



# SMART Transmitter Power Supply/SMART Current Driver

## HiC2422

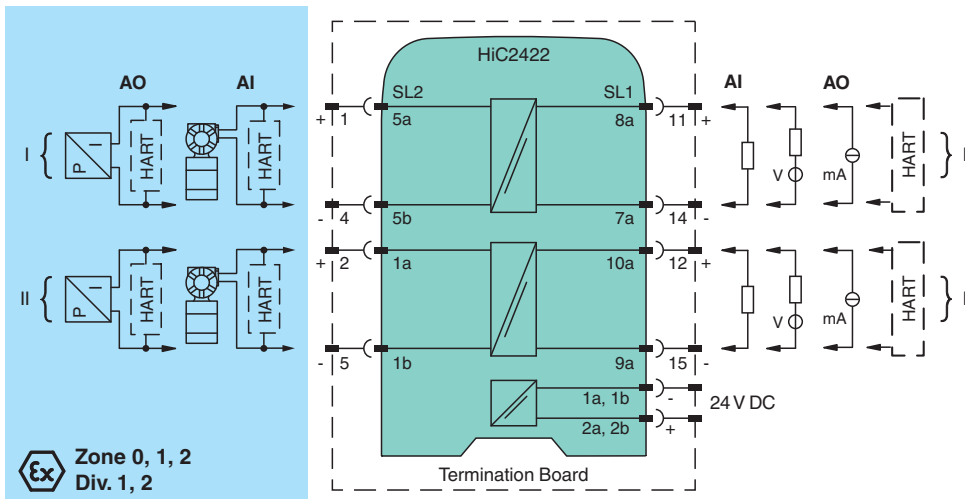
- 2-channel isolated barrier
- 24 V DC supply (bus powered)
- Analog input (AI), Analog output (AO)
- Operates as transmitter power supply or current driver
- Up to SIL 2 (SC 3) acc. to IEC/EN 61508



### Function

This isolated barrier is used for intrinsic safety applications. Each device channel works as a transmitter power supply or a current driver. The device transfers data by using a current signal. The device supports a bi-directional communication for SMART devices that use current modulation to transmit data and voltage modulation to receive data. For current driver operation, an open field circuit presents a high impedance to the control side to allow lead breakage to be monitored by control systems. This device mounts on a HiC termination board.

### Connection



### Technical Data

General specifications	
Signal type	Analog input/analog output
Functional safety related parameters	
Safety Integrity Level (SIL)	SIL 2
Systematic capability (SC)	SC 3
Supply	
Connection	SL1: 1a(-), 1b(-); 2a(+), 2b(+)
Rated voltage	$U_r$ 19 ... 30 V DC via Termination Board
Ripple	max. 10 %
Rated current	$I_r$ max. 88 mA at 24 V

