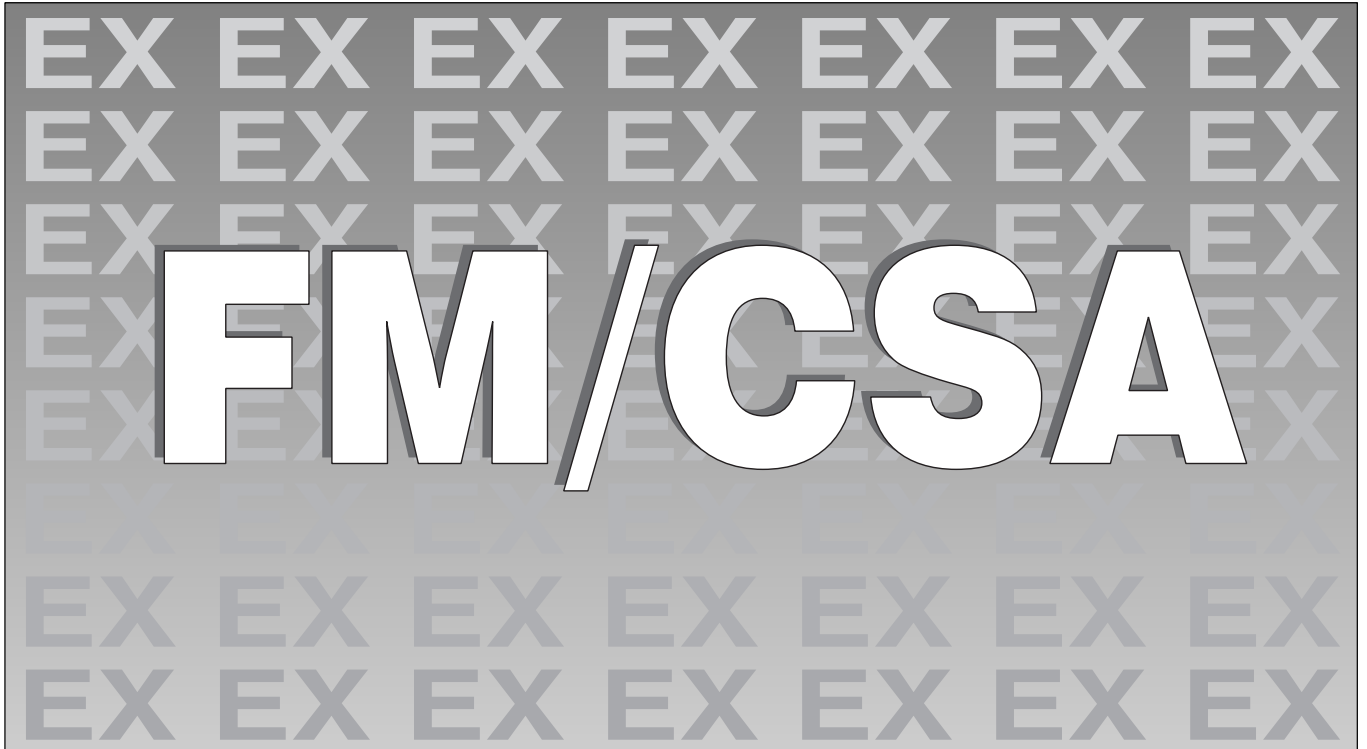


Type test certificate FM/CSA

49/18-35 EN



## Authorities

For using the signal converter TEIP 11 in hazardous areas the following design test certificates are available:

1. Factory Mutual Research (FM)  
1151 Boston-Providence Turnpike  
Norwood, MA 02062 USA  
617-762-4300

2. Canadian Standards Association (CSA)  
178 Rexdale Boulevard  
Rexdale (Toronto), Ontario Canada, M9W 1R3  
416-747-4044

