



 **ntellimeter**

Innovative Metering Solutions

Ultrasonic Water Meter Instructions

DN50-DN100

DN125-DN600

Important Tips

Before installing, please read this manual carefully. This manual is aimed at trained professionals; therefore, it does not include basic installation steps. If there is any change in the product model and appearance, please refer to the actual product. This specification applies equally to the casing, without affecting the functionality of the product. For details of the change, please contact Intellimeter.

- This product is a precision measuring instrument which has undergone strict testing before leaving the facility. To be operated by professional personnel only;
- This product is a precision measuring instrument, handle with care, do not drop;
- If the product does not operate normally or is in need of repair, please contact Intellimeter;
- Please do not modify the length of any cable, otherwise it will affect the performance of the product.

1. Product Introduction

1.1. Product Features

- Meter has a low starting flow rate, minimum flow rate is less than 1/3rd of a mechanical single jet or multi-jet water meter;
- Bi-directional flow measurement;
- Water temperature detection, temperature alarm;
- Alarm for abnormal water use;
- No moving parts, resulting in minimal wear to ensure long-term and stable operation;
- Can be installed at any angle, without affecting the measurement accuracy, provided that the pipes have been adequately purged;
- Ultrasonic signal quality detection;
- A 3.6V replaceable lithium-ion battery provides power to the meter with a life expectancy of 10 years;
- Magnetic induction button;
- The overall IP68 design
- Supports M-Bus, RS485 Modbus RTU, EN13757, Infrared, Optical communication interface;
- Meets international drinking water standards;
- LCD screen can be changed by touching the magnetic switch;
- Pressure sensor is optional. This product can be equipped with a built-in pressure sensor, used to monitor pipe pressure.

1.2 Technical Parameters and Characteristics

1.2.1 Technical Specifications

Precision Class		Class 2
Range ratio (Q3 : Q1)	Class 2	400:1(100:1,160:1,250:1,500:1,800:1 optional)
Maximum flow reading (m ³)	DN50-DN100	9999999.99999
	DN125-DN1000	9999999.99999
Maximum working pressure		1.0MPa – 150 PSI (1.6MPa optional)
Temperature grade		T50 (suitable for domestic hot/cold water)
Upstream flow field sensitivity level		U3
Downstream flow field sensitivity level		D0
Environmental Protection		IP68(the protection level is IP65 when the dual power supply is supplied)
Power Source		3.6V Li-battery(24VDC power supply optional)
Battery life		10 years, based on one daily reading
Ambient operation temp		5°C – 50°C
Electromagnetic environment level		Class E2 (class E1 optional)
Hot (cold) carrier		Pipes need to be purged of air
Installation method		Horizontal/vertical
Data Logger		Volumes: 480 daily data; 36 monthly data;16 yearly data
* remark		Battery must be in normal ambient temperature conditions. Battery lifespan depends on the frequency of data transmission and correct meter installation (positive electrode on the top).

1.2.2 Outputs

Standard Interface	Infrared, M-Bus, Modbus RS485 (optional)
Analog Output	4~20mA: The analog output shows the current measured flow rate
Digital (pulse) Output	Volume

