

PART 2

PROXIMITY SENSOR

KPX Series

IPX Series

IPW CONNECTOR CABLE

CPX Series

PROXIMITY SENSORS

KPX SERIES

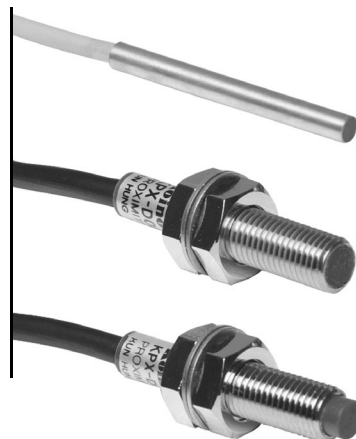
OVERVIEW

Standard sensors for detecting
metals small diameter ($\varnothing 4\text{mm}$, $\varnothing 8\text{mm}$)
IP-Rating : IP67

KPX-D04-X8 E M
(SHIELDED)

KPX-D08-01 E M
(SHIELDED)

KPX-D08-01 E M
(UNSHIELDED)



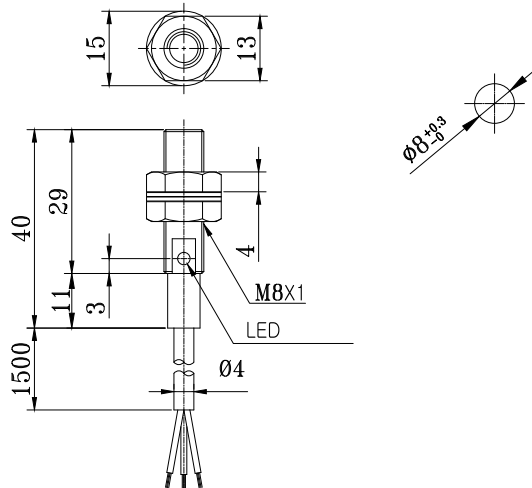
Specification

Model		KPX-D04-X8 E M	KPX-D08-01 E M	KPX-D08-02 E MN
Sensing distance		0.8mm \pm 15%	1.0mm \pm 15%	2.0mm \pm 15%
Set distance		0~0.5mm	0~0.7mm	0~1.6mm
Differential travel		Max. 15%	Max. 10%	
Detectable object		Ferrous metal		
Standard sensing object		Iron, 5X5X1mm	Iron, 8X8X1mm	
Response frequency		1KHz	1KHz	800Hz
Power supply voltage		12~24 VDC(10~30 VDC)		
Control output	Load current	80mA max.	100mA max.	
	Residual voltage	2.0V max.		
Indicator		None	Operation indicator(red LED)	
Operating mode		NPN NO	NPN NO, PNP NO	
Ambient temperature	operating	- 15 ° C~+55 ° C		
	storage	-30 ° C~+80 ° C		
Ambient humidity		35~95%RH		
Insulation resistance		Minimum 50M (500VDC)		
Dielectric strength		500VAC for 1min.	1,000VAC for 1min.	
Vibration resistance		10~55Hz double amplitude 1.5mm (at X, Y and Z axis) for 2hrs		
Shock resistance		50G		
Degree of protection		IP67		
Connection method		Pre-wired (2M wire)		
Weight		21g	46g	
Materials	Case	Stainless steel	Chrome plated brass	
	Sensing surface	PP (blue)	PP (blue)	

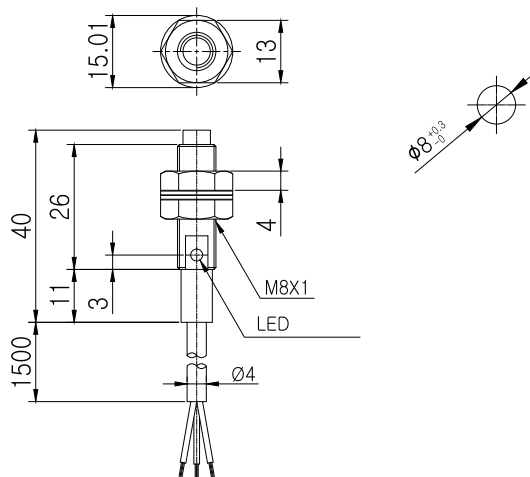
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Dimension

KPX-D08-01 E M (SHIELDED)



KPX-D08-02E MN (UNSHIELDED)



KPX-D04-X8 E M (SHIELDED)

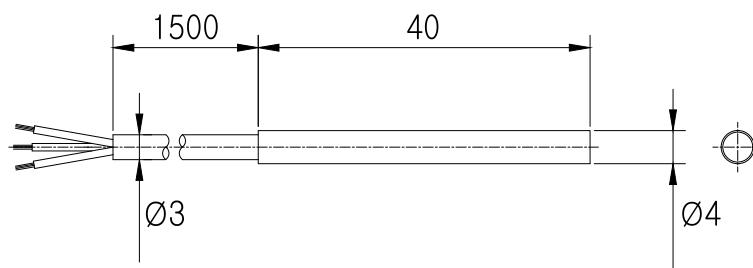


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WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER



IPX SERIES

OVERVIEW

Standard sensors for detecting metals

IP-Rating : IP67



CLASSIFICATION

IPX - D 18 - 05 E1 R N

① Type	A		AC 2 - Wire Model	
	D		DC 3 - Wire Model	
	2D		DC 2 - Wire Model	
② Shape / Size	Rectangular	12	Ø12	
		18	Ø18	
		30	Ø30	
	Cylindrical	17	17mm	
		25	25mm	
		30	30mm	
		40	40mm	
③ Sensing Distance	number		Rated sensing distance (Sn)	
④ Control output	E1		AC 3 - wire model	NPN NO
	E2			NPN NC
	E3			PNP NO
	E4			PNP NC
	A1		AC 2 - Wire Model DC 2 - Wire Model	NO
	A2			NC
⑤ Connection Method	none		Pre - wired	
	Rectangular		Connector	
	W		Wired connector	
	S		Pre - wired (rectangular model)	
⑥ Shielding	none		Shielded	
	N		Unshielded	
⑦ Polarity	F		No polarity	
	none		Polarity	



