

Datagram description

linkIQ®/wM-Bus Inputs (In-A, In-B) outputs (Out-C, Out-D)

MULTICAL® 403

MULTICAL® 603

MULTICAL® 803



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Introduction

This document describes the datagrams available for module HC-003-32 and HC-003-33. Both modules can be configured for wM-Bus or linkIQ but not both at the same time. The modules enables configuring of meter and module wirelessly with READy app and READyConverter from the sidewalk. If a module is delivered configured for wM-Bus it can therefore be switched to linkIQ® and vice versa, remote, after installation without having to visit the meter physically.

wM-Bus

Wireless M-Bus is a standardized communication protocol defined in EN13757-4. It is a well-known communication protocol used between different manufactures for smart metering.

wM-Bus provides:

- Integration into 3rd party systems via standard components
- Reading in both fixed networks and walk-by/drive-by
- Reading of data as actual meter data and monthly interval
- Fast transmission interval 16s-96s
- Range up to 2km for fixed network and 200 m for drive-by

linkIQ®

Kamstrups linkIQ® LPWAN technology has been developed to optimize the performance of a fixed wireless network for smart metering, with focus on a high Quality of Service (QoS). Compared with wM-Bus, linkIQ® provides:

- QoS of 98% up to 10.000 meters in an area with a radius of 5km
- Reading in fixed networks
- Reding of data in hourly, daily, and monthly intervals
- Improved coverage resulting in 3-5 times less concentrators
- Improved robustness to interference from other equipment
- Redundancy in transmission
- Precisely timestamped data

Each datagram contains registers on an hourly level, daily level, and monthly level in general. Hourly registers are transmitted 18 times each hour where daily and monthly values are transmitted 18 times per day. Therefore, to reduce collisions, hourly registers are kept as a minimum, whereas the daily registers can be up to several registers.

Info codes are transmitted at the moment of their appearance and during the day together with the normal registers.

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-003-32 and HC-003-33 it will be 32 and 33 respectively. The YY code is the system configuration which determines which protocol, wM-bus or linkIQ, as well as transmission power and transmission time. The last part ZZZ is the data content.

	XX	-	YY	-	ZZZ
Module type					
Wireless M-Bus, inputs (In-A, In-B) 868 MHz	32				
Wireless M-Bus, outputs (Out-C, Out-D) 868 MHz	33				
System configuration					
C1, 16 s interval, 25 mW, Walk-by/Drive-by, Frame format B			10		
C1, 96 s interval, 25 mW, Fixed Network, Frame format B			11		
C1, 96 s interval, 25 mW, Fixed Network, Short range, Frame format B			14		
C1, Fixed Network, Frame format A, 15 min./25 mW			15		
T1 OMS, 16 sec. interval, Walk-by/Drive-by, Frame format A			20		
T1 OMS, 15 sec. interval, Fixed Network, Frame format A			21		
T1 BSI compliant, 16 sec./25 mW, Walk-by/Drive-by			22		
T1 BSI, 14 min. interval, 25 mW, Fixed Network, Frame format A			23		
T1 OMS, 12 sec. interval 25 mW			24		
LinkIQ®			50		
Datagrams for MULTICAL® 403/603/803					
C1, Standard registers					101
C1, Alternative registers					102
LinkIQ®, Standard					501

wM-Bus Datagrams

The following Wireless 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.

Walk-by and Drive-by

Datagrams for Walk-by and Drive-by 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.

32/33-10-101

Suitable for meter application 1. Energy E8 and E9 are used to calculate the average temperature of the volume between two readings.

YY = 10	C1, Drive-by, 25 mW, 16 sec interval						MULTICAL® 403
ZZZ = 101	Standard registers						MULTICAL® 603
					Range 200 m		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	74	Flow V1 actual	Actual_Meter	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	369	Info bits	Actual_Meter	X	X	X	X
11	348	Date	Actual_Meter	X	X	X	X
12	60	Heat energy E1	Month Log	X		X	
13	63	Cooling energy E3	Month Log		X		
14	63	Cooling energy E3_HC	Month Log			X	
15	68	Volume V1	Month Log	X	X	X	X
16	348	Date	Month Log	X	X	X	X

32/33-10-102

Suitable for application 1. Same as the standard datagram, but with pulse input to accumulate consumption from other equipment like gas or electricity meters by using the pulse inputs.

YY = 10 ZZZ = 102	C1, Drive-by, 25 mW, 16 sec interval Alternative registers		MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
			Range 200 m

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	74	Flow V1 actual	Actual_Meter	X	X	X	
10	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	
11	87	t2 actual [2 decimals]	Actual_Meter	X	X	X	
12	128	Power max year	Actual_Meter	X	X	X	
13	64	Tariff TA2	Actual_Meter	X	X	X	
14	65	Tariff TA3	Actual_Meter	X	X	X	
15	369	Info bits	Actual_Meter	X	X	X	X
16	348	Date	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	68	Volume V1	Month Log	X	X	X	X
21	84	Pulse input A1	Month Log	X	X	X	X
22	85	Pulse input B1	Month Log	X	X	X	X
23	348	Date	Month Log	X	X	X	X

32/33-10-150

Dedicated datagram for application 1. The accumulated registers are all read on a monthly basis and provides both pulse input and tariff. Energy E8 and E9 are used to calculate the average temperature of the volume between two months. The tariff registers can be setup on the meter with METERTOOL PC software.

YY = 10 ZZZ = 150	C1, Drive-by, 25 mW, 16 sec interval Application-1		MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
			Range 200 m

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	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
7	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
8	80	Power actual	Actual Meter	X	X	X	
9	369	Info bits	Actual Meter	X	X	X	X
10	348	Date and time	Actual Meter	X	X	X	X
11	60	Heat energy E1	Month Log	X		X	
12	63	Cooling energy E3	Month Log		X		
13	63	Cooling energy E3 HC	Month Log			X	
14	68	Volume V1	Month Log	X	X	X	X
15	84	Pulse input A1	Month Log	X	X	X	X
16	85	Pulse input B1	Month Log	X	X	X	X
17	64	Tariff TA2	Month Log	X	X	X	
18	65	Tariff TA3	Month Log	X	X	X	
19	97	Energy E8	Month Log	X	X	X	
20	110	Energy E9	Month Log	X	X	X	
21	143	Power max month	Month Log	X	X	X	
22	389	Power max month date	Month Log	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

32/33-10-153

Suitable for application 3,4,5,6,8. All energy registers are provided on a monthly basis.

