

AUTOLOG 3000



CA3540 Carrier Frequency input card for the AUTOLOG 3000

Specifications of the CA3540 card :

- Carrier Frequency technique for stable and accurate measurement
- 4 universal input channels for strain gauge full, half and quarter bridge, inductive sensors and DC inputs
- Variable carrier frequency : 500 Hz up to 5000 Hz.
- Sense technique (6-wire)
- Overall accuracy : 0,1%
- Analog output $\pm 10V$ each channel

Also available for the AUTOLOG 3000 series:

CA3460 measuring card:

- 6 channel measurement card based on DC technique with a measurement speed of 1 kHz per channel
- Full-bridge strain gauges, thermocouples (of all types), resistance thermometers (Pt100, Pt1000), potentiometric transducers and a variety of DC input ranges..

CM3410 multiplexer card:

- Multiplexer card for up to 36 (2 wire) inputs. Strain gauges, thermocouples, resistance thermometers, potentiometric transducers and DC input ranges..

CD3733 digital IO card:

- 16 inputs: Opto-isolated
- 12 outputs: Solid state relays and 2 Contact outputs

PEEKEL Instruments B.V. at Rotterdam, Netherlands is one of the oldest manufacturers of strain gauge 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.

ISO 9001

BUREAU VERITAS
Certification



Introduction

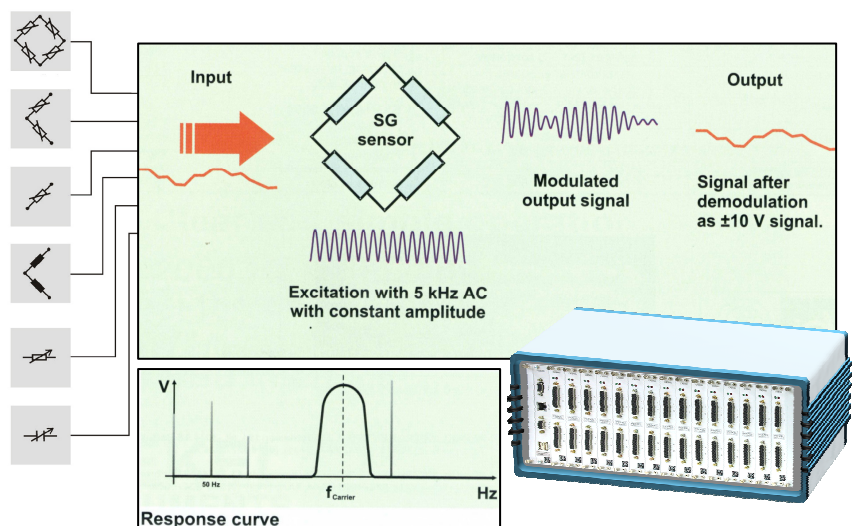
AUTOLOG 3000 is designed to be a universal input device with the highest versatility. By means of different input cards each user can define his specific system with regards to the amount of channels, the measurement speed and measurement principle. The system can be connected to the PC using CAN-Bus, USB or Ethernet.

CA3540 Carrier Frequency input card

With this card it is possible to select a carrier frequency between 500 Hz and 5 kHz for the measurement of strain gauges and inductive sensors. The lower frequency range is extreme useful for strain gauge measurements, specially with long sensor cables. The higher carrier frequencies should be selected in case of inductive sensors and for dynamic signals up to 1 kHz. Together with the selectable amplitude (between 1 and 9 V_{eff}) the best possible setup for each application can be made.

This flexibility is made available because of the newly designed digital demodulation. This technique digitizes synchronously both measurement - and sense signal. After that the signals are being processed by a powerful 32 bit DSP. Analog output can be scaled up to $\pm 10V$ per channel.

Autosoft 3000 is a easy to use, use friendly configuration and measurement program. ActiveX-Controls will be delivered free of charge in order to integrate in standard software like DIAdem, LabVIEW and DASyLab.



The main advantage of using a Carrier Frequency measurement technique : Just the carrier \pm the bandwidth is transported. Spurious signals such as thermo voltages and 50Hz power frequencies lie outside the transmission volume.

Specifications of the 4 channel carrier frequency measurement card : CA3540

For each of the 4 channels on each card:

- Typical overall accuracy: 0.1%
- On board filtering on input signal with selectable low pass filter
10 Hz, 20 Hz, 100 Hz, 400 Hz, 1000 Hz
- Measurement rate per channel : 5000 Hz
- Maximum data throughput for each channel is 1000 values each second

Input ranges:

- DC signals :
 $\pm 2\text{mV}$, $\pm 5\text{mV}$, $\pm 10\text{mV}$, $\pm 20\text{mV}$, $\pm 200\text{mV}$,
 $\pm 500\text{mV}$, $\pm 1\text{V}$, $\pm 10\text{V}$
- Strain gauge (4 Veff, $k=2$, $bfr=2$) :
 $\pm 350 \mu\text{m/m}$, $\pm 800 \mu\text{m/m}$, $\pm 1700 \mu\text{m/m}$,
 $\pm 3500 \mu\text{m/m}$, $\pm 35000 \mu\text{m/m}$
- Inductive sensors (1 Veff) :
 $\pm 140\text{mV/V}$, 350mV/V

Bridge/Sensor supply:

- Voltage: 1 - 9 Vrms (in steps of 0.5V)
- Voltage accuracy: 0.1 %
- Load (max 50 mA) : min 60Ω at 2Veff
min 260Ω at 9Veff
- Carrier frequency selectable :
500 Hz, 1000 Hz, 2500 Hz and 5000 Hz
- Frequency accuracy 0.1%
- Carrier frequency can be synchronized with other CA3540 cards.
- Bridge supply is identical for all channels.

Strain Gauge input:

- Full bridge (4-/6-wire)
- Half bridge (3-/5-wire)
- Quarter bridge 120Ω , 350Ω or 1000Ω (4-wire)
- Internal shunt resistor ($91\text{k}\Omega$) to check external bridge connections

Inductive sensors / LVDT input:

- Full bridge (4-/6-wire)
- Half bridge (3-/5-wire)

Output signals:

- Each input has a corresponding output channel
- Output voltage $\pm 10\text{V}$
- Typical accuracy: 0.1%
- Update frequency 5 kHz
- Range and scaling are adjustable

Further details:

- 32 bit DSP
- CAN communication max 1 MBit/sec.
- Local SPI bus: max 6 MBit/sec.
- Operating temp. : $-20^\circ\text{C}.. +50^\circ\text{C}$

Power supply:

9 – 36VDC 10VA

Note: Sensor ID functions are not implemented yet

Other AUTOLOG 3000 cards are:

- CA3460: 6 channel measuring card
- CD3733: digital I/O card.
- CM3410: multiplexer input card

Note : All information in this document can be changed without prior notice

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