

Datagram description

2G/4G module

HC-003-80

MULTICAL® 603

MULTICAL® 803



Datagram description 2G/4G

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Introduction

The 2G/4G module for MULTICAL® 603 and MULTICAL® 803 is configurable, whereby it can be configured to send out different datagrams. A datagram is defining, which registers a specific module configuration is transmitting.

Furthermore, transmission interval and transmission power for the module can be configured.

The configuration of the 2G/4G module is described by the XX-YY-ZZZ code.

XX: Module type - the physical hardware

YY: System configuration - for 2G/4G module: the transmitting interval

ZZZ: Datagram - the data registers

This document provides an overview of the available configurations for the 2G/4G module.

Module datagram explanation

The 2G/4G module is a versatile communication module, which can be configured to send out different datagrams. A datagram is a collection of registers the module will 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® 803 are used in MULTICAL® 603 some registers may 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

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- 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

2G/4G Datagrams

This table shows the available transmission intervals and datagrams for high power supplied MULTICAL® 603 and MULTICAL® 803 meters.

Please note: It is the combination of the YY and the ZZZ that identifies a datagram.

	XX	-	YY	-	ZZZ
Module Type					
2G/4G inputs (In-A, In-B)	80				
System Configuration					
5 minute transmission			20		
15 minute (quarter) transmission			22		
60 minute (hour) transmission			24		
Datagrams					
Standard datagram					110
Standard datagram + Power Max Month					111
MULTICAL® 803 datagram (all energy registers)					112

NB-IOT Datagrams for MULTICAL®

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

80-20-110: 5 minute transmission, standard datagram

YY = 20										MULTICAL® 603
ZZZ = 110										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	
3	63	Cooling Energy E3						X		
4	63	Cooling Energy E3_HC				HCC			X	
5	61	Inlet Energy E4					X	X	X	
6	97	Energy E8					X	X	X	
7	110	Energy E9					X	X	X	
8	473	Energy E10					X	X	X	
9	474	Energy E11					X	X	X	
10	371	COP					X	X	X	
11	364	Heat Energy A1					X	X	X	
12	365	Heat Energy A2					X	X	X	
13	68	Volume V1					X	X	X	X
14	69	Volume V2					X	X	X	X
15	74	Flow V1					X	X	X	X
16	75	Flow V2					X	X	X	X
17	80	Power					X	X	X	
18	86	t1			Int2		X	X	X	X
19	87	t2			Int2		X	X	X	
20	88	t3			Int2		X	X	X	
21	122	t4			Int2		X	X	X	
22	72	Mass M1					X	X	X	
23	73	Mass M2					X	X	X	
24	91	P1 actual – part 1					X	X	X	
25	92	P2 actual – part 1					X	X	X	
26	64	Tariff TA2					X	X	X	
27	65	Tariff TA3					X	X	X	
28	362	Tariff TA4					X	X	X	
29	84	Pulse input A1					X	X	X	X
30	85	Pulse input B1					X	X	X	X
31	369	Info bits					X	X	X	X
32	1004	Operating hours					X	X	X	X
33	175	Error hour counter					X	X	X	X

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80-22-110: 15 minute (quarter) transfer, standard datagram

YY = 22										MULTICAL® 603
ZZZ = 110										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	
3	63	Cooling Energy E3						X		
4	63	Cooling Energy E3_HC				HCC			X	
5	61	Inlet Energy E4					X	X	X	
6	97	Energy E8					X	X	X	
7	110	Energy E9					X	X	X	
8	473	Energy E10					X	X	X	
9	474	Energy E11					X	X	X	
10	371	COP					X	X	X	
11	364	Heat Energy A1					X	X	X	
12	365	Heat Energy A2					X	X	X	
13	68	Volume V1					X	X	X	X
14	69	Volume V2					X	X	X	X
15	74	Flow V1					X	X	X	X
16	75	Flow V2					X	X	X	X
17	80	Power					X	X	X	
18	86	t1			Int2		X	X	X	X
19	87	t2			Int2		X	X	X	
20	88	t3			Int2		X	X	X	
21	122	t4			Int2		X	X	X	
22	72	Mass M1					X	X	X	
23	73	Mass M2					X	X	X	
24	91	P1 actual - part 1					X	X	X	
25	92	P2 actual - part 1					X	X	X	
26	64	Tariff TA2					X	X	X	
27	65	Tariff TA3					X	X	X	
28	362	Tariff TA4					X	X	X	
29	84	Pulse input A1					X	X	X	X
30	85	Pulse input B1					X	X	X	X
31	369	info bits					X	X	X	X
32	1004	Operating hours					X	X	X	X
33	175	Error hour counter					X	X	X	X

