

CAPACITIVE TYPE PROXIMITY SENSOR  
(CYLINDRICAL AC, DC TYPE)

CR SERIES

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.

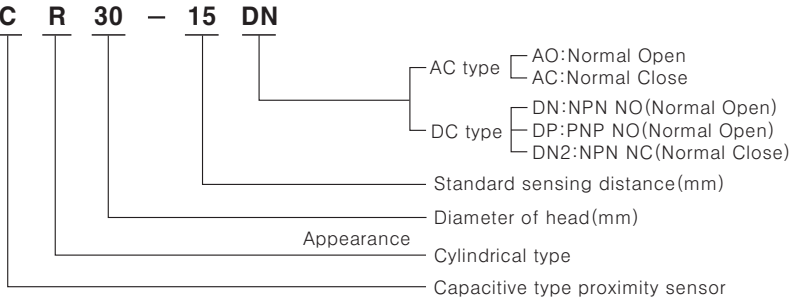
Warning

- In case of using this unit with machineries(Nuclear power control, medical equipment, vehicle, train, airplane, combustion apparatus, entertainment or safety device etc), it requires installing fail-safe device, or contact us for information on type required. It may result in serious damage, fire or human injury.

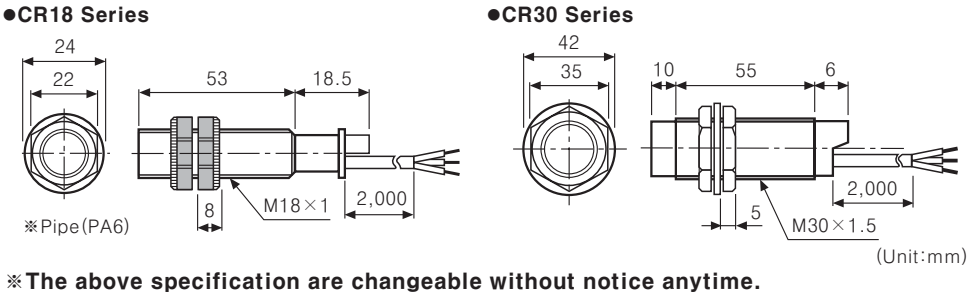
Caution

- Do not use this unit in place where there is flammable, explosive gas, chemical or strong alkalis, acids. It may cause a fire or explosion.
- Do not impact on this unit. It may result in malfunction or damage to the product.
- Please observe specification rating. (Do not apply AC power on DC type proximity sensor) It may result in serious damage to the product.