### Type test certificate FM

Protection	Cl	DIV	Group	Doc No FM 900842 + Doc No FM 900843		
Intrinsically Safe	I	1	A-B-C-D	Modell 22/06 -	65 61 62	Control room housing 19" slide-in unit Field housing unit, Plastic
	I-II-III	1	A-B-C-D-E-F-G		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
Nonincendive	I	2	A-B-C-D	Modell 22/06 -	65 61 62	Control room housing 19" slide-in unit Field housing unit, Plastic
	I	2	A-B-C-D		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
Special Protection	II	2	G		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	III	2			66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
Explosionproof	I	1	B-C-D	Modell 22/06 -	66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
Dust-Ignitionproof	II-III	1	E-F-G	Modell 22/06 -	66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum

### Type test certificate CSA

Protection	Cl	DIV	Group	Doc No CSA 900842		
Intrinsically Safe	I	1	A-B-C-D	Modell 22/06 -	65 61 62	Control room housing 19" slide-in unit Field housing unit, Plastic
	I	2	A-B-C-D		65 61 62	Control room housing 19" slide-in unit Field housing unit, Plastic
	I	1	A-B-C-D		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	II	1	E-F-G		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	III				66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	I	2	A-B-C-D		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	II	2	E-F-G		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
Explosionproof	I	1	B-C-D		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum
	II	1	E-F-G		66/68 67/69	Field housing unit, Stainless steel Field housing unit, Aluminum

Stainless steel and aluminium housings have a tapped hole 1/2 NPT for cable entry.

Types „intrinsically safe" and „nonincendive" require a dust-proof, „explosion proof" a pressure-proof cable entry.

Respective cable glands have to be ordered separately.

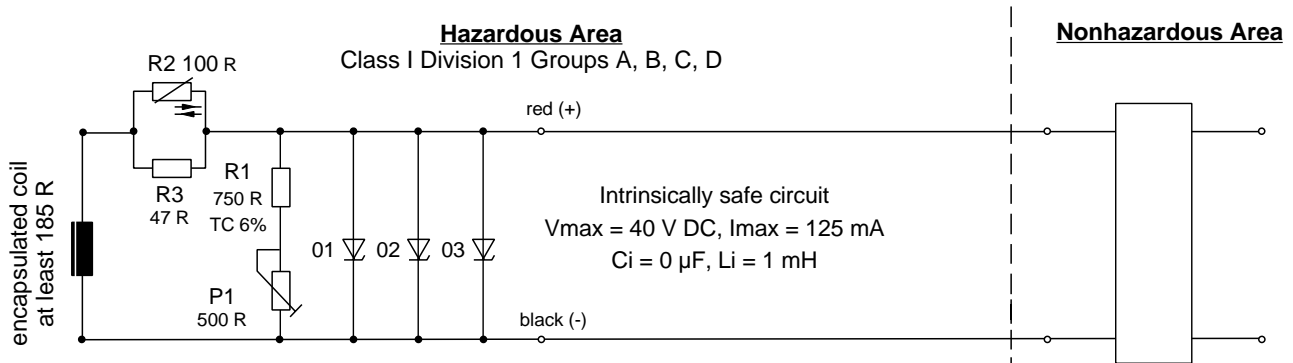
## Limits values of intrinsically safe circuits

Using intrinsically safe devices certain tension and current values mustn't be exceeded. For limitation of these values safety barriers approved by FM or CSA are needed. These barriers are not part of our delivery program.