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DC 3-wire model (Shielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model	
Cylindrical	∅12	2.0mm ± 10%	0~1.6mm	600Hz	Pre-wired	NPN NO	IPX - D12 - 02E1
						NPN NC	IPX - D12 - 02E2
						PNP NO	IPX - D12 - 02E3
						PNP NC	IPX - D12 - 02E4
					Connector	NPN NO	IPX - D12 - 02E1R
						NPN NC	IPX - D12 - 02E2R
						PNP NO	IPX - D12 - 02E3R
						PNP NC	IPX - D12 - 02E4R
					Wire connector	NPN NO	IPX - D12 - 02E1W
						NPN NC	IPX - D12 - 02E2W
						PNP NO	IPX - D12 - 02E3W
						PNP NC	IPX - D12 - 02E4W
	∅18	5.0mm ± 10%	0~4.0mm	400Hz	Pre-wired	NPN NO	IPX - D18 - 05E1
						NPN NC	IPX - D18 - 05E2
						PNP NO	IPX - D18 - 05E3
						PNP NC	IPX - D18 - 05E4
					Connector	NPN NO	IPX - D18 - 05E1R
						NPN NC	IPX - D18 - 05E2R
						PNP NO	IPX - D18 - 05E3R
						PNP NC	IPX - D18 - 05E4R
					Wire connector	NPN NO	IPX - D18 - 05E1W
						NPN NC	IPX - D18 - 05E2W
						PNP NO	IPX - D18 - 05E3W
						PNP NC	IPX - D18 - 05E4W
∅30	10.0mm ± 10%	0~8.0mm	250Hz	Pre-wired	NPN NO	IPX - D30 - 10E1	
					NPN NC	IPX - D30 - 10E2	
					PNP NO	IPX - D30 - 10E3	
					PNP NC	IPX - D30 - 10E4	
				Connector	NPN NO	IPX - D30 - 10E1R	
					NPN NC	IPX - D30 - 10E2R	
					PNP NO	IPX - D30 - 10E3R	
					PNP NC	IPX - D30 - 10E4R	
				Wire connector	NPN NO	IPX - D30 - 10E1W	
					NPN NC	IPX - D30 - 10E2W	
					PNP NO	IPX - D30 - 10E3W	
					PNP NC	IPX - D30 - 10E4W	

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PROXIMITY SENSORS

DC 3-wire model (Unshielded) - Cylindrical

Appearance		Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Cylindrical	∅12	4.0mm ± 10%	0~3.2mm	400Hz	Pre-wired	NPN NO	IPX - D12 - 04E1N
						NPN NC	IPX - D12 - 04E2N
						PNP NO	IPX - D12 - 04E3N
						PNP NC	IPX - D12 - 04E4N
					Connector	NPN NO	IPX - D12 - 04E1RN
						NPN NC	IPX - D12 - 04E2RN
						PNP NO	IPX - D12 - 04E3RN
						PNP NC	IPX - D12 - 04E4RN
					Wire connector	NPN NO	IPX - D12 - 04E1WN
						NPN NC	IPX - D12 - 04E2WN
						PNP NO	IPX - D12 - 04E3WN
						PNP NC	IPX - D12 - 04E4WN
Cylindrical	∅18	8.0mm ± 10%	0~6.4mm	200Hz	Pre-wired	NPN NO	IPX - D18 - 08E1RN
						NPN NC	IPX - D18 - 08E2RN
						PNP NO	IPX - D18 - 08E3RN
						PNP NC	IPX - D18 - 08E4RN
					Connector	NPN NO	IPX - D18 - 08E1WN
						NPN NC	IPX - D18 - 08E2WN
						PNP NO	IPX - D18 - 08E3WN
						PNP NC	IPX - D18 - 08E4WN
					Wire connector	NPN NO	IPX - D18 - 08E1SN
						NPN NC	IPX - D18 - 08E2SN
						PNP NO	IPX - D18 - 08E3SN
						PNP NC	IPX - D18 - 08E4SN
Cylindrical	∅30	15.0mm ± 10%	0~12.0mm	100Hz	Pre-wired	NPN NO	IPX - D30 - 15E1N
						NPN NC	IPX - D30 - 15E2N
						PNP NO	IPX - D30 - 15E3N
						PNP NC	IPX - D30 - 15E4N
					Connector	NPN NO	IPX - D30 - 15E1RN
						NPN NC	IPX - D30 - 15E2RN
						PNP NO	IPX - D30 - 15E3RN
						PNP NC	IPX - D30 - 15E4RN
					Wire connector	NPN NO	IPX - D30 - 15E1WN
						NPN NC	IPX - D30 - 15E2WN
						PNP NO	IPX - D30 - 15E3WN
						PNP NC	IPX - D30 - 15E4WN



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DC 3- wire model (Unshielded) - Rectangular

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Rectangular	17	5.0mm ± 10%	0~4.0mm	Pre - wired	NPN NO	IPX - D12 - 02E1S
					NPN NC	IPX - D12 - 02E2S
					PNP NO	IPX - D12 - 02E3S
					PNP NC	IPX - D12 - 02E4S
	25	5.0mm ± 10%	0~4.0mm		NPN NO	IPX - D12 - 04E1S
					NPN NC	IPX - D12 - 04E2S
					PNP NO	IPX - D12 - 04E3S
					PNP NC	IPX - D12 - 04E4S
	30	10.0mm ± 10%	0~8.0mm		NPN NO	IPX - D18 - 05E1S
					NPN NC	IPX - D18 - 05E2S
					PNP NO	IPX - D18 - 05E3S
					PNP NC	IPX - D18 - 05E4S
	40	20.0mm ± 10%	0~16.0mm		NPN NO	IPX - D18 - 20E1S
					NPN NC	IPX - D18 - 20E2S
					PNP NO	IPX - D18 - 20E3S
					PNP NC	IPX - D18 - 20E4S

Specification for DC 3- wire model

Rated operating voltage		12~24VDC
Power supply voltage		10~30VDC
Detectable object		Ferrous metal
Differential travel		max. 10% of sensing distance
Control output		max. 200mA
Indicator		red LED
Protection circuit		Surge suppressor, load short - circuit protect, protection circuit of reverse power polarity
Ambient temperature	operating	- 15 ° C~+55 ° C
	storage	- 30 ° C~+80 ° C
Ambient humidity		35~95%RH
Insulation resistance		Minimum 50M (500VDC)
Dielectric strength		1,500VAC 50/60Hz for 1min.
Vibration resistance		10~55Hz double amplitude 1.5mm (at X, Y and Z axis) for 2hrs
Shock resistance		50G
Degree of protection		IP67
Materials	Case	Brass
	Sensing surface	PBT

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Dimensions for DC 3-wire model

DC 3-Wire Model	Ø12	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		

Dimensions for DC 3-wire model

DC 3-Wire Model	Ø18	
	Shielded	Unshielded
Pre-wired		
Connector	<p>AC DC</p>	<p>AC DC</p>
Wired Connector	<p>AC DC</p>	<p>AC DC</p>

