Special-sensors
for
automation

Inductive
Proximity switches

Catalogue 2004/2005

SUMMARY

Technical alterations are reserved to us without prior announcement.

Terminology for inductive measurement

Operating Principal

An inductive proximity switch works with a high frequency oscillating circuit that creates an alternating electromagnetic field on the active sensor surface by means of a coil. When a metallic object nears this field a damping occurs in the oscillating circuit. If this damping exceeds a threshold value, a switching signal is generated.

Switching distance

The switching distance is the distance between an object and the active sensor surface at which a switching signal is generated. The switching distance depends on the diameter of the coil. Therefore larger sensors are required for longer switching distances. On some of the EGE sensors the switching distance is adjustable.

If a metal object dampens only a part of the alternating field, the switching distance decreases; a larger object increases it. The following approximate values are derived from a standard rectangular measurement plate made of steel ST 37 with an edge length that corresponds to the diameter of the sensor coil or three times the nominal switching distance, whichever is greater.

Damping area in %						
	150	100	75	50	25	12.5
Switching distance in %						
	110	100	93	86	73	55

The switching distance is influenced by the material of the object: Constant dimensions for different materials against steel ST 37 yield a changed switching distance.

The following table lists approximate values for the material dependent reduction factors. In practical applications variations could occur due to different alloying, for example.

Material	Switching distance in %
steel ST37	100
stainless steel	70
brass (Br)	50
copper (Cu)	45
aluminium (Al)	40

Nominal switching distance s_n

The nominal switching distance is a device parameter that does not take into account sample variances and external influences such as temperature and supply voltages.

Real switching distance s_r

The real switching distance is the effective switching distance at nominal voltage and a nominal temperature of 23°C. It is between 90 % and 110 % of the nominal switching distance.

Usable switching distance s_u

The service switching distance lies in the entire allowable temperature and voltage range between 90 % and 110 % of the real switching distance.

Operating distance s_a

The guaranteed switching distance takes into account all the external influences and sample variances and lies in the range from 0 % to 80 % of the usable switching distance. Within this range a guaranteed switching is ensured.

Switch point drift

The switching distances are given for an ambient temperature of 23°C. In the permissible temperature range the switching distance varies by less than 15 % from the value at 23°C. The temperature of the measured object has no influence on the switch point.

Hysteresis H

The switching hysteresis describes the distance between the turn-on point while approaching an object and the turn-off point during the separation of it from the sensor. The hysteresis brings about a stable switching signal even when there are vibrations, temperature drift, or electrical variations. The hysteresis is defined in EN60947-5-2 as a maximum 20 % from the real switching distance, and carries a value of typically 10 % from the real switching distance sr for EGE sensors.

Repeating accuracy R

The repeating accuracy describes the maintenance of the switching point after the repeated approach of an object under specified circumstances. EGE sensors have typical tolerances of less than 3 % of the real switching distance.

Switching frequency

The maximum switching frequency of the sensor is determined at half nominal switching distance s_n with standard measurement plates to EN 60947-5-2

TERMINOLOGY FOR INDUCTIVE MEASUREMENT

Operating voltage
The operating voltage is the voltage range within EGE sensors function safely. For a constant voltage supply it is important to make sure that the limits are still observed when the residual ripple is included.

Current carrying capacity
The current carrying capacity indicates the maximum continuous current for the switching output of the sensor at a given ambient temperature. The current carrying capacity is reduced with increasing ambient temperature.

Short circuit protection
The short circuit protection ensures the sensor against destruction through a short circuit on the output. After removal of the fault, the output is reactivated. Where a maximum overload current is listed, this should not be exceeded.

Excess-current release
This value indicates the median value of current at which the short circuit protection responds with a tolerance of ± 20 %.

Reverse polarity protection
The reverse polarity protection prevents destruction of the sensor by a reversal of the polarity of the voltage supply.

Voltage drop U_d
The voltage drop arises at the internal resistance of semiconductor elements, which are in the current-path of the output. It is dependent of the load-current and is declared for a mean current of 200 mA.

Residual current I_r
The residual current flows in the load current circuit when the output is blocked. The residual current must be considered when switching sensors in parallel.

Minimum load current I_m
The minimum load current is necessary for flawless operation with two-wire devices.

Current consumption
The current consumption is the maximum value of the no-load current I_o that the sensor can absorb without a load.

Ambient temperature
The ambient temperature indicates the maximum allowable temperature range for the sensor.

Electromagnetic compatibility EMC
The EMC class is a measure of the noise immunity of the sensor against external electrical and magnetic influences. The information is based on the standard EN 61000-6-2.

Switch-on impulse suppression
EGE sensors have a switch-on impulse suppression that blocks the output during the switch-on phase, when the operational voltage is applied.

Protective system
The protective system indicates the protection of the sensors against penetration of foreign bodies and water to EN 60529.

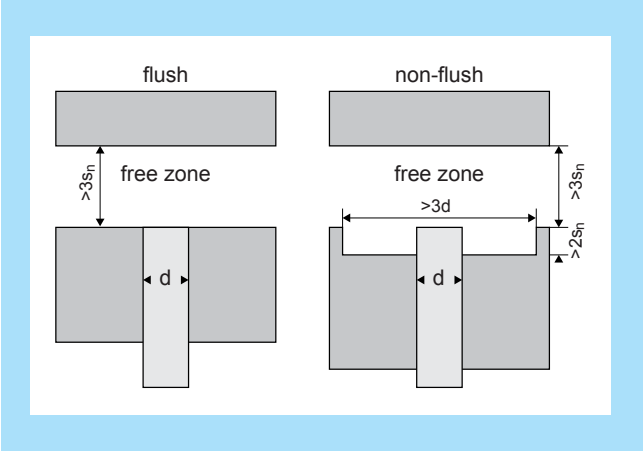
LED-Display
EGE sensors with yellow light-emitting diodes indicate the switching status optically.

Housing material
The housing material determines the chemical resistance of the sensor against external influences. For special applications, other housing materials are available.

Connection
The connection of the sensors is accomplished through plug-in connections or cables. Different cable types and lengths are available upon request.

Instructions for mounting

Mounting
For flush mounting the sensor can be built into metal up to its active surface without changing its characteristics. For non-flush mounting a metal-free zone around the sensor must be allowed for. A free zone to the material opposite the sensor must be maintained for all sensors.



The indicated free zones are in accordance with the standard EN 60947-5-2.

TERMINOLOGY FOR INDUCTIVE MEASUREMENT

Collocation
When collocating the sensors, a minimum separation must be kept between the devices in order to avoid mutual influence. When in doubt, a test should be conducted under application conditions. For capacitive sensors, the lateral separation from one another must correspond to at least twice the diameter of the sensor. For separations greater than eight times the diameter no mutual influence is to be expected. For oppositely mounted sensors, a minimal separation of eight times the nominal switching separation should be allowed for.

Torques
In order to prevent destruction of the threaded bushing during fitting, the following maximum torques must not be exceeded:

Design	Metal Housing	Plastic Housing
M 12x1	10 Nm	1 Nm
M 18x1	36 Nm	2 Nm
M 30x1.5	200 Nm	5 Nm

PTFE sensors may only be tightened by hand.

Instructions for operation

Serial connection
For the serial connection of two wire or three wire sensors the individual voltage drops are added together. Therefore there is a lesser operational voltage at the disposal of the load. The addition of the switch-on delay times should be noted.

Parallel connection
The parallel connection of two wire sensors can only be conditionally recommended since the residual currents are added together and flow through the load. For the parallel connection of three wire sensors, the current consumption of the individual devices is added together. Since this current does not flow through the load, the maximum number of parallel connectable three wire sensors depends only on the power supply.

Valid standards:

EN 60947-5-2
Control units; low voltage control units, auxiliary switch, proximity switch

EN 61000-6-4
Electromagnetic compatibility (EMC)
Interference emissions in the industrial area

EN 61000-6-2
Electromagnetic compatibility (EMC)
Generic standards immunity for industrial enviroments

EN 61000-4-2 (ESD)
Electrostatic discharging immunity

EN 61000-4-3 (HF radiated)
Radiated radio-frequency electromagnetic field immunity test

EN 61000-4-4 (Burst)
Electrical fast transient/burst immunity test

EN 61000-4-5 (Surge)
Surge immunity test

EN 60529
Protective systems, IP-designation

EN 50014
Electrical apparatus for potentially explosive atmospheres – General requirements

EN 50020
Electrical apparatus for potentially explosive atmospheres – Intrinsic safety "i"

EN 50281
Electrical apparatus for use in the presence of combustible dust

Authorisations

TÜV-cert
TÜV-cert Zertifizierungsstelle - Deutschland
(technical monitoring certification agency - Germany)

BVS
Bergbau Versuchsstrecke im DMT - Deutschland
(Mining Test area - Germany)

SEV / ASE
Schweizerischer Elektrotechnischer Verein und eidgenössisches Starkstrominspektorat - Schweiz
(Swiss electro-technical agency and confederate high voltage inspection agency - Switzerland)

Certification

TÜV-cert	ISO 9001
TÜV-cert	Quality control production Attachment IV of the EC-Guidelines 94/9/EG
TÜV Nord	Re-cancelling certificate according to EN 10204

INDUCTIVE

Application Notes

Climatic proof switches page 3.05-3.07

The inductive switches series IGMF are anticipated for applications in corrosive environment. They are stable particularly at frequent temperature changes and simultaneously high humidity. The permanent work in carwashes is permissible. The high corrosion resisting at simultaneously high mechanical loading capacity is reached through the combination of PTFE and titan stabilized stainless steel. The PTFE-hoods are sealed through Viton O-rings surely. The PTFE- /Silicone connecting cable is poured within the housing and freed over a double seal from the housing. Cable lengths up to 20 m are available. The installed LED's are shining through the cable side cap and don't break out the case.

120 °C-Special switch page 3.10

The induktive PTFE switches series IGFW and INFW are made entirely of PTFE. The housing cover is securely sealed with a Viton O-Ring. These sensors are disigned for particularly difficult an aggressive environmental conditions. Through the fixed PTFE cables the sensors gets the protection class IP 68 and therefore they can be used in damp an aggressive environments as well as under water (oil). The clamp (Z00125) is made of PTFE and the mounting screws are made of stainless steel.

Inductive switches up to 160 °C page 3.12

Inductive compact devices for ambient temperatures up to 160 °C are available flush and non-flush in the standard designs M 18 and M 30. These sensors are used directly in the hot zone without additional cabling requirements. They only need the usual 24VDC voltage supply and provide a PNP switching output. The material used is the rugged stainless steel housing combined with high temperature resistant PEEK plastic. The PTFE cable is, of course, also temperature-resistant and connected to the sensor using a stainless steel screw connection.

Surface switches IFE page 3.22-3.23

The switches are build as flat sensors. They are used particularly to detect moving sheet metal or steel rods on conveyor belts. The complete sensor is covered by PVC plates, which make the sensor moisture resistant to IP 67.
The IFE switch is mounted on PVC supports that stand on an aluminium base plate 3 mm thick. This aluminium base plate shields the IFE switch from Ferromagnetic interference at the base. The number of supports depends on the overall lenght of the IFE switch with supports at average centres of approximately 200 mm.
Connecting cables of the IFE switch can be changed after disconnecting the PG-plug.
The overall height can be changed by cutting the length of the supports. Reduced overall height affects the switching distance (sn). The IFE switches are self-contained with integral amplifier. The swithcing distance is adjustable by potentiometer.

Amplifiers page 3.38-3.41

Switching amplifiers are designed for induction sensors for which it is necessary to separate the sensor coil from the amplifier, e. g. for operating temperatures above 120 °C or for sensor coils which must be exchanged due to frequent damage.

The switching amplifiers work statically, that is, if the sensor coil is permanently damped, the switching output also remains activated. Switching interval and hysteresis (IKZ 130..., IU 130…) can be set on the amplifier. The sensor cable may have a length of up to 20 m.

INDUCTIVE

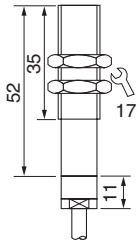
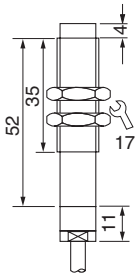
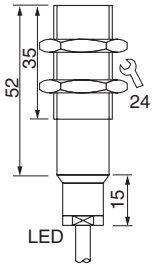
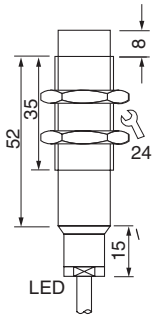
Climatic-proofed

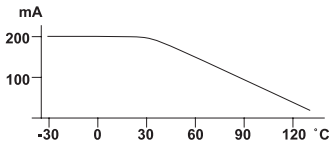
Series IGMF
Metal thread

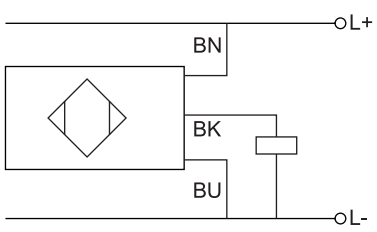
M 12x1
M 18x1

DC 10...33 V

120 °C Permanent temperature
IP 68 Waterproof
IP 69 k Jet Waterproof

Design	DC PNP M 12x1		DC PNP M 18x1	
Dimensions Installation flush (f) non flush (nf)				
Switching distance sn [mm]	2 f	4 nf	5 f	7 nf
GSP ID-No.	P31132	P31133	P30701	P30703
Type	IGMF 02 GSP	IGMF 04 GSP	IGMF 05 GSP	IGMF 08 GSP
GOP ID-No.			P30702	P30704
Type			IGMF 05 GOP	IGMF 08 GOP
Supply voltage [V]	10...33 DC			
Switching current max. [mA]	200			
Switch-off current approx. [mA]	230			
Current consumption max. [mA]	4			
Residual current max. [µA]	1			
Voltage drop approx. [V]	2			
Switching frequency [Hz]	1000			
Ambient temperature [°C]	-25...+120			
Compressive strength [bar]	10			
Residual ripple max. [%]	10			
EMC-class	class A			
Protection [EN 60529]	IP 68 - IP 69 k			
Housing material	PTFE / AISI 316 Ti (A4)			
Connection	2 m FEP-cable, 3 x 0.34 mm²			
Switching current				





Accessories	Fixing nuts are part of delivery

INDUCTIVE

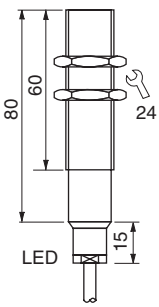
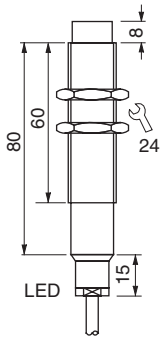
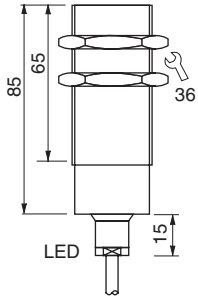
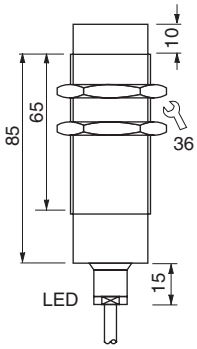
Climatic-proofed

Series IGMF
Metal thread

M 18x1
M 30x1.5

DC 10...55 V

120 °C Permanent temperature
IP 68 Waterproof
IP 69 k Jet Waterproof

Design	DC PNP M 18x1		DC PNP M 30x1.5	
Dimensions Installation flush (f) non flush (nf)				
Switching distance sn [mm]	5 f	7 nf	10 f	15 nf
GSP ID-No.	P30705	P30708	P30711	P30714
Type	IGMF 005 GSP	IGMF 008 GSP	IGMF 010 GSP	IGMF 015 GSP
GOP ID-No.	P30706	P30709	P30712	P30715
Type	IGMF 005 GOP	IGMF 008 GOP	IGMF 010 GOP	IGMF 015 GOP
GSOP ID-No.	P30707	P30710	P30713	P30716
Type	IGMF 005 GSOP	IGMF 008 GSOP	IGMF 010 GSOP	IGMF 015 GSOP
Supply voltage				
GSP/GOP [V]	10...55 DC			
GSOP [V]	10...33 DC			
Switching current max.				
GSP/GOP [mA]	400			
GSOP [mA]	200			
Switch-off current approx.				
GSP/GOP [mA]	430			
GSOP [mA]	230			
Current consumption max. [mA]	4			
Residual current max. [µA]	1			
Voltage drop approx. [V]	2			
Switching frequency [Hz]	...GSP 150 Hz / ...GSOP 1000 Hz			
Ambient temperature [°C]	-25...+120			
Compressive strength [bar]	10			
EMC-class	class A			
Protection [EN 60529]	IP 68 - IP 69 k			
Housing material	PTFE / AISI 316 Ti (A4)			
Connection	2 m FEP-cable 3 x 0.34 mm² / 2 m FEP-cable 4 x 0.34 mm²			
Connection diagram				
Accessories	Fixing nuts are part of delivery			

