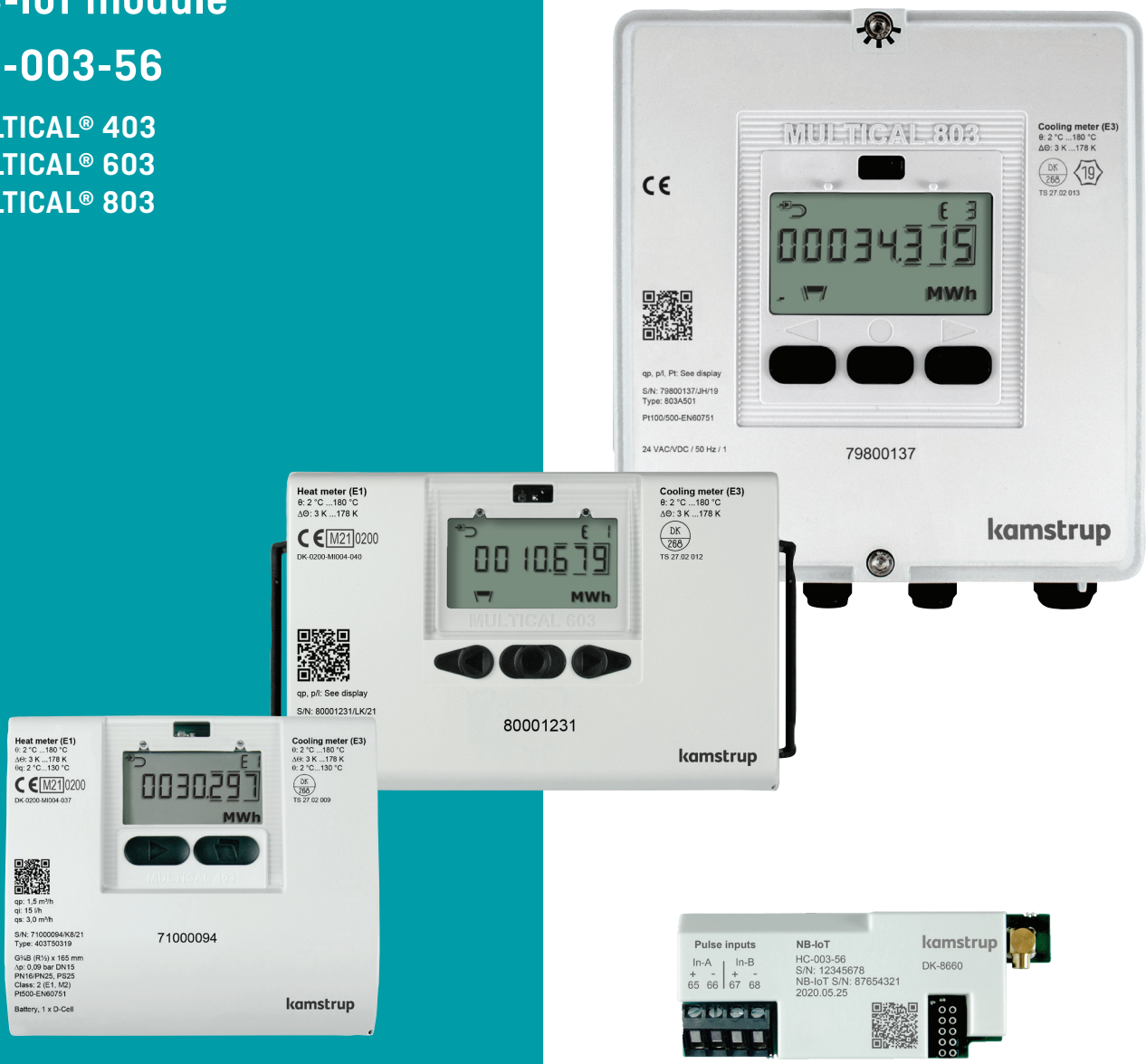
kamstrup

Datagram description

NB-IoT module

HC-003-56

MULTICAL® 403
MULTICAL® 603
MULTICAL® 803



Indhold

Introduction

The configuration of a NB-IoT module is described by the XX-YY-ZZZ code.

