DFS11 - Instructions

Features:

- Intuitive numerical/percentage diagnostic OLED display
- Attractive 10mm wide housing
- Low power & wide operating voltage
- Advanced remote programming
- Six **AUTOSET** modes including window
- Crosstalk rejection of up to eight sensors synchronized via single wire network or two sensors without a wire
- Programmable output/input configurations
- High-speed, High-resolution, and Long-range modes
- Combinable dual timers, and counters
- CE approved

How To Specify

1. Select Sensor: DFS11
Digital
Fiber Optic Sensor

2. Select Light Source:
R = Red
I = Infrared

3. Select Connection:
Blank = 6ft cable (1.8m)
C = 4-pin M8 connector

Example: DFS11 R C

DFS
Digital Fiber Optic Sensor

Light Source

Connection

Features

WIDE VARIETY OF FIBERS
Visit www.ttco.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.

FIBER RELEASE CLAMP
Locks fibers in place.

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

ADVANCED DIAGNOSTIC OLED DISPLAY
See next page 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.

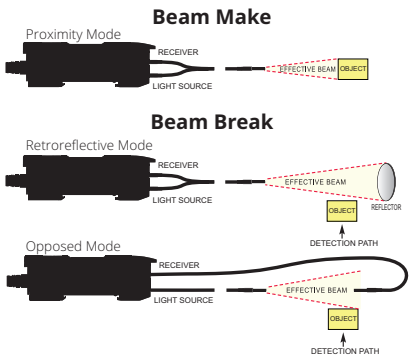
Quick Start

The Digital Fiber Optic Sensor is designed to provide reliable detection using fiber optic light guides. Sensor is adjusted by a single push of a button; there is no guess work on the part of the operator. The sensor *default settings** (Light State) will work for most applications.

Follow the three step procedure below:

* *Note: Consult all default settings on page 6.*

1. Establish one of the following conditions:
Beam Make/Proximity - Reflect light off object.
Beam Break - Remove object from light beam path.



2. Tap **AUTOSET** (●) button:

Pressing the AUTOSET button sets the sensors threshold to the desired level.

3. Verify setup on advanced diagnostic OLED display. If needed, the threshold can be altered by tapping up or down on the threshold adjust rocker.

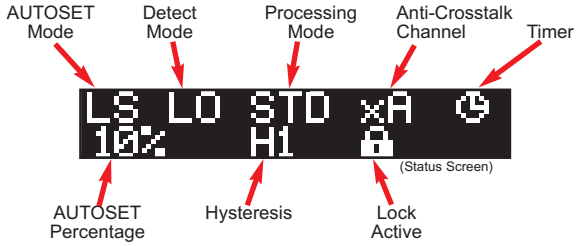
Advanced Diagnostic OLED Display

Signal Level → 01100 00990 ← Threshold

Programming

The DFS performance, AUTOSET function, output configuration, and other features can be tailored to your unique application. Follow the programming procedure contained in this section.

■ MODE Tap **MODE** (■) to show status screen.
Status Screen shows a quick overview of sensor's settings.



Note: Programming will time out after 60 seconds if no action is taken. Tap and hold to exit status screen.

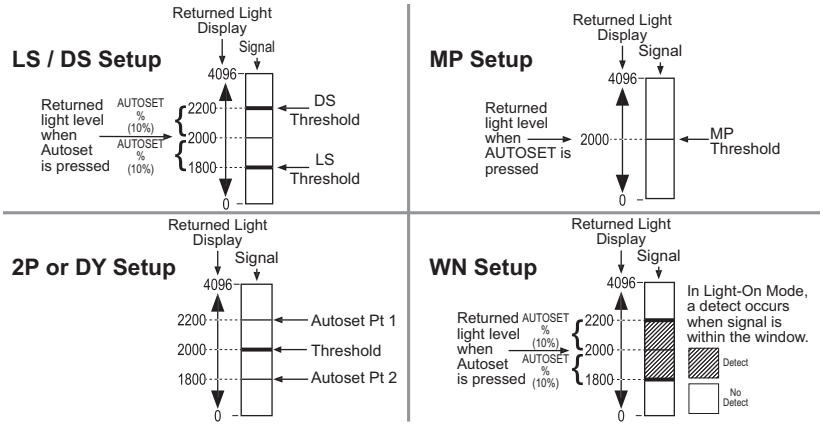
■ MODE Tap **MODE** (■) again to access first parameter. Continue tapping to select desired parameter. Use the threshold/value **ADJUST ROCKER** (▼▲) to select or adjust a specific parameter.

