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Find the *Stahl / Intrinspak 9002/22-032-300-111* at our website: *Click HERE*

Safety Barriers



STAHL

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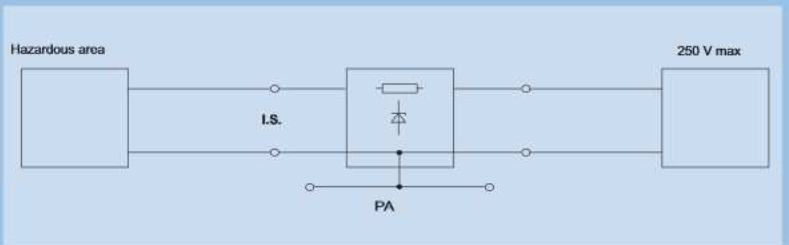
Safety barriers

- Exchangeable back-up fuse for all safety barriers
- Snap-on mounting on rails: simultaneous connection to potential equalisation/ ground
- Simple selection: application specific single and dual-channel safety barriers for standard uses of the instrumentation
- Extensive program for general applications
- Short-circuit-proof
- Certifications of all important test sites available
- EMC tested, CE marking
- Installation in Zone 2 possible



R. STAHL safety barrier types 9001, 9002 and 9004 can be used for:

- **All standard applications of instrumentation:**
  Analog input
  Analog output
  Digital input
  Digital output
  Temperature sensor
  Pressure sensor
  etc.
- **General applications,**
  if the power consumption does not exceed the limits of the type of intrinsic safety protection



Certifications	
9001	PTB, FM, UL, CSA, SA, FTZU, SEV, BKI, PROCHEM, VNIIEF
9002	PTB, FM, UL, CSA, SA, FTZU, SEV, BKI, PROCHEM, VNIIEF
9004	PTB, FM, CSA, SA, FTZU, SEV, BKI, PROCHEM, VNIIEF
Marking (CENELEC)	[EEx ia] IIC/IIB

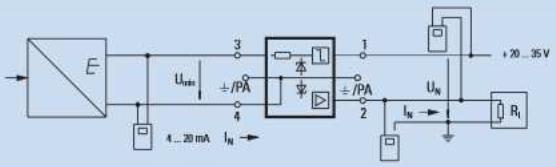
Technical data	
Input circuit	corresponding to selection tables
Output circuit	corresponding to selection tables
Transfer characteristic	
Leakage current with U_N	1 µA (if nothing different is specified)
Temperature effect	0,25 %/10 K
Short-circuit-proof	(if nothing different is specified)
Transmission frequency	50 kHz (with: $I_m \leq 50$ mA) 100 kHz (with: $I_m > 50$ mA), (with resistive current limitation) 10 kHz (with electronic current limitation)

Mechanical data	
Dimensions	see page 2/7
Casing material	Polyamide 6 GF
Weight	100 g
Degree of protection according to IEC 529	Terminals IP20 Housing IP40
Type of connection	4 Terminals (cage terminals): max. each 1.5 mm² flexible or solid core 2 PA-terminals (Ex e version): each 4 mm² flexible or solid core

Selection table according to function

Transmitter supply barrier (Field circuit grounded) for intrinsically safe operation of 2-wire-transmitters

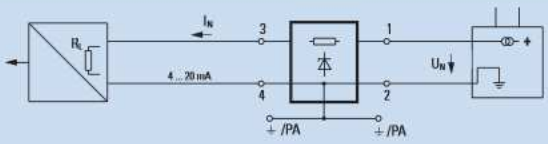
Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for analog, SMART and HART transmitters	28	91	**9001/51-280-091-14**
Analog input, intrinsically safe, for analog and HART transmitters	28	110	**9001/51-280-110-14**



Power supply U_N	20 V ... 35 V DC; ≤ 50 mA
Supply voltage for transmitter U_{min}	9001/51-280-091-14: 14 V 9001/51-280-110-14: 15 V
Signal input/output	4 ... 20 mA / 4 ... 20 mA
Load resistance R_L	9001/51-280-091-14: ≤ 350 Ω 9001/51-280-110-14: ≤ 750 Ω

Analog output 0...22 mA (Field circuit grounded) for intrinsically safe operation of control valves, i/p converters, indicators, etc.

