



AR2700 is a high-speed rangefinder designed for measurements of moving targets. The ultra-compact unit measures distances to 270 meters at sampling rates up to 40 kHz. The distance sensor is used to detect objects in industrial automation or for monitoring defined areas in transport and logistics applications. Offered in IP67 housing or inside module for OEM partners.

AR2700 High Speed Sensor

Principles of Operation

The Acuity 2700 high speed sensor is a time-of-flight rangefinder that measures distance by a rapidly-pulsing a collimated laser beam that creates an infrared 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 roundtrip travel time is measured and a resulting distance is calculated internally. That distance is transmitted through serial or analog interfaces. Typical ranges on natural surfaces with 10% reflectivity are up to 70 m. The total range with special targets is up to 270 m. With an ultracompact design, the AR2700 is used by equipment manufacturers for applications that demand very high sampling rates.



Definitions

Range: Working distance between measurement endpoints over which the sensor will reliably measure displacement.

Accuracy: The sum of all measurement errors when compared to a known standard.

Resolution: Smallest increment of change in distance that a sensor can detect.

Repeatability: Similarity between duplicate measurements.

Sample Rate: Speed that data samples are obtained from the sensor.

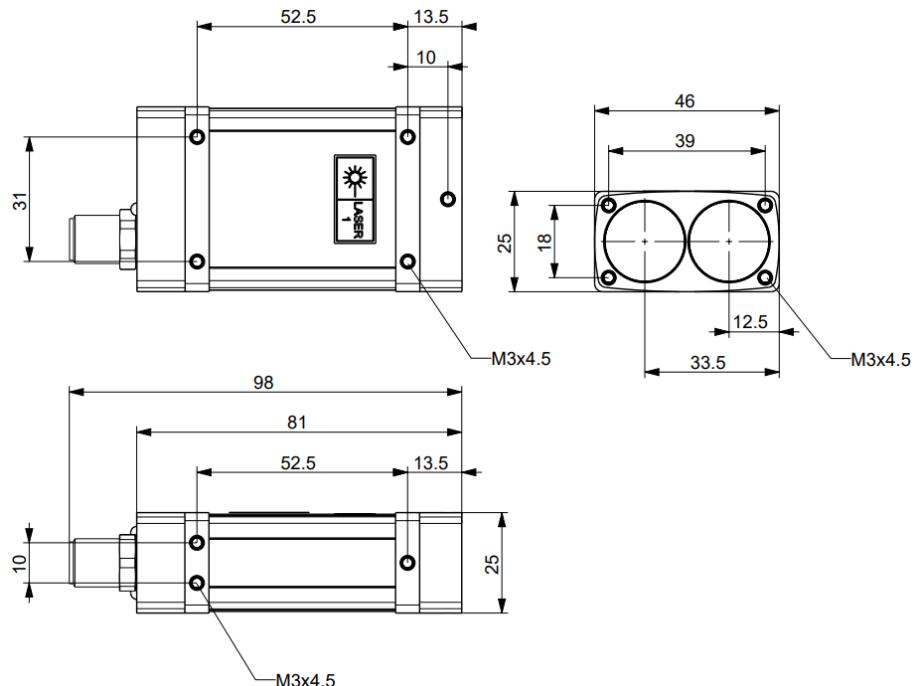
AR2700 Standard Model Specifications

	English Units	Metric Units
Range	8 in. min. to 230 ft. max (targets of 10% diffuse reflectance) 885 ft. max (retroreflective targets*)	0.2 to 70 m (targets of 10% diffuse reflectance) 270 m max (retroreflective targets*)
Accuracy **	± 2.4 in.	± 60 mm
Repeatability ***	± 0.98 in.	± 25 mm
Resolution	0.04 in.	1 mm
Laser spot	2 mrad x 0.4 mrad divergence	2 mrad x 0.4 mrad divergence
Weight (less cable)	0.3 lbs.	140 grams
Laser class	Class 1 eye-safe, Complies with 21 CFR 1040.10 with Laser Notice 50, IEC/EN60825-1:2014	
Laser type	905 nm, infrared	
Power	10 - 30 Volts DC, 3W max	
Sample rates	40 kHz maximum	
Dimensions (L x W x H, incl. connectors)		98 mm x 46 mm x 25 mm
Operating Temp	-4 to 140 °F (10-90% non-condensing Humidity)	-20 to 60°C (10-90% non-condensing Humidity)
Environmental	NEMA – 4x, IP67. Keep optical windows clean for best performance. Aluminum case.	
Shock & Vibration	Shock (single): 500g / 1ms, DIN ISO-9022-3 Shock (continuous): 10g / 6ms / 1000x in all 6 directions, DIN ISO-9022-31-01-1 Vibration: 10 Hz ... 2000 Hz ... 10 Hz / 0,075mm / 1g / 2 cycles in 3 directions, DIN ISO-9022-36-02-1	
Outputs	RS232 full duplex, RS422 (option)	
Serial		
Analog	4-20 mA, 2 limit switches (up to 200 mA sourcing)	

*Contact Acuity for these targets, **Accuracy in range ≤1 m and range ≥70 is ±100 mm, ***Repeatability in range ≤1 m and range ≥70 is ± 50 mm

AR2700 Mechanical Dimensions units in mm

Standard Unit IP67 Housing



Inside Module – OEM

