

Autonics

INDUCTIVE PROXIMITY SENSOR
CYLINDRICAL TYPE DC 3WIRE

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

※Please keep these instructions and review them before using this unit.

※Please observe the cautions that follow;

Warning Serious injury may result if instructions are not followed.

Caution Product may be damaged, or injury may result if instructions are not followed.

※The following is an explanation of the symbols used in the operation manual.

Caution: Injury or danger may occur under special conditions.

Warning

1. In case of using this unit with machinery(Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.
It may cause a fire, human injury or damage to property.

Caution

1. Do not use this unit in place where there are flammable, explosive gas, chemical or strong alkalis, acids.
It may cause a fire or explosion.
2. Do not impact on this unit.
It may result in malfunction or damage to the product.
3. Do not apply AC power and observe the rated specification.
It may result in serious damage to the product.

Ordering information

P	R	W	L	18	-	5	DN	-	V
									Cable type
									Output
									Sensing distance
									Dimension
									Body size
									Connection
									Shape
									Item
									No mark
									V
									S
									DN
									DN2
									DP
									DP2
									Number
									Number
									No mark
									S
									L
									No mark
									W
									R
									P

Control output diagram & Load operating

NPN Output		Sensing target	Normally Open		Normally Closed	
			Presence		Presence	
			Nothing		Nothing	
			Load (Brown-Black)		Operation Return	
PNP Output		Sensing target	Normally Open		Normally Closed	
			Presence		Presence	
			Nothing		Nothing	
			Load (Black-Blue)		Operation Return	
		Output voltage (Black-Blue)	H		H	
			L		L	
			ON		ON	
			OFF		OFF	

Connections

Cable outgoing type		Cable outgoing connector type	
NPN	PNP	NPN	PNP

※The above specifications are subject to change without notice.

Specifications

Model	PR08-1.5DN PR08-1.5DP PR08-1.5DN2 PR08-1.5DP2 PRL08-1.5DN PRL08-1.5DP PRL08-1.5DN2 PRL08-1.5DP2 PRW08-1.5DN PRW08-1.5DP PRW08-1.5DN2 PRW08-1.5DP2 PRWL08-1.5DN PRWL08-1.5DP PRWL08-1.5DN2 PRWL08-1.5DP2	PR08-2DN PR08-2DP PR08-2DN2 PR08-2DP2 PRL08-2DN PRL08-2DP PRL08-2DN2 PRL08-2DP2 PRW08-2DN PRW08-2DP PRW08-2DN2 PRW08-2DP2 PRWL08-2DN PRWL08-2DP PRWL08-2DN2 PRWL08-2DP2	PR12-2DN PR12-2DP PR12-2DN2 PR12-2DP2 PRS12-2DN PRS12-2DP PRS12-2DN2 PRS12-2DP2 PRW12-2DN PRW12-2DP PRW12-2DN2 PRW12-2DP2 PRL12-2DN PRL12-2DP PRL12-2DN2 PRL12-2DP2	PR12-4DN PR12-4DP PR12-4DN2 PR12-4DP2 PRS12-4DN PRS12-4DP PRS12-4DN2 PRS12-4DP2 PRW12-4DN PRW12-4DP PRW12-4DN2 PRW12-4DP2 PRL12-4DN PRL12-4DP PRL12-4DN2 PRL12-4DP2	PR18-5DN PR18-5DP PR18-5DN2 PR18-5DP2 PRL18-5DN PRL18-5DP PRL18-5DN2 PRL18-5DP2 PRW18-5DN PRW18-5DP PRW18-5DN2 PRW18-5DP2 PRWL18-5DN PRWL18-5DP PRWL18-5DN2 PRWL18-5DP2	PR18-8DN PR18-8DP PR18-8DN2 PR18-8DP2 PRL18-8DN PRL18-8DP PRL18-8DN2 PRL18-8DP2 PRW18-8DN PRW18-8DP PRW18-8DN2 PRW18-8DP2 PRWL18-8DN PRWL18-8DP PRWL18-8DN2 PRWL18-8DP2	PR30-10DN PR30-10DP PR30-10DN2 PR30-10DP2 PRL30-10DN PRL30-10DP PRL30-10DN2 PRL30-10DP2 PRW30-10DN PRW30-10DP PRW30-10DN2 PRW30-10DP2 PRWL30-10DN PRWL30-10DP PRWL30-10DN2 PRWL30-10DP2	PR30-15DN PR30-15DP PR30-15DN2 PR30-15DP2 PRL30-15DN PRL30-15DP PRL30-15DN2 PRL30-15DP2 PRW30-15DN PRW30-15DP PRW30-15DN2 PRW30-15DP2 PRWL30-15DN PRWL30-15DP PRWL30-15DN2 PRWL30-15DP2
	Sensing distance	1.5mm	2mm	2mm	4mm	5mm	8mm	10mm
Hysteresis	Max. 10% of sensing distance							
Standard sensing target	8×8×1mm(Iron)		12×12×1mm(Iron)		18×18×1mm(Iron)		25×25×1mm(Iron)	
Setting distance	0 to 1.05mm		0 to 1.4mm		0 to 2.8mm		0 to 3.5mm	
Power supply (Operating voltage)	12-24VDC (10-30VDC)							
Current consumption	Max. 10mA							
Response frequency※1	1.5kHz	1kHz	1.5kHz	500Hz	500Hz	350Hz	400Hz	200Hz
Residual voltage	Max. 2.0V		Max. 1.5V					
Affection by Temp.	Within ±10°C max. of sensing distance at 20°C in temperature range of -25 ~70°C(PR_08 Series: Max. ±20%)							
Control output	Max. 200mA							
Insulation resistance	Min. 50MΩ(at 500VDC megger)							
Dielectric strength	1,500VAC 50/60Hz for 1 minute							
Vibration	1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z directions for 2 hours							
Shock	500m/s ² (50G) X, Y, Z directions for 3 times							
Indicator	Operating indicator(Red LED)							
Environment	Ambient temperature -25 to 70°C, Storage: -30 to 80°C							
	Ambient humidity 35 to 95%RH, Storage: 35 to 95%RH							
Protection circuit	Surge protection, Reverse polarity protection, Overload & short circuit protection							
Protection	IP67(IEC Standards)							
Cable	PR, PRL		Ø3.5, 3-wire, 2m (AWG24, Core diameter: 0.08mm, Number of cores: 40, Insulator diameter: Ø1mm)		Ø4, 3-wire, 2m (AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator diameter: Ø1.25mm)		Ø5, 3-wire, 2m	
	PRW, PRWL		Ø4, 3-wire, 300mm, M12 Connector		Ø5, 3-wire, 300mm, M12 Connector			
Materials	Case/Nut: Nikel plated Brass, Washer: Nikel plated Iron, Sensing surface: PBT, Standard cable(Black): Polyvinyl chloride(PVC), Oil resistant cable(Gray): Oil resistant Polyvinyl chloride(PVC)							
Approval	CE							
Unit weight※2	PR: Approx. 64g(Approx. 52g) PRL: Approx. 66g(Approx. 54g) PRW: Approx. 44g(Approx. 32g) PRWL: Approx. 46g(Approx. 34g)		PR: Approx. 84g(Approx. 72g) PRL: Approx. 86g(Approx. 74g) PRW: Approx. 54g(Approx. 42g) PRWL: Approx. 56g(Approx. 44g)		PR: Approx. 122g(Approx. 110g) PRL: Approx. 142g(Approx. 130g) PRW: Approx. 70g(Approx. 58g) PRWL: Approx. 90g(Approx. 78g)		PR: Approx. 207g(Approx. 170g) PRL: Approx. 247g(Approx. 210g) PRW: Approx. 134g(Approx. 122g) PRWL: Approx. 195g(Approx. 158g)	

