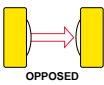
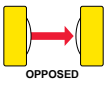
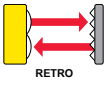
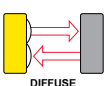
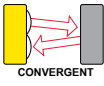
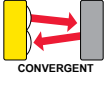
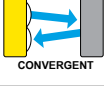
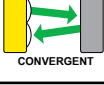
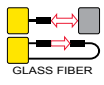
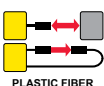


# MINI-BEAM dc-Voltage Series

Self-contained photoelectric sensors

## Models

| Sensing Mode                                                                                         |                                               | Range                                                                                                                              | LED                  | Model              |           |
|------------------------------------------------------------------------------------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------|----------------------|--------------------|-----------|
| <br>OPPOSED         | Opposed Emitter                               | 3 m (10 ft)                                                                                                                        | Infrared 880 nm      | SM31E              |           |
|                                                                                                      | Opposed Receiver                              |                                                                                                                                    |                      | SM31R              |           |
|                                                                                                      | Opposed Emitter - Long Range                  | 30 m (100 ft)                                                                                                                      |                      | SM31EL             |           |
|                                                                                                      | Opposed Receiver - Long Range                 |                                                                                                                                    |                      | SM31RL             |           |
| <br>OPPOSED         | Opposed Emitter - Clear Plastic Detection     | 0 to 300 mm (0 to 12 in) Actual range varies, depending on the light transmission properties of the plastic material being sensed. | Visible Red 650 nm   | SM31EPD            |           |
|                                                                                                      | Opposed Receiver - Clear Plastic Detection    |                                                                                                                                    |                      | SM31RPD            |           |
| <br>RETRO           | Non-Polarized Retroreflective                 | 5 m (15 ft)                                                                                                                        |                      | Visible Red 650 nm | SM312LV   |
| <br>POLAR RETRO     | Polarized Retroreflective                     | 55 mm to 2 m (2 in to 7 ft)                                                                                                        |                      |                    | SM312LVAG |
|                                                                                                      | Extended-Range Polarized Retroreflective      | 10 mm to 3 m (0.4 in to 10 ft)                                                                                                     | SM312LP              |                    |           |
| <br>DIFFUSE         | Diffuse                                       | 380 mm (15 in)                                                                                                                     | Infrared 880 nm      | SM312D             |           |
|                                                                                                      |                                               | 300 mm (12 in)                                                                                                                     |                      | SM312DBZ           |           |
|                                                                                                      | Divergent Diffuse                             | 130 mm (5 in)                                                                                                                      |                      | SM312W             |           |
| <br>CONVERGENT     | Convergent                                    | 16 mm (0.65 in) Focus                                                                                                              |                      |                    | SM312C    |
|                                                                                                      |                                               | 43 mm (1.7 in) Focus                                                                                                               | SM312C2              |                    |           |
| <br>CONVERGENT    |                                               | 16 mm (0.65 in) Focus                                                                                                              | Visible Red 650 nm   | SM312CV            |           |
|                                                                                                      |                                               | 43 mm (1.7 in) Focus                                                                                                               |                      | SM312CV2           |           |
| <br>CONVERGENT    |                                               | 16 mm (0.65 in) Focus                                                                                                              | Visible Blue 475 nm  | SM312CVB           |           |
|                                                                                                      |                                               | 49 mm (1.9 in) Focus                                                                                                               |                      | SM312CV2B          |           |
| <br>CONVERGENT    |                                               | 16 mm (0.65 in) Focus                                                                                                              | Visible Green 525 nm | SM312CVG           |           |
|                                                                                                      |                                               | 49 mm (1.9 in) Focus                                                                                                               |                      | SM312CV2G          |           |
| <br>GLASS FIBER   | Glass Fiber Optic                             | Range varies, depending on sensing mode and fiber optics used.                                                                     | Infrared 880 nm      | SM312F             |           |
|                                                                                                      |                                               |                                                                                                                                    | Visible Red 650 nm   | SM312FV            |           |
|                                                                                                      |                                               |                                                                                                                                    | Visible Blue 475 nm  | SM312FVB           |           |
|                                                                                                      |                                               |                                                                                                                                    | Visible Green 525 nm | SM312FVG           |           |
| <br>PLASTIC FIBER | Plastic Fiber Optic                           |                                                                                                                                    | Visible Red 650 nm   | SM312FP            |           |
|                                                                                                      |                                               |                                                                                                                                    | Visible Blue 475 nm  | SM312FPB           |           |
|                                                                                                      |                                               |                                                                                                                                    | Visible Green 525 nm | SM312FPG           |           |
|                                                                                                      | Special High-Power Option Plastic Fiber Optic |                                                                                                                                    |                      | Visible Red 650 nm | SM312FPH  |

