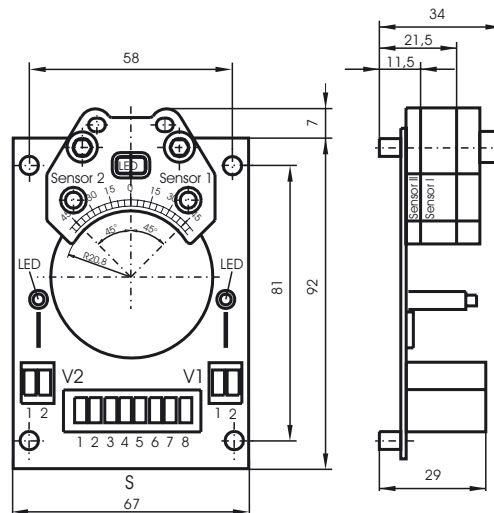


For installation in housing  
Pluggable cage clamp terminals  
PL4... with 2 valve connections  
Valve LEDs disconnectable (wire jumper)  
Satisfies machinery directive  
EC-Type Examination Certificate  
TÜV99 ATEX 1479X



CE  
0102

## General specifications

Switching element function	DC	Dual Break function
Rated operating distance $s_n$	3 mm	
Installation	flush mountable	
Output polarity	NAMUR	
Assured operating distance $s_a$	0 ... 2.43 mm	
Reduction factor $r_{AI}$	0.5	
Reduction factor $r_{Cu}$		
Reduction factor $r_{V2A}$	1	
Reduction factor $r_{SI37}$	1.2	

## Nominal ratings

Nominal voltage $U_o$	8 V
Operating voltage $U_B$	5 ... 25 V
Switching frequency $f$	0 ... 100 Hz
Hysteresis $H$	typ. 5 %
Reverse polarity protection	protected against reverse polarity
Current consumption	
Measuring plate not detected	$\geq 3$ mA
Measuring plate detected	$\leq 1$ mA
Indication of the switching state	LED, yellow
Valve status indication	LED, yellow

## Ambient conditions

Ambient temperature	-25 ... 100 °C (248 ... 373 K)
Storage temperature	-40 ... 100 °C (233 ... 373 K)

## Mechanical specifications

Connection (system side)	Cage clamp terminals
Core cross-section (system side)	up to 2.5 mm <sup>2</sup>
Connection (valve side)	Cage clamp terminals
Core cross-section (valve side)	up to 2.5 mm <sup>2</sup>
Housing material	PBT
Sensing face	PBT

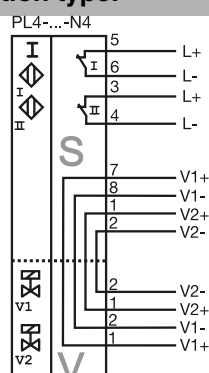
## General information

Use in the hazardous area	see instruction manuals
Category	1G; 2G; 3G

## Compliance with standards and directives

Standard conformity	
NAMUR	EN 60947-5-6:2000
Electromagnetic compatibility	NE 21:2007
Standards	EN 60947-5-2:2007 IEC 60947-5-2:2007

## Connection type:



**SENSOTRONIK**

Subject to reasonable modifications due to technical advances.

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## ATEX 1G

Instruction

Device category 1G

Directive conformity

Standard conformity

CE symbol

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance  $C_i$

Effective internal inductance  $L_i$

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charging

Lead insertion

## Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-0:2006, EN 60079-11:2007, EN 60079-26:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CE 0102

Ex II 1G Ex ia IIC T6

TÜV 99 ATEX 1479 X

PL-F25-N4...

$\leq 100$  nF A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

$\leq 100$   $\mu$ H A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual.

The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Directive 94/9/EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions.

The use in ambient temperatures of  $> 60$  °C was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate. Note: Use the temperature table for category 1 !!!

The 20 % reduction in accordance with EN 1127-1:2007 has already been accounted for in the temperature table for category 1.

Laws and/or regulations and standards governing the use or intended usage goal must be observed.

The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

The associated apparatus must satisfy the requirements of category ia.

Due to the possible danger of ignition, which can arise due to faults and/or transient currents in the equipotential bonding system, galvanic isolation of the power supply and signal circuit is preferable. Associated apparatus without electrical isolation must only be used if the appropriate requirements of IEC 60079-14 are met.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below  $-20$  °C the sensor should be protected from knocks by the provision of an additional housing.

When used in group IIB/IIC non-permissible electrostatic charges should be avoided on the plastic housing parts..

The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11. Depending on the type of installation, a suitable cable in accordance with Type A oder B of IEC 60079-14, must be used.

## ATEX 2G

Instruction

### Device category 2G

Directive conformity

Standard conformity

CE symbol

Ex-identification

EC-Type Examination Certificate

Appropriate type

Effective internal capacitance  $C_i$

Effective internal inductance  $L_i$

General

Highest permissible ambient temperature

Installation, Commissioning

Maintenance

Special conditions

Protection from mechanical danger

Electrostatic charging

Lead insertion

## Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-0:2006, EN 60079-11:2007

Ignition protection "Intrinsic safety"

Use is restricted to the following stated conditions

CE 0102

Ex II 1G Ex ia IIC T6

TÜV 99 ATEX 1479 X

PL-F25-N4...

