Messtechnik der Zukunft

WDV® MOLLINÉ

Logger Profiles and Datagrams

ULTRAMESS® 403/MULTICAL® 403

ULTRAMESS® 603/MULTICAL® 603

ULTRAMESS® 803/MULTICAL® 803

M-Bus

M-Bus wireless

MEMBER OMS® Open Metering System www.oms-group.org

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Logger Profiles and Datagrams

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List of Words, Symbols and Abbreviations

Word/symbol	Meaning
Avg.	Average
BCD	Binary Coded Data
C	Cooling
CP/COP	Coefficient of Performance
Err.	Error
H	Heat
H/C	Heat/Cooling
HCC	Heat Cooling Coding
INT	Integer value, e.g. INT4 is a 4 Byte integer value
M-Bus	Wired M-Bus
Max	Maximum
Min	Minimum
qp	Permanent/approved nominal flow
Std.	Standard
Temp.	Temperature
V	Volume (Warm and Cold water)
wM-Bus	Wireless M-Bus
ΔΘ	Temperature difference of inlet and outlet

1 INTRODUCTION

Kamstrup MULTICAL® 403, MULITCAL® 603 and MULITCAL® 803 have an integrated fully programmable data logger. The meters can be configured to various logger profiles. These profiles define the depth of loggers, the interval of the minute loggers and which registers should be included in the loggers. The logger profile is identified by the meters RR-code.

The configuration of a M-Bus module is described by the XX-YY-ZZZ code.

XX: Module type - the physical hardware

YY: System configuration – for wireless M-Bus, the radio parameters

ZZZ: Datagram – the data registers

M-Bus and wireless M-Bus modules for MULTICAL® 403, MULITCAL® 603 and MULITCAL® 803 are configurable, whereby they can be configured to send out different datagrams. A datagram is defining, which registers a specific module is configured to send out. Furthermore, transmission interval and transmission power for wireless M-Bus modules can be configured. The modules configuration is identified by the modules YY- and ZZZ-code.

This document provides an overview of both the available logger profiles for MULTICAL® 403, MULITCAL® 603 and MULITCAL® 803 and the available configurations for the wired and wireless M-Bus modules.

2 MODULE DATAGRAM EXPLANATION

All of our M-Bus modules wired or wireless are versatile communication modules, which can be configured to send out different datagrams. A datagram is a collection of registers a module is configured to send out. A datagram is also called a data package or a data telegram.

Not all registers are available in all meters. E.g. will cooling register E3 only be available in a meter configured as a cooling or combined heat/cooling. It will not be available in a heat meter.

For reading out Target registers, the wanted registers must be defined in the RR-configuration (logger content).

If datagrams intended for MULTICAL® 603 and 803 are used in MULTICAL® 403 some registers will not be present.

Disclaimer: All data registers in the below mentioned datagrams may not be available in the reading software.
Please contact Kamstrup A/S if any questions regarding the availability of data registers occur.

All datagrams and their content are shown in tables.

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	

The table columns are defined as:

No.: Just indicates a number of the register in the configuration.

Register ID: A numeric identifier for the register.

Register name: Is a description of the register content.

Register origin: Which source the register is read from:

- **Meter** **shown as a blank field, as this is default origin.**
- Module
- Year Log Yearly Target value
- Month Log Monthly Target value
- Day Log Daily Target value

St. no: An M-Bus description to indicate Storage number.

- **0** **shown as blank field, as this is actual value from meter**
- 1 Logger 1
- 2 Logger 2
- n Logger n

Data type: Indicates data type:

- Int1 1 byte integer value
- Int2 2 byte integer value

- Int4 shown as blank field, as this is mostly used.
- BCD2 2 digit BCD coded value
- BCD4 4 digit BCD coded value
- BCD6 6 digit BCD coded value
- BCD8 8 digit BCD coded value

Notes: A note indicates that some action has to be taken.
- HCC Heat/Cooling Coding
- OMS Coded according to OMS
- MSC Manufactory Specific Coding
- 402 Legacy coding for MC402
- FDB Fixed Data Block

H: If marked with X, the register is included in a Heat meter

C: If marked with X, the register is included in a Cooling meter

H/C: If marked with X, the register is included in a combined Heat/Cooling meter

V: If marked with X, the register is included in a Volume meter

3 WIRED M-BUS DATAGRAMS

Configuration of Wired M-Bus datagrams follows this method.

This table only shows a small part of the available datagrams, just to indicate how the Datagram naming and ordering are made.

See the table of content, for all included wired datagrams, or look through the following pages.

	XX	-	YY	-	ZZZ
Module Type					
Wired M-Bus, inputs (In-A, In-B)	20				
Wired M-Bus, outputs (Out-C, Out-D)	21				
Wired M-Bus, Thermal Disconnect	22				
System Configuration					
Standard			00		
Datagrams for MC403,603,803					
Standard Profile Yearly Target Data					101
Standard Profile Monthly Target Data					102
					…
MC III compatible data (6604/660S) Yearly Target Data[6]					999

Note: For READy compatibility, the meters unique Fabrication/Serial Number must always present as a register.

4 WIRED M-BUS DATAGRAMS FOR MULTICAL® 403, MULTICAL® 603 AND MULTICAL® 803

The following Wired M-Bus Datagrams are applicable for all wired M-Bus modules used in both MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803.
The datagrams are sorted by where they are used, and then by their ZZZ code.

4.1 20-00-101: STANDARD PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 101	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	74	Flow V1 actual					X	X	X	X
17	139	Flow V1 max month					X	X	X	X
18	369	Info bits					X	X	X	X
19	348	Date and time					X	X	X	X
20	60	Heat energy E1	Year Log	1			X		X	
21	63	Cooling energy E3	Year Log	1				X		
22	63	Cooling energy E3	Year Log	1		HCC			X	
23	97	Energy E8	Year Log	1			X	X	X	
24	110	Energy E9	Year Log	1			X	X	X	
25	68	Volume V1	Year Log	1			X	X	X	X
26	84	Pulse input A1	Year Log	1			X	X	X	X
27	85	Pulse input B1	Year Log	1			X	X	X	X
28	128	Power max year	Year Log	1			X	X	X	
29	124	Flow V1 max year	Year Log	1			X	X	X	X
30	348	Date	Year Log	1	Int2		X	X	X	X
31	404	Meter type			Int2		X	X	X	X
32	1001	Fabrication number			BCD8		X	X	X	X
33	393	Module type config No.	Module				X	X	X	X
34	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.2 20-00-102: STANDARD PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 102	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	74	Flow V1 actual					X	X	X	X
17	139	Flow V1 max month					X	X	X	X
18	369	Info bits					X	X	X	X
19	348	Date and time					X	X	X	X
20	60	Heat energy E1	Month Log	1			X		X	
21	63	Cooling energy E3	Month Log	1				X		
22	63	Cooling energy E3	Month Log	1		HCC			X	
23	97	Energy E8	Month Log	1			X	X	X	
24	110	Energy E9	Month Log	1			X	X	X	
25	68	Volume V1	Month Log	1			X	X	X	X
26	84	Pulse input A1	Month Log	1			X	X	X	X
27	85	Pulse input B1	Month Log	1			X	X	X	X
28	143	Power max month	Month Log	1			X	X	X	
29	139	Flow V1 max month	Month Log	1			X	X	X	X
30	348	Date	Month Log	1	Int2		X	X	X	X
31	404	Meter type			Int2		X	X	X	X
32	1001	Fabrication number			BCD8		X	X	X	X
33	393	Module type config No.	Module				X	X	X	X
34	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.3 20-00-103: TARIFF PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 103	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	64	Tariff TA2					X	X	X	
8	65	Tariff TA3					X	X	X	
9	362	Tariff TA4					X	X	X	
10	1004	Operating hours					X	X	X	X
11	175	Error hour counter					X	X	X	X
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
15	80	Power actual					X	X	X	
16	143	Power max month					X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	369	Info bits					X	X	X	X
20	348	Date and time					X	X	X	X
21	60	Heat energy E1	Year Log	1			X		X	
22	63	Cooling energy E3	Year Log	1				X		
23	63	Cooling energy E3	Year Log	1		HCC			X	
24	68	Volume V1	Year Log	1			X	X	X	X
25	84	Pulse input A1	Year Log	1			X	X	X	X
26	85	Pulse input B1	Year Log	1			X	X	X	X
27	64	Tariff TA2	Year Log	1			X	X	X	
28	65	Tariff TA3	Year Log	1			X	X	X	
29	362	Tariff TA4	Year Log	1			X	X	X	
30	128	Power max year	Year Log	1			X	X	X	
31	124	Flow V1 max year	Year Log	1			X	X	X	X
32	348	Date	Year Log	1	Int2		X	X	X	X
33	404	Meter type			Int2		X	X	X	X
34	1001	Fabrication number			BCD8		X	X	X	X
35	393	Module type config No.	Module				X	X	X	X
36	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.4 20-00-104: TARIFF PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 104	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	64	Tariff TA2					X	X	X	
8	65	Tariff TA3					X	X	X	
9	362	Tariff TA4					X	X	X	
10	1004	Operating hours					X	X	X	X
11	175	Error hour counter					X	X	X	X
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
15	80	Power actual					X	X	X	
16	143	Power max month					X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	369	Info bits					X	X	X	X
20	348	Date and time					X	X	X	X
21	60	Heat energy E1	Month Log	1			X		X	
22	63	Cooling energy E3	Month Log	1				X		
23	63	Cooling energy E3	Month Log	1		HCC			X	
24	68	Volume V1	Month Log	1			X	X	X	X
25	84	Pulse input A1	Month Log	1			X	X	X	X
26	85	Pulse input B1	Month Log	1			X	X	X	X
27	64	Tariff TA2	Month Log	1			X	X	X	
28	65	Tariff TA3	Month Log	1			X	X	X	
29	362	Tariff TA4	Month Log	1			X	X	X	
30	143	Power max month	Month Log	1			X	X	X	
31	139	Flow V1 max month	Month Log	1			X	X	X	X
32	348	Date	Month Log	1	Int2		X	X	X	X
33	404	Meter type			Int2		X	X	X	X
34	1001	Fabrication number			BCD8		X	X	X	X
35	393	Module type config No.	Module				X	X	X	X
36	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.5 20-00-105: DACH PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 105	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	364	Heat energy A1					X	X	X	
5	365	Heat energy A2					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	64	Tariff TA2					X	X	X	
10	65	Tariff TA3					X	X	X	
11	362	Tariff TA4					X	X	X	
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
15	366	t5 limit			Int2		X	X	X	
16	80	Power actual					X	X	X	
17	143	Power max month					X	X	X	
18	74	Flow V1 actual					X	X	X	X
19	139	Flow V1 max month					X	X	X	X
20	369	Info bits					X	X	X	X
21	348	Date and time					X	X	X	X
22	60	Heat energy E1	Year Log	1			X		X	
23	63	Cooling energy E3	Year Log	1				X		
24	63	Cooling energy E3	Year Log	1		HCC			X	
25	84	Pulse input A1	Year Log	1			X	X	X	X
26	85	Pulse input B1	Year Log	1			X	X	X	X
27	364	Heat energy A1	Year Log	1			X	X	X	
28	365	Heat energy A2	Year Log	1			X	X	X	
29	64	Tariff TA2	Year Log	1			X	X	X	
30	65	Tariff TA3	Year Log	1			X	X	X	
31	362	Tariff TA4	Year Log	1			X	X	X	
32	128	Power max year	Year Log	1			X	X	X	
33	348	Date	Year Log	1	Int2		X	X	X	X
34	404	Meter type			Int2		X	X	X	X
35	1001	Fabrication number			BCD8		X	X	X	X
36	393	Module type config No.	Module				X	X	X	X
37	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.6 20-00-106: DACH PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 106	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	364	Heat energy A1					X	X	X	
5	365	Heat energy A2					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	64	Tariff TA2					X	X	X	
10	65	Tariff TA3					X	X	X	
11	362	Tariff TA4					X	X	X	
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
15	366	t5 limit			Int2		X	X	X	
16	80	Power actual					X	X	X	
17	143	Power max month					X	X	X	
18	74	Flow V1 actual					X	X	X	X
19	139	Flow V1 max month					X	X	X	X
20	369	Info bits					X	X	X	X
21	348	Date and time					X	X	X	X
22	60	Heat energy E1	Month Log	1			X		X	
23	63	Cooling energy E3	Month Log	1				X		
24	63	Cooling energy E3	Month Log	1		HCC			X	
25	84	Pulse input A1	Month Log	1			X	X	X	X
26	85	Pulse input B1	Month Log	1			X	X	X	X
27	364	Heat energy A1	Month Log	1			X	X	X	
28	365	Heat energy A2	Month Log	1			X	X	X	
29	64	Tariff TA2	Month Log	1			X	X	X	
30	65	Tariff TA3	Month Log	1			X	X	X	
31	362	Tariff TA4	Month Log	1			X	X	X	
32	143	Power max month	Month Log	1			X	X	X	
33	348	Date	Month Log	1	Int2		X	X	X	X
34	404	Meter type			Int2		X	X	X	X
35	1001	Fabrication number			BCD8		X	X	X	X
36	393	Module type config No.	Module				X	X	X	X
37	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.7 20-00-107: CONTROL PROFILE

