

# OPT Series Fiber Photoelectric Amplifiers

## Features



- DIN-rail mounting
- Bargraph signal-strength indicator
- NPN or PNP, Push Pull, Light-on/Dark-on selectable outputs
- Red LED with visible spot
- IO-Link available on select units
- IP50/IP65 rated
- Key potentiometer, teach-in
- Large detection and working range
- Recognition of transparent objects
- Diffuse and Through-Beam operation mode are possible.



## OPT Series Fiber Photoelectric Amplifier Selection Chart

Part Number	Price	Sensing Range	Output State	Logic	Connection	Fiber Channel	Wiring	Dimensions
<a href="#">OPT2040</a>	\$101.00	Optical fiber dependent	N.O. / N.C. selectable	NPN / PNP Push-Pull	4-pin M8 [8mm] quick-disconnect	1	Diagram 1	Figure 1
<a href="#">OPT2041</a>	\$186.00			PNP Push-Pull			Diagram 2	Figure 2
<a href="#">OPT2042</a>	\$384.00			NPN / NP Push- Pull	4-pin M12 and [2] 8-pin M12 quick-disconnect	3 (Expandable to 13)	Diagram 3	Figure 3
<a href="#">OPT2043*</a>	\$153.00			N/A	1	-	Figure 4	

\* [OPT2043](#) is an add-on module to [OPT2042](#) (not standalone)

## Specifications

Type	<a href="#">OPT2040</a>	<a href="#">OPT2041</a>	<a href="#">OPT2042</a>	<a href="#">OPT2043 (add-on module)</a>
<b>Sensing Distance</b>	See optical fibers table			
<b>Light Spot Diameter</b>	N/A			
<b>Emission</b>	Red (660nm)			
<b>Sensitivity</b>	Teach Functions			
<b>Output Type</b>	Configurable N.C./N.O. PNP/NPN Push -Pull	Configurable PNP/ Push-Pull	Configurable N.C./N.O. PNP/NPN Push-Pull	Output handled through <a href="#">OPT2042</a> Master
<b>Operating Voltage</b>	10 to 30VDC	18 to 30VDC		N/A
<b>No-Load Supply Current</b>	< 40mA		<70mA	Add +10mA to <a href="#">OPT2042</a> per add on module to <a href="#">OPT2043</a>
<b>Operating (Load) Current</b>	200mA	100mA	100mA	Refer to <a href="#">OPT2042</a>
<b>Off-state (Leakage) Current</b>	> 0.1 ma			
<b>Voltage Drop</b>	< 2.5 VDC			
<b>Switching Frequency</b>	2kHz	4kHz	2kHz	
<b>Ripple</b>	< 15%			
<b>Time Delay Before Availability (tv)</b>	250µs	125µs	250µs	+70µs to 2042 per add on module to <a href="#">OPT2043</a>
<b>Short-Circuit Protection</b>	Yes			
<b>Operating Temperature</b>	-25 to 60°C [-13 to 140°F]			
<b>Protection Degree</b>	IP65		IP50	
<b>Led Indicators - Switching Status</b>	Yellow LED	Via display window		
<b>Housing Material</b>	Plastic			
<b>Lens Material</b>	N/A			
<b>IO-Link Version</b>	N/A	1.0		
<b>IO-Link Parameter</b>	N/A	> 12		
<b>Shock/Vibration</b>	See Section			
<b>Tightening Torque</b>	N/A			
<b>Weight</b>	0.1 lbs	0.3 lbs	0.4 lbs	0.1 lbs
<b>Connectors</b>	M8 4-Pole		(1) M12 4-pole (2) M12 8-pole	This is an add-on unit that connects to master unit <a href="#">OPT2042</a>
<b>Agency Approvals</b>	CE, cULus E189727			

To obtain the most current agency approval information, see the Agency Approval Checklist section on the specific part number's web page.

