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Input Loop Powered Products

Section B

An Input loop powered (or signal powered) isolator derives its power from the 4-20mA input signal. Signal powered isolators are easily installed to fix unexpected isolation problems. Because they require no separate power supply, there is minimal effect on the wiring resulting in the lowest installed cost.

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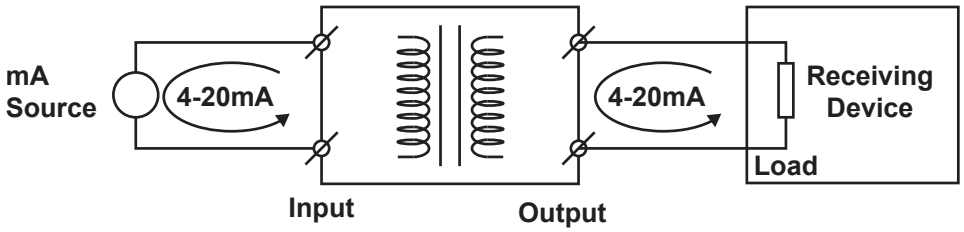
Input Loop Powered Products

Input Loop Powered Isolators

An Input loop powered (or signal powered) isolator derives its power from the 4-20mA input signal. This is passed into a linear dc-dc converter and transferred to the output section where it is rectified, filtered and sent to the output load. The isolation circuit effectively adds resistance to the input loop circuit, so, for correct operation, the input device must be capable of driving the 4-20mA signal into a load that is higher than the one presented by the receiving device.

Typical connection for Signal Powered Isolator

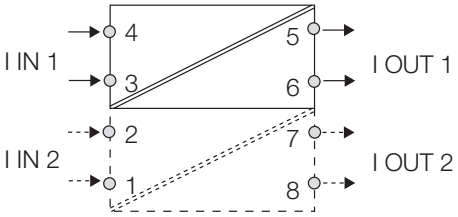


Signal powered isolators are easily installed to fix unexpected isolation problems. Because they require no separate power supply, there is minimal effect on the wiring resulting in the lowest installed cost. They cannot be used if the input signal does not have sufficient drive capability and it is strongly advised that the output loop load and input drive be checked first.

An example of this application:

In this example, we are using a signal powered isolator (that adds 200Ω input drop to the loop load) to provide isolation between a powered flow transmitter and a PLC (with input resistance of 250Ω). The flow transmitter is capable of sourcing a 4-20mA current into a load of 600Ω. The equivalent load presented to the flow transmitter is 250 + 200 = 450Ω. Since the transmitter is capable of driving 4-20mA into 600Ω, this loop will work fine.

ACT20M Signal Powered Isolators



Single and Dual Channel, Input loop Powered, Isolator

Input Loop Powered Isolators

The ACT20M signal powered isolators are powered by the input signal current (0-20mA or 4-20mA) from a powered device. This is the simplest method of isolating the signal passed from one device to another to eliminate electrical interaction between them. It is often used to fix unexpected loop isolation problems as it requires no additional wires to be installed. You simply break the problem loop and install the device.

Features

- Extremely compact design (6.1mm wide)
- Isolate DC mA signals without a power supply
- Input Loop Powered
- Simple and effective isolation for 0-20mA and 4-20mA loops
- Suitable for output loads up to 600Ω
- Available in single and dual channel versions
- Complete Isolation (Input to Output) to 2.5kV
- −25°C to 70°C operating temperature
- DIN Rail mounting

Technical Data

Accuracy	< 0.1% of end value
Galvanic Isolation	Passive Isolator
Input	0(4)...20 mA
Input drop	<1.25V
Output	0(4)...20 mA
load impedance current	≤ 600 Ω (channel 1 +2)
Channels	Single/Dual
Mounting rail	TS 35
Temperature coefficient	50 ppm/K of final value
Type of Connection	Screw Connection
IECEx ratings	Ex nA IIC T4 Gc
Length x Width x Height	114.3 x 6.1 x 112.5 mm

Applications

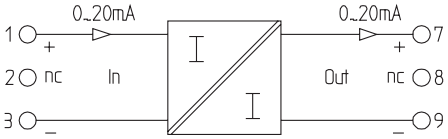
Use Input Loop Powered Isolators for:

- Isolation of a sourced signal, from a powered field device into a Control System
- Elimination of induced noise on a 4-20mA sourced loop
- Loop current monitoring isolator

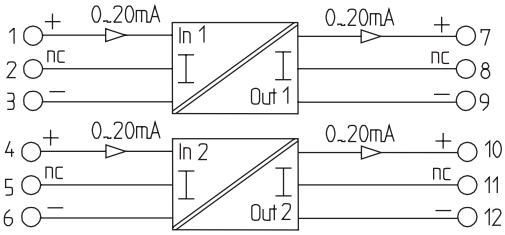
Ordering Data

Type	Description	Order No.
ACT20M CI-CO-ILP-S	Single Channel, Screw Connection	**1176070000**
ACT20M 2CI-2CO-ILP-S	Dual Channel, Screw Connection	**1176080000**

Single and Dual 4-20mA Signal Powered Isolators



Single Channel, Input loop Powered, Isolator



Dual Channel, Input loop Powered, Isolator

Input Loop Powered Isolators

The Wave Series signal powered isolator is powered by the input signal current (0-20mA or 4-20mA). This is the simplest method of isolating the signal passed from one device to another to eliminate electrical interaction between them. It is often used to fix unexpected loop isolation problems as it requires no additional wires to be installed. You simply break the problem loop and install the device.

