

## Remote I/O

### IS1+ Remote I/O Digital output module

For Zone 2 Ex i

9475/33-08-60 Art. No. 210658



- 8 channels for Ex i solenoid valves up to 30 mA
- Ex ia outputs with line fault monitoring
- Modules in Zone 2 can be replaced without having to disconnect the power supply (i.e. hot-swapped)

MY R. STAHL 9475D



The 9475/33-08 digital output modules for Zone 2 have eight channels for controlling Ex i solenoid valves or indicator lamps. All outputs are short-circuit proof, galvanically separated from the system and individually monitored to check for wire breakage/short-circuiting.

## Technical Data

### Explosion Protection

|                                 |   |
|---------------------------------|---|
| Application range (zones)       | 2   |
| Ex interface zone               | 0<br>1<br>2<br>20<br>21<br>22   |
| IECEX gas certificate           | IECEX DEK 12.0070X  |
| IECEX gas explosion protection  | Ex ec ia [ia Ga] IIC T4 Gc  |
| IECEX dust certificate          | IECEX DEK 12.0070X  |
| IECEX dust explosion protection | [Ex ia Da] IIIC   |
| ATEX gas certificate            | DEKRA 12 ATEX0232X  |
| ATEX gas explosion protection   | ⊕ II 3 (1) G Ex ec ia [ia Ga] IIC T4 Gc   |
| ATEX dust certificate           | DEKRA 12 ATEX0232X  |
| ATEX dust explosion protection  | ⊕ II (1) D [Ex ia Da] IIIC  |
| FMus certificate                | FM17US0332X   |
| cFM certificate                 | FM16CA0134X   |
| Marking cFMus                   | NI, Class I, Div. 2, Groups A,B,C,D;<br>Class I, Zone 2, AEx/Ex nA ia [ia] IIC<br>AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G;<br>T4 at Ta = 75°C<br>See Doc. 9475 6 031 004 1 |
| Certificates                    | ATEX (DEK), Brazil (ULB), Canada (FM), China (NEPSI), IECEX (DEK), India (PESO), Korea (KTL), USA (FM)  |
| Ship approval                   | ABS, BVIS, EU RO MR (DNV), KR, LR   |
| Declaration of Conformity       | ATEX (EUK), China (CCC)   |
| Installation                    | Zone 2 and safe areas   |
| Further information             | See relevant certificate and operating instructions   |

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### Safety Data

|  |   |      |     |     |     |     |     |      |
|--|---|------|-----|-----|-----|-----|-----|------|
| Max. voltage $U_o$                                   | 25.7 V  |      |     |     |     |     |     |      |
| Max. current $I_o$ (Ex ia)                           | 107 mA  |      |     |     |     |     |     |      |
| Max. power $P_o$ (Ex ia)                             | 688 mW  |      |     |     |     |     |     |      |
| Max. current $I_o$ (Ex ib)                           | 26.3 mA   |      |     |     |     |     |     |      |
| Max. power $P_o$ (Ex ib)                             | 468 mW  |      |     |     |     |     |     |      |
| Internal inductance                                  | Negligible  |      |     |     |     |     |     |      |
| Max. internal capacitance $C_i$                      | 5.2 nF (in the following tables, $C_i$ has been subtracted from $C_o$ ) |      |     |     |     |     |     |      |
| Max. connectable inductance $L_o$ /capacitance $C_o$ |   |      |     |     |     |     |     |      |
| Output ia  |   |      |     |     |     |     |     |      |
| IIC  | $L_o$ [mH]  | 1.57 | 1.1 | 1.0 | 0.9 | 0.5 | 0.2 | 0.1  |
|  | $C_o$ [nF]  | --   | 49  | 52  | 54  | 69  | 95  | 97   |
| IIB/IIIC   | $L_o$ [mH]  | 11   | 5.0 | 1.0 | 0.5 | 0.2 | 0.1 | 0.05 |
|  | $C_o$ [nF]  | 335  | 335 | 395 | 485 | 635 | 785 | 785  |
| Output ib  |   |      |     |     |     |     |     |      |
| IIC  | $L_o$ [mH]  | 7.0  | 5.0 | 2.0 | 1.0 | 0.5 | 0.2 | 0.05 |
|  | $C_o$ [nF]  | 32   | 36  | 49  | 64  | 81  | 97  | 97   |
| IIB/IIIC   | $L_o$ [mH]  | 100  | 50  | 1.0 | 0.5 | 0.2 | 0.1 | 0.05 |
|  | $C_o$ [nF]  | 245  | 365 | 425 | 505 | 655 | 785 | 785  |

### Electrical Data

|                               |   |
|-------------------------------|---|
| Number of channels            | 8 Ex i outputs  |
| Connection Ex i field signals | Pluggable, blue terminals, 16-pin, 2.5 mm <sup>2</sup> , screw type or cage clamp version with lock |

