

UTM20 SERIES

Ultrasonic Transit Time Flowmeters

The Spirax Sarco UTM20 ultrasonic transit time flowmeter measures volumetric flow in clean liquids as well as those with small amounts of suspended solids or aeration, such as surface water or raw sewage. UTM20 flow meters clamp onto the outside of pipes and do not make contact with the liquid inside the pipe.

BENEFITS

By clamping onto the outside of pipes, the meters have inherent advantages over other flow meter technologies, including:

- ▶ Reduced installation time and cost
- ▶ Non-invasive, non-contact measurement
- ▶ Continued operation during installation - no need to shut down the process
- ▶ No pressure head loss
- ▶ No moving parts to maintain or replace

FEATURES

- ▶ Large, bi-directional flow measuring range
- ▶ Data log up to 8 parameters
- ▶ Modbus® RTU or BACnet® MS/TP over EIA-485; Modbus TCP/IP; BACnet/IP
- ▶ Configure and troubleshoot over USB with SoloCUE software
- ▶ Reynolds number, ultrasonic speed and temperature compensation
- ▶ Large, easy-to-read graphical display
- ▶ Rugged, aluminum enclosure for a long service life in harsh environments



Operation

Transit time flow meters measure the time difference between the travel time of an ultrasound wave going with the fluid flow and against the fluid flow. The time difference is used to calculate the velocity of the fluid traveling in a closed-pipe system. The transducers used in transit time measurements operate alternately as transmitters and receivers. Transit time measurements are bi-directional and are most effective for fluids that have low concentrations of suspended solids and are sonically conductive.



An ultrasonic meter equipped with heat flow capabilities measures the rate and quantity of heat delivered or removed from devices such as heat exchangers. By measuring the volumetric flow rate of the heat exchanger liquid, the temperature at the inlet pipe and the temperature at the outlet pipe, the energy usage can be calculated.

Technical Specifications - System

Liquid Types	Most clean liquids or liquids containing small amounts of suspended solids or gas bubbles	
Flow Accuracy	Medium and Large Pipes (RZ, NZ, WZ, HZ, LZ, YZ, JZ, KZ)	$\pm 0.5\% \pm 0.0049$ ft/s (0.015 m/s)
	Small Pipes (CA-CT, UZ)	1 in (25 mm) and larger = $\pm 1\% \pm 0.03$ ft/s (0.009 m/s) 3/4 in (20 mm) and smaller = $\pm 1\%$ of full scale
Repeatability	0.2% above 1.5 ft/s	
Velocity	Medium and Large Pipes	Up to 40 ft/s, depending on pipe and fluid
	Small Pipes	Up to 20 ft/s, depending on pipe and fluid
Straight Run Requirements	10 diameters upstream, 5 diameters downstream from single elbow	
Certification and Compliance	<p>General Safety (all models): cCSAus, CE, Pollution Degree 2, CE compliance to Low Voltage Directive, 2014/35/EU</p> <p>U.S./Canada Hazardous Location transmitter and transducers: Transmitter and transducers (certification option B): cCSAus Class I Division 2 Groups ABCD T4 Volumetric Flow Meter Only (not available for Energy Meter) Requires flexible conduit Not available with UZ, HZ or JZ and KZ (Easy Rail) transducers, Auxiliary Dry Contact card</p> <p>Transmitter (certification option R): cCSAus Class I Division 2 Groups ABCD T4; cCSAus Ex ec ic nC IIC T4 Gc; Ex tc IIIB T100° C Dc; Class I, Zone 2, AEx ec ic nC IIC T4 Gc; Zone 22, AEx tc IIIB T100° C Dc; Class II, Division 2, Groups FG; Class III Not available with Auxiliary Dry Contact card</p> <p>Transducers LZ, NZ, RZ, WZ and YZ (certification option R): cCSAus Ex ec IIC T6 Gc; Ex tc IIIB T60° C Dc; Class I, Zone 2, AEx ec IIC T6 Gc; Zone 22, AEx tc IIIB T60° C Dc; Class II, Division 2, Groups FG; Class III Requires flexible conduit Not available with CA-CT, UZ, HZ or JZ and KZ (Easy Rail) transducers</p>	