YY = 10 ZZZ = 153		C1, Drive-by, 25 mW, 16 sec interval Application-3-4-5-6-8, Energy registers		Range 200 m		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	80	Power actual	Actual_Meter	X	X	X	
7	60	Heat energy E1	Month Log	X		X	
8	63	Cooling energy E3	Month Log		X		
9	63	Cooling energy E3_HC	Month Log			X	
10	61	Inlet energy E4	Month Log	X	X	X	
11	62	Outlet energy E5	Month Log	X	X	X	
12	95	Tap water energy E6	Month Log	X	X	X	
13	96	Tap water energy E7	Month Log	X	X	X	
14	97	Energy E8	Month Log	X	X	X	
15	110	Energy E9	Month Log	X	X	X	
16	178	Differential energy dE	Month Log	X	X	X	
17	72	Mass M1	Month Log	X	X	X	
18	73	Mass M2	Month Log	X	X	X	
19	139	Flow V1 max month	Month Log	X	X	X	X
20	387	Flow V1 max month date	Month Log	X	X	X	X
21	143	Power max month	Month Log	X	X	X	
22	389	Power max month date	Month Log	X	X	X	

32/33-10-156

For application 1.

YY=10 ZZZ=156		C1, Drive-by, 25 mW, 16 sec interval Application-1 -2		Range 200 m		MULTICAL® 403 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	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	
7	87	t2 actual [2 decimals]	Actual_Meter	X	X	X	
8	80	Power actual	Actual_Meter	X	X	X	
9	369	Info bits	Actual_Meter	X	X	X	X
10	348	Date and time	Actual_Meter	X	X	X	X
11	60	Heat energy E1	Month Log	X		X	
12	63	Cooling energy E3	Month Log		X		
13	63	Cooling energy E3_HC	Month Log			X	
14	68	Volume V1	Month Log	X	X	X	X
15	364	Heat energy A1	Actual_Meter	X	X	X	
16	364	Heat energy A1	Month Log	X	X	X	
17	97	Energy E8	Actual_Meter	X	X	X	
18	110	Energy E9	Actual_Meter	X	X	X	
19	139	Flow V1 max month	Month Log	X	X	X	X
20	387	Flow V1 max month date	Month Log	X	X	X	X
21	1004	Operating hours	Actual_Meter	X	X	X	X

32/33-10-185

For application 1.

YY=10	C1, Drive-by, 25 mW, 16 sec interval		MULTICAL® 403
ZZZ=185	ULTRAFLOW® 85 Drive by, standard registers		MULTICAL® 603
		Range 200 m	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	74	Flow V1 actual	Actual_Meter	X	X	X	X
8	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	X
9	87	t2 actual [2 decimals]	Actual_Meter	X	X	X	X
10	369	Info bits	Actual_Meter	X	X	X	X
11	88	t3 actual [2 decimals]	Actual_Meter		X	X	X
12	94	Heat energy E2	Actual_Meter	X		X	
13	69	Volume V2	Actual_Meter	X	X	X	X
14	96	Tap water energy E7	Actual_Meter		X	X	
15	611	Energy E12	Actual_Meter		X	X	
16	75	Flow V2 actual	Actual_Meter	X	X	X	X

Fixed-network

Datagrams for fixed network are designed to provide actual consumption data. The meter sends out data every 96 second which provides possibility for priority meters in READy.

32/33-11-105

Suitable for application 1.

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 105	T1-T2, Power		MULTICAL® 603
		Range 2 km	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	74	Flow V1 actual	Actual Meter	X	X	X	X
8	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
9	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
10	369	Info bits	Actual Meter	X	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	

32/33-11-107

Suitable for application 1 with pulse input

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 107	InA - InB		MULTICAL® 603
		Range 2 km	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	84	Pulse input A1	Actual Meter	X	X	X	X
5	85	Pulse input B1	Actual Meter	X	X	X	X
6	68	Volume V1	Actual Meter	X	X	X	X
7	74	Flow V1 actual	Actual Meter	X	X	X	X
8	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
9	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
10	369	Info bits	Actual Meter	X	X	X	X

32/33-11-110

Suitable for application 1. The maximum mean power and flow, for 24 hours, are sent as a monthly value. The values reflect the maximum mean power and flow for one specific day in a month.

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 110	Month Power, Month Flow		MULTICAL® 603
		Range 2 km	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	60	Heat energy E1	Month Log	X		X	
5	68	Volume V1	Actual Meter	X	X	X	X
6	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
7	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
8	74	Flow V1 actual	Actual Meter	X	X	X	X
9	80	Power actual	Actual Meter	X	X	X	
10	143	Power max month	Month Log	X	X	X	
11	139	Flow V1 max month	Month Log	X	X	X	X
12	1004	Operating hours	Actual Meter	X	X	X	X
13	369	Info bits	Actual Meter	X	X	X	X

32/33-11-111

Application 1.

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 111	High resolution		MULTICAL® 603
		Range 2 km	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	X
5	110	Energy E9	Actual Meter	X	X	X	X
6	68	Volume V1	Actual Meter	X	X	X	X
7	74	Flow V1 actual	Actual Meter	X	X	X	X
8	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
9	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
10	369	Info bits	Actual Meter	X	X	X	X

32/33-11-118

Suitable for application 1. E1 as monthly value. The maximum mean power, for 24 hours, are sent as a monthly value. The value reflects the maximum mean power for one specific day in a month.

