

Autonics
PRDCM Series
Inductive
Proximity
Sensor



Autonics PRDCM Series Inductive Proximity Sensor Instruction Manual

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Autonics

Autonics PRDCM Series Inductive Proximity Sensor



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

Safety Information

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 (nuclear power control, medical equipment vehicle, train, airplane, combustion apparatus, entertainment or safety device, etc), it is required to install a fail-safe device, or contact us for information on type required.
 - It may cause a fire, human injury or property loss.

Caution

1. Do not use this unit where flammable, explosive gas, chemical or strong alkalis, acids exists.
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 specification rating.
 - It may result in serious damage to the product.

Ordering information

P	R	D	CM	L	18	-	7	DN								
Item																
Shape																
Feature																
Connection																
Body size																
Dimension																
Sensing distance																
Control output																
<table><tr><td>DN</td><td>NPN N.O. (Normally Open)</td></tr><tr><td>DN2</td><td>NPN N.C. (Normally Closed)</td></tr><tr><td>DP</td><td>PNP N.O. (Normally Open)</td></tr><tr><td>DP2</td><td>PNP N.C. (Normally Closed)</td></tr></table>									DN	NPN N.O. (Normally Open)	DN2	NPN N.C. (Normally Closed)	DP	PNP N.O. (Normally Open)	DP2	PNP N.C. (Normally Closed)
DN	NPN N.O. (Normally Open)															
DN2	NPN N.C. (Normally Closed)															
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DP2	PNP N.C. (Normally Closed)															
<table><tr><td>Number</td><td>Sensing distance(Unit: mm)</td></tr></table>									Number	Sensing distance(Unit: mm)						
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<table><tr><td>Number</td><td>Diameter of head(Unit: mm)</td></tr></table>									Number	Diameter of head(Unit: mm)						
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<table><tr><td>No mark</td><td>Standard type</td></tr><tr><td>L</td><td>Long body</td></tr></table>									No mark	Standard type	L	Long body				
No mark	Standard type															
L	Long body															
<table><tr><td>CM</td><td>Connector type</td></tr></table>									CM	Connector type						
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<table><tr><td>D</td><td>Long sensing distance type</td></tr></table>									D	Long sensing distance type						
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<table><tr><td>R</td><td>Cylindrical type</td></tr></table>									R	Cylindrical type						
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<table><tr><td>P</td><td>Inductive proximity sensor</td></tr></table>									P	Inductive proximity sensor						
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Control output diagram

Control output diagram & Load operating

NPN	<p>Brown +V</p> <p>Black Load</p> <p>Blue 0V</p>	Normally Open	Normally Closed
	Sensing target	Presence Nothing	Presence Nothing
	Load (Brown-Black)	Operation Return	Operation Return
	Output voltage (Black-Blue)	H L	H L
	Indicator (LED)	ON OFF	ON OFF
PNP	<p>Brown +V</p> <p>Black Load</p> <p>Blue 0V</p>	Normally Open	Normally Closed
	Sensing target	Presence Nothing	Presence Nothing
	Load (Black-Blue)	Operation Return	Operation Return
	Output voltage (Black-Blue)	H L	H L
	Indicator (LED)	ON OFF	ON OFF

- The above specifications are subject to change and some models may be discontinued without notice.

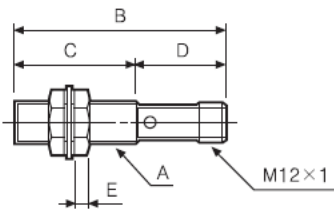
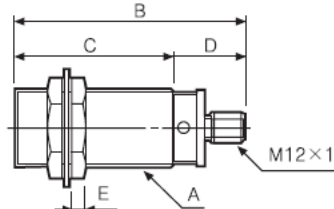
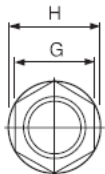
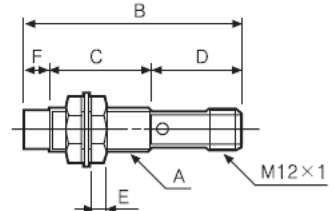
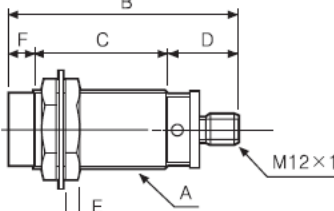
Specifications And Dimensions