XX: Module type - the physical hardware

YY: System configuration – Transmission interval

ZZZ: Datagram – the data registers

The NB-IoT module for MULTICAL® 403, MULITCAL® 603 and MULITCAL® 803 is 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 the module can be configured. The module configuration is identified by the modules YY- and ZZZ-code.

This document provides an overview of both the available configurations for the NB-IoT module.

Module datagram explanation

The NB-IoT module is a versatile communication module, 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.

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**
- 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
- 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

NB-IOT Datagrams

This table shows some of the available datagrams for MULTICAL® 403/603/803.

The datagrams are noted with battery or high power in the description. The datagrams with battery noted is suitable for both battery and high power supply. The battery has to be a D-Cell IoT battery for the MULTICAL® 603 and a C-cell IoT for MULTICAL® 403

	XX	-	YY	-	ZZZ
Module Type					
NB-IoT inputs (In-A, In-B)	56				
System Configuration					
Hourly transfer of hourly data, 8 years			14		
Hourly transfer of hourly data, data priority mode, 8 years			15		
Daily transfer of 24 X hourly data, 8 years			20		
Datagrams					
Standard registers					110
Alternative registers					111
Standard registers + flow + power registers					114
Standard registers + logger registers #1					115
High Power - standard registers					210
High Power - standard registers + permanent surveillance operation (PDO) registers					211
High Power - standard registers + pressure registers					212
Standard registers - flowIQ Gateway					910

NB-IOT Datagrams for MULTICAL®

The following YY-ZZZ datagrams are applicable for MULTICAL® 403, MULTICAL® 603 and MULTICAL® 803.

56-14-110: Hourly transmission – Energy, volume and Flow

YY = 14	**MULTICAL® 403**
ZZZ=110	**MULTICAL® 603**
High Power	**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_HC							X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	86	t1			Int2		X	X	X	X
8	87	t2			Int2		X	X	X	
9	1004	Operating hours					X	X	X	X
10	369	Info bits					X	X	X	X

56-14-114: Hourly transfer, standard registers + flow + power registers

YY = 14	**MULTICAL® 403**
ZZZ = 114	**MULTICAL® 603**
High Power	**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_HC				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					X	X	X	X
8	80	Power					X	X	X	
9	86	t1			Int2		X	X	X	
10	87	t2			Int2		X	X	X	
11	369	infobits					X	X	X	X

56-14-118: Hourly transmission - Energy, volume and mass

YY = 14	
ZZZ = 118	**MULTICAL® 603**
High Power	**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	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	X
5	72	Mass M1					X	X	X	
6	73	Mass M2					X	X	X	
7	369	Info bits					X	X	X	X
8	1004	Operating Hours					X	X	X	X
9	74	Flow V1					X	X	X	X
10	143	Power max month	Month log	1			X	X	X	

56-14-219: Hourly transmission - standard registers + pressure registers + max month registers

YY = 14	**MULTICAL® 403**
ZZZ=219	**MULTICAL® 603**
High Power	**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_HC							X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	473	Energy E10					X	X	X	
7	68	Volume V1					X	X	X	X
8	74	Flow V1 actual					X	X	X	X
9	80	Power actual					X	X	X	
10	91	P1 actual - part 1					X	X	X	
11	92	P2 actual - part 1					X	X	X	
12	86	t1			Int2		X	X	X	X
13	87	t2			Int2		X	X	X	
14	1004	Operating hours					X	X	X	X
15	369	Info bits					X	X	X	X
16	175	Error hour counter					X	X	X	X
17	139	Flow V1 max month	Month log	1			X	X	X	X
18	143	Power max month	Month log	1			X	X	X	X

56-14-120: Hourly transmission - Energy and volume temperatures

YY = 14	**MULTICAL® 403**
ZZZ=120	**MULTICAL® 603**
High Power	**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_HC							X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	369	Info bits					X	X	X	X
9	143	Power max month					X	X	X	
10	389	Power max month date					X	X	X	
11	139	Flow V1 max month					X	X	X	X
12	387	Flow V1 max month date					X	X	X	X

