

Α4

5



x x

x*) x*)

Installation in

хх

WebCode 9470A

x x

*) Restrictions see table explosion protection

x*) x*)

Installation in

Installation in

x^{*)} x^{*)} x^{*)} x^{*)}



Selection Table					
Version	Description		Order number	Weight kg / lbs	
Digital Input Module NAMUR	16 channels for contacts and NAMUR proximity switches (EN 60947-5-6)		9470/22-16-11	0.316 / 0.697	
Note	Please order 2 terminals separately - see Accessories				
Explosion Protection					
Global (IECEx)					
Gas	PTB 06.0001X Ex ib [ia] IIC/IIB T4				
Europe (ATEX)					
Gas and dust	PTB 99 ATEX 2184				
Certificates	-				
Certificates	IECEx, ATEX, Brazil (Inmetro), Canada (CSA), Kazakhstan (GOST K), Russia (GOST R), Serbia (SRPS), USA (FM), Belarus (operating authorisation)				
Ship approval Safety data	ABS, BV, ClassNK, DNV, GL, LF	\			
Maximum values	max. voltage U _o / V _{oc} max. current I _o / I _{sc}	per channel 11.6 V 22 mA	4 channels conne 11.6 V 55 mA	cted in parallel	
	max. power P _o	51 mW	127 mW		
Cable parameters (ATEX) (for inductive or capacitive circuits)	max. capacitance C_0 / C_a for IIC max. inductance L_0 / L_a for IIC	per channel 600 nF 1 mH	4 channels conne 560 nF 1 mH	cted in parallel	
Further information	see respective certifcate and op	erating instructions	3		
Further parameters Installation in Further information	Zones 1 & 2, Div. 1 & 2, Zones 2 see respective certifcate and op	1 & 22			
Technical Data					
Electrical data Ex i / I.S. digital inputs Number of channels Signal Minimum current for ON Maximum current for OFF Switching threshold Supply voltage Internal resistance Minimum pulse width of the input signal	Channels 0-15 as digital inputs	without OC/SC detection approx. 1 ms approx. 2 ms	with OC/SC detection approx. 2 ms approx. 4 ms		



Technical Data						
Electrical data						
Ex i / I.S. digital inputs						
Maximum signal delay					without OC/SC detection	with OC/SC detection
	from digital inputs t internal bus			ls 0-15 as digital inputs ls 14 or 15 as	approx. 1 ms approx. 2 ms	approx. 2 ms approx. 4 ms
		fre	equen	cy input or counter		
	from frequency inp internal bus	(m	neasu	ing range 1 Hz 1 kHz rement frequency 35 Hz)	2 ms + 1/f	4 ms + 1/f
		(m f = me	neasu = 35 H	ing range 1 Hz 1 kHz rement frequency Iz 1 kHz) ing range 1 Hz 20 kHz	34 ms + 1/f	36 ms + 1/f
		50 20) ms)0 ms		approx. 50 ms approx. 200 ms	approx. 50 ms approx. 200 ms
		1 :	S		approx. 1 s	approx. 1 s
	from counter inputs internal bus	s to			approx. 2 ms	approx. 4 ms
Galvanic separation between power supply and system	1500 V AC					
components between two input / output modules	500 V AC					
between inputs and system components	500 V AC					
	The inputs of an I/0	O module ha	ave a	common negative conduct	tor.	
Channels 14 and 15 as frequency input or counter	The inputs of an I/O module have a common negative conductor. 20 kHz (the line length must be reduced for frequencies > 1 kHz, e.g. at 5 kHz to approx. 75 m / 246 ft)					
Maximum switching frequency						
Minimum pulse width	25 µs					
Frequency input		Measuring range 1 Hz 1 kHz 1 Hz 20 kHz				
	Resolution Accuracy adjustable paramet	0.05 Hz 0.02 % ters for each		1 Hz 0.02 % ınel		
Counter input						
Control signal for counter	Start, Stop, Reset					
Counter range	065535					
Settings Open-circuit and short-	ON, OFF (for each channel)					
circuit monitoring Value to fieldbus during open circuit, short circuit	ON, OFF, hold last value (all channels)					
Invert input value Adjustable pulse width	ON, OFF (all channels) 0 s, 0.6 s, 1.2 s, 2.4 s (for channel groups)					
Gate time for frequency measuring range 1 Hz 20 kHz	50 ms, 200 ms, 1 s					
Active edge for counter (channels 14 and 15)	positive (voltage ↑) negative (voltage ↓)					



