



INDUCTIVE SENSOR

COMPANY PROFILE

Tianjin Geneuo Technology Co., Ltd. specializes in the development, production and sales of industrial automation products, system integration and engineering service.

- **Communication solution**

- Industry EtherNET Switch

- Fieldbus modules: ProfiNET, EtherNET/IP, EtherCAT, MODBUS TCP/IP I/O modules

- **Inductive sensors**

- Different housing design are available:M5 to M80 and cubic

- **Optimized connection technology for efficient automation**

- M5 to M40 receptacle, pre-moulding cable, field wireable connectivity

- Passive junction box and splitters

- Industrial network connectors for ProfiNET, EtherNET/IP, EtherCAT, MODBUS TCP/IP,Profibus,DeviceNET,CC-link.

Geneuo exceptionally large product portfolio does not only cover all relevant standard solutions but also the special requirements of individual industries. The products and the total solution have been widely used in automotive, iron & steel, machine tool, elevator, textile, packaging, rubber machine etc.



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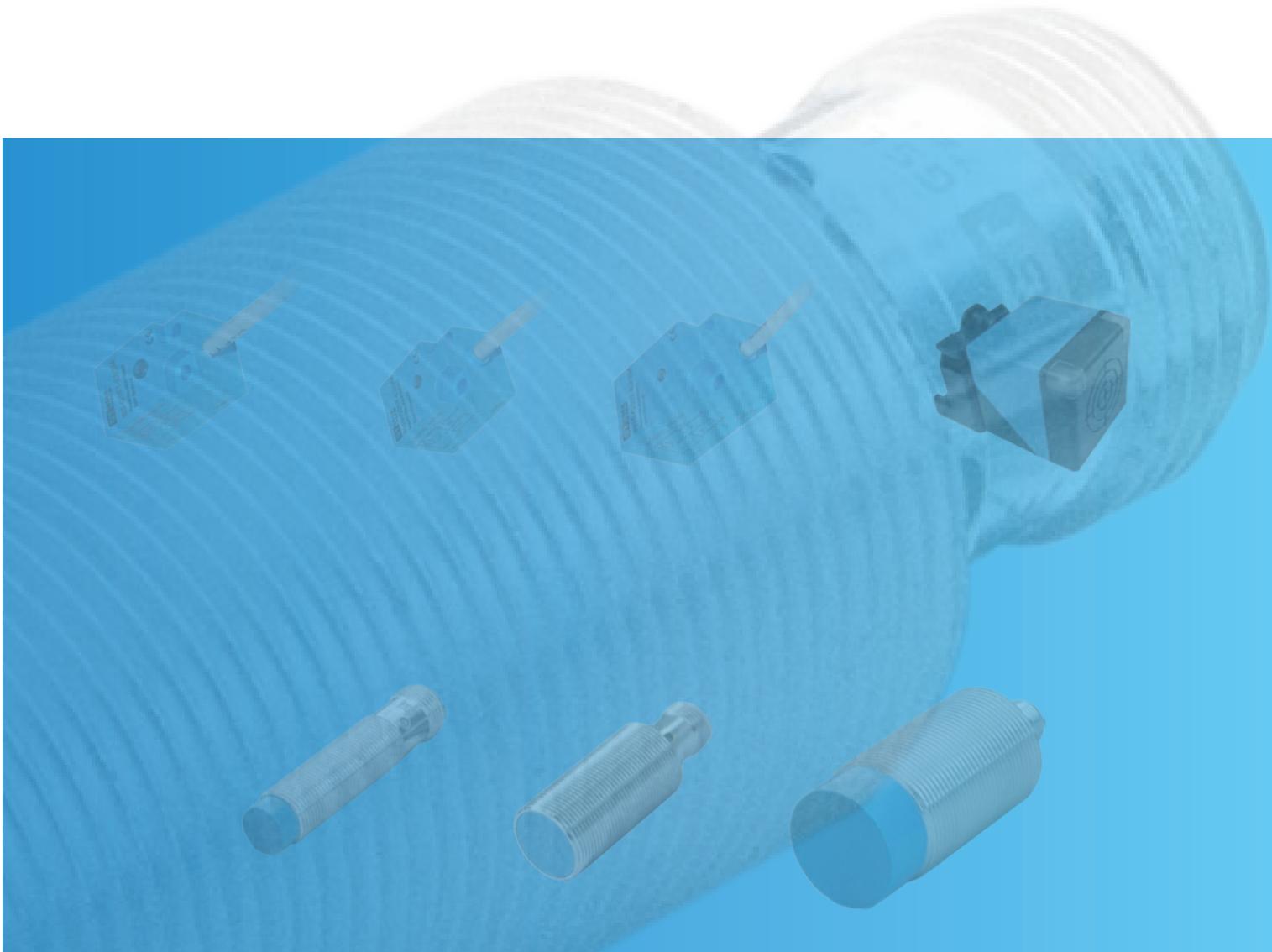
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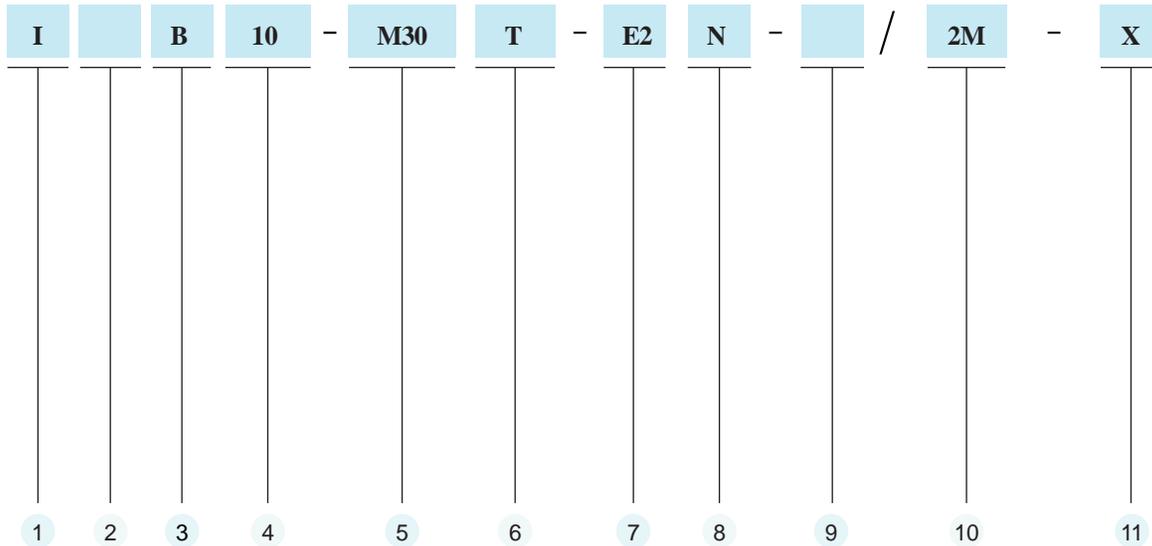
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■ Inductive Sensors

Type codes



1 I - Inductive sensor

2 Products series
Blank - Standard

3 Mounting conditions
B - Flush
N - Non-flush

4 Sensing range
0.6 mm ... 100 mm

5 Housing
Cylinder thread barrel -
M12, M18, M30
Small square -
Q8C, Q18, Q25, Q30
Square -
P40

6 Housing material
Blank -
Nickel / Chrome- coated
T - PBT material

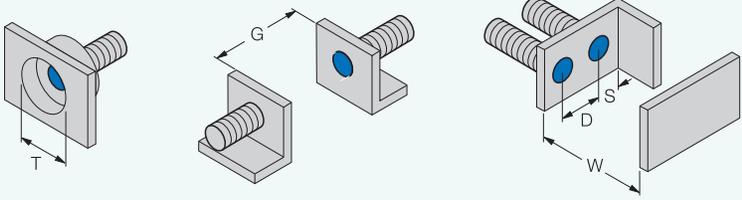
7 Electric output function
D0 - 4 wire, DC, NPN, NO+NC
D2 - 4 wire, DC, PNP, NO+NC
E0 - 3 wire, DC, NPN, NO
E1 - 3 wire, DC, NPN, NC
E2 - 3 wire, DC, PNP, NO
E3 - 3 wire, DC, PNP, NC
A2 - 2 wire, AC, NC
A4 - 2 wire, AC, NO
T0 - 2 wire, DC, NO,
with reverse polarity protection
T1 - 2 wire, DC, NC,
with reverse polarity protection

