



The AR3000 distance measurement sensor is Acuity's longest-range model for cranes, process monitoring and fill levels in containers and silos. Its eye-safe laser and robust enclosure design make it a versatile choice for industrial measuring applications.

## AR3000 Distance Measurement Sensor

### Principles of Operation

The AR3000 sensor is a time-of-flight sensor that measures distance by a rapidly-modulated and collimated laser beam that creates a spot on a target surface. Components of the reflected light signal are collected by a lens and focused onto a photodiode within the sensor unit. The reflected light returns with a shift in phase compared with the reference signal. From the amount of phase shift, a required distance is calculated with good accuracy. The distance is transmitted through serial communications or analog outputs. The device monitors the distance to (and speed of) objects in motion. The sensor has a range of 1000 feet (300 m) to natural surfaces with 90% reflectance and to 1.8 mi. (3 km) to special reflectors. A visible sighting laser beam is used to aim the sensor.



### AR3000 Standard Model Specifications units in inches unless noted metric

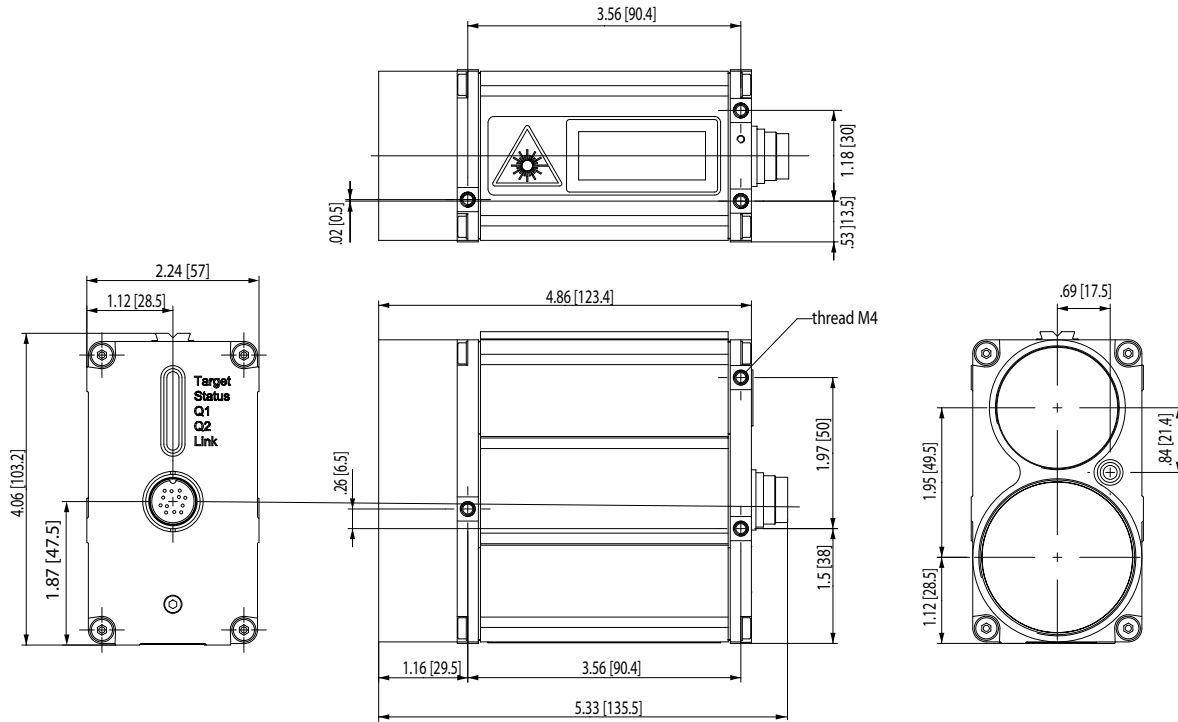
	English units	Metric units
Span	20 in. to 980 ft. (targets of 90% diffuse reflectance) 1.9 mi. max (retroreflective targets*)	0.5 to 300 m (targets of 90% diffuse reflectance) 3000 m max (retroreflective targets*)
Accuracy	+/- 0.79 in. (at 100 Hz) +/- 2.36 in. (at 2000 Hz)	+/- 20 mm (at 100 Hz) +/- 60 mm (at 2000 Hz)
Resolution	0.04 in.	1 mm
Sample rates	2000 Hz maximum, or sample trigger (serial command and analog)	
Weight (less cable)	1.8 lbs.	800 grams
Laser (measuring)	905 nm, Infrared, Class 1, IEC/EN60825-1:2001	
Laser (aiming)	635 nm, Visible Red, Class 2, Complies with 21 CFR 1040.10 with Laser Notice 50, IEC/EN60825-1:2001	
Laser divergence	1.7 mrad divergence	
Power	10 - 30 Volts DC, 170 - 500 mA draw Heater operation: 24 Volts DC, 11.5 W	
Operating Temp	-40 to 140 °F	-40 to 60 °C
Environmental	NEMA – 4, IP67. Keep lenses clean for best performance. Aluminum case.	
Outputs	serial RS232 full duplex, RS422 (optional output) unterminated and terminated	
	analog 4-20 mA, limit switch	
	Profibus® Optional output: Profibus® RS485, Profibus-DP-V0 Slave	
	SSI Option Optional output: Simple Sensor Interface protocol, 24 bit, Gray-encoded; 1 validity bit	
Cable	6.6 ft. (2 m) length, 12 conductor, Binder series 723 flange-mount connector, soldertail wire termination	
	Red – no connection	Pink - unassigned (RS232), Tx+ (RS422)
	Black – Ground	Grey – unassigned (RS232), Tx- (RS422)
	White – TxD (RS232), RX+ (RS422)	Red/Blue – switching output Q1
	Grey/Pink – Ground	Brown – RxD (RS232), RX- (RS422)
		Yellow – 4-20 mA Out
		Green – trigger input
		Blue – 10-30 Volt DC IN
		Violet – switching output Q2

\* Contact Acuity for these targets



**AR3000 Distance Measurement Sensor**

**Mechanical Dimensions** units in inches [mm]



**AR3000 Sensor Options**

**RS422 Output:** Differential serial output in both terminated and unterminated formats. RS422 replaces RS232.

**Display:** Encased display with bright alphanumeric characters, serial input.

**Cables:** Optional cable lengths. Contact us for custom cabling needs.

**Profibus:**

**SSI:** Synchronous Serial Interface communication

**Laser Safety Labels**



**Contact Acuity**

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