Technical Data				
Electrical data				
Diagnostics				
Retrievable	Manufacturer, type, version, serial number			
parameters				
Characteristic values				
for open circuit and				
short-circuit detection				
Open-circuit	< 0.05 mA			
detection				
Short-circuit	< 100 Ω			
detection				
dotobalon	Note: If open-circuit / short-circuit detection is required, then contacts require resistors with			
	$1.2 \text{ k}\Omega$ wiring in series and $15 \text{ k}\Omega$ in parallel.			
Module faults	Internal primary bus faults			
Module Iddito	Internal redundant bus faults			
	No response			
	Module does not correspond to configuration			
	Hardware fault			
Operator interface				
Operation	LED green "RUN"			
Fault	LED red "ERR"			
Auxiliary power				
Maximum power	5 W			
consumption				
Maximum power	5 W			
dissipation				
Electrical connection				
Ex i field signals	Plug-in terminals 16-pole with catch, 2.5 mm ² / up to 14 AWG, screw or spring type			
Connection diagram	X2 000000000000000000000000000000000000			
	T 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32			
	X1 00000000000000			
	1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16			
	NAMUR Signal < 1.2 / > 2.1 mA			
	0 15			
	\blacksquare			
	05687E00			
Ambient conditions				
Ambient temperature				
, anoione tomperature	-20 +65 °C / -4 +149 °F			
Storage temperature	-20 +65 °C / -4 +149 °F -40 +70 °C / -40 +158 °F			
•				
Storage temperature	-40 +70 °C / -40 +158 °F			
Storage temperature Maximum relative humidity	-40 +70 °C / -40 +158 °F 95 % (no condensation)			
Storage temperature Maximum relative	-40 +70 °C / -40 +158 °F			
Storage temperature Maximum relative humidity Sinusoidal vibration	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6)	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27)	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction)			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock	 -40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: 			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction)			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94)	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529)	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529) Modules	 -40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2 IP30 			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529) Modules Connections	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529) Modules Connections Mounting / installation	 -40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2 IP30 			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529) Modules Connections Mounting / installation Installation conditions	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2 IP30 IP20			
Storage temperature Maximum relative humidity Sinusoidal vibration (IEC EN 60068-2-6) Semi-sinusoidal shock (IEC EN 60068-2-27) Electromagnetic compatibility Mechanical data Module enclosure Fire resistance (UL 94) Degree of protection (IEC 60529) Modules Connections Mounting / installation	-40 +70 °C / -40 +158 °F 95 % (no condensation) 1 g in frequency range between 10 500 Hz 2 g in frequency range 45 100 Hz 15 g (3 shocks per axis and direction) Tested according to the following standards and regulations: EN 61326-1 (1998) IEC 1000-4-16, NAMUR NE 21 Polyamide 6GF V2 IP30			



Technical Data Engineering notes	Mixing of Zone 1 / Division 1 modules (9470/.2) and Zone 2 / Division 2 modules (9470/.5)
	on same BusRail is allowed.
	 For separation between intrinsically safe and non-intrinsically safe circuits (≥ 50 mm / 2 in), a partition (162740) is required.
Accessories and Spare Part	\$

Designation	Figure	Description	Art. no.
Plug-in terminal	02079E00	2.5 mm ² / 14 AWG with catch, 16-pole, screw connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Designation: 1 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 32	162702
		2.5 mm ² / 14 AWG with catch, 16-pole, screw connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits Labelling: 17 32	162718
	02077E00	2.5 mm ² / 14 AWG with catch, 16-pole, spring connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits including test jacks Designation: 1 16 Attention: An additional terminal is necessary for I/O module Series 9470 and 9480. Designation: 17 32	162695
		2.5 mm ² / 14 AWG with catch, 16-pole, spring connection, blue, for connecting the field signals to I/O modules, for intrinsically safe field circuits including test jacks Labelling: 17 32	162716
Labelling strips	19,000 (19,000 05869E00	"FB Addr Mod No" for pluggable terminal, sheet with 26 strips	162788
Warning sign	A and a state of the state of t	"Clean modules only with a damp cloth."	162796
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	02078E00	For assembly between intrinsically safe and non-intrinsically safe connectors of the I/O modules, in order to adhere to the required 50 mm / 2 in distance	162740



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



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.