Wired M-Bus datagram	ZZZ = 107	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
8	80	Power actual					X	X	X	
9	74	Flow V1 actual					X	X	X	X
10	369	Info bits					X	X	X	X
11	404	Meter type			Int2		X	X	X	X
12	1001	Fabrication number			BCD8		X	X	X	X
13	393	Module type config No.	Module				X	X	X	X
14	346	Module SW revision	Module				X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.8 20-00-108: COEFFICIENT OF PERFOREMANCE PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 108	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
11	80	Power actual					X	X	X	
12	143	Power max month					X	X	X	
13	74	Flow V1 actual					X	X	X	X
14	139	Flow V1 max month					X	X	X	X
15	372	Power Input B1					X	X	X	
16	371	COP			Int2		X	X	X	
17	369	Info bits					X	X	X	X
18	60	Heat energy E1	Year Log	1			X		X	
19	63	Cooling energy E3	Year Log	1				X		
20	63	Cooling energy E3	Year Log	1		HCC			X	
21	68	Volume V1	Year Log	1			X	X	X	X
22	84	Pulse input A1	Year Log	1			X	X	X	X
23	85	Pulse input B1	Year Log	1			X	X	X	X
24	128	Power max year	Year Log	1			X	X	X	
25	124	Flow V1 max year	Year Log	1			X	X	X	X
26	355	COP year	Year Log	1	Int2		X	X	X	X
27	348	Date	Year Log	1	Int2		X	X	X	X
28	404	Meter type			Int2		X	X	X	X
29	1001	Fabrication number			BCD8		X	X	X	X
30	393	Module type config No.	Module				X	X	X	X
31	346	Module SW revision	Module				X	X	X	X

Special datagram for heat pump installation.
Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

4.9 20-00-109: SE PROFILE MONTHLY TARGET DATA FOR METER-LOG PROFILE 11

Wired M-Bus datagram	ZZZ = 109	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	74	Flow V1 actual					X	X	X	X
17	139	Flow V1 max month					X	X	X	X
18	369	Info bits					X	X	X	X
19	348	Date and time					X	X	X	X
20	60	Heat energy E1	Month Log	1			X		X	
21	63	Cooling energy E3	Month Log	1				X		
22	63	Cooling energy E3	Month Log	1		HCC			X	
23	97	Energy E8	Month Log	1			X	X	X	
24	110	Energy E9	Month Log	1			X	X	X	
25	68	Volume V1	Month Log	1			X	X	X	X
26	84	Pulse input A1	Month Log	1			X	X	X	X
27	85	Pulse input B1	Month Log	1			X	X	X	X
28	143	Power max month	Month Log	1			X	X	X	
29	139	Flow V1 max month	Month Log	1			X	X	X	X
30	348	Date	Month Log	1	Int2		X	X	X	X
31	404	Meter type			Int2		X	X	X	X
32	1001	Fabrication number			BCD8		X	X	X	X
33	393	Module type config No.	Module				X	X	X	X
34	346	Module SW revision	Module				X	X	X	X

4.10 20-00-989: L+G UH50 FAST MODE

Wired M-Bus datagram	ZZZ = 989	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	0	L+G_UH50_UpdatingTimeInSeconds_			--		X	X		
2	0	L+G_UH50_AveragingTimeInSeconds_			--		X	X		
3	60	Heat energy E1			BCD8		X			
4	63	Cooling energy E3			BCD8			X		
5	68	Volume V1			BCD8		X	X		
6	80	Power actual			BCD6		X	X		
7	74	Flow V1 actual			BCD6		X	X		
8	398	t1 actual (1 decimal)			BCD4		X	X		
9	399	t2 actual (1 decimal)			BCD4		X	X		

Emulates L+G UH 50 Fast Read-out mode for 3rd party equipment.
Configuration does not support GCal.
Not supported in Kamstrup reading systems.

4.11 20-00-998: MC 402/602 PROFILE

Wired M-Bus datagram	ZZZ = 998	**MULTICAL® 403** **MULTICAL® 603** **MULTICAL® 803**

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	1001	Fabrication number			BCD8		X	X	X	X
2	60	Heat energy E1					X	X	X	X
3	68	Volume V1					X	X	X	X
4	1004	Operating hours					X	X	X	X
5	86	t1 actual (2 decimals)					X	X	X	X
6	87	t2 actual (2 decimals)					X	X	X	X
7	89	t1-t2 diff. temp. (2 decimals)					X	X	X	X
8	80	Power actual					X	X	X	X
9	128	Power max year					X	X	X	X
10	74	Flow V1 actual					X	X	X	X
11	124	Flow V1 max year					X	X	X	X
12	64	Tariff TA2					X	X	X	X
13	65	Tariff TA3					X	X	X	X
14	84	Pulse input A1					X	X	X	X
15	85	Pulse input B1					X	X	X	X
16	63	Cooling energy E3				402	X	X	X	X
17	348	Date and time					X	X	X	X
18	60	Heat energy E1	Year Log	1			X	X	X	X
19	68	Volume V1	Year Log	1			X	X	X	X
20	128	Power max year	Year Log	1			X	X	X	X
21	124	Flow V1 max year	Year Log	1			X	X	X	X
22	64	Tariff TA2	Year Log	1			X	X	X	X
23	65	Tariff TA3	Year Log	1			X	X	X	X
24	84	Pulse input A1	Year Log	1			X	X	X	X
25	85	Pulse input B1	Year Log	1			X	X	X	X
26	63	Cooling energy E3	Year Log	1		402	X	X	X	X
27	348	Date	Year Log	1	Int2		X	X	X	X

Similar to M-Bus modules 402020/670020/6707.
Not to be used where display is in MWh or GJ and has 0 or 1 decimal resolution.
Configuration does not support GCal.
Legacy module to be used in old Kamstrup systems or in 3rd party systems.
Up front test strongly recommended!

4.12 20-00-999: MULTICAL III PROFILE

Wired M-Bus datagram	ZZZ = 999	**MULTICAL® 403** **MULTICAL® 603** **MULTICAL® 803**

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1			BCD8		X			
2	63	Cooling energy E3			BCD8			X		
3	68	Volume V1			BCD8		X	X		
4	1004	Operating hours			BCD8		X	X		
5	86	t1 actual (2 decimals)			BCD8		X	X		
6	87	t2 actual (2 decimals)			BCD8		X	X		
7	89	t1-t2 diff. temp. (2 decimals)			BCD8		X	X		
8	80	Power actual			BCD8		X	X		
9	74	Flow V1 actual			BCD8		X	X		
10	60	Heat energy E1	Year Log	1	BCD8		X			
11	63	Cooling energy E3	Year Log	1	BCD8			X		
12	68	Volume V1	Year Log	1	BCD8		X	X		
13	348	Date	Year Log	1	Int2		X	X		

Legacy module to be used in old Kamstrup systems or in 3rd party systems.
Configuration does not support GCal or MWh with 4 decimals.
Up front test strongly recommended!

5 WIRED M-BUS DATAGRAMS FOR MULTICAL® 603 AND MULTICAL® 803

The following Wired M-Bus Datagrams are applicable for all wired M-Bus modules used in MULTICAL® 603 and MULTICAL® 803. The datagrams are sorted by their ZZZ code. If datagrams intended for MULTICAL® 603 and MULTICAL® 803 are used in MULTICAL® 403 some registers will not be present.

5.1 20-00-301: EXTENDED PULSE INPUT PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 301	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	224	Pulse input A2					X	X	X	X
8	225	Pulse input B2					X	X	X	X
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	389	Power max month date			Int2		X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	387	Flow V1 max month date			Int2		X	X	X	X
20	369	Info bits					X	X	X	X
21	348	Date and time					X	X	X	X
22	60	Heat energy E1	Year Log	1			X		X	
23	63	Cooling energy E3	Year Log	1				X		
24	63	Cooling energy E3	Year Log	1		HCC			X	
25	68	Volume V1	Year Log	1			X	X	X	X
26	84	Pulse input A1	Year Log	1			X	X	X	X
27	85	Pulse input B1	Year Log	1			X	X	X	X
28	224	Pulse input A2	Year Log	1			X	X	X	X
29	225	Pulse input B2	Year Log	1			X	X	X	X
30	128	Power max year	Year Log	1			X	X	X	
31	385	Power max year date	Year Log	1	Int2		X	X	X	
32	124	Flow V1 max year	Year Log	1			X	X	X	X
33	383	Flow V1 max year date	Year Log	1	Int2		X	X	X	X
34	348	Date	Year Log	1	Int2		X	X	X	X
35	404	Meter type			Int2		X	X	X	X
36	1001	Fabrication number			BCD8		X	X	X	X
37	393	Module type config No.	Module				X	X	X	X
38	346	Module SW revision	Module				X	X	X	X

5.2 20-00-302: EXTENDED PULSE INPUT PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 302	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	224	Pulse input A2					X	X	X	X
8	225	Pulse input B2					X	X	X	X
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	389	Power max month date			Int2		X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	387	Flow V1 max month date			Int2		X	X	X	X
20	369	Info bits					X	X	X	X
21	348	Date and time					X	X	X	X
22	60	Heat energy E1	Month Log	1			X		X	
23	63	Cooling energy E3	Month Log	1				X		
24	63	Cooling energy E3	Month Log	1		HCC			X	
25	68	Volume V1	Month Log	1			X	X	X	X
26	84	Pulse input A1	Month Log	1			X	X	X	X
27	85	Pulse input B1	Month Log	1			X	X	X	X
28	224	Pulse input A2	Month Log	1			X	X	X	X
29	225	Pulse input B2	Month Log	1			X	X	X	X
30	143	Power max month	Month Log	1			X	X	X	
31	389	Power max month date	Month Log	1	Int2		X	X	X	
32	139	Flow V1 max month	Month Log	1			X	X	X	X
33	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	X
34	348	Date	Month Log	1	Int2		X	X	X	X
35	404	Meter type			Int2		X	X	X	X
36	1001	Fabrication number			BCD8		X	X	X	X
37	393	Module type config No.	Module				X	X	X	X
38	346	Module SW revision	Module				X	X	X	X

5.3 20-00-303: DUAL ULTRAFLOW PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 303	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	84	Pulse input A1					X	X	X	X
7	85	Pulse input B1					X	X	X	X
8	1004	Operating hours					X	X	X	X
9	175	Error hour counter					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	88	t3 actual (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	389	Power max month date			Int2		X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	387	Flow V1 max month date			Int2		X	X	X	X
20	75	Flow V2 actual					X	X	X	X
21	369	Info bits					X	X	X	X
22	348	Date and time					X	X	X	X
23	60	Heat energy E1	Year Log	1			X		X	
24	63	Cooling energy E3	Year Log	1				X		
25	63	Cooling energy E3	Year Log	1		HCC			X	
26	68	Volume V1	Year Log	1			X	X	X	X
27	69	Volume V2	Year Log	1			X	X	X	X
28	84	Pulse input A1	Year Log	1			X	X	X	X
29	85	Pulse input B1	Year Log	1			X	X	X	X
30	128	Power max year	Year Log	1			X	X	X	
31	385	Power max year date	Year Log	1	Int2		X	X	X	
32	124	Flow V1 max year	Year Log	1			X	X	X	X
33	383	Flow V1 max year date	Year Log	1	Int2		X	X	X	X
34	348	Date	Year Log	1	Int2		X	X	X	X
35	404	Meter type			Int2		X	X	X	X
36	1001	Fabrication number			BCD8		X	X	X	X
37	393	Module type config No.	Module				X	X	X	X
38	346	Module SW revision	Module				X	X	X	X

5.4 20-00-304: DUAL ULTRAFLOW PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 304	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	84	Pulse input A1					X	X	X	X
7	85	Pulse input B1					X	X	X	X
8	1004	Operating hours					X	X	X	X
9	175	Error hour counter					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	88	t3 actual (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	389	Power max month date			Int2		X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	387	Flow V1 max month date			Int2		X	X	X	X
20	75	Flow V2 actual					X	X	X	X
21	369	Info bits					X	X	X	X
22	348	Date and time					X	X	X	X
23	60	Heat energy E1	Month Log	1			X		X	
24	63	Cooling energy E3	Month Log	1				X		
25	63	Cooling energy E3	Month Log	1		HCC			X	
26	68	Volume V1	Month Log	1			X	X	X	X
27	69	Volume V2	Month Log	1			X	X	X	X
28	84	Pulse input A1	Month Log	1			X	X	X	X
29	85	Pulse input B1	Month Log	1			X	X	X	X
30	143	Power max month	Month Log	1			X	X	X	
31	389	Power max month date	Month Log	1	Int2		X	X	X	
32	139	Flow V1 max month	Month Log	1			X	X	X	X
33	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	X
34	348	Date	Month Log	1	Int2		X	X	X	X
35	404	Meter type			Int2		X	X	X	X
36	1001	Fabrication number			BCD8		X	X	X	X
37	393	Module type config No.	Module				X	X	X	X
38	346	Module SW revision	Module				X	X	X	X