Specifications

Model	PRDCM12-4DN PRDCM12-4DP PRDCM12-4DN2 PRDCM12-4DP2 PRDCML12-4DN PRDCML12-4DP PRDCML12-4DN2 PRDCML12-4DP2	PRDCM12-8DN PRDCM12-8DP PRDCM12-8DN2 PRDCM12-8DP2 PRDCML12-8DN PRDCML12-8DP PRDCML12-8DN2 PRDCML12-8DP2	PRDCM18-7DN PRDCM18-7DP PRDCM18-7DN2 PRDCM18-7DP2 PRDCML18-7DN PRDCML18-7DP PRDCML18-7DN2 PRDCML18-7DP2	PRDCM18-14DN PRDCM18-14DP PRDCM18-14DN2 PRDCM18-14DP2 PRDCML18-14DN PRDCML18-14DP PRDCML18-14DN2 PRDCML18-14DP2	PRDCM30-15DN PRDCM30-15DP PRDCM30-15DN2 PRDCM30-15DP2 PRDCML30-15DN PRDCML30-15DP PRDCML30-15DN2 PRDCML30-15DP2	PRDCM30-25DN PRDCM30-25DP PRDCM30-25DN2 PRDCM30-25DP2 PRDCML30-25DN PRDCML30-25DP PRDCML30-25DN2 PRDCML30-25DP2
Sensing distance	4mm	8mm	7mm	14mm	15mm	25mm
Hysteresis	Max. 10% of sensing distance					
Standard sensing target	12×12×1mm (Iron)	25×25×1mm (Iron)	20×20×1mm (Iron)	40×40×1mm (Iron)	45×45×1mm (Iron)	75×75×1mm (Iron)
Setting distance	0 to 2.8mm	0 to 5.6mm	0 to 4.9mm	0 to 9.8mm	0 to 10.5mm	0 to 17.5mm
Power supply (Operating voltage)	12-24VDC (10-30VDC)					
Current consumption	Max. 10mA					
Response frequency	500Hz	400Hz	300Hz	200Hz	100Hz	100Hz
Residual voltage	Max. 1.5V					
Affection by Temp.	Within ±10℃ max. of sensing distance at 20℃ in temperature range of -25 to 70℃					
Control output	Max. 200mA					
Insulation resistance	Min. 50MΩ (at 500VDC megger)					
Dielectric strength	1,500VAC 50/60Hz for 1minute					
Vibration	1mm amplitude at frequency of 10 ~ 55Hz in each of X, Y, Z directions for 2 hours					
Shock	500ms (50G) X, Y, Z directions for 3 times					
Indicator	Operating indicator (Red LED)					
Environment	Ambient temperature	-25 to 70℃, Storage: -30 to 80℃				
	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)					
Materials	• Case/Nut: Nikel plated Brass • Washer: Nikel plated Iron • Sensing surface: Heat-resistant ABS					
Approval	CE					
Unit Weight	PRDCM: Approx. 26g PRDCML: Approx. 36g		PRDCM: Approx. 49g PRDCML: Approx. 73g		PRDCM: Approx. 134g PRDCML: Approx. 169g	

