

# Hand held ultrasonic flow meter



Main Unit

TDS-100H hand held ultrasonic flow meter is a battery power ultrasonic flow meter ,the capability of a full size flow meter. it is carefully designed for portability and easy for use .

- Better than 1% accuracy
- 0.2% of repeatability
- 4×16 English letters LCD display
- Operate with clamp on transducers
- RS 232 interface or 1-channel isolated OCT output
- Pipe diameters from 15mm to 6000mm
- Ni-MH battery operation of over 12 h
- 90~230VAC power supply
- Internal data logger

## Outline Diagram



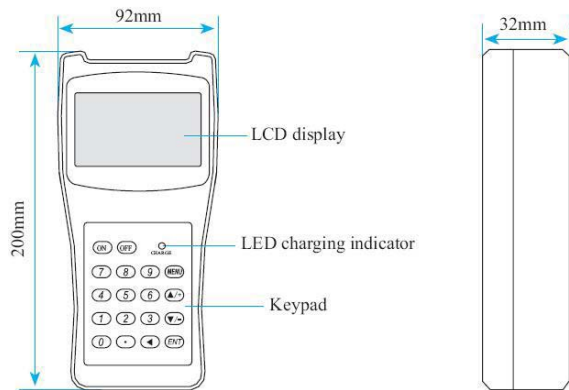
Dedicated shielded transducer cable 5 meter × 2



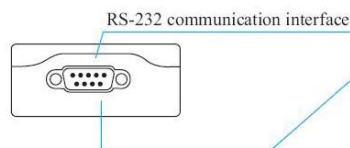
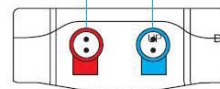
HM-type clamp-on transducer for DN50~DN700mm



Aluminum carrying case



upstream transducer socket      downstream transducer socket



- 1 Charge the battery anode
- 2 RXD
- 3 TXD
- 4 Null
- 5 GND: GND
- 6 OCT output
- 7 Null
- 8 Charge the battery cathode
- 9 The ring input to Connect the modem

# Hand held ultrasonic flow meter

## Transducer Options



S2-type transducer



M2-type transducer



L2-type transducer



HS-type transducer



HM-type transducer

## Transducer Parameters

Technical parameters	HS-type	HM-type	S2-type	M2-type	L2-type
Pipe size (mm)	DN15~100	DN50~700	DN15~100	DN50~700	DN300~6000
Pipe size (inch)	( 1/2~4" )	( 2~28" )	( 1/2~4" )	( 2~28" )	( 12~240" )
Material	Aluminum alloy		Plastic alloy		
Frequency	1MHz				
Installation method	V ( N/V )	V/Z	V(N/W)	V/Z	Z
Calibration	Calibrate with main unit				
Magnetism	Magnetic				
Temperature	32F~320F ( 0°C~160°C )				
Protection class	IP65				
Dimension (mm)	200×25×25	280×40×40	45×30×30	71×37×40	91×52×44
Weight (g)	250	1080	75	259	535
Liquid types	water、 sea water、 waste water, chemical liquids, oil, crude oil, alcohol, beer, etc.				
Suspension concentration	< 10,000ppm and particle size less than 80um. May contain very small amount of air bubbles.				
Pipe material	carbon steel、 stainless steel、 cast iron、 copper、 PVC、 aluminum、 fiberglass-epoxy, ect. Allow pipe liner				
Cable	Shielded transducer cable. Standard length 5m×2. Can be extended to 10m×2 or 15m×2				

# Portable ultrasonic flow meter



TDS-100P is a portable ultrasonic flow meter, built-in printer, with high accuracy battery-powered easy to use etc.

- Batter then 1% accuracy
- 0.2% of repeatability
- 2 × 10 English letters LCD display
- Operate with clamp on transducers
- Pipe diameters from 15mm to 6000mm
- RS 485 interface
- Built-in thermal printer
- Ni-MH battery operation of over 24 h
- 220VAC or 110VAC power supply



