

Remote I/O

Remote I/O IS1 Relay digital output module

for Zone 1 Ex d e

9477/12-08-12 Art. No. 162627



- With up to 8 de-energised relay contacts
- Ex e outputs with a high switching capacity up to 100 VA
- Module hot swap in Zone 1 and Class I, Div. 1

MY R. STAHL 9477A



The 9477/12-08-12 digital output module relay for Zone 1 has eight channels for operating non-intrinsically safe solenoid valves with a high switching capacity. De-energised relay contacts (NO contacts) with Ex e or conduit connection technology are available as outputs. Operation in combination with Ex i I/O modules is permissible.

Technical Data

Explosion Protection	
Application range (zones)	1, 2
Ex interface zone	1, 2
IECEX gas certificate	IECEX PTB 06.0001X
IECEX gas explosion protection	Ex d e [ia, ib] IIC T4
ATEX gas certificate	PTB 01 ATEX2187
ATEX gas explosion protection	II 2 G Ex d e [ia, ib] IIC T4
FMus certificate	FM17US0332X
cFM certificate	FM16CA0134X
Marking cFMus	XP; Class I, Div. 1, Groups A,B,C,D; Class I, Zone 1, IIC; T4 at Ta = 65 °C; See Doc. 9477 6 031 001 1 XP; Class I, Div. 1, Groups A,B,C,D; Class I, Zone 1 per CEC 18-100 T4 at Ta = 65 °C; See Doc. 9477 6 031 001 1
Certificates	ATEX (PTB), Canada (FM), IECEX (PTB), USA (FM)
Ship approval	ABS, BVIS, EU RO MR (DNV), KR, LR
Installation	Zone 1/Division 1
Further information	See operating instructions and certificate
Electrical Data	
Number of channels	8 Ex e outputs
Connection Ex e terminals / conduit	2.5 mm ²
Engineering note	The module is designed for IS1 field stations and may be installed in Zone 1 or Division 1. It must be installed in a suitable enclosure for this. The module is mounted on the BusRail of the IS1 system using the 9490/11-3. or 9490/12-3. socket. Only non-intrinsically safe circuits may be connected to the Ex e connection terminals or the prewired cable of the module, complying with the maximum values for current, voltage and power (see technical data). The switching current of the contacts must be limited to the value given in the table (e.g. using a fuse or current limiter).

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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	200 mA
Max. power consumption	4.8 W
Max. power dissipation outputs	4.8 W
Undervoltage monitoring	Output = OFF

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	375 V AC
I/O channels / I/O channels	250 V AC

Output

Contact version	NO			
Max. switching voltage	60 V AC			
Min. switching voltage	5 V AC/DC			
Max. switching current	2 A			
Min. switching current	2 mA			
Switching capacity				
Max. switching voltage	60 V AC	30 V DC		
Max. switching current	2 A	2 A		
Max. switching capacity	100 VA	60 W		
Service life	Electric at max. 2 A AC 1 – load condition ≥ 0.6 x 10 ⁶ operating cycles DC 1 – load condition ≥ 100 x 10 ³ operating cycles (resistive load) Mechanical ≥ 10 x 10 ⁶ operating cycles			
Max. contact load without damaging the gold plating	Up to 24 V/1.5 W			
Safe contacting even if the gold plating is damaged	From 12 V/1.5 W			
Connections	2.5 mm ² flexible			
Maximum signal delay from internal bus to output	10 ms			

Device Specific Data

Diagnostics message module	ON OFF
Output behaviour in case of error	Keep last value ON OFF
LED operating conditions	"RUN" LED, green
Retrievable parameters	Software revision Type Serial number Manufacturer Hardware revision

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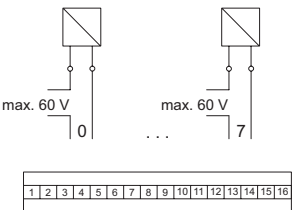
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Device Specific Data	
Module status and alarms	Primary internal bus error Redundant internal bus error No response Configuration different from module Hardware error
Diagnostics	
LED group error	"ERR" LED, red
Ambient Conditions	
Ambient temperature	-20°C ... +65°C
Ambient temperature	-4°F ... +149°F
Storage temperature	-40°C ... +70°C
Storage temperature	-40°F ... +158°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 HzAcceleration 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
Mechanical Data	
Degree of protection (IP) (IEC 60529)	IP20
Module enclosure	Polyamide 6GF
Fire resistance (UL 94)	HB
Pollutant class	Corresponds to G3
Width	96.5 mm
Width, inches	3.8 in
Depth	170 mm
Length	208 mm
Length in inches	8.19 in
Mounting depth in inches	6.69 in
Contacts	NO
Weight	2.57 kg
Weight	5.67 lb
Mounting / Installation	
Mounting orientation	Vertical Horizontal

Technical Drawings – Subject to Alterations



9477/12-08-12 connection diagram

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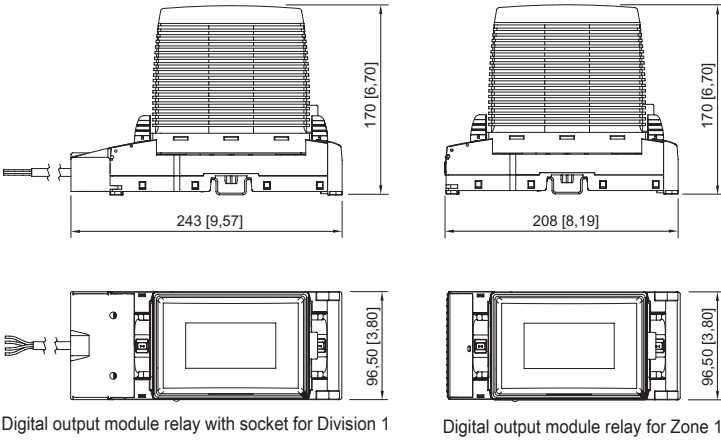
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Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations



Accessories

Socket for digital output module relay		Art. No.
	Zone 1, connection by means of Ex e terminals for 9477/12 digital output module relay, 8 channels	162703
	Division 1, connection by means of a conduit for digital output module relay 9477/12, 8 channels	162712
Vibration bracket set		Art. No.
	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: 9477/12 DOMR module for Zone 1, single Number of brackets in a set: 1 Screws (item no. 275516) must be ordered separately.	271919
Set of screws		Art. No.
	Set of M5 x 14 screws (self-tapping) for 9490 vibration brackets Number of screws in a set: 25	275516

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.