

Heat/cooling meters:

MULTICAL® 303

MULTICAL® 403

MULTICAL® 603

MULTICAL® 803

**kamstrup**

## Facts Advantages Benefits

The meter is the absolute cornerstone of your network. It gives you data for billing and optimization.

Intelligent meters from Kamstrup have a proven long-term reliability and accuracy. They are packed with intelligent features that will help you save time and resources during the life time of your meter installation.



# Choose the correct meter

This overview helps you to choose the meter that meets your needs and requirements.

**MULTICAL® 303**



**MULTICAL® 403**



**MULTICAL® 603**



**MULTICAL® 803**



|  |  |   |  |                           |
|--|--|---|--|---------------------------|
| Heat meter approval (MID, EN1434)                      | DK-0200-MI004-045                          | DK-0200-MI004-037                         | DK-0200-MI004-040  | DK-0200-MI004-042         |
| Cooling meter approval (BEK-1178, EN1434)              | TS 27.02 015                               | TS 27.02 009                              | TS 27.02 012   | TS 27.02 013              |
| Temperature range                                      | 2...180 °C                                 |   |  |                           |
| Differential temperature                               | 3...178 K                                  |   |  |                           |
| Temperature of medium                                  | 2...130 °C                                 |   |  |                           |
| Mains-supplied   | 24 VAC/VDC or 230 VAC                      |   |  |                           |
| Battery-powered  | 1 x A cell, 2 x A cells                    | 1 x C cell, 1 x D cell,<br>2 x A-cells    | 1 x D cell, 2 x A-cells                                    | 2 x A cells <sup>1)</sup> |
| Battery life <sup>2)</sup>                             | Up to 16 years                             |   |  | Up to 6 years             |
| Flow range   | q <sub>p</sub> 0.6...2.5 m <sup>3</sup> /h | q <sub>p</sub> 0.6...15 m <sup>3</sup> /h | q <sub>p</sub> 0.6...1,000 m <sup>3</sup> /h <sup>3)</sup> |                           |
| Flow sensor cable length                               | 1.5 m                                      |   | 2.5...100 m <sup>4)</sup>                                  |                           |
| Temperature sensor                                     | 2-wire,<br>Pt500                           | 2-wire,<br>Pt500                          | 2- or 4-wire,<br>Pt500 or Pt100                            | 4-wire,<br>Pt500/100 auto |
| Temperature sensor cable length                        | 1.5...3 m                                  | 1.5...10 m                                | 1.5...100 m  |                           |
| Protection class                                       | Calculator IP65<br>Flow sensor IP68        | Calculator IP54<br>Flow sensor IP68       | Calculator IP65<br>ULTRAFLOW® IP65/IP67                    |                           |
| Integration mode (backup)                              | 4...64 s                                   |   | 2...64 s   | 2 s (8 s)                 |
| Measuring unit   | MWh – kWh – GJ                             |   | MWh – kWh – GJ – Gcal                                      |                           |
| Module slots   |  | 1   | 2  | 4                         |
| Integrated Wireless M-Bus                              | ✓  |   |  |                           |
| Integrated M-Bus                                       | ✓  |   | ✓  |                           |
| Data and analog modules                                |  | ✓   | ✓  | ✓                         |
| M-Bus and Wireless M-Bus modules                       |  | ✓   | ✓  | ✓                         |
| Industrial modules (Modbus, BACnet)                    |  | ✓   | ✓  | ✓                         |
| Calculator and flow sensor can be separated            |  |   | ✓  | ✓                         |
| Connection with third-party flow sensors <sup>5)</sup> |  |   | ✓  | ✓                         |
| Backlit display  |  |   | ✓ (option)   | ✓                         |
| Mixed fluid compatible                                 |  |   | ✓ (option)   | ✓ (option)                |

1) Backup battery for operating basic meter functionality or basic meter functionality as well as communication on module slot 1.

2) The battery life depends on various factors such as integration and reading intervals.

