

EC-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MI004-004

Issued by FORCE Certification A/S, Denmark
EC-notified body number 0200

In accordance with The Danish Safety Technology Authority's statutory order no. 436 of 16th May 2006 with later amendments which implements the Directive 2004/22/EC of the European Parliament and Council of March 31st, 2004 on measuring instruments (MID) and later amendments.

Issued to: **Kamstrup A/S**
Industrivej 28, Stilling
DK-8660 Skanderborg

Reference No.: 113-21029.0004.0020

Type of instrument: Heat Meter, calculator

Type designation: MULTICAL[®] 601 (type 67-A, 67-B, 67-C and 67-D)
MULTICAL[®] 601+ (type 67-E)


Valid until: February 06, 2017

Number of pages: 7, including appendix

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Revision No.: 1 - 2014

Approved by



Lars Poder
Certification Manager

Processed by



Michael Møller Nielsen
Examiner

The conformity markings may only be affixed to the above type approved equipment. The manufacturer's Declaration of Conformity may only be issued and the notified body identification number may only be affixed on the instrument when the production/product assessment module (D or F) of the directive is fully complied with and controlled by a written inspection agreement with a notified body.
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Appendix to

EC-Type Examination Certificate Measuring Instrument Directive

Number: DK-0200-MI004-004

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Revision 1 – 2014: New module added to type number combination.

Applied standards and documents:

EN1434: 2007

The instruments/measuring systems shall correspond with the following specifications:

Type designation

MULTICAL[®] 601 (type 67-A, 67-B, 67-C and 67-D)
MULTICAL[®] 601+ (type 67-E)

Description

The meter consists of a calculator and a flow sensor, which constitute a heat meter together with type approved temperature sensor pairs and type approved flow sensors.
The calculator unit has a display indicating registered thermal energy, and additionally via a push button, other values can be shown.
MULTICAL[®] 601 can be extended by two internal modules.

Technical documentation

FORCE -Dantest CERT file no. 80.970.6-006/06.

FORCE Certification A/S no. 80.976-097/09, 80.976-173/10, 80.976-189/10.
Reference no. 114-21535.0004.0020, 113-21029.0004.0007, 113-23383.0004.0009 and
112-23383.0004.0009.

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Technical data

Instrument type according to	: EN1434:2007
Instrument type	: Combined instrument Parts: Calculator or Calculator and temperature sensors
Energy indication	: GJ, kWh or MWh (Wh in calibration mode)
Temperature range	: θ_{\min} - θ_{\max} : 2°C...180°C (Alternative 20°C...110°C)
Temperature diff. range	: $\Delta\theta_{\min}$ - $\Delta\theta_{\max}$: 3 K...170 K (Alternative 5 K...90 K)
Flow sensor, position	: Flow pipe or return pipe (programmable)
Environment class	: E1 and E2, M1
Climatic class	: 5...55°C, non-condensing, closed location
Durability specification	: 12 years
Mains supply	: 230 VAC, 48...62 Hz 24 VAC, 48...62 Hz
Battery supply	: 3.65 VDC, D-cell Lithium battery
Software version	: SE: 0202, 0203, 0301, 0401, 0501, 0601, 0701 or 0801
Cable type and length	: Un-shielded 2-wire cables with the following length: Pt100: 10 m or Pt500: 20 m (Minimum cross sectional area acc. to EN1434-2, table 2) or max. 100 m sensor cable for 4-wire connections
Flow meter cable	: Max. 10 m for ULTRAFLOW [®] and flow sensors w/electronic pulse output. Max. 20 m for mechanical flow meters with Reed-switch. Max. 100 m for flow sensors w/ 24 V active pulses.

