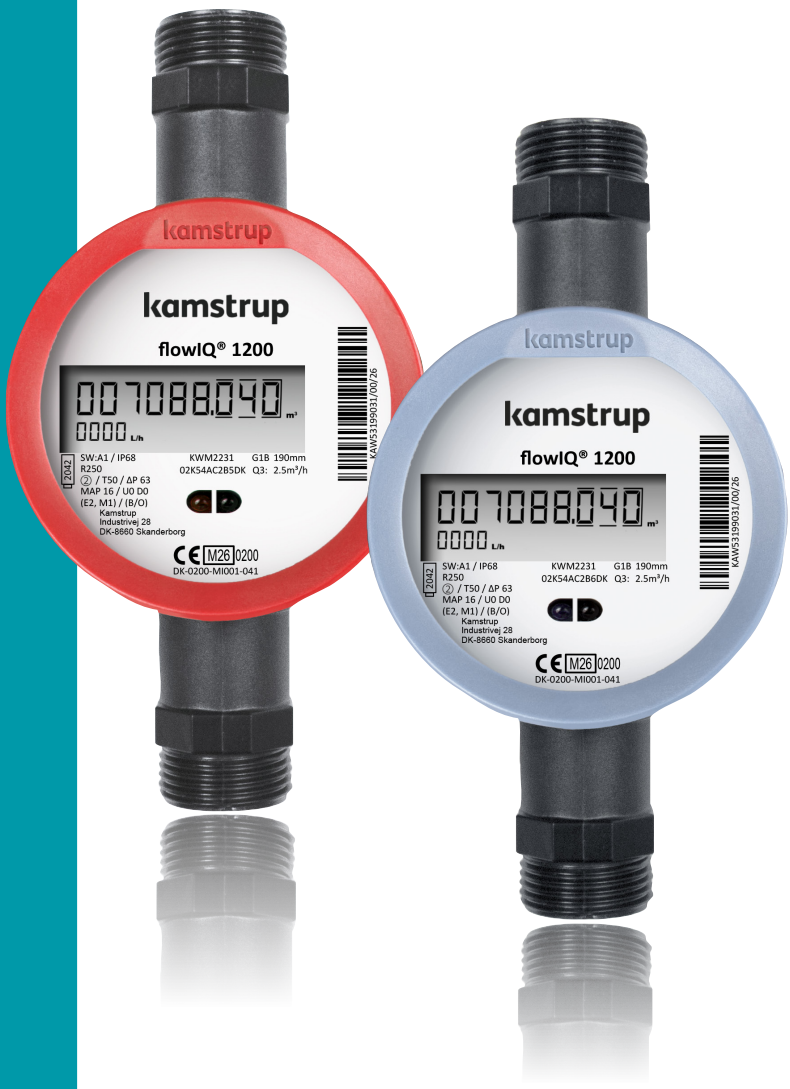
kamstrup

Data sheet

flowIQ® 1200

- Your smart water meter for reliable billing
- Nominal flow from 1.6 m^3/h up to 4 m^3/h
- Approved with dynamic range up to R1600
- Pinpoint accuracy over the meter's entire lifetime
- Integrated communication options
  - Wireless M-Bus C1/T1
  - linkIQ®
  - LoRaWAN
- External antenna option
- Intelligent info codes assist you with your operations, asset management and customer service
- Water and ambient temperature measurement
- Up to 16 years of battery lifetime
- Designed for operation in submerged environments
- Low carbon footprint through compact design and material choice



Contents

Reliable smart billing with lifetime accuracy	3
Approved meter data	4
Technical data	4
Materials	5
Pressure loss	5
Meter sizes	6
Display and Info codes	7
Core features	8
Data registers	9
Integrated communication	10
Pit antenna options	10
Ordering details	11
Configuration	12
Accessories	13

Reliable smart billing with lifetime accuracy

flowIQ® 1200 is your gateway to the world of smart metering.

