



- For the intrinsically safe operation of a wide range of devices, such as HART transmitters, solenoid valves, sensors, zero-potential contacts and many more
- Compact, space-saving devices that are easy to install on a DIN rail
- Quick and efficient installation as barriers can be simultaneously snapped onto DIN rail and connected to ground (ISA - RPI12.06)

08 b

WebCode 9002A



The 9002 series INTRINSPAK two-channel zener barriers enable the intrinsically safe operation of virtually all field devices. The comprehensive portfolio and the combination of zener barriers cover a wide variety of signals. The devices are incredibly robust and require very little space. The back-up fuse is a convenient feature as it is standardized for all variants.

	NEC® 500 CEC Appendix J					
	Class I		Class II		Class III	
Division	1	2	1	2	1	2
Ex interface	•	•	•	•	•	•
Installation in		•				

	CEC Section 18					
	NEC® 505 Class I			NEC® 506		
Zone	0	1	2	20	21	22
Ex interface	•	•	•			
Installation in			•			

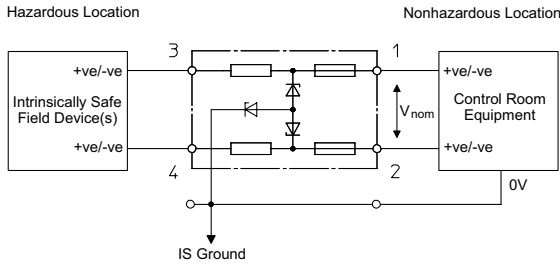
	IECEx / ATEX					
	Zone	0	1	2	20	21
Ex interface	•	•	•	•	•	•
Installation in			•			

Technical Data	
Variant	Dual-channel safety barrier Series 9002
Explosion Protection	
USA certificate FM	3010778
Certificate ULus	E81680V1S3
Certificate cCSA	1284580
Marking FMus	Nonincendive for Class I, Div.2, Groups A,B,C,D, T4 Class I, Zone 2, Groups IIC T4 Intrinsically safe connections for Class I,II,III, Div. 1, Groups A,B,C,D,E,F,G and Class I, Zone 0 Groups IIC/IIB, Hazardous Location When installed per doc. 90 026 11 31 1
Marking ULus	For use in Hazardous location Class I, Div. 2, Groups A,B,C,D, T4 Providing IS circuits for Class I, Groups A,B,C,D Class II, Groups E,F,G Class III per doc. 90 026 11 31 3
Marking cCSA	Associated equipment [Ex ia] Class I, Div. 2, Groups A,B,C,D Provides intrinsically safe circuits for Class I,II,III; or Class I, Zone 0 Groups IIC/IIB For applicable groups per installation doc. 90 026 11 31 2
IECEx gas explosion protection	Ex nA [ia Ga] IIC/IIB T4 Gc
IECEx dust explosion protection	[Ex ia Da] IIIC
Certificates	ATEX (PTB), Brazil (ULB), Canada (CSA), China (CQST), EAC (STV), IECEx (PTB), India (PESO), Korea (KGS), USA (FM), USA (UL)

Technical Data	
Variants	Dual-channel safety barrier Series 9002
Explosion Protection	
Installation	in Zone 2, Division 2 and in safe area
Further information	see respective certificate and operating instructions
Notes	<p>9002/00-280-186-001 and 9002/11-280-186-001</p> <p>Gas explosion protection USA FM: Class I, Div. 2, Groups C and D; Class I, Zone 2, IIC, T4</p> <p>Gas explosion protection USA UL: Class I, Div. 2, Groups C,D, T4</p> <p>Intrinsically safe connection USA FM: Associated equipment [Ex ia] Class I, Div. 2, Groups A,B,C,D Provides intrinsically safe circuits for Class I,II,III; or Class I, Zone 0 Groups IIB For applicable groups per installation doc. 90 026 11 31 2</p> <p>Intrinsically safe connection USA UL: For use in Hazardous location Class I, Div. 2, Groups A,B,C,D, T4 Providing IS circuits for Class I, Groups A,B,C,D Class II, Groups E,F,G Class III per doc. 90 026 11 31 3</p> <p>Gas Explosion Protection Canada CSA: Class I, Div. 2, Groups C and D; Class I, Zone 2, IIC, T4</p> <p>Intrinsically safe connection Canada CSA: Associated equipment [Ex ia] Class I, Div. 2, Groups A,B,C,D Provides intrinsically safe circuits for Class I,II,III; or Class I, Zone 0 Groups IIB For applicable groups per installation doc. 90 026 11 31 2</p>
Electrical Data	
Resistive current limitation using frequency ≥ 50 mA	≤ 100 kHz
Resistive current limitation using frequency ≤ 50 mA	≤ 50 kHz
Leakage current I_{leak} for U_N	≤ 2 μ A
Leakage current I_{leak} for U_{N2}	(Unless specified otherwise)
Notes	<p>9002/11-130-360-001 Leakage current I_{leak} for U_N ≤ 10 μA</p> <p>9002/13-252-121-041 Leakage current I_{leak} for U_N 35 V ≤ 10 mA</p>
Ambient Conditions	
Ambient temperature °F	-4°F ... +140°F
Ambient temperature °C	-20 °C ... +60 °C
Storage temperature °F	-4°F ... +167°F
Storage temperature °C	-20 °C ... +75 °C
Max. relative humidity	95% on average, no condensation
Temperature influence	$\leq 0,25$ %/10K
Notes	<p>9002/77-220-146-001 Ambient temperature -4°F ... +140°F / -20 °C ... +50 °C</p>
Mechanical Data	
Degree of protection (IP)	IP40
Terminal degree of protection (IP)	IP20
Enclosure material	Polyamide 6GF
Number of connection terminals	4

Technical Data	
Variant	Dual-channel safety barrier Series 9002
Mechanical Data	
Type of connection cable	Solid Finely stranded
Conductor cross-section AWG max.	16 AWG
Connection cross section max.	1.5 mm ²
Weight	0.24 lb
Weight	0.11 kg
Mounting / Installation	
Connection type	2 PA
Cross-section ground AWG	12 AWG
Connection cross-section ground	4 mm ²
Min. torque lb / in	4.43 lb / in
Min. torque Nm	0.5 Nm
Max. torque lb / in	5.31 lb / in
Max. torque Nm	0.6 Nm

Star Barriers / Star Barriers



- Allows the connection of a voltage, V_{nom} , between the two channels as listed in the table below
- Suitable for voltage signals
- Various safety and operational characteristics as listed in the table below
- Approved for installation in hazardous areas (refer to certificate).

- When two Channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity Parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.
- High cable capacitance or inductance figures are available due to the two channels in a star connected barrier being interlocked.
- The polarity of the voltage must be equal on each channel, i.e. both +DC, both -DC or both AC.
- Mixing polarity is not allowed.

