PRDAT/PRDAWT Series

Long distance inductive proximity sensor (spatter resistance type)

▣ Features

NEW

- Long sensing distance (1.5 to 2 times longer sensing distance guaranteed compared to existing models)
- Coated with the material against thermal resistance (prevention of malfunction due to spatter)
- Improved the noise resistance with dedicated IC
- Built-in surge protectioin, reverse polarity protection, overcurrent protection protection circuit
- Red LED operation indication
- Protection structure IP67 (IEC standards)
- Available as spatter-resistance limit switch

⚠ Please read "Caution for your safety" in operation manual before using.

CE

▣ The characteristic of spatter-resistance type

The hot arc from arc welding machine is adhensive even with metals or plastics.
Therefore, normal proximity sensor might have malfunction even though there are no sensing object if the arcs are put on the senisng surface. The arcs are not adhered on the sensing part of the spatter-resistance type proximity sensor as the part is coated with teflon against thermal resistance. Also, the protection cover sold optionally has the same function.

▣ Specifications

●DC 2-wire type

Model	PRDAT18-7DO PRDAT18-7DC PRDAT18-7DO-V PRDAT18-7DC-V	PRDAWT18-7DO PRDAWT18-7DC PRDAWT18-7DO-I PRDAWT18-7DC-I PRDAWT18-7DO-IV PRDAWT18-7DC-IV	PRDAT30-15DO PRDAT30-15DC PRDAT30-15DO-V PRDAT30-15DC-V	PRDAWT30-15DO PRDAWT30-15DC PRDAWT30-15DO-I PRDAWT30-15DC-I PRDAWT30-15DO-IV PRDAWT30-15DC-IV
Sensing distance	7mm		15mm	
Hysteresis	Max. 10% of sensing distance			
Standard sensing target	20×20×1mm(iron)		45×45×1mm(iron)	
Sensing distance	0 to 4.9mm		0 to 10.5mm	
Power supply (operating voltage)	12-24VDC (10-30VDC)			
Leakage current	Max. 0.6mA			
Response frequency[1]	250Hz		100Hz	
Residual voltage	Max. 3.5V			
Affection by Temp.	Max. ±10% for sensing distance at ambient temperature 20℃			
Control output	2 to 100mA			
Insulation resistance	Min. 50MΩ (at 500VDC megger)			
Dielectric strength	1,500VAC 50/60Hz for 1 min.			
Vibration	1mm amplitude at frequency of 10 to 55Hz (for 1 min.) in each of X, Y, Z directions for 2 hours			
Shock	500m/s² (50G) in each of X, Y, Z directions for 3 times			
Indicator	Operation indicator (red LED)			
Environ-ment / Ambient temperature	-25 to 70℃, storage: -30 to 80℃			
Environ-ment / Ambient humidity	35 to 95%RH			
Protection circuit	Surge protection circuit, reverse polarity protection circuit, overcurrent protection			
Protection	IP67(IEC standard)			
Material	Case, Nut, Washer: Teflon coated brass, Sensing surface: Teflon coating, Standard cable(black): Polyvinyl chloride(PVC), Oil resistant cable(gray) : Polyvinyl chloride(oil resistant PVC)			
Cable	ø5mm, 2-wire, Length: 2m(cable connector type: 300mm, M12 connector) (AWG22, Core diameter:0.08mm, Number of cores:60, Insulator out diameter:ø1.25mm)			
Approval	CE			
Unit weight	Approx. 122g	Approx. 65g	Approx. 184g	Approx. 143g

※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.
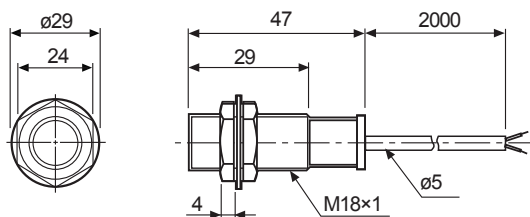※Environment resistance is rated at no freezing or condensation.
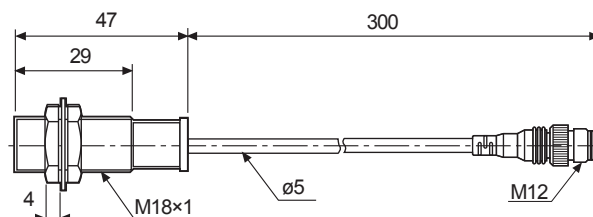
Autonics