Version	U_Z [V]	I_m [mA]	Ordering code
Analog output, intrinsically safe, for control valves, i/p converters, indicators	28	110	**9001/01-280-110-10**



Rated operating voltage U_N	≤ 24 V DC
Signal input/output	0 ... 22 mA / 0 ... 22 mA
Voltage drop through the safety barrier	6,5 V

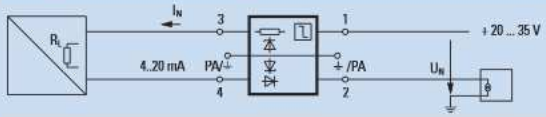
Additional information is found in list M1 "Safety barriers"

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Selection table according to function (continued)

Analog output 0 ... 22 mA (Field circuit floating) for intrinsically safe operation of control valves, i/p converters, indicators, etc.

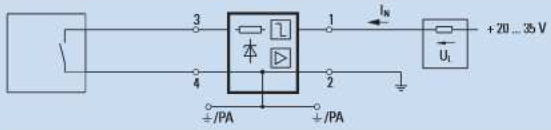
Version	U_Z [V]	I_m [mA]	Ordering code
Analog output, intrinsically safe, for control valves, i/p converters, indicators	25,2	121	**9002/13-252-121-04**



Power supply U_N	20 V ... 35 V DC; ≤ 22 mA
Signal input/output	0 ... 22 mA / 0 ... 22 mA
Voltage drop through the safety barrier	8,7 V

Digital input load to "+" (Field circuit grounded) for intrinsically safe operation of contacts

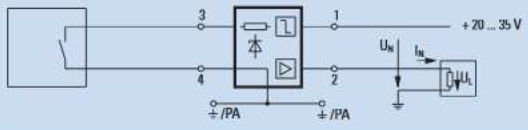
Version	U_Z [V]	I_m [mA]	Ordering code
Digital input, intrinsically safe, for contacts, load to +	25,2	57	**9001/01-252-057-14**



Power supply U_N	20 V ... 35 V DC; ≤ 40 mA
Signal input/output	contact / I_N ≤ 40 mA
Voltage drop through the safety barrier	3 V

Digital input load to ground (Field circuit grounded) for intrinsically safe operation of contacts

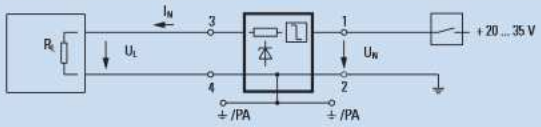
Version	U_Z [V]	I_m [mA]	Ordering code
Digital input, intrinsically safe, for contacts, load to ground	25,2	60	**9001/01-252-060-14**



Power supply U_N	20 V ... 35 V DC
Signal input/output	contact / I_N ≤ 40 mA
Voltage drop through the safety barrier	3 V

Digital output load to ground (Field circuit grounded) for intrinsically safe operation of solenoid valves, LED's, etc.

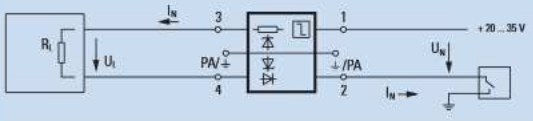
Version	U_Z [V]	I_m [mA]	Ordering code
Digital output, intrinsically safe, for solenoid valves, LED to ground	25,2	100	**9001/01-252-100-14**



Power supply U_N	20 V ... 35 V DC
Signal input/output	contact to "+" / for load to ground
Load voltage in no-load operation	U_L = U_N - 2 V with U_N ≤ 24 V, U_L = 22 V with U_N > 24 V
Internal resistance	258 Ω

Digital output load to "+" (Field circuit floating) for intrinsically safe operation of solenoid valves, LED's, etc.