Transducer cable 5 meter × 2

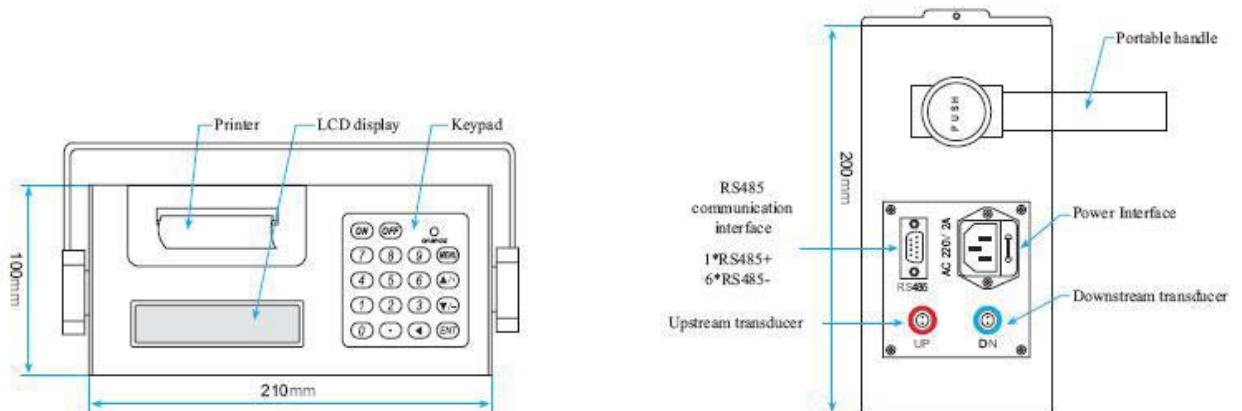


M2-type clamp on transducer



Aluminum carrying case

## Outline Diagram



# Portable ultrasonic flow meter

## Transducer Options



S2-type transducer



M2-type transducer



L2-type transducer



HS-type transducer



HM-type transducer

## Transducer Parameters

Technical parameters	HS-type	HM-type	S2-type	M2-type	L2-type
Pipe size (mm)	DN15~100	DN50~700	DN15~100	DN50~700	DN300~6000
Pipe size (inch)	( 1/2~4" )	( 2~28" )	( 1/2~4" )	(2~28" )	( 12~240" )
Material	Aluminum alloy		Plastic alloy		
Frequency	1MHz				
Installation method	V ( N/V )	V/Z	V(N/W)	V/Z	Z
Calibration	Calibrate with main unit				
Magnetism	Magnetic				
Temperature	32F~320F ( 0°C~160°C )				
Protection class	IP65				
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Pipe material	carbon steel、 stainless steel、 cast iron、 copper、 PVC、 aluminum、 fiberglass-epoxy, ect. Allow pipe liner				
Cable	Shielded transducer cable. Standard length 5m×2. Can be extended to 10m×2 or 15m×2				

# Separate fixed ultrasonic flow meter



TDS-100F1 (wall mount)



TDS-100FS (Panel mount)

TDS-100F is a fixed mounted ultrasonic flow meter, and can operate with all our instruments transducer. Their electronic enclosures are rated as IP65, thus, can be installed for both indoor and outdoor.

- Better than 1% accuracy
- 0.2% of repeatability
- 2×20 English letters LCD display
- 4×4 key tactile-feedback membrane keypad
- 85~264VAC or 24VDC power supply
- Pipe diameters from 15mm to 6000mm
- Operate with clamp on, insertion and flow-cell transducer
- Five channel analogue 4-20mA input. (version 7)
- One channel programmable 4-20mA output
- Two channel programmable digital out (isolated OCT and Relay)
- Frequency output
- IP65
- ★SD USB data memory ( 1G, 4G ,8G etc )