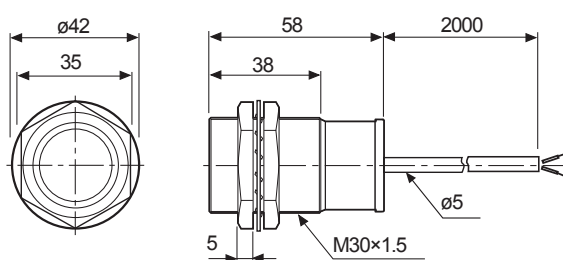# Long Distance Cylindrical Spatter-Resistance type
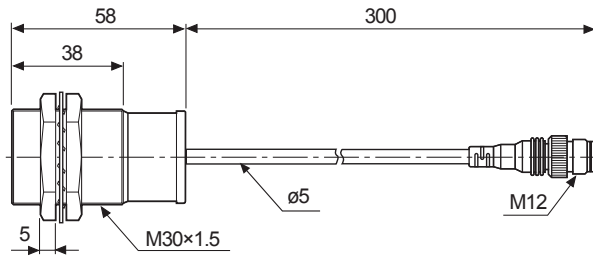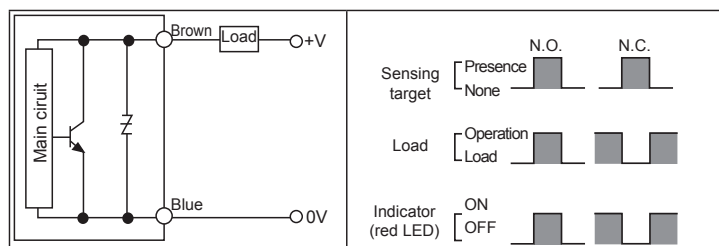
▣ Dimensions

(unit: mm)

● PRDAT18-7D☐

● PRDAWT18-7D☐

ø29
24

47
29
2000

4
M18×1
ø5

47
29
300

4
M18×1
ø5
M12

● PRDAT30-15D☐

● PRDAWT30-15D☐

ø42
35

58
38
2000

5
M30×1.5
ø5

58
38
300

5
M30×1.5
ø5
M12

▣ Output circuit

◎ DC 2-wire type

Brown | Load | +V
Main ciruit
Blue | 0V

| | N.O. | N.C. |
Sensing target | Presence / None
Load | Operation / Load
Indicator (red LED) | ON / OFF

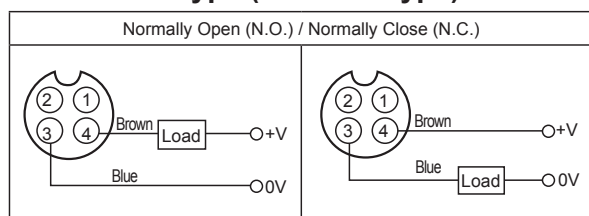## ▣ Example of connection

◎ DC 2-wire standard type

Brown
Load
+24VDC
+
-
Blue
Load
0V

※For using DC 2-wire type, connect load before supling the power and using this unit, or inner element may be damaged.
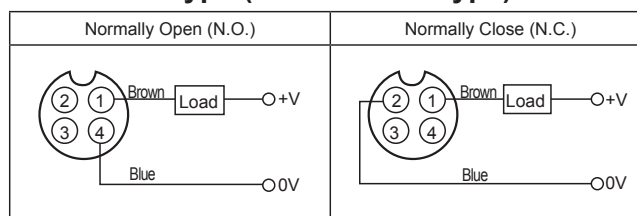※Load can be wired to any direction.

▣ Connection diagram

◎ DC 2-wire type (standard type)

| Normally Open (N.O.) / Normally Close (N.C.) |

② ① ③ ④
Brown | Load | +V
Blue | 0V

② ① ③ ④
Brown | +V
Blue | Load | 0V

※Pin ①, ② are not used terminals.
※For DC 3-wire type connector cable, it is available to use with use black wire (12-24VDC) and blue wire (0V).

