

# DFS Series

AN ALL INCLUSIVE  
FAMILY OF  
DIGITAL FIBER OPTIC SENSORS

**DFS11**  
SINGLE CHANNEL

**DFS12**  
SIMPLIFIED

**DFS21**  
DUAL CHANNEL

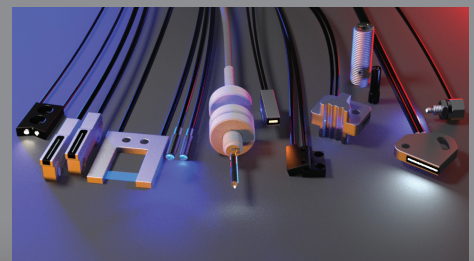
**DFS31**  
HIGH SPEED

**DFS51**  
IO-LINK  
COMPATIBLE

**DFS61**  
SHORT-WAVE INFRARED

**DFS71**  
HIGH SPEED &  
IO LINK COMPATIBLE

- Crosstalk Rejection
- Programmable Configurations
- Combinable Dual Timers, with Latching and Reset capability, and Counter modes



For Complete Listing Visit:  
[www.ttco.com](http://www.ttco.com)

# Digital Fiber Optic Sensor

AN ALL INCLUSIVE  
FIBER OPTIC SENSOR

## Overview

### WIDE VARIETY OF FIBERS

Visit [www.tco.com](http://www.tco.com) for full listing.

### AUTOSET (●)

Push to perform AUTOSET.

### THRESHOLD/VALUE ADJUST ROCKER (▼▲)

1. Manually adjusts the threshold. +/-
2. Alters programming parameters. +/-  
Hold to scroll for numeric values.

### MODE (■)

1. Tap to display sensor status screen.
2. Tap again to access parameters.

### CONNECTION

4-Pin M8 connector or built-in cable.

## Showing DFS11 Other models will vary.

### FIBER RELEASE CLAMP

Locks fibers in place.

### OUTPUT LEADS

1. Illuminates solid when output is ON.
2. Flashes when output is overloaded.

### ADVANCED DIAGNOSTIC OLED DISPLAY

See Instructions for complete listing.

### INPUT FUNCTION LIGHT RING

1. Illuminates when input is activated.
2. Illuminates when synchronous crosstalk communication is received.

Note: Only available on connector models.

## Features

### Simple Start

Get going quickly with a push of one button. The sensor default settings will do the rest.

## Specifications

### SUPPLY VOLTAGE & CURRENT

- 8-30 Vdc
- 28ma @ 24Vdc, 49ma @ 12Vdc
- Reverse polarity protected
- Transient spike protected

### OUTPUT

- Configurable NPN, PNP or Push-Pull
- 150mA output current
- Short circuit & transient spike protected
- Saturation voltage: < 0.3Vdc @ 10mA
- < 2Vdc @ 150mA

### INPUT

- Configurable active high/low
- Transient spike protected
- Configurable function: Remote setting or commands, Interrogate, Gate, Dark-On, Lockout, and Latch Reset.

### POWER-UP DELAY

- 300ms. No output pulse on power-up.

### RESPONSE TIME (Dependent on Mode)

- Ultra-High-Speed (UHS) 50µs
- High-Speed (HS) 125µs
- Standard (STD) 250µs
- High-Resolution (HR) 1ms
- Long-Range (LR) 4ms
- Ultra-Long-Range (ULR) 16ms

### REPEATABILITY (Dependent on Mode)

- UHS 12µs.
- HS, STD, HR, LR, ULR (15.635µs)
- Asynchronous crosstalk enabled (31.25µs)

### MAXIMUM RANGE

- Opposed Mode*
- UHS 20in (508mm)
  - HS 28in (711mm)
  - STD 32in (813mm)
  - HR 47in (1,193mm)
  - LR 60in (1,524mm)
  - ULR 75in (1,905mm)

### Proximity Mode

- UHS 8in (203mm)
- HS 11in (279mm)
- STD 13in (330mm)
- HR 16in (406mm)
- LR 21in (533mm)
- ULR 28in (711mm)

When anti-crosstalk is enabled maximum range specifications are reduced 30%.

Note: Opposed tests utilized: PF-Z-78TL  
Proximity tests utilized: PFD-Z-78M64

## Showing DFS11 Other models will vary.

### LIGHT IMMUNITY

- High immunity to most ambient light, including high efficiency lighting and high intensity strobes.

### MUTUAL INTERFERENCE REJECTION

- Asynchronous: Two sensor max. responds to selected A or B Channel.
- Synchronous: Up to eight sensors via one wire interface.

### COMBINABLE DUAL TIMERS

- On-Delay, Off-Delay, One-Shot, Motion
- Latching function
- Timer range: 0.1 - 0.9ms, 1ms - 9,999ms

### LED LIGHT SOURCE

- 4 element LED, Red = 660nm

### DISPLAY

- 96 X 16 white dot matrix OLED
- Display numerical range depended on processing mode
- UHS - 1,023
- HS - 2,047
- STD - 4,095
- HR - 16,383
- LR - 32,767
- ULR - 65,535

### LED INDICATORS

- Output: Red LED. Illuminates when output is ON. Flashes when output is overloaded.
- Connector: Red LED, illuminates when input wire is activated.

### CONNECTIONS

- M8, 4-pin
- Attached cable: 4-wire 6ft (1.8m)

### OPERATING TEMPERATURE

- 5°C to 55°C (41°F to 131°F) - Electrical.

### HOUSING CONSTRUCTION

- Chemical resistant, high-impact polycarbonate

### RATINGS & CERTIFICATIONS

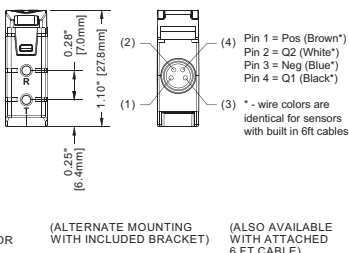
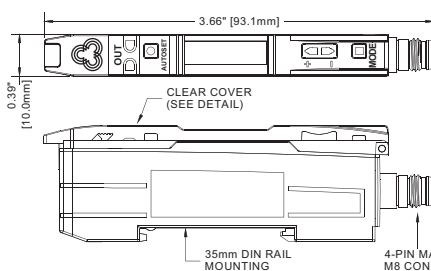
- IP50
- CE
- UL pending



RoHS Compliant

Product subject to change without notice

## Dimensions



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