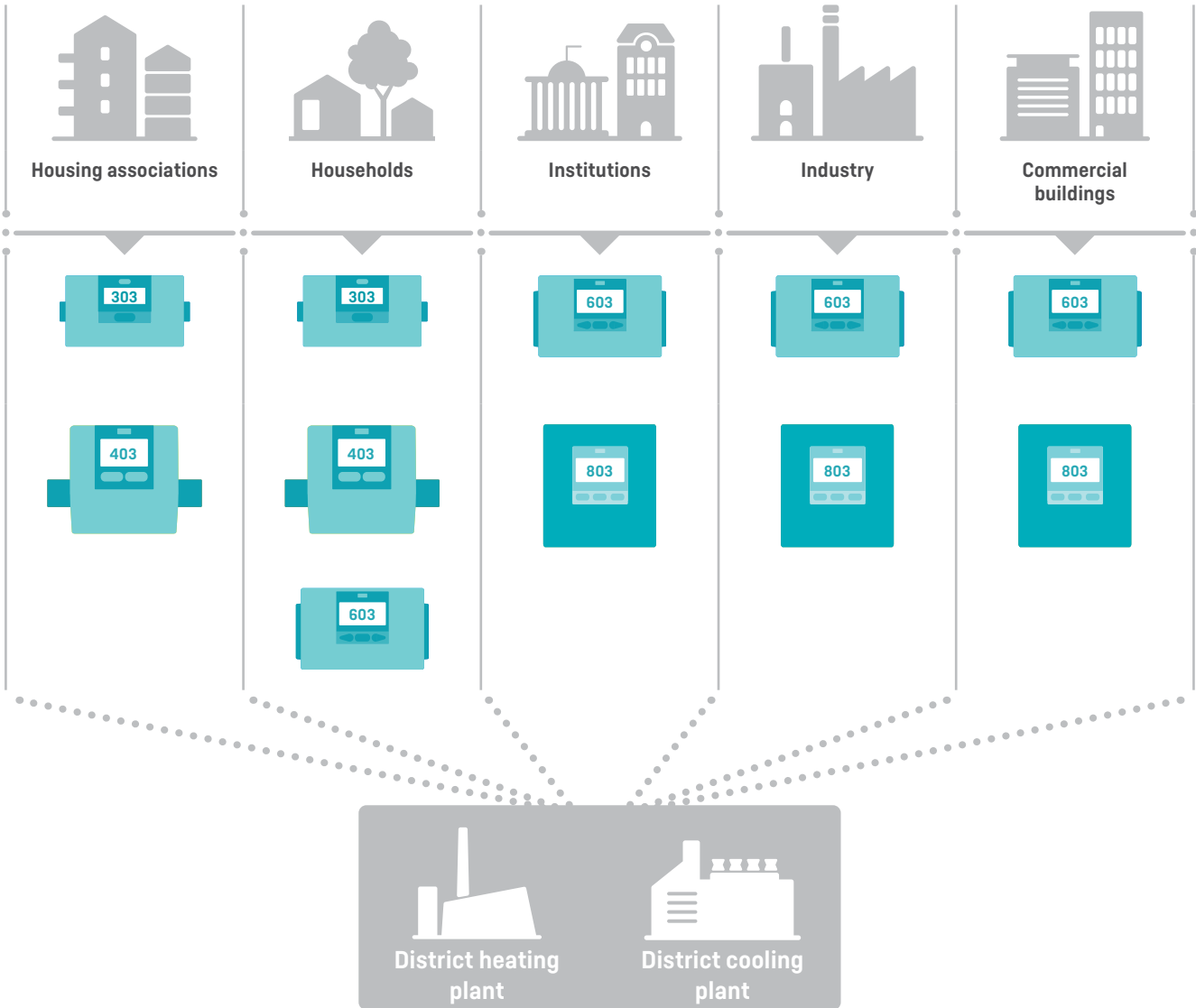
3) MULTICAL® 603 and 803 can be ordered with the Kamstrup ultrasonic flow sensors of the type ULTRAFLOW®.

4) The standard cable length is 2.5 m, 5 m and 10 m. Can be extended up to 30 m with cable extension box with extended flow info codes. Can also be extended up to 100 m with Pulse Transmitter, however without extended flow info codes.

5) q<sub>p</sub> 0.6...15,000 m<sup>3</sup>/h

# Meters for all applications

We have exactly the meter you need, whether it be for the private villa, housing associations or industrial buildings.