# OPT Series Fiber Photoelectric Amplifiers

## Dimensions

mm [inches]

Figure 1

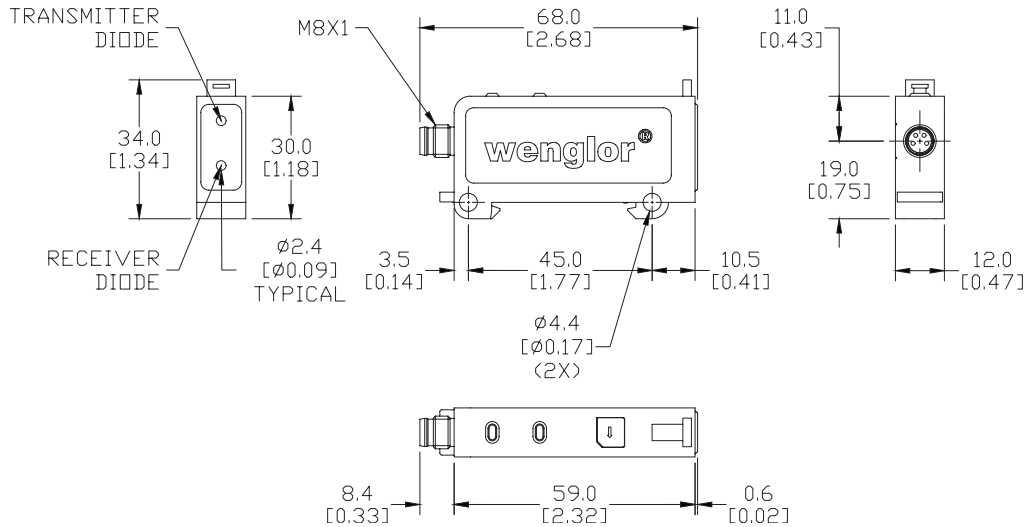
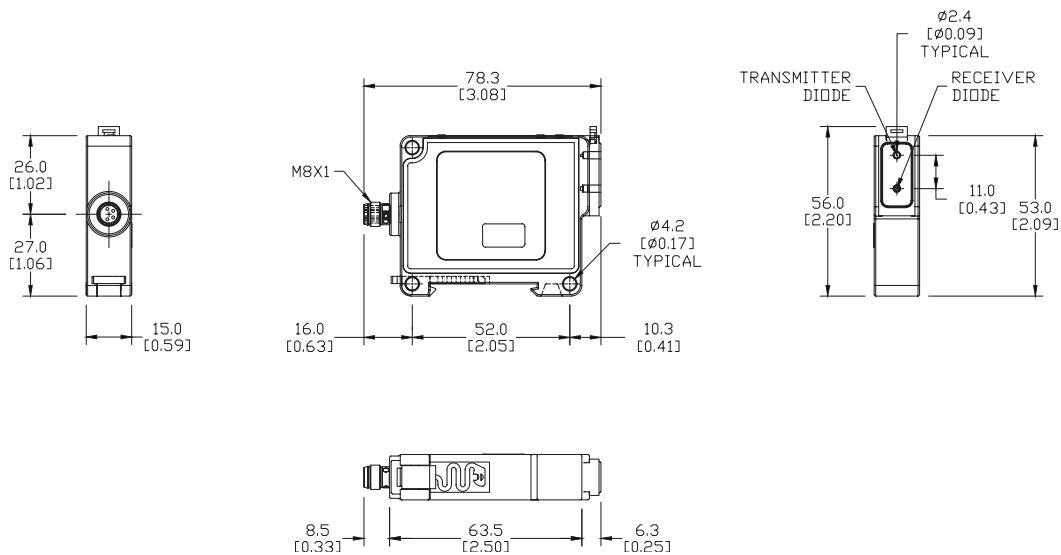


Figure 2



See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

# OPT Series Fiber Photoelectric Amplifiers

## Dimensions

mm [inches]