AUTOSET Modes

The sensor's automatic threshold adjustment is controlled by the AUTOSET mode. Each AUTOSET mode sets the threshold differently. Select the mode that works best for your specific application. *See details at the left.*

Select ▲▼

AUTOSET Mode: Light State LS	**Light-State Set (LS):** Sets threshold below received light beam intensity.
AUTOSET Mode: Dark State DS	**Dark-State Set (DS):** Sets threshold above received light beam intensity.
AUTOSET Mode: Midpoint MP	**Midpoint Set (MP):** Sets threshold at received light beam intensity.
AUTOSET Mode: Two-Point 2P	**Two-point Set (2P):** Sets threshold between received light beam intensity two point.
AUTOSET Mode: Dynamic DY	**Dynamic Set (DY):** Sets threshold between received light beam high and low intensity.
AUTOSET Mode: Window WN	**Window Set (WN):** Sets two thresholds equally spaced above and below received light beam intensity. Received light beam intensity within the window is a valid detect. Outside the window is not a valid detect.



■ AUTOSET Percent

For Light State (LS), Dark State (DS), and Window AUTOSET Modes (WN), the offset percentage is adjustable. AUTOSET Percent determines threshold placement during AUTOSET. Placement is a percentage of received light beam intensity.

ADJUST ▲▼ **1% - 50%** *(Hold to scroll)*

AUTOSET Pct: 10%

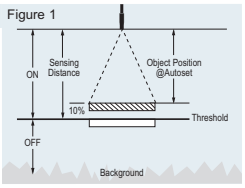
Using AUTOSET

The DFS threshold is set automatically by pressing the **AUTOSET** button. There are six different ways the sensor determines the threshold. The user first must determine which type of setup mode is appropriate for the application. The simplest and most common mode we recommend is Light State (LS) setup. It is used in both beam make and beam break sensing. When using this mode, the sensor will provide the best sensitivity to fine changes in light level or contrast. This is useful for small part detection and precise leading-edge triggering. Please consult our website at https://www.ttco.com/sensors/fundamentals or contact one of our worldwide distributors for application help. We look forward to providing any assistance you may need.

Note: OLED display will provide intuitive visual feedback during autosetting. Paying close attention to the display is important.

Light State (Default)

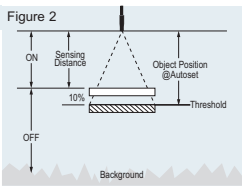
Figure 1



Place object to be detected in the worst-case light-state condition and press the AUTOSET button. The threshold will be set 10%(default) below the received light-beam intensity. The threshold can be altered by tapping up or down on the threshold adjust rocker (see Figure 1).

Dark State

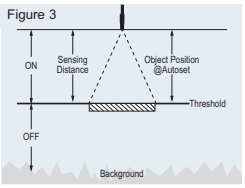
Figure 2



Place object to be detected in the worst-case dark-state condition and press the AUTOSET button. The threshold will be set 10%(default) above the received light-beam intensity. The threshold can be altered by tapping up or down on the threshold adjust rocker (see Figure 2).

Midpoint

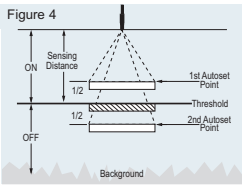
Figure 3



Place object to be detected in position at which you want the threshold to be set and press the AUTOSET button. The threshold can be altered by tapping up or down on the threshold adjust rocker (see Figure 3).

Two-Point

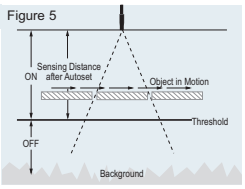
Figure 4



Place object to be detected in the light-state condition and press the AUTOSET button. Then remove or place the object in the dark-state condition and press the AUTOSET button again. The threshold will be set between the two light-beam intensities. The threshold can be altered by tapping up or down on the threshold adjust rocker (see Figure 4).

