

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 (Ø8) IP-Rating : IP67

KPX-D08-01 E M
(SHIELDED)

KPX-D08-01 E M
(UNSHIELDED)



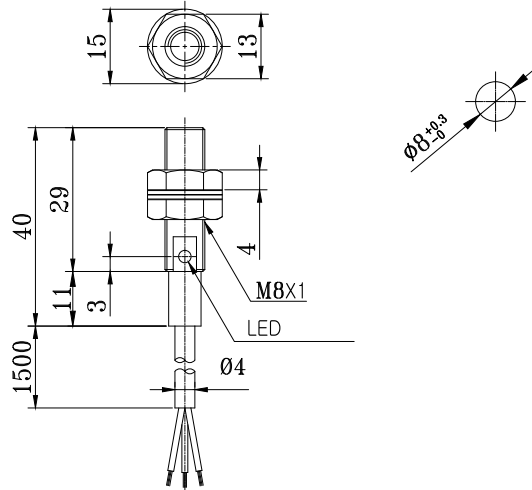
Specification

Model		KPX-D08-01 E M	KPX-D08-02 E MN
Sensing distance		1.0mm ± 15%	2.0mm ± 15%
Set distance		0~0.7mm	0~1.6mm
Differential travel		Max. 10%	
Detectable object		Ferrous metal	
Standard sensing object		Iron, 8X8X1mm	
Response frequency		1KHz	800Hz
Power supply voltage		12~24 VDC(10~30 VDC)	
Control output	Load current	100mA max.	
	Residual voltage	2.0V max.	
Indicator		Operation indicator(red LED)	
Operating mode		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		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		46g	
Materials	Case	Chrome plated brass	
	Sensing surface	PP (blue)	

PROXIMITY SENSORS

Dimension

KPX-D08-01 E M (SHIELDED)



KPX-D08-02E MN (UNSHIELDED)

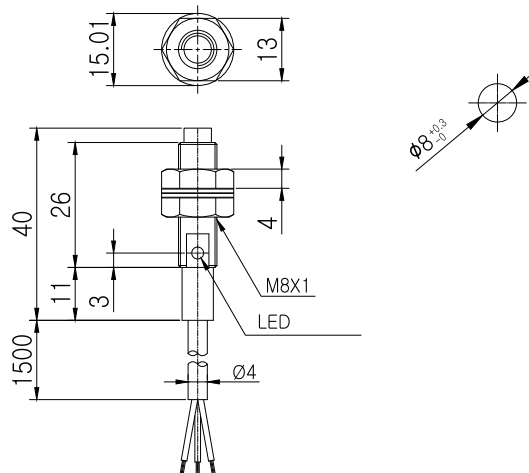


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PROXIMITY SENSOR

WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER



PROXIMITY SENSORS

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	



PROXIMITY SENSORS

DC 3-wire model (Shielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Cylindrical	Ø12	2.0mm ± 10%	0~1.6mm	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
	Ø18	5.0mm ± 10%	0~4.0mm	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
	Ø30	10.0mm ± 10%	0~8.0mm	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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PID TEMP. CONTROLLER



PROXIMITY SENSORS

DC 3-wire model (Unshielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Operation mode	Model
Cylindrical	Ø12	4.0mm ± 10%	0~3.2mm	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
	Ø18	8.0mm ± 10%	0~6.4mm	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
	Ø30	15.0mm ± 10%	0~12.0mm	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	500Hz	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	350Hz		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	250Hz		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	100Hz		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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WATER LEVEL CONTROLLER

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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		
Wired Connector		

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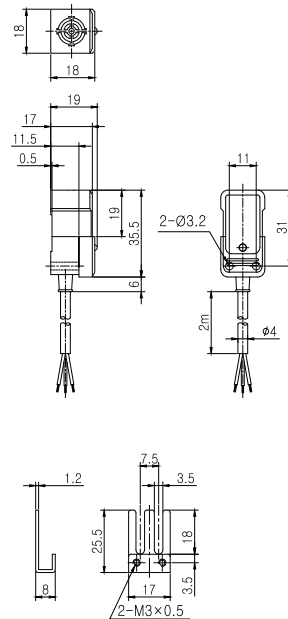
Dimensions for DC 3-wire model

