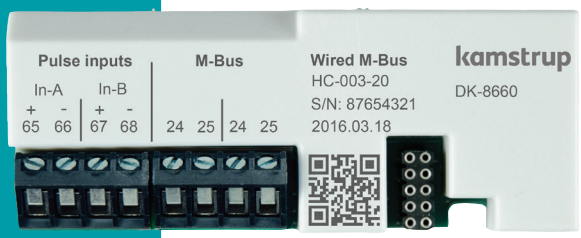
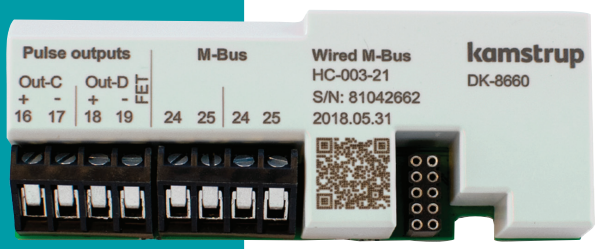
kamstrup

Datagram description

M-Bus Inputs (In-A, In-B) outputs (Out-C, Out-D)

MULTICAL® 403
MULTICAL® 603
MULTICAL® 803





M-Bus

Contents

Introduction

This document describes the datagrams available for M-Bus modules HC-003-20, HC-003-21, and HC-003-22.

Datagram construction

Each datagram consists of an XX-YY-ZZZ code, where XX is the last two digits of the module type number. For module HC-003-20 and HC-003-21 it will be 20 and 21 respectively. The YY code is the system configuration which for M-Bus always is 00. The last part ZZZ is the data content.

	XX	-	YY	-	ZZZ
Module type					
Wireless M-Bus, inputs (In-A, In-B)	20				
Wireless M-Bus, outputs (Out-C, Out-D)	21				
Wired M-Bus, Therml Disconnect	22				
System configuration					
Standard			00		
Datagrams for MULTICAL® 403/603/803					
Standard profile yearly target date					101
Standard profile monthly target date					102

M-Bus Datagrams

The following M-Bus Datagrams are applicable for both module types. Each datagram is designed for a specific meter application, where the mentioned meter applications can be seen in the meters technical description. For example application 1 is a system with one flow sensor and two temperature sensors, application 2 is with two flow sensors and three temperature sensors.

Most datagrams for M-Bus are designed to be read once in a month to comply with the European Energy Efficiency Directive (EED). The heat or cooling consumption are provided in the Month Log register, which are a historical register saved at the meters target date. The normal target date will be the last day in the month, however the target date can be changed with METERTOOL PC software or MeterToolX android app to any day in the month.

20/21-00-101

Suitable for meter application 1. Energy E8 and E9 are used to calculate the average temperature of the volume between two readings. Pulse input are used to accumulate pulses from 3rd party equipment such as electricity meters, gas meters, etc.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 101	Standard Profile Yearly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	84	Pulse input A1	Actual_Meter	X	X	X	X
8	85	Pulse input B1	Actual_Meter	X	X	X	X
9	1004	Operating hours	Actual_Meter	X	X	X	X
10	175	Error hour counter	Actual_Meter	X	X	X	X
11	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
12	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
14	80	Power actual	Actual_Meter	X	X	X	
15	143	Power max month	Actual_Meter	X	X	X	
16	74	Flow V1 actual	Actual_Meter	X	X	X	X
17	139	Flow V1 max month	Actual_Meter	X	X	X	X
18	369	Info bits	Actual_Meter	X	X	X	X
19	348	Date and time	Actual_Meter	X	X	X	X
20	60	Heat energy E1	Year Log	X		X	
21	63	Cooling energy E3	Year Log		X		
22	63	Cooling energy E3_HC	Year Log			X	
23	97	Energy E8	Year Log	X	X	X	
24	110	Energy E9	Year Log	X	X	X	
25	68	Volume V1	Year Log	X	X	X	X
26	84	Pulse input A1	Year Log	X	X	X	X
27	85	Pulse input B1	Year Log	X	X	X	X
28	128	Power max year	Year Log	X	X	X	
29	124	Flow V1 max year	Year Log	X	X	X	X
30	348	Date	Year Log	X	X	X	X
31	404	Meter type	Actual_Meter	X	X	X	X
32	1001	Fabrication number	Actual_Meter	X	X	X	X

