

KiDAQ Data Acquisition

Modular and flexible DAQ system

Type 5500A

KiDAQ is a general purpose data acquisition system to measure more than 20 different analog and digital signal types.

The benefits of KiDAQ:

- Modular and flexible configuration
- Fast setup thanks to easy to use software
- Modules for nearly every possible measurand
- Precise time synchronization across all measuring devices

Description

KiDAQ is a modular data acquisition system that is flexible in configuration and can be extended with further measurement modules. A major advantage of the KiDAQ data acquisition system is the interoperability with other Kistler measurement devices like LabAmp Types 5165A, 5166A and 5167A through the data acquisition software KiStudio.

Applications

Thanks to the modular design and the various housing options, KiDAQ can be used in a wide range of applications. Depending on the scope of the application, measurement technicians and engineers can choose from versatile designs for laboratory applications, permanent installation and for mobile use. From the range of hardware, software and sensors, select the exact components that you need for your measurement project – ensuring that you obtain the optimum data acquisition system for your specific application.

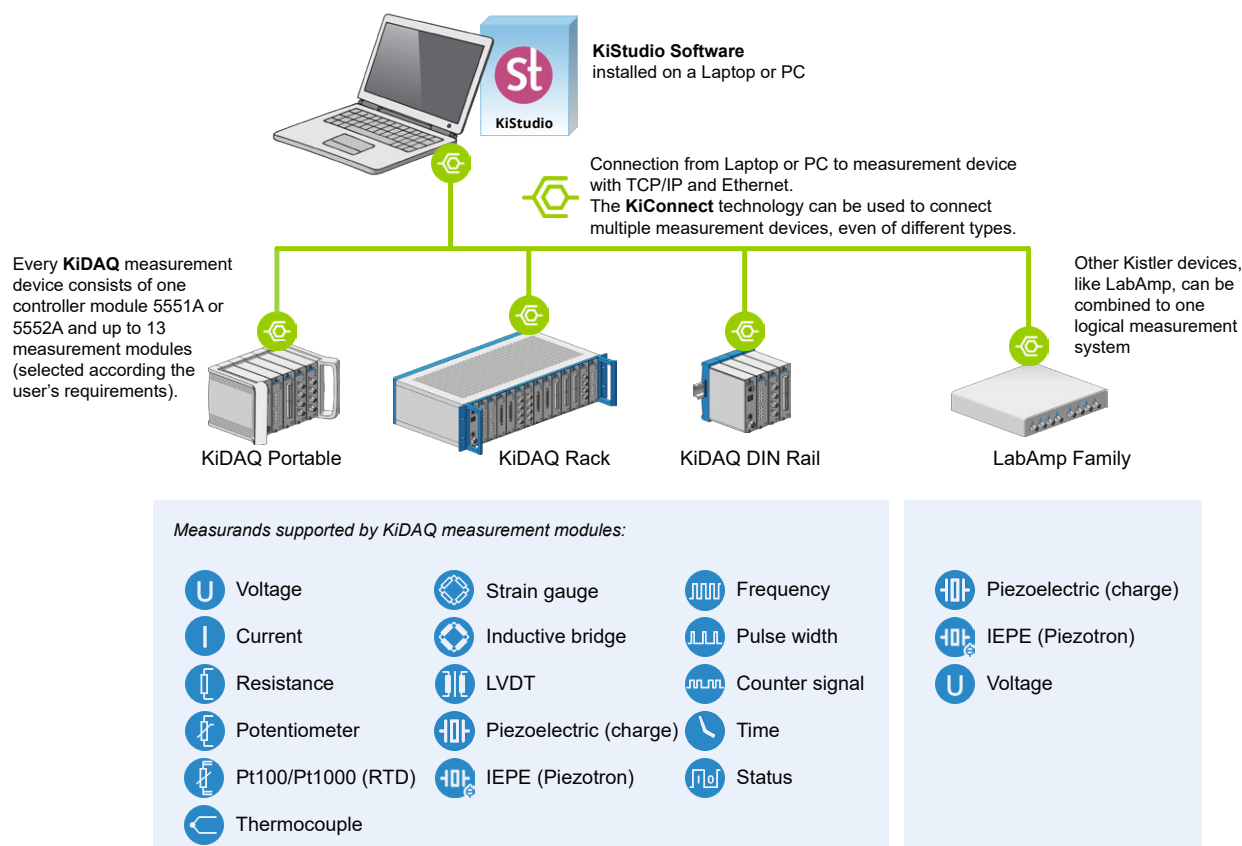


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Overview and system description



Unified logical measurement system

With the KiDAQ data acquisition system, Kistler offers engineers, researchers, measurement technicians and students the opportunity to combine everything they need for their measurement task in one setup. Various measurands and sensors can be used with different data acquisition hardware and be combined to a unified logical measurement system – just according to the application requirements.

Measurands and sensors

The KiDAQ data acquisition system offers a wide selection of modules for various sensor technologies and more than 20 different measurands – from simple voltage signals across measurement bridges and IEPE sensors to charge signals from piezoelectric sensors.

Measurement hardware

The KiDAQ hardware is designed in a modular way and can be individually configured to match the required measurement performance and channel count. The Portable, Rack and DIN Rail models are designed so that they can be optimally used in various applications.

The test setup can be extended with other Kistler high-quality signal conditioning and data acquisition systems like LabAmp Types 5165A, 5166A and 5167A.

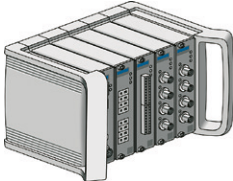

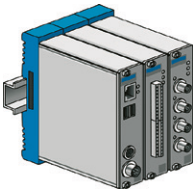
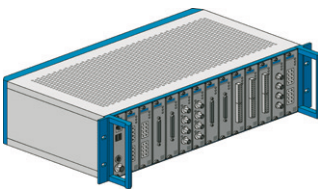
Connectivity with KiConnect

The intelligent KiConnect technology allows the user to easily combine different measurement units to a logical measurement setup and perform precise, time-synchronized measurements thanks to the Precision Time Protocol (PTP). KiConnect is built up on state-of-the-art communications standards (TCP/IP and IoT-principles) and is therefore ready for distributed setups and cloud applications.

