

_

☐ HMI



ENCODER





Proximity Sensor Lineup

Selection Guide

Outline

Cylinder Type

Square Type

Capacitive Type

APS-GMD Series

Features

Metal Cylinder, 2-wire/3-wire DC System

- Operation indicator LEDs visible from every direction of 360 degrees around
- Selectable between flush mount type / non-flush mount type
- NO/NPN/PNP output
- Maximum detection distance: 24 mm



Туре

2-wire DC System

Output Form			Operating Distance	(mm)	Output Form	Model Number	Remarks
M12	Flush Mount Type	3			NO	APS3-12GMD-Z	
	Non-flush Mount Type	8			NO	APS8-12GMD-Z	
M18	Flush Mount Type	7			NO	APS7-18GMD-Z	
	Non-flush Mount Type		14		NO	APS14-18GMD-Z	
M30	Flush Mount Type		10		NO	APS10-30GMD-Z	
	Non-flush Mount Type			24	NO	APS24-30GMD-Z	

3-wire DC System

	Output Form			Operating Distance	g Distance (mm) Output Form			Model Number	Remarks
		Flush Mount	3			_	NPN NO	APS3-12GMD-E	
M12	M12	Туре	3				PNP NO	APS3-12GMD-E2	
		Non-flush Mount Type	4				NPN NO	APS4-12GMD-E	
	M40	Flush Mount Type	7				NPN NO	APS7-18GMD-E	
M18	IVITO		1				PNP NO	APS7-18GMD-E2	
	M30	Flush Mount Type		10			NPN NO	APS10-30GMD-E	
				10			PNP NO	APS10-30GMD-E2	

* The APS4-12GMD-E is a made-to-order product.

APS-GMC

APS-GMD

APS-GK

APS-30/31





2-wire DC System Flush Mount Type

Effective (Operating D	istance	3 mm ±10%	7 mm ±10%	10 mm ±10%				
Photo			A Property of the second						
Remarks			Accessories: Hexagon nut (Single-chamfered): 2	units, toothed washer: 2 units					
	NPN NO	Model Number	APS3-12GMD-Z	APS7-18GMD-Z	APS10-30GMD-Z				
Output		Price	Open	Open	Open				
Form	PNP NO	Model Number							
		Price							
	rking Volta		12/24 V DC (10 to 30 V DC) Allowable ripple rate: 10% p-p or less						
Standard	Standard Target Object (mm)		Iron 12 x 12 x 1 t	Iron 18 x 18 x 1 t	Iron 30 x 30 x 1 t				
Guarantee Distance	Guaranteed Operating Distance		0 to 2.2 mm	0 to 5.6 mm	0 to 8.1 mm				
Reaction I	Material		Iron/Non ferrous metal (Operating distance changes depending on materials.)						
Hysteresis	S		20% or less						
Operating	Cycle Freq	uency	300 Hz 100 Hz						
Rated Wo	rking Curre	nt	3 to 100 mA						
Voltage D	rop		3 V or lower						
Off-state	Current		1.0 mA or lower						
Circuit Pro	otection		Load short-circuit protection, surge absorption circuit						
Indicator I			Action indication						
Use Ambient Temperature		ature	-25 to +70°C						
Temperature Characteristics		teristics	Within $\pm 15\%$ (At the operating distance at +23°C)	Within±10% (At the operating distance at +23°C)					
Withstand Voltage			500 V AC 50/60 Hz (1 minute)						
Insulation Resistance)	50 MΩ or higher (500 V DC)						
Vibration Resistance			Double amplitude: 1.5 mm, 10 to 55 Hz (2 h each for X, Y and Z direction)						
Impact Resistance			490m/s ² , within 11 ms (10 times each for X, Y and Z direction)						
Protection Level			IP67						
Case Mat	erial		Metallic part: Brass nickel plate Detector surface: PBT resin						

10 Nm or less

Approx. 150

PLC ...

нмі 🕻

SENSOR I

ENCODER -

COUNTER ...