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Dimensions for DC 3-wire model

DC 3-Wire Model	Ø30	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		

Dimensions for DC 3-wire model

DC 3-Wire Model
Rectangular

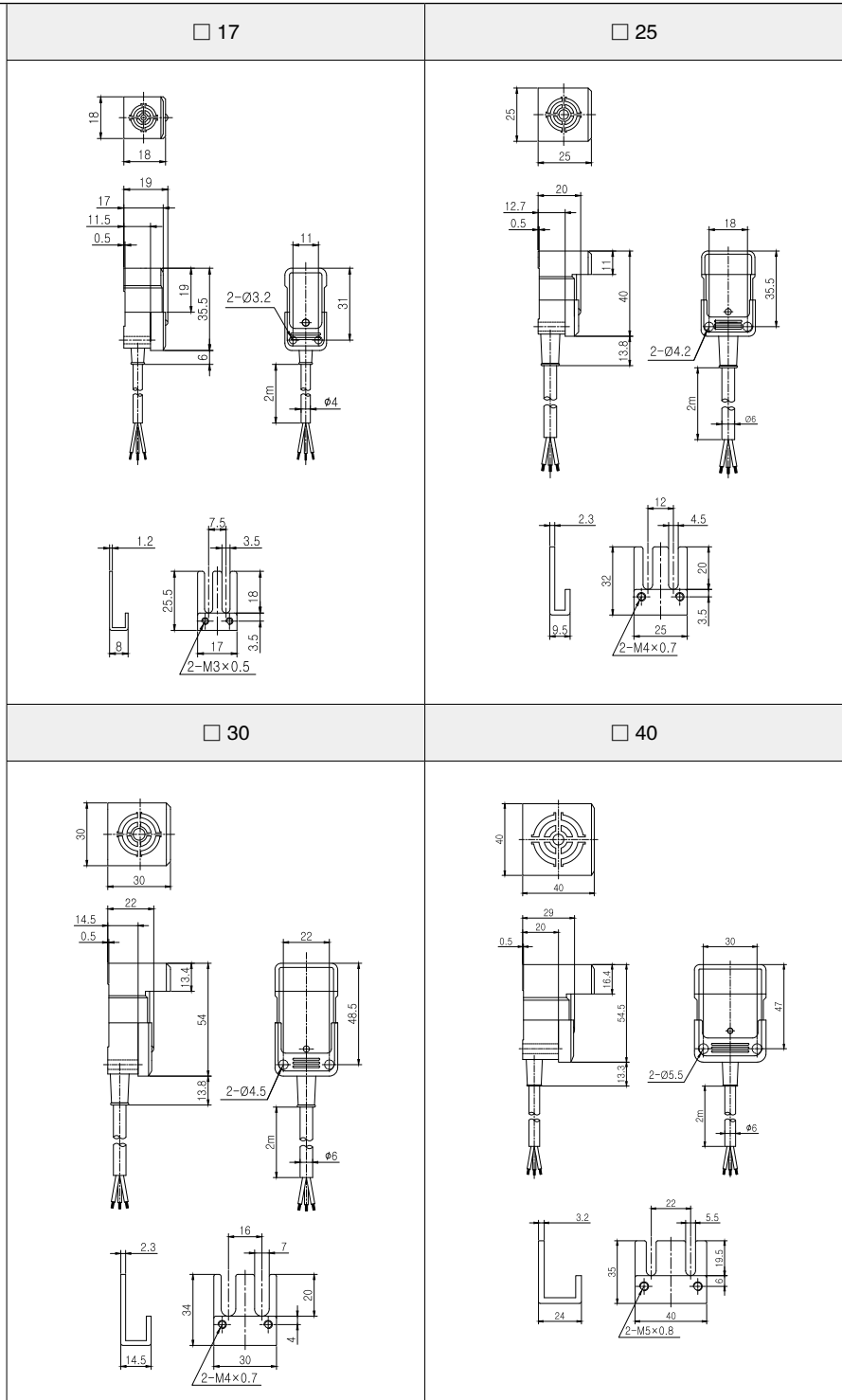


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I/O Circuit Diagram for DC 3-wire model

Control output	Timing chart	Output circuit
<p>NPN NO</p>		
<p>NPN NC</p>		
<p>PNP NO</p>		
<p>PNP NC</p>		



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DC 2-wire model (Shielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Polarity	Operation mode	Model
Cylindrical	∅12	2.0mm ± 10%	0~1.6mm	Pre-wired	Polar	NO	IPX - 2D12 - 02A1
					Polar	NC	IPX - 2D12 - 02A2
					Non polar	NO	IPX - 2D12 - 02A1F
					Non polar	NC	IPX - 2D12 - 02A2F
				Connector	Polar	NO	IPX - 2D12 - 02A1R
					Polar	NC	IPX - 2D12 - 02A2R
					Non polar	NO	IPX - 2D12 - 02A1RF
					Non polar	NC	IPX - 2D12 - 02A2RF
				Wire connector	Polar	NO	IPX - 2D12 - 02A1W
					Polar	NC	IPX - 2D12 - 02A2W
					Non polar	NO	IPX - 2D12 - 02A1WF
					Non polar	NC	IPX - 2D12 - 02A2WF
	∅18	5.0mm ± 10%	0~4.0mm	Pre-wired	Polar	NO	IPX - 2D18 - 05A1
					Polar	NC	IPX - 2D18 - 05A2
					Non polar	NO	IPX - 2D18 - 05A1F
					Non polar	NC	IPX - 2D18 - 05A2F
				Connector	Polar	NO	IPX - 2D18 - 05A1R
					Polar	NC	IPX - 2D18 - 05A2R
					Non polar	NO	IPX - 2D18 - 05A1RF
					Non polar	NC	IPX - 2D18 - 05A2RF
				Wire connector	Polar	NO	IPX - 2D18 - 05A1W
					Polar	NC	IPX - 2D18 - 05A2W
					Non polar	NO	IPX - 2D18 - 05A1WF
					Non polar	NC	IPX - 2D18 - 05A2WF
∅30	10.0mm ± 10%	0~8.0mm	Pre-wired	Polar	NO	IPX - 2D30 - 10A1	
				Polar	NC	IPX - 2D30 - 10A2	
				Non polar	NO	IPX - 2D30 - 10A1F	
				Non polar	NC	IPX - 2D30 - 10A2F	
			Connector	Polar	NO	IPX - 2D30 - 10A1R	
				Polar	NC	IPX - 2D30 - 10A2R	
				Non polar	NO	IPX - 2D30 - 10A1RF	
				Non polar	NC	IPX - 2D30 - 10A2RF	
			Wire connector	Polar	NO	IPX - 2D30 - 10A1W	
				Polar	NC	IPX - 2D30 - 10A2W	
				Non polar	NO	IPX - 2D30 - 10A1WF	
				Non polar	NC	IPX - 2D30 - 10A2WF	

