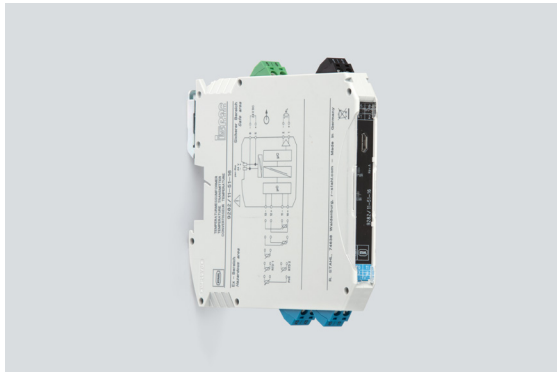


# Isolator Barriers

Temperature transmitter

Ex i field circuit ISpac

9282/11-51-16s Art. No. 261452



- Ex i temperature transmitter, can be used for resistance temperature detectors and potentiometers
- Slim design saves space – just 12.5 mm wide
- For use up to SIL 2 (IEC/EN 61508)

MY R. STAHL 9282A



9282 series temperature transmitters for Ex i field circuits can be used to connect temperature sensors and potentiometers. The devices are easy to configure for virtually any sensor type by means of software. These sensor types include Pt100 sensors, thermocouples and potentiometers. These devices feature three-way galvanic separation.

## Technical Data

### Explosion Protection

|                                 |                                                                                      |
|---------------------------------|--------------------------------------------------------------------------------------|
| Application range (zones)       | 2                                                                                    |
| Ex interface zone               | 0, 1, 2, 20, 21, 22                                                                  |
| IECEX gas certificate           | IECEX IBE 19.0019X                                                                   |
| IECEX gas explosion protection  | Ex ec ic [ia Ga] IIC T4 Gc                                                           |
| IECEX dust certificate          | IECEX IBE 19.0019X                                                                   |
| IECEX dust explosion protection | [Ex ia Da] IIIC                                                                      |
| IECEX firedamp certificate      | IECEX IBE 19.0019X                                                                   |
| IECEX firedamp protection       | [Ex ia Ma] I                                                                         |
| ATEX gas certificate            | IBExU 19 ATEX 1091 X                                                                 |
| ATEX gas explosion protection   | II 3 (1) G Ex ec ic [ia Ga] IIC T4 Gc                                                |
| ATEX dust certificate           | IBExU 19 ATEX 1091 X                                                                 |
| ATEX dust explosion protection  | II (1) D [Ex ia Da] IIIC                                                             |
| ATEX firedamp certificate       | IBExU 19 ATEX 1091 X                                                                 |
| ATEX firedamp protection        | I (M1) [Ex ia Ma] I                                                                  |
| Certificates                    | ATEX (IBE), Canada (UL), IECEX (IBE), India (PESO), Korea (KTL), SIL (TUN), USA (UL) |
| Ship approval                   | DNV                                                                                  |

### Safety Data

|                                                         |            |
|---------------------------------------------------------|------------|
| Max. voltage $U_o/V_{oc}$                               | 6 V        |
| Max. current $I_o/I_{sc}$                               | 16.8 mA    |
| Max. power $P_o$                                        | 25.2 mW    |
| Max. permissible external capacitance $C_o/C_a$ for IIC | 40 $\mu$ F |
| Max. permissible external inductance $L_o/L_a$ for IIC  | 100 mH     |
| Max. permissible external capacitance $C_o/C_a$ for IIB | 40 $\mu$ F |

