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Harmonized standards applied: LST EN 14154-1:2005+A2:2011, LST EN 14154-2:2005+A2:2011, LST EN 14154-3:2005+A2:2011.

Additionally documents applied:
WELMEC 7.2 – Software guide (Issue 5).

The measuring instrument must correspond with the following specifications:

1 Design of the instrument

1.1 Construction

Electronic single-jet dry type water meter WFC-M (WFH-M) is a complete cold (hot) water meter, consisting of the brass housing with the measuring chamber and rotating impeller and calculator with integrated LCD indicator. Depending on the modification of the calculator, the meter can have the standard constructive height (Fig. 2 a) or reduced constructive height (Fig. 2 b).

The meter is operated by 3,6 V non-replaceable inside battery.

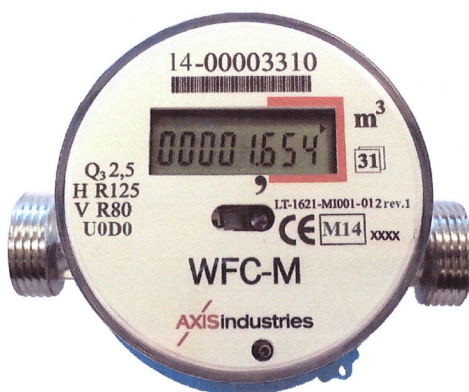


Fig 1. Water meter WFC-M

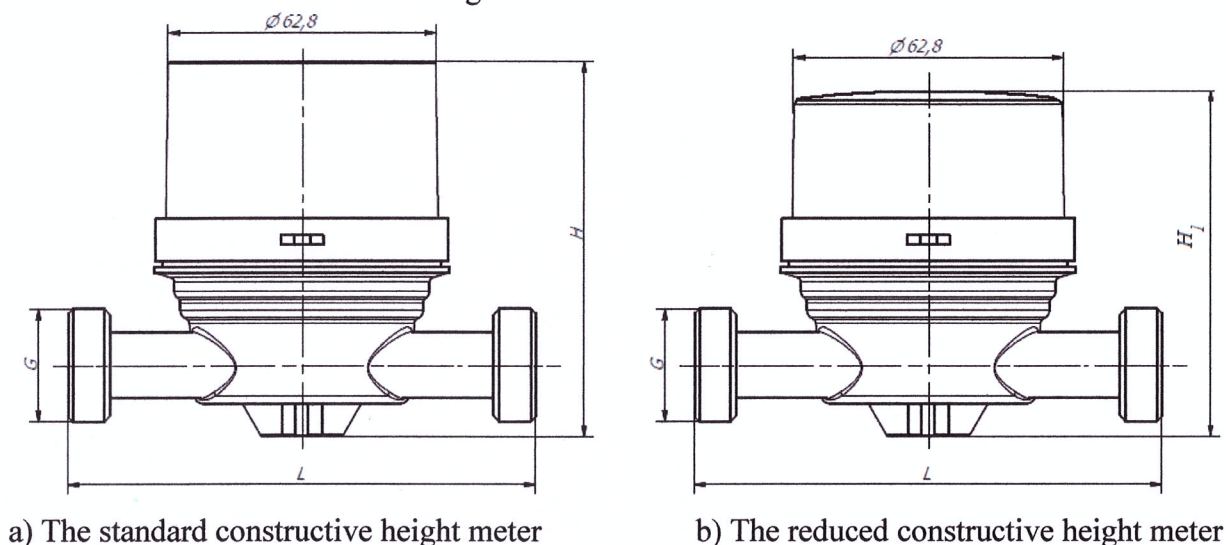


Fig. 2. The modifications of the water meter WFC-M/WFH-M

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Type number combination of the water meter

		WFX-M	-	□*	□*	□*	□*	□*	□*	□*
Type										
Temperature class T30:		WFC-M								
Temperature class T30/90:		WFH-M								
Constructive height of the meter:		standard	0							
		reduced	1							
Mounting length and the end connections: 80 mm G $\frac{3}{4}$			1							
110 mm G $\frac{3}{4}$			2							
130 mm G1			3							
Permanent flowrate Q_3 :		1,6 m ³ /h	1							
		2,5 m ³ /h	2							
		4 m ³ /h	3							
The ratio Q_3/Q_1 (R), horizontal mounting:										
		R40-H	1							
		R50-H	2							
		R63-H	3							
		R80-H	4							
		R100-H	5							
		R125-H	6							
The ratio Q_3/Q_1 (R), vertical mounting:										
		R40-V	1							
		R50-V	2							
		R63-V	3							
		R80-V	4							
Mounting set:										
With mounting set									1	
No mounting set (or omitted)									0	

Note:* - marked code number are used only for order coding (no used for type number marking).

1.2 Measurand sensor

This is a single-jet dry type measurand sensor consisting of the measuring chamber with inside rotating impeller. The water flows through the meter and rotates impeller, which rotation number is proportional to volume of water passing through the meter.