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0

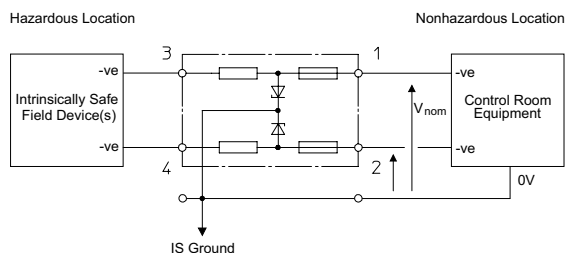
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_p/L_n for A, B, E or IIC	C_p/C_n for A, B, E or IIC	L_p/L_n for C, D, F, G or IIB, IIA		C_p/C_n for C, D, F, G or IIB, IIA
9002/77-093-040-001	1		492 Ω	546 Ω	9.3 V	20 mA	0.05 mW	90 mH	4.1 μ F	330 mH	31 μ F	158905 ▲
	2		492 Ω	546 Ω	9.3 V	20 mA	0.05 mW	90 mH	4.1 μ F	330 mH	31 μ F	
	1+2	6 V			9.3 V	40 mA	0.09 mW	23 mH	4.1 μ F	87 mH	31 μ F	
9002/77-093-300-001	1		71.7 Ω	81.5 Ω	9.3 V	150 mA	0.35 mW	1.3 mH	4.1 μ F	7 mH	31 μ F	158897 ▲
	2		71.7 Ω	81.5 Ω	9.3 V	150 mA	0.35 mW	1.3 mH	4.1 μ F	7 mH	31 μ F	
	1+2	6 V			9.3 V	300 mA	0.7 mW	0.2 mH	4.1 μ F	1.8 mH	31 μ F	
9002/77-100-400-001	1		60.3 Ω	68.9 Ω	10 V	200 mA	0.5 mW	0.5 mH	3 μ F	4 mH	20.2 μ F	158893 ▲
	2		60.3 Ω	68.9 Ω	10 V	200 mA	0.5 mW	0.5 mH	3 μ F	4 mH	20.2 μ F	
	1+2	6 V			10 V	400 mA	1 mW	0.15 mH	3 μ F	0.8 mH	20.2 μ F	
9002/77-150-300-001	1		112 Ω	126 Ω	15 V	150 mA	0.56 mW	1.3 mH	0.58 μ F	7 mH	3.55 μ F	158889 ▲
	2		112 Ω	126 Ω	15 V	150 mA	0.56 mW	1.3 mH	0.58 μ F	7 mH	3.55 μ F	
	1+2	12 V			15 V	300 mA	1.13 mW	0.2 mH	0.58 μ F	1.8 mH	3.55 μ F	
9002/77-220-146-001	1		322 Ω	359 Ω	22 V	73 mA	0.4 mW	7 mH	0.165 μ F	26 mH	1.14 μ F	158885 ▲
	2		322 Ω	359 Ω	22 V	73 mA	0.4 mW	7 mH	0.165 μ F	26 mH	1.14 μ F	
	1+2	18 V			22 V	146 mA	0.8 mW	1.4 mH	0.165 μ F	7.4 mH	1.14 μ F	
9002/77-280-094-001	1		657 Ω	731 Ω	28 V	47 mA	0.33 mW	10.1 mH	0.083 μ F	30 mH	0.65 μ F	158877
	2		657 Ω	731 Ω	28 V	47 mA	0.33 mW	10.1 mH	0.083 μ F	30 mH	0.65 μ F	
	1+2	24 V			28 V	94 mA	0.66 mW	1.96 mH	0.083 μ F	12.5 mH	0.65 μ F	

CSA Information – Ex Interface to Class I, II, III, Division 1												
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	U ₀ /V _{oc}	I ₀ /I _{sc}	P ₀	L ₁ /L ₂ for A, B, E	C ₁ /C ₂ for A, B, E	L ₁ /L ₂ for C, D, F, G		C ₁ /C ₂ for C, D, F, G
9002/77-093-040-001	1		492 Ω	546 Ω	9.3 V	20 mA	0.05 mW	90 mH	4.1 μF	330 mH	31 μF	158905 ▲
	2		492 Ω	546 Ω	9.3 V	20 mA	0.05 mW	90 mH	4.1 μF	330 mH	31 μF	
	1+2	6 V			9.3 V	40 mA	0.09 mW	23 mH	4.1 μF	87 mH	31 μF	
9002/77-093-300-001	1		71.7 Ω	81.5 Ω	9.3 V	150 mA	0.35 mW	1.3 mH	4.1 μF	7 mH	31 μF	158897 ▲
	2		71.7 Ω	81.5 Ω	9.3 V	150 mA	0.35 mW	1.3 mH	4.1 μF	7 mH	31 μF	
	1+2	6 V			9.3 V	300 mA	0.7 mW	0.2 mH	4.1 μF	1.8 mH	31 μF	
9002/77-100-400-001	1		60.3 Ω	68.9 Ω	10 V	200 mA	0.5 mW	0.59 mH	3.3 μF	4.6 mH	9.9 μF	158893 ▲
	2		60.3 Ω	68.9 Ω	10 V	200 mA	0.5 mW	0.59 mH	3.3 μF	4.6 mH	9.9 μF	
	1+2	6 V			10 V	400 mA	1 mW	0.16 mH	3.3 μF	0.9 mH	9.9 μF	
9002/77-150-300-001	1		112 Ω	126 Ω	15 V	150 mA	0.56 mW	1.6 mH	0.58 μF	8.1 mH	2.5 μF	158889 ▲
	2		112 Ω	126 Ω	15 V	150 mA	0.56 mW	1.6 mH	0.58 μF	8.1 mH	2.5 μF	
	1+2	12 V			15 V	300 mA	1.13 mW	0.21 mH	0.58 μF	2 mH	2.5 μF	
9002/77-220-146-001	1		322 Ω	359 Ω	22 V	73 mA	0.4 mW	7.4 mH	0.25 μF	28.5 mH	0.76 μF	158885 ▲
	2		322 Ω	359 Ω	22 V	73 mA	0.4 mW	7.4 mH	0.25 μF	28.5 mH	0.76 μF	
	1+2	18 V			22 V	146 mA	0.8 mW	1.6 mH	0.25 μF	8.1 mH	0.76 μF	
9002/77-280-094-001	1		657 Ω	731 Ω	28 V	47 mA	0.33 mW	18.5 mH	0.14 μF	67 mH	0.41 μF	158877
	2		657 Ω	731 Ω	28 V	47 mA	0.33 mW	18.5 mH	0.14 μF	67 mH	0.41 μF	
	1+2	24 V			28 V	94 mA	0.66 mW	4.8 mH	0.14 μF	19 mH	0.4 μF	

CSA Information – Ex Interface to Class I, Zone 0												
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	U ₀ /V _{oc}	I ₀ /I _{sc}	P ₀	L ₁ /L ₂ for IIC	C ₁ /C ₂ for IIC	L ₁ /L ₂ for IIA, IIB		C ₁ /C ₂ for IIA, IIB
9002/77-093-040-001	1		475 Ω	546 Ω	9.3 V	20 mA	0.05 W	90 mH	4.1 μF	330 mH	31 μF	158905 ▲
	2		475 Ω	546 Ω	9.3 V	20 mA	0.05 W	90 mH	4.1 μF	330 mH	31 μF	
	1+2	6 V	-	-	9.3 V	40 mA	0.09 W	23 mH	4.1 μF	87 mH	31 μF	
9002/77-093-300-001	1		68 Ω	81.5 Ω	9.3 V	150 mA	0.35 W	1.3 mH	4.1 μF	7 mH	31 μF	158897 ▲
	2		68 Ω	81.5 Ω	9.3 V	150 mA	0.35 W	1.3 mH	4.1 μF	7 mH	31 μF	
	1+2	6 V	-	-	9.3 V	300 mA	0.7 W	0.2 mH	4.1 μF	1.8 mH	31 μF	
9002/77-100-400-001	1		56 Ω	68.9 Ω	10 V	200 mA	0.5 W	0.5 mH	3 μF	4 mH	20.2 μF	158893 ▲
	2		56 Ω	68.9 Ω	10 V	200 mA	0.5 W	0.5 mH	3 μF	4 mH	20.2 μF	
	1+2	6 V	-	-	10 V	400 mA	1 W	0.15 mH	3 μF	0.8 mH	20.2 μF	
9002/77-150-300-001	1		110 Ω	126 Ω	15 V	150 mA	0.56 W	1.3 mH	0.58 μF	7 mH	3.55 μF	158889 ▲
	2		110 Ω	126 Ω	15 V	150 mA	0.56 W	1.3 mH	0.58 μF	7 mH	3.55 μF	
	1+2	12 V	-	-	15 V	300 mA	1.13 W	0.2 mH	0.58 μF	1.8 mH	3.55 μF	
9002/77-220-146-001	1		330 Ω	359 Ω	22 V	73 mA	0.4 W	7 mH	0.165 μF	26 mH	1.14 μF	158885 ▲
	2		330 Ω	359 Ω	22 V	73 mA	0.4 W	7 mH	0.165 μF	26 mH	1.14 μF	
	1+2	18 V	-	-	22 V	146 mA	0.8 W	1.4 mH	0.165 μF	7.4 mH	1.14 μF	
9002/77-280-094-001	1		680 Ω	731 Ω	28 V	47 mA	0.33 W	10.1 mH	0.083 μF	30 mH	0.65 μF	158877
	2		680 Ω	731 Ω	28 V	47 mA	0.33 W	10.1 mH	0.083 μF	30 mH	0.65 μF	
	1+2	24 V	-	-	28 V	94 mA	0.66 W	1.96 mH	0.083 μF	12.5 mH	0.65 μF	