Release date: 2024-06-17 Date of issue: 2024-06-17 Filename: 70160157\_eng.pdf

## Technical Data

Power dissipation	max. 1.4 W
Power consumption	max. 2.1 W
<b>Analog input</b>	
Number of channels	2
Suitable field devices	2-wire SMART transmitters
Signal	0/4 ... 20 mA , limited to approx. 30 mA
<b>Field circuit</b>	
Available voltage	SL2: 5a(+), 5b(-); 1a(+), 1b(-) min. 15 V at 20 mA min. 18 V at 4 mA
<b>Control circuit</b>	
Input voltage	SL1: 8a(+), 7a(-); 10a(+), 9a(-) Voltage across terminals 10 ... 30 V. If the current is supplied from a source > 24 V, series resistance of $\geq (V - 24)/0.02 \Omega$ is needed, where V is the source voltage. The maximum value of the resistance is $(V - 10)/0.02 \Omega$ . (sink output)
Load	max. 350 $\Omega$ (source output)
Ripple	20 mV <sub>eff</sub>
<b>Analog output</b>	
Number of channels	2
Suitable field devices	SMART I/P converters (positioner), on-site-displays
Signal	0/4 ... 20 mA , limited to approx. 30 mA
<b>Field circuit</b>	
Load	SL2: 5a(+), 5b(-); 1a(+), 1b(-) max. 650 $\Omega$
Voltage	min. 13 V at 20 mA
Ripple	20 mV <sub>eff</sub> , on all signal terminals
<b>Control circuit</b>	
Voltage drop	SL1: 8a(+), 7a(-); 10a(+), 9a(-) max. 6 V
Line fault detection	> 100 k $\Omega$ at max. 30 V, with field wiring open
<b>Transfer characteristics</b>	
Deviation	max. 20 $\mu$ A incl. calibration, linearity, hysteresis, loads and fluctuations of supply voltage
Influence of ambient temperature	< 2 $\mu$ A/K (-40 ... 70 °C (-40 ... 158 °F))
Frequency range	field side into the control side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB) control side into the field side: bandwidth with 0.5 V <sub>pp</sub> signal 0 ... 3 kHz (-3 dB)
Settling time	max. 200 ms
Rise time/fall time	max. 100 ms (10 ... 90 %)
<b>Galvanic isolation</b>	
Field circuit/control circuit	basic insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Control circuit/control circuit	channel I/channel II : functional isolation, rated voltage: 50 V
Field circuit/power supply	reinforced insulation according to IEC/EN 61010-1, rated insulation voltage 300 V <sub>eff</sub>
Control circuit/power supply	basic insulation according to IEC/EN 61010-1, rated insulation voltage 60 V <sub>eff</sub>
<b>Indicators/settings</b>	
Display elements	LED
Factory setting	analog input with source output
Configuration	via DIP switches
Labeling	space for labeling at the front
<b>Directive conformity</b>	
Electromagnetic compatibility	EN 61326-1:2013 (industrial locations)
Directive 2014/30/EU	EN 61326-1:2013 (industrial locations)
<b>Conformity</b>	
Electromagnetic compatibility	NE 21:2017 EN 61326-3-2:2018 For further information see system description.
Degree of protection	IEC 60529:2001
Protection against electrical shock	UL 61010-1:2012
Functional safety	IEC 61508:2010
<b>Ambient conditions</b>	
Ambient temperature	-40 ... 70 °C (-40 ... 158 °F)

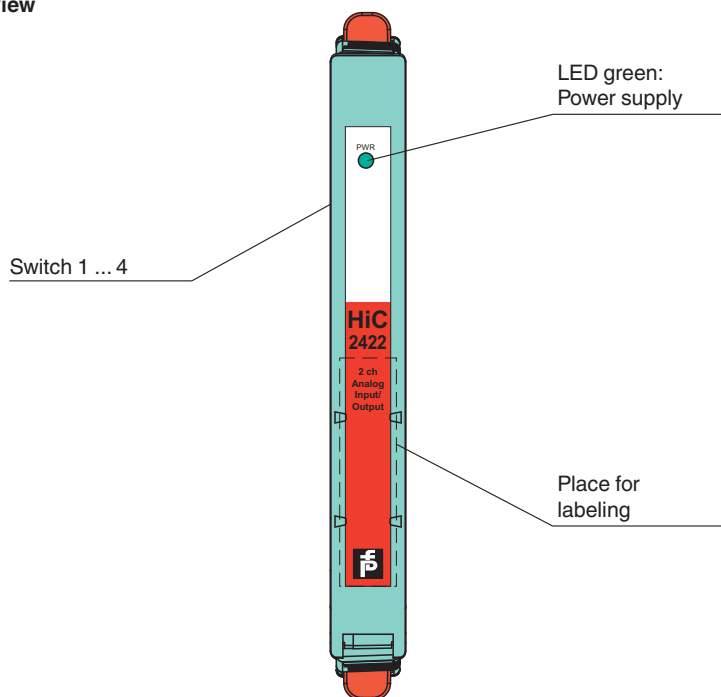
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## Technical Data