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

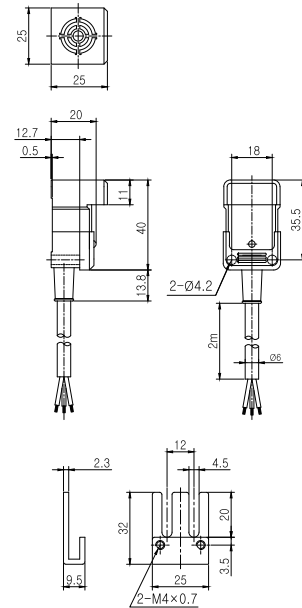
Dimensions for DC 3-wire model

DC 3-Wire Model
Rectangular

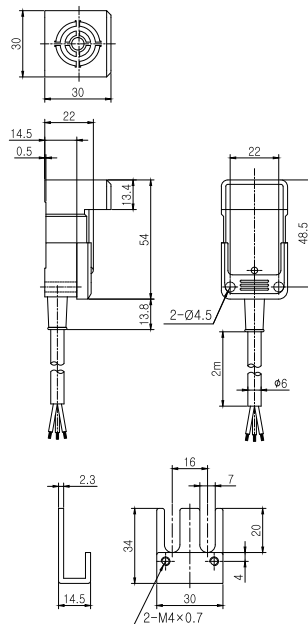
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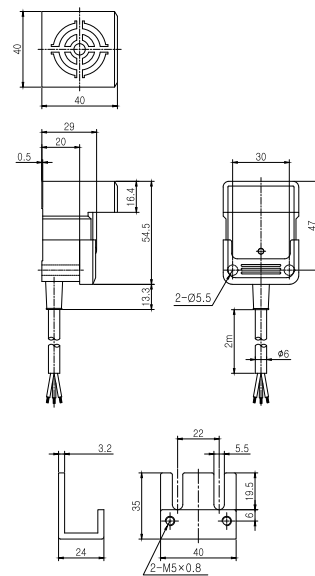


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I/O Circuit Diagram for DC 3-wire model

Control output	Timing chart	Output circuit
NPN NO		
NPN NC		
PNP NO		
PNP NC		

DC 2-wire model (Shielded) - Cylindrical

Appearance	Sensing distance	Set distance	Response frequency	Connection method	Polarity	Operation mode	Model
Cylindrical	Ø12	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
	Ø18	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
	Ø30	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	IPX - 2D18 - 08A2N
						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		

Dimensions for DC 2-wire model

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

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WATER LEVEL CONTROLLER

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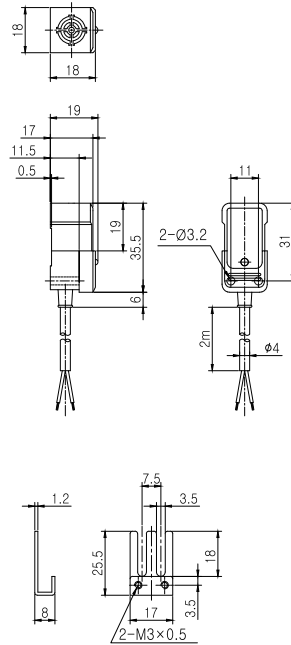
Dimensions for DC 2-wire model

