

## Safety Light Curtain F3SG-SR Series IP69K Model

# F3SG-SR-K

### IP69K protection for high-pressure wash-down applications

- Offers the same specifications and functionality as F3SG-4SRB□□ standard model.  
Detection capability of 14- and 25-mm dia.
- Conforms to major international standards



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## F3SG-SR-K

### Model Number Legend

#### IP69K Model F3SG-SR-K

**F3SG-4SRB** □□□□ - □□ - □ - **K**  
 (1) (2) (3) (4) (5) (6)

| No. | Classification       | Code        | Meaning                                              | Remarks |
|-----|----------------------|-------------|------------------------------------------------------|---------|
| (1) | ESPE                 | 4           | Type 4                                               |         |
| (2) | Function             | B           | Standard                                             |         |
| (3) | Protective height    | 0320 - 1800 | Protective height for finger protection (mm)         |         |
|     |                      | 0320 - 1840 | Protective height for hand protection (mm)           |         |
| (4) | Detection capability | 14          | Finger protection (Detection capability: 14-mm dia.) |         |
|     |                      | 25          | Hand protection (Detection capability: 25-mm dia.)   |         |
| (5) | Option 1             | Blank       | Set of emitter and receiver                          |         |
| (6) | Option 2             | K           | Water/oil resistance IP69K                           |         |

**Note: 1.** The purpose of this model number legend is to provide understanding of the meaning of specifications from the model number.

Models are not available for all combinations of code numbers.

See *Ordering Information* on page 72 for details.

- The bracket is not included. Order brackets sold separately.
- Connection cables are integrated with the safety light curtain.

## Ordering Information

### Safety Light Curtain IP69K Model

#### Main Unit F3SG-SR-K

Finger protection (Detection capability: 14-mm dia.)

| Number of beams | Protective height (mm) | Standard           |
|-----------------|------------------------|--------------------|
|                 |                        | Model              |
| 31              | 320                    | F3SG-4SRB0320-14-K |
| 39              | 400                    | F3SG-4SRB0400-14-K |
| 47              | 480                    | F3SG-4SRB0480-14-K |
| 55              | 560                    | F3SG-4SRB0560-14-K |
| 63              | 640                    | F3SG-4SRB0640-14-K |
| 71              | 720                    | F3SG-4SRB0720-14-K |
| 79              | 800                    | F3SG-4SRB0800-14-K |
| 87              | 880                    | F3SG-4SRB0880-14-K |
| 95              | 960                    | F3SG-4SRB0960-14-K |
| 99              | 1,000                  | F3SG-4SRB1000-14-K |
| 119             | 1,200                  | F3SG-4SRB1200-14-K |
| 139             | 1,400                  | F3SG-4SRB1400-14-K |
| 159             | 1,600                  | F3SG-4SRB1600-14-K |
| 179             | 1,800                  | F3SG-4SRB1800-14-K |

**Note:** Connection cables are integrated with the safety light curtain.

Hand protection (Detection capability: 25-mm dia.)

| Number of beams | Protective height (mm) | Standard           |
|-----------------|------------------------|--------------------|
|                 |                        | Model              |
| 16              | 320                    | F3SG-4SRB0320-25-K |
| 20              | 400                    | F3SG-4SRB0400-25-K |
| 24              | 480                    | F3SG-4SRB0480-25-K |
| 28              | 560                    | F3SG-4SRB0560-25-K |
| 32              | 640                    | F3SG-4SRB0640-25-K |
| 36              | 720                    | F3SG-4SRB0720-25-K |
| 40              | 800                    | F3SG-4SRB0800-25-K |
| 44              | 880                    | F3SG-4SRB0880-25-K |
| 48              | 960                    | F3SG-4SRB0960-25-K |
| 50              | 1,000                  | F3SG-4SRB1000-25-K |
| 52              | 1,040                  | F3SG-4SRB1040-25-K |
| 56              | 1,120                  | F3SG-4SRB1120-25-K |
| 60              | 1,200                  | F3SG-4SRB1200-25-K |
| 64              | 1,280                  | F3SG-4SRB1280-25-K |
| 68              | 1,360                  | F3SG-4SRB1360-25-K |
| 72              | 1,440                  | F3SG-4SRB1440-25-K |
| 76              | 1,520                  | F3SG-4SRB1520-25-K |
| 80              | 1,600                  | F3SG-4SRB1600-25-K |
| 84              | 1,680                  | F3SG-4SRB1680-25-K |
| 88              | 1,760                  | F3SG-4SRB1760-25-K |
| 92              | 1,840                  | F3SG-4SRB1840-25-K |

