

Safety Laser Scanner F3G-C





Flexible Safeguarding of Areas and Advanced Warning Functionality for 300 Degree Angle

- Protective field 6 m.
- Warning field 7.5 m.
- Scanning angle range 300°.
- Type 3 / Category 3.
- Safety relay outputs.
- Simple connection and setup.



Ordering Information

Stock Note: Shaded models are normally stocked.

Appearance	Product Name	Remarks	Model
	Safety laser scanner	Includes setup software CD	F3G-C1R70
	Power supply cable	One cable required for each sensor	F39-JG5A
	Communications cable	Required for setup only	F39-JG5R
	Mounting bracket	Optional	F39-LG1

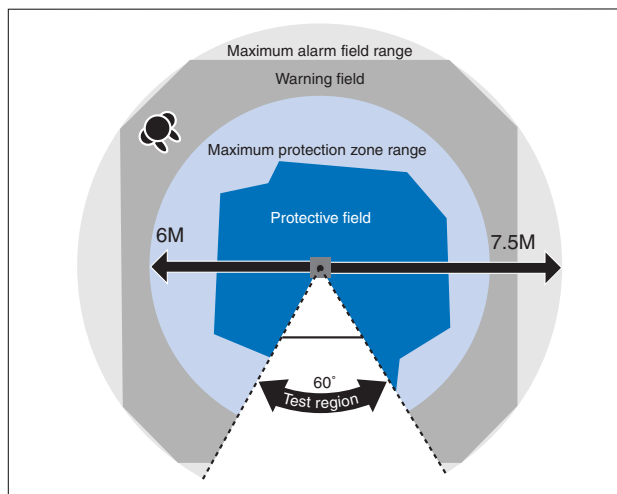
Features

■ Wider Scan Area

Sensing Range

Long range sensing is provided up to a 6 m radius for the protective field and a 7.5 m radius for the warning field.

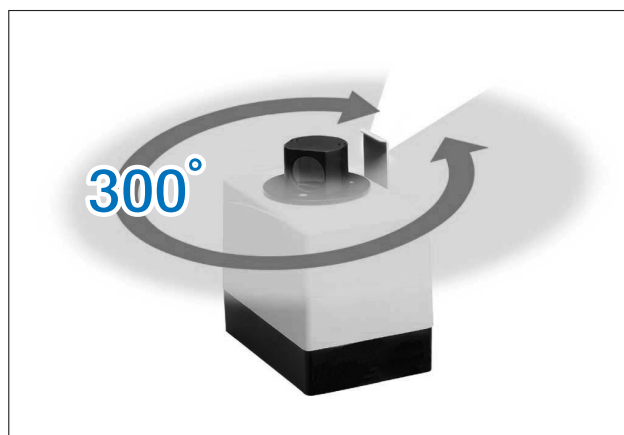
The zone dimensions and shape settings are defined by the user with the software provided with the sensor.



Scanning Angle

Generally, safety laser scanners have a scanning angle of 180° to 190°, but the F3G-C can sense movement within 300° range.

For example, normally two scanners would be required to monitor two surfaces of a large machine, but only one F3G-C Scanner is required if it is installed at the corner of the machine.



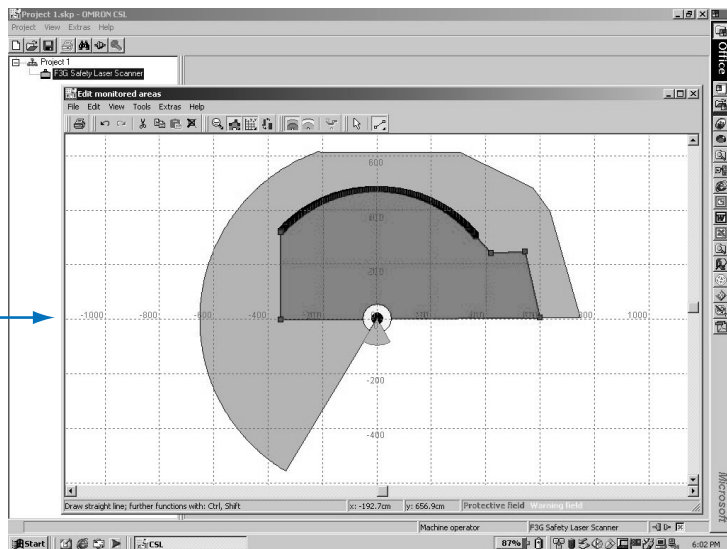
Easy Setup

The protective field and warning field can be easily set up from a personal computer using the CSL Setup Software provided with the scanner

Settings can be protected from changes by using a password preventing unintentional changes.