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 118	Month Power		MULTICAL® 603
		Range 2 km	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	60	Heat energy E1	Month Log	X		X	
7	68	Volume V1	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	74	Flow V1 actual	Actual Meter	X	X	X	X
11	80	Power actual	Actual Meter	X	X	X	
12	143	Power max month	Month Log	X	X	X	X
13	369	Info bits	Actual Meter	X	X	X	X

32/33-11-119

Suitable for application 1.

YY = 11	C1,Fixed-network, 25 mW, 96 sec interval		MULTICAL® 403
ZZZ = 119	Power and Flow max. month		MULTICAL® 603
		Range 2 km	MULTICAL® 803

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual Meter	X		X	
2	97	Energy E8	Actual Meter	X	X	X	
3	110	Energy E9	Actual Meter	X	X	X	
4	68	Volume V1	Actual Meter	X	X	X	X
5	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
6	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
7	74	Flow V1 actual	Actual Meter	X	X	X	X
8	80	Power actual	Actual Meter	X	X	X	
9	143	Power max month	Month Log	X	X	X	
10	139	Flow V1 max month	Month Log	X	X	X	
11	1004	Operating hours	Actual Meter	X	X	X	X
12	369	Info bits	Actual Meter	X	X	X	X

32/33-11-128

Standard DK heat meter

		Interval: 96 s	Fixed Network	MULTICAL® 403
Wireless M-Bus datagram	YY = 11	25 mW	C1, 868 MHz	MULTICAL® 603
	ZZZ = 128		Frame format B	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	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
12	128	Power max year					X	X	X	X

32/33-11-133

Suitable for application 1 with pulse inputs and analogue sensor.

YY = 11 ZZZ = 133	C1,Fixed-network, 25 mW, 96 sec interval flowIQ - Standard reg.		MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
		Range 2 km	

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	68	Volume V1	Actual Meter	X	X	X	X
2	175	Error hour counter	Actual Meter	X	X	X	X
3	84	Pulse input A1	Actual Meter	X	X	X	X
4	85	Pulse input B1	Actual Meter	X	X	X	X
5	224	Pulse input A2	Actual Meter	X	X	X	X
6	225	Pulse input B2	Actual Meter	X	X	X	X
7	369	Info bits	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	88	t3 actual [2 decimals]	Actual Meter	X	X	X	
11	91	P1 actual - part 1	Actual Meter	X	X	X	X
12	92	P2 actual - part 1	Actual Meter	X	X	X	X
13	139	Flow V1 max month	Month Log	X	X	X	X
14	387	Flow V1 max month date	Month Log	X	X	X	X

32/33-11-301

Suitable for application 2 with two flow sensors. Used for Permanent Surveillance operation. M1 and M2 are the temperature correlated masses of the inlet and outlet, they are used to detect if there is a leak in the system. E8 and E9 are the volume based temperatures and V1 and V2 are the inlet and outlet volume. The inlet and outlet volume will always be different because of the volume changes due to the temperature.

YY = 11 ZZZ = 301	C1,Fixed-network, 25 mW, 96 sec interval PDO		MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
		Range 2 km	

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual Meter	X		X	
2	97	Energy E8	Actual Meter	X	X	X	
3	110	Energy E9	Actual Meter	X	X	X	
4	68	Volume V1	Actual Meter	X	X	X	
5	69	Volume V2	Actual Meter	X	X	X	
6	72	Mass M1	Actual Meter	X	X	X	
7	73	Mass M2	Actual Meter	X	X	X	
8	369	Info bits	Actual Meter	X	X	X	
9	74	Flow V1 actual	Actual Meter	X	X	X	
10	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
11	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
12	88	t3 actual [2 decimals]	Actual Meter	X	X	X	

32/33-11-317

Suitable for application 1, with external analogue sensor.

YY = 11 ZZZ = 317	C1,Fixed-network, 25 mW, 96 sec interval Heat and Pressure		MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
		Range 2 km	

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	60	Heat energy E1	Actual_Meter	X		X	X
2	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	X
3	87	t2 actual [2 decimals]	Actual_Meter	X	X	X	X
4	74	Flow V1 actual	Actual_Meter	X	X	X	X
5	68	Volume V1	Actual_Meter	X	X	X	X
6	91	P1 actual - part 1	Actual_Meter	X	X	X	X
7	92	P2 actual - part 1	Actual_Meter	X	X	X	X
8	80	Power actual	Actual_Meter	X	X	X	X
9	143	Power max month	Actual_Meter	X	X	X	X
10	369	Info bits	Actual_Meter	X	X	X	X

32/33-11-319

Suitable for application 1, with external analog sensor.

YY = 11 ZZZ = 319	C1,Fixed-network, 25 mW, 96 sec interval Volume temperatures and analog input		MULTICAL® 603 MULTICAL® 803
		Range 2 km	

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	74	Flow V1 actual	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	91	P1 actual - part 1	Actual_Meter	X	X	X	X
11	92	P2 actual - part 1	Actual_Meter	X	X	X	X
12	369	Info bits	Actual_Meter	X	X	X	X

Fixed-network extended data

The extended datagrams are used for applications where none of the above fits. It holds a larger amount of data which in a meter part will provide a shorter range than the above.

32/33-14-151

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

YY = 14	C1,Fixed-network, 25 mW, 96 sec interval, Short Range						MULTICAL® 403
ZZZ = 151	Application-1						MULTICAL® 603
						Range 1.5 km	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	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
7	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
8	80	Power actual	Actual Meter	X	X	X	
9	369	Info bits	Actual Meter	X	X	X	X
10	348	Date and time	Actual Meter	X	X	X	X
11	84	Pulse input A1	Actual Meter	X	X	X	X
12	85	Pulse input B1	Actual Meter	X	X	X	X
13	64	Tariff TA2	Actual Meter	X	X	X	
14	65	Tariff TA3	Actual Meter	X	X	X	
15	97	Energy E8	Actual Meter	X	X	X	
16	110	Energy E9	Actual Meter	X	X	X	
17	143	Power max month	Month Log	X	X	X	
18	389	Power max month date	Month Log	X	X	X	
19	139	Flow V1 max month	Month Log	X	X	X	X
20	387	Flow V1 max month date	Month Log	X	X	X	X

32/33-14-152

Dedicated datagram for application 2. The masses M1 and M2 are the temperature correlated masses of the inlet and outlet, they are used to detect if there is a leak in the system. E8 and E9 are the volume based temperatures and V1 and V2 are the inlet and outlet volume. The inlet and outlet volume will always be different because of the volume changes due to the temperature.