INDUCTIVE

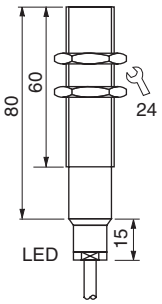
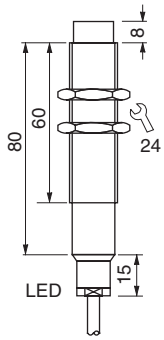
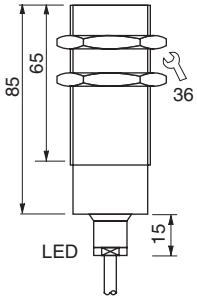
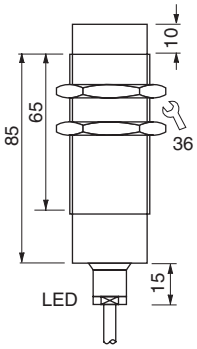
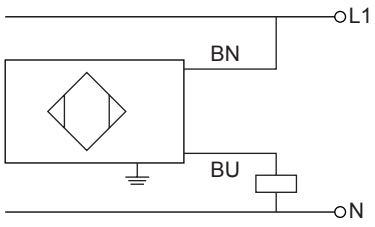
Climatic-proofed

Series IGMF
Metal thread

M 18x1
M 30x1.5

AC 20...250 V

120 °C Permanent temperature
IP 68 Waterproof
IP 69 k Jet Waterproof

Design	AC M 18x1		AC M 30x1.5	
Dimensions				
Installation flush (f) non flush (nf)				
Switching distance sn [mm]	5 f	7 nf	10 f	15 nf
WS ID-No.	P31071	P31073	P31075	P31077
Type	IGMF 005 WS	IGMF 008 WS	IGMF 010 WS	IGMF 015 WS
WO ID-No.	P31070	P31072	P31074	P31076
Type	IGMF 005 WO	IGMF 008 WO	IGMF 010 WO	IGMF 015 WO
Supply voltage WS/WO [V]	20...250 AC			
Switching current WS/WO [mA]	< 400			
Current consumption [mA]	< 2.5			
Voltage drop eff. [V]	< 5			
Switching frequency [Hz]	25			
Ambient temperature [°C]	-25...+120			
Compressive strength [bar]	10			
Minimum load current [mA]	5.0			
EMC-class	class A			
Protection [EN 60529]	IP 68 - IP 69 k			
Housing material	PTFE / AISI 316 Ti (A4)			
Connection	2 m FEP-cable 3 x 0.75 mm²			
Connection diagram				
Accessories	Fixing nuts are part of delivery			

INDUCTIVE

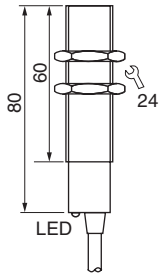
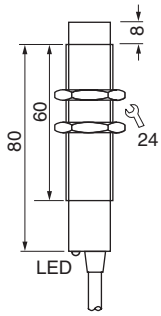
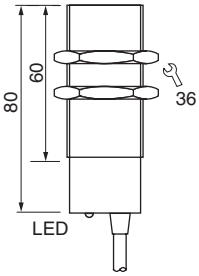
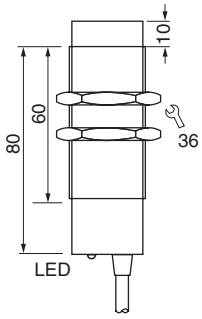
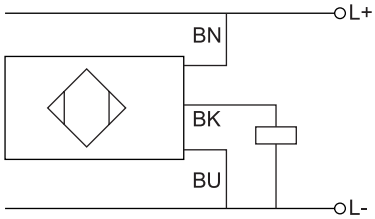
120 ºC-High temperature switch

Series IGMT
Metal thread

M 18x1
M 30x1.5

DC 10...33 V

Enhanced temperature range
-25 ºC...+120 ºC

Design	DC PNP	M 18x1	DC PNP	M 30x1.5
Dimensions Installation flush (f) non flush (nf)				
Switching distance sn[1] [mm]	5 f	8 nf	10 f	15 nf
Switching output				
ID-No.	**P31114**	**P31115**	**P31116**	**P31117**
Type	IGMT 005 GSP	IGMT 008 GSP	IGMT 010 GSP	IGMT 015 GSP
Supply voltage [V]	10...33 DC	10...33 DC	10...33 DC	10...33 DC
Switching current at 25 °C max. [mA]	200	200	200	200
Short circuit proof	•	•	•	•
Overcurrent release [mA]	≥ 220	≥ 220	≥ 220	≥ 220
Reverse protection	•	•	•	•
Voltage drop max. [V]	2	2	2	2
Residual current [mA]	–	–	–	–
Current consumption (not actuated) max. [mA]	4	4	4	4
Switching frequency [Hz]	100	100	100	100
Ambient temperature [°C]	-25...+120	-25...+120	-25...+120	-25...+120
EMC-class	class A	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67	IP 67
LED-Display	•	•	•	•
Housing material	Br-Ni/PA	Br-Ni/PA	Br-Ni/PA	Br-Ni/PA
Connection	2 m Silicone cable, 3 x 0.5 mm²	2 m Silicone cable, 3 x 0.5 mm²	2 m Silicone cable, 3 x 0.5 mm²	2 m Silicone cable, 3 x 0.5 mm²
Connection diagram				
Accessories	Fixing nuts are part of delivery			

[1]) Temperature deviation
10% at -25...+70ºC
20% at -25...+120ºC

INDUCTIVE

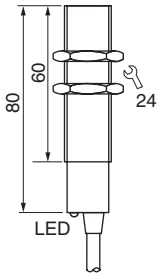
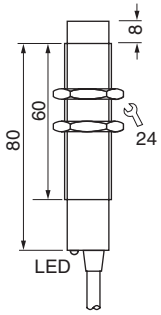
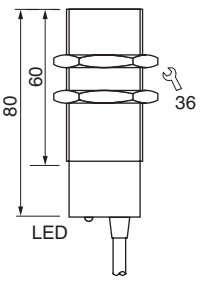
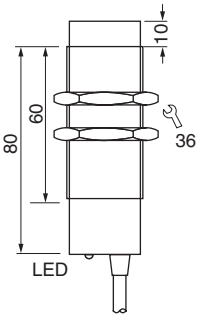
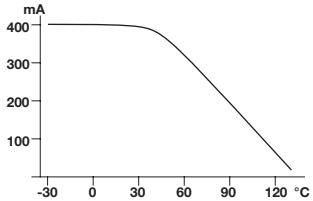
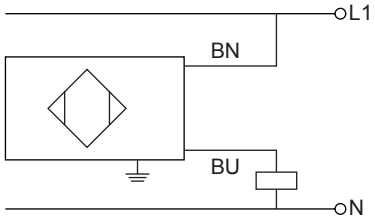
120 ºC-High temperature switch

Series IGMT
Metal thread

M 18x1
M 30x1.5

AC 20...250 V

Enhanced temperature range
-25 ºC...+120 ºC

Design	AC	M 18x1	AC	M 30x1.5
Dimensions				
Installation flush (f) non flush (nf)				
Switching distance sn[1] [mm]	5 f	8 nf	10 f	15 nf
Switching output				
ID-No.	**P31118**	**P31119**	**P31120**	**P31121**
Type	IGMT 005 WS	IGMT 008 WS	IGMT 010 WS	IGMT 015 WS
Supply voltage [V]	20...250 AC	20...250 AC	20...250 AC	20...250 AC
Switching current at 25 °C max. [mA]	400	400	400	400
Short circuit proof	–	–	–	–
Overcurrent release [mA]	–	–	–	–
Reverse protection	–	–	–	–
Voltage drop max. [V]	5	5	5	5
Minimum load current [mA]	5	5	5	5
Current consumption (not actuated) max. [mA]	2.5	2.5	2.5	2.5
Switching frequency [Hz]	25	25	25	25
Ambient temperature [°C]	-25...+120	-25...+120	-25...+120	-25...+120
EMC-class	class A	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67	IP 67
LED-Display	•	•	•	•
Housing material	Br-Ni/PA	Br-Ni/PA	Br-Ni/PA	Br-Ni/PA
Connection	2 m Silicone cable, 3 x 0.75 mm²	2 m Silicone cable, 3 x 0.75 mm²	2 m Silicone cable, 3 x 0.75 mm²	2 m Silicone cable, 3 x 0.75 mm²
Switching current				
Accessories	Fixing nuts are part of delivery			

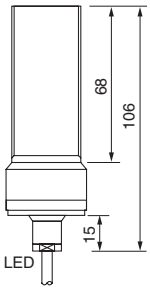
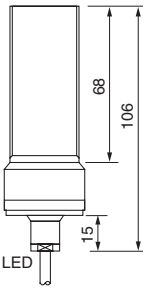
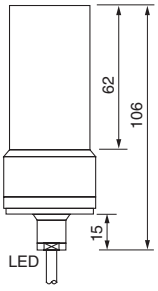
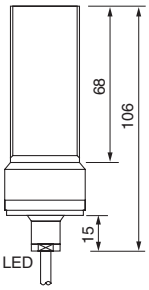
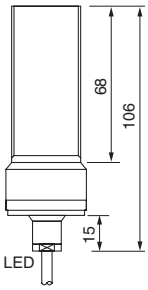
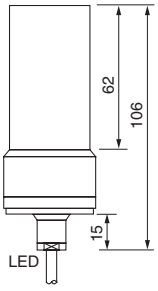
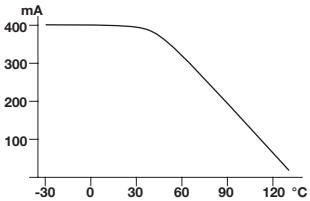
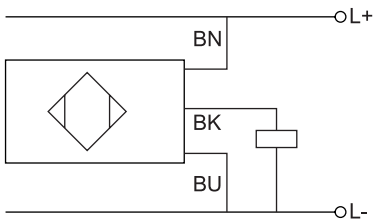
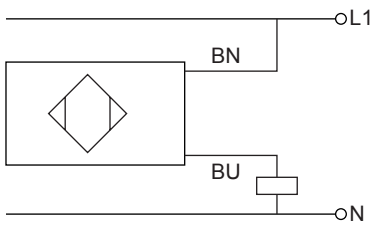
INDUCTIVE

120 ºC-Special switches

Series IGFW / INFW
PTFE-housing

AC 20...250 V
DC 10...55 V

IP 68 Seawater proof
Resistant to acid

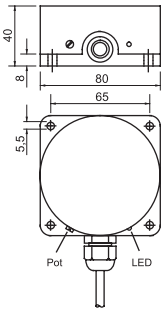
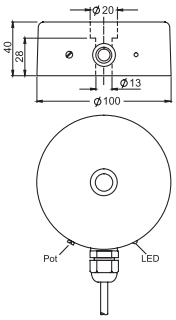
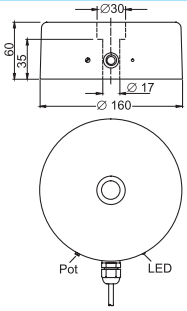
Design	DC PNP M 30x1,5		Ø 35	AC M 30x1,5		Ø 35
Dimensions Installation flush (f) non flush (nf)						
Switching distance sn [mm]	10 f	14 nf	19 nf	10 f	14 nf	19 nf
Switching output						
ID-No.	**P30628**	**P30640**	**P30652**	**P30626**	**P30638**	**P30650**
Type	IGFW 010 GSP	IGFW 015 GSP	INFW 020 GSP	IGFW 010 WS	IGFW 015 WS	INFW 020 WS
Supply voltage [V]	10...55 DC			20...250 AC		
Switching current [mA]	< 400			< 400		
Surge current [mA]	short circuit protection			< 3000 / 10 ms		
Current consumption [mA]	4			2.5		
Inverse current max. [µA]	1			2500		
Voltage drop [V]	2			5 eff.		
Ambient temperature [°C]	-25...+120					
Temperature deviation [%]	10 (-25...+70 °C), 20 (-25...+120 °C)					
Residual ripple [%]	10			–		
Overcurrent release approx. [mA]	430			–		
Reverse Protection	•			–		
Minimum load current [mA]	–			4.5		
EMC-class	class A					
Switching frequency [Hz]	100			20		
Protection [EN 60529]	IP 68					
Housing material	PTFE					
Connection	2 m FEP-cable 3 x 0.34 mm²			2 m Silicone cable 0.75 mm²		
Switching current						
						
Accessories	Nut M 30x1.5		Z00120	Clamp Ø 35		Z00125

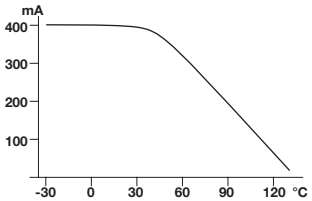
INDUCTIVE

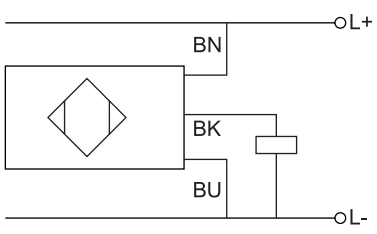
120 °C-High temperature switch

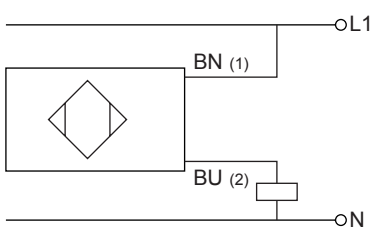
Series IDST / INST

AC 20...250 V
DC 10...55 V

Design	ø 80		ø 100		ø 160	
Dimensions						
Switching distance sn [mm]	45	45	60	60	100	100
Switching output						
ID-No.	**P30412**	**P30414**	**P30420**	**P30422**	**P30429**	**P30431**
Type	IDST 080WS	IDST 080GSP	INST 100WS	INST 100GSP	INST 160WS	INST 160GSP
Supply voltage [V]	20...250 AC	10...55 DC	20...250 AC	10...55 DC	20...250 AC	10...55 DC
Switching current (25°C)[mA]	< 400	< 400	< 400	< 400	< 400	< 400
Overcurrent release [mA]	–	430	–	430	–	430
Current consumption [mA]	2,5	4	2,5	4	2,5	4
Residual current [µA]	2500	1	2500	1	2500	1
Voltage drop max. [V]	5 eff.	2	5 eff.	2	5 eff.	2
Ambient temperature [°C]	-25...+120					
Temperature drift [%]	10 (-25...+70 °C), 20 (-25...+120 °C)					
DC-ripple max. [%]	–	10	–	10	–	10
Short circuit protection [mA]	–	•	–	•	–	•
Reverse protection		•		•		•
Minimum load current [mA]	4,5	–	4,5	–	4,5	–
EMC-class	A	A	A	A	A	A
Switching frequency [Hz]	20	50	20	50	20	50
Protection [EN 60529]	IP 67					
Housing material	PBT	PBT	PPO	PPO	PPO	PPO
Connection	2 m Silicone cable 0,75 mm²					
Switching current	DC			AC		



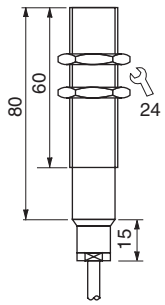
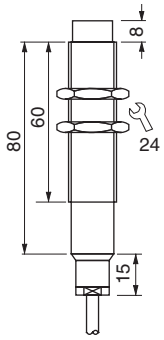
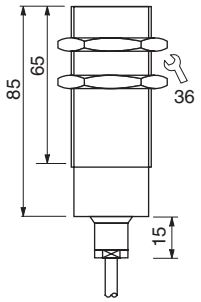
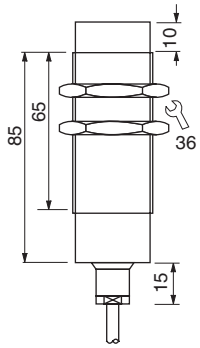




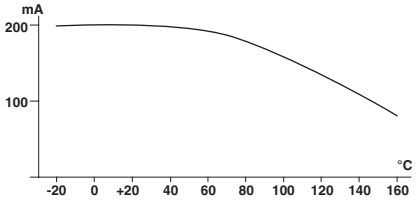
INDUCTIVE

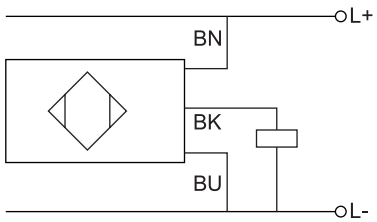
160 ºC-High temperature switch

Permanent temperature 160 ºC
Compact model
M 18x1
M 30x1.5
DC 10...33V
Stainless steel / PEEK housing

