

**Inputs:** 4-20 mA, One or Two Channels  
**Outputs:** 4-20 mA, One or Two Channels

Quick Link: [api-usa.com/loop](http://api-usa.com/loop)

- Powered by 4-20 mA Input Loop
- Z110S: Single Loop
- Z110D: Two Fully Independent Loops
- Compact 17.5 mm Wide DIN Style Housing

### Applications

- Isolate 4-20 mA Process Signals
- Isolate Two Loops With One Z110D
- Eliminate Ground Loops, Reduce Noise Effects

### Description

The Z110S (single channel) or Z110D (two channel) are passive 4-20 mA loop isolators that are powered by the 4-20 mA input loop(s).

The Z110S accepts a single 4-20 mA signal from a powered loop, galvanically isolates it, and provides a powered 4-20 mA output.

The Z110D accepts two independent 4-20 mA signals from two separate powered loops, galvanically isolates them and provides two independent 4-20 mA powered outputs.

2-way galvanic isolation between input and output circuits assures the integrity of your signals.

These devices derive their operating power from the input loop eliminating the need for external power supplies and additional power wiring.

### 4-20 mA Input

Z110S: One 4-20 mA loop  
 Z110D: Two independent 4-20 mA loops

### Maximum Input Voltage

Protected up to 35 VDC max.

### 4-20 mA Outputs

Z110S: One 4-20 mA loop  
 Z110D: Two independent 4-20 mA loops

### Maximum Output Voltage

Protected up to 35 VDC max.

### Voltage Drop

Min. voltage drop at 20 mA: 7 V (all loads up to 160 Ohms)  
 Max. voltage drop at 20 mA: 3.8 V + (load resistance) x 0.02 V

### Accuracy

Calibration error: ±0.1% full scale  
 Thermal coefficient: 0.02% FS/°C  
 Linearity error: ±0.1% full scale  
 Load variation effect: ±0.1% full scale

### Response Time

<100 mS to reach 90% of final value

### Isolation

1500 VAC, input to output  
 Z110D channel-to-channel isolation: 1500 VAC

### Ambient Temperature Range

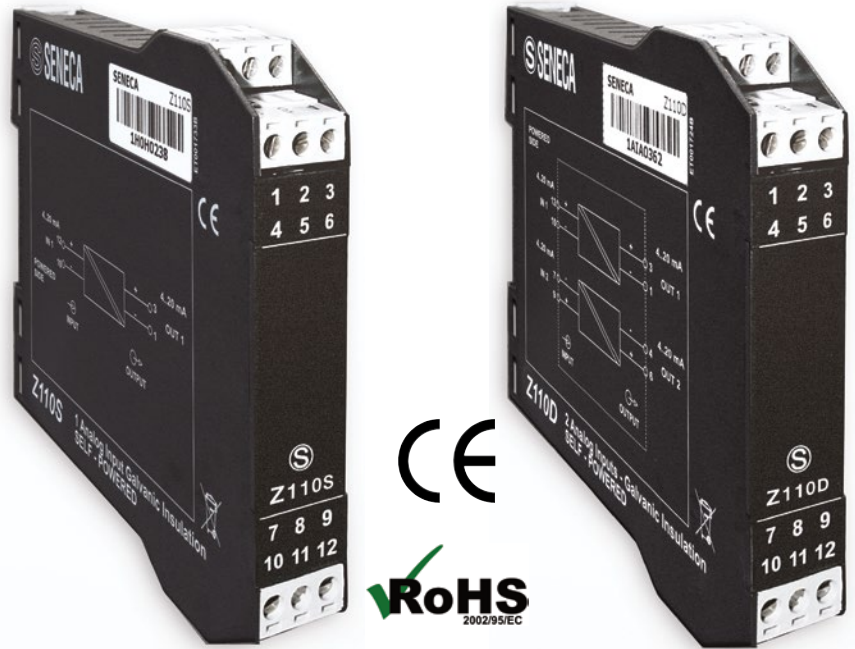
0°C to 50°C operating ambient

### Housing

Dimensions: 17.5 W x 100 H x 112 mm D  
 IP 20, requires installation in panel or enclosure  
 Mount on a vertical panel to a horizontal 35 mm DIN rail  
 Allow 1" (25 mm) above and below housing for air circulation.  
 Do not block air vents.  
 To maintain performance, outdoor enclosures must be temperature controlled.

