

4 Operation


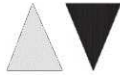





4.1 LCD display

To show the meter's data, various windows have been created as functions that can display the assigned system information.



4.2 Display symbols

The symbols are defined as follows:

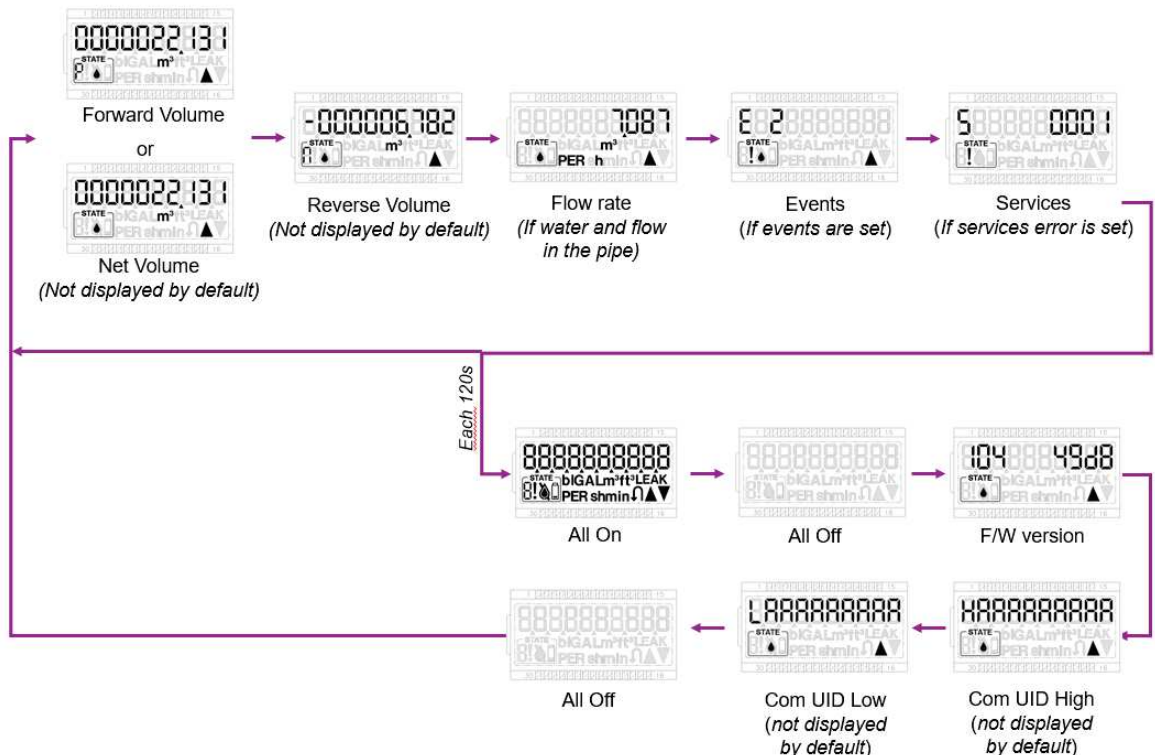
Flow direction		Positive flow	Set when: <ul style="list-style-type: none"> • There is water in the pipe • The flow is over Q_{start}
		Reverse flow	Set when: <ul style="list-style-type: none"> • There is water in the pipe • The flow is below $-Q_{start}$
Index indicator		Positive Index	Set when the window displays the positive index (forward volume)
		Negative Index	Set when the window displays the negative index
Water detection		Wet	The wet symbol indicates that water is present in the pipe.
		Dry	The dry symbol is set when air is detected after 10 consecutive measurement timeouts. It is reset as soon as water is detected in the pipe.
Reverse flow		ON	The reverse flow indicator is set when the average flow rate over 15 min is below -2.5% of Q_3
		OFF	The reverse flow indicator is reset when no reverse flow is detected for 30 days.
Leakage	LEAK	ON	The leak indicator is set when the flow is greater than the threshold (1% of Q_3) during 24 consecutive hours
		OFF	The leak indicator is reset when the flow goes below the threshold once during a period of 24 hours
Exclamation mark		ON	The exclamation mark is set when following events occur:

			<ul style="list-style-type: none"> • Air bubbles • Burst • Frost • Heat • Over temperature • No consumption <p>In case of service error, the exclamation mark is also set.</p>
		OFF	The exclamation mark is cleared when the concerned event is reset every round hour.
Low battery		ON	The low battery symbol is set when the expected remaining battery life is below 18 months. The symbol is off otherwise.
Test mode		ON	The test mode symbol is set to indicate that the flowmeter is in test mode operation. It is reset as soon as the verification mode is over. Please contact the service for further information.
Sleep Mode		ON	Before the first installation, the display is blank. Normal display operation starts when water is detected in the pipe or NFC communication is initiated.

4.3 Display loop

The LCD window changes automatically to display the following information: net **or** forward volume, reverse volume, flow rate, events, firmware version, flow direction, meter state.

The basic sequence of the display is defined as follows:



4.4 Events (visual indication on the LCD)

This summary shows all possible events which require attention by the user.

Display code	Events	Conditions	
E1	RESERVED		
E2	Air bubbles	ON	If air is detected in the pipe
		OFF	Alarm is reset after 1 hour without air detected in the pipe
E3	Burst	ON	Actual flow rate over 25% of Q_3 value for more than 30 minutes
		OFF	Actual flow rate is below 25% of Q_3
E4	RESERVED		
E7	Over temperature	ON	If ambient temperature > threshold
		OFF	Resettable by service only
E8	No consumption	ON	If average flow rate is below 0.1% of Q_3 for more than 10 days
		OFF	If flow rate greater than 0.1% of Q_3
S	Service	Please contact the service	

4.5 Services errors description

Display code	Events	Conditions
S 0001	Service	The measurement cannot be used to compute the flow correctly.
S 0002	Service	Temporary communication error between metrology unit and microcontroller. RAM and Flash destroyed internal software error.

Service errors register description			
S	Decimal	Hexadecimal	Binary
Defective meter	1	0x 0001	0000 0000 0000 0001
Temporary communication error	2	0x 0002	0000 0000 0000 0010

Note: In case of software error, the service error S0002 is displayed after 30s and the bit 3 of the Status register of the transport layer is set. After 9 minutes, the service error S0003 is displayed.