**Note:** Connection cables are integrated with the safety light curtain.

### Accessories (Sold separately)

#### Optional Accessories for F3SG-SR-K

##### Bracket

| Appearance                                                                                                                                                                                    | Type                                                                                | Application                                          | Model       |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------|-------------|
| Bracket to mount the F3SG-SR-K.<br>360° mounting including side mounting and backside mounting possible.<br>Beam alignment after mounting of F3SG-SR/PG not possible.<br>Two brackets per set |  | IP69K Model Mounting Bracket<br>(Top/Bottom Bracket) | F39-LSGTB-K |

F3SG-SR/PG

F3SG-SR-K

Common to  
F3SG-SR and F3SG-PG

# F3SG-SR-K

## Ratings and Specifications

### Safety Light Curtain IP69K Model

#### Main Unit F3SG-SR-K

□□□□ in the model number indicates the protective height in millimeters.

| Model                                           |                                             |                                                                                                                                                                    | F3SG-4SRB□□□□-14-K         | F3SG-4SRB□□□□-25-K                                                             |                                                                                |
|-------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------|
| Performance                                     | Object resolution<br>(Detection capability) |                                                                                                                                                                    | Opaque objects             |                                                                                |                                                                                |
|                                                 |                                             |                                                                                                                                                                    | 14-mm dia.                 | 25-mm dia.                                                                     |                                                                                |
|                                                 | Beam gap                                    |                                                                                                                                                                    | 10 mm                      | 20 mm                                                                          |                                                                                |
|                                                 | Number of beams                             |                                                                                                                                                                    | 31 to 179                  | 16 to 92                                                                       |                                                                                |
|                                                 | Lens size                                   |                                                                                                                                                                    | 4.4 × 3.4 mm (W × H)       | 6.7 × 4.5 mm (W × H)                                                           |                                                                                |
|                                                 | Protective height                           |                                                                                                                                                                    | 320 to 1,800 mm            | 320 to 1,840 mm                                                                |                                                                                |
|                                                 | Operating range                             | Long                                                                                                                                                               | 0.3 to 8.0 m (Typ. 12.0 m) | 0.3 to 16.0 m (Typ. 24.0 m)                                                    |                                                                                |
|                                                 |                                             | Short                                                                                                                                                              | 0.3 to 2.4 m (Typ. 3.6 m)  | 0.3 to 5.6 m (Typ. 8.4 m)                                                      |                                                                                |
|                                                 |                                             | * When operating at an ambient temperature of -10 to -30 °C, use the F3SG-SR with the operating range of 0.3 to 4.0 m in Long Mode and 0.3 to 1.2 m in Short Mode. |                            |                                                                                |                                                                                |
|                                                 | Response time                               | Normal mode                                                                                                                                                        | ON to OFF                  | Optical synchronization: 8 to 18 ms<br>Wired synchronization: 10 to 21 ms      | Optical synchronization: 8 to 13 ms<br>Wired synchronization: 10 to 17 ms      |
|                                                 |                                             |                                                                                                                                                                    | OFF to ON                  | Optical synchronization: 40 to 90 ms<br>Wired synchronization: 50 to 105 ms    | Optical synchronization: 40 to 90 ms<br>Wired synchronization: 50 to 85 ms     |
|                                                 |                                             | ×2 Slow mode *                                                                                                                                                     | ON to OFF                  | Optical synchronization: 16 to 36 ms<br>Wired synchronization: 20 to 42 ms     | Optical synchronization: 16 to 26 ms<br>Wired synchronization: 20 to 34 ms     |
|                                                 |                                             |                                                                                                                                                                    | OFF to ON                  | Optical synchronization: 80 to 180 ms<br>Wired synchronization: 100 to 210 ms  | Optical synchronization: 80 to 130 ms<br>Wired synchronization: 100 to 170 ms  |
|                                                 |                                             | ×4 Slow mode *                                                                                                                                                     | ON to OFF                  | Optical synchronization: 32 to 72 ms<br>Wired synchronization: 40 to 84 ms     | Optical synchronization: 32 to 52 ms<br>Wired synchronization: 40 to 68 ms     |
|                                                 |                                             |                                                                                                                                                                    | OFF to ON                  | Optical synchronization: 160 to 360 ms<br>Wired synchronization: 200 to 420 ms | Optical synchronization: 160 to 260 ms<br>Wired synchronization: 200 to 340 ms |
|                                                 |                                             | ×8 Slow mode *                                                                                                                                                     | ON to OFF                  | Optical synchronization: 64 to 144 ms<br>Wired synchronization: 80 to 168 ms   | Optical synchronization: 64 to 104 ms<br>Wired synchronization: 80 to 136 ms   |
|                                                 |                                             |                                                                                                                                                                    | OFF to ON                  | Optical synchronization: 320 to 720 ms<br>Wired synchronization: 400 to 840 ms | Optical synchronization: 320 to 520 ms<br>Wired synchronization: 400 to 680 ms |
| * Selectable by SD Manager 3.                   |                                             |                                                                                                                                                                    |                            |                                                                                |                                                                                |
| Effective aperture angle (EAA)<br>(IEC 61496-2) |                                             | ±2.5° max. * Emitter and receiver at operating range of 3 m or greater.                                                                                            |                            |                                                                                |                                                                                |
| Light source                                    |                                             | Infrared LEDs, Wavelength: 870 nm                                                                                                                                  |                            |                                                                                |                                                                                |
| Startup waiting time                            |                                             | 3 s max.                                                                                                                                                           |                            |                                                                                |                                                                                |