1.3 Measurand processing

Water flow passing through the meter rotates impeller with asymmetric metallic plate, which rotational periodicity changes the decrement of the measuring coils. The electronic block measures this decrement, counts the rev of the impeller and calculates the volume of water passing through the meter. This volume is displayed on the LCD indicator. The function diagram of the electronic block is presented in Fig. 3

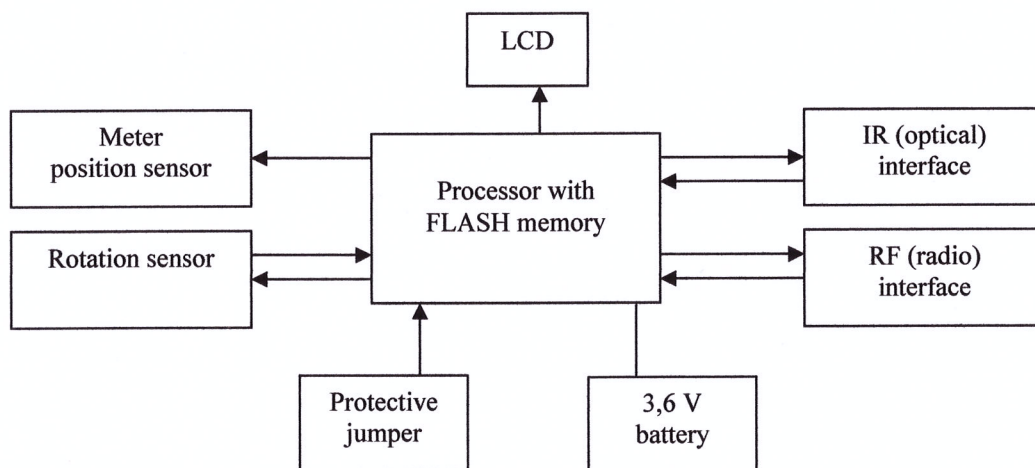


Fig.3. Function diagram of the electronic block

1.4 Indication of the measurement results

Measured volume of water is indicated on the 8-line LCD indicator, in cubic meters.

Indication in operating mode : m³, with three decimal places.

Indication in TEST mode : ml.

1.5 Optional equipment and functions subject to MID requirements

Not applicable.

1.6 Technical documentation

Water meter WFC-M/WFH-M. Technical description, user manual PLWFCH02, 14-05-2014.

Other reference documents on which basis this certificate is issued, are stored in a file LEI-12-MP-022.14.

1.7 Integrated equipment and functions not subject to MID

Integrated radio communication interface (RF) 868 MHz according to LST EN 13757-4:2005 requirements, intended for remote data reading.



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2 Technical data

2.1 Rated operating conditions

2.1.1 Measurand

The volume of water passing through the meter, indicated on the LCD indicator.

2.1.2 Main technical characteristics

Table 1. Technical data of the water meter WFC-M and WFH-M with end connection G $\frac{3}{4}$

Permanent flowrate Q_3 m³/h	1,6				2,5			
Ratio Q_3/ Q_1 (R)	80	63	50	40	125	100	80	63
Minimum flowrate Q_1 m³/h	0,020	0,025	0,032	0,040	0,020	0,025	0,031	0,039
Transitional flowrate Q_2 m³/h	0,032	0,040	0,051	0,064	0,032	0,040	0,050	0,062
Overload flowrate Q_4 m³/h	2,0	2,0	2,0	2,0	3,125	3,125	3,125	3,125
Mounting position	H	H	H, V	H,V	H	H	H, V	H,V
Pressure class (maximum admissible working pressure)	MAP 10 (10 bar)							
Pressure-loss class (pressure loss by Q_3 bar)	ΔP 25 (0,25)				ΔP 63 (0,63)			
Meter length L mm	110 or 80							
Meter height: standard, H mm	88							
reduced, H_I mm	78							

Table 2. Technical data of the water meter WFC-M and WFH-M with end connection G1

Permanent flowrate Q_3 m ³ /h	2,5				4			
Ratio Q_3/ Q_1 (R)	80	63	50	40	125	100	80	63
Minimum flowrate Q_1 m ³ /h	0,031	0,039	0,050	0,062	0,032	0,040	0,050	0,063
Transitional flowrate Q_2 m ³ /h	0,050	0,063	0,080	0,010	0,051	0,064	0,080	0,010
Overload flowrate Q_4 m ³ /h	3,125	3,125	3,125	3,125	5	5	5	5
Mounting position	H	H	H, V	H,V	H	H	H, V	H,V
Pressure class (maximum admissible working pressure)	MAP 10 (10 bar)							
Pressure-loss class (pressure loss by Q_3 bar)	ΔP 25 (0,25)				ΔP 63 (0,63)			
Meter length L mm	130							
Meter height: standard, H mm	89							
reduced, H_I mm	79							

2.1.3 Water temperature range

For meters WFC-M : between 0,1 °C and 30 °C (temperature class T30);
For meters WFH-M : between 30 °C and 90 °C (temperature class T30/90).