YY = 14	C1,Fixed-network, 25 mW, 96 sec interval, Short Range						MULTICAL® 403
ZZZ = 152	Application-1-2						MULTICAL® 603
						Range 1.5 km	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	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
9	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
10	88	t3 actual [2 decimals]	Actual Meter	X	X	X	
11	72	Mass M1	Actual Meter	X	X	X	
12	73	Mass M2	Actual Meter	X	X	X	
13	80	Power actual	Actual Meter	X	X	X	
14	369	Info bits	Actual Meter	X	X	X	X
15	348	Date and time	Actual Meter	X	X	X	X
16	97	Energy E8	Actual Meter	X	X	X	
17	110	Energy E9	Actual Meter	X	X	X	
18	143	Power max month	Month Log	X	X	X	
19	389	Power max month date	Month Log	X	X	X	
20	139	Flow V1 max month	Month Log	X	X	X	X
21	387	Flow V1 max month date	Month Log	X	X	X	X

32/33-14-154

Suitable for application 3,4,5,6,8. All energy registers are provided on actual basis.

YY = 14	C1,Fixed-network, 25 mW, 96 sec interval, Short Range		
ZZZ = 154	Application-3-4-5-6-8, Energy registers		MULTICAL® 603
		Range 1.5 km	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	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	
7	87	t2 actual [2 decimals]	Actual_Meter	X	X	X	
8	88	t3 actual [2 decimals]	Actual_Meter	X	X	X	
9	122	t4 actual [2 decimals]	Actual_Meter	X	X	X	
10	80	Power actual	Actual_Meter	X	X	X	
11	61	Inlet energy E4	Actual_Meter	X	X	X	
12	62	Outlet energy E5	Actual_Meter	X	X	X	
13	95	Tap water energy E6	Actual_Meter	X	X	X	
14	96	Tap water energy E7	Actual_Meter	X	X	X	
15	97	Energy E8	Actual_Meter	X	X	X	
16	110	Energy E9	Actual_Meter	X	X	X	
17	178	Differential energy dE	Actual_Meter	X	X	X	
18	72	Mass M1	Actual_Meter	X	X	X	
19	73	Mass M2	Actual_Meter	X	X	X	
20	139	Flow V1 max month	Month Log	X	X	X	X
21	387	Flow V1 max month date	Month Log	X	X	X	X
22	143	Power max month	Month Log	X	X	X	
23	389	Power max month date	Month Log	X	X	X	

32/33-14-318

Registers used for Heat Intelligence

YY = 14	C1,Fixed-network, 25 mW, 96 sec interval, Short Range		
ZZZ = 318	Heat Intelligence		MULTICAL® 403
		Range 1.5 km	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	X
2	97	Energy E8	Actual_Meter	X	X	X	X
3	110	Energy E9	Actual_Meter	X	X	X	X
4	68	Volume V1	Actual_Meter	X	X	X	X
5	86	t1 actual [2 decimals]	Actual_Meter	X	X	X	X
6	87	t2 actual [2 decimals]	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	74	Flow V1 actual	Actual_Meter	X	X	X	X
10	80	Power actual	Actual_Meter	X	X	X	X
11	1004	Operating hours	Actual_Meter	X	X	X	X
12	369	Info bits	Actual_Meter	X	X	X	X
13	60	Heat energy E1	Month Log	X		X	X
14	143	Power max month	Month Log	X	X	X	X
15	139	Flow V1 max month	Month Log	X	X	X	X

BSI

Following datagrams are complying with the BSI requirements and are using frame format A with encryption mode 7.

32/33-22-202

Suitable for application 1, and drive-by/walk-by.

YY = 22	T1, BSI, 25 mW, 16sec interval		MULTICAL® 403
ZZZ = 202	BSI compliant		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	369	Info bits	Actual Meter	X	X	X	X
6	74	Flow V1 actual	Actual Meter	X	X	X	X
7	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
8	87	t2 actual [2 decimals]	Actual Meter	X	X		
9	80	Power actual	Actual Meter	X	X	X	X
10	348	Date	Month Log	X	X	X	X
11	60	Heat energy E1	Month Log	X		X	
12	63	Cooling energy E3	Month Log		X		
13	63	Cooling energy E3_HC	Month Log			X	
14	68	Volume V1	Month Log	X	X	X	X
15	139	Flow V1 max month	Month Log	X	X	X	X

32/33-23-202

Suitable for application 1, and fixed network.

YY = 23	T1, BSI, 25 mW, 14 min interval		MULTICAL® 403
ZZZ = 202	BSI compliant		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	369	Info bits	Actual Meter	X	X	X	X
6	74	Flow V1 actual	Actual Meter	X	X	X	X
7	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
8	87	t2 actual [2 decimals]	Actual Meter	X	X		
9	80	Power actual	Actual Meter	X	X	X	X
10	348	Date	Month Log	X	X	X	X
11	60	Heat energy E1	Month Log	X		X	
12	63	Cooling energy E3	Month Log		X		
13	63	Cooling energy E3_HC	Month Log			X	
14	68	Volume V1	Month Log	X	X	X	X
15	139	Flow V1 max month	Month Log	X	X	X	X

OMS

Following datagrams are complying with the OMS requirements and are using frame format A with encryption mode 5.

32/33-18-222

Suitable for application 1.

