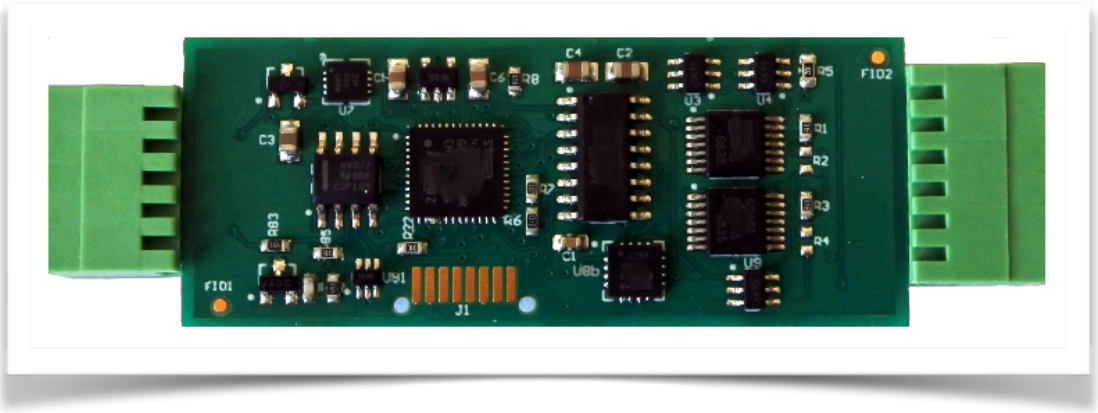
# Strain Gauge Interface

**Single Channel Strain Gauge / Load Cell SDI-12 and RS485 Interface Card**



**model EP-1-STRAIN-24_SD85**

# Load Cell Interface Card

www.enertec.ch

# Description

The EP-1-STRAIN-24-SD85 is an intelligent general purpose strain gauge interface card suitable for direct connection to strain gauges and load cells. The device can be connected to any suitable device supporting the SDI-12 network and is fully integrated into the free Q-LOG Data Display and Recording Software..

The card has an SDI-12 and RS485 Modbus port which are User selectable using industry standard configuration commands.

The EP-1-STRAIN-24-SD85 is User Programmable and can supply results in both raw or engineering unit format. A precision temperature sensor input is supplied for applications when compensation is required.

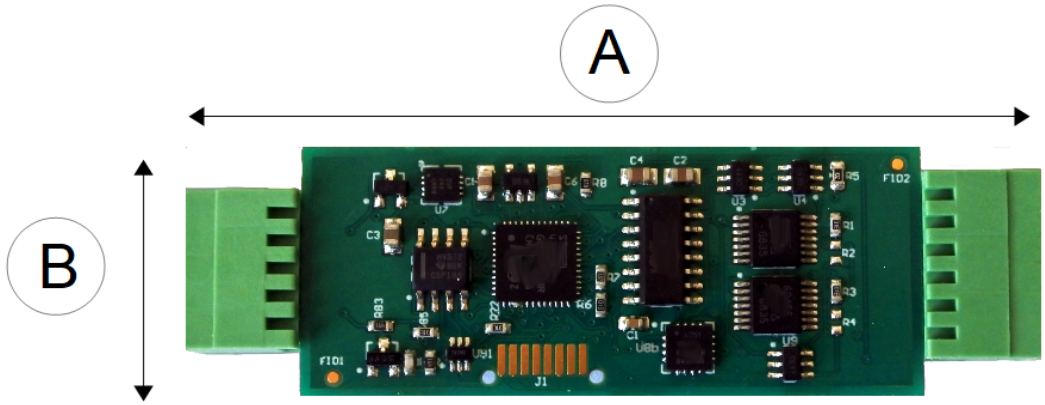
The sensor monitors the bridge excitation during the measurement and compensates automatically for any excitation variation during the data conversion process.

# Features

- Support for 300 to 4 K Ohm Gauges
- External bridge completion
- Precision Temperature Sensor
- User Defined User Programmable Scaling Factors
- SDI-12 & RS485 Digital Communications
- ModBus RTU Support
- Extended SDI-12 Address Support: 0-9 , a-z
- 24 Bit ADC Analogue Input
- Low Power
- Minimised self heating effect
- Engineering and Raw Data Values
- Free Applications Software - Q-LOG Software

# Application

- Quarter Bridge Circuits
- 3 Wire Half Bridges
- 2 Wire Half Bridges
- Full Bridges




