

◆Order Information :

		PR 6 10 M Q					
Bending Resistance Fiber Type (Reflective)	PR					Q	Sensing end tip without thread
Bending Resistance Fiber Type (Thrubeam type)	PT					U	Curved Sensing end tip
Reflective type	FR					D	Side view
Thrubeam type	FT					KC	Fiber assemblies with SUS sheathing
High precision...0.25mm/1.0Ø	E						Without Sleeve
High precision... 0.25mm/1.25Ø	A					I	Sleeve Length 10mm
Precision.....0.5mm/1.0Ø	S					S	Sleeve Length 20mm
Precision.....0.5mm/2.2Ø	S2					M	Sleeve Length 40mm
Precision.....0.5mm/1.25Ø	D					L	Sleeve Length 90mm
Precision.....0.75mm/1.25Ø	J					S□	Sleeve Length by customer design
Standard.....1.0mm/2.2Ø							
Standard.....1.0mm/1.3Ø	B						
Long sensing range...1.5mm/2.2Ø	X						
Coaxial... 0.265mm x 16/1.0mm x 1 0.25mm x 10/0.5mm x 1	C						
Multiple-core...0.25mm x 6/0.25 x 1	C7					05	Fiber Length 500 mm
Multiple-core...0.25mm x 4/1Ø	C4					10	Fiber Length 1000 mm
Multiple-core...0.25mm x 4/2.2Ø	C42					20	Fiber Length 2000 mm
Multiple-core...0.25mm x 10/1.3Ø	C10					30	Fiber Length 3000 mm
Multiple-core...0.265mm x 16/2.2Ø	C16						
Multiple-core...0.25mm x 32/2.8Ø	C32						
115 Heat resistant...1.0mm/2.2Ø	H						
Flexible R2 fiber...1.0mm/2.2Ø	Y						
Flexible R2 fiber...1.0mm/1.3Ø	Z						
Flexible R1 fiber...0.5mm/1.0Ø	W						
Flexible R1 fiber...0.5mm/2.2Ø	W2						
Head diameter M6	6						
Head diameter Ø5	5						
Head diameter M4, Ø4	4						
Head diameter M3, Ø3	3						
Head diameter Ø2	2						
Head diameter Ø1.5, Ø1	1						

The diagram illustrates the components of a plastic fiber optic assembly. It shows a cylindrical head at the left end, followed by a section of fiber with a protective sleeve. The 'Sleeve Length' is indicated as the length of the sleeve. The 'Head' is the diameter of the sensing end. The 'Fiber Length' is the total length of the fiber. A 'Flexible protective tube' is shown at the end of the fiber, and the 'Fiber Jacket diameter' is the diameter of the fiber itself.

Fiber
Photo Sensor
Area Sensor
Ultrasonic Sensors
Inductive Proximity Sensor
Capacitive Proximity Sensor
Timer / Counter
Others
Accessories