ATEX Information – Ex Interface to Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_j/L_g for IIC	C_j/C_g for IIC	L_j/L_g for IIB	C_j/C_g for IIB		
9002/77-093-040-001	1		492 Ω	546 Ω	9.3 V	20 mA	50 mW	90 mH	4.1 μF	330 mH	31 μF	158905 ▲	
	2		492 Ω	546 Ω	9.3 V	20 mA	50 mW	90 mH	4.1 μF	330 mH	31 μF		
	1 + 2	6 V			9.3 V	40 mA	90 mW	23 mH	4.1 μF	87 mH	31 μF		
9002/77-093-300-001	1		71.7 Ω	81.5 Ω	9.3 V	150 mA	350 mW	1.3 mH	4.1 μF	7 mH	31 μF	158897 ▲	
	2		71.7 Ω	81.5 Ω	9.3 V	150 mA	350 mW	1.3 mH	4.1 μF	7 mH	31 μF		
	1 + 2	6 V			9.3 V	300 mA	700 mW	0.2 mH	4.1 μF	1.8 mH	31 μF		
9002/77-100-400-001	1		60.3 Ω	68.9 Ω	10 V	200 mA	500 mW	0.5 mH	3 μF	4 mH	20.2 μF	158893 ▲	
	2		60.3 Ω	68.9 Ω	10 V	200 mA	500 mW	0.5 mH	3 μF	4 mH	20.2 μF		
	1 + 2	6 V			10 V	400 mA	1000 mW	0.15 mH	3 μF	0.8 mH	20.2 μF		
9002/77-150-300-001	1		112 Ω	126 Ω	15 V	150 mA	560 mW	1.3 mH	0.58 μF	7 mH	3.55 μF	158889 ▲	
	2		112 Ω	126 Ω	15 V	150 mA	560 mW	1.3 mH	0.58 μF	7 mH	3.55 μF		
	1 + 2	12 V			15 V	300 mA	1130 mW	0.2 mH	0.58 μF	1.8 mH	3.55 μF		
9002/77-220-146-001	1		322 Ω	359 Ω	22 V	73 mA	400 mW	7 mH	0.165 μF	26 mH	1.14 μF	158885 ▲	
	2		322 Ω	359 Ω	22 V	73 mA	400 mW	7 mH	0.165 μF	26 mH	1.14 μF		
	1 + 2	18 V			22 V	296 mA	800 mW	1.4 mH	0.165 μF	7.4 mH	1.14 μF		
9002/77-280-094-001	1		657 Ω	731 Ω	28 V	94 mA	330 mW	10.1 mH	0.083 μF	30 mH	0.65 μF	158877	
	2		657 Ω	731 Ω	28 V	47 mA	330 mW	10.1 mH	0.083 μF	30 mH	0.65 μF		
	1 + 2	24 V			28 V	94 mA	660 mW	1.96 mH	0.083 μF	12.5 mH	0.65 μF		

Potential: Negative / Negative



- Allows the connection of regulated power supplies, V_{nom} , as listed in the table below.
- Various safety and operational characteristics as listed in the table below
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_j/L_g for A, B, E or IIC	C_j/C_g for A, B, E or IIC	L_j/L_g for C, D, F, G or IIB, IIA		C_j/C_g for C, D, F, G or IIB, IIA
9002/00-260-138-001	1	22.5 V	321 Ω	359 Ω	62 mA	26 V	83 mA	0.54 mW	2.7 mH	0.099 μF	15.5 mH	0.77 μF	158867
	2	17.5 V	417 Ω	464 Ω	37 mA	20 V	49 mA	0.245 mW	14 mH	0.22 μF	54 mH	1.41 μF	
	1 + 2					27.4 V	132 mA	0.785 mW	0.81 mH	0.087 μF	5.1 mH	0.67 μF	
9002/00-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	2 mH	0.083 μF	13 mH	0.65 μF	158845
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	2 mH	0.083 μF	13 mH	0.65 μF	
	1 + 2					30.1 V	186 mA	1.3 mW	-	-	2.8 mH	0.551 μF	

CSA Information – Ex Interface to Class I, II, III, Division 1

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for A, B, E	C_0/C_c for A, B, E	L_0/L_c for C, D, F, G		C_0/C_c for C, D, F, G
9002/00-260-138-001	1	22.5 V	321 Ω	359 Ω	62 mA	26 V	83 mA	0.54 mW	5.3 mH	0.17 μF	21 mH	0.5 μF	158867
	2	17.5 V	417 Ω	464 Ω	37 mA	20 V	49 mA	0.245 mW	14.7 mH	0.31 μF	54 mH	0.96 μF	
	1 + 2					27.4 V	132 mA	0.785 mW	8.9 mH	0.43 μF	1.9 mH	0.43 μF	
9002/00-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	4.5 mH	0.14 μF	18.1 mH	0.43 μF	158845
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	4.5 mH	0.14 μF	18.1 mH	0.43 μF	
	1 + 2					30.1 V	186 mA	1.3 mW	-	-	5 mH	0.34 μF	

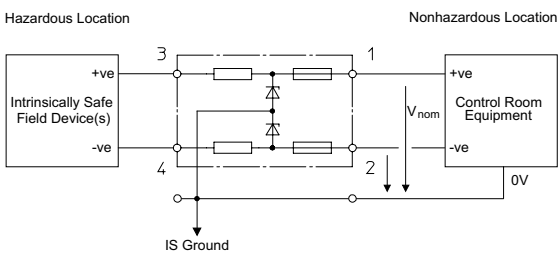
CSA Information – Ex Interface to Class I, Zone 0

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for IIC	C_0/C_c for IIC	L_0/L_c for IIA, IIB		C_0/C_c for IIA, IIB
9002/00-260-138-001	1	22.5 V	330 Ω	359 Ω	62 mA	26 V	83 mA	0.54 W	2.7 mH	0.099 μF	15.5 mH	0.77 μF	158867
	2	17.5 V	430 Ω	464 Ω	37 mA	20 V	49 mA	0.245 W	14 mH	0.22 μF	54 mH	1.41 μF	
	1 + 2		-			27.4 V	132 mA	0.785 W	0.81 mH	0.087 μF	5.1 mH	0.67 μF	
9002/00-280-186-001	1	25 V	330 Ω	359 Ω	69 mA	28 V	93 mA	0.65 W	2 mH	0.083 μF	13 mH	0.65 μF	158845
	2	25 V	330 Ω	359 Ω	69 mA	28 V	93 mA	0.65 W	2 mH	0.083 μF	13 mH	0.65 μF	
	1 + 2		-			30.1 V	186 mA	1.3 W	-	-	2.8 mH	0.551 μF	

ATEX Information – Ex Interface to Zone 0

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for IIC	C_0/C_c for IIC	L_0/L_c for IIB		C_0/C_c for IIB
9002/00-260-138-001	1	22.5 V	321 Ω	359 Ω	62 mA	26 V	87 mA	540 mW	2.7 mH	0.099 μF	15.4 mH	0.77 μF	158867
	2	17.5 V	417 Ω	464 Ω	37 mA	20 V	51 mA	245 mW	14 mH	0.22 μF	54 mH	1.41 μF	
	1 + 2					26 V	138 mA	785 mW	0.81 mH	0.087 μF	5.1 mH	0.67 μF	
9002/00-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	650 mW	2 mH	0.083 μF	13 mH	0.65 μF	158845
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	650 mW	2 mH	0.083 μF	13 mH	0.65 μF	
	1 + 2					28 V	186 mA	1300 mW	-	-	2.8 mH	0.551 μF	

Potential: Positive / Negative



- Application specific for use with strain gauge load cells
- One positive polarity channel and one negative polarity channel in one unit
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for A, B, E or IIC	C_0/C_c for A, B, E or IIC	L_0/L_c for C, D, F, G or IIB, IIA		C_0/C_c for C, D, F, G or IIB, IIA
9002/10-187-020-001	1	6 V	490 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 mW	90 mH	3.9 μF	330 mH	29 μF	158937 ▲
	2	6 V	490 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 mW	90 mH	3.9 μF	330 mH	29 μF	
	1 + 2					18.7 V	20 mA	0.09 mW	90 mH	0.27 μF	330 mH	1.64 μF	
9002/10-187-270-001	1	6 V	43 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 mW	0.23 mH	3.9 μF	2.2 mH	29 μF	158933 ▲
	2	6 V	43 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 mW	0.23 mH	3.9 μF	2.2 mH	29 μF	
	1 + 2					18.7 V	270 mA	1.26 mW	0.23 mH	0.27 μF	2.2 mH	1.64 μF	

