

## 8 X 8

3



LONG DISTANCE

3



LONG DISTANCE

## M12

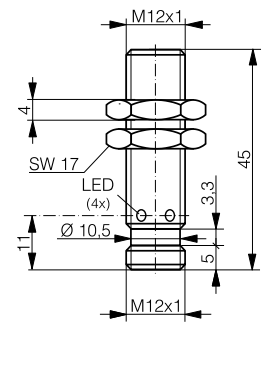
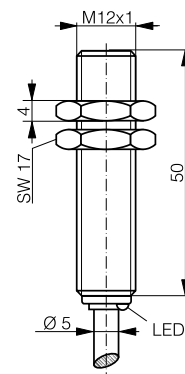
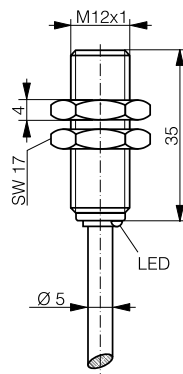
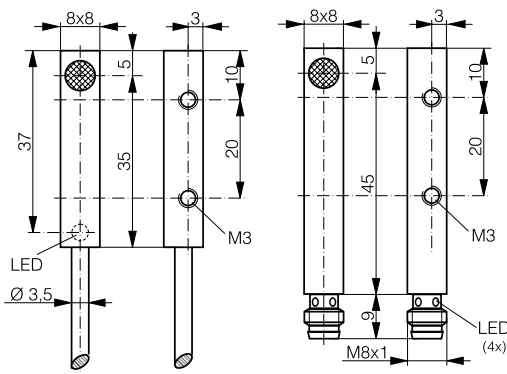
2



2



2



8 X 8		M12		
Chrome-plated brass	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass
PVC cable type 2	Connector S8	PVC cable type 8	PVC cable type 8	Connector S12
IP 67	IP 67	IP 67	IP 67	IP 67
Quasi-embeddable	Quasi-embeddable	Embeddable	Embeddable	Embeddable
1,000 Hz	1,000 Hz	3,000 Hz	3,000 Hz	3,000 Hz
Table 1	Table 1	Table 1	Table 1	Table 1
Diagram 1	Diagram 1	Diagram 1	Diagram 1	Diagram 2
Built-in	Built-in	Built-in	Built-in	Built-in
10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA
CE, UL, RoHS	CE, UL, RoHS	CE, CCC, UL, RoHS	CE, CCC, UL, RoHS	CE, CCC, UL, RoHS

<b>DW-AD-501-C8</b>	<b>DW-AS-501-C8</b>	<b>DW-AD-601-M12-120</b>	<b>DW-AD-601-M12</b>	<b>DW-AS-601-M12-120</b>
DW-AD-502-C8	DW-AS-502-C8	DW-AD-602-M12-120	DW-AD-602-M12	DW-AS-602-M12-120
<b>DW-AD-503-C8</b>	<b>DW-AS-503-C8</b>	<b>DW-AD-603-M12-120</b>	<b>DW-AD-603-M12</b>	<b>DW-AS-603-M12-120</b>
DW-AD-504-C8	DW-AS-504-C8	DW-AD-604-M12-120	DW-AD-604-M12	DW-AS-604-M12-120
	A, B			G, H, M, N (N.O.); M, N (N.C.)

Inductive

Photoelectric

Optical fibers

Ultrasonic

Capacitive

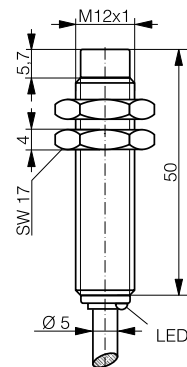
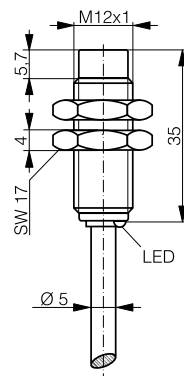
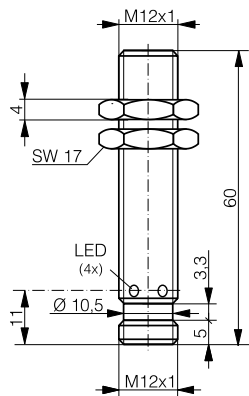
Cables & connectors

