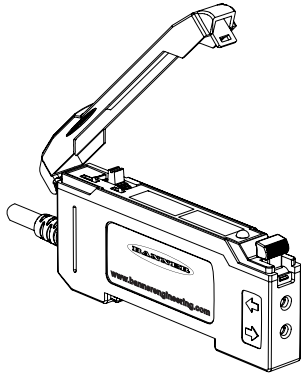


# 1 Product Description

Advanced sensor with dual digital displays for use with plastic and glass fiber optic assemblies



- Best in class response speeds of: 10  $\mu$ s, 15  $\mu$ s, 50  $\mu$ s, 250  $\mu$ s, 500  $\mu$ s, 1000  $\mu$ s and 2000  $\mu$ s allow the operator to optimize for fast response, long distance applications, or noisy environments.
- Outstanding color contrast sensitivity; detects 32 levels of gray scale from black to white
- Choose from IR or one of 4 visible beam colors: red, blue, green and white. Depending on the beam color and fiber, the sensor reliably detects the toughest color mark contrasts
- Easy to read dual digital displays show both signal level and threshold simultaneously
- Lever action fiber clamp provides stable, reliable, and trouble-free fiber clamping
- Simple user interface ensures easy sensor set-up and programming via displays and switches/buttons or remote input teach wire
- *Expert* TEACH and SET methods ensure optimal gain and threshold for all applications, especially for high speed or low contrast applications
- User has full control over all operating parameters: threshold, Light Operate or Dark Operate, output timing functions, gain level, and response speed
- Thermally stable electronics shorten start-up time and maintain signal stability during operation
- ECO (economy) display mode reduces amplifier power consumption by 25%
- Cross talk avoidance algorithm allows two sensors to operate in close proximity for many applications
- Sleek 10 mm wide housing mounts to 35 mm DIN rail



**WARNING: Not To Be Used for Personnel Protection**

Never use this device as a sensing device for personnel protection. Doing so could lead to serious injury or death. This device does not include the self-checking redundant circuitry necessary to allow its use in personnel safety applications. A sensor failure or malfunction can cause either an energized or de-energized sensor output condition.

## 1.1 Models

Model	Sensing Beam Color	Reference Sensing Range <sup>1</sup>	Outputs	Connector <sup>2</sup>
DF-G2-NS-2M	Visible Red	1100 mm	Single NPN	2 m (6.5 ft) cable, 4-wire
DF-G2-PS-2M			Single PNP	
DF-G2W-NS-2M	Broad Spectrum White	550 mm	Single NPN	
DF-G2W-PS-2M			Single PNP	
DF-G2G-NS-2M	Visible Green	660 mm	Single NPN	
DF-G2G-PS-2M			Single PNP	
DF-G2B-NS-2M	Visible Blue	770 mm	Single NPN	
DF-G2B-PS-2M			Single PNP	
DF-G2IR-NS-2M	Infrared	2100 mm	Single NPN	
DF-G2IR-PS-2M			Single PNP	

<sup>1</sup> Excess gain = 1, Long Range response speed, opposed mode sensing. PIT46U plastic fiber used for visible LED models, IT.83.3ST5M6 glass fiber used for IR model

<sup>2</sup> Connector options:

- A model with a QD connector requires a mating cordset (see [Quick-Disconnect Cordsets](#) on page 29)
- For 9 m cable, change the suffix 2M to 9M in the 2 m model number (example, DF-G2-NS-9M)
- For 150 mm (6 in) PVC pigtail, M8 Pico QD connector, 4-pin change the suffix 2M to Q3 in the 2 m model number (example, DF-G2-NS-Q3)
- For 150 mm (6 in) PVC pigtail, M12 Euro QD connector, 4-pin change the suffix 2M to Q5 in the 2 m model number (example, DF-G2-NS-Q5)
- For integral M8 Pico QD connector, 4-pin change the suffix 2M to Q7 in the 2 m model number (example, DF-G2-NS-Q7)

## 1.2 Overview

The DF-G2 is an easy-to-use, DIN-rail-mountable fiber optic sensor with best in class response speed and repeatability. It provides high-performance sensing in high speed or low contrast applications where fast response time is required.

The sensor's compact housing has dual digital displays (Red/Green) and a bright output LED for easy programming and status monitoring during operation. The sensor features a single discrete output, either NPN or PNP, by model.

The DF-G2 features improved temperature compensation compared with previous fiber optic sensors. An accessory clamp is available to secure a bank of connected sensors together on a DIN rail (see [Accessories](#) on page 29).

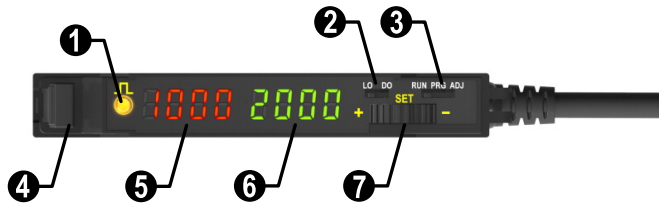


Figure 1. DF-G2 Model Features

1	Output LED
2	LO/DO Switch
3	RUN/PRG/ADJ Mode Switch
4	Lever Action Fiber Clamp
5	Red Signal Level
6	Green Threshold
7	+ /SET/ - Rocker Button

## 1.3 Top Panel Interface

Opening the dust cover provides access to the top panel interface. The top panel interface consists of the RUN/PRG/ADJ mode switch, LO/DO switch, +/SET/- rocker button, dual red/green digital displays, and output LED.

### RUN/PRG/ADJ Mode Switch



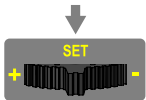
The RUN/PRG/ADJ mode switch puts the sensor in RUN, PRG (Program), or ADJ (Adjust) mode. RUN mode allows the sensor to operate normally and prevents unintentional programming changes via the +/SET/- button. PRG mode allows the sensor to be programmed through the display driven programming menu (see [Program Mode](#) on page 7 ). ADJ mode allows the user to perform Expert TEACH/SET methods and Manual Adjust (see [Adjust Mode](#) on page 12 ).

### LO/DO Switch



The LO/DO switch is used to select Light Operate or Dark Operate mode. In Light Operate mode, the output is ON when the sensing condition is above the threshold (for Window SET, the output is ON when the sensing condition is inside the window). In Dark Operate mode, the output is ON when the sensing condition is below the threshold (for Window SET, the output is ON when the sensing condition is outside the window).

### + /SET/ - Rocker Button



The +/SET/- rocker button is a 3-way button. The +/- positions are engaged by rocking the button left/right. The SET position is engaged by clicking down the button while the rocker is in the middle position. All three button positions are used during PRG mode to navigate the display driven programming menu. During ADJ mode, SET is used to perform TEACH/SET methods and +/- are used to manually adjust the threshold(s). The rocker button is disabled during RUN mode, except when using Window SET, see [Window SET](#) on page 15.

### Red/Green Digital Displays



During RUN and ADJ mode, the Red display shows the signal level and the Green display shows the threshold. During PRG mode, both displays are used to navigate the display driven programming menu.



### Output LED

The output LED provides a visible indication when the output is activated.