

IOA RPSS-I-I/HART/EX - Power/input isolating amplifier



2908452

<https://www.phoenixcontact.com/us/products/2908452>

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Ex ic repeater power supply and input signal conditioner, HART for VIP I/O-Marshalling base elements: Transmits 0/4 ... 20 mA signals from the potentially explosive area (zone 2, CID2) to a load (active or passive) in the safe area. 3-way electrical isolation

Product description

Ex ic repeater power supply and input signal conditioner, HART: Transmits supplied or active 0/4 ... 20 mA signals from the Ex area to a load (active or passive) in the safe area. HART signals are transmitted bidirectionally. The output can be operated either actively or passively via DIP switches. The module is installed on a corresponding VIP I/O-Marshalling base element by means of plug-in contact. Installation in zone 2, "ec" type of protection is permitted.

Your advantages

- Two-stage progressive release allowing for voltage checks with field-powered devices
- Channel for marking accessories
- Integrated keying reduces possible user error during replacement
- Signal disconnect with test points
- Bidirectional HART signal transmission
- 3-way electrical isolation

Commercial data

Item number	2908452
Packing unit	1 pc
Minimum order quantity	1 pc
Note	Made to order (non-returnable)
Sales key	C480
Product key	CK8313
GTIN	4055626446158
Weight per piece (including packing)	95.7 g
Weight per piece (excluding packing)	42.9 g
Customs tariff number	85437090
Country of origin	CN

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Technical data

Product properties

Product type	Repeater power supplies
Product family	VIP I/O-Marshalling
No. of channels	1

Data management status

Article revision	02
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Insulation characteristics

Overvoltage category	II
Degree of pollution	2

Electrical properties

Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
Limit frequency (3 dB)	1.75 kHz (typ.)
Step response (10-90%)	< 200 µs (typ.)
Maximum temperature coefficient	0.01 %/K
Temperature coefficient, typical	0.01 %/K
Maximum transmission error	< 0.1 % (of final value)

Electrical isolation Input/output/power supply

Electrical isolation	250 V _{rms} (Rated insulation voltage (overvoltage category II; degree of pollution 2, safe isolation as per EN 61010-1))
	2.5 kV (50 Hz, 1 min., test voltage)
	60 V (Peak value in accordance with IEC/EN/UL/CSA C22.2 60079-11)

Supply

Nominal supply voltage	24 V DC
Supply voltage range	18 V DC ... 30 V DC
Power consumption	≤ 1600 mW (at I _{OUT} = 20 mA, 24 V DC, 600 Ω load)

Input data

Signal

Input signal	Current
Current input signal	4 mA ... 20 mA (repeater power supply and isolator operation)
	0 mA ... 20 mA (isolator operation)
Transmitter supply voltage	> 17 V (20 mA)
Step response (10-90%)	typ. 300 µs (4 mA ... 20 mA)
	typ. 1000 µs (0 mA ... 20 mA)

Output data

Signal

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Output description	Current output (active and passive)
Current output signal	0 mA ... 20 mA (isolator amplifier)
	4 mA ... 20 mA (repeater power supply and isolator operation)
Max. current output signal	22.5 mA
Transmission Behavior	1:1 to input signal
Load/output load current output	$\leq 600 \Omega$ (20 mA)
	525Ω (22.5 mA)
Residual ripple	$< 20 \text{ mV}_{\text{rms}}$ (600 Ω)
Output ripple	$< 20 \text{ mV}_{\text{rms}}$ (at 600 Ω)
Output behavior in the event of an error	0 mA (Cable break in the input)
	$\geq 22.5 \text{ mA}$ (Cable short-circuit in the input)
Underload/overload signal range	0 mA ... 22.5 mA (According to NE43)

Connection data

Connection method	Screw connection
Stripping length	10 mm
Screw thread	M3
Conductor cross section rigid	0.2 mm ² ... 1.5 mm ² (with ferrule)
	0.2 mm ² ... 2.5 mm ² (without ferrule)
Conductor cross section flexible	0.2 mm ² ... 1.5 mm ²
Conductor cross section AWG	24 ... 12 (flexible)