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

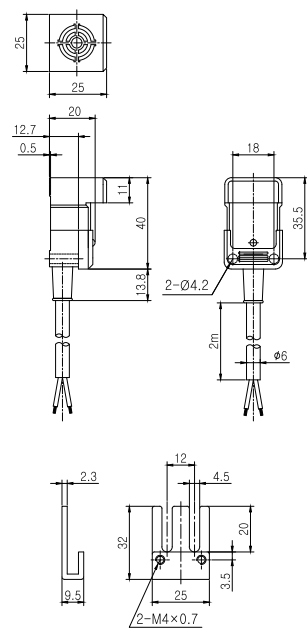
Dimensions for DC 3-wire model

DC 3-Wire Model
Rectangular

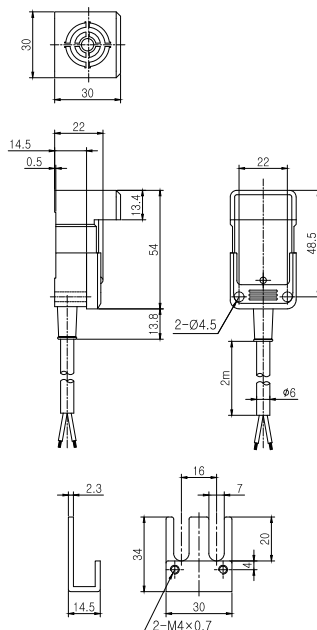
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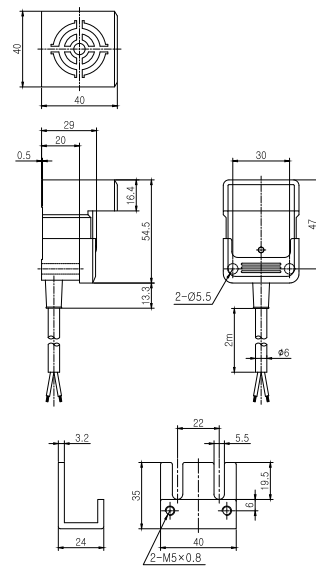


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WATER LEVEL CONTROLLER

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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	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

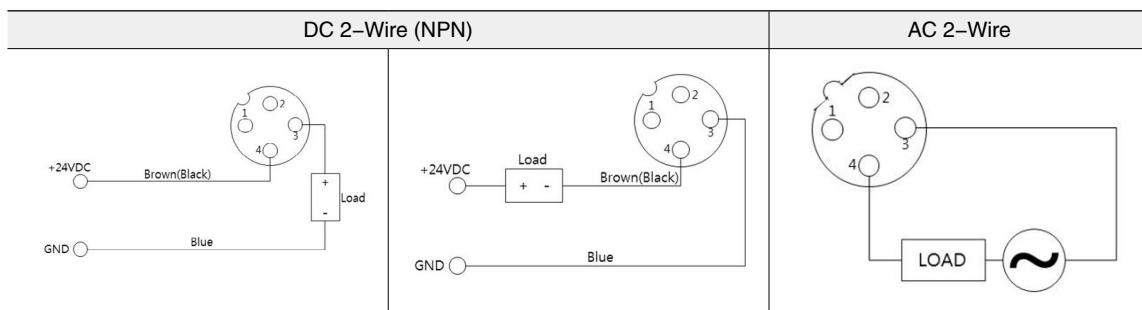
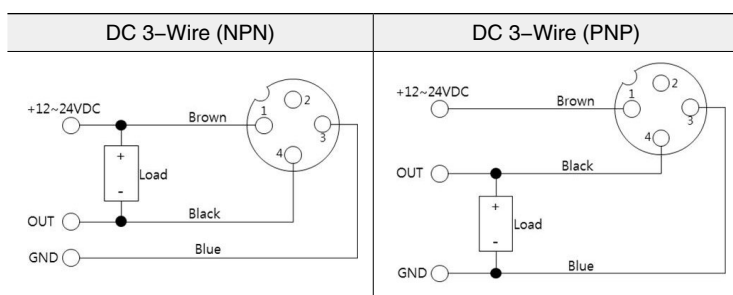
AC 2-wire model (Unshielded) - Rectangular

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

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		

Dimensions for DC 3-wire model

DC 3-Wire Model Rectangular	□ 17		□ 25	
	None			
	□ 30		□ 40	

PHOTO SENSOR

PROXIMITY SENSOR

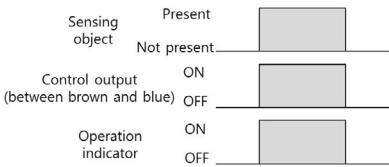
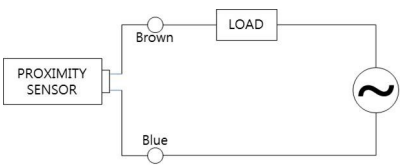
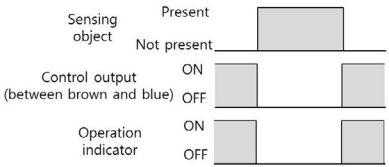
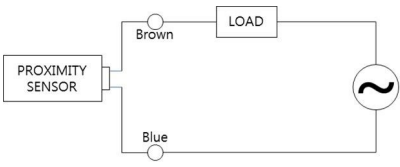
WATER LEVEL CONTROLLER