5.5 20-00-305: ALTERNATIVE PROFILE YEARLY TARGET DATA

Wired M-Bus datagram	ZZZ = 305	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	95	Tap water energy E6					X	X	X	
7	68	Volume V1					X	X	X	X
8	69	Volume V2					X	X	X	X
9	84	Pulse input A1					X	X	X	X
10	85	Pulse input B1					X	X	X	X
11	72	Mass M1					X	X	X	X
12	73	Mass M2					X	X	X	X
13	1004	Operating hours					X	X	X	X
14	86	t1 actual (2 decimals)			Int2		X	X	X	
15	87	t2 actual (2 decimals)			Int2		X	X	X	
16	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
17	88	t3 actual (2 decimals)			Int2		X	X	X	
18	122	t4 actual (2 decimals)			Int2		X	X	X	
19	80	Power actual					X	X	X	
20	74	Flow V1 actual					X	X	X	X
21	75	Flow V2 actual					X	X	X	X
22	139	Flow V1 max month					X	X	X	X
23	387	Flow V1 max month date			Int2		X	X	X	X
24	369	Info bits					X	X	X	X
25	348	Date and time					X	X	X	X
26	60	Heat energy E1	Year Log	1			X		X	
27	63	Cooling energy E3	Year Log	1				X		
28	63	Cooling energy E3	Year Log	1		HCC			X	
29	95	Tap water energy E6	Year Log	1			X	X	X	
30	68	Volume V1	Year Log	1			X	X	X	X
31	69	Volume V2	Year Log	1			X	X	X	X
32	84	Pulse input A1	Year Log	1			X	X	X	X
33	85	Pulse input B1	Year Log	1			X	X	X	X
34	124	Flow V1 max year	Year Log	1			X	X	X	X
35	348	Date	Year Log	1	Int2		X	X	X	X
36	404	Meter type			Int2		X	X	X	X
37	1001	Fabrication number			BCD8		X	X	X	X

5.6 20-00-306: ALTERNATIVE PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram ZZZ = 306 **MULTICAL® 603**
MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	95	Tap water energy E6					X	X	X	
7	68	Volume V1					X	X	X	X
8	69	Volume V2					X	X	X	X
9	84	Pulse input A1					X	X	X	X
10	85	Pulse input B1					X	X	X	X
11	72	Mass M1					X	X	X	X
12	73	Mass M2					X	X	X	X
13	1004	Operating hours					X	X	X	X
14	86	t1 actual (2 decimals)			Int2		X	X	X	
15	87	t2 actual (2 decimals)			Int2		X	X	X	
16	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
17	88	t3 actual (2 decimals)			Int2		X	X	X	
18	122	t4 actual (2 decimals)			Int2		X	X	X	
19	80	Power actual					X	X	X	
20	74	Flow V1 actual					X	X	X	X
21	75	Flow V2 actual					X	X	X	X
22	139	Flow V1 max month					X	X	X	X
23	387	Flow V1 max month date			Int2		X	X	X	X
24	369	Info bits					X	X	X	X
25	348	Date and time					X	X	X	X
26	60	Heat energy E1	Month Log	1			X		X	
27	63	Cooling energy E3	Month Log	1				X		
28	63	Cooling energy E3	Month Log	1		HCC			X	
29	95	Tap water energy E6	Month Log	1			X	X	X	
30	68	Volume V1	Month Log	1			X	X	X	X
31	69	Volume V2	Month Log	1			X	X	X	X
32	84	Pulse input A1	Month Log	1			X	X	X	X
33	85	Pulse input B1	Month Log	1			X	X	X	X
34	139	Flow V1 max month	Month Log	1			X	X	X	X
35	348	Date	Month Log	1	Int2		X	X	X	X
36	404	Meter type			Int2		X	X	X	X
37	1001	Fabrication number			BCD8		X	X	X	X

5.7 20-00-307: PDO PROFILE MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 307	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	97	Energy E8					X	X	X	
4	110	Energy E9					X	X	X	
5	68	Volume V1					X	X	X	
6	69	Volume V2					X	X	X	
7	72	Mass M1					X	X	X	
8	73	Mass M2					X	X	X	
9	84	Pulse input A1					X	X	X	
10	85	Pulse input B1					X	X	X	
11	1004	Operating hours					X	X	X	
12	175	Error hour counter					X	X	X	
13	86	t1 actual (2 decimals)			Int2		X	X	X	
14	87	t2 actual (2 decimals)			Int2		X	X	X	
15	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
16	88	t3 actual (2 decimals)			Int2		X	X	X	
17	80	Power actual					X	X	X	
18	74	Flow V1 actual					X	X	X	
19	369	Info bits					X	X	X	
20	348	Date and time					X	X	X	
21	60	Heat energy E1	Month Log	1			X		X	
22	63	Cooling energy E3	Month Log	1				X		
23	97	Energy E8	Month Log	1			X	X	X	
24	110	Energy E9	Month Log	1			X	X	X	
25	68	Volume V1	Month Log	1			X	X	X	
26	69	Volume V2	Month Log	1			X	X	X	
27	72	Mass M1	Month Log	1			X	X	X	
28	73	Mass M2	Month Log	1			X	X	X	
29	84	Pulse input A1	Month Log	1			X	X	X	
30	85	Pulse input B1	Month Log	1			X	X	X	
31	143	Power max month	Month Log	1			X	X	X	
32	389	Power max month date	Month Log	1	Int2		X	X	X	
33	139	Flow V1 max month	Month Log	1			X	X	X	
34	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	
35	348	Date	Month Log	1	Int2		X	X	X	
36	404	Meter type			Int2		X	X	X	
37	1001	Fabrication number			BCD8		X	X	X	
38	393	Module type config No.	Module				X	X	X	
39	346	Module SW revision	Module				X	X	X	

Dedicated datagram for PDO installations.
PDO = Permanent Drift Overvågning (Permanent Operation Monitoring).

5.8 20-00-308: ANALOG INPUT PROFILE

Wired M-Bus datagram	ZZZ = 308	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
8	80	Power actual					X	X	X	
9	74	Flow V1 actual					X	X	X	X
10	91	P1 actual - part 1					X	X	X	X
11	92	P2 actual - part 1					X	X	X	X
12	369	Info bits					X	X	X	X
13	404	Meter type			Int2		X	X	X	X
14	1001	Fabrication number			BCD8		X	X	X	X
15	393	Module type config No.	Module				X	X	X	X
16	346	Module SW revision	Module				X	X	X	X

Dedicated datagram for Analog Inputs module HC-003-41.
The units of the registers P1 actual and P2 actual depends on the module configuration.

5.9 20-00-309: HEAT ENERGY WITH CIRCULATION

Wired M-Bus datagram	ZZZ = 309	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	94	Heat energy E2					X	X	X	
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	96	Tap water energy E7					X	X	X	
7	178	Differential energy dE					X	X	X	X
8	68	Volume V1					X	X	X	X
9	69	Volume V2					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	88	t3 actual (2 decimals)			Int2		X	X	X	
15	74	Flow V1 actual					X	X	X	X
16	75	Flow V2 actual					X	X	X	X
17	80	Power actual					X	X	X	
18	369	Info bits					X	X	X	X
19	347	Customer Number			BCD8		X	X	X	X
20	1001	Fabrication number			BCD8		X	X	X	X
21	404	Meter type			Int2		X	X	X	X
22	393	Module type config No.	Module				X	X	X	X
23	346	Module SW revision	Module				X	X	X	X

Dedicated datagram for MULTICAL® 603 and MULTICAL® 803 meter applications 7 and 8.
Application 7: Opens system with 2 flow sensors, utilizing differential energy dE and E2,E4 and E5.
Application 8: Hot-water boiler with circulation, utilizing E4 and E7.

5.10 20-00-310: ENERGY PROFILE SNG

Wired M-Bus datagram ZZZ = 310 **MULTICAL® 603**
MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	95	Tap water energy E6					X	X	X	
7	96	Tap water energy E7					X	X	X	
8	68	Volume V1					X	X	X	X
9	69	Volume V2					X	X	X	X
10	84	Pulse input A1					X	X	X	X
11	85	Pulse input B1					X	X	X	X
12	224	Pulse input A2					X	X	X	X
13	225	Pulse input B2					X	X	X	X
14	91	P1 actual - part 1					X	X	X	X
15	92	P2 actual - part 1					X	X	X	X
16	72	Mass M1					X	X	X	X
17	73	Mass M2					X	X	X	X
18	1004	Operating hours					X	X	X	X
19	369	Info bits					X	X	X	X
20	348	Date and time					X	X	X	X
21	86	t1 actual (2 decimals)			Int2		X	X	X	
22	87	t2 actual (2 decimals)			Int2		X	X	X	
23	88	t3 actual (2 decimals)			Int2		X	X	X	
24	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
25	74	Flow V1 actual					X	X	X	X
26	75	Flow V2 actual					X	X	X	X
27	80	Power actual					X	X	X	
28	64	Tariff TA2					X	X	X	
29	65	Tariff TA3					X	X	X	
30	404	Meter type			Int2		X	X	X	X
31	1001	Fabrication number			BCD8		X	X	X	X
32	393	Module type config No.	Module				X	X	X	X
33	346	Module SW revision	Module				X	X	X	X

5.11 20-00-311: MIXED FLUID. MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 311	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	175	Error hour counter					X	X	X	X
9	86	t1 actual (2 decimals)			Int2		X	X	X	
10	87	t2 actual (2 decimals)			Int2		X	X	X	
11	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
12	80	Power actual					X	X	X	
13	143	Power max month					X	X	X	
14	389	Power max month date			Int2		X	X	X	
15	74	Flow V1 actual					X	X	X	X
16	139	Flow V1 max month					X	X	X	X
17	387	Flow V1 max month date			Int2		X	X	X	X
18	369	Info bits					X	X	X	X
19	348	Date and time					X	X	X	X
20	60	Heat energy E1	Month Log	1			X		X	
21	63	Cooling energy E3	Month Log	1				X		
22	63	Cooling energy E3 extra digit	Month Log	1		OMS			X	
23	68	Volume V1	Month Log	1			X	X	X	X
24	84	Pulse input A1	Month Log	1			X	X	X	X
25	85	Pulse input B1	Month Log	1			X	X	X	X
26	143	Power max month	Month Log	1			X	X	X	
27	389	Power max month date	Month Log	1	Int2		X	X	X	
28	139	Flow V1 max month	Month Log	1			X	X	X	X
29	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	X
30	348	Date	Month Log	1	Int2		X	X	X	X
31	647	Fluid type			Int1		X	X	X	X
32	648	Fluid concentration			Int1		X	X	X	X
33	404	Meter type			Int2		X	X	X	X
34	1001	Fabrication number			BCD8		X	X	X	X
35	393	Module type config No.	Module				X	X	X	X
36	346	Module SW revision	Module				X	X	X	X

Dedicated datagram with Mixed Fluid registers for MULTICAL® 603M and MULTICAL® 803M

5.12 20-00-312: PDO PROFILE E10, MONTHLY TARGET DATA

Wired M-Bus datagram	ZZZ = 312	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	97	Energy E8					X	X	X	
4	110	Energy E9					X	X	X	
5	473	Energy E10					X	X	X	
6	68	Volume V1					X	X	X	
7	69	Volume V2					X	X	X	
8	72	Mass M1					X	X	X	
9	73	Mass M2					X	X	X	
10	84	Pulse input A1					X	X	X	
11	85	Pulse input B1					X	X	X	
12	1004	Operating hours					X	X	X	
13	175	Error hour counter					X	X	X	
14	86	t1 actual (2 decimals)			Int2		X	X	X	
15	87	t2 actual (2 decimals)			Int2		X	X	X	
16	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
17	88	t3 actual (2 decimals)			Int2		X	X	X	
18	80	Power actual					X	X	X	
19	74	Flow V1 actual					X	X	X	
20	369	Info bits					X	X	X	
21	348	Date and time					X	X	X	
22	60	Heat energy E1	Month Log	1			X		X	
23	63	Cooling energy E3	Month Log	1				X		
24	97	Energy E8	Month Log	1			X	X	X	
25	110	Energy E9	Month Log	1			X	X	X	
26	473	Energy E10	Month Log	1			X	X	X	
27	68	Volume V1	Month Log	1			X	X	X	
28	69	Volume V2	Month Log	1			X	X	X	
29	84	Pulse input A1	Month Log	1			X	X	X	
30	85	Pulse input B1	Month Log	1			X	X	X	
31	72	Mass M1	Month Log	1			X	X	X	
32	73	Mass M2	Month Log	1			X	X	X	
33	348	Date	Month Log	1	Int2		X	X	X	
34	404	Meter type			Int2		X	X	X	
35	1001	Fabrication number			BCD8		X	X	X	
36	393	Module type config No.	Module				X	X	X	
37	346	Module SW revision	Module				X	X	X	

Dedicated datagram for PDO installations.
PDO = Permanent Drift Overvågning (Permanent Operation Monitoring).

5.13 20-00-313: MIXED FLUID. MONTHLY TARGET DATA, TA2,TA3

Wired M-Bus datagram	ZZZ = 313	MULTICAL® 603 MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	64	Tariff TA2					X	X	X	
8	65	Tariff TA3					X	X	X	
9	1004	Operating hours					X	X	X	X
10	175	Error hour counter					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	143	Power max month					X	X	X	
16	389	Power max month date			Int2		X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	139	Flow V1 max month					X	X	X	X
19	387	Flow V1 max month date			Int2		X	X	X	X
20	369	Info bits					X	X	X	X
21	348	Date and time					X	X	X	X
22	60	Heat energy E1	Month Log	1			X		X	
23	63	Cooling energy E3	Month Log	1				X		
24	63	Cooling energy E3 extra digit	Month Log	1		OMS			X	
25	68	Volume V1	Month Log	1			X	X	X	X
26	84	Pulse input A1	Month Log	1			X	X	X	X
27	85	Pulse input B1	Month Log	1			X	X	X	X
28	143	Power max month	Month Log	1			X	X	X	
29	139	Flow V1 max month	Month Log	1			X	X	X	X
30	348	Date	Month Log	1	Int2		X	X	X	X
31	647	Fluid type			Int1		X	X	X	X
32	648	Fluid concentration			Int1		X	X	X	X
33	404	Meter type			Int2		X	X	X	X
34	1001	Fabrication number			BCD8		X	X	X	X
35	393	Module type config No.	Module				X	X	X	X
36	346	Module SW revision	Module				X	X	X	X

6 WIRED M-BUS DATAGRAMS FOR MULTICAL® 803

The following Wired M-Bus Datagrams are applicable for all wired M-Bus modules used in MULTICAL® 803. The datagrams are sorted by their ZZZ code. If datagrams intended for MULTICAL® 803 are used in MULTICAL® 403 or MULTICAL® 603 some registers will not be present.