KiStudio Software Package

Measurement devices are configured efficiently with the intuitive KiStudio Software, which provides an overview of the whole measurement setup and enables quick navigation. Acquired data can be easily exported for analysis with jBEAM. This powerful post-processing and analysis software provides both, a comprehensive toolbox for standard analysis and customizable calculations.

Housing options

	Flexible size	Standard size
Desktop and portable use	 KiDAQ Portable	 KiDAQ Rack for desktop use
Fixed installations (e.g. cabinets)	 KiDAQ DIN Rail	 KiDAQ Rack (19")

KiDAQ Portable

The compact and scalable measurement system KiDAQ portable can be individually configured with one controller and up to 13 measurement modules. It is ideally suited for stationary and mobile measurement tasks and thanks to the rugged aluminum enclosure it is the ideal solution for various environments. KiDAQ Portable is tested with vibration and shock according DIN IEC 60068-2-6 and DIN IEC 60068-2-27.

KiDAQ DIN Rail

DIN rails are widely used in industrial environments, cabinets and in equipment racks. The KiDAQ DIN Rail housing option provides simple mounting on to standard rails according EN 60715. The maximum number of modules depends on the required data rate and the number of channels per module (e.g. up to 16 channels with 100 kSps data rate or 256 channels with 10 kSps data rate or a combination).

KiDAQ Rack (19" and with carrying handle)

Flexible configuration at a very attractive price: the 19" rack housing is 3 rack units high (3U) and can be equipped with one controller and up to 13 selected measurement modules. The housing is available in two different versions: for standard 19" racks and with carrying handle for desktop use.

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Measurement modules

Overview

Measurement module type	5501A	5502A	5503A	5505A	5506A	5507A	5509A	5512A	5514A	5517A	5518A	5521A	5522A	5525A	5526A	5528A	5529A	5534A	5535A
Analog input channels	2	4	4	8	8	8	4	4	8	8	2	8	4	4	4	4	4	-	-
Digital input channels	2	-	-	2	2	-	-	-	-	-	4	-	-	-	-	-	-	-	6
Sampling rate per channel (S/s)	100 k	20 k	20 k	20 k	20 k	20 k	100 k	100 k	20 k	20 k	20 k	100	10	20 k	100 k	100 k	100 k	8	6
Voltage	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Voltage (isolated 1.2 kV)																			
Voltage (range up to 1.2 kV)																			
Current	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Resistance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Potentiometer	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Pt100, Pt1000 (RTD)	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Thermocouples	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Thermocouples (isolated 1.2 kV)																			
Strain gauges	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Inductive full and half bridges																			
LVDT (Displacement)																			
Piezoelectric sensors																			
IEPE sensors (Piezotron)	■		■																
MEMS capacitive sensors (K-Beam)																			
Piezoresistive pressure transmitters (PRT)																			
Frequency																		■	■
Pulse width																		■	■
Counter signal																		■	■
Time																		■	■
Status	■																	■	■
Sensor supply			■			■			■										■

Technical data valid for all measurement modules

Following data applies to all KiDAQ measurement modules, unless otherwise stated. Please find the details of the module specification in the corresponding section.

Power supply

Power supply	10 up to 30 VDC, overvoltage and overload protection
Power consumption	~3 W
Influence of the voltage	<0.001 %/V

Environmental

Operating temperature	–20°C ... 60°C (–4°F ... 140°F)
Storage temperature	–40°C ... 85°C (–40°F ... 185°F)
Relative humidity	5% ... 95% at 50°C (122°F), non condensing
Electromagnetic compatibility	EMC Emission: EN 61000-6-4:2007 + A1:2011 EN 61326-1:2013 (Class A equipment) EMC Immunity: EN 61000-6-2:2005 EN 61326-1:2013 (Class A equipment)
Vibration (tested with KiDAQ Portable housing)	DIN IEC 60068-2-6 Sine-wave, 10 ... 150 Hz, 3 g, duration 78 mins per axis, at room temperature
Shock (tested with KiDAQ Portable housing)	DIN IEC 60068-2-27 Half-sine, 15 g/11 ms and 20 g/11 ms, 3 shocks each per axis and direction

Ingress Protection

Degree of protection	KiDAQ housings are protected to IP20 against water, dirt and small parts. If the ambient conditions require it, the system can be fitted in water-protected or watertight housings. Please note the admissible ambient temperatures specified above and the power dissipation of controller and measurement modules.
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Communication Interface to Controller 5551A

Standard	RS-485, 2-wire
Data format	8e1
Protocol	Local-Bus: 115,200 bps up to 24 Mbps

Mechanical

Case	Aluminum and ABS (for DIN Rail)
Dimensions (W x H x D)	see drawings in appendix
Weight	see table in appendix

Warm up time

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

Module 5501A
Universal measurement module



Key features

- **2 analog input signals**
Voltage, current, resistance, potentiometer, resistance thermometer (Pt100, Pt1000), thermocouples (types B,E,J,K,L,N,R,S,T,U), strain gages, IEPE sensors (Piezotron)
- **2 digital input signals**
Status
- **A/D conversion**
100 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	0.01 % typical
	0.025 % in controlled environment ¹⁾
	0.05 % in industrial area ²⁾
Linearity error	0.01 % of the final value typical
Repeatability	0.003 % typical (within 24 h)
Isolation voltage	500 VDC channel to channel to power supply to interface ³⁾

¹⁾ according EN 61326: 2006, appendix B

²⁾ according EN 61326: 2006, appendix A

³⁾ noise pulses up to 1,000 VDC, permanent up to 250 VDC

Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]	Input resistance [MΩ]
	±60	0 ... 10,000	±15	7.2	3
	±10	0 ... 20,000	±2	1.2	1
	±1	0 ... 13,000	±0.2	0.120	>10
	±0.1	0 ... 13,000	±0.05	0.012	>10
Long-term drift	<20 µV/24 h, <200 µV/8,000 h			range ±1 V	
Temperature influence	on zero	on sensitivity			
	<50 µV/10 K	<0.01%/10 K			
Signal-noise-ratio	> 90 dB at 1 kHz	>120 dB at 1 Hz			
Measurement current (internal shunt 50 Ω)	Range [mA]	Frequency range (-3 dB) [Hz]	Margin of error [µA]	Resolution [nA]	
	±25	0 ... 13,000	±5	3.0	
Long-term drift	<0.5 µA/24 h, <5 µA/8,000 h				
Temperature influence	on zero			on sensitivity	
	<1 µA/10 K			<0.025%/10 K	

