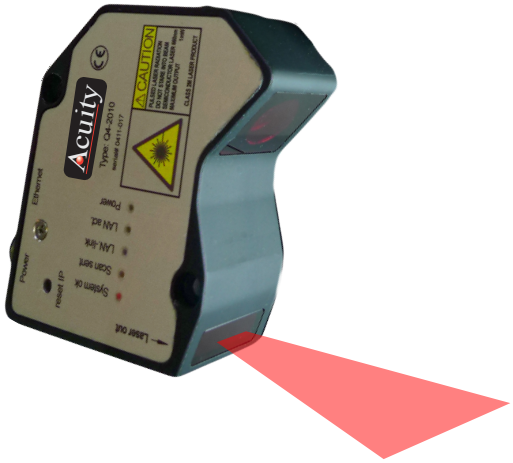
Acuity®

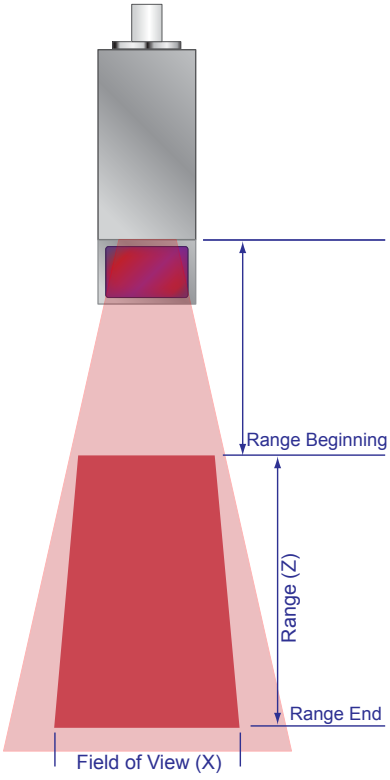
The AccuProfile 820 2D laser scanners are high-accuracy sensors for industrial surface dimensioning and measurement applications. The scanner quickly and accurately generates low-noise 2D or 3D profile scans of objects, surfaces or scenes. The sensor automatically adjusts laser power and detector exposure to compensate for varying surface conditions.

Two-Dimensional Laser Scanners

Principles of Operation

The AccuProfile™820 2D Laser Scanners measure surface height profiles by projecting a beam of visible laser light that creates a line on the target surface. Reflected light from the surface is viewed from an angle by a CCD detector inside the AP820 sensor. The 2D contour profile is calculated by the scanner's microprocessor from the pixel data from the diffusely - reflected laser line. The device automatically adjusts laser power and detector integration time based on the reflectivity characteristics of the target. The height distance profile is transmitted via Ethernet to a PC computer. Real-time 3D profiling may be created by synchronizing the position of the scanner with encoder inputs from conveyors, linear stages or robotic movements. A variety of models are specified, each to allow a different measurement range and field of view.

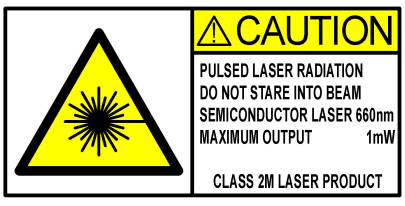


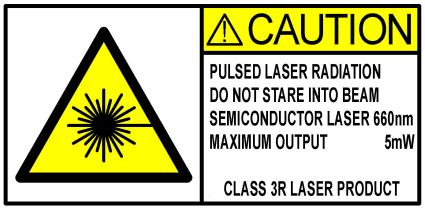


Typical Scanner Applications

- **Weld Gap Tracking and Weld Bead Profiling** - High-speed tracking of the weld bead location, size and shape
- **Positional Control of Objects and Surfaces** - Robots can be positioned based on the location of surface features and process variables
- **Tire Profiling** - Measurement of bulge, dent and other sidewall or tread defects.
- **Wheel Profiling** - Outer diameter scan for dimensional verification and flaw detection
- **Surface Profiling** - Inspect large surfaces to verify dimensional tolerances or identify and measure surface defects
- **3D Profile Generation** - Gather a part's dimensional information by moving the scanner's laser line across a the entire surface.
- **Dimensioning** - Measure width, thickness, length, surface angle, radius or any shape or any shape dimension using the height-profiling capabilities of a 2D scanner.

Laser Safety Labels





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AP820 Model Specifications in mm [in.]

