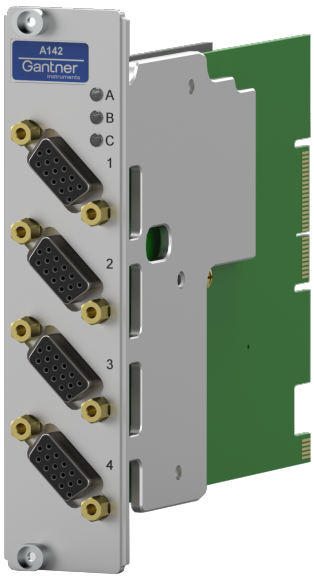
Q.raxx XL A142

Measurement module for analog inputs and SSI

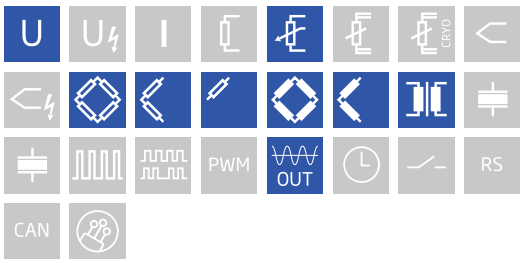
Q.raxx XL is a new addition to the Q.series product family - the ideal 19" rackmount DAQ solution for applications that require high channel density and custom sensor terminations. Q.raxx XL DAQ systems can utilize an integrated, high-performance controller for communication, control, and data logging purposes. With a controller, multiple Q.raxx XL 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
- Gantner's Quality Standard
  integrated filtering, galvanic isolation & signal/sensor conditioning per channel



Key Features

- 2 galvanic isolated universal input channels
  strain gage and inductive half- and full-bridges, LVDT, RVDT quarter-bridge with completion terminal
- 1 galvanic isolated analog input channel
  10 VDC voltage measurement
- Synchronus Serial Interface (SSI)
  for absolute Encoder or Temposonics®
- 1 Analog output channel
  voltage (±10 VDC) configurable
- 4 digital inputs and outputs
  status, trigger, tare, alarm, command
- Galvanic isolation
  500 VDC channel-to-channel-to-power for all analogue inputs



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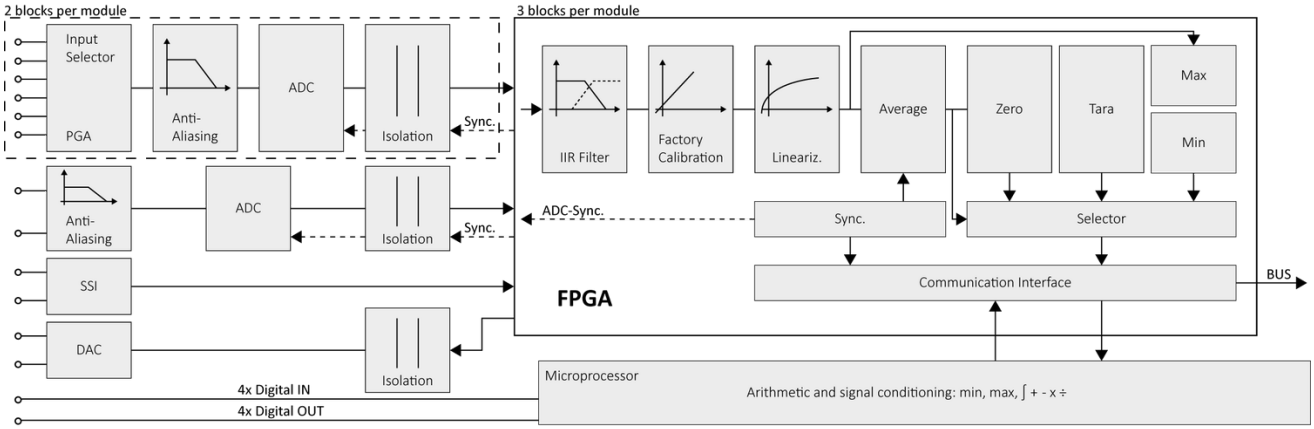
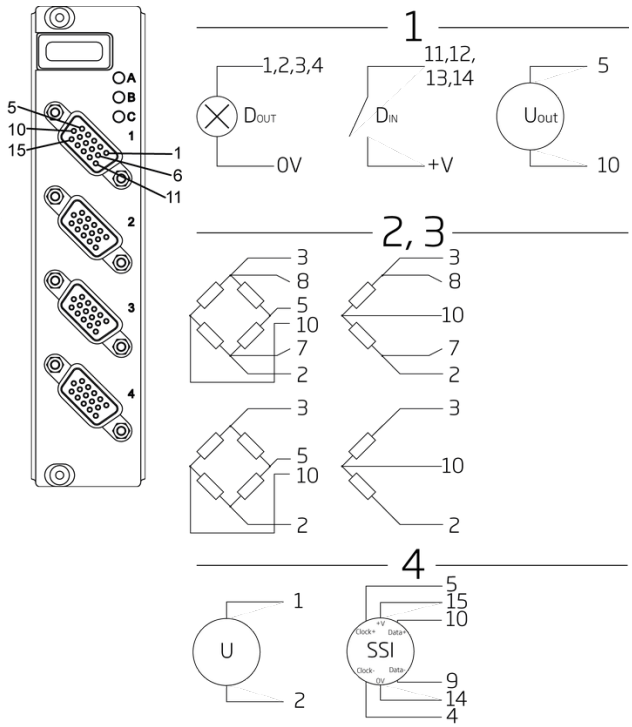
Block diagram