Ex data

Safety data

Input voltage U_i	0 V (nA, nB)
	30 V (nC, nD)
	30 V (Controller interface)
Input current I_i	100 mA (Controller interface)
Inductance L_i	0 mH
Capacitance C_i	0 nF
Max. output voltage U_o	28 V (nA, nB)
	0 V (nC, nD)
Max. output current I_o	104 mA
Max. output power P_o	726 mW
Safety-related maximum voltage U_m	60 V AC/DC (Peak)
IIC: Max. external inductivity L_o / Max. external capacitance C_o	/ 0.27 μF
IIB/IIIC/IIIB/IIIA: Max. external inductivity L_o / Max. external capacitance C_o	/ 1.65 μF
IIA: Max. external inductivity L_o / Max. external capacitance C_o	/ 6.6 μF
IIIC: Max. external inductivity L_o / Max. external capacitance C_o	7.3 mH
IIB/IIIC/IIIB/IIIA: Max. external inductivity L_o / Max. external capacitance C_o	14.7 mH
IIA: Max. external inductivity L_o / Max. external capacitance C_o	29.5 mH

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Interfaces

Data communication (bypass)

HART function	Yes
Protocols supported	HART
Limit frequency (3 dB)	> 1.75 kHz (typical)

Signaling

Status display	Green LED (supply voltage)
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Dimensions

Width	9.8 mm
Height	75.2 mm
Depth	113.2 mm

Material specifications

Color	gray (RAL 7042)
Flammability rating according to UL 94	V0

Environmental and real-life conditions

Ambient conditions

Degree of protection	IP20
Ambient temperature (operation)	-40 °C ... 70 °C
Ambient temperature (storage/transport)	-40 °C ... 85 °C
Altitude	2000 m (max. altitude above sea level)
Permissible humidity (operation)	5 % ... 95 %

Approvals

ATEX

Identification	Ex II 3G Ex ec IIC T4 Gc
	Ex II 3G Ex ec [ic] IIC T4 Gc
	Ex II (3)D [Ex ic IIIC Dc]
Certificate	Sira 17ATEX4208X

IECEx

Identification	Ex ec IIC T4 Gc
	Ex ec [ic] IIC T4 Gc
	[Ex ic IIIC Dc]
Certificate	IECEx SIR 17.0047X

CSA, USA/Canada

Identification	Class I, Div. 2 Groups A, B, C, D T4
	ANIFW apparatus for connection to: Class I, II, III, Div. 2 Groups A, B, C, D, F, G
	Class I, Zone 2 AEx ec IIC T4 Gc

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	AEx ec [ic] IIC T4 Gc
	Connection to Zone 22, [Ex ic IIIC Dc]
	Connection to: Class I, II, III Div. 2 Groups A, B, C, D, F, G
	Ex ec IIC T4 Gc
	Ex ec [ic] IIC T4 Gc
	[Ex ic IIIC Dc]

UKEX

Identification	II 3G Ex ec IIC T4 Gc
	II 3G Ex ec [ic] IIC T4 Gc
	II (3)D [Ex ic IIIC Dc]
Certificate	PxCIF23UKEX2908452X

Corrosive gas test

Identification	ISA S71.04.2013 G3 Harsh Group A
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EMC data

Electromagnetic compatibility	Conformance with EMC directive
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Electromagnetic HF field

Designation	Electromagnetic RF field
Standards/regulations	EN 61000-4-3
Typical deviation from the measuring range final value	1 %

Fast transients (burst)

Designation	Fast transients (burst)
Standards/regulations	EN 61000-4-4
Typical deviation from the measuring range final value	1 %

Conducted interference

Designation	Conducted interferences
Standards/regulations	EN 61000-4-6
Typical deviation from the measuring range final value	1 %

Standards and regulations

Electrical isolation	Reinforced insulation in accordance with IEC 61010-1
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Mounting

