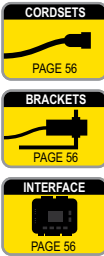


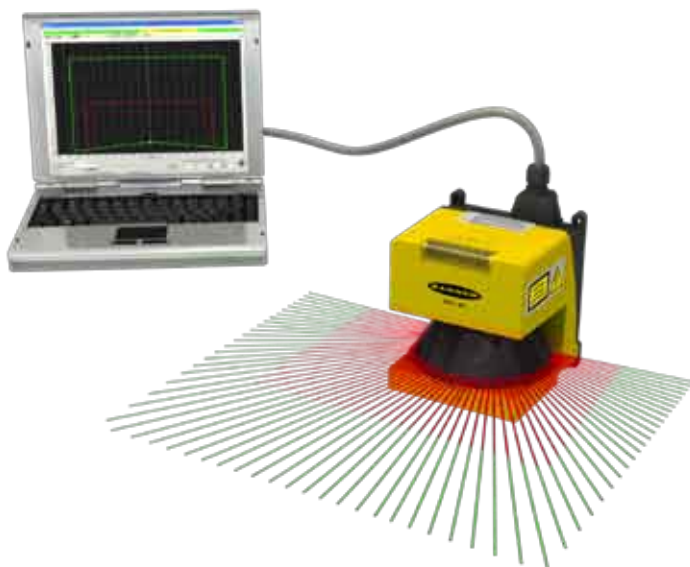


AG4-4E Safety Laser Scanner

- Two-dimensional laser scanner effectively protects personnel, as well as stationary and mobile systems within a user designated area.
- Persons or objects entering the protection field will be detected and a protective (safety) stop signal will be generated.
- Eight protective and warning field pairs are individually defined using a PC.
- Protection field resolution is from 30 to 150 mm with ranges up to 4 m.
- The warning field can be set for up to 15 m with a resolution of 150 mm.
- Scanner has a 0.36° lateral resolution and detects any object in a 190° working zone.
- The highly flexible protective and warning fields can be set to match the shape of the work area.
- System meets all requirements for Type 3 applications per IEC 61496-1/-2 and Safety Integrity Level (SIL) 2 per IEC 61508.
- Response time is 80 milliseconds (default), adjustable to 640 milliseconds.
- Compact design, simple installation and easy-to-use software provide efficient integration into work zones.
- 5-LED display presents system status and diagnostics of devices.



Configuration and diagnostic software



Graphically adjust all device parameters and the protective field contours to both local conditions and required safety distances.



Configuration parameters are permanently stored in the configuration plug, providing easier storage and device replacement without a PC.

AG4-4E Safety Laser Scanner

- 24V dc supply voltage
- Two solid-state OSSD safety outputs and two solid-state auxiliary outputs
- RS-232 and RS-422 PC interface connection
- Five LED diagnostic display
- Aluminum die-cast housing
- Integral mounting holes for flat mounting
- Includes scanner, plugs and CD with diagnostic and configuration software (cordset not included)



AG4-4E Safety Laser Scanner

Model	Range		Safety Output	Aux. Outputs	Scanning Angle	Response Time	Data Sheet
	Protective Fields	Warning Fields					
AG4-4E	30 mm Resolution = 1.6 m	150 mm Resolution = 15 m	2 PNP OSSD	2 PNP	190°	80 ms (Default) adjustable to 340 ms	AG4 Soft Manual 144923 Product Manual 144924
	40 mm Resolution = 2.20 m						
	50 mm Resolution = 2.80 m						
	70 mm Resolution = 4.0 m						
	150 mm Resolution = 4.0 m						

AG4-TB1 Test Box

With the test box it's possible to test the following Scanner functions without hooking it up to the machine interface:

- Switch over between the different field pairs
- Correct reaction of the Safety OSSD outputs (When entering protective field)
- Correct reaction of the Alarm outputs (When entering warning field)
- Power supply is not included



AG4-TB1

AG4-4E Safety Laser Scanner Kits



You can purchase a kit that contains a laser scanner, optional interfacing solutions and cordsets.

