

# 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 16<sup>th</sup> May 2006 with later amendments which implements the Directive 2004/22/EC of the European Parliament and Council of March 31<sup>st</sup>, 2004 on measuring instruments (MID) and later amendments.

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

Reference No.: 114-33017.04.07.03

Type of instrument: Heat Meter, calculator

Type designation: MULTICAL<sup>®</sup> 602 (type 602-A, 602-B, 602-C and 602-D) or  
SVM S6 (type S6-A, S6-B, S6-C and S6-D) or  
MULTICAL<sup>®</sup> 6L2 (type 6L2-F)

Valid until: 2021-07-06

Number of pages: 10, including appendix

Date of issue: 2015-12-11

Revision No.: 10

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.  
This EC-type examination certificate may not be reproduced except in full, without written permission by FORCE Certification A/S.

**DK-0200-MI004-020**

## 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	Issued	Changes
DK-0200-MI004-020	2011-07-06	Original certificate
DK-0200-MI004-020 rev 1-2011	2011-10-14	-
DK-0200-MI004-020 rev 1-2012	2012-01-10	<ul style="list-style-type: none"> <li>• New software revision</li> <li>• Changed LONWorks module</li> <li>• New module added</li> </ul>
DK-0200-MI004-020 rev 2-2012	2012-03-30	New module added
DK-0200-MI004-020 rev 3-2012	2012-09-18	<ul style="list-style-type: none"> <li>• Two new modules added</li> <li>• New software revision added</li> <li>• New text added to section "Description"</li> </ul>
DK-0200-MI004-020 rev 1-2013	2013-04-02	New software revision added
DK-0200-MI004-020 rev 2-2013	2013-09-30	New module added to type number combination
DK-0200-MI004-020 rev 1-2014	2014-03-28	New module added to type number combination
DK-0200-MI004-020 rev 2-2014	2014-08-25	New software version
DK-0200-MI004-020 rev 3-2014	2014-12-19	<ul style="list-style-type: none"> <li>• New meter variant, MULTICAL<sup>®</sup> 6L2, added</li> <li>• Minor editorial clarifications</li> </ul>
DK-0200-MI004-020 rev 10	2015-12-11	<ul style="list-style-type: none"> <li>• Revision history added</li> <li>• Overview of SW revision and checksum added</li> <li>• New module added to type number combination</li> </ul>

#### Applied standards and documents:

EN 1434:2007 (prEN 1434:2009)

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

#### Type designation:

 MULTICAL<sup>®</sup> 602 (type 602-A, 602-B, 602-C and 602-D), or  
 SVM S6 (type S6-A, S6-B, S6-C and S6-D) and 602-D), or  
 MULTICAL<sup>®</sup> 6L2 (type 6L2-F).

**DK-0200-MI004-020**

**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<sup>®</sup> 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.:

- 114-33017.04.07.03
- 114-33017.04.07.01
- 114-21535.0004.0017
- 114-21535.0004.0013
- 113-21029.0004.0006
- 113-21029.0004.0002
- 112-23383.0004.0007
- 112-23383.0004.0003
- 80.976-268/12
- 80.976-258/11
- 80.976-223/11

**DK-0200-MI004-020**
**Technical data**

Instrument type according to Instrument type Parts	: EN 1434:2007 (prEN 1434:2009) : Combined instrument : Calculator or Calculator and temperature sensors
Energy indication	: GJ, kWh or MWh (Wh in calibration mode)
Temperature range Temperature diff. range	: $\theta_{\min} - \theta_{\max}$ : 2°C...180°C (Alternative 20°C...110°C) : $\Delta\theta_{\min} - \Delta\theta_{\max}$ : 3 K...170 K (Alternative 5 K...90 K)
Flow sensor, range Flow sensor, position	: From qp 0.6 m <sup>3</sup> /h to qp 3,000 m <sup>3</sup> /h : Inlet or outlet pipe (programmable)
Environment class Climatic class Durability specification Protection class Mains supply	: E1 and E2, M1 : 5...55°C, non-condensing, closed location : 12 years : IP 54 : 230 VAC, 48...62 Hz 24 VAC, 48...62 Hz
Battery Back-up battery	: 3.65 VDC, D-cell Lithium battery : 3.0 VDC, BR-cell Lithium battery

**Software identification**

Version no.	Checksum for metrological part of the software
xxxx0103 / A3	22548
xxxx0201 / B1	7978
xxxx0301 / C1	22184
xxxx0401 / D1	21140
xxxx0501 / E1	50975
xxxx0601 / F1	25669
xxxx0701 / G1	55389
xxxx0801 / H1	15774

