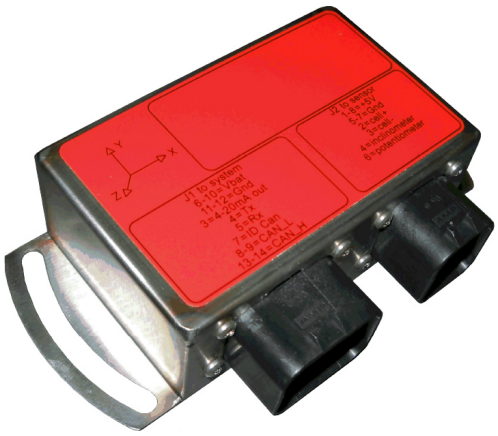
S-BOX



OVERVIEW

The **S-BOX** is a unit that allows the reading of the following sensors:

- load cell (with a sensitivity from 0.5mV / V to 3 mV / V)
- 2 analog potentiometers (eg. for boom extension measurements, Midori Blue-pod inclinometers or linear potentiometers)

Furthermore, the **S-BOX** mounts on-board a 3-axis acceleration sensor, which can be used to perform accelerometric measurements (resolution of about 32.3 m**g**/digit, range +/- 16**g**), as 360 ° inclinometer or as electronic level.
The 5Vdc internal power supply for the load cell is capable of delivering a current of 100 mA and this allows to connect up to 6 cells (with a resistance of about 350 ohms) in parallel.
The unit is enclosed and resin-encapsulated in a small stainless steel rugged box, which can be mounted in any environmental condition; the electrical connections to external signals are made via Amp / Tyco connectors by the Ampseal family.
The **S-BOX** is based on a 16-bit microcontroller (PIC24HJ family) that acquires and processes all the input signals (12-bit AD-converter).
These signals are filtered by programmable digital filters and can be read through the CAN-bus (via CANOpen protocol).

SPECIFICATIONS

- CPU master: Microchip PIC24HJ (40 Mips, 16 bit core)
- Internal Flash memory: 64 kByte
- Internal RAM memory: 8 kByte

OUTPUTS

- 5Vdc / 100mA regulated power supply output for load cells and potentiometers

INPUTS

- 1 differential input for load cell (12 bit resolution) with programmable amplifier and sensor failure detection (short circuit and open circuit)
- 2 analog inputs 0 .. 5V (12 bit resolution) for potentiometers and / or sensors with voltage output
- 2 digital inputs for the CANOpen Node-ID selection (up to 9 Node-ID configurable: other IDs can be programmed via CANOpen)

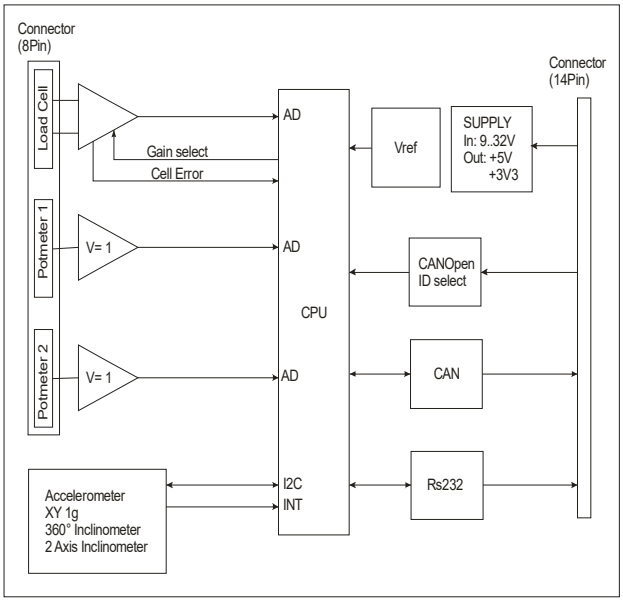
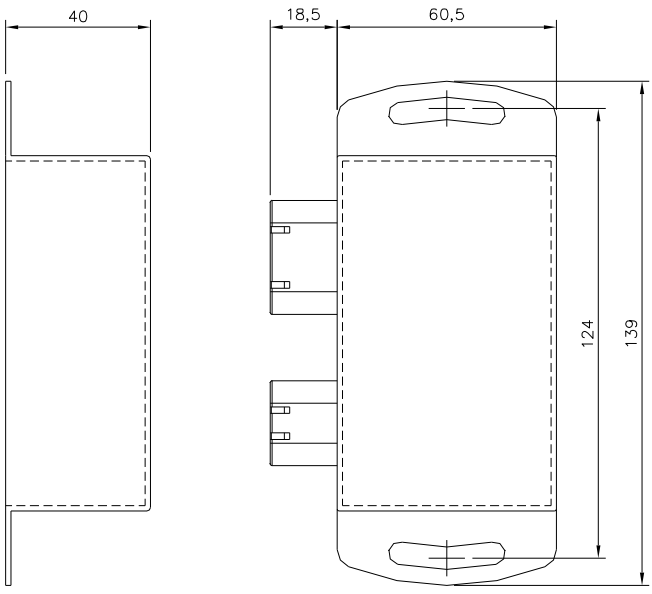
CONNECTIVITY

- 1 RS232 serial interface, programmable baud-rate from 1.2 to 115.2 kbit/s
- 1 CAN-bus full 2.0B, programmable baud-rate from 125Kbit/s to 1Mbit/s, CANOpen protocol

OPERATING CONDITIONS

- Supply voltage: 9 .. 32Vdc
- Operating temperature range: -40 .. +85 °C
- Storage temperature range : -40 .. +85 °C
- Max. humidity level: 95%
- Protection grade: IP68 (with connector plugged)
- Weight: 360 g

BLOCK DIAGRAM



MECHANICAL DRAWING