

Technical Data

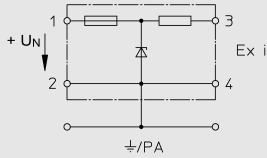
Certificates	Europe (CENELEC) PTB 01 ATEX 2088 PTB 01 ATEX 2135 (Installation in Zone 2) USA FM Approval 3011002 UL Approval E81680 Canada CSA 1284547 (LR 43394) Russia CTB 04.B00142 Ukraine ISCVE
Explosion protection	<p>II (1/2) GD [EEx ia/ib] IIC/IIB II 3 G EEx nA II T4</p> <p>I.S. circuits for: Class I, II, III, Division 1, Groups A, B, C, D, E, F, G I.S. circuits for: Class I, Zone 0, Group IIC Class I, Division 2, Groups A, B, C, D Class I, Zone 2, Group IIC</p> <p>I.S. circuits for: Class I, Groups A, B, C, D; Class II, Groups E, F, G; Class III Class I, Division 2, Groups A, B, C, D Class I, Zone 2, Group IIC</p>
Installation	in Zone 2, Division 2 and in safe area
Enclosure material	Polyamide 6 GF
Degree of Protection	according to IEC 60529 terminal enclosure: IP 20 housing: IP 40
Connection	4 cage terminals, each maximum 1.5 mm ² flexible / solid 2 PA-terminals, each maximum 4 mm ² flexible / solid
Ambient temperature	- 20 °C ... + 60 °C
Storage	- 20 °C ... + 75 °C
Maximum relative humidity	95 % mean, no dewing
Leakage current at U _N	≤ 2 μA (if not stated otherwise)
Temperature effect	≤ 0.25 % / 10 K
Frequency	at resistive current limitation: at I _m ≤ 50 mA ≤ 50 kHz at I _m > 50 mA ≤ 100 kHz at electronic current limitation: ≤ 10 kHz
Weight	approx. 0.115 kg

Dimension drawings see page 2/6

Accessories see page 2/39

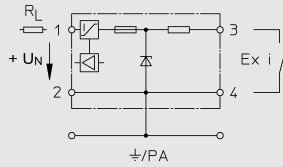
We reserve the right to make alterations to the technical data, weights, dimensions, designs and products available without notice. The illustrations cannot be considered binding.

