DANAK
PROD Reg. No. 7025

FORCE Certification

EC-Type Examination Certificate

Measuring Instrument Directive

Certificate number: DK-0200-MI004-020

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.:	113-21029.0004.0002
Type of instrument:	Heat Meter, calculator
Type designation:	MULTICAL® 602 (type 602-A, 602-B, 602-C and 602-D) or SVM S6 (type S6-A, S6-B, S6-C and S6-D)
Valid until:	2021-07-06
Number of pages:	8, including appendix
Date of issue:	2013-04-02
Revision No.:	1 - 2013

Approved by

Michael Møller Nielsen
Certification Manager

Processed by

Lars Poder
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-MI004-020
Issued by FORCE Certification A/S, Denmark
EC-notified body number 0200

Revision 1 – 2013: New software revision added.

Applied standards and documents:
EN1434: 2007 (prEN 1434:2009)

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

Type designation:
MULTICAL® 602 (type 602-A, 602-B, 602-C and 602-D), or
SVM S6 (type S6-A, S6-B, S6-C and S6-D).

Description:
The meter consists of a calculator, 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 pushbutton, other values can be shown.
MULTICAL® 602 (SVM S6) can be extended by two internal modules.

Integrated functions that are not under the Measuring Instrument Directive:
The meter is also type tested as a cooling meter and as combined Heating/Cooling meter according to EN 1434:2007 (and prEN 1434-4:2009), and can therefore be used as so, under the nominal operating temperatures as described in Technical data in this Certificate.

Technical documentation:
Reference No. 113-21029.0004.0002, 112-23383.0004.0007 and 112-23383.0004.0003.

FORCE Certification A/S File No. 80.976-268/12, 80.976-258/11 and 80.976-223/11.

Technical data

Instrument type according to	: EN1434:2007 (prEN 1434:2009)
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, range	: From qp 0.6 m³/h to qp 3,000 m³/h
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
Protection class	: IP 54
Mains supply	: 230 VAC, 48...62 Hz 24 VAC, 48...62 Hz
Battery	: 3.65 VDC, D-cell Lithium battery
Back-up battery	: 3.0 VDC, BR-cell Lithium battery
Software version (SE: Software Edition)	: SE: xxxx0103, xxxx0201, xxxx0301, xxxx0401, xxxx0501, xxxx0601 and xxxx0701 (xxxx is the meter type)
Temperature sensor cables (un-shielded)	: Max. 100 m sensors cables for 4-wire connections Or max. 10 m cables for Pt100 2-wire connections Or max. 20 m cables for Pt500 2-wire connections (Minimum cross sectional area acc. To EN 1434-2, table 2)
Flow meter cables (un-shielded)	: Max. 10 m for ULTRAFLOW® flow sensors Max. 10 m for flow sensors w/electronic pulse output Max. 20 m for mechanical flow meters with Reed-switch Max. 100 m for flow sensors with 24 V active pulses

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Type number combination

MULTICAL® 602 (SVM S6) Type 602 (S6)-	□	□	□□	□	□□	□	□	□□
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							
Top module								
No module		0						
RTC + ΔEnergy calculation + hourly data logger		2						
RTC + PQ or Δt-limiter + hourly data logger		3						
RTC + data output + hourly data logger		5						
RTC + M-Bus		7						
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						
2 Pulse outputs (CE and CV)		C						
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 module + 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 package + pulse inputs			28					
M-Bus module with MC-III data package + pulse inputs			29					
Wireless M-Bus Mode C1 Std. reg. + 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 T1 Std. reg. (Common Key)			37					
Radio, 434 or 444 MHz, Int+ext. Ant. NET0 + 2 pulse Inputs (VA, VB)			42					
Radio, 434 or 444 MHz, Int+ext. Ant. NET1 + 2 pulse Inputs (VA, VB)			44					
ZigBee 2.4 GHz int.ant. + 2 pulse inputs (VA, VB)			60					
Metasys N2 (RS485) + 2 pulse inputs (VA, VB)			62					
SIOX module (Auto detect Baud rate)			64					
BACnet MS/TP module			66					
KNX module			69					
GSM/GPRS module (GSM6H)			80					
3G GSM/GPRS module (GSM8H)	Require High-Power supply modules		81					
Ethernet/IP module (IP201)			82					
High Power Radio Router + pulse inputs			84					
Supply								
No supply				0				
Battery, D-cell				2				
230 VAC high power isolated SMPS				3				
24 VAC high power isolated SMPS				4				
230 VAC isolated linear supply				7				
24 VAC isolated linear supply				8				
Pt500 sensor set								
No sensor set					00			
Pocket sensor set w/1.5 m cable					0A			
Pocket sensor set w/3.0 m cable					0B			
Pocket sensor set w/5 m cable					0C			
Pocket sensor set w/10 m cable					0D			
Short direct sensor set w/1.5 m cable					0F			
Short direct sensor set w/3.0 m cable					0G			
3 Pocket sensors in sets w/1.5 m cable					0L			
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, (MID module B)							1	
Heat meter, (MID module B+D)							2	
Heat meter, (MID module B+D) E1 & E3 displayed							3	
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