**Built to last**  
– designed to perform

Kamstrup’s thermal energy meters are based on innovative ultrasonic technology, a deep understanding of the challenges faced by utilities and decades of experience with designing and manufacturing high-quality heat and cooling meters with simple-to-use functionality, unrivalled accuracy and reliability.

Heat

Cooling

## MULTICAL® 303

### The residential all-rounder

Whether used in planning, in installations or for administrative purposes, MULTICAL® 303 is the only heat and cooling meter you will need.

The meter’s design features ensure the most efficient operational use of any heat and cooling meter. Whether mounted horizontally, vertically or on walls, MULTICAL® 303 can be adjusted to perfectly fit its surroundings. The high protection class of the meter – IP65 for calculator and IP68 for flow sensor – makes it the leading and most efficient heat and cooling meter in its class.



| Fact  | Advantage   | Benefit  |
|---|---|--|
| <b>Inlet/Outlet position</b>                                      | One meter to fit all installations as position, energy unit and much more can be configured on site       | Low stockholding and easy planning   |
| <b>PN25 flow sensor approved to 130 °C</b>                        | Ruggedized construction, also for high buildings and direct connected district heating                    | Highest flexibility without any extra effort or expense  |
| <b>Large dynamic range</b>  | It measures every thinkable consumption with a dynamic range of 1500:1 from start flow to saturation flow | Reduced loss of distributed energy   |
| <b>Low pressure loss</b>  | Reduced need for pump capacity as the pressure loss is below 0.1 bar                                      | Reduced amount of electrical energy to the circulation pumps   |
| <b>Integrated and programmable data logger with minute logger</b> | Information for the billing, energy and diagnostic efficiency   | Faster troubleshooting and a better basis for efficient energy consulting                                    |
| <b>No transport restrictions on the batteries</b>                 | The batteries are declared exempt from the dangerous goods regulations                                    | Faster and more economical transportation  |
| <b>Improved integrated M-Bus</b>                                  | Configurable M-Bus and Wireless M-Bus   | Future-proof – possibility of adapting datagrams to future requirements without having to exchange the meter |
| <b>Small and compact</b>  | The meter can be turned and still remain within very little space (less than 60 mm from the pipe axis).   | Best display readability in all applications and a minimum of time for installation                          |

## MULTICAL® 403

### The front runner in energy metering

MULTICAL® 403 is an investment for the future. The meter is well equipped to meet the demands and challenges of today and tomorrow.

The meter is available with separate software download to either calculator or communication module to enable future upgrades as new possibilities and challenges occur without interfering with legal registers, meter readings or meter system management.



| Fact                             | Advantage  | Benefit   |
|----------------------------------|--|---|
| <b>Inlet/Outlet position</b>     | One meter to fit all installations as position, energy unit and much more can be configured on site                          | Low stockholding and easy planning  |
| <b>Real-time clock backup</b>    | No need to set the clock after power failure   | Lower service costs   |
| <b>Large dynamic range</b>       | It measures every thinkable consumption with a dynamic range of 1600:1 from saturation flow to start flow [250:1 from qp:qi] | Reduced loss of distributed energy  |
| <b>Low pressure loss</b>         | Reduced need for pump capacity as the pressure loss is below 0.1 bar   | Reduced amount of electrical energy to the circulation pumps                        |
| <b>Remotely read data logger</b> | Information for billing and diagnostic efficiency can be remotely read   | Faster troubleshooting and a better basis for efficient energy consulting           |
| <b>Improved M-Bus module</b>     | All M-Bus applications to be covered by just one configurable M-Bus module   | Faster start-up, shorter reading intervals and configurable installation            |
| <b>Software download</b>         | Easy to update the calculator or module software either wired or wirelessly  | Get the newest meter or module software without replacing the calculator or module  |
| <b>Small and compact</b>         | Easy to set the display to the optimum reading angle in installations with limited space.                                    | Best display readability in all applications and a minimum of time for installation |

## MULTICAL® 603

### Future-proof your installation with full flexibility

MULTICAL® 603 offers full support for remote reading of data loggers for billing purposes and gives you instant access to the information needed to analyse and optimise your distribution network. The data loggers are fully programmable to save yearly, monthly, daily, hourly and minute values. This lets you effectively analyse and diagnose your application for faster identification of load profiles, errors and inconsistencies.