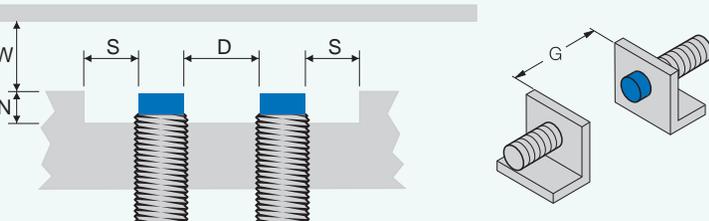
8 Function display
Blank - LED
N - No LED

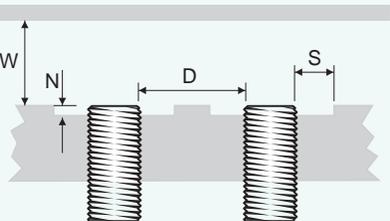
9 Special function description
Blank - No Special function

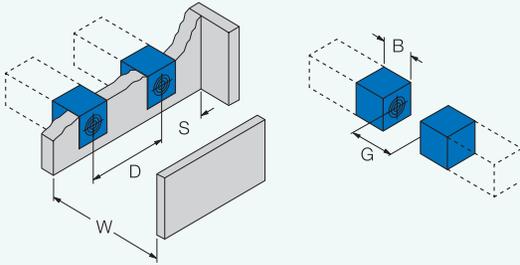
10 Electrical connection
Blank - M12x1 connector
S3 - 3-pin M8x1 connector
*M - Cable connection, Jacket-PVC,
cable length (unit: m)
*MR - Cable connection, Jacket-PUR,
cable length (unit: m)
E*M - *m cable with M12 straight
connector
EL*M - *m cable with M12 angle
connector
S*M - *m cable with M8 straight
connector
SL*M - *m cable with M8 angle
connector
SR*M - *m cable with $\Phi 8$
quick-disconnection
straight connector

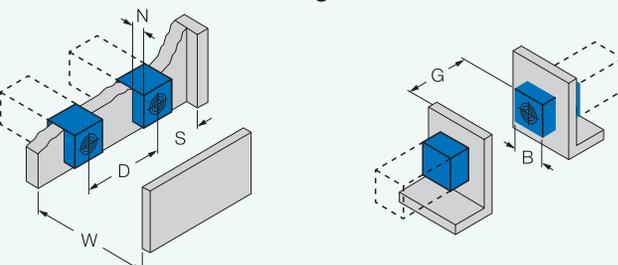
11 Additional information
D - Short housing length
L - Long housing length
G - Special code

Instructions	Minimum distances	<p style="text-align: center;">Standard flush mounting</p> 
Distance D	2xB	
Distance W	3xSn	
Distance S	3xB	
Distance G	1.5xB	
Distance N	3xSn	
Sensing face width B	Φ8 / Φ12 / Φ18 / Φ30 mm	

Instructions	Minimum distances	<p style="text-align: center;">Standard non-flush mounting</p> 
Distance D	3xB	
Distance W	3xSn	
Distance S	1.5xB	
Distance G	6xSn	
Distance N	1xB	
Sensing face width B	Φ8 / Φ12 / Φ18 / Φ30 mm	

Instructions	Minimum distances	<p style="text-align: center;">Semi-flush mounting</p> 	<p style="text-align: center;">Additional table</p> <table border="1"> <thead> <tr> <th>Housing Φ(mm)</th> <th>N (mm)</th> </tr> </thead> <tbody> <tr> <td>6.5</td> <td>1</td> </tr> <tr> <td>8</td> <td>1</td> </tr> <tr> <td>12</td> <td>2</td> </tr> <tr> <td>18</td> <td>4</td> </tr> <tr> <td>30</td> <td>6.5</td> </tr> </tbody> </table>	Housing Φ(mm)	N (mm)	6.5	1	8	1	12	2	18	4	30	6.5
Housing Φ(mm)	N (mm)														
6.5	1														
8	1														
12	2														
18	4														
30	6.5														
Distance D	3xSn														
Distance W	3xSn														
Distance S	1xSn														
Distance G	6xSn														
Distance N	See "Additional table"														
Sensing face width B	See "Additional table"														

Instructions	Minimum distances	<p style="text-align: center;">Standard flush mounting</p> 
Distance D	2xB	
Distance W	3xSn	
Distance S	1xB	
Distance G	6xSn	
Width of the active face B	8C/18/25/30/40mm	

Instructions	Minimum distances	<p style="text-align: center;">Standard non-flush mounting</p> 
Distance D	4xB	
Distance W	3xSn	
Distance S	1.5xB	
Distance G	3xSn	
Distance N	1xB	
Sensing face width B	18/25/30/40mm	

Selection guide-Inductive Sensors

Series		Special Edition-Q8C	Standard-M8	Standard-M12/M18/M30
Inductive Sensors				
Type NO.		IB2.5-Q8CT-...	IB2-M8-... / IN4-M8...	IB*/IN*-M12... / IB*/IN*-M18... / IB*/IN*-M30...
Page		006	006	007, 008, 009, 012, 013, 014, 017, 018
Mounting conditions & Rated operating distance ⁽¹⁾	Flush	2.5 mm	2 mm	M12: 2mm(Only AC) / 4mm M18: 5mm(Only AC) / 8mm M30: 10mm(Only AC) / 15mm
	Semi-Flush	----	----	----
	Non-Flush	----	4 mm	M12 : 4mm M18 : 8mm M30 : 15mm
Housing style & Dimension(mm)		Cable Version, 8.1 x 4.5 x 20	Cable Version, M8 x 42 / 46	M12: F-50/53, NF-55/58 M18: F-50, NF-58.5 M30: F-52/60, NF-65/73
Housing material		PA	Chrome-plated brass	Chrome-plated brass
Protection degree		IP67	IP67	IP67
Operating Voltage		10 - 30 VDC	10 - 30 VDC	10 - 30 VDC / 20 - 250 VAC
Electrical connection	Cable type	■	■	■
	Connector type	■	■	■
	Terminal type			
Output function	PNP	■	■	■
	NPN	■	■	■
	2-wire (DC)			■
	2-wire (AC/DC)			■
	Relay			
Series Features		<ul style="list-style-type: none"> ■ Q8C Miniature square housing ■ Flush mounting ■ PA white plastic housing ■ Protection degree-IP67 ■ Designed for electronic devices ■ 3 wire DC, 10...30 VDC ■ 3 wire PNP or NPN output ■ Cable / M8 or M12 Pigtail-connector version 	<ul style="list-style-type: none"> ■ M8x1 Thread barrel ■ Flush or Non-Flush mounting ■ Chrome-plated brass ■ Protection degree-IP67 ■ Sensing surface material-PBT ■ 3 wire DC, 10...30 VDC ■ 3 wire PNP or NPN output ■ Cable / M8 or M12 Pigtail-connector version 	<ul style="list-style-type: none"> ■ M12 / M18 / M30 Thread barrel ■ Flush or Non-Flush mounting ■ Chrome-plated brass ■ Protection degree-IP67 ■ Sensing surface material-PBT ■ Sensing surface material-PBT ■ 2 / 3 / 4 wire DC, 10...30 VDC ■ 2 wire DC or AC, 3/4 wire PNP or NPN ■ Cable version / M12 connector version
Certification			CE	CE

(1) Rated operating distance-S_n, measured with axial approach of a standard target, manufacturing tolerances and external influences are not considered.

(2) ----

Standard-Q18	Standard-Q25	Standard-Q30	Standard-P40
			
IB5-Q18T... / IN8-Q18T...	IB8-Q25T... / IN10-Q25T...	IB10-Q30T... / IN15-Q30T...	IB25-P40T... / IN35-P40T...
010, 015	010, 015, 018	011, 016, 018	011
5 mm	8 mm	10 mm	20 mm
----	----	----	----
8 mm	10 mm	15 mm	35 mm
Q18 x 29	Q25 x 38.5	Q30 x 52.5	40 x 40 x 66
PBT	PBT	PBT	Black / Blue PBT
IP67	IP67	IP67	IP67
10 - 30 VDC	10 - 30 VDC	10 - 30 VDC	10 - 30 VDC
■	■	■	
■	■	■	■
■	■	■	■
■	■	■	■
■	■	■	
	■	■	
■			
<ul style="list-style-type: none"> ■ Q18 Small square housing ■ Flush or Non-Flush mounting ■ PBT Blue plastic housing ■ Protection degree-IP67 ■ 2 / 3 / 4 wire DC, 10...30 VDC ■ 2 wire DC, 3 wire PNP or NPN output, 4 wire SPST(Relay) ■ Cable version / M8 or M12 Pigtail connector version 	<ul style="list-style-type: none"> ■ Q25 Small square housing ■ Flush or Non-Flush mounting ■ PBT Blue plastic housing ■ Protection degree-IP67 ■ 2 / 3 wire DC, 10...30 VDC ■ 2 wire DC or AC, 3 wire PNP or NPN, ■ Cable version / M8 or M12 Pigtail connector version 	<ul style="list-style-type: none"> ■ Q30 Small square housing ■ Flush or Non-Flush mounting ■ PBT Blue plastic housing ■ Protection degree-IP67 ■ 2 / 3 / 4 wire DC, 10...30 VDC ■ 2 wire DC or AC, 3 wire PNP or NPN, Complementary output function NO/NC ■ Cable version / M8 or M12 Pigtail connector version 	<ul style="list-style-type: none"> ■ P40 Rectangular ■ Flush or Non-Flush mounting ■ Black / Blue PBT ■ Protection degree-IP67 ■ Sensing surface-5 positions optional ■ 3 / 4 wire DC, 10...30 VDC ■ 3 / 4 wire PNP or NPN, Complementary output function NO/NC ■ M12 connector
CE	CE	CE	CE

(1) Rated operating distance-S_n, measured with axial approach of a standard target, manufacturing tolerances and external influences are not considered.

