

espressoDAQ

DQ430 strain gage bridge module

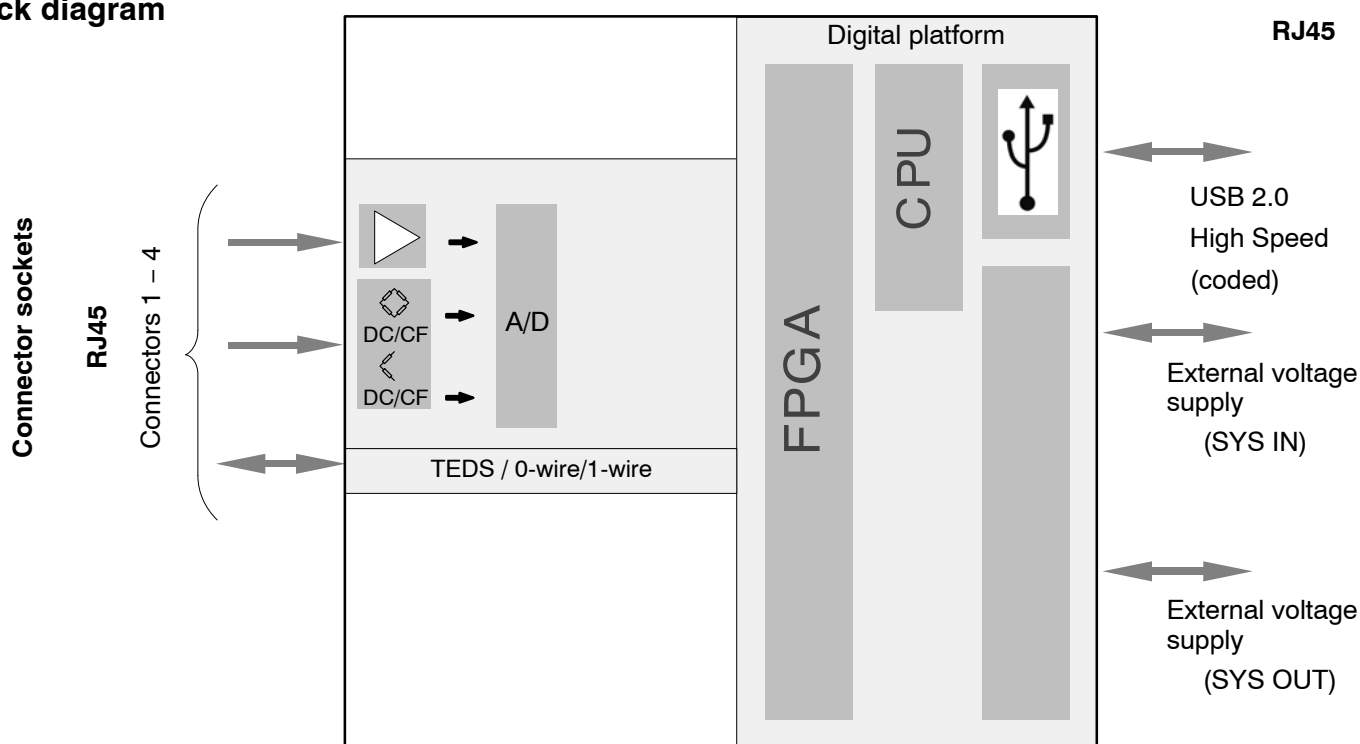
Dynamic strain gage amplifier



Special features

- 4 individually configurable inputs
- Full and half bridge
- Data rate up to 40,000 measured values/s
- Carrier frequency technology
- 24-bit A/D converter per channel for synchronous measurements
- Active low-pass filter
- TEDS capability
- DC supply voltage; 1 device via USB (5 V), otherwise 6 ... 28 V
- Compact design