56-14-210: Hourly transfer, standard registers

YY = 14	**MULTICAL® 403**
ZZZ = 210	**MULTICAL® 603**
High Power	**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_HC				HCC			X	
4	61	Inlet Energy E4					X	X	X	
5	97	Energy E8					X	X	X	
6	110	Energy E9					X	X	X	
7	473	Energy E10					X	X	X	
8	68	Volume V1					X	X	X	X
9	74	Flow V1					X	X	X	X
10	80	Power					X	X	X	
11	86	t1			Int2		X	X	X	X
12	87	t2			Int2		X	X	X	
13	84	Pulse input A1					X	X	X	X
14	85	Pulse input B1					X	X	X	X
15	1004	Operating hours					X	X	X	X
16	369	Info bits					X	X	X	X
17	175	Error hour counter					X	X	X	X

56-14-211: Hourly transfer, standard registers + permanent surveillance operation (pdo) registers

YY = 14	
ZZZ = 211	**MULTICAL® 603**
High Power	**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_HC				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	473	Energy E10					X	X	X	
7	68	Volume V1					X	X	X	X
8	69	Volume V2					X	X	X	X
9	72	Mass M1					X	X	X	
10	73	Mass M2					X	X	X	
11	86	t1			Int2		X	X	X	X
12	87	t2			Int2		X	X	X	
13	88	t3			Int2		X	X	X	
14	1004	Operating hours					X	X	X	X
15	369	Info bits					X	X	X	X
16	175	Error hour counter					X	X	X	X

56-14-212: Hourly transfer, standard registers + pressure registers

YY = 14	
ZZZ = 212	**MULTICAL® 603**
High Power	**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_HC				HCC			X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	473	Energy E10					X	X	X	
7	68	Volume V1					X	X	X	X
8	74	Flow V1					X	X	X	X
9	80	Power					X	X	X	
10	91	P1 - part 1					X	X	X	
11	92	P2 - part 1					X	X	X	
12	86	t1			Int2		X	X	X	X
13	87	t2			Int2		X	X	X	
14	1004	Operating hours					X	X	X	X
15	369	Info bits					X	X	X	X
16	175	Error hour counter					X	X	X	X

56-14-215: Hourly transmission - standard registers + V1 Month + Flow V1 Max Month

YY=14	**MULTICAL® 403**
ZZZ=215	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				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			Int2		X	X	X	X
9	87	t2			Int2		X	X	X	
10	139	Flow V1 max month	Month Log	1			X	X	X	X
11	68	Volume V1	Month Log	1			X	X	X	X
12	369	Info bits					X	X	X	X

56-14-217: Hourly transmission - standard registers + V1 Month + Flow V1 Actual + Power Max Month

YY=14	**MULTICAL® 403**
ZZZ=217	**MULTICAL® 603**
High Power	**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			INT4 HC			X		
3	63	Cooling energy E3_HC							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			Int2		X	X	X	X
9	87	t2			Int2		X	X	X	
10	74	Flow V1 actual					X	X	X	X
11	143	Power max month	Month Log	1			X	X	X	
12	68	Volume V1	Month Log	1			X	X	X	X
13	369	Info bits					X	X	X	X

56-14-218: Hourly transmission - PDO + monthly Power max + monthly flow max

YY=14	**MULTICAL® 403**
ZZZ=218	**MULTICAL® 603**
High Power	**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	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	X
7	73	Mass M2					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	88	t3 actual (2 decimals)			Int2		X	X	X	
11	369	Info bits					X	X	X	X
12	1004	Operating hours					X	X	X	X
13	175	Error hour counter					X	X	X	X
14	74	Flow V1 actual					X	X	X	X
15	143	Power max month	Month Log	1			X	X	X	
16	139	Flow V1 max month	Month Log	1			X	X	X	X