(2) ----

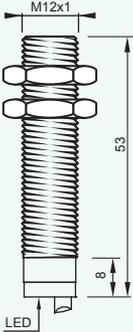
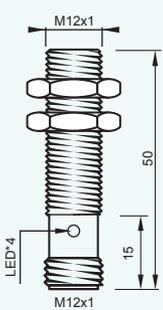
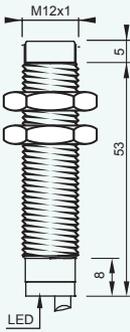
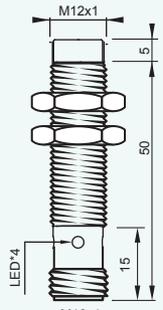
Housing style	Q8C	M8	M8
Sensing distance	2.5mm	2mm	4mm
Mounting condition	Flush	Flush	Non-flush

Dimensions				

Performance Parameter			
Operating Voltage	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤50mA	≤200mA	≤200mA
Connection	2M, PUR Cable, Ø2.5	2M, PVC Cable	2M, PVC Cable
Voltage Drop.	<2.5V	≤1.8V	≤1.8V
Residual Current	≤0.1mA	—	—
Reverse polarity protection	built-in	built-in	built-in
Switching Freq.	800Hz	900Hz	500Hz
Hysteresis % Sr	2...20%	1...20%	1...20%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	PA	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~70°C	-25~70°C
Output LED	----	yellow	yellow

Output function Type & Item No.			
PNP,NO	IB2.5-Q8CT-E2/2M A047B8E2	IB2-M8-E2/2M-Z A008Z003	IN4-M8-E2/2M-Z A008Z007
PNP,NC		IB2-M8-E3/2M-Z A008Z004	IN4-M8-E3/2M-Z A008Z008
PNP,NO+NC			
NPN,NO	IB2.5-Q8CT-E0/2M A047B8E0	IB2-M8-E0/2M-Z A008Z001	IN4-M8-E0/2M-Z A008Z005
NPN,NC		IB2-M8-E1/2M-Z A008Z002	IN4-M8-E1/2M-Z A008Z006
NPN,NO+NC			

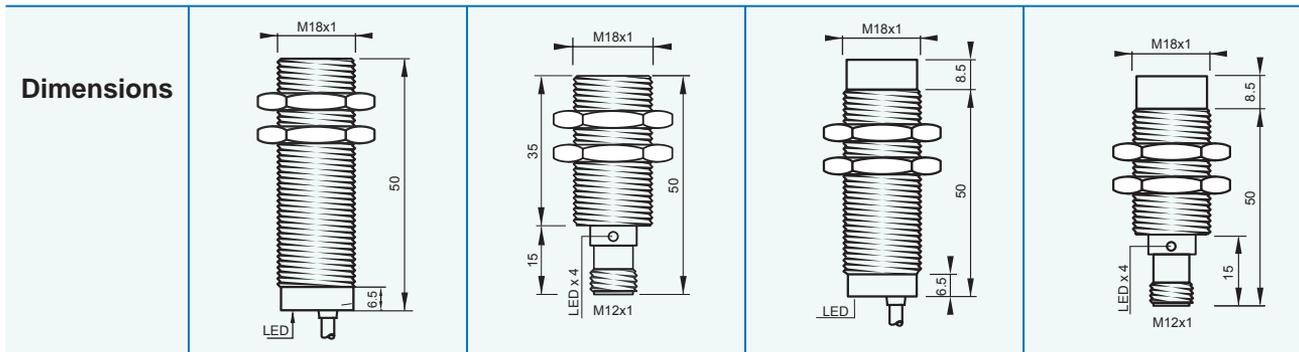
Housing style	M12	M12	M12	M12
Sensing distance	4mm	4mm	4mm	4mm
Mounting condition	Flush	Flush	Non-flush	Non-flush

Dimensions				
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Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤2.5V	≤2.5V	≤2.5V	≤2.5V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	600Hz	600Hz	600Hz	600Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
PNP,NO	IB4-M12-E2/2M A0120006	IB4-M12-E2 A0120005	IN4-M12-E2/2M A0120022	IN4-M12-E2 A0120021
PNP,NC	IB4-M12-E3/2M A0120008	IB4-M12-E3 A0120007	IN4-M12-E3/2M A0120024	IN4-M12-E3 A0120023
PNP,NO+NC	IB4-M12-D2/2M A0120012	IB4-M12-D2 A0120011	IN4-M12-D2/2M A0120016	IN4-M12-D2 A0120015
NPN,NO	IB4-M12-E0/2M A0120002	IB4-M12-E0 A0120001	IN4-M12-E0/2M A0120018	IN4-M12-E0 A0120017
NPN,NC	IB4-M12-E1/2M A0120004	IB4-M12-E1 A0120003	IN4-M12-E1/2M A0120020	IN4-M12-E1 A0120019
NPN,NO+NC	IB4-M12-D0/2M A0120010	IB4-M12-D0 A0120009	IN4-M12-D0/2M A0120014	IN4-M12-D0 A0120013

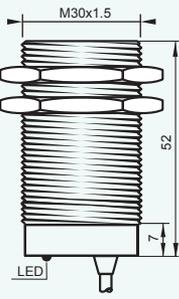
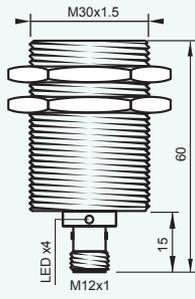
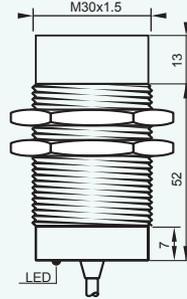
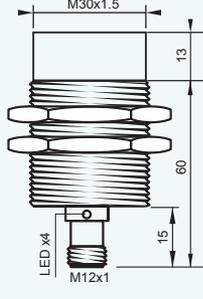
Housing style	M18	M18	M18	M18
Sensing distance	8mm	8mm	8mm	8mm
Mounting condition	Flush	Flush	Non-flush	Non-flush



Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤2.5V	≤2.5V	≤2.5V	≤2.5V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	400Hz	400Hz	400Hz	400Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
PNP,NO	IB8-M18-E2/2M A0180006	IB8-M18-E2 A0180005	IN8-M18-E2/2M A0180018	IN8-M18-E2 A0180017
PNP,NC	IB8-M18-E3/2M A0180008	IB8-M18-E3 A0180007	IN8-M18-E3/2M A0180020	IN8-M18-E3 A0180019
PNP,NO+NC	IB8-M18-D2/2M A0180012	IB8-M18-D2 A0180011	IN8-M18-D2/2M A0180024	IN8-M18-D2 A0180023
NPN,NO	IB8-M18-E0/2M A0180002	IB8-M18-E0 A0180001	IN8-M18-E0/2M A0180014	IN8-M18-E0 A0180013
NPN,NC	IB8-M18-E1/2M A0180004	IB8-M18-E1 A0180003	IN8-M18-E1/2M A0180016	IN8-M18-E1 A0180015
NPN,NO+NC	IB8-M18-D0/2M A0180010	IB8-M18-D0 A0180009	IN8-M18-D0/2M A0180022	IN8-M18-D0 A0180021

Housing style	M30	M30	M30	M30
Sensing distance	15mm	15mm	15mm	15mm
Mounting condition	Flush	Flush	Non-flush	Non-flush