9001/01-...
Single-channel safety barriers for positive polarity

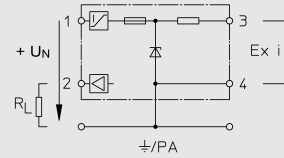


09408E00

Picture B

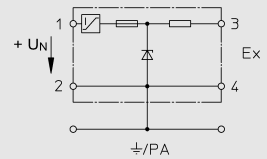


Picture C



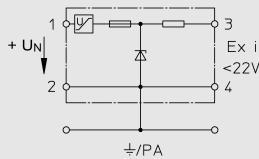
09407E00

Picture D



09409E00

Picture E



09417E00

Picture M

Selection Table

U _N	R _{min.}	R _{max.}	I _{max.}	ΔU	Safety values								Ordering Code
					U _o	I _o	P _o	IIC		IIB			
V	Ω	Ω	mA	V	V	mA	mW	L _o	C _o	L _o	C _o		
								mH	μF	mH	μF		
Single-channel safety barrier polarity: +													
1 ... 3	42	49	61	--	5	150	187.5	1.3	100	7	1000	Pic. B	9001/01-050-150-101
6	24	27	222	--	8.3	442	917.2	0.1	7.2	0.5	73	Pic. B	9001/01-083-442-101
6	864	963	6	--	8.6	10	21.5	300	6.2	1000	55	Pic. B	9001/01-086-010-101
6	452	501	11	--	8.6	20	43	90	6.2	330	55	Pic. B	9001/01-086-020-101
6	195	218	27	--	8.6	50	107.5	15	6.2	56	55	Pic. B	9001/01-086-050-101
6	129	144	41	--	8.6	75	161.3	6.7	6.2	25	55	Pic. B	9001/01-086-075-101
6	64	73	82	--	8.6	150	322.5	1.3	6.2	7	55	Pic. B	9001/01-086-150-101
6	39	44	136	--	8.6	270	580.5	0.23	6.2	2.2	55	Pic. B	9001/01-086-270-101
6	27	32	187	--	8.6	390	839	0.16	6.2	1	55	Pic. B	9001/01-086-390-101
8	681	698	11	--	12.6	20	63	90	1.15	330	7.4	Pic. B	9001/01-126-020-101
8	263	294	27	--	12.6	50	158	15	1.15	56	7.4	Pic. B	9001/01-126-050-101
8	178	199	40	--	12.6	75	236	6.7	1.15	25	7.4	Pic. B	9001/01-126-075-101
8	93	106	75	--	12.6	150	473	1.3	1.15	7	7.4	Pic. B	9001/01-126-150-101
10	215	240	41	--	13.7	65	222.6	8.8	0.79	34	5	Pic. B	9001/01-137-065-101
12	120	135	88	--	15.8	150	593	1	0.478	7	2.88	Pic. B	9001/01-158-150-101
12	64	73	< 100	< 1.4	15.8	270	1067	0.23	0.478	2.2	2.88	Pic. E	9001/01-158-270-101
12	46	53	< 100	< 1.4	15.8	390	1541	0.16	0.478	0.89	2.88	Pic. E	9001/01-158-390-101
12	872	965	12	--	16.8	20	84	90	0.39	330	2.29	Pic. B	9001/01-168-020-101
12	377	420	28	--	16.8	50	210	15	0.39	56	2.29	Pic. B	9001/01-168-050-101
12	235	262	45	--	16.8	75	315	7	0.39	25	2.29	Pic. B	9001/01-168-075-101



Selection Table

U _N	R _{min.}	R _{max.}	I _{max.}	ΔU	Safety values								Pic.	Ordering Code
					U _o	I _o	P _o	IIC		IIB				
V	Ω	Ω	mA	V	V	mA	mW	L _o	C _o	L _o	C _o			
					V	mA	mW	mH	μF	mH	μF			
16	2096	2321	6	--	19.9	10	50	330	0.223	1000	1.42	Pic. B	9001/01-199-010-101	
16	1052	1165	13	--	19.9	20	100	90	0.223	330	1.42	Pic. B	9001/01-199-020-101	
16	539	598	26	--	19.9	38	189	26	0.223	95	1.42	Pic. B	9001/01-199-038-101	
16	415	462	34	--	19.9	50	249	15	0.223	56	1.42	Pic. B	9001/01-199-050-101	
16	282	241	66	--	19.9	100	498	4	0.223	15	1.42	Pic. B	9001/01-199-100-101	
16	149	168	95	--	19.9	150	746	1.3	0.223	7	1.42	Pic. B	9001/01-199-150-101	
16	57	66	< 100	< 1.4	19.9	390	1940	--	--	0.89	1.42	Pic. E	9001/01-199-390-101	
20 ... 35	454	505	40	--	25.2	57	359	6.3	0.107	25	0.82	Pic. C	9001/01-252-057-141	
20 ... 35	454	505	40	--	25.2	60	378	6.2	0.107	25	0.82	Pic. D	9001/01-252-060-141	
20	378	421	47	--	25.2	70	441	4.5	0.107	25	0.82	Pic. B	9001/01-252-070-101	
20 ... 35	259	268	130	--	25.2	100	630	2	0.107	11	0.82	Pic. M	9001/01-252-100-141	
24	1435	1590	15	--	28	20	140	50	0.083	50	0.65	Pic. B	9001/01-280-020-101	
24	599	666	36	--	28	50	350	8.5	0.083	25	0.65	Pic. B	9001/01-280-050-101	
24	415	462	51	--	28	75	525	3.3	0.083	21	0.65	Pic. B	9001/01-280-075-101	
24	340	375	64	--	28	85	595	2.4	0.083	16	0.65	Pic. B	9001/01-280-085-101	
24	286	319	75	--	28	100	700	1.6	0.083	11	0.65	Pic. B	9001/01-280-100-101	
24	263	294	81	--	28	110	770	1.2	0.083	9	0.65	Pic. B	9001/01-280-110-101	
24	177	198	121	--	28	165	1155	--	--	3.5	0.65	Pic. B	9001/01-280-165-101	
24	111	124	< 100	< 1.4	28	280	1960	--	--	0.6	0.65	Pic. E	9001/01-280-280-101	