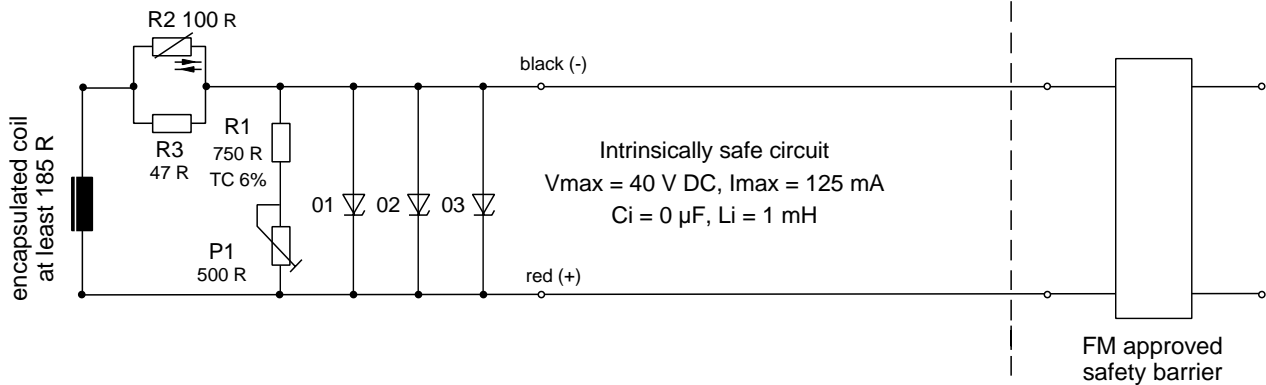
### 1 Limit values at "intrinsically safe" FM-approved

- 1.1 Internal circuit acc. to DOC FM 900842:  $R_i = 260 \text{ ohms at } 20 \text{ }^\circ\text{C, } T_k +0,4 \text{ } \%/K$   
 D1 - D2 - D3 = breakdown diode 7,5 V and 5 W (1N5343B or comparable)