Accessories

Glossary

Index

HOUSING SIZE	M12		
OPERATING DISTANCE MM	2	4	4



- 1) Standard cable length 2 m. Non-standard cable lengths and types on request. Cable type see page 271.
- 2) see page 132
- 3) see page 133
- 4) see page 268

### TECHNICAL DATA

Housing material	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass
Connection <sup>1)</sup>	Connector S12	PVC cable type 8	PVC cable type 8
Degree of protection	IP 67	IP 67	IP 67
Mounting	Embeddable	Non-embeddable	Non-embeddable
Max. switching frequency	3,000 Hz	2,000 Hz	2,000 Hz
Additional technical data <sup>2)</sup>	Table 1	Table 1	Table 1
Wiring <sup>3)</sup>	Diagram 2	Diagram 1	Diagram 1
LED	Built-in	Built-in	Built-in
Supply voltage range	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
Ambient temperature range	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA
Approvals	CE, CCC, UL, RoHS	CE, CCC, UL, RoHS	CE, CCC, UL, RoHS

### PART REFERENCES: (BOLD: PREFERRED TYPES)

NPN N.O.	<b>DW-AS-601-M12</b>	<b>DW-AD-611-M12-120</b>	<b>DW-AD-611-M12</b>
NPN N.C.	DW-AS-602-M12	DW-AD-612-M12-120	DW-AD-612-M12
PNP N.O.	<b>DW-AS-603-M12</b>	<b>DW-AD-613-M12-120</b>	<b>DW-AD-613-M12</b>
PNP N.C.	DW-AS-604-M12	DW-AD-614-M12-120	DW-AD-614-M12
Compatible connectors <sup>4)</sup>	G, H, M, N (N.O.); M, N (N.C.)		

# M12

4

4

4

4

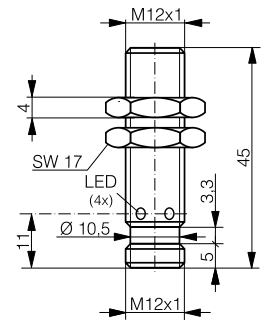
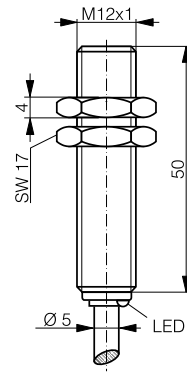
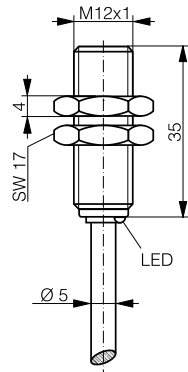
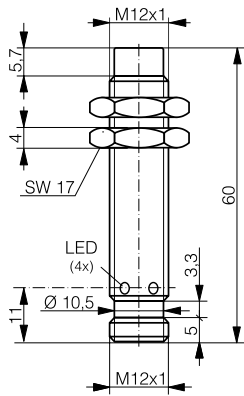
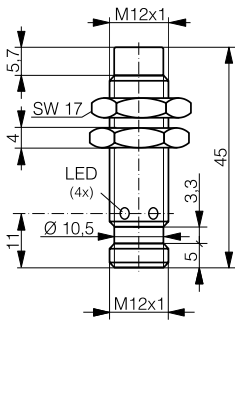
4



