

Remote I/O

Remote I/O IS1 Relay digital output module

for Zone 2 Ex n

9477/15-08-12 Art. No. 168694



- With 8 de-energised relay contacts
- Ex nA outputs with a high switching capacity up to 100 VA
- Module in Zone 2 can be replaced without having to disconnect the power supply (i.e. hot-swapped)

MY R. STAHL 9477B



The 9477/15 digital output module relay for Zone 2 has eight channels for operating non-intrinsically safe solenoid valves with a high switching capacity. De-energised relay contacts (NO contacts) with Ex nA connection technology are available as outputs. Operation in combination with Ex i I/O modules is permissible.

Technical Data

Explosion Protection

Application range (zones)	2
Ex interface zone	2, 22
IECEX gas certificate	IECEX PTB 06.0001X
IECEX gas explosion protection	Ex nA nC ic [ib Gb] IIC T4 Gc
ATEX gas certificate	PTB 01 ATEX2187
ATEX gas explosion protection	Ex II 3 (2) G Ex nA nC ic [ib Gb] IIC T4 Gc
FMus certificate	FM17US0332X
cFM certificate	FM16CA0134X
Marking cFMus	NI, Class I, Div. 2, Groups A,B,C,D; Class I, Zone 2, Group IIC T4 at Ta = 65 °C See Doc. 9477 6 031 002 1
Certificates	ATEX (PTB), Canada (FM), IECEX (PTB), USA (FM)
Ship approval	ABS, BVIS, EU RO MR (DNV), KR, LR
Declaration of conformity	ATEX (EUK)
Installation	Zone 2, Zone 22, Div. 2
Further information	See operating instructions and certificate

Electrical Data

Number of channels	8 Ex e outputs
Connection Ex nA field signals	Pluggable terminals, 16-pin, 2.5 mm ² , screw type or cage clamp version with lock

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Electrical Data

Engineering note	<p>The module is designed for I.S. 1 field stations and may only be installed in Zone 2/Division 2 or in safe areas. An enclosure with at least an IP54 degree of protection is required for use in Zone 2. The module is connected to the BusRail of the I.S. 1 system.</p> <p>We recommend positioning the 9477/15 module next to the CPM (9440). A partition (162740) is required to maintain a ≥ 50 mm clearance between the connection terminals of the Ex i modules.</p> <p>Non-intrinsically safe circuits may be connected to 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 2 A (e.g. by using fuse or current limiter).</p>
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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

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	250 V AC			
Min. switching voltage	5 V AC/DC			
Max. switching current	2 A			
Min. switching current	2 mA			
Switching capacity				
Max. switching voltage	250 V AC	30 V DC	110 V DC	220 V DC
Max. switching current	2 A	2 A	0.3 A	0.12 A
Max. switching capacity	100 VA	60 W	33 W	26 W
Service life	Electric at max. 2 A			
	AC 1 – load condition		$\geq 0.6 \times 10^6$ operating cycles	
	DC 1 – load condition (resistive load)		$\geq 100 \times 10^3$ operating cycles	
	Mechanical		$\geq 10 \times 10^6$ 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
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Device Specific Data

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

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
Depth	67 mm
Length	128 mm
Length in inches	5.04 in
Mounting depth in inches	2.64 in
Contacts	NO
Weight	321 g
Weight	0.71 lb

Mounting / Installation

Mounting orientation	Vertical Horizontal
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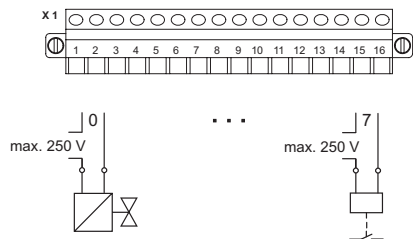
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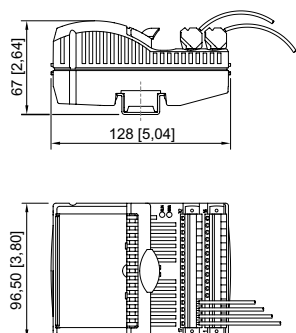


Technical Drawings – Subject to Alterations

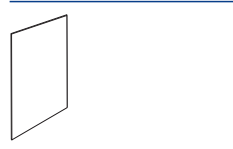
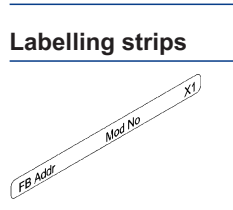
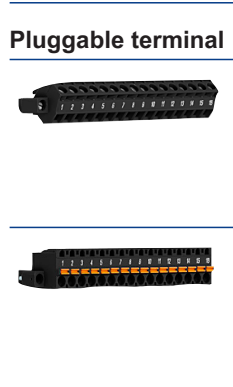



Connection

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



Accessories

		Art. No.
	For label plate on I/O modules; 6 plates per sheet; IS Wizard printout; packaging unit = 20 sheets	162832
	"FB Addr ... Mod No ..." for pluggable terminal, 26 pieces on the sheet	162788
	2.5 mm ² with lock, 16-pin, screw connector, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits Version with warning label Labelling: 1 to 16	162704
	2.5 mm ² with lock, 16-pin, spring clamp connection, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits, incl. test jacks Version with warning label Labelling: 1 to 16	162706

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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

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.