kamstrup

Installation and User Guide

MULTICAL® 62

Water meter

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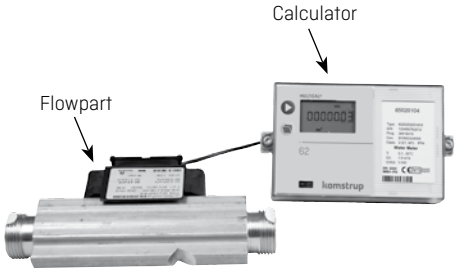
1 General information

⚠ **Read this guide before installing the meter.**

In case of incorrect mounting Kamstrup's guarantee obligations no longer apply.

MULTICAL® 62 is a cold water meter (0.1...50 °C) or (0.1...30 °C) and a hot water meter (0.1...90 °C) consisting of a flow sensor and a calculator. The flow sensor electronics are placed in the calculator's connecting base, whereas the calculator top is a display unit. The flow sensor is connected to the calculator by means of 2.5 m screened cable.

According to OIML R 49 MULTICAL® 62 is described as a "complete meter". In practice this means that flow sensor and calculator MUST not be separated. If flow sensor and calculator have been separated and the seals have thus been broken, the water meter is no longer valid for billing purposes. Furthermore, the factory guarantee no longer applies.



The accumulated water consumption to be used for billing purposes is displayed in m^3 (cubic metres).

Various communication modules and power supplies can be added. The utility can replace communication module and battery.

If a longer distance (up to 10 m) is required between flow sensor and display unit, Pulse Transmitter (type number 66-99-618) can be used.

See instructions 5512-587 for further information.

Smaller cold water meters 1.6 to 10 m^3/h (except for G¾Bx110 and G1Bx110) can be fitted with a strainer (filter) and/or nonreturn valve (backflow preventer). The enclosed special polyethylene gaskets **must** be used.

Strainer, nonreturn valve and special gaskets must only be used in cold water meters.

1.1 Permissible operating conditions / measuring range

Temperature of medium in flow sensor:	Cold water meter: 0.1...50 °C Hot water meter: 0.1...90 °C
Pressure stage:	Threaded meters PN16 Flange meters PN25
Mechanical environment:	M1 (MID). Fixed installation with minimum vibration.
Electromagnetic environment:	E1 (MID). Housing and light industry. The meter's control cable must be drawn at min. 25 cm distance from other installations.
Climatic environment:	5 °C...55 °C. Must be installed indoors and in environments with non-condensing humidity.

MID = Measuring Instrument Directive 2004/22/EC.

2 Installation

In order to prevent cavitation the back pressure in the flow sensor must be minimum 1.5 bar at Q_3 and minimum 2.5 bar at Q_4 (resizes of Q_3 and Q_4, see label on flow sensor).
The meter must not be exposed to lower pressure than the ambient pressure (vacuum).

Pressure stages are PN16 for threaded meters and PN25 for flange meters, see marking. Flow sensor marking does not cover included accessories.

Straight inlets or outlets are not required in order to comply with MID. A straight inlet section will only be necessary in case of heavy flow disturbances before the meter.

2.1 Mounting the flow sensor

Prior to the installation of the flow sensor the system ought to be flushed, a fitting piece replacing the meter.

Remove adhesive wafers/ protection membranes from the meter's inlet and outlet and mount the flow sensor.

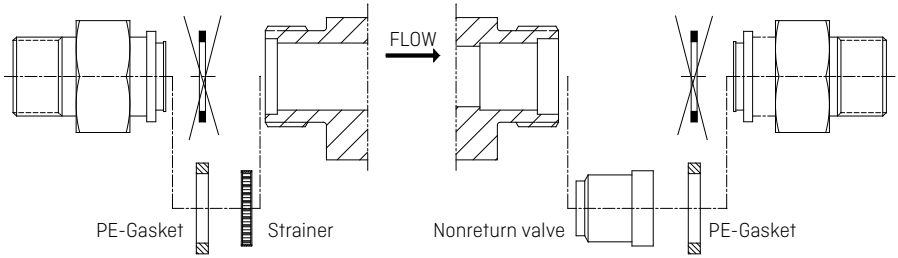
You must always use new gaskets in original quality.

The flow direction is indicated by an arrow on the side of the flow sensor.

Threaded meters are mounted by means of couplings. You must make sure that the threaded lengths of the couplings do not prevent proper tightening of sealing surfaces and that PN10 couplings are used (PN16 couplings/gaskets can be used).

