

Installation guide

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**2G/4G Network Module**

**HC-003-80**



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Industrivej 28  
Stilling  
DK-8660 Skanderborg, Denmark

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## In general

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The purpose of this guide is to describe how to mount 2G/4G Network Module, HC-003-80, in MULTICAL® 603 and MULTICAL® 803 as well as mount an external antenna and troubleshoot the installation.

**Note:** The module does not support MULTICAL® 403.

The service engineer must be created as a My Kamstrup user and have READY Manager Hosted installed:

<https://service.kamstrup.com/en-en/software-download/ready>

**Further information about the module is available here:**

<https://www.kamstrup.com/en-en/heat-solutions/meters-devices/modules/hc00380-2g4g-network>

**Further information about compatible meters is available here:**

**MULTICAL® 603**

<https://www.kamstrup.com/en-en/heat-solutions/meters-devices/meters/multical-603>

**MULTICAL® 803**

<https://www.kamstrup.com/en-en/heat-solutions/meters-devices/meters/multical-803>

**Contact info for Kamstrup Support**

Kamstrup Support can be contacted by phone, email or by creating a case via My Kamstrup:

Tel: +45 8993 1110

Email: [supportdk@kamstrup.com](mailto:supportdk@kamstrup.com)

Log in via My Kamstrup: <https://apps.kamstrup.com/>

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## 1 Registrating 2G/4G Network Module in READy Manager

Before commencing the mounting, the module must be correctly registered in READy Manager.

The example below from READy Manager shows that the module has been correctly imported via a KEM file and waits for connection with the network.

Serial number	Address	Last contact	Firmware	Registered	Comment	Device type	Co
79556827		07-01-2022 12:19:45		OK		2G/4G Network module	-

## 2 Description of 2G/4G Network Module, HC-003-80

2G/4G Network Module, HC-003-80, is an infrastructure product with the serial number 2G4G S/N.

The module has no internal antenna and therefore, one of the following antennas must always be mounted:

Mini Triangle, item no.: 6699-448



PCB antenna, item no.: 6699-482

	
	<p>Mini Triangle Item no.: 6699-448</p>

### 3 Mounting module and antenna

Insert the module in module slot 1.




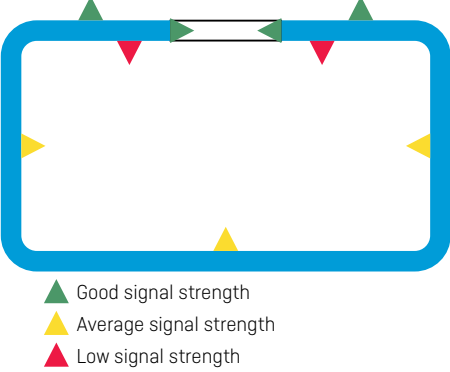


The antenna cable must be mounted without sharp bends and the cable must not be twisted around the cable relief as this can damage the cable.

Wrong installation	Correct installation
	
<p>The antenna cable is twisted around the cable relief and thus has a sharp bend.</p>	<p>The antenna cable is mounted without sharp bends.</p>

### 4 Mounting external antenna





In general, antennas must be mounted as high and free as possible with appropriate distance to other antennas and steel pipes to avoid noise and radio disturbances.

Wrong installation	Correct installation
	
<p>Antenna mounted at the bottom of a technique cabinet behind steel pipe</p>	<p>Antenna mounted at the window with free sight</p>

