



# Switch Amplifier

## HiC2851

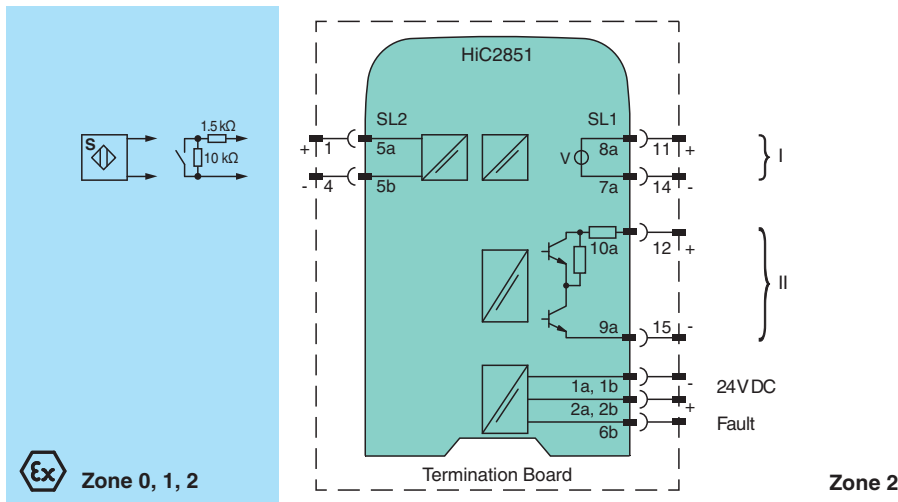
- 1-channel isolated barrier
- 24 V DC supply (bus powered)
- Input for approved dry contacts or SN/S1N sensors
- Usable as signal splitter (1 input and 2 outputs)
- Active voltage output
- Passive transistor output (resistive acc. to EN 60947-5-6)
- Line fault detection (LFD)
- Line fault transparency (LFT)
- Up to SIL 3 acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications. The device transfers digital signals (SN/S1N proximity sensors or approved dry contacts) from the explosion-hazardous area to the non-explosion-hazardous area. The input controls one active voltage output and one passive transistor output with a resistive output characteristic acc. to EN 60947-5-6. The passive transistor output has three defined states: 1-signal = 1.8 kΩ, 0-signal = 14 kΩ and fault > 100 kΩ. This output characteristic offers line fault transparency on the signal lines. During a fault state, both outputs switch to their fault state and LEDs indicate the fault according to NAMUR NE 44. A separate fault bus is available. This fault bus can be monitored if the termination board supports a module fault detection. Unlike a SN/S1N series safety sensor, an approved dry contact requires a 10 kΩ resistor to be placed across the contact in addition to a 1.5 kΩ resistor in series. This device mounts on a HiC termination board.

### Connection



### Technical Data

General specifications	
Signal type	Digital Input
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 3
Systematic capability (SC)	SC 3
Supply	
Connection	SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	U <sub>r</sub> 19 ... 30 V DC bus powered via Termination Board

Release date: 2023-06-05 Date of issue: 2023-06-05 Filename: 257611\_eng.pdf

## Technical Data

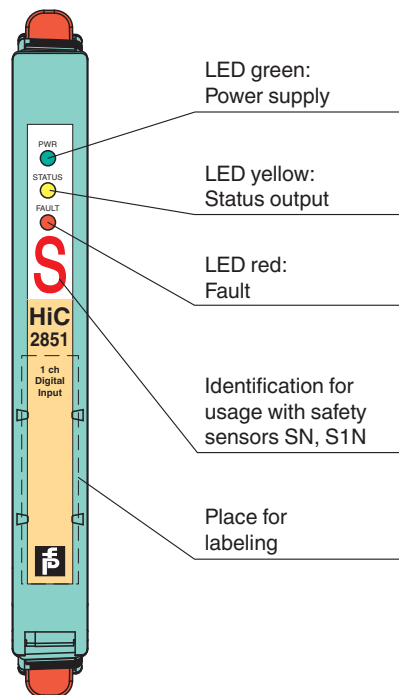
Ripple		≤ 10 %
Rated current	$I_r$	≤ 55 mA
Power dissipation		≤ 800 mW
Power consumption		≤ 1300 mW
<b>Input</b>		
Connection side		field side
Connection		SL2: 5a(+), 5b(-)
Open circuit voltage/short-circuit current		approx. 8.4 V DC / approx. 11.9 mA
Switching point/switching hysteresis		2.1 ... 2.8 mA / approx. 0.3 mA
Line fault detection		breakage $I \leq 0.15$ mA , short-circuit $I \geq 8.5$ mA
Lead resistance		max. 50 $\Omega$ , consider capacitances and inductances
Switching point		1-signal: $I > 2.8$ mA 0-signal: $I < 2.1$ mA
Response delay		≤ 1 ms
<b>Output</b>		
Connection side		control side
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Rated voltage	$U_r$	output II: typ. 8 V DC, max. 22 V DC
Output I		active voltage output, short-circuit proof 0-signal: 0 V 1-signal: 20 ... 31 V DC at max. 15 mA fault: 0 V
Output II		passive transistor output (resistive) 0-signal: 14 k $\Omega$ $\pm$ 10 % 1-signal: 1.8 k $\Omega$ $\pm$ 10 % fault: > 100 k $\Omega$
<b>Fault indication output</b>		
Connection		SL1: 6b
Output type		open collector transistor (internal fault bus)
<b>Transfer characteristics</b>		
Switching frequency		
Output I		≤ 50 Hz
Output II		≤ 50 Hz
<b>Galvanic isolation</b>		
Output/power supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
Output/Output		functional insulation acc. to IEC 62103, rated insulation voltage 50 V <sub>eff</sub>
<b>Indicators/settings</b>		
Display elements		LEDs
Labeling		space for labeling at the front
<b>Directive conformity</b>		
Electromagnetic compatibility		
Directive 2014/30/EU		EN 61326-1:2013 (industrial locations)
<b>Conformity</b>		
Electromagnetic compatibility		EN IEC 61326-3-2:2018 , NE 21:2017 For further information see system description.
Degree of protection		IEC 60529:2001
<b>Ambient conditions</b>		
Ambient temperature		-20 ... 60 °C (-4 ... 140 °F)
<b>Mechanical specifications</b>		
Degree of protection		IP20
Mass		approx. 105 g
Dimensions		12.5 x 106 x 128 mm (0.5 x 4.2 x 5.1 inch) (W x H x D)
Mounting		on termination board
Coding		pin 1 and 2 trimmed For further information see system description.
<b>Data for application in connection with hazardous areas</b>		