CSA Information – Ex Interface to Class I, II, III, Division 1

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	I _{max}	U ₀ /V _{oc}	I ₀ /I _{sc}	P ₀	L ₀ /L _s for A, B, E	C ₀ /C _s for A, B, E	L ₀ /L _s for C, D, F, G		C ₀ /C _s for C, D, F, G
9002/10-187-020-001	1	6 V	490 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 mW	83.4 mH	4.3 μF	301 mH	12.9 μF	158937 ▲
	2	6 V	490 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 mW	83.4 mH	4.3 μF	301 mH	12.9 μF	
	1 + 2					18.7 V	20 mA	0.09 mW	68.3 mH	0.39 μF	248 mH	1.17 μF	
9002/10-187-270-001	1	6 V	43 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 mW	0.27 mH	4.3 μF	2.4 mH	12.9 μF	158933 ▲
	2	6 V	43 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 mW	0.27 mH	4.3 μF	2.4 mH	12.9 μF	
	1 + 2					18.7 V	270 mA	1.26 mW	0.21 mH	0.39 μF	2 mH	1.17 μF	

CSA Information – Ex Interface to Class I, Zone 0

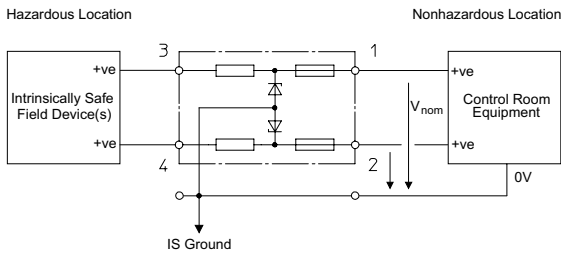
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	I _{max}	U ₀ /V _{oc}	I ₀ /I _{sc}	P ₀	L ₀ /L _s for IIC	C ₀ /C _s for IIC	L ₀ /L _s for IIA, IIB		C ₀ /C _s for IIA, IIB
9002/10-187-020-001	1	6 V	475 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 W	90 mH	3.9 μF	330 mH	29 μF	158937 ▲
	2	6 V	475 Ω	543 Ω	11 mA	9.33 V	20 mA	0.05 W	90 mH	3.9 μF	330 mH	29 μF	
	1 + 2		-	-	-	18.7 V	20 mA	0.09 W	90 mH	0.27 μF	330 mH	1.64 μF	
9002/10-187-270-001	1	6 V	39 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 W	0.23 mH	3.9 μF	2.2 mH	29 μF	158933 ▲
	2	6 V	39 Ω	49 Ω	122 mA	9.33 V	270 mA	0.63 W	0.23 mH	3.9 μF	2.2 mH	29 μF	
	1 + 2		-	-	-	18.7 V	270 mA	1.26 W	0.23 mH	0.27 μF	2.2 mH	1.64 μF	

ATEX Information – Ex Interface to Zone 0

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	I _{max}	U ₀ /V _{oc}	I ₀ /I _{sc}	P ₀	L ₀ /L _s for IIC	C ₀ /C _s for IIC	L ₀ /L _s for IIB		C ₀ /C _s for IIB
9002/10-187-020-001	1	6 V	490 Ω	543 Ω	11 mA	9.3 V	20 mA	50 mW	90 mH	3.9 μF	330 mH	29 μF	158937 ▲
	2	6 V	490 Ω	543 Ω	11 mA	9.3 V	20 mA	50 mW	90 mH	3.9 μF	330 mH	29 μF	
	1 + 2					18.7 V	20 mA	90 mW	90 mH	0.27 μF	330 mH	1.64 μF	
9002/10-187-270-001	1	6 V	43 Ω	49 Ω	122 mA	9.3 V	270 mA	630 mW	0.23 mH	3.9 μF	2.2 mH	29 μF	158933 ▲
	2	6 V	43 Ω	49 Ω	122 mA	9.3 V	270 mA	630 mW	0.23 mH	3.9 μF	2.2 mH	29 μF	
	1 + 2					18.7 V	270 mA	1260 mW	0.23 mH	0.27 μF	2.2 mH	1.64 μF	

Potential: Positive / Positive

08 b



- Allows the connection of regulated power supplies, V_{nom} , as listed in the table below.
- Various safety and operational characteristics as listed in the table below
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to onefield device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_s for A, B, E or IIC	C_o/C_s for A, B, E or IIC	L_o/L_s for C, D, F, G or IIB, IIA		C_o/C_s for C, D, F, G or IIB, IIA
9002/11-120-024-001	1	9 V	1052 Ω	1165 Ω	7,7 mA	12 V	12 mA	0.04 mW	240 mH	1.41 μ F	850 mH	9 μ F	158943 ▲
	2	25 V	1052 Ω	1165 Ω	7.7 mA	12 V	12 mA	0.04 mW	240 mH	1.41 μ F	850 mH	9 μ F	
	1 + 2					12.7 V	24 mA	0.07 mW	63 mH	1.1 μ F		7.1 μ F	
9002/11-130-360-001	1	10 V	46 Ω	52 Ω	100 mA	13 V	321 mA	1.04 mW	0.19 mH	1 μ F	1.6 mH	6.2 μ F	158958
	2	1 V	46 Ω	52 Ω	19 mA	1.6 V	39 mA	0.016 mW	24 mH	100 μ F	91 mH	1000 μ F	
	1 + 2					13.3 V	360 mA	1.17 mW	0.17 mH	0.79 μ F	1.3 mH	5 μ F	
9002/11-199-030-001	1	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 mW	160 mH	0.223 μ F	560 mH	1.42 μ F	158929
	2	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 mW	160 mH	0.223 μ F	560 mH	1.42 μ F	
	1 + 2					20.6 V	30 mA	0.15 mW	40 mH	0.223 μ F	150 mH	1.42 μ F	
9002/11-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	2 mH	0.083 μ F	13 mH	0.65 μ F	158848 ▲
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	2 mH	0.083 μ F	13 mH	0.65 μ F	
	1 + 2					30.1 V	186 mA	1.3 mW	-	-	2.8 mH	0.551 μ F	
9002/11-280-293-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	89 mA	0.63 mW	2.2 mH	0.083 μ F	14 mH	0.65 μ F	158864 ▲
	2	6 V	60 Ω	68 Ω	88 mA	9.56 V	180 mA	0.43 mW	0.6 mH	3.6 μ F	5 mH	26 μ F	
	1 + 2					28.7 V	269 mA	1.05 mW	-	-	0.56 mH	0.62 μ F	

CSA Information – Ex Interface to Class I, II, III, Division 1													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_s for A, B, E	C_o/C_s for A, B, E	L_o/L_s for C, D, F, G		C_o/C_s for C, D, F, G
9002/11-120-024-001	1	9 V	1052 Ω	1165 Ω	7,7 mA	12 V	12 mA	0.04 mW	247 mH	1.8 μ F	862 mH	5.5 μ F	158943 ▲
	2	25 V	1052 Ω	1165 Ω	7.7 mA	12 V	12 mA	0.04 mW	247 mH	1.8 μ F	862 mH	5.5 μ F	
	1 + 2					12.7 V	24 mA	0.07 mW	64 mH	1.4 μ F	226 mH	4.3 μ F	
9002/11-130-360-001	1	10 V	46 Ω	52 Ω	100 mA	13 V	321 mA	1.04 mW	0.19 mH	1 μ F	1.6 mH	6.2 μ F	158958
	2	1 V	46 Ω	52 Ω	19 mA	1.6 V	39 mA	0.016 mW	24 mH	100 μ F	91 mH	1000 μ F	
	1 + 2					13.3 V	360 mA	1.17 mW	0.17 mH	0.79 μ F	1.3 mH	5 μ F	
9002/11-199-030-001	1	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 mW	157 mH	0.34 μ F	511 mH	1 μ F	158929
	2	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 mW	157 mH	0.34 μ F	511 mH	1 μ F	
	1 + 2					20.6 V	30 mA	0.15 mW	40.5 mH	0.3 μ F	149 mH	0.9 μ F	
9002/11-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	4.5 mH	0.14 μ F	18.1 mH	0.43 μ F	158848 ▲
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	0.65 mW	4.5 mH	0.14 μ F	18.1 mH	0.43 μ F	
	1 + 2					30.1 V	186 mA	1.3 mW	-	-	5 mH	0.34 μ F	
9002/11-280-293-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	89 mA	0.63 mW	4.5 mH	0.14 μ F	18.1 mH	0.43 μ F	158864 ▲
	2	6 V	60 Ω	68 Ω	88 mA	9.56 V	180 mA	0.43 mW	0.7 mH	4.2 μ F	5.2 mH	12.7 μ F	
	1 + 2					28.7 V	269 mA	1.05 mW	0.23 mH	0.13 μ F	2.2 mH	0.4 μ F	

