

Metal Cylindrical Type APS-GM Series

DC 2-wire Type/AC 2-wire Type
Reinforced abrasion resistance model
is available.



Types

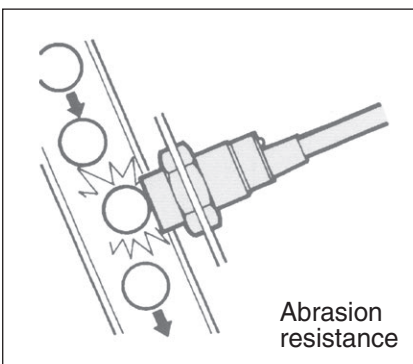
DC 2-wire type

Shape	Operating distance (mm)	Output type	Model number	Remarks
M12	2	N.O.	APS2-12GM-Z	Detection plane coated with fluoropolymer
			APS2-12GM-Z-CS	Reinforced abrasion resistance type
Non-embedded type	5	N.O.	APS5-12GM-Z	Detection plane coated with fluoropolymer
M18	5	N.O.	APS5-18GM-Z	Detection plane coated with fluoropolymer
			APS5-18GM-Z-CS	Reinforced abrasion resistance type

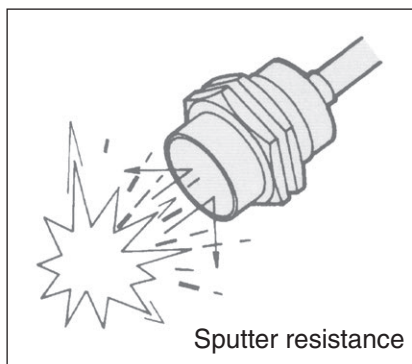
AC 2-wire type

Shape	Operating distance (mm)	Output type	Model number	Remarks
M18	5	N.O.	APS5-18GM-WS	Detection plane coated with fluoropolymer
			APS5-18GM-WS-CS	Reinforced abrasion resistance type
Non-embedded type	10	N.O.	APS10-18GM-WS	Detection plane coated with fluoropolymer
M30	10	N.O.	APS10-30GM-WS	Detection plane coated with fluoropolymer
			APS18-30GM-WS	Detection plane coated with fluoropolymer
Non-embedded type	18	N.O.		

Features of the reinforced abrasion resistance type (-CS)



Prevents the detection plane from being worn by contact with workpieces.



Protects the detection plane against sputters from welding.

APS-GMC

APS-GMD

APS-GM

APS-GK

APS-30/31

APS-CK

APS-S/M

APS-F/U

APS-10~15

APS-CU

CS

Metal Cylindrical Type APS-GM Series

DC 2-wire, Embedded Type

Effective operating distance	2mm ±10%	5mm ±10%		
Dimensions (mm)				
Remarks	Detection plane coated with fluoropolymer	Detection plane coated with fluoropolymer		
Output type	NO	Model number	APS2-12GM-Z	APS5-18GM-Z
		Price	¥5,800	¥6,400
Rated operating voltage	DC+12 V/+24 V (+10 to +36 V) Permissible ripple rate: 10%p-p or less (max peak voltage: 36 V or less)			
Standard target object (mm)	Iron 12 × 12 × 1t	Iron 18 × 18 × 1t		
Rated operating distance	0 to 1.6 mm	0 to 4 mm		
Responding material	Iron/nonferrous metal (operating distance varies with material)			
Differential travel	20% or less			
Switching frequency	800 Hz	500 Hz		
Rated operating current	5 to 200mA			
Voltage drop	3 V or less (when the cable length is 2 m)			
Leakage current	1.0 mA or less (0.8 mA TYP)			
Indicator lamp	Operation indication			
Operating temperature	-25 to +70 °C			
Temperature characteristics	Within ±10% (of operating distance at +20 °C)			
Withstand voltage	1000 VAC, 50/60 Hz (1 minute)			
Insulation resistance	50 MΩ or higher (500 VDC)			
Vibration resistance	Double amplitude: 1.5 mm, 10 to 55 Hz (2 hours in each of X, Y and Z directions)			
Impact resistance	500 m/s ²	1000 m/s ²		
	Within 11 ms (10 cycles in each of X, Y and Z directions)			
Protection grade	IP67			
Casing material	Brass nickel plated (Detection plane: PBT resin coated with fluoropolymer)			
Lead wire	Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø3.5), 0.14 mm ² 2-wire	Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø6), 0.5 mm ² 2-wire		
Tightening torque	5 Nm or less	10 Nm or less		
Weight	Approx. 80 g	Approx. 150 g		

