



MATHSCON

PROGRAMMABLE MATHEMATICS UNIT

- User Configurable Maths Function
- Two Isolated Inputs and One Isolated Output
- 3-Port Isolation to 1000Vdc
- High Accuracy, Low Cost
- Ultra Compact, only 17.5mm Wide
- 1 Universal & 1 Voltage/Current Input



Description

The MATHSCON Isolating Signal Converter can be user configured to carry out a wide range of mathematical functions on two isolated input channels. One input is a universal current, voltage, thermocouple or RTD input, and the other can be either voltage or current.

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 = $\sqrt{A-B}$

- High Signal Select
- Low Signal Select
- Average of the two signals

The unit provides an isolated, scaleable current or voltage output corresponding to the result of the required function.

The power supply requirement is 16 to 32V dc.

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 10 Ω

DC Voltage

0-1V, 0-10V, 1-5V all into 1M Ω

Outputs

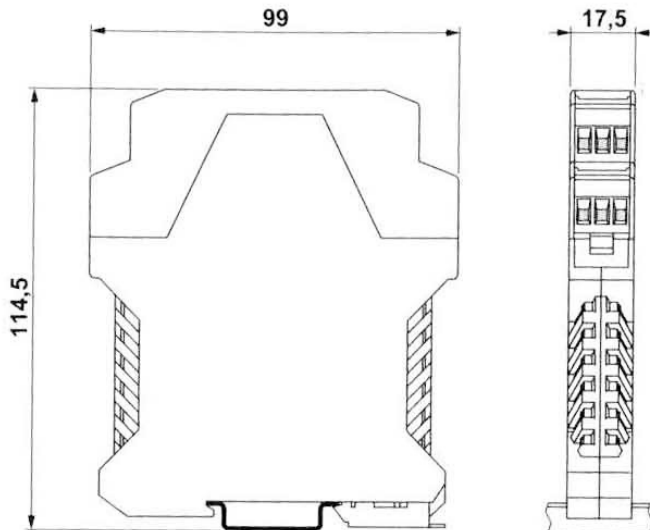
DC Current Source and Voltage

0-20mA, 4-20mA, 0-10mA into 750 Ω maximum.
0-1V, 0-10V, 1-5V into a minimum 100k Ω



Performance Characteristics

Parameter	Min	Typ	Max	Comments
Supply Voltage	16V	24V	36V	
Supply Current		95mA	134mA	Max with transmitter supply
Input Impedance (Volt)		1MΩ		
Input Impedance (mA)		15Ω		
Volt Drop (mA Input)		0.3V		At 20mA Input
Overall Accuracy		±0.01%	±0.05%	
Input Accuracy		±0.01%		
Temp Coefficient			±50ppm/°C	
Load Resistance Error			±5ppm/Ω	0 < R _L < 750Ω
Time Constant (10-90%)		100ms	180ms	See Note
Operating Ambient	0≡C		55≡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 an ambient temperature of 20≡C. The Time Constant is dependent on which processing options have been selected.			



Installation Data

Mounting	DIN Rail TS35
Orientation	Any
Connections	Screw Clamp with pressure plate
Conductor size	0.5-4.0mm
Insulation Stripping	12mm
Weight	Approx 100g
Max Terminal Torque	0.4Nm

Connection Details

- | | |
|--|-----------------------|
| 1. Power Input -ve | 9. Output (mA, V) +ve |
| 2. Power Input +ve | 7. Output -ve |
| 12. Input 2 (mA, V) +ve | |
| 10. Input 2 -ve | |
| 3. Tx Supply +ve, 4 th Wire RTD | |
| 5. Input 1 (mA, V, T/C, RTD) +ve | |
| 4. Input 1 -ve | |
| 6. 3 rd Wire RTD | |

Ordering Information

Please supply:

Part Number:	MATHSCON-6
Configuration Options:	
Input 1 Type:	e.g. 4-20mA, 0-10V
Input 2 Type:	e.g. 4-20mA, 0-10V
Output Type:	e.g. mA, Volt
Output Range:	e.g. 4-20mA, 0-10V
Maths Function:	e.g. +, -, x, /, average