| Model       |                                    | F3SG-4SRB□□□□-14-K                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | F3SG-4SRB□□□□-25-K                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Electric al | Power supply voltage (Vs)          | SELV/PELV 24 VDC ±20% (ripple p-p 10% max.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Current consumption                | Refer to page 76.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Safety outputs (OSSD)              | <p>Two PNP or NPN transistor outputs (PNP or NPN is selectable by wiring of power supply.)<br/>           Load current: 300 mA max., Residual voltage: 2 V max. (except for voltage drop due to cable extension),<br/>           Capacitive load: 1 µF max., Inductive load: 2.2 H max. *1*2<br/>           Leakage current: 1 mA max. (PNP), 2 mA max. (NPN) *3<br/>           *1. The residual voltage is 3 V max. when the Intelligent Tap is connected to the sensor.<br/>           *2. The load inductance is the maximum value when the safety output frequently repeats ON and OFF.<br/>           When you use the safety output at 4 Hz or less, the usable load inductance becomes larger.<br/>           *3. These values must be taken into consideration when connecting elements including a capacitive load such as a capacitor.</p> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Auxiliary output                   | <p>Two PNP or NPN transistor 1 outputs (PNP or NPN is selectable by wiring of power supply.)<br/>           Load current: 100 mA max., Residual voltage: 2 V max. *<br/>           * The residual voltage is 3 V max. when the Intelligent Tap is connected to the sensor.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Output operation mode              | Safety output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | Light-ON (Safety outputs are turned to the ON state when the receiver receives an emitting signal.)                                                                                                                                                                                                                                                                                                                                                                     |
|             |                                    | Auxiliary output                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | Safety output (Inverted signal output: Enable) (default) (Configurable by SD Manager 3)                                                                                                                                                                                                                                                                                                                                                                                 |
|             | Input voltage                      | TEST                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | <p>Light emission stops when connected to 24 VDC<br/>           ON voltage: Vs-3 V to Vs (short circuit current: approx. 5.0 mA) *<br/>           OFF voltage: 0 V to 1/2 Vs, or open (short circuit current: approx. 6.0 mA) *<br/>           Light emission stops when connected to 0 VDC<br/>           ON voltage: 0 to 3 V (short circuit current: approx. 6.0 mA)<br/>           OFF voltage: 1/2 Vs to Vs, or open (short circuit current: approx. 5.0 mA) *</p> |
|             |                                    | OPERATING RANGE SELECT INPUT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | <p>Long: 12 V to Vs (short circuit current: approx. 4.2 mA) * or open<br/>           Short: 0 to 3 V (short circuit current: approx. 4.2 mA)</p>                                                                                                                                                                                                                                                                                                                        |
|             |                                    | RESET/EDM                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | <p>PNP ON voltage: Vs-3 V to Vs (short circuit current: approx. 9.5 mA) *<br/>           OFF voltage: 0 V to 1/2 Vs, or open (short circuit current: approx. 13.0 mA) *<br/>           NPN ON voltage: 0 to 3 V (short circuit current: approx. 13.0 mA)<br/>           OFF voltage: 1/2 Vs to Vs, or open (short circuit current: approx. 9.5 mA) *</p>                                                                                                                |
|             |                                    | MUTE A/B, RE-RESET, PSDI                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | <p>PNP ON voltage: Vs-3V to Vs (short circuit current: approx. 4.5 mA) *<br/>           OFF voltage: 0 V to 1/2 Vs, or open (short circuit current: approx. 7.0 mA) *<br/>           NPN ON voltage: 0 to 3 V (short circuit current: approx. 7.0 mA)<br/>           OFF voltage: 1/2 Vs to Vs, or open (short circuit current: approx. 4.5 mA) *</p>                                                                                                                   |
|             |                                    | * The Vs indicates a supply voltage value in your environment.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Overvoltage category (IEC 60664-1) | II                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Indicators                         | Refer to page 93.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Protective circuit                 | Output short-circuit protection                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Insulation resistance              | 20 M or higher (500 VDC megger)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|             | Dielectric strength                | 1,000 VAC, 50/60 Hz (1 min)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |

## F3SG-SR-K

| Model                          |                                         |                                                                                                                                                                                                                                                                                                                                                                                                                       | F3SG-4SRB□□□□-14-K                                                                                                                                                                                                                 | F3SG-4SRB□□□□-25-K |
|--------------------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|
| Functional                     | Mutual interference prevention          |                                                                                                                                                                                                                                                                                                                                                                                                                       | Optical synchronization: The scan code is fixed to Code A.<br>Wired synchronization: in up to 3 sets                                                                                                                               |                    |
|                                | Test function                           |                                                                                                                                                                                                                                                                                                                                                                                                                       | Self-test (at power-on, and during operation)<br>External test (light emission stop function by test input)                                                                                                                        |                    |
|                                | Safety-related functions                |                                                                                                                                                                                                                                                                                                                                                                                                                       | Interlock<br>External Device Monitoring (EDM)<br>Pre-Reset<br>PSDI<br>Fixed Blanking/Floating Blanking<br>Reduced Resolution<br>Muting/Override<br>Mutual Interference Prevention<br>PNP/NPN Selection<br>Response Time Adjustment |                    |
| Environmental                  | Ambient temperature                     | Operating                                                                                                                                                                                                                                                                                                                                                                                                             | -30 to 55 °C (non-icing)                                                                                                                                                                                                           |                    |
|                                |                                         | Storage                                                                                                                                                                                                                                                                                                                                                                                                               | -30 to 70 °C                                                                                                                                                                                                                       |                    |
|                                | Ambient humidity                        | Operating                                                                                                                                                                                                                                                                                                                                                                                                             | 35% to 85% (non-condensing)                                                                                                                                                                                                        |                    |
|                                |                                         | Storage                                                                                                                                                                                                                                                                                                                                                                                                               | 35% to 95%                                                                                                                                                                                                                         |                    |
|                                | Ambient illuminance                     |                                                                                                                                                                                                                                                                                                                                                                                                                       | Incandescent lamp: 3,000 lx max. on receiver surface<br>Sunlight: 10,000 lx max. on receiver surface                                                                                                                               |                    |
|                                | Degree of protection (IEC 60529)        |                                                                                                                                                                                                                                                                                                                                                                                                                       | IEC 60529: IP65 and IP67, ISO 20653: IP69K                                                                                                                                                                                         |                    |
|                                | Vibration resistance (IEC 61496-1)      |                                                                                                                                                                                                                                                                                                                                                                                                                       | 10 to 55 Hz, Multiple amplitude of 0.7 mm, 20 sweeps for all 3 axes                                                                                                                                                                |                    |
| Shock resistance (IEC 61496-1) |                                         | 100 m/s <sup>2</sup> , 1000 shocks for all 3 axes                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                    |                    |
| Pollution degree (IEC 60664-1) |                                         | 3                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                                                                                                                                                    |                    |
| Connections                    | Root cable                              | Type of connection                                                                                                                                                                                                                                                                                                                                                                                                    | Open-ended type                                                                                                                                                                                                                    |                    |
|                                |                                         | Number of wires                                                                                                                                                                                                                                                                                                                                                                                                       | Emitter: 5, Receiver: 8                                                                                                                                                                                                            |                    |