Dynamic

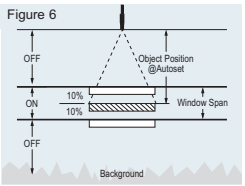
Figure 5



Press the AUTOSET button to start the Dynamic AUTOSET. Now move the object through the beam at least once and press the AUTOSET button again to complete the Dynamic AUTOSET. The threshold is set between the highest and lowest received light levels caused by the object being passed through. The threshold can be altered by tapping up or down on the threshold adjust rocker (see Figure 5).

Window

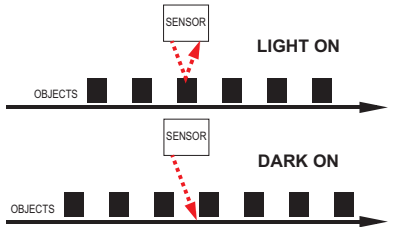
Figure 6



Window mode is a unique type of AUTOSET mode. Window mode creates two thresholds and can be used in a similar manor as a dual channel fiber optic sensor. Place the object in the position at which you want to be reliably detect it and press the AUTOSET button. The DFS will place two thresholds 10%(default) higher and 10%(default) lower than the returned light level. Now when the object is passed in view or through the fiber optic the object will be detected in the same position +/- 10%. The threshold offset (both thresholds) can be altered by tapping up or down on the threshold adjust rocker (see Figure 6).

Detect Mode

Sensor output activates or deactivated when received light intensity is over the threshold. *Not available when input function is set to Remote Dark On.*



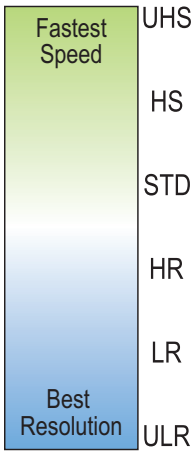
Select

`Detect Mode: Light On LO` **Light On (LO):** Output activates when received light intensity is over the threshold. *Note: In window mode (WN) output activates when received light intensity is inside the window thresholds.*

`Detect Mode: Dark On DO` **Dark On (DO):** Output deactivates when received light intensity is over the threshold. *Note: In window mode (WN) output activates when received light intensity is outside the window thresholds.*

Response Time

Select which mode that best fits the performance need of your application. Sensor speed, range, and sensitivity are optimized for best performance.



Select

`Response Time: Ultra-High-Speed` **Ultra-High-Speed (UHS):** Fastest response time (50us). *Not available in* Asynchronous *Anti-Crosstalk Mode.*

`Response Time: High-Speed` **High-Speed (HS):** Fast response time with higher sensitivity (125us). *Not available in* Asynchronous *Anti-Crosstalk Mode.*

`Response Time: Standard` **Standard (STD):** Good balance of response time and range for general purpose sensing (250us).

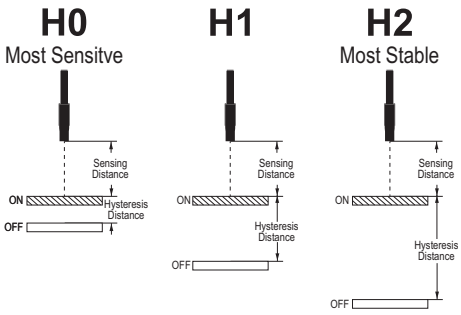
`Response Time: High-Resolution` **High-Resolution (HR):** Improved resolution for general purpose sensing (1ms).

`Response Time: Long-Range` **Long-Range (LR):** General purpose sensing with improved range (4ms).

`Response Time: Ultra-Long-Range` **Ultra-Long-Range (ULR):** Special purpose sensing with maximum sensitivity and range (16ms).

Hysteresis

To avoid false triggers for example due to object vibration. Adjusts the span between the operate point and the release point of the sensor output. Low hysteresis increases sensitivity and high hysteresis increases sensing stability.



Select

`Hysteresis: Low H0` **Low (H0):** Reduced hysteresis for increased sensitivity.

`Hysteresis: Standard H1` **Standard (H1):** Automatic adjustment depending on signal level.

`Hysteresis: High H2` **High (H2):** Increased hysteresis for increased stability.

