

Conductivity Sensors

- ***Level detection***
- ***Leak detection***





Registration No.: 1327-01



Testing laboratory accredited according to
DIN EN 45001 Reg.-No. DAT-P-048/95-00

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With publication of this catalogue all former printed catalogues about RECHNER Conductivity Sensors are invalid.

CONDUCTIVITY SENSORS

With ATEX certificate for use in ATEX Zone 0 (Gas) and 20 (Dust).

The conductivity sensors or conductivity guard are designed for detection of electrically conductive liquids. They are certified for use in potentially explosive areas Zone 0 and Zone 20.

Technology

The technology of these conductive sensors is based on the conductivity measuring principle. They are designed as a 2 wire version according to NAMUR DIN 60947-5-6 and are ATEX certified. The sensor has two measuring electrodes. When they are in contact with a conductive liquid a measuring current runs between these two measuring electrodes, which is evaluated by the sensor and a switching signal is given.

The sensors have a 12-turn potentiometer for sensitivity adjustment. This allows an optimum adjustment for the liquid to be detected.

Mechanical Construction

The conductive sensors are available with different body sizes, like for instance M 10 x 1, M 12 x 1 or 1/4" NPT. For the sensor bodies, this means parts that touch the product, high quality materials are used. Therefore the sensors can be used for applications in the Chemical Industry and Food Industry.

- Housing materials used are:
- Sensor body: PEEK (FDA 21 CFR 177.2415)
- Electrodes: VA Nr. 1.4305

The application of the housing materials used is based on the technical specifications of the material and of the manufacturer. Even though RECHNER Sensors have years of application experience in many fields, concerning the use of different housing materials, the customer is responsible for checking in each case that the housing material is suitable for the application.

Application areas:

- Application areas are for example
- Limit value measuring in containers
 - Leak detection at pneumatic diaphragm pumps
 - Leak detection at peristaltic pumps
 - Leak detection at centrifugal pumps
 - Min- and Max-Level control of liquids



II 1G Ex IIC T4 Ga
II 1D Ex ia IIIC T130°C Da

Limit value measuring
in containers

Detection of
conductive liquids in
non-conductives
and inverse

Leak detection

Peristaltic Pumps
Pneumatic Diaphragm Pumps
Centrifugal Pumps

Conductivity sensors

Dimension

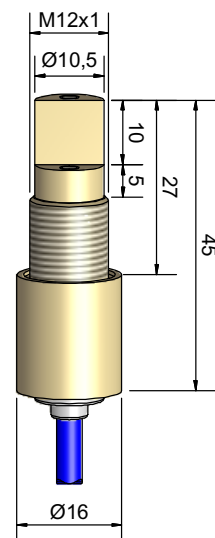
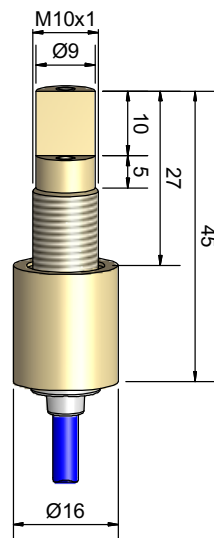
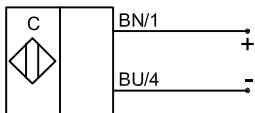
M 10 x 1