Model		-5	-20	-40	-60	-80	-120	-240	-400
Z-Axis Range		5.9 [0.23]	20 [0.79]	40 [1.6]	60 [2.4]	80 [3.2]	120 [4.7]	240 [9.5]	400 [15.7]
Beginning of Range		38 [1.5]	53 [2.1]	50 [2.1]	53 [2.1]	60 [2.4]	84 [3.3]	220 [8.7]	330 [13.0]
End of Range		43.9 [1.7]	73 [2.9]	90 [3.5]	113 [4.5]	140 [5.5]	204 [8.0]	460 [15.7]	730 [28.7]
Z-Axis Linearity		± 0.06% of the Z-Axis Range							
	µm [10^{-3} in.]	3.5 [0.14]	12 [0.47]	24 [0.95]	36 [1.4]	48 [1.9]	72 [2.8]	114 [5.7]	240 [9.4]
Z-Axis Resolution	µm [10^{-3} in.]	3.0 [0.12]	11 [0.43]	19 [0.75]	31 [1.2]	42 [1.7]	63 [2.5]	112 [4.4]	213 [8.4]
X-Axis Field of View	@ Beginning of Range	3.9 [0.15]	10 [0.39]	20 [0.79]	30 [1.2]	40 [1.6]	60 [2.4]	120 [4.7]	200 [7.9]
	@ End of Range	5.0 [0.20]	13 [0.51]	27 [1.1]	40 [1.5]	55 [2.2]	80 [3.2]	160 [6.3]	280 [11.0]
Scan Frequency		Up to 200 Hz (profiles/s) for the Full Range							
Weight (sans cables) g [oz.]		295 [10.3]	273 [9.6]	290 [10.2]	290 [10.2]	290 [10.2]	430 [15.2]	710 [25.0]	1100 [38.8]
Laser Diode		N/A	Red - Class 2M					N/A	
		Blue - 3R	N/A					Blue - Class 3R	
Power		10 - 30 VDC, 4-8 W max consumption (Recommended: 12 - 24V)							
Environmental		0° to 40°C [32° to 104 ° F], With Cooling Option to 400°C [752° F]; Humidity: < 90% RH							
Vibration		5.5 g @ 1 kHz							
Enclosure Protection		IP64, Keep optical windows clean for best performance. Aluminum case.							
Data Interface		Ethernet							
Signal Inputs		Digital, Incremental Encoder Position Synchronization IN/OUT for Multiple Sensors							
Connector 1		Ethernet: M12 round, 4 pin, D-coded, female							
Connector 2		Power & Synchronization: M12 round, 8 pin, A-coded, male							
Cables		Ethernet: 2m cable, CAT 5, RJ45 termination Power/ Serial: 2m cable, Polyurethane jacket, 9 conductor							

* Each sensor model has unique dimensions.

AP820 Laser Scanner Options

Optional Cables: Custom cable lengths and specifications are available

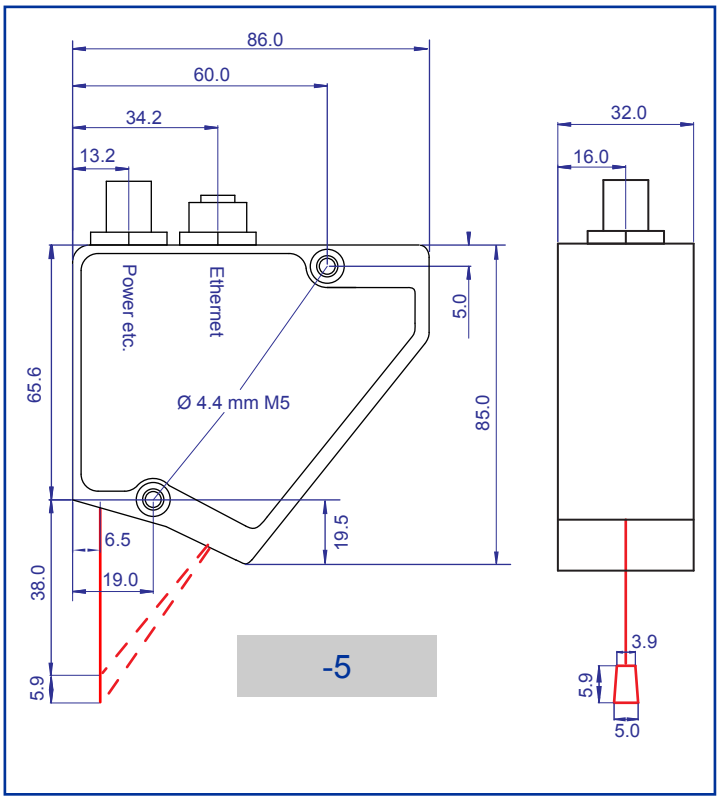
External Cooling Jacket: Extends use of to 400°C [752°F]