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Measurement resistance/RTD	Range [Ω]	Margin of error [Ω]	Resolution [mΩ]
Resistance, 2-wire	100,000	±100	12
Resistance, 2- and 4-wire	4,000	±1	0.5
Resistance, 2- and 4-wire	400	±0.1	0.048
Pt100, 2- and 4-wire	−200... +850°C/ −328... 1,562°F	±0.25°C/ 0.45°F	0.2°C/ 0.36°F
Pt1000, 2- and 4-wire	−200 ... +850°C/ −328... 1,562°F	±1°C/ 1.8°F	0.2°C/ 0.36°F
Long-term drift	<0.01°C/24 h; <0.1°C/8,000 h <0.018°F/24 h; <0.18°F/8,000 h		
Temperature influence	on zero (range 400 Ω)	on sensitivity	
	<10 mΩ/10 K	<0.025%/10 K	
Measurement potentiometer	Relative measurement		
Permitted potentiometer resistance	1 kΩ to 10 kΩ		
Long-term drift	<0.01%/24 h, <0.1%/8,000 h		
Temperature influence	on zero (range 1)	on sensitivity	
	<0.000 1/10 K	<0.02%/10 K	
Measurement bridge	Full and half bridge, 5-/6-wire, quarter bridge with completion terminal 3-wire		
Accuracy class	0.05 (± 35 μV/V in industrial area)		
Sensor resistance	>100 Ω		
Sensor excitation	2.5 V, nominal		
Measurement range	±2.4 mV/V	±20 mV/V	±500 mV/V
Frequency range (-3 dB)	0 ... 6,000 Hz		
Long-term drift	<0.12 μV/V/24 h, <1.2 μV/V/8,000 h		
Temperature influence	on zero [μV/V/10 K]	on sensitivity [%/10 K]	
	<0.2	<0.05	

Measurement thermocouple	Type	Adjusted with cold junction compensation	Not adjusted, with a random CJC terminal
Deviation in the relevant input range	Type B (400°C to 1,820°C) (752°F to 3,308°F)	< $\pm 1.5^\circ\text{C}$ < $\pm 2.7^\circ\text{F}$	< $\pm 2.5^\circ\text{C}$ < $\pm 4.5^\circ\text{F}$
	Type E, J, K (-100°C to 1,000°C) (-148 °F to 1,832°F)	< $\pm 0.7^\circ\text{C}$ < $\pm 1.26^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type E (-270°C to 1,000°C) (-454 °F to 1,832°F)	< $\pm 1^\circ\text{C}$ < $\pm 1.8^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type K (-270°C to 1,372°C) (-454 °F to 2,501°F)	< $\pm 1^\circ\text{C}$ < $\pm 1.8^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type L (-200°C to 900°C) (-328 °F to 1,652°F)	< $\pm 0.7^\circ\text{C}$ < $\pm 1.26^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type N (-100°C to 1,000°C) (-148 °F to 1,832°F)	< $\pm 0.7^\circ\text{C}$ < $\pm 1.26^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type N (-270°C to 1,300°C) (-454 °F to 2,372°F)	< $\pm 1^\circ\text{C}$ < $\pm 1.8^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type R, S (-50°C to 1,768°C) (-58 °F to 3,214 °F)	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$	< $\pm 1.5^\circ\text{C}$ < $\pm 2.7^\circ\text{F}$
	Type T, U (-100°C to 400°C) (-148 °F to 752°F)	< $\pm 0.7^\circ\text{C}$ < $\pm 1.26^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	Type T (-270°C to 400°C) (-454 °F to 752°F)	< $\pm 1^\circ\text{C}$ < $\pm 1.8^\circ\text{F}$	< $\pm 1.2^\circ\text{C}$ < $\pm 2.16^\circ\text{F}$
	The specifications are valid with activated mains rejection 50 Hz resp. 60 Hz		
Input resistance	> 10 M Ω		
Long-term drift	<0.1°C/24 h, <0.2°C/8,000 h <0.18°F/24 h, <0.36°F/8,000 h		
Temperature influence	on zero		
	<0.1°C/10 K		
Uncertainty cold junction compens.	<0.3°C/<0.54°C		
Measurement IEPE sensor	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]
	± 10	0.5 ... 20,000	± 10
	± 1	0.5 ... 20,000	± 1
Sensor supply voltage	24 V ($\pm 10\%$)		
Sensor supply current	4 mA ($\pm 10\%$)		
Temperature influence	on zero (range 10 V) [$\mu\text{V}/10 \text{ K}$]		on sensitivity [%/10 K]
	<10		<0.025

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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.

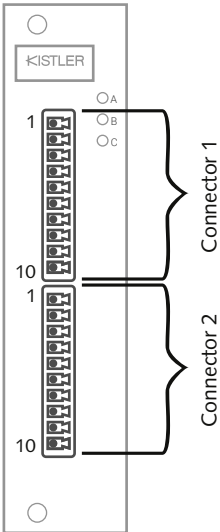
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Analog/digital-conversion	
Resolution	24 bit
Sample rate	100 kSps (measurement thermocouple 8 Sps) per channel
Conversion method	Sigma-Delta (group delay time 380 µs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 1 Hz up to 10 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

Digital in/outputs ¹⁾	
Number	2 (1 digital I/O per channel)
Response time	0.2 ms
Input	state
Input voltage/input current	max. 30 VDC/max. 0.5 mA
Lower/upper threshold	<2.0 V (low)/>10 V (high)
Output	state, alarm
Contact	open drain p-channel MOSFET
Load	30 VDC/100 mA (ohmic load)