Founded on our more than 30 years of experience, the meter delivers stable accuracy, integrated communication and data, that utilities can rely on to secure reliable billing and stable operation.

Thanks to the low minimum cut-off flow down to 0.9 L/hour for some of the smallest meter sizes, flowIQ® 1200 measures even the smallest consumption. The meter has no built-in moving parts and is therefore less sensitive to wear and tear which ensures increased longevity and better performance compared to traditional mechanical meters.

The flowIQ® 1200 is engineered with a compact, low-profile housing that enables installation in confined spaces where the physical dimensions of mechanical water meters can be a limiting factor.

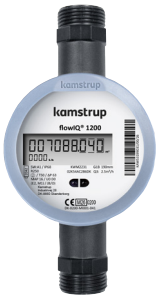
The meter also incorporates fully integrated communication electronics, eliminating reliance on external click-on modules and thereby reducing the risk of mechanical or electrical failures associated with additional attachment interfaces. These design choices provide a lower carbon footprint, which has been investigated and documented in an Environmental Product Declaration.

The flowIQ® 1200 delivers high battery performance, with lifetime being as long as 16 years depending on communication choice and installation scenario.

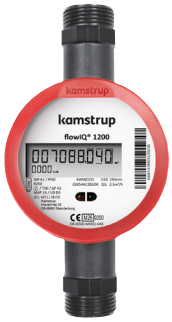
Other key features include intelligent alarms and info codes, water and ambient temperature measurements, as well as consumption profiles. All of this ensures fair and accurate billing and actionable insights for optimized operation.

These characteristics help reduce the total cost of ownership by eliminating expenses related to meter replacement, including installation work, customer coordination, and the cost of replacement units.

Platform overview



flowIQ® 1200 (KWM2231). Composite meter powered by 2 A-cell batteries.



Some sizes are also available for warm water.

Hygiene

Security and hygiene are high-priority areas within both development and production.

Our water meters are approved for use with drinking water and are disinfected, dried and packed in airtight packaging so that they are not subject to environmental influences before their application. Moreover, we are continuously testing disinfection effectiveness through frequent audits both internally and by external accredited laboratories.

All these steps are carried out to ensure that only water meters of the highest quality leave our production facilities.

Approved meter data

MID classifications according to MID 2014/32/EU, based on OIML R 49/ISO 4064

Approval	DK-0200-MI001-041
Mechanical environment	Class M1
Electromagnetic environment	Class E2
OIML R 49 designations	
Accuracy class	2
Sensitivity class	U0/D0
Ambient class	Fulfils OIML R 49 class B and O (building/outdoor)
Water temperature, cold water	0.1...30 °C (T30) or 0.1...50 °C (T50)
Water temperature, warm water	0.1...70 °C (T70) (selected meter sizes only)
Ambient temperature range	5...55 °C, condensing humidity (Mounted indoors in utility rooms and outdoors in meter pits – mounting in direct prolonged sunlight must be avoided)
Meter types	Composite Q_3 = 1.6 m³/h, 2.5 m³/h and 4.0 m³/h
Radio communication	RED (Radio Equipment Directive)
Drinking water approvals	KIWA, KTW-BWGL, ACS (All parts are suitable for drinking water)