Anti-Crosstalk

Asynchronous cross-talk allows rejection of light from one other DFS. Synchronous crosstalk rejection allows for up to eight DFS units to be used. **Synchronous mode requires that all Q2 outputs be connected together.**

Select

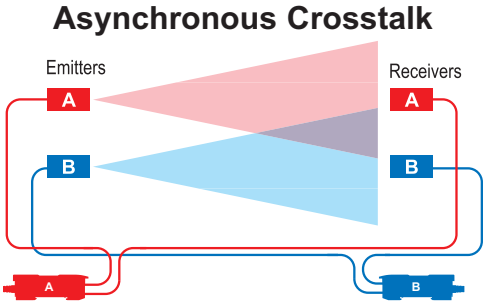
`Anti-Crosstalk: Disabled` **Disabled:** Turns off Anti-Crosstalk rejection.

Asynchronous Crosstalk

`Anti-Crosstalk: Asynchronous:` **Asynchronous:** Turns on Asynchronous Anti-Crosstalk rejection for two sensors. *Not available for UHS and HS modes.*

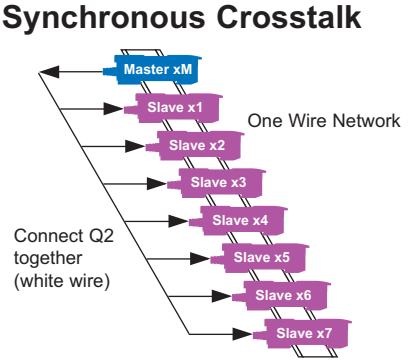
Select

`Async Crosstalk: Channel A xA` `Async Crosstalk: Channel B xB` Assign one sensor to channel A and the other to channel B.



Synchronous Crosstalk

Configure the master device with the number of attached slaves, then configure each slave device with a unique channel number less than or equal to the Channel Max parameter in the master device. **The master will communicate with the slave devices on the Q2 output wire so all devices must have the Q2 connected together.**



`Anti-Crosstalk: Sync - Master` **Sync - Master (xM):** Master
Turns on Synchronous Anti-Crosstalk rejection and sets it as a master.

- `Sync Channel Max: 1...7 xM` Set to number of attached slaves. Response time increases with each sensor.

`Anti-Crosstalk: Sync - Slave` **Sync - Slave (x1-7):** Slave
Turns on Synchronous Anti-Crosstalk rejection and sets it as a slave.

- `Sync Channel: 1...7 x1-7` Set unique slave number. Must be less than or equal to the master sync channel max setting.

PRESS ■

Timer/Counter Function #:

Choose from 19 pre-configured timer/counter control functions. Each one represents a function such as on-delay, off-delay, etc. Once a function is selected, adjustable parameters of that function appear such as delay time.

■ ADJUST ▲▼

Timer Duration

On Delay:
10ms

0.1 - 9.9, 10 - 9999ms

Hold up or down to scroll.

■ ADJUST ▲▼

Counter

Count:
0005

0001-9999

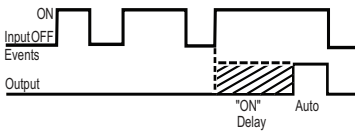
Hold up or down to scroll.

Select ▲▼

00
Timer Func: 00
Bypass

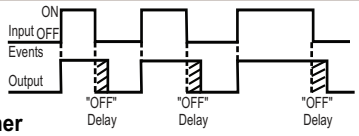
Timer not used.