*) Ambient temperature -20 °C ... +50 °C

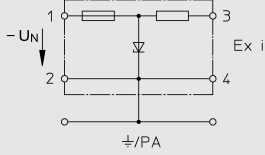
) Maximum leakage (terminal 1 -> PA/±) I_{leak} ≤ 100 μA*) Maximum leakage (terminal 1 -> PA/±) at 24 V / 35 V I_{leak} ≤ 1 mA / 10 mA

STAHL

Functional and Maximum Safety Values

U _N	Rated operating voltage	ΔU	Additional voltage drop through the safety barrier	L _o	Maximum permissible external inductance
R _{min.}	Minimum resistance of the safety barrier	U _o	Maximum voltage	C _o	Maximum permissible external capacity
R _{max.}	Maximum resistance of the safety barrier	I _o	Maximum current		
I _{max.}	Maximum current through the safety barrier	P _o	Maximum power		

9001/00-...
Single-channel safety barriers for negative polarity



Picture A

Selection Table

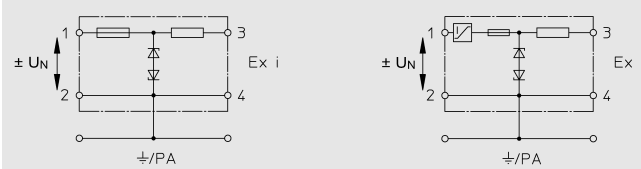
U _N	R _{min.}	R _{max.}	I _{max.}	ΔU	Safety values								Ordering Code
					U _o	I _o	P _o	IIC		IIB			
V	Ω	Ω	mA	V	V	mA	mW	L _o	C _o	L _o	C _o		
Single-channel safety barrier polarity: -													
1 ... 3	42	49	61	--	5	150	187.5	1.3	100	7	1000	Pic. A	9001/00-050-150-101
6	24	28	214	--	8.3	442	917.2	0.1	7.2	0.5	73	Pic. A	9001/00-083-442-101
6	864	963	6	--	8.6	10	21.5	300	6.2	1000	55	Pic. A	9001/00-086-010-101
6	452	501	11	--	8.6	20	43	90	6.2	330	55	Pic. A	9001/00-086-020-101
6	195	218	27	--	8.6	50	107.5	15	6.2	56	55	Pic. A	9001/00-086-050-101
6	92	103	58	--	8.6	100	215	4	6.2	15	55	Pic. A	9001/00-086-100-101
6	64	73	82	--	8.6	150	322.5	1.3	6.2	7	55	Pic. A	9001/00-086-150-101
6	27	32	187	--	8.6	390	839	0.16	6.2	1	55	Pic. A	9001/00-086-390-101
10	215	240	41	--	13.7	65	222.6	8.8	0.79	34	5	Pic. A	9001/00-137-065-101
12	120	135	88	--	15.8	150	593	1	0.478	7	2.88	Pic. A	9001/00-158-150-101
16	2096	2321	6	--	19.9	10	50	330	0.223	1000	1.42	Pic. A	9001/00-199-010-101
16	1052	1165	13	--	19.9	20	100	90	0.223	330	1.42	Pic. A	9001/00-199-020-101
16	539	598	26	--	19.9	38	189	26	0.223	95	1.42	Pic. A	9001/00-199-038-101
16	149	168	95	--	19.9	150	746	1.3	0.223	7	1.42	Pic. A	9001/00-199-150-101
24	1435	1590	15	--	28	20	140	50	0.083	50	0.65	Pic. A	9001/00-280-020-101
24	599	666	36	--	28	50	350	8.5	0.083	25	0.65	Pic. A	9001/00-280-050-101
24	340	375	64	--	28	85	595	2.4	0.083	16	0.65	Pic. A	9001/00-280-085-101
24	286	319	75	--	28	100	700	1.6	0.083	11	0.65	Pic. A	9001/00-280-100-101
24	263	294	81	--	28	110	770	1.2	0.083	9	0.65	Pic. A	9001/00-280-110-101
24	177	198	121	--	28	165	1155	--	--	3.5	0.65	Pic. A	9001/00-280-165-101