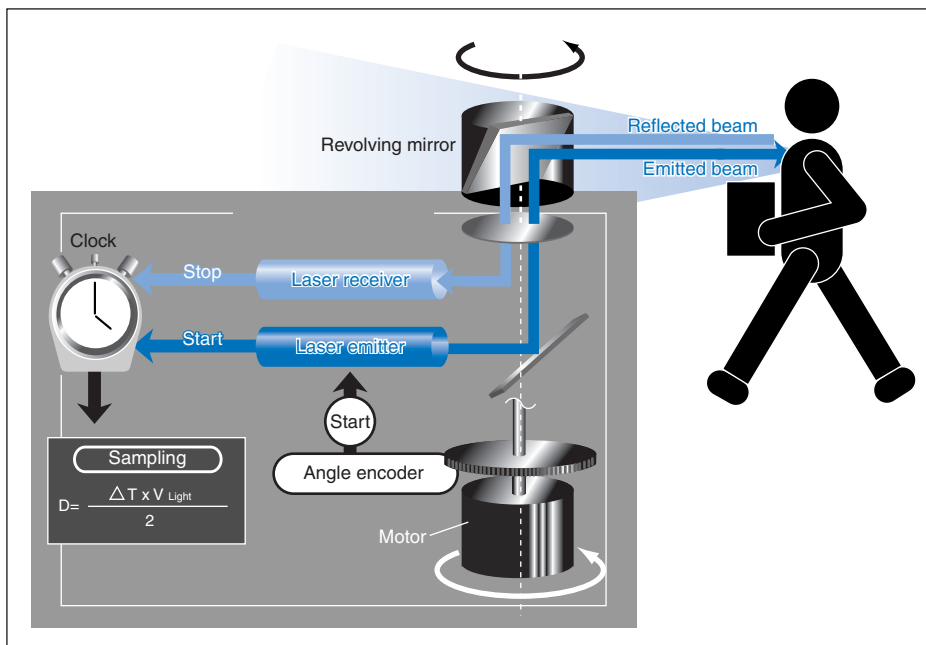
The system requirements for running CSL Setup Software are as follows:

- CPU: Intel Pentium PC, 233 MHz or higher
 - RAM: 64 MB or higher
 - RS-232C: Serial interface*
- * The software may not function properly if a USB/RS-232C Serial Conversion Adapter is used, ask your OMRON representative
- OS: Microsoft Windows 95, 98, NT 4.0, ME, 2000 Professional or XP
 - CD-ROM Drive