20/21-00-102

Same as 21-00-101 but with monthly target date

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 102	Standard Profile Monthly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	84	Pulse input A1	Actual_Meter	X	X	X	X
8	85	Pulse input B1	Actual_Meter	X	X	X	X
9	1004	Operating hours	Actual_Meter	X	X	X	X
10	175	Error hour counter	Actual_Meter	X	X	X	X
11	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
12	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
14	80	Power actual	Actual_Meter	X	X	X	
15	143	Power max month	Actual_Meter	X	X	X	
16	74	Flow V1 actual	Actual_Meter	X	X	X	X
17	139	Flow V1 max month	Actual_Meter	X	X	X	X
18	369	Info bits	Actual_Meter	X	X	X	X
19	348	Date and time	Actual_Meter	X	X	X	X
20	60	Heat energy E1	Month Log	X		X	
21	63	Cooling energy E3	Month Log		X		
22	63	Cooling energy E3_HC	Month Log			X	
23	97	Energy E8	Month Log	X	X	X	
24	110	Energy E9	Month Log	X	X	X	
25	68	Volume V1	Month Log	X	X	X	X
26	84	Pulse input A1	Month Log	X	X	X	X
27	85	Pulse input B1	Month Log	X	X	X	X
28	143	Power max month	Month Log	X	X	X	
29	139	Flow V1 max month	Month Log	X	X	X	X
30	348	Date	Month Log	X	X	X	X
31	404	Meter type	Actual_Meter	X	X	X	X
32	1001	Fabrication number	Actual_Meter	X	X	X	X
33	393	Module type config No.	Actual_Module	X	X	X	X
34	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-105

Suitable for application 1 and with Tariff registers. Here T5 are the programmable temperature limit used to calculate the tariff energy. Logged registers are on a yearly basis.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 105	DACH Profile Yearly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	364	Heat energy A1	Actual_Meter	X	X	X	
5	365	Heat energy A2	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	84	Pulse input A1	Actual_Meter	X	X	X	X
8	85	Pulse input B1	Actual_Meter	X	X	X	X
9	64	Tariff TA2	Actual_Meter	X	X	X	
10	65	Tariff TA3	Actual_Meter	X	X	X	
11	362	Tariff TA4	Actual_Meter	X	X	X	
12	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
13	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
15	366	t5 limit	Actual_Meter	X	X	X	
16	80	Power actual	Actual_Meter	X	X	X	
17	143	Power max month	Actual_Meter	X	X	X	
18	74	Flow V1 actual	Actual_Meter	X	X	X	X
19	139	Flow V1 max month	Actual_Meter	X	X	X	X
20	369	Info bits	Actual_Meter	X	X	X	X
21	348	Date and time	Actual_Meter	X	X	X	X
22	60	Heat energy E1	Year Log	X		X	
23	63	Cooling energy E3	Year Log		X		
24	63	Cooling energy E3_HC	Year Log			X	
25	84	Pulse input A1	Year Log	X	X	X	X
26	85	Pulse input B1	Year Log	X	X	X	X
27	364	Heat energy A1	Year Log	X	X	X	
28	365	Heat energy A2	Year Log	X	X	X	
29	64	Tariff TA2	Year Log	X	X	X	
30	65	Tariff TA3	Year Log	X	X	X	
31	362	Tariff TA4	Year Log	X	X	X	
32	128	Power max year	Year Log	X	X	X	
33	348	Date	Year Log	X	X	X	X
34	404	Meter type	Actual_Meter	X	X	X	X
35	1001	Fabrication number	Actual_Meter	X	X	X	X
36	393	Module type config No.	Actual_Module	X	X	X	X
37	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-106