Wrong installation	Correct installation
 <p>A photograph showing a white antenna mounted vertically between two large, light-colored steel pipes. A red 'X' icon is in the top-left corner.</p>	 <p>A photograph showing a white antenna mounted high on a wall in a basement. A red circle highlights the antenna. A green checkmark icon is in the top-left corner.</p>
<p>Antenna mounted between steel pipes</p>	<p>Antenna mounted high in a basement with good distance to surroundings</p>
 <p>A photograph showing two white antennas mounted side-by-side on a wall, very close to each other. A red circle highlights both antennas. A red 'X' icon is in the top-left corner.</p>	 <p>A diagram of a rectangular room with a blue border. Signal strength is indicated by colored triangles: green (Good), yellow (Average), and red (Low). Green triangles are at the top corners, yellow at the bottom corners, and red at the top and bottom midpoints. A double-headed arrow is on the top edge.</p> <ul style="list-style-type: none"> <li>▲ Good signal strength</li> <li>▲ Average signal strength</li> <li>▲ Low signal strength</li> </ul>
<p>Antennas mounted too close to each other. The distance must be at least 70 cm</p>	<p>Installation options in basement/room</p>
 <p>A diagram showing a blue cable being twisted around a vertical grey pipe. A red 'X' icon is to the right.</p>	 <p>A diagram showing a blue cable mounted straight with a soft curve at the bottom. A green checkmark icon is to the right.</p>
<p>Cable must not be twisted around pipe or other objects</p>	<p>Cable must be mounted straight and with soft curves</p>

## 5 Optimising the antenna installation

It is possible to extend the antenna cable for 2G/4G Network Module (with another type of antenna than the one used for direct connection).


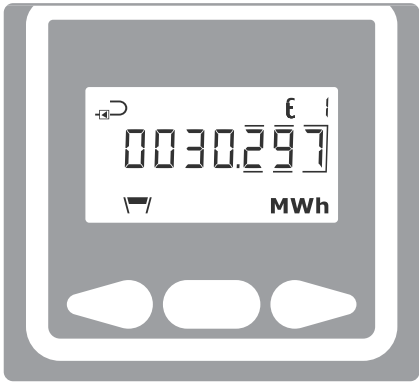
			
<p>MULTICAL® 603</p>	<p>5000 292</p>	<p>5000 429: 5 m                      5000 441: 10 m                      5000 442: 15 m                      5000 443: 20 m                      5000 444: 55 m</p>	<p>6699 484</p>

### 1 Master data



The antenna is directionally oriented, and existing telecom mast data is available here:  
<https://www.mastedatabasen.dk/viskort/PageMap.aspx>

## 6 Setting up 2G/4G Network Module via menu in the display

### 1 Mounting the module

	
<p>When the module has been correctly mounted, you must attach the disconnected calculator and let the meter start up correctly until KWh or MWh is shown in the display.</p>	

## 2 The CALL function

	
<p><b>1</b> Hold down the two outermost push buttons on the calculator until the display shows "CALL", and release the buttons after 3 seconds.</p>	<p><b>2</b> After maximum 1 minute, the display must show "OK" in the bottom-left corner, indicating connection with READY Manager.</p>

## 3 Connecting to READY Manager

Within 2 minutes, the module must send a message to READY Manager with the following content:

*"Last contact"*

*"Meter Serial Number" – note that it may take some time before you receive this message.*

<p>Last contact 07-01-2022 12:19:45</p>		<p>Meter serial number 80976132</p>						
<p>Serial number 79556827</p>	<p>Address</p>	<p>Last contact 07-01-2022 12:19:45</p>	<p>Firmware</p>	<p>Registered OK</p>	<p>Comment</p>	<p>Device type 2G/4G Network module</p>	<p>Coordinates -</p>	<p>Meter serial number 80976132</p>

When the module and the meter have been mounted correctly, it may take up to 24 hours before READY Manager receives meter data.

## 7 No or lost connection to READY Manager

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### 1 Read out connection information and module status (sections 7.6 and 7.7).

### 2 Restart meter and module:

Dismount the calculator. Push the two outermost buttons alternately until it is disconnected - the display turns blank/black.

Dismount 2G/4G Network Module. Let the module be disconnected for 30 minutes. Alternatively, you can use a piece of stripped wire to short circuit the terminals 1 and 2 on the module for a few seconds by which the module is disconnected.

### 3 Restart the setup.

Follow the guide from item 6.1.

