

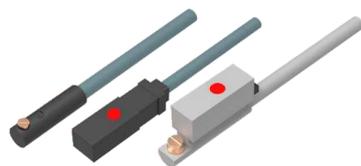
# High Precision Magnetic Sensor



## Magnetic Sensors

- Small size, long duration, high sensitivity and long sensing distance
- Response Time at 5  $\mu$  s –Fastest response time
- S-pole (standard magnet pole)

P.G-04



## High Precision Positioning with Reliable Performance

- High positioning precision, reliable performance
- Vibration and heat resistance
- Response time less than 5  $\mu$  s (3-wire type)

P.G-09



## Economical Cylinder Sensor

- High positioning accuracy, reliable performance
- Maximum switching frequency up to 1000 Hz

P.G-13



## Environmental Resistance Cylinder Sensors

- Full metal material, reliable performance
- Vibration and heat resistance
- Maximum switching frequency up to 1000HZ

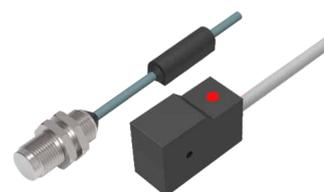
P.G-16



## Combined Cylinder Sensors

- With different brackets to fit almost all cylinder sensors in the market
- Suitable for replacing contact cylinder sensors
- Suitable for C-slot, T-slot, hoop, guide rail, tie rod and other installation environments

P.G-17



## Magnetic Proximity Sensors

- Proximity sensors that detect ferromagnetism materials, such as iron
- No reaction to aluminum and non-ferromagnetic stainless steel
- Can be used on CNC machines, refrigerating equipments, on-standard positioning equipments etc.

P.G-19



## Door Sensors

- Small size, excellent sensitivity
- Non-contact, long life and highly reliable
- With magnetic hole ( $\phi 12$ ), it still performs well even fixed inside iron doors

P.G-21



## Linear Sensors

- Output voltage varies linearly with magnetic force
- Output voltage changes linearly according to the movements of magnets
- It can be used from low to high temperature

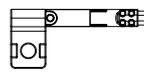
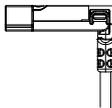
P.G-24

## Magnetic Sensors

Appearance	Size	Sensing distance*	Detected poles	Model number	Pages
	φ 4.9X16mm	MR-M10L: 4mm MR-M9K: 8mm	S-pole	Top surface detection	MR-P10-H
				Side surface detection	MR-P10-X <span style="color:red">HOT</span>
	φ 6.2X21mm	MR-M10L: 8mm MR-M9K: 10mm	N-pole, S-pole optional	S-pole detection	MR-P13-S
				N-pole detection	MR-P13-N
	M9X25mm	MR-M10L: 8mm MR-M9K: 11mm	N-pole, S-pole optional	S-pole detection	MR-P24-S
				N-pole detection	MR-P24-N
	M9X25mm	MR-M10L: 13mm MR-M9K: 20mm	N-pole & S-pole detection	N-pole & S-pole detection	MR-P25 <span style="color:red">HOT</span>
	M6X15mm	MR-M10L: 6mm MR-M9K: 8mm	S-pole	S-pole detection	MR-P26
	7X5.8X20.5mm	MR-M10L: 5mm MR-M9K: 8mm	N-pole, S-pole optional	S-pole detection	MR-P12-S
				N-pole detection	MR-P12-N
	9X9.6X30mm	MR-M10L: 8mm MR-M9K: 11mm	N-pole, S-pole optional	S-pole detection	MR-PH5-S
				N-pole detection	MR-PH5-N
	12X7.8X4.2mm	MR-M10L: 8mm MR-M9K: 12mm	S-pole	Top surface detection	MR-P4-H
				Side surface detection	MR-P4-X
	17.6X18.6X4.6mm	MR-M10L: 8mm MR-M9K: 12mm	N-pole, S-pole optional	S-pole detection	MR-P9-S
				N-pole detection	MR-P9-N

\*: Different magnets have different sensing distances

## High Precision Combined Cylinder Sensors

Appearance	Size	Detected poles	Suitable applications	Model number	Pages
	6.1X5.1X20mm	N-pole and S-pole, optional	T shaped slot	MR-C6	G-09
	5.8X7X20.5mm	N-pole and S-pole, optional	T shaped slot	MR-C12	
	φ 4X14.5mm	N-pole and S-pole, optional	C shaped slot	MR-C7	
	4X5.5X24.5mm	N-pole and S-pole, optional	C shaped slot	MR-C8-C	
	4X5.5X24.5mm	N-pole and S-pole, optional	U shaped slot	MR-C8-U	
	5X10X22.2mm	N-pole and S-pole, optional	C shaped slot	MR-C13-C	
	5X10X22.2mm	N-pole and S-pole, optional	U shaped slot	MR-C13-U	
	17.6X18.6X5.1mm	N-pole and S-pole, optional	External usage	MR-C92	G-10
	17.6X18.6X5.1mm	N-pole and S-pole, optional	External usage	MR-C9	
	17.6X18.6X4.6mm	N-pole and S-pole, optional	External usage	MR-C9-E	
	Straight	Default S pole	C type	MR-C1-H-C	G-17
			T type	MR-C1-H-T	
			External usage	MR-C1-H-L	
	Bend	Default S pole	C type	MR-C1-V-C	
			T type	MR-C1-V-T	
			External usage	MR-C1-V-L	

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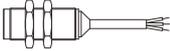
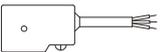
Guidance

- Magnetic
- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

## Economical/Magnetic Proximity Sensors

Appearance	Size	Sensing distance		Model number	Pages
	31.4*6.2*4.3mm	Normally Open	200Hz/ 1000Hz	MR-30/30G/30N/P	G-13
	15.1*4*5mm	Normally Open	1000Hz	MR-C80	
				MR-C81	
				MR-C86	
	14.3*4*4.7mm	Normally Open	1000Hz	MR-70	G-16

## Magnetic Proximity Sensors

Appearance	Size	Sensing distance		Model number	Pages
	M10X22.8mm	1mm(Iron wire $\phi$ 1)	Normally open, without LED indicator	MR-F11	G-19
		2mm(High-speed steel drill $\phi$ 2)	Normally open, with LED indicator	MR-F11-LED	
		2mm(Square iron20Xt1)	Normally closed, without LED indicator	MR-F11-B	
			Normally closed, with LED indicator	MR-F11-B-LED	
	9X14X21mm	6mm(Square iron30Xt10)	Normally open	MR-F2	
		4mm(Square iron30Xt2)	Normally closed	MR-F2-B	

## Door Sensors

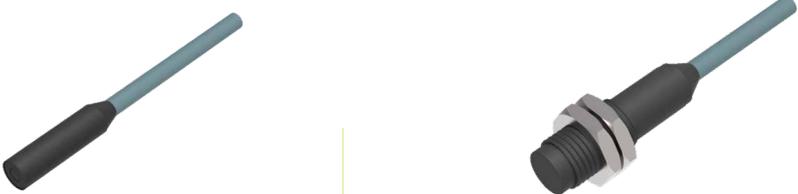
Appearance	Size	Detected poles	Model number	Pages
	14X14X34mm	Upward detection	MR-D2	G-21
	14X14X34mm	Upward detection	MR-D2P	
 Matching magnet	14X14X34mm	Upward detection	MR-DM2	
	14X14X34mm	Sideway detection	MR-D2X	
	14X14X34mm	Sideway detection	MR-D2XP	
 Matching magnet	14X14X34mm	Sideway detection	MR-DM2X	

## Linear Sensors

Appearance	Size	Detected poles		Model Number	Pages
	8.6X12X3.5mm	Detect N-pole and S-pole simultaneously		MR-L4	G-24
	7.8X12X4.2mm	Detect N-pole and S-pole simultaneously		MR-L4-H	
	$\phi$ 4.9X16mm	Detect N-pole and S-pole simultaneously		MR-L10X	

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Appearance	
Feature	Can execute detection in Fe, perfect for molds and fixtures
Sensing distance*	MR-M10L: 4mm; MR-M9K: 8mm
Operating voltage	5~24V DC
Detected magnetic poles	S-pole
Magnetic sensitivity	5~7mT
Response time	5 μs
Active frequency	30Hz
Output type	NPN (N.O) (When approaching, ON)
Output current	≤15mA
Current consumption	≤15mA
Withstand voltage	AC1000V 1min
Insulation resistance	250V DC ≥20MΩ
Ambient temperature	-20°C~+85°C, No freezing
Ambient humidity	20%~95%RH, No condensation
Material	SUS303
Mounting	M3 screws, tightening torque ≤0.2N · m
Degree of protection	IP65
Connection	3 core cable(Length:1m)
Model NO.	<div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p>Top surface detection: <b>MR-P10-H</b></p> <p>Side surface detection: <b>MR-P10-X</b> <span style="color: red; border: 1px solid red; border-radius: 50%; padding: 2px;">HOT</span></p> </div> <div style="width: 45%;"> <p>S-pole detection: <b>MR-P13-S</b></p> <p>N-pole detection: <b>MR-P13-N</b></p> </div> </div>
Wiring diagram	See figure 1 and figure 2 on page G-07

\*:Different magnets have different sensing distances

Appearance	
Feature	Built-in indicator (high sensitivity)
Sensing distance*	MR-M10L: 8mm; MR-M9K: 11mm
Operating voltage	5~24V DC
Detected magnetic poles	N-pole, S-pole optional
Magnetic sensitivity	MR-P24-S: 2.5~3.5mT, MR-P24-N: 0.9±0.2mT
Active frequency	30Hz
Response time	5 μs
Output type	NPN (N.O) (When approaching, ON)
Output current	≤12mA
Current consumption	≤12mA
Withstand voltage	AC1000V 1min
Insulation resistance	250V DC ≥20MΩ
Ambient temperature	-20°C~+85°C, No freezing
Ambient humidity	20%~95%RH, No condensation
Material	GF strengthened PBT: black;MR-P24-S cable: grey;MR-P24-N cable: black
Mounting	M9 screws, tightening torque ≤0.5N · m (with screws)
Indicator	Red
Degree of protection	IP67
Connection	1M 3 core cable
Model NO.	<p>S-pole detection: <b>MR-P24-S</b></p> <p>N-pole detection: <b>MR-P24-N</b></p>
Wiring diagram	See figure 4 on page G-07