Block diagram



Specifications

SG module		
Type		DQ430
Accuracy class		0.08
Inputs		4
Transducer technologies per connector		SG fullbridge in six wire circuit and SG halfbridge in five wire circuit
A/D conversion per channel		24-bit delta-sigma converter
Data rate	S/s	1 – 40 000, adjustable individually per channel
Bandwidth at DC excitation	Hz	8000
Active filter (can be disabled)	Hz	Bessel: 0.1 ... 8000; 20 Steps Butterworth: 0.1 ... 8000; 20 Steps
Transducer identification (TEDS, IEEE1451.4) maximum TEDS module distance	m	< 30
Transducer connection		RJ45
Supply voltage range (DC) Supply via USB Supply via SYS-IN	V V	5 6 – 28, nominal (rated) voltage 24 V
Power consumption	W	< 2.5
USB (data link, optional voltage supply) Data rate to PC (Single module) Plug connection Max. cable length to module	S/s – m	Version 2.0 High Speed 320 000 8P8C plug (RJ45) 2
Nominal (rated) temperature range	°C	–10 to + 45
Storage temperature range	°C	–40 to + 80
Relative humidity	%	10 – 90 (non-condensing)
Protection class (height up to 2000 m, degree of pollution 2)		III
Degree of protection		IP20 per EN60529
Mechanical tests Vibration (tested to EN60068–2–6) Impact (tested to EN60068–2–27)		50 m/s ² , 5–65 Hz, 30 cycles 350 m/s ² , 11 ms, half-cosine, 3 shocks in each direction
EMC requirements		to EN61326–1
Dimensions, horizontal (H x W x D)	mm	24 x 71 x 116
Weight, approx.	g	170
Strain gage full bridge and half bridge, 4 mV/V square-wave CF with 1 V and 2.5 V excitation		
Carrier frequency (square wave),alternatively	Hz	2000 ± 0.5 or 500 ± 0.5
Bridge excitation voltage	V	1; 2.5 (± 5 %)
Transducers that can be connected		SG full and half bridges
Permissible cable length between DQ430 and transducer	m	< 30
Measuring range at 2.5 V excitation at 1.0 V excitation	mV/V mV/V	± 4 ± 10
Measurement frequency range (–3 dB) cf 2000 Hz cf 500 Hz	Hz Hz	400 100
Transducer impedance at 2.5 V excitation at 1.0 V excitation	Ω Ω	200 ... 5000 150 ... 5000
Noise at 25°C (peak-to-peak) 0.1 Hz 1 Hz 10 Hz 100 Hz	μV/V μV/V μV/V μV/V	0.1 0.2 0.6 2.2

Specifications (continued)

Zero drift (full bridge with 2.5 V excitation)	%/10K	< 0.03 of full scale value
Full scale drift (2.5 V excitation)	%/10K	< 0.05 of measured value
Strain gage full bridge and half bridge, 4 mV/V DC with 1V and 2.5 V excitation		
Accuracy class		0.08
Bridge excitation voltage	V	1; 2.5 (± 5 %)
Transducers that can be connected		SG full and half bridges
Permissible cable length between DQ430 and transducer	m	30
Measuring range at 2.5 V excitation at 1.0 V excitation	mV/V mV/V	± 4 ± 10
Measurement frequency range (-3 dB)	Hz	8000
Transducer impedance at 2.5 V excitation at 1.0 V excitation	Ω Ω	200 ... 500 ¹⁾ 150 ... 500
Noise at 25°C (peak-to-peak) 0.1 Hz 1 Hz 10 Hz 100 Hz 1000 Hz 8000 Hz	μV/V μV/V μV/V μV/V μV/V μV/V	2 3 5 6 7 15
Zero drift (full bridge with 2.5 V excitation)	%/10K	< 0.03 of full scale value
Full scale drift (2.5 V excitation)	%/10K	< 0.05 of measured value

¹⁾ Up to 5000 ohm, with 350 ppm/100ohm typical zero offset

Scope of supply:

	Order no.
1 USB to RJ45 adapter cable, 2 m long	1-KAB286-2
Operating manual	

Accessories, to be ordered separately:

	Order no.
Active USB hub, 4-port, MOXA, including standard USB cable	1-USBHUB-4A
1 USB to RJ45 adapter cable, 2 m long	1-KAB286-2
RJ45 plug for mounting without tool	1-RJ45-EMV
1 TEDS module (1-wire)	1-TEDS-BOARD
HBM TEDS dongle for writing and reading of TEDS	1-TEDS-Dongle
Temperature sensor (1-wire) with free ends, 1 sensor per channel	available at www.wiregate.de
RJ45-to-D-Sub-HD15 adapter cable	1-KAB417
RJ45 supply cable, open strands	1-KAB285-3

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