Dimensions				

Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤2.5V	≤2.5V	≤2.5V	≤2.5V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	300Hz	300Hz	300Hz	300Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
PNP,NO	IB15-M30-E2/2M A0300006	IB15-M30-E2 A0300005	IN15-M30-E2/2M A0300018	IN15-M30-E2 A0300017
PNP,NC	IB15-M30-E3/2M A0300008	IB15-M30-E3 A0300007	IN15-M30-E3/2M A0300020	IN15-M30-E3 A0300019
PNP,NO+NC	IB15-M30-D2/2M A0300012	IB15-M30-D2 A0300011	IN15-M30-D2/2M A0300024	IN15-M30-D2 A0300023
NPN,NO	IB15-M30-E0/2M A0300002	IB15-M30-E0 A0300001	IN15-M30-E0/2M A0300014	IN15-M30-E0 A0300013
NPN,NC	IB15-M30-E1/2M A0300004	IB15-M30-E1 A0300003	IN15-M30-E1/2M A0300016	IN15-M30-E1 A0300015
NPN,NO+NC	IB15-M30-D0/2M A0300010	IB15-M30-D0 A0300009	IN15-M30-D0/2M A0300022	IN15-M30-D0 A0300021

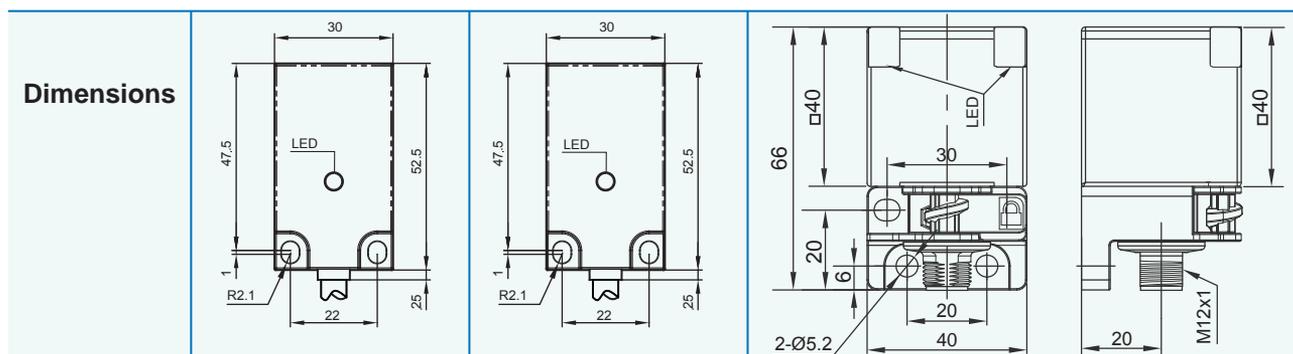
Housing style	Q18	Q18	Q25	Q25
Sensing distance	5mm	8mm	8mm	10mm
Mounting condition	Flush	Non-flush	Flush	Non-flush

Dimensions				

Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable
Voltage Drop.	≤2.5V	≤2.5V	≤2.5V	≤2.5V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	400Hz	400Hz	400Hz	400Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	PBT	PBT	PBT	PBT
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~70°C	-25~70°C	-25~70°C	-25~70°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
PNP,NO	IB5-Q18T-E2/2M A0410003	IN8-Q18T-E2/2M A0410011	IB8-Q25T-E2/2M A0420013	IN10-Q25T-E2/2M A0420003
PNP,NC	IB5-Q18T-E3/2M A0410004	IN8-Q18T-E3/2M A0410012	IB8-Q25T-E3/2M A0420014	IN10-Q25T-E3/2M A0420004
PNP,NO+NC				
NPN,NO	IB5-Q18T-E0/2M A0410001	IN8-Q18T-E0/2M A0410009	IB8-Q25T-E0/2M A0420011	IN10-Q25T-E0/2M A0420001
NPN,NC	IB5-Q18T-E1/2M A0410002	IN8-Q18T-E1/2M A0410010	IB8-Q25T-E1/2M A0420012	IN10-Q25T-E1/2M A0420002
NPN,NO+NC				

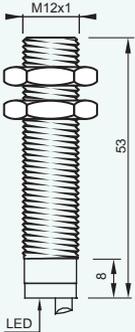
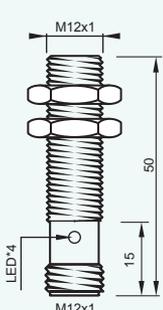
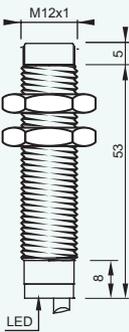
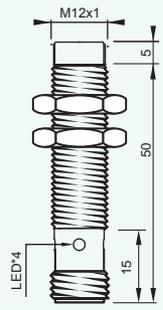
Housing style	Q30	Q30	P40T	P40T
Sensing distance	10mm	15mm	20mm	35mm
Mounting condition	Flush	Non-flush	Flush	Non-flush



Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	2M, PVC Cable	M12 Connector	M12 Connector
Voltage Drop.	≤2.5V	≤2.5V	≤2.5V	≤2.5V
Residual Current	—	—	≤0.1mA	≤0.1mA
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	400Hz	400Hz	120Hz	50Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	PBT	PBT	PBT	PBT
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~70°C	-25~70°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	green / yellow	green / yellow

Output function Type & Item No.				
PNP,NO	IB10-Q30T-E2/2M A0430018	IN15-Q30T-E2/2M A0430005	IB25-P40T-E2 A044Z003	IN35-P40T-E2 A044Z007
PNP,NC	IB10-Q30T-E3/2M A0430019	IN15-Q30T-E3/2M A0430006	IB25-P40T-E3 A044Z004	IN35-P40T-E3 A044Z008
PNP,NO+NC	IB10-Q30T-D2/2M A0430021	IN15-Q30T-D2/2M A0430002	IB25-P40T-D2 A044Z010	IN35-P40T-D2 A044Z012
NPN,NO	IB10-Q30T-E0/2M A0430016	IN15-Q30T-E0/2M A0430003	IB25-P40T-E0 A044Z001	IN35-P40T-E0 A044Z005
NPN,NC	IB10-Q30T-E1/2M A0430017	IN15-Q30T-E1/2M A0430004	IB25-P40T-E1 A044Z002	IN35-P40T-E1 A044Z006
NPN,NO+NC	IB10-Q30T-D0/2M A0430020	IN15-Q30T-D0/2M A0430001	IB25-P40T-D0 A044Z009	IN35-P40T-D0 A044Z011

Housing style	M12	M12	M12	M12
Sensing distance	4mm	4mm	4mm	4mm
Mounting condition	Flush	Flush	Non-flush	Non-flush

Dimensions				
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Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤6.0V	≤6.0V	≤6.0V	≤6.0V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	700Hz	700Hz	700Hz	700Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
DC 2-wires,NO	IB4-M12-T0/2M A0120026	IB4-M12-T0 A0120025	IN4-M12-T0/2M A0120030	IN4-M12-T0 A0120029
DC 2-wires,NC	IB4-M12-T1/2M A0120028	IB4-M12-T1 A0120027	IN4-M12-T1/2M A0120032	IN4-M12-T1 A0120031

Housing style	M18	M18	M18	M18
Sensing distance	8mm	8mm	8mm	8mm
Mounting condition	Flush	Flush	Non-flush	Non-flush

Dimensions				
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Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤6.0V	≤6.0V	≤6.0V	≤6.0V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	700Hz	700Hz	700Hz	700Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
DC 2-wires,NO	IB8-M18-T0/2M A0180026	IB8-M18-T0 A0180025	IN8-M18-T0/2M A0180042	IN8-M18-T0 A0180041
DC 2-wires,NC	IB8-M18-T1/2M A0180028	IB8-M18-T1 A0180027	IN8-M18-T1/2M A0180044	IN8-M18-T1 A0180043

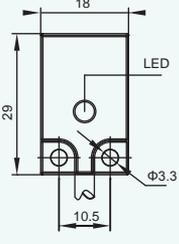
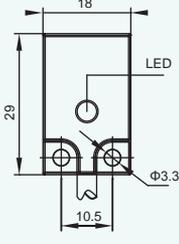
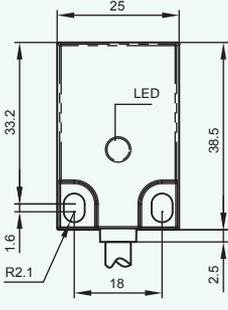
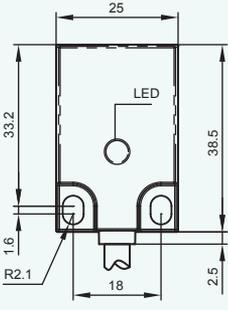
Housing style	M30	M30	M30	M30
Sensing distance	15mm	15mm	15mm	15mm
Mounting condition	Flush	Flush	Non-flush	Non-flush