DC 2-wire, Embedded Type

Effective operating distance		2mm ±10%	5mm ±10%
Dimensions (mm)			
Remarks		Reinforced abrasion resistance/sputter resistance type	Reinforced abrasion resistance/sputter resistance type
Output type	NO	Model number	APS2-12GM-Z-CS
		Price	¥8,000
		Model number	APS5-18GM-Z-CS
		Price	¥8,800
Rated operating voltage		DC+12 V/+24 V (+10 to +36 V) Permissible ripple rate: 10%p-p or less (max peak voltage: 36 V or less)	
Standard target object (mm)		Iron 12 × 12 × 1t	Iron 18 × 18 × 1t
Rated operating distance		0 to 1.6 mm	0 to 4 mm
Responding material		Iron/nonferrous metal (operating distance varies with material)	
Differential travel		20% or less	
Switching frequency		800 Hz	500Hz
Rated operating current		5 to 200 mA	
Voltage drop		3 V or less (when the cable length is 2 m)	
Leakage current		1.0 mA or less (0.8 mA TYP)	
Indicator lamp		Operation indication	
Operating temperature		-25 to +70°C	
Temperature characteristics		Within ±10% (of operating distance at +20°C)	
Withstand voltage		1000 VAC, 50/60 Hz (1 minute)	
Insulation resistance		50 MΩ or higher (500 VDC)	
Vibration resistance		Double amplitude: 1.5 mm, 10 to 55 Hz (2 hours in each of X, Y and Z directions)	
Impact resistance		500 m/s ²	1000 m/s ²
		Within 11 ms (10 cycles in each of X, Y and Z directions)	
Protection grade		IP67	
Casing material		Brass coated with fluoropolymer (Detection plane: ceramic plate coated with fluoropolymer; nut: PPS resin)	
Lead wire		Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø3.5), 0.14 mm ² 2-wire	Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø6), 0.5 mm ² 2-wire
Tightening torque		5 Nm or less	10 Nm or less
Weight		Approx. 80 g	Approx. 150 g

APS-GMC

APS-GMD

APS-GM

APS-GK

APS-30/31

APS-CK

APS-S/M

APS-F/U

APS-10~15

APS-CU

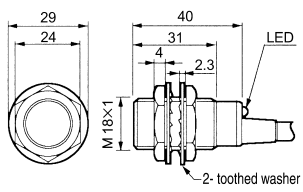
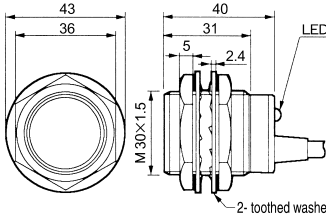
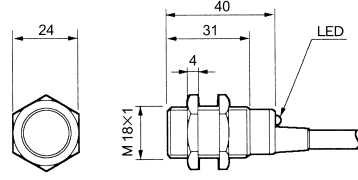
CS

Metal Cylindrical Type APS-GM Series

DC 2-wire, Non-embedded Type

Effective operating distance	5 mm \pm 10%	
Dimensions (mm)		
Remarks	Detection plane coated with fluoropolymer	
Output type	NO	Model number
		Price
		APS5-12GM-Z
		¥5,800
Rated operating voltage	DC+12 V/+24 V (+10 to +36 V) Permissible ripple rate: 10%p-p or less (max peak voltage: 36 V or less)	
Standard target object (mm)	Iron 15 × 15 × 1t	
Rated operating distance	0 to 4 mm	
Responding material	Iron/nonferrous metal (operating distance varies with material)	
Differential travel	20% or less	
Switching frequency	400 Hz	
Rated operating current	5 to 200 mA	
Voltage drop	3 V or less (when the cable length is 2 m)	
Leakage current	1.0 mA or less (0.8 mA TYP)	
Indicator lamp	Operation indication	
Operating temperature	-25 to +70 °C	
Temperature characteristics	Within \pm 10% (of operating distance at +20 °C)	
Withstand voltage	1000 VAC, 50/60 Hz (1 minute)	
Insulation resistance	50 M Ω or higher (500 VDC)	
Vibration resistance	Double amplitude: 1.5 mm, 10 to 55 Hz (2 hours in each of X, Y and Z directions)	
Impact resistance	500 m/s ² , within 11 ms (10 cycles in each of X, Y and Z directions)	
Protection grade	IP67	
Casing material	Brass nickel plated (Detection plane: PBT resin coated with fluoropolymer)	
Lead wire	Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ϕ 3.5), 0.14 mm ² 2-wire	
Tightening torque	5 Nm or less	
Weight	Approx. 80 g	