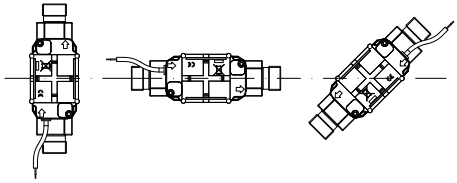
Using strainer and/or nonreturn valve the enclosed thicker PE (polyethylene) gaskets **must** be used in order to avoid damaging strainer or nonreturn valve.

Strainer, nonreturn valve and PE-gaskets must only be used in cold water meters.

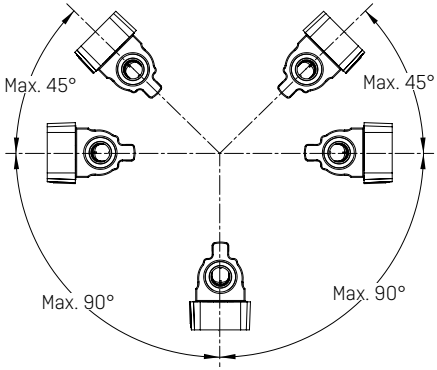


2.2 Installation angle for ULTRAFLOW® 24

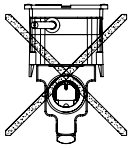
ULTRAFLOW® 24 can be mounted vertically, horizontally or at an angle.



Important! ULTRAFLOW® 24 may be turned upwards to max. 45° and downwards to max. 90° in relation to the pipe axis.



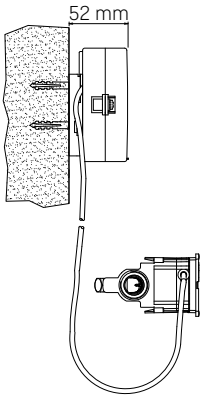
The plastic housing must **not** point vertically upwards as this may cause the meter to be influenced by air build-up.



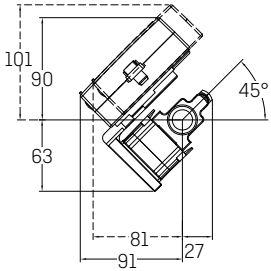
2.3 Mounting of calculator

If there is risk of condensation in the calculator, MULTICAL® 62 must be mounted on a wall. Use the fitting as a template to mark and drill two 6 mm holes in the wall. If the flow sensor is mounted with the plastic housing pointing downwards, the calculator ought to be mounted using an angle fitting (type no. 3026-252, to be ordered separately).

The cable must be mounted minimum 25 cm from other electric installations. Do not forget to seal the calculator.



Wall mounted



Mounted on flow sensor with angle fitting 3026-252

At risk of condensation, socket extender (65-61-332) can be used as an alternative to wall mounting.

3 Power supply

MULTICAL® 62 can be powered by means of a built-in lithium battery or 24 VAC or 230 VAC mains supplied via an integral supply module.

The two cables from battery or supply module are mounted in the calculator's terminal strip.

⚠ The polarity must be correct: red cable to terminal no. 60 (+)
black cable to terminal no. 61 (-)

3.1 Battery supply

MULTICAL® 62 is connected to a lithium battery, D-cell. The battery is marked with installation year, e.g. 2014 as well as production date.
Kamstrup type number: 66-00-200-100.
Optimal battery lifetime is obtained by keeping the battery temperature below 30 °C.

The voltage of a lithium battery is almost constant throughout the lifetime of the battery (approx. 3.65 V). Therefore, it is not possible to determine the remaining capacity by measuring the voltage.

The battery cannot and must not be charged and must not be short-circuited!
Used batteries must be handed in for approved destruction, e.g. at Kamstrup A/S.

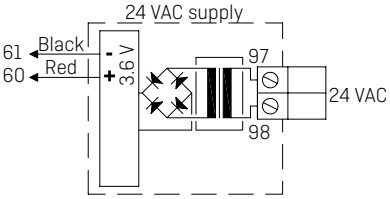
3.2 Supply modules

The modules are protection class II and are connected via a two-wire cable (without earth) through the cable bush of the calculator placed in the right side of the connecting base.

Use connecting cable with an outer diameter of 5-10 mm and ensure correct dismantling as well as correct cable relief.

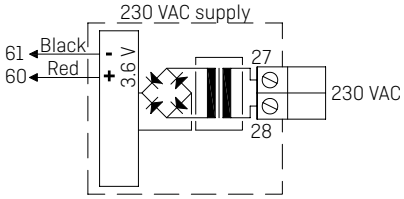
Max. permitted fuse: 6A.

National regulations for electric installations must be observed.



24 VAC
A transformer must be used, e.g.
type 66-99-403 for 24 VAC supply module.

Note: This module cannot be supplied by 24 VDC.