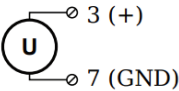
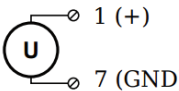
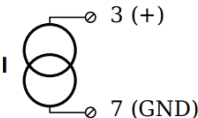
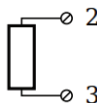
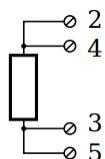
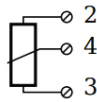
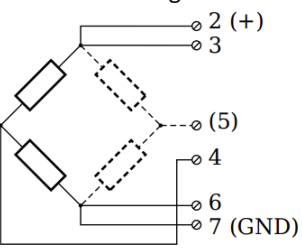
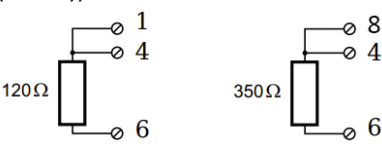
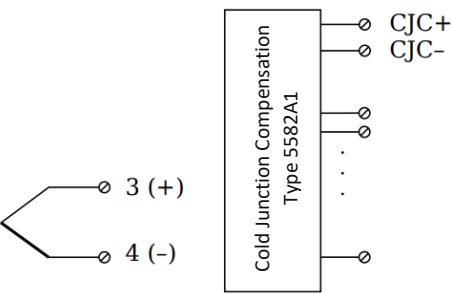
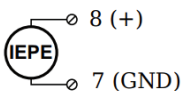
¹⁾ Digital outputs are not yet supported in the software

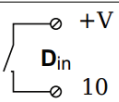
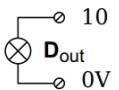
Pin assignment



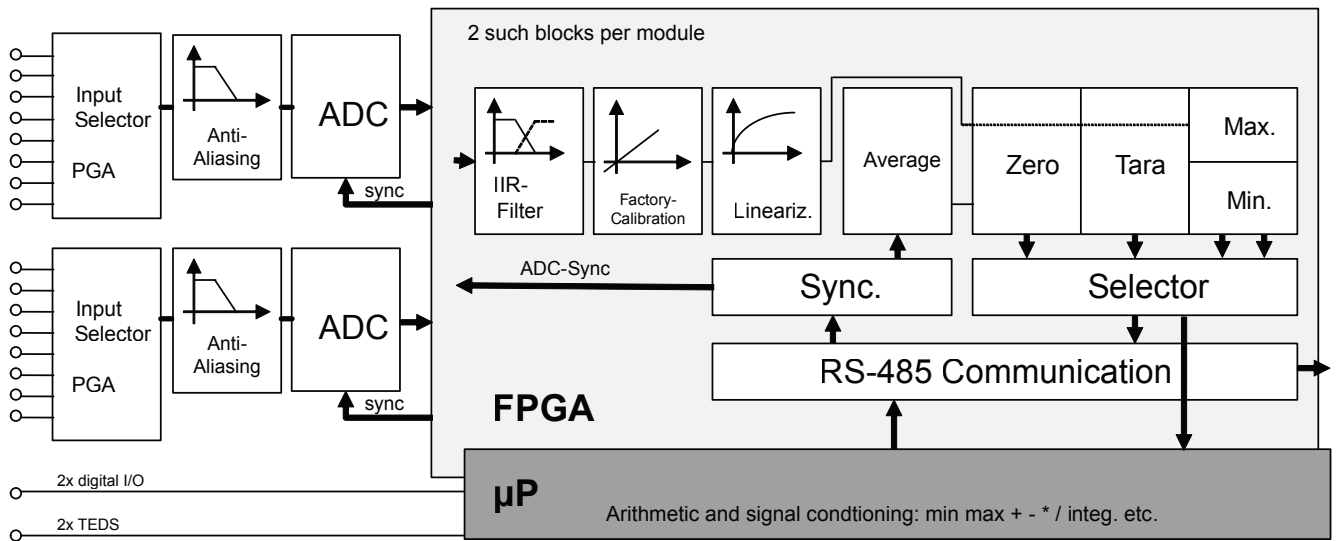
Pin No.	Function
1	60 V
2	UF
3	A _{in} 1
4	A _{in} 2
5	A _{in} 3
6	A _{in} 4
7	GND
8	IEPE
9	TEDS
10	DIO

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Measurement	Pin assignment	
Voltage	Voltages up to ± 10 V 	Voltages up to ± 60 V 
Current		
Resistance/RTD	2-wire circuit 	4-wire circuit 
Potentiometer		
Bridge	Full and half bridge 	Quarter bridge (with bridge completion Type 5583A1R120 (120 Ω) or 5583A1R350 (350 Ω)) 
Thermocouple		
IEPE sensor		

Digital I/O	Pin assignment
Digital input	
Digital output	

Block diagram



Optional accessories

- Cold Junction Compensation
- Bridge Completion (1/4-bridge)
 - 120 Ω
 - 350 Ω
 - 120 Ω /350 Ω combined

Type

5582A1
 5583A1R120
 5583A1R350
 5583A1R120R350



Module 5502A

Universal measurement module



Key features

- **4 analog input signals**
Voltage, current, resistance, potentiometer, resistance thermometer (Pt100, Pt1000), thermocouples (types B,E, J,K,L,N,R,S,T,U) and strain gages
- **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	4			
Input connector type	Terminal strip, 2x10 pole, color blue			
Accuracy	0.01 % typical			
	0.02 % in controlled environment ¹			
	0.05 % in industrial area ²			
Linearity error	0.01 % of the final value typical			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [μV]
	±10	0 ... 3 000	±2	1.2
	±1	0 ... 3 000	±0.2	0.120
	±0.100	0 ... 3 000	±0.02	0.012
Input resistance	>470 MΩ			
Temperature influence	Range [V]	on zero [μV / 10K]	on sensitivity [% / 10 K]	
	±10	<500	<0.01	
	±1	<50	<0.01	
	±0.100	<5	<0.01	
Long-term drift	Range [V]	24 h [μV]	8 000 h [μV]	
	±10	<200	<2 000	
	±1	<20	<200	
	±0.100	<2	<20	
Signal-noise-ratio	>90 dB at 1 kHz	>120 dB at 1 Hz		