6.1 20-00-401: 9 DIGIT CONTROL PROFILE

Wired M-Bus datagram ZZZ = 401

MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	624	Heat energy E1 extra digit					X		X	
2	623	Cooling energy E3 extra digit						X		
3	623	Cooling energy E3 extra digit				OMS			X	
4	622	Volume V1 extra digit					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
8	80	Power actual					X	X	X	
9	74	Flow V1 actual					X	X	X	X
10	369	Info bits					X	X	X	X
11	404	Meter type			Int2		X	X	X	X
12	1001	Fabrication number			BCD8		X	X	X	X
13	393	Module type config No.	Module				X	X	X	X
14	346	Module SW revision	Module				X	X	X	X

6.2 20-00-402: CONTROL ENERGY PROFILE E2, E12

Wired M-Bus datagram ZZZ = 402

MULTICAL® 803

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	94	Heat energy E2					X	X	X	
3	63	Cooling energy E3						X		
4	63	Cooling energy E3 extra digit				OMS			X	
5	611	Energy E12					X	X	X	
6	68	Volume V1					X	X	X	X
7	69	Volume V2					X	X	X	X
8	84	Pulse input A1					X	X	X	X
9	85	Pulse input B1					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	88	t3 actual (2 decimals)			Int2		X	X	X	
14	122	t4 actual (2 decimals)			Int2		X	X	X	
15	80	Power actual					X	X	X	
16	74	Flow V1 actual					X	X	X	X
17	75	Flow V2 actual					X	X	X	X
18	369	Info bits					X	X	X	X
19	404	Meter type			Int2		X	X	X	X
20	1001	Fabrication number			BCD8		X	X	X	X
21	393	Module type config No.	Module				X	X	X	X
22	346	Module SW revision	Module				X	X	X	X

7 WIRELESS M-BUS DATAGRAMS

Configuration of Wireless M-Bus datagrams follows this method.

This table only shows a small part of the available datagrams, just to indicate how the Datagram naming and ordering are made.

See the table of content, for all included wireless datagrams, or look through the following pages.

	XX	-	YY	-	ZZZ
Module Type					
Wireless M-Bus, inputs (In-A, In-B), 868 MHz	30				
Wireless M-Bus, outputs (Out-C, Out-D), 868 MHz	31				
System Configuration					
C1, 16 s interval, 10mW, Walk-by/Drive-by, Frame format B			10		
C1, 96 s interval, 25mW, Fixed Network, Frame format B			11		
T1, BSI, 14 min interval, 25mW, Fixed Network, Frame format A			23		
			…		
T1 OMS, 12 sec. interval 5mW			24		
Datagrams for MC403,603,803					
C1, Standard registers[1]					101
C1, Alternative registers[1]					102
					…
C1, Fixed Network, 25mW, High resolution datagram					402

8 WIRELESS M-BUS DATAGRAMS FOR MULTICAL®403, MULTICAL®603 AND MULTICAL®803

The following Wireless M-Bus Datagrams are applicable for all wired Wireless M-Bus modules used in both MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803. The datagrams are sorted by where they are used, and then by their YY and ZZZ code.

8.1 30-10-101: C1, DRIVE-BY, STANDARD REGISTERS

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 101		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X
11	348	Date			Int2		X	X	X	X
12	60	Heat energy E1	Month Log	1			X		X	
13	63	Cooling energy E3	Month Log	1				X		
14	63	Cooling energy E3	Month Log	1		HCC			X	
15	68	Volume V1	Month Log	1			X	X	X	X
16	348	Date	Month Log	1	Int2		X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.2 30-10-102: C1, DRIVE-BY, ALTERNATIVE REGISTERS

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 102		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	15 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	84	Pulse input A1					X	X	X	X
8	85	Pulse input B1					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	128	Power max year					X	X	X	
13	64	Tariff TA2					X	X	X	
14	65	Tariff TA3					X	X	X	
15	369	Info bits					X	X	X	X
16	348	Date			Int2		X	X	X	X
17	60	Heat energy E1	Month Log	1			X		X	
18	63	Cooling energy E3	Month Log	1				X		
19	63	Cooling energy E3	Month Log	1		HCC			X	
20	68	Volume V1	Month Log	1			X	X	X	X
21	84	Pulse input A1	Month Log	1			X	X	X	X
22	85	Pulse input B1	Month Log	1			X	X	X	X
23	348	Date	Month Log	1	Int2		X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.3 30-10-109: C1, DRIVE-BY, HEAT WITH DISCOUNT AND SURCHARGE, A1, A2

		Interval: 16s	Walk-by/Drive-by	**MULTICAL® 403**
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 109		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	14 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	364	Heat energy A1					X	X	X	
5	365	Heat energy A2					X	X	X	
6	84	Pulse input A1					X	X	X	X
7	85	Pulse input B1					X	X	X	X
8	74	Flow V1 actual					X	X	X	
9	64	Tariff TA2					X	X	X	
10	65	Tariff TA3					X	X	X	
11	362	Tariff TA4					X	X	X	
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	60	Heat energy E1	Month Log	1			X		X	
16	63	Cooling energy E3	Month Log	1				X		
17	63	Cooling energy E3	Month Log	1		HCC			X	
18	364	Heat energy A1	Month Log	1			X	X	X	
19	365	Heat energy A2	Month Log	1			X	X	X	
20	68	Volume V1	Month Log	1			X	X	X	X
21	84	Pulse input A1	Month Log	1			X	X	X	X
22	85	Pulse input B1	Month Log	1			X	X	X	X
23	348	Date	Month Log	1	Int2		X	X	X	X
24	64	Tariff TA2	Month Log	1			X	X	X	
25	65	Tariff TA3	Month Log	1			X	X	X	
26	362	Tariff TA4	Month Log	1			X	X	X	
27	80	Power actual	Month Log	1			X	X	X	
28	74	Flow V1 actual	Month Log	1			X	X	X	
29	348	Date	Day Log	2	Int2		X	X	X	X

NB! This configuration is replaced by YY-ZZZ = 10-114.

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.4 30-10-110: C1, FIXED NETWORK, MONTH POWER, MONTH FLOW

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 110		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	60	Heat energy E1	Month Log	1			X		X	
5	68	Volume V1					X	X	X	X
6	86	t1 actual (2 decimals)			Int2		X	X	X	X
7	87	t2 actual (2 decimals)			Int2		X	X	X	
8	74	Flow V1 actual					X	X	X	X
9	80	Power actual					X	X	X	
10	143	Power max month	Month Log	1			X	X	X	
11	139	Flow V1 max month	Month Log	1			X	X	X	X
12	1004	Operating hours					X	X	X	X
13	369	Info bits					X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.5 30-10-114: C1, DRIVE-BY, HEAT WITH DISCOUNT AND DISCHARGE, A1, A2

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 114		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	14 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	364	Heat energy A1					X	X	X	
5	365	Heat energy A2					X	X	X	
6	84	Pulse input A1					X	X	X	X
7	85	Pulse input B1					X	X	X	X
8	74	Flow V1 actual					X	X	X	
9	64	Tariff TA2					X	X	X	
10	65	Tariff TA3					X	X	X	
11	362	Tariff TA4					X	X	X	
12	86	t1 actual (2 decimals)			Int2		X	X	X	
13	87	t2 actual (2 decimals)			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	60	Heat energy E1	Month Log	1			X		X	
16	63	Cooling energy E3	Month Log	1				X		
17	63	Cooling energy E3	Month Log	1		HCC			X	
18	364	Heat energy A1	Month Log	1			X	X	X	
19	365	Heat energy A2	Month Log	1			X	X	X	
20	68	Volume V1	Month Log	1			X	X	X	X
21	84	Pulse input A1	Month Log	1			X	X	X	X
22	85	Pulse input B1	Month Log	1			X	X	X	X
23	64	Tariff TA2	Month Log	1			X	X	X	
24	65	Tariff TA3	Month Log	1			X	X	X	
25	362	Tariff TA4	Month Log	1			X	X	X	
26	143	Power max month	Month Log	1			X	X	X	
27	389	Power max month date	Month Log	1	Int2		X	X	X	
29	139	Flow V1 max month	Month Log	1			X	X	X	X
30	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	X

8.6 30-10-126: C1, FLOW, POWER,TA2,TA3,TA4 - ACTUAL AND MONTHLY

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 126		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	14 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	348	Date			Int2		X	X	X	X
2	60	Heat energy E1					X		X	
3	68	Volume V1					X	X	X	X
4	74	Flow V1 actual					X	X	X	
5	64	Tariff TA2					X	X	X	
6	65	Tariff TA3					X	X	X	
7	362	Tariff TA4					X	X	X	
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	X
10	80	Power actual					X	X	X	
11	369	Info bits					X	X	X	X
12	348	Date	Month Log	1	Int2		X	X	X	X
13	60	Heat energy E1	Month Log	1			X		X	
14	68	Volume V1	Month Log	1			X	X	X	X
15	64	Tariff TA2	Month Log	1			X	X	X	
16	65	Tariff TA3	Month Log	1			X	X	X	
17	362	Tariff TA4	Month Log	1			X	X	X	
18	143	Power max month	Month Log	1			X	X	X	
19	389	Power max month date	Month Log	1	Int2		X	X	X	
20	139	Flow V1 max month	Month Log	1			X	X	X	X
21	387	Flow V1 max month date	Month Log	1	Int2		X	X	X	X

8.7 30-10-128: STANDARD DK HEAT METER

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 128		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	15 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	74	Flow V1 actual					X	X	X	X
6	80	Power actual					X	X	X	
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	369	Info bits					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	124	Flow V1 max year					X	X	X	X
13	128	Power max year					X	X	X	X

8.8 30-11-103: C1, FIXED NETWORK, STANDARD REGISTERS

Wireless M-Bus datagram	YY = 11 ZZZ = 103	Interval: 96s 25mW	Fixed Network C1, 868MHz Frame format B	**MULTICAL® 403** **MULTICAL® 603** **MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X

NB! This configuration is replaced by YY-ZZZ = 11-111.

8.9 30-11-104: C1, FIXED NETWORK TARGET DATA

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 104		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	68	Volume V1					X		X	X
3	74	Flow V1 actual					X		X	X
4	86	t1 actual (2 decimals)			Int2		X		X	X
5	87	t2 actual (2 decimals)			Int2		X		X	
6	348	Date	Month Log	1	Int2		X		X	
7	60	Heat energy E1	Month Log	1			X		X	
8	68	Volume V1	Month Log	1			X		X	
9	369	Info bits					X		X	
10	80	Power actual	Year Log	2			X		X	
11	80	Power actual	Month Log	1			X		X	

NB! This configuration is replaced by YY-ZZZ = 11-112.

8.10 30-11-105: C1, FIXED NETWORK W/ T1-T2, POWER

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 105		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X
11	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
12	80	Power actual					X	X	X	

8.11 30-11-106: C1, FIXED NETWORK INCL. YEARLY PEAK POWER

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 106		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	X
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	74	Flow V1 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	128	Power max year	Year Log	1			X	X	X	
10	1004	Operating hours					X	X	X	X
11	369	Info bits					X	X	X	X

8.12 30-11-107: C1, FIXED NETWORK, INA - INB

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 107		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	84	Pulse input A1					X	X	X	X
5	85	Pulse input B1					X	X	X	X
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X

8.13 30-11-110: C1, FIXED NETWORK, MONTH POWER, MONTH FLOW

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 110		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	12 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	60	Heat energy E1	Month Log	1			X		X	
5	68	Volume V1					X	X	X	X
6	86	t1 actual (2 decimals)			Int2		X	X	X	X
7	87	t2 actual (2 decimals)			Int2		X	X	X	
8	74	Flow V1 actual					X	X	X	X
9	80	Power actual					X	X	X	
10	143	Power max month	Month Log	1			X	X	X	
11	139	Flow V1 max month	Month Log	1			X	X	X	X
12	1004	Operating hours					X	X	X	X
13	369	Info bits					X	X	X	X

8.14 30-11-111: C1, FIXED NETWORK, HIGH RESOLUTION

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 111		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X

8.15 30-11-112: C1, FIXED NETWORK, TARGET DATA

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 112		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	9 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X	X	X	
2	68	Volume V1					X	X	X	X
3	74	Flow V1 actual					X	X	X	X
4	86	t1 actual (2 decimals)			Int2		X	X	X	X
5	87	t2 actual (2 decimals)			Int2		X	X	X	
6	348	Date	Month Log	1	Int2		X	X	X	X
7	60	Heat energy E1	Month Log	1			X	X	X	
8	68	Volume V1	Month Log	1			X	X	X	X
9	369	Info bits					X	X	X	X
10	128	Power max year	Year Log	2			X	X	X	
11	143	Power max month	Month Log	1			X	X	X	

8.16 30-11-117: C1, FIXED NETWORK, YEARLY MAX FLOW

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 117		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	X
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	74	Flow V1 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	124	Flow V1 max year	Year Log	1			X	X	X	
10	1004	Operating hours					X	X	X	X
11	369	Info bits					X	X	X	X

