

Autonics INDUCTIVE PROXIMITY SENSOR	Specifications	Power Supply Connection
(SPATTER RESISTANT TYPE) PRA SERIES	PRAT12-2::0 PRAT18-5:0 PRAT30-10_0 PRAT12-2::0 PRAT18-5:0 PRAT30-10_0 PRAT2-2:0 VPRAT18-5:0 VPRAT0-10_0 VPRA12-2DN PRAT2-2:0 VPRAT8-5:0 VPRAT0-10_0 VPRA12-2DN PRAT2-2:0 VPRAT0-10_0 VPRAT0-10_0 VPRA12-2DN PRAT2-2:0 VPRAT0-10_0 VPRAT0-10_0 VPRA12-2DN PRAT2-2:0 VPRAT0-10_0 VPRAT0-	Be sure to connect the power after connecting the load, because direct inner elements of this product.
INSTRUCTION MANUAL	Model         PRAT12_C_C / IPRAT18_C_C / IPRAT3.0:0_C / IPRAT2.2DP         PRAT2.3DF         PRA30-10DP         PRA12-2AO         PRA18-5AO         PRA30-10AO           PRAWT12_C_D (PRAWT18-C)         PRAWT30.10_C (PRAWT2.2DC)         PRAWT12-2DC (PRAWT18-C)         PRAWT30-10_C (PRAUT2.2DC)         PRA18-5AO         PRA30-10AO           PRAWT12_C_D (PRAWT18-C)         PRAWT30-10_C (PRAUT2.2DC)         PRA18-5DP2         PRA30-10DP2         PRA18-5AC         PRA30-10AC           PRAWT12_C_D (PRAWT18-C)         PRAWT30-10_C (PRAUT2.2DC)         PRA18-5DP2         PRA30-10DP2         PRA30-10AC           PRAWT12_C_D (PRAWT18-C)         PRAWT30-10_C (PRAUT3.0C)         PRAUT12-2DC)         PRAWT12-2DC)	
(F	Sensing distance         2mm         5mm         10mm         2mm         5mm         10mm         10mm           Hysteresis         Max. 10% of sensing distance         Max. 10% of sensing distance <t< th=""><th>Mutual-interference &amp; Influence b</th></t<>	Mutual-interference & Influence b
	Standard sensing         12×12×1mm         18×18×1mm         30×30×1mm         12×12×1mm         18×18×1mm         30×30×1mm	Mutual- interference When several proximity sensors are mounted closely, malfunction of
	Power supply         12-24VDC=:         100-240VAC ~ 50/60Hz           (Operating voltage)         (10-30VDC=)         (85-264VAC ~)           Current consumption         —         Max. 10mA         —	sure to provide a minimum distance between the two sensors with Face to Face
Thank you for choosing our Autonics product.	Construction         Max.         Construction           Leakage current         Max.         0.6mA         —         Max.         2.5mA           Response frequency <sup>34</sup> 1.5kHz         500Hz         400Hz         20Hz         20Hz	
Please read the following safety considerations before use.	Residual voltage**2         Max. 3.5V(Non-polarity type is Max. 5V)         Max. 1.5V         Max. 10V           Affection by Temp. Max. ±10% for sensing distance at ambient temperature 20°C         Image: Constraint of the sense of	
Safety Considerations	Control output         2 to 100mA         200mA         5 to 200mA           Insulation resistance         Over 50MΩ (at 500VDC megger)           Dielectric strength 1,500VAC 50/60Hz for 1 minute (between all terminals and case)	Influence by surrounding metals When sensors are mounted on metallic panel, it is required to protect to protect the sensor of the s
<ul> <li>※Please observe all safety considerations for safe and proper product operation to avoid hazards.</li> <li>※▲ symbol represents caution due to special circumstances in which hazards may occur.</li> </ul>	Vibration         1mm amplitude at frequency of 10 to 55Hz in each of X, Y, Z direction for 2 hours           Shock         500m/s <sup>2</sup> (approx. 50G) X, Y, Z direction for 3 times	target. Therefore, be sure to provide a minimum distance as below
Warning Failure to follow these instructions may result in serious injury or death. Caution Failure to follow these instructions may result in personal injury or product damage.	Indicator         Operation indicator (red LED)           Environ- Ambient temp25 to 70°C, Storage: -30 to 80°C	
A Warning	Protection circuit Surge protection circuit, output short over current protection circuit protection circuit, reverse polarity protection circuit Surge protection circuit	
<ol> <li>Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss. (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)</li> </ol>	Protection         IP67(IEC Standard)           Ø4mm, Cable type         Ø5mm, 2-wire, 2m           Ø5mm, 3-wire, 2m         Ø5mm, 3-wire, 2m	PRA012-200 PRA018-500
Failure to follow this instruction may result in fire, personal injury, or economic loss. 2. Do not disassemble or modify the unit.	AWG22, Core diameter: 0.08mm, Number of cores: 60, Insulator out diameter: Ø1.25mm	A         12         Ød         12         A         30         Ø           B         24         m         6         B         36         r           l         0         n         18         l         0         r
Failure to follow this instruction may result in electric shock or fire. 3. Do not connect, repair, or inspect the unit while connected to a power source. Failure to follow this instruction may result in electric shock or fire.	Connector M12 connector M12 connector AWG22, Core diameter: 0.08mm, Number of	