|                                |                                         | Cable length                                                                                                                                                                                                                                                                                                                                                                                                          | 15 m                                                                                                                                                                                                                               |                    |
|                                |                                         | Cable diameter                                                                                                                                                                                                                                                                                                                                                                                                        | 6 mm                                                                                                                                                                                                                               |                    |
|                                |                                         | Minimum bending radius                                                                                                                                                                                                                                                                                                                                                                                                | R5 mm                                                                                                                                                                                                                              |                    |
|                                | Cable extension                         |  Refer to page 27 for restrictions on cable extension.                                                                                                                                                                                                                                                                             |                                                                                                                                                                                                                                    |                    |
| Root cable                     |                                         | In optical synchronization: 100 m max. * between power supply and emitter and between power supply and receiver<br>In wired synchronization: 100 m max. * between power supply and emitter, between power supply and receiver, and between emitter and receiver<br>* When the Intelligent Tap (F39-SGIT-IL3) is connected to the sensor, this applies in the case of the rated power supply of 24 VDC to 24 VDC +20%. |                                                                                                                                                                                                                                    |                    |
| Material                       |                                         | Pipe: Acrylic resin<br>Cap: SUS316L                                                                                                                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                    |                    |
| Weight                         |                                         |  Refer to page 76.                                                                                                                                                                                                                                                                                                                 |                                                                                                                                                                                                                                    |                    |
| Included accessories           |                                         | Instruction Sheet, Quick Installation Manual, Troubleshooting Guide Sticker                                                                                                                                                                                                                                                                                                                                           |                                                                                                                                                                                                                                    |                    |
| Conformity                     | Conforming standards                    |                                                                                                                                                                                                                                                                                                                                                                                                                       |  Refer to page 107.                                                                                                                             |                    |
|                                | Type of ESPE (IEC 61496-1)              |                                                                                                                                                                                                                                                                                                                                                                                                                       | Type 4                                                                                                                                                                                                                             |                    |
|                                | Performance Level (PL)/ Safety category |                                                                                                                                                                                                                                                                                                                                                                                                                       | PL e/Category 4 (EN ISO 13849-1:2015)                                                                                                                                                                                              |                    |
|                                | PFH <sub>D</sub>                        |                                                                                                                                                                                                                                                                                                                                                                                                                       | 1.1×10 <sup>-8</sup> max. (IEC 61508)                                                                                                                                                                                              |                    |
|                                | Proof test interval T <sub>M</sub>      |                                                                                                                                                                                                                                                                                                                                                                                                                       | Every 20 years (IEC 61508)                                                                                                                                                                                                         |                    |
|                                | SFF                                     |                                                                                                                                                                                                                                                                                                                                                                                                                       | 99% (IEC 61508)                                                                                                                                                                                                                    |                    |
|                                | HFT                                     |                                                                                                                                                                                                                                                                                                                                                                                                                       | 1 (IEC 61508)                                                                                                                                                                                                                      |                    |
| Classification                 |                                         | Type B (IEC 61508-2)                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                    |                    |

## Models/Response Time/Current Consumption/Weight

Finger protection (Detection capability: 14-mm dia.)

