

AR3000 Distance Measurement Sensor

Principles of Operation

The AR3000 sensor is a time-of-flight sensor that measures distance by a rapidly-modulated and colimated 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

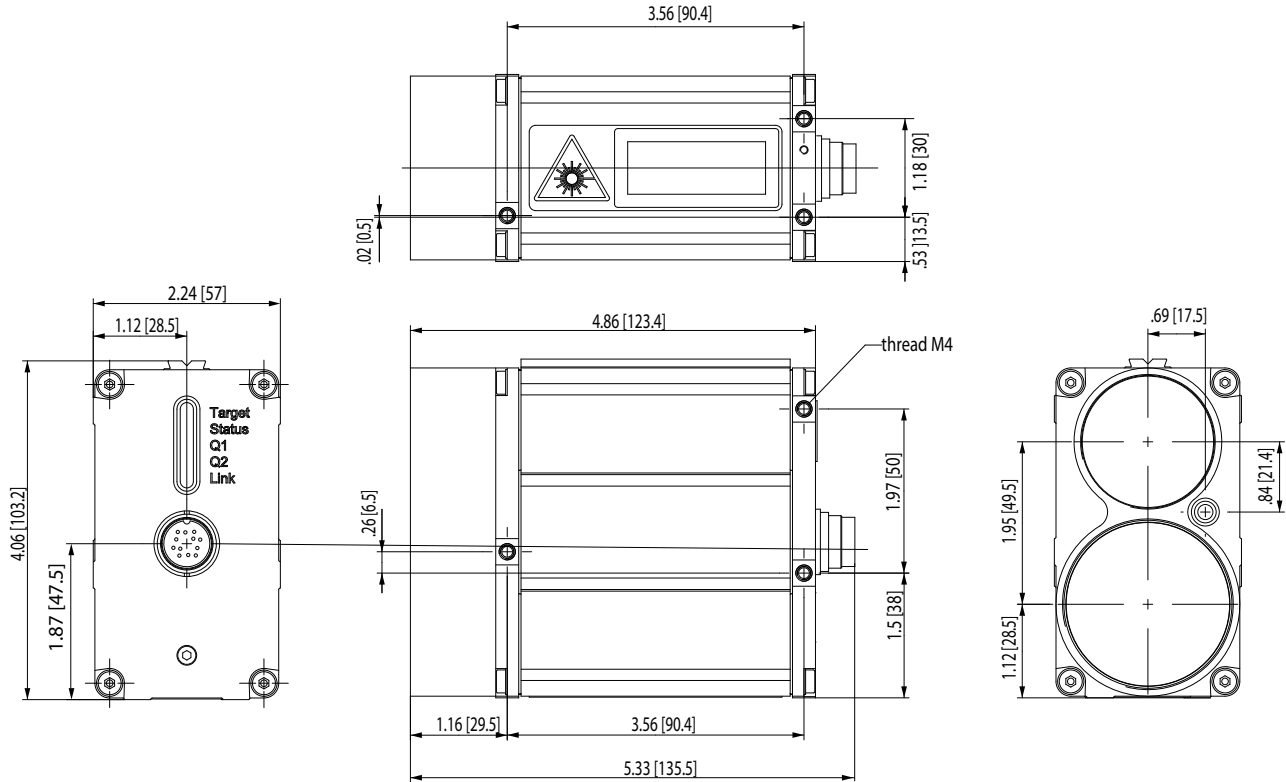
	English units	Metric units
Span	20 in. to 980 ft. (targets of 90% diffuse reflectance) 1.9 mi. max (retroreflective targets*)	0.5 to 300 m (targets of 90% diffuse reflectance) 3000 m max (retroreflective targets*)
Accuracy	+/- 0.79 in. (at 100 Hz) +/- 2.36 in. (at 2000 Hz)	+/- 20 mm (at 100 Hz) +/- 60 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, EN60825-1:2003-10	
Laser (aiming)	635 nm, Visible Red, Class 2, EN60825-1:2001-11, class II FDA 21 CFR 1040	
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)	Yellow – 4-20 mA Out
Black – Ground	Grey – unassigned (RS232), Tx- (RS422)	Green – trigger input
White – TxD (RS232), RX+ (RS422)	Red/Blue – switching output Q1	Blue – 10-30 Volt DC IN
Grey/Pink – Ground	Brown – RxD(RS232), RX- (RS422)	Violet – switching output Q2

* Contact Acuity for these targets

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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

LASER RADIATION
DO NOT STARE INTO BEAM
CLASS II LASER PRODUCT



P<0,95 mW
λ=620 ... 690 nm
EN 60825-1:
2001-11

CE

Contact Acuity

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Acuity

Laser measurement products from