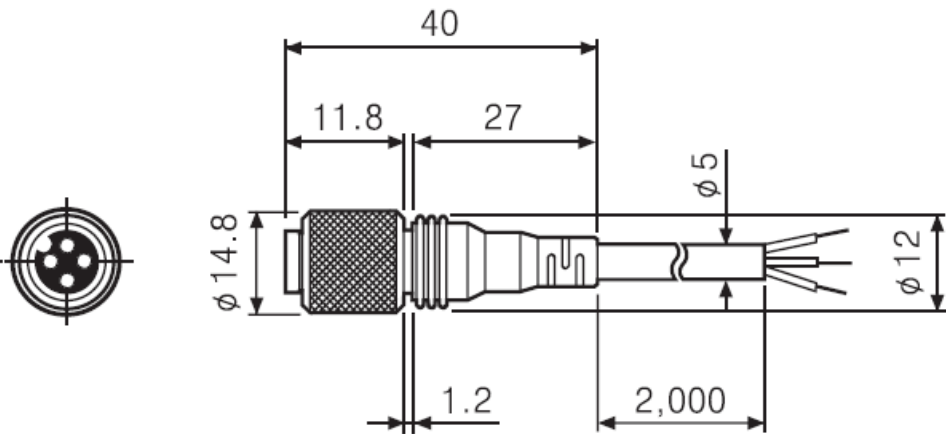
- Environment resistance is rated at no freezing or condensation.

Dimensions

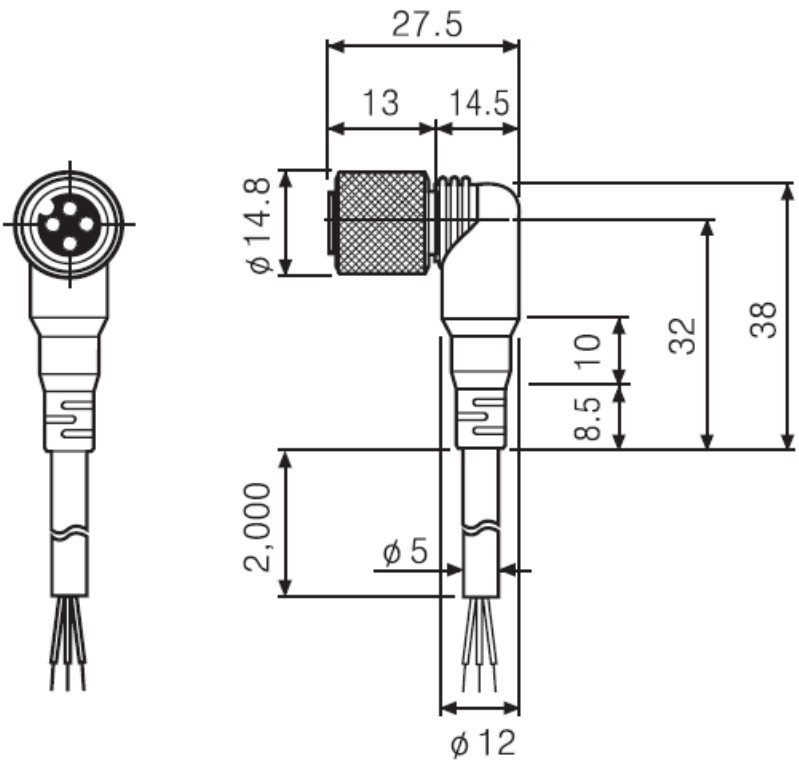
Type	Connector type		Nut & Washer
	M12	M18, M30	
Flush			
Non-flush			

Type			A	B	C	D	E	F	G	H
Flush	M12	PRDCM	M12×1	55.8	31.5	24.3	4	—	17	21
		PRDCML	M12×1	68.3	44	24.3	4	—		
	M18	PRDCM	M18×1	54.3	29.5	24.8	4	—	24	29
		PRDCML	M18×1	87.3	62.5	24.8	4	—		
	M30	PRDCM	M30×1.5	63.8	38	25.8	5	—	35	42
		PRDCML	M30×1.5	85.8	60	25.8	5	—		
Non-flush	M12	PRDCM	M12×1	55.8	24.5	24.3	4	7	17	21
		PRDCML	M12×1	68.3	37	24.3	4	7		
	M18	PRDCM	M18×1	53.8	19	24.8	4	10	24	29
		PRDCML	M18×1	86.8	52	24.8	4	10		
	M30	PRDCM	M30×1.5	63.8	28	25.8	5	10	35	42
		PRDCML	M30×1.5	85.8	50	25.8	5	10		