230 VAC
For direct mains connection.

4 Testing the function

Carry out a function control when the meter has been fully mounted. Press the button ▶ on MULTICAL® 62 and check that the displayed values for water flow etc. are credible values.

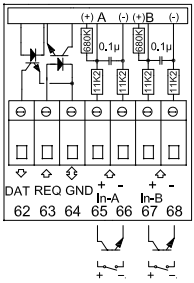
5 Plug-in modules

A number of extra functions can be added to MULTICAL® 62 by means of plug-in modules. The individual modules are briefly described below.

5.1 Base modules

5.1.1 Data + pulse inputs, type 67-00-10

The data terminals are used for connection of e.g. a PC. The signal is passive and galvanically separated by means of optocouplers. Conversion into RS232 level requires connection of data cable 66-99-106 (D-Sub 9F) or 66-99-098 (USB) with the following connections:

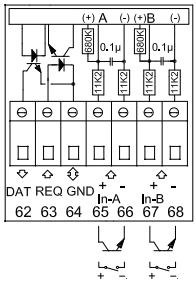


62	Brown	(DAT)
63	White	(REQ)
64	Green	(GND)

The pulse inputs can be used for connection of electricity and water meters.
Please note the maximum pulse frequency as well as correct pulse coding (l/imp. and Wh/imp.), which are selected by means of the FF and GG configurations.

65 - 66	Input A
67 - 68	Input B

5.1.2 M-Bus, type 67-00-20/27/28/29



M-Bus can be mounted in star, ring or bus topology. Up to 250 meters can be connected depending on the M-Bus Master's power supply and the total cable resistance.

Cable resistance < 29 Ohm

Cable capacity < 180 nF

The M-Bus network is connected on terminals 24 and 25. The polarity is unimportant.
M-Bus comes with pulse inputs.

5.1.3 Radio + pulse inputs, type 67-00-21/25/26/29

The radio module is used for wireless communication

via licence-free radio frequency and can be supplied with internal antenna or with connection for external antenna.

For further information on radio we refer to Technical description for radio (5512-012 DK, 5512-013 GB).

The pulse inputs of this module are identical with the previously described pulse inputs.

Note: Type 67-00-21 includes radio and router functions.
The RadioRouter module must be used with mains supply.

5.1.4 Prog. data logger + RTC + 4...20 mA inputs + pulse inputs, type 67-00-22

The module has connection possibility for two pressure transmitters on terminals 57, 58 and 59 and can be adjusted for current reading or pressure ranges of 6, 10 or 16 bar.

The module is prepared for remote reading, data from meter/module being transferred to the system software via the connected external GSM/GPRS modem on terminals 62, 63 and 64.

Furthermore, the module has two extra pulse inputs, VA and VB.

The module must be powered by 24 VAC.

5.1.5 Analog output, type 67-00-23

The module has two active analog outputs, which can be individually configured at 0...20 mA or 4...20 mA. Furthermore, the outputs can be configured for a specific measuring value as well as the required range scaling.

All output values are updated every 10 seconds.

The module must be mounted in MULTICAL® 62 and is powered by 24 VAC. Configuration to be carried out via the "Base module" menu of METERTOOL.

See installation instructions 5512-369 (DK-GB-DE).

5.1.6 Lon Works + pulse inputs, type 67-00-24

The LonWorks module is used for data transfer from MULTICAL® 62 either for data reading/registration or regulation purposes via the Lon-Bus.

The module must be powered by 24 VAC.

A list of network variables (SNVT) and further details about the LonWorks module appear from data sheet. Regarding mounting we refer to installation instructions 5512-396.

See installation instructions 5512-396 (DK) or 5512-403 (GB).

5.1.7 Wireless M-Bus + 2 pulse inputs, type 67-00-30

The radio module has been designed to form part of the hand-held Wireless M-Bus Reader systems of Kamstrup A/S at license-free radio frequency (868 MHz).

The module fulfils the C-mode specifications of prEN13757-4 and can thus form part of other systems using Wireless M-Bus C-mode communication.

The radio module comes with internal antenna and external antenna connection as well as two pulse inputs, which are identical to the previously described pulse inputs.

The Wireless M-Bus radio transmitter is switched off on dispatch from the factory. It turns on automatically when one liter of water has run through the meter. The radio transmitter can also be switched on by means of a forced dial-up to the meter (keep both front keys pressed for approx. 5 secs. until CALL is displayed).