Figure 3

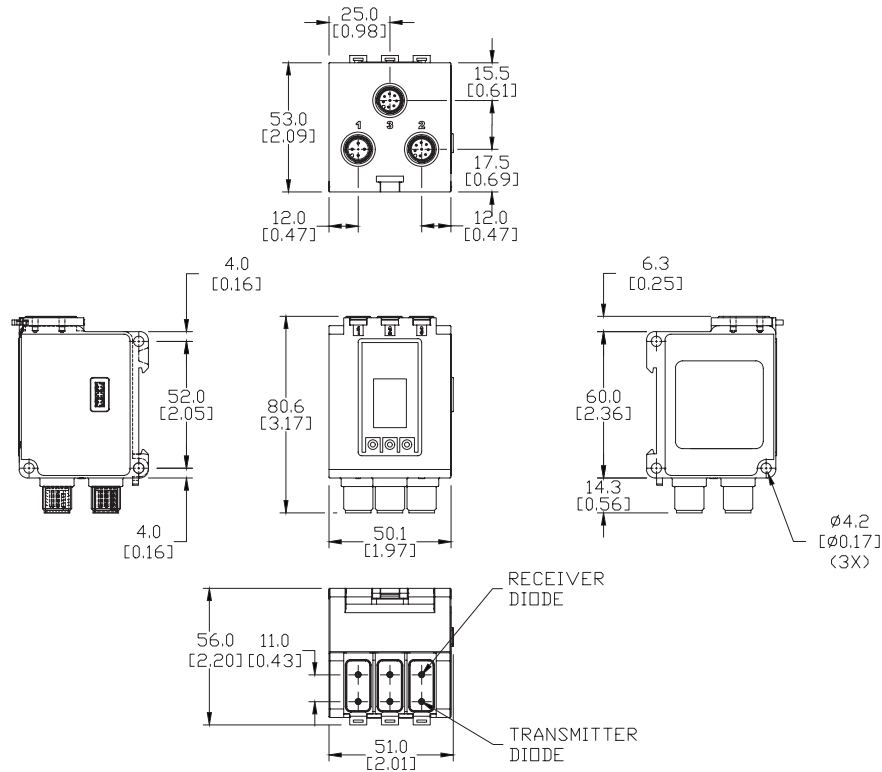
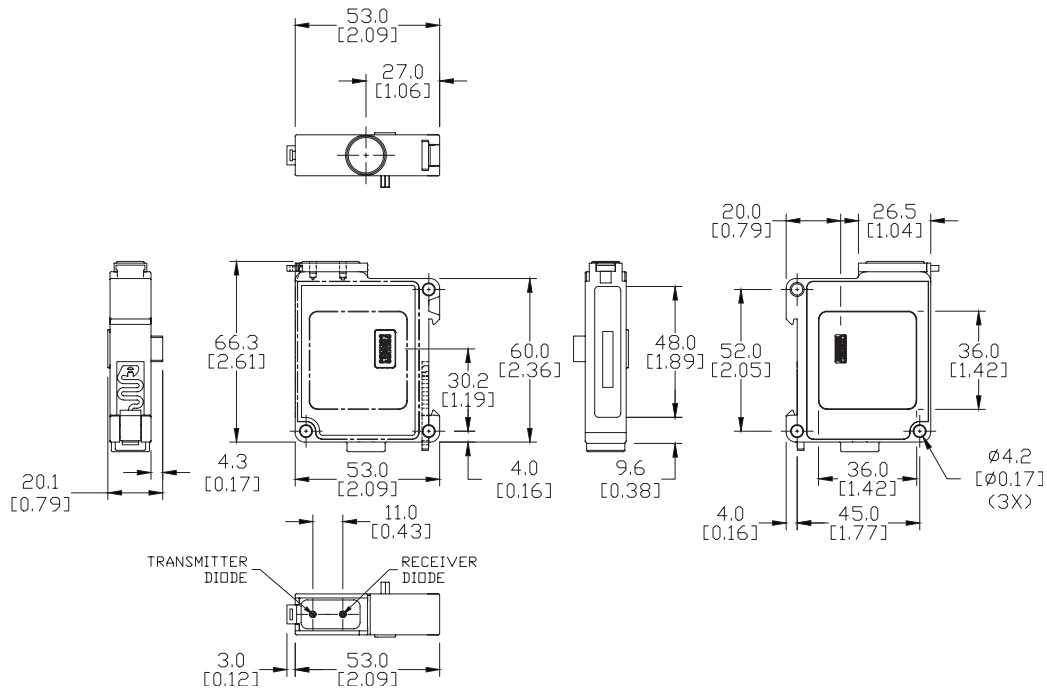