56-14-220: Hourly transmission - Inlet, outlet and diffrential energy

YY=14	
ZZZ=220	**MULTICAL® 603**
High Power	**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	61	Inlet energy E4					X	X	X	
3	97	Energy E8					X	X	X	
4	110	Energy E9					X	X	X	
5	62	Outlet energy E5					X	X	X	
6	68	Volume V1					X	X	X	X
7	69	Volume V2					X	X	X	X
8	74	Flow V1 actual					X	X	X	X
9	75	Flow V2 actual					X	X	X	X
10	80	Power actual					X	X	X	
11	86	t1			Int2		X	X	X	X
12	87	t2			Int2		X	X	X	
13	88	t3			Int2		X	X	X	
14	178	Differential energy dE					X	X	X	X
15	94	Heat energy E2					X		X	X
16	1004	Operating hours					X	X	X	X
17	369	Info bits					X	X	X	X
18	175	Error hour counter					X	X	X	X

56-14-221: Hourly transmission, Application 7

YY=14	
ZZZ=221	**MULTICAL® 603**
High Power	**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_HC							X	
4	369	Info bits					X	X	X	X
5	1004	Operating hours					X	X	X	X
6	180	Differential volume dV	Month Log	1			X	X	X	X
7	68	Volume V1	Month Log	1			X	X	X	X
8	69	Volume V2	Month Log	1			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	88	t3 actual (2 decimals)			Int2		X	X	X	
12	80	Power actual					X	X	X	
13	94	Heat energy E2					X	X	X	
14	61	Inlet energy E4					X	X	X	
15	62	Outlet energy E5					X	X	X	

56-14-223: High Power datagram - Power max month

YY=14	**MULTICAL® 403**
ZZZ=223	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				x	
4	68	Volume V1					x	x	x	x
5	74	Flow V1 actual					x	x	x	
6	80	Power actual					x	x	x	
7	86	t1 actual (2 decimals)			Int2		x	x	x	
8	87	t2 actual (2 decimals)			Int2		x	x	x	
9	89	t1-t2 diff. temp. (2 decimals)					x	x	x	
10	175	Error hour counter					x	x	x	x
11	369	Info bits					x	x	x	x
12	1001	Fabrication number					x	x	x	x
13	1004	Operating hours					x	x	x	x
14	91	P1 actual - part 1					x	x	x	
15	92	P2 actual - part 1					x	x	x	
16	97	Energy E8					x	x	x	
17	110	Energy E9					x	x	x	
18	139	Flow V1 max month	Month Log	1			x	x	x	x
19	387	Flow V1 max month date	Month Log	1			x	x	x	x
20	143	Power max month	Month Log	1			x	x	x	
21	389	Power max month date	Month Log	1			x	x	x	
22	60	Heat energy E1	Month Log	1			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	68	Volume V1	Month Log	1			x	x	x	x
27	97	Energy E8	Month Log	1			x	x	x	
28	110	Energy E9	Month Log	1			x	x	x	

56-14-230: Hourly transmission, Application 1-2

YY=14	
ZZZ=230	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	75	Flow V2 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	86	t1 actual (2 decimals)			Int2		X	X	X	
10	87	t2 actual (2 decimals)			Int2		X	X	X	
11	88	t3 actual (2 decimals)			Int2		X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	84	Pulse input A1					X	X	X	X
14	85	Pulse input B1					X	X	X	X
15	175	Error hour counter					X	X	X	X
16	369	Info bits					X	X	X	X
17	1001	Fabrication number					X	X	X	X
18	1004	Operating hours					X	X	X	X
19	72	Mass M1					X	X	X	
20	73	Mass M2					X	X	X	
21	91	P1 actual - part 1					X	X	X	X
22	92	P2 actual - part 1					X	X	X	X
23	139	Flow V1 max month	Month Log	1			X	X	X	X
24	387	Flow V1 max month date	Month Log	1			X	X	X	X
25	143	Power max month	Month Log	1			X	X	X	
26	389	Power max month date	Month Log	1			X	X	X	
27	60	Heat energy E1	Month Log	1			X		X	
28	63	Cooling energy E3	Month Log	1				X		
29	63	Cooling energy E3_HC	Month Log	1					X	
30	64	Tariff TA2	Month Log	1			X	X	X	
31	65	Tariff TA3	Month Log	1			X	X	X	
32	362	Tariff TA4	Month Log	1			X	X	X	

