Notes on Accuracy of the AO option

The AO option improves sensing accuracy, but internal circuit elements limit best possible accuracy to approximately ± 0.005" (0.127 mm). This accuracy spec will be further reduced for spans greater than 1" due to resolution limitations. Resolution = span / 1024 with a lower limit of 0.0017" (0.043 mm)

OTHER FACTORS THAT DETERMINE ACCURACY:

1. Distance to target: Targets located in the 2" range will result in the most stable operation.
2. Strength of echo: Large, flat targets will result in more stability than small targets returning low-amplitude echoes.
3. Temperature fluctuations: If the air temperature changes faster than the time response of the compensation circuit, accuracy may be reduced until thermal equilibrium is re-attained.

Setup Recommendations:
1. Use SOLID mounting
2. Use Steel jam nuts (do not exceed max. torque)
3. Deflect or block air movement from sensing area
4. Keep target as close to sensor as possible

Configuration recommendations:
1. Keep span limits as close to sensor as possible for best stability… i.e. span from 2 - 3 inches.
2. Use as much averaging (Tau) as possible. Increasing Tau will increase response time.

4. Air Currents: Non-turbulent air currents may not be detrimental unless they are of a different temperature than the surrounding air. Air flow from heating / cooling vents, windows, etc. will degrade performance. A **laminar** airflow of uniform temperature, perpendicular to the sensing axis may actually improve the sensing environment.
5. Mounting: Solid mounting is critical for optimal accuracy. The stability & composition of the support material from target to sensor bracket should be considered. Note that thermal expansion / contraction of mounting metals may alter the actual sensor-to-target distance by ≅ 0.00005 inches / inch of length / 5° C, and plastics by ≅ 0.0005 inches / inch of length / 5° C.

Mounting / Alignment

Mount the sensor so that the sensor face is parallel to the liquid or material surface and free of air currents. Mount the sensor firmly to avoid vibration.

Wiring Connections, Connector Model
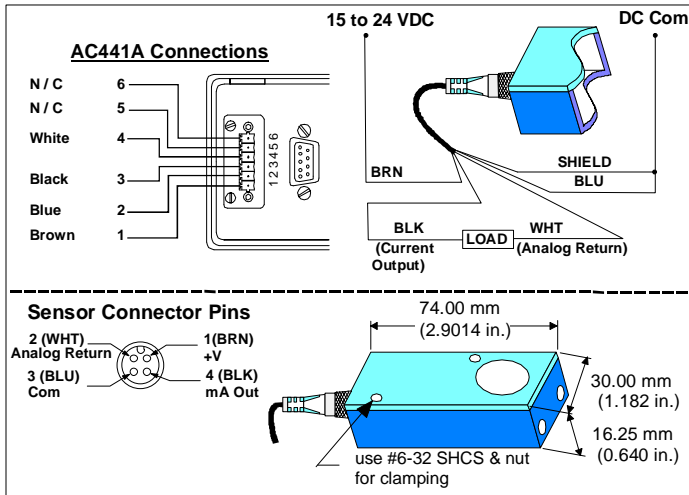
Accessories

Model XZCPVB1141L2 Straight, 4-conductor, Shielded, PVC, 2 meters (6.6 ft.)
Model XZCPVB1241L2 Right-angle, 4-conductor, Shielded PVC, 2 meters (6.6 ft.)
Model AC441AUS North America Configurator Kit: Cables, AC441A, & Superprox+ SW
Model AC441A2 U.K. Configurator Kit: Cables, AC441A, & Superprox+ SW
Model AC441A3 Europe Configurator Kit: Cables, AC441A, & Superprox+ SW
Model AC441A4 Australia/N Zealand Configurator Kit: Cables, AC441A, & Superprox+ SW
Model AC441A5 South African Configurator Kit: Cables, AC441A, & Superprox

Mounting Bracket Dimensions
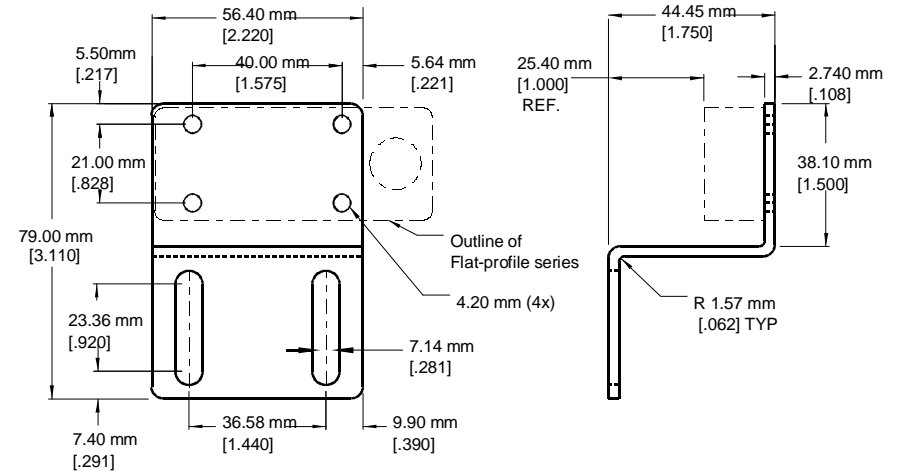
AC232
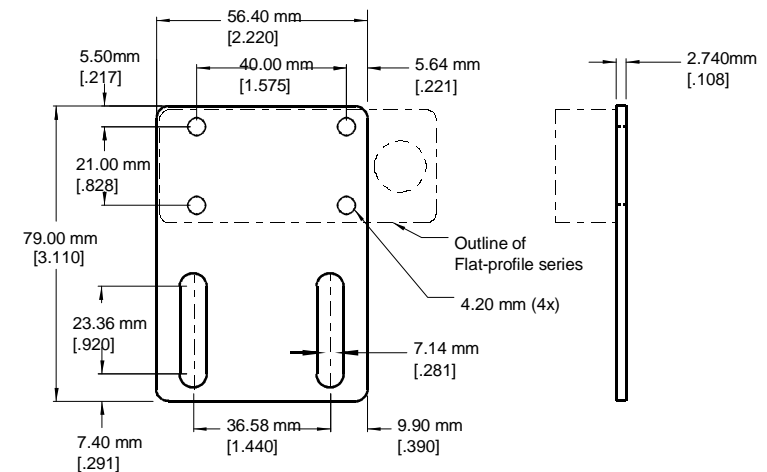
AC231