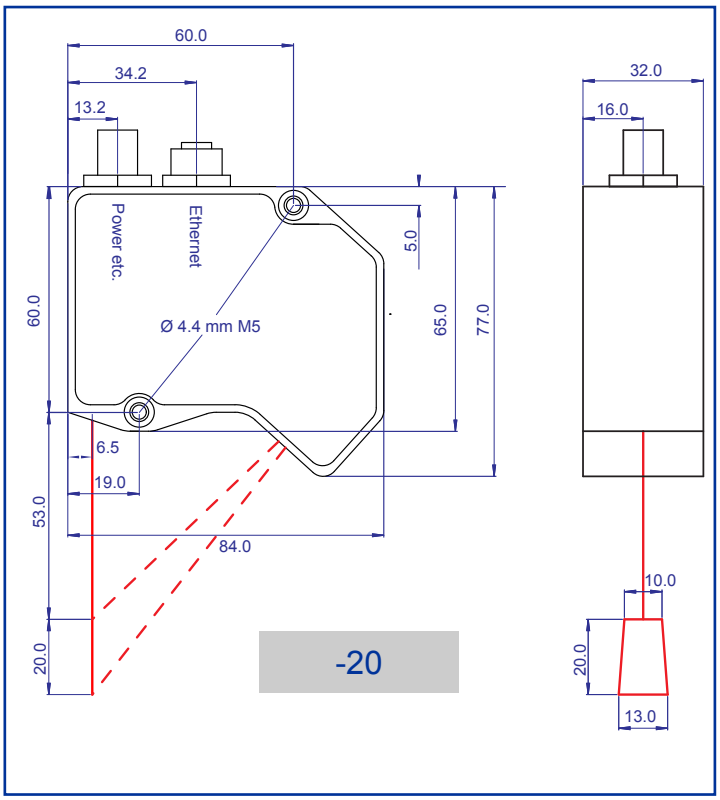
Protective Shield: This scanner option mounts to the front contours of the laser scanner to shield it from debris. The shield has windows aligned with the two scanner windows

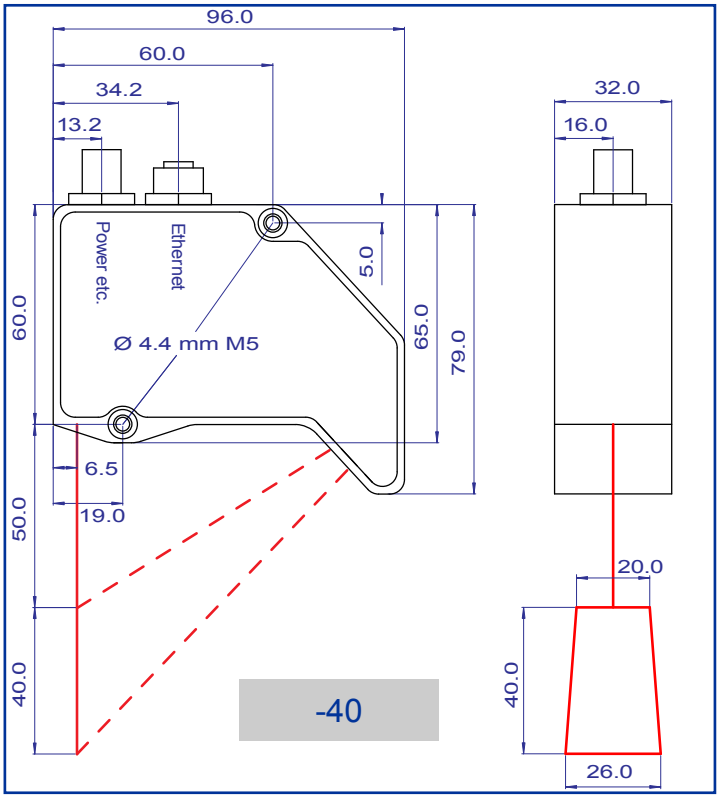
Speed: The AP820 scanners are available with optional 200 Hz sampling frequency.