Figure 4

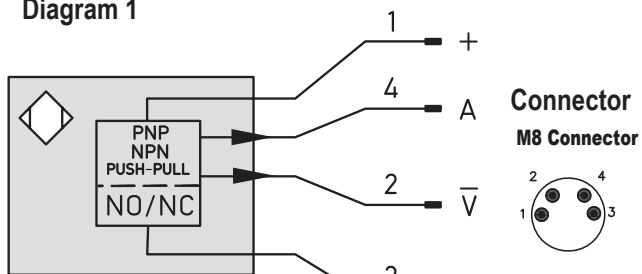


See our website: [www.AutomationDirect.com](http://www.AutomationDirect.com) for complete Engineering drawings.

# OPT Series Fiber Photoelectric Amplifiers

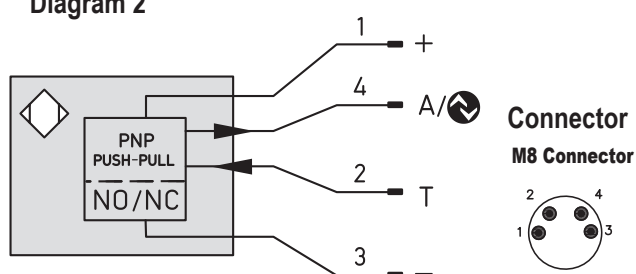
## Wiring Diagrams

Diagram 1



- + Supply Voltage "+"
- A Switching Output
- $\bar{V}$  Contamination Output/Error Output (NC)
- Supply Voltage "0 V"

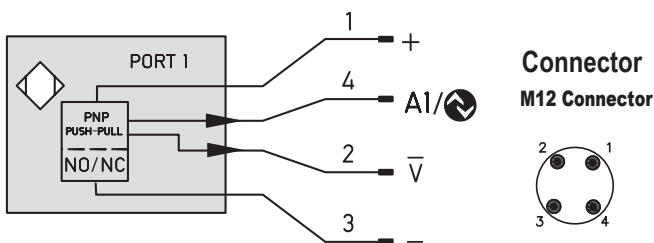
Diagram 2



- + Supply Voltage "+"
- A/IO-Link Switching Output/IO-Link
- T Teach Input
- Supply Voltage "0 V"