- 1.1.1 Characteristic: direct 0(4) ... 20 mA

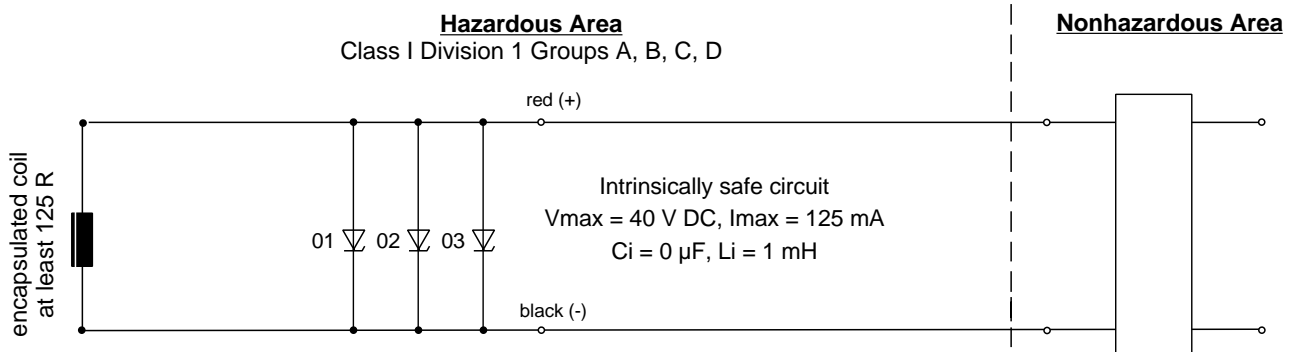


- 1.1.2 Characteristic: reverse 20 ... (4)0 mA

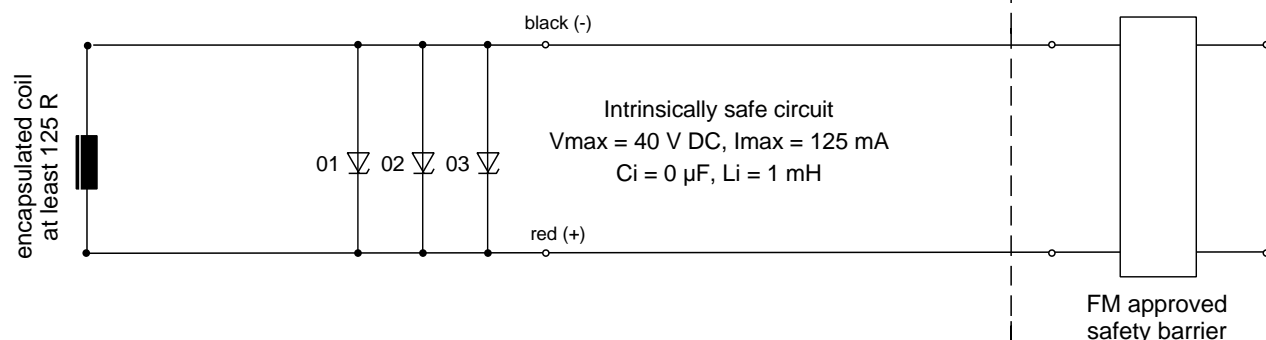


- 1.2 Internal circuit acc. to DOC FM 900843:  $R_i = 125 \text{ ohms at } 20 \text{ }^\circ\text{C, } T_k +0,4 \text{ } \%/K$   
 D1 - D2 - D3 = breakdown diode 7,5 V and 5 W (1N5343B or comparable)

- 1.2.1 Characteristic: direct 0(4)...20 mA



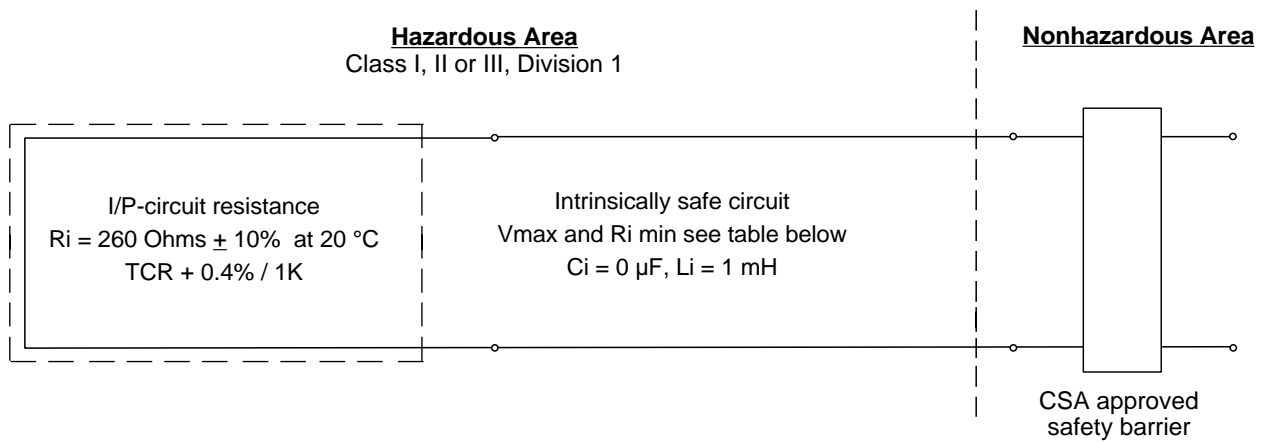
- 1.2.2 Characteristic: reverse 20 ... (4)0 mA



## 2 Limit values at „intrinsically safe“ CSA-approved

Internal circuit acc. to DOC CSA 900842:  $R_i = 260 \text{ ohms at } 20 \text{ }^\circ\text{C, T}_k +0,4 \text{ \%}/\text{K}$

Characteristic: direct 0(4) ... 20 mA or reverse 20 ... (4)0 mA



### Limit values of breakdown diode

Max. Spannung (V)	12	22	25	28	29.5	30	32	33
Min. Ohm ( $R_i$ ) Group A-B-C-D-E-F-G	40	150	200	270	305	330	400	
Min Ohm ( $R_i$ ) Group C-D				120		150		200

**ABB**

**Hartmann & Braun**

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Technische Änderungen vorbehalten.  
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