## Transducer Options



S2-type transducer



M2-type transducer



L2-type transducer



B-type transducer



B-long type transducer



Articulate type transducer



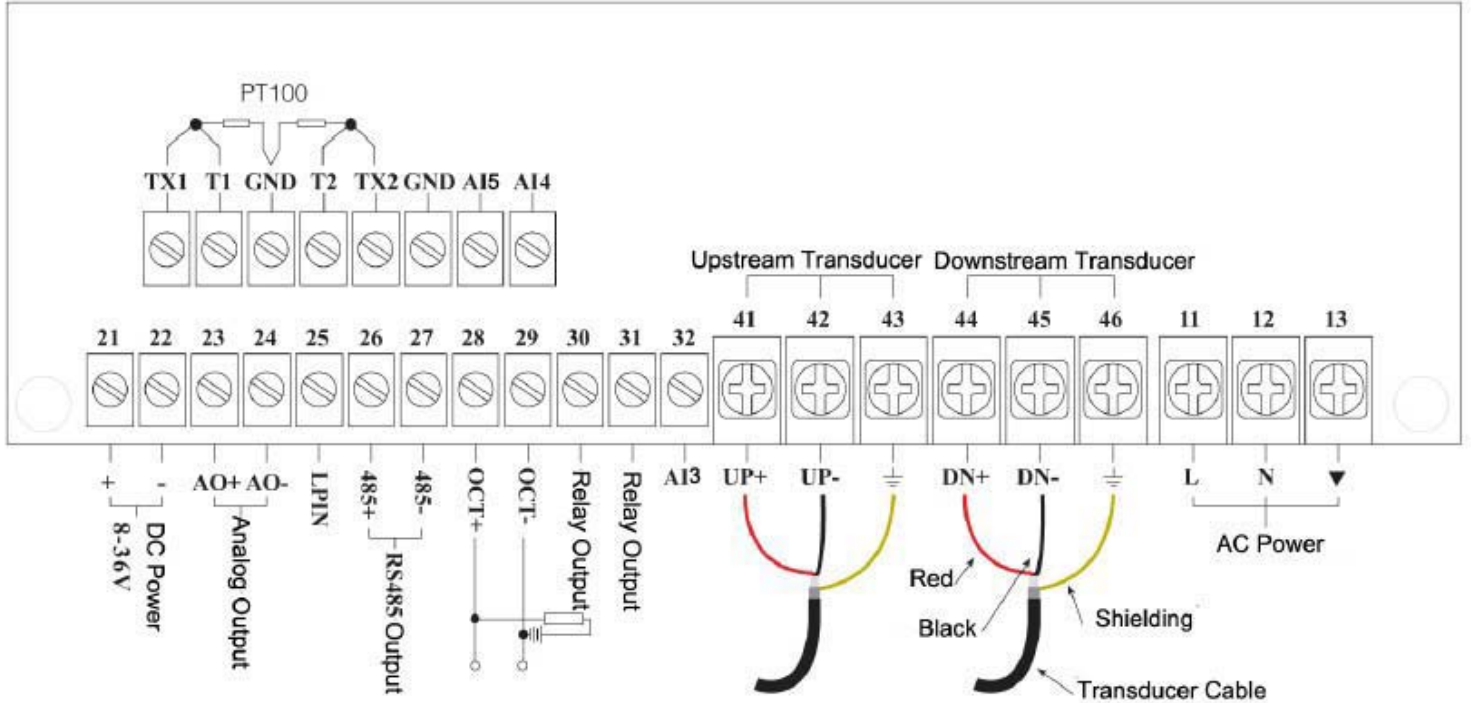
PI-type transducer



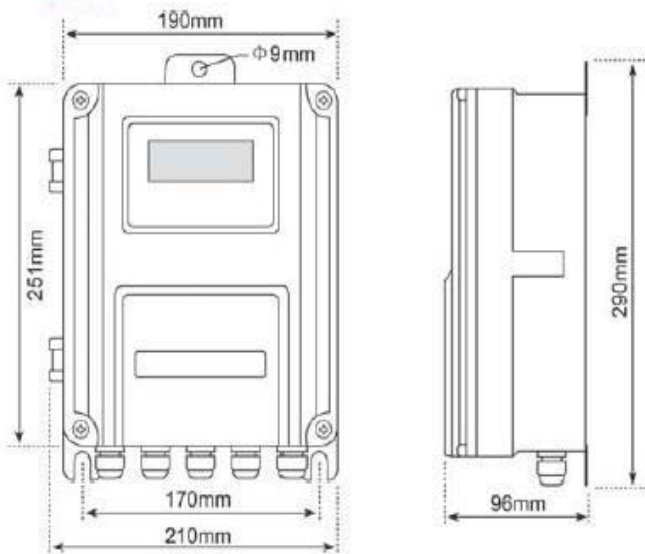
Standard pipe transducer

# Separate fixed ultrasonic flow meter

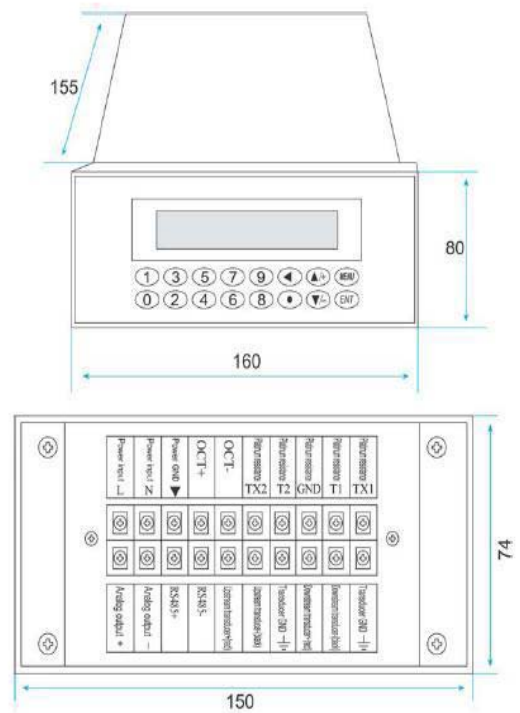
## Wiring Diagram



**TDS-100F1 (Wall-mount)**



**TDS-100FS (Panel mount)**



# Ultrasonic flow module



The TDS-100M modular ultrasonic flow meter can work alone without a LCD and Keypad module, the module can be used alone as a flow meter. Users can even integrate a number of the modules into a multi-channel flow meter that can measure up to several dozen of different pipes or a flow meter that has higher accuracy by measuring the same pipe with all the channels, The design of the meter is intended to provide for users like system integrators and OEM users with a lowest cost but of high performance flow meter.

- 8-36VDC
- RS485 .4-20mA and OCT output
- 4-20mA and PT100 platinum resistance input
- 2×20 English letters LCD display
- 4 key tactile-feedback membrane keypad
- IP57
- Operate with clamp on, insertion and flow-cell transducer
- Pipe diameters from 15mm to 6000mm

## Transducer Options



S2-type transducer



M2-type transducer



L2-type transducer



B-type transducer



B-long type transducer



Articulate type transducer



PI-type transducer



Standard pipe transducer

# Transducer recommendation

## Clamp-on transducer

A pair of clamp-on transducer to measure the flow from outside of a pipe, there is no pressure drop, no leaks and no Contamination. The installation is very simple and no special skills or tools are required.



S2-type transducer



M2-type transducer



L2-type transducer

## Transducer Options

Technical parameters	S2-type	M2-type	L2-type
Pipe size (mm)	DN15~100	DN50~700	DN300~6000
Pipe size (inch)	( 1/2~4" )	( 2~28" )	( 12~240" )
Material	Plastic alloy		
Frequency	1MHz		
Installation method	V(N/W)	V/Z	Z
Calibration	Calibrate with main unit		
Magnetism	Magnetic		
Temperature	32F~320F ( 0°C~160°C )		
Protection class	IP65		
Dimension (mm)	45×30×30	71×37×40	91×52×44
Weight (g)	75	259	535