01
Timer Func: 01
On-Delay



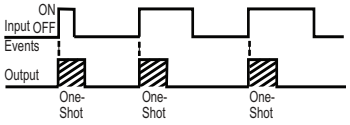
"ON" Delay

02
Timer Func: 02
Off-Delay



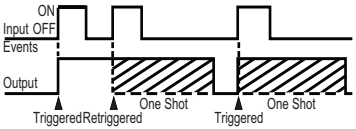
"OFF" Delay Pulse Stretcher

03
Timer Func: 03
One-Shot



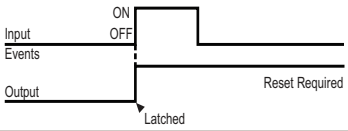
One-Shot

04
Timer Func: 04
Motion



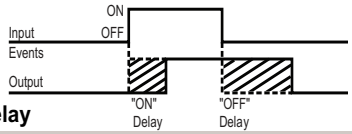
Motion Detection

05
Timer Func: 05
Latch



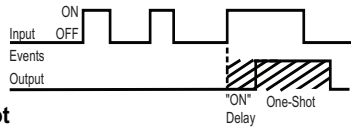
Latching, Edge Triggered

06
Timer Func: 06
On, Off-Delay



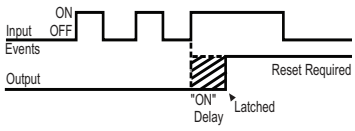
"ON" Delay then "OFF" Delay

07
Timer Func: 07
On, One-Shot



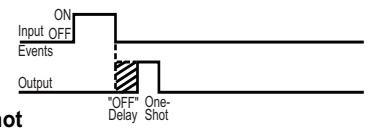
"ON" Delay, then One-Shot

08
Timer Func: 08
On, Latch



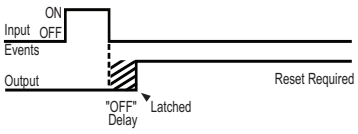
"ON" Delay then Latch

09
Timer Func: 09
Off, One-Shot



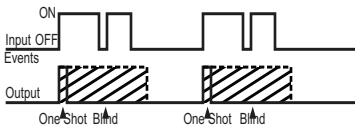
"OFF" Delay then One-Shot

10
Timer Func: 10
Off, Latch



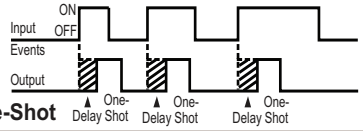
"OFF" Delay then Latch

11
Timer Func: 11
Blind One-Shot



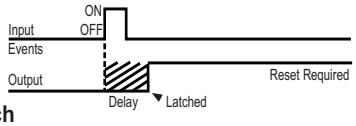
Blind One-Shot

12
Timer Func: 12
Delayed One-Shot



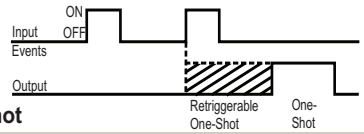
One-Shot Delay, then One-Shot

13
Timer Func: 13
Delayed Latch



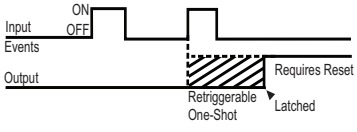
One-Shot Delay, then Latch

14
Timer Func: 14
Stop, One-Shot



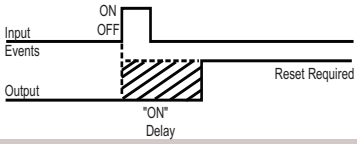
Stop Motion, then One-Shot

15
Timer Func: 15
Stop, Latch



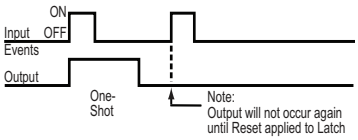
Stop Motion, then Latch

16
Timer Func: 16
Latch, On-Delay



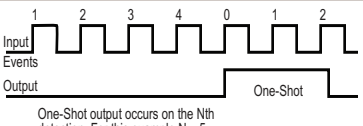
Latch then "ON" Delay

17
Timer Func: 17
Latch, One-Shot



Latch, then One-Shot

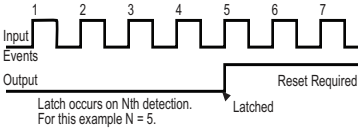
18
Timer Func: 18
Count, One-Shot



One-Shot output occurs on the Nth detection. For this example N = 5.

Count, One-Shot

19
Timer Func: 00
Count, Latch



Latch occurs on Nth detection. For this example N = 5.

Count, Latch

Output Type

The sensor has configurable Q1 (primary; black wire) and Q2 (secondary; white wire) I/O signals. Select the way the connector signals function and route. Refer to drawing for sensor pinout.

Select

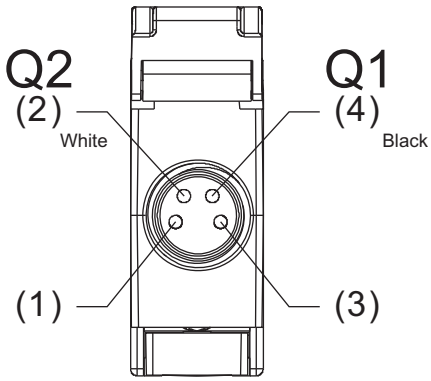
Output Type: Single / Input — **Single Output with Remote Input:** Q1 is output and Q2 is input. Q1 can be set to either sinking or sourcing outputs. Q2 can be set to either sinking or sourcing input. See input wire configuration for available functions.