M 12 x 1



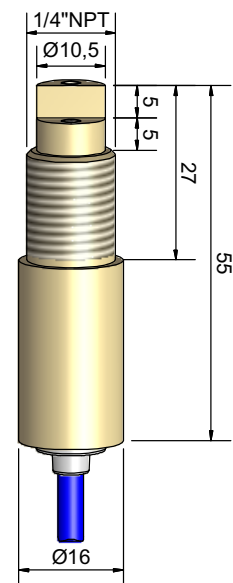
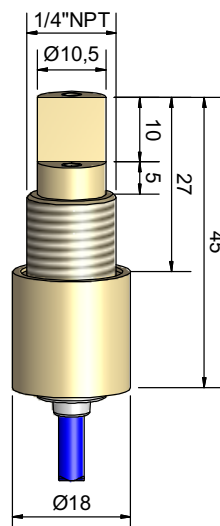
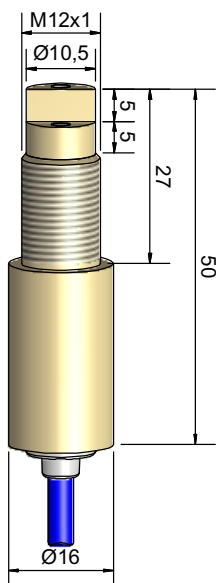
| Technical data | | | | |
|-------------------------------------|--|----------|--|----------|
| | Description | Art.-No. | Description | Art.-No. |
| Type | RCS-02-M10/45-N-27-VA/PEEK-StEx | RC 0006 | RCS-02-M12/45-N-27-VA/PEEK-StEx | RC 0003 |
| Electrical version | 2 wire DC | | 2 wire DC | |
| Output function | NAMUR EN 60947-5-6 | | NAMUR EN 60947-5-6 | |
| Certificates | CE, RoHS, ATEX | | CE, RoHS, ATEX | |
| ATEX certificate No. | BVS 10 ATEX 049 | | BVS 10 ATEX 049 | |
| ATEX | II 1G Ex IIC T4 Ga II 1D Ex ia IIIC T130°C Da | | II 1G Ex IIC T4 Ga II 1D Ex ia IIIC T130°C Da | |
| Operating voltage (U _B) | U _B = 15 V DC | | U _B = 15 V DC | |
| Power consumption | I _i = 30 mA | | I _i = 30 mA | |
| Sensitivity min. | 15 µS / cm | | 30 µS / cm | |
| Sensitivity max. | 0.1 µS / cm | | 0.2 µS / cm | |
| Permitted ambient temperature | -20...+90 °C | | -20...+90 °C | |
| Degree of protection IEC 60529 | IP 67* | | IP 67* | |
| Norm | EN 60947-5-2 | | EN 60947-5-2 | |
| Connection cable | 2 m, PVC, 2 x 0.14 mm ² | | 2 m, PVC, 2 x 0.14 mm ² | |
| Housing material | PEEK (FDA 21 CFR 177.2415) | | PEEK (FDA 21 CFR 177.2415) | |
| Material | VA No. 1.4305 | | VA No. 1.4305 | |
| Pressure | 5 bar | | 5 bar | |

*With sealed potentiometer screw



M 12 x 1
1/4" NPT
1/4" NPT

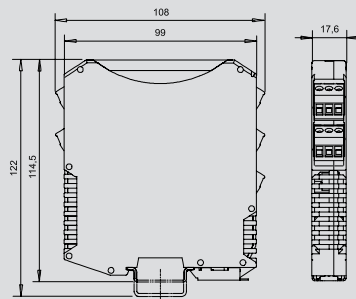

| Description | Art.-No. | Description | Art.-No. | Description | Art.-No. |
|--|----------|--|----------|--|----------|
| RCS-02-M12/55-N-27-VA/PEEK-StEx | RC 0002 | RCS-02-1/4"NPT/45-N-27-VA/PEEK-StEx | RC 0005 | RCS-02-1/4"NPT/55-N-27-VA/PEEK-StEx | RC 0004 |
| 2 wire DC | | 2 wire DC | | 2 wire DC | |
| NAMUR EN 60947-5-6 | | NAMUR EN 60947-5-6 | | NAMUR EN 60947-5-6 | |
| CE, RoHS, ATEX | | CE, RoHS, ATEX | | CE, RoHS, ATEX | |
| BVS 10 ATEX 049 | | BVS 10 ATEX 049 | | BVS 10 ATEX 049 | |
| II 1G Ex IIC T4 Ga II 1D Ex ia IIIC T130°C Da | | II 1G Ex IIC T4 Ga II 1D Ex ia IIIC T130°C Da | | II 1G Ex IIC T4 Ga II 1D Ex ia IIIC T130°C Da | |
| U _i = 15 V DC | | U _i = 15 V DC | | U _i = 15 V DC | |
| I _i = 30 mA | | I _i = 30 mA | | I _i = 30 mA | |
| 15 µS / cm | | 30 µS / cm | | 15 µS / cm | |
| 0.1 µS / cm | | 0.2 µS / cm | | 0.1 µS / cm | |
| -20...+90 °C | | -20...+90 °C | | -20...+90 °C | |
| IP 67* | | IP 67* | | IP 67* | |
| EN 60947-5-2 | | EN 60947-5-2 | | EN 60947-5-2 | |
| 5 m, PVC, 2 x 0.14 mm ² | | 2 m, PVC, 2 x 0.14 mm ² | | 2 m, PVC, 2 x 0.14 mm ² | |
| PEEK (FDA 21 CFR 177.2415) | | PEEK (FDA 21 CFR 177.2415) | | PEEK (FDA 21 CFR 177.2415) | |
| VA No. 1.4305 | | VA No. 1.4305 | | VA No. 1.4305 | |
| 5 bar | | 5 bar | | 5 bar | |



