

Data sheet

OMNICON® data concentrator

- Standardised wireless technology
- Easy plug and play installation
- Smart grid ready
- Multi-utility integration
- Automatic collection of meter data
- Supports firmware upgrade for the entire system
- Linux-based open source platform
- Built-in security and tampering detection
- Integrated VPN



General description

The data concentrator is the backbone of the Radio Mesh Network.

It is based on a powerful Linux engine platform, which allows a high degree of distributed intelligence.

Throughout the day, the data concentrator automatically collects metering values and power quality events from meters in the neighborhood area network (NAN) using standardised wireless relaying radio mesh network.

Besides automatic collection of meter data, there is sufficient capacity to make over-the-air firmware upgrades for all connected meters and to do additional on-demand services such as switching loads on/off, broadcast a massive disconnect command, etc.

The concentrator even has capacity in surplus to do network maintenance.

Being able to autonomously collect data from all the connected meters means that the concentrator always has values available for the OMNISOFTE® UtiliDriver® head-end

system to collect via the wide area network (WAN), using the default fixed TCP/IP interface or the optional mobile (2G/3G) IP interface.

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

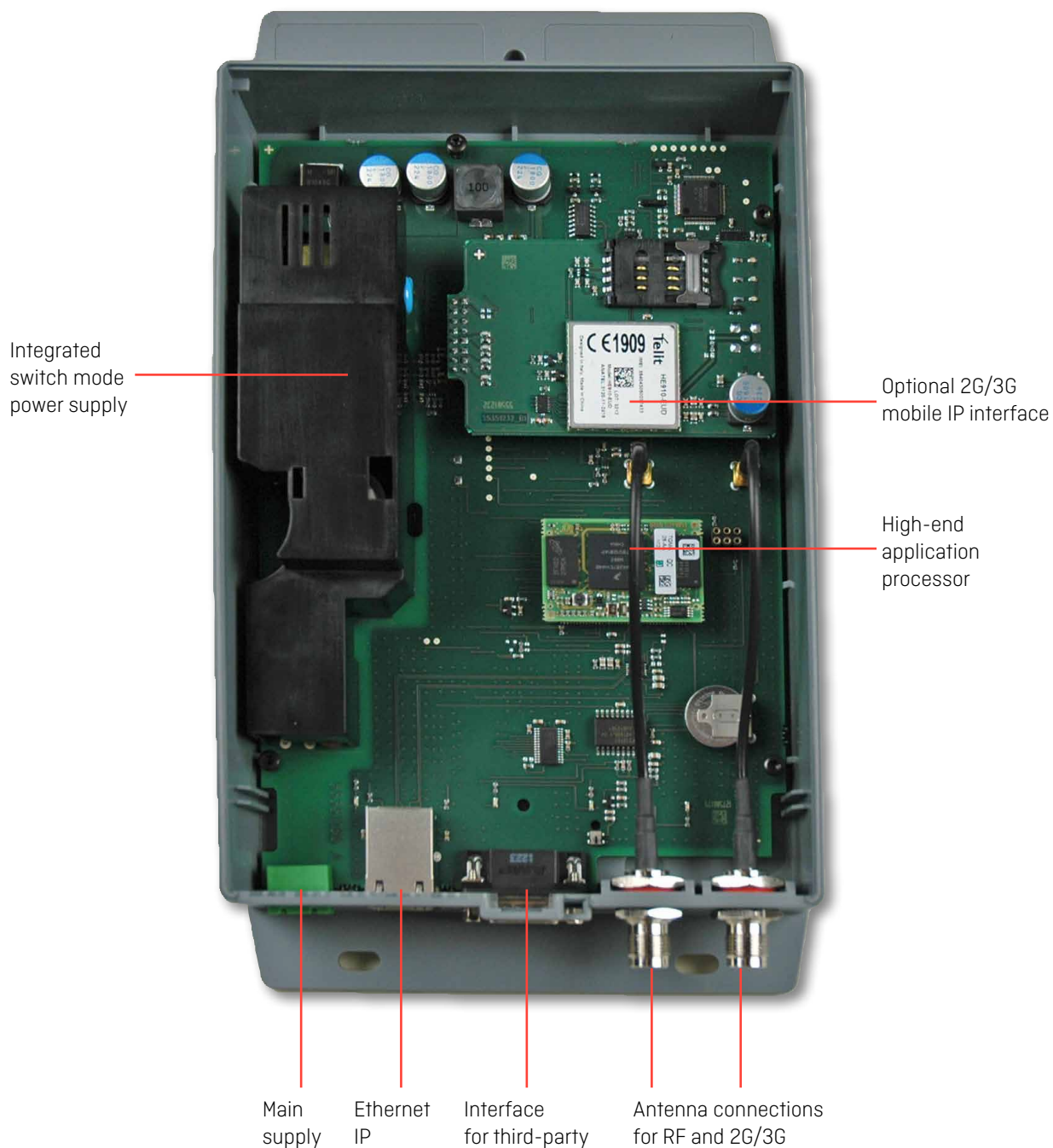
The concentrator contains its own web server (local) to allow configuration and service through an ordinary web browser.