Output Type: Redundant — **Redundant:** Q1 and Q2 activate together. Q1 and Q2 can be set to either sinking or sourcing outputs.

Output Type: Complementary — **Complementary:** Q1 and Q2 alternate activation. When Q1 is on Q2 is off and vise versa. Q1 and Q2 can be set to either sinking or sourcing outputs.

Output Type: Classic PNP/NPN — **Classic:** Q1 and Q2 activate together. Q1 is set to sourcing (PNP) and Q2 is set to sinking (NPN).

The DFS Q1 and Q2 pins are configurable.



Two other output types are automatically selected when required by other settings:

Output Type: Single / Sync — **Single Output / Sync:** Q1 is an output and Q2 is reserved for synchronization. Q1 can be set to either sinking or sourcing output.

Note: In this mode the output type is required to be Single/Sync and cannot be changed.

Output Type: Single / Reset — **Single Output / Reset:** Q1 is an output and Q2 is reserved for a latch reset. Q1 can be set to either sinking or sourcing output.

Note: In this mode the output type is required to be Single/Reset and cannot be changed.

Output Mode

When configured as an output Q1 and Q2 can be set one of three ways:

Select

Output Mode: PNP - Source — **PNP - Source:** PNP transistor open collector output.

Output Mode: NPN - Sink — **NPN - Sink:** NPN transistor open collector output.

Output Mode: Push/Pull — **Push/Pull:** NPN and PNP transistor connected in a push/pull configuration.

Input Functions

When Q2 is programmed as an input, several different functions can be performed.
Not available for Redundant, Complementary, and Classic.

Select

Input Function: Remote Set — **Remote set:** An AUTOSET function is performed when input wire is transitioned from idle to active and returned. *Note: input wire can be used in addition to the AUTOSET button.*

Input Function: Remote Command — **Remote command:** Sensor parameters can be adjusted via defined pulses. See chart on page 7.

Input Function: Interrogate — **Interrogate:** Sensor output is latched when input wire is transitioned from idle to active.

Input Function: Gate — **Gate:** Sensing is gated. Detection is enabled when input is active.

Input Function: Remote Dark On — **Remote Dark On:** Detect Mode is determined by input state. Dark On mode is used when input is active.

Input Function: Remote Lockout — **Remote Lockout:** Remote lock of the AUTOSET, up and down adjust and most mode functions.

Input Polarity

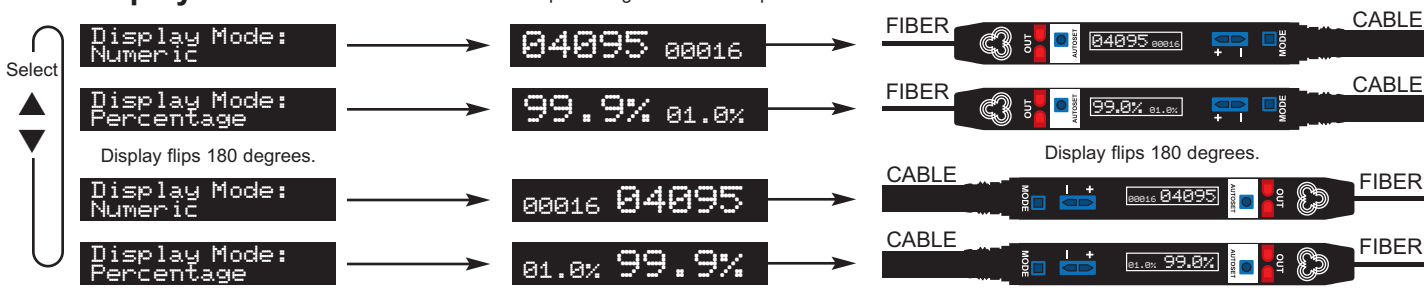
Select the active state of the input. *Not available for Redundant, Complementary, and Classic.*

Select

Input Polarity: Active High — **Active High:** Selects active High.

Input Polarity: Active Low — **Active Low:** Selects active Low.

■ Display Mode Selects between numeric and percentage modes and flips orientation.



■ Lock Mode Locks buttons. *Note: Input wire remains unlocked.*

Disabled: Adjustments made by anyone.