Technical Data

Terminal assignment DSUB 15 HD female

1		2,3		4	
1	DO 1	1	n.c.	1	AIN +
2	DO 2	2	EXC -	2	AIN -
3	DO 3	3	EXC+	3	n.c.
4	DO 4	4	n.c.	4	Clock -
5	AOut +	5	SIG +	5	Clock +
6	+V	6	n.c.	6	n.c.
7	VCC	7	SEN -	7	n.c.
8	0V	8	SEN +	8	n.c.
9	0V	9	n.c.	9	Data -
10	AOut -	10	SIG -	10	Data +
11	DI 1	11	n.c.	11	n.c.
12	DI 2	12	n.c.	12	n.c.
13	DI 3	13	n.c.	13	n.c.
14	DI 4	14	n.c.	14	0V
15	n.c.	15	n.c.	15	+V



Signal Conditioning

Anti-aliasing filter	5 kHz 5th order (DC excitation)	1 kHz 5th order (CF excitation)
Digital filters	IIR, low-pass, band-pass, 4th order, 1 Hz to 1 kHz in steps 1, 2, 5	
Averaging	configurable or automatic according to the user-defined sample rate	

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Universal Input

Channels	2			
Accuracy	0.02 % typical			
	0.05 % in controlled environment			
	0.1 % in industrial area			
Repeatability	0.01 % typical (within 24 h)			
Input impedance	> 10 MΩ			
Isolation voltage	500 VDC channel to channel to power			
Sensor type	DC resistive full-, quarter- and half-bridge, pressure sensor			
	4.8 kHz carrier frequency mode inductive full-, quarter- and half-bridge, LVDT and RVDT			
Sensor connection	quarter-bridge		3-wire with internal 350 Ω bridge completion	
	half-bridge		3- or 5-wire for cable-length compensation	
	full-bridge		4- or 6-wire for cable-length compensation	
internal Shunt resistor	100 kΩ, Vexc+ - Vsig+			
Sensor excitation (selectable)	DC: 5 VDC	CF: 5 Veff	DC: 2.5 VDC	CF: 2.5 VDC
Allowable sensor resistance	> 300 Ω	> 300 Ω	> 100 Ω	> 100 Ω
Input range (user selectable)	±1.25 mV/V	±1.25 mV/V	±2.5 mV/V	±2.5 mV/V
	±2.5 mV/V	±2.5 mV/V	±10 mV/V	±10 mV/V
	±10 mV/V	±10 mV/V	±20 mV/V	±20 mV/V
	±20 mV/V	±20 mV/V	±50 mV/V	±50 mV/V
	±50 mV/V	±50 mV/V	±100 mV/V	±100 mV/V
	±100 mV/V	±100 mV/V	±200 mV/V	±200 mV/V
	±200 mV/V	±200 mV/V	±1000 mV/V	±1000 mV/V
	±1000 mV/V	±1000 mV/V	±2000 mV/V	±2000 mV/V
Temperature influence Offset drift	<0.2 µV / 10 K (2.5 mV/V input range)			
Temperature influence Gain drift	<0.05 % / 10 K			
Long-term drift	<0.2 µV/V / 24 h			
	<2 µV/V / 8000 h			
Linearity error	<0.02 % FS			
Noise voltage at 10 Hz	<0.3 µV/V			
Noise voltage at 100Hz	<1 µV/V			

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Voltage Input

Channels	1		
Measurement voltage	Range	Accuracy	Resolution
	±10 V	±2 mV	±1,2 µV
Accuracy	0.02 % typical		
	0.05 % in controlled environment		
	0.1 % in industrial area		
Repeatability	0.01 % typical (within 24 h)		
Input impedance	>1 MΩ		
Isolation voltage	500 VDC channel to channel-to-power		
Temperature influence Offset drift	<0.2 µV / 10 K (2.5 mV/V input range)		
Temperature influence Gain drift	<0.05 % / 10 K		
long-term drift	<0.2 µV/V / 24 h		
	<2 µV/V / 8000 h		
linearity error	<2.00 % FS		
Noise voltage at 10 Hz	<0.3 µV/V		
Noise voltage at 100 Hz	<1 µV/V		

Voltage Output

Channels	1
Galvanic isolation	250 VDC channel to channel-to-power
Output voltage	±10 VDC
Accuracy	0.02 %
Resolution	16-bit
Sample rate	20 kHz
Allowable load resistance	> 2kΩ
Temperature influence Offset drift	< 1 mV / 10 K
Temperature influence Gain drift	<0.05% / 10 K
Noise voltage at 10 Hz	<2mV at 10 hZ
Long-term drift	<1 mV / 24 h
	<2.5 mV / 8000h

Analog/Digital-Conversion

Resolution	18-bit
Sample rate	20 kHz
Modulation method	SAR

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Digital Inputs

Channels	4
Type	status
Input voltage	max. 30VDC
Input current	max 2 mA
Threshold (Programmable)	TTL or EN61131-2, Type 1
Logic voltage "0"	-3 to 5 VDC (EN61131-2, Type 1)
Logic voltage "1"	11 to 30 VDC (EN61131-2, Type 1)

Digital Outputs

Channels	4
Type	Status
Contact	Open drain p-channel MOSFET (short circuit proof)
Output voltage	5 to 30 VDC (external supply required)
Load capacity	30 VDC / 500 mA (resistive load capacity)

Power Supply

Input voltage	10 to 30 VDC, overvoltage and overcurrent protection
Power consumption	approx.. 6 W
Input voltage influence	<0.001 %/V

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

Mechanical information

Material	Aluminum
Measurements (W x H x D)	30x 128 x 120mm
Weight	approx. 200 g

Ordering Information

Article number	657733

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