General Specifications

Power Supply:

Supply:	+ 15 to 24 VDC @ 50 mA max
Protection:	ESD and reverse-polarity

Analog Output:

Output Current:	0 mA (minimum) to 20 mA (maximum)
Output Resolution:	.02 mA (10 bits)
Output Load:	300 ohms (max)
Protection:	Short-circuit to common and ESD

Operating Temperature:

@ 15 VDC supply	0 to 60°C (32°F to 140°F) @ 100% relative humidity
@ 24 VDC supply	0 to 50°C (32°F to 122°F) @ 100% relative humidity

Sensing:

Maximum far limit:	152.4 mm (6.00 in.)
Resolution, object position, 4-20 mA:	span / 818, minimum of 0.05 mm (0.002 in.)
Repeatability (Constant Temperature):	± 0.127 mm (± 0.005 in.)
Minimum object diameter:	3.2 mm (0.125 in.) @ 127.0 mm (5.00 in.) distance
Maximum plane-reflector angle:	± 8°@ 5"
Sonic Cone Angle:	7°

Sensor Dimensions: 74.00 mm (2.913) x 30.00 mm (1.182) x 16.25 mm (.640)

Sensor Cable: XZCPVB1141L2 Straight, Shield, PVC, 2 meters (6.6 ft.) (Must be purchased separately)

Sensor Materials:

Housing:	PEI
Transducer face:	FDA approved silicone rubber
Cable:	Non-toxic PVC jacket
LED:	Polycarbonate

Sensor Environmental Ratings:

NEMA 4X (Indoor Use Only) 5, 12, 12K, 13, and IP67
Installation/Overvoltage Category: II
This Product is UL Listed if powered by a Class II Power Supply
and protected by a 2.0A Max UL Listed Fuse

CE Mark Compliant: Declaration of conformity available upon request

HYDE PARK®
SUPERPROX®
SC656A6C0AOFP

Telemecanique Sensors

Flat Profile Configurable Sensor, Current Output
Maximum Far Limit Distance 152.4 mm (6.00 in.) from Sensor Face
Enhanced Accuracy Output

WARNING: DO NOT SET MODEL GAIN MORE THAN 100%

OPERATOR INSTRUCTIONS

This self-contained, ultrasonic proximity sensor is capable of sensing most objects within its sensing range (Fig.1). Objects that are transparent, opaque, plastic, glass, metal, liquid or solid can be detected if located within the sensing window. The sensor is reconfigured using an AC441A handheld configurator and Superprox+ software.
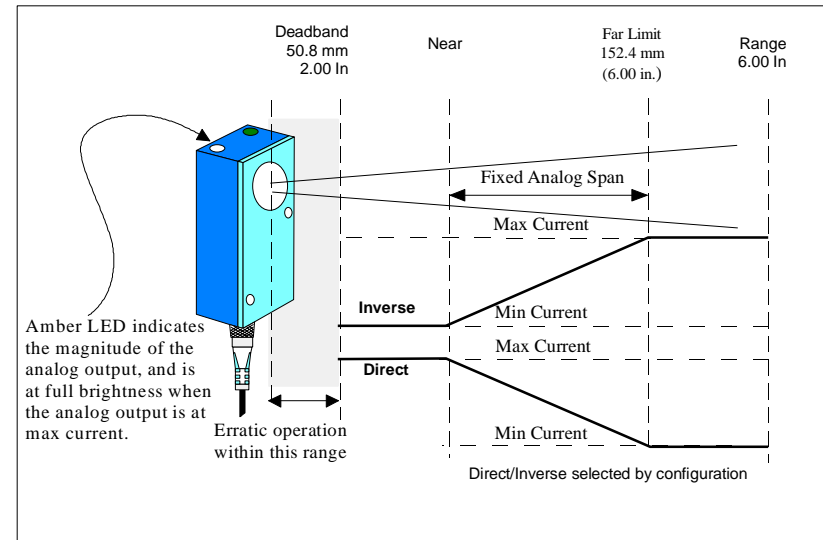

Figure 1

Literature and application engineering assistance are provided by Telemecanique Sensors and its authorized distributors to aid the customer in selecting the product for an application. The customer is responsible for determining the suitability of the product in the application.

⚠ WARNING

UNINTENDED OPERATION

Do not use this product to detect objects within the deadband.

Failure to follow this instruction can result in death, serious injury or equipment damage.