Enabled: Prevents unauthorized tampering. To unlock, tap MODE to scroll through menu to Button Lock and select Disabled to unlock.

Displayed when sensor is locked.

Default Setting Chart

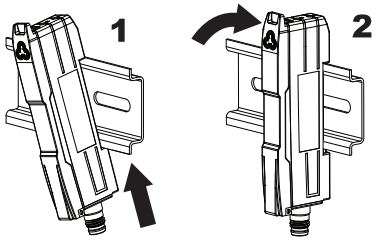
PARAMETER	Default	
AUTOSET MODE	*Light-State*	*Other options:* Dark-State, Midpoint Two-point, Dynamic, Window
AUTOSET PERCENT	*10%*	*Other options:* 1% - 50%
DETECT MODE	*Light On*	*Other option:* Dark On
RESPONSE TIME	*Standard*	*Other options:* Ultra-High-Speed, High-Speed, High-Resolution, Long-Range, Ultra-Long-Range
HYSTERESIS	*Standard*	*Other options:* Low, High
ANTI-CROSSTALK	*Disabled*	*Other options:* Asynchronous, Synchronous
ASYNCHRONOUS	*Channel A*	*Other option:* Channel B
SYNCHRONOUS	*1*	*Other options:* Master 1-7, Slave 1-7
TIMER	*Bypass*	*Other options:* Timer 1-19
TIMER DURATION	*10ms*	*Other options:* 0001 - 9999ms
OUTPUT TYPE	*Classic*	*Other options:* Redundant, Complementary, Single / Input, Single / Sync, Single / Reset
OUTPUT MODE		*Other options:* PNP - Source, NPN - Sink, Push/Pull
INPUT FUNCTIONS		*Other options:* Remote Set, Remote Command, Interrogate, Gate, Remote Dark On, Remote Lockout
INPUT MODE		*Other options*: Active High, Active Low
DISPLAY MODE	*Numeric*	*Other options:* Percentage, Numeric Flipped, Percentage Flipped
LOCK MODE	*Disabled*	*Other option:* Enabled

Factory Reset

Hold down MODE (■) on power up, then tap up or down (▲▼).
Sensor will return to all settings to factory default (see chart above).

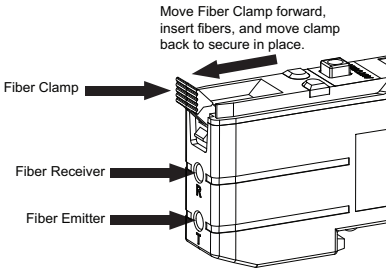
Mounting on a DIN Rail

1. Hook the DIN rail clip on the bottom of the sensor under the edge of the DIN rail.
2. Gently push and pivot the sensor onto the DIN rail, pressing until it snaps into place.



Installing the Fibers

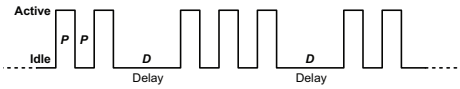
1. Open the dust cover.
2. Move the fiber clamp forward to unlock it.
3. Insert the fiber(s) into the fiber port(s) until they stop.
4. Move the fiber clamp backward to secure the fiber(s).
5. Close the dust cover.



Remote Command Programming

In Remote Command Mode a limited set of options can be configured via the input wire. This is accomplished by sending a simple sequence of pulses on Q2 (white wire). For example, sending a sequence of two pulses followed by three pulse followed by two pulses selects dark on mode.

Example of 2 - 3 - 3 pulse command



Pulse width (P) is 40ms - 400ms.
The delay between sets of pulses (D) is 0.75 - 5 seconds.

Pulses are displayed while being received. Valid commands are executed immediately. Holding the input active will cancel a partial command.

AUTOSET

A single pulse command initiates an AUTOSET. A second single pulse command is required to complete Two-Point and Dynamic AUTOSETs.