Mounting position	any
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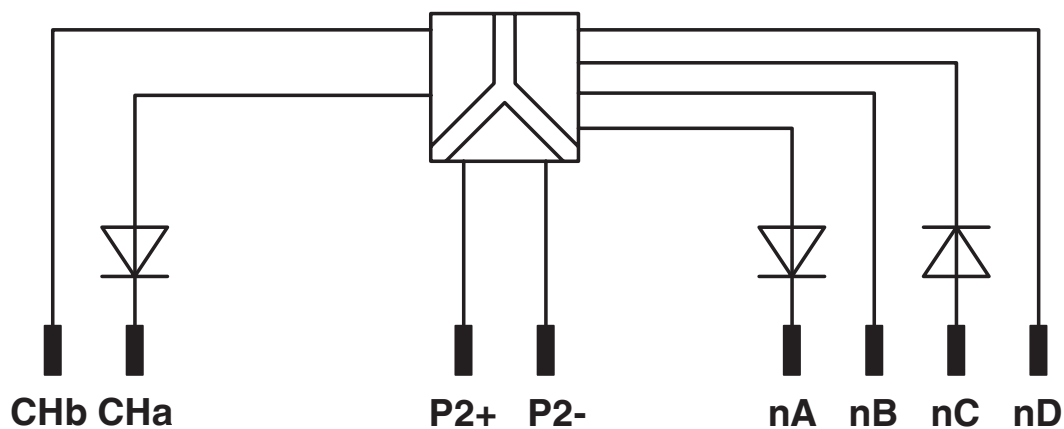
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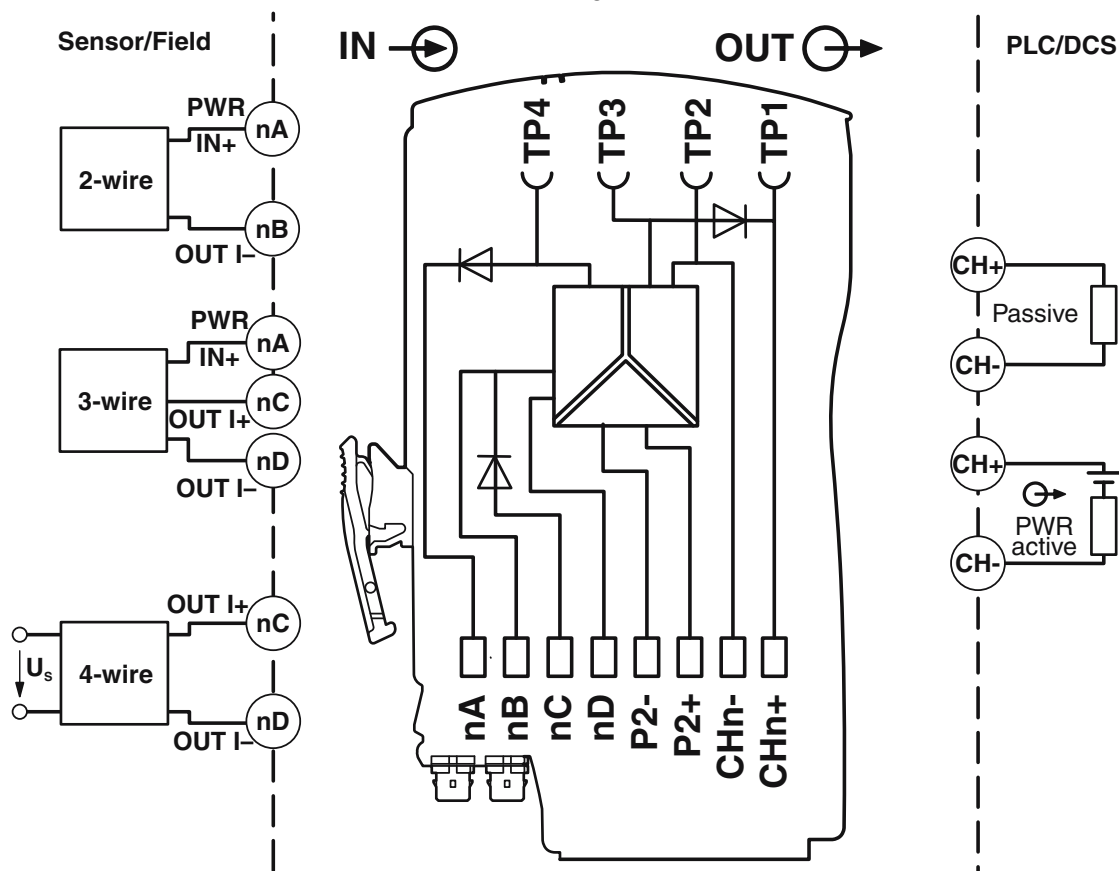
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Drawings