YY = 18	C1, OMS, 25 mW, 120 sec interval		MULTICAL® 403
ZZZ = 222	Energy, Temperature and Flow, Monthly log		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	86	t1 actual [2 decimals]	Actual Meter	X	X	X	
6	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
7	74	Flow V1 actual	Actual Meter	X	X	X	
8	369	Info bits	Actual Meter	X	X	X	X
9	348	Date	Month Log	X	X	X	X
10	60	Heat energy E1	Month Log	X		X	
11	63	Cooling energy E3	Month Log		X		
12	63	Cooling energy E3_HC	Month Log			X	
13	369	Info bits	Month Log	X	X	X	X

32/33-20-201

Suitable for application 1, and walk-by/drive-by.

YY = 20	T1, OMS, 25 mW, 16 sec interval		MULTICAL® 403
ZZZ = 201	Energy, Temperature and Flow, Monthly log		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	369	Info bits	Actual Meter	X	X	X	X
6	74	Flow V1 actual	Actual Meter	X	X	X	X
7	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
8	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
9	80	Power actual	Actual Meter	X	X	X	
10	348	Date	Actual Meter	X	X	X	X
11	1004	Operating hours	Actual Meter	X	X	X	X
12	348	Date	Month Log	X	X	X	X
13	60	Heat energy E1	Month Log	X		X	
14	63	Cooling energy E3	Month Log		X		
15	63	Cooling energy E3_HC	Month Log			X	
16	68	Volume V1	Month Log	X	X	X	X
17	139	Flow V1 max month	Month Log	X	X	X	X

32/33-21-201

Suitable for application 1, and fixed network.

YY = 21	T1, OMS, 25 mW, 15 min interval		MULTICAL® 403
ZZZ = 201	Energy, Temperature and Flow, Monthly log		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	369	Info bits	Actual Meter	X	X	X	X
6	74	Flow V1 actual	Actual Meter	X	X	X	X
7	86	t1 actual [2 decimals]	Actual Meter	X	X	X	X
8	87	t2 actual [2 decimals]	Actual Meter	X	X	X	
9	80	Power actual	Actual Meter	X	X	X	
10	348	Date	Actual Meter	X	X	X	X
11	1004	Operating hours	Actual Meter	X	X	X	X
12	348	Date	Month Log	X	X	X	X
13	60	Heat energy E1	Month Log	X		X	
14	63	Cooling energy E3	Month Log		X		
15	63	Cooling energy E3_HC	Month Log			X	
16	68	Volume V1	Month Log	X	X	X	X
17	139	Flow V1 max month	Month Log	X	X	X	X

linkIQ® Datagrams

All our linkIQ® datagrams are designed to provide 16 years of battery life with a D-cell battery and 8 years with 2xA cells. In the datagram description, you see the specified capacity, which means how many meters with this datagram can be handled by one READY Concentrator 1M. It is also stated which RR code is needed for a meter with a module using the specific datagram. linkIQ is optimized for daily values, however it supports up to 6 registers on a hourly basis. The less registers on a hourly basis the larger amount of daily registers can be transmitted. Hourly values are sent 18 times per hour with 9 hours redundancy and daily registers are sent 18 times per day also with 9 hours redundancy. This gives a high probability for receiving a complete dataset throughout the day.

32/33-50-501

Suitable for Application 1. E8 and E9 are the volume based temperatures and are used in READY to calculate the average temperatures for one hour, the Volume V1 register is the accumulated volume and are used to calculate the average flow for one hour.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403
ZZZ = 501	Standard datagram	25 mW	MULTICAL® 603
Meter logger profile		Capacity = 10.000	MULTICAL® 803
RR = 50,51,52,53,30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	97	E8	HourLog	X	X	X	
5	110	E9	HourLog	X	X	X	
6	68	Volume V1	HourLog	X	X	X	X
7	1004	Operating hours	DayLog	X	X	X	X
8	175	Error hour counter	DayLog	X	X	X	X
9	369	Infobits	DayLog	X	X	X	X
10	139	Flow V1 max month	MonthLog	X	X	X	X
11	138	Flow V1 max month date	MonthLog	X	X	X	X
12	143	Power max month	MonthLog	X	X	X	
13	142	Power max month date	MonthLog	X	X	X	

32/33-50-502

Suitable for application 1, with need for actual temperatures.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403
ZZZ = 502	E1/E3+T1+T2, E8+E9 day	25 mW	MULTICAL® 603
Meter logger profile		Capacity = 10.000	MULTICAL® 803
RR = 51,52,53,30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	
5	86	T1 actual	HourLog	X	X	X	
6	87	T2 actual	HourLog	X	X	X	
7	97	E8	DayLog	X	X	X	
8	110	E9	DayLog	X	X	X	
9	1004	Operating hours	DayLog	X	X	X	X
10	175	Error hour counter	DayLog	X	X	X	X
11	369	InfoBits	DayLog	X	X	X	X
12	139	Flow V1 max month	MonthLog	X	X	X	X
13	138	Flow V1 max month date	MonthLog	X	X	X	X
14	143	Power max month	MonthLog	X	X	X	
15	142	Power max month date	MonthLog	X	X	X	

linkIQ®/wM-Bus

32/33-50-504

Suitable for application 1, with need for time based average temperatures.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
ZZZ = 504	Extended, Average Temp	25 mW	
Meter logger profile RR = 51,52,53,30		Capacity = 7.500	

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	97	E8	HourLog	X	X	X	
5	110	E9	HourLog	X	X	X	
6	68	Volume V1	HourLog	X	X	X	X
7	381	T1 TimeAverage Hour	HourLog	X	X	X	
8	382	T2 TimeAverage Hour	HourLog	X	X		
9	1004	Operating hours	DayLog	X	X	X	X
10	175	Error hour counter	DayLog	X	X	X	X
11	369	Infobits	DayLog	X	X	X	X
12	139	Flow V1 max month	MonthLog	X	X	X	X
13	138	Flow V1 max month date	MonthLog	X	X	X	X
14	143	Power max month	MonthLog	X	X	X	
15	142	Power max month date	MonthLog	X	X	X	

32/33-50-506

Suitable for application 1, with need for actual temperatures.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
ZZZ = 506	Extended, Momentary Temp	25 mW	
Meter logger profile RR = 51,52,53,30		Capacity = 7.500	