Setting	Option	Icon	Pulse Sequence	Notes
AUTOSET			1	A single pulse initiates AUTOSET. An additional pulse command is required to complete AUTOSET for two-point and dynamic modes.
AUTOSET Mode	Light-State	LS	2 - 1 - 1	
	Dark-State	DS	2 - 1 - 2	
	Midpoint	MP	2 - 1 - 3	
	Two-Point	2P	2 - 1 - 4	
	Dynamic Set	DY	2 - 1 - 5	
	Window	WN	2 - 1 - 6	
AUTOSET Percent	1%	01%	2 - 2 - 1	Percentage will affect the next Light, Dark AUTOSET. Immediate effect on Window Size
	2%	02%	2 - 2 - 2	
	5%	05%	2 - 2 - 3	
	10%	10%	2 - 2 - 4	
	20%	20%	2 - 2 - 5	
	50%	50%	2 - 2 - 6	
Detect Mode	Light On	LO	2 - 3 - 1	
	Dark On	DO	2 - 3 - 2	
Response Time	Ultra-High-Speed	UHS	2 - 4 - 1	Anti-Crosstalk Disabled
	High-Speed	HS	2 - 4 - 2	Anti-Crosstalk Disabled
	Standard	STD	2 - 4 - 3	
	High Resolution	HR	2 - 4 - 4	
	Long-Range	LR	2 - 4 - 5	
	Ultra-Long-Range	ULR	2 - 4 - 6	
Hysteresis	Low	H0	2 - 5 - 1	
	Standard	H1	2 - 5 - 2	
	High	H2	2 - 5 - 3	
Anti-Crosstalk	Disabled		2 - 6 - 1	
	Async-Channel A	xA	2 - 6 - 2	
	Async-Channel B	xB	2 - 6 - 3	
Timer Function	Bypass		3 - 1 - 1	
	On-Delay		3 - 1 - 2	
	Off-Delay		3 - 1 - 3	
	One-Shot		3 - 1 - 4	
	Motion		3 - 1 - 5	
	On, Off-Delay		3 - 1 - 6	
	On, One-Shot		3 - 1 - 7	
	Off, One-Shot		3 - 1 - 8	
	Blind One-Shot		3 - 1 - 9	
	Delayed One-Shot		3 - 1 - 10	
	Stop, One-Shot		3 - 1 - 11	
Timer 1 Duration	1ms		3 - 2 - 1	
	2ms		3 - 2 - 2	
	5ms		3 - 2 - 3	
	10ms		3 - 2 - 4	
	20ms		3 - 2 - 5	
	50ms		3 - 2 - 6	
Timer 2 Duration	1ms		3 - 3 - 1	
	2ms		3 - 3 - 2	
	5ms		3 - 3 - 3	
	10ms		3 - 3 - 4	
	20ms		3 - 3 - 5	
	50ms		3 - 3 - 6	
Button Lock	Disabled		4 - 1 - 1	
	Enabled		4 - 1 - 2	
Display Mode	Numeric		4 - 2 - 1	
	Percentage		4 - 2 - 2	
	Numeric (Flipped)		4 - 2 - 3	
	Percentage (Flipped)		4 - 2 - 4	

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

	(RED)	(INFRARED)
Opposed Mode		
• UHS	20in (508mm)	34in (878mm)
• HS	28in (711mm)	48in (1219mm)
• STD	32in (813mm)	57in (1463mm)
• HR	47in (1193mm)	69in (1756mm)
• LR	60in (1524mm)	83in (2121mm)
• ULR	75in (1905mm)	118in (3000mm)
Proximity Mode		
• UHS	8in (203mm)	10in (254mm)
• HS	11in (279mm)	14in (355mm)
• STD	13in (330mm)	15in (381mm)
• HR	16in (406mm)	20in (508mm)
• LR	21in (533mm)	23in (584mm)
• ULR	28in (711mm)	28in (707mm)

When anti-crosstalk is enabled maximum range specifications are reduced 30%.
Note: Opposed tests utilized: PF-Z-78TL
Proximity tests utilized: PFD-Z-78M64

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
- Counters (counting range up to 9999)
- Each channel can use a unique timer/counter
- Timer range: 0.1 - 0.9ms, 1ms - 9,999ms

LED LIGHT SOURCE
- 4 element LED, Red = 660nm
- IR = 880nm *(Use glass fibers with Ø2.2mm connection only).*

DISPLAY
- 96 X 16 white dot matrix OLED
- Display numerical range depended on processing mode
- UHS - 1,023
- HS - 2,047
- STD - 4,095 *(default setting)*
- 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

CE
RoHS Compliant
Product subject to change without notice

Dimensions

DFS11 Digital Fiber Optic Sensor