INCREASED DISTANCE

INCREASED DISTANCE

INCREASED DISTANCE



Chrome-plated brass

Chrome-plated brass

Chrome-plated brass

Chrome-plated brass

Chrome-plated brass

Connector S12

Connector S12

PVC cable type 8

PVC cable type 8

Connector S12

IP 67

IP 67

IP 67

IP 67

IP 67

Non-embeddable

Non-embeddable

Embeddable

Embeddable

Embeddable

2,000 Hz

2,000 Hz

2,500 Hz

2,500 Hz

2,500 Hz

Table 1

Table 1

Table 1

Table 1

Table 1

Diagram 2

Diagram 2

Diagram 1

Diagram 1

Diagram 2

Built-in

Built-in

Built-in

Built-in

Built-in

10 ... 30 VDC

10 ... 30 VDC

10 ... 30 VDC

10 ... 30 VDC

10 ... 30 VDC

-25 ... +70 °C

-25 ... +70 °C

-25 ... +70 °C

-25 ... +70 °C

-25 ... +70 °C

≤ 200 mA

≤ 200 mA

≤ 200 mA

≤ 200 mA

≤ 200 mA

CE, CCC, UL, RoHS

CE, CCC, UL, RoHS

CE, CCC, UL, RoHS

CE, CCC, UL, RoHS

CE, CCC, UL, RoHS

**DW-AS-611-M12-120****DW-AS-611-M12****DW-AD-621-M12-120****DW-AD-621-M12****DW-AS-621-M12-120**

DW-AS-612-M12-120

DW-AS-612-M12

DW-AD-622-M12-120

DW-AD-622-M12

DW-AS-622-M12-120

**DW-AS-613-M12-120****DW-AS-613-M12****DW-AD-623-M12-120****DW-AD-623-M12****DW-AS-623-M12-120**

DW-AS-614-M12-120

DW-AS-614-M12

DW-AD-624-M12-120

DW-AD-624-M12

DW-AS-624-M12-120

G, H, M, N (N.O.); M, N (N.C.)

G, H, M, N (N.O.); M, N (N.C.)

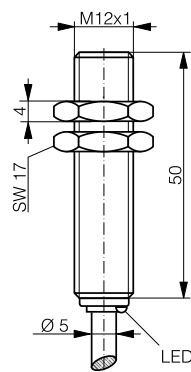
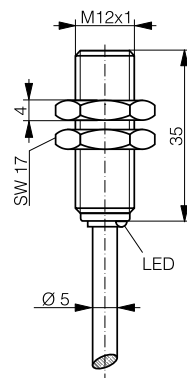
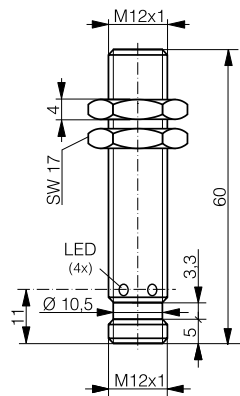
G, H, M, N (N.O.); M, N (N.C.)

HOUSING SIZE	M12		
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OPERATING DISTANCE MM	4	6	6
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INCREASED DISTANCE	LONG DISTANCE	LONG DISTANCE
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- 1) Standard cable length 2 m. Non-standard cable lengths and types on request. Cable type see page 271.
- 2) see page 132
- 3) see page 133
- 4) see page 268

TECHNICAL DATA			
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Housing material	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass
Connection <sup>1)</sup>	Connector S12	PVC cable type 8	PVC cable type 8
Degree of protection	IP 67	IP 67	IP 67
Mounting	Embeddable	Quasi-embeddable	Quasi-embeddable
Max. switching frequency	2,500 Hz	800 Hz	800 Hz
Additional technical data <sup>2)</sup>	Table 1	Table 1	Table 1
Wiring <sup>3)</sup>	Diagram 2	Diagram 1	Diagram 1
LED	Built-in	Built-in	Built-in
Supply voltage range	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
Ambient temperature range	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA
Approvals	CE, CCC, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS

PART REFERENCES: (BOLD: PREFERRED TYPES)			
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NPN N.O.	<b>DW-AS-621-M12</b>	<b>DW-AD-501-M12-120</b>	<b>DW-AD-501-M12</b>
NPN N.C.	DW-AS-622-M12	DW-AD-502-M12-120	DW-AD-502-M12
PNP N.O.	<b>DW-AS-623-M12</b>	<b>DW-AD-503-M12-120</b>	<b>DW-AD-503-M12</b>
PNP N.C.	DW-AS-624-M12	DW-AD-504-M12-120	DW-AD-504-M12
Compatible connectors <sup>4)</sup>	G, H, M, N (N.O.); M, N (N.C.)		

