PORTABLE ULTRASONIC FLOW AND ENERGY METER

DXN SERIES

DESCRIPTION

The **Badger Meter DXN Series portable ultrasonic flow and energy meter** is capable of measuring liquid flow with multiple technologies, including: Doppler, transit time and liquid thermal (heat energy) flow. Easy to install the DXN measures flow using non-invasive ultrasonic sensors. Compatible with a pipe wall thickness gauge, inside pipe diameter can be verified to ensure accurate ultrasonic measurements when piping details are unknown or unavailable.

The **DXN Series** has a number of advanced features including a touchscreen interface, full-color graphing, wizard-based start-up configuration, USB connectivity, and Modbus TCP/IP connectivity The **DXN Series** captures and displays multiple user-defined and application parameters at once and can record the data with an easy-to-use data logging function.

DXN w Transducers

SPECIFICATIONS

Supply Voltage	10-30 VDC via-3-pin connector, 40 W min; 3.6A resettable fuse Supplies: Desktop adapter: 100-240 VAC 50/60 Hz 50 W 10V-18V; Cigarette lighter adapter: 5A fused
Flow Rate Accuracy	Transit Time: ±1% of reading or ±0.01 FPS (0.003 MPS), whichever is greater
Doppler	2% of full scale
Flow Sensitivity	0.001 FPS (0.0003 MPS)
Output Current	4-20 mA active/passive 1% accuracy
Output Voltage	0-5 V or 0-10 V output voltage, 1% accuracy
Software Scaling and Control	100Ω output impedance
Input Signal	Voltage input. 0-5V or 0-10 V, 1% accuracy
Software Scaling and Control	80kΩ input impedance
Sensor Input	14 V @ 50 mA max for powering current or voltage sensors
Digital Inputs	Totalizer reset, external pull-up
Cable Length	Transit time: 20' (6 m) paired coaxial cable, BNC to BNC, Doppler: 20' (6 m) paired coaxial cable, BNC to 4-pin
Repeatability	±0.1% of reading
Display	800 x 480 WVGA Color Outdoor Readable Display; Gloved-operation resistive touch screen
Pipe Size Range	1/2" and larger; US standard pipe tables are built into User interface
Velocity Range	Transit Time: Bi-directional to 40 FPS (12 MPS)
Doppler	Uni-directional to 40 FPS (12 MPS)
Relay Output	Open collector, external or pull-up
Rate or Total Pulse User Selectable	Rate pulse: 0-1000 Hz Total pulse: 33 ms duration
Battery	Internal 11.1 V lithium ion battery, 75W-hr. Provides 6-9 hrs of continuous operation with battery and indefinitely on external power. Charging 32° to 104°F (0° to 40°C), 12 hours while in use; 4 hours powered off
Breakout Box	0.2" quick disconnect screw terminals; 15 pin to adapter box; 6' (1.8 m) of cable (DSUB to DSUB connectors)
Connector	15-pin high-density DSUB
Energy or Temperature	2x RTDs PT1000 tab type; can handle various temperature ranges from -58° to 570°F (-50° to 300°C), based on RTD type
Housing Material	DTTSU: CPVC, Ultem®, and anodized aluminum track system; Nickel-plated brass connector with Teflon® insulation DTTN/DTTL/DT94: CPVC, Ultem®; Nickel-plated brass connector with Teflon® insulation
Liquid Types	Liquid dominant fluids
Logging Sampling Rate	>300 sites stored in 1 GB; downloads to USB Flash drive
Measurement Update	0.1-10 seconds update/filter rate. Transit time, up to 50 Hz high speed mode
Pipe Surface Temperature	DTTSU/DTTN/DTTL: -40° to 250°F (-40° to 121°C) DT94: -40° to 250°F (-40° to 121°C)
Pipe Thickness	Dual mode transducer with 6' (1.8 m) of cable (BNC ends)
Power Cords	North American plug (2 flat & 1 round prong; NEMA 5/15P); China plug (3 flat prongs; GB2099); Euro plug (2 round prongs; CEE7/7); U.K. plug (3 rectangular prongs; BS1363A); Japan plug (2 flat & 1 round, JIS8303, w/ 3-2 prong adapter)
RTDs	2x platinum 385, 1000Ω, 3-wire PVC jacketed cable standard with quick connector
Temperature Accuracy	Absolute 0.5°F (1°C); Difference 0.2°F (0.5°C);
Resolution	0.02°F (0.01°C)
Transducer Frequency	DTTSU: 2 MHz, DTTN: 1 MHz, DTTL: 500 kHz DT94: 625 kHz
User Menu	Windows .NET fully integrated user menu; multi-language: English, Spanish, German, French, Portuguese, Japanese, Russian, Italian, Dutch, Norwegian, and Swedish
Operating Temperature	Battery powered: -4° to 110°F (-20° to 45°C) Externally powered: -20° to 140°F (-30° to 60°C)
Enclosure Rating	Water/Dust resistant [IP 64]
Approvals	CSA
Warranty	1 year