Design	***DC PNP M 18x1***		***DC PNP M 30x1,5***	
Dimensions Installation flush (f) non flush (nf)				
Switching distance sn [mm]	5 f	8 nf	10 f	15 nf
Switching output				
ID-No.	**P31161**	**P31162**	**P31163**	**P31164**
Type	IGMH 005 GSP	IGMH 008 GSP	IGMH 010 GSP	IGMH 015 GSP
Supply voltage [V]	10…33 DC			
Switching current at 25 °C [mA]	200			
Short circuit proof	•			
Reverse protection	•			
Voltage drop max. [V]	2			
Residual current max. [mA]	0.02			
Current consumption (not actuated) [mA]	7			
Switching frequency [Hz]	200			
Temperature deviation [%]	15			
Ambient temperature [°C]	-25…+160			
EMC-class	class A			
Protection [EN 60529]	IP 67			
LED-Display	–			
Housing material	stainless steel 316 Ti / PEEK			
Connection	2 m FEP cable, 3 x 0.34 mm²			

Switching current





Accessories	Fixing nuts are part of delivery

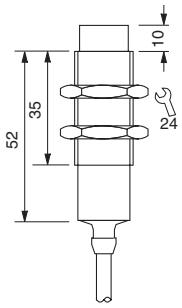
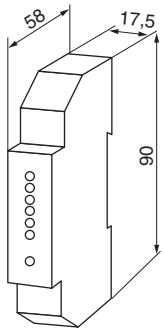
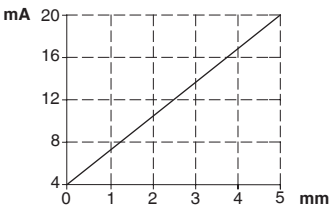
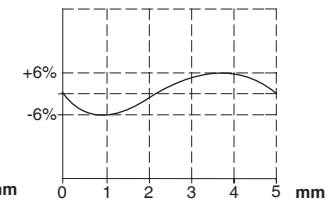
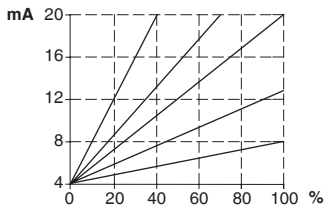
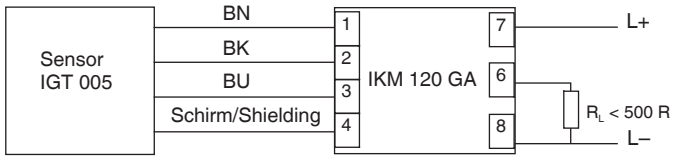
INDUCTIVE

160 ºC-Analog sensor

Serie IGT
M 18x1

for the connection to Amplifier IKM 120 GA

4... 20 mA

Design	IGT 005	IKM 120 GA
Dimensions Installation non flush		
Analogue range [mm]	0...5	–
ID-No.	P31143	P31144
Type	IGT 005	IKM 120 GA
Supply voltage [V]	–	24 DC ± 20%
Current consumption [mA]	–	30
Output current max. [mA]	–	4...20 mA
Linearity [%]	6	0.5
Load RL [Ω]	–	50...500
Ambient temperature [°C]	-25...+160	-20...+60
Temperature deviation [%]	10	2
Protection [EN 60529]	IP 67	IP 40
Housing material	AISI 316 Ti / PKS	PC
Connection	2 m PTFE, 3x0.75 mm²	terminal screws
Output signal with approaching iron plate ST37	 	
Connection diagramm		
Accessories	Fixing nuts are part of delivery	

INDUCTIVE

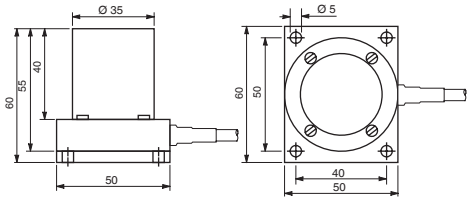
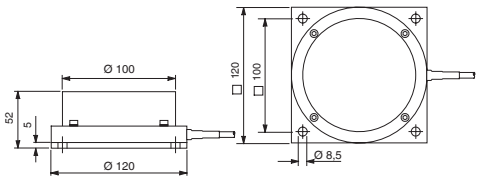
200 °C-High temperature switch

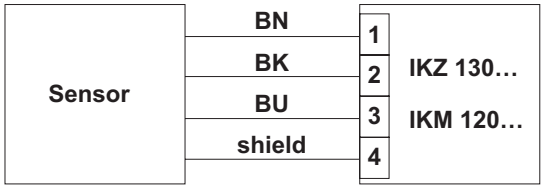
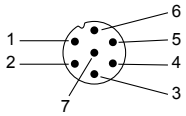
Series INT

Temperature up to 200 °C

no cooling

PTFE housing

Design	INT020-S200		INT100-S180	
Dimensions				
Switching distance sn [mm]	15		50	
Adjustable range [mm]	5...20		10...80	
ID-No.	P31101	P30411	P31103	P30427
Type	INT020-S200 K	INT020-S200 GC	INT100-S180 K	INT100-S180 GC
Limiting temperature [°C]	250		200	
Nominal temperature [°C]	200		180	
Temperature deviation (not linear) [mm/°C]	0.05		0.06	
EMC-class	class B			
Protection [EN 60529]	IP 40			
Housing material	PTFE			
Mounting	aluminium plate			
Sensing material [ST 37]	40 x 40 x 1		100 x 100 x 1	
Connecting cable	5 m PTFE shielded			
Connection	clamp connection	plug C 16	clamp connection	plug C16
Special notes	If the ambient temperature exeeds 230 °C, there might be failed reactions from the sensor, but it will nor be destroyed by this. The inductive high temperature proximity switches must be used with an amplifier. The connection cable can be up to 10 m long. We can supply the cable with a flexible aluminium tube on request.			

	Sensor-Connection to IKM 120 GPP / IKZ 130...	Sensor-Connection to IU 130...
Connection diagram		 1: BN 2: BK 3: BU 7: shield
Accessories		plug C16

INDUCTIVE

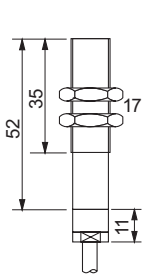
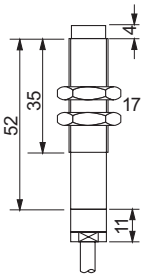
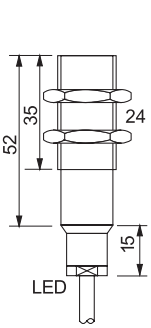
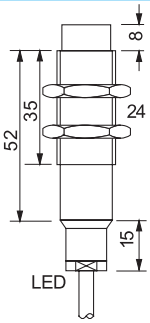
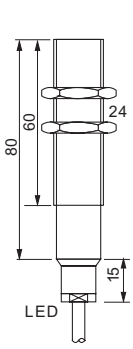
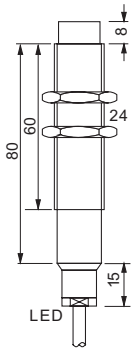
-60 °C-POLAR-switch

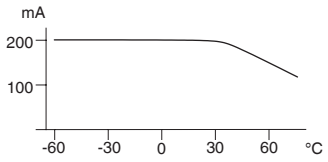
Series IGMP
Metal thread

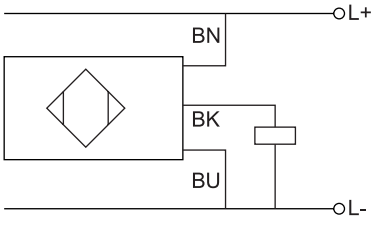
M 12x1
M 18x1

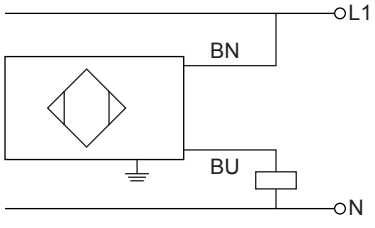
DC 10...33 V

-60 °C low temperature
IP 68 waterproof
IP 69 k jet waterproof

Design	DC PNP M 12x1		DC PNP M 18x1		AC M 18x1	
Dimensions						
Installation flush (f) non flush (nf)						
Nominal switching distance [mm]	2 f	4 nf	5 f	7 nf	5 f	7 nf
Switching output						
ID-No.	**P31145**	**P31146**	**P31147**	**P31148**	**P31149**	**P31150**
Type	IGMP 02 GSP	IGMP 04 GSP	IGMP 05 GSP	IGMP 08 GSP	IGMP 005 WS	IGMP 008 WS
Supply voltage [V]	10...33 DC				20...250 AC	
Switching current (max.) [mA]	200				300	
Short circuit proof	•				–	
Overcurrent release [mA]	230				–	
Reverse protection	•				–	
Voltage drop max. [V]	2				4.5	
Load current min. [mA]	–				5	
Current consumption [mA]	4				2,5	
Switching frequency [Hz]	1000				25	
Ambient temperature [°C]	-55...+60				-55...+60	
Temperature min. [°C]	-60				-60	
Temperature gradient [K/min]	5				5	
EMC-Class	A				A	
Protection [EN 60529]	IP 68 - IP 69 k				IP 68 - IP 69 k	
LED-Display	•				•	
Housing material	PTFE / AISI 316 Ti				PTFE / AISI 316 Ti	
Connection	2 m FEP-cable, 3 x 0.75 mm²				2 m FEP-cable, 3 x 0.75 mm²	







Accessories	Fixing nuts are part of delivery

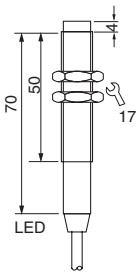
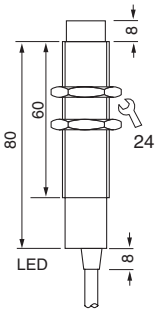
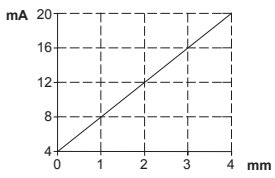
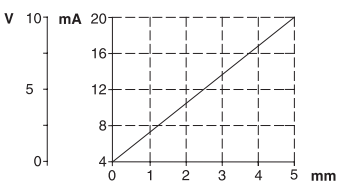
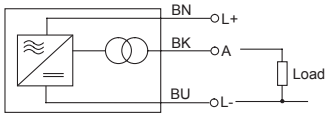
INDUCTIVE

Analog sensors

Series IGA
Metal thread

M 12x1
M 18x1

0...10 V
4...20 mA

Design	M 12 4...20 mA	M 18 0...10 V	M 18 4...20 mA
Dimensions			
Installation non flush			
Analogue range [mm]	0...4	0...5	0...5
Output			
ID-No.	P31128	P31040	P31129
Type	IGA 104 GI	IGA 005 GU	IGA 005 GI
Supply voltage [V]	18...27 DC	18...27 DC	18...27 DC
Current consumption max. [mA]	40	25	40
Voltage output max. [V]	–	11	–
Output current max. [mA]	23	–	23
Linearity deviation [%]	10	5	5
Load resistance RL [kΩ]	<0.4	>2	<0.4
Ambient temperature [°C]	-25...+70		
Temperature deviation [%]	10		
Protection [EN 60529]	IP 67		
Housing material	Brass-chrome/PPO		
Connecting cable	2 m PVC cable 3 x 0.34 mm²	2 m PVC cable 3 x 0.5 mm²	
Output signal with approaching iron plate ST37			
Connection diagram			
Accessories	Fixing nuts are part of delivery		

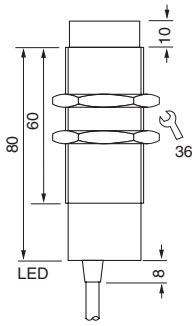
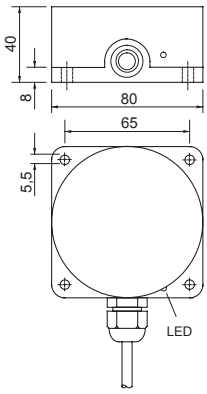
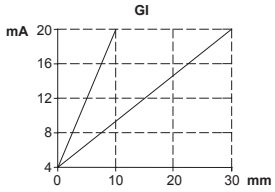
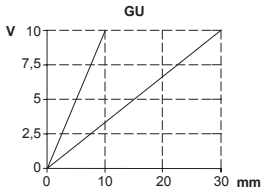
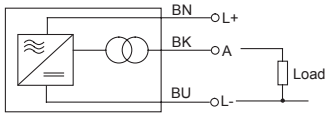
INDUCTIVE

Analog sensors

Series IGA
Series IDA

M 30x1.5
Ø 80 mm

0...10 V
4...20 mA

Design	M 30 0...10 V	4...20 mA	ø 80 mm 0...10 V	4...20 mA
Dimensions Installation non flush				
Analogue range [mm]	0...10	0...10	0...30	0...30
Output				
ID-No.	P31041	P31130	P31043	P31131
Type	IGA 010 GU	IGA 010 GI	IDA 030 GU	IDA 030 GI
Supply voltage [V]	18...27 DC	18...27 DC	18...27 DC	18...27 DC
Current consumption max. [mA]	25	40	25	40
Voltage output max. [V]	11	–	11	–
Output current max. [mA]	–	23	–	23
Linearity deviation [%]	5			
Load resistance RL [kΩ]	>2	<0.4	>2	<0.4
Ambient temperature [°C]	-25...+70			
Temperature deviation [%]	10			
Protection [EN 60529]	IP 67			
Housing material	Brass-Nickel / PPO		PBT	
Connection	2 m PVC cable 3 x 0.5 mm²			
Output signal with approaching iron plate ST37				
Connection diagram				
Accessories	Fixing nuts are part of delivery			

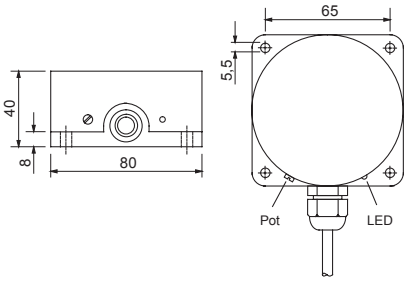
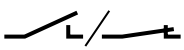
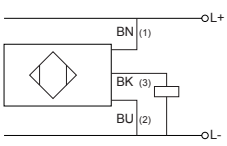
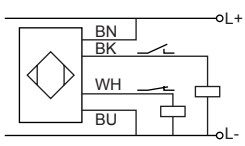
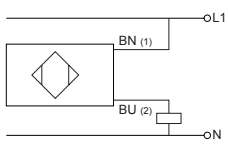
INDUCTIVE

Long Sensing Distance

Series ID
Ø 80 mm

DC 10...55 V
AC 20...250 V

Sensing distance adjustable

Design	DC PNP Ø 80 mm programmable	DC PNP Ø 80 mm antivalent	AC Ø 80 mm programmable
Dimensions Installation flush (f) non flush (nf)			
Switching distance sn [mm] (Adjustable range)	55 nf (10…80)	55 nf (10…80)	55 nf (10…80)
Switching output			
ID-No.	**P30212**	**P30213**	**P30210**
Type	IDS 080 GPP	ID 080 GSOP	IDS 080 WP
Supply voltage [V]	10...55 DC	10...55 DC	20...250 AC
Switching current at 25 °C [mA]	400	400	400
Short circuit proof	•	•	3000 mA/10 ms
overcurrent release [mA]	450	450	–
Reverse protection	•	•	–
Voltage drop max. [V]	2	2	6
Residual current [mA]	–	–	2.5
Minimum load current (AC)	–	–	8
Current consumption (not actuated) [mA]	5	7	2.5
Switching frequency [Hz]	50	50	20
Ambient temperature [°C]	-25...+75	-25...+75	-25...+75
EMC-class	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67
LED-Display	•	•	•
Housing material	PBT	PBT	PBT
Connection	PG-plug connection 2 m, 3 x 0.5 mm², PVC	2 m PVC cable 4 x 0.5 mm²	PG-plug connection 2 m, 2 x 0.75 mm², PVC
Connection			
Accessories			

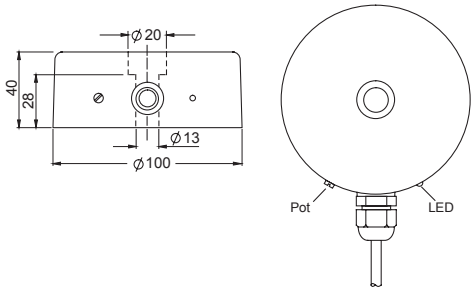
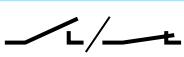
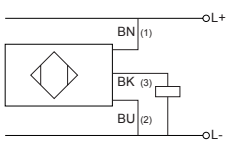
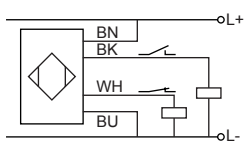
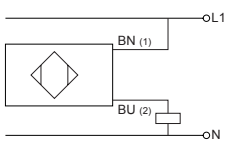
INDUCTIVE

