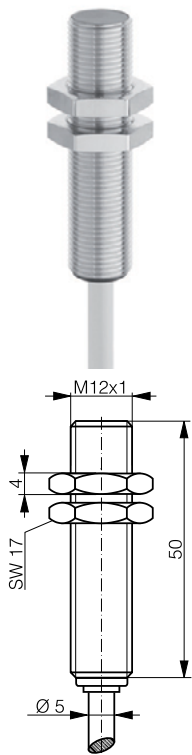
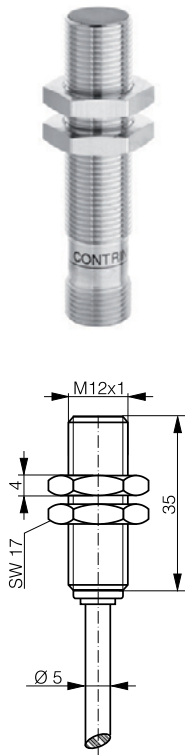


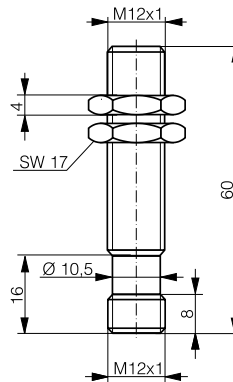
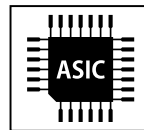
HOUSING	OPERATING DISTANCE	MOUNTING	✓ Long sensing range	✓ Exceptional price performance ratio
M12	6 mm	Quasi-embeddable	✓ Outstanding accuracy and temperature stability	✓ Current/voltage output
			✓ Resolution in $\mu\text{m}$ range	✓ IP67



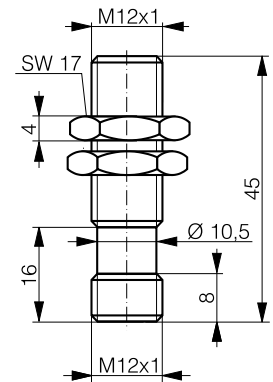
DW-AD-509-M12-390



DW-AD-509-M12-320



DW-AS-509-M12-390



DW-AS-509-M12-320

DETECTION DATA		INTERFACE	
Sensing distance ( $S_d$ )	6 mm	IO-Link	✗
Repeat accuracy (IEC 60947-5-2)	$\pm 0.32$ mm	MTTF (@40°C)	551 y
Static resolution* (@0.67· $S_d$ )	$\leq 0.18$ $\mu\text{m}$		
Dynamic resolution* (@0.67· $S_d$ )	$\leq 0.9$ $\mu\text{m}$		
Temperature drift of $S_d$	$\leq 5\%$ (0... +70°C) $\leq 10\%$ (-25... 0°C)		
Standard target	18 x 18 x 1 mm <sup>3</sup> , FE360		

\*Static resolution is measured when the target is moving at 20 Hz. Dynamic resolution when the target is moving at the sensor bandwidth limit.

ELECTRICAL DATA		MECHANICAL DATA	
Supply voltage range ( $U_b$ )	15...30 VDC	Mounting	Quasi-embeddable
Residual ripple	$\leq 20\%$ $U_b$	Housing material	Chrome-plated brass
Power consumption (no-load)	$\leq 10$ mA	Sensing face material	PBTP
Max. load at voltage output	$\leq 15$ mA	Max tightening torque	10 Nm (6 Nm first 10 mm)
Max. load at current output	N/A / 0.4k $\Omega$ ( $U_b=15\text{V}$ )/1k $\Omega$ ( $U_b=30\text{V}$ )	Ambient operating temperature	-25...+70°C <sup>1</sup>
Bandwidth	1000 Hz	Enclosure rating	IP 67
Time delay before availability	20 ms	Weight (cable / connector)	see page 2
Recovery time	20 ms	Shock and vibration	IEC 60947-5-2 / 7.4
Short-circuit protection	✓		
Voltage reversal protection	✓		
Cable length max.	$\leq 300$ m		

Note: all data measured according to IEC 60947-5-2 standard with  $U_b = 20...30\text{VDC}$ ,  $T_A = 23^\circ\text{C} \pm 5^\circ\text{C}$ .

