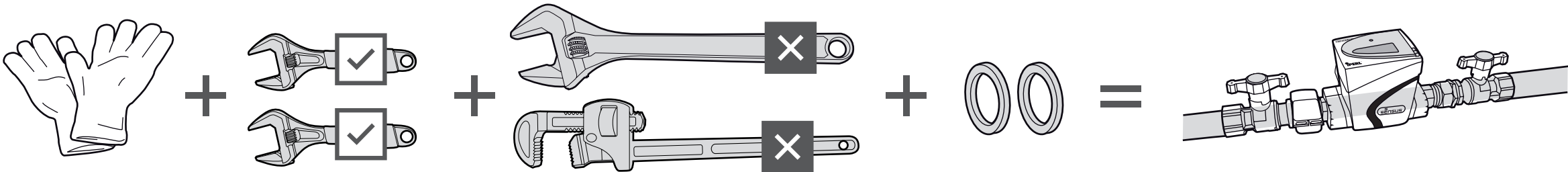


iPERL



01

2A

2B

03

04

05

06

07

08

09

10

11

12

13

14

15

16

17

18

19

MD 5000

Installation Manual

1. Supplied Material

Each package contains:

- 1 iPERL device
- manual
- sealings
- optional connection kits
- NRV (if ordered)

2. General Instructions

Please read this guide prior to installing iPERL.

iPERL is a metering endpoint designed for use with potable water supplies to residential, commercial and industrial activities. iPERL is intended for maintenance-free operation for up to 15 years. IPERL is hermetically sealed and therefore there is no servicing of the meter required.

3. Permissible Operating Conditions

- min. water conductivity required: 120µS/cm (25 °C)
- Cold water meter: from 0.1 °C up to 50 °C
- Pressure stage: PN16
- Mechanical environment: M2 (MID) fixed installation with minimum vibration
- Electromagnetic environmental class: E1 and E2 (MID) residential and commercial
- Protection class: IP68
- Climatic environment: from -15 °C up to 60 °C

4. Installation Requirements

Ensure that the pipework does not introduce mechanical stresses on the meter body: checking both alignment of the pipework with the threaded connections and distance between unions with the meter lay length. If there is mechanical stress usage of the brackets is recommended. When mounting iPERL onto a network, ensure contact surfaces are even and clean and use new gaskets. At all times during installation and thereafter all statutory provisions, regulations and norms

have to be followed, in particular with regard to health and safety (e.g. earthing, bridging, etc.). Composite materials used are nonconductive.

Torque: tighten iPERL to a minimum torque setting of 20Nm and a maximum of 30Nm.

1 Installation position: iPERL has been designed to operate, with no impact on metrological performance, in all installation angles and orientations.

2 Please avoid installing iPERL as shown below as a reduction of battery lifetime could occur.

Keep the valves closed when the premises are vacant. Make sure you close both valves before and after the meter for safety reasons when installation is not finished yet or there is no water consumption for a longer period, e.g due to vacant premises.

iPERL is free of any constraint for upstream or downstream straight pipe lengths.

Flow direction: iPERL's metrological performance is independent of flow direction and orientation of the meter can be selected to best suit the installation conditions. iPERL will detect flow direction when installed and set the direction indicator accordingly.

Pressure: please ensure that iPERL strictly operates within the pressure rating printed on the meter body.

All iPERL settings and functions will be automatically and correctly activated once the flowtube is saturated.

5. Installation Procedure (Volume registration & Flow direction)

STEP1:
1A: Remove iPERL from its packaging and locate any optional component (filter, non-return-valve* (NRV), ...) In case you need a non-return-valve please

consider:

- 3** iPERL, DN 15, 110 and 115 mm: NRV installation in meter screw connection
 - 4** All other nominal sizes and lengths: NRV installation in measuring tube
- iPERL will display the following symbols:
- 5** No Volume, no flow and the alarm flag (raised for empty pipe)
 - 1B:** Install iPERL according to the most suitable LCD orientation

STEP2:

6 Once installed, open the upstream valve to fill the meter. The alarm flag disappears after a short while, this indicates that the meter has detected water in the pipe. iPERL is now fully operational, although in stand-by mode. At this point, also the radio transmission is activated which is indicated by a flashing radio symbol. The meter starts to send out radio telegrams.