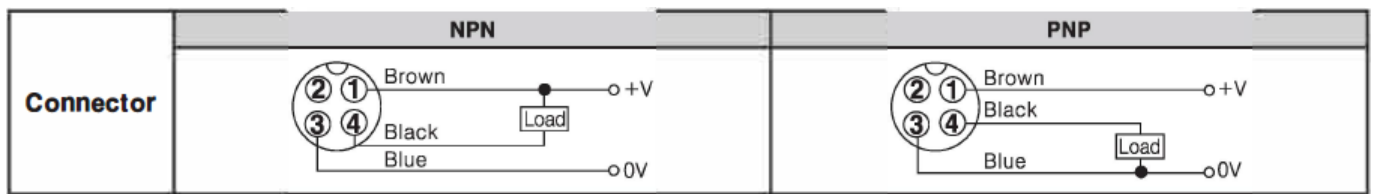
CID3- □



CLD3- □



Connections



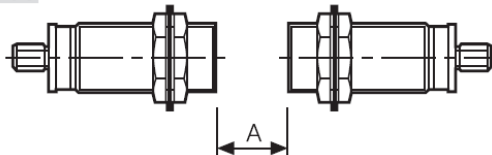
Mutual-Interference

Mutual interference & Influence by surrounding Metals

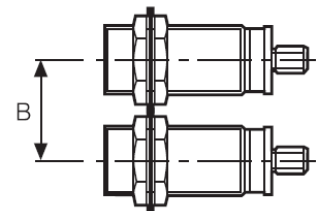
Mutual-interference

- When several proximity sensors are mounted closely, malfunction of sensor may be caused due to mutual interference.
- Therefore, be sure to provide a minimum distance between the two sensors with referring to the chart below.