Technical data

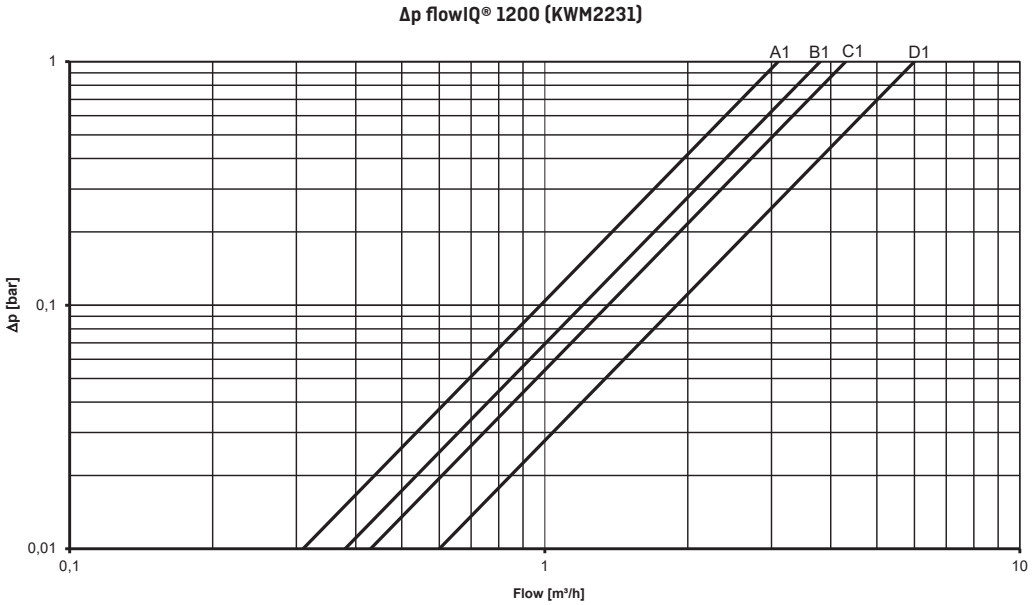
Electrical data	
Battery	3.65 VDC lithium - 2 x A-cell
Battery lifetime	Up to 16 years (depending on installation conditions, communication and choice of datagram)
EMC data	Fulfils MID class: E1 and E2
MID approved electronic operating temperature range	-25...55 °C
Mechanical data	
Metrological class	2
Ambient class	Fulfils OIML R 49 class B and O (building/outdoor)
Ambient temperature	2...55 °C
Protection class	IP68
Impact energy levels	IK08 according to IEC62262
Storage temp. empty sensor (dry meter)	-25...60 °C (< 40 °C for a prolonged storage time) Specially for APET packaging: A packaged water meter must not be stored at temperatures > 40 °C for periods exceeding 24 hours
Pressure stage	PN16
Connection	Thread EN/ISO 228-1

Materials

Wetted parts

Meter flow parts, composite	PPS with 40 % fibreglass reinforcement
Measuring pipe	PPS with fibreglass (40 %) reinforcement
Reflectors	Stainless steel, W.no. 1.4401 and 1.4404 (316/316L)
O-ring/gasket	EPDM
Strainer	PES and PPO

Pressure loss



Graph	Q_3 [m³/h]	Nom. diameter	kv	Q @ 0.63 bar [m³/h]
A1	1.6	¾" (DN15)	3.1	2.5
B1	2.5	¾" (DN15)	3.8	3.0
C1	2.5	1" (DN20)	4.3	3.4
D1	4.0	1" (DN20)	6	4.8

Meter sizes

flowIQ® 1200 composite (KWM2231) is available in these combinations:

Meter type	Nom. flow Q_3 [m^3/h]	Min. flow Q_1 [L/h]	Max flow Q_4 [m^3/h]	Min. cutoff [L/h]	Max cutoff [m^3/h]	Pressure loss Δp at Q_3 [bar]	Dynamic range	Connection on meter and length [mm]
2A	2.5	25	3.1	1.5	4.6	0.17	100	G1B 105
2B	2.5	25	3.1	1.5	4.6	0.17	100	G1B 130
2C	4.0	40	5.0	2.0	8.5	0.4	100	G1B 130
2D	2.5	25	3.1	1.5	4.6	0.17	100	G1B 190
2E	4.0	40	5.0	2.0	8.5	0.4	100	G1B 190
2F	4.0	40	5.0	2.0	6.3	0.4	100	G1B 105
1A	1.6	6.4	2.0	0.9	4.6	0.17	250	G¾B 110
1B	2.5	10	3.1	1.5	4.6	0.17	250	G¾B 110
1F	2.5	10	3.1	1.5	4.6	0.17	250	G¾B 165
1D	2.5	10	3.1	1.5	4.6	0.17	250	G¾B 170
2A	2.5	10	3.1	1.5	4.6	0.17	250	G1B 105
2B	2.5	10	3.1	1.5	4.6	0.17	250	G1B 130
2C	4.0	16	5.0	2.0	8.5	0.4	250	G1B 130
2D	2.5	10	3.1	1.5	4.6	0.17	250	G1B 190
2E	4.0	16	5.0	2.0	8.5	0.4	250	G1B 190