Functional and Maximum Safety Values

U _N	Rated operating voltage	ΔU	Additional voltage drop through the safety barrier	L _o	Maximum permissible external inductance
R _{min.}	Minimum resistance of the safety barrier	U _o	Maximum voltage	C _o	Maximum permissible external capacity
R _{max.}	Maximum resistance of the safety barrier	I _o	Maximum current		
I _{max.}	Maximum current through the safety barrier	P _o	Maximum power		



9001/02-... Single-channel safety barriers for alternating polarity



Picture F

Picture J

Selection Table

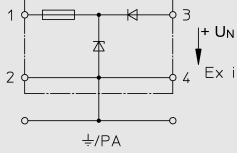
U _N	R _{min.}	R _{max.}	I _{max.}	ΔU	Safety values								Ordering Code
					U _o	I _o	P _o	IIC		IIB			
V	Ω	Ω	mA	V	V	mA	mW	L _o	C _o	L _o	C _o		
Single-channel safety barrier polarity: ~													
0.7	119	134	5	--	1.6	15	6	160	100	560	1000	Pic. F	9001/02-016-015-101
0.7	38	43	16	--	1.6	50	20	15	100	56	1000	Pic. F	9001/02-016-050-101
0.7	39	40	17	--	1.6	50	20	15	100	56	1000	Pic. F	9001/02-016-050-111
0.7	--	20	35	--	1.6	150	60	1.3	100	7	1000	Pic. F	9001/02-016-150-101
0.7	19	20	35	--	1.6	150	60	1.3	100	7	1000	Pic. F	9001/02-016-150-111
0.7	11	14	50	--	1.6	320	128	0.19	100	1.6	1000	Pic. F	9001/02-016-320-101
6	3141	3472	1,7	--	9.3	3	6.975	1000	4.1	1000	31	Pic. F	9001/02-093-003-101
6	319	354	16	--	9.3	30	69.8	40	4.1	150	31	Pic. F	9001/02-093-030-101
6	195	218	27	--	9.3	50	116.3	15	4.1	56	31	Pic. F	9001/02-093-050-101
6	148	165	36	--	9.3	75	174.4	6.7	4.1	25	31	Pic. F	9001/02-093-075-101
6	70	79	75	--	9.3	150	348.8	1.3	4.1	7	31	Pic. F	9001/02-093-150-101
6	--	36	166	--	9.3	390	906.8	0.16	4.1	0.89	31	Pic. F	9001/02-093-390-101
10	102	115	86	--	13.3	150	498.8	1.3	0.91	7	5.6	Pic. F	9001/02-133-150-101
12	378	421	28	--	17.5	50	219	15	0.339	56	1.97	Pic. F	9001/02-175-050-101
12	197	222	54	--	17.5	100	437.5	4	0.339	15	1.97	Pic. F	9001/02-175-100-101
12	101	114	105	--	17.5	200	875	0.5	0.339	4	1.97	Pic. F	9001/02-175-200-101
16	148	167	95	--	19.6	150	735	1.3	0.235	7	1.47	Pic. F	9001/02-196-150-101
16	63	72	< 80	< 1.4	21.7	390	2116	--	--	0.89	1.17	Pic. J	9001/02-217-390-101
24	320	357	67	--	28	90	630	2.2	0.083	14	0.65	Pic. F	9001/02-280-090-101
24	143	162	< 65	< 1.4	30.8	230	1771	--	--	0.7	0.524	Pic. J	9001/02-308-230-101
36	456	509	70	--	41.2	95	979	--	--	9	0.287	Pic. F	9001/02-412-095-101
*) Maximum leakage					I _{leak} ≤ 10 μA								
**) Tolerance					± 0.5 %								

Functional and Maximum Safety Values

U _N	Rated operating voltage	ΔU	Additional voltage drop through the safety barrier	L _o	Maximum permissible external inductance
R _{min.}	Minimum resistance of the safety barrier	U _o	Maximum voltage	C _o	Maximum permissible external capacity
R _{max.}	Maximum resistance of the safety barrier	I _o	Maximum current		
I _{max.}	Maximum current through the safety barrier	P _o	Maximum power		