Dimensions				
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Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	M12 Connector	2M, PVC Cable	M12 Connector
Voltage Drop.	≤6.0V	≤6.0V	≤6.0V	≤6.0V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	700Hz	700Hz	700Hz	700Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
DC 2-wires,NO	IB15-M30-T0/2M A0300026	IB15-M30-T0 A0300025	IN15-M30-T0/2M A0300030	IN15-M30-T0 A0300029
DC 2-wires,NC	IB15-M30-T1/2M A0300028	IB15-M30-T1 A0300027	IN15-M30-T1/2M A0300032	IN15-M30-T1 A0300031

Housing style	Q18	Q18	Q25	Q25
Sensing distance	5mm	8mm	8mm	10mm
Mounting condition	Flush	Non-flush	Flush	Non-flush

Dimensions				

Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC	10...30VDC	10...30VDC
Operating Current	≤200mA	≤200mA	≤200mA	≤200mA
Connection	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable
Voltage Drop.	≤6.0V	≤6.0V	≤6.0V	≤6.0V
Residual Current	—	—	—	—
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	700Hz	700Hz	700Hz	700Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	PBT	PBT	PBT	PBT
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~70°C	-25~70°C
Output LED	yellow	yellow	yellow	yellow

Output function Type & Item No.				
DC 2-wires,NO	IB5-Q18T-T0/2M A0410005	IN8-Q18T-T0/2M A0410030	IB8-Q25T-T0/2M A0420038	IN10-Q25T-T0/2M A0420006
DC 2-wires,NC	IB5-Q18T-T1/2M A0410006	IN8-Q18T-T1/2M A0410014	IB8-Q25T-T1/2M A0420040	IN10-Q25T-T1/2M A0420009

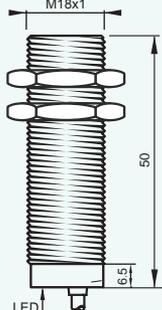
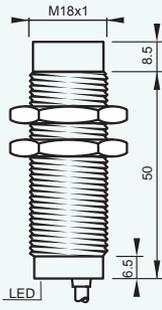
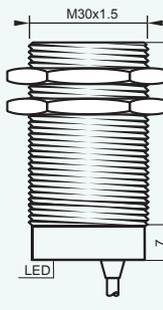
Housing style	Q30	Q30		
Sensing distance	15mm	15mm		
Mounting condition	Non-flush	Non-flush		

Dimensions				

Performance Parameter				
Operating Voltage	10...30VDC	10...30VDC		
Operating Current	≤200mA	≤200mA		
Connection	2M, PVC Cable	2M, PVC Cable		
Voltage Drop.	≤6.0V	≤6.0V		
Residual Current	—	—		
Short-circuit protection	built-in	built-in		
Switching Freq.	200Hz	200Hz		
Hysteresis % Sr	3...15%	3...15%		
Repeatability	≤5%Sr	≤5%Sr		
Housing material	PBT	PBT		
Protection degree	IP67	IP67		
Operating Temp.	-25~70°C	-25~70°C		
Output LED	yellow	yellow		

Output function Type & Item No.				
DC 2-wires,NO	IB10-Q30T-T0/2M A0430025	IN15-Q30T-T0/2M A0430040		
DC 2-wires,NC	IB10-Q30T-T1/2M A0430027	IN15-Q30T-T1/2M A0430008		

Housing style	M18	M18	M30	M30
Sensing distance	5mm	8mm	10mm	15mm
Mounting condition	Flush	Non-flush	Flush	Non-flush

Dimensions				

Performance Parameter				
Operating Voltage	20~250VAC	20~250VAC	20~250VAC	20~250VAC
Operating Current	≤400mA	≤400mA	≤400mA	≤400mA
Connection	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable
Voltage Drop.	≤11V	≤11V	≤11V	≤11V
Residual Current	≤3mA	≤3mA	≤3mA	≤3mA
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	20Hz	20Hz	20Hz	20Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	brass-chrome coated	brass-chrome coated	brass-chrome coated	brass-chrome coated
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

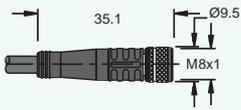
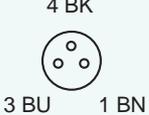
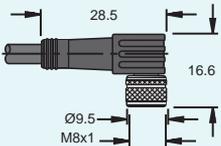
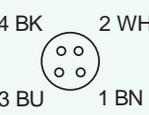
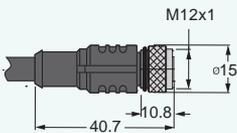
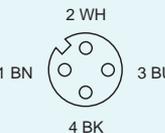
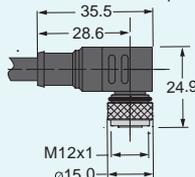
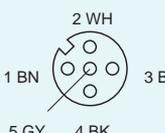
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AC 2-wires,NO	IB5-M18-A4/2M A0180941	IN8-M18-A4/2M A0180036	IB10-M30-A4/2M A0300941	IN15-M30-A4/2M A0300040
AC 2-wires,NC	IB5-M18-A2/2M A0180939	IN8-M18-A2/2M A0180034	IB10-M30-A2/2M A0300963	IN15-M30-A2/2M A0300038

Housing style	Q25	Q25	Q30	Q30
Sensing distance	8mm	10mm	10mm	15mm
Mounting condition	Flush	Non-flush	Flush	Non-flush

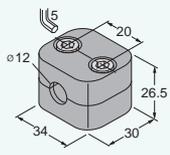
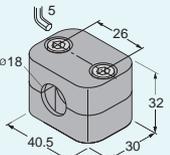
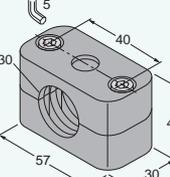
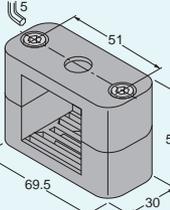
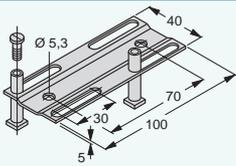
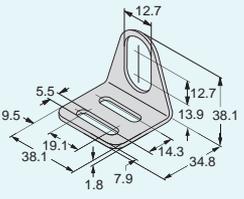
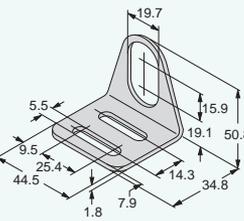
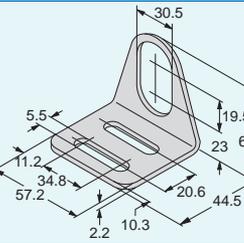
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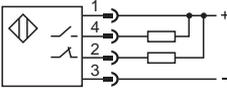
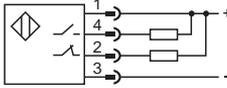
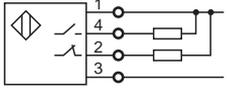
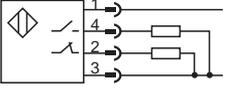
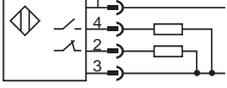
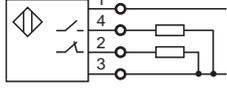
Performance Parameter				
Operating Voltage	20~250VAC	20~250VAC	20~250VAC	20~250VAC
Operating Current	≤400mA	≤400mA	≤400mA	≤400mA
Connection	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable	2M, PVC Cable
Voltage Drop.	≤11V	≤11V	≤11V	≤11V
Residual Current	≤3mA	≤3mA	≤3mA	≤3mA
Short-circuit protection	built-in	built-in	built-in	built-in
Switching Freq.	20Hz	20Hz	20Hz	20Hz
Hysteresis % Sr	3...15%	3...15%	3...15%	3...15%
Repeatability	≤5%Sr	≤5%Sr	≤5%Sr	≤5%Sr
Housing material	PBT	PBT	PBT	PBT
Protection degree	IP67	IP67	IP67	IP67
Operating Temp.	-25~75°C	-25~75°C	-25~75°C	-25~75°C
Output LED	yellow	yellow	yellow	yellow

