Loop Powered Isolators 420I

IMO

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**

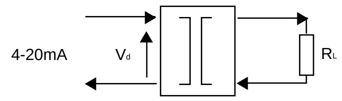
Input	Output	
4-20mA	4-20mA	I-AA
4-20mA	1-5 Volts	I-AF
4-20mA	0-10 Volts	V-AG

Supply	
Loop powered	8

Wiring diagram

The voltage drop, Vd, across the device at 20mA input is:

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



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.

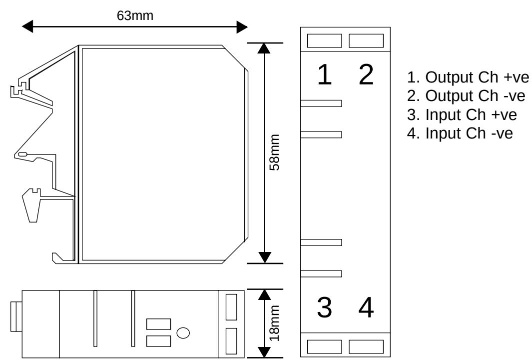
The isolator is typically used to enable two control and instrumentation devices, e.g. PLC and local chart recorder, with non-isolated inputs, to monitor the same transmitter output simultaneously.

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



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	$0<R_L<600\Omega$
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 RL e.g. 250Ω load total volt drop = 3.5 + (0.02 x 250) = 8.5V			