Data security and data privacy are integrated parts of OMNIA® Suite to prevent unauthorised persons from gaining access to sensitive personal information or to the metering infrastructure to disconnect supply or to manipulate meter values for billing. The OMNICON® data concentrator has the latest security technologies and standards integrated with security suite 2.0, and this suite contains individual encryption of each concentrator, data confidentiality package, data authentication, replay protection and tampering detection.

Interfaces

- OMNICON® Radio Mesh Interface (NAN)
The gateway for communication to the Radio Mesh Network.
- TCP/IP interface (WAN)
Standard Ethernet interface for two-way communication with OMNISOFT® UtiliDriver® head-end system.
- 2G/3G interface (WAN)
Optional mobile IP interface for two-way communication with OMNISOFT® UtiliDriver® head-end system.

Overview



The primary functions of the OMNICON® data concentrator

Meter data collection

The concentrator is delivered with default knowledge of the OMNIPower® meter and automatically begins collecting relevant data and events once the encryption keys for the connected meters have been received from the head-end system.

Network maintenance

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

Detect and alert

The concentrator detects events and alarms from the meters, Multi-Utility Controllers (MUCs) and other communication devices and pushes these to the OMNISoft® UtiliDriver® head-end system.

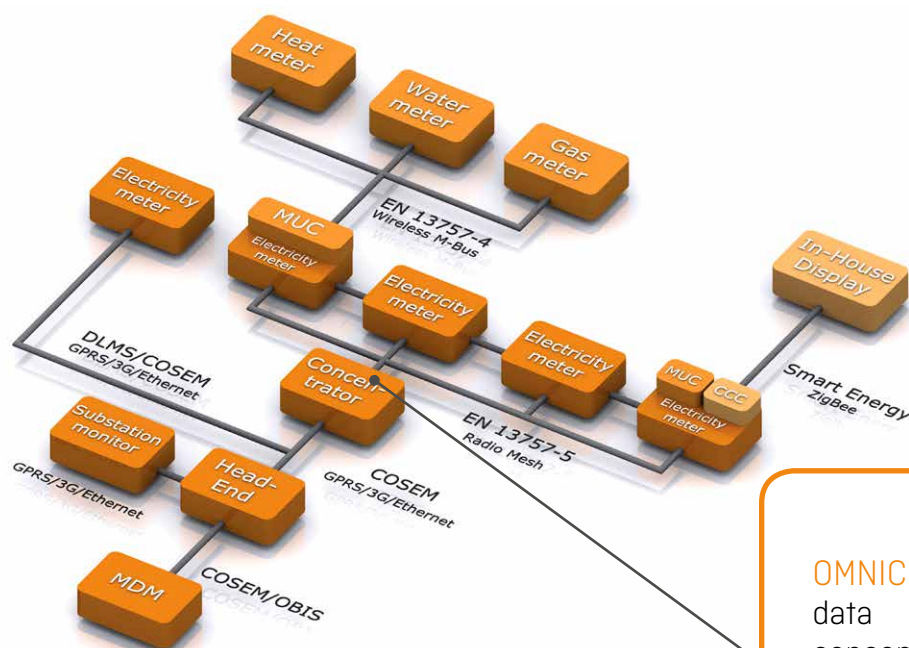
Storage at WAN disconnections

If WAN connections are unavailable, the concentrator stores values as long as 3 days, and when the WAN connections has been restored, it delivers these values to the head-end system.

Data security

The concentrator is part of the complete OMNIA® Suite end-to-end encryption scheme, 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 devices.

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



Technical data

Capacity

Up to 500 metering points. Typically 250 metering points.

Real-time clock (RTC)

Battery backup.

Frequency (see order information for specific details)

444 MHz area, 500 mW

Radio communication standards

EN13757-5

Communication systems for meters and remote reading of meters – part 5: Wireless relaying.