Same as 21-00-105 but with monthly target date.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 106	DACH Profile Monthly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	364	Heat energy A1	Actual_Meter	X	X	X	
5	365	Heat energy A2	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	84	Pulse input A1	Actual_Meter	X	X	X	X
8	85	Pulse input B1	Actual_Meter	X	X	X	X
9	64	Tariff TA2	Actual_Meter	X	X	X	
10	65	Tariff TA3	Actual_Meter	X	X	X	
11	362	Tariff TA4	Actual_Meter	X	X	X	
12	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
13	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
14	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
15	366	t5 limit	Actual_Meter	X	X	X	
16	80	Power actual	Actual_Meter	X	X	X	
17	143	Power max month	Actual_Meter	X	X	X	
18	74	Flow V1 actual	Actual_Meter	X	X	X	X
19	139	Flow V1 max month	Actual_Meter	X	X	X	X
20	369	Info bits	Actual_Meter	X	X	X	X
21	348	Date and time	Actual_Meter	X	X	X	X
22	60	Heat energy E1	Month Log	X		X	
23	63	Cooling energy E3	Month Log		X		
24	63	Cooling energy E3_HC	Month Log			X	
25	84	Pulse input A1	Month Log	X	X	X	X
26	85	Pulse input B1	Month Log	X	X	X	X
27	364	Heat energy A1	Month Log	X	X	X	
28	365	Heat energy A2	Month Log	X	X	X	
29	64	Tariff TA2	Month Log	X	X	X	
30	65	Tariff TA3	Month Log	X	X	X	
31	362	Tariff TA4	Month Log	X	X	X	
32	143	Power max month	Month Log	X	X	X	
33	348	Date	Month Log	X	X	X	X
34	404	Meter type	Actual_Meter	X	X	X	X
35	1001	Fabrication number	Actual_Meter	X	X	X	X
36	393	Module type config No.	Actual_Module	X	X	X	X
37	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-108

Suitable for application 1 with pulse input to acumulate energy from electrocity meter. The COP are used to calculate the efficiency of e.g. a heat pump.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 108	Coefficient of Perforemance Profile Yearly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	84	Pulse input A1	Actual_Meter	X	X	X	X
6	85	Pulse input B1	Actual_Meter	X	X	X	X
7	1004	Operating hours	Actual_Meter	X	X	X	X
8	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
9	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
10	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
11	80	Power actual	Actual_Meter	X	X	X	
12	143	Power max month	Actual_Meter	X	X	X	
13	74	Flow V1 actual	Actual_Meter	X	X	X	X
14	139	Flow V1 max month	Actual_Meter	X	X	X	X
15	372	Power Input B1	Actual_Meter	X	X	X	
16	371	COP	Actual_Meter	X	X	X	
17	369	Info bits	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Year Log	X		X	
19	63	Cooling energy E3	Year Log		X		
20	63	Cooling energy E3_HC	Year Log			X	
21	68	Volume V1	Year Log	X	X	X	X
22	84	Pulse input A1	Year Log	X	X	X	X
23	85	Pulse input B1	Year Log	X	X	X	X
24	128	Power max year	Year Log	X	X	X	
25	124	Flow V1 max year	Year Log	X	X	X	X
26	355	COP year	Year Log	X	X	X	X
27	348	Date	Year Log	X	X	X	X
28	404	Meter type	Actual_Meter	X	X	X	X
29	1001	Fabrication number	Actual_Meter	X	X	X	X
30	393	Module type config No.	Actual_Module	X	X	X	X
31	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-109

Suitable for application 1.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 109	SE Profile Monthly Target Data for Meter-Log Profile 11		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	84	Pulse input A1	Actual_Meter	X	X	X	X
8	85	Pulse input B1	Actual_Meter	X	X	X	X
9	1004	Operating hours	Actual_Meter	X	X	X	X
10	175	Error hour counter	Actual_Meter	X	X	X	X
11	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
12	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
14	80	Power actual	Actual_Meter	X	X	X	
15	143	Power max month	Actual_Meter	X	X	X	
16	74	Flow V1 actual	Actual_Meter	X	X	X	X
17	139	Flow V1 max month	Actual_Meter	X	X	X	X
18	369	Info bits	Actual_Meter	X	X	X	X
19	348	Date and time	Actual_Meter	X	X	X	X
20	60	Heat energy E1	Month Log	X		X	
21	63	Cooling energy E3	Month Log		X		
22	63	Cooling energy E3_HC	Month Log			X	
23	97	Energy E8	Month Log	X	X	X	
24	110	Energy E9	Month Log	X	X	X	
25	68	Volume V1	Month Log	X	X	X	X
26	84	Pulse input A1	Month Log	X	X	X	X
27	85	Pulse input B1	Month Log	X	X	X	X
28	143	Power max month	Month Log	X	X	X	
29	139	Flow V1 max month	Month Log	X	X	X	X
30	348	Date	Month Log	X	X	X	X
31	404	Meter type	Actual_Meter	X	X	X	X
32	1001	Fabrication number	Actual_Meter	X	X	X	X
33	393	Module type config No.	Actual_Module	X	X	X	X
34	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-111

Suitable for application 1.