*(xxxx is the meter type)*

*The SW version and checksum can be shown on the display of the meter (display No. 10 and No. 11)*

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 <sup>®</sup> 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

**DK-0200-MI004-020**
**Type number combination**

	MULTICAL® 602 (SVM S6)	Type 602 (S6)-	□	□	□□	□	□□	□	□	□□
<b>Sensor connection</b>										
Pt100	2-wire (T1-T2)		<b>A</b>							
Pt500	4-wire (T1-T2)		<b>B</b>							
Pt500	2-wire (T1-T2-T3)		<b>C</b>							
Pt500	4-wire (T1-T2) w/24 V pulse inputs		<b>D</b>							
<b>Top module</b>										
No module					<b>0</b>					
RTC + ΔEnergy calculation + hourly data logger					<b>2</b>					
RTC + PQ or Δt-limiter + hourly data logger					<b>3</b>					
RTC + data output + hourly data logger					<b>5</b>					
RTC + M-Bus					<b>7</b>					
RTC + ΔVolume + hourly data logger					<b>9</b>					
RTC + 2 pulse outputs for CE and CV + hourly data logger + scheduler					<b>A</b>					
RTC + 2 pulse outputs for CE and CV + prog. data logger					<b>B</b>					
2 Pulse outputs (CE and CV)					<b>C</b>					
<b>Base module</b>										
No module						<b>00</b>				
Data + pulse inputs						<b>10</b>				
M-Bus + pulse inputs						<b>20</b>				
Radio Router + pulse inputs						<b>21</b>				
Prog. data logger + RTC + 4...20 mA inputs + pulse inputs						<b>22</b>				
0/4...20 mA outputs						<b>23</b>				
LonWorks module + pulse inputs						<b>24</b>				
Radio + pulse inputs (internal antenna) 434 or 444 MHz						<b>25</b>				
Radio + pulse inputs (external antenna connection) 434 or 444 MHz						<b>26</b>				
M-Bus module with alternative registers + pulse inputs						<b>27</b>				
M-Bus module with medium data package + pulse inputs						<b>28</b>				
M-Bus module with MC-III data package + pulse inputs						<b>29</b>				
Wireless M-Bus Mode C1 Std. reg. + pulse inputs						<b>30</b>				
Wireless M-Bus Mode T1 Std. reg. (Individual Key)						<b>31</b>				
Wireless M-Bus Mode T2 Std. reg. (Individual Key)						<b>32</b>				
Wireless M-Bus Mode C2 Std. reg. (Individual Key) + pulse inputs						<b>33</b>				
Wireless M-Bus Mode C1 Alt. reg. (Individual Key) + pulse inputs						<b>35</b>				
Wireless M-Bus Mode T1 OMS 16 sec. (Individual Key)						<b>36</b>				
Wireless M-Bus Mode T1 Std. reg. (Common Key)						<b>37</b>				
Wireless M-Bus Mode C1 Fixed network (Individual key) + pulse inputs						<b>38</b>				
Radio, 434 or 444 MHz, Int+ext. Ant. NET0 + 2 pulse Inputs (VA, VB)						<b>42</b>				
Radio, 434 or 444 MHz, Int+ext. Ant. NET1 + 2 pulse Inputs (VA, VB)						<b>44</b>				
ZigBee 2.4 GHz int.ant. + 2 pulse inputs (VA, VB)						<b>60</b>				
Metasys N2 (RS485) + 2 pulse inputs (VA, VB)						<b>62</b>				
SIOX module (Auto detect Baud rate)						<b>64</b>				
BACnet MS/TP module						<b>66</b>				
Modbus RTU + pulse inputs						<b>67</b>				
KNX module						<b>69</b>				
GSM/GPRS module (GSM6H)						<b>80</b>				
3G GSM/GPRS module (GSM8H)						<b>81</b>				
Ethernet/IP module (IP201)						<b>82</b>				
High Power Radio Router + pulse inputs						<b>84</b>				
<b>Supply</b>										
No supply								<b>0</b>		
Battery, D-cell								<b>2</b>		
230 VAC high power isolated SMPS								<b>3</b>		
24 VAC high power isolated SMPS								<b>4</b>		
230 VAC isolated linear supply								<b>7</b>		
24 VAC isolated linear supply								<b>8</b>		
<b>Pt500 sensor set</b>										
No sensor set									<b>00</b>	
Pocket sensor set w/1.5 m cable									<b>0A</b>	
Pocket sensor set w/3.0 m cable									<b>0B</b>	
Pocket sensor set w/5 m cable									<b>0C</b>	
Pocket sensor set w/10 m cable									<b>0D</b>	
Short direct sensor set w/1.5 m cable									<b>0F</b>	
Short direct sensor set w/3.0 m cable									<b>0G</b>	
3 Pocket sensors in sets w/1.5 m cable									<b>0L</b>	
3 Short direct sensors in sets w/1.5 m cable									<b>Q3</b>	
<b>Flow sensor /pick-up unit</b>										
Supplied w/1 pcs. ULTRAFLOW®	(Please specify type)									<b>1</b>
Supplied w/2 pcs. (identical) ULTRAFLOW®	(Please specify type)									<b>2</b>
Prepared for 1 pcs. ULTRAFLOW®	(Please specify type)									<b>7</b>
Prepared for 2 pcs. (identical) ULTRAFLOW®	(Please specify type)									<b>8</b>
Prepared for meters w/electronic pulse output										<b>K</b>
Prepared for meters w/Reed switch output	(both V1 and V2)									<b>L</b>
Prepared for meters w/24 V active pulses										<b>M</b>
<b>Meter type</b>										
Heat meter, (MID module B)										<b>1</b>
Heat meter, (MID module B+D)										<b>2</b>
Heat meter, (MID module B+D) E1 & E3 displayed										<b>3</b>

