

# Remote I/O

## Remote I/O IS1+ 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, 1, 2, 20, 21, 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; Class I, Zone 2, AEx/Ex nA ia [ia] IIC AIS Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G; T4 at Ta = 75°C See Doc. 9475 6 031 004 1
Certificates	ATEX (DEK), Brazil (ULB), Canada (FM), 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
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

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### Safety Data

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

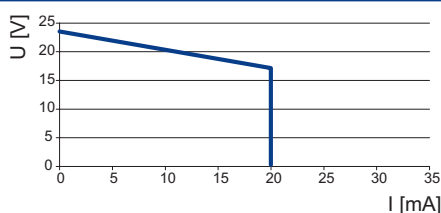
### Galvanic Isolation

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

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



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### Device Specific Data

Diagnostics message module	OFF ON
Line fault monitoring	ON without test current ON OFF
Test current signal	0,2 ... 0,28 mA
Output behaviour in case of error	ON Keep last value OFF
Retrievable parameters	Type Software revision Serial number Manufacturer Hardware revision
LED module requires maintenance	"M/S" LED, blue
LED operating conditions	"RUN" LED, green
Signal status bit	"1" = Output supplied with power "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
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### 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) 15 g (3 shocks per axis and direction)
Vibration (sinusoidal)	(IEC EN 60068-2-6) Frequency range 2 to 13.2 Hz Amplitude 1 mm (peak value) 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
Pollutant class	Corresponds to G3
Width	96.5 mm
Width, inches	3.8 in
Height	67 mm
Length	128 mm
Length in inches	5.04 in

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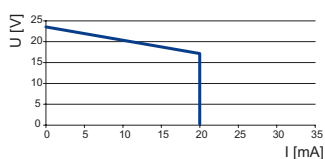
### Mechanical Data

Mounting depth in inches	2.64 in
Weight	275 g

### Mounting / Installation

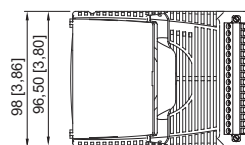
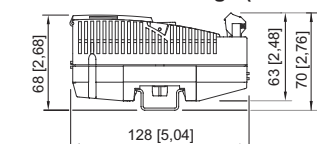
Mounting type	on NS 35/15 DIN rail (DIN EN 60715)
Mounting orientation	Vertical Horizontal

### 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 Labelling: 1 to 16 Note: A second terminal is additionally required for I/O module Series 9470 and 9482 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 Labelling: 1 to 16 Note: A second terminal is additionally required for I/O module Series 9470 and 9482 Labelling: 17 to 32	162695

#### Electronic relay


		Art. No.
	The 9174 electronic relay module makes it possible to switch Ex e loads using an intrinsically safe control system. Input: Ex i; output: 31.2 V/2 A DC, Ex e	212340


# Remote I/O


## Remote I/O IS1+ Digital output module for Zone 2 Ex i

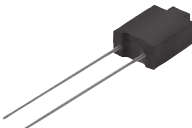
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Electronic relay		Art. No.
	<p>The electronic relay modules are used to switch Ex e loads using an intrinsically safe (Ex i) or non-intrinsically safe (Ex e) control system.</p> <p>Coil circuit: Ex i or non-Ex i (Ex e)*</p> <p>Contact circuit: Non-Ex i (Ex e)</p> <p>*It is possible to switch between Ex i and non-Ex i circuits, or vice versa, at any time without restriction.</p> <p>Note: Cannot be used with 9475/32-04-12, 9475/32-08-52, 9475/33-08-50</p>	282457

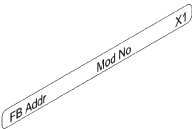
Ex i/Ex e relay module for Zone 1		Art. No.
	<p>The Ex i/Ex e relay module is used for the galvanically isolated switching of intrinsically safe (Ex i) and non-Ex i (Ex e) electrical circuits.</p> <p>Coil circuit: Ex i or non-Ex i (Ex e)</p> <p>Contact circuit: Ex i or non-Ex i (Ex e)</p> <p>Thanks to the integrated safeguarding for the contact and coil circuit, additional safeguarding is not necessary.</p> <p>Usable with the following ISpac isolators: 9175/10-16-11, 9175/20-16-11, 9176/20-15-00, 9176/10-16-00, 9176/20-16-00, 9275/10-24-48-11, 9276/10-21-60-00, 9276/10-24-48-00</p> <p>Usable with the following IS1+ modules: 9475/32-04-22, 9475/32-08-62, 9475/33-08-60</p>	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.
	<p>The resistors are used to suppress error messages for unused I/O channels</p> <p>Resistance value: 5K6/0.5 W</p> <p>Suitable for: AIM 9468; UMH 9469; DIOM 9470; DIOM 9471; DIOM 9472; DOM 9475</p> <p>For intrinsically safe circuits (simple apparatus according to EN 60079-11)</p>	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; 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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#### Vibration bracket set


	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. For mounting: All I/O modules, except 9477/12 and 9478 Number of brackets in a set: 8 Screws (item no. 275516) must be ordered separately.	<b>Art. No.</b> 271920
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#### Set of screws


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

#### Ex i LED indicator lamp

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

	for Ex i front installation	<b>Art. No.</b> 240901
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We reserve the right to make alterations to the technical data, dimensions, weights, designs and products available without notice. The illustrations cannot be considered binding.