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DC 2-wire model (Unshielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Polarity	Operation mode	Model		
Cylindrical	Ø12	4.0mm ± 10%	0~3.2mm	400Hz	Pre - wired	Polar	NO	IPX - 2D12 - 04A1N	
							NC	IPX - 2D12 - 04A2N	
						Non polar	NO	IPX - 2D12 - 04A1NF	
						NC	IPX - 2D12 - 04A2NF		
					Connector	Polar	NO	IPX - 2D12 - 04A1RN	
							NC	IPX - 2D12 - 04A2RN	
				Non polar		NO	IPX - 2D12 - 04A1RNF		
					NC	IPX - 2D12 - 04A2RNF			
				Wire connector	Polar	NO	IPX - 2D12 - 04A1WN		
						NC	IPX - 2D12 - 04A2WN		
						Non polar	NO	IPX - 2D12 - 04A1WNF	
						NC	IPX - 2D12 - 04A2WNF		
	Ø18	8.0mm ± 10%	0~6.4mm		200Hz	Pre - wired	Polar	NO	IPX - 2D18 - 08A1N
									NC
				Non polar				NO	IPX - 2D18 - 08A1NF
							NC	IPX - 2D18 - 08A2NF	
				Connector			Polar	NO	IPX - 2D18 - 08A1RN
								NC	IPX - 2D18 - 08A2RN
						Non polar	NO	IPX - 2D18 - 08A1RNF	
						NC	IPX - 2D18 - 08A2RNF		
				Wire connector		Polar	NO	IPX - 2D18 - 08A1WN	
							NC	IPX - 2D18 - 08A2WN	
							Non polar	NO	IPX - 2D18 - 08A1WNF
							NC	IPX - 2D18 - 08A2WNF	
Ø30	15.0mm ± 10%	0~12.0mm	100Hz		Pre - wired	Polar	NO	IPX - 2D30 - 15A1N	
								NC	IPX - 2D30 - 15A2N
				Non polar			NO	IPX - 2D30 - 15A1NF	
						NC	IPX - 2D30 - 15A2NF		
				Connector		Polar	NO	IPX - 2D30 - 15A1RN	
							NC	IPX - 2D30 - 15A2RN	
					Non polar	NO	IPX - 2D30 - 15A1RNF		
					NC	IPX - 2D30 - 15A2RNF			
				Wire connector	Polar	NO	IPX - 2D30 - 15A1WN		
						NC	IPX - 2D30 - 15A2WN		
						Non polar	NO	IPX - 2D30 - 15A1WNF	
						NC	IPX - 2D30 - 15A2WNF		

DC 2-wire model (Unshielded) - Rectangular

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Polarity	Operation mode	Model	
Rectangular	17	5.0mm ± 10%	0~4.0mm	500Hz	Pre-wired	Polar	NO	IPX-2D17-05A1S
					Pre-wired	Polar	NC	IPX-2D17-05A2S
					Pre-wired	Non polar	NO	IPX-2D17-05A1SF
					Pre-wired	Non polar	NC	IPX-2D17-05A2SF
	25	5.0mm ± 10%	0~4.0mm	350Hz	Pre-wired	Polar	NO	IPX-2D25-05A1S
					Pre-wired	Polar	NC	IPX-2D25-05A2S
					Pre-wired	Non polar	NO	IPX-2D25-05A1SF
					Pre-wired	Non polar	NC	IPX-2D25-05A2SF
	30	10.0mm ± 10%	0~8.0mm	250Hz	Pre-wired	Polar	NO	IPX-2D30-10A1S
					Pre-wired	Polar	NC	IPX-2D30-10A2S
					Pre-wired	Non polar	NO	IPX-2D30-10A1SF
					Pre-wired	Non polar	NC	IPX-2D30-10A2SF
	40	20.0mm ± 10%	0~16.0mm	100Hz	Pre-wired	Polar	NO	IPX-2D40-20A1S
					Pre-wired	Polar	NC	IPX-2D40-20A2S
					Pre-wired	Non polar	NO	IPX-2D40-20A1SF
					Pre-wired	Non polar	NC	IPX-2D40-20A2SF

Specification for DC 2-wire model

Rated operating voltage		24VDC
Power supply voltage		10~30VDC
Detectable object		Ferrous metal
Differential travel		max. 10% of sensing distance
Control output		3~100mA
Leakage current		0.7mA max.
Indicator		red LED
Protection circuit		Surge suppressor, load short-circuit protect,
Ambient temperature	operating	-25 ° C~+70 ° C
	storage	-30 ° C~+80 ° C
Ambient humidity		35~95%RH
Insulation resistance		Minimum 100M (500VDC)
Dielectric strength		1,500VAC 50/60Hz for 1min.
Vibration resistance		10~55Hz double amplitude 1.5mm (at X, Y and Z axis) for 2hrs
Shock resistance		50G
Degree of protection		IP67
Materials	Case	Brass
Materials	Sensing surface	PBT

Dimensions for DC 2-wire model

DC 2-Wire Model	Ø12	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		



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Dimensions for DC 2-wire model

DC 2-Wire Model	Ø18	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		

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Dimensions for DC 2-wire model