56-14-231: Hourly transmission, Application 3-4-5-6-8

YY=14	
ZZZ=231	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				X	
4	94	Heat energy E2					X	X	X	
5	61	Inlet energy E4					X	X	X	
6	62	Outlet energy E5					X	X	X	
7	95	Tap water energy E6					X	X	X	
8	96	Tap water energy E7					X	X	X	
9	97	Energy E8					X	X	X	
10	110	Energy E9					X	X	X	
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (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	366	t5 limit			Int2		X	X	X	
16	178	Differential energy dE					X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	75	Flow V2 actual					X	X	X	X
19	80	Power actual					X	X	X	
20	72	Mass M1					X	X	X	
21	73	Mass M2					X	X	X	
22	68	Volume V1					X	X	X	X
23	69	Volume V2					X	X	X	X
24	139	Flow V1 max month	Month Log	1			X	X	X	X
25	387	Flow V1 max month date	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			X	X	X	
28	175	Error hour counter					X	X	X	X
29	369	Info bits					X	X	X	X
30	1004	Operating hours					X	X	X	X
31	1001	Fabrication number					X	X	X	X

56-15-186: Hourly transmission, UF85 High Power datagram - standard registers

YY=15	
ZZZ=186	**MULTICAL® 603**
High Power	**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_HC							X	
4	61	Inlet energy E4					X	X	X	
5	97	Energy E8					X	X	X	
6	110	Energy E9					X	X	X	
7	473	Energy E10					X	X	X	
8	68	Volume V1					X	X	X	X
9	74	Flow V1 actual					X	X	X	X
10	80	Power actual					X	X	X	
11	86	t1 actual (2 decimals)					X	X	X	X
12	87	t2 actual (2 decimals)					X	X	X	
13	88	t3 actual (2 decimals)					X	X	X	
14	84	Pulse input A1					X	X	X	X
15	85	Pulse input B1					X	X	X	X
16	1004	Operating hours					X	X	X	X
17	369	Info bits					X	X	X	X
18	175	Error hour counter					X	X	X	X
19	94	Heat energy E2					X		X	
20	96	Tap water energy E7						X	X	
21	69	Volume V2					X	X	X	X
22	611	Energy E12					X	X		
23	75	Flow V2 actual					X	X	X	X

56-15-230: Hourly transmission, Application 1-2

YY=15	
ZZZ=230	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				X	
4	68	Volume V1					X	X	X	X
5	69	Volume V2					X	X	X	X
6	74	Flow V1 actual					X	X	X	X
7	75	Flow V2 actual					X	X	X	X
8	80	Power actual					X	X	X	
9	86	t1 actual (2 decimals)			Int2		X	X	X	
10	87	t2 actual (2 decimals)			Int2		X	X	X	
11	88	t3 actual (2 decimals)			Int2		X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)			Int2		X	X	X	
13	84	Pulse input A1					X	X	X	X
14	85	Pulse input B1					X	X	X	X
15	175	Error hour counter					X	X	X	X
16	369	Info bits					X	X	X	X
17	1001	Fabrication number					X	X	X	X
18	1004	Operating hours					X	X	X	X
19	72	Mass M1					X	X	X	
20	73	Mass M2					X	X	X	
21	91	P1 actual - part 1					X	X	X	X
22	92	P2 actual - part 1					X	X	X	X
23	139	Flow V1 max month	Month Log	1			X	X	X	X
24	387	Flow V1 max month date	Month Log	1			X	X	X	X
25	143	Power max month	Month Log	1			X	X	X	
26	389	Power max month date	Month Log	1			X	X	X	
27	60	Heat energy E1	Month Log	1			X		X	
28	63	Cooling energy E3	Month Log	1				X		
29	63	Cooling energy E3_HC	Month Log	1					X	
30	64	Tariff TA2	Month Log	1			X	X	X	