YY = 00	M-Bus		
ZZZ = 109	Diffrential energy and volume		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	69	Volume V2	Actual_Meter	X	X	X	X
6	74	Flow V1 actual	Actual_Meter	X	X	X	X
7	75	Flow V2 actual	Actual_Meter	X	X	X	X
8	80	Power actual	Actual_Meter	X	X	X	
9	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
10	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
11	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X		
13	175	Error hour counter	Actual_Meter	X	X	X	X
14	369	Info bits	Actual_Meter	X	X	X	X
15	1004	Operating hours	Actual_Meter	X	X	X	X
16	1001	Fabrication number	Actual_Meter	X	X	X	X
17	348	Date and time	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Month Log	X		X	
19	63	Cooling energy E3	Month Log		X		
20	63	Cooling energy E3_HC	Month Log			X	
21	97	Energy E8	Month Log	X	X	X	
22	110	Energy E9	Month Log	X	X	X	
23	68	Volume V1	Month Log	X	X	X	X
24	69	Volume V2	Month Log	X	X	X	X
25	139	Flow V1 max month	Month Log	X	X	X	X
26	387	Flow V1 max month date	Month Log	X	X	X	X
27	143	Power max month	Month Log	X	X	X	
28	389	Power max month date	Month Log	X	X	X	
29	72	Mass M1	Month Log	X	X	X	
30	73	Mass M2	Month Log	X	X	X	
31	84	Pulse input A1	Month Log	X	X	X	X
32	85	Pulse input B1	Month Log	X	X	X	X
33	178	Differential energy dE	Month Log	X	X	X	
34	179	Control energy cE	Month Log	X	X	X	
35	180	Differential volume dV	Month Log	X	X	X	X
36	181	Control volume cV	Month Log	X	X	X	X
37	348	Date	Month Log	X	X	X	X

20/21-00-185

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 185	ULTRAFLOW® 85 Standard profile yearly target data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	1004	Operating hours	Actual_Meter	X	X	X	X
8	175	Error hour counter	Actual_Meter	X	X	X	X
9	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
10	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
11	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
12	80	Power actual	Actual_Meter	X	X	X	
13	143	Power max month	Actual_Meter	X	X	X	
14	74	Flow V1 actual	Actual_Meter	X	X	X	X
15	139	Flow V1 max month	Actual_Meter	X	X	X	X
16	369	Info bits	Actual_Meter	X	X	X	X
17	348	Date and time	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Year Log	X		X	
19	63	Cooling energy E3	Year Log		X		
20	63	Cooling energy E3_HC	Year Log			X	
21	97	Energy E8	Year Log	X	X	X	
22	110	Energy E9	Year Log	X	X	X	
23	68	Volume V1	Year Log	X	X	X	X
24	128	Power max year	Year Log	X	X	X	
25	124	Flow V1 max year	Year Log	X	X	X	X
26	348	Date	Year Log	X	X	X	X
27	94	Heat energy E2	Actual_Meter	X		X	
28	94	Heat energy E2	Year Log	X		X	
29	96	Tap water energy E7	Actual_Meter		X	X	
30	96	Tap water energy E7	Year Log		X	X	
31	88	t3 actual (2 decimals)	Actual_Meter		X	X	
32	69	Volume V2	Actual_Meter	X	X	X	X
33	611	Energy E12	Actual_Meter		X	X	
34	611	Energy E12	Year Log		X	X	
35	75	Flow V2 actual	Actual_Meter	X	X	X	X