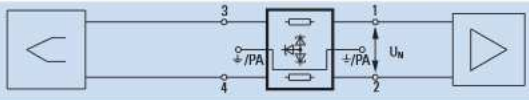
Version	U_Z [V]	I_m [mA]	Ordering code
Binary output, intrinsically safe, for solenoid valves, LED to "+"	25,2	121	**9002/13-252-121-04**



Power supply U_N	20 V .. 35 V DC
Signal input/output	contact to "ground" / for load to "+"
Load voltage in no-load operation	U_L = U_N – 3 V with U_N ≤ 24 V, U_L = 21 V with U_N > 24 V
Internal resistance	256 Ω

Analog input for temperatures (Field circuit floating) for intrinsically safe operation of thermocouples

Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for thermocouples and other AC sensors	9,3	300	**9002/22-093-300-00**



Rated voltage U_N	≤ 6 V_{SS} AC
Internal resistance	2 x 80,5 Ω
Signal input/output	1:1

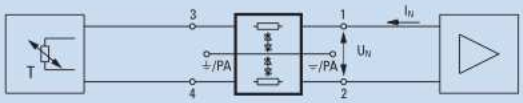
Additional information is found in list M1 "Safety barriers"

STAHL

Selection table according to function (continued)

Analog input for temperatures (Field circuit floating) for intrinsically safe operation of Pt 100 in 2-wire connection

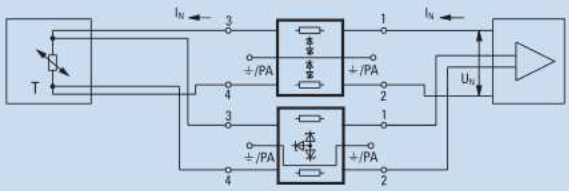
Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for Pt 100 in 2-wire circuit	3,2	300	**9002/22-032-300-11**



Rated voltage U_N	≤ 1,4 V_{SS} AC
Internal resistance	2 x 20 Ω ± 0,1 Ω
Signal input/output	1:1

Analog input for temperatures (Field circuit floating) for intrinsically safe operation of Pt 100 in 4-wire connection

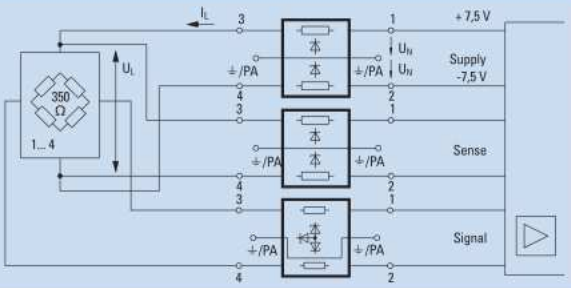
Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for Pt 100 in 4-lead circuit	12,5	340	**9002/22-032-300-11** **9002/22-093-040-00**



Rated voltage U_N	≤ 1,4 V_{SS} AC
Internal resistance, feed circuit	2 x 20 Ω ± 0,1 Ω
Internal resistance, measuring circuit	2 x 481 Ω
Signal input/output	1:1

Analog input for load cells (Field circuit floating) for intrinsically safe operation of load cells in 6-wire connection

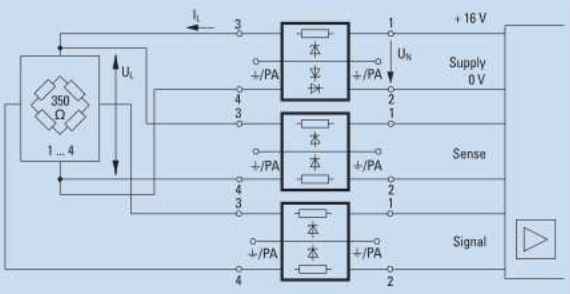
Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for load cells with balanced supply	18,7	330	**9002/10-187-270-00** **9002/10-187-020-00** **9002/22-093-040-00**



