

## MEA2043 Sensor Field Station

The MEA2043 Sensor Field Station allows a data logger to expand the number of sensor input channels in increments of eight.

The Sensor Field Station (SFS) is an eight channel expansion unit which accepts a wide range of sensors. Up to 32 Stations can be connected to a data logger within a radius of 30 metres, providing an additional 256 sensor input channels. Connection to a data logger is via the SDI-12 input.

Sensors can be connected simply connected to an SFS. The SFS includes integral measurement of the local sensor supply voltage and current. It has



electronic over-current protection that automatically shuts off sensor power when it exceeds a safe level, which helps protect sensors and maintain bus integrity in case of a fault. The sensor warm up period is programmable to suit various sensor types, or the power can be switched on permanently.

The MEA2043 features:

- Simple and quick connection of sensors, with two SDI-12 ports to make daisy chaining easy.
- Connect up to 8 x 12-bit differential-input voltage, current-loop, AC and DC resistance, counter, frequency or contact closure sensors in any combination
- Internal maths engine calculates real values using selectable algorithms including 5<sup>th</sup>-order polynomials, the Steinhart-Hart Equation for thermistors, square root, natural logarithmic and exponential functions.
- Factory or field programmable.
- Switching and monitoring of sensor power
- ESD protected with lightning protection of SDI-12 ports
- Rich configuration options stored in field station's memory
- SDI-12 V1.3 compliant
- Very low power consumption in stand-by mode

For field applications, the MEA2043 is supplied on an 'ag-bar' post in a 'clam-shell' galvanised-steel hinged frame connected to a lightning protection stake.

## Specifications

Description	Comments
Number of channels per station	8
Analog input type	Unipolar 12-bit differential analog inputs
Measurement range	0 – 2.5 VDC, 0 – 20 mA, 500 Ω – 50 kΩ, 0 – 2000 Hz
Sensor excitation	Switched or permanent 12V unregulated, 2.500V reference or via precision pull-up resistors, AC excitation for gypsum blocks. Sensor voltage and current consumption on the 12V supply are reported.
Measurement Uncertainty	<0.1% FSD
Operating Temperature Range	-10°C to 60°C
Signal conditioning	Voltage divide, current loop burden, precision pull-up
Filtering	Programmable digital filtering (2,4,8...256 average of readings reported)
SDI-12 compliance	Version 1.3
Environmental Protection Rating	IP65
Power supply voltage	8 – 18V (12V nominal) unregulated
Maximum current (including sensors)	500mA
Operating current (without sensors)	2...5mA; Stand-by current <15µA
Protection	Over-voltage and over-current
Mechanical	Hinged galvanised-iron housing
Lightning protection	Lightning protection on SDI-12 cables and ESD protection on sensor inputs