CSA Information – Ex Interface to Class I, Zone 0

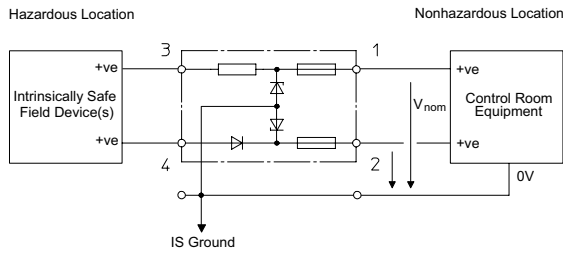
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	I _{max}	U _o /V _{oc}	I _o /I _{sc}	P _o	L _o /L _a for IIC	C _o /C _a for IIC	L _o /L _a for IIA, IIB		C _o /C _a for IIA, IIB
9002/11-120-024-001	1	9 V	1020 Ω	1165 Ω	7,7 mA	12 V	12 mA	0.04 W	240 mH	1.41 μF	850 mH	9 μF	158943 ▲
	2	25 V	1020 Ω	1165 Ω	7.7 mA	12 V	12 mA	0.04 W	240 mH	1.41 μF	850 mH	9 μF	
	1 + 2	-	-	-	-	12.7 V	24 mA	0.07 W	63 mH	1.1 μF	230 mH	7.1 μF	
9002/11-130-360-001	1	10 V	41 Ω	52 Ω	100 mA	13 V	321 mA	1.04 W	0.19 mH	1 μF	1.6 mH	6.2 μF	158958
	2	1 V	41 Ω	52 Ω	19 mA	1.6 V	39 mA	0.016 W	24 mH	100 μF	91 mH	1000 μF	
	1 + 2	-	-	-	-	13.3 V	360 mA	1.17 W	0.17 mH	0.79 μF	1.3 mH	5 μF	
9002/11-199-030-001	1	16 V	1400 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 W	160 mH	0.223 μF	560 mH	1.42 μF	158929
	2	16 V	1400 Ω	1590 Ω	10 mA	19.9 V	15 mA	0.075 W	160 mH	0.223 μF	560 mH	1.42 μF	
	1 + 2	-	-	-	-	20.6 V	30 mA	0.15 W	40 mH	0.223 μF	150 mH	1.42 μF	
9002/11-280-186-001	1	25 V	330 Ω	359 Ω	69 mA	28 V	93 mA	0.65 W	2 mH	0.083 μF	13 mH	0.65 μF	158848 ▲
	2	25 V	330 Ω	359 Ω	69 mA	28 V	93 mA	0.65 W	2 mH	0.083 μF	13 mH	0.65 μF	
	1 + 2	-	-	-	-	30.1 V	186 mA	1.3 W	-	-	2.8 mH	0.551 μF	
9002/11-280-293-001	1	25 V	330 Ω	359 Ω	69 mA	28 V	89 mA	0.63 W	2.2 mH	0.083 μF	14 mH	0.65 μF	158864 ▲
	2	6 V	56 Ω	68 Ω	88 mA	9.56 V	180 mA	0.43 W	0.6 mH	3.6 μF	5 mH	26 μF	
	1 + 2	-	-	-	-	28.7 V	269 mA	1.05 W	-	-	0.56 mH	0.62 μF	

ATEX Information – Ex Interface to Zone 0

Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V _{nom}	R _{min}	R _{max}	I _{max}	U _o /V _{oc}	I _o /I _{sc}	P _o	L _o /L _a for IIC	C _o /C _a for IIC	L _o /L _a for IIB		C _o /C _a for IIB
9002/11-120-024-001	1	9 V	1052 Ω	1165 Ω	7,7 mA	12 V	12 mA	40 mW	240 mH	1.41 μF	850 mH	9 μF	158943 ▲
	2	25 V	1052 Ω	1165 Ω	7.7 mA	12 V	12 mA	40 mW	240 mH	1.41 μF	850 mH	9 μF	
	1 + 2	-	-	-	-	12 V	24 mA	70 mW	63 mH	1.1 μF	230 mH	7.1 μF	
9002/11-130-360-001	1	10 V	46 Ω	52 Ω	100 mA	13 V	321 mA	1040 mW	0.19 mH	1 μF	1.6 mH	6 μF	158958
	2	1 V	46 Ω	52 Ω	19 mA	1.6 V	39 mA	16 mW	24 mH	100 μF	91 mH	100 μF	
	1 + 2	-	-	-	-	13 V	360 mA	1170 mW	0.17 mH	0.79 μF	1.3 mH	5 μF	
9002/11-199-030-001	1	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	75 mW	160 mH	0.223 μF	560 mH	1.42 μF	158929
	2	16 V	1435 Ω	1590 Ω	10 mA	19.9 V	15 mA	75 mW	160 mH	0.223 μF	560 mH	1.42 μF	
	1 + 2	-	-	-	-	19.9 V	30 mA	150 mW	40 mH	0.223 μF	150 mH	1.42 μF	
9002/11-280-186-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	650 mW	2 mH	0.083 μF	13 mH	0.65 μF	158848 ▲
	2	25 V	322 Ω	359 Ω	69 mA	28 V	93 mA	650 mW	2 mH	0.83 μF	13 mH	0.65 μF	
	1 + 2	-	-	-	-	28 V	186 mA	1300 mW	-	-	2.8 mH	0.551 μF	
9002/11-280-293-001	1	25 V	322 Ω	359 Ω	69 mA	28 V	89 mA	630 mW	2.2 mH	0.083 μF	14 mH	0.65 μF	158864 ▲
	2	6 V	60 Ω	68 Ω	88 mA	9.6 V	180 mA	430 mW	0.6 mH	3.6 μF	5 mH	26 μF	
	1 + 2	-	-	-	-	28 V	269 mA	1050 mW	-	-	0.56 mH	0.62 μF	

Zener Barriers Potential: Positive / Diode Return Barriers Potential: Positive

08 b



- Diode return barrier for supply and return signals in one unit with very small entity current (I_{sc}) addition from the second channel
- Allows the connection of regulated power supplies, V_{nom} , as listed in the table below
- Various safety and operational characteristics as listed in the table below
- Approved for installation in hazardous areas (refer to certificate).
- Return diode causes a 2 voltage drop

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.
- Not suitable for voltage signals or resistive sensors
- Maximum leakage current through channel 2 < 10 pA

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_c for A, B, E or IIC	C_o/C_c for A, B, E or IIC	L_o/L_c for C, D, F, G or IIB, IIA		C_o/C_c for C, D, F, G or IIB, IIA
9002/13-199-225-001	1	16 V	96 Ω	109 Ω	148 mA	19.9 V	222 mA	1.1 mW	0.39 mH	0.223 μF	3.18 mH	1.42 μF	158921 ▲
	2	16 V				19.9 V	3 mA	0.015 mW	1000 mH	0.223 μF	1000 mH	1.42 μF	
	1 + 2					20.2 V	225 mA	1.12 mW	0.37 mH	0.213 μF	3.15 mH	1.38 μF	
9002/13-280-093-001	1	24 V	322 Ω	359 Ω	67 mA	28 V	90 mA	0.63 mW	2.2 mH	0.083 μF	14 mH	0.65 μF	158852 ▲
	2	24 V				28 V	3 mA	0.021 mW	50 mH	0.083 μF	150 mH	0.65 μF	
	1 + 2					28.3 V	93 mA	0.651 mW	2 mH	0.08 μF	13 mH	0.636 μF	
9002/13-280-110-001	1	24 V	270 Ω	296 Ω	82 mA	28 V	107 mA	0.749 mW	1.35 mH	0.083 μF	9.6 mH	0.65 μF	158857 ▲
	2	24 V				28 V	3 mA	0.021 mW	50 mH	0.083 μF	150 mH	0.65 μF	
	1 + 2					28.3 V	110 mA	0.77 mW	1.25 mH	0.08 μF	9 mH	0.635 μF	