Rated voltage U_N	≤ ± 7,5 V DC
Internal resistance, supply circuit	2 x 46 Ω
Internal resistance, sensing circuit	2 x 482 Ω
Internal resistance, signal circuit	2 x 482 Ω
Signal input/output	1:1

Analog input for load cells (Field circuit floating) for intrinsically safe operation of load cells in 6-wire connection

Version	U_Z [V]	I_m [mA]	Ordering code
Analog input, intrinsically safe, for load cells with DC supply	19,9	285	**9002/13-199-225-00** **9002/11-199-030-00** **9002/11-199-030-00**



Rated voltage U_N	≤ + 16 V DC
Internal resistance, supply circuit	1 x 103 Ω +2 V/I_L
Internal resistance, sensing circuit	2 x 1412 Ω
Internal resistance, signal circuit	2 x 1412 Ω
Signal input/output	1:1

Additional information is found in list M1 "Safety barriers"

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Selection table according to technical data

Single-channel safety barriers for general applications

Polarity	U_N [V]	R [Ω]	U_Z [V]	I_m [mA]	Image no.	Ordering code
+	6	28	8,3	442	1	**9001/01-083-442-10 ****
+	6	32	8,6	390	1	**9001/01-086-390-10 ****
+	6	70	8,6	150	1	**9001/01-086-150-10**
+	6	206	8,6	50	1	**9001/01-086-050-10**
+	8	98	12,6	150	1	**9001/01-126-150-10**
+	12	55 + 0,7V/I_N*	15,8	390	5	**9001/01-158-390-10**
+	12	127	15,8	150	1	**9001/01-158-150-10**
+	12	247	16,8	75	1	**9001/01-168-075-10**
+	16	67 + 0,7V/I_N*	19,9	390	5	**9001/01-199-390-10**
+	16	160	19,9	150	1	**9001/01-199-150-10**
+	16	230	19,9	100	1	**9001/01-199-100-10**
+	16	2 V / I_N	19,9	0	6	**9001/03-199-000-10**
+	24	124+0,7V/I_N*	28	280	5	**9001/01-280-280-10**
+	24	187	28	165	1	**9001/01-280-165-10**
+	24	302	28	100	1	**9001/01-280-100-10**
+	24	356	28	85	1	**9001/01-280-085-10**
+	24	664	28	50	1	**9001/01-280-050-10**
+	24	2 V / I_N	28	0	6	**9001/03-280-000-10**
-	6	32	8,6	390	2	**9001/00-086-390-10**
-	24	302	28	100	2	**9001/00-280-100-10**
-	24	356	28	85	2	**9001/00-280-085-10**
~	0,7	19	1,6	150	3	**9001/02-016-150-10**
~	0,7	20,1	1,6	150	3	**9001/02-016-150-11**
~	0,7	40	1,6	50	3	**9001/02-016-050-11**
~	0,7	127	1,6	15	3	**9001/02-016-015-10**
~	6	34	9,3	390	3	**9001/02-093-390-10**
~	6	80	9,3	150	3	**9001/02-093-150-10**
~	6	338	9,3	30	3	**9001/02-093-030-10**

* $I_{N\ max}$ = 100 mA ** not short-circuit-proof

Single-channel safety barriers with electronic current limitation for general applications

Polarity	U_N [V]	R [Ω]	U_Z [V]	I_m [mA]	P_m [mW]	Image no.	Ordering code
+	12	28 + 0,9 V/I_N	16,8	50	840	4	**9004/01-168-050-00**
+	23 ... 27	U_{Load} = 17 V	20,6	50	1030	4	**9004/51-206-050-00**
+	24	53 + 0,9 V/I_N	28	50	1400	4	**9004/01-280-050-00**
+	26	72 + 0,9 V/I_N	28	25	700	4	**9004/01-315-025-00**