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**Guidance**

**Magnetic**

- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

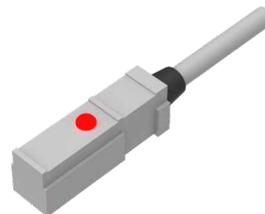
# Magnetic Sensors

Magnetic



Appearance		
Feature	High sensitivity, detects N-pole and S-pole detection at the same time	IP67 protection degree, stainless steel threaded housing
Sensing distance*	MR-M10L: 13mm; MR-M9K: 20mm	MR-M10L: 6mm; MR-M9K: 8mm
Operating voltage	12~24V DC	
Detected magnetic poles	N-pole & S-pole detection	S-pole
Magnetic sensitivity	S-pole: 0.5 ± 0.1mT    N-pole: 0.45 ± 0.1mT	3~4mT
Response time	< 16 μs	5 μs
Active frequency	40Hz	
Output type	NPN (N.O) (When approaching, ON)	
Output current	≤ 12mA	
Current consumption	On: ≤ 30mA (off ≤ 10mA)	≤ 4mA
Withstand voltage	AC1000V 1min	
Insulation resistance	250V DC ≥ 20MΩ	
Ambient temperature	-20°C ~ +85°C, No freezing	
Ambient humidity	20% ~ 95% RH, No condensation	
Material	SUS303	
Degree of protection	IP65	IP67
Mounting	M9 screws, tightening torque 5N · m	M6 screws, tightening torque 2N · m
Indicator	S-pole: Red    N-pole: Green	Red
Connection	1M 4core cable	1M 3core cable
Model NO.	<b>MR-P25</b> <span style="color: red; border: 1px solid red; border-radius: 50%; padding: 2px;">HOT</span>	<b>MR-P26</b>
Wiring diagram	See figure 5 on page G-07	See figure 6 on page G-07

\*: Different magnets have different sensing distances



Appearance		
Feature	Built-in indicator, 2-wires output	
Sensing distance*	MR-M10L: 5mm; MR-M9K: 8mm	
Operating voltage	12~24V DC	
Detected magnetic poles	N-pole, S-pole optional	
Magnetic sensitivity	2.5~3.5mT	
Response time	50 μs	
Active frequency	30Hz	
Output current	≤ 50mA	
Leakage current	OFF, ≤ 0.5mA	
Withstand voltage	AC1000V 1min	
Insulation resistance	250V DC ≥ 20MΩ	
Ambient temperature	-20°C ~ +85°C, No freezing	
Ambient humidity	20% ~ 95% RH, No condensation	
Material	GF strengthened PBT	
Indicator	Red	
Degree of protection	IP67	
Connection	1M 2core cable	
Model NO.	S-pole detection: <b>MR-P12-S</b> N-pole detection: <b>MR-P12-N</b>	
Wiring diagram	See figure 7 on page G-07	

\*: Different magnets have different sensing distances

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- Magnetic**
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Appearance	
Feature	High sensitivity (can be used outdoors)
Sensing distance*	MR-M10L: 8mm; MR-M9K: 11mm
Operating voltage	5~24V DC
Detected magnetic poles	N-pole, S-pole optional
Magnetic sensitivity	0.9±0.2mT
Response time	5 μs
Active frequency	30Hz
Output type	NPN (N.O) (When approaching, ON)
Output current	≤12mA
Current consumption	≤12mA
Withstand voltage	AC1000V 1min
Insulation resistance	250V DC ≥20MΩ
Ambient temperature	-20°C~+85°C, No freezing
Ambient humidity	20%~95%RH, No condensation
Material	GF strengthened PBT: black
Mounting	M3 screws, tightening torque 0.3N · m
Indicator	Red
Degree of protection	IP67
Connection	1M 3core cable
Model NO.	S-pole detection: <b>MR-PH5-S</b> N-pole detection: <b>MR-PH5-N</b>
Wiring diagram	See figure 8 on page G-07

\*:Different magnets have different sensing distances



Appearance		
Feature	Small size, thickness 3.5mm only	Metal housing, water-proof and oil resistant
Sensing distance*	MR-M10L: 8mm; MR-M9K: 12mm	
Operating voltage	5~24V DC	12~24V DC
Detected magnetic poles	S-pole	N-pole, S-pole optional
Magnetic sensitivity	2.5~3.5mT	
Response time	5 μs	
Active frequency	30Hz	
Output type	NPN (N.O) (When approaching, ON)	
Output current	≤15mA	≤80mA
Current consumption	≤15mA	≤12mA
Withstand voltage	AC1000V 1min	
Insulation resistance	250V DC ≥20MΩ	
Ambient temperature	-20°C~+85°C, No freezing	
Ambient humidity	20%~95%RH, No condensation	
Material	GF strengthened PBT: Green	Die-casing Zinc alloy
Mounting	M2 screws, tightening torque 0.15N · m	M3 screws, tightening torque 1.5N · m
Degree of protection	IP65	IP67
Connection	3M 3core cable (Length:0.3m)	1M 3core cable
Model NO.	Top surface detection: <b>MR-P4-H</b> Size surface detection: <b>MR-P4-X</b>	S-pole detection: <b>MR-P9-S</b> N-pole detection: <b>MR-P9-N</b>
Wiring diagram	See figure 9 on page G-07	See figure 10 on page G-07

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Guidance

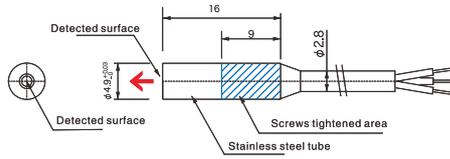
Magnetic

- Magnetic sensors**
- High precision cylinder
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- Ordinary magnets
- High precision composite magnets
- Mounting accessories

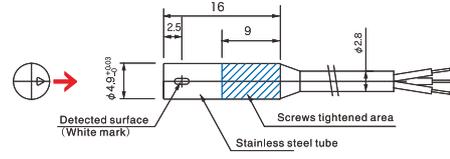
# Magnetic Sensors

Dimensions(Unit:mm)

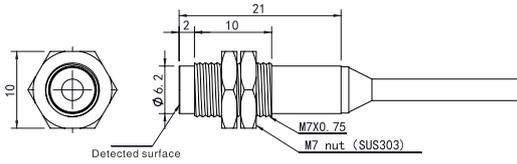
MR-P10-H



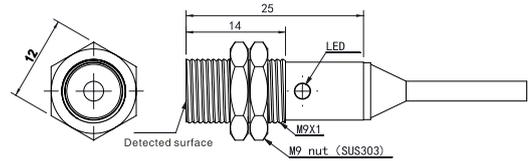
MR-P10-X



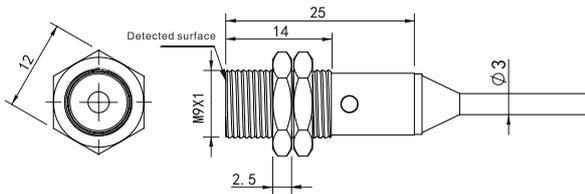
MR-P13-S(N)



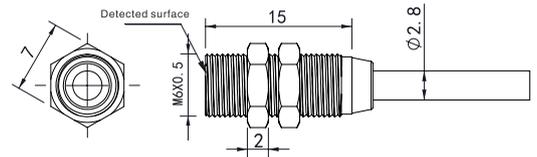
MR-P24-S(N)



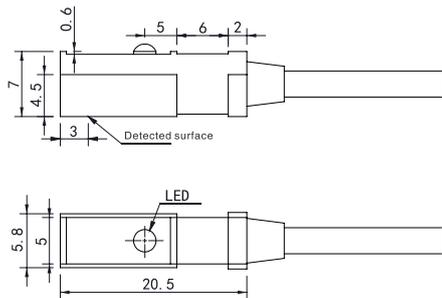
MR-P25



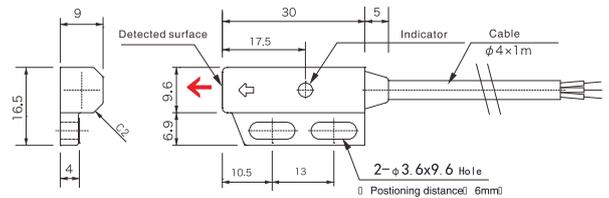
MR-P26



MR-P12-S(N)



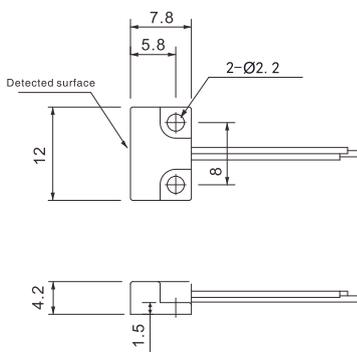
MR-PH5-S(N)



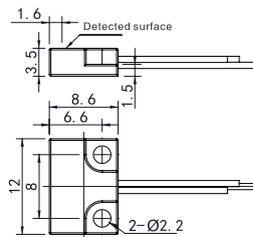
Mounting accessories: HP12-0/HP12-3/HP12-6.2/HP12-t

MR-P4-H(X)

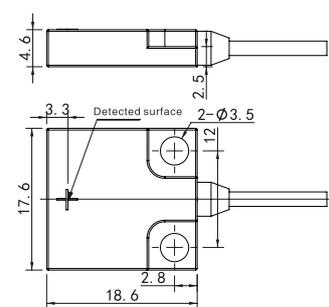
MR-P4-H



MR-P4-X

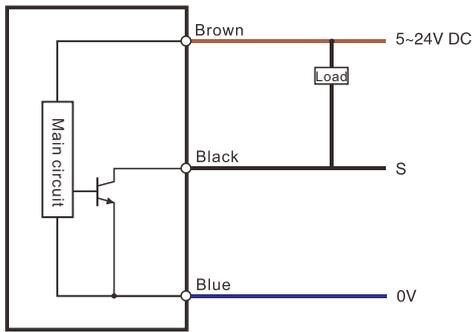


MR-P9-S(N)

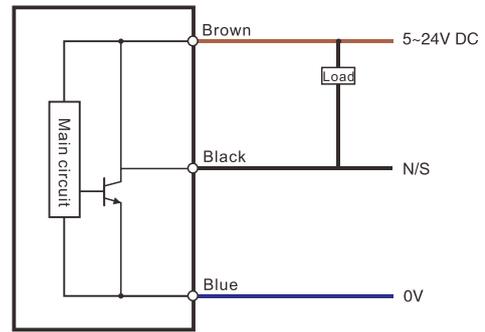


Mounting accessories: -BT: cable protective tube/  
-BD: belt shaped mounting accessories

