Panametrics

Datasheet

Sentinel LCO

Panametrics ultrasonic clamp-on liquid flowmeter for large multipath applications

The Sentinel LCO is the latest generation in permanent clamp-on ultrasonic flowmeters for process applications from Panametrics' line of ultrasonic meters. It capitalizes on the superior performance of the Sentinel 898 transmitter for use now with our field proven C-RS clamp-on transducers.

PANA095DS Rev. 8

Sentinel LCO advantages

- Works with the versatile and extensively proven C-RS transducers
- Suitable for many pipes including fiberglass or glass reinforced (FRP, GRP) pipes
- Designed for either hazardous areas or general purpose areas
- Improved performance through enhanced signal processing
- Flexible selection of digital and analog outputs
- Wide flow range covering the most demanding applications
- Velocity, volumetric, mass, and totalizer flow measurements
- CFD analysis available for challenging piping configurations
- Based on legacy Panametrics ultrasonic technology for reliable flow measurements

Application

- Hydrocarbon liquids
- Residual flow
- Sea water
- Demineralized water
- Water
- Penstock

Performance

Accuracy*: 0.5% of reading at reference conditions
Repeatability*: ±0.3%

*Accuracy provided under laboratory conditions. Installation assumes a fully developed, symmetrical flow profile (typically 10 diameters upstream and 5 diameters downstream of straight pipe run). Final installation accuracy on pipes larger than 300mm (12") is a function of multiple factors including pipe characteristics, installation accuracy, and others.

Technical **Specifications**

Operation and performance

Flow measurement	Patented correlation transit-time model
No of path	4 path (8 sensors)
Pipe sizes	3 in to 300 in
Measurement range	-12 m/s to 12 m/s (-40 to 40 ft/s)
Pipe material	All metals and most plastics (please contact Panametrics for special pipe construction or material selection)
Measurement parameters	Velocity, volumetric flow, mass flow, total flow
Clamping Fixture	• Strap Clamping Fixture (SCF) • Stainless steel transducer yoke • Stainless steel strapping • Alignment bar for proper alignment
Transducer cable	• RG62 coaxial cable • Available in standard, armored, burial, and submersible types • PanaView™ for Diagnostics
Fluid types	Liquid hydrocarbons, crude and refined products, other liquids
Reynolds range	> Re 10,000, consult factory for lower Reynolds numbers
Process temperature	-40° to +150°C (-40° to +302°F) standard
Ambient temperature	-40° to +60°C (-40° to 140°F)
Storage temperature	-40° to +85°C (-40° to +176°F)

Clamp-on ultrasonic flow transducers

C-RS transducers

Frequency	0.5, 1, or 2MHz
Materials	Stainless steel and plastic
Rating	IP66 with junction box
Temperature (Process)	-40°C to 150°C (-40°F to 302°F)
Hazardous area	• US/CAN: Class I, Division 1, Groups B, C, D • ATEX: Ex md IIC T6 • IECEx: Ex md IIC T6 Gb