56-15-231: Hourly transmission, Application 3-4-5-6-8

YY=15	
ZZZ=231	**MULTICAL® 603**
High Power	**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_HC			INT4 HC				X	
4	94	Heat energy E2					X	X	X	
5	61	Inlet energy E4					X	X	X	
6	62	Outlet energy E5					X	X	X	
7	95	Tap water energy E6					X	X	X	
8	96	Tap water energy E7					X	X	X	
9	97	Energy E8					X	X	X	
10	110	Energy E9					X	X	X	
11	86	t1 actual (2 decimals)			Int2		X	X	X	
12	87	t2 actual (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	366	t5 limit			Int2		X	X	X	
16	178	Differential energy dE					X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	75	Flow V2 actual					X	X	X	X
19	80	Power actual					X	X	X	
20	72	Mass M1					X	X	X	
21	73	Mass M2					X	X	X	
22	68	Volume V1					X	X	X	X
23	69	Volume V2					X	X	X	X
24	139	Flow V1 max month	Month Log	1			X	X	X	X
25	387	Flow V1 max month date	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			X	X	X	
28	175	Error hour counter					X	X	X	X
29	369	Info bits					X	X	X	X
30	1004	Operating hours					X	X	X	X
31	1001	Fabrication number					X	X	X	X

56-15-232: Hourly transmission - leakage detection

YY=15	
ZZZ=232	**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_HC			INT4 HC				X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	86	t1 actual (2 decimals)					X	X	X	
7	87	t2 actual (2 decimals)					X	X	X	
8	88	t3 actual (2 decimals)					X	X	X	
9	91	P1 actual - part 1					X	X	X	X
10	92	P2 actual - part 1					X	X	X	X
11	74	Flow V1 actual					X	X	X	X
12	75	Flow V2 actual					X	X	X	X
13	80	Power actual					X	X	X	
14	72	Mass M1					X	X	X	
15	73	Mass M2					X	X	X	
16	68	Volume V1					X	X	X	X
17	69	Volume V2					X	X	X	X
18	139	Flow V1 max month	Month Log	1			X	X	X	X
19	387	Flow V1 max month date	Month Log	1			X	X	X	X
20	143	Power max month	Month Log	1			X	X	X	
21	389	Power max month date	Month Log	1			X	X	X	
22	175	Error hour counter					X	X	X	X
23	369	Info bits					X	X	X	X
24	1004	Operating hours					X	X	X	X

56-20-110: Daily transfer, standard registers

YY = 20	**MULTICAL® 403**
ZZZ = 110	**MULTICAL® 603**
Battery	**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_HC				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	86	t1			Int2		X	X	X	X
8	87	t2			Int2		X	X	X	
9	1004	Operating hours					X	X	X	X
10	369	Info bits					X	X	X	X

56-20-111: Daily transfer, alternative registers

YY = 20	**MULTICAL® 403**
ZZZ = 111	**MULTICAL® 603**
Battery	**MULTICAL® 803**

No.	Register ID	Register name	Register origin	St. no	Data type	Notes	H	C	H/C	V
	60	Heat Energy E1					X		X	
	68	Volume V1					X	X	X	X
	86	t1			Int2		X	X	X	X
	87	t2			Int2		X	X	X	
	74	Flow V1					X	X	X	X
	80	Power					X	X	X	
	84	Pulse input A1					X	X	X	X
	85	Pulse input B1					X	X	X	X
	1004	Operating hours					X	X	X	X
	369	Info bits					X	X	X	X

56-20-114: Daily transfer, standard registers + flow + power registers

YY = 20	**MULTICAL® 403**
ZZZ = 114	**MULTICAL® 603**
Battery	**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_HC				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					X	X	X	X
8	80	Power					X	X	X	
9	86	t1			Int2		X	X	X	
10	87	t2			Int2		X	X	X	
11	369	infobits					X	X	X	X

56-20-115: Daily transfer, standard registers + logger registers #1

YY = 20	**MULTICAL® 403**
ZZZ = 115	**MULTICAL® 603**
Battery	**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	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			Int2		X	X	X	X
6	87	t2 actual			Int2		X	X	X	
7	60	Heat energy E1	Month Log	1			X	X	X	
8	143	Power MaX month	Month Log	1			X	X	X	
9	1004	Operating hours					X	X	X	X
10	369	Info bits					X	X	X	X

56-20-116: Daily transfer, heat standard registers + temperatures

YY = 20	**MULTICAL® 403**
ZZZ = 116	**MULTICAL® 603**
Battery	**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	97	Energy E8					X	X	X	
3	110	Energy E9					X	X	X	
4	68	Volume V1					X	X	X	
5	74	Flow V1					X	X	X	X
6	80	Power					X	X	X	X
7	86	t1			Int2					
8	87	t2			Int2					
9	1004	Operating hours								
10	369	infobits								