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## Safety Data

|                                                                                             |                                                                           |          |
|---------------------------------------------------------------------------------------------|---------------------------------------------------------------------------|----------|
| Max. permissible external inductance<br>L <sub>o</sub> /La for IIB                          | 100 mH                                                                    |          |
| Max. permissible external capa.IIA                                                          | 40 µF                                                                     |          |
| Max. permissible external inductance L <sub>o</sub><br>for IIA                              | 100 mH                                                                    |          |
| Max. perm. ext. capacit. IIIC                                                               | 40 µF                                                                     |          |
| Max. permis. ext. induct. IIIC                                                              | 100 mH                                                                    |          |
| Max. permissible ext. capac. I                                                              | 40 µF                                                                     |          |
| Max. permissible external inductance L <sub>o</sub><br>for I                                | 100 mH                                                                    |          |
| Internal capacitance                                                                        | 44 nF                                                                     |          |
| Internal inductance                                                                         | Negligible                                                                |          |
| Safety-related max. voltage                                                                 | 253 V                                                                     |          |
| Intrinsically safe limiting values<br>inductance L <sub>o</sub> /capacitance C <sub>o</sub> | Jointly connectable inductance L <sub>o</sub> /capacitance C <sub>o</sub> |          |
| IIC                                                                                         | L <sub>o</sub> [mH]                                                       | 100 mH   |
|                                                                                             | C <sub>o</sub> [µF]                                                       | 0.600 µF |
| IIB                                                                                         | L <sub>o</sub> [mH]                                                       | 100 mH   |
|                                                                                             | C <sub>o</sub> [µF]                                                       | 1 µF     |
| IIA                                                                                         | L <sub>o</sub> [mH]                                                       | 100 mH   |
|                                                                                             | C <sub>o</sub> [µF]                                                       | 1 µF     |
| IIIC                                                                                        | L <sub>o</sub> [mH]                                                       | 100 mH   |
|                                                                                             | C <sub>o</sub> [µF]                                                       | 1 µF     |
| I                                                                                           | L <sub>o</sub> [mH]                                                       | 100 mH   |
|                                                                                             | C <sub>o</sub> [µF]                                                       | 1 µF     |

## Functional Safety

|                                                  |           |
|--------------------------------------------------|-----------|
| SIL                                              | 2         |
| HFT                                              | 0         |
| SFF                                              | 94%       |
| Lambda SD                                        | 0,8 FIT   |
| Lambda SU                                        | 240 FIT   |
| Lambda DD                                        | 401,3 FIT |
| Lambda DU                                        | 37,8 FIT  |
| PFD <sub>avg</sub> at T <sub>proof</sub> 1 year  | 1,65E-04  |
| PFD <sub>avg</sub> at T <sub>proof</sub> 2 years | 3,04E-04  |
| PFD <sub>avg</sub> at T <sub>proof</sub> 5 years | 8,26E-04  |

## Electrical Data

|                    |                    |
|--------------------|--------------------|
| Signal types       | RTD, potentiometer |
| Number of channels | 1                  |

## Auxiliary Power

|                                  |               |
|----------------------------------|---------------|
| Auxiliary power                  | 24 V DC       |
| Nominal voltage V <sub>nom</sub> | 24 V DC       |
| Auxiliary power voltage range    | 19.2 ... 30 V |
| Nominal current                  | 40 mA         |
| Power consumption                | 1 W           |

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## Auxiliary Power

|                              |                 |
|------------------------------|-----------------|
| Max. power dissipation       | 0.76 W          |
| Polarity reversal protection | Yes             |
| Operation indication         | Green "PWR" LED |

## Galvanic Isolation

|                               |                      |
|-------------------------------|----------------------|
| Test voltage as per standard  | EN IEC 60079-11      |
| Ex i input to output          | 375 V AC peak value  |
| Ex i input to auxiliary power | 375 V AC peak value  |
| Test voltage as per standard  | EN 61010/EN 50178    |
| Output to auxiliary power     | 300 V <sub>eff</sub> |

## Input

|                                                      |                                                                                        |
|------------------------------------------------------|----------------------------------------------------------------------------------------|
| Sensor adjustment                                    | Via software                                                                           |
| Connection type RTD input                            | 2-, 3- and 4-wire circuits                                                             |
| 2-conductor adjustment                               | Via software                                                                           |
| Max. permissible total line resistance per conductor | ≤ 50 ohm                                                                               |
| Sensor current RTD                                   | ≤ 0.21 mA                                                                              |
| Input thermocouple                                   | —                                                                                      |
| Potentiometer input                                  | Up to 50 kΩ                                                                            |
| Potentiometer connection type                        | 3-conductor connection                                                                 |
| Potentiometer sensor current                         | ≤ 0.21 mA                                                                              |
| Input RTD                                            | Pt 50 , Pt 100 , Pt 200 , Pt 500 , Pt 100S , Pt 500S , Ni 100 , Ni 500 , Cu 50 , Cu 53 |

## Output

|                                |                                                                           |
|--------------------------------|---------------------------------------------------------------------------|
| Output                         | 0/4 to 20 mA active/source                                                |
| Output signal                  | 0/4 to 20 mA (configurable)                                               |
| Ripple current output          | <15 μA <sub>pp</sub><br><10 μA <sub>rms</sub>                             |
| Load resistance R <sub>L</sub> | 0 ... 600 Ω                                                               |
| Response time output           | ≤ 1.7 s                                                                   |
| Behaviour of output during LF  | configurable                                                              |
| Line fault indication          | Red "ERR" LED                                                             |
| Deviations / error note        | Information in % of the measuring range (20 mA) at U <sub>N</sub> , 23 °C |
| Average measurement fault      | < 0,1%                                                                    |
| Temperature influence          | ≤ 0,1 %/10K                                                               |