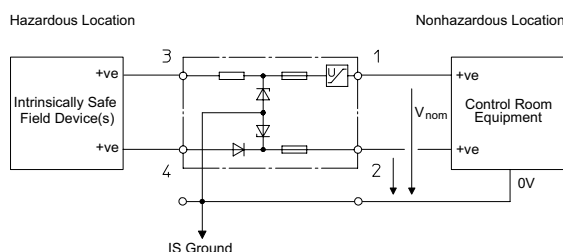
CSA Information – Ex Interface to Class I, II, III, Division 1													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_c for A, B, E	C_o/C_c for A, B, E	L_o/L_c for C, D, F, G		C_o/C_c for C, D, F, G
9002/13-199-225-001	1	16 V	96 Ω	109 Ω	148 mA	19.9 V	222 mA	1.1 mW	0.35 mH	0.33 μF	3.1 mH	1 μF	158921 ▲
	2	16 V				19.9 V	3 mA	0.015 mW	1000 mH	5.5 μF	1000 mH	16.5 μF	
	1 + 2					20.2 V	225 mA	1.12 mW	0.35 mH	0.3 μF	2.8 mH	0.9 μF	
9002/13-280-093-001	1	24 V	322 Ω	359 Ω	67 mA	28 V	90 mA	0.63 mW	4.4 mH	0.14 μF	17.2 mH	0.43 μF	158852 ▲
	2	24 V				28 V	3 mA	0.021 mW	1000 mH	0.14 μF	1000 mH	0.43 μF	
	1 + 2					28.3 V	93 mA	0.651 mW	4.4 mH	0.1 μF	17.2 mH	0.3 μF	
9002/13-280-110-001	1	24 V	270 Ω	296 Ω	82 mA	28 V	107 mA	0.749 mW	2.9 mH	0.13 μF	11.6 mH	0.39 μF	158857 ▲
	2	24 V				28 V	3 mA	0.021 mW	1000 mH	0.13 μF	1000 mH	0.39 μF	
	1 + 2					28.3 V	110 mA	0.77 mW	2.9 mH	0.11 μF	11.6 mH	0.33 μF	

CSA Information – Ex Interface to Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_c for IIC	C_o/C_c for IIC	L_o/L_c for IIA, IIB		C_o/C_c for IIA, IIB
9002/13-199-225-001	1	16 V	95 Ω	109 Ω	148 mA	19.9 V	222 mA	1.1 W	0.39 mH	0.223 μF	3.18 mH	1.42 μF	158921 ▲
	2	16 V				19.9 V	3 mA	0.015 W	1000 mH	0.223 μF	1000 mH	1.42 μF	
	1 + 2					20.2 V	225 mA	1.12 W	0.37 mH	0.213 μF	3.15 mH	1.38 μF	
9002/13-280-093-001	1	24 V	330 Ω	359 Ω	67 mA	28 V	90 mA	0.63 W	2.2 mH	0.083 μF	14 mH	0.65 μF	158852 ▲
	2	24 V				28 V	3 mA	0.021 W	50 mH	0.083 μF	150 mH	0.65 μF	
	1 + 2					28.3 V	93 mA	0.651 W	2 mH	0.08 μF	13 mH	0.636 μF	
9002/13-280-110-001	1	24 V	270 Ω	296 Ω	82 mA	28 V	107 mA	0.749 W	1.35 mH	0.083 μF	9.6 mH	0.65 μF	158857 ▲
	2	24 V				28 V	3 mA	0.021 W	50 mH	0.083 μF	150 mH	0.65 μF	
	1 + 2					28.3 V	110 mA	0.77 W	1.25 mH	0.08 μF	9 mH	0.635 μF	

ATEX Information – Ex Interface to Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for IIC	C_0/C_c for IIC	L_0/L_c for IIB	C_0/C_c for IIB	
9002/13-199-225-001	1	16 V	96 Ω	109 Ω	148 mA	19.9 V	222 mA	1100 mW	0.39 mH	0.223 μ F	3.18 mH	1.42 μ F	158921 ▲
	2	16 V				19.9 V	3 mA	15 mW	1000 mH	0.223 μ F	1000 mH	1.42 μ F	
	1 + 2					19.9 V	225 mA	1120 mW	0.37 mH	0.213 μ F	3.15 mH	1.38 μ F	
9002/13-280-093-001	1	24 V	322 Ω	359 Ω	67 mA	28 V	90 mA	630 mW	2.2 mH	0.083 μ F	14 mH	0.65 μ F	158852 ▲
	2	24 V				28 V	3 mA	21 mW	50 mH	0.083 μ F	150 mH	0.65 μ F	
	1 + 2					28 V	93 mA	651 mW	2 mH	0.8 μ F	13 mH	0.636 μ F	
9002/13-280-110-001	1	24 V	270 Ω	296 Ω	82 mA	28 V	107 mA	749 mW	1.35 mH	0.083 μ F	9.6 mH	0.65 μ F	158857 ▲
	2	24 V				28 V	3 mA	21 mW	50 mH	0.083 μ F	150 mH	0.65 μ F	
	1 + 2					28 V	110 mA	770 mW	1.25 mH	0.8 μ F	9 mH	0.635 μ F	

Diode*: designates diode return

Zener Barriers Potential: Positive / Diode Return Barriers Potential: Positive



- Diode return barrier for supply and return signals in one unit with very small entity current (I_{sc}) addition from the second channel
- Operational current limited to 40 mA at 250 Ω load
- Allows the connection of unregulated power supplies, V_{nom1} to channel 1
- Approved for installation in hazardous areas (refer to certificate).
- Return diode causes a 3.5 voltage drop

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.
- Not suitable for voltage signals or resistive sensors
- Maximum leakage current at 24 V < 1 mA
- Maximum leakage current at 35 V < 10 mA

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for A, B, E or IIC	C_0/C_c for A, B, E or IIC	L_0/L_c for C, D, F, G or IIB, IIA	C_0/C_c for C, D, F, G or IIB, IIA	
9002/13-252-121-041	1	20-35 V	217 Ω	244 Ω	86 mA	25.2 V	118 mA	0.74 mW	1.3 mH	0.107 μ F	7.4 mH	0.82 μ F	158830 ▲
	2	22 V				25.2 V	0 mA	0.02 mW	50 mH	0.107 μ F	150 mH	0.82 μ F	
	1 + 2					25.5 V	121 mA	0.76 mW	1.25 mH	0.104 μ F	7.35 mH	0.8 μ F	

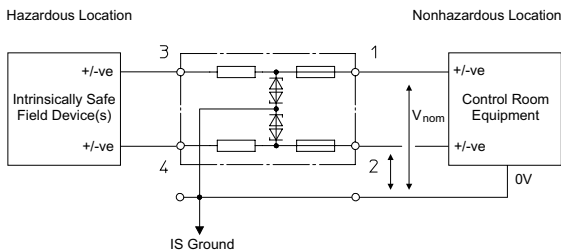
CSA Information – Ex Interface to Class I, II, III, Division 1													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for A, B, E	C_0/C_c for A, B, E	L_0/L_c for C, D, F, G	C_0/C_c for C, D, F, G	
9002/13-252-121-041	1	20-35 V	217 Ω	244 Ω	86 mA	25.2 V	118 mA	0.74 mW	2.5 mH	0.17 μ F	9.8 mH	0.51 μ F	158830 ▲
	2	22 V				25.2 V	0 mA	0.02 mW	1000 mH	0.17 μ F	1000 mH	0.51 μ F	
	1 + 2					25.5 V	121 mA	0.76 mW	2.5 mH	0.104 μ F	9.8 mH	0.42 μ F	

CSA Information – Ex Interface to Class I, Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for IIC	C_0/C_c for IIC	L_0/L_c for IIA, IIB	C_0/C_c for IIA, IIB	
9002/13-252-121-041	1	20-35 V	220 Ω	244 Ω	86 mA	25.2 V	118 mA	0.74 W	1.3 mH	0.107 μ F	7.4 mH	0.82 μ F	158830 ▲
	2	22 V	Diode*			25.2 V	0 mA	0.02 W	50 mH	0.107 μ F	150 mH	0.82 μ F	
	1 + 2					25.5 V	121 mA	0.76 W	1.25 mH	0.104 μ F	7.35 mH	0.8 μ F	

ATEX Information – Ex Interface to Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_c for IIC	C_j/C_c for IIC	L_j/L_c for IIB	C_j/C_c for IIB	
9002/13-252-121-041	1	20-35 V	217 Ω	244 Ω	86 mA	25.2 V	118 mA	740 mW	1.3 mH	0.107 μ F	7.4 mH	0.82 μ F	158830 ▲
	2	22 V				25.2 V	0 mA	20 mW	50 mH	0.107 μ F	150 mH	0.82 μ F	
	1 + 2					25.2 V	121 mA	760 mW	1.25 mH	0.104 μ F	7.35 mH	0.8 μ F	

Diode*: designates diode return

Potential: Alternating / Alternating



- Application specific for the connection of RTDs
- High resistance tolerance in each channel, 20 $\Omega \pm 0.1$
- Low temperature coefficient < 50 ppm/K
- Allows the connection of regulated power supplies, V_{nom}
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_{O_T} , and cable parameters, must be used and are as listed in row (1+2) for each barrier.
- Maximum leakage < 10 pA
- One channel required for each RTD leg.