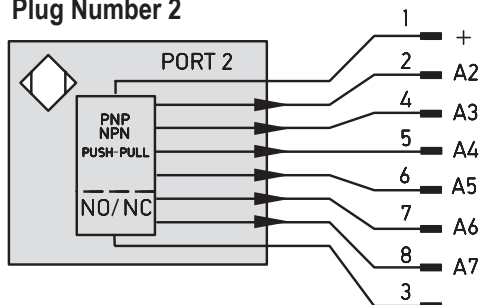
Diagram 3

Plug Number 1

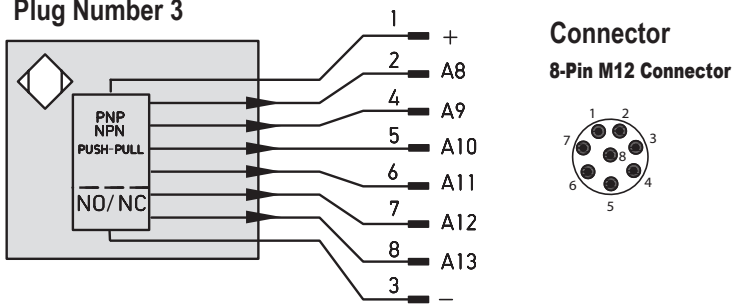


- + Supply Voltage "+"
- A1/IO-Link Switching Output /IO-Link
- A Switching Output (1, 2, 3...)
- $\bar{V}$  Contamination Output/Error Output (NC)
- Supply Voltage "0 V"

Plug Number 2



Plug Number 3



# Cuttable Fiber Optic Cable

## OPT2050 Diffuse Reflex Mode

### OPT2050 Specifications

<b>Part Number</b>	OPT2050
<b>Price</b>	\$48.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	0.5 mm
<b>Sensing Distance with OPT series</b>	60mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	15mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M3
<b>Thread Pitch</b>	0.5
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	1mm
<b>Light Emission</b>	Straight



# Cuttable Fiber Optic Cable

## [OPT2052 Diffuse \(Reflex\) Mode](#)

OPT2052 Specifications	
<b>Part Number</b>	OPT2052
<b>Price</b>	\$60.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	0.5 mm
<b>Sensing Distance with OPT series</b>	60mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	15mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	3mm
<b>Thread Pitch</b>	NA
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Coaxial arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	1.3 mm
<b>Light Emission</b>	Straight



## [OPT2053 Diffuse \(Reflex\) Mode](#)

OPT2053 Specifications	
<b>Part Number</b>	OPT2053
<b>Price</b>	\$60.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	0.5 mm
<b>Sensing Distance with OPT series</b>	60mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	15mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M3
<b>Thread Pitch</b>	0.5
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Coaxial arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	1.3 mm
<b>Light Emission</b>	Straight



# Cuttable Fiber Optic Cable

## OPT2054 Diffuse (Reflex) Mode

OPT2054 Specifications	
<b>Part Number</b>	<a href="#">OPT2054</a>
<b>Price</b>	\$48.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	160mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	30mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M6
<b>Thread Pitch</b>	0.75
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Nickel-plated brass
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight



## OPT2055 Diffuse (Reflex) Mode

OPT2055 Specifications	
<b>Part Number</b>	<a href="#">OPT2055</a>
<b>Price</b>	\$98.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	60mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	30mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M6
<b>Thread Pitch</b>	0.75
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Nickel-plated brass
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight



\* 2000.0 mm maximum extended coil length.

# Cuttable Fiber Optic Cable

## [OPT2056 Diffuse \(Reflex\) Mode](#)

OPT2056 Specifications	
<b>Part Number</b>	<a href="#">OPT2056</a>
<b>Price</b>	\$55.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	160mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	30mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M6
<b>Thread Pitch</b>	0.75
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight
<b>Flexible Endpot</b>	Yes



Flexible endpot is not for continuous flexing applications.



# Cuttable Fiber Optic Cable

## [OPT2059 Diffuse \(Reflex\) Mode](#)

OPT2059 Specifications	
<b>Part Number</b>	<a href="#">OPT2059</a>
<b>Price</b>	\$122.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	160mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	20mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	12mm flat
<b>Thread Pitch</b>	NA
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Aluminum
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight



# Cuttable Fiber Optic Cable

## [OPT2060 Diffuse \(Reflex\) Mode](#)

OPT2060 Specifications	
Part Number	<a href="#">OPT2060</a>
Price	\$122.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	1mm
Sensing Distance with OPT series	50mm
Fiber Length (L)	2m
Fiber Bending Radius	20mm
Free Cut	Yes
Head Size	12mm flat
Thread Pitch	NA
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Aluminum
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	2.2 mm
Light Emission	Sidewise