DC 2-wire, Embedded Type

Effective operating distance		5 mm ±10%	10 mm ±10%	5 mm ±10%
Dimensions (mm)				
Remarks		Detection plane coated with fluoropolymer	Detection plane coated with fluoropolymer	Reinforced abrasion resistance/sputter resistance type Nut: PPS resin
Output type	NO	Model number APS5-18GM-WS	APS10-30GM-WS	APS5-18GM-WS-CS
		Price ¥8,500	¥9,200	¥10,800
Rated operating voltage		AC24 V to 240 V(AC20 to 264 V) 50/60 Hz		
Standard target object (mm)		Iron 18 × 18 × 1t	Iron 30 × 30 × 1t	Iron 18 × 18 × 1t
Rated operating distance		0 to 4 mm	0 to 8 mm	0 to 4 mm
Responding material		Iron/nonferrous metal (operating distance varies with material)		
Differential travel		20% or less		
Switching frequency		25 Hz		
Rated operating current		5 to 200 mA (resistance load)		
Voltage drop		(See the "Voltage Drop Characteristics" diagram)		
Leakage current		1.5 mA or less (1.0 mA TYP)		
Indicator lamp		Operation indication		
Operating temperature		-25 to +70 °C		
Temperature characteristics		Within ±10% (of operating distance at +20 °C)		
Withstand voltage		2500 VAC, 50/60 Hz (1 minute)		
Insulation resistance		50 MΩ or higher (500 VDC)		
Vibration resistance		Double amplitude: 1.5 mm, 10 to 55 Hz (2 hours in each of X, Y and Z directions)		
Impact resistance		1000 m/s ² , within 11 ms (10 cycles in each of X, Y and Z directions)		
Protection grade		IP67		
Casing material		Brass nickel plated (Detection plane: PBT resin coated with fluoropolymer)		Brass coated with fluoropolymer (Detection plane: ceramics coated with fluoropolymer)
Lead wire		Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø6), 0.5 mm ² 2-wire		
Tightening torque		10 Nm or less	20 Nm or less	10 Nm or less
Weight		Approx. 150 g	Approx. 250 g	Approx. 150 g