DC 2-Wire Model	Ø30	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		

Dimensions for DC 3-wire model

DC 3-Wire Model
Rectangular

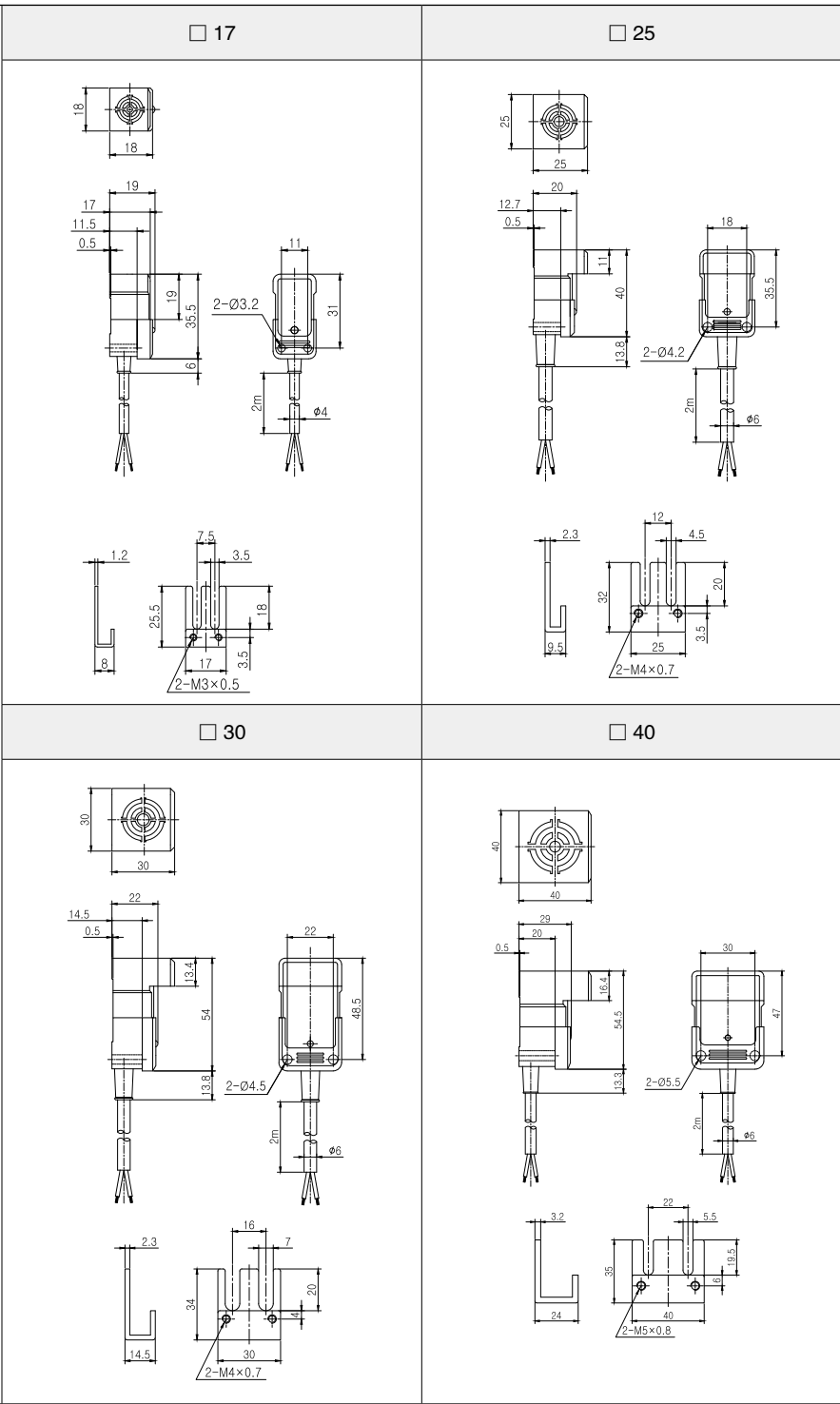


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WATER LEVEL CONTROLLER

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I/O Circuit Diagram for DC 2-wire model

Control output	Timing chart	Output circuit
NO		
NC		

AC 2-wire model (Shielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model	
Cylindrical	Ø12	2.0mm ± 10%	0~1.6mm	20Hz	Pre-wired	NO	IPX - A12 - 02A1
						NC	IPX - A12 - 02A2
					Connector	NO	IPX - A12 - 02A1R
						NC	IPX - A12 - 02A2R
					Wire connector	NO	IPX - A12 - 02A1W
						NC	IPX - A12 - 02A2W
	Ø18	5.0mm ± 10%	0~4.0mm		Pre-wired	NO	IPX - A18 - 05A1
						NC	IPX - A18 - 05A2
					Connector	NO	IPX - A18 - 05A1R
						NC	IPX - A18 - 05A2R
					Wire connector	NO	IPX - A18 - 05A1W
						NC	IPX - A18 - 05A2W
Ø30	10.0mm ± 10%	0~8.0mm	Pre-wired	NO	IPX - A30 - 10A1		
				NC	IPX - A30 - 10A2		
			Connector	NO	IPX - A30 - 10A1R		
				NC	IPX - A30 - 10A2R		
			Wire connector	NO	IPX - A30 - 10A1W		
				NC	IPX - A30 - 10A2W		

AC 2-wire model (Unshielded) - Cylindrical

Appearance		Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Cylindrical	Ø12	4.0mm ± 10%	0~3.2mm	400Hz	Pre-wired	NO	IPX - A12 - 04A1N
						NC	IPX - A12 - 04A2N
					Connector	NO	IPX - A12 - 04A1RN
						NC	IPX - A12 - 04A2RN
					Wire connector	NO	IPX - A12 - 04A1WN
						NC	IPX - A12 - 04A2WN
	Ø18	8.0mm ± 10%	0~6.4mm	200Hz	Pre-wired	NO	IPX - A18 - 05A1N
						NC	IPX - A18 - 05A2N
					Connector	NO	IPX - A18 - 05A1RN
						NC	IPX - A18 - 05A2RN
					Wire connector	NO	IPX - A18 - 05A1WN
						NC	IPX - A18 - 05A2WN
Ø30	15.0mm ± 10%	0~12.0mm	100Hz	Pre-wired	NO	IPX - A30 - 10A1N	
					NC	IPX - A30 - 10A2N	
				Connector	NO	IPX - A30 - 10A1RN	
					NC	IPX - A30 - 10A2RN	
				Wire connector	NO	IPX - A30 - 10A1WN	
					NC	IPX - A30 - 10A2WN	

AC 2-wire model (Unshielded) - Rectangular

Appearance		Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Rectangular	25	5.0mm ± 10%	0~4.0mm	20Hz	Pre-wired	NO	IPX - A25 - 05A1S
						NC	IPX - A25 - 05A2S
	30	10.0mm ± 10%	0~8.0mm			NO	IPX - A30 - 10A1S
						NC	IPX - A30 - 10A2S
	40	20.0mm ± 10%	0~16.0mm			NO	IPX - A40 - 20A1S
						NC	IPX - A40 - 20A2S