8.17 30-11-119: C1, FIXED NETWORK INCL. POWER AND FLOW MAX. MONTH

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 119		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	X
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	74	Flow V1 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	143	Power max month	Month Log	1			X	X	X	
10	139	Flow V1 max month	Month Log	1			X	X	X	X
11	1004	Operating hours					X	X	X	X
12	369	Info bits					X	X	X	X

8.18 30-11-121: C1, FIXED NETWORK, TA3

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 121		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	60	Heat energy E1	Month Log	1			X		X	
5	68	Volume V1					X	X	X	X
6	65	Tariff TA3					X	X	X	
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	74	Flow V1 actual					X	X	X	X
10	143	Power max month	Month Log	1			X	X	X	
11	139	Flow V1 max month	Month Log	1			X	X	X	X
12	1004	Operating hours					X	X	X	X
13	369	Info bits					X	X	X	X

8.19 30-11-122: C1, FIXED NETWORK, MONTH POWER, IN-A, IN-B

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 122		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	84	Pulse input A1					X	X	X	X
3	85	Pulse input B1					X	X	X	X
4	68	Volume V1					X	X	X	X
5	86	t1 actual (2 decimals)			Int2		X	X	X	
6	87	t2 actual (2 decimals)			Int2		X	X	X	
7	74	Flow V1 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	143	Power max month	Month Log	1			X	X	X	
10	389	Power max month date			Int2		X	X	X	
11	1004	Operating hours					X	X	X	X
12	369	Info bits					X	X	X	X

8.20 30-11-128: STANDARD DK HEAT METER

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 128		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	74	Flow V1 actual					X	X	X	X
6	80	Power actual					X	X	X	
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	369	Info bits					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	124	Flow V1 max year					X	X	X	X
13	128	Power max year					X	X	X	X

8.21 30-11-129: C1, FIXED NETWORK, HIGH RESOLUTION,TA2,TA3

		Interval: 96s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 129		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	64	Tariff TA2					X	X	X	
11	65	Tariff TA3					X	X	X	
12	369	Info bits					X	X	X	X

8.22 30-12-105: C1, FIXED NETWORK W/ T1-T2, POWER

Wireless M-Bus datagram	YY = 12 ZZZ = 105	Interval: 16s 25mW	Walk-by/Drive-by C1, 868MHz Frame format B	**MULTICAL® 403** **MULTICAL® 603** **MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X
11	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
12	80	Power actual					X	X	X	

8.23 30-12-108: C1, DRIVE-BY, 25MW, MONTHLY TARGET DATA

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 108		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	13 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X	X	X	
2	68	Volume V1					X	X	X	X
3	74	Flow V1 actual					X	X	X	X
4	86	t1 actual (2 decimals)			Int2		X	X	X	X
5	87	t2 actual (2 decimals)			Int2		X	X	X	
6	369	Info bits					X	X	X	X
7	60	Heat energy E1	Month Log	1			X	X	X	
8	68	Volume V1	Month Log	1			X	X	X	X
9	348	Date	Month Log	1	Int2		X	X	X	X

8.24 30-12-110: C1, FIXED NETWORK, MONTH POWER, MONTH FLOW

Wireless M-Bus datagram	YY = 12 ZZZ = 110	Interval: 16s 25mW	Walk-by/Drive-by C1, 868MHz Frame format B	**MULTICAL® 403** **MULTICAL® 603** **MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	13 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	60	Heat energy E1	Month Log	1			X		X	
5	68	Volume V1					X	X	X	X
6	86	t1 actual (2 decimals)			Int2		X	X	X	X
7	87	t2 actual (2 decimals)			Int2		X	X	X	
8	74	Flow V1 actual					X	X	X	X
9	80	Power actual					X	X	X	
10	143	Power max month	Month Log	1			X	X	X	
11	139	Flow V1 max month	Month Log	1			X	X	X	X
12	1004	Operating hours					X	X	X	X
13	369	Info bits					X	X	X	X

8.25 30-12-115: C1, DRIVE-BY, 25MW, YEARLY TARGET DATA

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 115		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	12 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X	X	X	
2	68	Volume V1					X	X	X	X
3	74	Flow V1 actual					X	X	X	X
4	86	t1 actual (2 decimals)			Int2		X	X	X	X
5	87	t2 actual (2 decimals)			Int2		X	X	X	
6	369	Info bits					X	X	X	X
7	60	Heat energy E1	Year Log	1			X	X	X	
8	68	Volume V1	Year Log	1			X	X	X	X
9	348	Date	Year Log	1	Int2		X	X	X	X

8.26 30-12-116: C1, DRIVE-BY, 25MW, TARIF 2, 3, 4, POWER

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 116		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	11 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	64	Tariff TA2					X	X	X	X
5	65	Tariff TA3					X	X	X	X
6	362	Tariff TA4					X	X	X	X
7	68	Volume V1					X	X	X	X
8	84	Pulse input A1					X	X	X	X
9	85	Pulse input B1					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	369	Info bits					X	X	X	X
12	143	Power max month	Month Log	1			X	X	X	X
13	389	Power max month date	Month Log	1	Int2		X	X	X	X

8.27 30-12-118: C1, FIXED NETWORK, MONTH POWER

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 118		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	11 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	60	Heat energy E1	Month Log	1			X		X	
7	68	Volume V1					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	74	Flow V1 actual					X	X	X	X
11	80	Power actual					X	X	X	
12	143	Power max month	Month Log	1			X	X	X	
13	369	Info bits					X	X	X	X

8.28 30-12-127: C1, T1-T2, POWER, FLOW,OPERATING HOURS - ACTUAL REGISTERS

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 127		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	11 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	
10	369	Info bits					X	X	X	X
11	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
12	1004	Operating hours					X	X	X	X
13	80	Power actual					X	X	X	

8.29 30-12-128: STANDARD DK HEAT METER

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 128		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	11 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	74	Flow V1 actual					X	X	X	X
6	80	Power actual					X	X	X	
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	369	Info bits					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	124	Flow V1 max year					X	X	X	X
13	128	Power max year					X	X	X	X

8.30 30-12-205: T1 OMS, E1 3 X LAST MONTH

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 12	25mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 205		Frame format B	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS	X		X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	60	Heat energy E1	Month Log	1			X		X	
11	348	Date	Month Log	1	Int2		X		X	
12	60	Heat energy E1	Month Log	2			X		X	
13	348	Date	Month Log	2	Int2		X		X	
14	60	Heat energy E1	Month Log	3			X		X	
15	348	Date	Month Log	3	Int2		X		X	

8.31 30-15-201: T1 OMS

		Interval: 15m	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 15	25mW	C1	MULTICAL® 603
	ZZZ = 201		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	348	Date			Int2		X	X	X	X
11	1004	Operating hours					X	X	X	X
12	348	Date	Month Log	1	Int2		X	X	X	X
13	60	Heat energy E1	Month Log	1			X		X	
14	63	Cooling energy E3	Month Log	1				X		
15	63	Cooling energy E3	Month Log	1		HCC			X	
16	68	Volume V1	Month Log	1			X	X	X	X
17	139	Flow V1 max month	Month Log	1			X	X	X	X

8.32 30-16-120: C1 BSI

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 16	10mW	C1, 868MHz	MULTICAL® 603
	ZZZ = 120		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	12 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS	X		X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	60	Heat energy E1	Month Log	1			X		X	
11	348	Date	Month Log	1	Int2		X		X	
12	60	Heat energy E1	Month Log	2			X		X	
13	348	Date	Month Log	2	Int2		X		X	
14	60	Heat energy E1	Month Log	3			X		X	
15	348	Date	Month Log	3	Int2		X		X	

8.33 30-20-201: T1 OMS

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 20	5mW	T1 OMS, 868MHz	MULTICAL® 603
	ZZZ = 201		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	13 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	348	Date			Int2		X	X	X	X
11	1004	Operating hours					X	X	X	X
12	348	Date	Month Log	1	Int2		X	X	X	X
13	60	Heat energy E1	Month Log	1			X		X	
14	63	Cooling energy E3	Month Log	1				X		
15	63	Cooling energy E3	Month Log	1		HCC			X	
16	68	Volume V1	Month Log	1			X	X	X	X
17	139	Flow V1 max month	Month Log	1			X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.34 30-20-203: T1 OMS, IN-A + IN-B

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 20	5mW	T1 OMS, 868MHz	MULTICAL® 603
	ZZZ = 203		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	13 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	84	Pulse input A1					X	X	X	X
10	85	Pulse input B1					X	X	X	X
11	80	Power actual					X	X	X	
12	348	Date			Int2		X	X	X	X
13	348	Date	Month Log	1	Int2		X	X	X	X
14	60	Heat energy E1	Month Log	1			X		X	
15	63	Cooling energy E3	Month Log	1				X		
16	63	Cooling energy E3	Month Log	1		HCC			X	
17	139	Flow V1 max month	Month Log	1			X	X	X	X

8.35 30-20-205: T1 OMS, E1 3 X LAST MONTH

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 20	5mW	T1 OMS, 868MHz	MULTICAL® 603
	ZZZ = 205		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	13 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS	X		X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	60	Heat energy E1	Month Log	1			X		X	
11	348	Date	Month Log	1	Int2		X		X	
12	60	Heat energy E1	Month Log	2			X		X	
13	348	Date	Month Log	2	Int2		X		X	
14	60	Heat energy E1	Month Log	3			X		X	
15	348	Date	Month Log	3	Int2		X		X	

8.36 30-21-201: T1 OMS

		Interval: 15m	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 21	25mW	T1 OMS, 868MHz	MULTICAL® 603
	ZZZ = 201		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	10 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	348	Date			Int2		X	X	X	X
11	1004	Operating hours					X	X	X	X
12	348	Date	Month Log	1	Int2		X	X	X	X
13	60	Heat energy E1	Month Log	1			X		X	
14	63	Cooling energy E3	Month Log	1				X		
15	63	Cooling energy E3	Month Log	1		HCC			X	
16	68	Volume V1	Month Log	1			X	X	X	X
17	139	Flow V1 max month	Month Log	1			X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.37 30-21-203: T1 OMS, IN-A + IN-B

		Interval: 15m	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 21	25mW	T1 OMS, 868MHz	MULTICAL® 603
	ZZZ = 203		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	10 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	84	Pulse input A1					X	X	X	X
10	85	Pulse input B1					X	X	X	X
11	80	Power actual					X	X	X	
12	348	Date			Int2		X	X	X	X
13	348	Date	Month Log	1	Int2		X	X	X	X
14	60	Heat energy E1	Month Log	1			X		X	
15	63	Cooling energy E3	Month Log	1				X		
16	63	Cooling energy E3	Month Log	1		HCC			X	
17	139	Flow V1 max month	Month Log	1			X	X	X	X

8.38 30-22-202: T1, BSI COMPLIANT

		Interval: 16s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 22	10mW	T1 BSI compliant	MULTICAL® 603
	ZZZ = 202		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	12 years
	2x A-Cells	6 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X		
9	80	Power actual					X	X	X	X
10	348	Date	Month Log	1	Int2		X	X	X	X
11	60	Heat energy E1	Month Log	1			X		X	
12	63	Cooling energy E3	Month Log	1				X		
13	63	Cooling energy E3	Month Log	1		HCC			X	
14	68	Volume V1	Month Log	1			X	X	X	X
15	139	Flow V1 max month	Month Log	1			X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.39 30-23-202: T1, BSI COMPLIANT

		Interval: 14m	Fixed network	MULTICAL® 403
Wireless M-Bus datagram	YY = 23	25mW	T1 BSI compliant	MULTICAL® 603
	ZZZ = 202		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	10 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X		
9	80	Power actual					X	X	X	X
10	348	Date	Month Log	1	Int2		X	X	X	X
11	60	Heat energy E1	Month Log	1			X		X	
12	63	Cooling energy E3	Month Log	1				X		
13	63	Cooling energy E3	Month Log	1		HCC			X	
14	68	Volume V1	Month Log	1			X	X	X	X
15	139	Flow V1 max month	Month Log	1			X	X	X	X

Support of MWh with 4 decimals, GCal and additional info codes for MC 603 supported from 2018-04-24.