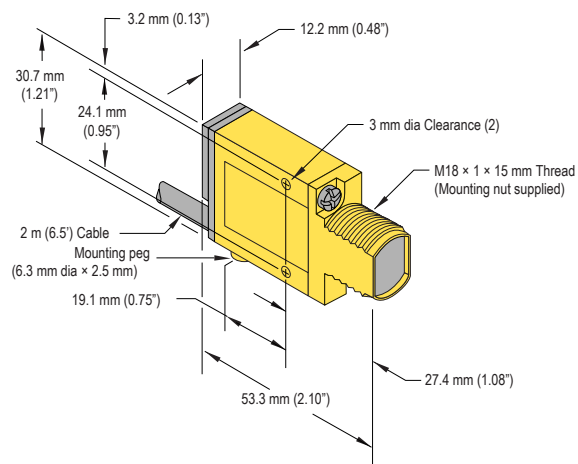
Standard 2 m (6.5') cable models are listed.

- 9 m (30') cable: add suffix "W/30" (e.g., SM31EW/30).
- 4-pin Euro QD models: add suffix "QD" (e.g., SM31EQD).
- 150 mm (6") QD Pigtail: add suffix "QDP" (e.g., SM31EQDP).

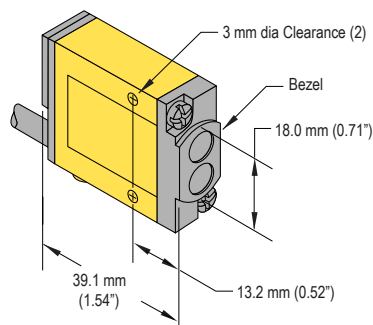
For a 0.3 ms response: add suffix "MHS" (eg., SM31EMHS).

## Dimensions

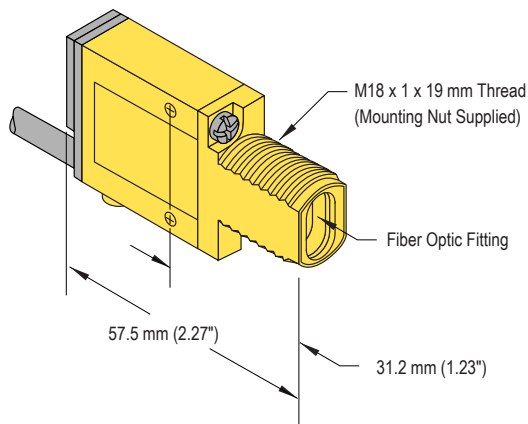
Models with suffix E, EL, EPD, R, RL, RPD, LV, LVAG, LP, D, C, C2, CV, CV2, CVG, CV2G, CVB, and CV2B



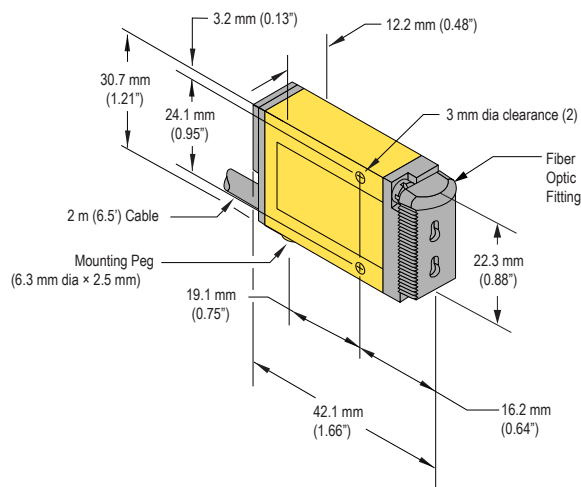
Models with suffix DBZ and W



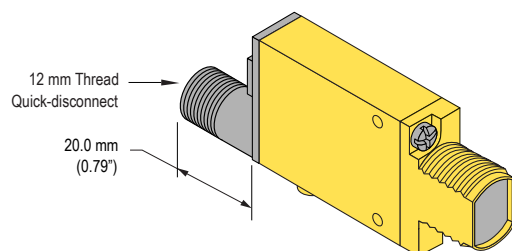
Models with suffix F, FV, FVB, and FVG



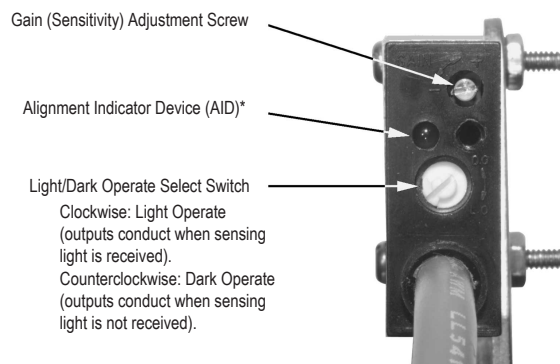
Models with suffix FP, FPB, FPG, and FPH



QD Models



Sensor Features



\*U.S. Patent no. 4356393