



DESCRIPTION

The SPES-117 Underwater Proximity Probe dynamically measures the distance between the probe tip and a metallic target surface. It is designed for underwater measurement application of runner band clearance (Francis turbines) and blade tip clearance (Kaplan turbines) in hydrogenerators. The built-in conditioning electronics allows direct connection to processing instrumentation, such as the PCU-100 Programmable Vibration Monitor, the ZOOM® system or instrumentation from other manufacturers, up to 300 m (1000 ft) away. Sensitivity depends on the type of target material. Linearized outputs available for steel: 4.8 to 17.5 mA and 0.6 to 8.5 V.

The SPES-117 probe consists of an eddy current probe embedded in a sealed casing. It requires no field probe driver. A hole is drilled through the throat ring of the turbine to insert the probe and mount its face flush with the ring.

SPES-117

UNDERWATER PROXIMITY PROBE

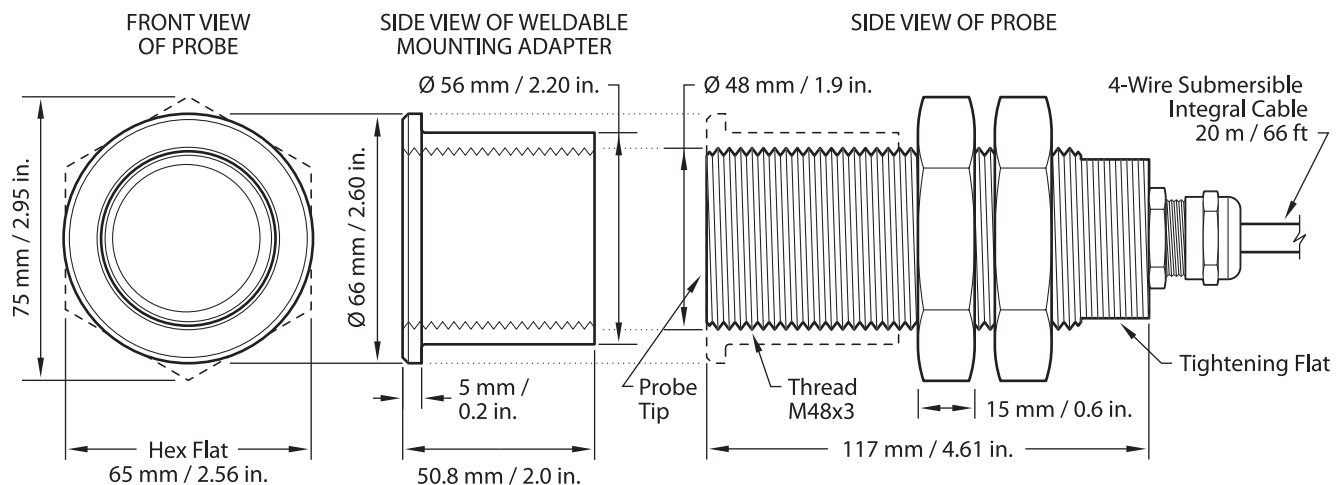
APPLICATIONS

- Underwater non-contact proximity measurement of position and relative displacement.
- To detect and monitor:
 - turbine blade tip clearance (Kaplan and propeller)
 - runner band clearance (Francis).

FEATURES

- Measuring ranges (depends on target material)
Steel (FE360): 0 to 13 mm (0 to 512 mils)
- Linearized outputs (depends on target material)
Steel (FE360): 4.8 to 17.5 mA and 0.6 to 8.5 V
- Installation through the throat ring using a weldable mounting adapter; probe tip mounts flush with ring surface
- Sealed casing; steel body; M48x3 thread
- Max. turbine liner thickness: 48 mm (1.9 in.)
- Submersible integral cable: 20 m (66 ft)
- Embedded conditioning electronics, no driver required
- Built-in protections against short-circuits, induced overvoltage and voltage reversal
- Eddy current principle
- External power supply required

DIMENSIONS





SPES-117 GENERAL SPECIFICATION

Operating

- Type of Measurement Non-contact proximity, Eddy current
- Measuring Range*
 - Steel (FE360) 0 to 13 mm (0 to 512 mils)
- Output*
 - Steel (FE360) Linearized
4.8 to 17.5 mA (I_A)
0.6 to 8.5 V (U_A)
- Sensitivity*
 - Steel (FE360) 0.98 mA/mm, 0.61 V/mm
- Supply Voltage Range (U_B) 15 to 30 V_{DC}
- Temperature Drift ≤ 10% over temperature range
- Short-circuit Protection Built-in
- Voltage Reversal Protection Built-in
- Induction Protection Built-in
- Shock and Vibration IEC 60947-5-2 / 7.4

* Contact VibroSystM to obtain specifications for materials other than Steel FE360

Connection

- Cable
 - Type 4 wires x 0.22 mm² / Ø 7.5 mm (0.295 in.)
 - Integral Length 20 m (66 ft)
 - Length Max.
 - Current Output 300 m (985 ft)
 - Voltage Output 50 m (164 ft)
 - Min. Bending Radius 40 mm (1.6 in.)

Environmental

- Temperature Range
 - Operating -25° to 45°C (-13° to 113°F)
- Warm-up Time 5 minutes
- Max. Submersible Pressure 1000 kPa / 10 bars
145 psi

Physical Characteristics

- Sealed Casing Body Steel (A36)
- Probe Overall Dimension
 - Diameter 66 mm (2.60 in.)
 - Body Diameter 48 mm (1.90 in.)
 - Length 117 mm (4.61 in.)
- Thread M48x3
- Weldable Mounting Adapter
 - Max. liner thickness 48 mm (1.90 in.)

VibroSystM reserves the right to change specifications to improve products without notification.
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