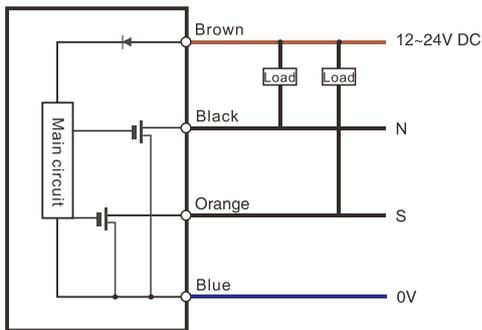
MR-P10/13/P4



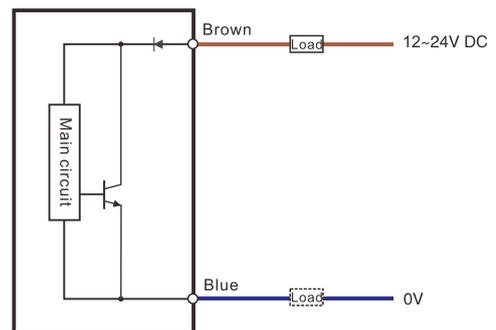
MR-P24/PH5



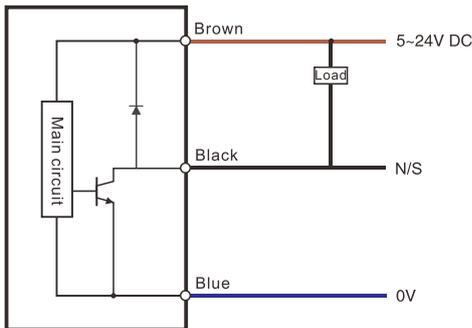
MR-P25



MR-P12



MR-P9



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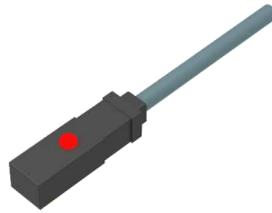
Magnetic

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# High Precision Cylinder Sensors

## Magnetic

3-wire



2-wire



Appearance		
Suitable applications	T shaped slot	T shaped slot
Features	Built-in LED indicators	Can replace 2-wire feed switches for cylinders, and suits to use in cylinders with small range, such as pneumatic fingers.
Operating voltage	5~24V DC	12~24V DC
Detected magnetic poles	N-pole and S-pole, optional	
Magnetic sensitivity	2.5~3.5mT	
Response time	5 μs	50 μs
Output type	NPN (N.O) (When approaching, on)	...
Output current	≤12mA	≤50mA
Current consumption	≤12mA	...
Current leakage	...	OFF States, 0.5mA MAX
Withstand voltage	AC1000V 1min	
Insulation resistance	250V DC ≥20MΩ	
Ambient temperature	-20°C~+85°C, No freezing	
Ambient humidity	20%~95%RH, No condensation	
Material	GF reinforced PBT, in black	GF reinforced PBT; in grey
LED Indicator	Red	
Degree of protection	IP67	
Connection	1M 3core cable	1M 2core cable
Model NO.	Detected S-pole	<b>MR-C6-S</b>
	Detected N-pole	<b>MR-C6-N</b>
Model NO.	Detected S-pole	<b>MR-C12-S</b>
	Detected N-pole	<b>MR-C12-N</b>

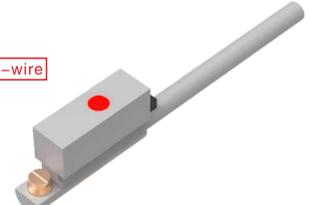
3-wire



3-wire



2-wire



Appearance				
Suitable applications	C shaped slot	C+U shaped slot	C+U shaped slot	
Features	Suitable for C-shaped slot (φ4); detect both S-pole and N-pole	Can apply to C-shaped slot (φ4), built-in LED indicators, suitable for U-shaped slots that manufactured by other factories		
Operating voltage	5~24V DC		12~24V DC	
Detected magnetic poles	N-pole and S-pole, optional			
Magnetic sensitivity	4.5~6mT		2.5~3.5mT	
Response time	5 μs		50 μs	
Output type	NPN (N.O) (When approaching, on)		...	
Output current	≤12mA		≤50mA	
Current consumption	≤12mA		...	
Current leakage	...		OFF States, 0.5mA MAX	
Withstand voltage	AC1000V 1min			
Insulation resistance	250V DC ≥20MΩ			
Ambient temperature	-20°C~+85°C, No freezing			
Ambient humidity	20%~95%RH, No condensation			
Material	GF reinforced PBT, in black		GF reinforced PBT; in grey	
Mounting	With screws, tightening torque 0.06N·m			
LED Indicator	Approx. 100mm distance from main body		Red	
Degree of protection	IP67			
Connection	1M 3core cable		1M 2core cable	
Model NO.	Detected S-pole	<b>MR-C7-S</b>	C shaped slot	U shaped slot
	Detected N-pole	<b>MR-C7-N</b>	<b>MR-C8-C-S</b>	<b>MR-C8-U-S</b>
Model NO.	Detected S-pole	<b>MR-C13-S</b>	<b>MR-C13-C-S</b>	<b>MR-C13-U-S</b>
	Detected N-pole	<b>MR-C13-N</b>	<b>MR-C13-C-N</b>	<b>MR-C13-U-N</b>

# High Precision Cylinder Sensors

Magnetic



2-wire



3-wire



3-wire

Appearance		(High current output)	(Economical type without indicators)
Suitable applications	External usage		External usage
Features	With belt shaped mounting accessories, can install in $\phi 32 \sim \phi 10$ cylinders; metal housing, watertight, and oil-proof		
Operating voltage	12~24V DC		5~24V DC
Detected magnetic poles	N-pole and S-pole, optional		
Magnetic sensitivity	2.5~3.5mT		
Response time	50 $\mu$ s		5 $\mu$ s
Output type	...		NPN (N.O) (When approaching, on)
Output current	50mA MAX		$\leq 12$ mA
Current consumption	...		$\leq 12$ mA
Current leakage	OFF States, 0.5mA MAX		...
Withstand voltage	AC1000V 1min		
Insulation resistance	250V DC $\geq 20$ M $\Omega$		
Ambient temperature	-20 $^{\circ}$ C~+85 $^{\circ}$ C, No freezing		
Ambient humidity	20%~95%RH, No condensation		
Material	Cast zinc alloy		
Mounting	With screws, tightening torque 1.5N $\cdot$ m		M3(SUS), tightening torque 1.5N $\cdot$ m
LED Indicator	Red		None
Degree of protection	IP67		
Connection	1M 2core cable		1M 3core cable
Model NO	Detected S-pole	<b>MR-C92-S</b>	<b>MR-C9-S</b>
	Detected N-pole	<b>MR-C92-N</b>	<b>MR-C9-N</b>
			<b>MR-C9-E-S</b>
			<b>MR-C9-E-N</b>

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories

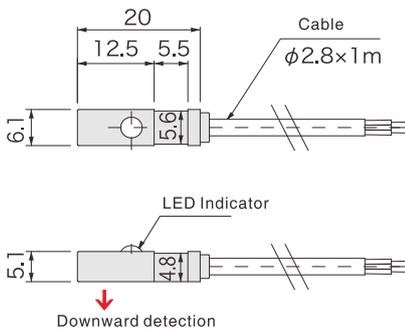
Guidance

Magnetic

- Magnetic sensors
- High precision cylinder**
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

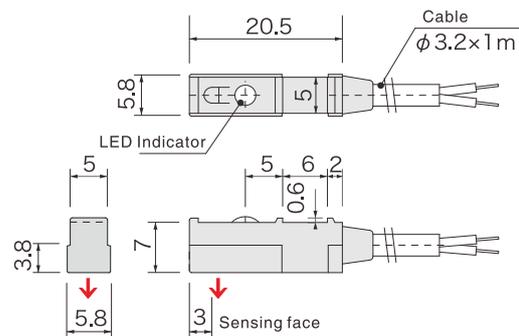
## Dimensions(Unit:mm)

MR-C6



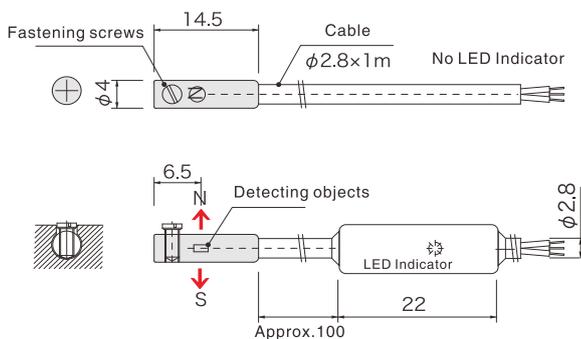
Mounting accessories: HP3-1/HP3-2/HP3-3/HP3-4

MR-C12



Mounting accessories: HP12-0/HP12-3/HP12-6.2/HP12-t

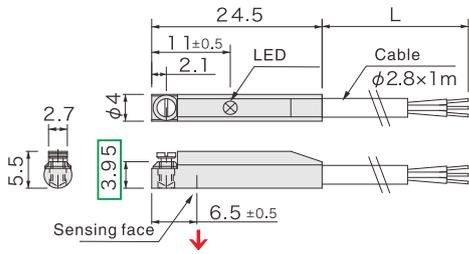
MR-C7



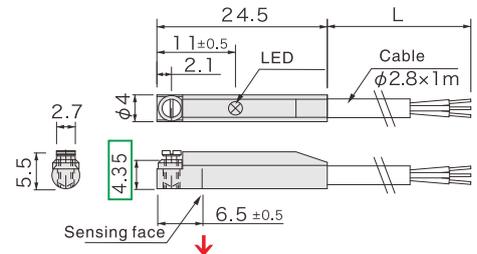
# High Precision Cylinder Sensors

## Dimensions(Unit:mm)

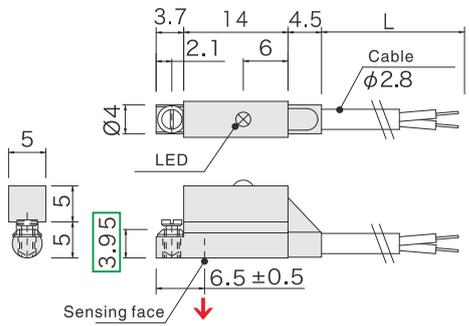
MR-C8(C shaped slot)