Long Sensing Distance

Series IN
Ø 100 mm

DC 10...55 V
AC 20...250 V

Sensing distance adjustable

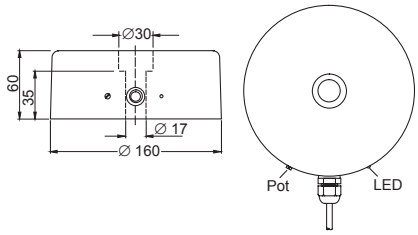
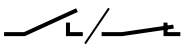
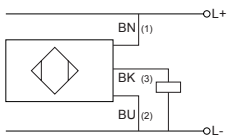
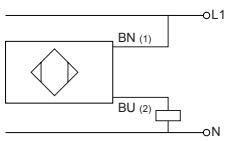
Design	DC PNP Ø 100 mm programmable	DC PNP Ø 100 mm antivalent	AC Ø 100 mm programmable
Dimensions Installation flush (f) non flush (nf)			
Switching distance sn [mm] (Adjustable range)	70 nf (10...110)	70 nf (10...110)	70 nf (10...110)
Switching output			
ID-No.	**P30217**	**P30218**	**P30215**
Type	INS 100 GPP	IN 100 GSOP	INS 100 WP
Supply voltage [V]	10...55 DC	10...55 DC	20...250 AC
Switching current at 25 °C [mA]	400	400	400
Short circuit proof	•	•	3000 mA/10 ms
overcurrent release [mA]	450	450	–
Reverse protection	•	•	–
Voltage drop max. [V]	1.7	1.7	8
Residual current [mA]	–	–	2.5
Minimum load current (AC)	–	–	8
Current consumption (not actuated) [mA]	5	7	2.5
Switching frequency [Hz]	50	50	20
Ambient temperature [°C]	-25...+75	-25...+75	-25...+75
EMC-class	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67
LED-Display	•	•	•
Housing material	PPO / Aluminium	PPO / Aluminium	PPO / Aluminium
Connection	PG-plug connection 2 m, 3 x 0.5 mm², PVC	2 m PVC cable 4 x 0.5 mm²	PG-plug connection 2 m, 2 x 0.75 mm², PVC
Connection			
Accessories	Fixing screws (Z00104) are part of delivery		

INDUCTIVE

Long Sensing Distance

Series IN
Ø 160 mm

DC 10...55 V
AC 20...250 V
Sensing distance adjustable

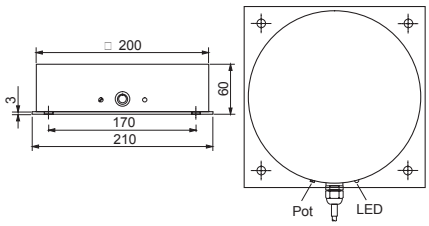
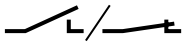
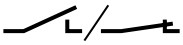
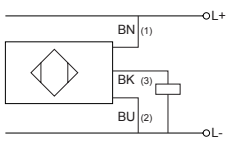
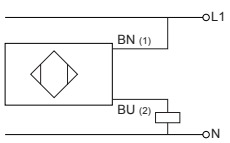
Design	DC PNP Ø 160 mm programmable		AC Ø 160 mm programmable
Dimensions Installation flush (f) non flush (nf)			
Switching distance sn [mm] (Adjustable range)	120 nf (20…150)		120 nf (20…150)
Switching output			
ID-No.	**P30221**		**P30220**
Type	INS 160 GPP		INS 160 WP
Supply voltage [V]	10...55 DC		20...250 AC
Switching current at 25 °C [mA]	400		400
Short circuit proof	•		3000 mA/10 ms
overcurrent release [mA]	450		–
Reverse protection	•		–
Voltage drop max. [V]	1.7		8
Residual current [mA]	–		2.5
Minimum load current (AC)	–		8
Current consumption (not actuated) [mA]	5		2.5
Switching frequency [Hz]	50		20
Ambient temperature [°C]	-25...+75		-25...+75
EMC-class	class A		class A
Protection [EN 60529]	IP 67		IP 67
LED-Display	•		•
Housing material	PPO / Aluminium		PPO / Aluminium
Connection	PG-plug connection 2 m, 3 x 0.5 mm², PVC		PG-plug connection 2 m, 2 x 0.75 mm², PVC
Connection			
Accessories	Fixing screws (Z00105) are part of delivery		

INDUCTIVE

Long Sensing Distance

Series IDK
Ø 200 mm

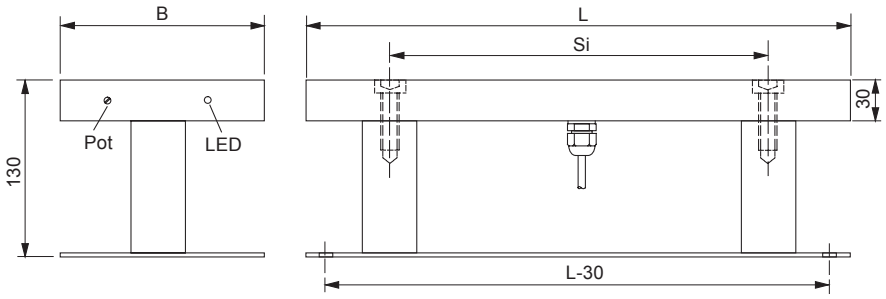
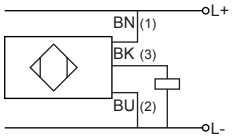
DC 10...55 V
AC 20...250 V
Sensing distance adjustable

Design	DC PNP Ø 200 mm programmable		AC Ø 200 mm programmable
Dimensions Installation flush (f) non flush (nf)			
Switching distance sn [mm] (Adjustable range)	140 nf (40…170)		140 nf (40…170)
Switching output			
ID-No.	**P30224**		**P30223**
Type	IDKS 200 GPP		IDKS 200 WP
Supply voltage [V]	10...55 DC		20...250 AC
Switching current at 25 °C [mA]	400		400
Short circuit proof	•		3000 mA/10 ms
overcurrent release [mA]	450		–
Reverse protection	•		–
Voltage drop max. [V]	2		6
Residual current [mA]	–		2.5
Minimum load current (AC)	–		8
Current consumption (not actuated) [mA]	5		2.5
Switching frequency [Hz]	50		20
Ambient temperature [°C]	-25...+75		-25...+75
EMC-class	class A		class A
Protection [EN 60529]	IP 67		IP 67
LED-Display	•		•
Housing material	PPO / Aluminium		PPO / Aluminium
Connection	PG-plug connection 2 m, 3 x 0.5 mm², PVC		PG-plug connection 2 m, 2 x 0.75 mm², PVC
Connection			

INDUCTIVE

Surface switches

Series IFE
Wide detection range
DC 10...55 V
Sensitivity adjustable
PG-Plug
Moisture-resistant

Design	DC PNP				
Dimensions Installation flush (f) non flush (nf)					
Switching distance sn [mm]	100 nf	100 nf	130 nf	150 nf	180 nf
Adjustable range max. [mm]	120	150	170	200	250
Switching output					
ID-No.	**P31016**	**P31018**	**P31020**	**P31022**	**P31024**
Type	IFE 200/100 GSP	IFE 400/100 GSP	IFE 400/150 GSP	IFE 700/150 GSP	IFE 900/150 GSP
Dimensions L	200	400	400	700	900
B	100	100	150	150	150
Si	108	280	230	190	182
Supply voltage [V]	10...55 DC				
Switching current [mA]	400				
Short circuit protection	•				
Overcurrent release approx. [mA]	430				
Reverse protection	•				
Current consumption approx. [mA]	4				
Inverse current max. [µA]	1				
Residual ripple max. [%]	15				
Voltage drop approx. [V]	1				
Switching frequency [Hz]	10				
Hysteresis [%]	10				
Ambient temperature [°C]	-25...+75				
Correction factors	St 37: 1	AL: 0.4	VA 4: 0.65	Cu: 0.45	ZN: 0.5 MS: 0.6
EMC-class	class A				
Protection [EN 60529]	IP 67				
Housing material	PVC / Aluminium				
Connection	PG-plug connection, 2 m PVC-cable 3 x 0.5 mm²				
					
Special notes	see page 3.04				

INDUCTIVE

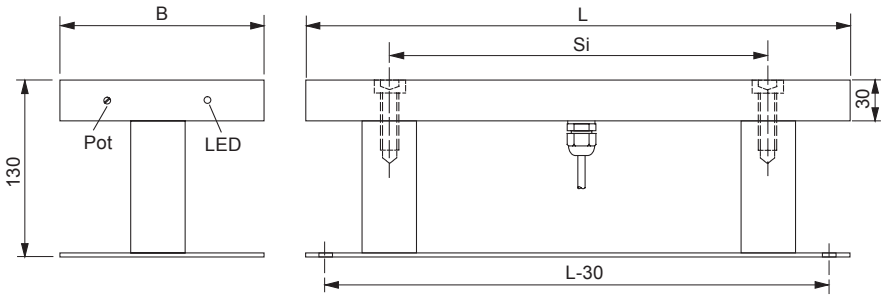
Surface switches

Series IFE
Wide detection range
AC 20...250 V
Sensitivity adjustable
PG-Plug
Moisture-resistant

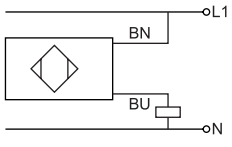
Design	AC

Dimensions

Installation
flush (f)
non flush (nf)



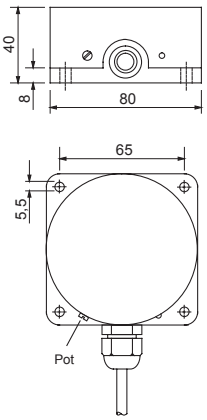
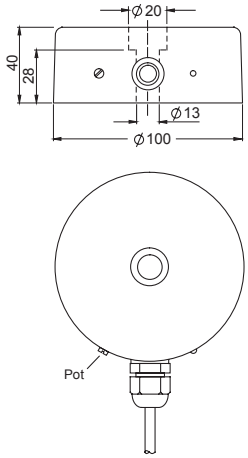
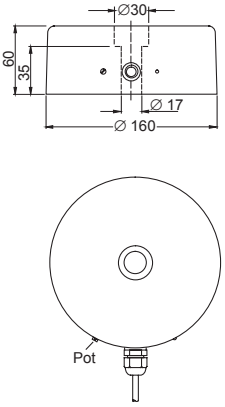
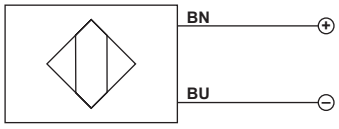
Switching distance sn [mm]	100 nf	100 nf	130 nf	150 nf	180 nf
Adjustable range max. [mm]	120	150	170	200	250
Switching output					
ID-No.	**P31015**	**P31017**	**P31019**	**P31021**	**P31023**
Type	IFE 200/100 WS	IFE 400/100 WS	IFE 400/150 WS	IFE 700/150 WS	IFE 900/150 WS
Dimensions L	200	400	400	700	900
B	100	100	150	150	150
Si	108	280	230	190	182
Supply voltage [V]	20...250 AC				
Switching current [mA]	< 400				
Surge current [mA]	< 3000 / 10 ms				
Overcurrent release approx. [mA]	–				
Current consumption approx. [mA]	2.5				
Inverse current approx. [mA]	2.5				
Minimum load current approx. [mA]	8				
Voltage drop approx. [V]	8				
Switching frequency [Hz]	10				
Hysteresis [%]	10				
Ambient temperature [°C]	-25...+75				
Correktion factors	St 37: 1 AL: 0.4 VA 4: 0.65 Cu: 0.45 ZN: 0.5 MS: 0.6				
EMC-class	class A				
Protection [EN 60529]	IP 67				
Housing material	PVC				
Connection	PG-plug connection, 2 m PVC-cable 2 x 0.75 mm²				



Special notes	see page 3.04

INDUCTIVE
NAMUR

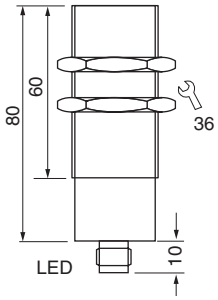
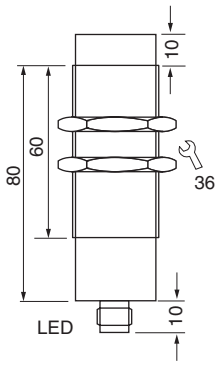
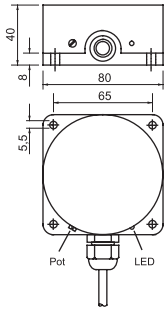
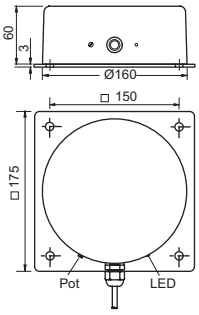
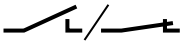
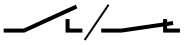
Proximity switches
NAMUR DIN EN 60947

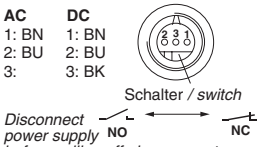
Design	IDS 080-NAM Ø 80 mm	INS 100-NAM Ø 100 mm	INS 160-NAM Ø 160 mm
Dimensions Installation flush (f) non flush (nf)			
Switching distance sn [mm] (Adjustable range)	55 nf (30…80)	70 nf (30…100)	120 nf (40…140)
Switching output	NAMUR	NAMUR	NAMUR
ID-No.	**P30330**	**P30331**	**P30332**
Type	IDS 080-NAM	INS 100-NAM	INS 160-NAM
Supply voltage [V]	8 DC	8 DC	8 DC
Current consumption actuated max. [mA] not actuated max. [mA]	 1 4	 1 4	 1 4
Switching frequency [Hz]	20	20	15
Ambient temperature [°C]	-25...+75	-25...+75	-25...+75
EMC-class	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67
LED-Display	–	–	–
Housing material	PBT	PA, Alu	PPO, Alu
Connection	PG-plug connection 2 m, 2 x 0.75 mm², PVC, shielded	PG-plug connection 2 m, 2 x 0.75 mm², PVC, shielded	PG-plug connection 2 m, 2 x 0.75 mm², PVC, shielded
Connection diagram For the connection to Amplifier EGE 90 Ex 1			
Accessories (see page 3.46)	Fixing screws are part of delivery		

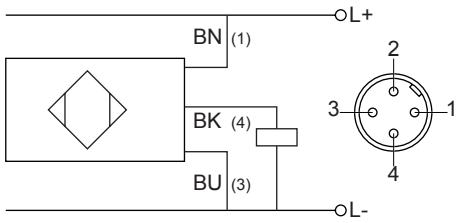
INDUCTIVE

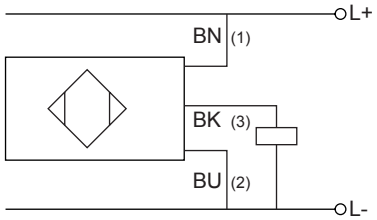
All metal switch

Series IDB / IGB
Sensing distance up to 150 mm
DC 10...30 V

Design	M 30x1.5	M 30x1.5	Ø 80	Ø 160
Dimensions Installation flush (f) non flush (nf) adjustable (a)				
Switching distance sn [mm]	10 f	20 nf	70 nf-a	150 nf-a
Output				
ID-No.	P31135	P31136	P31141	P31142
Type	IGBS 010 GSP	IGBS 020 GSP	IDBS 080 GPP	IDBS 160 GPP
Supply voltage [V]	10...30 DC			
Switching current max. [mA]	200			
Short circuit proof	•			
Current consumption [mA]	25			
Reverse protection	•			
Voltage drop max. [V]	2			
Ambient temperature [°C]	-25...+75			
EMC-class	class A			
Protection [EN 60529]	IP 67			
Housing material	brass-nickel / PPO		PBT	AL / PPO
Connection	M 12 plug		PG plug connection 2 m, 3 x 0.50 mm² PVC	
PG-plug-system				



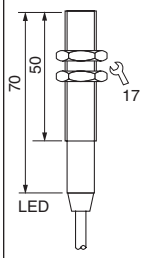
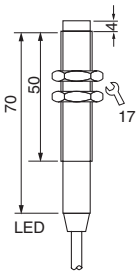
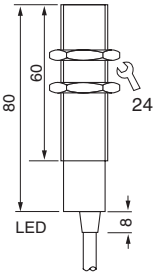
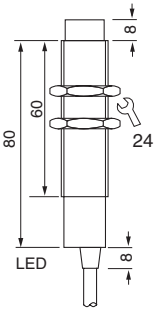
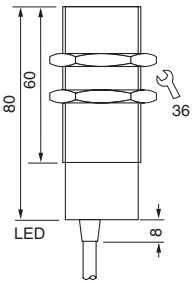
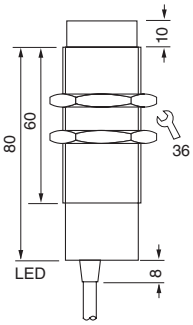