## Models and Response Times

| Model              | Number of beams | Protective height [mm] | Response time<br>(Optical synchronization) [ms] |                                |                                    | Response time<br>(Wired synchronization)<br>[ms] |           |
|--------------------|-----------------|------------------------|-------------------------------------------------|--------------------------------|------------------------------------|--------------------------------------------------|-----------|
|                    |                 |                        | ON to OFF                                       | OFF<br>(synchronized)<br>to ON | OFF<br>(not synchronized)<br>to ON | ON to OFF                                        | OFF to ON |
| F3SG-4SRB0320-14-K | 31              | 320                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0400-14-K | 39              | 400                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0480-14-K | 47              | 480                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0560-14-K | 55              | 560                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0640-14-K | 63              | 640                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0720-14-K | 71              | 720                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0800-14-K | 79              | 800                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0880-14-K | 87              | 880                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0960-14-K | 95              | 960                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1000-14-K | 99              | 1000                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1200-14-K | 119             | 1200                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1400-14-K | 139             | 1400                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1600-14-K | 159             | 1600                   | 18                                              | 90                             | 190                                | 21                                               | 105       |
| F3SG-4SRB1800-14-K | 179             | 1800                   | 18                                              | 90                             | 190                                | 21                                               | 105       |

## Models, Current Consumption and Weight

| Model              | Number of beams | Protective height [mm] | Current consumption [mA] |          | Weight [kg] |       |
|--------------------|-----------------|------------------------|--------------------------|----------|-------------|-------|
|                    |                 |                        | Emitter                  | Receiver | Net         | Gross |
| F3SG-4SRB0320-14-K | 31              | 320                    | 74                       | 100      | 5.2         | 6.7   |
| F3SG-4SRB0400-14-K | 39              | 400                    | 77                       | 101      | 5.5         | 7.0   |
| F3SG-4SRB0480-14-K | 47              | 480                    | 79                       | 103      | 5.8         | 7.4   |
| F3SG-4SRB0560-14-K | 55              | 560                    | 82                       | 104      | 6.1         | 7.7   |
| F3SG-4SRB0640-14-K | 63              | 640                    | 85                       | 106      | 6.4         | 8.1   |
| F3SG-4SRB0720-14-K | 71              | 720                    | 87                       | 107      | 6.7         | 8.5   |
| F3SG-4SRB0800-14-K | 79              | 800                    | 90                       | 109      | 7.0         | 8.8   |
| F3SG-4SRB0880-14-K | 87              | 880                    | 93                       | 110      | 7.3         | 9.2   |
| F3SG-4SRB0960-14-K | 95              | 960                    | 95                       | 112      | 7.6         | 9.6   |
| F3SG-4SRB1000-14-K | 99              | 1000                   | 97                       | 112      | 7.7         | 9.8   |
| F3SG-4SRB1200-14-K | 119             | 1200                   | 103                      | 116      | 8.5         | 10.6  |
| F3SG-4SRB1400-14-K | 139             | 1400                   | 110                      | 120      | 9.2         | 11.5  |
| F3SG-4SRB1600-14-K | 159             | 1600                   | 117                      | 124      | 10.0        | 12.5  |
| F3SG-4SRB1800-14-K | 179             | 1800                   | 124                      | 128      | 10.7        | 13.4  |

