

Q.staxx A104 TCK

Thermocouple and Low Voltage Measurement Module

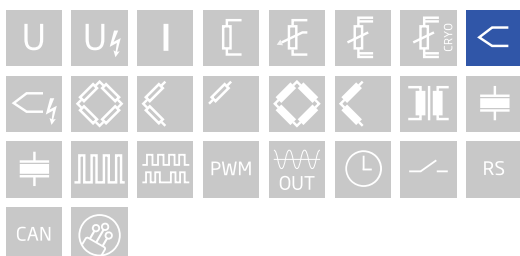
Q.staxx brings the high precision and performance of Q.bloxx into robust, pallet mount, cast aluminum (IP65) Harting enclosures - the ideal solution for extremely harsh test cell environments. Q.staxx modules are interchangeable and can be mounted directly onto pallet systems since the passive backplane does not require fans, filters or environmental conditioning further reducing setup time as sensors can remain fixed to an engine while the pallet transitions between test cells and measurement requirements.

- IP 65 (Dust Protected and water jet tested)
- Robust design for Pallet Systems
- Connectable to any Controller, e. g. Q.gate or Q.pac
- Power supply 10 ... 30 VDC

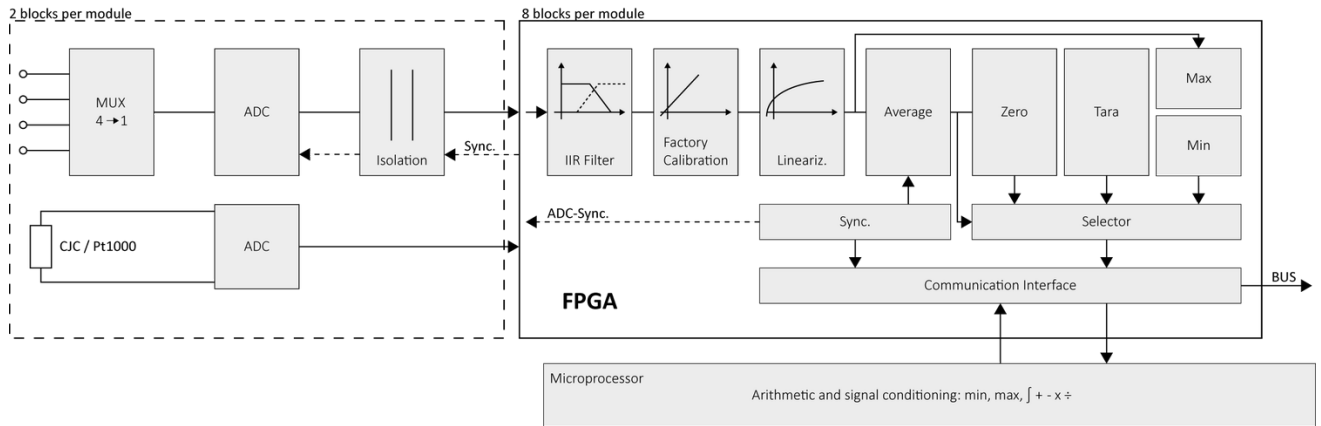


Key Features

- 8 analog input channels
thermocouple (type B / E / J / K / L / N / R / S / T / U), voltage (± 80 mV)
- High-accuracy digitization
24-bit ADC, 100 Hz sample rate per channel, 50/60 Hz mains rejection
- Automatic linearization correction
optimal position of the interpolation points adjusted to the input range
- Simplified wiring
direct connectivity with mini-TC plugs, built-in cold junction compensation
- Open thermocouple detection
detect broken wire, loose connection or thermocouple burnout
- 3-Way galvanic isolation
100 VDC channel to channel, 500 VDC channel to power supply and bank
- Electromagnetic compatibility (EMC)
according to IEC 61000-4 and EN 55011



Block diagram



Technical Data

Analog Input

| | |
|-------------------|--|
| Channels | 8 |
| Accuracy | 0.01 % typical |
| | 0.025 % in controlled environment ¹ |
| | 0.05 % in industrial area ² |
| Linearity error | 0.01 % typical full-scale |
| Repeatability | 0.003 % typical (within 24 hrs) |
| Input impedance | >10 MΩ |
| Isolation voltage | 100 VDC channel to channel 500 VDC to power supply, channel to bus ³ |

¹ according to EN 61326 2006: appendix B

² according to EN 61326 2006: appendix A

³ noise pulses up to 1000 VDC, continuous up to 250 VDC

Voltage Measurement

| | | |
|-----------------------|----------------------------|---------------------------|
| Input range | ±80 mV | |
| Margin of error | ±10 μV | |
| Resolution | 10 nV | |
| Long-term stability | <1 μV / 24 hrs | <10 μV / 8000 hrs |
| Temperature drift | <20 μV / 10 K Offset drift | <0.02 % / 10 K Gain drift |
| Signal-to-noise ratio | >100 dB at 100 Hz | |

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Thermocouple Measurement

| Deviation in the relevant Temperature range | Type | Range | Adjusted with cold junction compensation |
|---|-----------------|-------------------|--|
| The specifications are valid with enabled mains frequency rejection 50 Hz resp. 60 Hz | Type K | -100 to 1000°C | < ±0.5°C |
| | | -270°C to 1372°C | < ±0,8°C |
| Long-term drift | <0.025°C / 24 h | < 0.05°C / 8000 h | |
| Temperature influence | Offset drift | Gain drift | |
| | <0.05°C / 10 K | < 0.02% / 10 K | |
| Uncertainty CJC | <0.3°C | | |

Analog-to-Digital Conversion

| | |
|-------------------|--|
| Resolution | 24-bit |
| Sample rate | 100 Hz per channel fast mode 10 Hz per channel with 60 Hz mains frequency rejection 6 Hz per channel with 50 Hz mains frequency rejection |
| Modulation method | sigma-delta |
| Digital filters | Infinite impulse response (IIR), low-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 10 Hz (adjustable via software) |
| Averaging | configurable or automatic according to the user-defined data rate |

Communication Interface

| | |
|---------------------|---|
| Protocols | proprietary Localbus (115200 bps to 24 Mbps, latency < 100 ns) ASCII (19200 bps to 115200 bps) Modbus RTU Profibus-DP (19200 bps to 12 Mbps) (special Firmware required) |
| Data format | 8E1 |
| Electrical standard | ANSI/TIA/EIA-485-A, 2-wire |

Input Power

| | |
|-------------------------|--|
| Input voltage | 10 to 30 VDC, overvoltage and overcurrent protection |
| Power consumption | 2 W (approx.) |
| Input voltage influence | < 0.001 % / V |

Environmental Specifications

| | |
|-----------------------|-----------------------------------|
| Operating temperature | -20°C to +60°C |
| Storage temperature | -40°C to +85°C |
| Relative humidity | 5 - 95 % at 50°C (non-condensing) |

Remarks

Validity of all listed specifications are subject to a warm-up period of at least 45 minutes

Specifications subject to change without notice

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Mechanical information

| | |
|--------------------------|-------------------|
| Material | Aluminum |
| Measurements (W x H x D) | 45 x 120 x 113 mm |
| Weight | approx. 700 g |

Ordering Information

| | |
|----------------|--------|
| Article number | 104017 |
|----------------|--------|

Gantner Instruments

Austria | Germany | France | Sweden | India | USA | China | Singapore
Montafonerstraße 4 · A-6780 Schruns · T +43 55 56 · 77 463-0

office@gantner-instruments.com
www.gantner-instruments.com