56-20-117: Daily transmission, hourly data - Temperatures, Power and Pulse

YY=20	**MULTICAL® 403**
ZZZ=117	**MULTICAL® 603**
Battery	**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	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					X	X	X	X
6	80	Power					X	X	X	
7	86	t1			Int2		X	X	X	X
8	87	t2			Int2		X	X	X	
9	84	Pulse input A1					X	X	X	X
10	85	Pulse input B1					X	X	X	X

56-20-119: Daily transmission, hourly data - Leakage detection

YY=20	
ZZZ=119	**MULTICAL® 603**
Battery	**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	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					X	X	X	X
6	369	Info bits					X	X	X	X
7	86	t1			Int2		X	X	X	
8	87	t2			Int2		X	X	X	
9	72	Mass M1					X	X	X	
10	73	Mass M2					X	X	X	

56-20-120: Daily transmission, hourly data - Energy and volume temperatures

YY=20	**MULTICAL® 403**
ZZZ=120	**MULTICAL® 603**
Battery	**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_HC							X	
4	97	Energy E8					X	X	X	
5	110	Energy E9					X	X	X	
6	68	Volume V1					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	369	Info bits					X	X	X	X
9	143	Power max month					X	X	X	
10	389	Power max month date					X	X	X	
11	139	Flow V1 max month					X	X	X	X
12	387	Flow V1 max month date					X	X	X	X

56-20-125: Daily transmission, standard registers - flow + Volume

YY=20	**MULTICAL® 403**
ZZZ=125	**MULTICAL® 603**
Battery	**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	68	Volume V1					x	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	x	
6	369	Info bits					x	x	x	x
7	68	Volume V1					x	x	x	x
8	97	Energy E8					x	x	x	
9	110	Energy E9					x	x	x	
10	64	Tariff TA2					x	x	x	
11	65	Tariff TA3					x	x	x	
12	362	Tariff TA4					x	x	x	

56-20-128: Daily transmission, hourly data - leakage + PDO

YY=20	
ZZZ=128	**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	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	369	Info bits					X	X	X	X
7	86	t1 actual (2 decimals)					X	X	X	X
8	87	t2 actual (2 decimals)					X	X	X	
9	88	t3 actual (2 decimals)					X	X	X	
10	72	Mass M1					X	X	X	
11	73	Mass M2					X	X	X	

56-20-129: Daily transmission, hourly data - leak detection

YY=20	**MULTICAL® 403**
ZZZ=129	**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	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)					X	X	X	X
6	87	t2 actual (2 decimals)					X	X	X	
7	139	Flow V1 max month	Month log				X	X	X	
8	143	Power max month	Month log				X	X	X	
9	1004	Operating hours					X	X	X	X
10	369	Info bits					X	X	X	X
11	74	Flow V1 actual					X	X	X	X

56-20-185: Daily transmission, UF85 Battery datagram - standard registers

YY=20	**MULTICAL® 403**
ZZZ=185	**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_HC							X	
4	86	t1 actual (2 decimals)					X	X	X	X
5	87	t2 actual (2 decimals)					X	X	X	X
6	68	Volume V1					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	369	Info bits					X	X	X	X
9	94	Heat energy E2					X		X	
10	96	Tap water energy E7						X	X	

56-20-910: Daily transmission, hourly data - flowIQ Gateway standard data

YY=20	
ZZZ=910	
Battery	**flowIQ® Gateway**

No.	Register ID	Register name	Register origin	St. no	Data type	Notes	H	C	H/C	V
1	68	Volume V1					X	X	X	X
2	74	Flow V1 actual					X	X	X	X
3	84	Pulse input A1					X	X	X	X
4	85	Pulse input B1					X	X	X	X
5	369	Info bits					X	X	X	X
6	1004	Operating hours					X	X	X	X
7	86	t1			Int2		X	X	X	X
8	87	t2			Int2		X	X	X	X
9	88	t3			Int2		X	X	X	X
10	91	P1 actual - part 1					X	X	X	X