

# espressoDAQ

## DQ401 DC module

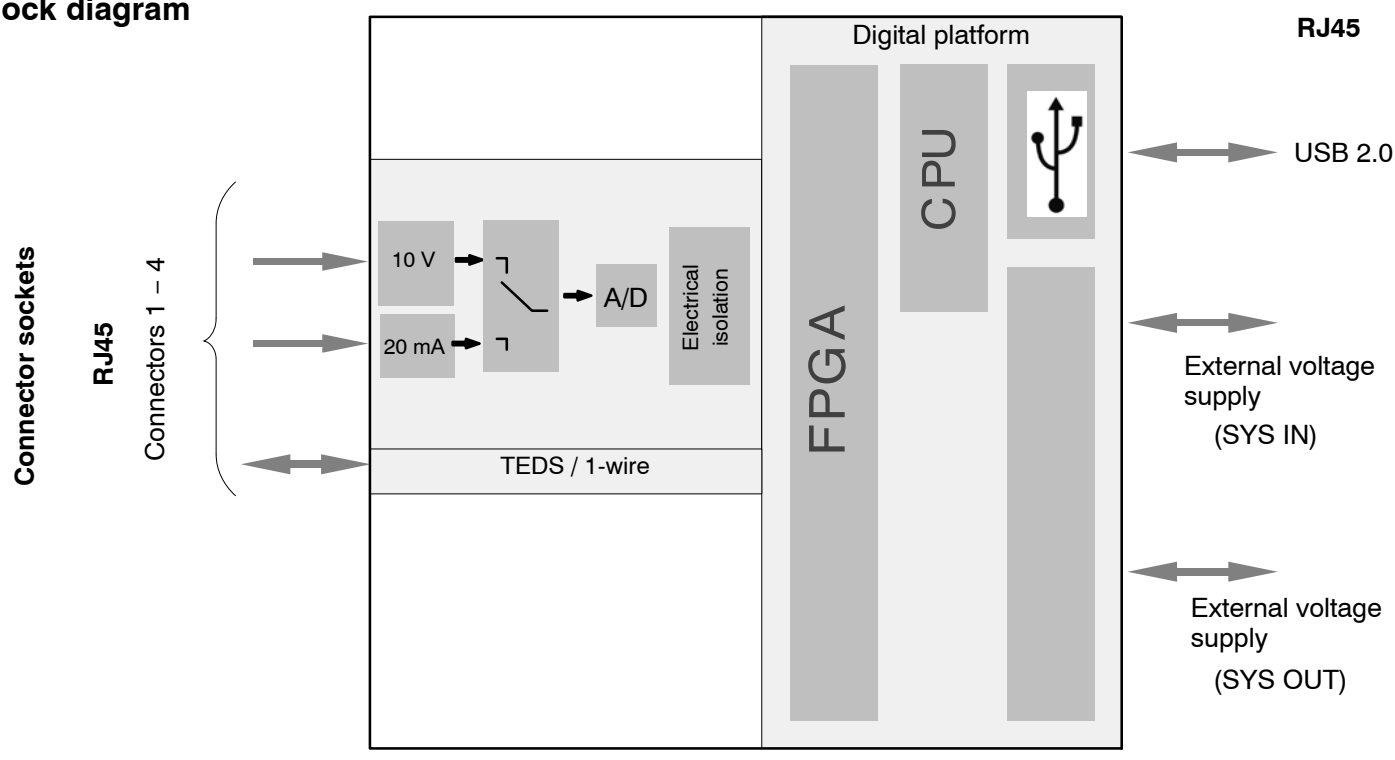
Dynamic current/voltage  
amplifier



### Special features

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

### Block diagram



## Specifications

DC module		
Type		<b>DQ401</b>
Inputs		4, electrically isolated from each other and from the supply
Transducer technologies per connector		Voltage, current
A/D conversion per channel		24-bit delta-sigma converter
Data rate	S/s	1 ... 40 000, adjustable individually per channel
Bandwidth	kHz	8.0
Active filter (can be disabled)	Hz	Bessel: 0.1 ... 8000; 20 Steps Buttlerworth: 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	< 2.7
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 <sup>2</sup> , 5–65 Hz, 30 cycles 350 m/s <sup>2</sup> , 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
<b>Voltage 10 V (DC)</b>		
Accuracy class		0.08
Transducers that can be connected		Voltage sensor ± 10 V
Permissible cable length between DQ401 and transducer	m	< 30
Measuring range	V	± 10
Measurement frequency range (–3 dB)	Hz	0 ... 8000
Internal resistance of voltage source	kΩ	< 10
Input impedance	MΩ	> 50
Noise at 25°C (peak-to-peak) 10 Hz 8 kHz	μV <sub>SS</sub> μV <sub>SS</sub>	200 2000
Non-linearity	%	< 0.02 of full scale value
Common-mode rejection for DC common mode for 50 Hz common mode, typically	dB dB	> 110 > 85
Common-mode voltage, max. (to housing and supply ground)	V	± 60

## Specifications (continued)

<b>Zero drift</b>	%/10K	0.01
<b>Full-scale drift</b>	%/10K	0.01
<b>Current (DC) 20 mA</b>		
<b>Accuracy class</b>		0.08
<b>Transducers that can be connected</b>		Transducers with 4 ... 20 mA current output
<b>Permissible cable length between DQ401 and transducer</b>	m	< 30
<b>Measuring range</b>	mA	± 25 4 ... 20 mA
<b>Measurement frequency range (-3 dB)</b>	Hz	0 ... 8000
<b>Measuring resistance value</b>	Ω	typically 7.5
<b>Noise at 25°C (peak-to-peak)</b> 10 Hz 8 kHz	μVss	0.5
	μVss	4
<b>Non-linearity</b>	%	< 0.02 of full scale value
<b>Common-mode rejection</b> for DC common mode for 50 Hz common mode, typically	dB	> 100
	dB	> 85
<b>Common-mode voltage, max.</b> (to housing and supply ground)	V	± 60
<b>Zero drift</b>	%/10K	0.01
<b>Full-scale drift</b>	%/10K	0.01

## 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 <a href="http://www.wiregate.de">www.wiregate.de</a>
RJ45-to-D-Sub-HD15 adapter cable	1-KAB417
RJ45 supply cable, open strands	1-KAB285-3

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