F3SG-SR/PG

F3SG-SR-K

Common to  
F3SG-SR and F3SG-PG

**F3SG-SR-K****Hand protection (Detection capability: 25-mm dia.)****Models and Response Times**

| Model              | Number of beams | Protective height [mm] | Response time<br>(Optical synchronization) [ms] |                                |                                    | Response time<br>(Wired synchronization)<br>[ms] |           |
|--------------------|-----------------|------------------------|-------------------------------------------------|--------------------------------|------------------------------------|--------------------------------------------------|-----------|
|                    |                 |                        | ON to OFF                                       | OFF<br>(synchronized)<br>to ON | OFF<br>(not synchronized)<br>to ON | ON to OFF                                        | OFF to ON |
| F3SG-4SRB0320-25-K | 16              | 320                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0400-25-K | 20              | 400                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0480-25-K | 24              | 480                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0560-25-K | 28              | 560                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0640-25-K | 32              | 640                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0720-25-K | 36              | 720                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0800-25-K | 40              | 800                    | 8                                               | 40                             | 140                                | 10                                               | 50        |
| F3SG-4SRB0880-25-K | 44              | 880                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB0960-25-K | 48              | 960                    | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1000-25-K | 50              | 1000                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1040-25-K | 52              | 1040                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1120-25-K | 56              | 1120                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1200-25-K | 60              | 1200                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1280-25-K | 64              | 1280                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1360-25-K | 68              | 1360                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1440-25-K | 72              | 1440                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1520-25-K | 76              | 1520                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1600-25-K | 80              | 1600                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1680-25-K | 84              | 1680                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1760-25-K | 88              | 1760                   | 13                                              | 65                             | 165                                | 17                                               | 85        |
| F3SG-4SRB1840-25-K | 92              | 1840                   | 13                                              | 65                             | 165                                | 17                                               | 85        |

**Models, Current Consumption and Weight**

| Model              | Number of beams | Protective height [mm] | Current consumption [mA] |          | Weight [kg] |       |
|--------------------|-----------------|------------------------|--------------------------|----------|-------------|-------|
|                    |                 |                        | Emitter                  | Receiver | Net         | Gross |
| F3SG-4SRB0320-25-K | 16              | 320                    | 65                       | 97       | 5.2         | 6.7   |
| F3SG-4SRB0400-25-K | 20              | 400                    | 66                       | 98       | 5.5         | 7.0   |
| F3SG-4SRB0480-25-K | 24              | 480                    | 68                       | 99       | 5.8         | 7.4   |
| F3SG-4SRB0560-25-K | 28              | 560                    | 70                       | 99       | 6.1         | 7.7   |
| F3SG-4SRB0640-25-K | 32              | 640                    | 72                       | 100      | 6.4         | 8.1   |
| F3SG-4SRB0720-25-K | 36              | 720                    | 74                       | 101      | 6.7         | 8.5   |
| F3SG-4SRB0800-25-K | 40              | 800                    | 76                       | 101      | 7.0         | 8.8   |
| F3SG-4SRB0880-25-K | 44              | 880                    | 78                       | 102      | 7.3         | 9.2   |
| F3SG-4SRB0960-25-K | 48              | 960                    | 80                       | 102      | 7.6         | 9.6   |
| F3SG-4SRB1000-25-K | 50              | 1000                   | 81                       | 103      | 7.7         | 9.8   |
| F3SG-4SRB1040-25-K | 52              | 1040                   | 82                       | 103      | 7.9         | 9.9   |
| F3SG-4SRB1120-25-K | 56              | 1120                   | 84                       | 104      | 8.2         | 10.3  |
| F3SG-4SRB1200-25-K | 60              | 1200                   | 86                       | 104      | 8.5         | 10.6  |
| F3SG-4SRB1280-25-K | 64              | 1280                   | 88                       | 105      | 8.8         | 11.0  |
| F3SG-4SRB1360-25-K | 68              | 1360                   | 90                       | 106      | 9.1         | 11.4  |
| F3SG-4SRB1440-25-K | 72              | 1440                   | 92                       | 106      | 9.4         | 11.7  |
| F3SG-4SRB1520-25-K | 76              | 1520                   | 93                       | 107      | 9.7         | 12.1  |
| F3SG-4SRB1600-25-K | 80              | 1600                   | 95                       | 107      | 10.0        | 12.5  |
| F3SG-4SRB1680-25-K | 84              | 1680                   | 97                       | 108      | 10.3        | 12.8  |
| F3SG-4SRB1760-25-K | 88              | 1760                   | 99                       | 109      | 10.6        | 13.2  |
| F3SG-4SRB1840-25-K | 92              | 1840                   | 101                      | 109      | 10.9        | 13.5  |

