



# Switch Amplifier

## HiC2853R2

- 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)
- Application-specific outputs
- Active voltage output
- Passive transistor output (resistive)
- 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. The passive transistor output has three defined states: 1-signal = 5 kΩ, 0-signal = 15 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.

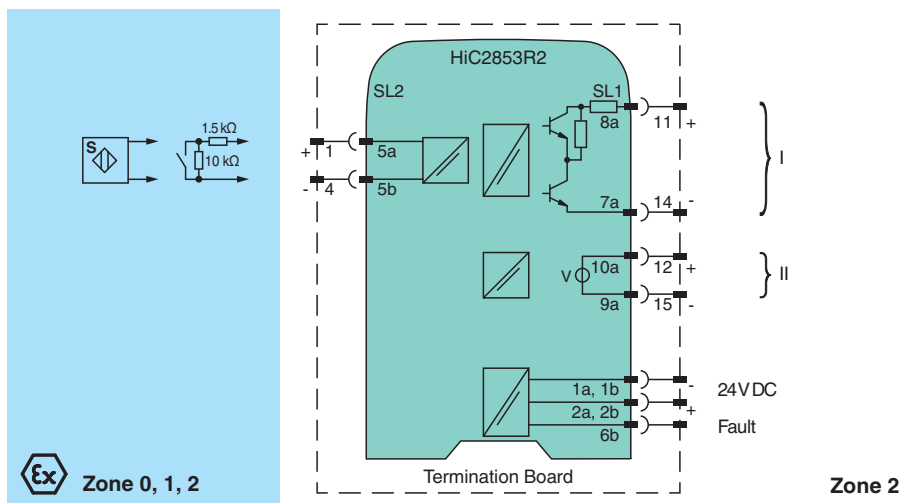
### Application

This device is compatible to the control:

- Honeywell Safety Manager RIO I.S.

Compatibility check to other ESD/ DCS systems on request.

### Connection



### Technical Data

General specifications	
Signal type	Digital Input
Functional safety related parameters	

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## Technical Data

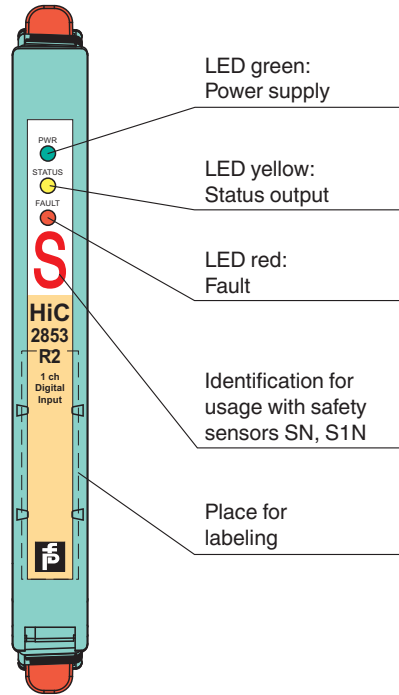
Safety Integrity Level (SIL)		SIL 3
Systematic capability (SC)		SC 3
<b>Supply</b>		
Connection		SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	$U_r$	19 ... 30 V DC bus powered via Termination Board
Ripple		$\leq 10 \%$
Rated current	$I_r$	$\leq 55 \text{ mA}$
Power dissipation		$\leq 800 \text{ mW}$
Power consumption		$\leq 1300 \text{ mW}$
<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 $I \leq 0.15 \text{ mA}$ , short-circuit $I \geq 8.5 \text{ mA}$
Lead resistance		max. 50 $\Omega$ , consider capacitances and inductances
Switching point		1-signal: $I > 2.8 \text{ mA}$ 0-signal: $I < 2.1 \text{ mA}$
Response delay		$\leq 1 \text{ ms}$
<b>Output</b>		
Connection side		control side
Connection		SL1: 8a(+), 7a(-); 10a(+), 9a(-)
Rated voltage	$U_r$	output I: 19 ... 30 V DC
Output I		passive transistor output (resistive) 0-signal: 15 $k\Omega \pm 5 \%$ 1-signal: 5 $k\Omega \pm 5 \%$ fault: $> 100 \text{ k}\Omega$
Output II		active voltage output, short-circuit proof 0-signal: 0 V 1-signal: 20 ... 31 V DC at max. 15 mA fault: 0 V
<b>Fault indication output</b>		
Connection		SL1: 6b
Output type		open collector transistor (internal fault bus)
<b>Transfer characteristics</b>		
Switching frequency		
Output I		$\leq 50 \text{ Hz}$
Output II		$\leq 50 \text{ Hz}$
<b>Galvanic isolation</b>		
Output/power supply		functional insulation acc. to IEC 62103, rated insulation voltage 50 $V_{\text{eff}}$
Output/Output		functional insulation acc. to IEC 62103, rated insulation voltage 50 $V_{\text{eff}}$
<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 $^{\circ}\text{C}$ (-4 ... 140 $^{\circ}\text{F}$ )
<b>Mechanical specifications</b>		
Degree of protection		IP20
Mass		approx. 105 g