Additional information is found in list M1 "Safety barriers"

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Selection table according to technical data (continued)

Dual-channel safety barriers for general applications

Polarity	U_N [V]	R [Ω]	U_Z [V]	I_m [mA]	P_m [mW]	Image no.	Order code
+ / +	U_N = 20...35 V, digital and analog output for special applications see list M1						**9002/13-280-100-04**
+ / +	22,5 / 17,5	340 / 440	26 / 20	87 / 51	570 / 260	7	**9002/11-260-138-00**
+ / +	24 / 24	280 / 2 V/I_N	28 / 28	93 / 0	650 / 0	9	**9002/13-280-093-00**
+ / +	24 / 24	280 / 2 V/I_N	28 / 28	110 / 0	770 / 0	9	**9002/13-280-110-00**
+ / +	24 / 24	2 V/I_N / 2 V/I_N	28 / 28	0 / 0	0 / 0	11	**9002/33-280-000-00**
+ / +	25 / 25	340 / 340	28 / 28	93 / 93	650 / 650	7	**9002/11-280-186-00**
+ / -	24 / 24	2 V/I_N / 2 V/I_N	28 / 28	0 / 0	0 / 0	–	**9002/34-280-000-00**
- / -	22,5 / 17,5	340 / 440	26 / 20	87 / 51	570 / 260	8	**9002/00-260-138-00**
~ / ~	9 / 9	178 / 178	12 / 12	80 / 80	240 / 240	12	**9002/22-240-160-00**
~ / ~	12 / 12	118 / 118	15 / 15	150 / 150	560 / 560	10	**9002/77-150-300-00**
~ / ~	24 / 24	694 / 694	28 / 28	47 / 47	330 / 330	10	**9002/77-280-094-00**

