

Loop Powered Isolators 420I



The 420I loop powered isolator generates a second isolated loop from an existing loop. Power is derived from the input signal. No external power supply is required.

- Low voltage drop
- High accuracy
- 1kV isolation
- High noise immunity
- Low cost solution

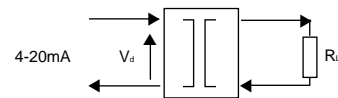


Options and ordering codes

| | | | | |
|------------|-------------|--------------|---|----------|
| 420 | I-AA | XX | - | 8 |
| Input | Output | | | |
| 4-20mA | 4-20mA | I-AA | | |
| 4-20mA | 1-5 Volts | I-AF | | |
| 4-20mA | 0-10 Volts | V-AG | | |
| | | Supply | | |
| | | Loop powered | | 8 |

Wiring diagram

The voltage drop, V_d , across the device at 20mA input is:
 $V_d = 3.2 + (R_L \times 0.02)$



Description

Three output options are available: 4-20mA, 1-5V and the 420V which gives a 0-10V output from a 4-20mA existing loop input, whilst dropping just 5V from the input loop.

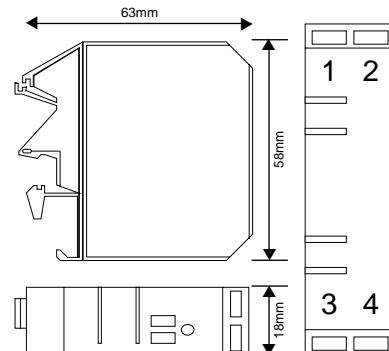
The isolator is typically used to enable two control and instrumentation devices, e.g. PLC and local chart recorder, with non-isolated inputs, to monitor the same transmitter output simultaneously.

Alternatively the isolator can be used to isolate signals from non-isolated transmitters or as a noise reduction device.

Other considerations

The 420I requires a load on the output to complete the current loop. See the drawing opposite to calculate the voltage drop V_d , across the device.

Dimensions and connections



1. Output Ch +ve
2. Output Ch -ve
3. Input Ch +ve
4. Input Ch -ve

Specification

| Parameter | Min | Typ | Max | Comments |
|-------------------------------|--|----------------|----------|---------------------------|
| Supply voltage | | Loop power | | |
| Input current | -50mA | 0-20mA | +50mA | |
| Full scale volt drop see note | | 3.2V | 3.5V | At 20mA input |
| Output linearity error | | | ±0.1% | |
| Temp coefficient | | | 90ppm/°C | |
| Load resistance error | | | -200nA/Ω | 0 < R _L < 600Ω |
| Time constant (10-90%) | | 30ms | | |
| Operating ambient | -15°C | | 70°C | |
| Relative humidity | 0% | | 90% | |
| Isolation voltage | 1kV | | | |
| Surge voltage | | 2.5kV for 50μS | | Transient of 10kV/μS |
| Mounting | Standard DIN-rail TS32/35 | | | |
| Notes | Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur Device is protected against reverse polarity connection Accuracy figures based on 0-20mA input, 150Ω load resistance, and an ambient temperature of 20°C Add volt drop due to load: 0.02 x R _L e.g. 250Ω load total volt drop = 3.5 + (0.02 x 250) = 8.5V | | | |