Fiber

PR /PT

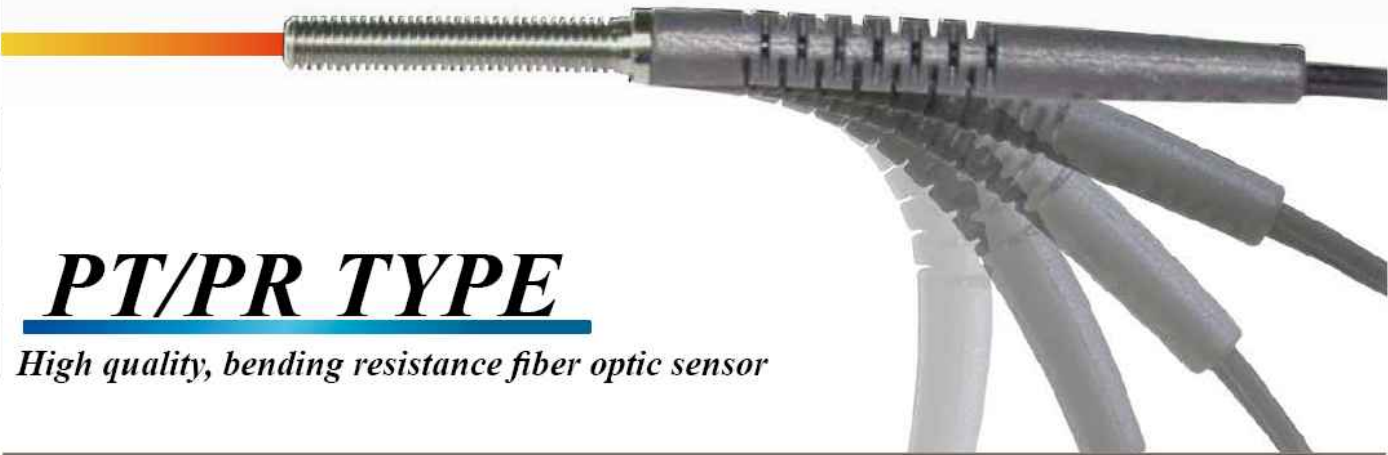
FR /FT

Glass Fiber

Light Guide

Silica Fiber

Access



PT/PR TYPE

High quality, bending resistance fiber optic sensor

Patent NO. : M368808 M380485

Protection against excessive bending /高彎曲保護

Special material for bending resistance (patent) /特殊耐彎材質(自有專利)

Special material for bending resistance : better curvature and protection from breakage of fiber in case of smaller bending radius in operation.

/特殊耐彎材質，繞曲度優，保護性佳，讓您在使用的時候，不會因為R角過小，造成光纖的斷裂。



Without overmoulding protection.
無保護光纖

Traditional types



With overmoulding protection.
保護光纖

M6 Types



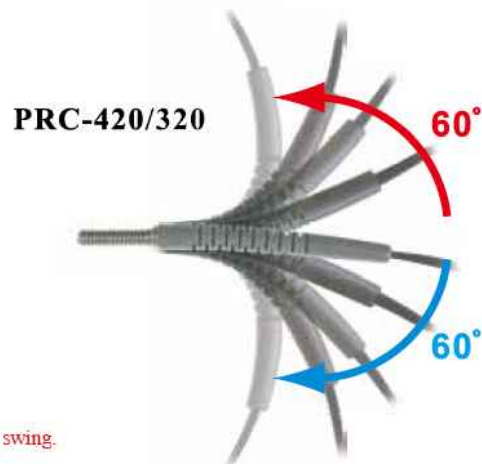
With overmoulding protection.
保護光纖

M3/M4 Types

Swinging tests /搖擺測試

Swings of PR620:1000 and PRC-320/420 are up to 30000. It will efficiently protect the fiber and extend its service life.

/PR-620搖擺次數可達1萬次，PRC-320/420搖擺次數更能夠達到3萬次，因此能有效的保護光纖，使光纖的壽命更長。



Standard of test : swinging from left to right total 10cm, 120 degree, speed : 12 seconds per swing.
測試標準:左右來回5公分，角度60(正負共120度)左右搖擺、速度來回12秒。

High tensile strength /高抗拉力(8kg)

Tensile strength : 8kg is three times more stronger than traditional type fiber. It will keep fiber far from careless damage in operation.

/PR-620可承受8kg的拉力，比一般的機型強上數倍，讓在使用時，不會因不小心，而造成光纖的損傷。



PR-620
Tensile strength : 8kg
可承受8kg的拉力



PRC-420/320
Tensile strength : 7kg
可承受7kg的拉力

High quality /高品質

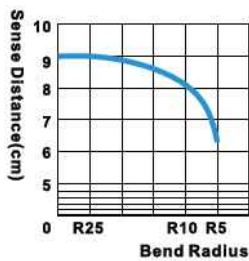
1. Stainless steel fiber head(Shorter Model) /高品質不鏽鋼接頭
光纖頭使用不鏽鋼材質，耐用度高。