Liquid types	Water、 sea water、 waste water, chemical liquids, oil, crude oil, alcohol, beer, etc.		
Suspension concentration	< 10,000ppm and particle size less than 80um. May contain very small amount of air bubbles.		
Pipe material	Carbon steel、 stainless steel、 cast iron、 copper、 PVC、 aluminum、 fiberglass-epoxy, ect. Allow pipe liner		
Cable	Standard length 5m×2. Can be extended to 10m×2 or 15m×2		



# Insertion wetted transducer

A pair of insertion-type transducers are inserted into the pipe wall to interrogate the flow in the pipe. Since the transducers do not extrude into the flow, they do not generate any disturbance or cause any pressure drop. There is no moving parts to wear out.



**B-type transducer  
( direct insertion )**



**B-long type transducer  
( cement insertion )**

If the pipe material is carbon steel or stainless steel can be installed directly welding, but if the pipe material is cast iron, FRP,PVC or cement please contact with the manufacturer to order the dedicated pipe hoop. To prevent leak water please give the exact outside Diameter or perimeter to the manufacturer.

Technical parameters	B-type insertion wetted transducer (direct insertion)	Cement insertion wetted transducer
Pipe size	More than DN80mm	
Material	Ball valve and transducer pole's material: stainless steel, Valve base's material is carbon steel (stainless steel is optional)	
Frequency	1MHZ	
Pipe material	All metals, most plastics, fiber glass,etc.	
Installation method	Z method	
Application of temperature	-40℃-160℃	
Bore size	Φ19mm (please use the manufacture's dedicated tools to drill, it can install with pressure.)	
Pressure class	1.6MPa( less than 0.8MPa when installing)	
Protection class	IP68 (can work in water and water depth ≤ 3 meter)	
Mounting Space	More than 550mm between the well wall and the pipe wall	More than 700mm between the well wall and the pipe wall
Length	186mm	330mm
Liquid types	Water, sea water. Waste water, chemical liquids, oil, crude oil, alcohol, beer, etc	
Suspension concentration	≤2000ppm, may contain very small amount of air bubbles	
Cable	Shielded transducer cable, can be extended to 500 meter×2 contact the manufacturer for longer cable requirement, but the cable for water meter transducer do not more than 5 meter.	