## Technical Data

EU-type examination certificate		BASEEFA 07 ATEX 0302X	
Marking		Ⓜ II (1)G [Ex ia] IIC , Ⓜ II (1) D [Ex ia] IIIC , Ⓜ I (M1) [Ex ia] I	
Input		Ex ia	
Voltage	$U_o$	10.5 V	
Current	$I_o$	17.1 mA	
Power	$P_o$	45 mW (linear characteristic)	
Supply			
Maximum safe voltage	$U_m$	253 V AC (Attention! $U_m$ is no rated voltage.)	
Output			
Maximum safe voltage	$U_m$	253 V AC (Attention! $U_m$ is no rated voltage.)	
Certificate		PF 09 CERT 1440 X	
Marking		Ⓜ II 3G Ex nA IIC T4 Gc	
Galvanic isolation			
Input/Output		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Input/power supply		safe electrical isolation acc. to IEC/EN 60079-11, voltage peak value 375 V	
Directive conformity			
Directive 2014/34/EU		EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010	
<b>International approvals</b>			
FM approval			
Control drawing		16-534FM-12 (cFMus)	
UL approval			
Control drawing		E106378	
IECEX approval			
IECEX certificate		IECEX BAS 07.0097X	
IECEX marking		[Ex ia Ga] IIC, [Ex ia] IIIC , [Ex ia] I	
<b>General information</b>			
Supplementary information		Observe the certificates, declarations of conformity, instruction manuals, and manuals where applicable. For information see <a href="http://www.pepperl-fuchs.com">www.pepperl-fuchs.com</a> .	

## Assembly

### Front view



## Safety Information

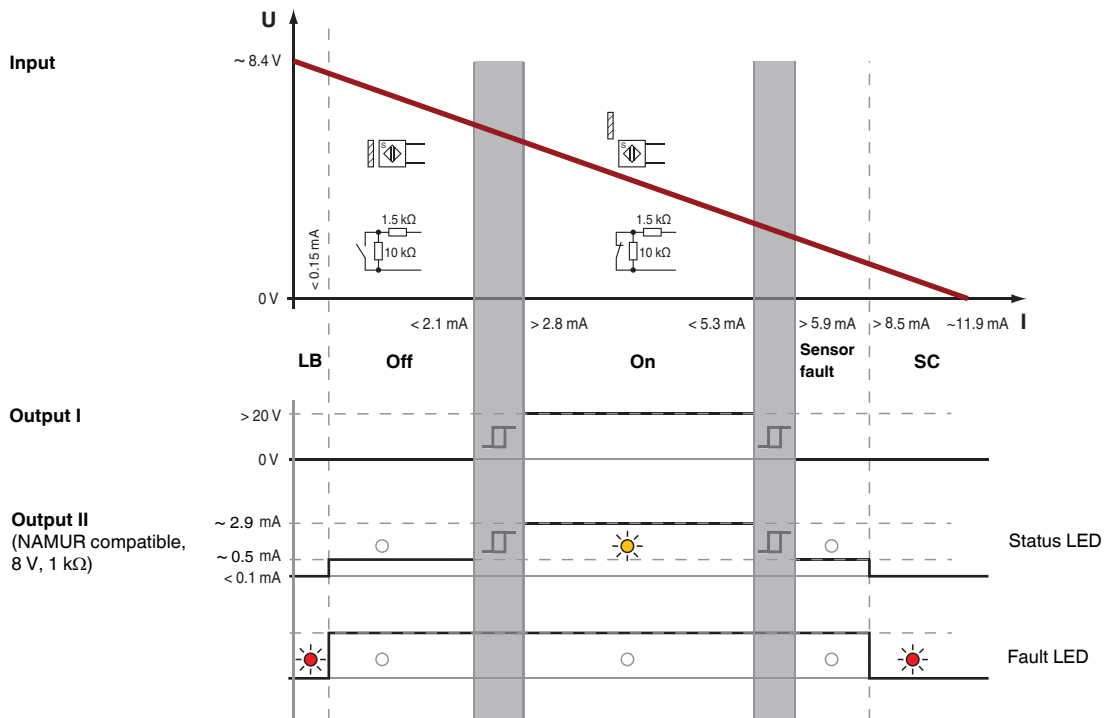
The pins for this device are trimmed to polarize it according to its safety parameter. Do not change this setting!  
For further information see system manual.

## Configuration

No user configuration available for this device.

**Characteristic Curve**

**Switch points**



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