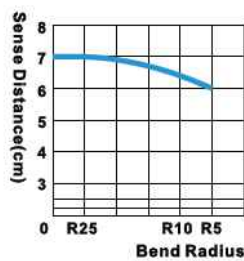
2. High quality fiber /高品質光纖

Superior fiber material from Japan. Lower attenuation. /使用日本進口光纖，光纖在彎折時，光耗損率更低

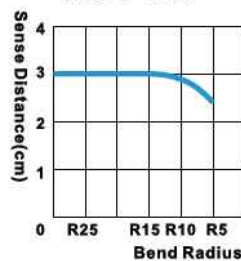
◎ PR-620



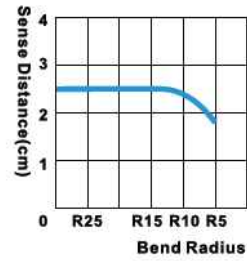
◎ PRC-620



◎ PRC-420
PRC-320

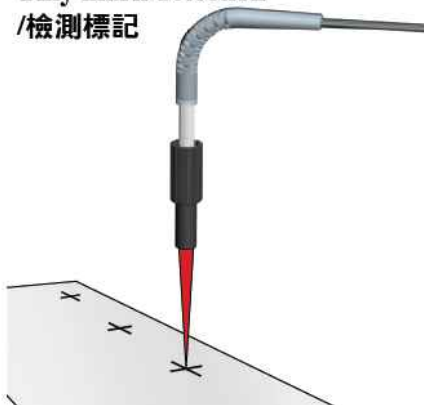


◎ PRD-420
PRD-320

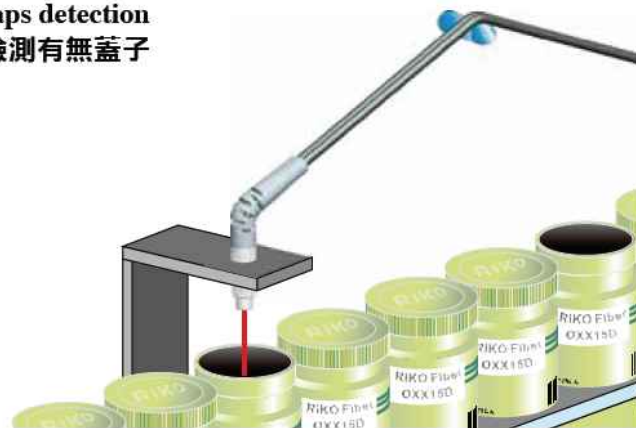


Enhanced protection /有效保護光纖

Tiny mark detection
/檢測標記



Caps detection
/檢測有無蓋子



Application / 應用例

Fiber

PR
/PT

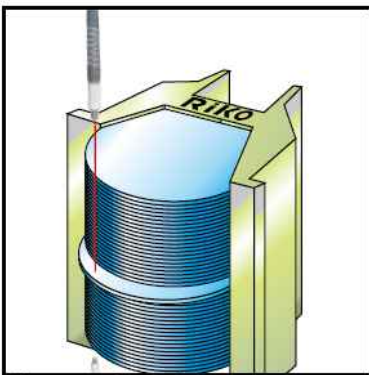
FR
/FT

Glass
Fiber

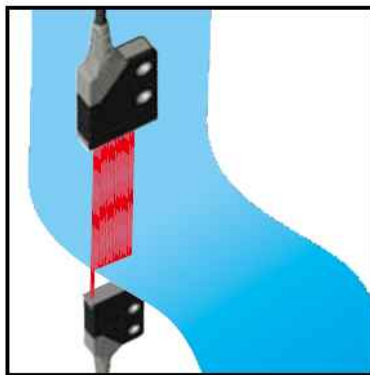
Light
Guide

Silica
Fiber

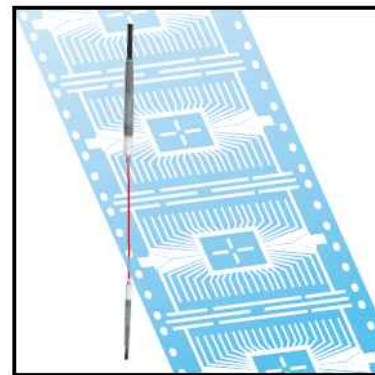
Access



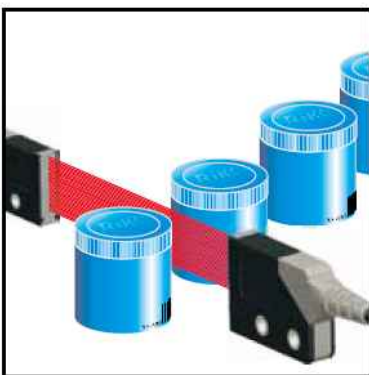
Abnormal position
檢測是否有凸出



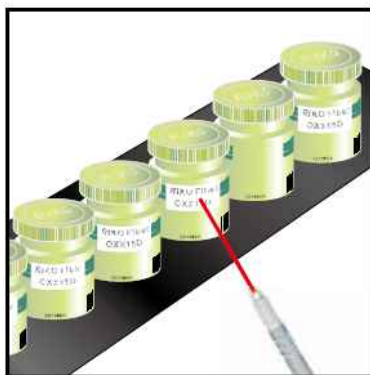
Thin film
薄膜檢測



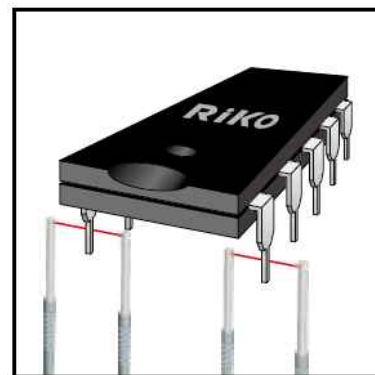
Leadframe
偵測導線架



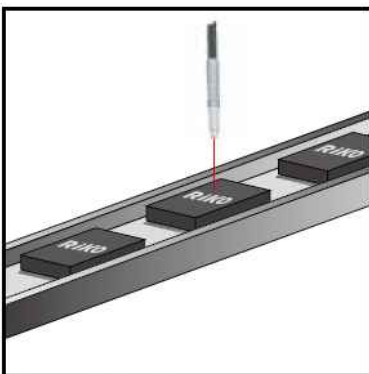
Round shape detection
檢測產品通過



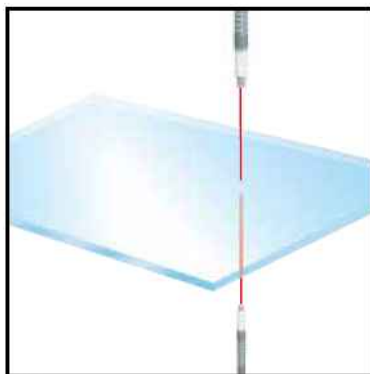
Labeling
檢測有無標籤



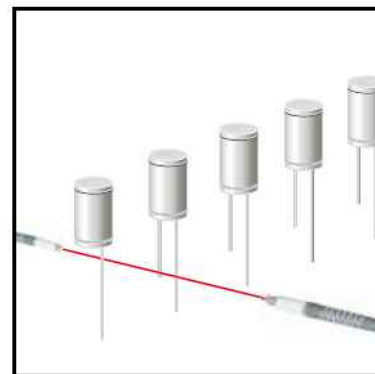
IC leg
監測IC腳位



