

# KiDAQ Module 5518A

## Measurement module for strain gauges, inductive bridges and LVDT



### Description

KiDAQ is a general purpose data acquisition system to measure more than 20 different analog and digital signal types. The wide selection of signal conditioning and data acquisition modules enables perfectly fitted system configurations, exactly to the customer's requirements. All modules are available in the KiDAQ housing options Rack, Portable and DIN Rail which allows the use in different applications and environments.

### Key features

- **2 analog input signals**  
Strain gauge and inductive half and full bridges, LVDT, RVDT, quarter bridge with completion terminal
- **4 digital signals**  
Status
- **A/D conversion**  
20 kSps sampling rate per channel, 24 Bit resolution
- **Galvanic isolation**  
Channel to channel to power supply and to interface isolation voltage 500 VDC



### Technical data

#### Analog inputs

Number	2
Input connector type	Terminal strip, 2x10 pole, color blue
Accuracy	0.02 % typical
	0.05 % in controlled environment <sup>1</sup>
	0.1 % in industrial area <sup>2</sup>
Repeatability	0.01 % typical (within 24 h)
Input resistance	>10 MΩ
Isolation voltage	500 VDC channel to channel to power supply to interface <sup>3</sup>

Sensor connection	with or without sense leads for compensation of cable influences full bridge 4 or 6 wire half bridge 3 or 5 wire quarter bridge 3 wire in combination with completion terminal 120 Ω or 350 Ω
Shunt calibration	Internal resistor 100 kΩ, Vexc+ - Vsig+

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

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

<sup>3</sup> noise pulses up to 1000 VDC, permanent up to 250 VDC

<sup>4</sup> low capacity sensor cable is strongly recommended, CF 4.8 kHz is possible with limitations only

#### Measurement resistive bridge, inductive bridge, LVDT and RVDT

	DC Mode	600 Hz carrier mode (AC)	4.8 kHz carrier mode (AC)
Sensor type	resistive full and half bridge (5/6 wire), quarter bridge with completion terminal (3 wire)	resistive full and half bridge (5/6 wire), quarter bridge with completion terminal (3 wire)	resistive full and half bridge (5/6 wire), inductive full and half bridges, LVDT and RVDT sensors
Permitted sensor cable length	<300 m	<300 m	<100 m <sup>4</sup>

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The information corresponds to the current state of knowledge. Kistler reserves the right to make technical changes without advance notice. Liability for consequential damages arising from the application of Kistler products is excluded.

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Sensor excitation (selectable)	DC: 5 VDC	CF: 5 Veff	DC: 2.5 VDC	CF: 2.5 Veff
Permitted sensor resistance	>300 Ω	>300 Ω	>100 Ω	>100 Ω
Measuring range	±1.25 mV/V	±1.25 mV/V	±2.5 mV/V	±2.5 mV/V
	±2.5 mV/V	±2.5 mV/V	±5 mV/V	±5 mV/V
	±25 mV/V	±25 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	±400 mV/V	±400 mV/V
Frequency range (–3 dB)	0 ... 3 600 Hz	0 ... 100 Hz (CF 600 Hz)	0 ... 3 600 Hz	0 ... 100 Hz (CF 600 Hz)
		0 ... 1 000 Hz (CF 4.8 kHz)		0 ... 1 000 Hz (CF 4.8 kHz)
Temperature influence on zero (range 2.5 mV/V)	<0.2 μV/V / 10 K	<0.2 μV/V / 10 K	<0.2 μV/V / 10 K	<0.2 μV/V / 10 K
Temperature influence on sensitivity (measuring value)	<0.05 % / 10 K	<0.05 % / 10 K	<0.05 % / 10 K	<0.05 % / 10 K
Long term drift	<0.2 μV/V / 24 h	<0.1 μV/V / 24 h	<0.2 μV/V / 24 h	<0.1 μV/V / 24 h
	<2 μV/V / 8 000 h	<1 μV/V / 8 000 h	<2 μV/V / 8 000 h	<1 μV/V / 8 000 h
Linearity error	<0.02 % f.s.			
Noise voltage at 10 Hz	<0.3 μV/V			
Noise voltage at 100 Hz	<1 μV/V			

#### Analog digital conversion

Resolution	24 bit
Sample rate	20 kSps per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Butterworth 4 <sup>th</sup> order, 1 Hz up to 1 kHz in steps 1, 2, 5
Averaging	configurable or automated according the selected data rate