5.1.8 ZigBee + 2 pulse inputs, type 67-00-60

The ZigBee module is mounted direct in the meter and is powered by the meter's supply. The module operates within the 2.4 GHz area and is ZigBee Smart Energy certified. The certification secures that the meter can form part of other ZigBee networks, e.g. reading several meter types from different meter suppliers.

To be able to offer a compact solution the module uses an internal antenna.

5.1.9 Metasys N2 (RS485) + N2 (RS485) + 2 pulse inputs, type 67-00-62

The N2 module is used for data transfer from MULTICAL® water meters to an N2 Master in a Johnson Controls System. The N2 module transfers accumulated volume and flow to an N2 Master. N2 Open from Johnson Controls is a widespread and established field bus protocol used within building automation. The N2 module for MULTICAL® 62 ensures simple integration from Kamstrup's water meters to N2 Open based systems. Address area is 1-255 determined by the last three digits of the meters customer number.

5.1.10 SIOX module (Auto detect Baud rate), type 602-00-64

SIOX is used for data reading of small and medium-sized groups of water meters via cable, the data readings being presented by the main system, e.g. MCom, Fix or Telefrang. Further information on these systems can be ordered from the supplier of these. Furthermore, a configuration tool is available from Telefrang.

The two-wire serial SIOX bus connection is optoisolated from the meter and is connected without regard to polarity (i.e. the polarity is unimportant). The module is powered by the SIOX bus. Communication speed between 300 and 19,200 baud. The module automatically uses the highest possible communication speed. The module converts data from KMP protocol to SIOX protocol.

5.1.11 BACnet MS/TP (B-ASC) RS485 + 2 pulse inputs (VA, VB), type 67-00-66

The BACnet module is used for data transfer from MULTICAL® 62 water meters into BACnet systems. The BACnet module transfers meter number (programmable), serial number, accumulated volume flow (V1), actual flow, accumulated values from additional meters with via puls InA, InB as well as info codes from the water meter to the BACnet system. BACnet is a widespread and established field bus protocol used within building automation. The BACnet module for MULTICAL® 62 ensures simple integration from Kamstrup's water meters to BACnet based systems. The module can be used as both master or slave, depending on the used MAC address.

5.1.12 Modbus RS485 RTU* Slave Module with 2 pulse inputs (VA, VB), type 67-00-67

The Modbus base module for MULTICAL® 62 ensures a simple integration from Kamstrup's water meters into Modbus based systems.

Modbus is an open, widespread and well established serial communication protocol used within building automation.

Further details about the Modbus MS/TP module appear from data sheet 5810-1253, GB-version.

5.1.13 GSM/GPRS module (GSM6H), type 602-00-80

The GSM/GPRS module functions as transparent communication path between reading software and MULTICAL® 62 and is used for data reading. The module includes an external dual-band GSM antenna which must be used. The module itself includes a number of light emitting diodes indicating the signal level, which are very useful during installation. The GSM/GPRS module must be used together with high-power mains supply (230 VAC: 602-00-00-3 and 24 VAC: 602-00-00-4).

5.1.14 3G GSM/GPRS module (GSM8H), type 67-00-81

Like GSM6H this module functions as transparent communication path between reading software and MULTICAL® 62 and is used for data reading.

However, this module supports both 2G (GSM/GPRS) and 3G (UMTS) which makes it applicable in areas with 3G coverage only.

The module requires an external Antenna, which covers both 900 MHz, 1800 MHz and 2100 MHz.

The module itself is fitted with a line of light emitting diodes indicating signal strength which are very useful during installation. Furthermore, it is indicated whether the module is connected to a 2G or a 3G network.

Regarding mounting we refer to installation instructions (DK: 5512-1121, GB: 5512-1122, DE: 5512-1123, FI: 5512-1124, SE: 5512-1125).

*) RTU : Remote Terminal Unit.

5.1.15 Ethernet/IP module (IP201), type 602-00-82

The IP module functions as transparent communication between reading software and MULTICAL® 62 and is used for data reading. The Module supports both dynamic and static addressing. This is specified in the order or selected during subsequent configuration. The module has no built-in security and must, therefore, always be used in connection with a firewall or NAT. The Ethernet/IP module must be used together with high-power mains supply (230 VAC: 602-00-00-3 and 24 VAC: 602-00-00-4).

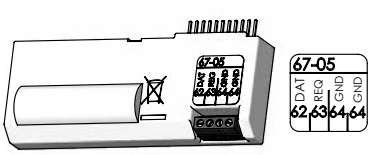
5.1.16 High-Power RadioRouter + 2 pulse inputs (VA, VB), type 602-00-84

The High-Power RadioRouter module has built-in router functionality and is thus optimized to form part of a Kamstrup radio network, the read data being automatically transferred to system software via the network unit RF Concentrator. Furthermore, the module can be read by Kamstrup's hand-held reading systems, e.g. USB Meter Reader and MULTITERM Pro.