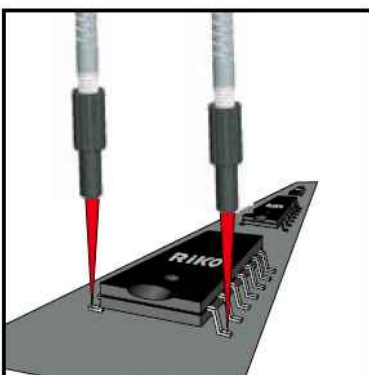
Upper detection
檢測產品通過



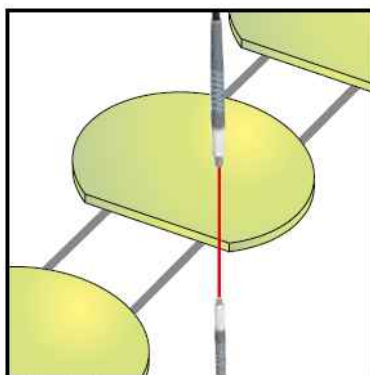
Glass
檢測玻璃



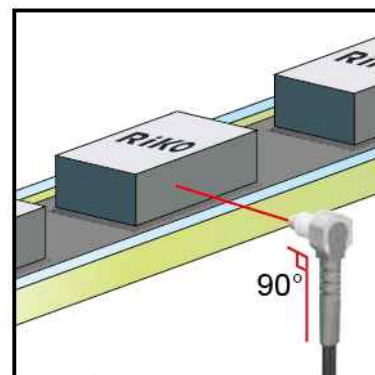
DIP
檢測電容腳



Small spot detection
檢測IC腳位



WAFER
檢測WAFER



90 angle detection
90度檢測

Anti-Bending Fiber Optic

FIBER

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
M6 反射型 (Reflective)	PR-620 Free cut	<p>Ø1.0 fiber optic core x 2 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p>	Standard	90mm	-55°C ~ +70°C	R25	Ø2.2	Ø1.0
	PR-620-I Free cut	<p>Ø1.0 fiber optic core x 2 Ø2.6 SUS 304 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p> <p>PR-620-I PR-620-S PR-620-M PR-620-L PR-620-S□ (by customer design)</p>	Standard	90mm	-55°C ~ +70°C	R25	Ø2.2	Ø1.0
	PRC-620 Free cut	<p>Ø1.0 fiber optic core x 1 Ø0.265 fiber optic core x 16 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p>	Coaxial	70mm	-55°C ~ +70°C	R25	Ø2.2	Ø1.0 x 1 ----- Ø0.265 x 16
	PRC-620-I Free cut	<p>Ø1.0 fiber optic core x 1 Ø0.265 fiber optic core x 16 SUS 304 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p> <p>PRC-620-I PRC-620-S PRC-620-M PRC-620-L PRC-620-S□ (by customer design)</p>	Coaxial	70mm	-55°C ~ +70°C	R25	Ø2.2	Ø1.0 x 1 ----- Ø0.265 x 16
	PRH-620 Free cut	<p>Ø1.0 fiber optic core x 2 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p>	Heat Resistant	80mm	-55°C ~ +115°C	R25	Ø2.2	Ø1.0
	PRY-620 Free cut	<p>Ø1.0 fiber optic core x 2 M6 P0.75 SUS303 Flexible protective tube Toothed lock washer Ø11 Width Across Flats 10mm Thickness 2.5mm</p>	Flexible	70mm	-40°C ~ +70°C	R2	Ø2.2	Ø1.0

Fiber

PR /PT

FR /FT

Glass Fiber

Light Guide

Silica Fiber

Access

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
M4 反射型 (Reflective)	PRA-420 Free cut		Precision	5mm	-55°C ~ +70°C	R10	Ø1.25	Ø0.25
	PRC-420 Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRC-420-I Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRC-420-9 Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRD-420 Free cut		Precision	25mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5
	PRD-420-I Free cut		Precision	25mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5

反射型 (Reflective)