ISOLATING SWITCHING AMPLIFIER - ATEX

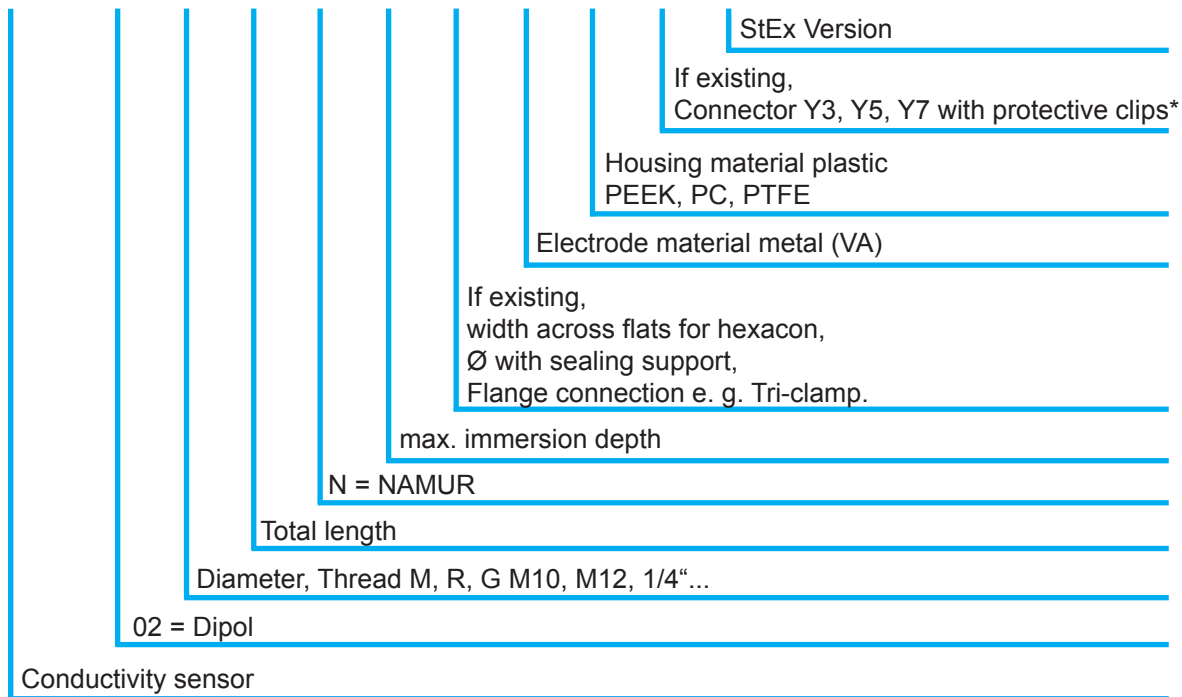
| Housing | 122 x 108 x 17,6 mm | 122 x 108 x 17,6 mm | 122 x 108 x 17,6 mm | 122 x 108 x 17,6 mm |
|--|---|---|---|---|
| | | | | |
| Technical Data | | | | |
| Operating voltage (U _B) | 120...230 V AC | 120...230 V AC | 18...31,2 V DC | 18...31,2 V DC |
| Output function | 1 x potential-free change-over contact | 2 x potential-free change-over contact | 2 x potential-free change-over contact | 2 x transistor output / open collector |
| Contact rating each relay AC max. Contact rating each relay DC max. | 250 V AC / 4 A 250 V DC / 2 A | 250 V AC / 4 A 250 V DC / 2 A | 250 V AC / 4 A 250 V DC / 4 A | 35 V DC / 50 mA |
| Type | N-132/1-01 | N-132/2-01 | N-132/2-10 | N-132/2-E-10 |
| Art.-No. | N 00012 | N 00015 | N 00017 | N 00018 |
| Certification | CE, ATEX, FM | CE, ATEX, FM | CE, ATEX, FM | CE, ATEX, FM |
| ATEX Certification No. | BVS 09 ATEX E 087X | BVS 09 ATEX E 087X | BVS 09 ATEX E 087X | BVS 09 ATEX E 087X |
| ATEX | II (1) G [Ex ia] IIC II (1) D [Ex ia] IIIB | II (1) G [Ex ia] IIC II (1) D [Ex ia] IIIB | II (1) G [Ex ia] IIC II (1) D [Ex ia] IIIB | II (1) G [Ex ia] IIC II (1) D [Ex ia] IIIB |
| No-load current (I _s) | Typ. 12 mA | Typ. 18 mA | Typ. 55 mA | Typ. 36 mA |
| No-load voltage max. (U _s) | 9,6 V DC | 9,6 V DC | 9,6 V DC | 9,6 V DC |
| Short circuit current max. (I _k) | 10 mA | 20 mA | 20 mA | 20 mA |
| Outer inductance max. (L _o) | [Exia] IIC 350 mH/ IIB 1000 mH | [Exia] IIC 90 mH/ IIB 340 mH | [Exia] IIC 90 mH/ IIB 340 mH | [Exia] IIC 90 mH/ IIB 340 mH |
| Outer capacitance max. (C _o) | [Exia] IIC 3,6 µF/ IIB 26 µF | [Exia] IIC 3,6 µF/ IIB 26 µF | [Exia] IIC 3,6 µF/ IIB 26 µF | [Exia] IIC 3,6 µF/ IIB 26 µF |