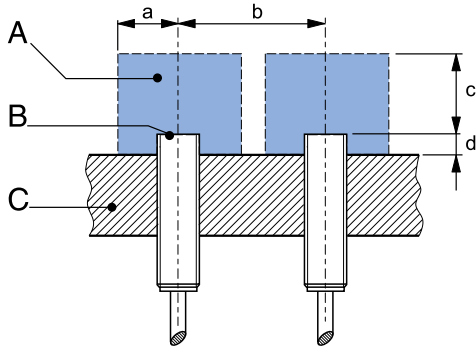
<sup>1</sup>Maximum temperature according to UL: 70°C.

## CORRECTION FACTORS

Steel FE 360	1	Copper	0.28	Aluminum	0.33	Brass	0.43	Stainless S. V2A 1 / 2 mm	0.8
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Note: the operating distance of the sensor must be multiplied by the correction factor of the material. For example, the operating distance on Aluminum is  $S_{n,Al} = S_n \times CF_{Al}$ . In case of embeddable mounting, the distance is multiplied by the additional correction factor of the support, thus  $S_{n,Al} = S_n \times CF_{Al} \times CF_{emb,Al}$ .

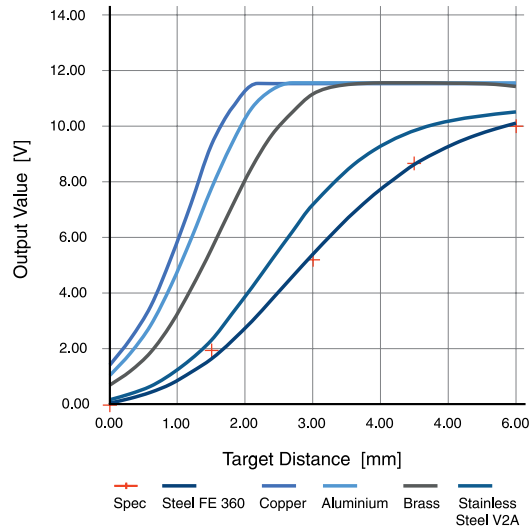
## INSTALLATION CONDITIONS



A : metal free zone	a : 12 mm
B : sensing face	b : 14 mm
C : support	c : 18 mm
	d : steel 2 mm

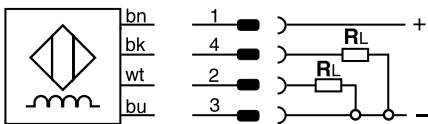
Note: additional installation information can be found in the glossary of the Contrinex General Catalog.

## RESPONSE DIAGRAM

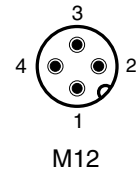


Output voltage	$s = 0 \text{ mm}$	$0 \text{ V} / -0.0 + 0.4 \text{ V}$	Output current	$s = 0 \text{ mm}$	$\text{N/A} / 4 \text{ mA} \pm 0.8$
	$s = S_d / 2 \text{ mm}$	$5.2 \text{ V} \pm 0.4 \text{ V}$		$s = S_d / 2 \text{ mm}$	$\text{N/A} / 12 \text{ mA} \pm 0.8$
	$s = S_d \text{ mm}$	$10.0 \text{ V} \pm 0.4 \text{ V}$		$s = S_d \text{ mm}$	$\text{N/A} / 20 \text{ mA} \pm 0.8$
	$s > S_d \text{ mm}$	$10 \dots 12 \text{ V} \pm 0.4 \text{ V}$		$s > S_d \text{ mm}$	$\text{N/A} / 20 \dots 23 \text{ mA} \pm 0.8$

## WIRING DIAGRAM



## PIN ASSIGNMENT



## AVAILABLE TYPES

Part number	Part reference	Connection	Output on pin 2 / wh	Output on pin 4 / bk	Weight
330-020-365	DW-AD-509-M12-320	PUR, 2 m, 3 wire	-	0...10 V	80 g
330-020-367	DW-AD-509-M12-390	PUR, 2 m, 4 wire	4...20 mA	0...10 V	87 g
330-020-372	DW-AS-509-M12-320	M12 4-pin	-	0...10 V	23 g
330-020-373	DW-AS-509-M12-390	M12 4-pin	4...20 mA	0...10 V	27 g

Note: part reference may include additional suffix to indicate a revision version or special version. Further information is available on request.

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