# M12

6

6

6\*

6\*

8\*\*



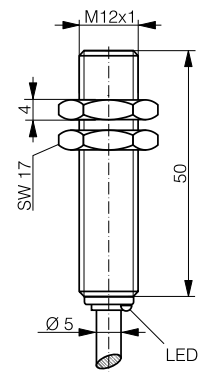
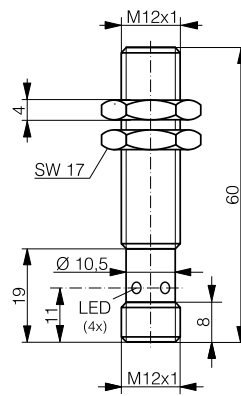
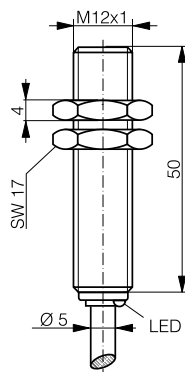
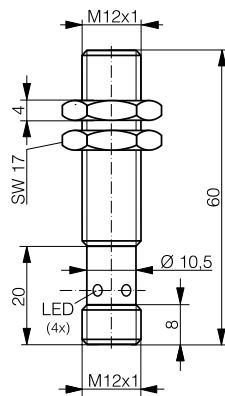
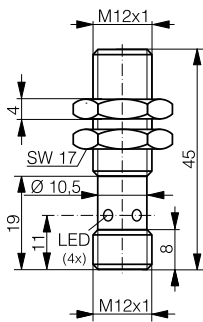
LONG DISTANCE

LONG DISTANCE

ALL-METAL / 80 BAR

ALL-METAL / 80 BAR

4 X DISTANCE



Chrome-plated brass	Chrome-plated brass	Stainless steel V2A	Stainless steel V2A	Chrome-plated brass
Connector S12	Connector S12	PUR cable type 11	Connector S12	PVC cable type 8
IP 67	IP 67	IP 68 & IP 69K	IP 68 & IP 69K	IP 67
Quasi-embeddable	Quasi-embeddable	Embeddable	Embeddable	Quasi-embeddable
800 Hz	800 Hz	600 Hz	600 Hz	400 Hz
Table 1	Table 1	Table 1	Table 1	Table 1
Diagram 2	Diagram 2	Diagram 1	Diagram 2	Diagram 1
Built-in	Built-in	Built-in	Built-in	Built-in
10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA
CE, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS

<b>DW-AS-501-M12-120</b>	<b>DW-AS-501-M12</b>	<b>DW-AD-701-M12</b>	<b>DW-AS-701-M12</b>	<b>DW-AD-521-M12</b>
DW-AS-502-M12-120	DW-AS-502-M12	DW-AD-702-M12	DW-AS-702-M12	DW-AD-522-M12
<b>DW-AS-503-M12-120</b>	<b>DW-AS-503-M12</b>	<b>DW-AD-703-M12</b>	<b>DW-AS-703-M12</b>	<b>DW-AD-523-M12</b>
DW-AS-504-M12-120	DW-AS-504-M12	DW-AD-704-M12	DW-AS-704-M12	DW-AD-524-M12
G, H, M, N (N.O.); M, N (N.C.)	G, H, M, N (N.O.); M, N (N.C.)		G, H, M, N (N.O.); M, N (N.C.)	

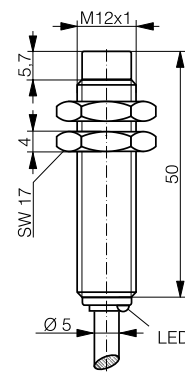
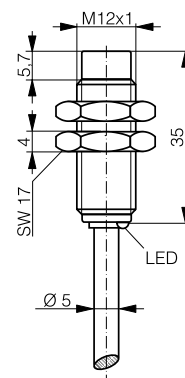
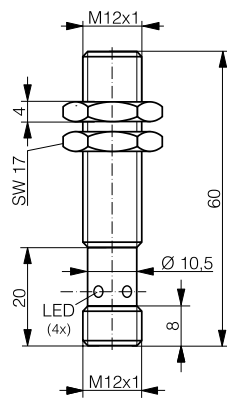
\* versions with 2 mm operating distance on request \*\* short version in preparation