Temperature influence	on zero	on sensitivity	
	<1 μA / 10 K	<0.03 % / 10 K	
Long-term drift	<0.5 μA / 24 h; 5 μA / 8 000 h		
Measurement current	Range [mA]	Margin of error [μA]	Resolution [nA]
(internal shunt resistor 50 Ω)	±25	±5	3
Temperature influence	Range [mA]	on zero [μA / 10 K]	on sensitivity [% / 10 K]
	±25	<1	<0.03
Long-term drift	Range [mA]	24 h [μA]	8 000 h [μV]
	±25	<0.5	<5

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1 000 VDC, permanent up to 250 VDC

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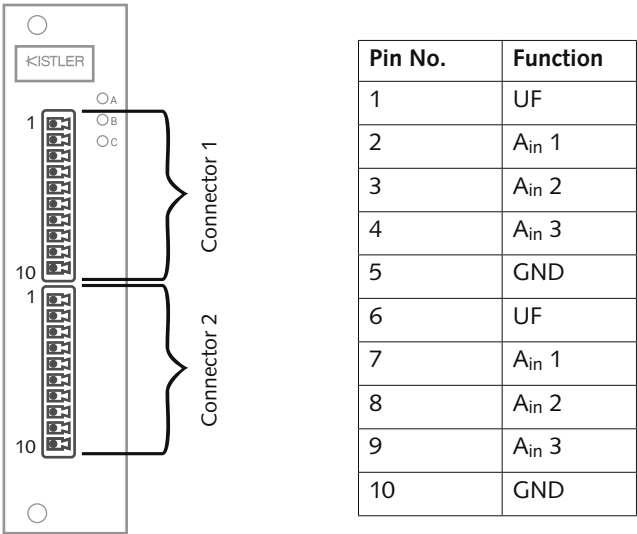
Measurement resistance/RTD	Range [Ω]	Margin of error [Ω]	Resolution [mΩ]
Resistance, 2-wire	100 000	±100	12
Resistance, 2- and 4-wire	4 000	±1	0.5
Resistance, 2- and 4-wire	400	±0.1	0.048
Pt100, 2- and 4-wire	-200 ... +850°C / -328...+1 562°F	±0.25°C / 0.45°F	0.2 m°C / 0.36 m°F
Pt1000, 2- and 4-wire	-200 ... +850°C / -28...+1 562°F	±1°C / 1.8°F	0.2 m°C / 0.36 m°F
Temperature influence	on zero (range 400 Ω)	on sensitivity	
	10 mΩ/10 K ≈ 0.05°C/10 K 10 mΩ/10 K ≈ 0.09°F/10 K	0.03% / 10 K	
Long-term drift	<10 mΩ / 24 h; <100 mΩ / 8 000 h (range 400 Ω)		
Measurement potentiometer	Relative measurement		
Permitted potentiometer resistance	1 kΩ to 10 kΩ		
Temperature influence	on zero (range 1)	on sensitivity	
	<10 mΩ / 10 K	<0.03% / 10 K	
Long-term drift	<0.02% / 24 h, <0.2% / 8 000 h		

Measurement bridge	full bridge, 4-wire connection, half and quarter bridge with completion terminal		
Accuracy class	0.05		
Sensor resistance	>100 Ω		
Supply	2.5 V nominal		
Measurement range	±2.5 mV/V	±50 mV/V	±500 mV/V
Frequency range (-3 dB)	0 ... 2 300 Hz		
Temperature influence	on zero (range 2.5 mV/V)	on sensitivity	
	<0.2 μV/V / 10 K	<0.05% / 10 K	
Long-term drift	<0.12 μV/V / 24h; <1.25 μV/V / 8 000 h (range 2.5 mV/V)		
Measurement thermocouple	Whole range	-100°C...upper limit / -148°F...upper limit	
Type B	better than ±5°C / ±9°F	better than ±2.5°C / ±4.5°F	
Type E, J, K, L, T, U	better than ±1°C / ±1.8°F	better than ±0.5°C / ±0.9°F	
Type N	better than ±2°C / ±3.6°F	better than ±1°C / ±1.8°F	
Type R, S	better than ±3°C / ±5.4°F	better than ±1.5°C / ±2.7°F	
Input resistance	100 MΩ		
Temperature influence	on zero	on sensitivity	
	<0.2°C / 10 K / <0.36°F / 10 K	<0.025% / 10 K	
Long-term drift	<0.02°C / 24 h; 0.2°C / 8 000 h <0.036°F / 24 h; 0.36°F / 8 000 h		
Uncertainty cold junction compensation	<0.3°C / <0.54°F		

Analog/digital-conversion

Sample rate	20 kSps (measurement thermocouple 10 Sps) per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