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2.1.4 Maximum permissible error

For meters WFC-M	:	$\pm 2 \%$ in flow range $Q_2 \leq Q \leq Q_4$;
For meters WFH-M	:	$\pm 3 \%$ in flow range $Q_2 \leq Q \leq Q_4$;
For meters WFC-M and WFH-M	:	$\pm 5 \%$ in flow range $Q_1 \leq Q < Q_2$.

2.1.4 Environmental conditions/ Influence quantities

Climatic class	:	B;
Ambient temperature	:	5 °C to 55 °C;
Humidity	:	non-condensing;
Location	:	closed;
Mechanical environment	:	class M1;
Electromagnetic environment	:	class E1.

2.2 Other operating conditions

Water meter can be mounted both horizontally and vertically.

3 Interfaces and compatibility conditions

Integrated optical (IR) communication interface according to LST EN 62056-21:2003 requirements, intended for data reading with optical head, for activation the TEST mode and for LCD configuration. The volume pulse value in TEST mode is 0,002 l.

4 Requirements on production, putting into use and utilization

4.1 Requirements on production

At the end of the manufacturing and adjustment process the water meters shall be tested according to requirements of EN 14154-1 section 9.2. Errors of indication of the meters should not exceed the maximum permissible errors, described in Annex MI-001 of Directive 2004/22/EC.

Water meters WFC-M tested with water, which temperature is between 0,1 °C and 30 °C.

Water meters WFH-M tested with water, which temperature is 50 °C \pm 5 °C.

4.2 Requirements on putting into use

The water meters WFC-M and WFH-M must be installed and used in accordance with the requirements of document listed in section 1.6.

Straight length for water meter installation in pipeline upstream and downstream is not necessary (meter flow profile sensitivity classes U0 D0).

4.3 Requirements for utilization

The water meter must be utilized in accordance with the requirements of document listed in section 1.6.



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5 Control of the measuring process after tasks of the instrument in use

5.1 Documentation of the procedure

Water meter WFC-M and WFH-M. TEST/calibration instruction PIWFCHV01, 27-04-2012.

5.2 Special equipment of hardware or software

- optical reading head;
- service software EVSconfig.

5.3 Identification of hardware and software

Identification of hardware: see Fig. 1 and Fig. 2 of this certificate.

Identification of software: version number of the software is „1.01“. This number is shown on the label affixed on the side of the meter calculator.

5.4 Calibration-adjustment procedure

The water meter errors determination test should be carried out in accordance to the TEST instruction listed in section 5.1.

Errors of indication should not exceed the maximum permissible errors, described in Annex MI-001 of Directive 2004/22/EC.

6 Security measures

6.1 Sealing

Meter housing is connected with calculator by means of protective ring (blue colour – for WFC-M meters, red colour – for WFH-M meters). Protective ring can't be removed without breaking.

6.2 Data logger

Not applicable.

7 Marking and inscriptions

7.1 Information to be borne by and to accompany the measuring instrument

The following information shall appear on the top of the water meter calculator:

- EC-type examination certificate number (LT-1621-MI001-012 rev.1);
- name of the manufacturer or this trade mark;
- type designation;
- year of manufacture and serial number;
- unit of measurement: m³;
- permanent flowrate Q_3 ;
- the ratio Q_3/Q_1 , preceded by „R“;
- mounting position H or V, which is marked to this corresponding ratio Q_3/Q_1 ;
- the temperature class, where it differs from T30;
- pressure loss class, where it differs from ΔP 63;
- flow profile sensitivity classes.



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The following information shall appear on the label affixed on the side of the water meter calculator:

- the latest date that the meter is to be replaced;
- version number of the meter software;
- volume value for pulse output optical interface.

Arrow to indicate the direction of the flow appears on water meter housing.

7.2. Conformity marking

In addition, inscriptions on the top of the water meter calculator should contain the following marking:

- “CE” marking;
- metrology marking, consisting of the capital letter “M” and the last two digits of the year of its affixing, surrounded by a rectangle;
- identification number of the notified body, which carried out the conformity assessment.

8 List of the drawings attached to the certificate

Drawings are not added.

9 Certificate history

Issue	Date and Reference №	Description
LT-1621-MI001-012	09-04-2013, Nr. LEI-12-MP.011.12	Type examination certificate first issued
LT-1621-MI001-012 Revision 1	14-07-2014, Nr. LEI-12-MP.022.14	1. Meter modifications with reduced constructive height are added: meter height with end connection G ³ / ₄ is $H_I = 78$ mm, meter height with end connection G1 is $H_I = 79$ mm. 2. Meter flow profile sensitivity classes from U5 D5 are changed to U0 D0. 3. Document PLWFCH01, issued 03-06-2012, is replaced by document PLWFCH02, issued 14-05-2014.