◎DC 2-wire type (IEC standard type)

| Normally Open (N.O.) | Normally Close (N.C.) |

② ① ③ ④
Brown | Load | +V
Blue | 0V

② ① ③ ④
Brown | Load | +V
Blue | 0V

※The pin arrangement of connector applying IEC standard is being developed.
※Please attach "I" at the end of the name of standard type for purchasing the IEC standard product.   Ex)PRDAWT18-7DO-I
※The connector cable for IEC standard is being developed.
Please attach "I" at the end of the name of standard type.
Ex)CID2-2-I, CLD2-5-I

(A) Photo electric sensor
(B) Fiber optic sensor
(C) Door/Area sensor
(D) Proximity sensor
(E) Pressure sensor
(F) Rotary encoder
(G) Connector/ Socket
(H) Temp. controller
(I) SSR/ Power controller
(J) Counter
(K) Timer
(L) Panel meter
(M) Tacho/ Speed/ Pulse meter
(N) Display unit
(O) Sensor controller
(P) Switching power supply
(Q) Stepping motor& Driver&Controller
(R) Graphic/ Logic panel
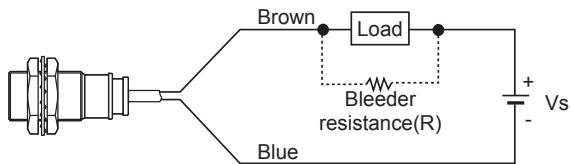(S) Field network device
(T) Software
(U) Other

▣Proper usage

◎ In case of the load current is small

● DC 2-wire

Brown
Load
Bleeder resistance(R)
Blue
Vs + -

Please make the current on proximity sensor smaller than the return current of load by connecting a bleeder resistor in parallel.

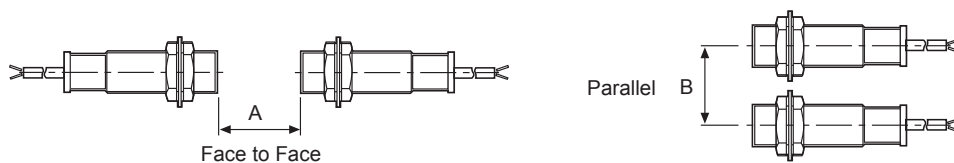※W value of Bleeder resistor should be bigger for proper heat dissipation.

It may cause return failure of load by residual voltage. If the load current is under 5mA, please make sure the residual voltage is less than the return voltage of the load by connecting a bleeder resistor in parallel with the load as shown in the diagram.

$$R = \frac{Vs}{I} (\Omega) \qquad P = \frac{Vs^2}{R} (W)$$

[I:Action current of load, R:Bleeder resistance, P:Permissible power]

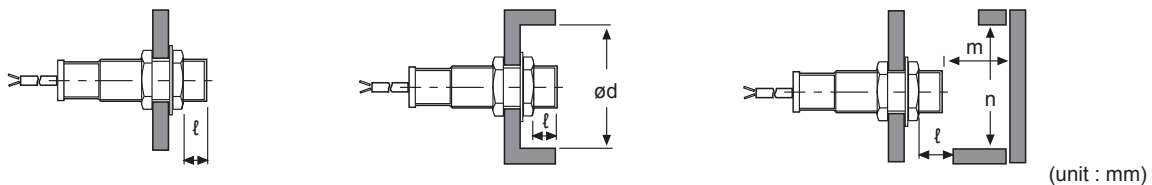$$R = \frac{Vs}{Io-Ioff} (\Omega) \qquad P = \frac{Vs^2}{R} (W)$$

Vs : Power supply,
Io : Min. action current of proximity sensor,
Ioff : Return current of load,
P : Number of Bleeder resistance watt

◎ Mutual-interference & Influence by surrounding metals

When several proximity sensors are mounted close to one another a malfunction of the may be caused due to mutual interference. Therefore, be sure to provide a minimum distance between the two sensors as below chart indicates.

A
Face to Face

Parallel B

When sensors are mounted on metallic panel, you must prevent the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart indicates.

ℓ

ℓ øized

m
n
ℓ

(unit : mm)

Item \ Model	PRDAT18-7D□ PRDAWT18-7D□	PRDAT12-15D□ PRDAWT30-15D□
A	42	90
B	36	60
ℓ	0	0
øized	18	30
m	21	45
n	27	45