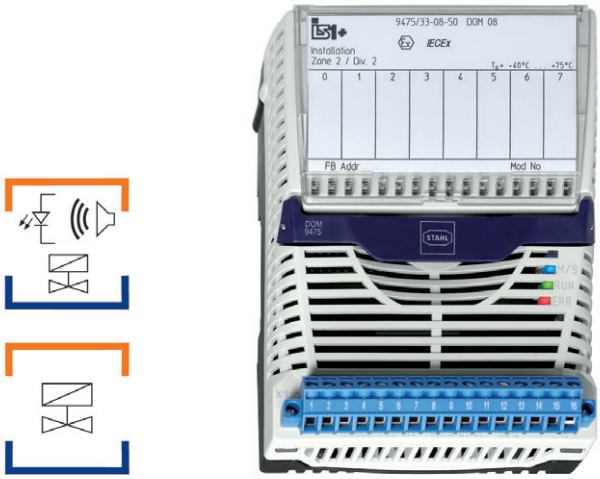
Digital Output Module 8-Channel Version for Zone 2

Series 9475/33-08-.0



15238E00

- 8-channel digital output
- Intrinsically safe outputs Ex ia
- For Ex i solenoid valves and display elements
- Line fault monitoring per channel
- Diagnostics based on NE107
- Module can be replaced in the hazardous area under power (hot swap)

The Digital Output Module is used for connecting of up to 8 intrinsically safe solenoid valves, indication or signal elements to the IS1 remote I/O system. The additional Ex i control input "Plant STOP" is used for safe switching off all outputs. All channels are individually monitored for wire breakage and short-circuit. The Ex i outputs are short-circuit proof, galvanically connected to each and galvanically separated from the system.

Compatible spare for IS1 I/O modules:
Series 9475/12-08-51, 9475/12-08-61, 9475/22-08-51, 9475/22-08-61

	ATEX / IECEx					
Zone	0	1	2	20	21	22
Ex interface	x	x	x	x	x	x
Installation in			x		x	x

	NEC 505 Class I			NEC 506		
Zone	0	1	2	20	21	22
Ex interface	x	x	x	x	x	x
Installation in			x		x	x

	NEC 500					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	x	x	x	x	x	x
Installation in		x		x		x

WebCode 9475D

Explosion Protection

Global (IECEx)								
Gas and dust	IECEx DEK 12.0070X Ex nA ia [ia Ga] IIC T4 Gc [Ex ia Da] IIIC							
Europe (ATEX)								
Gas and dust	DEKRA 12 ATEX0232X ⟨Ex⟩ II 3 (1) Ex nA ia [ia Ga] IIC T4 Gc ⟨Ex⟩ II (1) D [Ex ia Da] IIIC							
Certifications and certificates								
Certificates	ATEX, IECEx, Brazil (INMETRO), India (PESO), Canada (cFM), Kazakhstan (TR), Russia (TR), Serbia (SRPS), USA (FM), Belarus (TR)							
Ship approval	ABS, CCS, ClassNK, DNVGL, LR, RINA, RS							
Further parameters								
Installation	in Zone 2, Zone 21, Zone 22 and in the safe area							
Further information	see respective certificate and operating instructions							
Safety data								
Design	**9475/33-08-50**							
Max. voltage U_o	19.4 V							
Output ia								
Max. current I_o	143 mA							
Max. power P_o	692 mW							
Max. connectable inductance L_o/ capacity C_o								
IIC	L_o [mH]	1.44	1.4	0.65	0.5	0.2	0.1	0.05
	C_o [nF]	--	103	113	113	153	183	227
IIB / IIIC	L_o [mH]	7.5	5.0	2.0	0.5	0.2	0.1	0.02
	C_o [nF]	673	883	943	943	1083	1283	1493
Output ib								
Max. current I_o	37.8 mA							
Max. power P_o	506 mW							
Max. connectable inductance L_o/ capacity C_o								
IIC	L_o [mH]	6.3	2.0	0.65	0.5	0.2	0.1	0.05
	C_o [nF]	113	113	123	123	153	193	227
IIB / IIIC	L_o [mH]	58	20	10	5.0	0.2	0.1	0.02
	C_o [nF]	363	723	953	963	1083	1283	1493
Max. internal capacity C_i	5.2 nF (in the above tables, Ci is subtracted from Co)							
Max. internal inductance L_i	negligible							