## [OPT2061 Diffuse \(Reflex\) Mode](#)

OPT2061 Specifications	
Part Number	<a href="#">OPT2061</a>
Price	\$122.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	1mm
Sensing Distance with OPT series	70mm
Fiber Length (L)	2m
Fiber Bending Radius	50mm
Free Cut	Yes
Head Size	M4
Thread Pitch	0.7
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Stainless steel
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	2.2 mm
Light Emission	Sidewise



# Cuttable Fiber Optic Cable

## [OPT2062 Diffuse \(Reflex\) Mode](#)

OPT2062 Specifications	
<b>Part Number</b>	<a href="#">OPT2062</a>
<b>Price</b>	\$122.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	50mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	20mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	5mm
<b>Thread Pitch</b>	NA
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Sidewise



## [OPT2063 Diffuse \(Reflex\) Mode](#)

OPT2063 Specifications	
<b>Part Number</b>	<a href="#">OPT2063</a>
<b>Price</b>	\$122.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	90mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	20mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M6
<b>Thread Pitch</b>	0.75
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Nickel-plated brass
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight



# Cuttable Fiber Optic Cable

## OPT2064 Through-Beam Mode

OPT2064 Specifications	
Part Number	<a href="#">OPT2064</a>
Price	\$56.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	0.5 mm
Sensing Distance with OPT series	160mm
Fiber Length (L)	2m
Fiber Bending Radius	15mm
Free Cut	Yes
Head Size	M3
Thread Pitch	0.5
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Stainless steel
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	1mm
Light Emission	Straight



## OPT2065 Through-Beam Mode

OPT2065 Specifications	
Part Number	<a href="#">OPT2065</a>
Price	\$48.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	1mm
Sensing Distance with OPT series	400mm
Fiber Length (L)	2m
Fiber Bending Radius	30mm
Free Cut	Yes
Head Size	M3
Thread Pitch	0.5
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Nickel-plated brass
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	2.2 mm
Light Emission	Straight



\* Packaging includes two of the above

# Cuttable Fiber Optic Cable

## OPT2070 Through-Beam Mode

OPT2070 Specifications	
Part Number	<a href="#">OPT2070</a>
Price	\$122.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	1mm
Sensing Distance with OPT series	200mm
Fiber Length (L)	2m
Fiber Bending Radius	20mm
Free Cut	Yes
Head Size	NA
Thread Pitch	NA
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Aluminum
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	2.2 mm
Light Emission	Sidewise



\* Packaging includes two of the above.

## OPT2071 Through-Beam Mode

OPT2071 Specifications	
Part Number	<a href="#">OPT2071</a>
Price	\$122.00
Drawing Link	<a href="#">PDF</a>
Optical Fiber Core Ø	1mm
Sensing Distance with OPT series	250mm
Fiber Length (L)	2m
Fiber Bending Radius	2mm
Free Cut	Yes
Head Size	M4
Thread Pitch	0.7
Temperature Range	-40 to 85°C [-40 to 185°F]
Fiber Materials	PMMA
Sleeve Materials	PE (black)
Head Materials	Stainless steel
Fiber Distribution	Parallel arrangement
Opening Angle	55 degrees
Diameter Jacket	2.2 mm
Light Emission	Sidewise



\* Packaging includes two of the above.