PID TEMP. CONTROLLER



PROXIMITY SENSORS

I/O Circuit Diagram for AC 2-wire model

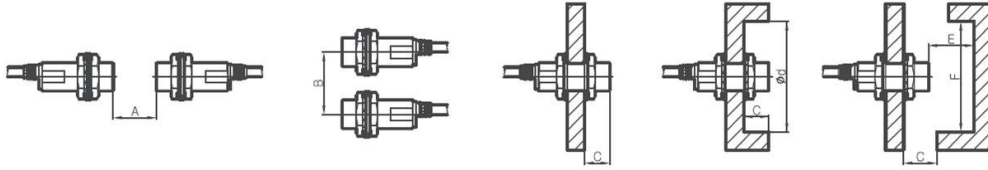
Control output	Timing chart	Output circuit
NO		
NC		

Influence of sensitivity with materials of detecting object

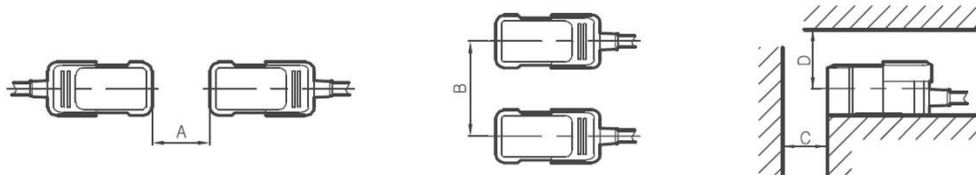
Material	Sensing distance
Iron	100%
Stainless steel	60%
Brass	40%
Aluminum	30%
Copper	28%

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


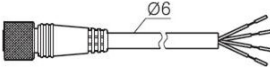

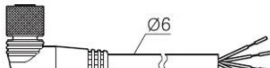

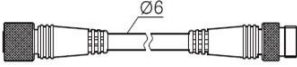


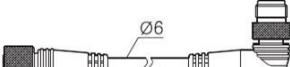


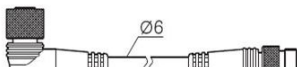

PID TEMP. CONTROLLER

IPW CONNECTOR CABLE

DC model

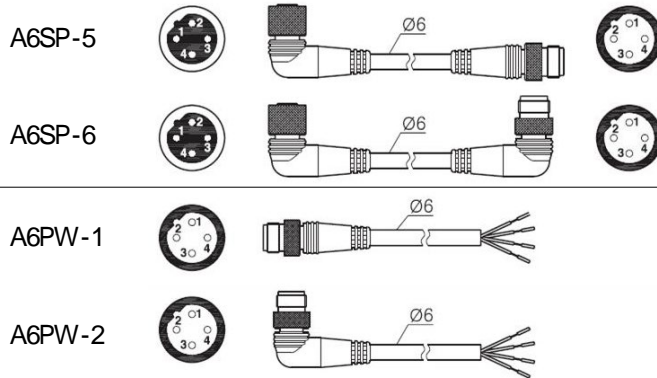
D6SW-1			
D6SW-2			
D6SP-3			
D6SP-4			
D6SP-5			
D6SP-6			
D6PW-1			
D6PW-2			

AC model

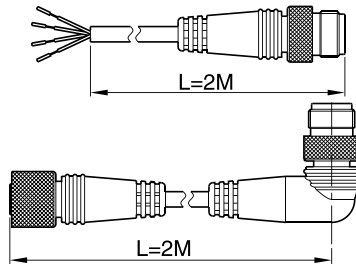
A6SW-1			
A6SW-2			
A6SP-3			
A6SP-4			
A6SP-5			