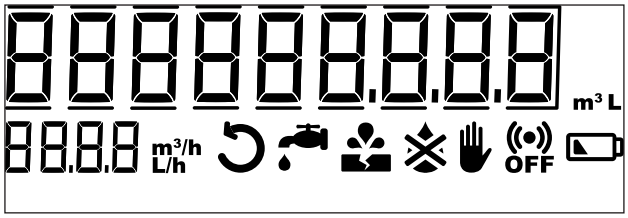
See the section "Ordering details" for combination possibilities.

Measurements occurs in the range from 'Min. cutoff' to 'Max cutoff' – however, the accuracy is only guaranteed in the range from Q_1 to Q_4. Max cut-off is an indicative flow value, which depends on the hydraulic conditions.

Display and Info codes

The large display of flowIQ® 1200 showing totalized volume, flow rate and intuitive info codes makes it easy for end users to understand their own consumption data.

flowIQ® 1200 includes a large number of intelligent info codes and alarms. An info code indicates a special condition in the meter. If the info code is available in the display, the related symbol is on when it has been activated. If the 'condition' is not active, the sign is off. The info codes provide you with the exact knowledge you need to target your efforts within operation optimization, customer information, water loss and tampering.



The info codes in the display have the following meaning and function:

Info icon	Condition
	The water in the meter has not been stagnant for more than one continuous hour during the last 24 hours. This can be a sign of a leakage downstream the meter such as a leaky faucet, toilet cistern or pipe leakage.
	The water consumption has been consistently high for half an hour, which indicates a pipe burst downstream of the meter.
	Attempt at fraud. The meter is no longer valid for billing.
	The meter is not filled with water. In this case, nothing will be measured.
	The water flows through the meter in the wrong direction.
OFF	RADIO OFF flashes. The meter is still in transport mode with the built-in radio transmitter turned off. The transmitter turns on automatically when the first liter of water has run through the meter.
OFF	RADIO OFF lights continuously. The radio is switched off permanently. Can be activated via METERTOOL.
	The symbol appears when the expected capacity left is 6 months (or when the voltage drops below a specific voltage).

	Switch off automatically when the conditions that activated them no longer exist.
	Disappears when the water has been stagnant for one hour.
	Disappears when the consumption falls to normal level.
	Disappears when the water is no longer flowing in the wrong direction.
	Disappears when the meter is filled with water.

Core features

Water meters placed throughout the network make it possible to gather information that can be of vital importance for an effective water supply, asset management and improved customer service.

Current flow display

Besides the consumed volume, flowIQ® 1200 also shows the current flow in the display. The flow display has been designed with user experience in mind, where it can be advantageous, for example during installation, to be able to see the current consumption. In this context, it is important to stress that the metrological approval of the water meter is related to the volume reading only.

Temperature monitoring

flowIQ® 1200 measures water and ambient temperatures, respectively. Information on temperatures above or below configurable values in the meter will warn the utility about any potential high and low temperature issues.

The measurements can be used to monitor the installation and to give an indication if something is unusual.

Consumption above legal flow range

The meter logs information on consumption above the legal flow range. This information can be used to indicate if the meter size of a given installation is correct.

Consumption profile

The meter tracks consumption in different flow intervals for further analysis of the consumption patterns of the specific installation.

No consumption

If no consumption has been measured for a long period of time in a household installation, an info code will inform the utility as this indicates that there might be a problem with the installation.

Data registers

The water meter has a permanent memory in which the values of various data loggers are saved. The loggers can be read via the meter's optical eye.

