



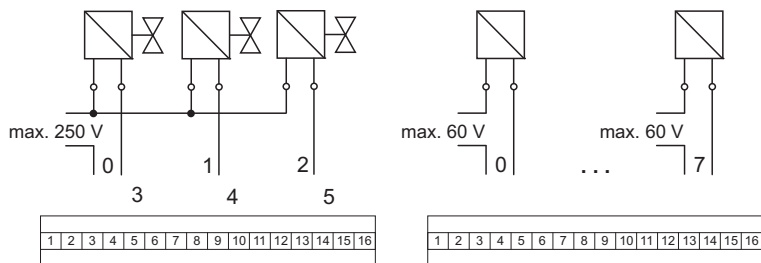
Digital Output Module Relay and Sockets for Installation in Zone 1 / Div. 1 Series 9477/12; Series 9490

- 6 or 8 channels: volt-free relay contact, normally open
- High switching capacity, up to 100 VA
- Galvanic isolation between outputs and system
- Connection of the field cables by means of Ex e terminals or conduit
- Module can be replaced in operation (hot swap)

Zone	0	1	2	20	21	22
Class	I			II / III		
Zone	0	1	2	20	21	22
Ex interface		X	X			
Installation in		X	X			

Class	I		II / III	
Division	1	2	1	2
Ex interface	X	X		
Installation in	X	X		

The Digital Output Modules Relay are used for the operation of up to 6 or 8 non-intrinsically safe high energy solenoid valves. The outputs are designed as “normally open” volt-free contacts. Solenoid valves are connected via Ex e terminals or a pre-wired sealed cable in rigid conduit. The modules can be installed on the same BusRail together with the other IO-modules. The interface of the Digital Output Module with the internal data bus of the BusRail is designed with redundancy.



06313E00



Selection Table

Version	Installation in		Order number	Weight kg / lbs
Digital Output Module Relay	Zone 1 / Division 1	8 contacts, 60 V	9477/12-08-12	2.570 / 5.666
		6 contacts, 250 V	9477/12-06-12	2.566 / 5.657
Sockets for CPU & Power Modules	Zone 1; connection by means of Ex e terminals	for digital output module relay 9477/12-08-12	9490/11-33	0.560 / 1.235
		for digital output module relay 9477/12-06-12	9490/11-34	0.527 / 1.162
	Division 1; connection via conduit ^{*)}	for digital output module relay 9477/12-08-12	9490/12-33	0.760 / 1.676
		for digital output module relay 9477/12-06-12	9490/12-34	0.760 / 1.676

^{*)} For orders inside the USA, please use conduit hub 9491/00-13-70 as accessory

Explosion Protection

Certificates	
IECEX	PTB 06.0001X
Europe (ATEX)	PTB 01 ATEX 2205 X
USA (NEC)	3007532 (FM)
Russia (GOST-R)	04.B00806 (CTB)
Other countries	Canada (CSA), Brazil (INMETRO), Belarus (Promatombnadzor)
Marking	
IECEX	Ex de [ia/ib] IIC/IIB T4
Europe (ATEX)	Ⓔ II 2 G EEx de [ib/ia] IIC / IIB T4
USA (NEC)	9477/12-0.-12 & 9490/12-3.: XP-IS/II/1/ABCD/T4 Ta = 65 °C, XP-IS/II/1/IIC/T4 Ta = 65 °C, IS/II/1/[AEx ia,ib] IIC
Russia (GOST-R)	2Exde[ib/ia]IIC/IIBT4
Other certificates	Marine (DNV, ABS)
Output terminal	EEx e II
Further information	see certificates

Technical Data

Version	9477/12-08-12 (60 V)		9477/12-06-12 (250 V)			
Ex outputs						
Maximum switching voltage	60 V AC	30 V DC	250 V AC	30 V DC	110V DC	220 V DC
Maximum switching current	2 A	2 A	2 A	2 A	0.3 A	0.12 A
Maximum switching capacity	100 VA	60 W	100 VA	60 W	33 W	26 W
Number of channels	8		6			
Contact	NO		NO			
Minimum switching voltage	5 V AC / DC		5 V AC / DC			
Minimum switching current	2 mA		2 mA			
Service life						
electrical	at max. 2 A		at max. 2 A			
	AC 1 - load	≥ 0.6 x 10 ⁶ switching cycles	AC 1 - load	≥ 0.6 x 10 ⁶ switching cycles		
	DC 1 - load (resistive load)	≥ 100 x 10 ³ switching cycles	DC 1 - load (resistive load)	≥ 100 x 10 ³ switching cycles		
mechanical	≥ 10 x 10 ⁶ switching cycles		≥ 10 x 10 ⁶ switching cycles			