4. Check 'Connections' before wiring. Failure to follow this instruction may result in fire.	Image: Cores: 60, Insulator out diameter: 21.25mm           Meterials         Case/Nut: PTFE coated Brass, Washer: PTFE coated iron, sensing surface: PTFE, standard cable(Black): Polyvinyl chloride(PVC), oil resistant cable (gray): oil resistant polyvinyl chloride (PVC)	
▲ Caution 1. Use the unit within the rated specifications.	Insulation type Double insulation or reinforced insulation (Mark: D. Dielectric strength between the measuring input part and the power part 1.5kVAC)	direction ↓ ↔
Failure to follow this instruction may result in fire or product damage. 2. Use dry cloth to clean the unit, and do not use water or organic solvent.	Approval CC PRAT. Approx.84g [PRAT. Approx.122g [PRAT. Approx.207g ] (approx.723) (approx.1210) (approx.1210) (approx.1210) (approx.207g ]	dire
Failure to follow this instruction may result in electric shock or fire. 3. Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.	Weight**4         (approx. 72g)         (approx. 110g)         (approx. 170g)         Approx. 170g)         Approx. 170g)         Approx. 170g)         Approx. 207g         Approx. 78g         Approx. 118g         Approx. 207g           Weight**4         (approx. 72g)         (approx. 72g)         (approx. 170g)         (approx. 170g	Sa:Sening of Sa:Setting of (70% of
Failure to follow this instruction may result in fire or explosion. <b>4. Do not supply power without load.</b>	<ul> <li>X1: 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.</li> <li>X2: Before using non-polarity type, check the condition of connected device because residual voltage is 5/.</li> <li>X2: Deve using non-polarity type, check the condition of connected device because residual voltage is 5/.</li> </ul>	• Sensing distance can be changed by the shape, size or material of the shape is the shape
Failure to follow this instruction may result in fire or product damage.         Image: Ordering Information	<ul> <li>X3: Do not pull the Ø4mm cable with a tensile strength of 30N or over and the Ø5mm cable with a tensile strength of 50N or over.</li> <li>It may result in fire due to the broken wire. When extending wire, use AWG22 cable or over within 200m.</li> <li>X4: The weight with packaging and the weight in parenthesis is only unit weight.</li> </ul>	Setting distance (san be changed by the shape, size of methan of a Therefore please check the sensing distance like (a), then pass the t     Setting distance(Sa) = Sensing distance(Sn) × 70%
P R A W T 18 - 5 DO - I Standard/ Coble metarial	Control Output Diagram & Load Operation	E.g.)PRA30-10DN Setting distance(Sa) = 10mm × 0.7 = 7mm
V     Oil resistant cable       DO     DC 2-wire Normally Open(N.O.)	Normally Open         Normally Closed           Brown         Brown         Sensing target         Presence Nothing	Installation and Tightening Torqu
DC DC 2-wire Normally Closed(N.C.) DN NPN Normally Open(N.O.) NPN Normally Open(N.O.)	Load Operation Operation Return	When tightening the nut, use the provided washer as [Figure 1] When installing the product, the tightening torque of the nut varies
Output type         DN2         NPN Normally Closed(N.C.)           DP         PNP Normally Open(N.O.)           DP2         PNP Normally Closed(N.C.)	Blue     Operation indicator     ON     ON       Operation indicator     OFF     OFF	according to the distance from the fore-end. The front part of the product is from the fore-end to the dimension on the below table, and the area part is from the lin of the put to the and
AO AC Normally Open(N.O.) AC AC Normally Closed(N.C.)	Brown O +V Sensing Presence Rresence	the below table, and the rear part is from the tip of the nut to the end of the product. [Figure 2] In case the nut is placed in the front part of the product, apply
XO         DC 2-wire Non-polarity type Normally Open(N.O.)           XC         DC 2-wire Non-polarity type Normally Closed (N.C.)           Sensing distance         Image: Closed Closed (N.C.)	target Nothing Nothing	tightening torque for front part. [Table 1] the allowable tightening torque table is for inserting the washer as [Figure 3].
Number         Standard sensing distance (unit: mm)           Dimension         Number           Dimeter of head (unit: mm)		[Figure 1] [Figure 2] Nut tip Fore-end
Cable form         No mark         DC 3-wire           T         DC 2-wire	Blue     OV     Blue     OV       Operation indicator (Red LED)     ON     ON       OFF     OFF     OFF	
Cable type No mark Cable type		
W     Cable connector ype       Feature     A       Shape     P	target Nothing Nothing Nothing	Front Rear