20/21-00-186

YY = 00	M-Bus		
ZZZ = 186	ULTRAFLOW® 85 Standard profile monthly target data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	68	Volume V1	Actual_Meter	X	X	X	X
7	1004	Operating hours	Actual_Meter	X	X	X	X
8	175	Error hour counter	Actual_Meter	X	X	X	X
9	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
10	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
11	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
12	80	Power actual	Actual_Meter	X	X	X	
13	143	Power max month	Actual_Meter	X	X	X	
14	74	Flow V1 actual	Actual_Meter	X	X	X	X
15	139	Flow V1 max month	Actual_Meter	X	X	X	X
16	369	Info bits	Actual_Meter	X	X	X	X
17	348	Date and time	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Month Log	X		X	
19	63	Cooling energy E3	Month Log		X		
20	63	Cooling energy E3_HC	Month Log			X	
21	97	Energy E8	Month Log	X	X	X	
22	110	Energy E9	Month Log	X	X	X	
23	68	Volume V1	Month Log	X	X	X	X
24	143	Power max month	Month Log	X	X	X	
25	139	Flow V1 max month	Month Log	X	X	X	X
26	348	Date	Month Log	X	X	X	X
27	94	Heat energy E2	Actual_Meter	X		X	
28	94	Heat energy E2	Month Log	X		X	
29	96	Tap water energy E7	Actual_Meter		X	X	
30	96	Tap water energy E7	Month Log		X	X	
31	88	t3 actual (2 decimals)	Actual_Meter		X	X	
32	69	Volume V2	Actual_Meter	X	X	X	X
33	611	Energy E12	Actual_Meter		X	X	
34	611	Energy E12	Month Log		X	X	
35	75	Flow V2 actual	Actual_Meter	X	X	X	X
36	69	Volume V2	Month Log	X	X	X	X

20/21-00-230

Dedicated datagram for application 1 with pulse input, tariff and max month registers.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 230	Application 1, One flow and two temperature sensors		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	74	Flow V1 actual	Actual_Meter	X	X	X	X
6	80	Power actual	Actual_Meter	X	X	X	
7	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
8	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
9	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
10	84	Pulse input A1	Actual_Meter	X	X	X	X
11	85	Pulse input B1	Actual_Meter	X	X	X	X
12	175	Error hour counter	Actual_Meter	X	X	X	X
13	369	Info bits	Actual_Meter	X	X	X	X
14	1004	Operating hours	Actual_Meter	X	X	X	X
15	1001	Fabrication number	Actual_Meter	X	X	X	X
16	348	Date and time	Actual_Meter	X	X	X	X
17	60	Heat energy E1	Month Log	X		X	
18	63	Cooling energy E3	Month Log		X		
19	63	Cooling energy E3_HC	Month Log			X	
20	97	Energy E8	Month Log	X	X	X	
21	110	Energy E9	Month Log	X	X	X	
22	68	Volume V1	Month Log	X	X	X	X
23	139	Flow V1 max month	Month Log	X	X	X	X
24	387	Flow V1 max month date	Month Log	X	X	X	X
25	143	Power max month	Month Log	X	X	X	
26	389	Power max month date	Month Log	X	X	X	
27	84	Pulse input A1	Month Log	X	X	X	X
28	85	Pulse input B1	Month Log	X	X	X	X
29	64	Tariff TA2	Month Log	X	X	X	
30	65	Tariff TA3	Month Log	X	X	X	
31	362	Tariff TA4	Month Log	X	X	X	
32	348	Date	Month Log	X	X	X	X

20/21-00-231

Dedicated datagram for application 2 with pulse input, tariff and max month registers.

YY = 00	M-Bus		
ZZZ = 231	Application 2, Two flow and three temperature sensors		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	69	Volume V2	Actual_Meter	X	X	X	X
6	74	Flow V1 actual	Actual_Meter	X	X	X	X
7	75	Flow V2 actual	Actual_Meter	X	X	X	X
8	80	Power actual	Actual_Meter	X	X	X	
9	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
10	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
11	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
12	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X		
13	175	Error hour counter	Actual_Meter	X	X	X	X
14	369	Info bits	Actual_Meter	X	X	X	X
15	1004	Operating hours	Actual_Meter	X	X	X	X
16	1001	Fabrication number	Actual_Meter	X	X	X	X
17	348	Date and time	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Month Log	X		X	
19	63	Cooling energy E3	Month Log		X		
20	63	Cooling energy E3_HC	Month Log			X	
21	97	Energy E8	Month Log	X	X	X	
22	110	Energy E9	Month Log	X	X	X	
23	68	Volume V1	Month Log	X	X	X	X
24	69	Volume V2	Month Log	X	X	X	X
25	139	Flow V1 max month	Month Log	X	X	X	X
26	387	Flow V1 max month date	Month Log	X	X	X	X
27	143	Power max month	Month Log	X	X	X	
28	389	Power max month date	Month Log	X	X	X	
29	72	Mass M1	Month Log	X	X	X	
30	73	Mass M2	Month Log	X	X	X	
31	84	Pulse input A1	Month Log	X	X	X	X
32	85	Pulse input B1	Month Log	X	X	X	X
33	64	Tariff TA2	Month Log	X	X	X	
34	65	Tariff TA3	Month Log	X	X	X	
35	362	Tariff TA4	Month Log	X	X	X	
36	348	Date	Month Log	X	X	X	X

20/21-00-232

Dedicated datagram for application 3,4,5,6,8 with special energy registers and all temperatures.