Storage temperature	-40 ... 85 °C (-40 ... 185 °F)	
Relative humidity	95 % non-condensing	
<b>Mechanical specifications</b>		
Degree of protection	IP20	
Mass	approx. 100 g	
Dimensions	12.5 x 106 x 128 mm (0.5 x 4.2 x 5.1 inch) (W x H x D)	
Height	106 mm	
Width	12.5 mm	
Depth	128 mm	
Mounting	on termination board	
Coding	pin 1 and 3 trimmed For further information see system description.	
<b>Data for application in connection with hazardous areas</b>		
EU-type examination certificate	UL 23 ATEX 3091 X	
Marking	Ⓢ II (1)G [Ex ia Ga] IIC Ⓢ II (1)D [Ex ia Da] IIIC Ⓢ I (M1) [Ex ia Ma] I	
Output	Ex ia, Ex iaD	
Voltage	U <sub>o</sub>	25.2 V
Current	I <sub>o</sub>	100 mA
Power	P <sub>o</sub>	630 mW
Internal capacitance	C <sub>i</sub>	1.05 nF
Internal inductance	L <sub>i</sub>	0
<b>Supply</b>		
Maximum safe voltage	U <sub>m</sub>	250 V <sub>rms</sub> (Attention! The rated voltage can be lower.)
<b>Input</b>		
Maximum safe voltage	U <sub>m</sub>	250 V <sub>rms</sub> (Attention! The rated voltage can be lower.)
<b>Certificate</b>		
Marking	Ⓢ II 3G Ex ec IIC T4 Gc	
<b>Galvanic isolation</b>		
Field circuit/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 , EN 60079-11:2012 , EN IEC 60079-7:2015+A1:2018	
<b>International approvals</b>		
UL approval	E106378	
Control drawing	116-0500 (cULus)	
<b>IECEx approval</b>		
IECEx certificate	IECEx ULD 23.0026X	
IECEx marking	[Ex ia Ga] IIC , [Ex ia Da] IIIC , [Ex ia Ma] I Ex ec IIC T4 Gc	
<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

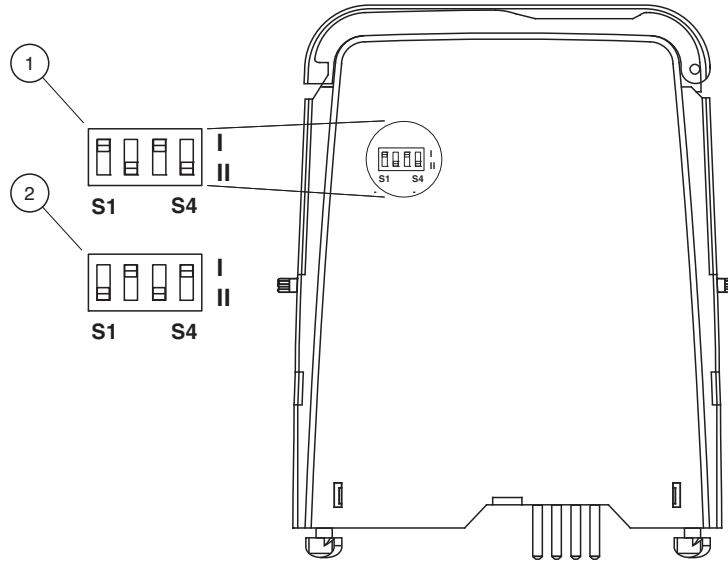
The pins for this device are trimmed to polarize it according to its safety parameter. Do not change this setting! For further information see system manual.

## Configuration

Configure the device in the following way:

- Push the red Quick Lok Bars on each side of the device in the upper position.
- Remove the device from termination board.
- Set the switches according to the figure in the **Configuration** section.

**Configuration**



- 1 Analog input with current source output
- 2 Analog input with current sink output, analog output

**Switch position**

Function		Switch			
		Channel 1		Channel 2	
Field side	Control side	S1	S2	S3	S4
Analog input	Current source	I	II	I	II
Analog input	Current sink	II	I	II	I
Analog output		II	I	II	I

Factory setting: analog input with current source output

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