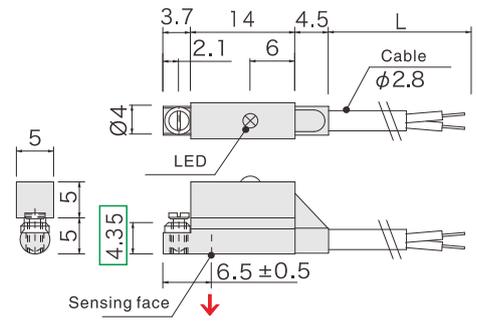
MR-C8(U shaped slot)



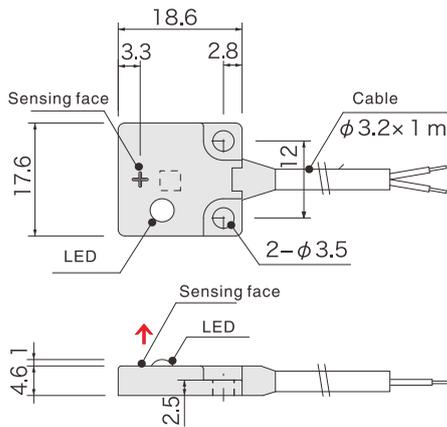
MR-C13(C shaped slot)



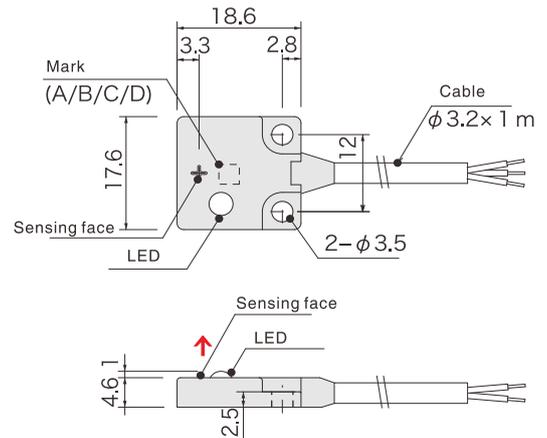
MR-C13(U shaped slot)



MR-C92



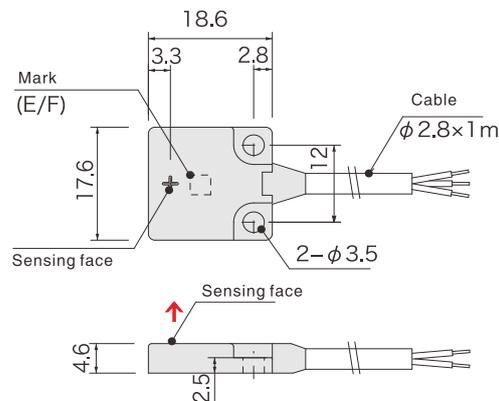
MR-C9



Mounting accessories: -BT: cable protective tube/  
-BD: belt shaped mounting accessories

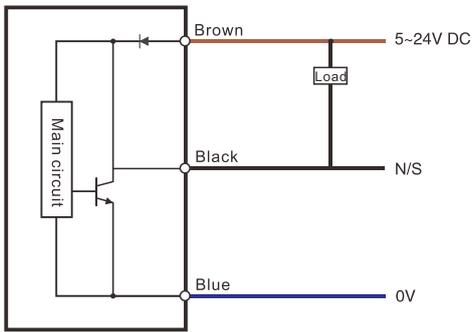
Mounting accessories: -BT: cable protective tube/  
-BD: belt shaped mounting accessories

MR-C9-E(No LED)

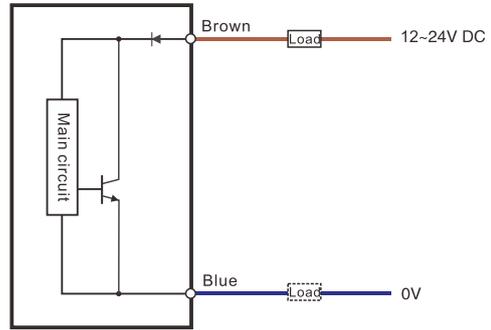


Mounting accessories: -BT:cable protective tube/  
-BD:belt shaped mounting accessories

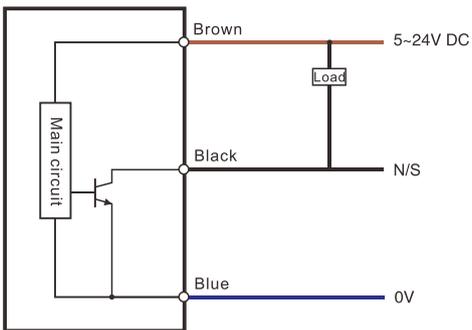
MR-C6



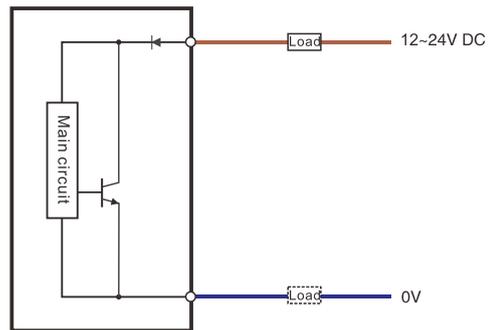
MR-C12



MR-C7



MR-P12



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories

Guidance

Magnetic

- Magnetic sensors
- High precision cylinder**
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

# Economical Cylinder Sensor

Magnetic



Economical Type

## Appearance

Switch logic	SPST open type	Electronic: regular	Electronic contactless; open type	
Switch type	Contact type magnetic spring tube	Two-wire contactless crystal type	Contactless Electrocrystal NPN Type	Contactless Electrocrystal PNP Type
Working voltage	5~24V DC	10~28V DC	5~30V DC	
Maximum switching current	100mA Max	50mA Max	200mA Max	
Maximum switching capacity	10W Max	1.4W Max	6W Max	
Internal consumption current	-	40 μ A Max.@24V	14mA Max@24V(Switch Active)	
Residual pressure	2.5V Max@100mA DC	2.65V Max@50mA DC	0.5V Max@200mA DC	
Leakage current	-	90 μ A Max.@28v	0.01mA Max	
Indicator	Red LED		Green LED	
Cable	2.9 ϕ ,2C, grey oil-resistant PVC	2.9 ϕ ,2C, grey oil-resistant TPU	2.9 ϕ ,3C, grey oil-resistant TPU	
Sensitivity	40G	25~1000G		
Maximum switching frequency	200Hz	1000Hz		
Working temperature	-10~70° C			
Impact resistance	30G	50G		
Vibration resistance	9G			
Degree of protection	IP67 ( EN6052 )			
Circuit protection	-	Protection of sudden wave absorption	Power polarity reverse protection; sudden wave absorption protection; short circuit protection	
Model	<b>MR-30</b>	<b>MR-30G</b>	<b>MR-30N</b>	<b>MR-30P</b>



Economical Type

## Appearance

Switch logic	Electronic: regular
Switch type	Two-wire contactless crystal type
Suitable load	DC24V relay, PLC
Working voltage	10~30V DC
Maximum switching current	100mA Max
Maximum switching capacity	3W Max
Internal consumption current	6 μ A Max.@24V
Residual pressure	2.65V Max@50mA
Leakage current	40 μ A Max.@28v
Indicator	Red LED
Cable	2.8 ϕ ,2C, grey oil-resistant TPU
Sensitivity	25~1000G
Maximum switching frequency	1000Hz
Working temperature	-10~70° C
Impact resistance	50G
Vibration resistance	9G
Degree of protection	IP67 ( EN6052 )
Circuit protection	Protection of sudden wave absorption
Model	<b>MR-C80</b>

Economical Type



## Appearance

Switch logic	Electronic: regular
Switch type	Two-wire contactless crystal type
Suitable load	DC24V relay, PLC
Working voltage	10~30V DC
Maximum switching current	100mA Max
Maximum switching capacity	3W Max
Internal consumption current	6 $\mu$ A Max.@24V
Residual pressure	2.65V Max@50mA
Leakage current	40 $\mu$ A Max.@28v
Indicator	Red LED
Cable	2.8 $\phi$ ,2C, grey oil-resistant TPU
Sensitivity	25~1000G
Maximum switching frequency	1000Hz
Working temperature	-10~70° C
Impact resistance	50G
Vibration resistance	9G
Degree of protection	IP67 ( EN6052 )
Circuit protection	Protection of sudden wave absorption
Model	<b>MR-C81</b>

Economical Type



## Appearance

Switch logic	Electronic: regular
Switch type	Two-wire contactless crystal type
Suitable load	DC24V relay, PLC
Working voltage	10~30V DC
Maximum switching current	100mA Max
Maximum switching capacity	3W Max
Internal consumption current	6 $\mu$ A Max.@24V
Residual pressure	2.65V Max@50mA
Leakage current	40 $\mu$ A Max.@28v
Indicator	Red LED
Cable	2.8 $\phi$ ,2C, grey oil-resistant TPU
Sensitivity	25~1000G
Maximum switching frequency	1000Hz
Working temperature	-10~70° C
Impact resistance	50G
Vibration resistance	9G
Degree of protection	IP67 ( EN6052 )
Circuit protection	Protection of sudden wave absorption
Model	<b>MR-C86</b>

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories

## Guidance

### Magnetic

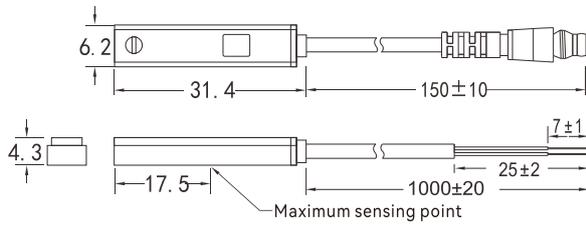
- Magnetic sensors
- High precision cylinder**
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

