CM3410 multiplexed input card for the Autolog 3000

Features of CM3410
- 1 common measuring amplifier
- 1 analog-to-digital converter (24 bits @ 1 kHz)
- multiplexer with 72 input lines, for :
  - ❖ 9 x 8-wire channel (incl. 2 for TEDS)
  - ❖ 12 x 6-wire (i. e. load cells)
  - ❖ 18 x 4-wire (i. e. Pt100)
  - ❖ 36 x 2-wire (i. e. thermocouple)

Strain gauge measurement :
- High-precision complementary resistors for:
  - ❖ ½ bridges
  - ❖ ¼ bridges (120, 350 and 1000 Ohms)
- Bridge supply adjustable between 0,5 till 5 V
- Shunt measurement to check the sensor cables
- Resolution of 0,2 µm/m

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

ISO 9001

Accredited by the Dutch Council for Certification

Introduction

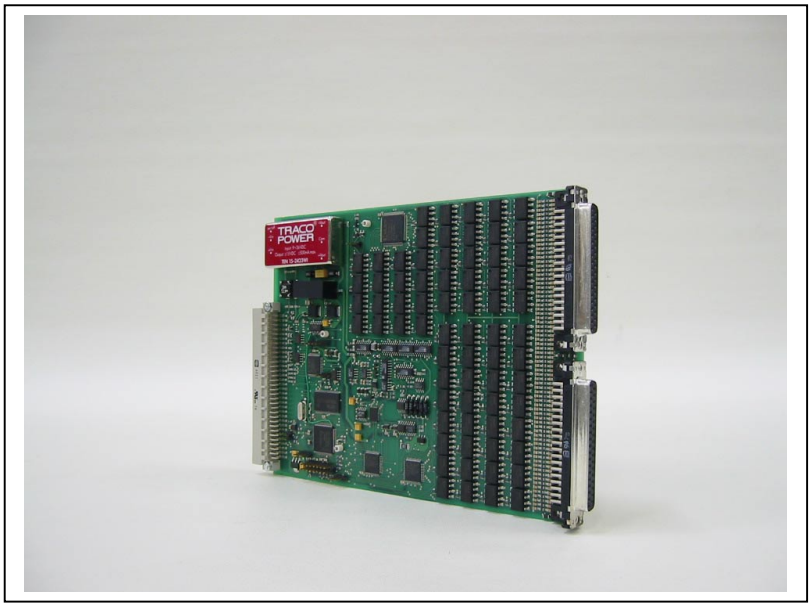
Very often different types of sensors and measuring principles have to be applied not only for different test jobs, but also within one particular application. With this in mind, AUTOLOG 3000 is designed to be a universal input device in order to offer the highest versatility. Strain gauges, thermocouples (of all types), resistance thermometers (Pt 100), potentiometric transducers, and a variety of DC input ranges.

The CA3460 is a 6-channel measuring card, of which each individual channel has its own analog amplifier and its own 24 bits A/D converter with a measuring speed of 1 kHz. The amplifier is of a highly universal concept, enabling the direct connection of nearly all popular sensors. A powerful microprocessor with a data buffer of 50.000 measured values, a CAN-Bus interface and a power supply unit, suitable for 9…36 VDC, complete each module into an autonomous unit.

CM3410 multiplexer card

A new member of the AUTOLOG family is a multiplexer card (CM3410) with a capacity of maximum 36 input channels. With the multiplexer, cost-effective larger systems can be configured if scanning speed is of lesser importance.

The CM3410 card is actually a CA3460 card with just one 24 bits A/D converter, a analog amplifier and a multiplexer (solid state switches) in front of the amplifier.



A few details of explained :

For optimum configurability the inputs are divided 3 groups. First a selection must be made for each group what kind of signal connection technology is used for this group.

- 8 wire connection (3 channels in this group)
- 6 wire connection (4 channels in this group)
- 4 wire connection (6 channels in this group)
- 2 wire connection (12 channels in this group)

Now when selecting a sensor type for one of the channels in a group, only a selection can be made from the sensor type list which uses the selected connection technology. Please note that when a connection selection for a group is changed, the connection pins on the channels in this group can change.

Since 3 groups are available, sensor types can be mixed on one card. For example:

- 4 load cells (one 6 wire group) and 24 DC channels (two 2 wire group)
- 8 load cells (two 6 wire group) and 6 Pt100 channels (one 4 wire group)
- 12 Thermocouples (one 2 wire group) and 24 DC channels (two 2 wire group)

The CM3410 card will always measure the channels one after the other and with the same speed. The maximum scan rate will be 200 Hz.

CM3410 Specifications :

For the amplifiers and A/D converter on this card:
Typical accuracy: 0.1%
Max sample rate: 200 samples/second

Input signals:
Voltage ±40mV, ±2V, ±10V
Current ±50mA
input resistance 70Ω
Potentiometer sensors
output in 0 – 100%
Thermocouples (B,E,J,K,N,R,S,T)
PT100 sensors: –200°C - +500°C
Resistor sensors: 0 – 4000 Ω

Strain Gauge input:
Full bridge
Half bridge
Quarter bridge 120Ω, 350Ω or 1000Ω
Internal shunt resistor to check
external bridge connections
Sense technology (6-wire)
Voltage: 0,5 - 4 VDC (in steps of 0.5V)
Min. permissible load: 120Ω

Further details:
24 bits AD converter
16 bit microcontroller
CAN communication max 1 Mbit/sec.
Local SPI bus: max 5 Mbit/sec.
Local buffer up to 50000 measured values.
Operating temperature:-25^{o} C.. +60 ^{o}C

Power supply:
9 – 36VDC 12VA

(Sensor ID functions are not implemented yet)

Note : Card is under development. All information in this document can be changed without prior notice

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