8.40 30-24-204: T1 OMS, 868 MHz, 12 sec./5mW

		Interval: 12s	Walk-by/Drive-by	MULTICAL® 403
Wireless M-Bus datagram	YY = 24	5mW	T1 OMS	MULTICAL® 603
	ZZZ = 204		Frame format A	MULTICAL® 803

Estimated battery lifetime	1xD-Cell	11 years
	2x A-Cells	5 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	68	Volume V1					X	X	X	X
5	369	Info bits					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	86	t1 actual (2 decimals)			Int2		X	X	X	X
8	87	t2 actual (2 decimals)			Int2		X	X	X	
9	80	Power actual					X	X	X	
10	348	Date			Int2		X	X	X	X
11	1004	Operating hours					X	X	X	X
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	348	Date	Month Log	1	Int2		X	X	X	X
14	60	Heat energy E1	Month Log	1			X		X	
15	63	Cooling energy E3	Month Log	1				X		
16	63	Cooling energy E3	Month Log	1		HCC			X	
17	68	Volume V1	Month Log	1			X	X	X	X

9 WIRELESS M-BUS DATAGRAMS FOR MULTICAL® 603 AND MULTICAL® 803

The following Wired M-Bus Datagrams are applicable for all wired Wireless M-Bus modules used in MULTICAL® 603/803. The datagrams are sorted by where they are used, and then by their YY and ZZZ code

9.1 30-10-311: MIXED FLUID. MONTHLY TARGET DATA

		Interval: 16s	Walk-by/Drive-by	
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 311		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	15 years
	2x A-Cells	7 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3 extra digit				OMS			X	
4	68	Volume V1					X	X	X	X
5	84	Pulse input A1					X	X	X	X
6	85	Pulse input B1					X	X	X	X
7	74	Flow V1 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	86	t1 actual (2 decimals)			Int2		X	X	X	X
10	87	t2 actual (2 decimals)			Int2		X	X	X	
11	348	Date			Int2		X	X	X	X
12	369	Info bits					X	X	X	X
13	60	Heat energy E1	Month Log	1			X		X	
14	63	Cooling energy E3	Month Log	1				X		
15	63	Cooling energy E3 extra digit	Month Log	1		OMS			X	
16	68	Volume V1	Month Log	1			X	X	X	X
17	84	Pulse input A1	Month Log	1			X	X	X	X
18	85	Pulse input B1	Month Log	1			X	X	X	X
19	139	Flow V1 max month	Month Log	1			X	X	X	X
20	143	Power max month	Month Log	1			X	X	X	
21	348	Date	Month Log	1	Int2		X	X	X	X
22	647	Fluid type			Int1		X	X	X	X
23	648	Fluid concentration			Int1		X	X	X	X

9.2 30-11-301: C1, FIXED NETWORK, PDO

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 301		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	72	Mass M1					X	X	X	
7	73	Mass M2					X	X	X	
8	369	Info bits					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	X
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	88	t3 actual (2 decimals)			Int2		X	X	X	

9.3 30-11-304: C1, FIXED NETWORK, 25MW, INA1, INA2, INB1, INB2

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 304		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	10 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	63	Cooling energy E3						X		
3	63	Cooling energy E3				HCC			X	
4	84	Pulse input A1					X	X	X	X
5	85	Pulse input B1					X	X	X	X
6	224	Pulse input A2					X	X	X	X
7	225	Pulse input B2					X	X	X	X
8	68	Volume V1					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	X
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	369	Info bits					X	X	X	X

9.4 30-11-309: HEAT ENERGY WITH CIRCULATION

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 309		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	94	Heat energy E2					X	X	X	
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	96	Tap water energy E7					X	X	X	
7	178	Differential energy dE					X	X	X	
8	68	Volume V1					X	X	X	X
9	69	Volume V2					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	88	t3 actual (2 decimals)			Int2		X	X	X	
15	74	Flow V1 actual					X	X	X	
16	75	Flow V2 actual					X	X	X	
17	369	Info bits					X	X	X	X

9.5 30-14-302: C1, FIXED NETWORK, PDO + IN-A

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 14	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 302		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	72	Mass M1					X	X	X	
7	73	Mass M2					X	X	X	
8	369	Info bits					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	X
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	88	t3 actual (2 decimals)			Int2		X	X	X	
13	84	Pulse input A1					X	X	X	

9.6 30-14-303: C1, FIXED NETWORK, E4 + E10

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 14	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 303		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years	
	2x A-Cells	8 years	

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	61	Inlet energy E4					X	X	X	
2	68	Volume V1					X	X	X	X
3	74	Flow V1 actual					X	X	X	X
4	60	Heat energy E1					X		X	
5	97	Energy E8					X	X	X	
6	110	Energy E9					X	X	X	
7	473	Energy E10					X	X	X	
8	369	Info bits					X	X	X	X
9	86	t1 actual (2 decimals)			Int2		X	X	X	X
10	87	t2 actual (2 decimals)			Int2		X	X	X	

9.7 30-14-305: C1, FIXED NETWORK, PDO + MAX POWER YEAR

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 14	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 305		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years	
	2x A-Cells	8 years	

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	72	Mass M1					X	X	X	
7	73	Mass M2					X	X	X	
8	369	Info bits					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	86	t1 actual (2 decimals)			Int2		X	X	X	X
11	87	t2 actual (2 decimals)			Int2		X	X	X	
12	88	t3 actual (2 decimals)			Int2		X	X	X	
13	128	Power max year	Year Log	1			X	X	X	

9.8 30-14-306: C1, FIXED NETWORK, E4

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 14	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 306		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years
	2x A-Cells	8 years

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	61	Inlet energy E4					X	X	X	
2	68	Volume V1					X	X	X	X
3	74	Flow V1 actual					X	X	X	X
4	60	Heat energy E1					X		X	
5	97	Energy E8					X	X	X	
6	110	Energy E9					X	X	X	
7	369	Info bits					X	X	X	X
8	86	t1 actual (2 decimals)			Int2		X	X	X	X
9	87	t2 actual (2 decimals)			Int2		X	X	X	

9.9 30-14-309: HEAT ENERGY WITH CIRCULATION

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 14	25mW	C1, 868MHz	**MULTICAL® 603**
	ZZZ = 309		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	16 years	
	2x A-Cells	8 years	

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	94	Heat energy E2					X	X	X	
3	63	Cooling energy E3				HCC			X	
4	61	Inlet energy E4					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	96	Tap water energy E7					X	X	X	
7	178	Differential energy dE					X	X	X	
8	68	Volume V1					X	X	X	X
9	69	Volume V2					X	X	X	X
10	1004	Operating hours					X	X	X	X
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (2 decimals)			Int2		X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
14	88	t3 actual (2 decimals)			Int2		X	X	X	
15	74	Flow V1 actual					X	X	X	
16	75	Flow V2 actual					X	X	X	
17	369	Info bits					X	X	X	X

Dedicated datagram for MULTICAL® 603 and MULTICAL® 803 meter applications 7 and 8.
Application 7: Opens system with 2 flow sensors, utilizing differential energy dE and E2, E4 and E5.
Application 8: Hot water boiler with circulation, utilizing E4 and E7.

10 WIRELESS M-BUS DATAGRAMS FOR MULTICAL® 803

The following Wired M-Bus Datagrams are applicable for all wired Wireless M-Bus modules used in MULTICAL® 603/803. The datagrams are sorted by where they are used, and then by their YY and ZZZ code

10.1 30-10-401: 9 DIGIT DATAGRAM

Wireless M-Bus datagram	YY = 10 ZZZ = 401	Interval: 16s 10mW	Walk-by/Drive-by C1, 868MHz Frame format B	**MULTICAL® 803**
Estimated battery lifetime		1xD-Cell 2x A-Cells	N/A N/A	

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	624	Heat energy E1 extra digit					X		X	
2	623	Cooling energy E3 extra digit						X		
3	623	Cooling energy E3 extra digit				OMS			X	
4	622	Volume V1 extra digit					X	X	X	X
5	86	t1 actual (2 decimals)					X	X	X	X
6	87	t2 actual (2 decimals)					X	X	X	
7	80	Power actual					X	X	X	X
8	74	Flow V1 actual					X	X	X	X
9	369	Info bits					X	X	X	X

10.2 30-10-402: HIGH RESOLUTION DATAGRAM

		Interval: 16s	Walk-by/Drive-by	
Wireless M-Bus datagram	YY = 10	10mW	C1, 868MHz	
	ZZZ = 402		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	N/A	
	2x A-Cells	N/A	

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	266	Heat energy E1 high res.					X		X	
3	63	Cooling energy E3						X		
4	63	Cooling energy E3 extra digit				OMS			X	
5	267	Cooling energy E3 high res.						X		
6	267	Cooling energy E3 extra digit				OMS			X	
7	239	Volume V1 high Res.					X	X	X	X
8	86	t1 actual (2 decimals)					X	X	X	X
9	87	t2 actual (2 decimals)					X	X	X	
10	80	Power actual					X	X	X	
11	74	Flow V1 actual					X	X	X	X
12	369	Info bits					X	X	X	X

10.3 30-11-401: 9 DIGIT DATAGRAM

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	
	ZZZ = 401		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	N/A
	2x A-Cells	N/A

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	624	Heat energy E1 extra digit					X		X	
2	623	Cooling energy E3 extra digit						X		
3	623	Cooling energy E3 extra digit				OMS			X	
4	622	Volume V1 extra digit					X	X	X	X
5	86	t1 actual (2 decimals)					X	X	X	X
6	87	t2 actual (2 decimals)					X	X	X	
7	80	Power actual					X	X	X	X
8	74	Flow V1 actual					X	X	X	X
9	369	Info bits					X	X	X	X

10.4 30-11-402: HIGH RESOLUTION DATAGRAM

		Interval: 96s	Fixed Network	
Wireless M-Bus datagram	YY = 11	25mW	C1, 868MHz	
	ZZZ = 402		Frame format B	**MULTICAL® 803**

Estimated battery lifetime	1xD-Cell	N/A
	2x A-Cells	N/A

No.	Register Id	Register name	Register Origin	St. no.	Data type	Notes	H	C	H/C	V
1	60	Heat energy E1					X		X	
2	266	Heat energy E1 high res.					X		X	
3	63	Cooling energy E3						X		
4	63	Cooling energy E3 extra digit				OMS			X	
5	267	Cooling energy E3 high res.						X		
6	267	Cooling energy E3 extra digit				OMS			X	
7	239	Volume V1 high Res.					X	X	X	X
8	86	t1 actual (2 decimals)					X	X	X	X
9	87	t2 actual (2 decimals)					X	X	X	
10	80	Power actual					X	X	X	
11	74	Flow V1 actual					X	X	X	X
12	369	Info bits					X	X	X	X

11 METER LOGGER PROFILES

Below a table shows each available logger profile, including a small description of each logger profile. For details please see the subsequent part of this paragraph which describes each logger profile in detail.

Once a new logger profile is created, it can be made available for both MULTICAL® 403, 603 and 803. However, a specific logger profile will not be identical on the meters, in terms of…

1. …available registers, because MUTLICAL® 403 and 603 supports only a subset of registers of that available in MULTICAL® 803.
2. …logger depth, as this varies in the three different meter series and therefore in some cases the logger depth will be extended in e.g. MULTICAL® 603 compared to MULTICAL® 403.

Name	Description	RR
Standard	Our standard profile which is based on the MC602 logger profile. NB: Without time averaged temperatures.	10
Current values	The standard profile with the addition of current (actual) values in a 15 min. logger	11
Ludwig	The standard profile with an extended logger depth for the monthly logger (72 months). Furthermore the registers A1/A2, COP, time averaged temperatures and time averaged analog inputs are added. Lastly the energy registers are added to the daily logger.	12
Madrid	The standard profile with the addition of a 15 min. logger, which contains all of the registers concerning actual values.	13
Peter	The standard profile with an extended logger depth for the hourly logger (1600 hours). Furthermore the registers dE, cE, dV and cV are added.	14
Diagnostic 1	A profile for diagnostic purposes with 1 min. logger containing actual t1, actual t2 and actual flow for V1.	15
Diagnostic 1	A profile for diagnostic purposes with 1 min. logger containing actual t1, actual t2, actual flow for V1 and the analog inputs P1 actual and P2 actual.	16
Kiev	The standard profile with an extended logger depth for the hourly logger (1600 hours). Furthermore the registers dE, cE, dV, cV and COP year / month are added.	17
Information sensitive	A profile with minimum amount of registers – only E1, E3, V1 and INFO	18
Athens	A standard logger profile with addition of actual values, and a twice as large hourly logger as standard logger profile (RR10).	20
Noe	A logger profile with reduced registers. Year depth is reduced to 16. Month, day and hourly log dept is increased to 72, 2190 and 2160	21
KM RF	A Kamstrup radio (KM RF) logger profile specially made for our legacy radio modules; HC-003-50, HC-003-51 and HC-003-84,HC-003-85.	90

12 MULTICAL® 403 LOGGER PROFILES

The following meter logger profiles are applicable for MULTICAL® 403.

12.1 STANDARD (RR 10)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x				
110	Energy E9	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
1004	Operating hours	x	x				
175	Error hour counter	x	x				

12.2 CURRENT VALUES (RR 11)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	672	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
63	Cooling energy E3	x	x	x	x	x	
97	Energy E8	x	x				
110	Energy E9	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)			x	x	x	
87	t2 actual (2 decimals)			x	x	x	
89	t1-t2 diff. temp. (2 decimals)			x	x	x	
74	Flow V1 actual			x	x	x	
80	Power E1/E3 actual			x	x	x	

12.3 LUDWIG (RR 12)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	72	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
364	Heat energy A1	x	x	x	x		
365	Heat energy A2	x	x	x	x		
64	Tariff TA2	x	x	x	x		
65	Tariff TA3	x	x	x	x		
362	Tariff TA4	x	x	x	x		
68	Volume V1	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				

12.4 MADRID (RR 13)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	1344	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
63	Cooling energy E3	x	x	x	x	x	
97	Energy E8	x	x				
110	Energy E9	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
84	Pulse input A1	x	x	x	x	x	
85	Pulse input B1	x	x	x	x	x	
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
89	t1-t2 diff. temp. (2 decimals)					x	
74	Flow V1 actual					x	
80	Power E1/E3 actual					x	

12.5 PETER (RR 14)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			

12.6 DIAGNOSTIC 1 (RR 15)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	72	460	-	5760	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
68	Volume V1	x	x	x			
99/369	Info code	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
74	Flow V1 actual					x	

12.7 DIAGNOSTIC 2 (RR 16)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	36	460	-	5760	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
68	Volume V1	x	x	x			
369	Info bits	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
1004	Operating hours	x	x	x			
175	Error hour counter	x	x	x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
74	Flow V1 actual					x	
80	Power E1/E3 actual					x	

12.8 KIEV (RR 17)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
355	COP Year	x					
367	COP Month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			

12.9 INFORMATION SENSITIVE (RR 18)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	-	-	-	-
1003	Date (yy.mm.dd)	x	x				
1002	Time (hh.mm.ss)	x	x				
60	Heat energy E1	x					
63	Cooling energy E3	x					
68	Volume V1	x					
99/369	Info code	x					
1004	Operating hours	x	x				
175	Error hour counter	x	x				

12.10 ATHENS (RR 20)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	390	1850	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
68	Volume V1	x	x	x	x		
369	Info bits	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x	x	x		
86	t1 actual (2 decimals)			x	x		
87	t2 actual (2 decimals)			x	x		
89	t1_t2 diff. temp. (2 decimals)			x	x		
74	Flow V1 actual			x	x		
80	Power E1/E3 actual			x	x		

12.11 NOE (RR 21)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	16	72	2190	1080	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
68	Volume V1	x	x	x	x		
369	Info bits	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x				

12.12 KM RF (RR 90)

MULTICAL® 403							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x		x		
110	Energy E9	x	x		x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
1004	Operating hours	x	x		x		
175	Error hour counter	x	x		x		
86	t1 actual (2 decimals)				x		
87	t2 actual (2 decimals)				x		
89	t1-t2 diff. temp. (2 decimals)				x		
74	Flow V1 actual				x		
80	Power E1/E3 actual				x		

13 MULTICAL® 603 LOGGER PROFILES

The following meter logger profiles are applicable for MULTICAL® 603.