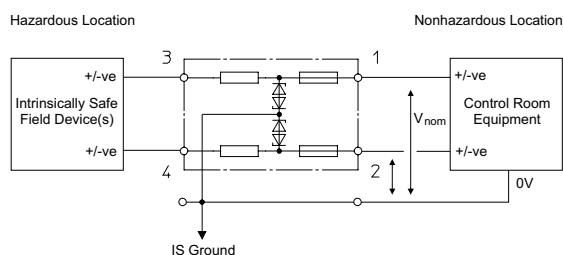
FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_c for A, B, E or IIC	C_j/C_c for A, B, E or IIC	L_j/L_c for C, D, F, G or IIB, IIA	C_j/C_c for C, D, F, G or IIB, IIA	
9002/22-032-300-111	1	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 mW	1.3 mH	100 μ F	7 mH	1000 μ F	158954 ▲
	2	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 mW	1.3 mH	100 μ F	7 mH	1000 μ F	
	1 + 2	1.4 V				3.2 V	300 mA	0.12 mW	0.2 mH	100 μ F	1.8 mH	1000 μ F	

CSA Information – Ex Interface to Class I, II, III, Division 1													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_c for A, B, E	C_j/C_c for A, B, E	L_j/L_c for C, D, F, G	C_j/C_c for C, D, F, G	
9002/22-032-300-111	1	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 mW	2.2 mH	1800 μ F	8.7 mH	1800 μ F	158954 ▲
	2	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 mW	2.2 mH	1800 μ F	8.7 mH	1800 μ F	
	1 + 2	1.4 V				3.2 V	300 mA	0.12 mW	0.26 mH	1800 μ F	2.3 mH	1800 μ F	

CSA Information – Ex Interface to Class I, Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_c for IIC	C_j/C_c for IIC	L_j/L_c for IIA, IIB	C_j/C_c for IIA, IIB	
9002/22-032-300-111	1	0.7 V	13 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 W	1.3 mH	100 μ F	7 mH	1000 μ F	158954 ▲
	2	0.7 V	13 Ω	23.8 Ω	33 mA	1.6 V	150 mA	0.06 W	1.3 mH	100 μ F	7 mH	1000 μ F	
	1 + 2	1.4 V	-			3.2 V	300 mA	0.12 W	0.2 mH	100 μ F	1.8 mH	1000 μ F	

ATEX Information – Ex Interface to Zone 0													
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_c for IIC	C_j/C_c for IIC	L_j/L_c for IIB	C_j/C_c for IIB	
9002/22-032-300-111	1	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	60 mW	1.3 mH	100 μ F	7 mH	1000 μ F	158954 ▲
	2	0.7 V	21.6 Ω	23.8 Ω	33 mA	1.6 V	150 mA	60 mW	1.3 mH	100 μ F	7 mH	1000 μ F	
	1 + 2	1.4 V				3.2 V	300 mA	120 mW	0.2 mH	100 μ F	1.8 mH	1000 μ F	

Potential: Alternating / Alternating



- Allows the connection of regulated power supplies, V_{nom} , as listed in the table below.
- Various safety and operational characteristics as listed in the table below
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.

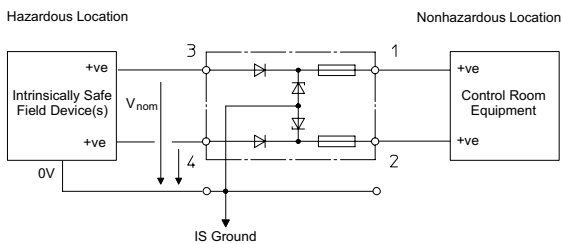
FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_s for A, B, E or IIC	C_o/C_s for A, B, E or IIC	L_o/L_s for C, D, F, G or IIB, IIA		C_o/C_s for C, D, F, G or IIB, IIA
9002/22-158-200-001	1	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 mW	4 mH	8.8 μF	15 mH	115 μF	158952
	2	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 mW	4 mH	8.8 μF	15 mH	115 μF	
	1 + 2	11 V	-	-	-	15.8 V	200 mA	0.395 mW	0.5 mH	0.478 μF	4 mH	2.88 μF	
9002/22-240-024-001	1	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 mW	240 mH	1.41 μF	850 mH	9 μF	158950 ▲
	2	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 mW	240 mH	1.41 μF	850 mH	9 μF	
	1 + 2	18 V	-	-	-	24 V	24 mA	0.08 mW	41 mH	0.125 μF	145 mH	0.93 μF	
9002/22-240-160-001	1	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	0.24 mW	6 mH	1.41 μF	22 mH	9 μF	158948
	2	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	0.24 mW	6 mH	1.41 μF	22 mH	9 μF	
	1 + 2	18 V	-	-	-	24 V	160 mA	0.48 mW	0.7 mH	0.125 μF	4 mH	0.93 μF	

CSA Information – Ex Interface to Class I, II, III, Division 1													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_s for A, B, E	C_o/C_s for A, B, E	L_o/L_s for C, D, F, G		C_o/C_s for C, D, F, G
9002/22-158-200-001	1	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 mW	4 mH	8.8 μF	15 mH	115 μF	158952
	2	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 mW	4 mH	8.8 μF	15 mH	115 μF	
	1 + 2	11 V	-	-	-	15.8 V	200 mA	0.395 mW	0.5 mH	0.478 μF	4 mH	2.88 μF	
9002/22-240-024-001	1	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 mW	258 mH	2 μF	899 mH	6 μF	158950 ▲
	2	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 mW	258 mH	2 μF	899 mH	6 μF	
	1 + 2	18 V	-	-	-	24 V	24 mA	0.08 mW	67 mH	0.23 μF	236 mH	0.7 μF	
9002/22-240-160-001	1	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	0.24 mW	6.5 mH	2 μF	25 mH	6 μF	158948
	2	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	0.24 mW	6.5 mH	2 μF	25 mH	6 μF	
	1 + 2	18 V	-	-	-	24 V	160 mA	0.48 mW	1.2 mH	0.23 μF	7.1 mH	0.7 μF	

CSA Information – Ex Interface to Class I, Zone 0													
Product Type	Operational Characteristics				Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_o/V_{oc}	I_o/I_{sc}	P_o	L_o/L_s for IIC	C_o/C_s for IIC	L_o/L_s for IIA, IIB		C_o/C_s for IIA, IIB
9002/22-158-200-001	1	5.5 V	79 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 W	4 mH	8.8 μF	15 mH	115 μF	158952
	2	5.5 V	79 Ω	95 Ω	57 mA	7.9 V	100 mA	0.198 W	4 mH	8.8 μF	15 mH	115 μF	
	1 + 2	11 V	-	-	-	15.8 V	200 mA	0.395 W	0.5 mH	0.478 μF	4 mH	2.88 μF	
9002/22-240-024-001	1	9 V	1020 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 W	240 mH	1.41 μF	850 mH	9 μF	158950 ▲
	2	9 V	1020 Ω	1164 Ω	7.7 mA	12 V	12 mA	0.04 W	240 mH	1.41 μF	850 mH	9 μF	
	1 + 2	18 V	-	-	-	24 V	24 mA	0.08 W	41 mH	0.125 μF	145 mH	0.93 μF	
9002/22-240-160-001	1	9 V	160 Ω	177 Ω	50 mA	12 V	80 mA	0.24 W	6 mH	1.41 μF	22 mH	9 μF	158948
	2	9 V	160 Ω	177 Ω	50 mA	12 V	80 mA	0.24 W	6 mH	1.41 μF	22 mH	9 μF	
	1 + 2	18 V	-	-	-	24 V	160 mA	0.48 W	0.7 mH	0.125 μF	4 mH	0.93 μF	