# Economical Cylinder Sensor

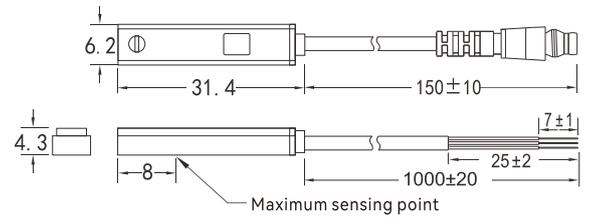
## Dimensions(Unit:mm)

Magnetic

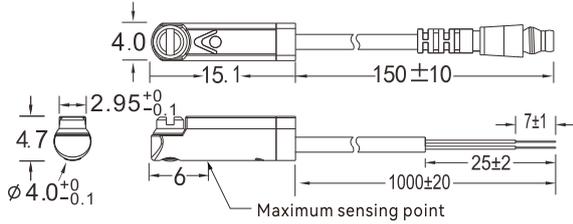
MR-30R/G



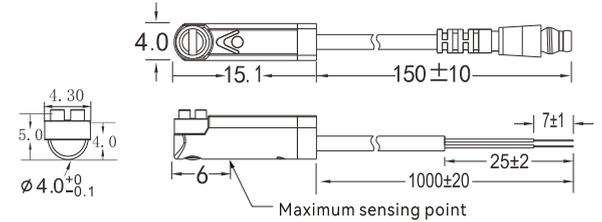
MR-30N/P



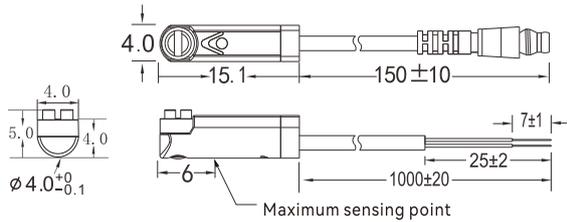
MR-C80



MR-C81

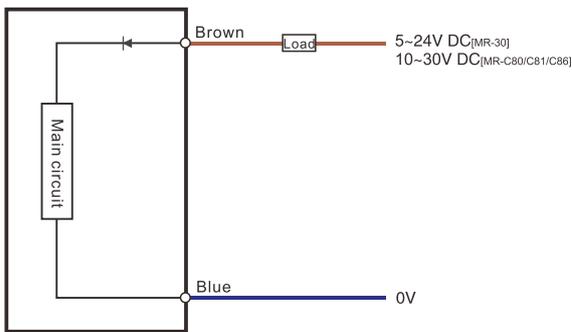


MR-C86

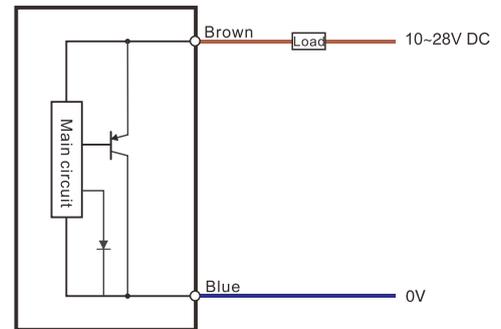


## Circuit diagram

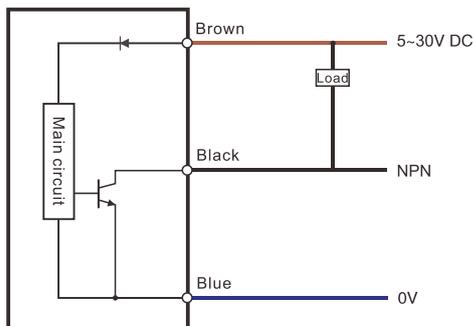
MR-30/C80/C81/C82



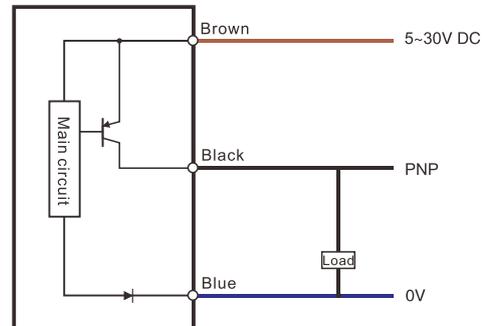
MR-30G



MR-30N



MR-30P



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories
- Guidance

- Magnetic
- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

Environmentally Resistant Type

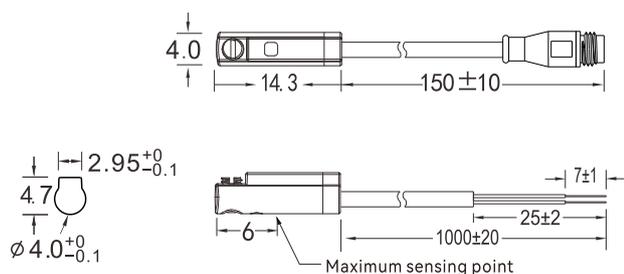


## Appearance

Switch logic	Electronic: regular
Switch type	Two-wire contactless crystal type
Suitable load	DC24V relay, PLC
Working voltage	10~30V DC
Maximum switching current	100mA Max
Maximum switching capacity	3W Max
Internal consumption current	6 μ A Max.@24V
Residual pressure	2.65V Max@50mA
Leakage current	40 μ A Max.@28v
Indicator	Red LED
Cable	2.8 φ ,2C, grey oil-resistant TPU
Sensitivity	25-1000G
Maximum switching frequency	1000Hz
Working temperature	-10~70° C
Impact resistance	50G
Vibration resistance	9G
Degree of protection	IP67 ( EN6052 )
Circuit protection	Protection of sudden wave absorption
Model	<b>MR-70</b>

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories

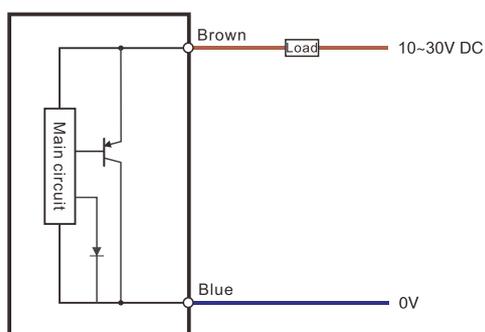
## Dimensions(Unit:mm)



## Guidance

- Magnetic**
- Magnetic sensors
- High precision cylinder**
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

## Circuit diagram



# Combined Cylinder Sensor

Magnetic

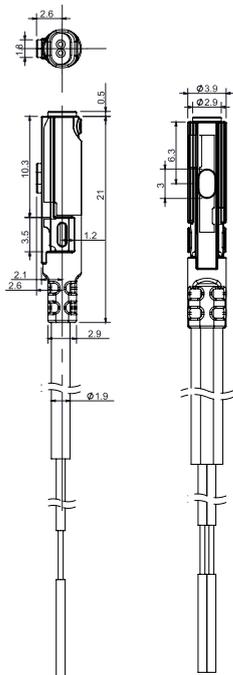


Appearance		
Type	Straight	Bend
Suitable applications	C type/ T type/ External	
Connection	2 wire	
Lead removal method	Horizontal, vertical, retaining ring	
Applicable load	24V DC Relay PLC	
Supply voltage	24V DC (10~28V DC)	
Current consumption	<40mA	
Internal pressure drop	<4V	
Leakage current	<10mA	
Responding speed	< 1ms	
Indicator	Red Light Emitting Diode	
Leading line	Oil-resistant insulating rubber	
Shock resistance	1000m/s <sup>2</sup>	
Insulation resistance	500V DC ≥ 50M Ω	
Withstand voltage	AC 1000V 1min	
Ambient temperature	-10°C~+60°C	
Degree of protection	IEC60529 IP65 JISC0920 anti-condensation structure	
Best sensing position	3.5mm	
C type slot	MR-C1-H-C	MR-C1-V-C
T type slot	MR-C1-H-T	MR-C1-V-T
External	MR-C1-H-L	MR-C1-V-L

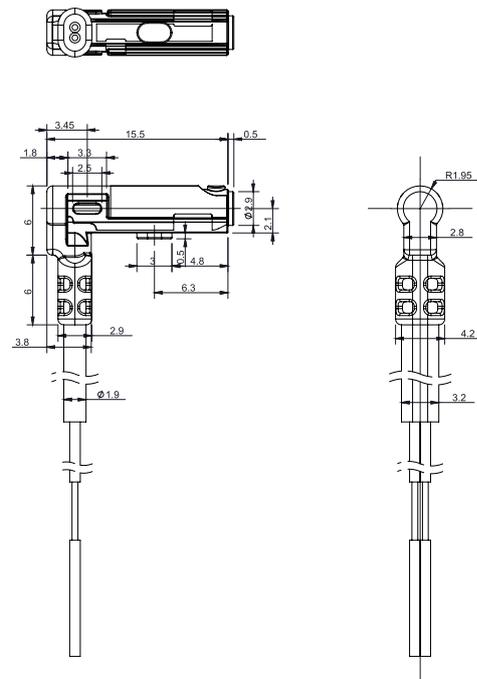
## Dimensions(Unit:mm)

### Noumenon:

MR-C1-H



MR-C1-V

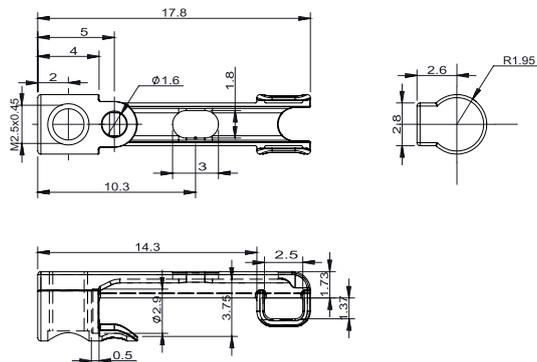


# Combined Cylinder Sensor

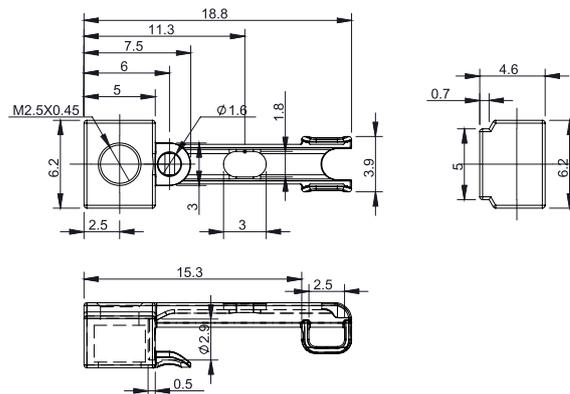
Dimensions(Unit:mm)