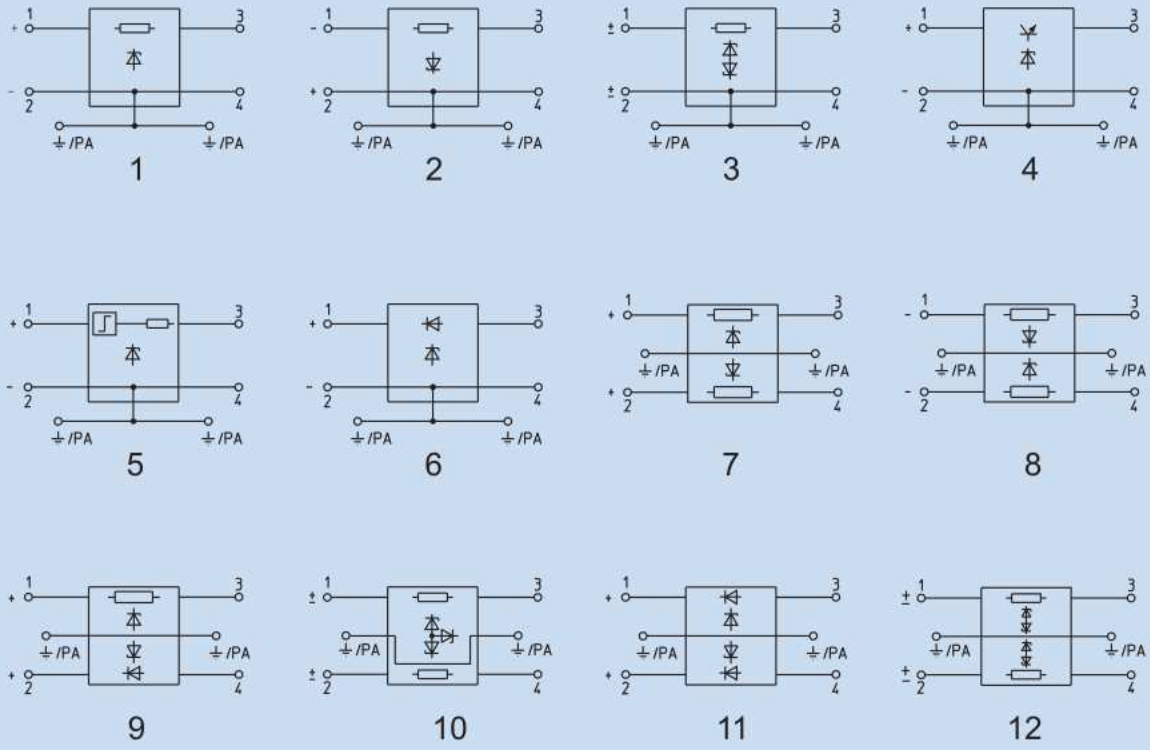
Safe maximum values

U_z	Maximum output voltage
I_m	Maximum short-circuit current
P_m	Maximum output power

Functional technical values

U_N	Rated operating voltage
I_N	Rated current
R	End to end resistance

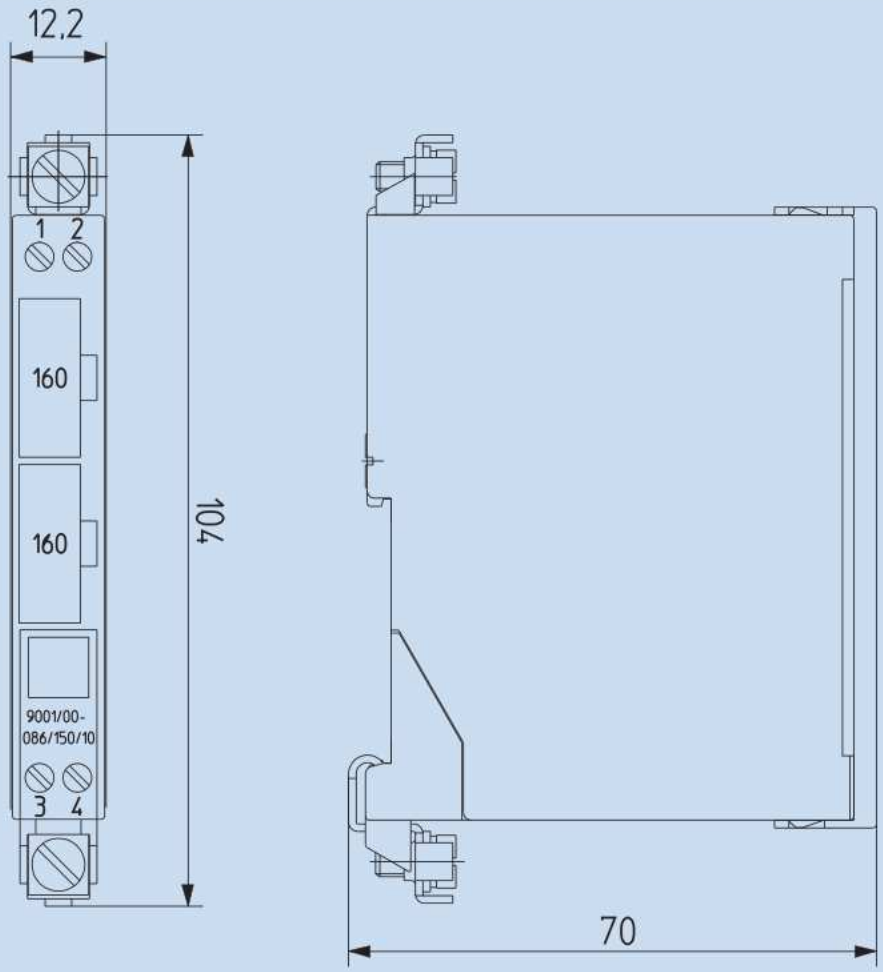
Block diagrams of the safety barriers



Additional information is found in list M1 "Safety barriers"

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Dimensions (all dimensions in mm)



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