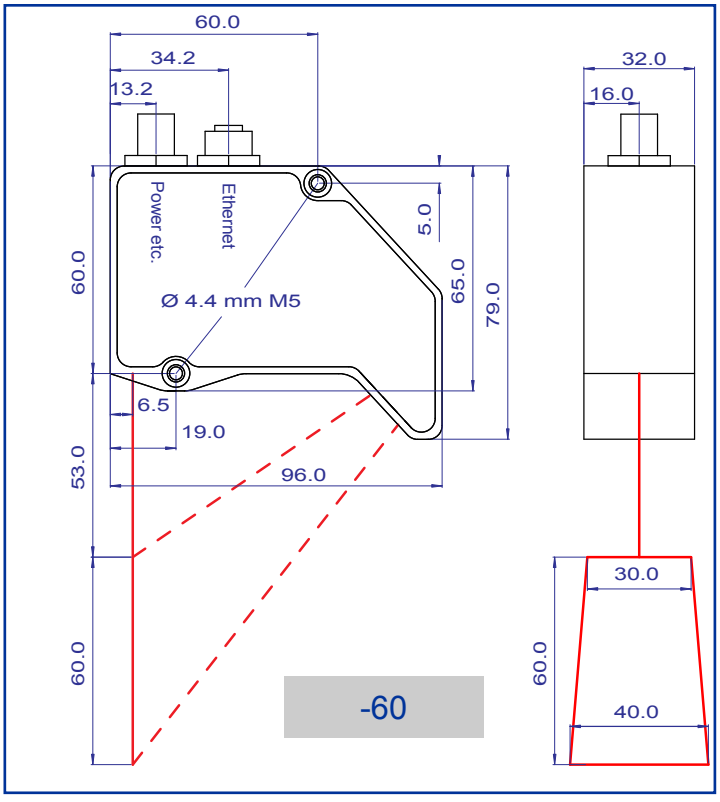
Laser Wavelength: Replace the red laser diodes with blue, or purple for use on shiny or difficult target surfaces.

