IMO Programmable Isolating Signal Converter

UNICON

The UNICON is a universal input, isolating signal converter

- Universal configurable input stage
- 3-port isolation to 500 or 1000Vdc
- Very high accuracy, low cost
- Isolated transmitter supply
- Alarm relays, RS232/485 comms using MODBUS protocol
- Ultra-compact, only 22mm wide

Options and ordering codes

UNICON	TRIP	–	JJXX	–	6	

Options		Comms	
With alarm relays	TRIP		RS232
Without alarm relays		D	RS485

Description

The unit can accept a signal from any common process sensors types and give an isolated industrial standard DC output either voltage or current

The functionality of the unit is designed to be fully user configurable via the serial communications by using the RS232 or the RS485 programming lead, complete with the user-friendly PC Smart software. This software sets up the sensor type and range for the input signal, the high level output required and any intermediate processing. The signal processing options featured include:

Thermocouple and RTD linearisation
User-defined input linearisation
Square-Root, power 3/2, power 5/2
Rate limiting
Input filtering
Trip amplifier Functionality

The optional trip relays (UNICONTRIP model) can be configured to operate in all the normal fail-safe modes. In addition latching and time-delay functions are also available. A 24Vdc isolated transmitter supply is featured which can be used to power all standard two-wire transmitters.

The operational status of the unit is indicated by the front panel LED, a slow flash showing normal operation, a fast flash sensor failure or open circuit input, or hard off indicating a power supply failure. The unit may be powered by any DC supply from 16 to 32 volts.

Inputs
The input types and ranges specified are our standard ones. Please contact our sales department for details on any application not

DC Current and Voltage
0-20mA, 4-20mA, 0-10mA, -50 to 50mA, into 10Ω
0-1V, 0-10V, 1-5V, -100 to 100V, into 1MΩ

Thermocouples
Types E, J, K, N, R, S, T and B all fully linearised
Ranges are user configurable to any values
Auto cold junction comp. Open cct T/C can drive either upscale, downscale or to preset value

Resistance Thermometers
2 or 3 wire Pt100 or other standard type, linearised
Ranges are user configurable to any values

Outputs
DC Current (Source or Sink) and Voltage
0-20mA, 4-20mA, 0-10mA into 1kΩ maximum
0-1V, 0-10V, 1-5V into a minimum 1kΩ

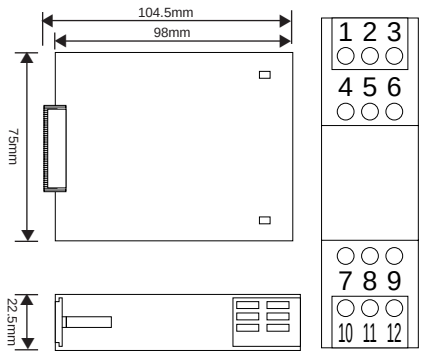
The UNICON is designed to be user configurable, however the units can be supplied factory configured to your specification – Please contact our sales department with the following:

Input type:	eg mA, Volt, T/C, RTD
Input range:	eg 4-20, 0-10V, 0-500°C
Output type:	eg mA, Volt
Output range:	eg 4-20mA, 0-10V
Linearisation:	eg None, √, √3/2, √5/2
Other options:	Averaging, inversion etc
Trip configuration:	eg H/L, failsafe, etc

Specifications

Parameter	Min	Typ	Max	Comments
Supply voltage	16V	24V	32V	
Supply current		100mA	200mA	
Input impedance (volt)		1MΩ		
Input impedance (mA)		10Ω	11Ω	
Volt drop (mA input)		0.2V	0.22V	At 20mA input
Input resolution		0.001%		Dependent on input type
Overall accuracy		±0.04%	±0.06%	Input to analogue output
Input accuracy		±0.005%		Input to RS232 comms output
Temperature coefficient			50ppm/˚C	
Load resistance error		±0.1ppm/Ω	±1ppm/Ω	$0 < R_L < 1k\Omega$ (mA output)
Time constant (10-90%)		65ms		T/C 250ms. See note
Operating ambient	-15˚C		60˚C	
Relative humidity	0%		90%	
Isolation voltage	500V			1kV option by special request
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 an ambient temperature of 20˚C. The time constant is dependent on which processing options have been selected.			

Dimensions and connections



Connection details

1. Power input -ve
2. Power input +ve
3. mA sink output +ve
4. Output grouind
5. Voltage O/p +ve
6. mA source O/p +ve
7. Input ground
8. RTD 3rd wire or T/C input +ve
9. RTD input +ve
10. Voltage input +ve
11. mA input +ve
12. 24V trans supply
13. Relay 1 common
14. Relay 1
15. Relay 2 common
16. Relay 2

Typical application