HOUSING SIZE	M12		
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OPERATING DISTANCE MM	8*	8	8
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4 X DISTANCE	INCREASED DISTANCE	INCREASED DISTANCE
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- 1) Standard cable length 2 m. Non-standard cable lengths and types on request. Cable type see page 271.
- 2) see page 132
- 3) see page 133
- 4) see page 268

TECHNICAL DATA			
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Housing material	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass
Connection <sup>1)</sup>	Connector S12	PVC cable type 8	PVC cable type 8
Degree of protection	IP 67	IP 67	IP 67
Mounting	Quasi-embeddable	Non-embeddable	Non-embeddable
Max. switching frequency	400 Hz	1,400 Hz	1,400 Hz
Additional technical data <sup>2)</sup>	Table 1	Table 1	Table 1
Wiring <sup>3)</sup>	Diagram 2	Diagram 1	Diagram 1
LED	Built-in	Built-in	Built-in
Supply voltage range	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
Ambient temperature range	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA
Approvals	CE, UL, RoHS	CE, CCC, UL, RoHS	CE, CCC, UL, RoHS

PART REFERENCES: (BOLD: PREFERRED TYPES)			
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NPN N.O.	<b>DW-AS-521-M12</b>	<b>DW-AD-631-M12-120</b>	<b>DW-AD-631-M12</b>
NPN N.C.	DW-AS-522-M12	DW-AD-632-M12-120	DW-AD-632-M12
PNP N.O.	<b>DW-AS-523-M12</b>	<b>DW-AD-633-M12-120</b>	<b>DW-AD-633-M12</b>
PNP N.C.	DW-AS-524-M12	DW-AD-634-M12-120	DW-AD-634-M12
Compatible connectors <sup>4)</sup>	G, H, M, N (N.O.); M, N (N.C.)		

\* short version in preparation

# M12

8

8

10

10

10



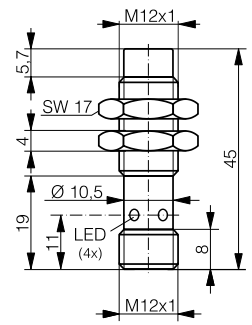
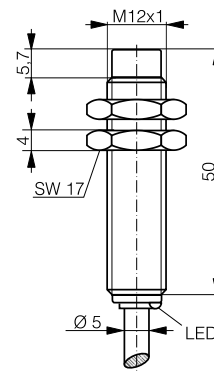
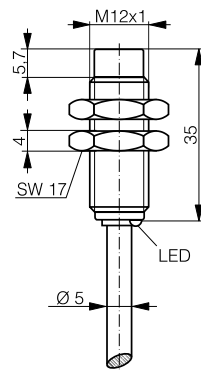
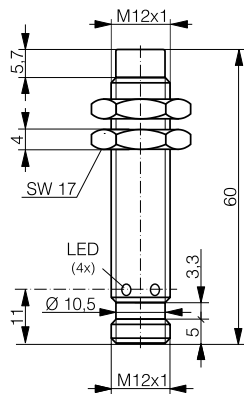
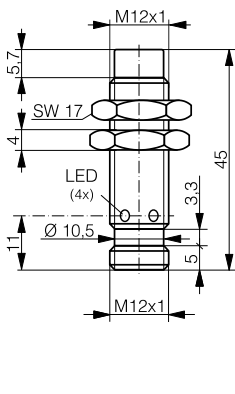
INCREASED DISTANCE

INCREASED DISTANCE

LONG DISTANCE

LONG DISTANCE

LONG DISTANCE



Chrome-plated brass	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass	Chrome-plated brass
Connector S12	Connector S12	PVC cable type 8	PVC cable type 8	Connector S12
IP 67	IP 67	IP 67	IP 67	IP 67
Non-embeddable	Non-embeddable	Non-embeddable	Non-embeddable	Non-embeddable
1,400 Hz	1,400 Hz	400 Hz	400 Hz	400 Hz
Table 1	Table 1	Table 1	Table 1	Table 1
Diagram 2	Diagram 2	Diagram 1	Diagram 1	Diagram 2
Built-in	Built-in	Built-in	Built-in	Built-in
10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA	≤ 200 mA
CE, CCC, UL, RoHS	CE, CCC, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS