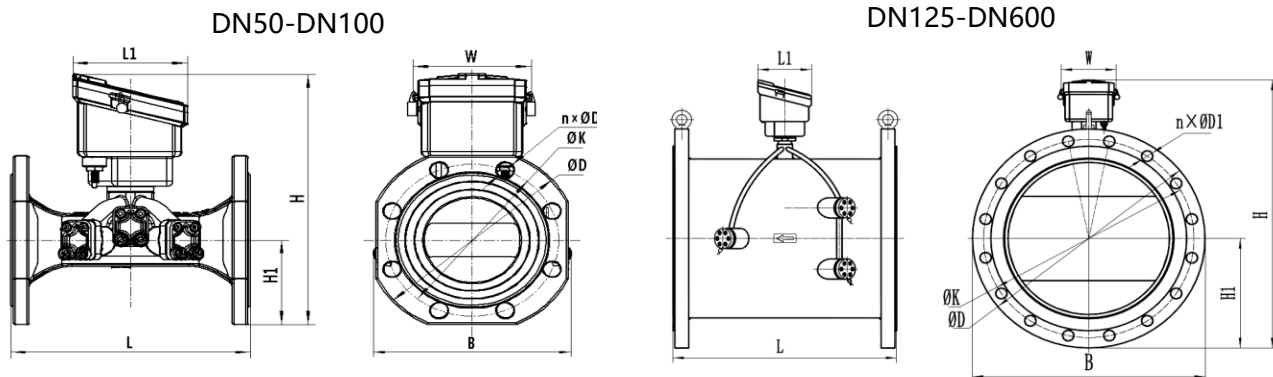
1.2.3 Flow Rate Performance Data

◆ **Class 2(400:1)**

Nominal Diameter DN mm (inches)	50 (2")	65 (2.5")	80 (3")	100 (4")	125 (5")	150 (6")
Overload flow rate Q4 (m ³ /h)	31.25	50	78.75	125	200	312.5
Permanent flow rate Q3 (m ³ /h)	25	40	63	100	160	250
Transitional flow rate Q2 (m ³ /h)	0.1	0.16	0.252	0.4	0.64	1
Minimum flow rate Q1 (m ³ /h)	0.0625	0.1	0.1575	0.25	0.4	0.625
Pressure loss grade	25	25	25	25	25	25
Nominal Diameter DN mm (inches)	200 (8")	250 (10")	300 (12")	350 (14")	400 (16")	500 (20")
Maximum flow Q4 (m ³ /h)	500	787.5	1250	1250	2000	3125
Common flow Q3 (m ³ /h)	400	630	1000	1000	1600	2500
Boundary flux Q2 (m ³ /h)	1.6	2.52	4	4	6.4	10
Minimum flow Q1 (m ³ /h)	1	1.575	2.5	2.5	4	6.25
Pressure loss grade	25	25	25	10	10	10
Nominal Diameter DN mm (inches)	600 (24")					
Maximum flow Q4 (m ³ /h)	5000					
Common flow Q3 (m ³ /h)	4000					
Boundary flux Q2 (m ³ /h)	16					
Minimum flow Q1 (m ³ /h)	10					
Pressure loss grade	10					


1.2.4 Dimensions

Pressure Grade	Nominal Diameter DN mm (inches)	Outline size (mm)								
		L	L1	H	H1	W	B	ΦD	ΦK	n×ΦD1
PN10 /PN16	50 (2")	200	120	240	65	123	155	165	125	4×Φ18
	65 (2.5")	200	120	255	70	123	170	185	145	4×Φ18
	80 (3")	225	120	280	90	123	185	200	160	8×Φ18
	100 (4")	250	120	300	100	123	205	220	180	8×Φ18
	125 (5")	250	120	380	125	123	250	250	210	8×Φ18
	150 (6")	300	120	325	130	123	260	285	240	8×Φ22
PN10	200 (8")	350	120	470	170	123	350	340	295	8×Φ22
	250 (10")	450	120	525	198	123	450	395	350	12×Φ22
	300 (12")	500	120	575	223	123	500	445	400	12×Φ22
	350 (14")	500	120	635	253	123	500	505	460	16×Φ22
	400 (16")	600	120	690	283	123	600	565	515	16×Φ26
	450 (18")	600	120	750	335	123	600	615	565	20×Φ26
	500 (20")	600	120	790	335	123	600	670	620	20×Φ26
	600 (24")	800	120	895	390	123	800	780	725	20×Φ30
PN16	200 (8")	350	120	470	170	123	350	340	295	12×Φ22
	250 (10")	450	120	530	203	123	450	405	355	12×Φ26
	300 (12")	500	120	580	230	123	500	460	410	12×Φ26
	350 (14")	500	120	640	260	123	500	520	470	16×Φ26
	400 (16")	600	120	695	290	123	600	580	525	16×Φ30
	450 (18")	600	120	737	358	123	600	640	585	20×Φ30
	500 (20")	600	120	815	358	123	600	715	650	20×Φ33
	600 (24")	800	120	925	420	123	800	840	770	20×Φ36



2. Liquid Crystal Display

2.1. Liquid Crystal Display Interface

- There are two modes of display: one is the standard menu display, the other is a high precision menu display;
- Switch between the standard menu and the high-precision menu by using the factory's meter reading software;
- The standard menu display is divided into a single-screen menu and ordinary menu;
- To toggle through the display menu, place the magnetic switch over the  symbol.