STEP3:

- 7** To activate the "flow direction detection", ensure a flow above the threshold of
- 3 l/h for DN 15
 - 5 l/h for DN 20
 - 8 l/h for DN 25
 - 12.5 l/h for DN 32
 - 20 l/h for DN 40

Both arrows blink to indicate the meter is detecting its forward flow direction. After reaching the threshold the arrow is set. It starts to accumulate volume into the three registers forward, reverse and billing volume. The flowrate will start to be displayed after the first 4 hours of operation.

- When the billing volume register reaches the threshold of
- 25 l for DN 15
 - 40 l for DN 20
 - 63 l for DN 25 - 40

the meter takes that register with the higher volume accumulated as the forward register and fixes the flow direction. From this moment on the flow direction cannot be changed; any flow in the 'wrong' direction will now trigger the alarm flag for 'reverse flow' and will be counted as reverse volume.

8 After the flow direction is set, the functions for performing the higher analysis, such as data logging and leak detection, become active and are assigned to the respective data fields.

- 9** IMPORTANT! iPERL does not register the volume if the averaged flowrate is below
- 1 l/h for DN 15
 - 1.6 l/h for DN 20
 - 2.5 l/h for DN 25
 - 4 l/h for DN 32
 - 6.4 l/h for DN 40

6. iPERL Display and Characters

- 10** After installation is successfully completed the display shows:
- Meter reading and preselected unit
 - Current flowrate and preselected unit
 - Flow direction
 - RF active

Alarms are displayed directly on the display after the LCD self-test:

- AL – 05 Empty pipe
- AL – 06 Magnetic tampering
- AL – 07 Reverse Flow
- AL – 08 Broken pipe / Leakage

- If any of the following graphics is displayed, please contact your supplier:
- Alarm flag + AL-xx (except 05-08, see above)
 - Low battery warning
 - Test mode

7. Disposal

11 This product contains a lithium Ion battery. In the interest of protecting the environment, this battery may not be disposed in household waste after its period of use. The local and national regulations for environmental protection are to be considered.

*Australia only: NRV is already pre-installed!

Date: 16.04.2014

Declaration of Conformity

No. CE/iPERL/0414

Herewith we,

Sensus GmbH Ludwigshafen
Industriestr.16
67063 Ludwigshafen

declare under our sole responsibility, that the Electromagnetic flow meter type **iPERL**, to which this declaration relates, is in conformity with the legal regulation of the Directive 2004/22/EC of the European Parliament and the Council of the 31st of March 2004 on measuring instruments, including

Annex I, Essential requirements
Annex MI-001, water meter

applied normative, harmonized documents

- OIML-R 49-1, Edition 2006(E)
- OIML-R 49-2, Edition 2006(E)
- OIML-R-49-3, Edition 2006(E)
- DIN EN 14154-1, Edition 2005 with Annex A2, Edition 2011(D)
- DIN EN 14154-2, Edition 2005 with Annex A2, Edition 2011(D)
- DIN EN 14154-3, Edition 2005 with Annex A2, Edition 2011(D)

other standards:

- ISO 4064-1, Edition 2005(D)
- ISO 4064-2, Edition 2005(E)
- ISO 4064-3, Edition 2005(E)
- EN 14268, Edition 2005(E)

R&TTE Directive (1999/5/EC):

- ETSI EN 300220-1 2.4.1 2012/05
- ETSI EN 300220-2 2.4.1 2012/05
- EN 301489-1 V.1.9.2 :Edition 2011
- EN 301489-3 V1.6.1 :Edition 2013/08
- EN 60950-1:2006+A11:2009+A1:2010+A12:2011
- IEC 60950-1:2005 (2nd Edition); Am 1:2009

The conformity assessment procedure was carried out under the supervision of the notified body PTB identification number 0102. The design-examination certificate DE-12-MI001-PTB010 - 2.Revision was issued.