<b>DW-AS-631-M12-120</b>	<b>DW-AS-631-M12</b>	<b>DW-AD-511-M12-120</b>	<b>DW-AD-511-M12</b>	<b>DW-AS-511-M12-120</b>
DW-AS-632-M12-120	DW-AS-632-M12	DW-AD-512-M12-120	DW-AD-512-M12	DW-AS-512-M12-120
<b>DW-AS-633-M12-120</b>	<b>DW-AS-633-M12</b>	<b>DW-AD-513-M12-120</b>	<b>DW-AD-513-M12</b>	<b>DW-AS-513-M12-120</b>
DW-AS-634-M12-120	DW-AS-634-M12	DW-AD-514-M12-120	DW-AD-514-M12	DW-AS-514-M12-120
G, H, M, N (N.O.); M, N (N.C.)	G, H, M, N (N.O.); M, N (N.C.)			G, H, M, N (N.O.); M, N (N.C.)

Inductive

Photoelectric

Optical fibers

Ultrasonic

Capacitive

Cables & connectors

Accessories

Glossary

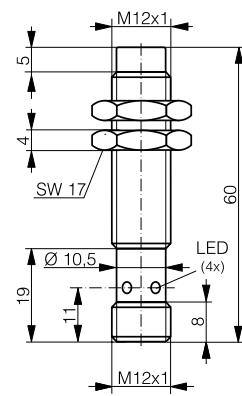
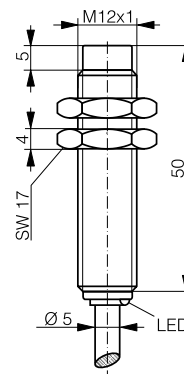
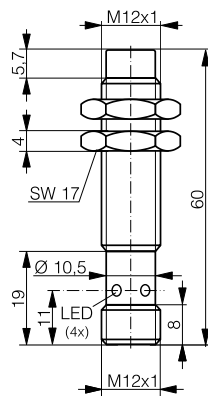
Index

HOUSING SIZE	M12		
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OPERATING DISTANCE MM	10	10*	10*
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LONG DISTANCE	ALL-METAL / 80 BAR	ALL-METAL / 80 BAR
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- 1) Standard cable length 2 m. Non-standard cable lengths and types on request. Cable type see page 271.
- 2) see page 132
- 3) see page 133
- 4) see page 268

### TECHNICAL DATA

Housing material	Chrome-plated brass	Stainless steel V2A	Stainless steel V2A
Connection <sup>1)</sup>	Connector S12	PUR cable type 11	Connector S12
Degree of protection	IP 67	IP 68 & IP 69K	IP 68 & IP 69K
Mounting	Non-embeddable	Non-embeddable	Non-embeddable
Max. switching frequency	400 Hz	400 Hz	400 Hz
Additional technical data <sup>2)</sup>	Table 1	Table 1	Table 1
Wiring <sup>3)</sup>	Diagram 2	Diagram 1	Diagram 2
LED	Built-in	Built-in	Built-in
Supply voltage range	10 ... 30 VDC	10 ... 30 VDC	10 ... 30 VDC
Ambient temperature range	-25 ... +70 °C	-25 ... +70 °C	-25 ... +70 °C
Output current	≤ 200 mA	≤ 200 mA	≤ 200 mA
Approvals	CE, UL, RoHS	CE, UL, RoHS	CE, UL, RoHS

### PART REFERENCES: (BOLD: PREFERRED TYPES)

NPN N.O.	<b>DW-AS-511-M12</b>	<b>DW-AD-711-M12</b>	<b>DW-AS-711-M12</b>
NPN N.C.	DW-AS-512-M12	DW-AD-712-M12	DW-AS-712-M12
PNP N.O.	<b>DW-AS-513-M12</b>	<b>DW-AD-713-M12</b>	<b>DW-AS-713-M12</b>
PNP N.C.	DW-AS-514-M12	DW-AD-714-M12	DW-AS-714-M12
Compatible connectors <sup>4)</sup>	G, H, M, N (N.O.); M, N (N.C.)		G, H, M, N (N.O.); M, N (N.C.)

\* versions with 4 mm operating distance on request