## Accessories:

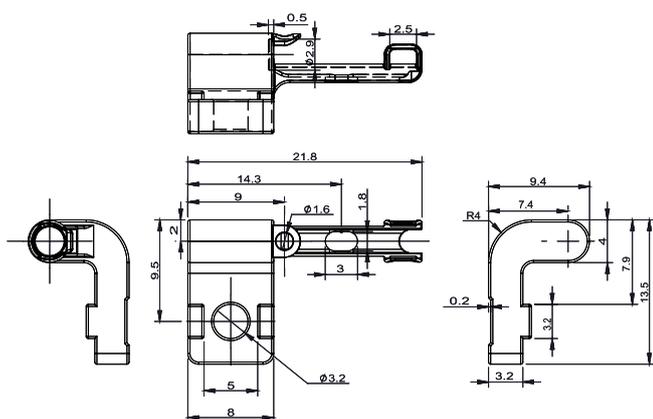
### C shaped slot



### T shaped slot

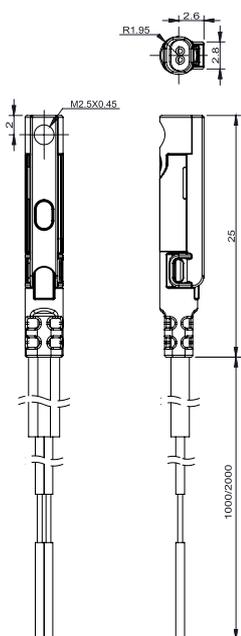


### External usage

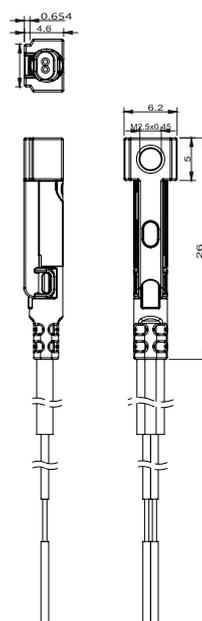


## Straight combination:

### MR-C1-H-C



### MR-C1-H-T



Magnetic

- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
- Code Readers
- Vibration
- Temperature
- Accessories

### Guidance

### Magnetic

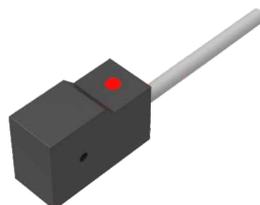
- Magnetic sensors
- High precision cylinder
- Combined cylinder**
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

# Magnetic Proximity Sensors

## Magnetic

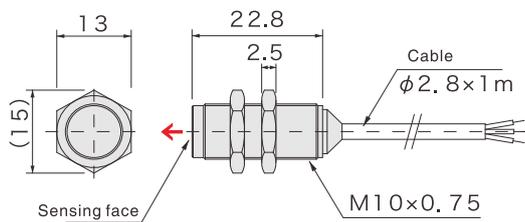


Appearance		
Features	Threaded metal case, water-tolerant	
Operating voltage	5~24V DC	
Max. Sensing distance	Iron wire $\phi$ 1	1.0
	High-speed steel drill $\phi$ 2	2.0
	Square iron 20X11	2.4
Output type	NPN (N.O.) (when approaching On) model number that ends with a "B " (when approaching OFF)	
Output current	$\leq$ 15mA	
Current consumption	$\leq$ 15mA	
Voltage resistance	AC 1000V 1min	
Insulation resistance	250V DC $\geq$ 20M $\Omega$	
Ambient temperature	-20~+85 $^{\circ}$ C, No freezing	
Ambient humidity	20~95%RH, No condensation	
Motion indicator	Approx 100mm away from the main body	
Material	SUS303	
Connection	M10 screw, tightening torque 12N $\cdot$ m	
Degree of protection	IP67	
Model NO.	Normally open, no LED indicator	<b>MR-F11</b>
	Normally open, with LED indicator	<b>MR-F11-LED</b>
	Normally closed, no LED indicator	<b>MR-F11-B</b>
	Normally closed, with LED indicator	<b>MR-F11-B-LED</b>

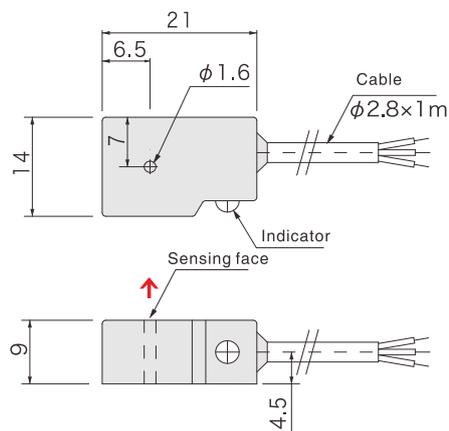


Appearance		
Features	Both sensing faces on the top and bottom is useful	
Operating voltage	5~24V DC	
Max. Sensing distance	Square iron 30X110	6.0
	Square iron 30X12	4.0
Output type	NPN (N.O.) (when approaching ON), model number that ends with a "B "	
Output current	$\leq$ 15mA	
Current consumption	$\leq$ 15mA	
Withstand voltage	AC 1000V 1min	
Insulation resistance	250V DC $\geq$ 20M $\Omega$	
Ambient temperature	-20~+85 $^{\circ}$ C, No freezing	
Ambient humidity	20~80%RH, No condensation	
Motion indicator	Approx. 100mm distance from main body	
Material	GF reinforced PBT	
Connection	M3 screw, tightening torque 0.3N $\cdot$ m	
Degree of protection	IP65	
Model NO.	Normally open	<b>MR-F2</b>
	Normally closed	<b>MR-F2-B</b>

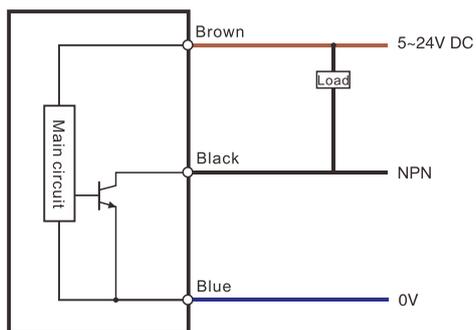
MR-F11



MR-F2



## Circuit diagram



- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
- Area
- Ultrasonic
- Vision
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- Temperature
- Accessories

### Guidance

### Magnetic

- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor**
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

# Door Sensors

## Upward Detection



Appearance		
Sensing distance	15mm	
Operating voltage	5~24V DC	
Output type	NPN (N.O.) (when approaching ON) model number that ends with a "B" (when approaching OFF)	
Output current	≤ 15mA	≤ 80mA
Current consumption	≤ 15mA	
Response time	5 μs	
Withstand voltage	AC 1000V 1min	
Insulation resistance	250V DC ≥ 20M Ω	
Ambient temperature	-20~+85°C, No freezing	
Ambient humidity	20~95%RH, No condensation	
Material	GF reinforced PBT(black)	
Connection	M3 screw tightening torque 0.8N · m	
Degree of protection	IP67	
Model NO.	Normally open	MR-D2   MR-D2P
	Normally closed	MR-D2PB

(Matching magnet)  
**MR-DM2**

## Sideway Detection



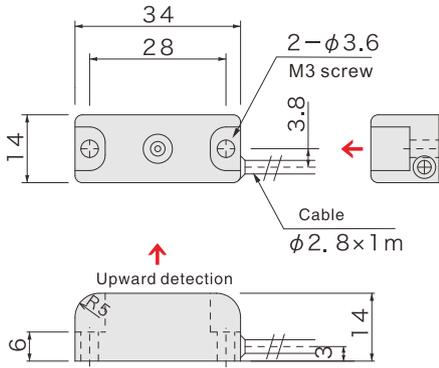
Appearance		
Sensing distance	12mm	
Operating voltage	12~24V DC	
Output type	NPN (N.O.) (when approaching ON) model number that ends with a "B" (when approaching OFF)	
Output current	≤ 80mA	
Current consumption	≤ 15mA	≤ 80mA
Response time	5 μs	
Withstand voltage	AC 1000V 1min	
Insulation resistance	250V DC ≥ 20M Ω	
Ambient temperature	-20~+85°C, No freezing	
Ambient humidity	20~95%RH, No condensation	
Material	GF reinforced PBT	
Cable specification	N.O.: Grey N.C.: Black	
Connection	M3 screw tightening torque 0.8N · m	
Degree of protection	IP67	
Model NO.	Normally open	MR-D2X   MR-D2XP
	Normally closed	MR-D2XPB

(Matching magnet)  
**MR-DM2X**

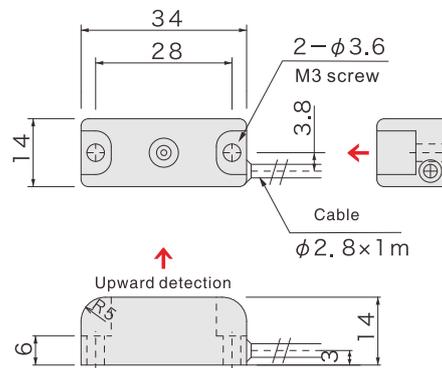
- Fiber Optic
- Slot Sensors
- Photoelectric
- Laser
- Proximity
- Displacement
- Magnetic**
- Contact
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- Ultrasonic
- Vision
- Code Readers
- Vibration
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- Guidance
- Magnetic**
- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor
- Door sensors**
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