The following registers are logged:

Description	Yearly logger	Monthly logger	Daily logger	Hourly logger
Logger depth	20 years	36 months	460 days	2400 hours
Operating hours	✓	✓	✓	✓
Info codes incl. hour counter	✓	✓	✓	✓
Volume	✓	✓	✓	✓
Volume reverse	✓	✓	✓	✓
Flow max incl. date	✓	✓		
Flow min. incl. date	✓	✓		
Flow max incl. timestamp			✓	
Flow min. incl. timestamp			✓	
Flow				✓
Flow max for the hour				✓
Water temp. max	✓	✓	✓	
Water temp. min.	✓	✓	✓	
Water temp. avg.	✓	✓	✓	
Ambient temp. max	✓	✓	✓	
Ambient temp. min.	✓	✓	✓	
Ambient temp. avg.	✓	✓	✓	

Every time the information code changes, the date and info codes are logged. Thus, it is possible to data read the latest 50 changes of the information code as well as the date the change was made. Reading is only possible via the optical IR interface.

Integrated communication

The meter supports a variety of different communication options depending on meter type and country code. All meters can be used with Kamstrup's external antenna. Transmission properties and data packages are defined in the configuration number YY-ZZZ. These can be changed with METERTOOL through the optical IR interface.

Wireless M-Bus
Wireless M-Bus is an unlicensed European frequency standard protocol. Kamstrup water meters utilize the C1-mode and also support T1-BSI/OMS. Kamstrup Wireless M-Bus is transmitting every 16 seconds, 32 seconds or 96 seconds.

Encryption for Wireless M-Bus is done in accordance with AES 128 standard.

linkIQ®
linkIQ® is a Kamstrup developed communication protocol. The linkIQ® protocol ensures the potential for a future-proof, robust and competitive communication network. By utilizing the linkIQ® protocol, high data performance can be achieved. linkIQ® is a "multi- channel-protocol" that can communicate on the 868 MHz band, which has 8 channel changes and retransmission of previously transmitted data.

Besides the linkIQ® transmission the meter can also send a small Wireless M-Bus data package for fallback drive-by readings.

LoRaWAN®
LoRaWAN® (Long Range Wide Area Network) is an open technology with wide adaptation and as such not tied to a company. It can be rolled out as a public or private network. The technology is ready and available and has the benefit of long range and low-cost hardware. Automatic meter reading using a LoRaWAN® network delivers frequent consumption data to your customers from the meters installed at their premises.

For detailed information regarding all of the above and data packages, please contact Kamstrup.

Pit antenna options

In installation scenarios where better radio signals are needed, external antennas are available for all flowIQ® 1200 meters.

– Pit antenna II, 2.0 m cable	66-97-926
- Wall antenna, 1.5 m cable SMA-connector	66-99-484

Extender cables and couplers are not included. For more information regarding accessories and antennas, please see the Accessories list (FILE100002499_EN)

Ordering details

An order is initiated by stating the type number of the selected model of flowIQ® 1200.

The type number includes information on meter type, meter size, meter length, battery supply, country code, etc.

Subsequently, the meter configuration, which determines customer-specific requirements, is selected.

Finally, required accessories, if any, in the form of gaskets, different extension pipes, check valve and standard couplings are selected.

Accessories are enclosed separately to be mounted by the installer.

flowIQ® 1200	**KWM2231-**	☐☐	☐	☐☐	☐	☐	☐☐	☐	☐☐
Meter generation									
Second generation		02							
Mechanical design									
Composite PPS			K						
Communication module									
Wireless M-Bus C1/T1, linkIQ®, 868 MHz				54					
LoRaWAN OMS				73					
Power supply									
2 x A-cell					A				
Dynamic range (for selected sizes)									
100 - cold						A			
250 - cold/warm						C			
Meter size									
¾" 110 mm, 1.6 m³/h [2]	DN15						1A		
¾" 110 mm, 2.5 m³/h	DN15						1B		
¾" 170 mm, 2.5 m³/h [1]	DN15						1D		
¾" 165 mm, 2.5 m³/h	DN15						1F		
1" 105 mm, 2.5 m³/h [1]	DN20						2A		
1" 130 mm, 2.5 m³/h	DN20						2B		
1" 130 mm, 4.0 m³/h	DN20						2C		
1" 190 mm, 2.5 m³/h [2]	DN20						2D		
1" 190 mm, 4.0 m³/h	DN20						2E		
1" 105 mm, 4.0 m³/h [1]	DN20						2F		
Meter type									
Warm water meter								5	
Cold water meter								6	
Country code									XX