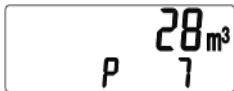
Standard Menu - Single Screen Display



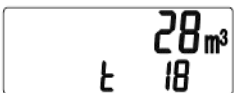
Positive volume flow (default display)



Flow rate



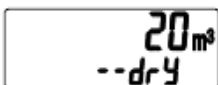
Pipe pressure (Unit: kPa, only product with pressure variable can display)



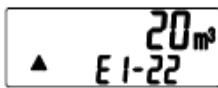
Water temperature (Unit: °C)

If the meter fails, the fractional part of the cumulative volume will show alarm symbols.

When multiple errors occur, the display will cycle through error codes.



Empty pipe instruction



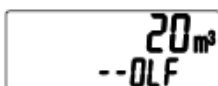
Transducer alarm



Channel (1,2,3,4)




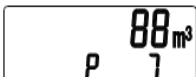


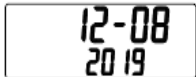
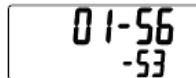



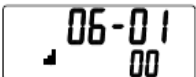



Low water temperature (Alarm below 4 °C)



Overload flow rate

Standard Menu-Normal Display - High Precision Menu

	Positive volume flow (Default Display)
	Negative volume flow
	Flow rate
	Pipe pressure (Unit: kPa, only product with pressure variable can display)
	Primary address Battery voltage
	Secondary address
	Month - Day Year
	Hour - Minute Second
	Cumulative operation time Cumulative alarm time
	Main version number Flow rate revised version
	Flight time difference
	Caliber parameters Transducer signal strength
	Display test

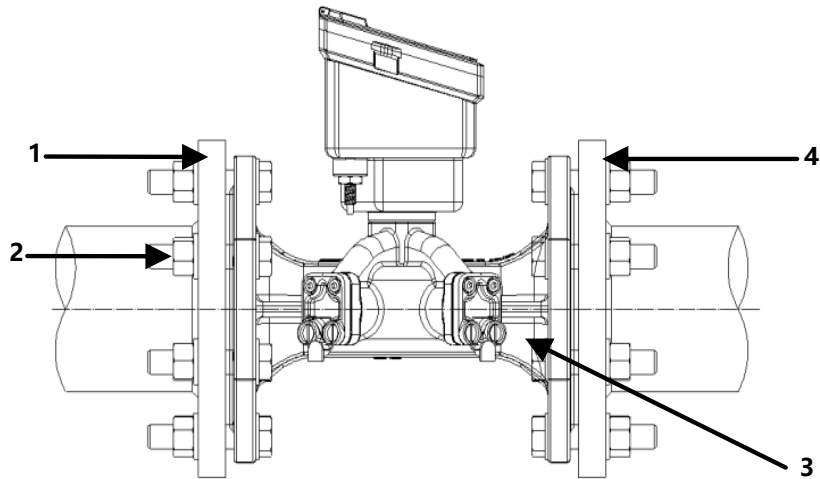
3. Installation and Connection Requirements

3.1. Installation Notes

For safety reasons, please read the following points carefully:

- When installing the water meter(s) in a horizontal position, do not install the meter higher than the pipe to avoid air traps;
- When installing the water meter(s) in a vertical position, water should flow from bottom to top;
- Straight pipe requirement in horizontal or vertical position: upstream 10 x pipe diameter and downstream 5 x pipe diameter. Considering space limitations: minimum requirement, upstream 3 x pipe diameter and downstream 0 x pipe diameter;
- Preferred position for meter installation is vertical (or oblique), with water flow from bottom to top. Do not install with water flow from top to bottom;
- Ensure a proper gasket fitting throughout the installation process to prevent leakage;
- Note that the instrument's direction must be consistent with the actual flow direction;
- Installation of a back-flow preventer, downstream from the meter is always recommended;
- Shut-off valve installation is recommended upstream from the water meter in order to facilitate future maintenance. Once installed, open valve slowly/carefully to eliminate water hammer which could damage to the instrument;
- The flange surface must be clear of dust and debris, to ensure a proper seal;
- The flange bolt-holes must be properly aligned;
- When installing, ensure that the center of the meter flange and the center of the cross section of the pipe is aligned;
- Any maintenance (i.e. replacement of parts, etc.) must be performed by authorized/qualified personnel only. If you need more technical support, please contact Intellimeter;
- Do not modify the signal cable length or the meter accuracy will be compromised;
- Warranty considered void if the water meter seal is damaged;
- Before installation of the instrument, ensure the pipeline is clear of any debris;
- Battery replacement must be executed by a qualified technician.

3.2 Installation Steps



1 upper end flange 2 bolt connection assembly
3 water meter body 4 downstream end flange

Installation Steps...