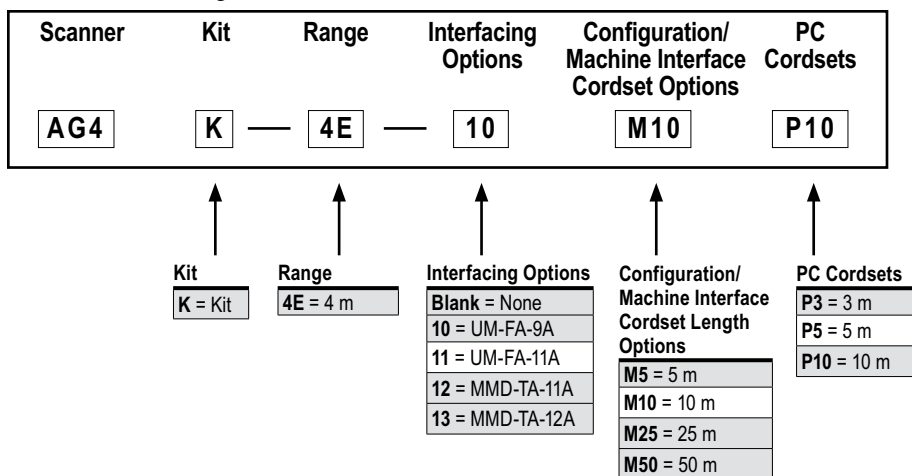
• Scanner	page 54
• Interfacing Options	56
• Cordsets	56

To Order:




1. Choose an optional interfacing solution, such as an **UM-FA-9A** or **-11A** universal module.
2. Choose a DB15 configuration/machine interface cordset, such as AG4-CPD15...
3. Choose a PC communication cordset, such as AG4-PCD9...

See AG4-4E manuals (p/n 144923 & 144924) or www.bannerengineering.com for complete information and a current listing of accessories.

Kit Model Key




AG4-4E Interfacing Products

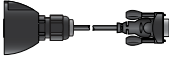
Models		Description	Product Information	Data Sheet
Interface Modules and Controllers		UM-FA-9A (3 NO)	<ul style="list-style-type: none"> Universal modules monitors both contact based and PNP solid-state input devices. Convenient plug-in terminal blocks on a 22.5 mm DIN-rail mountable housing. 	Page 89 141249
		UM-FA-11A (2 NO)		
		SC22-3-S...	<ul style="list-style-type: none"> One controller provides configurable monitoring of multiple safety devices. 22 input terminals can monitor both contact-based and PNP solid-state input devices. 3 pairs of independent solid-state safety outputs can be used with selectable one- or two-channel external device monitoring. Ten configurable non-safety status outputs track inputs, outputs, lockout, I/O status and other functions SC22-3 modules use 24V dc. 10/100 Base TX Ethernet communication option using EtherNet/IP and Modbus TCP protocols (SC22-3E models). 	Page 76 133487
		SC22-3-C...		
SC22-3E-S...				
SC22-3E-C...				
Muting Modules		MM-TA-12B	<ul style="list-style-type: none"> The Muting Module temporarily inhibits a safety light screen so materials can safely pass through the screen without stopping the machinery. The module uses redundant microcontroller-based logic. 	63517
		MMD-TA-12B		Page 94
		MMD-TA-11B		116390

NC = Normally closed, NO = Normally open

Accessories AG4-4E Laser Scanner

Cordsets

DB15 Configuration/Machine Interface	
pg. 185	
Length	Model Number
5 m	AG4-CPD15-5
10 m	AG4-CPD15-10
25 m	AG4-CPD15-25
50 m	AG4-CPD15-50


DB9 PC Communication	
pg. 185	
Length	Model Number
3 m	AG4-PCD9-3
5 m	AG4-PCD9-5
10 m	AG4-PCD9-10

Bracket

Swivel
pg. 166

AG4-MBK1

Test Box

Configuration & Test Box

AG4-TB1

Misc. Replacement Parts

Model	Description
AG4A-SW-A	Software
AG4-WIN	Replacement window
AG4-CPD15	Replacement configuration plug, straight
AG4-CPD15-RA	Replacement configuration plug, right-angle