Principle of Operation

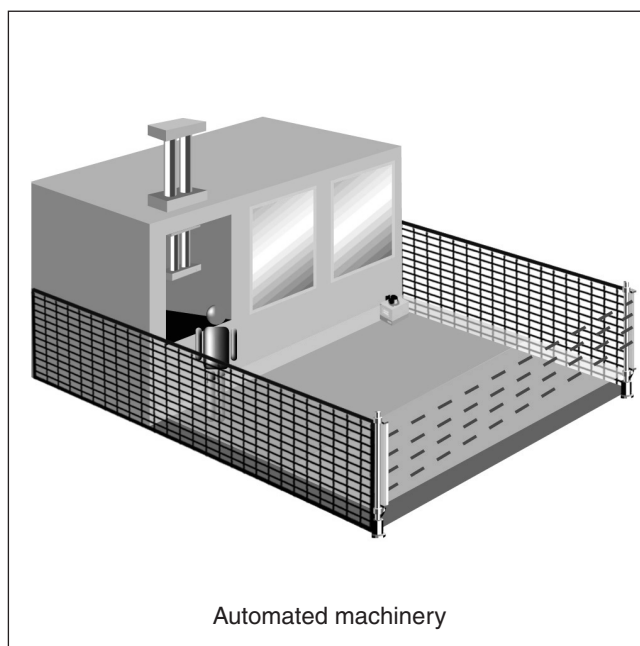
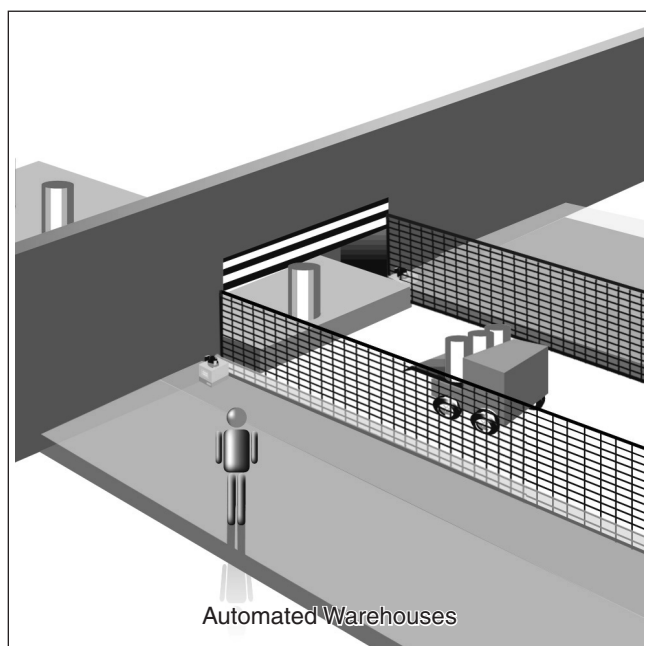
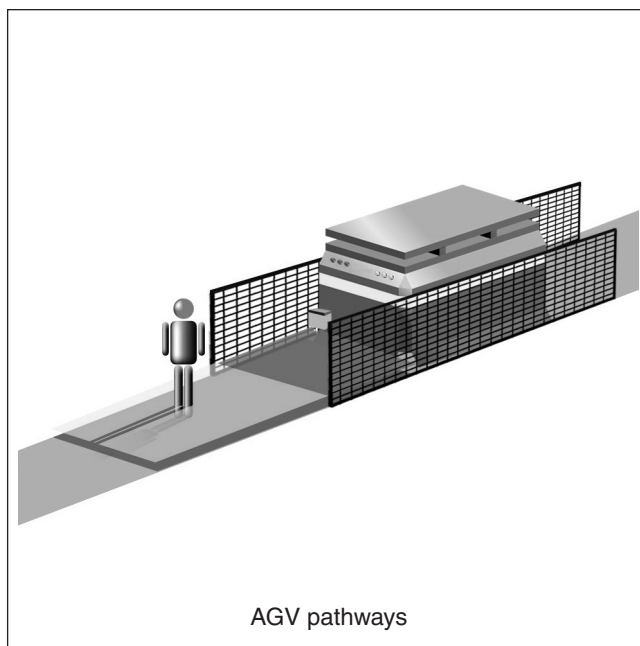
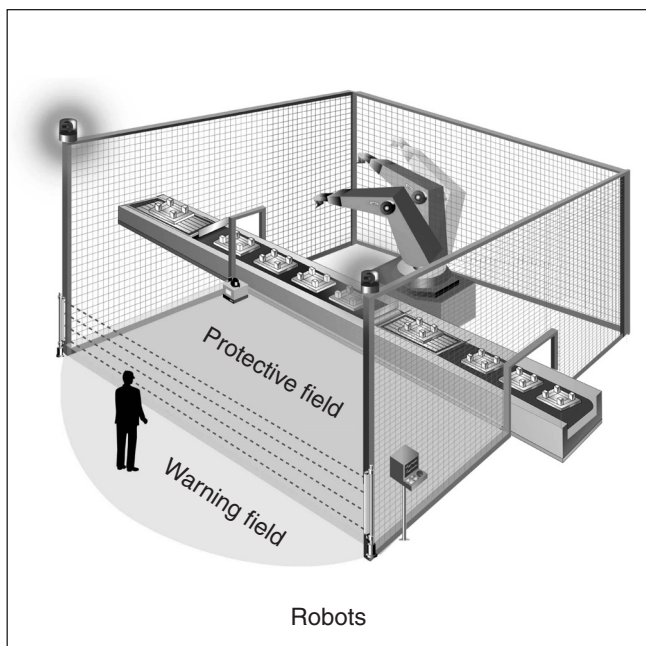
The F3G-C1R70 Safety Laser Scanner emits a pulse laser beam in all directions over a 360° range using a revolving mirror. The laser pulses are reflected off surrounding objects and the sensor receives the reflected light through a photodiode. The distance to the object is calculated according to the time from when the laser emits the beam until the sensor receives the light.



Application

■ Safety laser scanner guards and protects the hazardous area of a handling robot.

The safety laser scanner monitors the warning and protective field between the robot and the safe area. If a person intrudes the warning field, a signal is generated and the person has the opportunity to leave without shutting down the machine. If the person enters the protective field he is too close to the hazard and the machine shuts down to a safe status. As soon as the protective field is free, the machine can be restarted safely.