### Auxiliary Power

|                                |                                      |
|--------------------------------|--------------------------------------|
| Power supply connection        | BusRail types 9494                   |
| Auxiliary power version        | Intrinsically safe Ex ia via BusRail |
| Behaviour during undervoltage  | All outputs "OFF"                    |
| Current consumption            | 240 mA                               |
| Max. power consumption         | 5.8 W                                |
| Max. power dissipation outputs | 4 W                                  |

### Galvanic Isolation

|                                      |                              |
|--------------------------------------|------------------------------|
| Test voltage for galvanic separation | Acc. to standard EN 60079-11 |
| Auxiliary power/system components    | ≥ 1500 V AC                  |
| I/O module / I/O module              | ≥ 500 V AC                   |
| I/O channels/system components       | ≥ 500 V AC                   |
| I/O channels / ground (PA)           | ≥ 500 V AC                   |

### Output

|                                |              |
|--------------------------------|--------------|
| Ex i output rated operation    | 17.5 V/20 mA |
| Internal resistance of outputs | 315 Ω        |
| Open-circuit voltage $U_a$     | 23.5 V       |

# Remote I/O

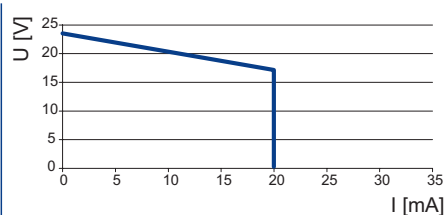
## IS1+ Remote I/O Digital output module

### For Zone 2 Ex i

9475/33-08-60 Art. No. 210658



9475/32-08-62, 9475/33-08-60 output characteristic



#### Device Specific Data

|                                   |   |
|-----------------------------------|---|
| Diagnostics message module        | OFF<br>ON   |
| Line fault monitoring             | ON without test current<br>ON<br>OFF  |
| Test current signal               | 0,2 ... 0,28 mA   |
| Output behaviour in case of error | ON<br>Keep last value<br>OFF  |
| LED module requires maintenance   | "M/S" LED, blue   |
| LED operating conditions          | "RUN" LED, green  |
| Retrievable parameters            | Type<br>Software revision<br>Serial number<br>Manufacturer<br>Hardware revision                           |
| Signal status bit                 | "1" = Output supplied with power<br>"0" = High-impedance output   |
| Wire breakage output              | > 12 k $\Omega$ (when the test current is deactivated, can only be detected if the output is switched on) |
| Short circuit output              | < 30 $\Omega$ (response range 30 to 60 $\Omega$ ) (can be detected only if the output is switched on)     |

#### Diagnostics

|                 |                |
|-----------------|----------------|
| LED group error | "ERR" LED, red |
|-----------------|----------------|

#### Ambient Conditions

|                               |   |
|-------------------------------|---|
| Ambient temperature           | -40°C ... +75°C   |
| Ambient temperature           | -40°F ... +167°F  |
| Storage temperature           | -40°C ... +80°C   |
| Storage temperature           | -40°F ... +176°F  |
| Max. operating altitude       | < 2000 m  |
| Max. relative humidity        | 95% (without condensation)  |
| Shock (semi-sinusoidal)       | (IEC EN 60068-2-27)<br>15 g (3 shocks per axis and direction)   |
| Vibration (sinusoidal)        | (IEC EN 60068-2-6)<br>Frequency range 2 to 13.2 Hz Amplitude 1 mm (peak value)<br>Frequency range 13.2 to 100 Hz Acceleration amplitude 0.7 g |
| Electromagnetic compatibility | Tested to the following standards and regulations: EN 61326-1 (2006) IEC 61000-4-1 to 61000-4-6, NAMUR NE 21                                  |
| Note                          | (observe operating instructions)  |

#### Mechanical Data

|                                       |               |
|---------------------------------------|---------------|
| Degree of protection (IP) (IEC 60529) | IP20          |
| Module enclosure                      | Polyamide 6GF |
| Fire resistance (UL 94)               | V2            |

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For Zone 2 Ex i

9475/33-08-60 Art. No. 210658



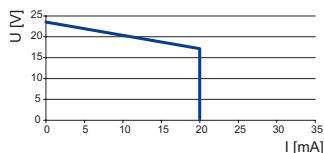
### Mechanical Data

|                        |                   |
|------------------------|-------------------|
| Pollutant class        | Corresponds to G3 |
| Width                  | 96.5 mm           |
| Width, inches          | 3.8 in            |
| Height                 | 67 mm             |
| Length                 | 128 mm            |
| Length, inches         | 5.04 in           |
| Mounting depth, inches | 2.64 in           |
| Weight                 | 275 g             |
| Weight                 | 0.61 lb           |