**Dimensions A = Length 75 mm B = 24 mm** **Figure 1**

# Sensor port

**Sensor Port** View looking into the Port

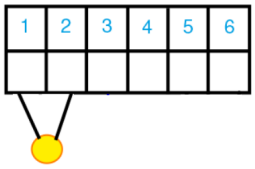



Fig 2

**Pin-out Sensor Input Port**

1 + Thermistor
2 - Thermistor
3 Gnd
4 - Vin
5 + Vin
6 Excitation

# Network port

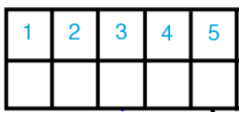


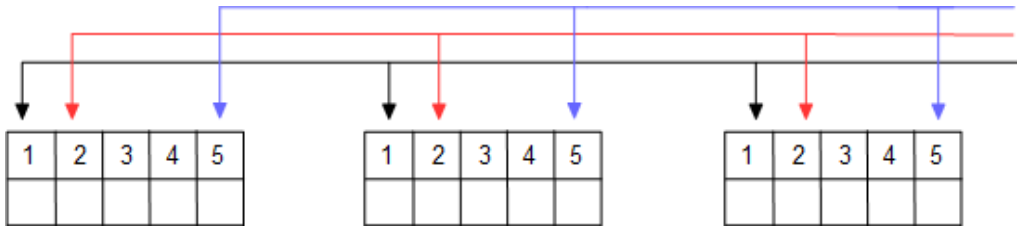

**Fig 3**

**Pin-out Network Port**

| | |
|---|---|
| 1 Gnd | Braun |
| 2 +12 | +9...16 VDC Weiss |
| 3 RS485 - | |
| 4 RS485 + | |
| 5 SDI-12 | Gelb |

# SDI-12 network

The figure below demonstrates how to connect multiple EP-1-STRAIN-24-SD85 cards on a SDI-12 digital network. Each card must have a unique ID number assigned (Address) in order to operate correctly. The SDI-12 network uses a simple three wire low speed application. The specification limits the number of sensors to 10 The cards support enhanced addressing - so you get additional device address A-Z. In the field the maximum number of sensors is limited to 20 over 100 m cable length.



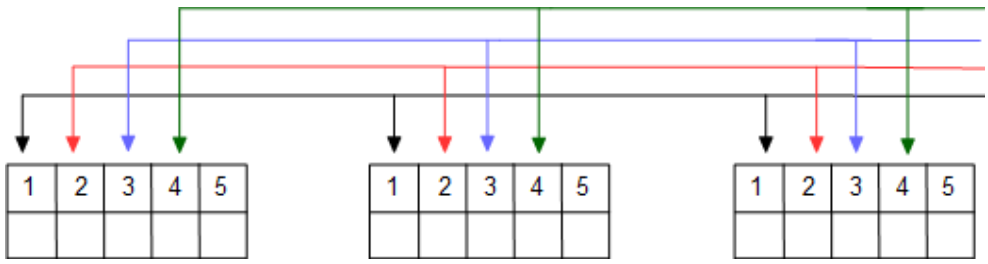

**ID = 0**
**Sensor 1**

**ID = 1**
**Sensor 2**

**ID = 2**
**Sensor 3**

# RS 485 network

The figure below demonstrates how to connect multiple EP-1-STRAIN-24-SD85 cards on a RS 485 digital network. Each card must have a unique ID number assigned (Address) in order to operate correctly. The RS 485 network uses a four wire bus. The specification limits the number of sensors to 255.




**ID = 0**
**Sensor 1**

**ID = 1**
**Sensor 2**

**ID = 2**
**Sensor 3**

# Technical Specifications

| | |
|---|---|
| Power Supply | 10-18 VDC |
| Current | 2 mA at acquisition 10 uA standby |
| Input Range | +/- 70 mV<br>Other ranges on request |
| SDI-12 Port | 1 x Port, Version 1.03, 1200 B, 7 Data, N Parity, 1 Stop |
| RS485 Port | 1 x Port, 1200 B, 7 Data, Even Parity, 1 Stop |
| Max update rate | 1 sec. |
| Bridge exitation | 0 - 4.5 VDC |
| Temp Sensor | Thermistor |
| Thermistor Type | 3 K EC95 F type material 10K3A1 Betatherm |
| Calibration | Steinhart-Hart |
| Accuracy | 0.05 Deg, -8 to 25 Deg C |
| Range | -30 to +60 Deg C |
| Number of channels | 1 |
| Gauge resistance | 120 - 4K Ohm |
| Gauge factor | User defined |
| ADC | 24 bit |

ENERTEC ENGINEERING AG

Bürglistrasse 29

8400 Winterthur

Switzerland

Tel. +41 (0)52 202 54 34

contact@enertec.ch

EP-1_2105-EN