80-22-111: 15 minute (quarter) transfer, standard datagram + power max month

YY = 22										MULTICAL® 603
ZZZ = 111										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	
3	63	Cooling Energy E3						X		
4	63	Cooling Energy E3_HC				HCC			X	
5	61	Inlet Energy E4					X	X	X	
6	97	Energy E8					X	X	X	
7	110	Energy E9					X	X	X	
8	473	Energy E10					X	X	X	
9	474	Energy E11					X	X	X	
10	371	COP					X	X	X	
11	364	Heat Energy A1					X	X	X	
12	365	Heat Energy A2					X	X	X	
13	68	Volume V1					X	X	X	X
14	69	Volume V2					X	X	X	X
15	74	Flow V1					X	X	X	X
16	75	Flow V2					X	X	X	X
17	80	Power					X	X	X	
18	86	t1			Int2		X	X	X	X
19	87	t2			Int2		X	X	X	
20	88	t3			Int2		X	X	X	
21	122	t4			Int2		X	X	X	
22	72	Mass M1					X	X	X	
23	73	Mass M2					X	X	X	
24	91	P1 actual - part 1					X	X	X	
25	92	P2 actual - part 1					X	X	X	
26	64	Tariff TA2					X	X	X	
27	65	Tariff TA3					X	X	X	
28	362	Tariff TA4					X	X	X	
29	143	Power Max	Month				X	X	X	
30	369	info bits					X	X	X	X
31	1004	Operating hours					X	X	X	X
32	175	Error hour counter					X	X	X	X

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80-22-114: 15 minute (quarter) transmission, Energy + Pressure + Max month

YY = 22										MULTICAL® 603
ZZZ = 114										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			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			Int2		X	X	X	
11	92	P2 actual - part 1			Int2		X	X	X	
12	86	t1 actual [2 decimals]			Int2		X	X	X	
13	87	t2 actual [2 decimals]			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

80-24-110: 60 minute (hourly) transfer, standard registres

YY = 24										MULTICAL® 603
ZZZ = 110										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	
3	63	Cooling Energy E3						X		
4	63	Cooling Energy E3_HC				HCC			X	
5	61	Inlet Energy E4					X	X	X	
6	97	Energy E8					X	X	X	
7	110	Energy E9					X	X	X	
8	473	Energy E10					X	X	X	
9	474	Energy E11					X	X	X	
10	371	COP					X	X	X	
11	364	Heat Energy A1					X	X	X	
12	365	Heat Energy A2					X	X	X	
13	68	Volume V1					X	X	X	X
14	69	Volume V2					X	X	X	X
15	74	Flow V1					X	X	X	X
16	75	Flow V2					X	X	X	X
17	80	Power					X	X	X	
18	86	t1			Int2		X	X	X	X
19	87	t2			Int2		X	X	X	
20	88	t3			Int2		X	X	X	
21	122	t4			Int2		X	X	X	
22	72	Mass M1					X	X	X	
23	73	Mass M2					X	X	X	
24	91	P1 actual – part 1					X	X	X	
25	92	P2 actual – part 1					X	X	X	
26	64	Tariff TA2					X	X	X	
27	65	Tariff TA3					X	X	X	
28	362	Tariff TA4					X	X	X	
29	84	Pulse input A1					X	X	X	X
30	85	Pulse input B1					X	X	X	X
31	369	info bits					X	X	X	X
32	1004	Operating hours					X	X	X	X
33	175	Error hour counter					X	X	X	X

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80-24-112: 60 minute (hourly) transfer, MULTICAL® 803 datagram (all energy registrers)

YY = 24										MULTICAL® 603
ZZZ = 112										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	
3	63	Cooling Energy E3						X		
4	63	Cooling Energy E3_HC				HCC			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	473	Energy E10					X	X	X	
12	474	Energy E11					X	X	X	
13	611	Energy E12								
14	612	Energy E13								
15	613	Energy E14								
16	614	Energy E15								
17	615	Energy E16								
18	68	Volume V1					X	X	X	X
19	69	Volume V2					X	X	X	X
20	74	Flow V1					X	X	X	X
21	75	Flow V2					X	X	X	X
22	80	Power					X	X	X	
23	86	t1			Int2		X	X	X	X
24	87	t2			Int2		X	X	X	
25	88	t3			Int2		X	X	X	
26	122	t4			Int2		X	X	X	
27	64	Tariff TA2					X	X	X	
28	65	Tariff TA3					X	X	X	
29	362	Tariff TA4					X	X	X	
30	369	infobits					X	X	X	X
31	1004	Operating hours					X	X	X	X
32	175	Error hour counter					X	X	X	X

80-24-113: 60 minute (hourly) transmission, DKHeat, actual values

YY = 24										MULTICAL® 603
ZZZ = 113										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_HC			HC				X	
3	97	Energy E8					X	X	X	
4	110	Energy E9					X	X	X	
5	68	Volume V1					X	X	X	X
6	69	Volume V2					X	X	X	X
7	72	Mass M1					X	X	X	
8	73	Mass M2					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	88	t3 actual [2 decimals]			Int2		X	X	X	
13	122	t4 actual [2 decimals]			Int2		X	X	X	
14	80	Power actual					X	X	X	
15	637	Power 2 actual					X	X	X	
16	143	Power max month	Month Log	1			X	X	X	
17	74	Flow V1 actual					X	X	X	X
18	75	Flow V2 actual					X	X	X	X
19	139	Flow V1 max month	Month Log	1			X	X	X	X
20	141	Flow V1 min month	Month Log	1			X	X	X	X
21	91	P1 actual - part 1			Int2		X	X	X	
22	92	P2 actual - part 1			Int2		X	X	X	
23	1004	Operating hours					X	X	X	X
24	175	Error hour counter					X	X	X	X
25	369	Info bits					X	X	X	X