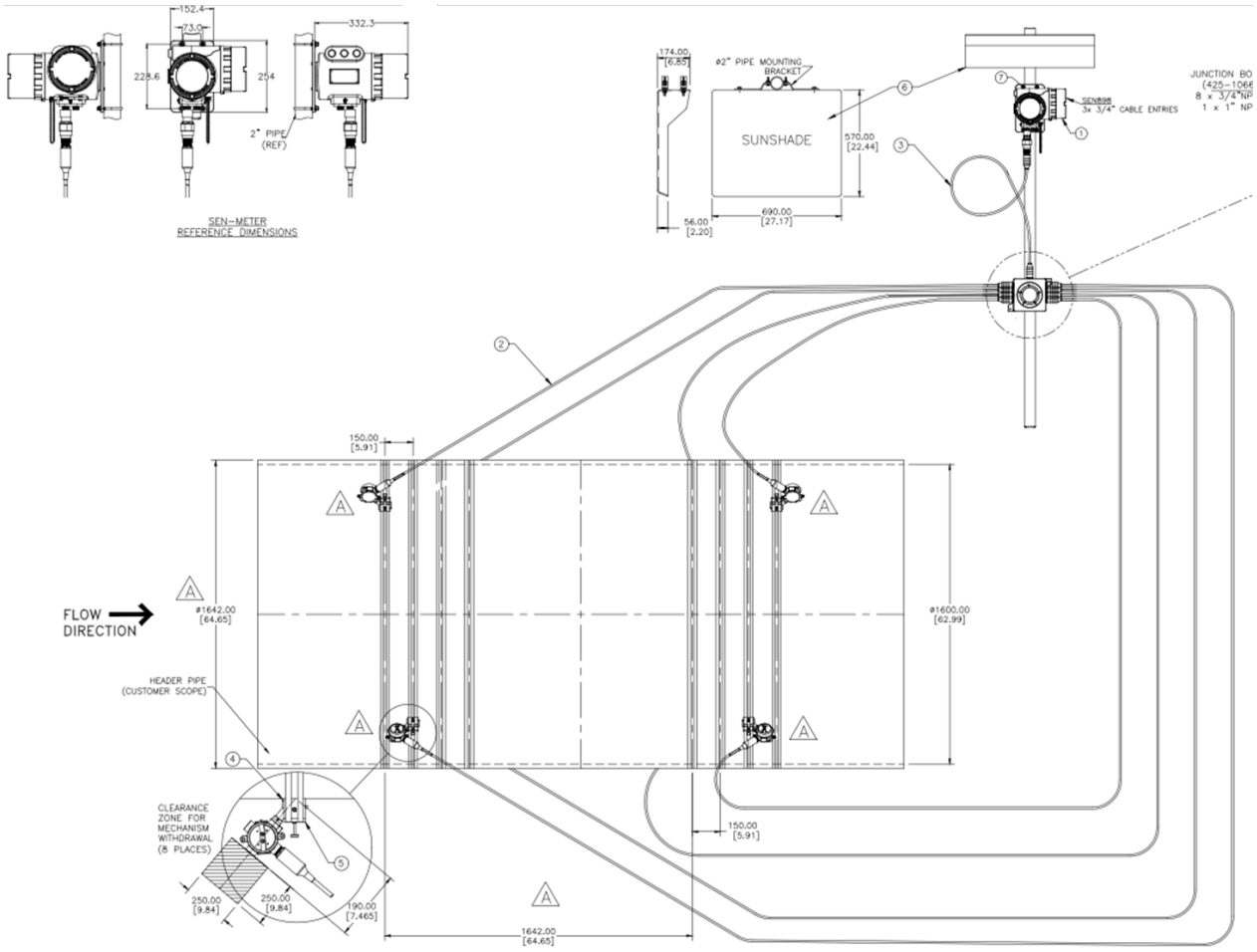
Contact Panametrics for additional certifications

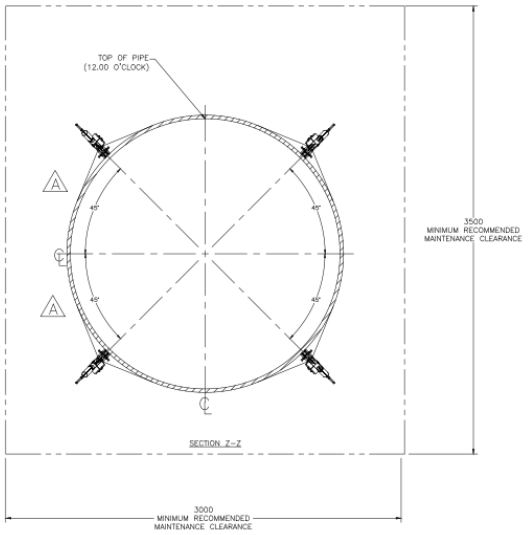
Electronics

Electronics enclosure material	• Epoxy coated aluminum • Stainless steel A351, Gr 316/316L (optional)
Environmental protection	IP66
Power supply	• 100 to 240 VAC • 12 to 32 VDC
Power consumption	7 watt
Display	High contrast 128 x 64 pixel LED graphical display
Outputs	• Two frequency/pulse outputs optically isolated from DC • Two alarm relays • One 4/20 mA output with HART®
Inputs	• Two 4/20 mA and one 100 ohm RTD input for temperature, pressure and density input (option). • Three 4/20 mA inputs for temperature, pressure and density input (option).
Digital interfaces	• HART® over 4/20 mA output • Panaview SEN898 • Modbus RTU over RS232/485
Hazardous area certifications	• USA/Canada: Class 1, Div 1, Groups B, C, and D • Europe: ATEX II 2 G Ex de IIC (Ex d IIC as option) • IEC Ex: Ex de IIC (Ex d IIC as option)
CE compliance	• 2004/108/EC EMC Directive • 2006/95/EC LVD

Installation example

(Used for referenced only)





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