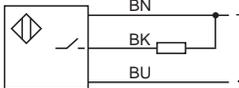
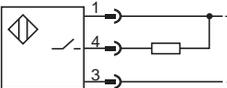
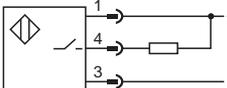
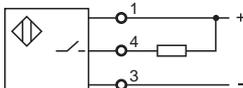
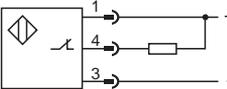
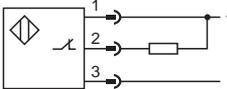
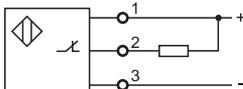
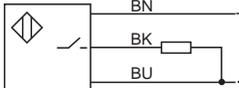
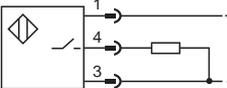
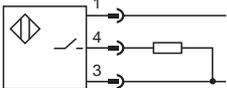
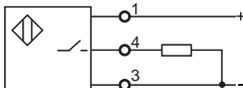
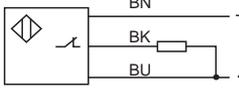
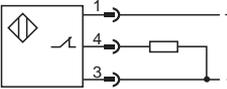
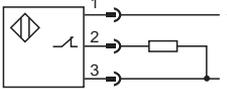
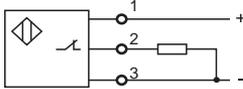
Output function Type & Item No.				
AC 2-wires,NO	IB8-Q25T-A4/2M A0420033	IN10-Q25T-A4/2M A0420007	IB10-Q30T-A4/2M A0430037	IN15-Q30T-A4/2M A0430009
AC 2-wires,NC	IB8-Q25T-A2/2M A0420035	IN10-Q25T-A2/2M A0420008	IB10-Q30T-A2/2M A0430039	IN15-Q30T-A2/2M A0430010

Connectors (1)		(1) Other connector types please ask connector product manager			
Pre-cast cable		Pin Number	Cable Length	Order code	Type
M8x1 straight female connector 		3	2m	10021000	SK3-2M/P00
			5m	10021001	SK3-5M/P00
			10m	10021002	SK3-10M/P00
		4	2m	10021010	SK4-2M/P00
			5m	10021011	SK4-5M/P00
			10m	10021012	SK4-10M/P00
M8x1 angle female connector 		3	2m	10021020	SLK3-2M/P00
			5m	10021021	SLK3-5M/P00
			10m	10021022	SLK3-10M/P00
		4	2m	10021030	SLK4-2M/P00
			5m	10021031	SLK4-5M/P00
			10m	10021032	SLK4-10M/P00
M12x1 straight female connector 		4	2m	10011010	EK4-2M/P00
			5m	10011011	EK4-5M/P00
			10m	10011012	EK4-10M/P00
		5	2m	10011020	EK4.5-2M/P00
			5m	10011021	EK4.5-5M/P00
			10m	10011022	EK4.5-10M/P00
M12x1 angle female connector 		4	2m	10011040	ELK4-2M/P00
			5m	10011041	ELK4-5M/P00
			10m	10011042	ELK4-10M/P00
		5	2m	10011050	ELK4.5-2M/P00
			5m	10011051	ELK4.5-5M/P00
			10m	10011052	ELK4.5-10M/P00

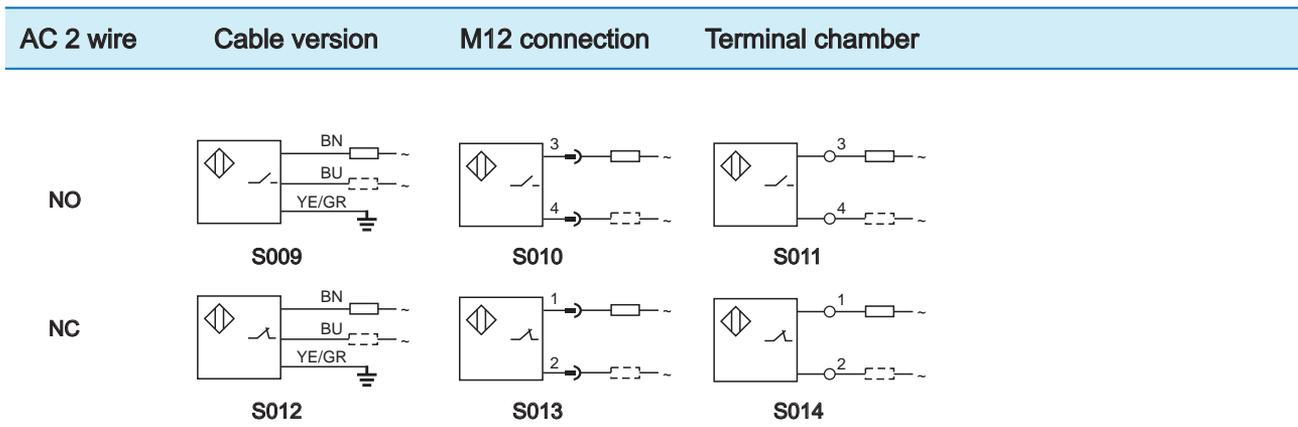
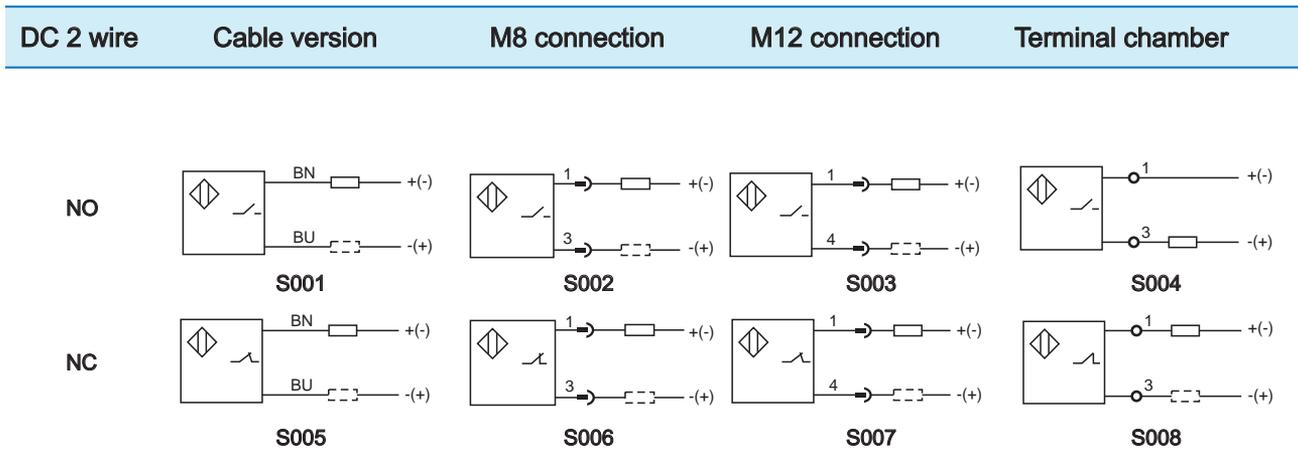
Mounting accessories

Dimension (mm)	Type	Ident NO.	Material	For sensor types
	MBP-M12	M0000001	PP	For threaded barrel M12 sensors
	MBP-M18	M0000002	PP	For threaded barrel M18 sensors
	MBP-M30	M0000003	PP	For threaded barrel M30 sensors
	MBP-P40	M0000004	PP	For rectangular K40 sensors
	MBM-K40	M0000005	VA	For rectangular K40 sensors
	MBM-M12-L	M0000006	VA	For threaded barrel M12 sensors
	MBM-M18-L	M0000007	VA	For threaded barrel M18 sensors
	MBM-M30-L	M0000008	VA	For threaded barrel M30 sensors

DC 4 wire	Cable version	M8 connection	M12 connection	Terminal chamber
NPN NO+NC	 S031	 S059	 S032	 S033
PNP NO+NC	 S034	 S060	 S035	 S036

DC 3/4 wire	Cable version	M8 connection	M12 connection	Terminal chamber
NPN NO	 S015	 S016	 S017	 S018
NPN NC	 S019	 S020	 S021	 S022
PNP NO	 S023	 S024	 S025	 S026
PNP NC	 S027	 S028	 S029	 S030

Wiring diagrams



CAPACITANCE

Maximum permissible capacity is the maximum allowed total capacitance of load on devices output, while still need to ensure reliable operation of sensors, main part of the total capacitance is the line capacitance (about 00-200 pf/m) and load input capacitance.

CE MARK

The CE-symbol is neither a seal of quality nor a test mark but serves for free trade within the European Community.

Manufacturers assure that the protective aims of the applicable directives are fulfilled by CE- labelled products.

With the CE symbol on products for sale, the manufacturer confirms that these products comply with the technical guidelines for operating safety and electromagnetic compatibility valid at the time of licensing.

DEGREES OF PROTECTION

Protection against the ingress of water or foreign matter, touch protection

IP65: full protection against ingress of dust and water.

IP67: full protection against ingress of dust and protection against submersion of

water at 1 m depth for 30 minutes at constant temperature.