Ordering information



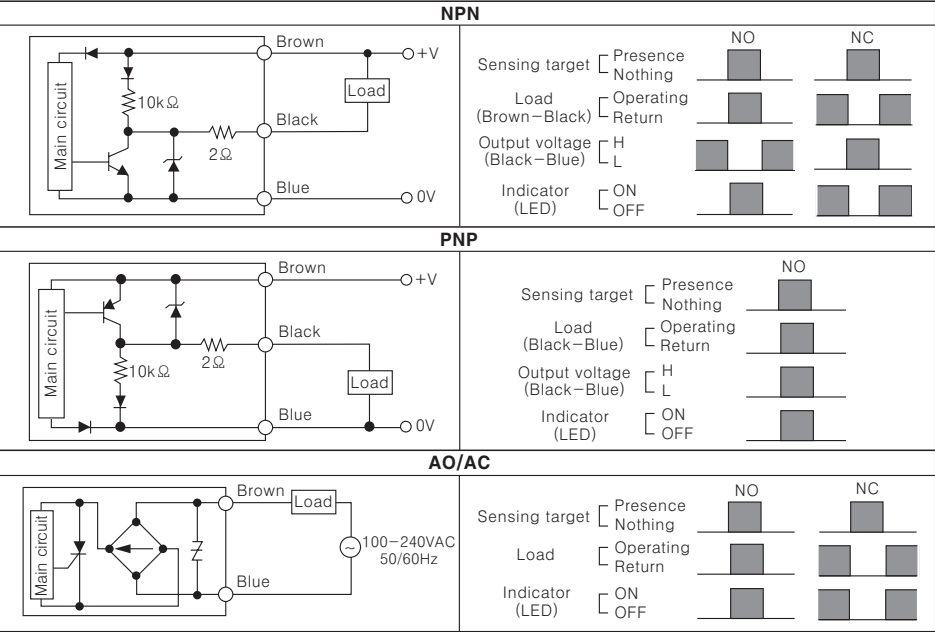
Dimensions



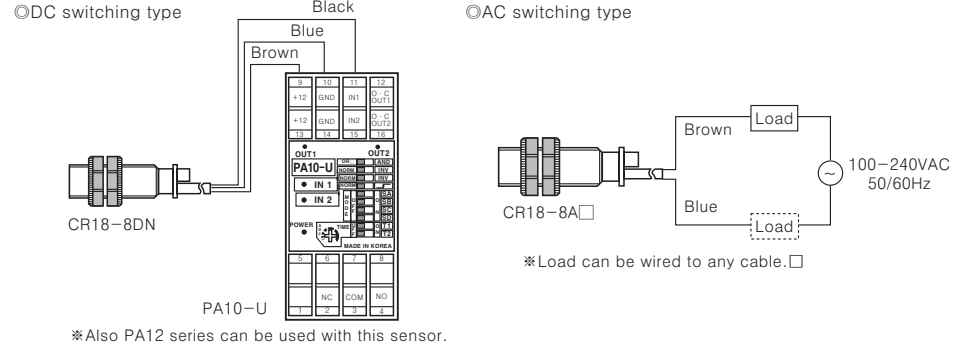
Specifications

Model□	CR18-8DN CR18-8DP CR18-8DN2	CR30-15DN CR30-15DP CR30-15DN2	CR18-8AO CR18-8AC	CR30-15AO CR30-15AC
Sensing distance	8mm ±10%	15mm ±10%	8mm ±10%	15mm ±10%
Hysteresis	Max. 20% of sensing distance			
Standard sensing target	50×50×1mm(Iron)			
Setting distance	0 to 5.6	0 to 10.5	0 to 5.6	0 to 10.5
Power supply (Voltage range)	12-24V DC (10-30VDC)		100-240VAC 50/60Hz (85-264VAC)	
Current consumption (Leakage current)	Max. 15mA		Max. 2.2mA	
Response frequency	50Hz		20Hz	
Residual voltage	Max. 1.5V		Max. 20V	
Affection by Temp.	±10% Max. of sensing distance at +20°C within temperature range of -25 to +70°C			
Control output	200mA			
Insulation resistance	Min. 50MΩ (500VDC)			
Dielectric strength	1500VAC 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/s² (50G) X, Y, Z directions for 3 times			
Indicator□	Operation indicator:Red LED			
Ambient temperature	-25 to +70°C (non-freezing condition)□			
Storage temperature	-30 to +80°C (non-freezing condition)			
Ambient humidity	35 to 95%RH			
Protection circuit	Reverse polarity protection, Surge protection		Surge protection circuit	
Protection□	IP66(IEC standard)	IP65(IEC standard)	IP66(IEC standard)	IP65(IEC standard)
Unit weight	Approx. 72g	Approx. 212g	Approx. 63g	Approx. 220g

