

# Q.raxx A124

## High Isolation Module for Thermocouples

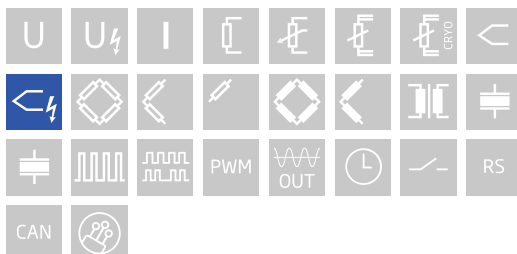
Q.raxx is the ideal 19" rackmount DAQ solution for applications that require high channel density. Q.raxx DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx systems can be synchronized to each other allowing for efficient DAQ distribution with low jitter and gradual expansion up to thousands of channels.

- High Density  
up to 13 I/O modules per Q.raxx 3U chassis with up to 16 channels per I/O module
- User Friendly  
front panel indicators for module status, power, and input range error
- Fully Customizable  
multiple front panel termination options available
- Maximum Flexibility  
parallel communication available in TCP/IP, CAN, PROFIBUS, Modbus, and EtherCAT

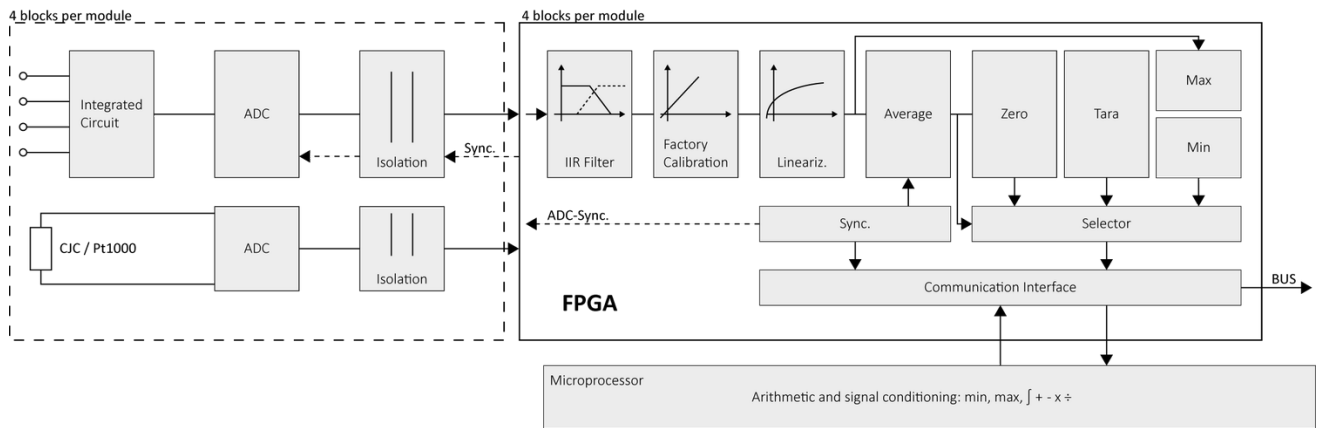


### Key Features

- 4 galvanically isolated input channels  
for non-insulated thermocouples at high potential
- Cold junction compensation
- Signal conditioning  
digital filter, average, scaling, min/max storage, arithmetic, alarm
- Dynamic linearization  
Optimum positioning of interpolation points in selected range, types B, E, J, K, L, N, R, S, T, U
- High accuracy digitalization  
24 bit ADC, 10 kHz sample rate per channel
- Galvanic isolation  
channel to channel to power supply and to interface  
isolation voltage 1200 VDC / 848 VACrms  
test voltage 5 kVrms over 1 minute
- Categories  
1000 V CAT II and 600 V CAT III



### Block diagram



### Technical Data

#### Analog Inputs

Channels	4
Accuracy	0.01 % typical
	0.025 % in controlled environment <sup>1</sup>
	0.05 % in industrial area <sup>2</sup>
Linearity error	0.01 % typical full-scale
Repeatability	0.003 % typical (within 24 h)
Isolation voltage	1200 VDC continuous, channel to channel to power supply channel to bus <sup>3</sup>

<sup>1</sup> according to EN 61326 2006: appendix B

<sup>2</sup> according to EN 61326 2006: appendix A

<sup>3</sup> High voltage lifetime (TDD B E Model): time to fail approx. 4 years at 1200 VDC and 60 °C

### Measurement Mode Thermocouple

	Type	Range	error
	Type B	400 °C to 1820 °C	< ± 1.5 °C
	Type E, J, K	-100 °C to 1000 °C	< ± 0.5 °C
	Type E	-270 °C to 1000 °C	< ± 0.8 °C
	Type K	-270 °C to 1372 °C	< ± 0.8 °C
	Type L	-200 °C to 900 °C	< ± 0.5 °C
	Type N	-100 °C to 1000 °C	< ± 0.5 °C
	Type N	-270 °C to 1300 °C	< ± 0.8 °C
	Type R, S	-50 °C to 1768 °C	< ± 1 °C
	Type T, U	-100 °C to 400 °C	< ± 0.5 °C
	Type T	-270 °C to 400 °C	< ± 0.8 °C
Input impedance	> 100 MΩ		
Long-term drift	< 0.05 °C / 24 h		< 0.5 °C / 8000 h
Temperature influence	Offset drift		Gain drift
	< 0.02 °C / 10 K		< 0.025 °C / 10 K
Uncertainty cold junction compensation	< 0.5 °C		

### Analog/Digital-Conversion

Resolution	24-bit
Update rate	10 kHz
Modulation method	Sigma-Delta
Anti-aliasing filter	1000 Hz, 2nd order
Digital filters	Infinite impulse response (IIR), low-pass, high-pass, band-pass, Butterworth or Bessel (2nd, 4th, 6th or 8th order), frequency range 0.1 Hz to 100 Hz (adjustable via software)
Averaging	configurable or automatic according to the selected 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

### Power Supply

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

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## Environmental

Operating temperature	-20°C to +60°C
Storage temperature	-40°C to +85°C
Relative humidity	5 % to 95 % at 50°C, non-condensing
Pollution degree	1

## Remarks

Warm-up time	Validity of all listed specifications are subject to a warm-up period of at least 45 minutes
	Specifications subject to change without notice

## High Voltage Warnings



- Attention High voltage device, Danger for life and health in case of non regular use.
- Only special and sufficient educated persons are permitted to handle this device only.
- all metal housing parts must be safely and continuous connected to protected earth (PE)
- Only contact protection plugs and cables may be used. All parts must be approved for voltages up to 1200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations must be considered.

Base is the european standard EN61010-1

## Mechanical information

Material	Aluminum
Measurements (W x H x D)	30 x 128 x 118 mm
Weight	approx. 100 g

## Ordering Information

Article number	111520
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