[1] Not available as warm water meter

[2] Not available with LoRaWAN

The country code is used for:

- Language and approval on type label
- Temperature class for the water meter, cold water (T30 and T50) and warm water (T70)

Configuration

flowIQ® 1200 – **KWM2231**

	DDD	JJ	LLL	MMMM	N	P	S	U	RR	CCC	V	T	YY	ZZZ
	□□□	□□	□□□	□□□□	□	□	□	□	□□	□□□	□	□	□□	□□□
Display views														
KWM2231	804													
GMT offset – time zone														
(GMT+1) default		52												
(GMT+2)		56												
(GMT-2)		40												
Target date														
1st of the month														
Max values – average over time (1...120 min.)														
2 minutes			002											
Customer label														
Options are defined in order system				MMMM										
Leakage message limit														
Flow continuously > 0.25 % of Q_3/nom. flow					2									
Flow continuously > 0.5 % of Q_3/nom. flow (default)					3									
Flow continuously > 1.0 % of Q_3/nom. flow					4									
Flow continuously > 2.0 % of Q_3/nom. flow					5									
OFF					9									
Pipe burst limit														
OFF						0								
Flow > 5 % of Q_3/nom. flow for 30 minutes						1								
Flow > 10 % of Q_3/nom. flow for 30 minutes						2								
Flow > 20 % of Q_3/nom. flow for 30 minutes (default)						3								
Ambient temperature low limit														
Ambient temp. < 2 °C (default)							2							
OFF							0							
Ambient temperature high limit														
Ambient temp. > 35 °C (default)								3						
Ambient temp. > 45 °C								6						
OFF								0						
Data logger profile														
flowIQ® 1200									20					
Display resolution (alphanumeric) – decimal markings (options defined by meter size)*														
000000.000 m³ – 0000 L/h										010				
0000000.00 m³ – 0000 L/h										020				
00000000.0 m³ – 0000 L/h										030				
000000000 m³ – 0000 L/h										040				
**please see FILE 100004388 for available CCC-codes in relation to meter flow size*														

To be continued on the next page...

Configuration

	DDD □□□	JJ □□	LLL □□□	MMMM □□□□	N □	P □	S □	U □	RR □□	CCC □□□	V □	T □	YY □□	ZZZ □□□
Continued from previous page														
Temperature units of measure														
Celsius (default)											0			
Encryption level														
Encryption with separately forwarded key (default)												3		
Transmission behaviour														
See note [1] below													YY	
Data packages														
See note [2] below														ZZZ

Unless otherwise stated in the order, Kamstrup supplies this configuration:

Leak	N = 3
Burst	P = 3
Ambient temp. low	S = 2
Ambient temp. high	U = 3
Temperature units	V = 0 (Celsius)
Encryption level	T = 3

[1] JJ (time zone), CCC (unit, display resolution and billing units) and YYZZZ (datagram) are not predefined and must be chosen in the ordering system.

[2] Your Kamstrup sales contact can provide relevant module datasheets that give an overview of communication modules and data packages.

Accessories

See "Accessories list for Water Meters" on www.kamstrup.com.

Kamstrup A/S • FILE100006402_B_EN_05.2026

Kamstrup A/S
Industrivej 28, Stilling
DK-8660 Skanderborg
T: +45 89 93 10 00
info@kamstrup.com
kamstrup.com