Explosion Protection

Safety data

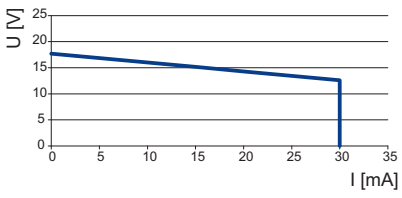
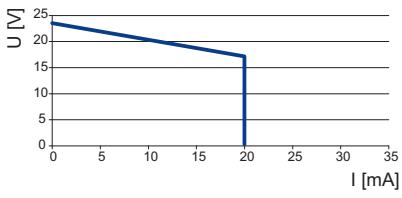
Design	**9475/33-08-60**							
Max. voltage U_o	25.7 V							
Output ia								
Max. current I_o	107 mA							
Max. power P_o	688 mW							
Max. connectable inductance L_o/ capacity C_o								
IIC	L_o [mH]	1.57	1.1	1.0	0.9	0.5	0.2	0.1
	C_o [nF]	--	49	52	54	69	95	97
IIB / IIIC	L_o [mH]	11	5.0	1.0	0.5	0.2	0.1	0.05
	C_o [nF]	335	335	395	485	635	785	785
Output ib								
Max. current I_o	26.3 mA							
Max. power P_o	468 mW							
Max. connectable inductance L_o/ capacity C_o								
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
Max. internal capacity C_i	5.2 nF (in the above tables, Ci is subtracted from Co)							
Max. internal inductance L_i	negligible							

Selection Table

Version	Open-circuit voltage	Max. output current	Internal resistance	Installation	Order number	Weight kg
Digital Output Modul	17.5 V	30 mA	170 Ω	Zone 2	**9475/33-08-50**	0.275
	23.5 V	20 mA	315 Ω	Zone 2	**9475/33-08-60**	0.275

Technical Data

Electrical data

	9475/33-08-50	**9475/33-08-60**
Design		
Ex i outputs		
Number of channels	8	8
Open-circuit voltage	17.5 V	23.5 V
Output nominal current	30 mA	20 mA
Internal resistance	170 Ω	315 Ω
Rated operation		
U	12.6 V	17.5 V
I	30 mA	20 mA
Output characteristic		