PROXIMITY SENSORS

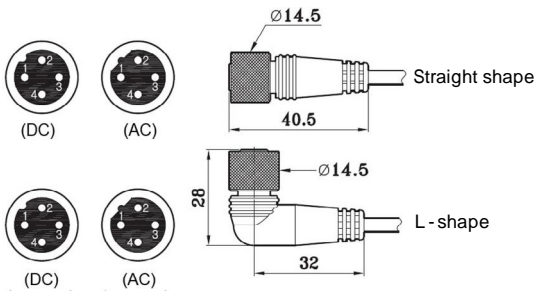
AC model



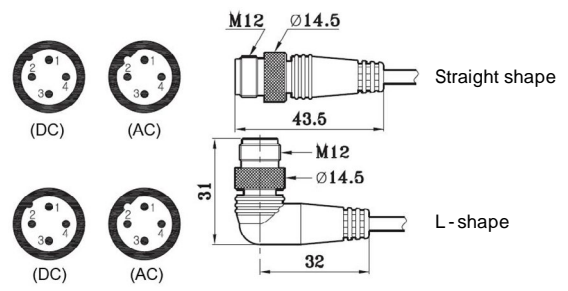
Dimensions



Socket

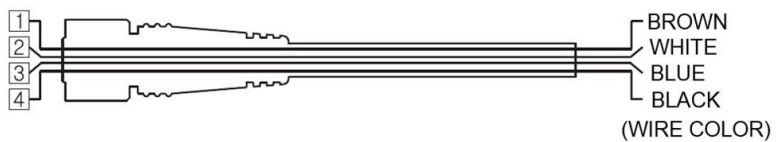


Plug



Wiring Diagram

Connector-to-Wire



Connector-to-Connector



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

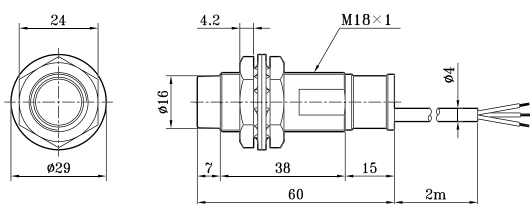
Control output	Timing chart	Wiring Diagram
NPN NO	<p>Sensing object Present (grey bar) Not present (white bar)</p> <p>Control output (between black and brown) ON (grey bar) OFF (white bar)</p> <p>Output voltage (between black and blue) HIGH (grey bar) LOW (white bar)</p> <p>Operation indicator ON (grey bar) OFF (white bar)</p>	
NPN NC	<p>Sensing object Present (grey bar) Not present (white bar)</p> <p>Control output (between black and brown) ON (white bar) OFF (grey bar)</p> <p>Output voltage (between black and blue) HIGH (white bar) LOW (grey bar)</p> <p>Operation indicator ON (white bar) OFF (grey bar)</p>	

Specification

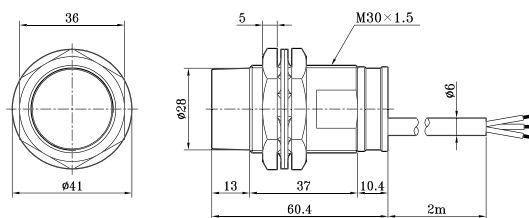
Diameter		Ø18	Ø30
Operating mode	NPN NO	CPX - D18 - 08E1N	CPX - D30 - 15E1N
	NPN NC	CPX - D18 - 08E2N	CPX - D30 - 15E2N
Sensing distance		8.0mm	15.0mm
Set distance		0~5.6mm	0~10.5mm
Differential travel		max. ± 20% of sensing distance	
Detectable object		conductor/dielectric substance	
Standard sensing 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

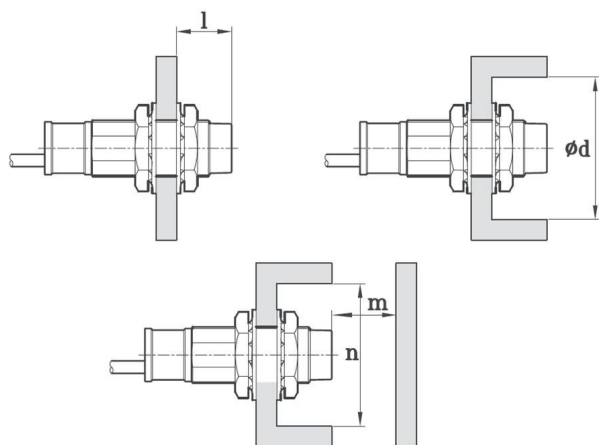
CPX - D18 - 08 E1N
CPX - D18 - 08 E2N



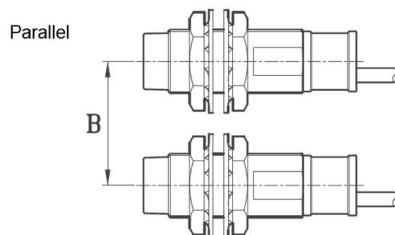
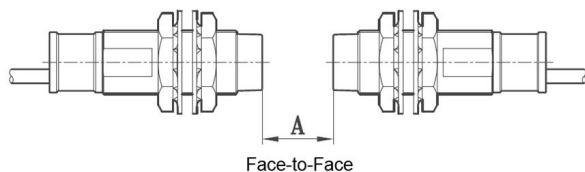
CPX - D30 - 15 E1N
CPX - D30 - 15 E2N



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