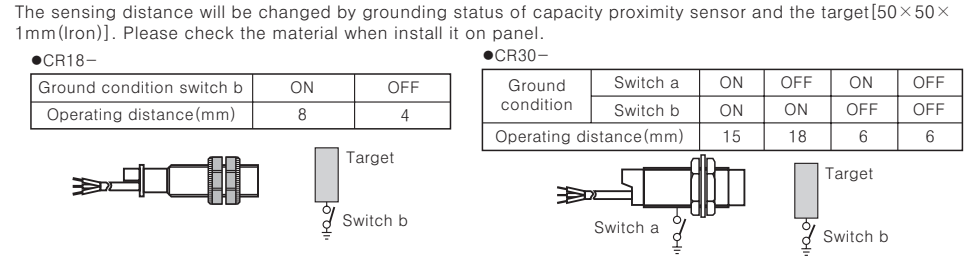
Control output diagram & Load operating



Connections



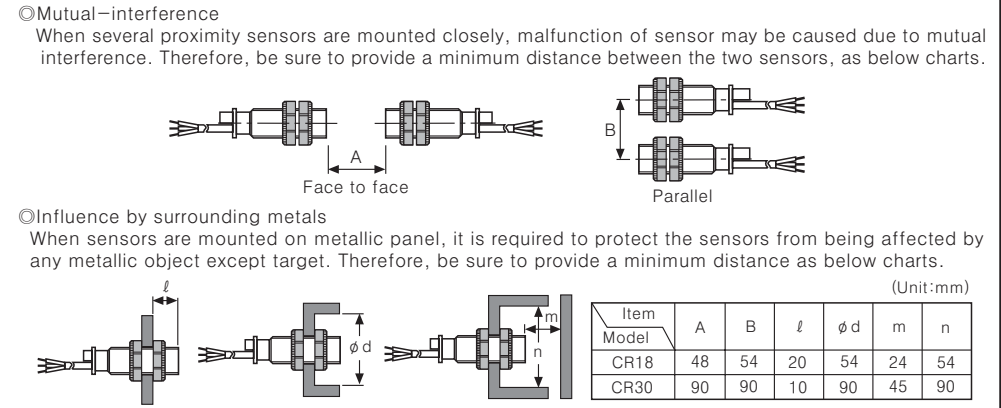
Grounding



Sensitivity adjustment

- Please turn potentiometer and sequence below procedure.
  - Turning potentiometer VR on right after remove the target then stop it until proximity sensor is ON.
  - Approaching the target to this unit and turning potentiometer on left slowly, then stop it until proximity sensor is OFF.
  - If you set potentiometer in the middle between 1 and 2, sensitivity setting will be completed.
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Mutual-interference & Influence by surrounding metals



Caution for using

- This equipment shall not be used outdoors or beyond specified temperature range.
  - Do not load over than tensile strength of cord. (φ4:30N max., φ5:50N max.)
  - Do not use the same conduit with cord of this unit and electric power line or power line. Also avoid the same connection.
  - Do not put overload to tighten nut, please use washer for tightening. Note1) Allowable strength may be different by the length of head. As see the picture, allowable tightening strength of front part and rear part are in (Chart 1). Rear part includes head nut as like picture. Note2) (Chart1) is for using washer.
  - Please check the voltage changes of power source in order not to excess rating power input.
  - Do not use this unit during transient time(80ms) after apply power.
  - Do not connect capacity load to output part directly.
  - It may result in damage to this product, if use automatic transformer. So please use insulated transformer.
  - Please make wire short as much as possible in order to avoid noise.
  - Be sure to cable as indicated specification on this product. If use wrong cable or bended cable, it shall not maintain the water-proof.
  - It is possible to extend cable with over 0.3mm<sup>2</sup> and max. 200m.
  - If the target is plated, the operating distance can be changed by the plating material.
  - It may result in malfunction by metal particle on product.
  - If there are machines(motor, welding etc), which occurs big surge around this unit, please install the Varistor or absorber to source of surge, even though there is built-in surge absorber in this unit.
  - If connect the load with big inrush current(DC type bulb) to this unit, the big inrush current will flow due to the initial resistance is low. If the current flows, the resistance of load will be bigger, then it will return to standard current. In this case, proximity sensor might be damaged by inrush current. If you use DC type bulb, please connect extra relay or resistance in order to protect proximity sensor from.
  - In case of the load current is small(AC type) : When the load current is under 5mA, make the residual voltage is less than return voltage to connect the bleeder resistor to load in parallel. \*110VAC 50/60Hz:20kΩ, Min. 3W, 220VAC 50/60Hz:39kΩ, Min. 5W
  - If make a transceiver close to proximity sensor or wire connection, it may cause malfunction.
- It may cause malfunction if above instructions are not followed.**

Major products

- PROXIMITY SENSOR
- AREA SENSOR
- DOOR/DOOR SIDE SENSOR
- ROTARY ENCODER
- TIMER
- TEMPERATURE CONTROLLER
- TEMPERATURE/HUMIDITY TRANSDUCER
- POWER CONTROLLER
- TACHO/LINE SPEED/PULSE METER
- DISPLAY UNIT
- SENSOR CONTROLLER
- SWITCHING POWER SUPPLY
- GRAPHIC PANEL
- 5-PHASE STEPPING MOTOR & DRIVER & CONTROLLER
- LASER MARKING SYSTEM(CO<sub>2</sub>, Nd:YAG)

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