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SENSOR AND HARDWARE KIT OPTIONS

Basic	Small pipe and standard pipe transit time transducers (1) Couplant, grease; 5.3 oz; Dow 111 (1) Couplant, Ultrasound gel; 0.25 liter bottle (4) Stainless steel straps (1/2" wide, 12-5/16" max dia., worm drive clamp)
All Transit Time	Basic Kit and large pipe transducers
Hybrid	Basic kit and Doppler transducers

Energy	Basic kit and non-invasive RTDs (1) Silicone Heat Sink Compound; 5 oz syringe (1) RTD Installation tape, 36 ft
Full	Basic kit plus all, transit time, Doppler, RTDs and pipe wall thickness gauge (1) Silicone Heat Sink Compound; 5 oz syringe (1) RTD Installation tape, 36 ft (2) Stainless steel straps (1/2" wide, 21-1/4" max dia., worm drive clamp)

PARTS AND ACCESSORIES

Power Cords/Cables

Part Number	Description
D005-2109-013	North American plug (2 flat & 1 round prong; NEMA 5/15P)
D005-2109-015	UK plug (3 rectangular prongs; BS1363A)
D005-2109-016	Euro plug (2 round prongs; CEE7/7)
D005-2109-017	Japan plug (2 flat & 1 round, JIS8303, w/ 3-2 prong adapter)
D005-2109-014	China plug (3 flat prongs; GB2099)
D005-2129-020	Transit time Cables, 20' (6 m)
D005-2129-050	Transit time Cables, 50' (15 m)
D005-2129-100	Transit time Cables, 100' (30 m)
D005-2130-020	Doppler Cables, 20' (6 m)
D005-2130-050	Doppler Cables, 50' (15 m)
D005-2130-100	Doppler Cables, 100' (30 m)

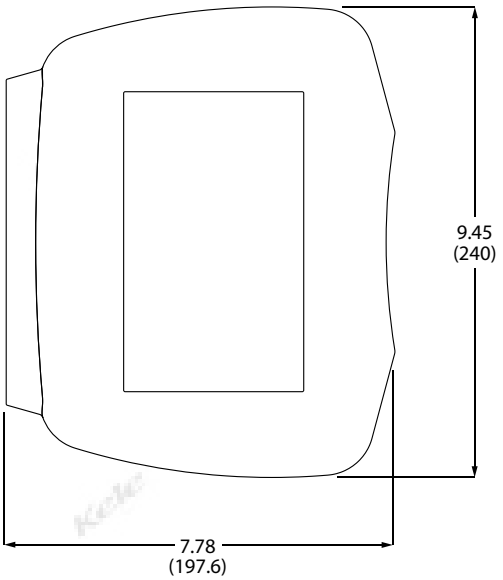
Transducers (Heads with case)

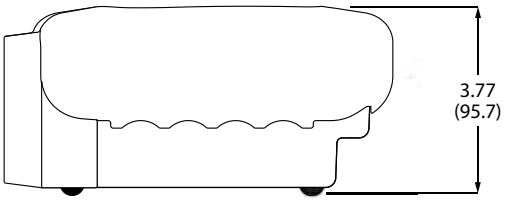
Part Number	Description	Minimum Pipe O.D.	Maximum Pipe O.D.
D010-2200-002-C	DTTSU universal small pipe	0.5" (12 mm)	2.4" (60.3 mm)
D071-0110-000-C	DTTN standard pipe	2" (50 mm)	98" (2500 mm)
D071-0110-200-C	DTTL large pipe	16" (400 mm)	120" (3050 mm)
D071-0112-001-C	DT94 Doppler transducer	1" (25 mm)	60" (1524 mm)

RTDs/Accessories/Spare Parts

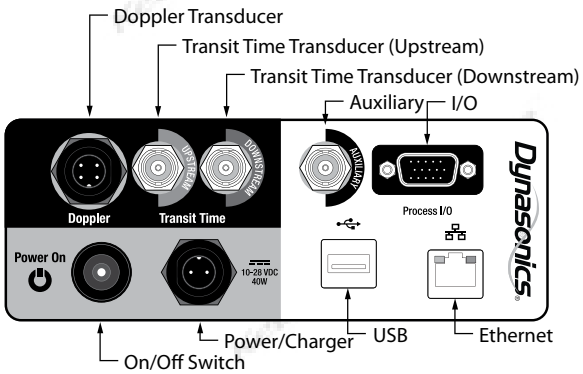
Part Number	Description
D002-2007-004	0… 392º F (200º C) RTD Silicone stretch tape
D002-2007-001	36" (914 mm) SS Hose clamp / transducer strap
D002-2007-005	72" (1829 mm) SS Hose clamp / transducer strap
D002-2011-001	Acoustic couplant, grease (Dow 111), 150° F (65° C) 5.3 oz tube
D002-2011-011	Acoustic couplant, paste high temperature, 142 gram tube, 392° F (200° C)
D010-3000-128	Industrial RTD Kit,[1] 1000 Ohm, 392° F (200° C); 20' (6 m) cable
D010-3000-129	Building Automation RTD Kit,[1] 1000 Ohm, 266° F (130° C); 20' (6 m) cable