**9001/03-...
Single-channel diode return barriers for positive polarity**



Picture G

Selection Table

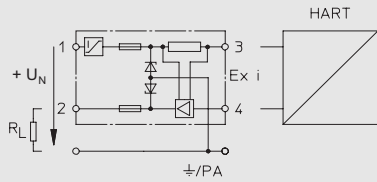
U _N	R _{min.}	R _{max.}	I _{max.}	ΔU	Safety values								Ordering Code
					U _o	I _o	P _o	IIC	C _o	IIB	C _o		
V	Ω	Ω	mA	V	V	mA	mW	mH	μF	mH	μF		
Single-channel diode return barrier polarity: +													
6	--	--	< 150	3.5	8.6	0	0	1000	6.2	1000	55	Pic. G	9001/03-086-000-101
12	--	--	< 100	3.5	16.8	0	0	1000	0.39	1000	2.29	Pic. G	9001/03-168-000-101
16	--	--	< 100	3.5	19.9	0	0	1000	0.223	1000	1.42	Pic. G	9001/03-199-000-101
24	--	--	< 100	3.5	28	0	0	50	0.083	50	0.65	Pic. G	9001/03-280-000-101
*)		Short circuit rating		not short circuit proof									
**)		Ambient temperature		- 20 °C ... + 50 °C									

Functional and Maximum Safety Values

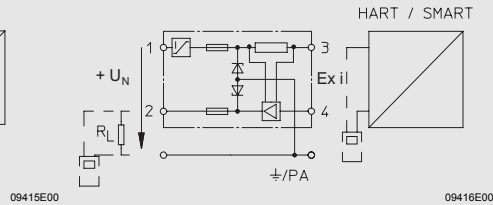
U _N	Rated operating voltage	ΔU	Additional voltage drop through the safety barrier	L _o	Maximum permissible external inductance
R _{min.}	Minimum resistance of the safety barrier	U _o	Maximum voltage	C _o	Maximum permissible external capacity
R _{max.}	Maximum resistance of the safety barrier	I _o	Maximum current		
I _{max.}	Maximum current through the safety barrier	P _o	Maximum power		



9001/51-... Single-channel safety barriers for transmitter



Picture K



Picture L

Selection Table

U _N V	Safety values								Ordering Code
	U _o V	I _o mA	P _o mW	IIC L _o mH	C _o μF	IIB L _o mH	C _o μF		
Single-channel safety barrier for transmitter									
20 ... 35	28	91	637	2.2	0.083	14	0.65	Pic. L	9001/51-280-091-141
20 ... 35	28	110	770	1.2	0.083	9	0.65	Pic. K	9001/51-280-110-141

Technical Data

Series	9001/51-280-091-141				9001/51-280-110-141			
Supply current	I _s ≤ 50 mA				I _s ≤ 50 mA			
Accuracy	± 0.05 %				± 0.05 %			
Temperature effect	± 0.1 % / 10 K				± 0.1 % / 10 K			
Longterm drift	± 0.05 %				± 0.05 %			
Rated working current	I _N = 3.6 mA ... 22 mA				I _N = 3.6 mA ... 22 mA			
Load	R _L ≤ 350 Ω				R _L ≤ 500 Ω (U _N ≤ 23.5 V) R _L ≤ 750 Ω (U _N > 23.5 V)			
Transmitter supply voltage	U _{min} (I _N = 20 mA) U _N - 9.5 V 14 V		U _N ≤ 23.5 V > 23.5 V		U _{min} (I _N = 20 mA) U _N - 8.5 V 15 V		U _N ≤ 23.5 V > 23.5 V	

Functional and Maximum Safety Values

U _N	Rated operating voltage	ΔU	Additional voltage drop through the safety barrier	L _o	Maximum permissible external inductance
R _{min.}	Minimum resistance of the safety barrier	U _o	Maximum voltage	C _o	Maximum permissible external capacity
R _{max.}	Maximum resistance of the safety barrier	I _o	Maximum current		
I _{max.}	Maximum current through the safety barrier	P _o	Maximum power		