MULTICAL® 603 can be equipped with a wide range of advanced communication modules, e.g. Wired or Wireless M-Bus. The improved M-Bus allows fast and frequent data readings without reducing the meter’s battery life.



| Fact   | Advantage  | Benefit   |
|--|--|---|
| <b>Autodetection of ULTRAFLOW®</b>               | The calculator automatically detects the connected ULTRAFLOW® and adapts meter factor and nominal flow accordingly             | Low stockholding of calculator types and reduced risk of faulty meter factor  |
| <b>Three communication channels</b>              | Two module slots and the option for integrated wired M-Bus, for example for billing, management and BMS systems, respectively. | Easily integrates in all types of AMR and BMS systems, with three communication channels and a large range of communication modules |
| <b>Very low power consumption</b>                | Up to 16 years of battery life with wireless M-Bus and two connected ULTRAFLOW®  | Possibility of remote reading of a battery-supplied meter with leak detection   |
| <b>Faster integrations and higher resolution</b> | Down to 2 seconds integrations and 7 or 8 digit high resolution values mean more accurate measurements                         | The accurate measurements means a better basis for more in-depth consumption analysis   |
| <b>Remotely read data logger</b>                 | Information for billing of energy and diagnostic efficiency can be remotely read   | Faster troubleshooting and better basis for efficient energy consulting   |
| <b>Improved M-Bus module</b>                     | All M-Bus applications to be covered by just one configurable M-Bus module   | Faster start-up, shorter reading intervals and configurable installation  |
| <b>Software download</b>                         | Easy to update the calculator or module software either wired or wirelessly  | Get the newest calculator or module software without replacing the calculator or module   |
| <b>User-friendly design</b>                      | Easy configuration on site through the meter’s three front keys and the backlit display  | Save time and money with user-friendly on-site maintenance of the calculator  |

## MULTICAL® 803

### Heat and cooling metering for trade and industry

MULTICAL® 803 for heating and cooling is an all-in-one solution that meets the high requirements for advanced industrial measurement with accurate, stable energy meters with long life and many communication and remote reading functions.

With automatic detection of both the Pt-type of the temperature sensors and the meter factor of the connected ULTRAFLOW® units, it is only necessary to have one calculator in stock – MULTICAL® 803.

In addition, the meter is IP65-approved and thus demonstrably resistant to dust and moisture.



| Fact  | Advantage  | Benefit  |
|---|--|--|
| <b>Automatic temperature sensor detection</b> | One meter for all installations as the meter automatically detects the Pt-type of the temperature sensors                | Simple purchase of meters and low stockholding                               |
| <b>Autodetection of ULTRAFLOW®</b>            | The calculator automatically detects the connected ULTRAFLOW® and adapts meter factor and nominal flow accordingly       | Low stockholding of calculator types and reduced risk of faulty meter factor |
| <b>IP65 density</b>                           | Robust design that can be installed in dusty and humid environments  | Flexible mounting  |
| <b>6 years' backup battery</b>                | Both energy measurement and data communication continue during voltage failure   | No risk of lost data   |
| <b>Four module slots</b>                      | There is space for four individual modules in the meter  | Optimal possibility to customize the data communication as needed            |
| <b>Extra large display with backlight</b>     | Easy to read - also from a distance  | Can be installed in places without lighting                                  |
| <b>Approved for long cables</b>               | The meter meets the demand for flexible installation with cables up to 100 m for the flow sensor and temperature sensors | Possible to place the calculator in more convenient positions                |
| <b>Built-in 24 VDC auxiliary supply</b>       | No need to install external transformer  | Simple installation without the need for additional components               |

# The digital value chain

You cannot optimize what you do not measure, but...

“If you want to exploit the full potential of intelligent energy measurement, you need the right tools to transform data into knowledge that you can act on.”

Kamstrup’s value chain includes everything from meters to communication solutions, software and analysis options.



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