QUNDIS™
ADVANCED MEASURING SOLUTIONS.

Data sheet

DST2-QNOD-GB0 RNN5 / 12.10.2015 - V 1.0

Network node Q node 5

The network node **Q node 5** receives and processes data from consumption metering devices within the **Q AMR** system.

The network node works extremely well in more complex building environments (e.g. where fire doors/glass walls are installed).

Integration in the high-end system **Q AMR** via the PC radio module WTZ.RM permits the wireless readout of AMR systems, monitoring during installation and determination of the optimum installation point for the network node.

The network node **Q node 5** is battery-operated.

Application

The network node Q node 5 is part of the Q AMR system. It is use to build up a wireless network on buildings, which is used to receive and store the data from consumption metering devices.

The communication between several Q node 5 also takes place wirelessly, which means no cabling is necessary within the network. Within the wireless network, all metering values of the consumption metering devices are exchanged continuously so that each network node stores the current con-sumption values, end-of-the-month values and due date values of all metering devices in the net-work.

Thanks to this working principle, the entire network can be read out at any of the network nodes.

Functions

- Reception and storage of data from the consumption metering devices
- Automatic set-up of a network comprising up to 12 Q node 5 (up to max. 500 consumption metering devices)
- Distribution of all relevant consumption values to all Q node 5 within a network
- Copy mode to transfer data (device list incl. passwords and statistic values) of a node within a network to a new node
- Delete mode (in installed state) to remove devices to be replaced from the system list
- IrDA teach and delete mode to add or remove new devices to or from a system and to synchronise the device list.
- AES encryption
- Firmware update via USB adapter

Type summary

The network node is part of the Q AMR system and must be used exclusively with this.

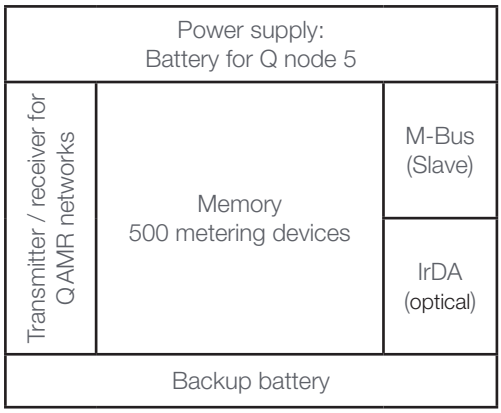
Short description	Version	Article number
RNN5	Standard, battery-operated	RNN5 000M 0000

Accessories

Product description	Article number
USB programming adapter	RNNP H001 0010

Technology

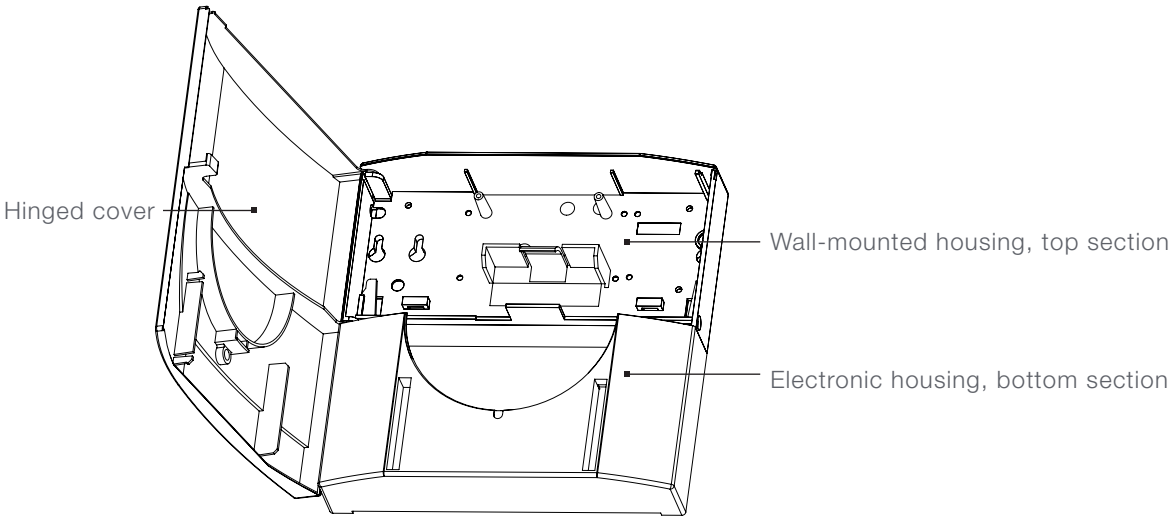
The network nodes Q node 5 are made up of the following components:



Transmitter and receiver are used for recording the data from consumption metering devices and forwarding these to other network nodes in the same network. The transmitter is used for communication with other network nodes. The data memory contains the measuring data from the consumption metering devices. It is protected against temporary power failure, for instance during mains power failure or replacement of the main battery, by the backup battery.

Structure

Network nodes are made up of two main housing components, the wall-mounted top section with hinged cover and a detachable bottom section.



Wall-mounted housing, top section

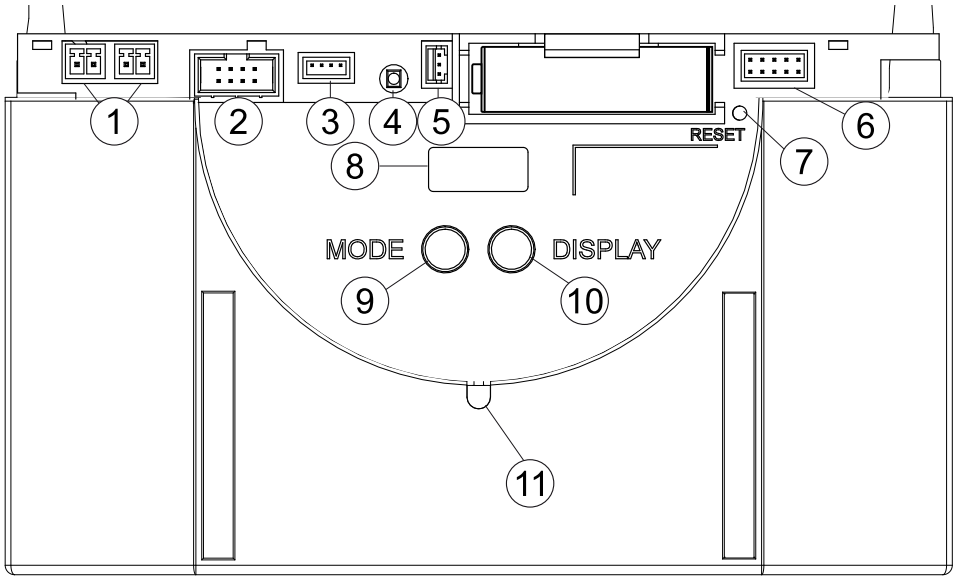
The wall-mounted housing of the network nodes Q node 5 only contains the main battery.

The back panel has 3 screw holes which allow a drilling distance of 160 mm or 184 mm. Existing holes from previous types WTT16 ... / ... WTX16 can still be used.

Structure

Electronics housing, bottom section

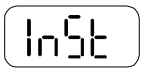
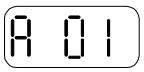
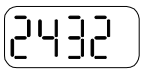
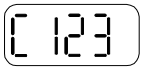
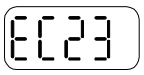
The electronics housing contains control elements for the network:



(1) Plug connector for M-Bus service connection
(2) Plug connector for extension module
(3) Plug connector for voltage supply DC 3.6 V
(4) LED for network voltage display with external supply (only lit during mains supply)
(5) Plug connector for backup battery DC 3.6 V
(6) Connector outlet
(7) Reset key (recessed)
(8) Display
(9) Operating mode key (MODE, red)
(10) Display switchover key (DISPLAY, blue)
(11) IrDA interface (optical)

Display

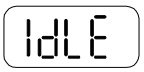
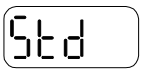
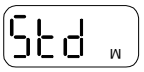
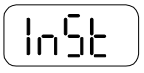
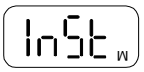
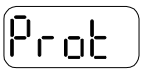
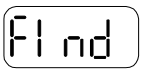
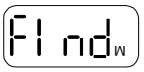
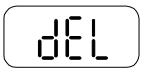
The display of the Q node 5 supports the fitter during commissioning and troubleshooting. Along-side the standard display which indicates the operating mode of the Q node 5, there are five different display levels A to E.