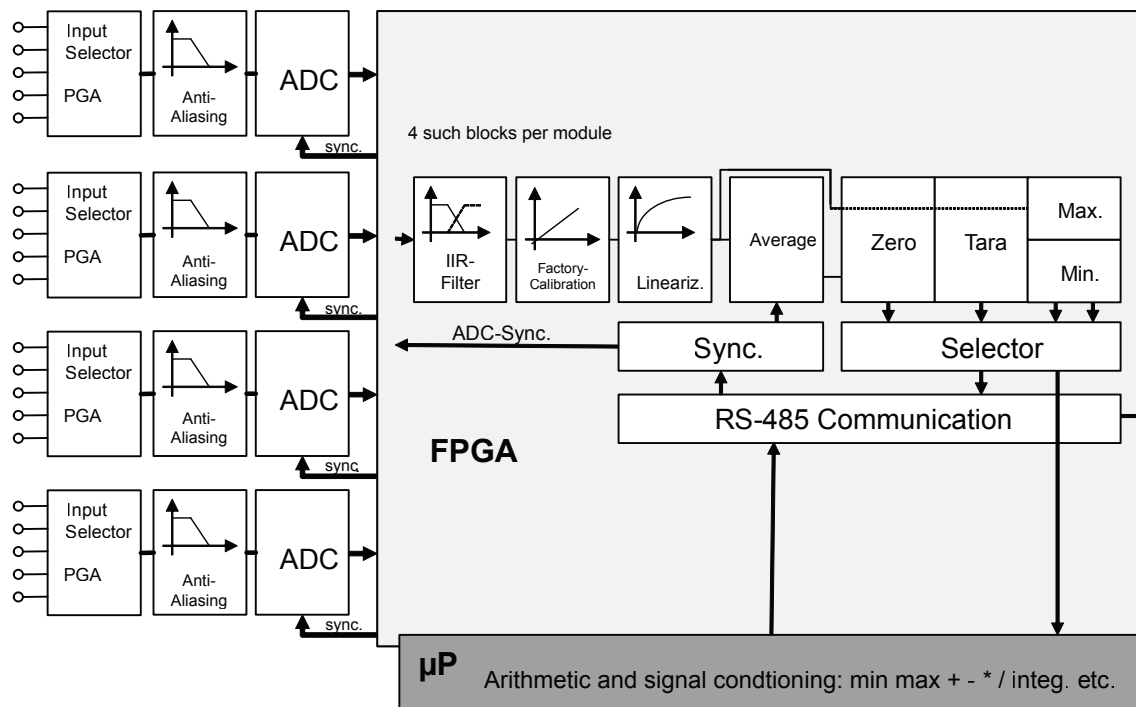
Pin assignment



Measurement	Pin assignment	
Voltage		
Current		
Resistance/RTD	2-wire circuit 	4-wire circuit
Potentiometer		
Bridge	Full bridge 	Quarter bridge (with bridge completion Type 5583A3R120 (120 Ω) or Type 5583A3R350 (350 Ω))
Thermocouple	 	

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Block diagram



Optional accessories

- Cold Junction Compensation
Connection terminal for 2 thermocouples, thermal embedded Pt1000 temperature sensor 2 terminals each module required (4 thermocouples)
- Bridge Completion (1/4-bridge)
120 Ω
350 Ω

Type

5582A3

5583A3R120

5583A3R350



Module 5503A

Universal measurement module with sensor power supply



Key features

- **Sensor power supply**
Configurable for each channel from 3.3 V to 24 V
- **4 analog input signals**
Voltage, current, resistance, potentiometer, resistance strain gages
- **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	4			
Input connector type	Lemo 2B 8-pin			
Accuracy	0.01 % typical			
	0.02 % in controlled environment ¹			
	0.05 % in industrial area ²			
Linearity error	0.01 % of the final value typical			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0 ... 3 000	±2	1.2
	±1	0 ... 3 000	±0.2	0.120
	±0.100	0 ... 3 000	±0.020	0.012
Input resistance	>470 MΩ			
Temperature influence	Range [V]	on zero [µV / 10K]	on sensitivity [% / 10 K]	
	±10	<500	<0.01	
	±1	<50	<0.01	
	±0.100	<5	<0.01	
Long-term drift	Range [V]	24 h [µV]	8 000 h [µV]	
	±10	<200	<2 000	
	±1	<20	<200	
	±0.100	<2	<20	
Signal-noise-ratio	>90 dB at 1 kHz	>120 dB at 1 Hz		



Temperature influence	on zero	on sensitivity	
	<1 µA / 10 K	<0.03 % / 10 K	
Long-term drift	<0.5 µA / 24 h; 5 µA / 8 000 h		
Measurement current	Range [mA]	Margin of error [µA]	Resolution [nA]
(internal shunt resistor 50 Ω)	±25	±5	3
Temperature influence	Range [mA]	on zero [µA / 10 K]	on sensitivity [% / 10 K]
	±25	<1	<0.03
Long-term drift	Range [mA]	24 h [µA]	8 000 h [µV]
	±25	<0.5	<5

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1 000 VDC, permanent up to 250 VDC

Measurement resistance/RTD	Range [Ω]	Margin of error [Ω]	Resolution [mΩ]
Resistance, 2-wire	100 000	±100	12
Resistance, 2- and 4-wire	4 000	±1	0.5
Resistance, 2- and 4-wire	400	±0.1	0.048
Pt100, 2- and 4-wire	-200 ... +850°C / -328...+1 562°F	±0.25°C / 0.45°F	0.2 m°C / 0.36 m°F
Pt1000, 2- and 4-wire	-200 ... +850°C / -288...+1 562°F	±1°C / 1.8°F	0.2 m°C / 0.36 m°F
Temperature influence	on zero (range 400 Ω)		on sensitivity
	10 mΩ/10 K ≈ 0.05°C/10 K 10 mΩ/10 K ≈ 0.09°F/10 K		0.03% / 10 K
Long-term drift	<10 mΩ / 24 h; <100 mΩ / 8 000 h (range 400 Ω)		
Measurement potentiometer	Relative measurement		
Permitted potentiometer resistance	1 kΩ to 10 kΩ		
Temperature influence	on zero (range 1)		on sensitivity
	<10 mΩ / 10 K		<0.03% / 10 K
Long-term drift	<0.02% / 24 h, <0.2% / 8 000 h		
Measurement bridge	full bridge, 4-wire connection		
Accuracy class	0.05		
Sensor resistance	>100 Ω		
Supply	2.5 V nominal		
Measurement range	±2.5 mV/V	±50 mV/V	±500 mV/V
Frequency range (-3 dB)	0 ... 2 300 Hz		
Temperature influence	on zero (range 2.5 mV/V)		on sensitivity
	<0.2 μV/V / 10 K		<0.05% / 10 K
Long-term drift	<0.12 μV/V / 24h; <1.25 μV/V / 8 000 h (range 2.5 mV/V)		

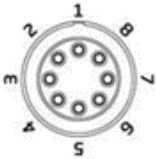
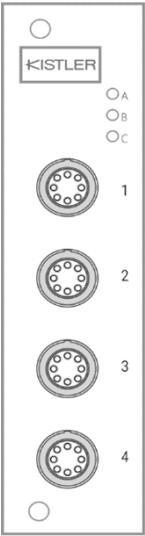
Sensor power supply

Channels	4
Voltage	3.3 V to 24 V (max. VS -3 V)
Accuracy	± 3% @ 100 mA
Resolution	10 mV
Current limit	50 mA to 100 mA (configurable)
Accuracy	± 5%
Resolution	100 μA
Load regulation	< 3 % @ 3.3 V to 12 V < 1 % @ 12 V to 24 V
Noise	< 5 mV (RMS)