The RadioRouter module is available for operation in both licence-free and licence demanding frequences permitting a transmitting strength of up to 500 mW. The module is by default fitted with internal antenna, connection for external antenna, and two extra pulse inputs. The High Power RadioRouter module (602-00-84) must be used together with the High Power mains supply (230 VAC: 602-00-00-3 and 24 VAC: 602-00-00-4).

5.2 Top modules

5.2.1 Type 67-05: RTC + data output + hourly data logger



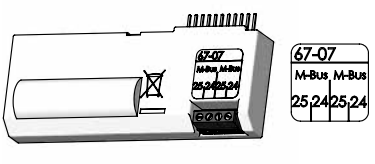
The module has a galvanically separated data port which functions with the KMP protocol. The data output can be used for e.g. connection of external communication units or other hardwired data communication which it is not expedient to carry out via the optical communication on the meter's front.

62: DATA (brown) – 63:REQ (white) – 64: GND (green). Use data cable type 66-99-106 with 9-pole D-sub or type 66-99-098 with USB connector.

Furthermore, the module includes an hourly data logger.

Only current and accumulated data can be read. Hourly/daily/monthly/yearly data loggers cannot be read through the data port of top module 67-05.

5.2.2 Type 67-07: RTC + M-Bus



M-Bus can be connected in star, ring and bus topology. Depending on M-Bus Master and cable length/cross section up to 250 meters with primary addressing can be connected, and even more using secondary addressing.

Cable resistance in network: < 29 ohm

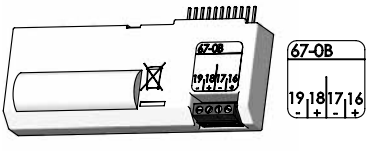
Cable capacity in network: < 180 nF

The connection polarity of terminals 24-25 is unimportant.

Unless otherwise stated in the order, the primary address consists of the last three digits of the customer number, it can be changed, however, via the PC program METERTOOL.

Module to be used in mains supplied meters only.

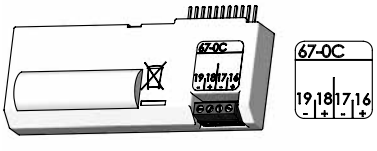
5.2.3 Type 67-0B: RTC + pulse output for CV + prog. data logger



The RTC and pulse output functions of this top module are identical with the functions described for top module 67-08.

The top module is prepared for use in a Kamstrup radio network together with the RadioRouter base module 67-00-21-000-3xx, read data being transferred to the system software via the network unit RF Concentrator.

5.2.4 Type 602-0C: 2 pulse outputs for CE and CV



This top module has two configurable pulse outputs, which are suitable for volume pulses.

The pulse resolution follows the display (determined by the CCC-code). E.g. CCC=119 (q_p 1,5): 1 pulse/kWh and 1 pulse/0.01 m^3.

The pulse outputs are optoisolated and withstand 30 VDC and 10 mA.

Normally energy (CE) is connected to 16-17 and volume (CV) to 18-19, but other combinations can be selected by means of the PC program METERTOOL, which is also used for selecting the pulse at either 32 or 100 ms.

6 Retrofitting modules

Both top modules and base modules for MULTICAL® 62 can be supplied separately for retrofitting. The modules are configured and ready for installation from the factory. Some of the modules require individual configuration after installation, which is possible by means of METERTOOL.

Top module		**Possible configuration after installation**
Data output + hourly data logger	**5**	Clock adjustment.
RTC + M-Bus	**7**	Clock adjustment. Primary and secondary M-Bus addresses can be changed via METERTOOL or M-Bus. Furthermore, monthly logger data can be selected instead of yearly logger data via M-bus.
RTC + pulse output for CV + prog. data logger	**B**	Clock adjustment. Configuration of pulse outputs.
2 pulse outputs for CE and CV	**C**	Connection and pulse value are changed via METERTOOL.