Features

- Input Loop Powered
- Simple and effective isolation for 4-20mA loops
- Suitable for output loads up to 500Ω
- No internal adjustments
- Complete Isolation (Input to Output)
- -25 °C to 70 °C operating temperature
- DIN Rail mounting

Technical Data

Accuracy	< 0.1% of end value
Galvanic Isolation	Passive Isolator
Input/Output	0(4)...20 mA/0(4)...20 mA
Output Load	≤500Ω
Pickup Current	<100µA
Input Voltage Drop	From 3V (with 0Ω load) to 13V (with 500Ω load) @ 20mA Input
Channels	Single/Dual
Mounting rail	TS 35
Temperature coefficient	50 ppm/K of final value
Type of Connection	Screw Connection

Applications

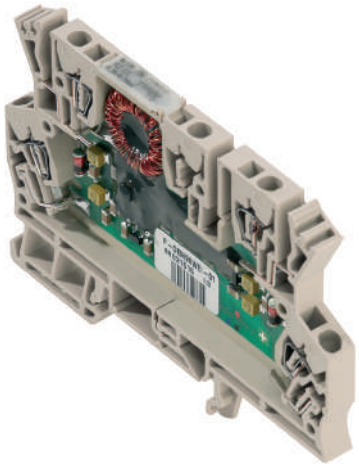
Use Input Loop Powered Isolators for:

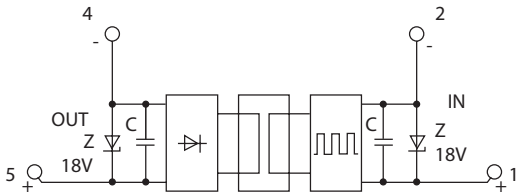
- Isolation of a sourced signal, from a powered field device into a Control System
- Elimination of induced noise on a 4-20mA sourced loop
- Loop current monitoring isolator

Ordering Data

Type	Description	Order No.
WAS5 CCC LP 0-20/0-20mA	Single Channel, Screw Connection	**8444950000**
WAS5 CCC LP 0-20/0-20mA	Dual Channel, Screw Connection	**8463580000**

MCZ Series Isolator Converters





MCZ CCC

Input Loop Powered Isolator

The MCZ CCC is an Input Loop Powered Isolator for 0-20mA loop signals.

Features

- Fully isolated to 510Vrms
- Low Power Consumption and Operating Current (<100 µA)
- Accuracy better than 0.1% of span
- Operating Temperature -25°C to 60°C

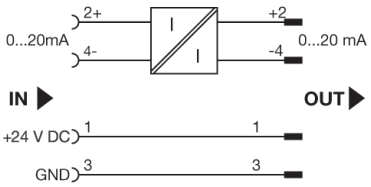
Technical Data

Inputs	
Input Type	0-20mA/4-20mA current loop
Max. Voltage/Current	15V / 50mA
Voltage drop across input	2.5 to 3V at 20mA
Analogue Output	
Output Type	0-20mA/4-20mA current loop
Output Drive	≤500Ω
Performance	
Linearity	Better than 0.1% of Span
Isolation	$510V_{eff}$
Operating Temperature	-25 °C to 60 °C
Housing	
Dimensions (mm)	91 x 6 x 63.2
Terminals	Tension Clamp style connectors
Conductor Clamping Range	$0.5mm^2$ to $1.5mm^2$

Ordering Data

Type	Description	Order No.
MCZ CCC 0-20mA/0-20mA	Passive Isolator for mA signals	**8411190000**

JackPak IP68 Isolators



Jackpac Signal Powered, Isolator

JackPac IP68 Isolators

The JackPak Input Loop Powered Isolator is installed in line using M12 'A' - Coded plugs and sockets for eliminating errors between field devices and control systems. They are commonly used between automation systems - or environmental equipment - and analogue sensors when a high IP rating and quick connection are required.

Feed thru connections are also provided for 24Vdc power supply to the control device.

Features

- Compact IP68 Housing
- Standard A-Coded M12 connections
- Accuracy better than 0.1% span

Technical Data

Inputs	
Type	0-20mA / 4-20mA
Analogue Output	
Output Type	0-20mA / 4-20mA
Output Drive	≤ 600Ω Load
Power Supply	
Power Supply Type	Input Signal Powered
Performance	
Accuracy	Better than 0.1% Span error
Isolation	510Vac
Operating Temperature	-10° to 70°C
Housing	
Dimensions (mm)	83 x 36 x 14.4
Connection	M12 A-coded Male/Female
Protection Class	IP68

Applications

Use the Jackpac Isolator to:

- Eliminate earth loops caused by differences in earth potential around the plant
- Remove common mode noise from the input side
- Boosting signals for long cable runs

Ordering Data

Type	Description	Order No.
JPA CCC LP M12	Signal Powered Isolator	**8778790000**