Face to Face

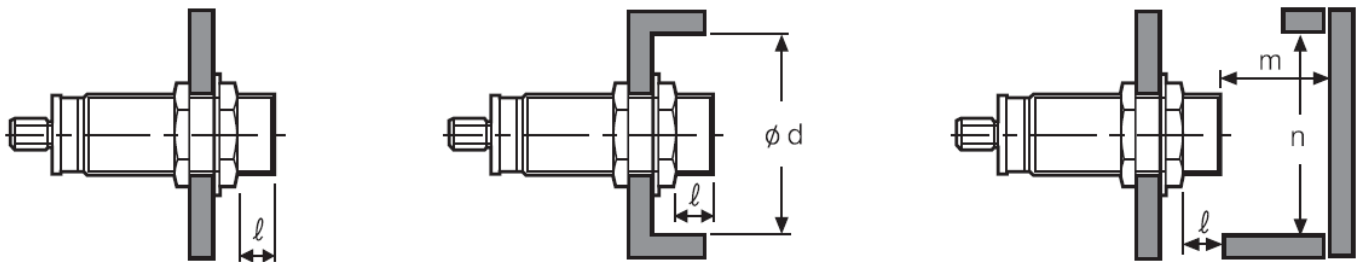


Parallel



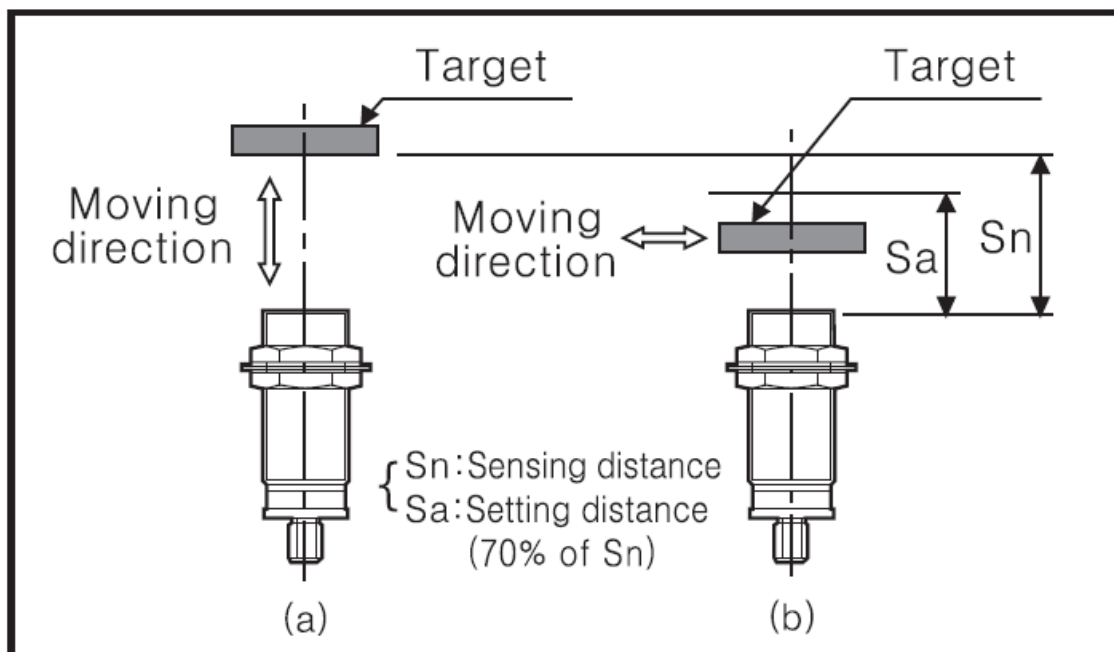
Influence by surrounding metals

When sensors are mounted on metallic panel, it is required to protect the sensors from being affected by any metallic object except target. Therefore, be sure to provide a minimum distance as below chart.



Model	PRDCM(L)12-4D□	PRDCM(L)12-8D□	PRDCM(L)18-7D□	PRDCM(L)18-14D□	PRDCM(L)30-15D□	PRDCM(L)30-25D□
Item						
A	24	48	42	84	90	150
B	24	36	36	54	60	90
l	0	11	0	14	0	15
φ d	12	36	18	54	30	90
m	12	24	21	42	45	75
n	18	36	27	54	45	90

Setting distance



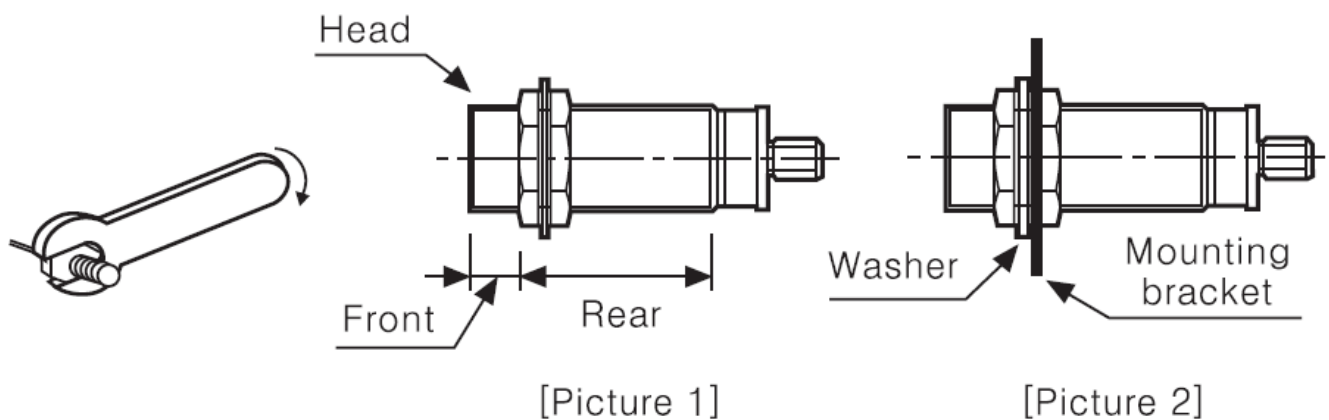
- Sensing distance can be changed by the shape, size or material of the target.
- Therefore please check the sensing distance like (a), then pass the target within range of setting distance(Sa).