Proximity Sensor Lineup

Selection Guide

Outline

Cylinder Type

Square Type

Capacitive Type

APS-GMC

APS-GMD

APS-GK

APS-30/31

APS-CK

Oilproof cable 2 m

20 Nm or less

Approx. 250

Outside diameter (Approx. ϕ 6) 0.5 mm², 2 core

Oilproof cable 2 m

5 Nm or less

Approx. 90

Outside diameter (Approx. ϕ 3.8) 0.3 mm², 2 core

Lead Wire

Weight (g)

Tightening Torque



☐ HMI

APS-GMD Series

2-wire DC System Non-flush Mount Type

SENSOR

- ENCODER

COUNTER

INFORMATION

Proximity Sensor Lineup

Selection Guide

Outline

Cylinder Type

Square Type

Capacitive Type

Effective Operating Distance		Distance	8 mm ±10%	14 mm ±10%	24 mm ±10%				
Photo									
Remarks			Accessories: Hexagon nut (Single-chamfered): 2	units, toothed washer: 2 units					
	NPN NO	Model Number	APS8-12GMD-Z APS14-18GMD-Z		APS24-30GMD-Z				
Output		Price	Open	Open	Open				
Form	PNP NO	Model Number							
		Price							
Rated Wo	Rated Working Voltage		12/24 V DC (10 to 30 V DC) Allowable ripple rate: 10% p-p or less						
Standard	Target Obje	ect (mm)	Iron 30 x 30 x 1 t	Iron 30 x 30 x 1 t	Iron 54 x 54 x 1 t				
Guarantee Distance	Guaranteed Operating Distance		0 to 6.4 mm	0 to 11.3 mm	0 to 19.4 mm				
Reaction	Material		Iron/Non ferrous metal (Operating distance changes depending on materials.)						
Hysteresis	3		20% or less						
Operating	Cycle Freq	luency	100 Hz						
Rated Wo	rking Curre	nt	5 to 100 mA						
Voltage D	rop		3 V or lower						
Off-state	Current		1.0 mA or lower						
Circuit Pro	otection		Load short-circuit protection, surge absorption circuit						
Indicator I	Lamp		Action indication						
Use Ambi	ent Temper	ature	-25 to +70°C						
Temperat	ure Charact	teristics	Within±10% (At the operating distance at +23°C)						
Withstand	l Voltage		600 V AC 50/60 Hz (1 minute)						
Insulation	Resistance	9	$50~\text{M}\Omega$ or higher ($500~\text{V}$ DC)						
Vibration	Resistance		Double amplitude: 1.5 mm, 10 to 55 Hz (2 h each for X, Y and Z direction)						
Impact Re	Impact Resistance		490m/s², within 11 ms (10 times each for X, Y and Z direction)						
Protection	Protection Level		IP67						
Case Mat	Case Material		Metallic part: Brass nickel plate Detector surface: PBT resin						
Lead Wire	Lead Wire		Oilproof cable 2 m Oilproof cable 2 m Outside diameter (Approx. Φ3.8) 0.3 mm², 2 core Outside diameter (Approx. Φ6) 0.5 mm², 2 core						
Tightening	g Torque		5 Nm or less	10 Nm or less	20 Nm or less				
Weight (g)			Approx. 90	Approx. 150	Approx. 250				

APS-GMC

APS-GMD

APS-GK

APS-30/31

3-wire DC System Flush Mount Type

10 mm ±10%

				1					
Photo									
Remarks			Accessories: Hexagon nut (Single-chamfered): 2	units, toothed washer: 2 units					
	NPN NO	Model Number	APS3-12GMD-E	APS7-18GMD-E	APS10-30GMD-E				
Output		Price	Open	Open	Open				
Form	PNP NO	Model Number	APS3-12GMD-E2	APS7-18GMD-E2	APS10-30GMD-E2				
		Price	Open	Open	Open				
Rated Wo	orking Volta	ge	12/24 V DC (10 to 30 V DC) Allowable ripple rate: 10% p-p or less						
No-load (Current		10 mA or lower						
Standard	Target Obje	ect (mm)	Iron 12 x 12 x 1 t	Iron 18 x 18 x 1 t	Iron 30 x 30 x 1 t				
Guarante Distance	ed Operatin	g	0 to 2.2 mm	0 to 5.6 mm 0 to 8.1 mm					
Reaction	Material		Iron/Non ferrous metal (Operating distance changes depending on materials.)						
Hysteresi	S		20% or less						
Operatino	g Cycle Freq	uency	300 Hz) Hz 100 Hz					
Rated Working Current		nt	Up to 200 mA						
Voltage Drop			1.5 V or lower						
Off-state Current			0.5 mA or lower						
Circuit Protection			Load short-circuit protection, surge absorption circuit, reverse connection protection circuit						
Indicator			Action indication	Action indication					
Use Amb	ient Temper	ature	-25 to +70°C	1					
				T. Control of the Con					