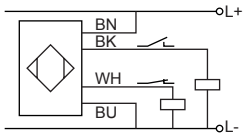


INDUCTIVE

Self diagnostic Switch

Series IGMD
Switching distances up to 15 mm
DC 10...55 V
Safety output NC and NO
short circuit protection

Design	M 12x1		M 18x1		M 30x1.5	
Dimensions Installation flush (f) non flush (nf)						
Switching distance sn [mm]	2 f	4 nf	5 f	8 nf	10 f	15 nf
Switching output antivalent						
ID-No.	**P31001**	**P31003**	**P30730**	**P30731**	**P30732**	**P30733**
Type	IGMD 002 GSOP	IGMD 004 GSOP	IGMD 005 GSOP	IGMD 008 GSOP	IGMD 010 GSOP	IGMD 015 GSOP
Supply voltage [V]	10...55 DC					
Switching current [mA]	200					
Current consumption approx. [mA]	10					
Short circuit proof	•					
Reverse protection	•					
Voltage drop approx. [V]	2					
Ambient temperature [°C]	-25...+75					
EMC-class	class A					
Protection [EN 60529]	IP 67					
Housing material	Br-Ni / PPO					
Connection	2 m PVC-cable 4 x 0.34 mm²					
Special notes	Conventional sensors cannot indicate if damage to the sensor, particularly destruction of the sensor coil, has occured. The output signals of damaged sensors can be misleading. The EGE self diagnostic switches indicate such damage and give the opportunity to take timely remedial action. The devices are supplied with two safety outputs (NO and NC). In case of damage both outputs give an open reading.					
Connection diagram						



Sensor coil / Output	non activated	activated	damaged
NO			
NC			

Accessories	Fixing nuts are part of delivery

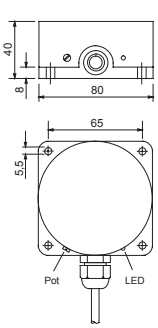
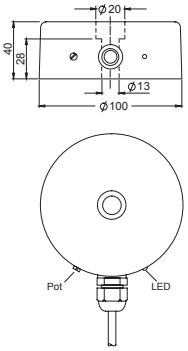
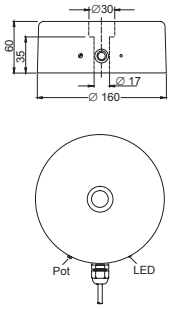
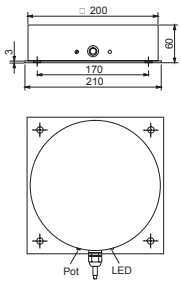
INDUCTIVE

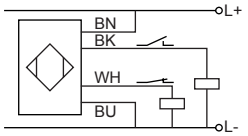
Self diagnostic Switch

Series IDD
Switching distances
up to 200 mm

DC 10...55 V

Saftey output
NC and NO
short circuit protection

Design	***Ø 80***	***Ø 100***	***Ø 160***	***Ø 200***
Dimensions				
Installation flush (f) non flush (nf)				
Switching distance sn [mm]	55 nf	70 nf	120 nf	140 nf
Adjustable range [mm]	10...60	10...100	20...150	40...170
Switching output antivalent				
ID-No.	**P30736**	**P30737**	**P30738**	**P30739**
Type	IDD 080 GSOP	IDD 100 GSOP	IDD 160 GSOP	IDD 200 GSOP
Supply voltage [V]	10...55 DC			
Switching current [mA]	200			
Current consumption approx. [mA]	10			
Short circuit proof	•			
Reverse protection	•			
Voltage drop approx. [V]	2			
Ambient temperature [°C]	-25...+75			
EMC-class	class A			
Protection [EN 60529]	IP 67			
Housing material	PBT	PPO		
Connection	2 m PVC-cable 4 x 0.34 mm²			
Special notes	Conventional sensors cannot indicate if damage to the sensor, particularly destruction of the sensor coil, has occured. The output signals of damaged sensors can be misleading. The EGE self diagnostic switches indicate such damage and give the opportunity to take timely remedial action. The devices are supplied with two safety outputs (NO and NC). In case of damage both outputs give an open reading.			
Connection diagram				



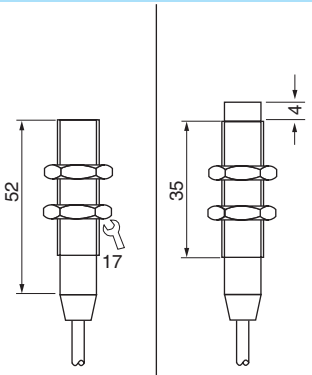
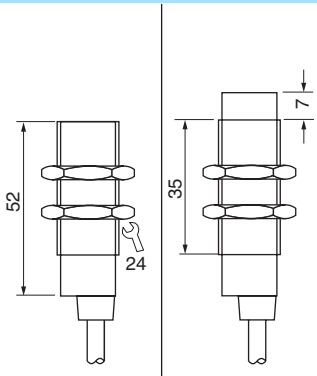
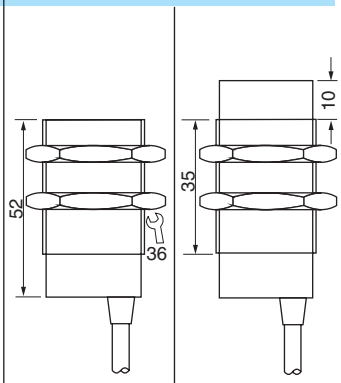
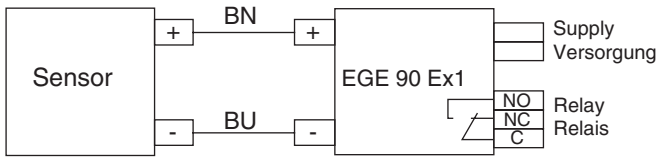
Sensor coil / Output	non activated	activated	damaged
NO			
NC			

Accessories	Fixing nuts are part of delivery

INDUCTIVE

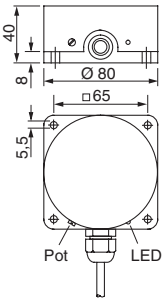
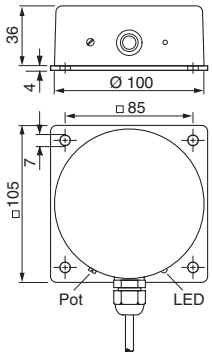
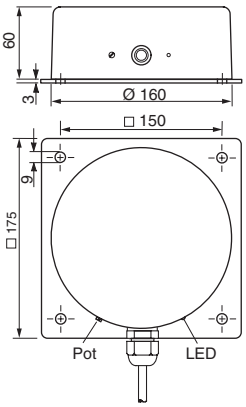
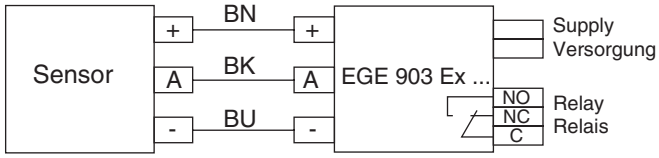
Dust-

Series IGEX
Zone 0/20
Category 1
Dust II 1 D T 100 °C
Gases II 1 G EEx ia IIC T 6

Design	M 12x1		M 18x1		M 30x1.5	
Dimensions						
Nominal switching distance [mm]	2f	4nf	5f	8nf	10f	15nf
ID-No.	**P31151**	**P31152**	**P31153**	**P31154**	**P31155**	**P31156**
Type	IGEX 02	IGEX 04	IGEX 05	IGEX 08	IGEX 10	IGEX 15
Ambient temperature [°C]	-25...+75					
ATEX marking	II 1 D T100°C / II 1 G EEx ia IIC T 6					
Examination certificate no.	TÜV 03 ATEX 2036					
Ambient temperatures for temperature classes [°C]	T6: 75 T5: 90					
Maximum values	Ci = 22.0 nF Li = 3.0 mH					
Only for the connection to certified intrinsically safe circuits with the following maximum values:	Ii = 15.9 mA Ui = 12.6 V Pi = 50.0 mW					
Housing material	brass-nickel / PA					
Protection [EN 60529]	IP 67					
Connection	2 m PVC-cable 2 x 0.5 mm²					
For the connection to amplifiers EGE 90 Ex1...						
Notice	Zone 22-Compact switches with PNP output on request					

INDUCTIVE
Dust- Ex

Series IDEX
Zone 0/20
Category 1
Dust II 1 D T 100 °C
Gases II 1 G EEx ia IIC T 6

Design	Ø 80	Ø 100	Ø 160
Dimensions			
Nominal switching distance [mm]	55nf	70nf	120nf
Adjustable range	(10...70)	(10...100)	(20...150)
ID-No.	**P31157**	**P31158**	**P31159**
Type	IDEX 080	IDEX 100	IDEX 160
Ambient temperature [°C]	-25...+75		
ATEX marking	II 1 D T100°C / II 1 G EEx ia IIC T 6		
Examination certificate no.	TÜV 03 ATEX 2037		
Ambient temperatures for temperature classes [°C]	T6: 75 T5: 90		
Maximum values	Ci = 120 nF Li = negligibly small		
Only for the connection to certified intrinsically safe circuits with the following maximum values:	Ii = 80 mA Ui = 12.6 V Pi = 252 mW		
Housing material	PA / Al		
Protection [EN 60529]	IP 67		
Connection	2 m PVC-cable 3 x 0.5 mm²		
For the connection to amplifiers EGE 903 Ex...			
Notice	Zone 22-Compact switches with PNP output on request		

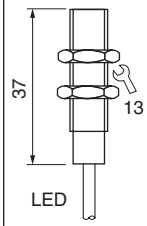
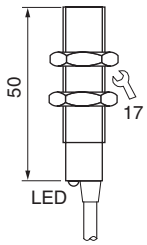
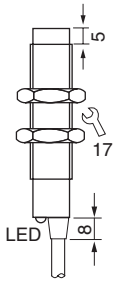
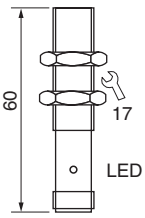
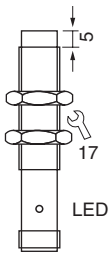
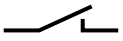
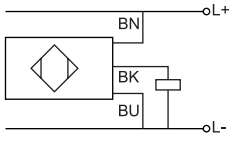
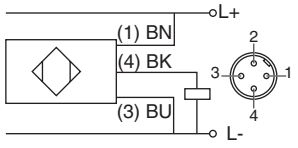
INDUCTIVE

Standard switches

Series IGM
Metal thread
M 8 x 1
M 12x1

DC 10...30 V

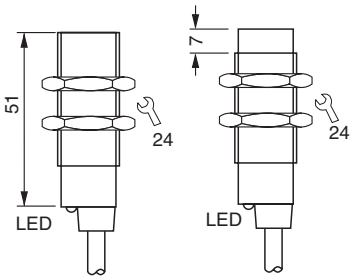
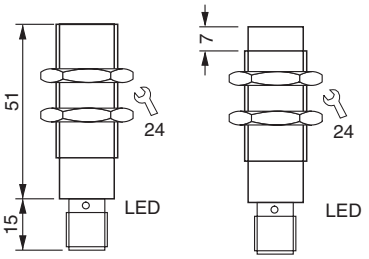
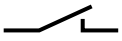
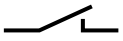
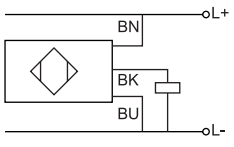
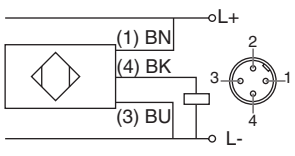
Short form switch

Design	M 8x1	DC PNP	M 12x1	DC PNP	M 12x1
Dimensions Installation flush (f) non flush (nf)					
Switching distance sn [mm]	1.5 f	2 f	4 nf	2 f	4 nf
Switching output					
ID-No.	**P31013**	**P31104**	**P31105**	**P31106**	**P31107**
Type	IGM 1 GSP	IGM 102 GSP	IGM 104 GSP	IGMU 102 GSP	IGMU 104 GSP
Supply voltage [V]	10...30 DC	10...30 DC	10...30 DC	10...30 DC	10...30 DC
Switching current at 25 °C [mA]	200	200	200	200	200
Short circuit proof	•	•	•	•	•
Overcurrent release [mA]	250	250	250	250	250
Reverse protection	•	•	•	•	•
Voltage drop max. [V]	2	2	2	2	2
Residual current [mA]	–	–	–	–	–
Current consumption (not actuated) [mA]	< 10	< 5	< 5	< 5	< 5
Switching frequency [Hz]	1000	800	400	800	400
Ambient temperature [°C]	-20...+70	-25...+70	-25...+70	-25...+70	-25...+70
EMC-class	class A	class A	class A	cass A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67	IP 67	IP 67
LED-Display	•	•	•	•	•
Housing material	stainless steel	Br-Ni / PPO	Br-Ni / PPO	Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 3 x 0.14 mm²	2 m PVC cable 3 x 0.14 mm²	2 m PVC cable 3 x 0.14 mm²	M 12 plug	M 12 plug
Connection diagram					
Accessories				Connecting cable SLG 3-2	

INDUCTIVE

Standard switches

Series IGM
Metal thread
M 18x1
DC 10...30 V
Short form switch

Design	DC PNP	M 18x1		DC PNP	M 18x1
Dimensions Installation flush (f) non flush (nf)					
Switching distance sn [mm]	5 f	8 nf		5 f	8 nf
Switching output					
ID-No.	**P31110**	**P31111**		**P31112**	**P31113**
Type	IGM 105 GSP	IGM 108 GSP		IGMU 105 GSP	IGMU 108 GSP
Supply voltage [V]	10...30 DC	10...30 DC		10...30 DC	10...30 DC
Switching current at 25 °C [mA]	200	200		200	200
Short circuit proof	•	•		•	•
Overcurrent release [mA]	250	250		250	250
Reverse protection	•	•		•	•
Voltage drop max. [V]	1.5	1.5		1.5	1.5
Residual current [mA]	–	–		–	–
Current consumption (not actuated) [mA]	1	1		1	1
Switching frequency [Hz]	500	200		500	200
Ambient temperature [°C]	-25...+70	-25...+70		-25...+70	-25...+70
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	Br-Ni / PPO	Br-Ni / PPO		Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 3 x 0.5 mm²	2 m PVC cable 3 x 0.5 mm²		M 12 plug	M 12 plug
Connection diagram					
Accessories	Fixing nuts are part of delivery			Connecting cable SLG 3-2	

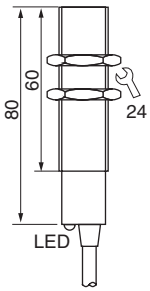
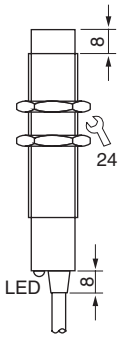
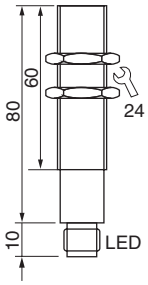
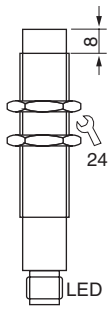
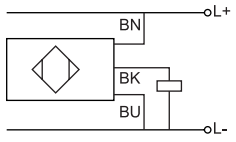
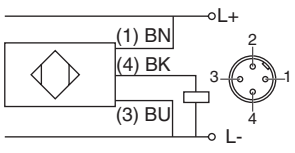
INDUCTIVE

Standard switches

Series IGM
Metal thread
M 18x1

DC 10...55 V

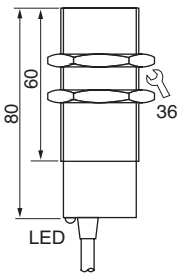
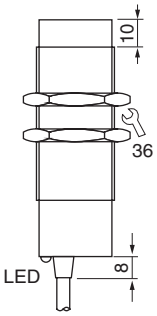
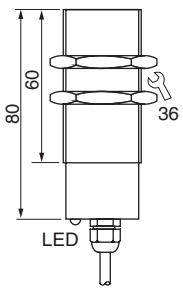
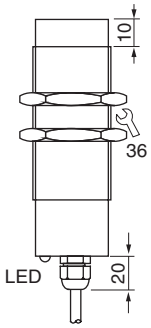
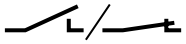
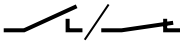
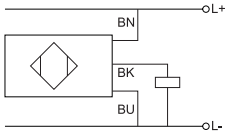
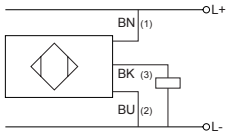
Euronorm