**XX**
**Country code (language on label etc.)**  
 As an option the meter can be supplied with pulse transmitter module type 66-99-608/-609/-610/-615 or -624

**DK-0200-MI004-020**
**Type number combination**

MULTICAL® 6L2	Type 6L2-									
<b>Sensor connection</b>										
Pt500 2-wire (T1-T2)	F									
<b>Top module</b>										
No module		0								
<b>Base module</b>										
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 OMS 16 sec. (Individual Key)										36
Wireless M-Bus Mode T1 Std. reg. (Common Key)										37
Wireless M-Bus Mode C1 Fixed network (Individual key) + pulse inputs										38
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
Modbus RTU + pulse inputs										67
KNX module										69
GSM/GPRS module (GSM6H)										80
3G GSM/GPRS module (GSM8H)										81
Ethernet/IP module (IP201)										82
High Power Radio Router + pulse inputs										84
<b>Supply</b>										
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
<b>Pt500 sensor set</b>										
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
<b>Flow sensor /pick-up unit</b>										
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
<b>Meter type</b>										
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.)**

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

XX



**DK-0200-MI004-020**

## 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 EN 1434-5:2007

Calculator according to 5.4  
Calculator with temperature sensors according to 5.5

## Test points

Inlet pipe	Outlet pipe		Inlet pipe	Outlet pipe		Inlet pipe	Outlet 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 inlet or outlet 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 EN 1434-1:2007, 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, SVM S6 and MULTICAL® 6L2**

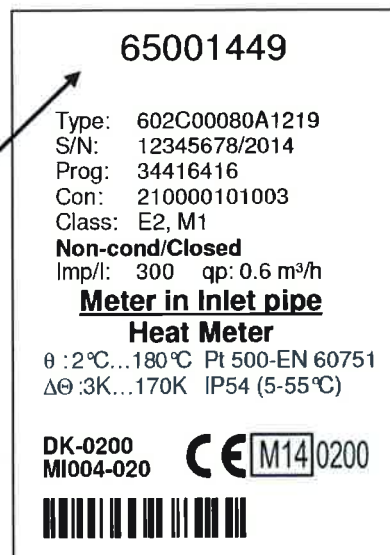
System designation  
Manufacturer designation or logo  
Type, production year and serial number  
Mechanical and electromagnetic environment classes  
Climatic class  
Temperature limits ( $\theta_{\min}$  -  $\theta_{\max}$ )  
Differential temperature limits ( $\Delta\theta_{\min}$  -  $\Delta\theta_{\max}$ )  
Temperature sensor type (Pt500 or Pt100)  
Mounting the flow sensor in inlet or outlet pipe

Software version in the display  
Unit of measurement in the display

### Example of type label for: **MULTICAL® 602**

#### Front label:

Customer specific area



**DK-0200-MI004-020**

**Photos of MULTICAL® 602, SVM S6 and MULTICAL® 6L2**