APS-GMC

APS-GMD

APS-GM

APS-GK

APS-30/31

APS-CK

APS-S/M

APS-F/U

APS-10~15

APS-CU

CS

Metal Cylindrical Type APS-GM Series

DC 2-wire, Non-embedded Type

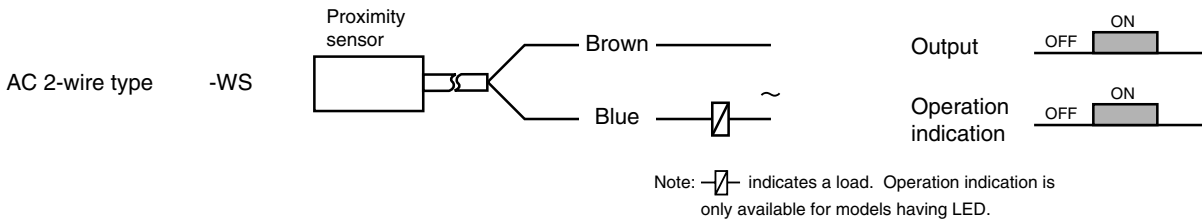
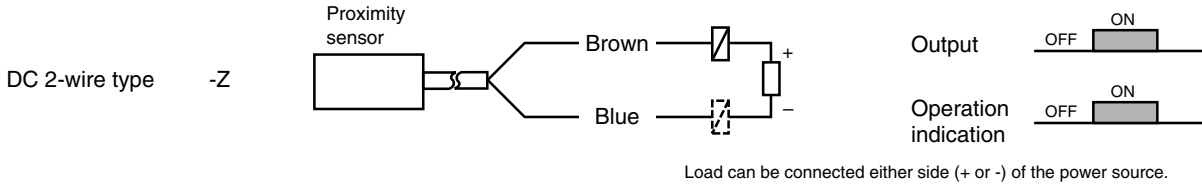
Effective operating distance	10 mm ±10%	18 mm ±10%
Dimensions (mm)		
Remarks	Detection plane coated with fluoropolymer	Detection plane coated with fluoropolymer
Output type	NO	
Model number	APS10-18GM-WS	APS18-30GM-WS
Price	¥8,500	¥9,200
Rated operating voltage	AC24 V to 240 V(AC20 to 264 V) 50/60 Hz	
Standard target object (mm)	Iron 30 × 30 × 1t	Iron 54 × 54 × 1t
Rated operating distance	0 to 8 mm	0 to 14.5mm
Responding material	Iron/nonferrous metal (operating distance varies with material)	
Differential travel	20% or less	
Switching frequency	25 Hz	
Rated operating current	5 to 200 mA (resistance load)	
Voltage drop	(See the "Voltage Drop Characteristics" diagram)	
Leakage current	1.5 mA or less (1.0 mA TYP)	
Indicator lamp	Operation indication	
Operating temperature	-25 to +70 °C	
Temperature characteristics	Within ±10% (of operating distance at +20 °C)	
Withstand voltage	2500 VAC, 50/60 Hz (1 minute)	
Insulation resistance	50 MΩ or higher (500 VDC)	
Vibration resistance	Double amplitude: 1.5 mm, 10 to 55 Hz (2 hours in each of X, Y and Z directions)	
Impact resistance	1000 m/s ² , within 11 ms (10 cycles in each of X, Y and Z directions)	
Protection grade	IP67	
Casing material	Brass nickel plated (Detection plane: PBT resin coated with fluoropolymer)	
Lead wire	Oil-resistant vinyl chloride cable 2 m Outer diameter (approx. ø6), 0.5 mm ² 2-wire	
Tightening torque	10 Nm or less	20 Nm or less
Weight	Approx. 150 g	Approx. 250 g

Connection/Operation

(Target object

Not present	Present
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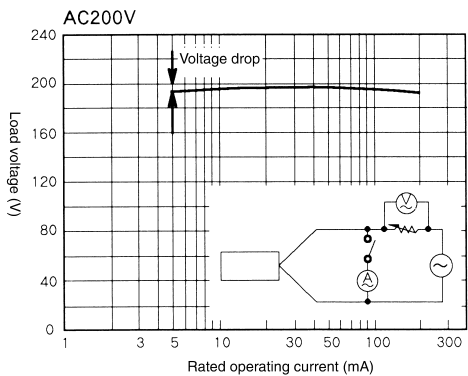
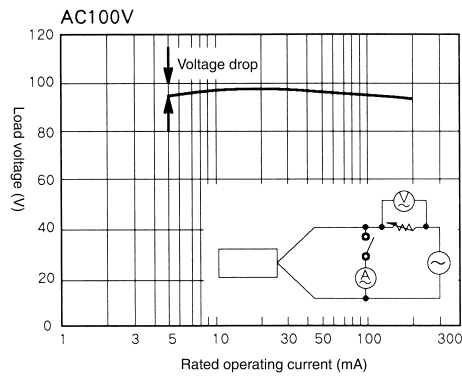
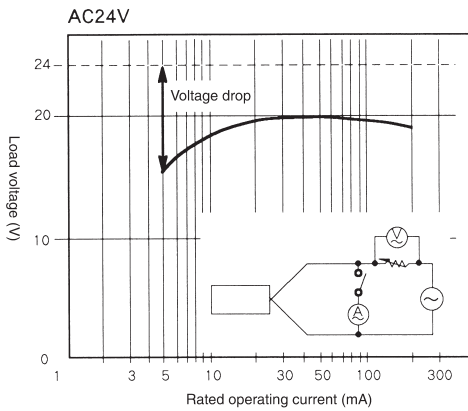
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Characteristics Diagrams