Display level		
-		Current operating mode (Mode)
A	 	Alternating node number (primary address) and network number
B		Number of nodes in the network
C		Number of consumption metering devices in the network
D		Remaining capacity of the main battery of the Q node 5 in percent
E		Fault codes (three groups)

Operating modes and system states

Operating mode

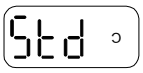
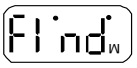
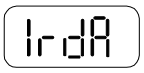
There are various different operating modes, some of which are set by pressing a key on the net-work node, some of which are automatic or are set by means of a connected PC and the commis-sioning software ACT26. The current version of the commissioning software ACT26 must be available for this. The respective operating mode is shown on the display:

Operating mode	Display	Note
Idle mode		This is the mode of the network node on delivery. It changes to instal-lation mode after the MODE key has been pressed somewhat longer (> 2 sec.)
Standard mode		This is the normal operating mode of the data collector: Telegrams from the registered metering devices are received, saved and repeat-ed in the network.
Extended standard mode[1)]		The receiver is continually active and thus makes fast communication possible. This mode is started manually using the ACT26 service tool.
Installation mode[2)]		The wireless network is built up automatically in installation mode. Metering devices which transmit installation telegrams during this operating mode are registered in the network. This mode is started by pressing the MODE key somewhat longer (> 2 sec.).
Extended installation mode[2)]		The extended installation mode registers all metering devices which transmit either installation or data telegrams. This mode helps if the network has been retrofitted. A network is not built up.
Protected installation mode[2)]		Like installation mode, but a connection is only built up to devices which are using the same network coding.
Search mode		Metering devices which have been entered manually or lost their wireless connection are synchronised again. This mode is activated automatically.
Extended search mode[2)]		This search run is used to re-establish wireless connection to lost or manually entered metering devices. This mode can also be started manually with jumper 1 set (in the connector outlet) and by pressing the MODE key somewhat longer.
Delete mode[2)]		Like installation mode, but all registered devices which transmit installation telegrams are deleted, not registered (meter replacement).
Firmware version		Display of the firmware version currently available in the node

1) This mode is ended automatically after approx. 8 hours in the case of battery-operated network nodes.

2) This mode is ended automatically after approx. 8 hours.

Operating modes and system states

System state	Display	Note
Remote access		If a network node is accessed by a master, the symbol ‘ɔ’ is displayed.
High-speed mode	example 	If all network nodes have their receivers switched on constantly, so that all new data can be exchanged immediately within the network, this is indicated by two dots in the upper section of the LCD.
Bus connection	example 	If a connection is set up to the bus, the bus number is displayed briefly (0=M-Bus) as well as the primary address set for this bus. In the example the network node with primary address 03 was connected to the M-Bus.
IrDA-Master mode		This mode is started by pressing the MODE key briefly (< 0.5 sec.). It signalises that other IrDA devices can now be connected (in IrDA-Slave mode). This mode is ended after 10 seconds.
Add	example 	If a non-registered IrDA-capable metering device e.g. Q caloric 5 is connected in IrDA-Master mode, this can be added in the network node. The display corresponds to the last 4 digits of the metering device (example: 20000123). The DISPLAY key must be pressed for confirmation when this appears on the display. The device is then registered and search mode is started.
Delete	example 	If a IrDA-capable metering device that has already been registered is connected in IrDA-Master mode, this can be removed from the network node. The display corresponds to the last 4 digits of the metering device (example: 20000123). The DISPLAY key must be pressed for confirmation when this appears on the display. The device is then deleted and the search mode ended if appropriate.
Copy	example 	If a new network node is connected in IrDA-Master mode (in idle mode!) all network data can be copied into the new node. The DISPLAY key must be pressed for confirmation when this appears on the display. The protected installation mode is automatically started in the network. Depending on the data contents, copying takes up to 20 minutes. Finally, “StArt Prot” is shown on the display of the new node for 1 hour. After installation, the protected installation mode is started on the new network node as well by press-ing the DISPLAY key. It is integrated in the network and the search run started automatically.

Project planning information

Detailed instructions on project planning can be found in the Q AMR system manual.

