

STRAINBUSTER

Decentralized straingauge measuring module



Specifications

General

Linearity accuracy: < 0.1%

Bandwidth (-3dB): 20 Hz

Sample rate: 100 samples / second / channel

Operating temperature: -20°C...+50°C

Max. sensor cable length: 3 m

Bridge supply

2.5V(fixed), +/- 0.1%

Measuring input (2 for each module)

Galvanically separated from CAN bus and power supply

- 3-wire single 350Ω strain gauge
- 3-wire Pt100 temp. sensor
- 3 wire half bridge
- 4 wire full bridge

On-board microcontroller

A/D converter resolution: 18 bits

Communications

1 x CAN interface

Bus speed selectable between 1 Mbit/sec and 10Kbit/sec

Power supply

24 V DC, 1,6 VA

Housing dimensions

30 x 105 x 68 (mm, h x l x w)

PEEKEL Instruments B.V. at Rotterdam, Holland is one of the most experienced manufacturers of straingauge measuring instrumentation. PEEKEL equipment is in daily use in all major laboratories and research centers for testing aircraft, railway rolling stock, motor vehicles, cranes, bridges, machinery, engines, ships, satellites, etc.

Introduction

There is an increasing tendency to investigate the behaviour of large constructions under varying load conditions. Examples are: bridges, wind turbines, tower cranes, etc. Usually it is quite inconvenient to apply half- or full straingauge bridges onto such constructions, for which reason mostly single (1/4 bridge) gauges are utilized. This, however, usually implies cumbersome wiring to the inputs of the (remote) measuring amplifiers.

STRAINBUSTER has been developed to solve these problems by placing the measuring circuit in the direct vicinity of each point of measurement. Here all signal conditioning is done, after which all measured values are being transmitted via a CAN bus to one convenient central place, thus building one decentralized system. In this way, up to 120 measured values can be transmitted very reliably over longer distances.

Each STRAINBUSTER module has 2 separate input channels.

The single straingauge, or the Pt100 sensor, is connected through a 3-wire connection, eliminating cable losses at the input side.

The CAN bus speed can be set between 10 and 1000Kbit/sec, allowing a maximum network cable length of some 30 meters at 1000Kbit/sec and 5 Kilometers at 10 Kbit/sec when the correct cable is being used.

Each module has 2 identical sets of CAN bus connection terminals, to enable easy installation of a so-called Daisy Chain Network.

A maximum of 60 units can be connected to one bus.

PC Software

PEEKEL has developed an extremely user-friendly software package, which runs under Windows 98, NT 4.0 and 2000. It facilitates the (remote) configuration of measuring channels, the on-line reading of measured values as well as datalogging all measurements for later evaluation.

The CAN-bus port of STRAINBUSTER can interface with the PC through (third party) interface modules, which are widely available as:

PCMCIA <====> CAN

Parallel port <==> CAN

ISA/PCI card <==> CAN