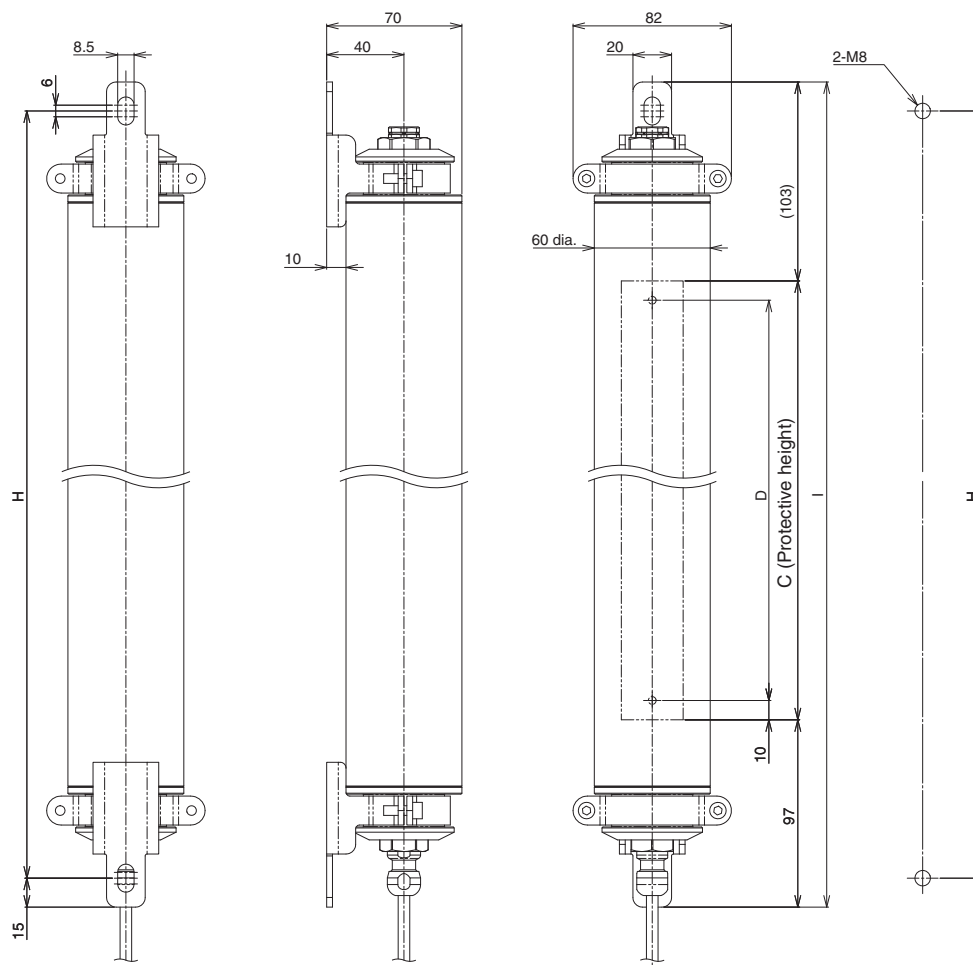
## Dimensions

(Unit: mm)

### F3SG-SR-K Main Unit

#### Mounted with IP69K Model Mounting Brackets (F39-LSGTB-K)

Side mounting and backside mounting



F3SG-SR-PG

F3SG-SR-K

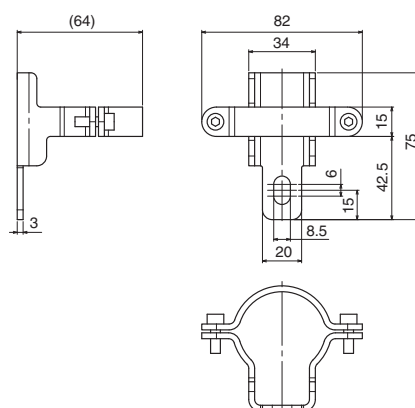
Common to  
F3SG-SR and F3SG-PG

|             |                                                       |      |
|-------------|-------------------------------------------------------|------|
| Dimension C | 4-digit number in model number (Protective height: △) |      |
| Dimension D | F3SG-□SR□△△△△-14                                      | C-20 |
|             | F3SG-□SR□△△△△-25                                      |      |
| Dimension H | C+170                                                 |      |
| Dimension I | C+200                                                 |      |

## Accessories

### Bracket

IP69K Model Mounting Bracket  
(F39-LSGTB-K, sold separately)



Material: SUS316L