Item         P         Inductive proximity sensor	Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2     Image: Section 2       Image: Section 2     Image: Section 2 </th <th>Caution during Use     I. Follow instructions in 'Cautions during Use'. Otherwise, it may cause un</th>	Caution during Use     I. Follow instructions in 'Cautions during Use'. Otherwise, it may cause un
Dimensions	(Black-Blue) L L L Operation indicator ON OF OF OF	2. 12-24VDC power supply should be insulated and limited voltage/currer 3. Use the product, after 0.8 sec of supplying power.
Cable type         Cable connector type           Type         Nut. Washer	Normally Open         Normally Closed           Sensing         Presence	4. Wire as short as possible and keep away from high voltage lines or poy Do not use near the equipment which generates strong magnetic force In case installing the product near the equipment which generates stron
PRA/PRAT(M12, M18, M30)         PRAWT(M12, M18, M30)         PRAWT(M12, M18, M30)	Sensing Presence Presence Nothing	remove surge. 5. If the surface of the product is rubbed with a hard object, PTFE coating
	eight     time     Freesence     Presence       Solution     Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution       Solution     Solution     Solution	<ul> <li>6. This unit may be used in the following environments.</li> <li>O Indoors (in the environment condition rated in 'Specifications')</li> <li>Altitude max. 2.000m</li> </ul>
	(Red LED) OFF OFF	O Antidue max. 2,00m     Pollution degree 2     O Installation category II
D A Operation indicator M12×1	Connections  Connector connection for connector connector connector connection for connector connector connector connect	Major Products
Type         A         B         C         D         F         G         H         J           M12         PRAT         M12×1         43         32         4         4         17         21         2,000		Photoelectric Sensors     Fiber Optic Sensors     Temperature/Humidity Transducers
PRAWT         300           PRA         2,000	C 2-wire type> Brown Load O+V       Image: Control of the second sec	Door Sensors     Door Side Sensors     Area Sensors     Timers
M18         PRAT PRAWT         M18×1         47.5         29.5         4         5         24         29         2.000 300           PRA         Image: Constraint of the second s	Blue OV (a)N.O.(Normally Open)Type	Proximity Sensors     Pressure Sensors     Rotary Encoders     Others
M30 PRAT M30×1.5 58.5 38.5 5 5 35 42 2,000 PRAWT 300	CAC 2-wire type> Brown [bod] O +V	Connector/Sockets Sensor Controllers Switching Mode Power Supplies Control Switches/Lamps/Buzzers
AC type         M12         PRA         M12×1         60         49         4         4         17         21         2,000           M18         PRA         M18×1         53.8         35.8         4         5         24         29         2,000           M30         PRA         M30×1.5         58.5         38.5         5         5         35         42         2,000		Control Gwitherstangestutzers     I/O Terminal Blocks & Cables     Stepper Motors/Drivers/Motion Controllers     Graphic/Logic Panels
The above specifications are subject to change and some models may be discontinued without notice. Se sure to follow cautions written in the instruction manual and the technical descriptions (catalog, homepage).	Blue     50/60Hz     (b)N.C.(Normally Closed)Type       X①,② are not used terminals.     X②,③ of N.O. type and ③,④ of N.C. type are not used terminals.	■ Field Network Devices ■ Laser Marking System (Fiber, Co₂, Nd:yag)
where sure to rollow cautions written in the instruction manual and the technical descriptions (catalog, homepage).		Laser Welding/Cutting System

### nnection



## ightening Torque

#### [Table 1]

Strength Front Size Torque h 13mm Flush 7mm 6.37N·m Rear Model Torque 
 Model
 Size
 Iorque

 PRA12
 Flush
 13mm
 6.37Nm

 Series
 Non-Flush
 7mm
 6.37Nm

 PRA18
 Flush
 14.7Nm

 Series
 Non-Flush
 26mm
 49Nm

 Series
 Non-Flush
 12mm
 49Nm
 11.76N·m 14.7N·m 14.7N·m 78.4N·m



#### se

- Use'. Otherwise, it may cause unexpected accidents.
- ulated and limited voltage/current or Class 2, SELV power supply device.
- ying power.
- yay from high voltage lines or power lines, to prevent surge and inductive noise. generates strong magnetic force or high frequency noise (transceiver, etc.). equipment which generates strong surge (motor, welding machine, etc.), use diode or varistor to
- with a hard object, PTFE coating can be worn out.
- environments. n rated in 'Specifications')
- perature Controllers perature/Humidity Transducers s/Power Controllers nters el Meters ometers/Pulse (Rate) Meters lay Units or Controllers

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