Verification

Errors:	Maximum permissible errors according to Directive 2004/22/EC of the European Parliament and Council of March 31, 2004 on measurement 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:

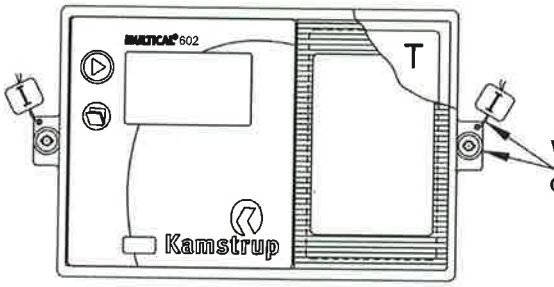
Placing of flow sensor in flow pipe or return pipe, according to type label
Measuring unit of energy indication (kWh, MWh or GJ)*
Decimal point in energy* and volume* indication*

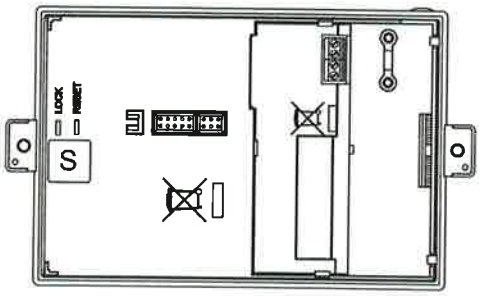
*) Register resolution requirements according to EN1434-1:2007, point 6.3.7 must be observed

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

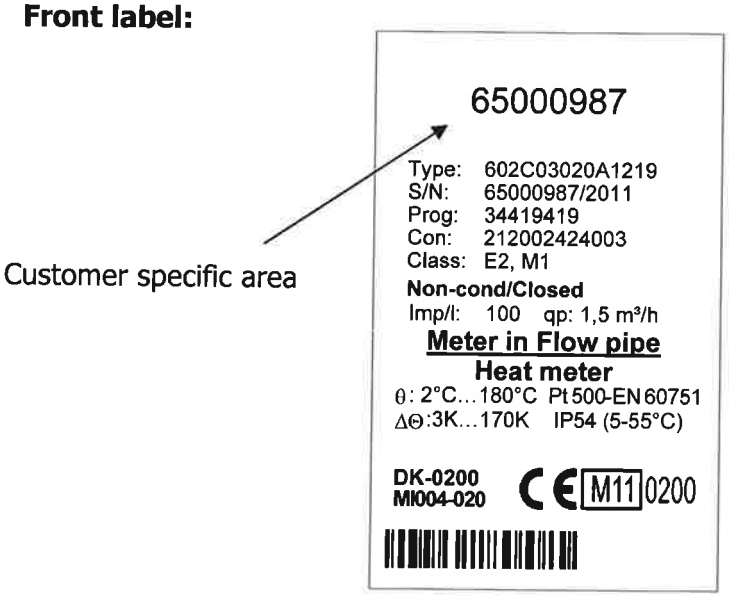
Front label for MULTICAL® 602 and SVM S6

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 the flow sensor in Flow pipe (inlet) or in return pipe (outlet)

Software version in the display
Unit of measurement in the display

Example of type label for: MULTICAL® 602

Front label:



Photos of MULTICAL® 602 and SVM S6