YY = 00	M-Bus		
ZZZ = 232	Application-3-4-5-6-8, Energy registers		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	69	Volume V2	Actual_Meter	X	X	X	X
6	74	Flow V1 actual	Actual_Meter	X	X	X	X
7	75	Flow V2 actual	Actual_Meter	X	X	X	X
8	80	Power actual	Actual_Meter	X	X	X	
9	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
10	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
11	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
12	122	t4 actual (2 decimals)	Actual_Meter	X	X	X	
13	175	Error hour counter	Actual_Meter	X	X	X	X
14	369	Info bits	Actual_Meter	X	X	X	X
15	1004	Operating hours	Actual_Meter	X	X	X	X
16	1001	Fabrication number	Actual_Meter	X	X	X	X
17	348	Date and time	Actual_Meter	X	X	X	X
18	60	Heat energy E1	Month Log	X		X	
19	94	Heat energy E2	Month Log	X	X	X	
20	63	Cooling energy E3	Month Log		X		
21	63	Cooling energy E3_HC	Month Log			X	
22	61	Inlet energy E4	Month Log	X	X	X	
23	62	Outlet energy E5	Month Log	X	X	X	
24	95	Tap water energy E6	Month Log	X	X	X	
25	96	Tap water energy E7	Month Log	X	X	X	
26	97	Energy E8	Month Log	X	X	X	
27	110	Energy E9	Month Log	X	X	X	
28	178	Differential energy dE	Month Log	X	X		
29	72	Mass M1	Month Log	X	X	X	
30	73	Mass M2	Month Log	X	X	X	
31	68	Volume V1	Month Log	X	X	X	X
32	69	Volume V2	Month Log	X	X	X	X
33	139	Flow V1 max month	Month Log	X	X	X	X
34	387	Flow V1 max month date	Month Log	X	X	X	X
35	143	Power max month	Month Log	X	X	X	
36	389	Power max month date	Month Log	X	X	X	
37	348	Date	Month Log	X	X	X	X

20/21-00-302

Application 1 with pulse input.

YY = 00	M-Bus	**MULTICAL® 403**
ZZZ = 302	Extended Pulse Input Profile Monthly Target Data	**MULTICAL® 603**
		MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	68	Volume V1	Actual_Meter	X	X	X	X
5	84	Pulse input A1	Actual_Meter	X	X	X	X
6	85	Pulse input B1	Actual_Meter	X	X	X	X
7	224	Pulse input A2	Actual_Meter	X	X	X	X
8	225	Pulse input B2	Actual_Meter	X	X	X	X
9	1004	Operating hours	Actual_Meter	X	X	X	X
10	175	Error hour counter	Actual_Meter	X	X	X	X
11	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
12	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
14	80	Power actual	Actual_Meter	X	X	X	
15	143	Power max month	Actual_Meter	X	X	X	
16	389	Power max month date	Actual_Meter	X	X	X	
17	74	Flow V1 actual	Actual_Meter	X	X	X	X
18	139	Flow V1 max month	Actual_Meter	X	X	X	X
19	387	Flow V1 max month date	Actual_Meter	X	X	X	X
20	369	Info bits	Actual_Meter	X	X	X	X
21	348	Date and time	Actual_Meter	X	X	X	X
22	60	Heat energy E1	Month Log	X		X	
23	63	Cooling energy E3	Month Log		X		
24	63	Cooling energy E3_HC	Month Log			X	
25	68	Volume V1	Month Log	X	X	X	X
26	84	Pulse input A1	Month Log	X	X	X	X
27	85	Pulse input B1	Month Log	X	X	X	X
28	224	Pulse input A2	Month Log	X	X	X	X
29	225	Pulse input B2	Month Log	X	X	X	X
30	143	Power max month	Month Log	X	X	X	
31	389	Power max month date	Month Log	X	X	X	
32	139	Flow V1 max month	Month Log	X	X	X	X
33	387	Flow V1 max month date	Month Log	X	X	X	X
34	348	Date	Month Log	X	X	X	X
35	404	Meter type	Actual_Meter	X	X	X	X
36	1001	Fabrication number	Actual_Meter	X	X	X	X
37	393	Module type config No.	Actual_Module	X	X	X	X
38	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-306

Suitable for application 2.