Design	DC PNP	M 18x1		DC PNP	M 18x1
Dimensions					
Installation flush (f) non flush (nf)					
Switching distance sn [mm]	5 f	8 nf		5 f	8 nf
Switching output					
ID-No.	**P30066**	**P30071**		**P30075**	**P30079**
Type	IGM 005 GSP	IGM 008 GSP		IGMU 005 GSP	IGMU 008 GSP
Supply voltage [V]	10...55 DC	10...55 DC		10...55 DC	10...55 DC
Switching current at 25 °C [mA]	400	400		400	400
Short circuit proof	•	•		•	•
Overcurrent release [mA]	450	450		450	450
Reverse protection	•	•		•	•
Voltage drop max. [V]	2	2		2	2
Residual current [mA]	–	–		–	–
Current consumption (not actuated) [mA]	2.5	2.5		2.5	2.5
Switching frequency [Hz]	2000	2000		2000	2000
Ambient temperature [°C]	-25...+70	-25...+70		-25...+70	-25...+70
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	Br-Ni / PPO	Br-Ni / PPO		Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 3 x 0.5 mm²	2 m PVC cable 3 x 0.5 mm²		M 12 plug	M 12 plug
Connection diagram					
Accessories	Fixing nuts are part of delivery			Connecting cable SLG 3-2	

INDUCTIVE

Standard switches

Series IGM
Metal thread
M 30x1.5
DC 10...55 V
Euronorm

Design	DC PNP	M 30x1.5		DC PNP programmable	M 30x1.5 programmable
Dimensions Installation flush (f) non flush (nf)					
Switching distance sn [mm]	10 f	15 nf		10 f	15 nf
Switching output					
ID-No.	**P30094**	**P30101**		**P30093**	**P30100**
Type	IGM 010 GSP	IGM 015 GSP		IGMS 010 GPP	IGMS 015 GPP
Supply voltage [V]	10...55 DC	10...55 DC		10...55 DC	10...55 DC
Switching current at 25 °C [mA]	400	400		400	400
Short circuit proof	•	•		•	•
Overcurrent release [mA]	450	450		450	450
Reverse protection	•	•		•	•
Voltage drop max. [V]	2	2		2	2
Residual current [mA]	–	–		–	–
Current consumption (not actuated) [mA]	2.5	2.5		2.5	2.5
Switching frequency [Hz]	1000	1000		1000	1000
Ambient temperature [°C]	-25...+75	-25...+75		-25...+75	-25...+75
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	Br-Ni / PPO	Br-Ni / PPO		Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 3 x 0.5 mm²	2 m PVC cable 3 x 0.5 mm²		2 m PVC cable 3 x 0.5 mm² (PG-plug)	2 m PVC cable 3 x 0.5 mm² (PG-plug)
Connection diagram					
Accessories	Fixing nuts are part of delivery				

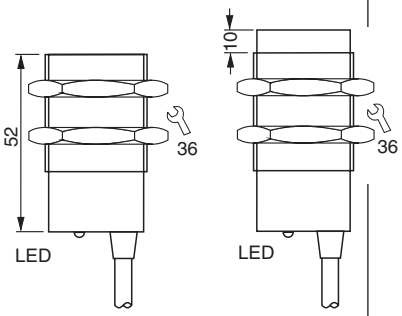
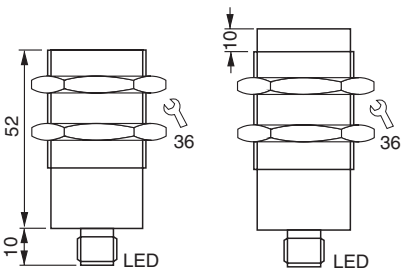
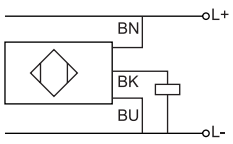
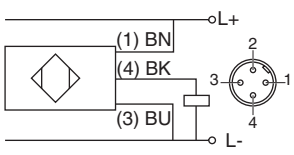
INDUCTIVE

Standard switches

Series IGM
Metal thread
M 30x1.5

DC 10...33 V

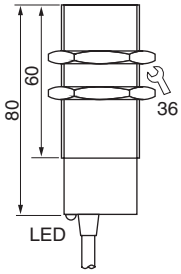
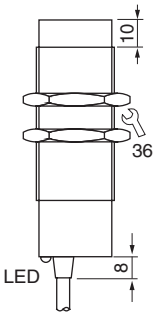
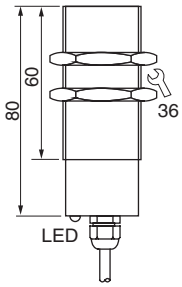
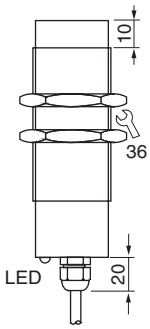
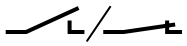
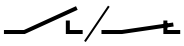
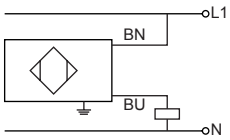
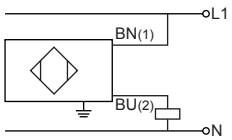
Short form switch

Design	DC PNP	M 30x1.5		DC PNP	M 30x1.5
Dimensions					
Installation flush (f) non flush (nf)					
Switching distance sn [mm]	10 f	15 nf		10 f	15 nf
Switching output					
ID-No.	**P30296**	**P30300**		**P30686**	**P30690**
Type	IGM 10 GSP	IGM 15 GSP		IGMU 10 GSP	IGMU 15 GSP
Supply voltage [V]	10...33 DC	10...33 DC		10...33 DC	10.. 33 DC
Switching current at 25 °C [mA]	200	200		200	200
Short circuit proof	•	•		•	•
Overcurrent release [mA]	250	250		250	250
Reverse protection	•	•		•	•
Voltage drop max. [V]	1.4	1.4		1.4	1.4
Residual current [mA]	–	–		–	–
Current consumption (not actuated) [mA]	1	1		1	1
Switching frequency [Hz]	1000	1000		1000	1000
Ambient temperature [°C]	-25...+70	-25...+70		-25...+70	-25...+70
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	Br-Ni / PPO	Br-Ni / PPO		Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 3 x 0.34 mm²	2 m PVC cable 3 x 0.34 mm²		M 12 plug	M 12 plug
Connection diagram					
Accessories	Fixing nuts are part of delivery			Housing cable SLG 3-2	

INDUCTIVE

Standard switches

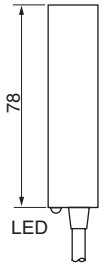
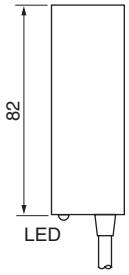
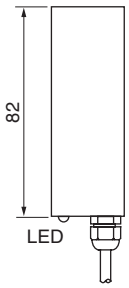
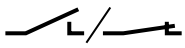
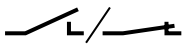
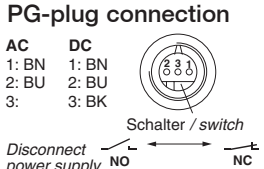
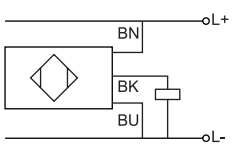
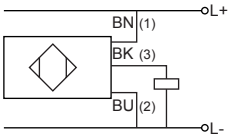
Series IGM
Metal thread
M 30x1.5
AC 20...250 V
Euronorm

Design	AC	M 30x1.5		AC programmable	M 30x1.5 programmable
Dimensions Installation flush (f) non flush (nf)					
Switching distance sn [mm]	10 f	15 nf		10 f	15 nf
Switching output					
ID-No.	**P30016**	**P30020**		**P30015**	**P30019**
Type	IGM 010 WS	IGM 015 WS		IGMS 010 WP	IGMS 015 WP
Supply voltage [V]	20...250 AC	20...250 AC		20...250 AC	20...250 AC
Switching current at 25 °C [mA]	400	400		400	400
Short circuit proof	3000 mA/10 ms	3000 mA/10 ms		3000 mA/10 ms	3000 mA/10 ms
Overcurrent release [mA]	–	–		–	–
Reverse protection	–	–		–	–
Voltage drop max. [V]	6	6		6	6
Minimum load current [mA]	5	5		5	5
Current consumption (not actuated) [mA]	2.5	2.5		2.5	2.5
Switching frequency [Hz]	25	25		25	25
Ambient temperature [°C]	-25...+75	-25...+75		-25...+75	-25...+75
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	Br-Ni / PPO	Br-Ni / PPO		Br-Ni / PPO	Br-Ni / PPO
Connection	2 m PVC cable 2 x 0.5 mm²	2 m PVC cable 2 x 0.5 mm²		2 m PVC cable 3 x 0.5 mm² (PG-plug connection)	2 m PVC cable 3 x 0.5 mm² (PG-plug connection)
Connection diagram					
Accessories	Fixing nuts are part of delivery				

INDUCTIVE

Standard switches

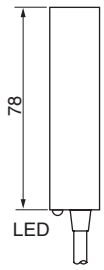
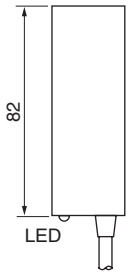
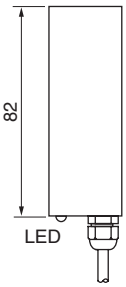
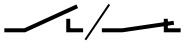
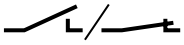
Series INK
Smooth-bodied switch
Ø 20 mm
Ø 34 mm
DC 10...55 V

Design	DC PNP Ø 20 mm	DC PNP Ø 34 mm	DC PNP Ø 20 mm programmable	DC PNP Ø 34 mm programmable
Dimensions				
Installation flush (f) non flush (nf)				
Switching distance [mm]	10 nf	20 nf	10 nf	20 nf
Switching output				
ID-No.	**P30159**	**P30166**	**P30158**	**P30165**
Type	INK 010 GSP	INK 020 GSP	INKS 010 GPP	INKS 020 GPP
Supply voltage [V]	10...55 DC	10...55 DC	10...55 DC	10...55 DC
Switching current [mA]	400	400	400	400
Short circuit proof	•	•	•	•
Overcurrent release [mA]	450	450	450	450
Reverse protection	•	•	•	•
Voltage drop max. [V]	2	2	2	2
Residual current [mA]	–	–	–	–
Current consumption (not actuated) [mA]	2.5	2.5	2.5	2.5
Switching frequenzy [Hz]	1500	500	1000	1000
Ambient temperature [°C]	-25...+75	-25...+75	-25...+75	-25...+75
EMV-class	class A	class A	class A	class A
Protection [EN 60529]	IP 67	IP 67	IP 67	IP 67
LED-Display	•	•	•	•
Housing material	PBT	PBT	PBT	PBT
Connection	2 m PVC cable 3 x 0.5 mm²	2 m PVC cable 3 x 0.5 mm²	2 m PVC cable 3 x 0.5 mm² PG-plug connection	2 m PVC cable 3 x 0.5 mm² PG-plug connection
PG-plug connection				
Accessories	Mounting clamps are part of delivery			

INDUCTIVE

Standard switches

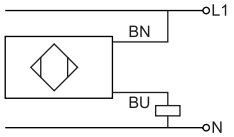
Series INK
Smooth-bodied switch
Ø 20 mm
Ø 34 mm
AC 20...250 V

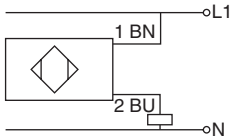
Design	AC Ø 20 mm	AC Ø 34 mm		AC Ø 20 mm programmable	AC Ø 34 mm programmable
Dimensions					
Installation flush (f) non flush (nf)					
Switching distance sn [mm]	10 nf	20 nf		10 nf	20 nf
Switching output					
ID-No.	**P30038**	**P30041**		**P30037**	**P30040**
Type	INK 010 WS	INK 020 WS		INKS 010 WP	INKS 020 WP
Supply voltage [V]	20...250 AC	20...250 AC		20...250 AC	20...250 AC
Switching current [mA]	400	400		400	400
Short circuit proof	3000 mA/10 ms	3000 mA/10 ms		3000 mA/10 ms	3000 mA/10 ms
Overcurrent release [mA]	–	–		–	–
Reverse protection	–	–		–	–
Voltage drop max. [V]	6	6		6	6
Minimum load current [mA]	5	5		5	5
Current consumption (not actuated) [mA]	2.5	2.5		2.5	2.5
Switching frequency [Hz]	25	25		25	25
Ambient temperature [°C]	-25...+75	-25...+75		-25...+75	-25...+75
EMC-class	class A	class A		class A	class A
Protection [EN 60529]	IP 67	IP 67		IP 67	IP 67
LED-Display	•	•		•	•
Housing material	PBT	PBT		PBT	PBT
Connection	2 m PVC cable 2 x 0.5 mm²	2 m PVC cable 2 x 0.5 mm²		2 m PVC cable 2 x 0.5 mm²	2 m PVC cable 2 x 0.5 mm²
PG-plug connection					
Accessories	Mounting clamps are part of delivery				

AC
1: BN
2: BU
3:

DC
1: BN
2: BU
3: BK

Disconnect power supply before pulling off plug connector.
Spannungsversorgung abschalten bevor Steckverbindung gezogen wird.

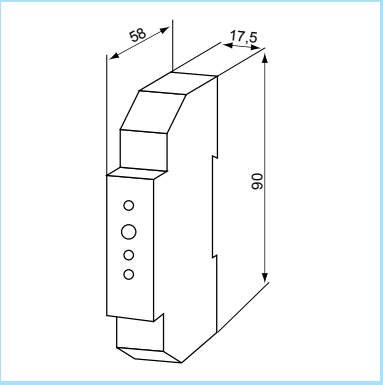




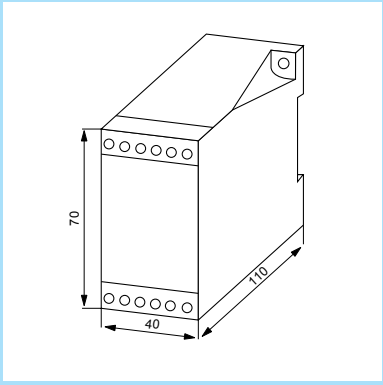
INDUCTIVE
Amplifiers

Switching Amplifier for inductive sensors

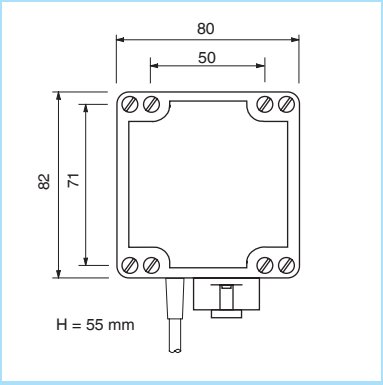
- for sensors up to 200 °C
- static function
- LED display



IKM 120 GPP



IKZ 130...



IU 130...

TYPE	*ID-NO.*	*DESIGN*		
IKM 120 GPP	P31029	Amplifier 17.5 mm	DIN-rail-mounting DIN 50022	24 VDC PNP
IKZ 130 WR-230	P30346	Amplifier 40 mm	DIN-rail-mounting DIN 50022	230 VAC Relay
IKZ 130 WR-115	P30347	Amplifier 40 mm	DIN-rail-mounting DIN 50022	115 VAC Relay
IKZ 130 GR-24	P30348	Amplifier 40 mm	DIN-rail-mounting DIN 50022	24 VDC Relay
IU 130 WP	P30438	Extension device IP 67 programmable C 16-Plug		230 VAC PNP
IU 130 GPP	P30439	Extension device IP 67 programmable C-16-Plug		24 VDC PNP

Application examples

Switching amplifiers IK... are designed for induction sensors for which it is necessary to separate the sensor coil from the amplifier, e. g. for operating temperatures above 120 °C or for sensor coils which must be exchanged due to frequent damage.

The switching amplifiers work statically, that is, if the sensor coil is permanently damped, the switching output also remains activated. Switching interval and hysteresis (IKZ 130..., IU 130...) can be set on the amplifier. The sensor cable may have a length of up to 20 m.