Anti-Bending Fiber Optic

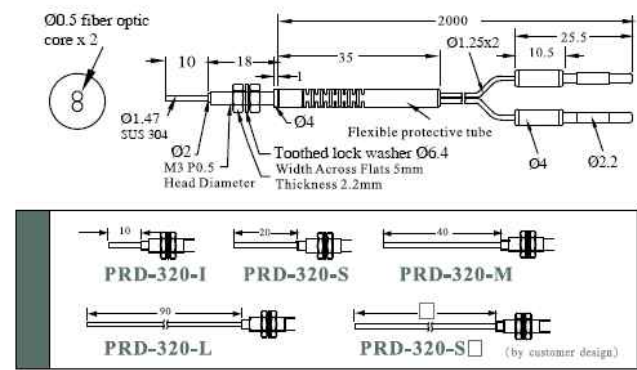
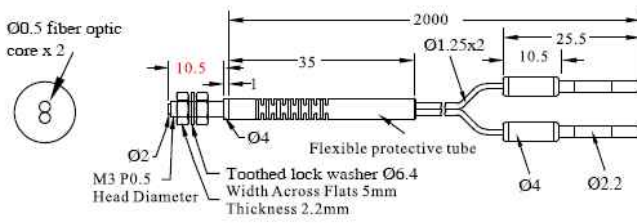
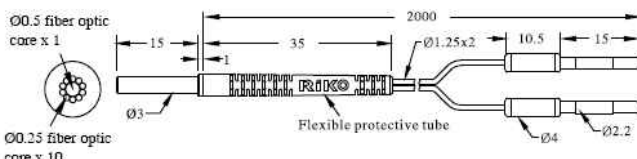
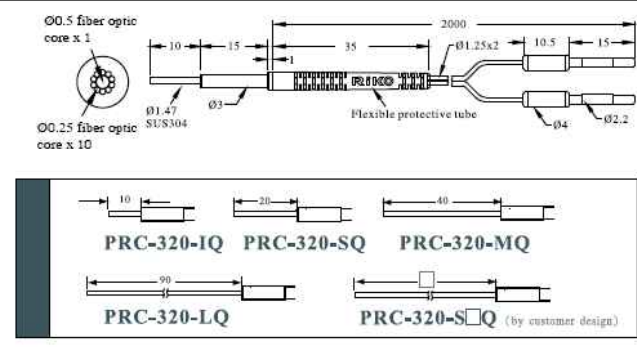
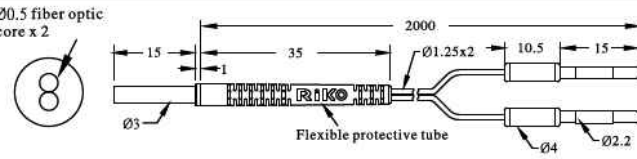
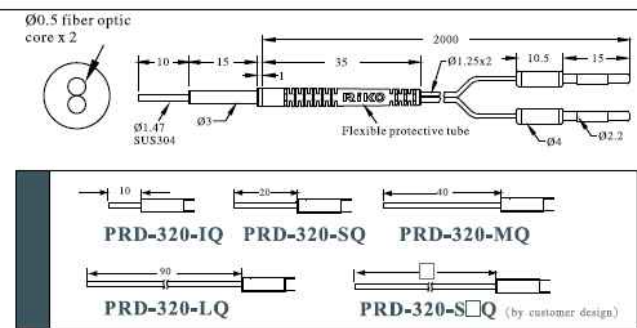
FIBER

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
反射型 (Reflective)	M4 PRD-420-9 Free cut		Precision	25mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5
	PRA-320 Free cut		High precision	5mm	-55°C ~ +70°C	R10	Ø1.25	Ø0.25
	PRC-320 Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	M3 PRC-320-I Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRC-320-9 Free cut		Coaxial	30mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRD-320 Free cut		Precision	25mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5

Fiber
PR /PT
FR /FT
Glass Fiber
Light Guide
Silica Fiber
Access

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
M3	PRD-320-I Free cut		Precision	25mm	-55°C~+70°C	R15	Ø1.25	Ø0.5
	PRD-320-9 Free cut		Precision	25mm	-55°C~+70°C	R15	Ø1.25	Ø0.5
O3	PRC-320-Q Free cut		Coaxial	30mm	-55°C~+70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRC-320-IQ Free cut		Coaxial	30mm	-55°C~+70°C	R15	Ø1.25	Ø0.5 x 1 ----- Ø0.25 x 10
	PRD-320-Q Free cut		Precision	25mm	-55°C~+70°C	R15	Ø1.25	Ø0.5
	PRD-320-IQ Free cut		Precision	25mm	-55°C~+70°C	R15	Ø1.25	Ø0.5

反射型 (Reflective)

Anti-Bending Fiber Optic

FIBER

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (EZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
反射型 (Reflective)	O2	PRE-220 Free cut 	Hight precision	5mm	-55°C ~ +70°C	R10	Ø1.0	Ø0.25
		PRS-220 Free cut 	Precision	25mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.5
	O1.5	PRC4-120 Free cut 	Multiple Core	7mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.25 x 4
		PRC7-120 	Coaxial	20mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.25 x 7
對照型 (Throughbeam)	M4	PT-420 Free cut 	Standard	360mm	-55°C ~ +70°C	R25	Ø2.2	Ø1.0
		PID-420 Free cut 	Precision	90mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5
		PTH-420 Free cut 	Heat Resistant	600mm	-55°C ~ +115°C	R25	Ø2.2	Ø1.0
		PTS2-420 Free cut 	Precision	130mm	-55°C ~ +70°C	R15	Ø2.2	Ø0.5
		PTY-420 Free cut 	Flexible	300mm	-40°C ~ +70°C	R2	Ø2.2	Ø1.0