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	97	E8	HourLog	X	X	X	
5	110	E9	HourLog	X	X	X	
6	68	Volume V1	HourLog	X	X	X	X
7	86	T1 actual	HourLog	X	X	X	
8	87	T2 actual	HourLog	X	X		
9	1004	Operating hours	DayLog	X	X	X	X
10	175	Error hour counter	DayLog	X	X	X	X
11	369	Infobits	DayLog	X	X	X	X
12	139	Flow V1 max month	MonthLog	X	X	X	X
13	138	Flow V1 max month date	MonthLog	X	X	X	X
14	143	Power max month	MonthLog	X	X	X	
15	142	Power max month date	MonthLog	X	X	X	

32/33-50-507

Suitable for application 1. E1 are on a monthly level and hourly level which gives a even higher possibility for receiving the value used for monthly billing.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403
ZZZ = 507	Standard with monthly billing	25 mW	MULTICAL® 603
Meter logger profile		Capacity = 10.000	MULTICAL® 803
RR = 50,51,52,53,30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	97	E8	HourLog	X	X	X	
5	110	E9	HourLog	X	X	X	
6	68	Volume V1	HourLog	X	X	X	X
7	1004	Operating hours	DayLog	X	X	X	X
8	175	Error hour counter	DayLog	X	X	X	X
9	369	InfoBits	DayLog	X	X	X	X
10	60	E1	MonthLog	X		X	
11	63	E3	MonthLog		X	X	
12	143	Power max month	MonthLog	X	X	X	
13	142	Power max month date	MonthLog	X	X	X	
14	139	Flow V1 max month	MonthLog	X	X	X	X
15	138	Flow V1 max month date	MonthLog	X	X	X	X

32/33-50-508

Suitable for application 1. E1 are on a daily and hourly basis which gives a higher probability for receiving E1 throughout the day.

YY = 50	linkIQ	Interval 8-22 min	MULTICAL® 403
ZZZ = 508	E1 day and hour	25 mW	MULTICAL® 603
Meter logger profile		Capacity = 10.000	MULTICAL® 803
RR = 50,51,52,53,30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	68	Volume V1	HourLog	X	X	X	X
4	97	E8	HourLog	X	X	X	X
5	110	E9	HourLog	X	X	X	X
6	60	E1	DayLog	X	X	X	X
7	369	InfoBits	DayLog	X	X	X	X
8	175	Error hour counter	DayLog	X	X	X	X
9	138	Flow V1 max month	MonthLog	X	X	X	X
10	139	Flow V1 max month date	MonthLog	X	X	X	X
11	143	Power max month	MonthLog	X	X		
12	142	Power max month date	MonthLog	X	X		

32/33-50-510

Suitable for application 2. Used for permanent surveillance operation (PDO)

YY = 50 ZZZ = 510 Meter logger profile RR = 50,51,52,53,30	linkIQ PDO	Interval: 8-22 min 25 mW Capacity = 10.000	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	1004	Operating hours	DayLog	X	X	X	X
3	175	Error hour counter	DayLog	X	X	X	X
4	369	InfoBits	DayLog	X	X	X	X
5	60	E1	HourLog	X		X	
6	63	E3	HourLog		X	X	
7	97	E8	HourLog	X	X	X	
8	110	E9	HourLog	X	X	X	
9	68	Volume V1	HourLog	X	X	X	X
10	138	Flow V1 max month date	MonthLog	X	X	X	X
11	139	Flow V1 max month	MonthLog	X	X	X	X
12	143	Power max month	MonthLog	X	X	X	
13	142	Power max month date	MonthLog	X	X	X	
14	72	Mass M1	MonthLog	X	X	X	
15	73	Mass M2	MonthLog	X	X	X	
16	86	T1	MonthLog	X	X	X	
17	87	T2	MonthLog	X	X	X	
18	88	T3	MonthLog	X	X	X	
19	473	E10	MonthLog	X	X	X	
20	69	Volume V2	MonthLog	X	X	X	

32/33-50-511

Suitable for application 2. Used for permanent surveillance operation (PDO)

YY = 50 ZZZ = 511 Meter logger profile RR = 53,30	linkIQ PDO II	Interval: 8-22 min 25 mW Capacity = 10.000	MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	X
5	97	E8	HourLog	X	X	X	
6	110	E9	HourLog	X	X	X	
7	139	Flow V1 max month	MonthLog	X	X	X	X
8	138	Flow V1 max month date	MonthLog	X	X	X	X
9	143	Power max month	MonthLog	X	X	X	
10	142	Power max month date	MonthLog	X	X	X	
11	1004	Operating hours	DayLog	X	X	X	X
12	175	Error hour counter	DayLog	X	X	X	X
13	369	InfoBits	DayLog	X	X	X	X
14	72	Mass M1	DayLog	X	X	X	
15	73	Mass M2	DayLog	X	X	X	
16	86	T1	DayLog	X	X	X	
17	87	T2	DayLog	X	X	X	
18	88	T3	DayLog	X	X	X	
19	473	E10	DayLog	X	X	X	
20	69	Volume V2	DayLog	X	X	X	
21	74	Flow V1	DayLog	X	X	X	

32/33-50-512

Suitable for application 2. Mass M1 and M2 are used to calculate if there is a leakage.

YY = 50 ZZZ = 512 Meter logger profile RR = 53,30	linkIQ leakage detection	Interval: 8-22 min 25 mW Capacity = 7.500	MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	1004	Operating hours	DayLog	X	X	X	X
3	69	Volume V2	DayLog	X	X	X	
4	72	Mass M1	DayLog	X	X	X	
5	73	Mass M2	DayLog	X	X	X	
6	175	Error hour counter	DayLog	X	X	X	X
7	369	InfoBits	DayLog	X	X	X	X
8	60	E1	HourLog	X		X	
9	63	E3	HourLog		X	X	
10	68	Volume V1	HourLog	X	X	X	X
11	97	E8	HourLog	X	X	X	
12	110	E9	HourLog	X	X	X	
13	86	T1	HourLog	X	X	X	
14	87	T2	HourLog	X	X	X	X
15	138	Flow V1 max month date	MonthLog	X	X	X	X
16	139	Flow V1 max month	MonthLog	X	X	X	X
17	143	Power max month	MonthLog	X	X	X	
18	142	Power max month date	MonthLog	X	X	X	

32/33-50-515

Suitable for application 1.