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80-24-114: 60 minute (hourly) transmission, Energy + Pressure + Max month

YY = 24										MULTICAL® 603
ZZZ = 114										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			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			Int2		X	X	X	
11	92	P2 actual - part 1			Int2		X	X	X	
12	86	t1 actual [2 decimals]			Int2		X	X	X	
13	87	t2 actual [2 decimals]			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

80-24-115: 60 minute (hourly) transfer, DK heat standard

YY = 24										MULTICAL® 603
ZZZ = 115										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	X
2	63	Cooling energy E3_HC			HC				X	X
3	63	Cooling energy E3						X		X
4	97	Energy E8					X	X	X	X
5	110	Energy E9					X	X	X	X
6	68	Volume V1					X	X	X	X
7	69	Volume V2					X	X	X	X
8	72	Mass M1					X	X	X	X
9	73	Mass M2					X	X	X	X
10	86	t1 actual [2 decimals]			Int2		X	X		
11	381	t1 time average hour	Hour Log	1	Int2		X	X		
12	87	t2 actual [2 decimals]			Int2		X	X		
13	382	t2 time average hour	Hour Log	1	Int2		X	X		
14	89	t1-t2 diff. temp. [2 decimals]			Int2		X	X		
15	88	t3 actual [2 decimals]			Int2		X	X		
16	478	t3 time average hour	Hour Log	1	Int2		X	X		
17	80	Power actual					X	X		
18	143	Power max month	Month Log	2			X	X		
19	389	Power max month date	Month Log	2	Int2		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	Month Log	2			X	X	X	X
23	387	Flow V1 max month date	Month Log	2	Int2		X	X	X	X
24	141	Flow V1 min month	Month Log	2			X	X	X	X
25	388	Flow V1 min month date	Month Log	2	Int2		X	X	X	X
26	91	P1 actual - part 1			Int2		X	X	X	X
27	92	P2 actual - part 1			Int2		X	X	X	X
28	1004	Operating hours					X	X	X	X
29	175	Error hour counter					X	X	X	X
30	369	Info bits					X	X	X	X

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80-24-138: 60 minute (hourly) transmission, Heat + power max month and date

YY = 24										MULTICAL® 603
ZZZ = 138										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	86	t1 actual [2 decimals]			Int2		X	X	X	
4	87	t2 actual [2 decimals]			Int2		X	X	X	
5	74	Flow V1 actual					X	X	X	X
6	80	Power actual					X	X	X	X
7	1004	Operating hours					X	X	X	X
8	369	Info bits					X	X	X	X
9	139	Flow V1 max month	Month Log	1			X	X	X	X
10	143	Power max month	Month Log	1			X	X	X	
11	389	Power max month date	Month Log	1	Int2		X	X	X	
12	60	Heat energy E1	Month Log	1			X		X	

80-24-139: 60 minute (hourly) transmission, E1/ V1 Monthly Target value

YY = 24										MULTICAL® 603
ZZZ = 139										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_HC			HC				X	
5	61	Inlet energy E4					X	X	X	
6	97	Energy E8					X	X	X	
7	110	Energy E9					X	X	X	
8	473	Energy E10					X	X	X	
9	474	Energy E11					X	X	X	
10	371	COP			Int2		X	X	X	
11	364	Heat energy A1					X	X	X	
12	365	Heat energy A2					X	X	X	
13	68	Volume V1					X	X	X	X
14	74	Flow V1 actual					X	X	X	X
15	80	Power actual					X	X	X	
16	86	t1 actual [2 decimals]			Int2		X	X	X	
17	87	t2 actual [2 decimals]			Int2		X	X	X	
18	88	t3 actual [2 decimals]			Int2		X	X	X	
19	60	Heat energy E1	Month Log	1			X		X	
20	348	Date	Month Log	1	Int2		X	X	X	X
21	68	Volume V1	Month Log	1			X	X	X	X
22	143	Power max month	Month Log	1			X	X	X	
23	64	Tariff TA2					X	X	X	
24	65	Tariff TA3					X	X	X	
25	362	Tariff TA4					X	X	X	
26	84	Pulse input A1					X	X	X	X
27	85	Pulse input B1					X	X	X	X
28	369	Info bits					X	X	X	X
29	1004	Operating hours					X	X	X	X
30	175	Error hour counter					X	X	X	X

Document change log

Rev.	Date	Notes
A1	06.2021	Document created and released. 80-20/22/24-110, 80-22-111, 80-24-112
A2	01.2022	80-24-115 added

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