IP68: including IP67

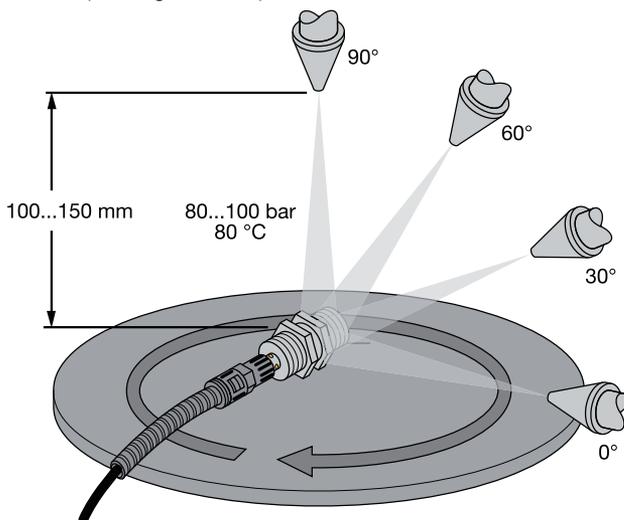
– 24 hrs. continuous storage at +70 °C

– 24 hrs. continuous storage at -25 °C

– 7 days submersion, depth 1 m

– 10 thermal shock changes from +70°C to -25°C, dwell cycle per temperature 1h:

IP69K: Full protection against dust and high-pressure/steam-jet cleaning according to DIN 40050-9, following EN 60529 EN 60529 (See Figure below)



Residual current (I_r)

2-wire sensors: The current which flows in non-active condition.

3 and 4-wire sensors: The current which flows in non-active condition between the output and 0 V (PNP output), resp. between output and supply voltage (NPN output).

Magnetic field

Magnetic-field immune sensors are insensitive to magnetic fields, as they occur in welding systems for example.

All IRB series sensors are immune to magnetic DC or AC fields due to their special function principle.

No-load current $I(I_0)$

2-wire sensors: The current which flows in non-active condition.

3/4-wire sensors: Off-state current flow between output and 0 V (PNP output) resp. output and supply voltage (NPN output), see also residual current.

Voltage drop

Voltage drop is the reduction in voltage of a connected output. While output amplifier operated, there has a voltage drop between amplifier and polarity reversal protection diode (voltage lie on current).

Special notice: When a few of sensors connected in series or connected to the input of electronic components.

Viberaton and shock resistance

All sensors mentioned in catalogue according to standard IEC600068-2-6 after vibration test (1 mm amplitude 55 hz). After a bear: 30 g (30 times the acceleration of gravity) 11 ms impact experiment, through the IEC60068-2-27 testing.

Power supply U_b

Shall not exceed the prescribed voltage value. To increase the degree of reliability and ease of use, sensors always with built-in protection circuit, in case of instantaneous aperiodic peaks, reached to IEC60255-5 requirement. While the input voltage is lower than the limit, sensors will not damage the device, but will stop working (even a short time is not allowed).

Repeat accuracy

Sensors with switching output (digital): Deviation of the switch point indicated in percentage after often repeated switching, under identical conditions and with the same sensor.

Wiring

Sensor cables are not allowed to parallel with perceptual load (protection of line pipe magnetic rectification device, motor, etc.) cable or power supply cable for a motor. Cable must be short as far as possible, but if wiring reasonably (small coupling capacitance, less interference), cable length can be up to 300 m.

Using following methods could minimize electromagnetic interference:

- Keep a certain distance with interference cables (> 100 mm)
- Use shielding cables or add shielding layer on cables
- Perceptual load on-site (contactor, magnetic ballast, relay etc.), install the RC filter or a rheostat

Switching distance

Distance at which a change of signal is produced with axial approach of the object.

Sensors with analogue output:

The area in which changes of the measured variable (i.e. change of sensing range regarding inductive sensors) results into a change of the output signal.

Indicated as absolute value (e.g. „4 mm“) or as distance to the sensor (e.g. „1 ... 5 mm“).

The basis for indication in % (e.g. determination of liniarity deviation) is always the absolute value.

The standard target is a rectangular metal plate for determination of the rated operating distance S_n

- Material: St37
- Thickness: 1 mm
- Edge lengths $3 \times S_n$, if $3 \times S_n$ is greater than the diameter of the active face, otherwise just the diameter of the active face.

Usable operating distance (S_u) (inductive sensors):

Allowed switching distance within the admissible temperature and voltage range.

Correlation to rated operating distance

$$0.8 \times S_r < S_u < 1.2 \times S_r \quad 0.72 \times S_n < S_u < 1.32 \times S_n$$

Assured switching distance (S_a) (inductive sensors):

Distance at which the sensor securely switches.

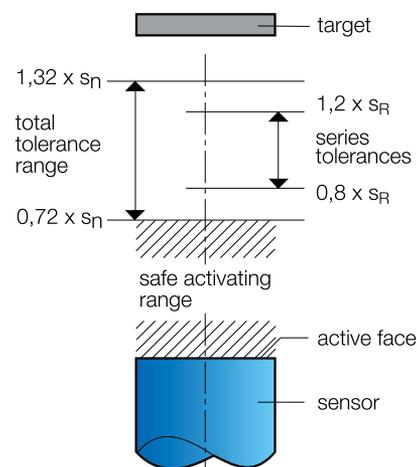
Correlation to rated switching distance s_a : $s_a < 0.81 \times s_n$;

Real switching distance (S_r):

Switching distance under fixed temperature and supply conditions. Factory set tolerances are taken into account

Correlation to rated switching distance s_n :

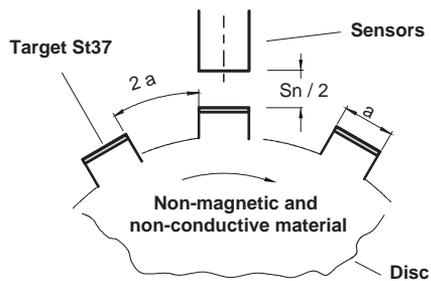
$$0.9 \times S_n < S_r < 1.1 \times S_n$$



Switching frequency

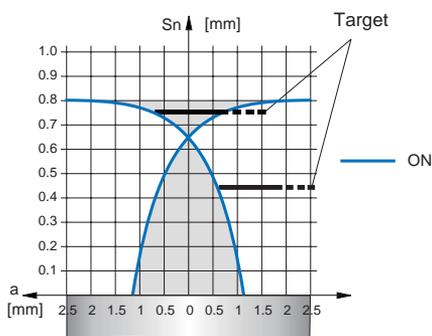
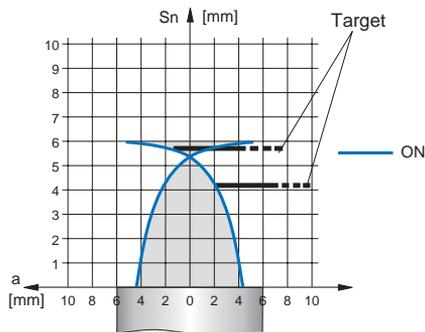
The switching frequency indicates the number of status changes per second. The higher the switching frequency the more often switching can be repeated per second resp. the faster the switching operation.

Concerning proximity switches, the switching frequency indicates the maximum number of changes between attenuated and non-attenuated state per second (Hz).



Switching distance curve

Standard target to determine the switching distance, switching distance is axial, standard target movement in lateral way, here are two typical curves in the typical data:



Chemical resistance

Chemical resistance	V2A	ABS	PBT	Epoxy	PC	POM	PP	PPS	PS	PVC
Acetone	+	-	+	-	-	+	+	+	-	-
Formic acid	20°C	40%	10%	+	-	-	85%	O	40%	50%
Ammonia	+	25%	10%	O	-	+	+	+	+	O
Petrol	+	25%	+	+	O	+	-	+	-	+
Benzene	+	-	+	+	-	+	-	+	-	-
Brake fluid	-	O	-	-	-	+	+	-	-	-
Butane	-	+	-	+	+	+	+	+	-	+
Butanol	-	-	-	-	-	+	+	-	-	40°C
Calcium chloride	-	+	10%	-	+	+	+	+	+	60°C
Chlorobenzene	20°C	-	-	+	-	+	-	-	-	-
diesel oil	-	+	+	+	O	+	60°C	+	-	-
Acetic acid	20°C	25%	+	O	10%	10%	70%	+	50%	40°C
Formaldehyde	+	30%	30%	50%	-	+	40%	37%	40%	+
Frigen 113	-	-	-	-	+	-	-	+	-	+
Fruit juice	+	-	-	+	+	+	+	-	-	+
Glycerine	+	+	+	+	O	+	+	+	+	60°C
Heating oil	-	O	+	+	O	+	60°C	+	-	-
Hydraulic oil	-	-	-	-	+	+	60°C	-	-	+
Caustic potash	-	50%	3%	O	-	+	50%	-	50%	60°C
Potassium chloride	+	-	-	-	+	+	+	-	+	60°C
Potassium hydroxide	+	-	-	-	-	-	+	-	-	-
Linseed oil	+	+	-	-	+	+	+	-	+	+
Methanol	+	-	+	+	-	+	+	+	-	+
Methylene chloride	+	-	-	-	-	O	O	+	-	-
Lactic acid	20°C	80%	-	+	+	+	+	-	80%	O
Mineral oil	+	-	+	+	-	+	+	+	-	+
Motor oil	+	+	+	-	-	+	+	+	O	-
Sodium carbonate	+	+	-	-	+	+	+	-	+	-
Sodium chloride	+	+	-	-	+	+	+	-	+	+
Sodium hydroxide	20°C	+	-	-	-	-	+	-	-	-
Caustic soda	20°C	50%	3%	-	-	+	+	-	50%	+
Nitric acid	66%	-	-	-	10%	-	25%	-	10%	+
Hydrochloric acid	-	O	10%	-	20%	-	+	-	10%	O
Lubricating oil	+	-	-	+	+	O/+	+	-	-	-
Carbon disulphide	+	-	-	-	-	+	+	-	-	O
Sulphuric acid	-	50%	28%	-	50%	-	80%	50%	50%	70%
Sea water(cold)	+	-	+	+	-	+	+	+	-	+
Seifenlauge	+	-	-	+	O	+	+	-	-	+
Detergent	+	-	-	-	-	-	+	-	-	-
Turpentine	+	-	-	+	O	-	+	-	-	+
Carbon tetrachloride	+	-	-	-	O	-	-	-	-	O
Toluene	+	-	+	+	-	+	-	+	-	-
Trichlorethylene	+	-	+	-	-	-	-	O	-	-
Water	+	+	68°C	68°C	+	+	+	+	+	60°C
Tartaric acid	20°C	+	-	+	+	10%	+	-	+	60°C
Xylene	+	-	+	-	-	+	-	+	-	-
Zinc sulphate	-	+	-	-	+	-	+	-	-	-
Citric acid	20°C	+	-	+	10%	+	+	-	+	-

Note for table:

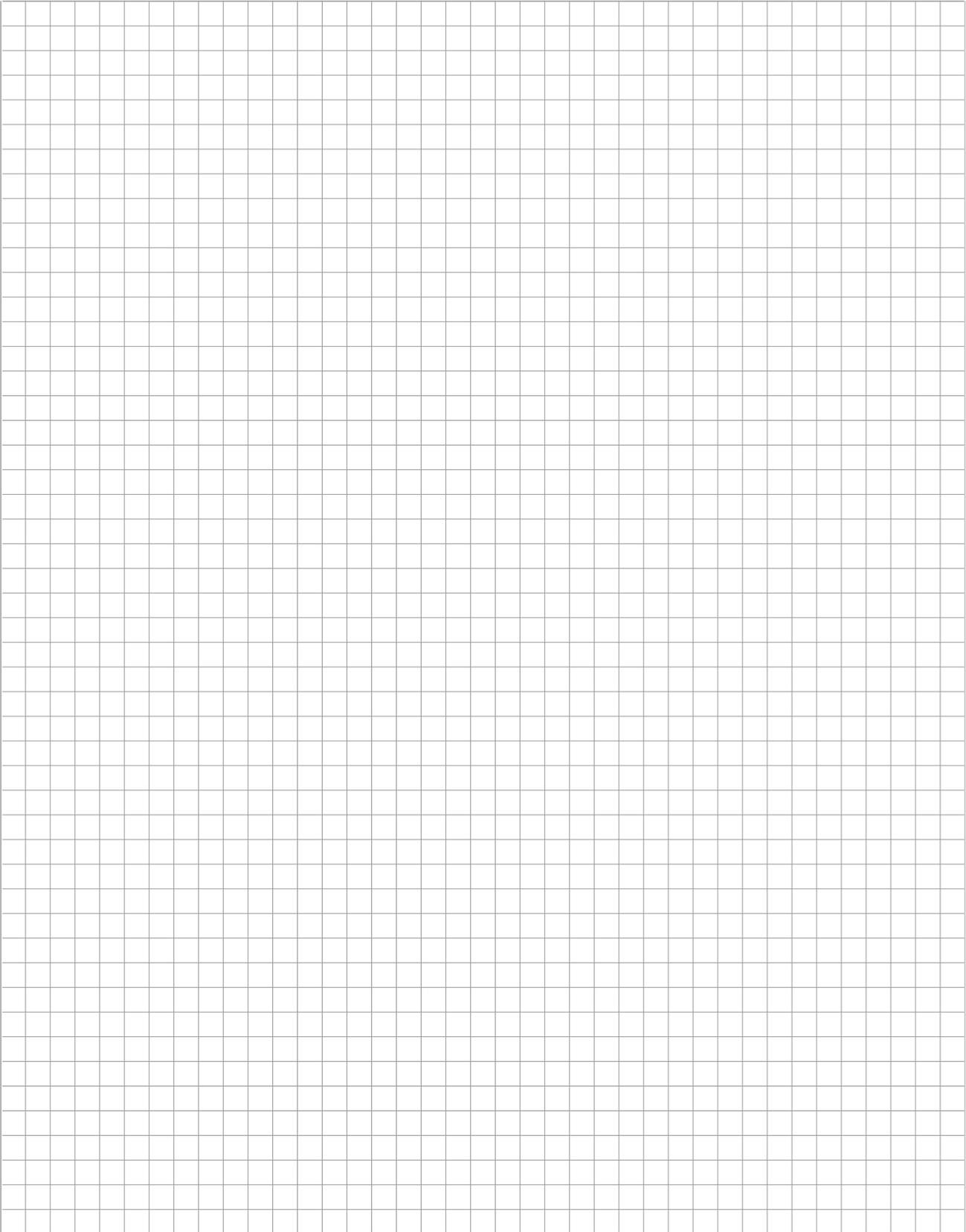
+ : Very slight attack / O : Low to medium attack / - : Not suitable/ □ : No data available

--°C : Recommend media temperature ---°C / --% : Recommend media concentration ---%

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Type index

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IN15-Q30T-A4/2M	A0430009	018	MBP-M12	M0000001	020
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IN35-P40T-E1	A044Z006	011	SLK3-5M/P00	10021021	019
IN35-P40T-E2	A044Z007	011	SLK4-10M/P00	10021032	019
IN35-P40T-E3	A044Z008	011	SLK4-2M/P00	10021030	019
IN4-M12-D0	A0120013	007	SLK4-5M/P00	10021031	019
IN4-M12-D0/2M	A0120014	007			
IN4-M12-D2	A0120015	007			
IN4-M12-D2/2M	A0120016	007			
IN4-M12-E0	A0120017	007			
IN4-M12-E0/2M	A0120018	007			
IN4-M12-E1	A0120019	007			
IN4-M12-E1/2M	A0120020	007			
IN4-M12-E2	A0120021	007			
IN4-M12-E2/2M	A0120022	007			
IN4-M12-E3	A0120023	007			
IN4-M12-E3/2M	A0120024	007			
IN4-M12-T0	A0120029	012			
IN4-M12-T0/2M	A0120030	012			
IN4-M12-T1	A0120031	012			
IN4-M12-T1/2M	A0120032	012			
IN4-M8-E0/2M-Z	A008Z005	006			
IN4-M8-E1/2M-Z	A008Z006	006			
IN4-M8-E2/2M-Z	A008Z007	006			
IN4-M8-E3/2M-Z	A008Z008	006			
IN8-M18-A2/2M	A0180034	017			
IN8-M18-A4/2M	A0180036	017			
IN8-M18-D0	A0180021	008			
IN8-M18-D0/2M	A0180022	008			
IN8-M18-D2	A0180023	008			
IN8-M18-D2/2M	A0180024	008			
IN8-M18-E0	A0180013	008			
IN8-M18-E0/2M	A0180014	008			
IN8-M18-E1	A0180015	008			
IN8-M18-E1/2M	A0180016	008			
IN8-M18-E2	A0180017	008			
IN8-M18-E2/2M	A0180018	008			
IN8-M18-E3	A0180019	008			
IN8-M18-E3/2M	A0180020	008			
IN8-M18-T0	A0180041	013			
IN8-M18-T0/2M	A0180042	013			
IN8-M18-T1	A0180043	013			
IN8-M18-T1/2M	A0180044	013			
IN8-Q18T-E0/2M	A0410009	010			
IN8-Q18T-E1/2M	A0410010	010			
IN8-Q18T-E2/2M	A0410011	010			
IN8-Q18T-E3/2M	A0410012	010			
IN8-Q18T-T0/2M	A0410030	015			
IN8-Q18T-T1/2M	A0410014	015			
MBM-K40	M0000005	020			
MBM-M12-L	M0000006	020			
MBM-M18-L	M0000007	020			





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