

**TTFM 6.1 Ultrasonic Transit Time Flow Meter**

Approximate shipping weight: 12 lbs / 5.5 kg

**STANDARD FEATURES:**

- Pair of SE16B ultrasonic transducers -  
clamp-on for 2" to 10" (50 mm to 250 mm) pipes
- Sensor cables - pair 25 ft / 7.6 m triaxial with BNC connectors
- Flow rate range -  $\pm 0.07$  to 40 ft/sec ( $\pm 0.02$  to 12 m/sec)
- Accuracy -  $\pm 1.0\%$  of flow rate from 1.5 to 40 ft/sec (0.46 to 12 m/sec)  
 $\pm 0.015$  ft/sec ( $\pm 0.0046$  m/s) below 1.5 ft/sec (0.46 m/s)
- Installation – TMK-B1 kit; Stainless steel transducer brackets, mounting clamps,  
alignment bar and coupling compound
- Enclosure - watertight, NEMA4X (IP66) polyester and polycarbonate
- Display - white, backlit matrix, with 14 digit totalizer
- Calibration – Wet calibrated at factory. Built-in 5-key programmer
- Outputs - isolated 4-20mA (1000 ohm), and 2 control relays - 5 amp, SPDT  
programmable for flow proportional pulse output, flow direction, and/or flow alarm
- Datalogger – 26 million data point capacity
- Power input - 100-240VAC 50/60Hz, 10 VA maximum
- CE, Transducers Non-Incendive for Class 1 Div 2, Groups A,B,C,D

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**TTFM 6.1 Ultrasonic Transit Time Flow Meter**

Model

TTFM 6.1 - \_\_\_\_\_

Approximate shipping weight: 12 lbs / 5.5 kg

**POWER INPUT**

Standard – 100-240VAC 50/60Hz, 10VA Maximum	A
9-32VDC, 10W Maximum	B

**ENCLOSURE & ELECTRONICS PROTECTION**

Standard – NEMA4X (IP66) polycarbonate enclosure	1
NEMA4X polycarbonate enclosure with conformally coated electronics	2
CXJ8106 – Explosion Proof NEMA7 (CSA Class I, Div 1) <sup>1</sup>	3
CXJ8106 – Explosion Proof NEMA7 (ATEX/IECEX Ex db IIB+H2 Gb) <sup>1</sup>	4

<sup>1</sup>Lead Time for a TTFM 6.1 with this option is 2 weeks. Non-returnable & Non-refundable

**ENCLOSURE TEMPERATURE RATING**

Standard – (-5° to 140°F / -20° to 60°C)	A
Heater and Thermostat, 115VAC, 15 VA additional to Power Input (25 VA total)	B
Heater and Thermostat, 230VAC, 15 VA additional to Power Input (25 VA total)	C

**INTRINSIC SAFETY**

Standard – All Transducers, Non-Incendive for Class 1 Div 2, Groups A,B,C,D	1
QTY 2 ISB Intrinsic Safety Barriers for transducer installation in Class I, Div 1, Groups C,D; Class II, Groups E,F,G; Class III; Encl. Type 4	2
QTY 2 ISB Intrinsic Safety Barriers for transducer installation in ATEX/IECEX Zone 0, Ex ia IIB T4 Ga	3

**TRANSDUCERS**

Standard – SE16B pair, recommended for 2 to 10 inch (50 to 250 mm) nominal pipes, BNC connectors and IP65 rating	B
SE16A pair, recommended for 0.5 to 2 inch (15 to 50 mm) nominal pipes, BNC connectors and IP65 rating	A1
SE16A pair, recommended for 0.5 to 2 inch (15 to 50 mm) pipes, sealed cable with IP67 rating, for installation in wet environments	A2
SE16C pair, recommended for 12 to 48 inch (300 to 1,200 mm) nominal pipes, BNC connectors and cable strain-relief fittings for IP68 rating (up to 3m for 3 hrs)	C

**TRANSDUCER MOUNTING HARDWARE**

**IMPORTANT: Hardware Must Match Transducer Selection**

TMK-B1 for SE16B transducers – Includes brackets, clamps, and alignment bar	1
TMK-B21 for SE16B transducers – Includes conduit-ready & heavy-duty stainless brackets, clamps, and alignment ruler for 2-6" pipes	2
TMK-B22 for SE16B transducers – Includes conduit-ready & heavy-duty stainless brackets, clamps, and alignment ruler for pipes ≥ 8"	3
TMK-A1 for SE16A transducers – Includes track mount with built-in ruler, and clamps	4
TMK-C1 for SE16C transducers – Includes brackets, clamps, and alignment bar with built-in ruler. For 12" to 18" (300 mm to 450 mm) pipes.	5
TMK-C2 for SE16C transducers – Includes brackets, clamps, and alignment bar with built-in ruler. For 20" to 48" (500 mm to 1200 mm) pipes.	6