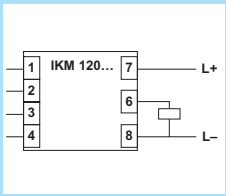
INDUCTIVE
Amplifiers

Technical Data

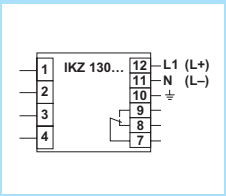
	IKM 120 GPP	IKZ 130...	IU 130...
Supply voltage	16...55 VDC incl. residual ripple	230 VAC ±15 % 115 VAC ± 15 % 24 VDC ±15 % incl. residual ripple	230 VAC ±10 % 24 VDC ±10 % incl. residual ripple
Current consumption	max. 15 mA	max. 15 mA	max. 15 mA
Sensing distance	adjustable	adjustable	adjustable
Hysteresis	max. 10 %	10 %, adjustable	adjustable
Output	PNP programmable	relay / change over	programmable
Switching current	max. 400 mA Tu=25°C, short circuit protection	250 VAC / 4A cos<0.7 60 VDC / 0.8 A 24 VDC / 4 A	max. 400 mA Tu = 25 °C
Switching frequency	max. 100 Hz	5 Hz (WR), 15 Hz (GR)	5 Hz 15 Hz
Ambient temperature	-20...+70 °C	-20...+70 °C	-20...+70 °C
EMC-class	Class A	Class A	Class A
Protection [EN 60529]	Screw terminal IP 20 Housing IP 40	Screw terminal IP 20 Housing IP 40	IP 67
Housing material	Polycarbonat	Polycarbonat	Crastin
Function indicator	LED yellow	LED yellow	LED yellow
Stand-by indicator	LED green	LED green	
Connection	Terminal screw	Terminal screw	Sensor: C 16 plug-connection Amplifier: 2 m PVC-cable 3 x 0.75 mm² / 2 m PVC-cable 3 x 0.50 mm²
Accessories			External plug C16 (Z00039)

Connection diagram Switching output

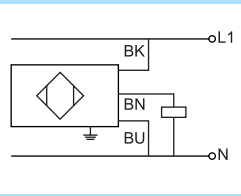
IKM 120 GPP



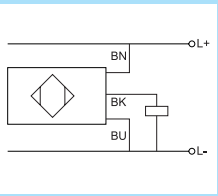
IKZ 130...



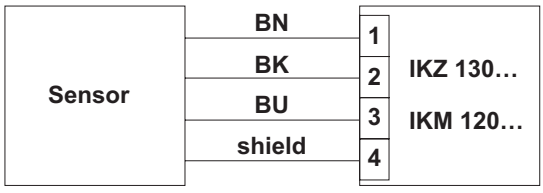
IU 130 WP



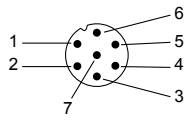
IU 130 GPP



Sensor-Connection to IKM 120 GPP / IKZ 130...



Sensor-Connection IU 130...



1: BN
2: BK
3: BU
7: shield

Plug C 16

Code: BK = black BN = brown BU = blue GN = green YE = yellow GY = grey PK = pink WH = white

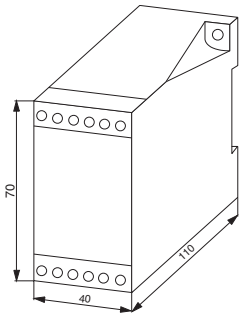
AMPLIFIERS

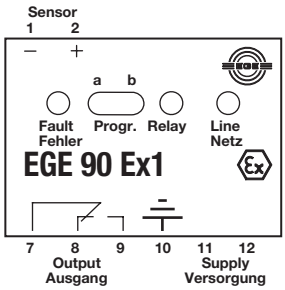
-Switching amplifier

Series EGE 90 Ex

Dust and gases
AC-Voltage supply
DC-Voltage supply

LED-Indication
Cable break and short circuit monitoring
Connection to 2-lead sensors

Design	EGE 90 Ex...		
Dimensions			
ID-No.	**P30340**	**P30341**	**P31035**
Type	EGE 90 Ex1-230	EGE 90 Ex1-115	EGE 90 Ex1-24
Supply voltage [V]	230 AC +15-10%	115 AC +15 / -10%	24 DC ± 15%
Examination cerfificate no.	TÜV 97 ATEX 1148		
ATEX marking	II (1) GD [EEx ia] IIC		
Maximum values	U_o = 12,6 V I_o = 15,9 mA P_o = 50 mW C_o = 1,15 µF L_o = 120 mH		
Output	relay / change over		
Switching voltage max. [V]	250 AC / 24 DC		
Switching current max. [A]	4 AC / 4 DC		
Switching power	cos φ 0,7 / L/R < 200 ms		
Ambient temperature [°C]	-20...+60		
Protection [EN 60529]	IP 20		
Connection	terminal screws		



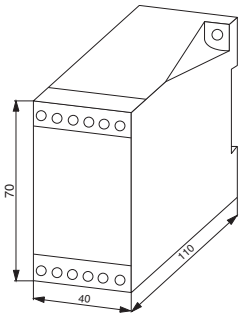
AMPLIFIERS

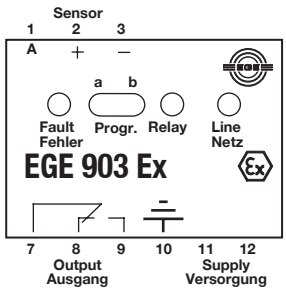
-Switching amplifier

Series EGE 903 Ex

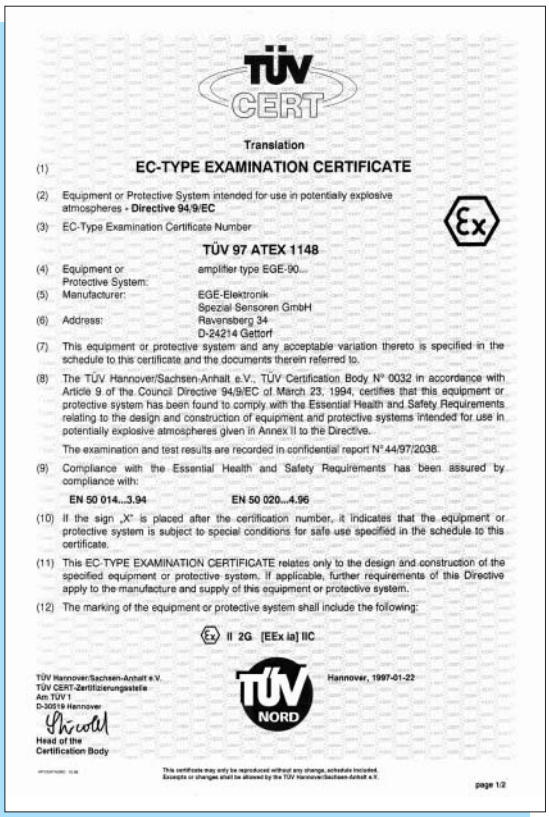
Dust and gases
AC-Voltage supply
DC-Voltage supply

LED-Indication
Cable break and short circuit monitoring
Connection to 3-lead sensors

Design	EGE 903 Ex...		
Dimensions			
ID-no.	**P21141**	**P21142**	**P21143**
Type	EGE 903 Ex-230	EGE 903 Ex-115	EGE 903 Ex-24
Supply voltage [V]	230 AC +15-10%	115 AC +15/-10%	24 VDC ±15%
Examination cerfificate no.	TÜV 01 ATEX 1663		
ATEX marking	II (1) GD [EEx ia] IIC		
Maximum values	U_o = 12,6 V I_o = 80 mA P_o = 252 mW C_o = 270 nF L_o = 5,4 mH		
Output	relay / change over		
Switching voltage max. [V]	250 AC / 24 DC		
Switching current max. [A]	4 AC / 4 DC		
Switching power	cos φ 0,7 / L/R < 200 ms		
Ambient temperature [°C]	-20...+60		
Protection [EN 60529]	IP 20		
Connection	terminal screws		



CERTIFICATES



Translation

(1) **EC-TYPE EXAMINATION CERTIFICATE**

(2) Equipment or Protective System intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) EC-Type Examination Certificate Number

TÜV 97 ATEX 1148

(4) Equipment or Protective System: amplifier type EGE-90...

(5) Manufacturer: EGE-Elektronik Spezial Sensoren GmbH

(6) Address: Ravensberg 34 D-24214 Gettorf

(7) This equipment or protective system and any acceptable variation thereto is specified in the schedule to this certificate and the documents therein referred to.

(8) The TÜV Hannover/Sachsen-Anhalt e.V., TÜV Certification Body N° 0032 in accordance with Article 9 of the Council Directive 94/9/EC of March 23, 1994, certifies that this equipment or protective system has been found to comply with the Essential Health and Safety Requirements relating to the design and construction of equipment and protective systems intended for use in potentially explosive atmospheres given in Annex II to the Directive.

The examination and test results are recorded in confidential report N° 44/97/2038.

(9) Compliance with the Essential Health and Safety Requirements has been assured by compliance with:

EN 50 014...3.94 EN 50 020...4.96

(10) If the sign „X" is placed after the certification number, it indicates that the equipment or protective system is subject to special conditions for safe use specified in the schedule to this certificate.

(11) This EC-TYPE EXAMINATION CERTIFICATE relates only to the design and construction of the specified equipment or protective system. If applicable, further requirements of this Directive apply to the manufacture and supply of this equipment or protective system.

(12) The marking of the equipment or protective system shall include the following:

Ex II 2G [EEx ia] IIC

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover

Hannover, 1997-01-22

Head of the Certification Body

This certificate may only be reproduced without any change, schedule included. Excerpts or changes shall be allowed by the TÜV Hannover/Sachsen-Anhalt e.V.

page 1/2

TÜV 97 ATEX 1148

(1) **EG-Baumusterprüfbescheinigung**

(2) Geräte und Schutzsysteme zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen - **Richtlinie 94/9/EG**

(3) EG Baumusterprüfbescheinigungsnummer

TÜV 03 ATEX 2037

(4) Gerät: Induktiver Näherungsschalter Typ IDEX...

(5) Hersteller: EGE-Elektronik Spezial-Sensoren GmbH

(6) Anschrift: D-24214 Gettorf, Ravensberg 34

(7) Die Bauart dieses Gerätes sowie die verschiedenen zulässigen Ausführungen sind in der Anlage zu dieser Baumusterprüfbescheinigung festgelegt.

(8) Die TÜV NORD CERT GmbH & Co. KG, TÜV CERT-Zertifizierungsstelle, bescheinigt als benannte Stelle Nr. 0032 nach Artikel 9 der Richtlinie des Rates der Europäischen Gemeinschaften vom 23. März 1994 (94/9/EG) die Erfüllung der grundlegenden Sicherheits- und Gesundheitsanforderungen für die Konzeption und den Bau von Geräten und Schutzsystemen zur bestimmungsgemäßen Verwendung in explosionsgefährdeten Bereichen gemäß Anhang II der Richtlinie.

Die Ergebnisse der Prüfung sind in dem vertraulichen Prüfbericht Nr. 03 YEX 550383 festgelegt.

(9) Die grundlegenden Sicherheits- und Gesundheitsanforderungen werden erfüllt durch Übereinstimmung mit

EN 50014:1997 EN 50020:1994 EN 50284:1999 EN 50281-1-1:1999

(10) Falls das Zeichen "X" hinter der Bescheinigungsnummer steht, wird auf besondere Bedingungen für die sichere Anwendung des Gerätes in der Anlage zu dieser Bescheinigung hingewiesen.

(11) Diese EG-Baumusterprüfbescheinigung bezieht sich nur auf Konzeption und Prüfung des festgelegten Gerätes gemäß Richtlinie 94/9/EG. Weitere Anforderungen dieser Richtlinie gelten für die Herstellung und das Inverkehrbringen dieses Gerätes. Diese Anforderungen werden nicht durch diese Bescheinigung abgedeckt.

(12) Die Kennzeichnung des Gerätes muss die folgenden Angaben enthalten:

Ex II 1 G EEx ia IIC T6 bzw. II 1 D T 100°C

TÜV NORD CERT GmbH & Co. KG
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover
Tel.: 0511 986-1479
Fax: 0511 986-2555

Hannover, 20.02.2003

Der Leiter

TÜV NORD CERT

Diese EG-Baumusterprüfbescheinigung darf nur unverändert weiterverbreitet werden. Auszüge oder Änderungen bedürfen der Genehmigung der TÜV NORD CERT GmbH & Co. KG

Seite 1/2

TÜV 03 ATEX 2037

Translation

(1) **PRODUCTION QUALITY ASSESSMENT NOTIFICATION**

(2) Equipment or Protective systems or Components intended for use in potentially explosive atmospheres - **Directive 94/9/EC**

(3) Notification Number

TÜV 96 ATEX 1096 Q

(4)

Product Category	Protective Principle
Sensor for Flow and Level Proximity Sensors – Infrared Detectors Sensors for Special Applications	Powder filling Flameproof enclosures Increased safety Intrinsic safety Encapsulation

The EC-Type Examination Certificates based on this notification are listed by the notified body.

(5) Applicant: EGE-Elektronik Spezial-Sensoren GmbH D-24214 Gettorf

(6) Manufacturer: EGE-Elektronik Spezial-Sensoren GmbH D-24214 Gettorf

(7) The TÜV Hannover/Sachsen-Anhalt e. V., TÜV Certification Body N° 0032 in accordance with Article 9 of the Council Directive 94/9/EC of March 23, 1994, notifies the applicant that the manufacturer has a production quality system which complies with Annex IV of the Directive.

(8) This notification is based on audit report N° 52886203 issued 1999-06-28. This notification can be withdrawn if the manufacturer no longer satisfies to the requirements of Annex IV.
Results of periodical production quality reassessments are a part of this notification.

(9) In accordance with Article 10 (1) of the Directive 94/9/EC the CE marking shall be followed by the identification number 0032 of the notified body TÜV Hannover/Sachsen-Anhalt.

TÜV Hannover/Sachsen-Anhalt e.V.
TÜV CERT-Zertifizierungsstelle
Am TÜV 1
D-30519 Hannover

Hannover, 1999-06-28

Head of the Certification Body

First Certification 1996-07-02

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TÜV 96 ATEX 1096

CERTIFICATE

The TÜV CERT Certification Body of TÜV NORD
Zertifizierungs- und Umweltgutachter Gesellschaft mbH
certifies in accordance with TÜV CERT procedures that

EGE - Elektronik
Spezial - Sensoren GmbH
D - 24214 Gettorf

has established and applies a quality system for

Sensors for Flow and Level
Proximity Sensors - Infrared Detectors
Sensors for Special Applications.

An audit was performed, Report No. 528862-02

Proof has been furnished that the requirements according to

DIN EN ISO 9001

are fulfilled.

Certificate Registration No. **08 / 100 / 9171**

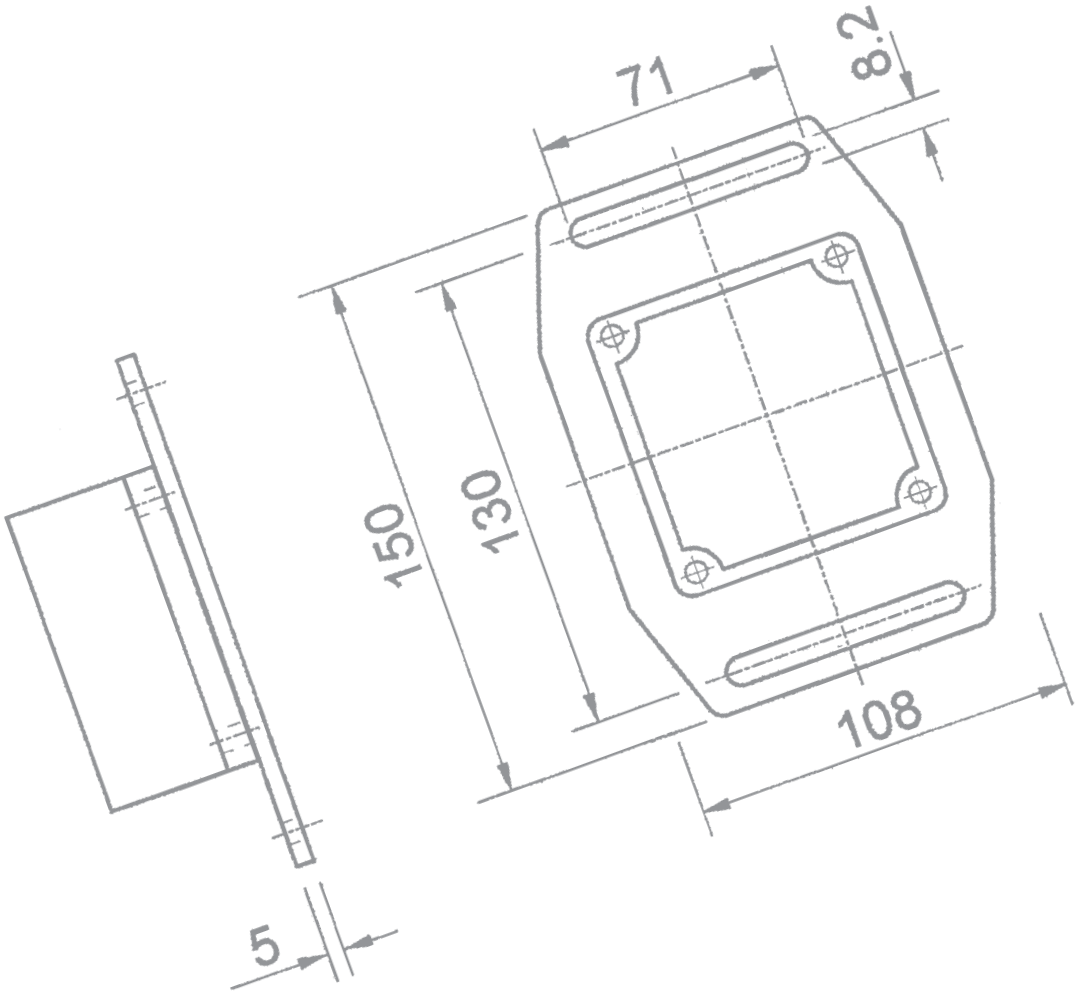
1st Certificate 1995

Hanover, May 15, 1998

ZERTIFIZIERUNGS- UND UMWELTGUTACHTER GESELLSCHAFT

TÜV CERT Certification Body of TÜV NORD Zertifizierungs- und Umweltgutachter Gesellschaft mbH