Within±10%

10 Nm or less

Approx. 150

(At the operating distance at +23°C)

7 mm ±10%

Effective Operating Distance

3 mm ±10%

Within ±15%

Oilproof cable 2 m

5 Nm or less

Approx. 80

(At the operating distance at +23°C)

Double amplitude: 1.5 mm, 10 to 55 Hz (2 h each for X, Y and Z direction)

490m/s2, within 11 ms (10 times each for X, Y and Z direction)

Metallic part: Brass nickel plate Detector surface: PBT resin

Outside diameter (Approx. ϕ 3.8) 0.3 mm², 3 core

500 V AC 50/60 Hz (1 minute)

 $50 \text{ M}\Omega$ or higher (500 V DC)

Temperature Characteristics

Withstand Voltage

Insulation Resistance

Vibration Resistance

Impact Resistance

Protection Level

Tightening Torque

Case Material

Lead Wire

Weight (g)

PLC ...

нмі 🗀

SENSOR

ENCODER -

COUNTER ...



Proximity Sensor Lineup

Selection Guide

Outline

Cylinder Type

Square Type

Capacitive Type

APS-GMC

APS-GMD

APS-GK

APS-30/31

APS-CK

Oilproof cable 2 m

0.5 mm², 3 core

20 Nm or less

Approx. 250

Outside diameter (Approx. ϕ 6)



■ HMI

□ IVI I

SENSOR

■ ENCODER

COUNTER

INFORMATION

Proximity Sensor Lineup

Selection Guide

Outline

Cylinder Type

Square Type

Capacitive Type

APS-GMD Series

3-wire DC System Non-flush Mount Type

Effective 0	Operating D	istance	4 mm ±10%			
Photo						
Remarks			Accessories: M12 metal nut: 2 units			
	NPN NO	Model Number	APS4-12GMD-E (Made-to-order product)			
Output		Price	Open			
Form	PNP NO	Model Number				
		Price				
Rated Wor	rking Voltaç	je	12/24 V DC (10 to 30 V DC) Allowable ripple rate: 10% p-p or less			
No-load C	urrent		20 mA or lower			
Standard 7	Target Obje	ct (mm)	Iron 12 x 12 x 1 t			
Guarantee Distance	ed Operatin	g	0 to 3.2 mm			
Reaction Material			Iron/Non ferrous metal (Operating distance changes depending on materials.)			
Hysteresis	5		20% or less			
Operating	Cycle Freq	uency	300 Hz			
Rated Wor	rking Curre	nt	Up to 200 mA			
Voltage Dr	rop		3 V or lower			
Off-state (Current		0.1 mA or lower			
Circuit Pro	tection		Load short-circuit protection, surge absorption circuit, reverse connection protection circuit			
Indicator L	amp		Action indication			
Use Ambie	ent Temper	ature	-25 to +70°C			
Temperatu	ure Charact	eristics	Within±10% (At the operating distance at +23°C)			
Withstand	Voltage		500 V AC 50/60Hz (1 minute)			
Insulation	Resistance		50 MΩ or higher (500 V DC)			
Vibration Resistance			Double amplitude: 1.0 mm, 10 to 55 Hz (2 h each for X, Y and Z direction)			
Impact Resistance			294m/s², within 11 ms (10 times each for X, Y and Z direction)			
Protection Level			IP67			
Case Material			Metallic part: Stainless steel Detector surface: PBT resin			
Lead Wire			Oilproof cable 2 m Outside diameter (Approx. ϕ 3.8) 0.3 mm², 3 core			
Tightening	Torque		8 Nm or less			
Weight (g)			Approx. 100			

APS-GMC

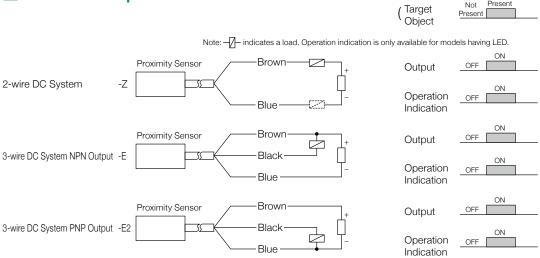
APS-GMD

APS-GK

APS-30/31

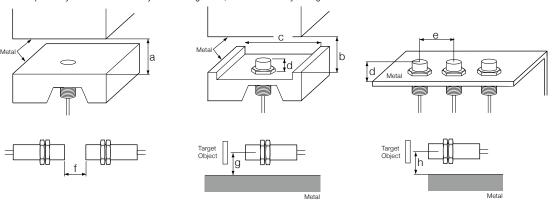
Connection and Operation

■Connection/Operation



Installation / Effects of Surrounding Metal

Since the proximity sensor is affected by surrounding metal, install it remotely enough from the described dimensions.