Base module		
Data + pulse inputs	**10**	Pulse values of VA and VB are changed via METERTOOL.
M-Bus + pulse inputs	**20**	Pulse values of VA and VB are changed via METERTOOL. Primary and secondary M-Bus addresses can be changed via METERTOOL or M-Bus. Furthermore, monthly logger data can be selected instead of yearly logger data via M-bus.
RadioRouter + pulse inputs	**21**	Pulse values of VA and VB are changed via METERTOOL.
Prog. data logger + RTC + 4...20 mA inputs + pulse inputs	**22**	Clock adjustment. Pulse values of VA and VB are changed via METERTOOL.
0/4...20 mA outputs	**23**	Config data must be programmed into the calculator by means of METERTOOL when retrofitting. Furthermore, all parameters can be changed via METERTOOL.
LonWorks, pulse inputs	**24**	Pulse values of VA and VB are changed via METERTOOL. All other configurations are made via LonWorks.
Radio + pulse inputs (integral antenna)	**25**	Pulse values of VA and VB are changed via METERTOOL.
Radio + pulse inputs (connection for external antenna)	**26**	Pulse values of VA and VB are changed via METERTOOL.

M-Bus module with medium data packet + pulse inputs	**28**	Primary and secondary M-Bus addresses can be changed via METERTOOL or via M-Bus. Furthermore, monthly logger data can be selected instead of yearly logger data via M-Bus.
M-Bus module with MC-III data package + pulse inputs	**29**	Pulse values of VA and VB are changed via METERTOOL. Primary and secondary M-Bus addresses can be changed via METERTOOL or M-Bus.
Wireless M-Bus + pulse inputs	**30**	Pulse values of VA and VB are changed via METERTOOL
ZigBee 2.4 GHz internal antenna + pulse inputs	**60**	Pulse values of VA and VB are changed via METERTOOL
Metasys N2 (RS485) + pulse inputs	**62**	Pulse values of VA and VB are changed via METERTOOL
SIOX module (Auto detect baud rate)	**64**	The baud rate can be set via SIOX-TOOL
BACnet MS/TP + 2 pulse inputs	**66**	Pulse values of VA and VB are changed via METERTOOL
Modbus RTU + pulse inputs	**67**	Pulse values of VA and VB are changed via METERTOOL
GSM/GPRS module (GSM6H)	**80**	APN is changed via GSM-TOOL
3G GSM/GPRS module (GSM8H)	**81**	APN is changed via GSM-TOOL
Ethernet/IP module (IP201)	**82**	IP configuration is changed via IP-TOOL
High-Power Radio Router + pulse inputs	**84**	Pulse values of VA and VB are changed via METERTOOL

7 Information Codes “INFO”

MULTICAL® 62 constantly monitors a number of important functions. If there is a serious error in measuring system or installation, a flashing “INFO” will appear in the display until the error has been corrected. The “INFO” field flashes as long as the error exists no matter which reading you choose. The “INFO” field automatically disappears when the reason for the error has been removed.

When the first permanent information code appears it is saved in the EEPROM together with the date and the volume registers at the time the error occurred.

Furthermore, the info code is saved in the hourly logger (if a top module with hourly logger is mounted), the daily logger, the monthly logger and the yearly logger for diagnosis purposes.

Info code types

Info	Description	Response time
0	No irregularities	-
1	Supply voltage has been interrupted	-
16	Flow sensor V1, communication error	After reset (e.g. cover off and on) as well as automatically after max. 24 hours (at 00:00)
64	Leak in water installation. The Water has **not** been stagnant in the meter for **minimum** one continuous hour during the latest 24 hours. This can be a sign of a leaky faucet or toilet cistern.	24 hours
2048	Flow meter V1, wrong pulse figure	After reset (e.g. cover off and on) as well as automatically after max. 24 hours (at 00:00)
4096	Flow meter V1, signal too weak (air)	
16384	Flow meter V1, wrong flow direction	

If several info codes appear at a time, the sum of the info codes is displayed.

Example: E2064 = E16 + E2048.

7.1 Transport mode

The meter leaves the factory in transport mode, i.e. the info codes are active in the display only, not in the data logger. This prevents “infoevent” from counting during transportation and non-relevant data from being saved in the info logger. The first time the meter totalizes the volume register after the installation, the info codes automatically become active.

8 Troubleshooting

MULTICAL® 62 has been constructed with a view to quick and simple installation as well as long and reliable operation at the consumer.

Should you, however, experience an operating problem, the table below can be used for trouble-shooting.

If repair of the meter becomes necessary, we recommend you to replace parts like battery and communication modules only. Alternatively, the whole meter ought to be replaced.

Major repairs must be made by Kamstrup A/S.

Before sending in the meter for repair or check, please use the error detection table below to help you clarify the possible cause of the problem.