M-Bus connection

The M-Bus can be connected permanently (fixed installation) to each network node with the aid of a connector. The connector is included in the scope of supply. There is an additional plug con-nector available for temporary connection (e.g. during service).

Optical IrDA interface

Every network node Q node 5 is equipped with an IrDA interface. This is permanently active and used for servicing with commissioning tools or for data exchange with other IrDA-capable QUNDIS products. If the network node itself is to take over the function of the IrDA-Master (e.g. during data exchange with a metering device), the IrDA-Master mode must be started manually.

Technical data

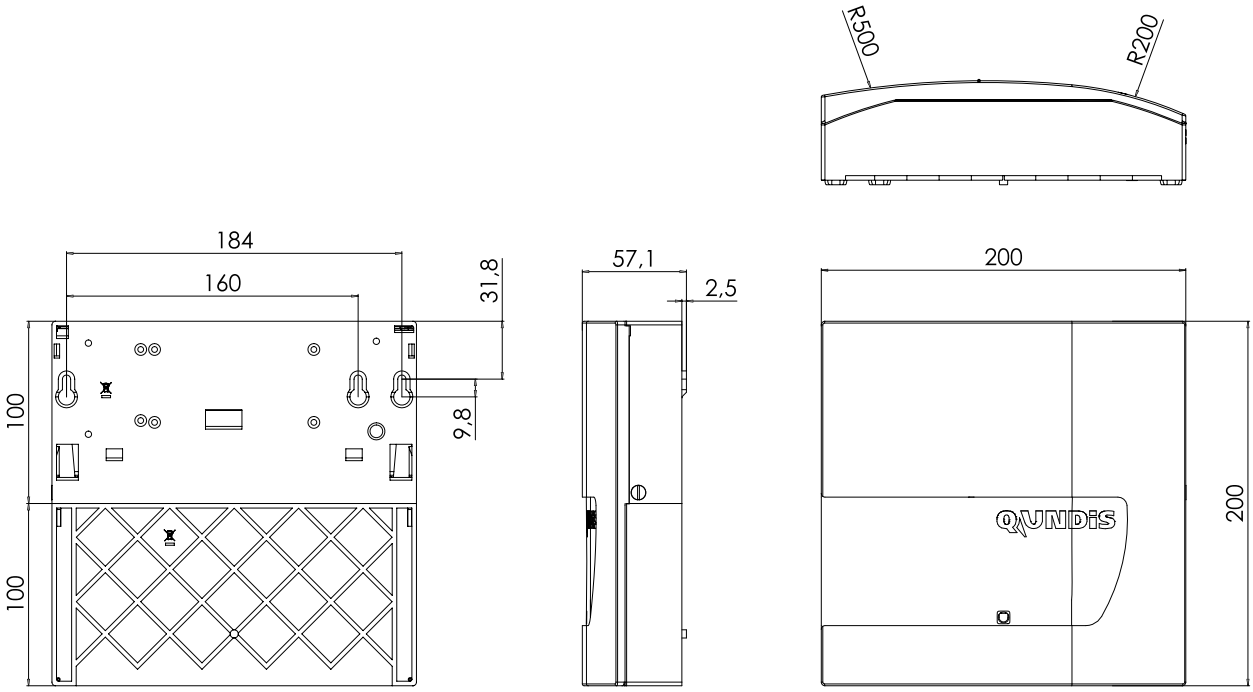
Power supply / Performance	
Main battery	Rated voltage: DC 3,6 V Service life: > 5 years (with factory settings)
Backupbatterie	Rated voltage: DC 3,6 Service life: > 10 years
Frequency band	868.00 MHz – 870.00 MHz
Transmitter power	< 14 dBm
Duty cycle	< 1 %

Ambient conditions	
during transport	in non-ventilated containers: -25…+70 °C in ventilated containers: -25…+40°C relative air humidity: max. 95% at 40°C
during storage	-5…+45 °C relative air humidity: max. 95%
during operation	5…+55 °C relative air humidity: max. 95%

Dimensions and Weight	
Dimensions	see dimensional drawing
Weight	gross: 0,760 kg net: 0,648 kg

Standards and norms	
CE conformity	
Protection rating	IP 20
Protection class	II
Interference resistance	EN 301 489
Emitted interference	EN 300 220-1
Security of IT equipment	EM 60950

Dimensional drawing



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