								(Unit: mm)
Model Number	a	b	С	d	е	f	g	h
APS3-12GMD-E/E2/Z	8	_	_	_	24	30	9	6
APS7-18GMD-E/E2/Z	20	_	_	_	36	50	13.5	9
APS10-30GMD-E/E2/Z	40	_	_	_	60	100	20	15
APS8-12GMD-Z	_	20	40	15	100	120	40	20
APS14-18GMD-Z	_	40	70	22	110	200	70	35
APS24-30GMD-Z	_	90	120	32	300	350	120	60
APS4-12GMD-E	_	12	36	8	48	60	36	18

PLC НМІ SENSOR ENCODER -COUNTER ... INFORMATION ... Proximity Sensor Lineup Selection Guide Outline Cylinder Type Square Type

. 111

APS-GMC

Capacitive Type

APS-GMD

APS-GK APS-30/31



☐ HMI











Selection Guide

Outline

Cylinder Type

Square Type

APS-GMC APS-GMD

APS-GK

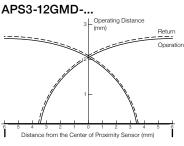
Capacitive Type

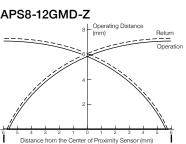
APS-GMD Series

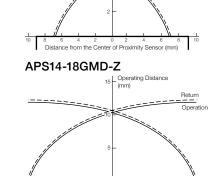
Connection and Operation

Detection Range Diagram (Representative Examples)

APS7-18GMD-

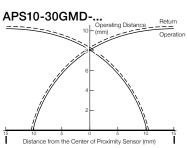


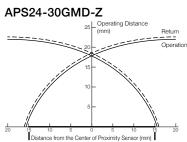


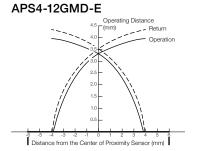


Distance from the Center of Proximity Sensor (mm)

Operating Distance (mm)

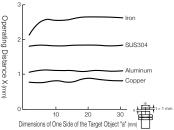


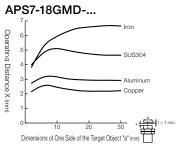


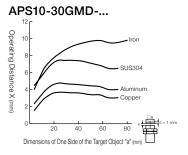


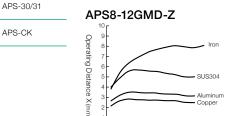
Shape Based Characteristics (Representative Examples)

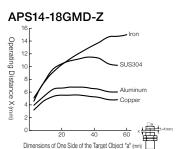
APS3-12GMD-...

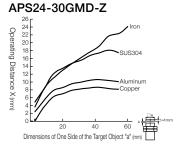




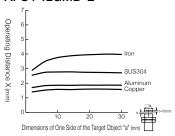












0 20 40 60 x



Dimensions



нмі 🗀



ENCODER -





Proximity Sensor Lineup

Selection Guide

Outline

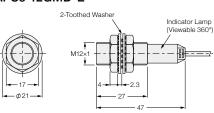
Cylinder Type

Square Type

Capacitive Type

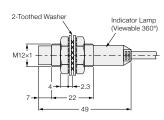


APS3-12GMD-Z APS3-12GMD-E

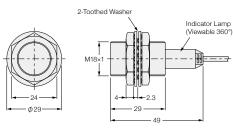


APS8-12GMD-Z

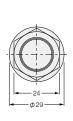


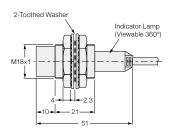


APS7-18GMD-Z APS7-18GMD-E

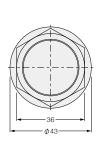


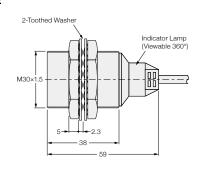
APS14-18GMD-Z



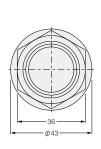


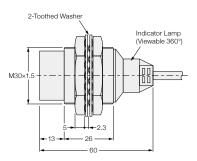
APS10-30GMD-Z APS10-30GMD-E





APS24-30GMD-Z





APS-GMC

APS-GMD

APS-GK APS-30/31

APS-CK

APS4-12GMD-E