DIN EN ISO 9001

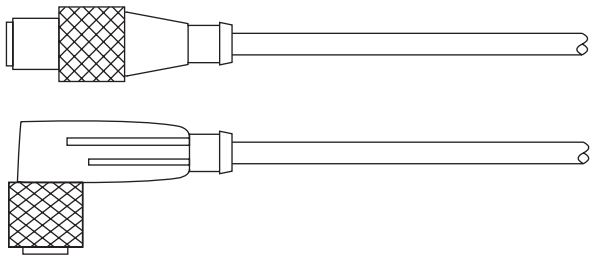

71
8.2
150
130
108
5

ACCESSORIES

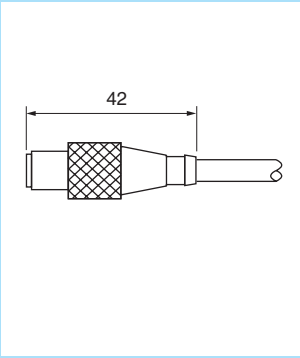
Universal plug system M 12

System SL

Finished cable plug housing
Great variety of cables
IP 67 protection

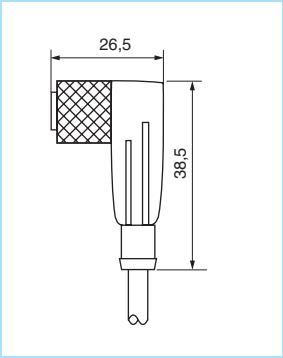


Cable plug housing, straight

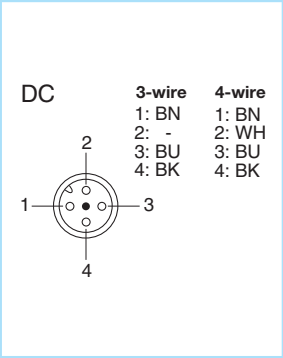


SLG...

Cable plug housing, angular



SLW...



DC

TYPE	ID-NO.	DESIGN		
SLG 3-2	Z 01076	Cable plug housing M 12x1 DC, straight	2 m	PVC-cable 3x0.34 mm²
SLG 3-5	Z 01077	Cable plug housing M 12x1 DC, straight	5 m	PVC-cable 3x0.34 mm²
SLW 3-2	Z 01078	Cable plug housing M 12x1 DC, angular	2 m	PVC-cable 3x0.34 mm²
SLW 3-5	Z 01079	Cable plug housing M 12x1 DC, angular	5 m	PVC-cable 3x0.34 mm²
SLW 3-2-LED	Z 00052	Cable plug housing M 12x1 DC, angular	2 m	PVC-cable 3x0.34 mm² PNP, LED
SLG 4-2	Z 00445	Cable plug housing M 12x1 DC, straight	2 m	PVC-cable 4x0.25 mm²
SLG 4-5	Z 00449	Cable plug housing M 12x1 DC, straight	5 m	PVC-cable 4x0.25 mm²
SLW 4-2	Z 00446	Cable plug housing M 12x1 DC, angular	2 m	PVC-cable 4x0.25 mm²
SLW 4-5	Z 00450	Cable plug housing M 12x1 DC, angular	5 m	PVC-cable 4x0.25 mm²
SLW 4-2-LED	Z 01157	Cable plug housing M 12x1 DC, angular	2 m	PVC-cable 4x0.25 mm² PNP, LED

ELECTRICAL DATAS

Protection	IP 67	Supply voltage	250 VAC / 300 VDC
Volume resistance	≤ 5 mΩ	Isolation group C	VDE 0110
Switching current	4 A (CSA=3 A)	Testing voltage	2.0 KV eff.
Temperature range	-25...+90 °C		

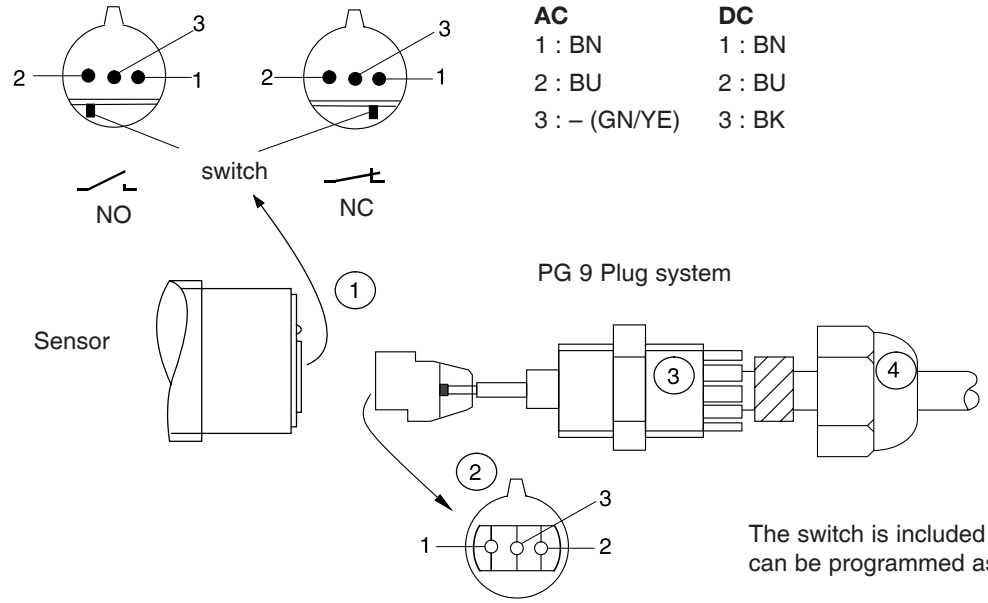
ACCESSORIES

PG plug system

System PG

- PG plug type connection with PVC-cable
- Protection IP 68

PG-plug connection



AC	DC
1 : BN	1 : BN
2 : BU	2 : BU
3 : – (GN/YE)	3 : BK

The switch is included in devices that can be programmed as NO or NC.

Mounting of PG-Plug system

Connect the cable to the EGE-plug (2) and put it into the plug-housing (1) until it is at the stop. Make sure that the "nose" of the plug fits exactly into the housing. If this is done in the right way, the plug is hidden in the plug-housing.

Screw part (3) into the plug-housing (1) and fix it rightly with a spanner. After about 2 hours righten it again with the spanner.

Now fit the nut (4) by hand and afterwards with a spanner. Do not apply too much force. For a good sealing there should be stet 2 mm between nut (4) and part (3).

TYPE	ID-NO.	DESIGN	
PG 2-2	Z00025	PG-plug connection,	2 m PVC-cable 2x0.75 mm²
PG 2-3	Z00026	PG-plug connection,	3m PVC-cable 2x0.75 mm²
PG 2-5	Z00027	PG-plug connection,	5 m PVC-cable 2x0.75 mm²
PG 2-10	Z00028	PG-plug connection,	10 m PVC-cable 2x0.75 mm²
PG 2-20	Z00029	PG-plug connection,	20 m PVC-cable 2x0.75 mm²
PG 3-2	Z00020	PG-plug connection,	2 m PVC-cable 3x0.5 mm²
PG 3-3	Z00021	PG-plug connection,	3 m PVC-cable 3x0.5 mm²
PG 3-5	Z00022	PG-plug connection,	5 m PVC-cable 3x0.5 mm²
PG 3-10	Z00023	PG-plug connection,	10 m PVC-cable 3x0.5 mm²
PG 3-20	Z00024	PG-plug connection,	20 m PVC-cable 3x0.5 mm²

Note

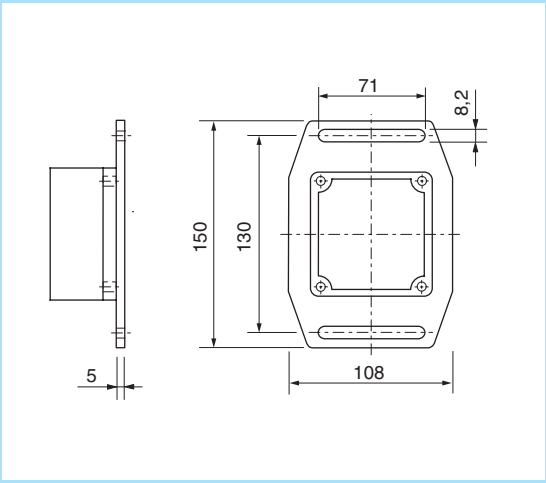
The power supply must be disconnected before the plug will be installed or removed.

Code: BK = black BN = brown BU = blue GN = green YE = yellow GY = grey PK = pink WH = white

ACCESSORIES

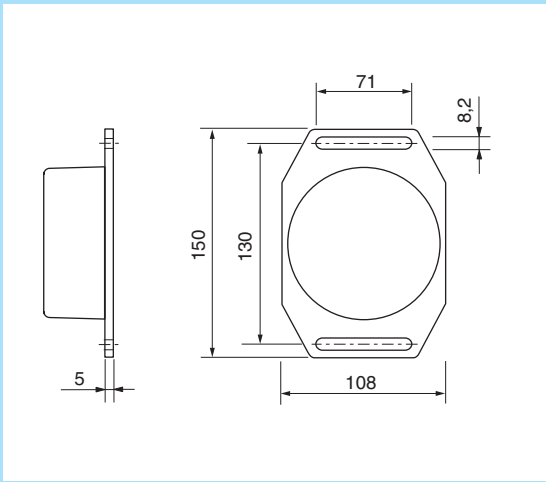
Mounting plates for inductive switches

IMK 108



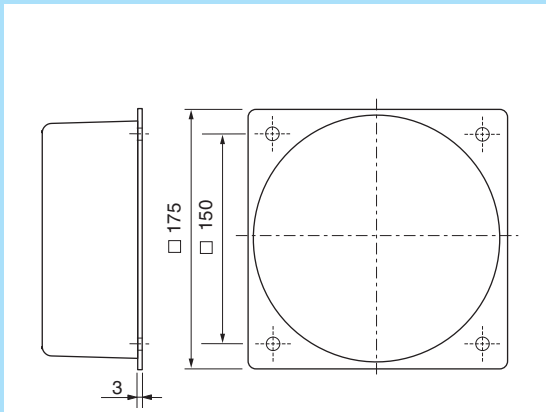
Z00121

IMAF 108



Z01088

IMAF 150



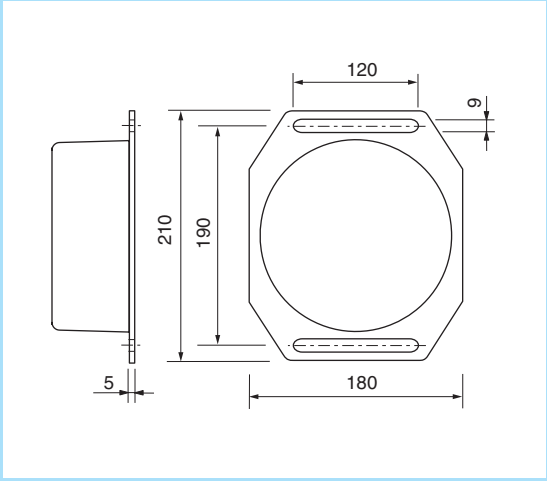
Z01089

TYPE	ID-NO.	DESIGN		
IMK 108	Z00121	for IDS 080	Polyamide	Secondary mounting
IMA 108	Z00122	for IDS 080	Aluminium	Secondary mounting
IMAF 108	Z01088	for INS 100	Aluminium	Sensor and plate are connected together
IMAF 150	Z01089	for INS 160	Aluminium	Sensor and plate are connected together

ACCESSORIES

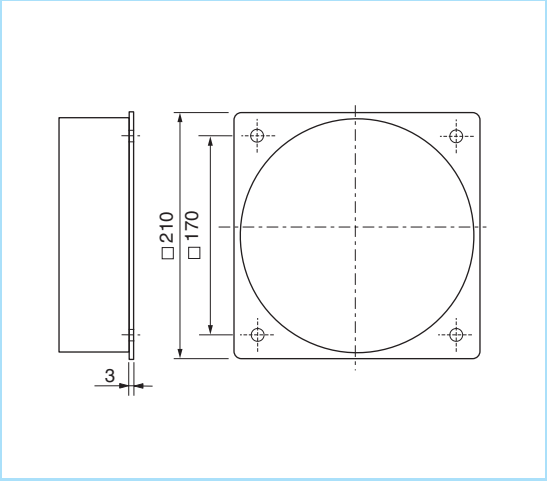
Mounting plates for inductive switches

IMAF 180



Z00124

IMAF 210 / IMEF 210



Z00123 / Z01090

TYPE	ID-NO.	DESIGN		
IMAF 180	Z00124	for INS 160	Aluminium	Sensor and plate are connected together
IMAF 210	Z00123	for IDS 200	Aluminium	Sensor and plate are connected together
IMEF 210	Z01090	for IDS 200	Stainless steel	Sensor and plate are connected together

ACCESSORIES

Mounting accessories

LOCK NUTS

Brass chromium - plated

ID-No.	Z00106	Z00107	Z00114	Z00109	Z00110
Nut thickness [mm]	4	4	4	5	5
Thread	M 12x1	M 18x1	M 22x1	M 30x1.5	M 38x1.5
Spanner size	17	24	27	36	50

Stainless steel

ID-No.	Z01097	Z01098	Z00112	Z00113	Z00115
Nut thickness [mm]	3	4	4	4	5
Thread	M 5x0.5	M 8x1	M 12x1	M 18x1	M 30x1.5
Spanner size	7	13	17	24	36

Plastics

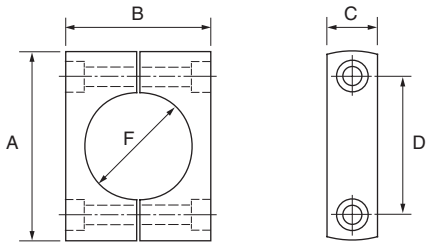
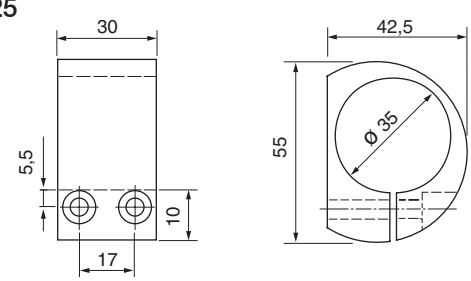
ID-No.	Z00180	Z00120	Z00117	Z00118	Z00119	Z01092	Z01052
Nut thickness [mm]	6	8	4	5	5.5	8	8
Thread	M 14x1	M 30x1.5	M 12x1	M 18x1	M 30x1.5	G 3/4	G 1
Spanner size	22	41	17	24	36	41	50
Material	PTFE	PTFE	Noryl	Noryl	Noryl	PTFE	PTFE

CENTRAL SCREW (DIN 912)

Polyamid

ID-NO.	Z00104	Z00105
Thread	M 12	M 16
Length [mm]	70	90
Hexagon socket [mm]	10	14
Material	PA	PA

MOUNTING CLAMPS

TYPE		ID-NO.	DIMENSIONS	DESIGN
KLS 20	Ø 20	Z00100	 E: Hexagon socket screw 1.4305	Clamps of Grilon, for smooth-bodied switches
KLS 34	Ø 34	Z00102		
KLB 35	Ø 35	Z00125	 Hexagon socket screw 1.4571	Clamp of PTFE (Teflon), for smooth-bodied switches Hexagon socket screw M 5x40

F	Ø 20	Ø 34
A	47	61
B	30	47
C	17	15
D	32	45
E	M 5x30	M 5x50