# Flow-cell transducer

Transducer is a flow-cell (or spool-piece), where a pair of ultrasonic sensors have already been built in. the flow cell transducer is accurately calibrated in the factory. When it is put in line with the testing pipe, the accuracy normally does not change. with high accuracy, good stability, easy to use, etc.



Articulate type transducer



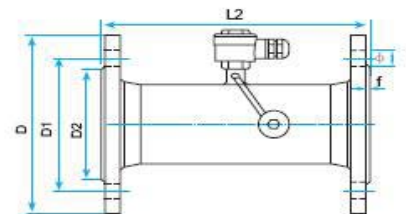
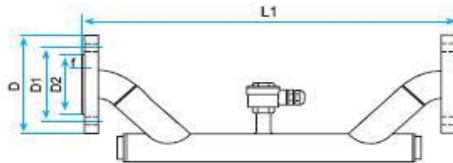
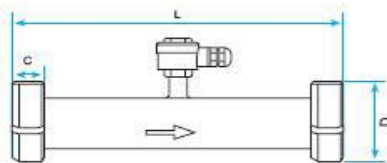
PI-type transducer



Standard pipe transducer

## Transducer parameters

Technical parameters	Articulate type transducer	PI-type transducer	Standard pipe transducer
Main unit	Integrated type, wall-mount, converter, module		Integrated type, wall-mount, converter, Module, water meter
Pipe size	DN25-DN80mm	DN15-DN40mm	DN50-DN1000
Material	Stainless steel		Carbon steel (stainless steel is optional )
Frequency	1MHZ		
Connection	Joint type	Flange type	
Application of temperature	-40°C-160°C		
Calibration	Calibrate with the main unit		
Protection class	IP68 ( can work in water, and water depth $\leq$ 3 meter )		
Dimension	Refer to the following table		
Nominal pressure	Refer to the following table		
Liquid types	Water, sea water. Waste water, chemical liquids , oil crude oil, alcohol, beer, etc.		
Suspension concentration	$\leq$ 20000 ppm , may contain very small amount of air bubbles.		
Cable	Shielded transducer cable, can be extended to 500 meter $\times$ 2 contact the manufacturer for longer cable requirement, but the cable for water meter transducer do not more than 5 meter.		



# Flow-cell transducer

## Joint type

Nominal diameter DN (mm)	Rated pressure (MPa)	Pipe material	Joint dimension			
			L	H	D	C
25	4.0	Stainless steel	300	282	51	19
40			300	300	74	23
50			300	310	84	24
65			350	330	100	28
80			400	345	114	30

## Flange type

Nominal diameter DN(mm)	Rated pressure (MPa)	PI-type	Standard- pipe	Flange dimension (mm)						
		L1	L2	D	D1	D2	f	N-Φ	Thickness	
15	2.5	320		95	65	46	2	14×4	14	
20		360		105	75	56	2	14×4	16	
25		390		115	85	65	3	14×4	16	
32		450		140	100	76	3	18×4	18	
40		500		150	110	84	3	18×4	18	
50	1.6		200	165	125	99	3	18×4	20	
65			200	185	145	118	3	18×4	20	
80			225	200	160	132	3	18×8	20	
100			250	220	180	156	3	18×8	22	
125			250	250	210	184	3	18×8	22	
150			300	285	240	211	3	22×8	24	
200			350	340	295	266	3	22×12	24	
250			450	405	355	319	3	26×12	26	
300			500	460	410	370	4	26×12	28	
350			550	520	470	429	4	26×12	30	
400			600	580	525	480	4	26×16	32	
450			700	640	585	548	4	30×20	34	
500		1.0		800	670	620	585	4	25×20	32
600				1000	780	725	685	5	30×20	36
700		0.6		1100	860	810	775	5	24×25	32
800			1200	975	920	880	5	24×30	32	
900			1300	1075	1020	980	5	24×30	34	
1000			1400	1175	1120	1080	5	28×30	36	



Dalian Taijia Technology Co.,Ltd

Thank you for your attention

Dalian Taijia Technology Co.,Ltd

NO.5 Shanshui Yuan, High-tech Industrial Zone Dalian, China

Phone:86-411-39685079

Fax:86-411-841-39685079

E-mail:[ndt@tmeasurement.com](mailto:ndt@tmeasurement.com)

Web: [www.tmeasurement.com](http://www.tmeasurement.com)