YY = 50 ZZZ = 515 Meter logger profile RR = 52,53,30	linkIQ Normal Reg. Sweden	Interval: 8-22 min 25 mW Capacity = 7.500	MULTICAL® 403 MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	86	T1	HourLog	X	X	X	
5	87	T2	HourLog	X	X	X	
6	68	Volume V1	HourLog	X	X	X	X
7	74	Flow V1	HourLog	X	X		
8	80	Power	HourLog	X	X		
9	1004	Operating hours	DayLog	X	X	X	X
10	175	Error hour counter	DayLog	X	X	X	X
11	369	Infobits	DayLog	X	X	X	X
12	87	E8	DayLog	X	X	X	
13	110	E9	DayLog	X	X	X	
14	139	Flow V1 max month	MonthLog	X	X	X	X
15	138	Flow V1 max month date	MonthLog	X	X	X	X
16	143	Power max month	MonthLog	X	X	X	
17	142	Power max month date	MonthLog	X	X	X	

linkIQ®/wM-Bus

32/33-50-529

Suitable for application 2. Used for permanent surveillance operation (PDO)

YY = 50 ZZZ = 529 Meter logger profile RR = 53,30	linkIQ PDO III	Interval: 8-22 min 25 mW Capacity = 7.500	MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	1004	Operating hours	DayLog	X	X	X	X
3	175	Error hour counter	DayLog	X	X	X	X
4	369	InfoBits	DayLog	X	X	X	X
5	72	Mass M1	DayLog	X	X	X	
6	73	Mass M2	DayLog	X	X	X	
7	86	T1	DayLog	X	X	X	
8	87	T2	DayLog	X	X	X	
9	88	T3	DayLog	X	X	X	
10	473	E10	DayLog	X	X	X	
11	74	Flow V1	DayLog	X	X	X	X
12	60	E1	HourLog	X		X	
13	63	E3	HourLog		X	X	
14	97	E8	HourLog	X	X	X	
15	110	E9	HourLog	X	X	X	
16	68	Volume V1	HourLog	X	X	X	X
17	69	Volume V2	HourLog	X	X	X	X
18	138	Flow V1 max month date	MonthLog	X	X	X	X
19	139	Flow V1 max month	MonthLog	X	X	X	X
20	143	Power max month	MonthLog	X	X	X	
21	142	Power max month date	MonthLog	X	X	X	

32/33-50-530

Suitable for application 2. Average time-based temperatures and actual flow.

YY = 50 ZZZ = 530 Meter logger profile RR = 53,30	linkIQ Average temperatures and actual flow	Interval: 8-22 min 25 mW Capacity = 7.500	MULTICAL® 603 MULTICAL® 803
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No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	X
5	381	T1 TimeAverage Hour	HourLog	X	X	X	
6	382	T2 TimeAverage Hour	HourLog	X	X	X	
7	74	Flow V1	HourLog	X	X	X	X
8	97	E8	DayLog	X	X	X	
9	110	E9	DayLog	X	X	X	
10	1004	Operating hours	DayLog	X	X	X	X
11	175	Error hour counter	DayLog	X	X	X	X
12	369	InfoBits	DayLog	X	X	X	X
13	72	Mass M1	DayLog	X	X	X	
14	73	Mass M2	DayLog	X	X	X	
15	69	Volume V2	DayLog	X	X	X	X
16	139	Flow V1 max month	MonthLog	X	X	X	X
17	138	Flow V1 max month date	MonthLog	X	X	X	X
18	143	Power max month	MonthLog	X	X	X	
19	142	Power max month date	MonthLog	X	X	X	

32/33-50-534**linkIQ Hourly Volumen and Mass**

This datagram is not recommended for use with more than a few thermal energy meters. Quality of Service (QoS) cannot be guaranteed, and no Service Level Agreement (SLA) can be provided for systems using this datagram.

linkIQ datagram	RR = 30	Interval 8-22 min 25 mW Capacity = 4.000	MULTICAL® 603 MULTICAL® 803
	YY = 50		
	ZZZ = 534		

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	97	E8	HourLog	X	X	X	
2	110	E9	HourLog	X	X	X	
3	68	Volume V1	HourLog	X	X	X	
4	69	Volume V2	HourLog	X	X	X	
5	72	Mass M1	HourLog	X	X	X	
6	73	Mass M2	HourLog	X	X	X	
7	60	E1	HourLog	X		X	
8	63	E3	HourLog		X	X	
9	74	Flow V1	DayLog	X	X	X	
10	75	Flow V2	DayLog	X	X	X	
11	86	T1	DayLog	X	X	X	
12	87	T2	DayLog	X	X	X	
13	88	T3	DayLog	X	X	X	
14	473	E10	DayLog	X	X	X	
15	1004	Operating hours	DayLog	X	X	X	
16	175	Error hour counter	DayLog	X	X	X	
17	369	InfoBits	DayLog	X	X	X	
18	139	Flow V1 max month	MonthLog	X	X	X	
19	138	Flow V1 max month date	MonthLog	X	X	X	
20	143	Power max month	MonthLog	X	X	X	
21	142	Power max month date	MonthLog	X	X	X	
22	369	InfoBits	ActualMeterData	X	X	X	

32/33-50-535

Suitable for PDO with a need for actual data on an hourly level.