## Technical Data

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>		
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 <sub>o</sub>	10.5 V
Current	I <sub>o</sub>	17.1 mA
Power	P <sub>o</sub>	45 mW (linear characteristic)
<b>Supply</b>		
Maximum safe voltage	U <sub>m</sub>	253 V AC (Attention! U <sub>m</sub> is no rated voltage.)
<b>Output</b>		
Maximum safe voltage	U <sub>m</sub>	253 V AC (Attention! U <sub>m</sub> is no rated voltage.)
Certificate	PF 09 CERT 1440 X	
Marking	Ⓜ II 3G Ex nA IIC T4 Gc	
<b>Galvanic isolation</b>		
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	
<b>Directive conformity</b>		
Directive 2014/34/EU	EN IEC 60079-0:2018+AC:2020 , EN 60079-11:2012 , EN 60079-15:2010	
<b>International approvals</b>		
UL approval	E106378	
Control drawing	116-0364	
<b>IECEx approval</b>		
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

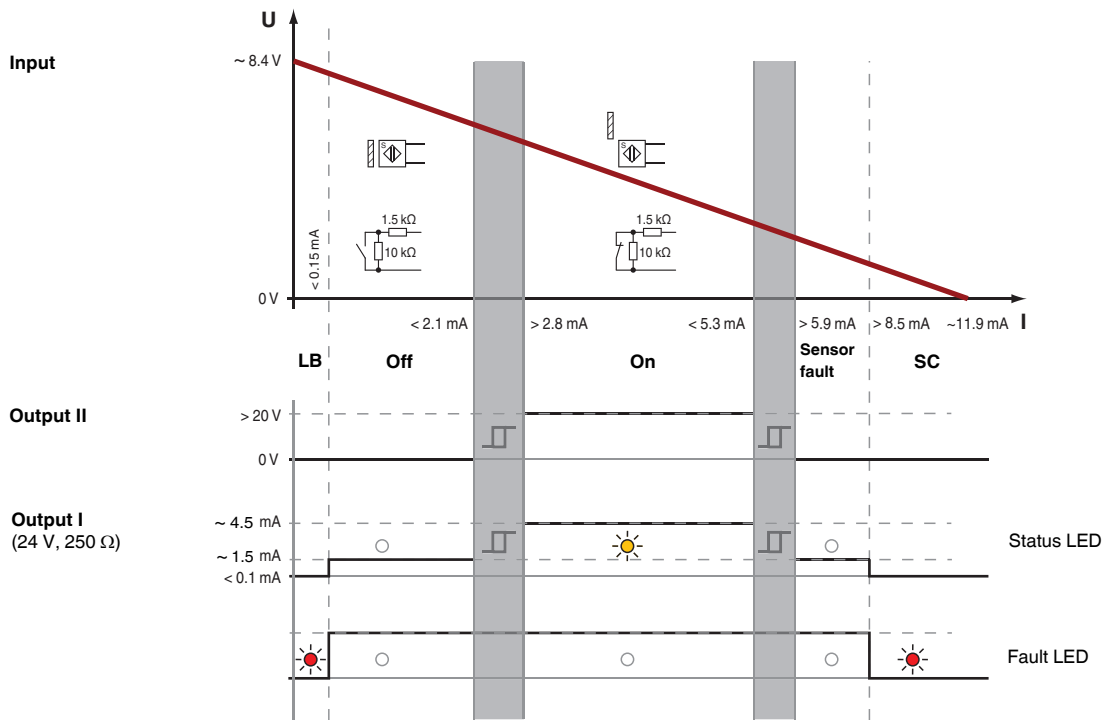
The pins for this device are trimmed to polarize it according to its safety parameter. Do not change this setting! For further information see system manual.

## Configuration

No user configuration available for this device.

**Characteristic Curve**

**Switch points**



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