AC 2-wire type -WS

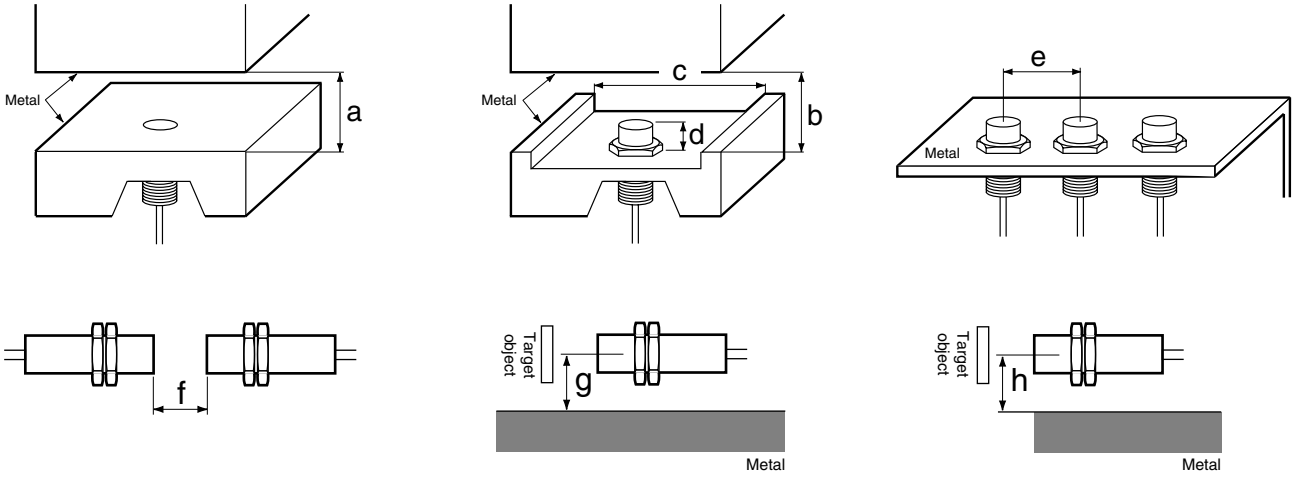
● Voltage Drop Characteristics (Representative Examples)



APS-GMC
APS-GMD
APS-GM
APS-GK
APS-30/31
APS-CK
APS-S/M
APS-F/U
APS-10~15
APS-CU
CS

Installation and Influence of Surrounding Metals

A proximity sensor is susceptible to surrounding metals. When installing the sensor, secure a sufficient distance longer than the indicated dimension.



(in mm)

Model number	a	b	c	d	e	f	g	h
APS5-12GM	-	20	40	15	80	100	15	15
APS10-18GM-...	-	40	56	22	110	150	28	28
APS18-30GM-...	-	70	90	30	170	200	45	45
APS2-12GM	8	-	-	-	20	30	8	6
APS5-18GM-...	20	-	-	-	36	50	12	9
APS10-30GM-...	40	-	-	-	60	100	20	15