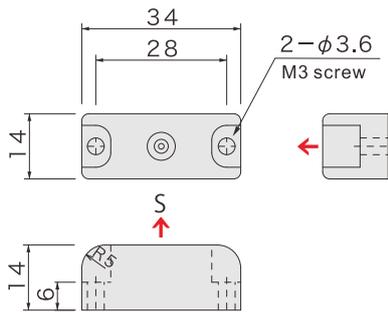
MR-D2



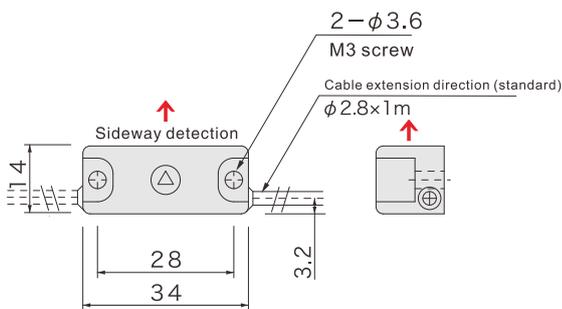
MR-D2P/D2PB



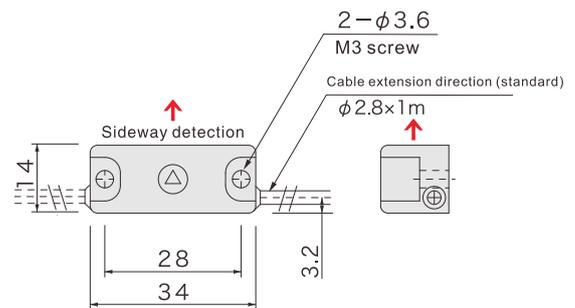
MR-DM2



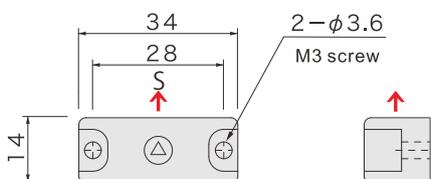
MR-D2X



MR-D2XP/D2XPB



MR-DM2X



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Guidance

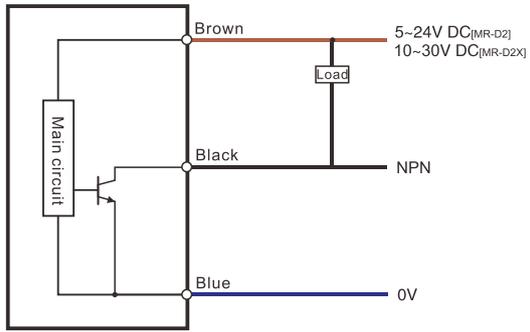
Magnetic

- Magnetic sensors
- High precision cylinder
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- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

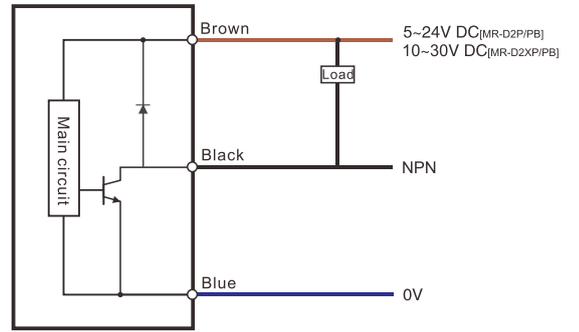
# Door Sensors

## Circuit diagram

MR-D2/D2X



MR-D2P(PB)/D2XP(PB)



- Fiber Optic
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Guidance

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Door sensors

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Appearance		
Operating voltage		5V DC
Magnetic sensitivity		65mV/mT (Center value)
Output voltage		0.3→4.7V (-40→+40mT): (Center value)
Center voltage		2.5V ± 0.15V
Output current		≤ ± 12mA
Current consumption		12mA
Response time		5 μs (100kHz)
Magnetic sensitivity temperature coefficient		0 ± 0.04%°C
Center voltage temperature coefficient		0 ± 0.5mV/°C
Ambient temperature		-20°C ~ +85°C
Ambient humidity		20~95% RH
Cable length		0.3m
Material		GF reinforced PBT (Orange)
Connection		M2 screw, tightening torque 0.15N · m
Cable specification		3pcs φ 0.9 core cable, 0.3m
Degree of protection		IP 65
Model NO.	Upward detection	<b>MR-L4</b>
	Sideway detection	<b>MR-L4-H</b>



Appearance		
Operating voltage		5V DC
Magnetic sensitivity		65mV/mT (Center value)
Output voltage		0.3→4.7V (-40→+40mT): (Center value)
Center voltage		2.5V ± 0.15V
Output current		≤ ± 12mA
Current consumption		12mA
Response time		5 μs (100kHz)
Magnetic sensitivity temperature coefficient		0 ± 0.04%°C
Center voltage temperature coefficient		0 ± 0.5mV/°C
Ambient temperature		-20°C ~ +85°C
Ambient humidity		20~95% RH
Cable length		1m
Material		SUS303
Connection		M3 screw, tightening torque 0.15N · m
Degree of protection		IP 65
Model NO.		<b>MR-L10X</b>

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### Guidance

### Magnetic

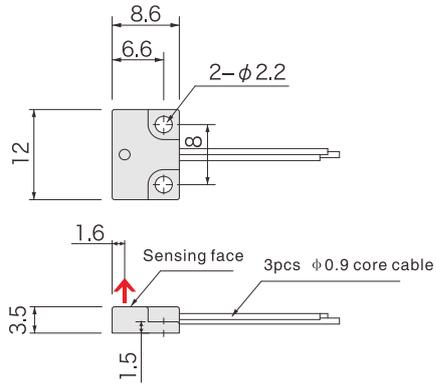
- Magnetic sensors
- High precision cylinder
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- Linear sensors**
- Ordinary magnets
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- Mounting accessories

# Linear Sensors

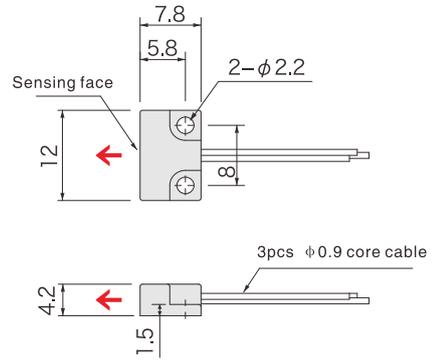
## Dimensions(Unit:mm)

Magnetic

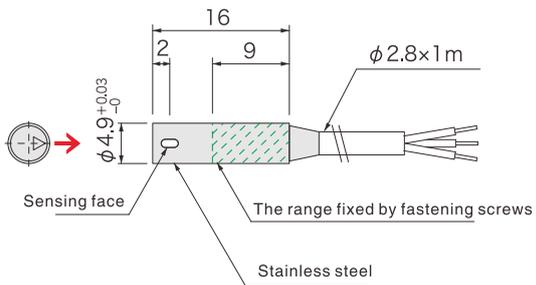
MR-L4



MR-L4-H



MR-L10X



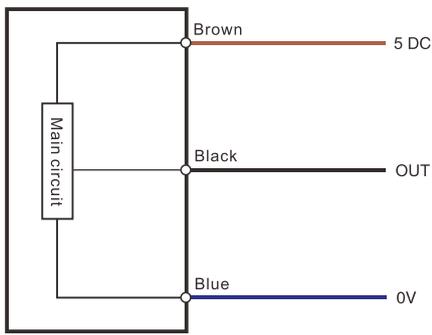
- Fiber Optic
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Guidance

Magnetic

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MR-L4



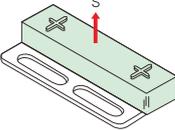
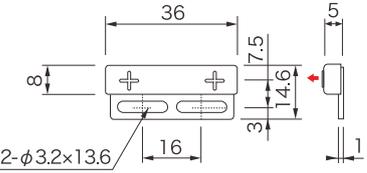
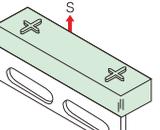
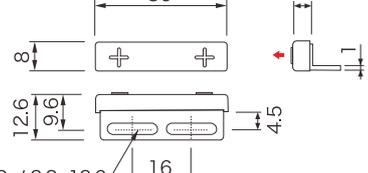
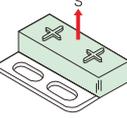
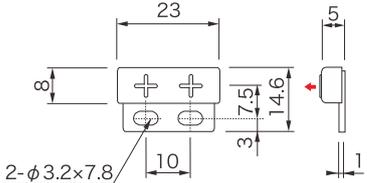
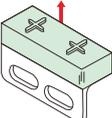
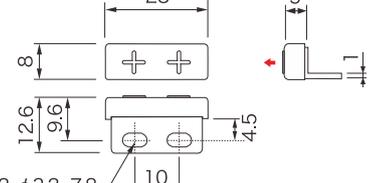
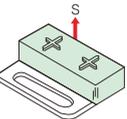
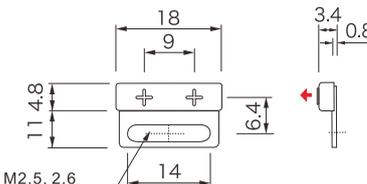
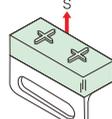
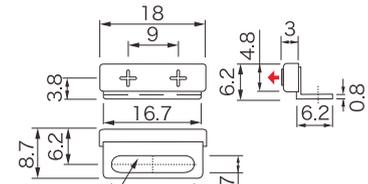
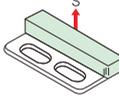
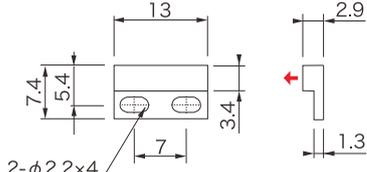
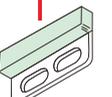
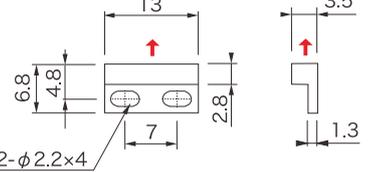
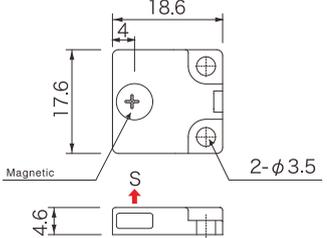
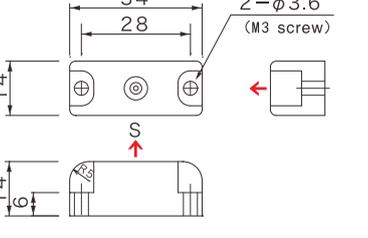
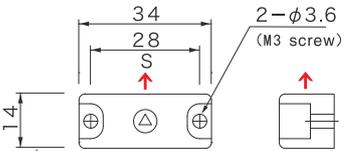
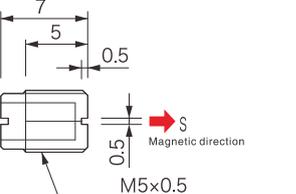
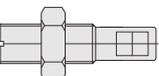
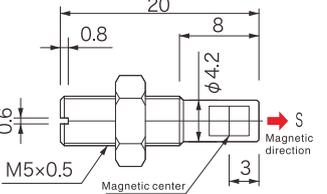
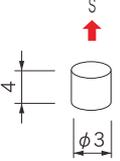
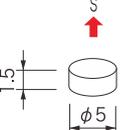
- Fiber Optic
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### Guidance

