

Data sheet

2G/4G Network Module

MULTICAL® 603

MULTICAL® 803

- Mobile network module for automatic reading of MULTICAL® 603/803
- Uses existing mobile infrastructure for data communication
- Plug and play solution - fixed transmission to READY Manager
- Large datagram transmitted every 5/15/60 minute 24/7/365
- Exact time stamp on datagrams
- Built-in data logger
- On-board SIM (eSIM)
- Eight (8) years of data collection included
- Possibility for extending the data collection with up to 8 years
- Roaming agreements for 40+ countries
- Two extra pulse inputs for connection of water and electricity meters
- Dedicated external antenna for the mobile infrastructure



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General description/application

Kamstrup 2G/4G Network Module comes as a plug and play module and starts transmitting data without any other configuration in less than 30 seconds after installation of mains power.

An eight (8) years prepaid data collection is included in the module package and the data collection can be extended with up to 8 years if needed.

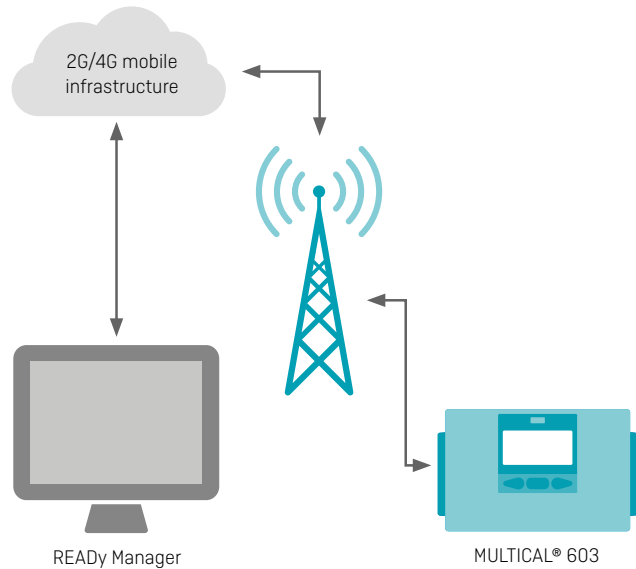
The module is mounted in MULTICAL® 603/803 and uses the existing European 2G and 4G mobile infrastructures to transmit data from the energy meter to the head-end system (HES) and meter data management system (MDM) on a fixed 5/15/60-minute basis - 24/7/365.

Data transmitted from the meter to the MDM system is protected via end-to-end encryption. The data registers are encrypted using AES128 encryption, located in the energy meter and the transport layer is protected using a unique AES256 encryption key, located in the communication module itself.

If the connection to the network and the MDM system is lost, the module continues to log values and transfers the missing values as soon as the connection is re-established. It is, for example, possible to transfer hourly values for the latest 30 days.

Kamstrup 2G/4G Network Module is delivered with extra pulse inputs for additional consumption meters and an antenna connector for mounting the external antenna needed to obtain connectivity to the mobile infrastructure.

To obtain the best coverage, a dedicated external antenna, covering the 2G and 4G mobile infrastructures, is delivered with the module.



Technical data

Supply	Supplied by the meter which must be mains-supplied (High Power 24/230 VAC)
Range	Same range as known from mobiles and smartphones
Frequency band	2G: Bands 3 and 8 4G: Bands 1, 3, 7, 8, 20
Output power	Max 2000 mW when using the 2G network infrastructure Max 250 mW when using the 4G network infrastructure
Reading period	Data transferred every 5/15/60 minute depending on the chosen configuration
Data collection	8 years of data collection included with the module

Mechanical data

Dimensions [L x W x D]	90 x 35 x 14 mm
Weight, incl. module cover	37 g
Temperature range	Like MULTICAL®

Markings and standards

Radio Equipment Directive (RED)

- EN301 511 v.12.5.1:2017
- TS151 010-1 v.11.2.0:2013
- EN301 908-13 v.11.1.2:2018
- EN301 908-1 v.11.1.1:2016
- EN301 489-1 v.2.1.1:2016
- EN301 489-52 v.1.1.0 2016
- EN61010-1:2010
- EN62311:2008

Restriction of Hazardous Substances Directive (RoHS)

Markets covered

Austria	Gibraltar	Liechtenstein	Serbia
Belgium	Greece	Lithuania	Slovakia
Bulgaria	Greenland	Luxembourg	Slovenia
Croatia	Guernsey	Malta	South Africa
Cyprus (the Greek part)	Hungary	Moldova	Spain (Canary Islands)
Czech Republic	Iceland	Mongolia	Sweden
Denmark	Ireland	Netherlands	Switzerland
Estonia	Isle of Man	Norway	United Kingdom
Faroe Islands	Italy	Poland	Vatican City
Finland	Jersey	Portugal (Azores, Madeira)	
France	Kosovo	Romania	
Germany	Latvia	San Marino	