This declaration is made on behalf of the manufacturer by the Technical Director.

Sensus GmbH Ludwigshafen

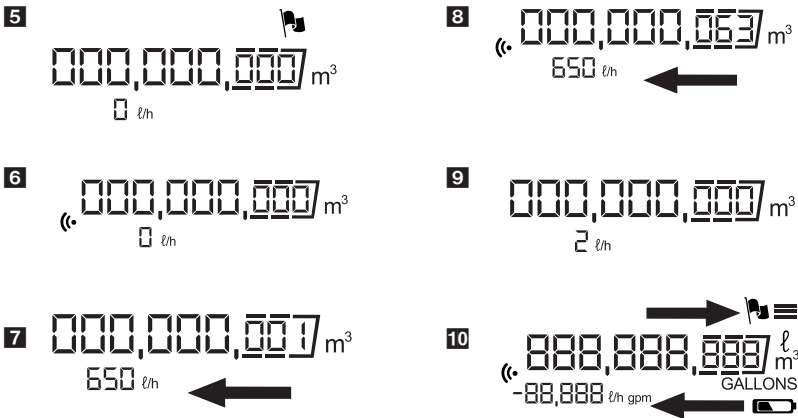
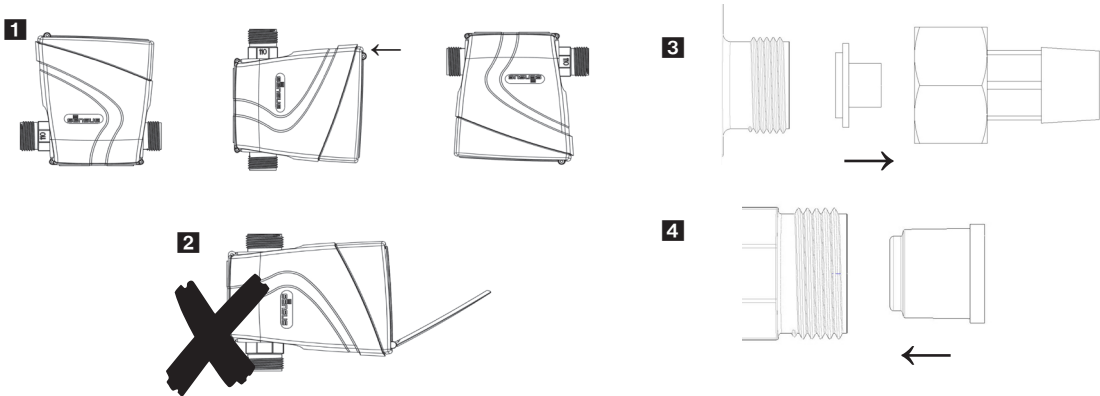
[Signature]

Sensus GmbH Ludwigshafen
Bankverbindung: Deutsche Bank Ludwigshafen
Konto: 024 913 600 (BLZ 545 700 94)
www.sensus.com

[Signature]

Telefon: + 49 (0) 621 / 6904 – 0
Telefax: + 49 (0) 621 / 6904 – 1490
Amtsgericht: Ludwigshafen HRB 5153
Geschäftsführung:
Aufsichtsratsvorsitzender:

Industriestraße 16
D-67063 Ludwigshafen
Ust-Id-Nr.: DE 160261426
Peter Karst, Rüdiger Guse, Roland Rott
Christopher Dühnen



Graphic	Description
000,000.000	Meter Reading
00,000	Current flowrate
m³, l, GALLONS	Index units
l/h, gpm	Flowrate units
[Alarm flag]	Alarm flag
[Flow direction arrow]	Flow direction
[RF symbol]	RF active
[Low battery warning]	Low battery warning
[Test mode symbol]	Test mode