# Cuttable Fiber Optic Cable

## [OPT2074 Through-Beam Mode](#)

OPT2074 Specifications	
<b>Part Number</b>	OPT2074
<b>Price</b>	\$41.00
<b>Drawing Link</b>	PDF
<b>Optical Fiber Core Ø</b>	1mm
<b>Sensing Distance with OPT series</b>	350mm
<b>Fiber Length (L)</b>	2m
<b>Fiber Bending Radius</b>	20mm
<b>Free Cut</b>	Yes
<b>Head Size</b>	M4
<b>Thread Pitch</b>	0.7
<b>Temperature Range</b>	-40 to 85°C [-40 to 185°F]
<b>Fiber Materials</b>	PMMA
<b>Sleeve Materials</b>	PE (black)
<b>Head Materials</b>	Stainless steel
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	55 degrees
<b>Diameter Jacket</b>	2.2 mm
<b>Light Emission</b>	Straight

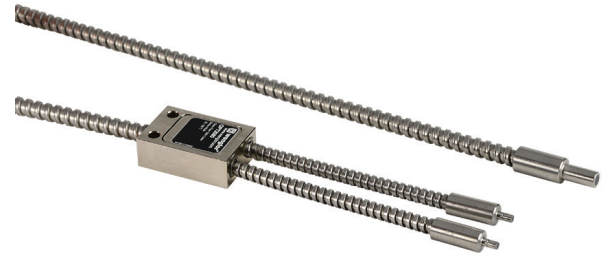


\* Packaging includes two of the above.

# Glass Fiber Optic Cable

## OPT2080 Diffuse (Reflex) Mode

OPT2080 Specifications	
<b>Part Number</b>	<a href="#">OPT2080</a>
<b>Price</b>	\$161.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1.6 mm
<b>Sensing Distance with OPT series</b>	160mm
<b>Fiber Length (L)</b>	1m
<b>Fiber Bending Radius</b>	60mm
<b>Free Cut</b>	No
<b>Head Size</b>	5mm
<b>Thread Pitch</b>	NA
<b>Temperature Range</b>	-25 to 180°C [-13 to 365°F]
<b>Fiber Materials</b>	Glass
<b>Sleeve Materials</b>	Stainless steel
<b>Head Materials</b>	Stainless steel
<b>Fiber Diameter</b>	50µm
<b>Fiber Distribution</b>	Statistic mixture
<b>Opening Angle</b>	68 degrees
<b>Light Emission</b>	Straight



# Glass Fiber Optic Cable

## OPT2082 Diffuse (Reflex) Mode

OPT2082 Specifications	
<b>Part Number</b>	<a href="#">OPT2082</a>
<b>Price</b>	\$149.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1.6 mm
<b>Sensing Distance with OPT series</b>	160mm
<b>Fiber Length (L)</b>	1m
<b>Fiber Bending Radius</b>	50mm
<b>Free Cut</b>	No
<b>Head Size</b>	M6
<b>Thread Pitch</b>	1.0
<b>Temperature Range</b>	-25 to 180°C [-13 to 356°F]
<b>Fiber Materials</b>	Glass
<b>Sleeve Materials</b>	Nickel-plated brass
<b>Head Materials</b>	Aluminum
<b>Fiber Diameter</b>	50µm
<b>Fiber Distribution</b>	Separated bundles
<b>Opening Angle</b>	68 degrees
<b>Light Emission</b>	Straight





# Glass Fiber Optic Cable

## OPT2086 Through-Beam Mode

OPT2086 Specifications	
<b>Part Number</b>	OPT2086
<b>Price</b>	\$142.00
<b>Drawing Link</b>	<a href="#">PDF</a>
<b>Optical Fiber Core Ø</b>	1.6 mm
<b>Sensing Distance with OPT series</b>	480mm
<b>Fiber Length (L)</b>	1m
<b>Fiber Bending Radius</b>	45mm
<b>Free Cut</b>	No
<b>Head Size</b>	M5
<b>Thread Pitch</b>	0.8
<b>Temperature Range</b>	-25 to 180°C [-13 to 365°F]
<b>Fiber Materials</b>	Glass
<b>Sleeve Materials</b>	Nickel-plated brass
<b>Head Materials</b>	Aluminum
<b>Fiber Diameter</b>	50µm
<b>Fiber Distribution</b>	Parallel arrangement
<b>Opening Angle</b>	68 degrees
<b>Light Emission</b>	Straight



\* Packaging includes two of the above.