#### Digital inputs

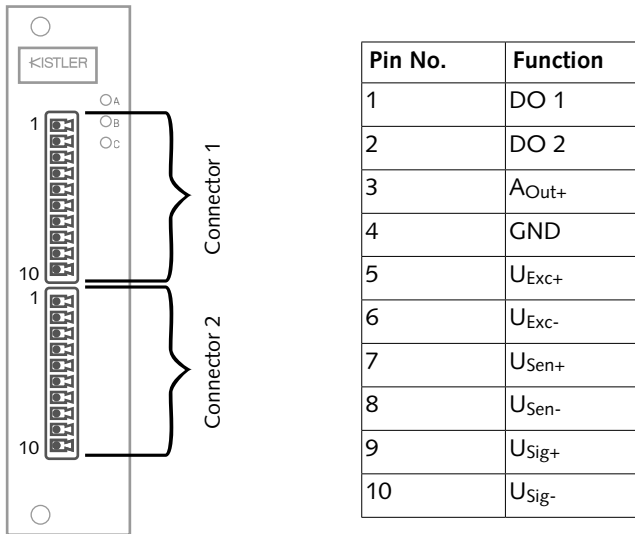
Number	4 configurable inputs
Input	state, tare, reset
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)

Further technical data please refer to data sheet "KiDAQ System Datasheet" 003-335e.

#### Warm up time

All declarations are valid after a warm up time of 45 minutes.

**Pin assignment**

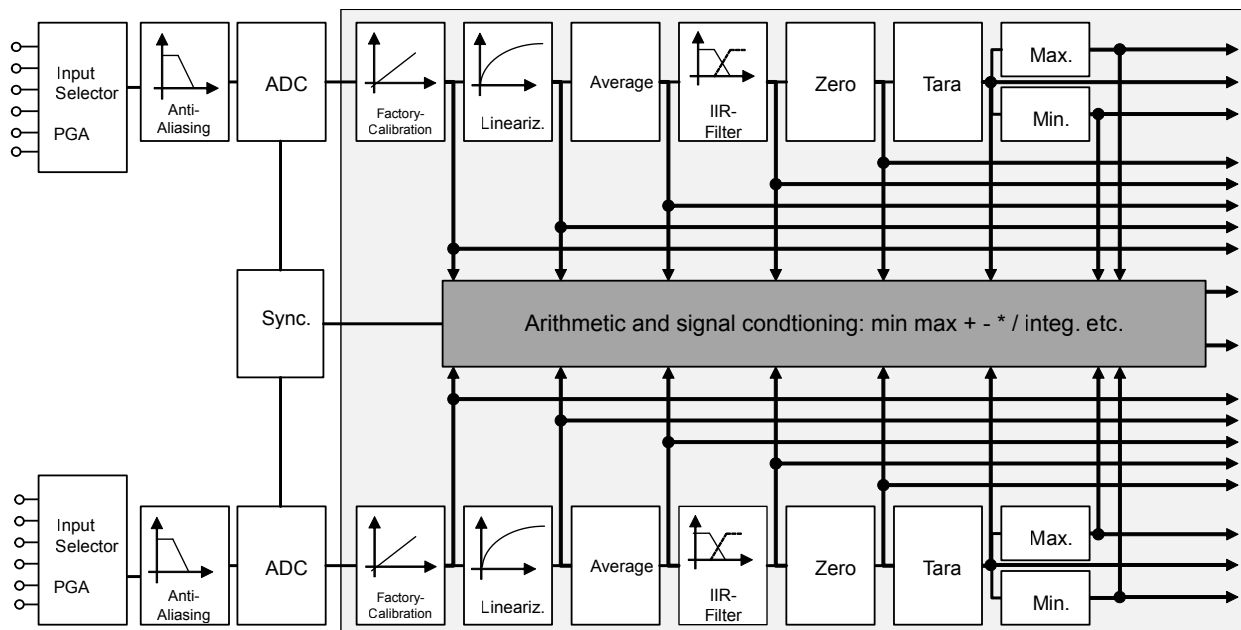


Measurement	Pin assignment
Strain gauge bridge (resistive bridge)	<p>Full and half bridge</p> <p>Quarter bridge (with bridge completion Type 5583A2R120 (120 Ω) or Type 5583A2R350 (350 Ω))</p>
Inductive bridge	<p>Full and half bridge</p>
LVDT, RVDT	

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Digital inputs	Pin assignment
Digital input	

**Block diagram**



**Optional accessories**

- Bridge Completion  
Completion for 1/4-bridge 120 Ω  
Completion for 1/4-bridge 350 Ω

**Type**

- 5583A2R120
- 5583A2R350



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