YY = 00	M-Bus		
ZZZ = 306	Alternative Profile Monthly Target Data		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	61	Inlet energy E4	Actual_Meter	X	X	X	
5	62	Outlet energy E5	Actual_Meter	X	X	X	
6	95	Tap water energy E6	Actual_Meter	X	X	X	
7	68	Volume V1	Actual_Meter	X	X	X	X
8	69	Volume V2	Actual_Meter	X	X	X	X
9	84	Pulse input A1	Actual_Meter	X	X	X	X
10	85	Pulse input B1	Actual_Meter	X	X	X	X
11	72	Mass M1	Actual_Meter	X	X	X	X
12	73	Mass M2	Actual_Meter	X	X	X	X
13	1004	Operating hours	Actual_Meter	X	X	X	X
14	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
15	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
16	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
17	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
18	122	t4 actual (2 decimals)	Actual_Meter	X	X	X	
19	80	Power actual	Actual_Meter	X	X	X	
20	74	Flow V1 actual	Actual_Meter	X	X	X	X
21	75	Flow V2 actual	Actual_Meter	X	X	X	X
22	139	Flow V1 max month	Actual_Meter	X	X	X	X
23	387	Flow V1 max month date	Actual_Meter	X	X	X	X
24	369	Info bits	Actual_Meter	X	X	X	X
25	348	Date and time	Actual_Meter	X	X	X	X
26	60	Heat energy E1	Month Log	X		X	
27	63	Cooling energy E3	Month Log		X		
28	63	Cooling energy E3_HC	Month Log			X	
29	95	Tap water energy E6	Month Log	X	X	X	
30	68	Volume V1	Month Log	X	X	X	X
31	69	Volume V2	Month Log	X	X	X	X
32	84	Pulse input A1	Month Log	X	X	X	X
33	85	Pulse input B1	Month Log	X	X	X	X
34	139	Flow V1 max month	Month Log	X	X	X	X
35	348	Date	Month Log	X	X	X	X
36	404	Meter type	Actual_Meter	X	X	X	X
37	1001	Fabrication number	Actual_Meter	X	X	X	X

20/21-00-307

Suitable for application 2 and permanent surveillance operation.

YY = 00	M-Bus		
ZZZ = 307	PDO Profile Monthly Target Data		**MULTICAL® 603**
			MULTICAL® 803

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

20/21-00-309

Suitable for application 7 and 8.

YY = 00	M-Bus		
ZZZ = 309	Heat Energy with circulation		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	94	Heat energy E2	Actual_Meter	X	X	X	
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	61	Inlet energy E4	Actual_Meter	X	X	X	
5	62	Outlet energy E5	Actual_Meter	X	X	X	
6	96	Tap water energy E7	Actual_Meter	X	X	X	
7	178	Differential energy dE	Actual_Meter	X	X	X	X
8	68	Volume V1	Actual_Meter	X	X	X	X
9	69	Volume V2	Actual_Meter	X	X	X	X
10	1004	Operating hours	Actual_Meter	X	X	X	X
11	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
12	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
13	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
14	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
15	74	Flow V1 actual	Actual_Meter	X	X	X	X
16	75	Flow V2 actual	Actual_Meter	X	X	X	X
17	80	Power actual	Actual_Meter	X	X	X	
18	369	Info bits	Actual_Meter	X	X	X	X
19	347	Customer Number	Actual_Meter	X	X	X	X
20	1001	Fabrication number	Actual_Meter	X	X	X	X
21	404	Meter type	Actual_Meter	X	X	X	X
22	393	Module type config No.	Actual_Module	X	X	X	X
23	346	Module SW revision	Actual_Module	X	X	X	X

20/21-00-500

Dedicated datagram for flowIQ® Gateway.