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Type number combination

	MULTICAL® 601/601+	Type 67-	□	□	□□	□	□	□	□	□□
Sensor connection										
Pt100	2-wire (T1-T2)	A								
Pt500	4-wire (T1-T2)	B								
Pt500	2-wire (T1-T2-T3)	C								
Pt500	4-wire (T1-T2) w/24 V pulse inputs	D								
Pt500	2-wire (T1-T2-T3) MC601+	E								
Top module										
No module			0							
RTC (Real Time Clock)			1							
RTC + ΔEnergy calculation + hourly data logger			2							
RTC + PQ or Δt-limiter + hourly data logger			3							
RTC + 2 pulse outputs for energy/volume			4							
RTC + data output + hourly data logger			5							
RTC + 66-C compatibility + pulse outputs (CE and CV)			6							
RTC + M-Bus			7							
RTC + 2 pulse outputs for CE and CV + hourly data logger			8							
RTC + ΔVolume + hourly data logger			9							
RTC + 2 pulse outputs for CE and CV + hourly data logger + scheduler			A							
RTC + 2 pulse outputs for CE and CV + prog. data logger			B							
Base module										
No module					00					
Data + pulse inputs					10					
M-Bus + pulse inputs					20					
Radio Router + pulse inputs					21					
Prog. data logger + RTC + 4...20 mA inputs + pulse inputs					22					
0/4...20 mA outputs					23					
LonWorks + pulse inputs					24					
Radio + pulse inputs (internal antenna) 434 or 444 MHz					25					
Radio + pulse inputs (external antenna connection) 434 or 444 MHz					26					
M-Bus module with alternative registers + pulse inputs					27					
M-Bus module with medium data pack + pulse inputs					28					
M-Bus module with MC-III data package + pulse inputs					29					
Wireless M-Bus mode C1, 868 MHz + pulse inputs					30					
Wireless M-Bus Mode T1 Std. reg. (Individual key)					31					
Wireless M-Bus Mode T2 Std. reg. (Individual key)					32					
Wireless M-Bus Mode C2 Std. reg. (Individual key) + pulse inputs					33					
Wireless M-Bus Mode C1 Alt. reg. (Individual key) + pulse inputs					35					
Wireless M-Bus Mode C1 Fixed network (Individual key) + pulse inputs					38					
ZigBee 2.4 GHz internal antenna + pulse inputs					60					
Metasys N2 (RS485) + pulse inputs					62					
SIOX module (Auto detect Baud rate)					64					
BACnet MS/TP module					66					
Modbus RTU + pulse inputs					67					
KNX module					69					
Telephone modem + pulse inputs + data					03					
M-Bus + pulse inputs		Require top module 67-x6			04					
M-Bus + pulse inputs					08					
Radio + pulse inputs (internal antenna)					0A					
Radio + pulse inputs (external antenna connection)					0B					
Supply										
No supply							0			
Battery, D-cell							2			
230 VAC supply module w/transformer							7			
24 VAC supply module w/transformer							8			
Pt500 sensor set										
No sensor set									0	
Pocket sensor set w/1.5 m cable									A	
Pocket sensor set w/3.0 m cable									B	
Pocket sensor set w/5 m cable									C	
Pocket sensor set w/10 m cable									D	
Short direct sensor set w/1.5 m cable									F	
Short direct sensor set w/3.0 m cable									G	
3 Pocket sensors in sets w/1.5 m cable									L	
3 Short direct sensors in sets w/1.5 m cable									Q3	
Flow sensor/pick-up unit										
Supplied w/1 pcs. ULTRAFLOW® (Please specify type)										1
Supplied w/2 pcs. (identical) ULTRAFLOW® (Please specify type)										2
Prepared for 1 pcs. ULTRAFLOW® (Please specify type)										7
Prepared for 2 pcs. (identical) ULTRAFLOW® (Please specify type)										8
Prepared for meters w/electronic pulse output										K
Prepared for meters w/Reed switch output (Both V1 and V2)										L
Prepared for meters w/24 V active pulses										M
Meter type										
Heat meter, closed systems, MID										2
Country code (language on label etc.)										
										XX

As an option the meter can be supplied with pulse transmitter module type 66-99-608/-609/-610/-615 or -624

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Verification

Errors: Maximum permissible errors according to Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on measuring instruments (MID), Annex MI-004

Procedure: Test points and verification requirements according to EN1434-5:2007

Calculator according to 5.4
Calculator with temperature sensors according to 5.5

Test points

Flow pipe	Return pipe		Flow pipe	Return pipe		Flow pipe	Return pipe
a) 43°C	40°C	or	a) 43°C	40°C	or	a) 53°C	50°C
b) 80°C	60°C		b) 50°C	40°C		b) 70°C	50°C
c) 160°C	20°C		c) 160°C	40°C		c) 175°C	20°C

After verification but before verification sealing the meter can be reprogrammed with a view to:

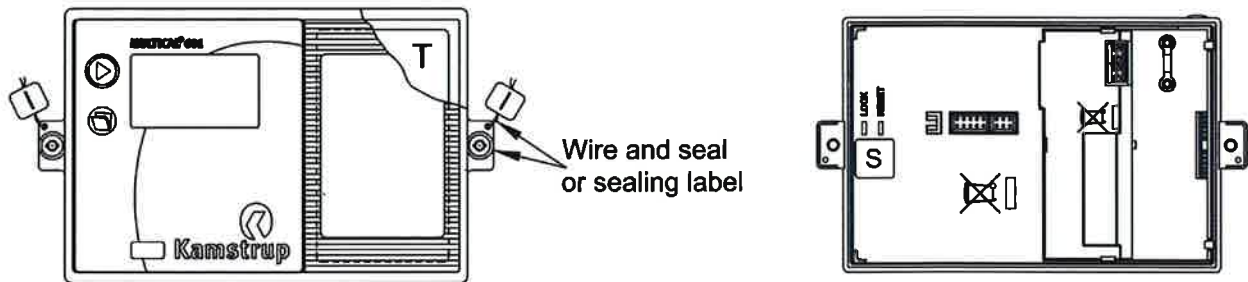
Placing of flow sensor in forward or return pipe, according to type label
Measuring unit of energy indication (kWh, MWh or GJ)*
Decimal point in energy* and volume indication*

*) Register resolution requirements according to EN1434-1:2007, point 6.3.7 must be observed

Security measures

Sealing

- S** Security seals. Covering release for PCB box (Label or integrated part of PCB box)
- T** Type label
- I** Installation seals



Labeling and inscriptions

Type label placed on the calculator with the following imprint:

- System designation
- Manufacturer designation or logo
- Type, production year and serial number
- Mechanical and electromagnetic environment classes
- Climatic class
- Temperature limits (θ_{\min} - θ_{\max})
- Differential temperature limits $\Delta\theta_{\min}$ - $\Delta\theta_{\max}$
- Temperature sensor type (Pt500 or Pt100)
- Mounting in forward or return pipe
- Meter factor
- Software version¹⁾

¹⁾ The software version shall either be included in the label in print or in the display readout.

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Photos of MULTICAL® 601