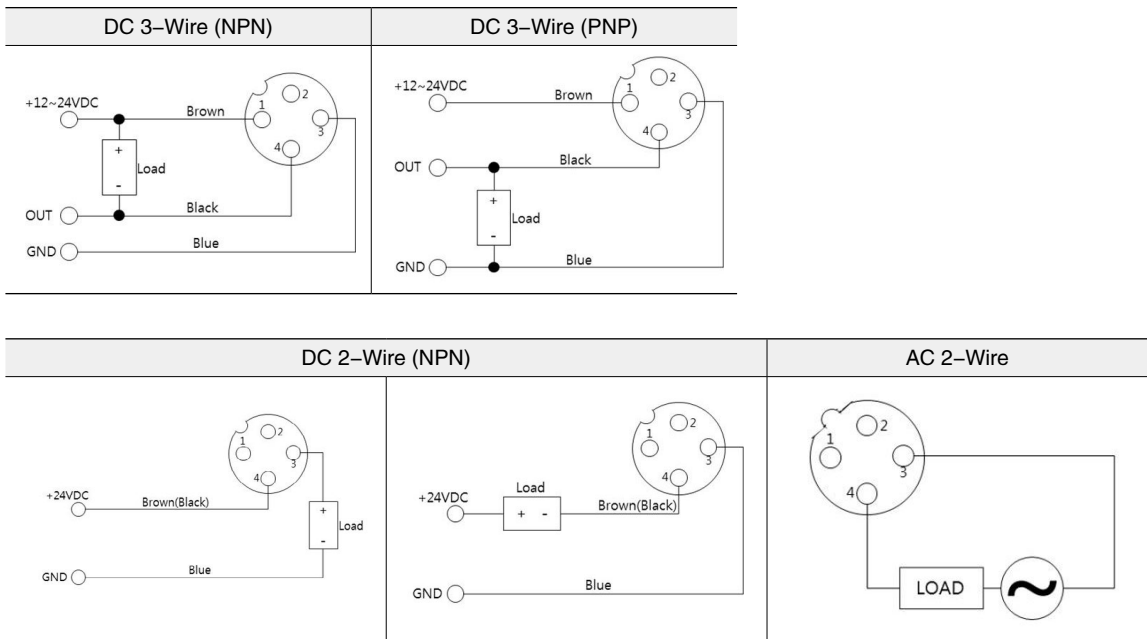


PROXIMITY SENSORS

Specification for AC 2-wire model

Rated operating voltage		110VAC
Power supply voltage		10~30VDC
Detectable object		90~250VAC(50/60Hz)
Differential travel		max. 10% of sensing distance
Control output		10~200mA
Indicator		red LED
Protection circuit		Surge suppressor
Ambient temperature	operating	- 15 ° C~+55 ° C
	storage	- 30 ° C~+80 ° C
Ambient humidity		35~95%RH
Insulation resistance		Minimum 100M (500VDC)
Dielectric strength		1,500VAC 50/60Hz for 1min.
Vibration resistance		10~55Hz double amplitude 1.5mm(at X, Y and Z axis) for 2hrs
Shock resistance		50G
Degree of protection		IP67
Materials	Case	Brass
	Sensing surface	PBT

Connector Diagram



Dimensions for AC 2-wire model

AC 2-Wire Model	Ø12	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		

PHOTO SENSOR

PROXIMITY SENSOR

WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER

Dimensions for AC 2-wire model

AC 2-Wire Model	Ø18	
	Shielded	Unshielded
Pre-wired		
Connector		
Wired Connector		



PROXIMITY SENSORS

Dimensions for DC 3-wire model

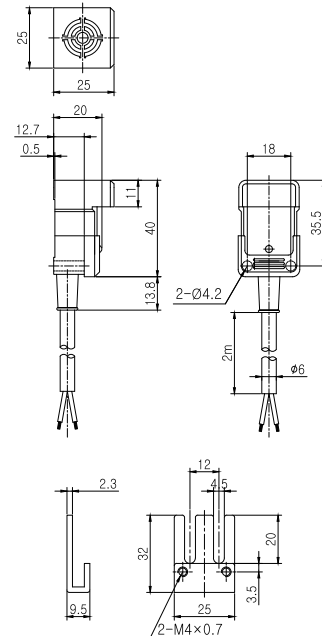
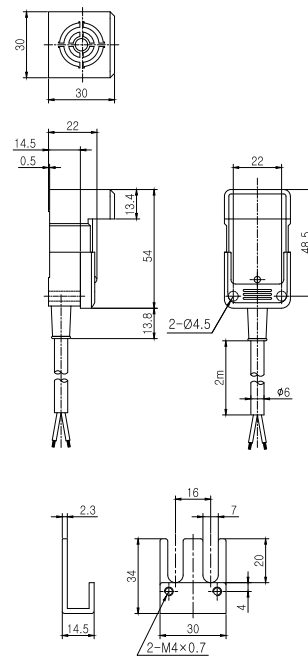
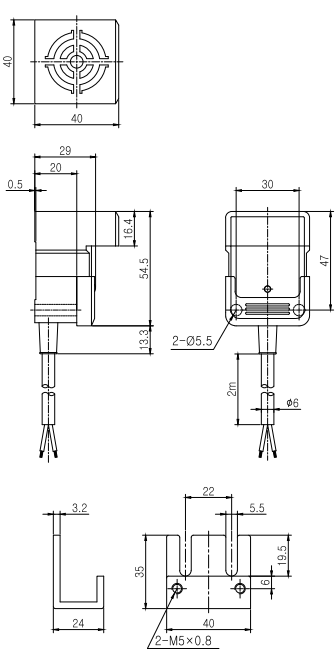
DC 3-Wire Model Rectangular	□ 17	□ 25
	None	
		

PHOTO SENSOR

PROXIMITY SENSOR

WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER



PROXIMITY SENSORS

I/O Circuit Diagram for AC 2-wire model

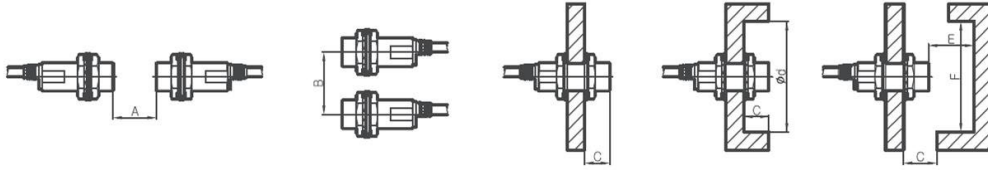
Control output	Timing chart	Output circuit
NO	<p> Sensing object: Present (ON), Not present (OFF) Control output (between brown and blue): ON, OFF Operation indicator: ON, OFF </p>	
NC	<p> Sensing object: Present (ON), Not present (OFF) Control output (between brown and blue): OFF, ON Operation indicator: OFF, ON </p>	