YY = 00	C1,Fixed-network, 25mW, 96 sec interval		**flowIQ®Gateway**
ZZZ = 500	PDO		

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	68	Volume V1	Actual Meter	X	X	X	X
2	74	Flow V1 actual	Actual Meter	X	X	X	X
3	369	Info bits	Actual Meter	X	X	X	X

20/21-00-810

Usable for application 1 and with electricity meter at pulse input. COP are the Coefficient Of Performance, which can be used to calculate the efficiency of a heat pump.

YY = 00	M-Bus		**MULTICAL® 403**
ZZZ = 151	Application-1		**MULTICAL® 603**
			MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	
2	63	Cooling energy E3	Actual_Meter		X		
3	63	Cooling energy E3_HC	Actual_Meter			X	
4	97	Energy E8	Actual_Meter	X	X	X	
5	110	Energy E9	Actual_Meter	X	X	X	
6	474	Energy E11	Actual_Meter	X	X	X	
7	68	Volume V1	Actual_Meter	X	X	X	X
8	84	Pulse input A1	Actual_Meter	X	X	X	X
9	85	Pulse input B1	Actual_Meter	X	X	X	X
10	64	Tariff TA2	Actual_Meter	X	X	X	X
11	65	Tariff TA3	Actual_Meter	X	X	X	X
12	362	Tariff TA4	Actual_Meter	X	X	X	X
13	1004	Operating hours	Actual_Meter	X	X	X	X
14	175	Error hour counter	Actual_Meter	X	X	X	X
15	86	t1 actual (2 decimals)	Actual_Meter	X	X	X	
16	87	t2 actual (2 decimals)	Actual_Meter	X	X	X	
17	89	t1-t2 diff. temp. (2 decimals)	Actual_Meter	X	X	X	
18	80	Power actual	Actual_Meter	X	X	X	
19	143	Power max month	Actual_Meter	X	X	X	
20	389	Power max month date	Actual_Meter	X	X	X	
21	145	Power min month	Actual_Meter	X	X	X	
22	390	Power min month date	Actual_Meter	X	X	X	
23	74	Flow V1 actual	Actual_Meter	X	X	X	X
24	139	Flow V1 max month	Actual_Meter	X	X	X	X
25	387	Flow V1 max month date	Actual_Meter	X	X	X	X
26	141	Flow V1 min month	Actual_Meter	X	X	X	X
27	388	Flow V1 min month date	Actual_Meter	X	X	X	X
28	369	Info bits	Actual_Meter	X	X	X	X
29	348	Date and time	Actual_Meter	X	X	X	X
30	404	Meter type	Actual_Meter	X	X	X	X
31	1001	Fabrication number	Actual_Meter	X	X	X	X
32	393	Module type config No.	Actual_Meter	X	X	X	X
33	346	Module SW revision	Actual_Meter	X	X	X	X
34	88	t3 actual (2 decimals)	Actual_Meter	X	X	X	
35	122	t4 actual (2 decimals)	Actual_Meter	X	X	X	
36	69	Volume V2	Actual_Meter	X	X	X	X
37	75	Flow V2 actual	Actual_Meter	X	X	X	X
38	367	COP month	Actual_Meter	X	X	X	X

Datagrams not included

Since the introduction of M-Bus, Kamstrup has over time created a vast number of datagrams. Several of these are no longer in use and have therefore been removed or replaced by other datagrams with the same data content. The datagrams are still available in our system; however they are only reopened for sale on customer request. Below table summarizes the no longer available datagrams.

No	YY-ZZZ	Comment
1	00-103	Replaced by 00-230
2	00-104	Replaced by 00-230
3	00-107	Replaced by 00-230
5	00-110	No longer available
6	00-301	Replaced by 00-302
7	00-303	Replaced by 00-231
8	00-304	Replaced by 00-231
9	00-305	No longer available
10	00-308	No longer available
11	00-310	No longer available
12	00-311	No longer available
13	00-312	Replaced by 00-232
14	00-313	No longer available
15	00-316	No longer available
16	00-317	No longer available
17	00-318	No longer available
18	00-320	No longer available
19	00-401	No longer available
20	00-402	No longer available
21	00-403	No longer available
22	00-989	No longer available
23	00-998	No longer available
24	98-998	No longer available
25	00-999	No longer available