ATEX Information – Ex Interface to Zone 0														
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters					Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_a for IIC	C_j/C_s for IIC	L_j/L_a for IIB	C_j/C_s for IIB		
9002/22-158-200-001	1	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	198 mW	4 mH	8.8 μF	15 mH	115 μF	158952	
	2	5.5 V	84 Ω	95 Ω	57 mA	7.9 V	100 mA	198 mW	4 mH	8.8 μF	15 mH	115 μF		
	1 + 2	11 V				15.8 V	200 mA	395 mW	0.5 mH	0.478 μF	4 mH	2.88 μF		
9002/22-240-024-001	1	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	40 mW	240 mH	1.41 μF	850 mH	9 μF	158950 ▲	
	2	9 V	1051 Ω	1164 Ω	7.7 mA	12 V	12 mA	40 mW	240 mH	1.41 μF	850 mH	9 μF		
	1 + 2	18 V				24 V	24 mA	80 mW	41 mH	0.125 μF	145 mH	0.93 μF		
9002/22-240-160-001	1	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	240 mW	6 mH	1.41 μF	22 mH	9 μF	158948	
	2	9 V	158 Ω	177 Ω	50 mA	12 V	80 mA	240 mW	6 mH	1.41 μF	22 mH	9 μF		
	1 + 2	18 V				24 V	160 mA	480 mW	0.7 mH	0.125 μF	4 mH	0.93 μF		

Diode Return Barriers Potential: Positive



- Diode return barrier for DC current return signals with very small entity current (I_{sc}) addition
- Suitable for dry contact and floating 4/20 mA signal returns
- Both channels are positive polarity.
- Approved for installation in hazardous areas (refer to certificate).

- When two channels of one barrier are connected together to one field device with no isolation between the channels, the resultant entity parameters, V_T , I_T , P_o , and cable parameters, must be used and are as listed in row (1+2) for each barrier.
- Not suitable for voltage signals or resistive sensors
- Voltage drop $\Delta V = 2.5 V$ at $I < 20 mA$, $\Delta V = 3.5 V$ at $I > 20 mA$

FM / UL Information – Ex Interface to Class I, II, III, Division 1 or Class I, Zone 0											
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_a for A, B, E or IIC	C_j/C_s for A,B,E or IIC	L_j/L_a for C, D, F, G or IIB, IIA	C_j/C_s for C, D, F, G or IIB, IIA	
9002/33-280-000-001	1	25.5 V	60 mA	28 V	0 mA	0 mW	1000 mH	0.083 μF	1000 mH	0.65 μF	158913
	2	25.5 V	60 mA	28 V	0 mA	0 mW	1000 mH	0.083 μF	1000 mH	0.65 μF	
	1 + 2				28 V	0 mA	0 mW	1000 mH	0.083 μF	1000 mH	

CSA Information – Ex Interface to Class I, II, III, Division 1											
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_a for A, B, E	C_j/C_s for A, B, E	L_j/L_a for C, D, F, G	C_j/C_s for C, D, F, G	
9002/33-280-000-001	1	25.5 V	60 mA	28 V	0 mA	0 mW	1000 mH	0.14 μF	1000 mH	0.43 μF	158913
	2	25.5 V	60 mA	28 V	0 mA	0 mW	1000 mH	0.14 μF	1000 mH	0.43 μF	
	1 + 2				28 V	0 mA	0 mW	1000 mH	0.14 μF	1000 mH	

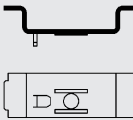
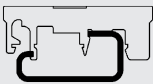
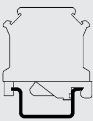
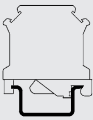
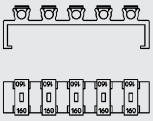
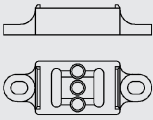
CSA Information – Ex Interface to Class I, Zone 0												
Product Type	Operational Characteristics			Entity Parameters			Gas Group Cable Parameters				Art. No.	
	Channel	V_{nom}	R_{min}	I_{max}	U_j/V_{oc}	I_j/I_{sc}	P_o	L_j/L_a for IIC	C_j/C_s for IIC	L_j/L_a for IIA, IIB		C_j/C_s for IIA, IIB
9002/33-280-000-001	1	25.5 V	Diode *	60 mA	28 V	0 mA	0 W	1000 mH	0.083 μF	1000 mH	0.65 μF	158913
	2	25.5 V	Diode *	60 mA	28 V	0 mA	0 W	1000 mH	0.083 μF	1000 mH	0.65 μF	
	1 + 2		-		28 V	0 mA	0 W	1000 mH	0.083 μF	1000 mH	0.65 μF	

ATEX Information – Ex Interface to Zone 0

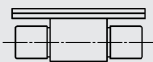
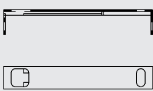
Product Type	Operational Characteristics					Entity Parameters			Gas Group Cable Parameters				Art. No.
	Channel	V_{nom}	R_{min}	R_{max}	I_{max}	U_0/V_{oc}	I_0/I_{sc}	P_o	L_0/L_c for IIC	C_0/C_c for IIC	L_0/L_c for IIB	C_0/C_c for IIB	
9002/33-280-000-001	1	25.5 V	0	0	60 mA	28 V	0 mA	0	1000 mH	0.083 μ F	1000 mH	0.65 μ F	158913
	2	25.5 V			60 mA	28 V	0 mA	0	1000 mH	0.083 μ F	1000 mH	0.65 μ F	
	1 + 2					28 V	0 mA	0	1000 mH	0.083 μ F	1000 mH	0.65 μ F	

Schematics of the zener barriers available at r-stahl.com

Accessories

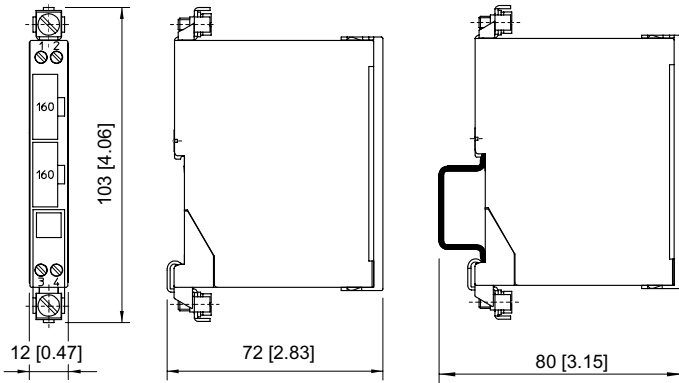
Figure	Description	Product Type	Art. No.	Weight lb
Adaptor				
	Adaptor allows installation of a zener barrier Series 900x on a mounting plate of a previous series.	-	158826	0.01
Mounting attachment moulded plastic				
	Enables mounting of zener barrier on a G-rail.	-	165283	0.01
Protective conductor terminal				
	USLKG 5 (wire range AWG 12 / 4 mm ²) Terminal enables connection of protective conductors to DIN rail. Color green-yellow.	USLKG5 GNYE	112760	0.03
Ground terminal				
	USLKG 6 N (wire range AWG 10 / 6 mm ²) Terminal enables connection of protective /Ground conductors to DIN rail. Color green-yellow.	USLKG6 N GNYE	112599	0.07
Fuse holder				
	Fuse holder is snapped onto the side of the zener barrier and can be equipped with up to 5 back-up fuses (replacement).	-	158834	0.04
Insulating stand off				
	Suitable for DIN rail NS35/15, allows electrically insulated mounting of DIN rail from mounting plate.	-	158828	0.05

Spare Parts

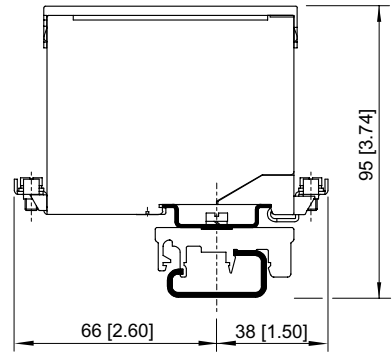
Figure	Description	Art. No.	Weight lb
Back-up fuse			
	For all zener barriers Series 9001, 9002 and 9004 unit: 5 pcs.	158964 ▲	0.02
Holder for label			
	Transparent cover for labelling	158977	-

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

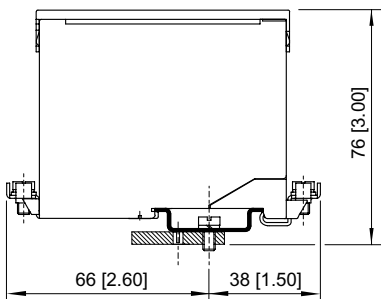
08 b



Mounting on DIN rail NS 35/15



Mounting on DIN rail NS 32 by means of adaptor and mounting attachment, moulded plastic



Mounting on mounting plate by means of adaptor