Datagram example – Standard datagram (ZZZ = 110)

Heat energy E1	Energy E11	Power actual	Tariff TA2
Heat energy E2	COP	t1 actual [2 decimals]	Tariff TA3
Cooling energy E3	Heat energy A1	t2 actual [2 decimals]	Tariff TA4
Cooling energy E3_HC	Heat energy A2	t3 actual [2 decimals]	Pulse input A1
Inlet energy E4	Volume V1	Mass M1	Pulse input B1
Energy E8	Volume V2	Mass M2	Info bits
Energy E9	Flow V1 actual	P1 actual - part 1	Operation hours
Energy E10	Flow V2 actual	P2 actual - part 1	Error hour counter

Installation

There are several ways to test if the module is connected to the 2G/4G mobile infrastructure and all the way to READy Manager.

1. Forced call

Press the front buttons until "CALL" is shown in the meter display.

This message will disappear and the display will return to its normal state.


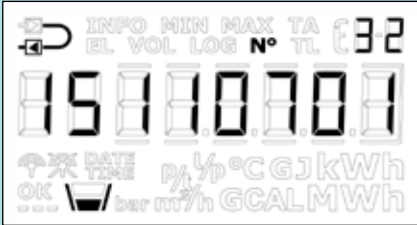

Within 30 seconds, an "OK" will be shown shortly in the lower left corner of the display, indicating that READy Manager has received data from the meter.

2. Display information

To test if the module status is OK and connected to the mobile infrastructure, the meter display can be used.

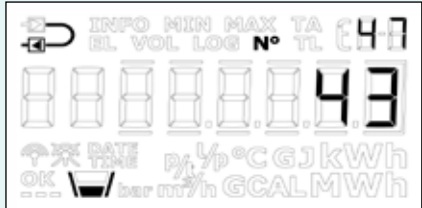
The module information can be found in "TECH loop" on the display.

- Module in module slot 1: Choose menu 2-101 in "TECH loop"
- Module in module slot 2: Choose menu 2-202 in "TECH loop"

Menu	Menu index	Information	Display example
2-x01	31	Module type and configuration	
2-x01-1	32	Module firmware and revision	
2-x01-2	33	Module serial number	

Installation

2-x01-3: Connection information

Menu	Menu index	Information	Display example
2-x01-3	47	Link information with 2 digits of information	

The first digit shows the mobile connection:

- 2: Connected to 2G mobile infrastructure
- 4: Connected to 4G mobile infrastructure

The second digit shows the quality of the connection:

- 0: Very poor
- 1: Poor
- 2: Fair
- 3: Good
- 4: Excellent

If the second digit is between 2 and 4, the installation is OK.

If the second digit is 1, an alternative location for the external antenna is needed.

Once the alternative location is found, make a forced call and wait 1 minute for the module to update the status and test if the connection quality has improved.

If only one digit "0" is shown in this display setting, it means that the module is either still searching for a 2G or 4G network or cannot connect to a 2G or 4G network.

Installation

2-x01-4: Module status

Menu	Menu index	Information	Display example
2-x01-4	49	Module status	

Typical status codes during installation:

- 255 No connection tried yet
- 0 Transmission OK and all data is sent
- 1 Awaiting registration on network to complete
- 2 Registration on network denied
- 3 Awaiting acknowledge from server
- 4 Failed to register on network
- 5 Missing antenna
- 6 Connection failed due to low voltage
- 7 Data delivery timeout
- 8 Data delivery timeout without any ACK
- 9 Failed to bind
- 10 Transmission pending
- 11 DNS lookup failed
- 16 Flash write failed
- 32 Server error (possibly TEK missing/wrong)
- 33 Connection pending
- 34-35 Internal errors

In case of contact with Kamstrup A/S regarding any error code, please register all 5 display readings as this is valuable information for our support team.

Ordering information

Module HC-003-80

Module configuration

	XX	YY	ZZZ
Kamstrup 2G/4G Network Module	80		
5-minute transmission		20	
15-minute transmission		22	
60-minute transmission		24	
Standard datagram			110
Logger datagram (Max power)			111
MC803 datagram (all energy registers)			112

For a complete overview of the contents of the different datagrams, please refer to document 55123185, Datagrams description, 2G/4G module, HC-003-80.

Accessories

As external antenna, the Mini Triangle antenna, 6699-448, with 2.5 m antenna cable and MCX connector must be used.



If there is a need for more antenna cable, the solution below can extend the installation with up to 25 meters of cable.

Recommended solution



MULTICAL® 603

+



5000 292

+



5000 429: 5 m
5000 441: 10 m
5000 442: 15 m
5000 443: 20 m
5000 444: 25 m

+



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