APS-GMC

APS-GMD

APS-GM

APS-GK

APS-30/31

APS-CK

APS-S/M

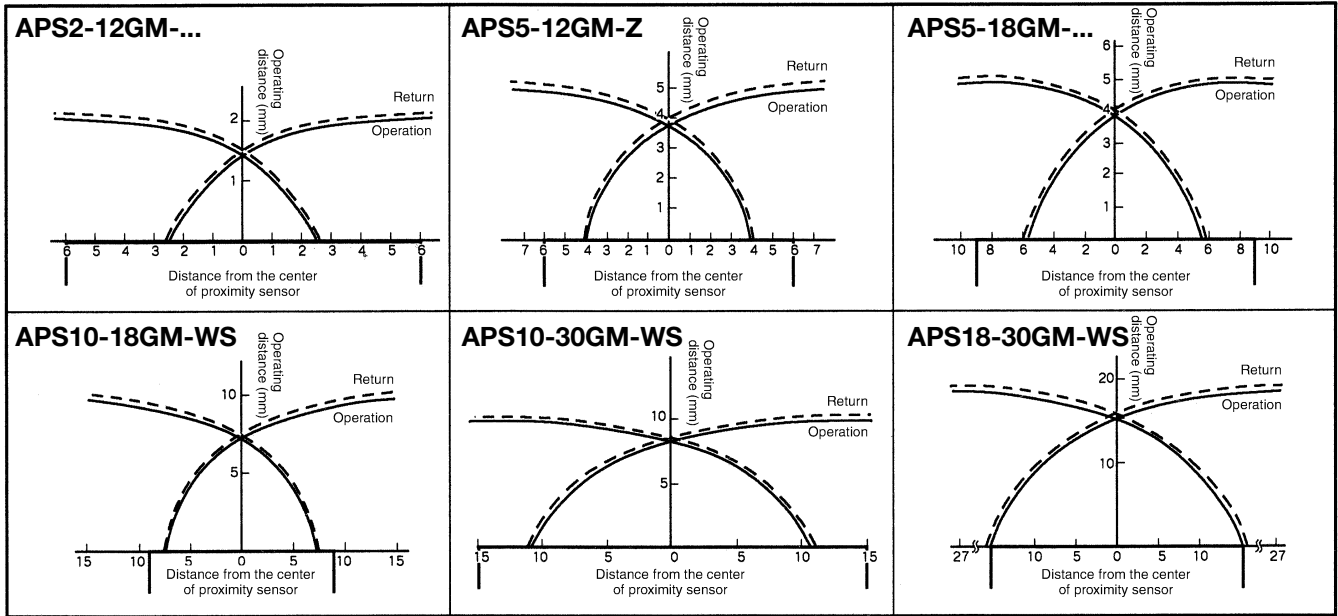
APS-F/U

APS-10~15

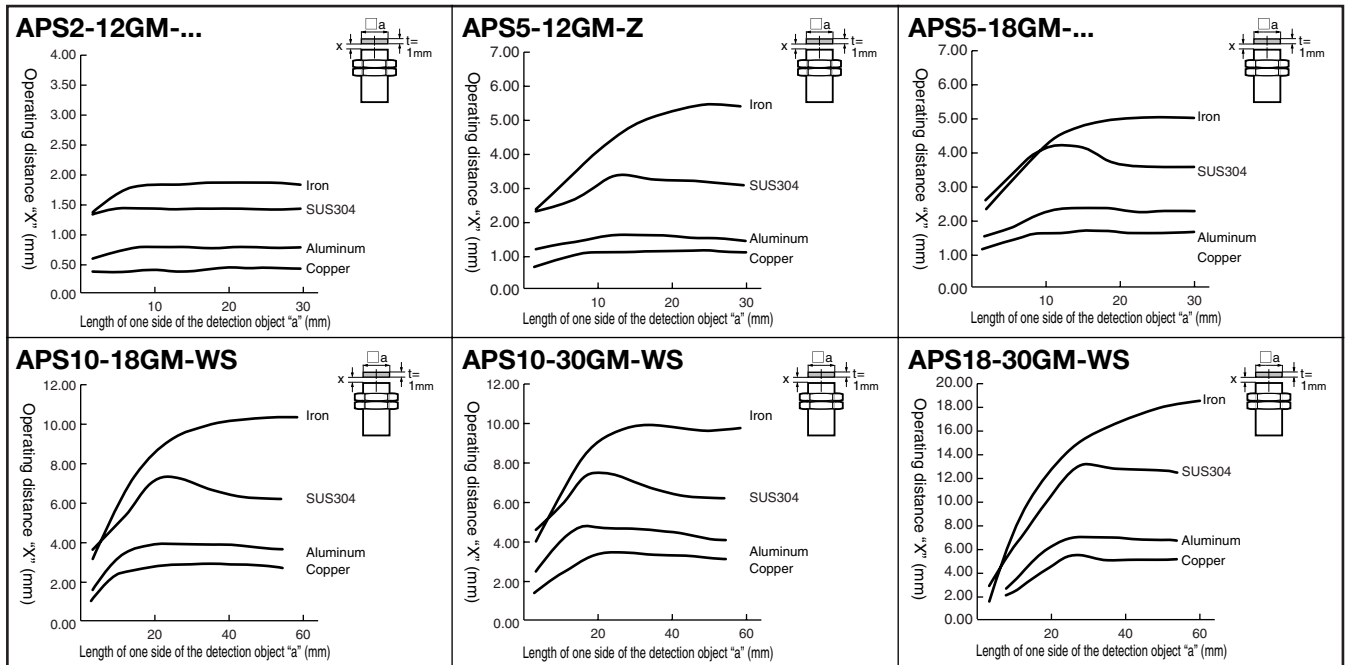
APS-CU

CS

Detection Area Drawings (Representative Examples)



Shape Characteristics (Representative Examples)



APS-GMC

APS-GMD

APS-GM

APS-GK

APS-30/31

APS-CK

APS-S/M

APS-F/U

APS-10~15

APS-CU

CS