Fiber

PR /PT

FR /FT

Glass Fiber

Light Guide

Silica Fiber

Access

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
M3	PT-320 Free cut		Standard	500mm	-55°C~+70°C	R25	Ø2.2	Ø1.0
	PTD-320 Free cut		Precision	130mm	-55°C~+70°C	R15	Ø1.25	Ø0.5
	PTH-320 Free cut		Heat Resistant	600mm	-55°C~+115°C	R25	Ø2.2	Ø1.0
	PTS2-320 Free cut		Precision	130mm	-55°C~+70°C	R15	Ø2.2	Ø0.5
	PTY-320 Free cut		Flexible	300mm	-40°C~+70°C	R2	Ø2.2	Ø1.0
	PT-320-Q Free cut		Standard	500mm	-55°C~+70°C	R25	Ø2.2	Ø1.0
O3	PT-320-IQ Free cut		Standard	500mm	-55°C~+70°C	R25	Ø2.2	Ø1.0
		Standard	500mm	-55°C~+70°C	R25	Ø2.2	Ø1.0	

標準型 (Thru beam)

Anti-Bending Fiber Optic

FIBER

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter		
							OD	ID	
O3	PTD-320-Q Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5	
	PTD-320-IQ Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5	
	PTA-220 Free cut		High precision	20mm	-55°C ~ +70°C	R10	Ø1.25	Ø0.25	
	PTC4-220 Free cut		Multiple-core	100mm	-55°C ~ +70°C	R15	Ø1	Ø0.25 x 4	
	PTD-220 Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.25	Ø0.5	
O2	PTE-220 Free cut		High precision	30mm	-55°C ~ +70°C	R10	Ø1.0	Ø0.25	
	PTS-220 Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.5	
	O1.5	PTC4-120 Free cut		Multiple-core	100mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.25 x 4
		PTD-120 Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.5
		PTS-120 Free cut		Precision	130mm	-55°C ~ +70°C	R15	Ø1.0	Ø0.5

對照型 (Thru-beam)

Fiber
PR /PT
FR /FT
Glass Fiber
Light Guide
Silica Fiber
Access

Specifications / 規格表

Type	Model	Dimensions	Fiber Type	Sensing distance (FZ1)	Operate temperature	Minimum bending radius	Fiber diameter	
							OD	ID
90°	PRY-67TZ-20 Free cut		Flexible	70mm	-55°C ~ +70°C	R2	Ø2.2	Ø1.0
矩陣型 (array Fiber)	PR-20ML Free cut		Multiple-core	70mm	-55°C ~ +70°C	R25	Ø2.2	Ø0.25 X 16 Ø0.25 X 16
對照型 (Thru-beam)	PT-20ML Free cut		Multiple-core	500mm	-55°C ~ +70°C	R60	Ø2.8	Ø0.25 X 32

Accessories / 配件

LENS / 聚焦鏡			
Product	Dimensions	Product	Dimensions
	<p>FT fiber type Scanning distance is increased 4 times if this FLM-02 unit is attached to the light emitter and receiver of a thru - scan fiber unit.</p>		<p>FT-410 unit can be changed to aside view type by attaching this unit to the light emitter or receiver of fiber unit.</p>
	<p>Light converges to a spot diameter of 0.5mm if this unit is attached to a fiber unit at a distance of 8mm.</p>		<p>Light converges to a spot diameter of 2mm if this unit is attached to a fiber unit at a distance of 8mm.</p>
	<p>Light converges to a spot diameter of 0.7mm if this unit is attached to a fiber unit at a distance of 10mm.</p>		<p>FTX-410 Scanning distance is increased 8 times if this unit is attached to the light emitter and receiver of a thru - scan fiber unit.</p>
Heat resistant adapter / 高溫轉接頭		Fiber Cutter / 光纖切刀	
	<ol style="list-style-type: none"> Suitable for High Temperature and Vacuum Environment Operating Temperature: -40°C ~ 250°C Effective against Air under Vacuum Sensing. Connected to a Plastic Fiber Sensor Applied in High Temperature Environment 		