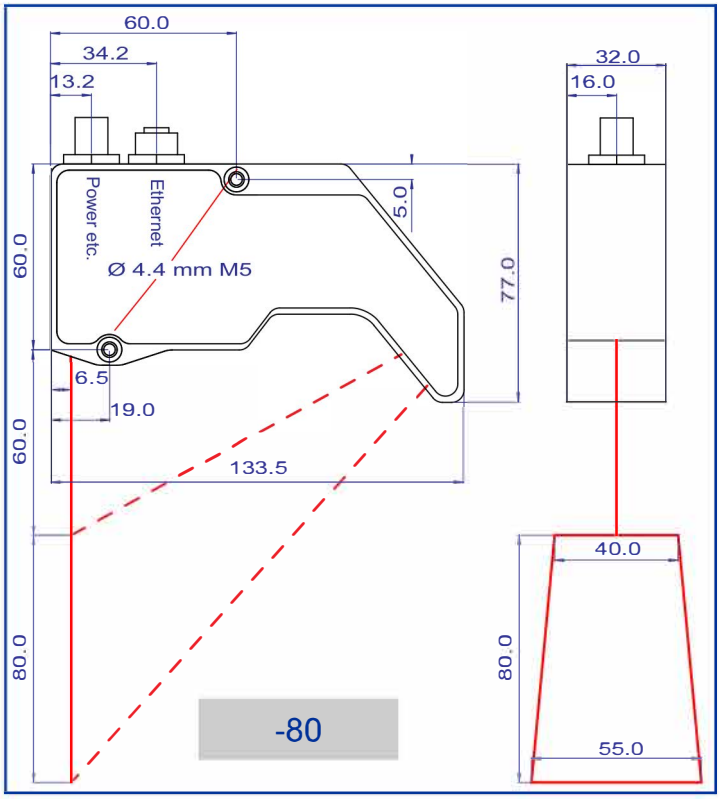
Mechanical Dimensions units in mm

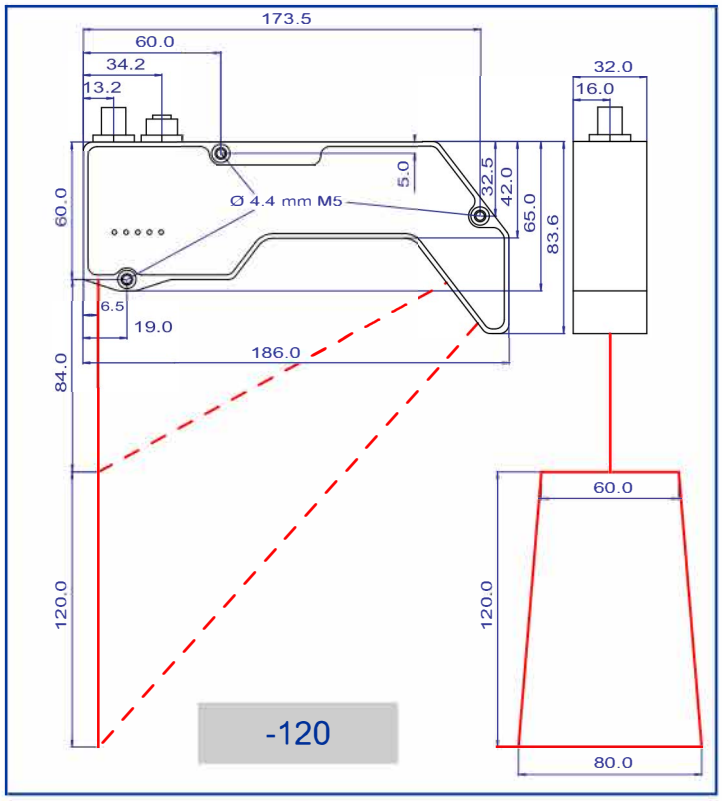


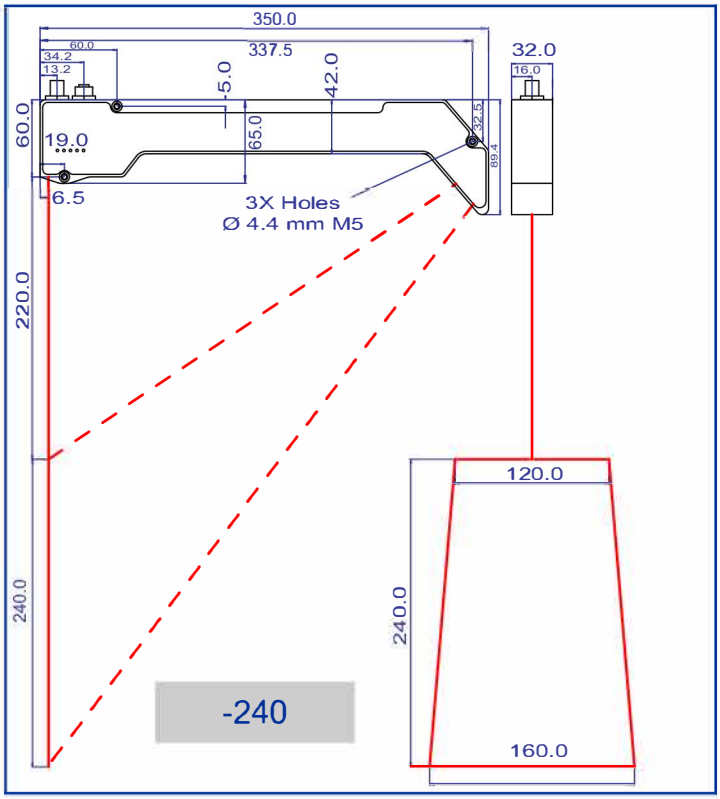


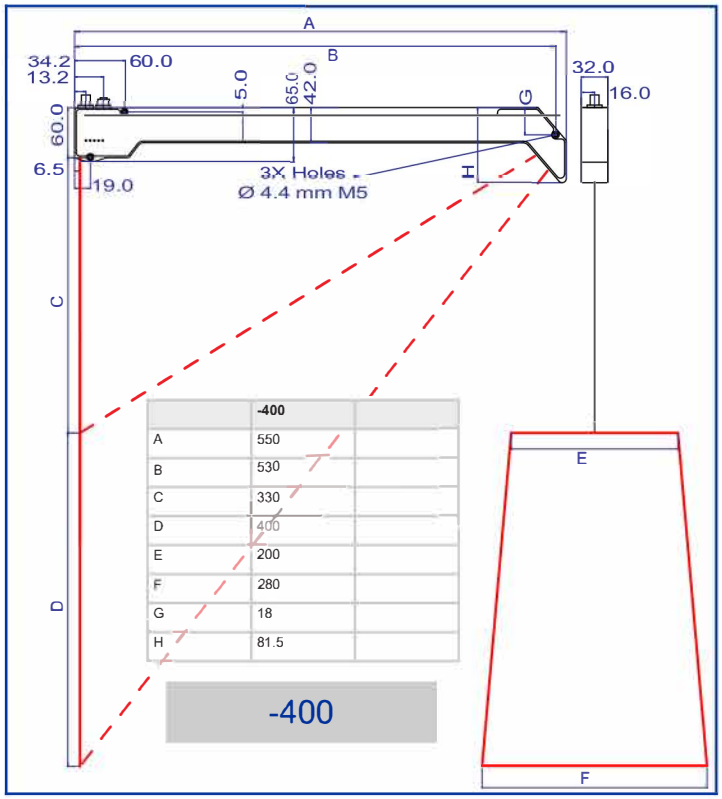












	-400
A	550
B	530
C	330
D	400
E	200
F	280
G	18
H	81.5

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