Symptom	Possible reason	Proposal for correction
The display value is not updated	Power supply missing	Change battery or check mains supply
No display function (empty display)	Power supply missing	Change battery or check mains supply. Is there 3.6 VDC on terminals 60(+) and 61 (-)?
If "INFO" = 1	Supply voltage has been interrupted	The info code is corrected automatically
No accumulation of volume (m^3)	Read "INFO" in the display	Check the error indicated by the info code
If "INFO" = 16	Communication error	There is air in the flow sensor? Bleed the system and check the meter again. Check that the flow direction matches the arrow on the flow sensor
If "INFO" = 2048	Flow sensor programmed with wrong pulse figure	Please contact Kamstrup A/S
If "INFO" = 4096	Signal too weak	There is air in the flow sensor? Bleed the system and check the meter again
If "INFO" = 16384	Flow sensor mounted in wrong direction	Check that the flow direction matches the arrow on the flow sensor

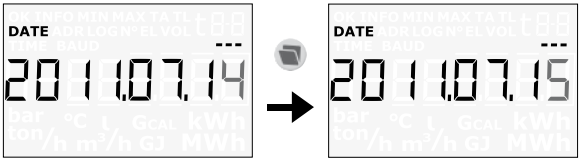
9 Setup via front keys

Date, time and primary M-Bus address can be adjusted by means of the keys on the calculator's front.

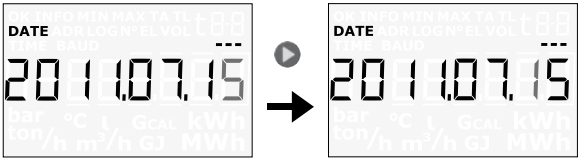
1. In the display you select the reading you want to change
2. Lift off the calculator top
3. Wait until the meter has shut down (up to 2.5 minutes). Do not press any keys
4. While remounting the calculator top, keep the main key activated until there are no more lines in the display.
5. The setup menu is now active.

Having activated the setup menu the reading you want to change is displayed with the rightmost digit flashing:

The value of the flashing digit can be changed by pressing the sub-key. The digit is increased by one each time the key is pressed, and passing 9 you start from 0:



Pressing the main key you go to the next digit from right to left:

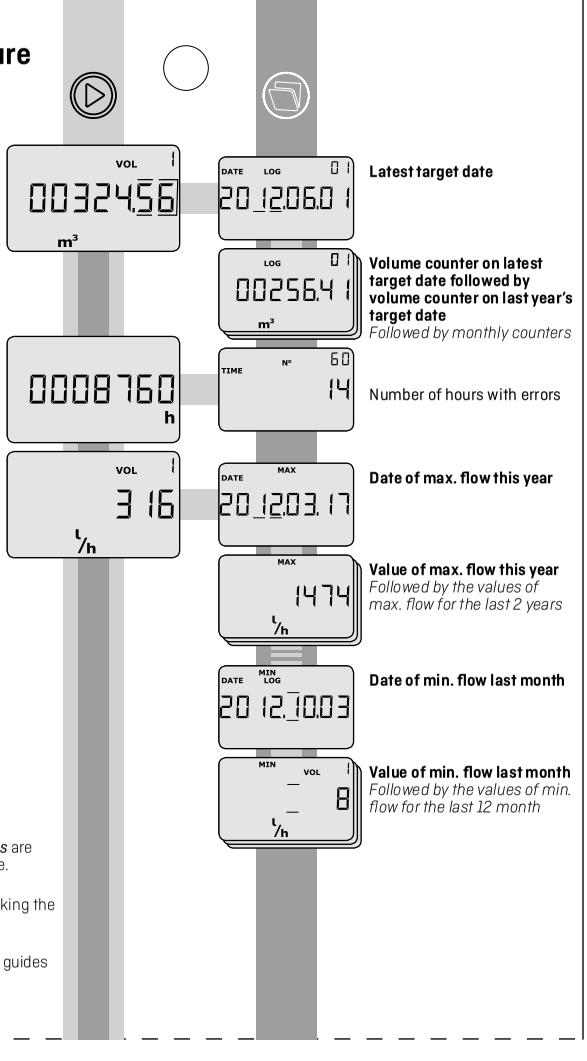


The active digit flashes and this digit can now be changed by pressing the sub-key. You go to the first digit on the right by means of the main key.

When the value of the reading has been changed you quit by pressing the main key continuously for approx. 10 seconds.

It should be checked whether the value is valid for the reading in question. If so, the value is saved and an "OK" symbol is displayed. If not, the old value is maintained, no "OK" symbol appears, and the display reverts to legal reading.