Analog/digital-conversion

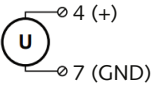
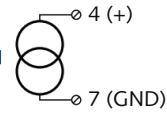
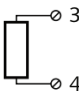
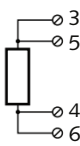
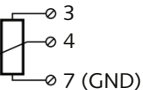
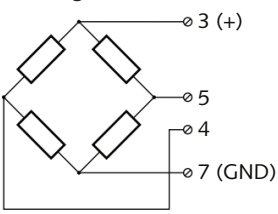
Sample rate	20 kSps (measurement thermocouple 10 Sps) per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according to the selected data rate

Pin assignment

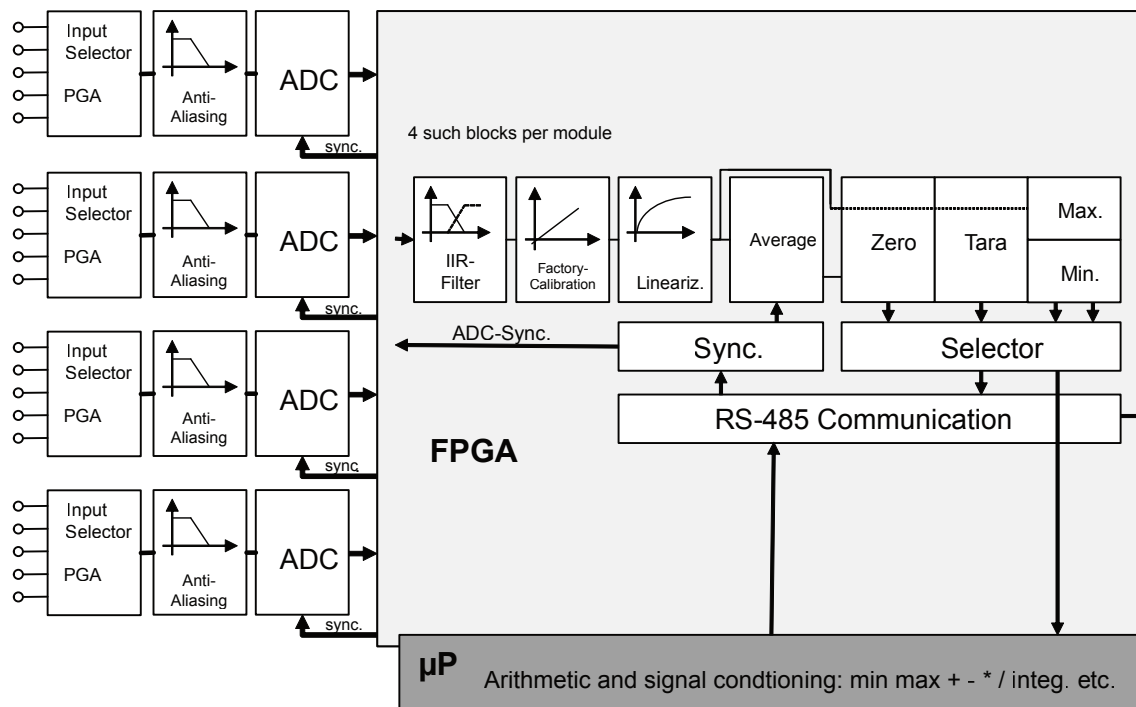


Pin No.	Function
1	SV1+
2	SV GND
3	UF
4	Ain 1
5	Ain 2
6	Ain 3
7	GND
8	--

Mating connector:
Lemo FGG.2B.308.CLAD
(Kistler Mat. Nr. 55279550)

Measurement	Pin assignment	
Voltage		
Current		
Resistance/RTD	2-wire circuit	4-wire circuit
		
Potentiometer		
Bridge	Full bridge 	

Block diagram



Module 5505A

Measurement module for voltage, current and status



Key features

- **8 analog input signals**
Voltage till 10 V, current
- **2 digital input 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	8			
Input connector type	Terminal strip, 2x10 pole, color blue			
Accuracy	0.01 % typical			
	0.025 % in controlled environment ¹⁾			
	0.05 % in industrial area ²⁾			
Linearity error	0.01 % of the final value typical			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [μV]
	±10	0 ... 3,000	±2	1.5
Input resistance	>1 MΩ			
Long-term drift	<25 μV/24 h; <100 μV/8,000 h			
Temperature influence	on zero		on sensitivity	
	<50 μV/10 K		<0.01 %/10 K	
Input impedance	>1 MΩ			
Overvoltage protection	±200 V			
Measurement current	Range [mA]	Frequency range (-3 dB) [Hz]	Margin of error [μA]	Resolution [nA]
	±25	0 ... 3,000	±22	15
Long-term drift	<500 nA/24 h			
Temperature drift	< 150 ppm/10 K			
Input impedance	100 Ω			



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, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

Digital in/outputs ⁴⁾

Number	4, 2 digital inputs, 2 digital outputs
Input	state
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)
Output	state, alarm
Contact	open drain p-channel MOSFET
Load	30 VDC/100 mA (ohmic load)

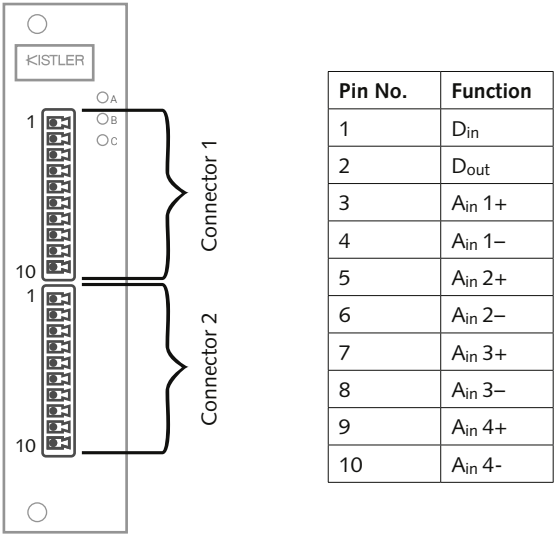
¹⁾ according EN 61326: 2006, appendix B

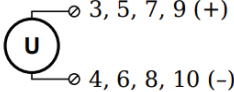
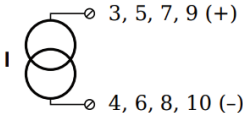
²⁾ according EN 61326: 2006, appendix A