- Place a sealing gasket on the flanges in the pipeline;
- Install the water meter according to the flow direction of the pipe;
- Using a bolt, connect the water meter body flange and pipe flange. Adjust the position of the sealing gasket to ensure that it is aligned with the flange. Firmly tighten the bolt assembly.

TERMS AND CONDITIONS OF SALE

Section 1 - Contract Terms

Intellimeter's quotes, sales orders and drawings are prepared based on the information and specifications provided by the client. The buyer is responsible to make sure that it corresponds to the requirements of the project. Any changes or additions beyond the scope of this quote will result in additional or increased charges. All contracts for the sale of goods and services concluded between Intellimeter Canada Inc. (hereinafter called "ICI") and the purchaser, (hereinafter called the "Purchaser") are subject to the following terms and conditions. Any variation from the terms and conditions herein contained will require written consent of ICI signed by its duly authorized representative. Purchase orders received from the Purchaser for ICI products will be subject to the standard ICI terms and conditions. ICI will not be bound by any terms and conditions or pricing stated on the purchase order, unless agreed to in writing by ICI.

Section 2 - Prices, Shipping, Taxes, and Tariffs

Unless otherwise stated, prices quoted are valid for acceptance for a period of 30 days from issuance of quote. Should the decision to accept our offer be delayed to a later date, we would be pleased to either confirm our offer or re-bid. Unless otherwise stated, prices do not include the arrangement and cost of a utility shutdown which must be arranged, by the Purchaser, directly with the Utility Provider. Unless otherwise stated, prices do not include any external wiring or any cabling from the equipment. Unless otherwise stated, prices are EXW ICI. Shipping charges are extra and quoted prices do not include taxes. Prices quoted are based on foreign exchange rates, customs tariffs and other direct taxes in effect at the date of quotation. Any changes in foreign exchange rates, sales taxes, customs tariffs or other taxes shall be the responsibility of the Purchaser in Canadian funds, unless otherwise stated.

Section 3 - Terms of Payment

Terms are net 30 days from date of invoice subject to prior credit approval. Late payments will be subject to interest charges at the rate of twenty-four percent (24%) per annum (2% per month), calculated daily. Invoices for pro-rata shipments become due Net 30 days from the date of shipment. If at Purchasers' request, shipments are delayed, payments for the product will be invoiced to the Purchaser to the extent of completion, as a percentage of the total contract price. Equipment held for the Purchaser shall be at the risk and expense of the Purchaser.

Section 4 - Delivery

Delivery dates quoted are subject to confirmation at the time of contract awarding. All confirmed dates are based on the prompt receipt by ICI of all necessary information enabling work to proceed without interruption. When the contract is for the supply and commission of equipment, a delivery date will be established at the time of contract awarding. Should the installation of the equipment be delayed beyond that date, ICI reserves the right to invoice for the supply portion of the contract and ship or place the material into storage at the Purchaser's option and expense.

Section 5 - Force Majeure

ICI will not be liable for any non-performance or delay of a contract if it is due to any cause beyond the reasonable control of ICI and/or for which ICI could not reasonably foresee or provide against and which prevents ICI from carrying out the terms of the contract. This includes, but is not limited to the following: war, revolution, insurrection or hostilities (whether declared or not), riot, civil commotion or uprising, flood, earthquake, tempest, hurricane, lightning or other natural disasters, fire or explosion, strike, lockout or other industrial disturbance (whether at ICI or one of its suppliers), sabotage, accident, embargo, car shortage, wrecks or delays in transportation, non-delivery of materials, or order or action of government authority. Any delay resulting from such cause shall extend the date of delivery accordingly. ICI reserves the right to cancel the contract if in its opinion such circumstances threaten or cause extended delay in the performance thereof.

Section 6 - Cancellation

Purchase orders placed by the Purchaser and accepted by ICI may be cancelled only with the written consent of ICI. A cancellation charge may be payable by the Purchaser to cover costs, including design and engineering, drawing preparation, materials purchased and production costs incurred to a maximum of 100% of the selling price.

Section 7 - Liability

ICI shall not be liable for any damages arising from the use of the goods supplied here under, or for any special, indirect or consequential damages arising from delays, however caused, through non-delivery, or through defects in materials or workmanship or from any other cause whatsoever. No claim of any kind whether as to a product delivery or for non-delivery of a product, shall be greater in amount than the purchase price of the product in respect of which the claim is made.