Technical Specifications - Transmitter

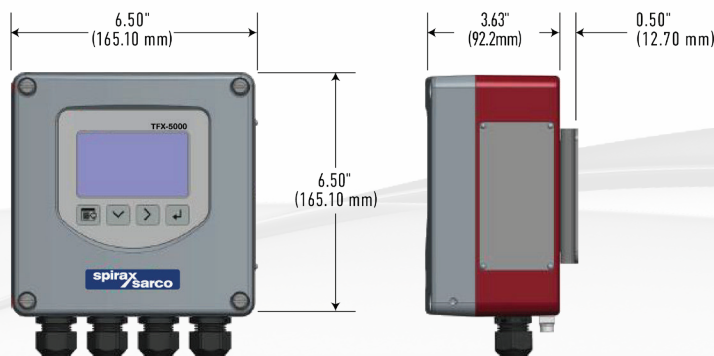
Power Options	24 Vdc/AC	9...28 Vdc @ 8 W max or 20...26 AC 47...63 Hz @ 0.5 A max, 2 Amp slow-blow fuse, not field replaceable
	Mains AC	85...264 Vac 47...63 Hz @ 24VA max 1 Amp slow-blow fuse, manually field replaceable
		Over-Voltage Rating Category II (CAT II)
Display	Options	Display with keypad or no display/keypad
	Keypad	4-button navigation, keypad with tactile feedback; polyester film
	Display	128 × 64 pixel LED backlit graphical display; adjustable brightness and timeout; polycarbonate window
	Flow rate/total	8-digit
Enclosure	NEMA Type 4X, IP67	
Construction	Aluminum construction; painted; wall, panel or pipe mounting; stainless steel fasteners and mounting hardware; EPDM gasket	
	Conduit Holes	(4) 1/2 in NPT, M20 × 1.5 or 1/2 BSPP; cable glands available for NPT and M20
Environmental Ratings	Pollution Degree	2
	Altitude Restriction	Up to 2000 m (6561 ft)
	Ambient Temperature Range	-4...140°F (-20...60°C)
	Storage Temperature Range	-40...176°F (-40...80°C)
	Humidity	0...85%, non-condensing
Configuration	Via optional keypad or SoloCUE configuration software; SoloCUE available on DVD or download	
Units (Field-Selectable)	Velocity	feet/second, meters/second
	Volumetric total	US Gallons, Million Gallons, Imperial Gallons, Million Imperial Gallons, Acre-Feet, Liters, Hectoliters, Cubic Meters, Cubic Feet, Oil Barrels (42 gallons), Fluid Barrels (31.5 gallons), Imperial Fluid Barrels (36 imperial gallons), Pounds (Kilograms) and custom units
	Flow rate	Acre Feet/Day, Liters/Second, Liters/Minute, Liters/Hour, Cubic Meters/Second, Cubic Meters/Minute, Cubic Meters/Hour, Cubic Feet/Minute, Cubic Feet/Minute, Cubic Feet/Hour, Gallons/Second, Gallons/Minute, Gallons/Hour, Million Gallons/Day, Imperial Gallons/Second, Imperial Gallons/Minute, Imperial Gallons/Hour, Million Imperial Gallons/Day, Oil Barrels/Day, Fluid Barrels/Day, Imperial Fluid Barrels/Day and custom units
	Energy total (energy meters)	British Thermal Unit (Btu), Thousand Btu, Millions Btu, Kilocalories, Mega calories, Kilowatt-hour, Megawatt hour, Kilojoules, Mega joules, Ton-hour (Refrigeration)
	Heat/cooling rate (energy meters)	Btu/hour, Thousand Btu/hour, Millions Btu/hour, Ton (Refrigeration), Watts, Kilowatts, Megawatts, Kilojoules/hour, Mega joules/hour, Kilocalories/hour, Mega calories/hour
	Temperature (energy meters)	Fahrenheit, Celsius, Kelvin

Technical Specifications - Transmitter (continued)

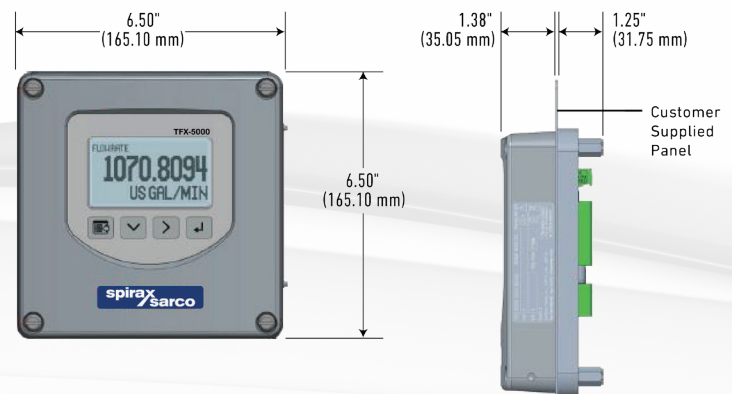
Flow Meter		
Inputs and Outputs	0/4...20 mA output	One 16-bit, isolated, max 800 Ohms, internal or external power
	Digital input	One 5...30 Vdc, isolated, externally or internally sourced, reset totalizer or alarm output
	Digital output	Two selectable pulse, alarm, flow direction, sink isolated open collector, 5...30 Vdc, max 50 mA externally or internally sourced, leakage current 1uA max
		Frequency output: 50% duty cycle, 63...10k Hz maximum frequency
		Pulse (totalizer) output: 5 kHz max output, open collector, pulse width 5...500 ms programmable
	Optional: Two dry contact output for alarm or flow direction 30 Vdc max , 5A max (Ethernet not available with this option)	
RTD (energy only)	None	
Ports	Programming	USB 2.0 mini B connector for connection to a device with SoloCUE configuration software
	EIA-485	Modbus RTU command set or BACnet MS/TP; Baud rates 9600, 14400,19200, 38400, 57600, 76800, 115k; terminating resistor selectable
	Ethernet	Optional 10/100 Base T RJ45, communication via Modbus TCP/IP or BACnet/IP
Data Logging	Number of points	Up to 8 parameters per record Selectable 1 second to 1 day Transfer logs via memory card
	Real Time Clock	Backed up with a super capacitor, minimum of 32 days of data retention without power; Requires no servicing
	MicroSD card slot	8 GB card, included with transmitter
Alarms	Records 150 previous alarms, warnings or errors	
Languages	English, French, German, Italian, Spanish	
Security	Four levels: Read-only, Operator, Service and Admin; 6-digit passcode number; selectable auto logout	

Dimensions

Remote System Enclosure



Panel Mount Enclosure



Consult Factory for Part Number Selection