※1: The response frequency is the average value. The standard sensing target is used and the width is set as 2 times of the standard sensing target, 1/2 of the sensing distance for the distance.

※2: The weight with packaging and the weight in parentheses is only unit weight. ※Environment resistance is rated at no freezing or condensation.

Dimensions

Type	Cable outgoing type	Cable outgoing connector type	Nut & Washer
Flush	M8, M12, M18, M30	M8, M12, M18, M30	
Non-flush	M8, M12, M18, M30	M8, M12, M18, M30	

Type			A	B	C	D	E	F	G	H	J
Flush	M8	PR	M8×1	30	30	4	—	3.5	13	15	2,000
		PRL	M8×1	40	40	4	—	3.5	13	15	2,000
		PRW	M8×1	30	30	4	—	4	13	15	300
		PRWL	M8×1	40	40	4	—	4	13	15	300
	M12	PR	M12×1	46	31.5	4	—	4	17	21	2,000
		PRS	M12×1	39	24.5	4	—	4	17	21	2,000
		PRW	M12×1	46	31.5	4	—	4	17	21	300
		PRL	M12×1	74.5	60	4	—	4	17	21	2,000
	M18	PR	M18×1	47.5	29.5	4	—	5	24	29	2,000
		PRL	M18×1	80.5	62.5	4	—	5	24	29	2,000
		PRW	M18×1	47.5	29.5	4	—	5	24	29	300
		PRWL	M18×1	80.5	62.5	4	—	5	24	29	300
M30	PR	M30×1.5	58	38	5	—	5	35	42	2,000	
	PRL	M30×1.5	80	60	5	—	5	35	42	2,000	
	PRW	M30×1.5	58	38	5	—	5	35	42	300	
	PRWL	M30×1.5	80	60	5	—	5	35	42	300	
Non-flush	M8	PR	M8×1	30	30	4	4	3.5	13	15	2,000
		PRL	M8×1	40	40	4	4	3.5	13	15	2,000
		PRW	M8×1	30	30	4	4	4	13	15	300
		PRWL	M8×1	40	40	4	4	4	13	15	300
	M12	PR	M12×1	46	24.5	4	7	4	17	21	2,000
		PRS	M12×1	39	17.5	4	7	4	17	21	2,000
		PRW	M12×1	46	24.5	4	7	4	17	21	300
		PRL	M12×1	58.5	37	4	7	4	17	21	2,000
	M18	PR	M18×1	47	19	4	10	5	24	29	2,000
		PRL	M18×1	80.5	62.5	4	10	5	24	29	2,000
		PRW	M18×1	47	19	4	10	5	24	29	300
		PRWL	M18×1	80.5	62.5	4	10	5	24	29	300
	M30	PR	M30×1.5	58	28	5	10	5	35	42	2,000
		PRL	M30×1.5	80	50	5	10	5	35	42	2,000
		PRW	M30×1.5	58	28	5	10	5	35	42	300
		PRWL	M30×1.5	80	50	5	10	5	35	42	300

※J* type standard: Cable outgoing type/2,000mm, Cable outgoing connector type/