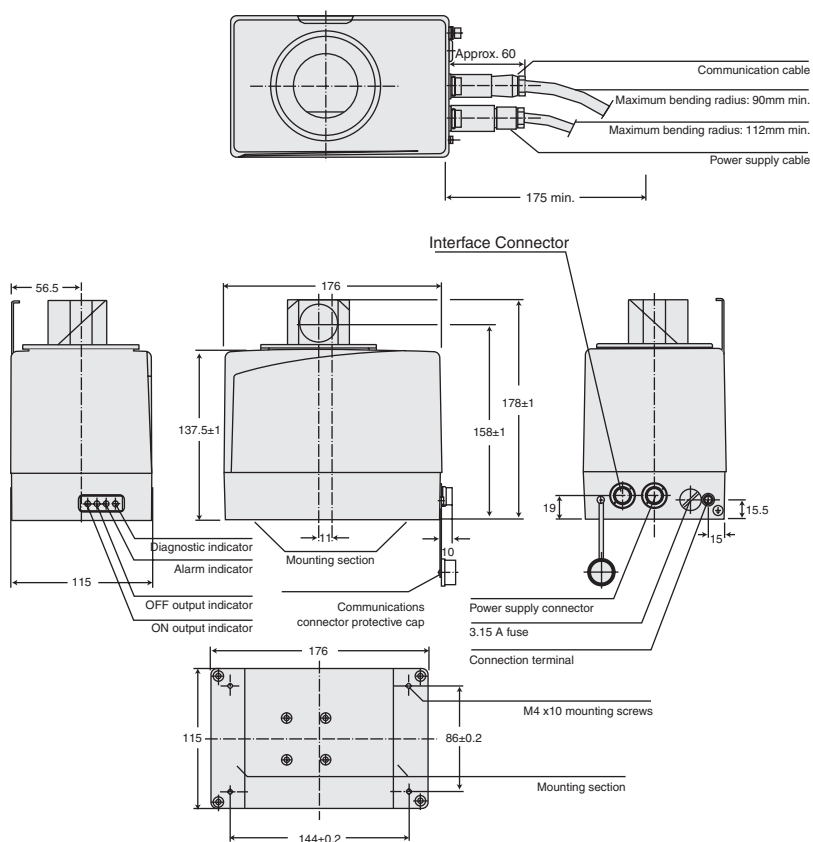
Specifications

Item	Model	F3G-C1R70
Safety category	Conforms to Type 3 ESPE EN/IEC 61496-1	
Sensing range (includes area of permitted deviation)	Protective field: 0 to 6 m Warning field: 0 to 7.5 m	
Scanning angle	300°	
Detection capability	Non-transparent, 70 mm in diameter (reflective rate of 1.8% min.)	
Response time	280 ms max.	
Reactivation time	200 to 5,000 ms (adjustable)	
Supply voltage	24 VDC \pm 25% (ripple: 5 V p-p max, except for voltage drop due to cable extension)	
Power consumption	24 W	
Light source	Infrared laser diode (wavelength: 905 nm)	
Laser protection class	Laser class 1 product conforms to following standards: EN 60825-1, IEC 825-1, JIS C 6802, and 21 CFR 1040.10	
Control output (output signal switching device)	Relay output: SPST-NO contact x 2 outputs, 30 V, 2 A ($\cos\phi=1$) max. Switch life expectancy: 2,000,000 operations	
Warning output (non-safety output)	Relay output: SPST-NO contact, 30 V, 2 A ($\cos\phi=1$) max. Switch life expectancy: 2,000,000 operations	
Protection	Control circuit: 3.15 A fuse (medium slow blow) Output: 2 A self resetting fuse	
Connection method	Power supply, output 8-pin round connector (manufactured by Binder, 423 Series) Computer connection: 14-pin round connector (manufactured by Binder, 423 Series)	
Communication method with computer	RS-232C	
Ambient temperature	Operating 0 to 50 °C, Storage -20 to 70 °C	
Ambient humidity	Operating/Storage: 5% to 95% (with no condensation)	
Vibration resistance (malfunction)	10 to 55 Hz with a 0.7 mm double amplitude, 20 sweeps each in X, Y, and Z directions	
Shock resistance	100 m/s ² , 1,000 times each in X, Y, and Z directions	
Degree of protection	IP65 (IEC 60529)	
Cable (sold separately)	Power supply, output	0.5 mm ² , 8-wire, mesh shield; maximum extension length: 20 m; allowable bending radius: 90 mm
	Connection to computer	Maximum extension length: 5 m; allowable bending radius: 112 mm
Materials	Case: Aluminium; Optical surface, display: Glass	
Weight	Sensor only: Approximately 3,0 kg; In packaging: Approximately 4.4 kg	
Accessories	Instruction manual, CSL Setup Software (CD-ROM), and mounting screws (four M4x10)	

Dimensions

Unit: mm

■ F3G-C1R70



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