## Ambient Conditions

|                                   |                                                                                                                         |
|-----------------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Ambient temperature °C            | -40 °C ... +70 °C                                                                                                       |
| Ambient temperature °F            | -40°F ... +158°F                                                                                                        |
| Storage temperature °C            | -40 °C ... +80 °C                                                                                                       |
| Storage temperature °F            | -40°F ... +176°F                                                                                                        |
| Max. relative humidity            | 5 to 95%                                                                                                                |
| Max. additional relative humidity | No condensation                                                                                                         |
| Use at the height of              | < 2000 m                                                                                                                |
| Electromagnetic compatibility     | EN 61326-1 Use in industrial environment<br>Immunity according to EN 61000-6-2<br>Interference emission to EN 61000-6-4 |

Isolator Barriers



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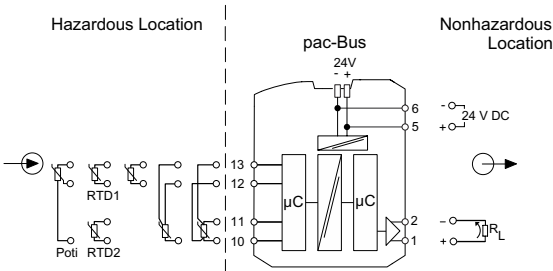
Mechanical Data

|                                     |           |
|-------------------------------------|-----------|
| Degree of protection (IP)           | IP30      |
| Degree of protection (IP) terminals | IP20      |
| Fire resistance (UL 94)             | V0        |
| Enclosure material                  | Polyamide |
| Grid dimension                      | 12.5 mm   |
| Width                               | 12.5 mm   |
| Width, inches                       | 0.49 in   |
| Height                              | 114.5 mm  |
| Length                              | 112.5 mm  |
| Length in inches                    | 4.43 in   |
| Mounting depth in inches            | 4.51 in   |
| Weight                              | 170 g     |
| Weight                              | 0.37 lb   |

Mounting / Installation

|                                    |                            |
|------------------------------------|----------------------------|
| Mounting type                      | DIN rail NS35/15, NS35/7.5 |
| Mounting orientation               | Horizontal<br>Vertical     |
| Connection type                    | Screw terminal             |
| Min. rigid conductor cross section | 0.2 mm²                    |
| Max. rigid conductor cross section | 2.5 mm²                    |
| Min. flex conductor cross section  | 0.2 mm²                    |
| Max. flex conductor cross section  | 2.5 mm²                    |
| Connection cross-section AWG       | 24 ... 14                  |

Technical Drawings – Subject to Alterations



Connection diagram 9282/11-51-16

# Isolator Barriers

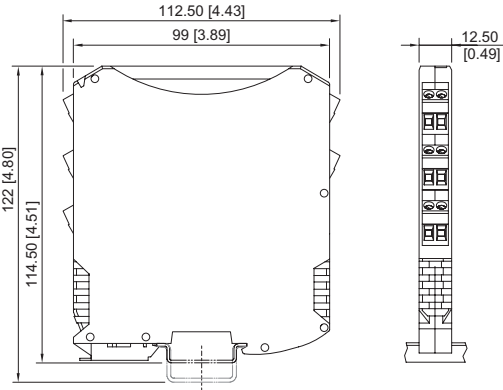
Temperature transmitter

Ex i field circuit ISpac

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## Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



ISpac Series 9260, 9265, 9270, 9275, 9276, 9282  
with screw terminal

## Accessories

| 9282 Parameterisation                                                              |                                                                                                                                                                                                                                                       | Art. No. |
|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
|   | Parameterisation ex works optionally available for all variants.                                                                                                                                                                                      | 299646   |
| Screw terminal                                                                     |                                                                                                                                                                                                                                                       | Art. No. |
|  | Replacement for blue screw terminal (Ex i field circuit)<br>Application: Use of the device for non-Ex i field circuits.                                                                                                                               | 272381   |
| Parameterization adapter                                                           |                                                                                                                                                                                                                                                       | Art. No. |
|  | Used for parameterization and diagnostics on 9282 series ISpac isolators.<br>Interface to PC: USB<br>Scope of delivery: Adapter and cable (software is available to download online at <a href="http://r-stahl.com">r-stahl.com</a> , WebCode: 9282A) | 261507   |

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