



# 420i

## LOOP POWERED ISOLATOR

- Low Voltage Drop
- High Accuracy
- 1kV Isolation
- High Noise Immunity
- Low Cost Solution



### Description

The 420i loop powered isolator is a 0(4)-20mA direct current isolator. The isolator derives its power from the input signal and therefore requires no external power supply.

The output of the isolator can be connected to any potential within 1kV of the input negative terminal while transients of 2.5kV can be withstood.

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.

Two variants are available. The 420i-1 which has a built in precision 250Ω resistor to give a 1-5V output, and the 420V which gives a 0-10V output from a 4-20mA input, whilst dropping just 5V from the input loop.

The device is housed in an ultra-compact DIN rail mounted enclosure, only 18mm wide.

For further information and ordering please see overleaf.

### General Specifications

#### Recommended Operating Conditions

Input Current	0(4)-20mA
Output Current	0(4)-20mA
Output Resistance	0-600Ω.
Overload Capacity	±50mA Input Current

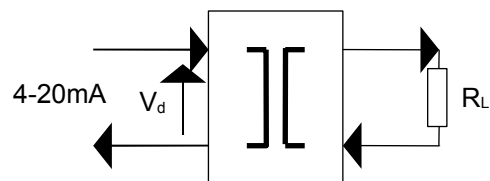
#### Environmental Conditions

Storage Temperature	-40 to 100 °C
Operating Ambient	-15 to 70 °C
Relative Humidity	0-90 % RH

#### Other Considerations

The Voltage drop across the device at 20mA input is:

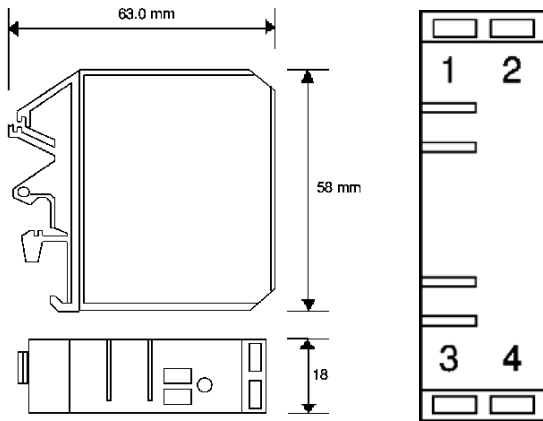
$$V_d = 3.2 + (R_L \times 0.02)$$





## Performance Characteristics

Parameter	Min	Typ	Max	Comments
Supply Voltage		Loop Power		
Input Current	-50mA	0-20mA	+50mA	
Full Scale Volt Drop <sup>see note</sup>		3.2V	3.5V	At 20mA Input
Output Linearity Error			±0.1%	
Temp Coefficient			90ppm/°C	
Load Resistance Error			-200nA/Ω	0 < R <sub>L</sub> < 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	
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, 250Ω load resistance, and an ambient temperature of 20°C. Add volt drop due to load: 0.02 x R <sub>L</sub> e.g. 250Ω load total volt drop = 3.5 + (0.02 x 250) = 8.5V			



### Installation Data

<b>Mounting</b>	DIN Rail TS32/35
<b>Orientation</b>	Any
<b>Connections</b>	Screw Clamp with pressure plate
<b>Conductor size</b>	0.5-4.0mm
<b>Insulation Stripping</b>	12mm
<b>Weight</b>	Approx 50g

### Connection Details

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

### Ordering Information

**Please supply:**

<b>Part Number:</b>	
4-20mA In 4-20mA Out	420i
4-20mA In 1-5V Out	420i-1
4-20mA In 0-10V Out	420V