2G/3G Communication standards

Quad Band GPRS and EDGE class 12

HSPA data 900/2100 MHz

Supply

110/230, Switch Mode Power Supply, VAC +/- 10 %, 50/60 Hz max 10A

Recommended supply cable 2 x 0.75mm²

Power Consumption

Ethernet 4.2W

2G/3G, idle 5.5W (optional 2G/3G mobile IP interface installed)

2G/3G transmission 7.5W (optional 2G/3G mobile IP interface installed)

Breaker/fuse 16A/C10

Antenna information

Connector concentrator TNC (f)

Connector external antenna TNC (m)

Cable COAX H155 PVC 19x0.28/3.9 PHYS 180T5.4, length: 7.5 m

Antenna Kamstrup Triangle antenna

Range between radio devices

Up to 20,000 m

Mechanical data

Dimensions (L x W x D) 261 x 145 x 58

Weight 740 g

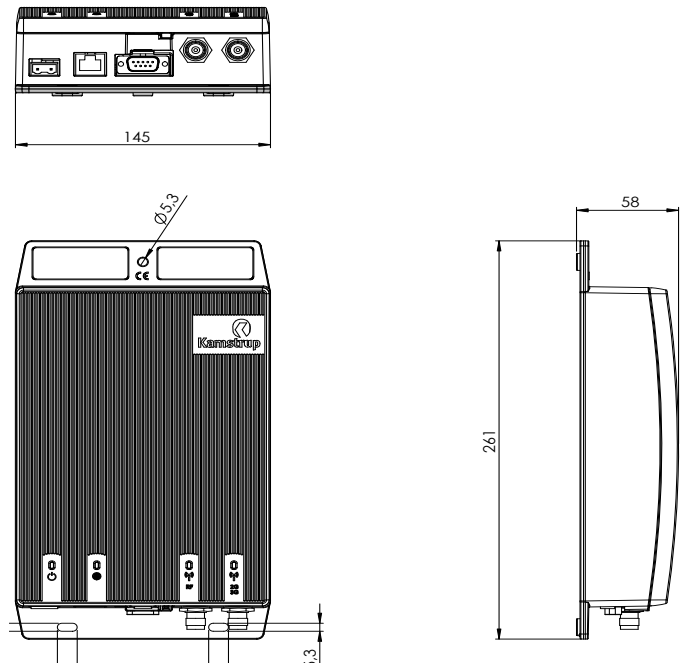
Temperature range

Operation -40 °C...+70 °C

Storage -40 °C...+70 °C

Protection class

IP20



Outdoor box

Size [mm] 200 x 400 x 135

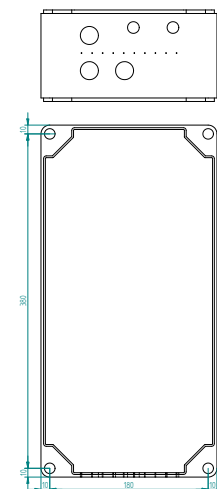
Weight 3.5 kg

– incl. mounting kit 5.0 kg

IP class IP54

Antenna connector type TNC (female)

[RF and 2G/3G]



Marking/approvals

CE marking

RoHS directive

EN61000 – EMC Directive

EN60950 – Information Technology Equipment – safety

EN300220 – Class 2 – RTTE (Radio Teleterminal Equipment) Directive

EN301489 – RTTE Directive

EN301511 – RTTE Directive

EN301908 – RTTE Directive

Ordering data

OMNICON® data concentrator	Type 6880	☐	☐	☐	☐
Media					
Ethernet		0			
2G/3G GPRS modem (additional module mounted)		1			
Ethernet configuration					
Default network settings			0		
DHCP			1		
Static IP			2		
Full manual configuration			9		
Modem configuration					
Default network settings			A		
Dynamic PAP			B		
PAP login			C		
Full manual configuration			D		
Country code (RF frequency)					
CH	MHz	Pwr			
EU	434.05	500 mW			318
Etc.	434.05	50 mW			319
					-

NB: Only for connection = 0

NB: Only for connection = 1

3130 139	Protection cap for main connector
6880 007	Box with 12 x external antenna, 4.5 m cable
6880 001	Box with 12 x external antenna, 7.5 m cable
6880 008	Box with 9 x external antenna, 4.5 m cable and brackets
6880 002	Box with 9 x external antenna, 7.5 m cable and brackets
6699 408	Triangle antenna
6880 003	7.5 m cable
6880 004	15 m cable

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