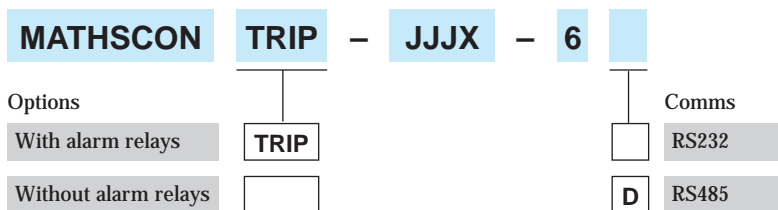


- PC configurable maths function
- Two isolated inputs and one isolated output
- 3-port isolation to 500 or 1000Vdc
- High accuracy, low cost
- Ultra compact, only 22mm wide
- Optional alarm relays



Options and ordering codes



Description

The MATHSCON Isolating Signal Converter can be user configured and programmed using a PC via the serial communications by using the RS232 or RS485.

Each channel can be multiplied by a factor or linearised and then any of the following functions can be performed on those input channels.

Addition	Output = A + B
Subtraction	Output = A - B
Multiplication	Output = A x B
Division	Output = A ÷ B
Square root	Output = √A
Squarer	Output = A ²
Rect' weir	Output = A ^{3/2}
Polynomial	Output = xA ⁿ (operator)yB ^m +C

(where x, y, n, m and C are PC configurable)

- High signal select
- Low signal select
- Average of the two signals
- Rate of change limiting of the signal.

The unit provides an isolated current or voltage output corresponding to the result of the required function. As an option, two alarm relays are also available.

The power supply requirement is 16 to 32Vdc.

Inputs

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

DC Current
0-20mA, 4-20mA, 0-10mA all into 10Ω

DC voltage
0-1V, 0-10V, 1-5V all into 1MΩ

Outputs
DC Current Source and Voltage
0-20mA, 4-20mA, 0-10mA into 1kΩ maximum
0-1V, 0-10V, 1-5V into a minimum 500kΩ

The MATHSCON 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:

Configuration options:

Input type:	eg mA, Volt
Input range:	eg 4-20, 0-10V
Output type:	eg mA, Volt
Output range:	eg 4-20mA, 0-10V
Linearisation:	eg None, √, √3/2, √5/2
Maths function:	eg +, -, x, ÷, average
Comms option:	RS232 or RS485

Specifications

Parameter	Min	Typ	Max	Comments
Supply voltage	16V	24V	32V	
Supply current		100mA	200mA	
Input impedance (volt)		1M Ω		
Input impedance (mA)		10 Ω	11 Ω	
Volt drop (mA input)		0.2V	0.22V	At 20mA input
Input resolution		0.001%		Dependent on input type
Overall accuracy		$\pm 0.04\%$	$\pm 0.06\%$	Input to analogue output
Input accuracy		$\pm 0.01\%$		Input to RS232 comms output
Temperature coefficient			50ppm/ $^{\circ}$ C	
Load resistance error		± 0.1 ppm/ Ω	± 1 ppm/ Ω	$0 < R_L < 1$ k Ω (mA output)
Time constant (10-90%)		300ms		See note
Operating ambient	-15 $^{\circ}$ C		60 $^{\circ}$ C	
Relative humidity	0%		90%	
Isolation voltage	500V			1kV option by special request
Surge voltage		2.5kV for 50 μ S		Transient of 10kV/ μ S
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 $^{\circ}$ C. The time constant is dependent on which processing options have been selected.			

Dimensions and connections

Connection details

1. Power input -ve	4. Output ground
2. Power input +ve	5. Voltage out +ve
	6. mA source out +ve
7. Input ground 2	13. Relay 1 common
8. Voltage input 2	14. Relay 1
9. mA input 2	
10. Voltage input 1	15. Relay 2 common
11. mA input 1	16. Relay 2
12. Input ground 1	

Typical application