Model	Description
AG4-PCD9	Replacement PC plug, straight
AG4-PCD9-RA	Replacement PC plug, right-angle
AG4-CLN1	Cleaning set (small)
AG4-CLN2	Cleaning set (large)

AG4 Laser Scanner Specifications

Supply Voltage (UB)	24V dc +20%/-30% (IEC 60742)
Supply Current	420 mA approx. (use 2.5 A power supply)
Fuse (power supply)	1.6A normal blow, medium time lag fuse
Response Time	Min. 80 milliseconds (2 scans) Max. 640 milliseconds (16 scans)
Wavelength	905 nm
Protection Zone	<p>150 mm resolution: 200 mm to 4.0 m (radius)</p> <p>70 mm resolution: 200 mm to 4.0 m (radius)</p> <p>50 mm resolution: 200 mm to 2.8 m (radius)</p> <p>40 mm resolution: 200 mm to 2.2 m (radius)</p> <p>30 mm resolution: 200 mm to 1.6 m (radius)</p> <p>Sensing object reflectance: Minimum 1.8%</p>
Warning Zone	<p>Min. object size: 150 mm x 150 mm</p> <p>Sensing range (radius): 200 mm to 15 m</p> <p>Sensing object reflectance: Minimum 20%</p>
Measurement Zone	0-50 m
Scanning Angle	max. 190°
Control Outputs (OSSD1, OSSD 2)	<p>PNP open-collector transistor 2 outputs: short circuit proofed</p> <p>Rated operating voltage: supply voltage (UB) -3.2 V</p> <p>Max. source current: 250 mA</p> <p>Residual voltage: 3.2 V or less</p> <p>Operation mode:</p> <p style="padding-left: 20px;">No object in detection zone: ON</p> <p style="padding-left: 20px;">Object inside detection zone: OFF</p> <p>Response Time: Min. 80 ms (2 scans) to max. 640 milliseconds (16 scans) switching method</p>
Warning Output 1 (Alarm 1) & Warning Output 2 (Alarm 2)	<p>PNP open-collector transistor</p> <p>Rated operating voltage: supply voltage (UB) -4 V</p> <p>Max. source current: 100 mA</p> <p>Residual voltage: 4 V or less</p> <p>Operation mode: Switching method of operation mode (set below)</p> <p style="padding-left: 20px;">Scanner at normal operation: ON</p> <p style="padding-left: 20px;">Abnormal operation: OFF</p> <p style="padding-left: 20px;">No object inside warning zone: ON</p> <p style="padding-left: 20px;">Object inside warning zone: OFF</p> <p>Response Time: Min. 80 ms (2 scans) to max. 640 milliseconds (16 scans) switching method</p>
Laser Protection Class	Class 1 (IEC 60825-1)
Number of Field Pair (Zone) Settings	7 +1 (without detection zone). Zone pairs in combination of detection zone and warning zone can be switched over by external input.
Environmental Rating	IP65 (per IEC 60529)
Housing Material	Die-cast aluminum with a thermoplastic resin window
Weight	2.1 kg
Operating Conditions	<p>Temperature: 0 to 50°C</p> <p>Humidity: Max. 95%</p>
Indicators	Five LEDs on front show Safety Sensor Status



AG4 Laser Scanner Specifications (cont'd)

Shock and Vibration	10 to 150 Hz frequency, 5 G max. (50 m/s ² approx.) in X, Y and Z directions for twenty times each
Max Cordset Length	15-pin plug: 50 m 9-pin plug: 10 m (RS-232C), 50 m (RS-422)
Design Standards	Designed to comply with IEC 61496-1/3 (Type 3), ISO 13849-1 (Category 3, PLd), IEC 61508-1 to 7 (SIL2) and IEC 62061 (SIL2)
Certifications	   C US (all approvals are pending)
Wiring Diagrams	WD020, WD021, WD022 (pp. 230-231)