**TRANSDUCER CABLES & CONNECTIONS**

Standard – 25 ft / 7.6 m pair triaxial with BNC connectors and seal jackets	A
50 ft / 15 m pair triaxial with BNC connectors and seal jackets	B
100 ft / 30 m pair triaxial with BNC connectors and seal jackets	C

**SERIAL COMMUNICATIONS**

Standard – None	1
Modbus® RTU via RS-485 or HART (field selectable)	2

**CONTROL RELAYS**

Standard – 2 relays, rated 5 amp SPDT, programmable	A
4 Extra Relays (6 total), rated 5 amp SPDT, programmable	B

**OPTIONS AND ACCESSORIES**

QTY	CODE	DESCRIPTION
	TXC	Transducer cable extension up to 500 ft / 150 m (Triaxial pair)
	JB4X	Transducer cable Junction Box, NEMA4X/IP66
	TMK-A1	Transducer Mounting Kit with track mount with built-in ruler, pair of pipe clamps for OD up to 4" (100 mm), and Super Lube® coupling compound
	TMK-B1	Transducer Mounting Kit with pair of stainless mounting brackets, pair of pipe clamps for OD up to 30" (750 mm), alignment bar, and SuperLube® coupling compound
	TMK-B21	Transducer Mounting Kit with pair of stainless heavy-duty & conduit-ready mounting brackets, pair of pipe clamps, alignment ruler for 2-6" pipes, and SuperLube® coupling compound
	TMK-B22	Transducer Mounting Kit with pair of stainless heavy-duty & conduit-ready mounting brackets, pair of pipe clamps, alignment ruler for 8" and larger pipes, and SuperLube® coupling compound
	TMK-C1	Transducer Mounting Kit with pair of stainless mounting brackets, pair of pipe clamps for OD up to 18" (450 mm), alignment bar with built-in ruler, and SuperLube® coupling compound
	TMK-C2	Transducer Mounting Kit with pair of stainless mounting brackets, pair of pipe clamps for OD up to 48" (1200 mm), alignment bar with built-in ruler, and SuperLube® coupling compound
	TMK-B1S	TMK-B1 mounting kit with Expansion Springs – for outdoor HDPE pipe installations
	TMK-B21S	TMK-B21 mounting kit with Expansion Springs – for outdoor HDPE pipe installations
	TMK-B22S	TMK-B22 mounting kit with Expansion Springs – for outdoor HDPE pipe installations
	PC16-MB1	Replacement Stainless Transducer Mounting Bracket (from TMK-B1 kit)
	PC16-MB2-S	Replacement Stainless Transducer Mounting Bracket (from TMK-B2 kit) – Stationary Side (Ruler screws into this bracket)
	PC16-MB2-D	Replacement Stainless Transducer Mounting Bracket (from TMK-B2 kit) – Dynamic Side (Ruler slides along tris bracket)
	PC9	Replacement SS pipe clamp for pipe OD up to 9" (225 mm)
	PC22	Replacement SS pipe clamp for pipe OD up to 22" (550 mm)
	PC48	Replacement SS pipe clamp for pipe OD up to 48" (1,200 mm)
	CT	Coupling Tape – lower maintenance for permanent installations
	CC-SL30	Super Lube® Coupling Compound, 3.0 oz tube
	CC-SL30HT	Coupling Compound for Fluid Temp. > 120°C (250°F) – Super Lube® Dielectric Grease 3.0 oz tube
	PM	Panel Mount Flange assembly
	SCR	Enclosure Sunscreen (iridite aluminum)

**REPLACEMENT PARTS**

	SE16A*	Spare/Replacement <u>single</u> Transducer (two transducers are used with each flowmeter)
	SE16A-TTT25*	Spare/Replacement <u>single</u> Transducer with sealed 25 foot cable (two transducers are used with each flowmeter)
	SE16A-TTT50*	Spare/Replacement <u>single</u> Transducer with sealed 50 foot cable (two transducers are used with each flowmeter)
	SE16A-TTT100*	Spare/Replacement <u>single</u> Transducer with sealed 100 foot cable (two transducers are used with each flowmeter)
	SE16B*	Spare/Replacement <u>single</u> Transducer (two transducers are used with each flowmeter)
	SE16C*	Spare/Replacement <u>single</u> Transducer (two transducers are used with each flowmeter)
	TTT25	Replacement pair 25 ft (7.6 m) transducer triaxial cables with BNC connectors and seal jackets
	TTT50	Replacement pair 50 ft (15 m) transducer triaxial cables with BNC connectors and seal jackets
	TTT100	Replacement pair 100 ft (30 m) transducer triaxial cables with BNC connectors and seal jackets

\* Provide Instrument Serial number when ordering replacements