| Actuating signal | NAMUR EN 60947-5-6 | NAMUR EN 60947-5-6 | NAMUR EN 60947-5-6 | NAMUR EN 60947-5-6 |
| Permitted ambient temperature | -20...+70 °C | -20...+70 °C | -20...+70 °C | -20...+70 °C |
| Display | Red / yellow and green | Red / yellow and green | Red / yellow and green | Red / yellow and green |
| Norm | EN 60947-5-6 | EN 60947-5-6 | EN 60947-5-6 | EN 60947-5-6 |
| Degree of protection IEC 60529 | Housing: IP 30 Connections: IP 20 | Housing: IP 30 Connections: IP 20 | Housing: IP 30 Connections: IP 20 | Housing: IP 30 Connections: IP 20 |
| Connection | Screw terminals | Screw terminals | Screw terminals | Screw terminals |

Dimensions:



TYPE CODE

RCS-...-.../...-...-...-.../...-...-...



* After mounting, the plug-and-socket connector has to be protected by means of the protective clip.

ARTICLE LIST

| Art.-No. | Description | Page |
|----------|-------------------------------------|------|
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| N00015 | N-132/2-01 | 6 |
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| N00018 | N-132/2-E-10 | 6 |
| RC0006 | RCS-02-M10/45-N-27-VA/PEEK-StEx | 4 |
| RC0003 | RCS-02-M12/45-N-27-VA/PEEK-StEx | 4 |
| RC0002 | RCS-02-M12/55-N-27-VA/PEEK-StEx | 5 |
| RC0005 | RCS-02-1/4"NPT/45-N-27-VA/PEEK-StEx | 5 |
| RC0004 | RCS-02-1/4"NPT/55-N-27-VA/PEEK-StEx | 5 |

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Your Representative

RECHNER

INDUSTRIE-ELEKTRONIK GmbH

Gaußstraße 8-10

68623 Lampertheim

Germany

Tel. (0 62 06) 50 07-0 Fax (0 62 06) 50 07-36 Fax Intl. +49 (0) 62 06 50 07-20

www.rechner-sensors.com

e-mail: info@rechner-sensors.de