



Multical[®] 603

Calculator



Your benefits

- Ultrasonic technology:
Long-term stable energy measurement with maximum measurement accuracy
- Highly flexible modular design:
Expandable base unit, reduced inventory requirements
- Auto Detect function of ULTRAFLOW[®]:
One calculator for all flow sensor sizes
- Comprehensive data logger:
Instant access to information for analysis and optimization purposes
- One-time programming of metrological parameters on site without breaking the MID seal:
Flexibility and time savings during commissioning
- Option cards for various functions:
 - **Affordable base unit**
 - **Additional functions can be added later**
- CH refrigeration certification (METAS) incl. initial calibration:
Approved for use in commercial transactions

Applications

- Particularly suitable for district heating/cooling applications (main meters, transfer stations, etc.) in billing transactions
- Heat and/or cooling consumption measurement in building services engineering
- Calculator for local or remote reading
- Leakage and pipe break monitoring in district heating systems

Properties

- Large LCD display, resolution 7 or 8 digits
- Mains power supply 230 V AC, power supply 24 V AC/V DC or with 16-year battery for wall mounting
- Supported, integrated real-time clock (RTC) and data logger, mains power supply 230 V AC
- Pt 500 temperature sensor, 2-/4-wire technology (603-M 2-wire)
- Storage of the last 36 monthly and 20 annual values
- Can be combined with the following volume measuring parts:
 - ULTRAFLOW[®]
 - Impeller meter with reed pulse generator
 - Magnetic-inductive meter
- Type testing/approval:
 - Heat: **CE** Conformity according to European Measuring Instruments Directive (MID)
 - Cold: CH approval (METAS) incl. initial calibration

Options

- Mixed fluid on version (603-M) on request
- Option cards for
 - M-Bus / 2 water meter inputs
 - M-Bus / 2 pulse outputs energy + volume
 - Radio OMS T1, 868 MHz (battery life 11 years)
 - 2 active analog outputs 0/4...20mA (mains power supply required)
 - LonWorks, TP/FT-10 / 2 water meter inputs (high-power power supply required)
 - BACnet MS/TP (RS485) + 2 water meter inputs (mains power supply required)
 - Modbus RTU (RS485) + 2 water meter inputs (mains power supply required)
 - Modbus TCP-IP / 2 water meter inputs (high-power power supply required)
 - BACnet IP / 2 water meter inputs (high-power power supply required)
 - LoRaWAN int./ext. antenna

Technical data

Performance data for the MULTICAL® 603 calculator

Temperature measuring range	2 to 180 °C
Temperature difference measuring range	3 to 178 K
Temperature resolution on display	0,01 °C
LCD resolution	7 or 8 digits with 8.2 mm digit height, max. 3 decimal places
Energy display unit	For ULTRAFLOW®: up to qp 150 kWh or MWh, from qp 250 MWh
Volume display unit	m ³
Flow display unit	l/h
Power display unit	kW
Protection class	IP65
Environmental class	A/C according to EN 1434
Ambient temperature	+5 to +55 °C (non-condensing)
Storage temperature	-20 to +60 °C
Display unit Consumption meter 1+2	m ³
Weight	approx. 0.4 kg

Power supply

Mains power supply	<ul style="list-style-type: none"> ■ 230 V AC +15/-30%, 50/60 Hz ■ 24 V AC ±50%, 50/60 Hz ■ 24 V DC (16 ... 50 V DC)
Backup mains power supply	Built-in SuperCap eliminates downtime during brief power outages (only when connected to mains power)
Battery power supply	3,6 V DC ±0,1 V DC
Battery life ¹⁾	<ul style="list-style-type: none"> ■ Wall mounting 16 years @ t_{BAT} < 30 °C ■ Compact mounting 14 years @ t_{BAT} < 40 °C
Data logger (EEPROM)	1392 hours, 460 days, 36 months, 20 years, 250 info codes (last 50 can be read on display)
Clock/calendar	Clock, calendar, leap year compensation, reference date, real-time clock (RTC) with battery backup

1) The use of data modules, frequent data communication, and high ambient temperatures reduce battery life.

Volume measuring device	ULTRAFLOW®	Reed switch	24 V active pulses
Pulse input	680 kΩ pull-up up to 3.6 V	680 kΩ pull-up up to 3.6 V	12 mA at 24 V
Pulse ON	<0,4 V in >1 ms	<0,4 V in >300 ms	<4 V in >3 ms
Pulse OFF	>2,5 V in >4 ms	>2,5 V in >100 ms	>12 V in >4 ms
Pulse frequency	<128 Hz	<1 Hz	<128 Hz
Electrical insulation	Nein	Nein	2 kV
Maximum cable length	10 m	10 m	100 m
Temperature sensor	Pt 500, 2-wire or 4-wire technology / glycol Pt 500, 2-wire technology		

Technical data option cards

Pulse inputs from water meters

Pulse input 680 k Ω Pullup up to 3,6 V

Pulse ON <0,4 V in >30 ms

Pulse OFF >2,5 V in >30 ms

Frequency <3 Hz

Electrical insulation No

Maximum cable length 25 m

Pulse outputs

Type (energy + volume) Open-Collector

External voltage 5...30VDC

Load 1 ... 10mA

Pulse length 32ms or 100ms

Maximum cable length 25m