DIMENSIONS





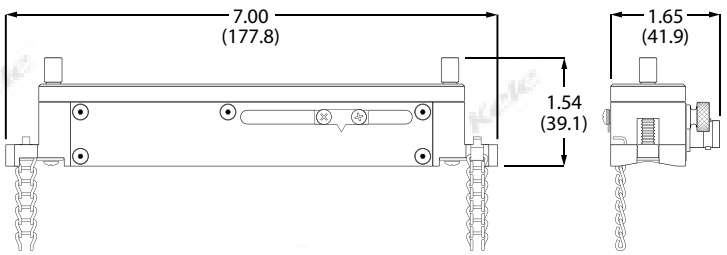
DXN Connection Panel



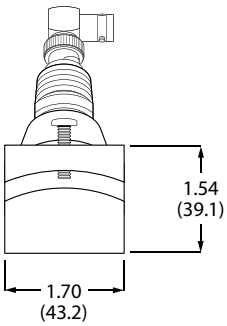
Transducer Pipe Size Requirements

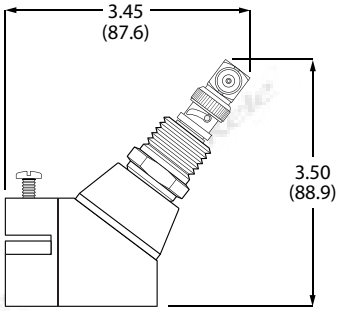
	Minimum Pipe O.D.	Maximum Pipe O.D.
DTTSU	.5" (12 mm)	2.4" (60.3 mm)
DTTN	2" (50 mm)	98" (2500 mm)
DTTL	16" (400 mm)	120" (3050 mm)
DT94	1" (25 mm)	60" (1524 mm)

DTTSU Transit Time Transducer

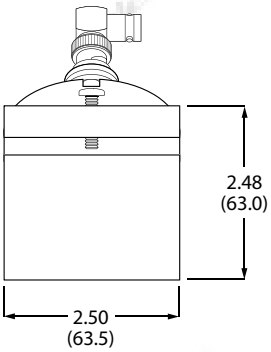


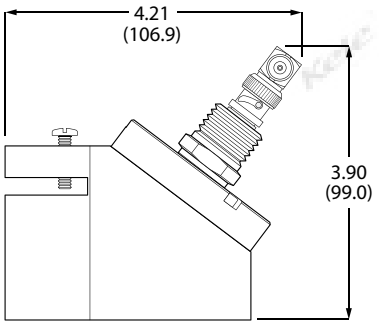
DTTN Transit Time Transducer



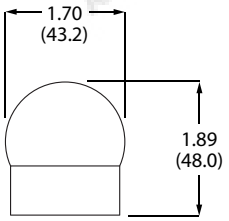


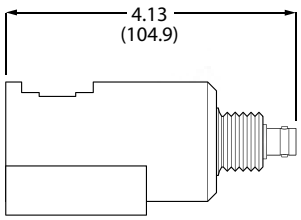
DTTL Transit Time Transducer





DT94 Doppler Transducer





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ORDERING INFORMATION

MODEL	DESCRIPTION
DXNP	Portable Clamp-on Ultrasonic Flow Meter
	POWER CORD
A	North American (120 VAC adaptor)
U	U.K., Singapore
E	Euro
J	Japan
C	China
	SENSOR & HARDWARE KIT
B	Basic (for 1/2" to 98" pipes)
T	All transit time (for 1/2" to 120" pipes)
H	Hybrid (for 1/2" to 60" pipes)
E	Energy (basic kit and 2 RTD's)
F	Full (all B, T, H, E components above)
	CARRYING CASE
S	Standard - Outer case with shoulder strap
	APPROVALS
N	CE + General Safety, U.S., Canada, and EU
	OPTIONS
N	None

DXNP – **A** – **B** - **S** - **N** - **N**

Example: **DXNP-A-B-S-N-N** Portable clamp-on ultrasonic flow meter with North American power cord, basic sensor and hardware kit, standard carrying case, CE + General Safety approvals and no options