YY = 50	linkIQ	Interval: 8-22 min 25 mW Capacity = 7.500	MULTICAL® 603 MULTICAL® 803
ZZZ = 535	linkIQ PDO IV		
Meter logger profile RR = 30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	X
5	86	T1	HourLog	X	X	X	
6	87	T2	HourLog	X	X	X	
7	69	Volume V2	HourLog	X	X	X	X
8	74	Flow V1	HourLog	X	X	X	X
9	369	InfoBits	DayLog	X	X	X	X
10	72	Mass M1	DayLog	X	X	X	
11	73	Mass M2	DayLog	X	X	X	
12	97	E8	DayLog	X	X	X	
13	110	E9	DayLog	X	X	X	
14	88	T3	DayLog	X	X	X	
15	473	E10	DayLog	X	X	X	
16	1004	Operating hours	DayLog	X	X	X	X
17	175	Error hour counter	DayLog	X	X	X	X
18	139	Flow V1 max month	MonthLog	X	X	X	X
19	138	Flow V1 max month date	MonthLog	X	X	X	X
20	143	Power max month	MonthLog	X	X	X	
21	142	Power max month date	MonthLog	X	X	X	

linkIQ®/wM-Bus

32/33-50-536

Suitable for PDO with a need for actual data on an hourly level.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 603 MULTICAL® 803
ZZZ = 536	linkIQ PDO V	25 mW	
Meter logger profile		Capacity = 6.000	
RR = 30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	X
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	X
5	86	T1	HourLog	X	X	X	
6	87	T2	HourLog	X	X	X	
7	97	E8	HourLog	X	X	X	
8	110	E9	HourLog	X	X	X	
9	74	Flow V1	HourLog	X	X	X	X
10	72	Mass M1	DayLog	X	X	X	
11	73	Mass M2	DayLog	X	X	X	
12	69	Volume V2	DayLog	X	X	X	X
13	88	T3	DayLog	X	X	X	
14	473	E10	DayLog	X	X	X	
15	369	InfoBits	DayLog	X	X	X	X
16	1004	Operating hours	DayLog	X	X	X	X
17	175	Error hour counter	DayLog	X	X	X	X
18	139	Flow V1 max month	MonthLog	X	X	X	X
19	138	Flow V1 max month date	MonthLog	X	X	X	X
20	143	Power max month	MonthLog	X	X	X	
21	142	Power max month date	MonthLog	X	X	X	

32/33-50-538

Hourly based temperature and pulse input. Pulse input can only be used for water meters and not for electricity meters.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 603 MULTICAL® 803
ZZZ = 538	Temperatures and pulse input	25 mW	
Meter logger profile		Capacity = 5.000	
RR = 30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	InfoBits	ActualMeterData	X	X	X	
2	60	E1	HourLog	X		X	
3	63	E3	HourLog		X	X	
4	68	Volume V1	HourLog	X	X	X	
5	398	T1	HourLog	X	X	X	
6	399	T2	HourLog	X	X	X	
7	88	T3	HourLog	X	X	X	
8	74	Flow V1	HourLog	X	X	X	
9	97	E8	HourLog	X	X	X	
10	110	E9	HourLog	X	X	X	
11	84	Pulse input A1	DayLog	X	X	X	
12	85	Pulse input B1	DayLog	X	X	X	
13	369	InfoBits	DayLog	X	X	X	
14	1004	Operating hours	DayLog	X	X	X	
15	175	Error hour counter	DayLog	X	X	X	
16	139	Flow V1 max month	MonthLog	X	X	X	
17	387	Flow V1 max month date	MonthLog	X	X	X	
18	143	Power max month	MonthLog	X	X	X	
19	389	Power max month date	MonthLog	X	X	X	
20	141	Flow V1 min month	MonthLog	X	X	X	
21	388	Flow V1 min month date	MonthLog	X	X	X	

32/33-50-539

E1 and Volume at both Hour and Daily basis. Used for high QoS.

YY = 50	linkIQ	Interval: 8-22 min	MULTICAL® 403
ZZZ = 539	E1 Day and Hour + T1 T2	25 mW	MULTICAL® 603
Meter logger profile		Capacity = 5.000	MULTICAL® 803
RR = 30			

No.	Register ID	Register name	Register origin	H	C	H/C	V
1	369	E1	DayLog	X		X	X
2	60	E1	HourLog	X		X	X
3	63	Volume V1	HourLog	X	X	X	X
4	68	E8	HourLog	X	X	X	X
5	398	E9	HourLog	X	X	X	X
6	399	T1	HourLog	X	X	X	
7	88	T2	HourLog	X	X	X	
8	74	InfoBits	ActualMeterData	X	X	X	X
9	97	Volume V1	DayLog	X	X	X	X
10	110	InfoBits	DayLog	X	X	X	X
11	84	Error hour counter	DayLog	X	X	X	X
12	85	Flow V1 max month	MonthLog	X	X	X	X
13	369	Flow V1 max month date	MonthLog	X	X	X	X
14	1004	Power max month	MonthLog	X	X	X	
15	175	Power max month date	MonthLog	X	X	X	

Datagrams not included

Since the introduction of wM-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	10-109	No longer available
2	10-114	No longer available
3	10-124	No longer available
4	10-126	No longer available
5	10-130	Replaced by 10-150
6	10-401	No longer available
7	10-402	No longer available
8	11-103	Replaced by 11-105
9	11-104	Replaced by 11-105
10	11-112	Replaced by 11-110
11	11-117	Replaced by 11-110
12	11-121	Replaced by 11-110
13	11-135	Replaced by 11-110
14	11-138	Replaced by 11-110
15	11-139	No longer available
16	11-140	Replaced by 14-152
17	11-211	Replaced by 11-118
18	11-303	No longer available
19	11-309	No longer available
20	11-312	Replaced by 14-152
21	11-313	No longer available
22	11-134	No longer available
23	11-137	Replaced by 11-110
24	12-108	Replaced by 10-150
25	12-105	Replaced by 10-150
26	12-110	Replaced by 10-150
27	12-118	Replaced by 10-150
28	12-128	Replaced by 10-150
29	12-131	Replaced by 10-150
30	14-139	No longer available
31	14-142	No longer available
32	14-302	No longer available
33	14-303	No longer available
34	14-305	No longer available
35	14-316	No longer available