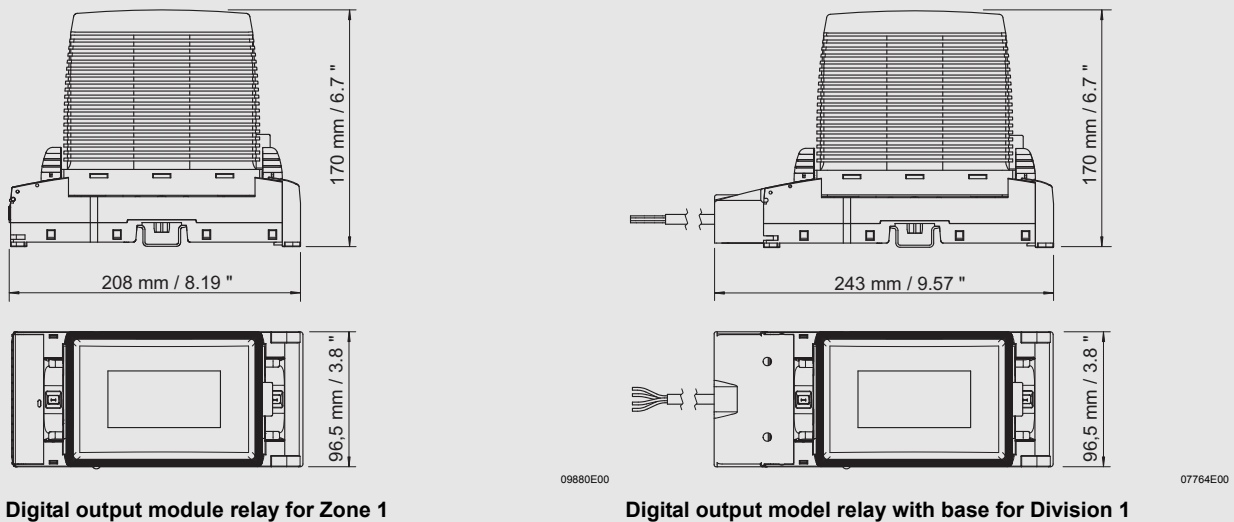


Technical Data		
Version	9477/12-08-12 (60 V)	9477/12-06-12 (250 V)
Ex outputs		
Maximum contact load without damage to gold plating	at 24 V / 1.5 W	at 24 V / 1.5 W
Safe contact operation with damaged gold plating	from 12 V / 1.5 W	from 12 V / 1.5 W
Connections	2.5 mm ² / 14 AWG flexible	2.5 mm ² / 14 AWG flexible
Galvanic isolation		
between power supply and system components	1500 V AC	1500 V AC
between two input / output modules	500 V AC	500 V AC
between outputs and system components	375 V AC	375 V AC
Outputs interconnected	60 V AC	250 V AC
Characteristic values		
Maximum signal delay from internal bus to outputs	10 ms	10 ms
MTBF acc. to MIL	76.2 years (at 40 °C / 104 °F)	76.2 years (at 40 °C / 104 °F)
Settings		
Safety position (output with communication error)	ON, OFF, hold last value	ON, OFF, hold last value
Diagnostics		
Retrievable parameters	Manufacturer, type, version, serial number	Manufacturer, type, version, serial number
Module faults	<ul style="list-style-type: none"> • Internal primary bus faults • Internal redundant bus faults • No response • Module does not correspond to configuration • Hardware fault 	<ul style="list-style-type: none"> • Internal primary bus faults • Internal redundant bus faults • No response • Module does not correspond to configuration • Hardware fault
Power supply		
Behaviour with undervoltage	Output = OFF	Output = OFF
Maximum power consumption	4.8 W	3.6 W
Maximum power dissipation	4.8 W	3.6 W
Mechanical data		
Module enclosure	Polyamide 6GF	Polyamide 6GF
Fire protection class (UL 94)	HB	HB
Degree of protection (IEC 60529)		
Modules	IP30	IP30
Connections	IP20	IP20
Electrical connection		
Ex e terminals / conduit	2.5 mm ² / 14 AWG	2.5 mm ² / 14 AWG
Operator interface		
Operation	LED green "RUN"	LED green "RUN"
Fault	LED red "ERR"	LED red "ERR"
Installation conditions		
Mounting type	on 35 mm DIN rail NS 35/15	on 35 mm DIN rail NS 35/15
Installation position	horizontal and vertical	horizontal and vertical

Technical Data

Version	9477/12-08-12 (60 V)	9477/12-06-12 (250 V)
Ambient conditions		
Ambient temperature	- 20 ... + 65 °C / - 4 ... + 149 °F	- 20 ... + 65 °C / - 4 ... + 149 °F
Storage temperature	- 40 ... + 70 °C / - 40 ... + 158 °F	- 40 ... + 70 °C / - 40 ... + 158 °F
Maximum relative humidity	95 % (no condensation)	95 % (no condensation)
Vibration, sinusoidal (IEC EN 60068-2-6)	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz	1 g in frequency range between 10 ... 500 Hz 2 g in frequency range 45 ... 100 Hz
Shock, semi-sinusoidal (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)	15 g (3 shocks per axis and direction)
Electromagnetic compatibility	Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21	Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-1...6, NAMUR NE 21
Engineering notes	<ul style="list-style-type: none"> The module is intended for IS1 field stations and may only be installed in Zone 1 or Division 1. This requires installation in a suitable enclosure. The module is mounted to the BusRail of the IS1 system by means of base 9490/11-3. or 9490/12-3. Only non-intrinsically safe circuits may be connected to the Ex e connection terminals or the pre-wired cable of 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 the value given in the table (e.g. by fuse or current limitation). 	

Dimensional Drawings (All Dimensions in mm / inches) - Subject to Alterations



Digital output module relay for Zone 1

Digital output model relay with base for Division 1

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.

