



**I.S. Isolators (Modules)  
mA Isolating Repeater  
Loop Powered  
Type 9111/63**

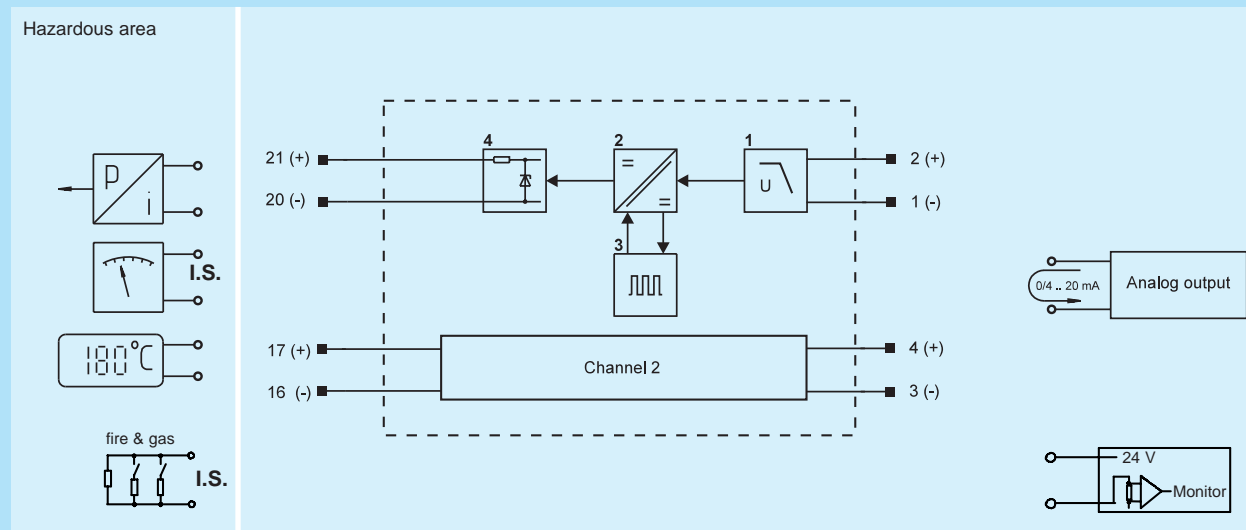
- Intrinsically safe output [EEx ia] IIC
- 2 channels
- Galvanic isolation between input and output
- Loop powered
- Extremely low internal resistance
- HART signal transmission, bidirectional
- EMC tested, CE marking

Basic function: analog output, mA, 2 channels.

The mA isolating repeaters are used for intrinsically safe operation of control valves, i/p transmitters, analog and digital displays etc.

9111/63 is also suitable for fire & gas detectors.

STAHL



Selection table	
Version	Ordering code
mA isolating repeater	9111 / 63 - 11 - 00

Safety data for output	
Certifications	BVS (Europe, CENELEC), CSA (Canada), SEV (Switzerland), FTZU (Czech Republic), EVPU (Slovakia), FM (USA)
Marking	[Ex ia] IIC/IIB according to CENELEC
Classification	associated electrical apparatus
Safe maximum values (CENELEC)	
Max. voltage $U_m$	25.2 V
Max. current $I_m$	99 mA
Max. capacitance $C_a$ for [Ex ia] IIC / IIB	107 nF / 820 nF
Max. inductance $L_a$ for [Ex ia] IIC / IIB	1.9 mH / 11 mH
Further information and combinations of values, see certifications	

Technical data	
Signal transmission	
The current ( $I_E$ ) fed to the analog input is transferred linearly to the I.S. output ( $I_A$ ). In addition a HART signal is transferred bidirectionally.	
Current range (specified accuracy)	$I_A = I_E$ 0..20 mA
Internal resistance (for $I_A \leq 20$ mA)	$R_{i20} \leq 380 \Omega$
Response time (10 .. 90%)	$\leq 20$ ms
Input	
Input voltage	$U_E \leq 35$ V
Max. effective voltage $U_{E\text{eff}}$	24.5 V
Polarity reversal protection	yes
Output	
Load resistance (for $I_A = 20$ mA, $U_{E\text{eff}}$ )	$R_L \leq 820 \Omega$
Open-circuit	
Input behavior on open-circuit	$I_E \leq 1.0$ mA
Error limits	
in % of the measuring range	
Linearity error for $R_L = 0 \Omega$ , 23 °C	$\leq 0.15$ %
Internal consumption	$\leq 0.15$ %
Temperature effect	$\leq \pm 0.05$ % / 10K

Engineering	
<p>Calculation of input voltage <math>U_E</math>: (see also Technical data)</p> <p>In range <math>I = 0 \dots 22</math> mA:  <math>U \geq U_E \geq U_L + (R_{i20} + R_i) \cdot I</math></p> <p>In range <math>22 \text{ mA} &lt; I \leq I_m</math>:  <math>U \geq U_E \geq U_L + \Delta U + (R_i + R_i) \cdot I</math></p> <p>The calculated value of <math>U_E</math> has to be smaller than the value <math>U_{E,\text{eff}}</math> (internal limitation)!</p>	