Setting distance(Sa)

- Sensing distance(Sn) x 70%
- Ex)PRDCM18-7DN
 - Setting distance(Sa) = 7mm x 0.7 = 4.9mm

Caution for using

1. This equipment shall not be used outdoors or beyond specified temperature range.
2. Do not apply over tensile strength of cord. (ϕ 4: max. 30N, ϕ 5: max. 50N)
3. Do not use the same conduit with cord of this unit and electric power line or power line.
4. Do not put overload to tighten nut, please use the supplied washer for tightening.



- [Table 1]

Model \ Strength		Front		Rear
		Size	Torque	Torque
PRDCM12 Series	Flush	13mm	65kgf · cm (6.37N · m)	120kgf · cm (11.76N · m)
	Non-flush	7mm		
PRDCM18 Series	Flush	—	150kgf · cm (14.7N · m)	
	Non-flush	—		
PRDCM30 Series	Flush	26mm	500kgf · cm (49N · m)	800kgf · cm (78.4N · m)
	Non-flush	12mm		

- **Note 1:** Allowable tightening torque of a nut may be different by the distance from the head. For allowable tightening torque and the range of front and rear parts, refer to [Table 1] and above [Picture 1] respectively. The rear part includes a nut on the head side(see above [Picture 1]). Please apply a tightening torque of the front part when the nut on the front is located in the front part.
- **Note 2:** The allowable tightening torque denotes a torque value when using a provided washer as above [Picture 2].

- Please check the voltage changes of power source in order not to exceed the rated power input.
- Do not use this unit during transient time(BOMs) after apply power.
- It might result in damage to this product, if use automatic transformer. So please use insulated transformer.
- Please make wire as short as possible in order to avoid noise.
- Be sure to use cable as indicated specification on this product. If wrong cable or bended cable is used, it shall not maintain the water-proof.
- 0.3mm' or larger cable can be extended up to 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 connecting the load with big inrush current(DC type bulb, etc.) to this unit, the big inrush current will flow because 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.
- When the transceiver is attached to the proximity sensor or close to the wires, it may cause a malfunction.

It may cause malfunction if above instructions are not followed.

Major products

- Photoelectric sensors
- Fiber optic sensors
- Door sensors
- Door side sensors
- Area sensors
- Proximity sensors
- Pressure sensors
- Rotary encoders
- Connector/Socket
- Temperature controllers

- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate) meters
- Display units
- Sensor controllers
- Switching mode power supplies
- Control switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper motors/drivers/motion controllers
- Graphic/Logic panels
- Field network devices
- Laser marking system(Fiber, CO₂, Nd: YAG)
- Laser welding/soldering system

Contact

Autonics Corporation

- <http://www.autonics.com>

Satisfiable Partner For Factory Automation

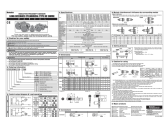
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- **TEL:** 82-32-610-2730
- **FAX:** 82-32-329-0728
- **E-mail:** sales@autonics.com

Documents / Resources



[Autonics PRDCM Series Inductive Proximity Sensor](#) [pdf] Instruction Manual
PRDCM Series Inductive Proximity Sensor, PRDCM Series, Inductive Proximity Sensor, Proximity Sensor, Sensor

References

- [User Manual](#)

[Manuals+](#), [Privacy Policy](#)

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