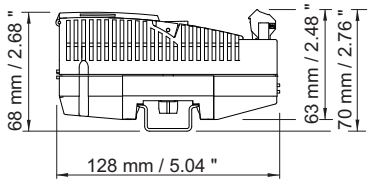
Technical Data

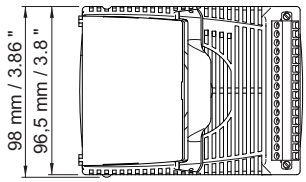
Electrical data		
Galvanic separation		
Test voltage		
acc. to standard	EN 60079-11	
Between auxiliary power / system components	≥ 1500 V AC	
Between two I/O modules	≥ 500 V AC	
Between I/O channels / system components	≥ 500 V AC	
Between I/O channels / ground (PA)	≥ 500 V AC	
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326-1 (2006) IEC 61000-4-1 … 6, NAMUR NE 21	
Electrical connection		
Power supply	BusRail Types 9494	
Ex i field signals	Pluggable, blue terminals, 16-pole, 2.5 mm^2, screw- or spring-type versions with lock	
Auxiliary power		
Version	**Intrinsically safe Ex ia via BusRail**	**Intrinsically safe Ex ia via BusRail**
Behaviour during undervoltage	all outputs "OFF"	all outputs "OFF"
Max. current consumption	250 mA	240 mA
Max. power consumption	6 W	5.8 W
Max. Verlustleistung	4,8 W	4 W
Device-specific data		
Settings		
Module		
Diagnosis messages	ON / OFF	
Signal		
Line fault monitoring	ON / ON without test current / OFF	
Test current	0.2 ... 0.28 mA	
Behaviour in case of error	ON / OFF / hold last value	
Ambient conditions		
Ambient temperature	-40 … +75 °C	
Storage temperature	-40 … +80 °C	
Maximum relative humidity	95 % (without condensation)	
Semi-sinusoidal shock (IEC EN 60068-2-27)	15 g (3 shocks per axis and direction)	
Sinusoidal vibration (IEC EN 60068-2-6)	1 g in the frequency range 10 ... 500 Hz 2 g in the frequency range 45 ... 100 Hz	
Mechanical data		
Degree of protection (IEC 60529)	IP20	
Module enclosure	polyamide 6GF	
Fire resistance (UL 94)	V2	
Pollutant class	corresponds to G3	
Dimensions	L = 128 mm, W = 96.5 mm, H = 67 mm	

Technical Data

Indication	
LED indication	
Module requires maintenance	LED "M/S", blue
Operating state	LED "RUN", green
Group error	LED "ERR", red
Function indication	
Retrievable parameters	Manufacturer, Type, hardware revision, software revision, serial number
Error indication	
Module status and alarms	• Internal bus error primer / redundant • No response from IOM • Configuration does not correspond to module • Hardware error • Excess temperature • Slot error • Module requires maintenance
Signal errors for each channel	
Signal status bit	"0" = output high-impedance / "1" = output is supplied
Wire breakage output	> 12kΩ (with deactivated test current can be detected only if the output is switched on)
Short circuit output	< 30 Ω (response range 30 ... 60 Ω) (can be detected only if the output is switched on)
Mounting / Installation	
Mounting orientation	horizontal or vertical (observe operating instructions)
Mounting type	on 35 mm DIN rail LV 35/15 (DIN EN 60715)

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





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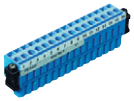
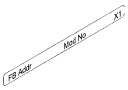
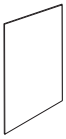
Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Pluggable terminal	 02079E00	2.5 mm² with lock, 16-pole, screw connector, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Labelling: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	**162702**
	 02077E00	2.5 mm² with lock, 16-pole, spring clamp connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits, incl. test jacks Labelling: 1 ... 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 ... 32	**162695**

Accessories and Spare Parts

Designation	Figure	Description	Art. no.
Electronic relay Model 9174/10-14-00	 04036E00	The electronic relay module 9174 is used to switch Ex e loads by using intrinsically safe control signals. input: Ex i output: 48 V / 2 A DC, Ex e	**212340**
Electronic relay Model 9174/10-15-00	 04036E00	The electronic relay module 9174 is used to switch Ex e loads by using intrinsically safe control signals. input: Ex i output: 250 V / 1 A DC, Ex e	**212431**
LED indicating lamp Model 8010	 11403E00	LED indicator lamp for intrinsically safe circuits 8010/3-02, Ex i	**237972**
Labelling strips	 05869E00	"FB Addr ... Mod No ..." for pluggable terminal, sheet with 26 strips	**162788**
DIN A4 sheet	 09900E00	For label plate on I/O modules; 6 labels on each sheet; print-out using IS Wizard; packaging unit = 20 sheets	**162832**
Partition	 15196E00	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**
Warning sign	 05872E00	"Clean modules only with a damp cloth."	**162796**
Resistor error message suppression	 17310E00	The resistors are used to suppress error messages for unused I/O channels Resistance value: 5K6 / 0.5 W Suitable for: AIM 9468; DIOM 9470; DIOM 9471; DIOM 9472; DOM 9475 single electrical equipment for intrinsically safe circuits according to EN 60079-11	**244911**