Circuit diagram



Block diagram



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Approvals

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IECEx

Approval ID: IECEx SIR 17.0047X



ATEX

Approval ID: SIRA 17ATEX4208X



CSA

Approval ID: 70099415



CSAus

Approval ID: 70099415

cCSAus

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Classifications

ECLASS

ECLASS-11.0	27141152
ECLASS-12.0	27141152
ECLASS-13.0	27141152

ETIM

ETIM 9.0	EC002780
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UNSPSC

UNSPSC 21.0	39121400
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Environmental product compliance

EU RoHS	
Fulfills EU RoHS substance requirements	Yes
Exemption	6(c), 7(a), 7(c)-I
China RoHS	
Environment friendly use period (EFUP)	EFUP-50
	An article-related China RoHS declaration table can be found in the download area for the respective article under "Manufacturer declaration". For all articles with EFUP-E, no China RoHS declaration table issued and required.
EU REACH SVHC	
REACH candidate substance (CAS No.)	Lead(CAS: 7439-92-1)
	2,2',6,6'-tetrabromo-4,4'-isopropylidenediphenol(CAS: 79-94-7)
SCIP	6fc6af25-2b62-46c5-ad0b-7d1ad663cad9

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Mandatory accessories

VIP/S/MC/BASE 1-8/L/EX - Base module

2906596

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 1–8.

VIP/S/MC/BASE 9-16/L/EX - Base module

2906630

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 9–16.

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VIP/S/MC/BASE 17-24/L/EX - Base module

2907024

<https://www.phoenixcontact.com/us/products/2907024>



8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 17–24.

VIP/S/MC/BASE 25-32/L/EX - Base module

2907025

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 25–32.

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VIP/S/MC/BASE 1-8/L/C/EX - Base module

2907186

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 1–8 and painting.

VIP/S/MC/BASE 9-16/L/C/EX - Base module

2907187

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 9–16 and painting.

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VIP/S/MC/BASE 17-24/L/C/EX - Base module

2907209

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 17-24 and painting.

VIP/S/MC/BASE 25-32/L/C/EX - Base module

2907210

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. With the COMBICON connector, compatible with the Honeywell C300 and RUSIO series. Marking for channels 25-32 and painting.

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VIP/S/D25M/BASE 1-8/L/C/EX - Base module

2906595

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8-channel VIP I/O marshalling base element for universal use. All connections as screw connection technology. This module with the D-SUB 25 connector is pin compatible with the Foxboro I/A series DCS.

VIP/MSTB/D50M/BASE/16CH/CX/EX - Base module

2908788

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16-channel VIP I/O marshalling base element for universal use. Plug-in field and supply terminals available as accessories. Either with screw or Push-in connection technology. Compatible with the Tricon CX DCS series (D-SUB 50).

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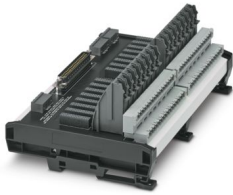
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BASE-MSTB/D37M/16CH/EX - Base module

1065476

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16-channel VIP I/O marshalling base element with 37-pos. D-SUB connector for universal use. Plug-in field and supply terminals available as accessories. Either with screw or Push-in connection technology.

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Phoenix Contact USA
586 Fulling Mill Road
Middletown, PA 17057, United States
(+717) 944-1300
info@phoenixcon.com