### Mounting / Installation

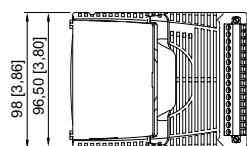
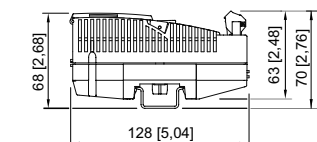
|                      |                                     |
|----------------------|-------------------------------------|
| Mounting type        | on NS 35/15 DIN rail (DIN EN 60715) |
| Mounting orientation | Vertical<br>Horizontal              |

### Technical Drawings – Subject to Alterations



9475/32-08-62, 9475/33-08-60 output characteristic

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



### Accessories

#### Pluggable terminal

|  |   | Art. No. |
|--|---|----------|
|  | 2.5 mm <sup>2</sup> with lock, 16-pin, screw connector, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits<br>Labelling: 1 to 16<br>Note: A second terminal is additionally required for I/O module Series 9470 and 9482<br>Labelling: 17 to 32                           | 162702   |
|  | 2.5 mm <sup>2</sup> with lock, 16-pin, spring clamp connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits, incl. test jacks<br>Labelling: 1 to 16<br>Note: A second terminal is additionally required for I/O module Series 9470 and 9482<br>Labelling: 17 to 32 | 162695   |





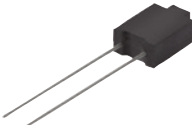


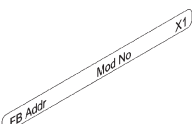
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| Electronic relay   |  | Art. No. |
|--|--|----------|
|    | The 9174 electronic relay module makes it possible to switch Ex e loads using an intrinsically safe control system.<br>Input: Ex i; output: 31.2 V/2 A DC, Ex e  | 212340   |
|    | The electronic relay modules are used to switch Ex e loads using an intrinsically safe (Ex i) or non-intrinsically safe (Ex e) control system.<br>Coil circuit: Ex i or non-Ex i (Ex e)*<br>Contact circuit: Non-Ex i (Ex e)<br>*It is possible to switch between Ex i and non-Ex i circuits, or vice versa, at any time without restriction.<br><br>Note: Cannot be used with 9475/32-04-12, 9475/32-08-52, 9475/33-08-50         | 282457   |
| Ex i/Ex e relay module for Zone 1  |  | Art. No. |
|    | The Ex i/Ex e relay module is used for the galvanically isolated switching of intrinsically safe (Ex i) and non-Ex i (Ex e) electrical circuits.<br>Coil circuit: Ex i or non-Ex i (Ex e)<br>Contact circuit: Ex i or non-Ex i (Ex e)<br>Thanks to the integrated safeguarding for the contact and coil circuit, additional safeguarding is not necessary.<br><br>Note: no usable with 9475/32-04-12, 9475/32-08-52, 9475/33-08-50 | 273000   |
| Partition  |  | Art. No. |
|  | For mounting between intrinsically safe and non-intrinsically safe connections between I/O modules to maintain a tight string length of 50 mm  | 220101   |
| Resistor error message suppression   |  | Art. No. |
|  | The resistors are used to suppress error messages for unused I/O channels<br>Resistance value: 5K6/0.5 W<br>Suitable for: AIM 9468; UMH 9469; DIOM 9470; DIOM 9471; DIOM 9472; DOM 9475<br>For intrinsically safe circuits (simple apparatus according to EN 60079-11)   | 244911   |
| Warning label  |  | Art. No. |
|  | "Clean modules only with a damp cloth."  | 162796   |
| DIN A4 sheet   |  | Art. No. |
|  | For label plate on I/O modules; 6 plates per sheet;<br>IS Wizard printout; packaging unit = 20 sheets  | 162832   |
| Labelling strips   |  | Art. No. |
|  | "FB Addr ... Mod No ..." for pluggable terminal, 26 pieces on the sheet  | 162788   |


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| <b>Vibration bracket set</b>   |   | <b>Art. No.</b> |
|--|---|-----------------|
|  | When installed in environments with extreme vibration (> 0.7 g and max. 4 g), the 9490 vibration brackets may be used as an additional measure and provide mechanical stability for the individual modules.<br>For mounting: All I/O modules, except 9477/12 and 9478<br>Number of brackets in a set: 8<br>Screws (item no. 275516) must be ordered separately. | 271920          |

| <b>Set of screws</b> |   | <b>Art. No.</b> |
|----------------------|---|-----------------|
|                      | Set of M5 x 14 screws (self-tapping) for 9490 vibration brackets<br>Number of screws in a set: 25 | 275516          |

## Spare Parts

| <b>Ex i LED indicator lamp</b>   |  | <b>Art. No.</b> |
|--|--|-----------------|
|  | 8010/3-02 LED indicator lamp for intrinsically safe circuits, Ex i | 237972          |

| <b>LED indicator lamp for front installation</b>                                   |                             | <b>Art. No.</b> |
|--|-----------------------------|-----------------|
|  | for Ex i front installation | 240901          |

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