Influence of sensitivity with materials of detecting object

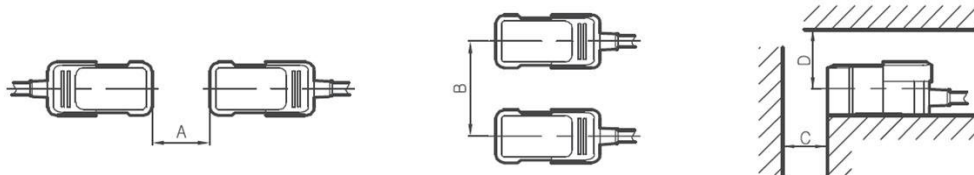
Material	Sensing distance
Iron	100%
Stainless steel	60%
Brass	40%
Aluminum	30%
Copper	28%

PROXIMITY SENSORS

Mutual interference and influence of surrounding metal



	IPX - A12 - 02 IPX - D12 - 02 IPX - 2D12 - 02	IPX - A12 - 05 IPX - D12 - 05 IPX - 2D12 - 05	IPX - A18 - 05 IPX - D18 - 05 IPX - 2D18 - 05	IPX - A18 - 08 IPX - D18 - 08 IPX - 2D18 - 08	IPX - A30 - 10 IPX - D30 - 10 IPX - 2D30 - 10	IPX - A30 - 15 IPX - D30 - 15 IPX - 2D30 - 15
A	12	30	30	48	60	90
B	24	36	36	54	60	90
C	0	11	0	14	0	18
D	12	36	18	54	30	90
E	6	15	15	24	30	45
F	18	36	27	54	45	90



	IPX - D17 - 05 IPX - 2D17 - 05	IPX - D25 - 05 IPX - A25 - 05 IPX - 2D25 - 05	IPX - D30 - 10 IPX - A30 - 10 IPX - 2D30 - 10	IPX - D40 - 20 IPX - A40 - 20 IPX - 2D40 - 20
A	30	30	60	120
B	36	50	60	80
C	15	15	30	60
D	24	25	30	45

PHOTO SENSOR

PROXIMITY SENSOR

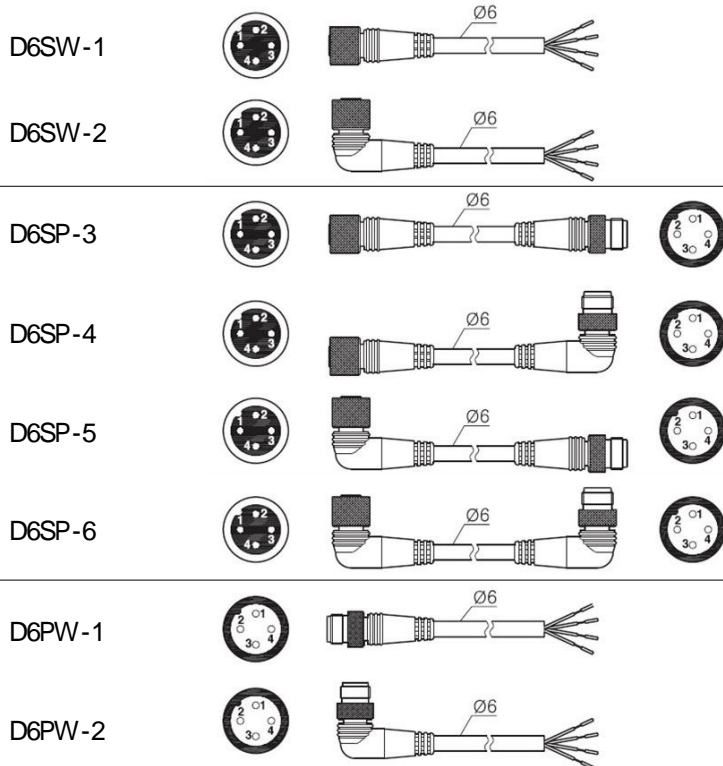
WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER

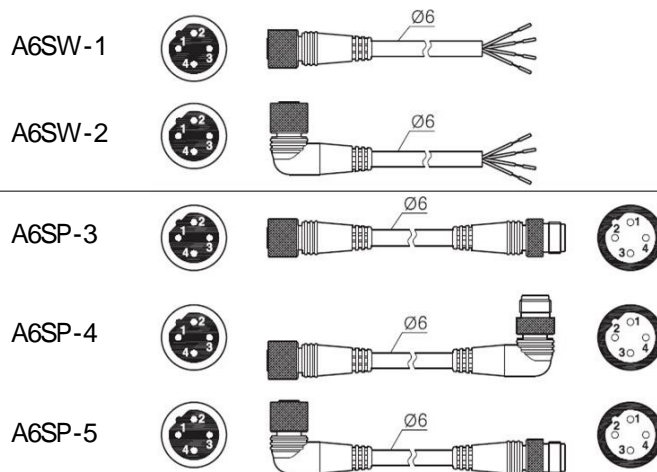
PROXIMITY SENSORS

IPW CONNECTOR CABLE

DC model

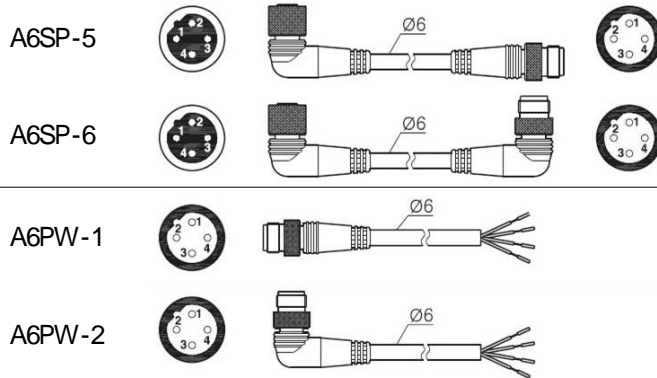


AC model

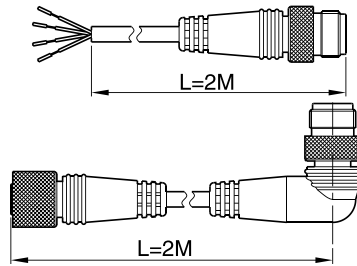


PROXIMITY SENSORS

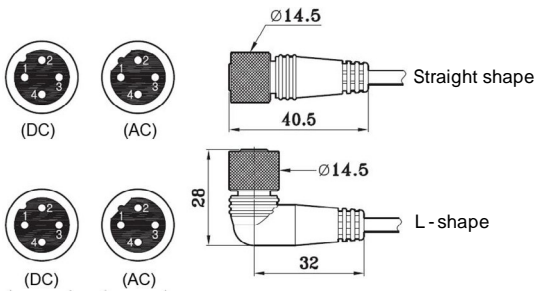
AC model



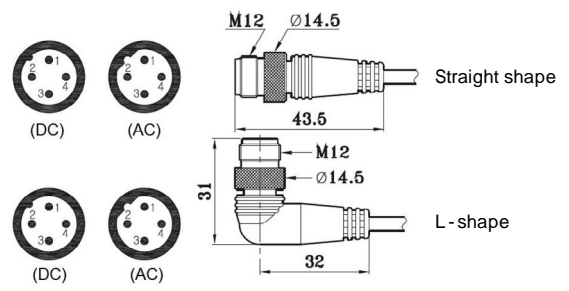
Dimensions



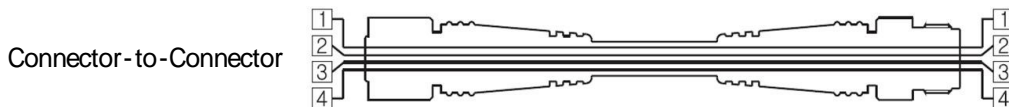
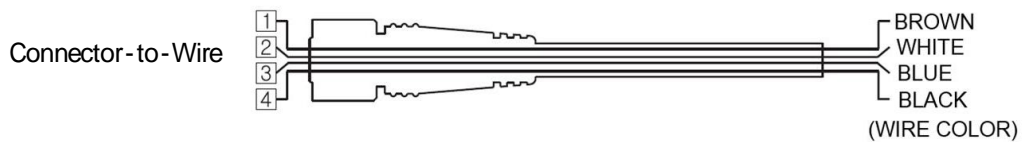
Socket



Plug



Wiring Diagram





CPX SERIES

OVERVIEW

Capacitive proximity sensors for detecting metal and nonmetal (glass, wood, water, oil, etc.)

IP-Rating : IP67



CLASSIFICATION

CPX - D 18 - 08 E1

Type	D	DC 3 - wire model
Diameter	18	Ø18mm
	30	Ø30mm
Sensing distance	08	8mm
	15	15mm
Control output	E1	NPN NO
	E2	NPN NC
Shield	N	Unshielded

How to set sensing distance

Using setting volume knob, set sensing distance

Initial setting is 70% of maximum sensing distance

Clockwise: sensing distance increases

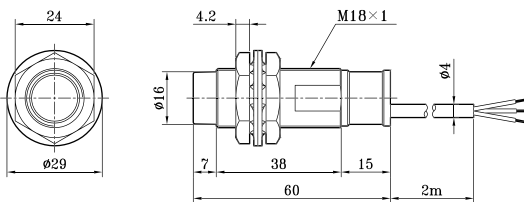
Control output	Timing chart	Wiring Diagram
NPN NO		
NPN NC		

Specification

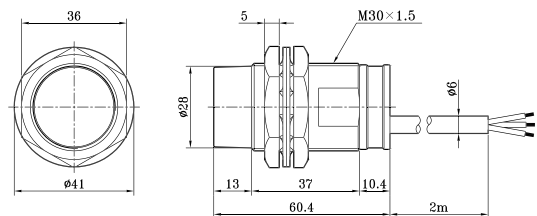
Diameter		Ø18	Ø30
Operating mode	NPN NO	CPX - D18 - 08E1N	CPX - D30 - 15E1N
	NPN NC	CPX - D18 - 08E2N	CPX - D30 - 15E2N
Sensing distance		8.0mm	15.0mm
Set distance		0~5.6mm	0~10.5mm
Differential travel		max. ± 20% of sensing distance	
Detectable object		conductor/dielectric substance	
Standard sensing object		Iron 50X50X1mm	
Response frequency		100Hz	
Rated operating voltage		12~24VDC	
Power supply voltage		10~30VDC	
Control output	Load current	max. 200mA	
Indicator		none	
Ambient temperature	operating	-25 ~+70	
	storage	-30 ~+80	
Ambient humidity		35~95%RH	
Insulation resistance		min. 50M (500VDC)	
Dielectric strength		1,500VAC(50/60Hz) for 1min	
Vibration resistance		10~55Hz double amplitude 1.5mm (at X, Y and Z axis) for 2hrs	
Shock resistance		50G	
Degree of protection		IP67	
Connection method		Pre-wired (2M)	
Materials	Case	Nylon glass	Brass
	Sensing surface	nylon glass	PBT

Dimension

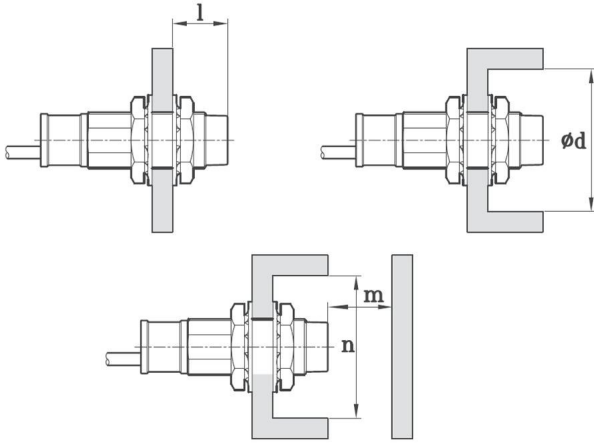
CPX - D18 - 08 E1N
CPX - D18 - 08 E2N



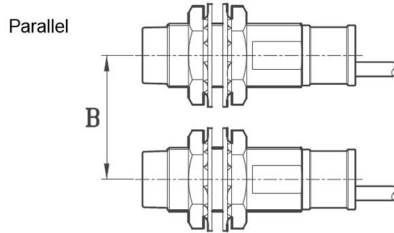
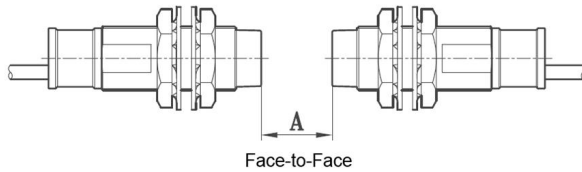
CPX - D30 - 15 E1N
CPX - D30 - 15 E2N



Influence of Surroundings and mutual interference



Item	CPX - D18	CPX - D30
l	10	20
$\varnothing d$	54	90
m	24	45
n	54	90



Item	CPX - D18	CPX - D30
A	54	90
B	48	90