4G	TNC (f)



Marking/approvals

CE-marking
RoHS-directive
EN 61000 – EMC-directive
EN 62368-1 – Information Technology Equipment – Safety
EN 300220 – Class 2 – RED (Radio equipment directive)
EN 301489 – RED
EN 301511 – RED
EN 301908 – RED
WEEE

Order data

OMNICON® data concentrator	**Type 6883**	☐	☐	☐☐☐	
Media					
Ethernet		0			
2G/4G GPRS modem (add-on module mounted)		1			
Ethernet configuration					**Note**: Only for connection = 0
Default network settings			0		
DHCP			1		
Static IP			2		
Fully manual configuration			9		
Modem configuration					**Note**: Only for connection = 1
Default network settings			A		
Dynamic PAP			B		
PAP Login			C		
Fully manual configuration			D		

Country code (radio frequency)	**MHz**	**Pwr**	
CH	434.05	500 mW	318
EU	434.05	50 mW	319
Etc.			-

RF antennas

6880007	Box with 12 x external antennas, 4.5 m cable, TNC connector
6880001	Box with 12 x external antennas, 7.5 m cable, TNC connector
6880008	Box with 9 x external antennas, 4.5 m cable, TNC connector and fitting
6880002	Box with 9 x external antennas, 7.5 m cable, TNC connector and fitting
6699408	Triangle antenna without cable or connector
6699496	Triangle antenna, 30 cm cable, SMA connector for extension up to 30 m (*1)

Antenna cable

6880003	7.5 m cable with TNC connector
6880004	15 m cable with TNC connector

2G/4G antennas

6880012	Mini-Triangle, 2.5 m cable, TNC connector
6880013	Mini-Triangle, 10 cm cable, SMA connector (*1)
6880014	Directional, external antenna, SMA connector (*1)

Antenna cable/ accessories (*1)

5000429	Antenna cable SMA (F) to SMA (M), 5 m
5000441	Antenna cable SMA (F) to SMA (M), 10 m
5000442	Antenna cable SMA (F) to SMA (M), 15 m
1643313	Adapter SMA to TNC

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