13.1 STANDARD (RR 10)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				

143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
1004	Operating hours	x	x				
175	Error hour counter	x	x				

13.2 CURRENT VALUES (RR 11)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	672	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x	x	
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
69	Volume V2	x	x	x	x	x	
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
381	t1 time average hour				x		

382	t2 time average hour				x		
478	t3 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)			x	x	x	
87	t2 actual (2 decimals)			x	x	x	
88	t3 actual (2 decimals)			x	x	x	
122	t4 actual (2 decimals)			x	x	x	
89	t1-t2 diff. temp. (2 decimals)			x	x	x	
74	Flow V1 actual			x	x	x	
75	Flow V2 actual			x	x	x	
80	Power E1/E3 actual			x	x	x	
91	P1 actual			x	x	x	
92	P2 actual			x	x	x	

13.3 LUDWIG (RR 12)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	72	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x			
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x			
62	Outlet energy E5	x	x	x			
95	Tap water energy E6	x	x	x			
96	Tap water energy E7	x	x	x			
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
364	Heat energy A1	x	x	x	x		
365	Heat energy A2	x	x	x	x		
64	Tariff TA2	x	x	x	x		
65	Tariff TA3	x	x	x	x		
362	Tariff TA4	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
355	COP year	x					
367	COP month		x				

379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				

13.4 MADRID (RR 13)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	1344	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x	x	
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
69	Volume V2	x	x	x	x	x	
84	Pulse input A1	x	x	x	x	x	
85	Pulse input B1	x	x	x	x	x	
224	Pulse input A2	x	x	x	x	x	
225	Pulse input B2	x	x	x	x	x	
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			

477	t3 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
88	t3 actual (2 decimals)					x	
122	t4 actual (2 decimals)					x	
89	t1-t2 diff. temp. (2 decimals)					x	
74	Flow V1 actual					x	
75	Flow V2 actual					x	
80	Power E1/E3 actual					x	
91	P1 actual					x	
92	P2 actual					x	

13.5 PETER (RR 14)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x	x		
62	Outlet energy E5	x	x	x	x		
95	Tap water energy E6	x	x	x	x		
96	Tap water energy E7	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
178	Differential energy dE	x	x	x	x		
179	Control energy cE	x	x	x	x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
180	Differential volume dV	x	x	x	x		
181	Control volume cV	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				

379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			

13.6 DIAGNOSTIC 1 (RR 15)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	72	460	-	12960	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
68	Volume V1	x	x	x			
72	Mass M1	x	x	x			
99/369	Info code	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
74	Flow V1 actual					x	

13.7 DIAGNOSTIC 2 (RR 16)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	36	460	-	6480	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
68	Volume V1	x	x	x			
69	Volume V2	x	x	x			
72	Mass M1	x	x	x			
73	Mass M2	x	x	x			
369	Info bits	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
505	P1 average day			x			
506	P2 average day			x			
1004	Operating hours	x	x	x			
175	Error hour counter	x	x	x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
74	Flow V1 actual					x	
75	Flow V2 actual					x	
80	Power E1/E3 actual					x	
91	P1 actual					x	
92	P2 actual					x	

13.8 KIEV (RR 17)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x	x		
62	Outlet energy E5	x	x	x	x		
95	Tap water energy E6	x	x	x	x		
96	Tap water energy E7	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
178	Differential energy dE	x	x	x	x		
179	Control energy cE	x	x	x	x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
180	Differential volume dV	x	x	x	x		
181	Control volume cV	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				

355	COP Year	x					
367	COP Month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			

13.9 INFORMATION SENSITIVE (RR 18)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	-	-	-	-
1003	Date (yy.mm.dd)	x	x				
1002	Time (hh.mm.ss)	x	x				
60	Heat energy E1	x					
63	Cooling energy E3	x					
68	Volume V1	x					
99/369	Info code	x					
1004	Operating hours	x	x				
175	Error hour counter	x	x				

13.10 ATHENS (RR 20)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	..m	...m
	Logger depth	20	24	390	2976	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
473	Energy E10	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
72	Mass M1	x	x				
73	Mass M2	x	x				
369	Info bits	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x	x	x		
86	t1 actual (2 decimals)			x	x		
87	t2 actual (2 decimals)			x	x		
88	t3 actual (2 decimals)			x	x		
89	t1_t2 diff. temp. (2 decimals)			x	x		
74	Flow V1 actual			x	x		
75	Flow V2 actual			x	x		
80	Power E1/E3 actual			x	x		

13.11 NOE (RR 21)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	..m	...m
	Logger depth	16	72	2190	2160	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
473	Energy E10	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
369	Info bits	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x				

13.12 KM RF (RR 90)

MULTICAL® 603							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x		x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x		x		
62	Outlet energy E5	x	x		x		
95	Tap water energy E6	x	x		x		
96	Tap water energy E7	x	x		x		
97	Energy E8	x	x		x		
110	Energy E9	x	x		x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
1004	Operating hours	x	x		x		
175	Error hour counter	x	x		x		
86	t1 actual (2 decimals)				x		
87	t2 actual (2 decimals)				x		
88	t3 actual (2 decimals)				x		
122	t4 actual (2 decimals)				x		
89	t1-t2 diff. temp. (2 decimals)				x		
74	Flow V1 actual				x		

75	Flow V2 actual				x		
80	Power E1/E3 actual				x		
91	P1 actual				x		
92	P2 actual				x		

14 MULTICAL® 803 LOGGER PROFILES

The following meter logger profiles are applicable for MULTICAL® 803.

14.1 STANDARD (RR 10)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
611	Energy E12	x	x				
612	Energy E13	x	x				
613	Energy E14	x	x				
614	Energy E15	x	x				
615	Energy E16	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					

129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
1004	Operating hours	x	x				
175	Error hour counter	x	x				

14.2 CURRENT VALUES (RR 11)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	672	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x	x	
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
611	Energy E12	x	x				
612	Energy E13	x	x				
613	Energy E14	x	x				
614	Energy E15	x	x				
615	Energy E16	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
69	Volume V2	x	x	x	x	x	
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				

143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
635	t4 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
636	t4 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)			x	x	x	
87	t2 actual (2 decimals)			x	x	x	
88	t3 actual (2 decimals)			x	x	x	
122	t4 actual (2 decimals)			x	x	x	
89	t1-t2 diff. temp. (2 decimals)			x	x	x	
74	Flow V1 actual			x	x	x	
75	Flow V2 actual			x	x	x	
80	Power E1/E3 actual			x	x	x	
91	P1 actual			x	x	x	
92	P2 actual			x	x	x	

14.3 LUDWIG (RR 12)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	72	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x			
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x			
62	Outlet energy E5	x	x	x			
95	Tap water energy E6	x	x	x			
96	Tap water energy E7	x	x	x			
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
611	Energy E12	x	x	x			
612	Energy E13	x	x	x			
613	Energy E14	x	x	x			
614	Energy E15	x	x	x			
615	Energy E16	x	x	x			
364	Heat energy A1	x	x	x	x		
365	Heat energy A2	x	x	x	x		
64	Tariff TA2	x	x	x	x		
65	Tariff TA3	x	x	x	x		
362	Tariff TA4	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				

141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
635	t4 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
636	t4 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				

14.4 MADRID (RR 13)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	15m	...m
	Logger depth	20	36	460	1400	1344	-
1003	Date (yy.mm.dd)	x	x	x	x	x	
1002	Time (hh.mm.ss)	x	x	x	x	x	
60	Heat energy E1	x	x	x	x	x	
94	Heat energy E2	x	x				
63	Cooling energy E3	x	x	x	x	x	
61	Inlet energy E4	x	x				
62	Outlet energy E5	x	x				
95	Tap water energy E6	x	x				
96	Tap water energy E7	x	x				
97	Energy E8	x	x				
110	Energy E9	x	x				
473	Energy E10	x	x				
474	Energy E11	x	x				
611	Energy E12	x	x				
612	Energy E13	x	x				
613	Energy E14	x	x				
614	Energy E15	x	x				
615	Energy E16	x	x				
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x	x	
69	Volume V2	x	x	x	x	x	
84	Pulse input A1	x	x	x	x	x	
85	Pulse input B1	x	x	x	x	x	
224	Pulse input A2	x	x	x	x	x	
225	Pulse input B2	x	x	x	x	x	
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				

143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
635	t4 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
636	t4 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x				
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
88	t3 actual (2 decimals)					x	
122	t4 actual (2 decimals)					x	
89	t1_t2 diff. temp. (2 decimals)					x	
74	Flow V1 actual					x	
75	Flow V2 actual					x	
80	Power E1/E3 actual					x	
91	P1 actual					x	
92	P2 actual					x	

14.5 PETER (RR 14)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x	x		
62	Outlet energy E5	x	x	x	x		
95	Tap water energy E6	x	x	x	x		
96	Tap water energy E7	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
611	Energy E12	x	x	x			
612	Energy E13	x	x	x			
613	Energy E14	x	x	x			
614	Energy E15	x	x	x			
615	Energy E16	x	x	x			
178	Differential energy dE	x	x	x	x		
179	Control energy cE	x	x	x	x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
180	Differential volume dV	x	x	x	x		
181	Control volume cV	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				

139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
635	t4 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
636	t4 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			

14.6 DIAGNOSTIC 1 (RR 15)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	72	460	0	25920	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
68	Volume V1	x	x	x			
72	Mass M1	x	x	x			
99/369	Info code	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
1004	Operating hours	x	x				
175	Error hour counter	x	x	x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	

74	Flow V1 actual					x	

14.7 DIAGNOSTIC 2 (RR 16)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	1m	...m
	Logger depth	20	36	460	-	12960	-
1003	Date (yy.mm.dd)	x	x	x		x	
1002	Time (hh.mm.ss)	x	x	x		x	
60	Heat energy E1	x	x	x			
63	Cooling energy E3	x	x	x			
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
68	Volume V1	x	x	x			
69	Volume V2	x	x	x			
72	Mass M1	x	x	x			
73	Mass M2	x	x	x			
369	Info bits	x	x	x			
1004	Operating hours	x	x	x			
175	Error hour counter	x	x	x			
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				

596	t2 min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
505	P1 average day			x			
506	P2 average day			x			
86	t1 actual (2 decimals)					x	
87	t2 actual (2 decimals)					x	
74	Flow V1 actual					x	
75	Flow V2 actual					x	
80	Power E1/E3 actual					x	
91	P1 actual					x	
92	P2 actual					x	

14.8 KIEV (RR 17)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1600	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x	x	x		
62	Outlet energy E5	x	x	x	x		
95	Tap water energy E6	x	x	x	x		
96	Tap water energy E7	x	x	x	x		
97	Energy E8	x	x	x			
110	Energy E9	x	x	x			
473	Energy E10	x	x	x			
474	Energy E11	x	x	x			
611	Energy E12	x	x	x			
612	Energy E13	x	x	x			
613	Energy E14	x	x	x			
614	Energy E15	x	x	x			
615	Energy E16	x	x	x			
178	Differential energy dE	x	x	x	x		
179	Control energy cE	x	x	x	x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
180	Differential volume dV	x	x	x	x		
181	Control volume cV	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
224	Pulse input A2	x	x	x	x		
225	Pulse input B2	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
616	Mass M3	x	x	x	x		
617	Mass M4	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				

139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				
355	COP year	x					
367	COP month		x				
379	t1 time average day			x			
380	t2 time average day			x			
477	t3 time average day			x			
635	t4 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
478	t3 time average hour				x		
636	t4 time average hour				x		
505	P1 average day			x			
506	P2 average day			x			
507	P1 average hour				x		
508	P2 average hour				x		
1004	Operating hours	x	x	x			
175	Error hour counter	x	x	x			

14.9 INFORMATION SENSITIVE (RR 18)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	-	-	-	-
1003	Date (yy.mm.dd)	x	x				
1002	Time (hh.mm.ss)	x	x				
60	Heat energy E1	x					
63	Cooling energy E3	x					
68	Volume V1	x					
99/369	Info code	x					
1004	Operating hours	x	x				
175	Error hour counter	x	x				