Menu Structure



Water consumption
Please note! *This is the field used for billing*

Latest target date

Volume counter on latest target date followed by volume counter on last year's target date
Followed by monthly counters

Number of operating hours

Number of hours with errors

Current water flow

Date of max. flow this year

Value of max. flow this year
Followed by the values of max. flow for the last 2 years

Date of min. flow last month

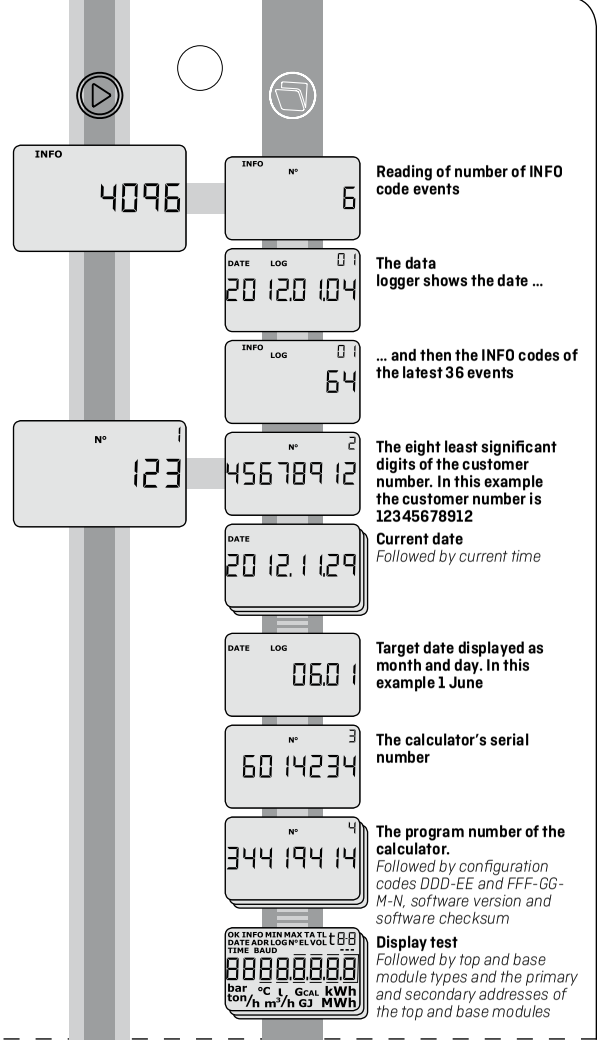
Value of min. flow last month
Followed by the values of min. flow for the last 12 month

Please note:
Readings written in *italics* are not shown by an example.

= comma frame marking the number of decimals.

Also see interactive user guides at www.kamstrup.com.

DDD = 814



Current information code
See INFO codes on the backpage

Reading of number of INFO code events

The data logger shows the date ...

... and then the INFO codes of the latest 36 events

The up to eight most significant digits of the customer number

The eight least significant digits of the customer number. In this example the customer number is 12345678912

Current date
Followed by current time

Target date displayed as month and day. In this example 1 June

The calculator's serial number

The program number of the calculator.
Followed by configuration codes DDD-EE and FFF-GG-M-N, software version and software checksum

Display test
Followed by top and base module types and the primary and secondary addresses of the top and base modules

Volume

MULTICAL® 62 has been developed and type approved according to the newest standards. (OIML R49 and the Measuring Instrument Directive (MID) 2004/22/EF).

Readings

When the top front button (primary register) is activated, the next reading is displayed.

- The following is shown
- VOLUME in m^3 (total quantity)
- Number of OPERATING HOURS
- Actual FLOW in l/h
- INFO CODE
- CUSTOMER NUMBER

The bottom front button (secondary register) is used to collect historic readings and average values, e.g. monthly data, yearly data etc. depending on the selected configuration.

The display automatically returns to reading of "VOLUME" after 4 minutes.

Information Codes

MULTICAL® 62 constantly monitors a number of important functions.
If there is a serious error in measuring system or installation, a flashing "INFO" will appear in the display until the error has been corrected. The "INFO" field flashes as long as the error exists no matter which reading you choose. The "INFO" field automatically disappears when the reason for the error has been removed.

Info code types

Info	Description
0	No irregularities
1	Supply voltage has been interrupted
16	Communication error
64	Leak in water installation. The Water has not been stagnant in the meter for minimum one continuous hour during the latest 24 hours. This can be a sign of a leaky faucet or toilet cistern.

Info	Description
2048	Wrong pulse figure
4096	Signal too weak (air)
16384	Wrong flow direction

If several info codes appear at a time, the sum of the info codes is displayed. Example: E2064 = E16 + E2048.
If "INFO" flashes, contact the utility.

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User Guide

MULTICAL® 62

Water meter

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