Remote I/O

Remote I/O IS1 Digital output module relay For Zone 2 Ex n

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

- With 8 zero-potential relay contacts
- Ex nA outputs with a high switching capacity up to 100 VA
- Module in Zone 2 can be hot swapped

WebCode **9477B**

The 9477/15 series digital output module relay for Zone 2 has eight channels for operating non-intrinsically safe solenoid valves with a high switching capacity. Zero-potential relay contacts (normally open contacts) are available as outputs in Ex nA connection technology. Operation in combination with Ex i I/O modules is permissible.

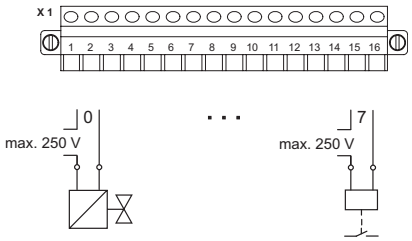
Technical Data

Explosion Protection	
Application range (zones)	2 22
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
Installation	Zone 2, Zone 22, Div. 2
Further information	see operating instructions and certificate
Electrical Data	
Number of channels	8 Ex nA outputs
Connection Ex nA field signals	Pluggable terminals, 16-pin, 2.5 mm², screw or cage clamp version with lock

Electrical Data				
Engineering note	The module is intended for I.S.1 field stations and may only be installed in Zone 2 / Division 2 or in the safe area. For use in Zone 2, an enclosure with degree of protection of at least IP54 is required. The module is plugged onto the BusRail of the I.S. 1 system. It is recommended to position the module 9477/15 next to the CPM (9440). In order to maintain the distance of) 50 mm / 2 in to the connection terminals of the I.S. module, a partition (162740) is required. Non-intrinsically safe circuits may be connected to the module, provided that the maximum values of current, voltage and power (refer to technical data) are adhered to. The switching current of the contacts must be limited to 2 A (e.g. fuse or current limitation).			
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	electrical at max. 2 A			
	AC 1 - load		≥ 0.6 x 10^6 switching cycles	
	DC 1 - load (resistive load)		≥ 100 x 10^3 switching cycles	
	mechanical		≥ 10 x 10^6 switching cycles	
Maximum contact load without damage to gold plating	at 24 V / 1.5 W			
Safe contact operation with damaged gold plating	from 12 V / 1.5 W			
Connections	2.5 mm^2 flexible			
Maximum signal delay from internal bus to outputs	10 ms			
Device Specific Data				
Diagnostics message module	ON OFF			

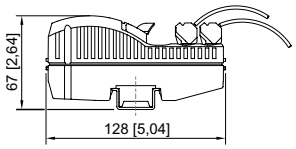
Device Specific Data	
Output behaviour in case of error	Keep last value ON OFF
LED operating conditions	"RUN" LED, green
LED group error	"ERR" LED, red
Retrievable parameters	Type Software revision Serial number Manufacturer Hardware revision
Module status and alarms	Primary internal bus error Redundant internal bus error No response Configuration different from module Hardware error
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 … 13.2 Hz Amplitude 1 mm (peak value) Frequency range 13.2 … 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	
IP degree of protection (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, inches	5.04 in
Mounting depth, inches	2.64 in
Contacts	NO
Weight	0.321 kg
Weight	0.71 lb
Mounting / Installation	
Mounting orientation	Vertical Horizontal

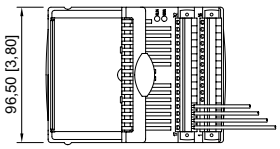
Technical Drawings – Subject to Alterations



Connection

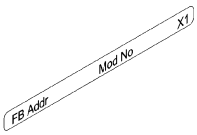
Dimensional Drawings (All Dimensions in mm [inches]) – Subject to Alterations





Accessories

DIN A4 sheet		Art. No.
	For the label plate on I/O modules, 6 labels per sheet Print IS Wizard, packaging unit = 20 sheets	162832

Labelling strips		Art. No.
	“FB Addr ... Mod No ...” for pluggable terminal, 26 pieces on the sheet	162788

Pluggable terminal		Art. No.
	2.5 mm² with screw lock, 16-pole, screw connection, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits Version with warning sign Labelling: 1 ... 16	162704
	2.5 mm² with screw lock, 16-pole, spring connection, black, for connecting the field signals to I/O modules, for non-intrinsically safe field circuits including test jacks Version with warning sign Labelling: 1 ... 16	162706

Partition		Art. No.
	For mounting between intrinsically safe and non-intrinsically safe connections of the I/O modules, in order to adhere to the required 50 mm distance	220101