$\leq 100$  nF ; a cable length of 10 m is considered. The value is applicable for the sensor circuit.

$\leq 100$   $\mu$ H ; a cable length of 10 m is considered. The value is applicable for the sensor circuit.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The EC-Type Examination Certificate has to be observed. The special conditions must be adhered to!

Directive 94/9EG and hence also EC-Type Examination Certificates apply in general only to the use of electrical apparatus under atmospheric conditions. The use in ambient temperatures of  $> 60$  °C was tested with regard to hot surfaces by the mentioned certification authority.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

The temperature ranges, according to temperature class, are given in the EC-Type Examination Certificate.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The intrinsic safety is only assured in connection with an appropriate related apparatus and according to the proof of intrinsic safety.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

When used in the temperature range below  $-20$  °C the sensor should be protected from knocks by the provision of an additional housing.

When used in group IIC non-permissible electrostatic charges should be avoided on the plastic housing parts.

The connection cables should either be fixed when laid and mechanically protected or installed in such a way, that a force of 30 N applied in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11. Depending on the type of installation, a suitable cable in accordance with Type A oder B of IEC 60079-14, must be used.

## ATEX 3G (nL)

Instruction

### Device category 3G (nL)

Directive conformity

Standard conformity

CE symbol

Ex-identification

Effective internal capacitance  $C_i$

Effective internal inductance  $L_i$

General

Installation, Commissioning

Maintenance

Special conditions

Maximum permissible ambient temperature  $T_{Umax}$  at  $U_i = 20$  V

- for  $P_i=34$  mW,  $I_i=25$  mA, T6
- for  $P_i=34$  mW,  $I_i=25$  mA, T5
- for  $P_i=34$  mW,  $I_i=25$  mA, T4-T1
- for  $P_i=64$  mW,  $I_i=25$  mA, T6
- for  $P_i=64$  mW,  $I_i=25$  mA, T5
- for  $P_i=64$  mW,  $I_i=25$  mA, T4-T1
- for  $P_i=169$  mW,  $I_i=52$  mA, T6
- for  $P_i=169$  mW,  $I_i=52$  mA, T5
- for  $P_i=169$  mW,  $I_i=52$  mA, T4-T1
- for  $P_i=242$  mW,  $I_i=76$  mA, T6
- for  $P_i=242$  mW,  $I_i=76$  mA, T5
- for  $P_i=242$  mW,  $I_i=76$  mA, T4-T1

Maximum values of the valve circuit

Protection from mechanical danger

Protection from UV light

Electrostatic charging

Lead insertion

## Manual electrical apparatus for hazardous areas

for use in hazardous areas with gas, vapour and mist

94/9/EG

EN 60079-15:2005 Ignition protection category "n"

Use is restricted to the following stated conditions

CE 0102

Ex II 3G Ex nL IIC T6 X

$\leq 100$  nF ; A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

$\leq 100$   $\mu$ H ; A cable length of 10 m is considered.

The value is applicable for the sensor circuit.

The apparatus has to be operated according to the appropriate data in the data sheet and in this instruction manual. The data stated in the data sheet are restricted by this operating instruction!

The special conditions must be observed!

Directive 94/9EG is generally applicable only to the use of electrical apparatus operating at atmospheric conditions.

If the equipment is not used under atmospheric conditions, a reduction of the permissible minimum ignition energies may have to be taken into consideration.

Laws and/or regulations and standards governing the use or intended usage goal must be observed. The sensor must only be operated with energy-limited circuits, which satisfy the requirements of IEC 60079-15. The explosion group depends on the connected, energy-limited power supply circuits.

The maximum values of the connected, energy-limited valve circuits, must be observed. The sensor must be installed in a housing in such a way, that a protection class of at least IP20 is achieved in accordance with IEC 60529.

No changes can be made to apparatus, which are operated in hazardous areas. Repairs to these apparatus are not possible.

Each sensor circuit can be operated with the stated maximum values and with simultaneous operation of the valve circuits.

62 °C

64 °C

64 °C

59 °C

59 °C

59 °C

41 °C

41 °C

41 °C

29 °C

29 °C

29 °C

$U_i = 32$  V;  $I_i = 240$  mA;  $C_i = 10$  nF;  $L_i = 20$   $\mu$ H

The values are applicable to each valve circuit. A cable length of 10 m is taken into account.

The sensor must not be exposed to **ANY FORM** of mechanical danger. When used in the temperature range below -20 °C the sensor should be protected from knocks by the provision of an additional housing.

The sensor and the connection cable must be protected from damaging UV-radiation. This can be achieved when the sensor is used in internal areas.

When used in group IIC non-permissible electrostatic charges should be avoided on the plastic housing parts.

The connecting cable must be protected from tension and torsional loading or installed in such a way, that an applied force of 30 N, acting in the direction of the cable inlet for one hour, does not lead to any visible displacement of the cable connections, even though the cable sheathing is displaced, see also IEC 60079-11.