14.10 ATHENS (RR 20)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	24	390	5952	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
473	Energy E10	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
72	Mass M1	x	x				
73	Mass M2	x	x				
369	Info bits	x	x	x	x		
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
379	t1 time average day			x			
380	t2 time average day			x			
381	t1 time average hour				x		
382	t2 time average hour				x		
86	t1 actual (2 decimals)			x	x		
87	t2 actual (2 decimals)			x	x		
88	t3 actual (2 decimals)			x	x		
89	t1_t2 diff. temp. (2 decimals)			x	x		
74	Flow V1 actual			x	x		
75	Flow V2 actual			x	x		
80	Power E1/E3 actual			x	x		

14.11 NOE (RR 21)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	16	72	2190	2160	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
63	Cooling energy E3	x	x	x	x		
97	Energy E8	x	x	x	x		
110	Energy E9	x	x	x	x		
473	Energy E10	x	x	x	x		
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
369	Info bits	x	x	x	x		
1004	Operating hours	x	x	x	x		
175	Error hour counter	x	x				
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power max year date	x					
128	Power max year	x					
129	Power min year date	x					
130	Power min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power max month date		x				
143	Power max month		x				
144	Power min month date		x				
145	Power min month		x				
599	t1 max year date/time	x					
603	t1 max year	x					
601	t1 min year date/time	x					
605	t1 min year	x					
591	t2 max year date/time	x					
595	t2 max year	x					
593	t2 min year date/time	x					
597	t2 min year	x					
598	t1 max month date/time		x				
602	t1 max month		x				
600	t1 min month date/time		x				
604	t1 min month		x				
590	t2 max month date/time		x				
594	t2 max month		x				
592	t2 min month date/time		x				
596	t2 min month		x				

14.12 KM RF (RR 90)

MULTICAL® 803							
Register ID (dec)	Register name	Year	Month	Day	Hour	Minute 1	Minute 2
	Logger interval	1y	1m	1d	1h	...m	...m
	Logger depth	20	36	460	1400	-	-
1003	Date (yy.mm.dd)	x	x	x	x		
1002	Time (hh.mm.ss)	x	x	x	x		
60	Heat energy E1	x	x	x	x		
94	Heat energy E2	x	x		x		
63	Cooling energy E3	x	x	x	x		
61	Inlet energy E4	x	x		x		
62	Outlet energy E5	x	x		x		
95	Tap water energy E6	x	x		x		
96	Tap water energy E7	x	x		x		
97	Energy E8	x	x		x		
110	Energy E9	x	x		x		
64	Tariff TA2	x	x				
65	Tariff TA3	x	x				
362	Tariff TA4	x	x				
68	Volume V1	x	x	x	x		
69	Volume V2	x	x	x	x		
84	Pulse input A1	x	x	x	x		
85	Pulse input B1	x	x	x	x		
72	Mass M1	x	x	x	x		
73	Mass M2	x	x	x	x		
99/369	Info code	x	x	x	x		
123	Flow V1 max year date	x					
124	Flow V1 max year	x					
125	Flow V1 min year date	x					
126	Flow V1 min year	x					
127	Power Max year date	x					
128	Power Max year	x					
129	Power Min year date	x					
130	Power Min year	x					
138	Flow V1 max month date		x				
139	Flow V1 max month		x				
140	Flow V1 min month date		x				
141	Flow V1 min month		x				
142	Power Max month date		x				
143	Power Max month		x				
144	Power Min month date		x				
145	Power Min month		x				
1004	Operating hours	x	x		x		
175	Error hour counter	x	x		x		
86	t1 actual (2 decimals)				x		
87	t2 actual (2 decimals)				x		
88	t3 actual (2 decimals)				x		
122	t4 actual (2 decimals)				x		
89	t1-t2 diff. temp. (2 decimals)				x		
74	Flow V1 actual				x		

75	Flow V2 actual				x		
80	Power E1/E3 actual				x		
91	P1 actual				x		
92	P2 actual				x		

15 AVAILABLE LOGGER REGISTERS

Register ID (dec)	Register name	Register description	MC403	MC603	MC803
1003	Date (yy.mm.dd)	Date (yy.mm.dd) for when data is logged or actual date	✓	✓	✓
1002	Time (hh.mm.ss)	Time (hh.mm.ss) Hour, minute, seconds	✓	✓	✓
60	Heat energy E1	E1 = V1(t1-t2)k Heat energy	✓	✓	✓
94	Heat energy E2	E2 = V2(t1-t2)k Heat energy		✓	✓
63	Cooling energy E3	E3 = V1(t2-t1)k Cooling energy	✓	✓	✓
61	Inlet energy E4	E4 = V1(t1-t3)k Inlet energy		✓	✓
62	Outlet energy E5	E5 = V2(t2-t3)k Outlet energy or tap from outlet		✓	✓
95	Tap water energy E6	E6 = V2(t3-t4)k Tap water energy, separate		✓	✓
96	Tap water energy E7	E7 = V2(t1-t3)k Tap water energy from inlet		✓	✓
97	Energy E8	E8 = V1 x t1 (inlet)	✓	✓	✓
110	Energy E9	E9 = V1 x t2 (outlet)	✓	✓	✓
473	Energy E10	E10 = V1 x t3		✓	✓
474	Energy E11	E11 = V2 x t3		✓	✓
611	Energy E12	E12 = V2 x (t2-t1)k_{t2} Cooling energy			✓
612	Energy E13	E13 = V1 x (t3-t4)$k_{t1/t2}$ Heat energy in serial system			✓
613	Energy E14	E14 = V2 x (t3-t4)$k_{t3/t4}$ Heat energy in parallel system			✓
614	Energy E15	E15 = V1 x (t4-t3)$k_{t1/t2}$ Cooling energy in serial system			✓
615	Energy E16	E16 = V2 x (t4-t3)$k_{t3/t4}$ Cooling energy in parallel system			✓
178	Differential energy dE	Differential energy dE		✓	✓
179	Control energy cE	Control energy cE		✓	✓
364	Heat energy A1	Heat energy with discount A1 (t2 < t5 limit)	✓	✓	✓
365	Heat energy A2	Heat energy with surcharge A2 (t2 > t5 limit)	✓	✓	✓
64	Tariff TA2	Tariff register TA2	✓	✓	✓
65	Tariff TA3	Tariff register TA3	✓	✓	✓
362	Tariff TA4	Tariff register TA4	✓	✓	✓
68	Volume V1	Volume register for Volume 1	✓	✓	✓
69	Volume V2	Volume register for Volume 2		✓	✓
180	Differential volume dV	Differential volume		✓	✓
181	Control volume cV	Control volume		✓	✓
84	Pulse input A1	Extra water meter connected to Input A1	✓	✓	✓
85	Pulse input B1	Extra water or electricity meter connected to Input B1	✓	✓	✓
224	Pulse input A2	Extra water meter connected to Input A2		✓	✓
225	Pulse input B2	Extra water or electricity meter connected to Input B2		✓	✓
72	Mass M1	Mass M1 for volume V1 with t1		✓	✓
73	Mass M2	Mass M2 for volume V2 with t2		✓	✓
616	Mass M3	Mass M3 for volume V2 with t3			✓
617	Mass M4	Mass M4 for volume V2 with t4			✓
99/369	Info code / Info bits	Information code	✓	✓	✓
123	Flow V1 max year date	Date for max. flow V1 for the year	✓	✓	✓
124	Flow V1 max year	Value for max. flow V1 for the year	✓	✓	✓

125	Flow V1 min year date	Date for min. flow V1 for the year	✓	✓	✓
126	Flow V1 min year	Value for min. flow V1 for the year	✓	✓	✓
127	Power Max year date	Date for max. power for the year	✓	✓	✓
128	Power Max year	Value for max. power for the year	✓	✓	✓
129	Power Min year date	Date for min. power for the year	✓	✓	✓
130	Power Min year	Value for min. power for the year	✓	✓	✓
138	Flow V1 max month date	Date for max. flow V1 for the month	✓	✓	✓
139	Flow V1 max month	Value for max. flow V1 for the month	✓	✓	✓
140	Flow V1 min month date	Date for min. flow V1 for the month	✓	✓	✓
141	Flow V1 min month	Value for min. flow V1 for the month	✓	✓	✓
142	Power Max month date	Date for max. power for the month	✓	✓	✓
143	Power Max month	Value for max. power for the month	✓	✓	✓
144	Power Min month date	Date for min. power for the month	✓	✓	✓
145	Power Min month	Value for min. power for the month	✓	✓	✓
599	t1 max year date/time	Date and time for max. temperature t1 for the year			✓
603	t1 max year	Value for max. temperature t1 for the year			✓
601	t1 min year date/time	Date and time for min. temperature t1 for the year			✓
605	t1 min year	Value for min. temperature t1 for the year			✓
591	t2 max year date/time	Date and time for max. temperature t2 for the year			✓
595	t2 max year	Value for max. temperature t2 for the year			✓
593	t2 min year date/time	Date and time for min. temperature t2 for the year			✓
597	t2 min year	Value for min. temperature t2 for the year			✓
598	t1 max month date/time	Date and time for max. temperature t1 for the month			✓
602	t1 max month	Value for max. temperature t1 for the month			✓
600	t1 min month date/time	Date and time for min. temperature t1 for the month			✓
604	t1 min month	Value for min. temperature t1 for the month			✓
590	t2 max month date/time	Date and time for max. temperature t2 for the month			✓
594	t2 max month	Value for max. temperature t2 for the month			✓
592	t2 min month date/time	Date and time for min. temperature t2 for the month			✓
596	t2 min month	Value for min. temperature t2 for the month			✓
355	COP year	Coefficient Of Performance since last year log	✓	✓	✓
367	COP month	Coefficient Of Performance since last month log	✓	✓	✓
379	t1 time average day	Daily time based average for temperature t1	✓	✓	✓
380	t2 time average day	Daily time based average for temperature t2	✓	✓	✓
477	t3 time average day	Daily time based average for temperature t3		✓	✓
635	t4 time average day	Daily time based average for temperature t4			✓
381	t1 time average hour	Hourly time based average for temperature t1	✓	✓	✓
382	t2 time average hour	Hourly time based average for temperature t2	✓	✓	✓
478	t3 time average hour	Hourly time based average for temperature t3		✓	✓
636	t4 time average hour	Hourly time based average for temperature t4			✓
505	P1 average day	Daily sampled based average for analog input P1		✓	✓
506	P2 average day	Daily sampled based average for analog input P2		✓	✓
507	P1 average hour	Hourly sampled based average for analog input P1		✓	✓
508	P2 average hour	Hourly sampled based average for analog input P2		✓	✓

1004	Operating hours	Accumulated number of operating hours	✓	✓	✓
175	Error hour counter	Accumulated number of error hours	✓	✓	✓
86	t1 actual (2 decimals)	Actual value of temperature t1 with 2 decimals (0.00 °C)	✓	✓	✓
87	t2 actual (2 decimals)	Actual value of temperature t2 with 2 decimals (0.00 °C)	✓	✓	✓
88	t3 actual (2 decimals)	Actual value of temperature t3 with 2 decimals (0.00 °C)		✓	✓
122	t4 actual (2 decimals)	Actual value of temperature t4 with 2 decimals (0.00 °C)		✓	✓
89	t1-t2 diff. temp. (2 decimals)	Actual value of temperature difference t1-t2 with 2 decimals (0.00 K)	✓	✓	✓
74	Flow V1 actual	Actual value of flow V1	✓	✓	✓
75	Flow V2 actual	Actual value of flow V2		✓	✓
80	Power E1/E3 actual	Actual value of power calculated on the basis of E1 or E3 (V1, t1, t2)	✓	✓	✓
91	P1 actual	Actual value of analog input P1		✓	✓
92	P2 actual	Actual value of analog input P2		✓	✓

**The sign of the value in the "Power actual" register identifies if the power is calculated of E1 or E3. For heat the "Power actual" will be a positive value and for cooling it will be a negative value. For a heat/cooling meter the sign of the value in the "Power actual" register will change as the differential temperature changes, e.g. if the meter converts from calculating heat energy (E1) to calculating cooling energy (E3).*

16 DOCUMENT CHANGE LOG

Rev.	Date	Notes
A1	02_2018	Document created and released. M-Bus config 998, Date changed to come from Year Log.
B1	04-2018	List of abbreviations updated Description of register ID 80 updated. Function of all ZZZ codes updated to include MWh with 4 decimals, GCal, MC 603 info codes
C1	07-2019	Added MULTICAL® 803, MULTICAL® 603M and MULTICAL® 803M Config 2x-00-989 - L+G UH 50, temperatures corrected to 1 decimal text wise Configurations added wired M-Bus: 2x-00-309, 2x-00-311, 2x-00-401 Configurations added Wireless M-Bus: 3x-11-117, 3x-11-119, 3x-11-309 3x-12-115, 3x-12-116, 3x-12-118 3x-14-302,3x-14-303 3x-23-202 3x-24-204 E3 coding will onwards use OMS coding, not Kamstrup Manufacturer Specific (HCC) Added logger profile 17 “Kiev” Added logger profile 18 “Information sensitive”
D1	10-2019	Configurations added wired M-Bus: 2x-00-312, 2x-00-402 Configurations added wireless M-Bus: 3x-10-110, 3x-11-122, 3x-12-105, 3x-12-205, 3x-15-201, 3x-11-309, 3x11-401, 3x-11-402
D2	01-2020	Configurations added wired M-Bus: 2x-00-313 Configurations added wireless M-Bus: 3x-10-126, 3x-10-128, 3x-11-128,3x-11-129, 3x-12-127, 30-12-128 Added logger profile 20 “Athens” Added logger profile 21 “Noe”

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