### 4 If no connection can be established, please contact Kamstrup Support with the following information:

*Meter serial no.:*

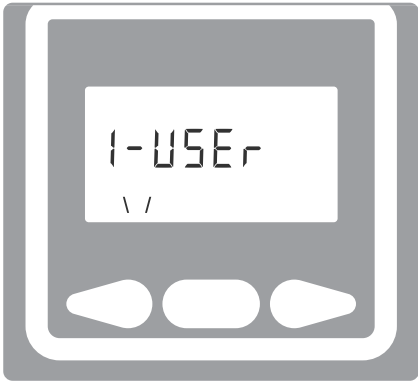
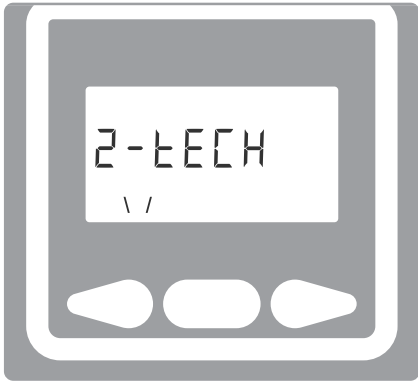
*2G/4G serial no.:*

*Connection information: Section 7.6 (Note that this information is a snapshot. Kamstrup Support has access to log data for a thorough analysis).*



*Module status: Section 7.7*



**5 Access to “TECH loop”**

	
<p><b>1</b> Hold the middle button down until the display shows “1-User”.</p>	<p><b>2</b> Push the right arrow button until the display shows “2-Tech” and confirm by pushing the middle button to access “TECH loop”.</p>

**6 Access to connection information**

	
<p><b>1</b> Press the buttons to access menu 2-101-03 and read out menu index 47.</p>	<p><b>2</b> Verify the data in the table below.</p>

**7.6.1 2-x01-3: Connection information**

Menu	Menu index	Information	Example of display reading
2-x01-3	47	Connection information with 2 digits of information	

The first digit indicates the mobile connection:

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

The second digit indicates the connection quality:

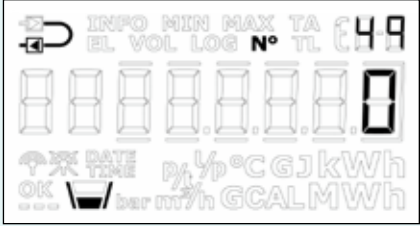
- 0: Very poor
- 1: Poor
- 2: Fair
- 3: Good
- 4: Excellent

**1** Note that this information is a snapshot. Kamstrup Support has access to log data for a thorough analysis.

**7 Access to module status**

<p><b>1</b> Press the keys to access menu 2-101-04 and read out menu index 49.</p>	<p><b>2</b> Verify the data in the table below.</p>

**7.7.1 2-x01-4: Module status**

Menu	Menu index	Information	Example of display reading
2-x01-4	49	Module status	 <p>The image shows a monochrome LCD display with several rows of information. The top row contains labels: INFO, MIN, MAX, TA, and a battery icon with '49'. The second row contains: EL, VOL, LOG, N°, TL, and a battery icon with '0'. The third row contains: DATE, TIME, p, %p, °C, G, j, kWh. The bottom row contains: OK, a battery icon, bar, m/h, GCAL, MWh.</p>

Typical status codes during installation:

- 255 No connection attempted yet
- 0 Transfer OK and all data sent
- 1 Waiting for the network registration to complete
- 2 Registration of network declined
- 3 Waiting for a receipt from server
- 4 Registration of network failed
- 5 Missing antenna
- 6 Connection error due to low voltage
- 7 Data delivery timeout
- 8 Data delivery timeout without an ACK
- 9 Could not connect
- 10 Waiting for transfer
- 11 DNS lookup error
- 16 Flash write error
- 32 Server error (possibly missing/wrong TEK)
- 33 Waiting for connection
- 34-35 Internal error