#### Magnetic

- Magnetic sensors
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# Ordinary Magnets

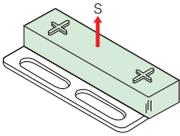
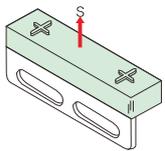
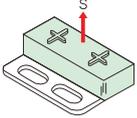
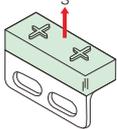
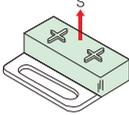
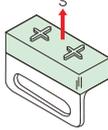
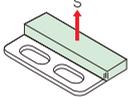
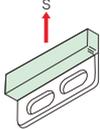
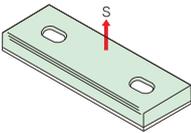
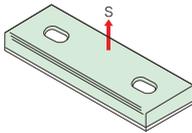
Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
<b>MR-M1K</b> 	 <p>36, 8, 16, 7.5, 14.6, 5, 3, 1, 2-φ3.2×13.6</p>	<b>MR-M1KH</b> 	 <p>36, 8, 16, 7.5, 14.6, 5, 3, 1, 12.6, 9.6, 4.5, 2-φ3.2×13.6</p>
<b>MR-M2K</b> 	 <p>23, 8, 10, 7.5, 14.6, 5, 3, 1, 2-φ3.2×7.8</p>	<b>MR-M2KH</b> 	 <p>23, 8, 10, 7.5, 14.6, 5, 3, 1, 12.6, 9.6, 4.5, 2-φ3.2×7.8</p>
<b>MR-M3K</b> 	 <p>18, 9, 14, 11, 4.8, 6.4, 3.4, 0.8, M2.5, 2.6 Long hole</p>	<b>MR-M3KH</b> 	 <p>18, 9, 14, 11, 4.8, 6.4, 3.4, 0.8, 6.2, 4.8, 1.3, 6.2, 0.8, M2.5, 2.6 Long hole</p>
<b>MR-M4K</b> 	 <p>13, 7.4, 5.4, 3.4, 2.9, 1.3, 2-φ2.2×4</p>	<b>MR-M4KH</b> 	 <p>13, 6.8, 4.8, 7, 2.8, 3.5, 1.3, 2-φ2.2×4</p>
<b>MR-M9K</b> 	 <p>18.6, 17.6, 4, 2-φ3.5, 4.6, Magnetic</p>	<b>MR-M2</b> 	 <p>34, 28, 1.4, 2-φ3.6 (M3 screw), 1.4, 6, S, Magnetic direction</p>
<b>MR-M2X</b> 	 <p>34, 28, 1.4, 2-φ3.6 (M3 screw), S, Magnetic direction</p>	<b>MR-M10S</b> 	 <p>7, 5, 0.5, 0.5, S, Magnetic direction, M5×0.5</p>
<b>MR-M10L</b> 	 <p>20, 0.8, 0.6, φ4.2, 3, M5×0.5, Magnetic center, S, Magnetic direction</p>	<b>MR-M304</b> 	 <p>4, S, φ3</p>
<b>MR-M5015</b> 	 <p>1.5, S, φ5</p>		

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# High Precision Composite Magnets

Magnetic

Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
<b>MR-M1</b>	 <p>36 8 2-<math>\phi</math>3.2x13.6 16 7.5 14.6 3 5 1</p>	<b>MR-M1H</b>	 <p>36 8 2-<math>\phi</math>3.2x13.6 16 12.6 9.6 4.5 5 1</p>
<b>MR-M2</b>	 <p>23 8 2-<math>\phi</math>3.2x7.8 10 7.5 14.6 3 5 1</p>	<b>MR-M2H</b>	 <p>23 8 2-<math>\phi</math>3.2x7.8 10 12.6 9.6 4.5 5 1</p>
<b>MR-M3</b>	 <p>18 9 11.48 2-M2.5, 2.6 Long hole 14 6.4 3.4 0.8 1</p>	<b>MR-M3H</b>	 <p>18 9 3.8 16.7 2-M2.5, 2.6 Long hole 14 8.7 6.2 2.7 6.2 4.8 1.3 0.8</p>
<b>MR-M4</b>	 <p>13 7.4 5.4 2-<math>\phi</math>2.2x4 7 3.4 2.9 1.3</p>	<b>MR-M4H</b>	 <p>13 6.8 4.8 2-<math>\phi</math>2.2x4 7 2.8 3.5 1.3</p>
<b>MR-M11</b>	 <p>90 56 30 Mounting hole for M4 3mm adjustment on the left and right</p>	<b>MR-M11-K</b>	 <p>90 56 30 Mounting hole for M4 3mm adjustment on the left and right</p>

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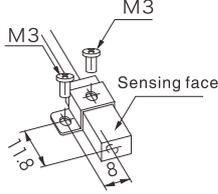
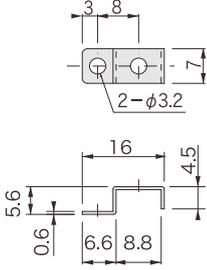
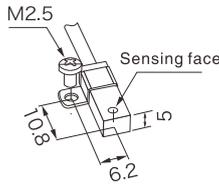
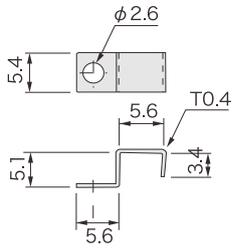
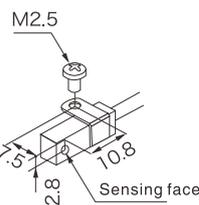
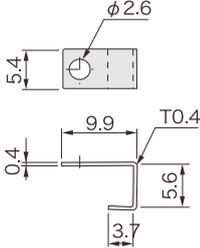
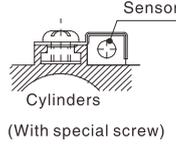
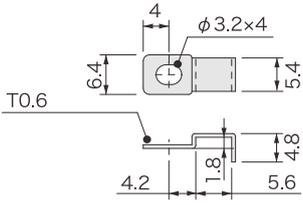
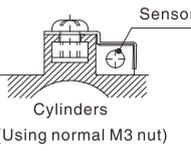
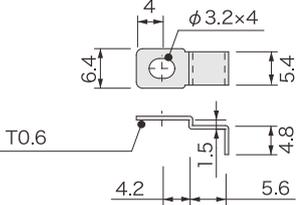
Guidance

Magnetic

- Magnetic sensors
- High precision cylinder
- Combined cylinder
- Near iron sensor
- Door sensors
- Linear sensors
- Ordinary magnets
- High precision composite magnets
- Mounting accessories

# Mounting Accessories

## Magnetic

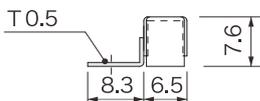
Model No.	Dimensions (Unit:mm)	Model No.	Dimensions (Unit:mm)
<b>HP2-1</b> 		<b>HP3-1</b> 	
<b>HP3-2</b> 		<b>HP3-3</b> 	
<b>HP3-4</b> 			

Fiber Optic
Slot Sensors
Photoelectric
Laser
Proximity
Displacement
<b>Magnetic</b>
Contact
Area
Ultrasonic
Vision
Code Readers
Vibration
Temperature
Accessories
Guidance
<b>Magnetic</b>
Magnetic sensors
High precision cylinder
Combined cylinder
Near iron sensor
Door sensors
Linear sensors
Ordinary magnets
High precision composite magnets
<b>Mounting accessories</b>

Appearance and mounting

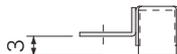
Dimensions(Unit:mm)

HP12-0



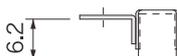
\*Mounting deviation: None

HP12-3



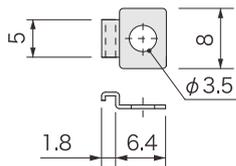
\*Mounting deviation: 3mm

HP12-6.2

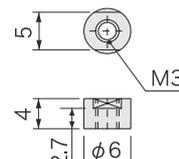


\*Mounting deviation: 6.2mm

HP12-t

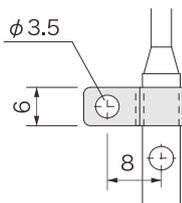


[Accessory]



[Nut]

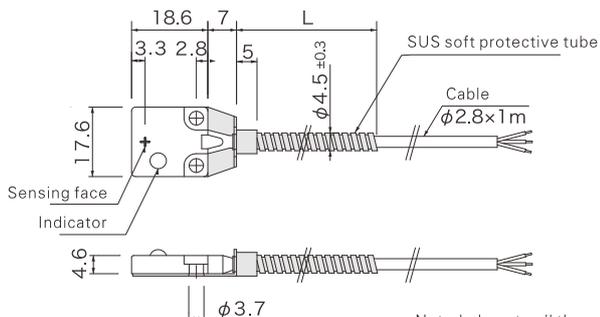
With special screw  
\*Used for Pneumatic fingers



Mounting accessories:  
-BT: cable protective tube



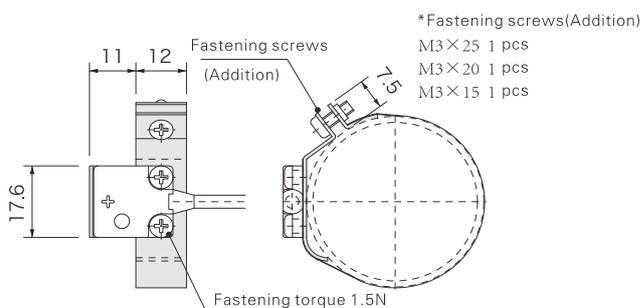
- Extremely strong, even being stomped on the ground, SUS304 soft protective tube
- Can be used in rough environments, such as dust, oil, water, and light, very robust



Noted: do not pull the cable with force more than 10N.

Mounting accessories:  
-BD: belt shaped mounting accessories

- Fastening with stainless steel belt shaped accessories.
- Even with huge vibration or shock, it will stay fixed.
- Suitable for normal tube shaped cylinders with inner diameter  $\phi 32-100$ .



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Mounting accessories