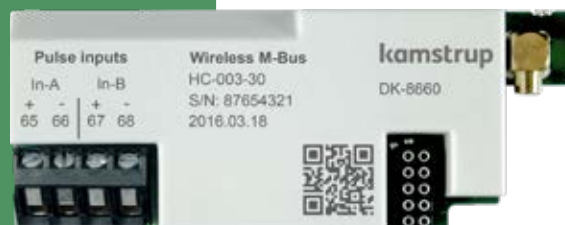kamstrup

Data sheet

Wireless M-Bus modules for MULTICAL® 403 & 603

- Wireless M-Bus standard EN 13757-4:2013
- OMS Primary Communication, version 4.0.2
- Configurable datagrams
- Readout of loggers
- Up to 16 years battery lifetime
- Clear marking of module type
- Two additional pulse inputs/outputs

M-Bus wireless

Contents

Applications

The Wireless M-Bus interface for MULTICAL® 403 and 603 is a plug-in module for fast and reliable installation in the module area of the meter, and the new design is "state-of-the-art" radio technology while still maintaining a strong focus on a long battery lifetime.

It is possible to have the module configured with different predefined datagrams for e.g. Walk-by/Drive-by/Fixed network applications from factory. It is also possible to change between available datagrams on site.

Customer-specified datagrams can be tailor-made for specific applications.

The module fulfils the requirements of the M-Bus standard EN 13757:2013 as well as the OMS Primary Communication, version 4.0.2 and works in a wide variety of applications which use the M-Bus protocol.

Pulse inputs

The Wireless M-Bus module HC-003-30 is equipped with two pulse inputs, In-A and In-B, to collect and accumulate pulses remotely, e.g. from water meters and electricity meters. The pulse inputs are physically placed on the M-Bus module. However, the accumulation and data logging of values are made by the MULTICAL® calculator.

When installing the M-Bus module with pulse inputs in slot 2 of MULTICAL® 603, the pulse inputs will be registered in the meter as In-A2 and In-B2.

Pulse outputs

The Wireless M-Bus module HC-003-31 has two configurable pulse outputs, Out-C and Out-D, which are suitable for pulsing out selected registers from MULTICAL® 403 and 603. The pulse outputs are physically placed on the M-Bus module, but the pulses are made by the MULTICAL® calculator.

Among the features of Wireless M-Bus are:

• Support of both 1- and 2-way communication

• Support of Walk-by, Drive-by and Fixed Network installations

• Configurable datagrams for various applications

• Prepared for both C- and T-mode communication protocols

• Large set of already configured datagrams available

• Remote meter configuration, e.g. for changing the data package contents

• Remote readout of daily, hourly and minute loggers

• Remote firmware upload for extended functionality

• Long meter battery lifetime at high readout rates

With the 2-way communication functionality, both the meter and the communication modules become very flexible and make it very easy to:

• Change from Walk-by to a fixed network installation and vice versa

• Switch between C-mode and T-mode

• Choose the datagram that fits the customer needs

All this without having to disturb the end customer in order to gain access to the meter, and furthermore, the 2-way communication functionality allows adding future applications to both the communication module and the meter – thus making the installation future-proof.

Modules and installation

Mount the module in the module area of the meter without any use of tools.

Insert the internal antenna or the plug from the external antenna into the antenna connector on the module.

Normally, no other configuration is necessary.

The Wireless M-Bus module works in meters with both battery and mains supply.

Wiring

Module antenna connector

2 x pulse inputs

Module with pulse inputs (HC-003-30)
Pulse input connection
Max cable size 1.5 mm²
Terminal 65: Pulse input A/In-A (+)
Terminal 66: Pulse input A/In-A (-)
Terminal 67: Pulse input B/In-B (+)
Terminal 68: Pulse input B/In-B (-)

Module antenna connector

2 x pulse outputs

Module with pulse outputs (HC-003-31)
Pulse output connection
Max cable size 1.5 mm²
Terminal 16: Pulse output C/Out-C (+)
Terminal 17: Pulse output C/Out-C (-)
Terminal 18: Pulse output D/Out-D (+)
Terminal 19: Pulse output D/Out-D (-)