### Standards

CE  
 EN 50081-2 (electromagnetic emissions, ind. environment)  
 EN 55011  
 EN 50082-2 (electromagnetic susceptibility, ind. environment)  
 EN 61000-2-2/4  
 EN 0140/141  
 EN 61010-1 (safety)



Model	Input	Output	Power
Z110S	One 4-20 mA	One 4-20 mA	4-20 mA input loop
Z110D	Two independent 4-20 mA channels	Two independent 4-20 mA channels	Two 4-20 mA input loops

### Electrical Connections Z110S

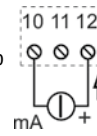
Shielded cable is recommended for signal connections and the shield should be connected to the instrument earth.

It is good practice to separate signal cables from power cables and to avoid potential sources of interference such as electric motors, variable speed drives, microwave ovens and induction heaters.

### Channel 1 Input (Z110S)

#### PASSIVE INPUT

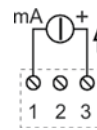
Connect the module to the current loop as shown. The module is powered by the 4-20 mA input current loop.  
 Voltage drop at 20 mA: 3.8 V plus Load Volt drop (0.02 x load resistance), minimum 7 V (e.g. with load of 250 Ohms, Volt drop is: 3.8 V + (0.02 x 250) = 8.80 V)




### Channel 1 Output (Z110S)

#### ACTIVE OUTPUT

The module generates a current in the output loop identical to the current in the input loop. It is capable of driving into a maximum load of 500 Ohms. The output loop must NOT be powered.



 Disposal of Electrical & Electronic Equipment (Applicable throughout the European Union and other European countries with separate collection programs).

This symbol, found on your product or on its packaging, indicates that this product should not be treated as household waste when you wish to dispose of it. Instead, it should be handed over to an applicable collection point for the recycling of electrical and electronic equipment.

By ensuring this product is disposed of correctly, you will help prevent potential negative consequences to the environment and human health, which could otherwise be caused by inappropriate disposal of this product. The recycling of materials will help to conserve natural resources.

For more detailed information about the recycling of this product, please contact your local city office, waste disposal service or the retail store where you purchased this product.

### Electrical Connections Z110D

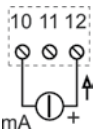
Shielded cable is recommended for signal connections and the shield should be connected to the instrument earth.

It is good practice to separate signal cables from power cables and to avoid potential sources of interference such as electric motors, variable speed drives, microwave ovens and induction heaters.

### Channel 1 Input (Z110D)

#### PASSIVE INPUT

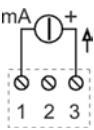
Connect the module to the current loop as shown. The module is powered by the 4-20 mA input current loop.  
 Voltage drop at 20 mA: 3.8 V plus Load Volt drop (0.02 x load resistance), minimum 7 V (e.g. with load of 250 Ohms, Volt drop is: 3.8 V + (0.02 x 250) = 8.80 V)



### Channel 1 Output (Z110D)

#### ACTIVE OUTPUT

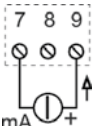
The module generates a current in the output loop identical to the current in the input loop. It is capable of driving into a maximum load of 500 Ohms. The output loop must NOT be powered.



### Channel 2 Input (Z110D)

#### PASSIVE INPUT

Connect the module to the current loop as shown. The module is powered by the 4-20 mA input current loop.  
 Voltage drop at 20 mA: 3.8 V plus Load Volt drop (0.02 x load resistance), minimum 7 V (e.g. with load of 250 Ohms, Volt drop is: 3.8 V + (0.02 x 250) = 8.80 V)



### Channel 2 Output (Z110D)

#### ACTIVE OUTPUT

The module generates a current in the output loop identical to the current in the input loop. It is capable of driving into a maximum load of 500 Ohms. The output loop must NOT be powered.