PARTS OR SERVICES, SALE OF OR OTHERWISE, WHETHER BASED IN CONTRACT, WARRANTY, TORT, INCLUDING WITHOUT LIMITATION, NEGLIGENCE, OR ANY OTHER LEGAL OR EQUITABLE THEORY.

ICI shall pass on the benefit of any warranties from suppliers of materials, software, and service used in supplied systems. The Purchaser acknowledges that any attempt to repair, service, or tamper with products supplied by ICI, by other than ICI or its authorized service provider will invalidate the warranty.

Section 8 - Warranty

This Limited Warranty is effective only for a period of (12 months from commissioning or 18 months from delivery, whichever occurs first; when stored and/or installed in accordance with product instructions by qualified personnel. This limited warranty will apply when product is used and maintained in accordance with Intellimeter Canada Inc. (hereafter referred to as ICI) guidelines which include, but are not limited to, the information contained in ICI Terms and Conditions for Sale of Products and/or Services, Specifications and Installation Instructions. ICI must be notified of the defect within thirty (30) days after the defect becomes apparent or known. Buyer's remedies shall be limited to replacement only of the product which failed to conform to ICI's express warranty set forth above. Replacement product shall be identical to original product supplied. Buyer shall be responsible for all freight costs and shall bear all risk of loss or damage to returned goods while in transit. This Limited Warranty does not cover installation, removal, reinstallation, or labor costs, and excludes normal wear and tear. Buyer shall provide labor for the removal of the defective component or item and installation of its replacement at no charge to ICI. This Limited Warranty does not cover any product if: (i) a product is altered or modified from its original manufactured condition, (ii) any repairs, alterations or other work has been performed by Buyer or others on such item, other than work performed with ICI's authorization and according to its approved procedures; (iii) the alleged defect is a result of abuse, misuse, improper maintenance, improper installation, accident or the negligence of any party; (iv) damaged as a result of events beyond ICI's control or other force majeure events or (v) used in conjunction with equipment, components, accessories, parts or materials not supplied or approved by ICI. This Limited Warranty is limited to the obligation to replace the manufactured product. This is the sole and exclusive remedy for any breach of warranty. **IN NO EVENT SHALL INTELLIMETER BE LIABLE FOR ANY INDIRECT, INCIDENTAL, SPECIAL, CONSEQUENTIAL OR PUNITIVE DAMAGES (INCLUDING ANY DAMAGE FOR LOST PROFITS) ARISING OUT OF OR IN CONNECTION WITH THE FURNISHING OF PRODUCTS, PARTS OR SERVICES, OR THE PERFORMANCE, USE OF, OR INABILITY TO USE ANY PRODUCTS,**

Section 9 - Commissioning

Unless otherwise stated, commissioning, if quoted, is limited to the verification of the operation of the metering system and to one site-visit not exceeding four (4) hours) of service time. It requires the presence of the Electrical or Mechanical contractor during commissioning and that the system being metered is fully operational. Additional visits will be charged at the standard rates effective at the date the commissioning service is performed.

Section 10 - Loss or Damage of Goods in Transit

Delivery of goods by ICI will be deemed to be made to the Purchaser upon obtaining a signed receipt from the carrier showing receipt of the goods in good order. Title to the goods will remain with ICI until payment in full is made by the Purchaser and all risk for safekeeping and condition of the goods will become the responsibility of the Purchaser upon deemed delivered. ICI is not liable for any loss or damage, delay or non-delivery. ICI's responsibility ceases upon receipt of acknowledgment in writing from the carrier of shipments in good order.

Section 11 - Safety

Site and working conditions must meet conditions as laid out in the applicable Health and Safety Act and Regulations. No ICI employee is required to work on equipment which has not, in his or her sole opinion, been placed in an electrically safe state for the work to be performed. It is at the sole discretion of ICI to accept the safety procedures, working conditions and required number of support staff to commence with the work. The purchaser shall supply to ICI at the request of ICI and at no cost to ICI a qualified tradesman when working on equipment.

Section 12 - Governing Law

The terms, provisions and conditions hereof and all matters arising out of the execution, construction, interpretation or breach thereof, are to be governed by the laws of Ontario, Canada. ICI agrees to bring any action claims or legal proceedings in any way pertaining to this order, or the execution, construction, interpretation or breach thereof in the courts of the jurisdiction specified above and in no other court or tribunal whatsoever.

We reserve the right to correct clerical errors.