Technical data

Frequency	868.950 MHz (from the meter) 869,525 MHz (to the meter) (EU license-free area 868-870 MHz)
Communication	Wireless M-Bus, C- and T-mode
Standard	EN 13757-4:2013
Transmission interval	16/96 seconds
Transmission strength	10/25 mW
Battery lifetime	Up to 16 years, depending on the chosen data configuration
Range	Internal antenna: Up to 300 m External antenna: Up to 600 m
Update interval (data)	Every 2 minutes

Mechanical data

Dimensions (L x W x D)	90 x 35 x 14 mm
Weight	37 g, incl. internal antenna and module cover
Temperature range	-40 °C...+ 70 °C

Markings

Radio Equipment Directive (RED)

- EN 300-220
- EN 301-489, Class 2
- EN 61010
- EN 62311

Examples of datagrams

C1, Standard registers 16 s/10mW/15 years	C1, Alternative registers 16 s/10mW/14 years	C1, Fixed Network 96 s/25mW/16 years	T1 OMS 900 s/10mW/16 years	T1 OMS 16 s/10mW/11 years
Heat energy E1	Heat energy E1	Heat energy E1	Heat energy E1	Heat energy E1
Cooling energy E3	Cooling energy E3	Cooling energy E3	Cooling energy E3	Cooling energy E3
Heat energy E8	Heat energy E8	Heat energy E8	Volume V1	Volume V1
Heat energy E9	Heat energy E9	Heat energy E9	Actual flow	Actual flow
Volume V1	Volume V1	Volume V1	Temp. 1 Inlet	Temp. 1 Inlet
Actual flow	In-A	Actual flow	Temp. 2 Outlet	Temp. 2 Outlet
Temp. 1 Inlet	In-B	Temp. 1 Inlet	Info	Info
Temp. 2 Outlet	Actual flow	Temp. 2 Outlet	Hour counter	Hour counter
Info	Temp. 1 Inlet	Info	Date	Date
Hour counter	Temp. 2 Outlet	Hour counter		
Date	Yearly max power			
	TA2			
	TA3			
	Info			
	Hour counter			
	Date			
Heat energy E1, Target	Heat energy E1, Target		Heat energy E1, Target	Heat energy E1, Target
Cooling energy E3, Target	Cooling energy E3, Target		Cooling energy E3, Target	Cooling energy E3, Target
Volume V1, Target	Volume V1, Target		Volume V1, Target	Volume V1, Target
Target date	In-A, Target		Peak flow, Target	Peak flow, Target
	In-B, Target		Target date	Target date
	Target date			

For full overview of avaiable datagrams, see 5512-2049.

Ordering

Description	Order No.
Wireless M-Bus module with antenna connection, 2 x pulse inputs	HC-003-30
Wireless M-Bus module with antenna connection, 2 x pulse outputs	HC-003-31
Internal antenna	6699 482
External antenna (mini-Triangle)	6699 448

HC 003	XX	-	YY	-	ZZZ
Module product type					
Wireless M-Bus module 2 pulse inputs (VA, VB)	30				
Wireless M-Bus module 2 pulse outputs (VA, VB)	31				
System configuration					
C1, 868 MHz, 16 s interval, Walk-by/Drive-by, Frame format B			10		
C1, 868 MHz, 96 s interval, Fixed Network, Frame format B			11		
C1, 868 MHz, 16 s interval, 25 mW, Frame format B			12		
T1 OMS, 868 MHz, 16 s interval, Walk-by/Drive-by, Frame format A			20		
T1 OMS, 868 MHz, 15 min. interval, Fixed Network (MUC), Frame format A			21		
Data content configuration					
Datagram standard registers					101
Datagram alternative registers					102
Datagram Fixed Network					103
Datagram, C1 Fixed Network, target date					104
Datagram, C1 Fixed Network, t1-t2, power					105
Datagram, C1 Fixed Network, yearly peak power					106
Datagram, Drive-by, 25 mW, monthly target date					108
Datagram, Drive-by, heat with discount and surcharge					109
Datagram OMS					201
Datagram, Fixed Network					301

Not all registers are available in all meters. The cooling register E3, for example, will only be available in a meter configured as a cooling or combined heat/cooling meter. It will not be available in a heat meter.

For reading target registers, the wanted registers must be defined in the RR-configuration (logger contents).

Datagrams with the ZZZ values 301 to 399 are created for MULTICAL® 603. If they are used in MULTICAL® 403, some registers will not be available in the reading.