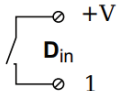
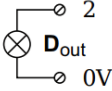
³⁾ noise pulses up to 1,000 VDC, permanent up to 250 VDC

⁴⁾ Digital outputs are not yet supported in the software

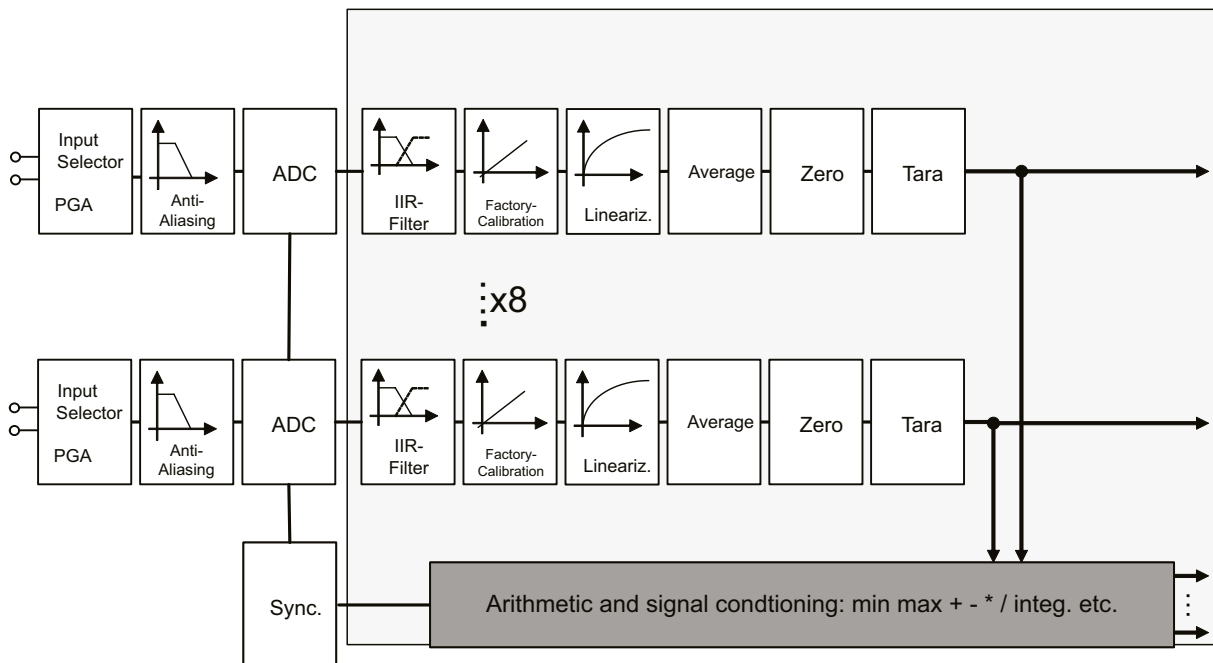
Pin assignment



Measurement	Pin assignment
Voltage	<div></div>
Current	<div>With external shunt terminal Type 5584A1 </div>

Digital I/O	Pin assignment
Digital input	<div></div>
Digital output	<div></div>

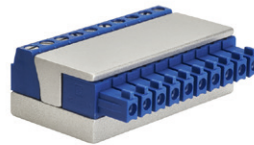
Block diagram



Optional accessories

- **Shunt Terminal for current measurement**
 Terminal for 4 current measurements
 (4x100 Ω shunt resistor for measurement range ± 25 mA)
 2 terminals each module required
 (8 current measurements)

Type
5584A1



Module 5506A

Measurement module for voltage (till 60 V) and status



Key features

- **8 analog input signals**
Voltage till 60 V
- **2 digital input 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	8			
Input connector type	Terminal strip, 2x10 pole, color blue			
Accuracy	0.01 % typical			
	0.025 % in controlled environment ¹⁾			
	0.05 % in industrial area ²⁾			
Linearity error	0.01 % of the final value typical			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±60	0 ... 3,000	±25	50
Input resistance	>1 MΩ			
Long-term drift	<500 µV/24 h; <2,000 µV/8,000 h			
Temperature influence	on zero		on sensitivity	
	<500 µV/10 K		<0.02 %/10 K	
Input impedance	>1 MΩ			
Overvoltage Protection	±200 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, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate



Digital in/outputs ⁴⁾

Number	4, 2 digital inputs, 2 digital outputs
Input	state
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)
Output	state, alarm
Contact	open drain p-channel MOSFET
Load	30 VDC/100 mA (ohmic load)

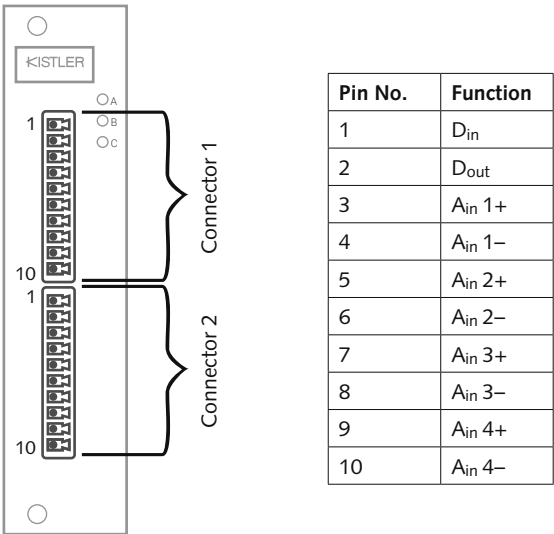
¹⁾ according EN 61326: 2006, appendix B

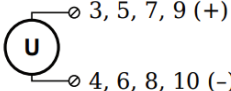
²⁾ according EN 61326: 2006, appendix A

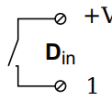
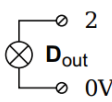
³⁾ noise pulses up to 1,000 VDC, permanent up to 250 VDC

⁴⁾ Digital outputs are not yet supported in the software

Pin assignment

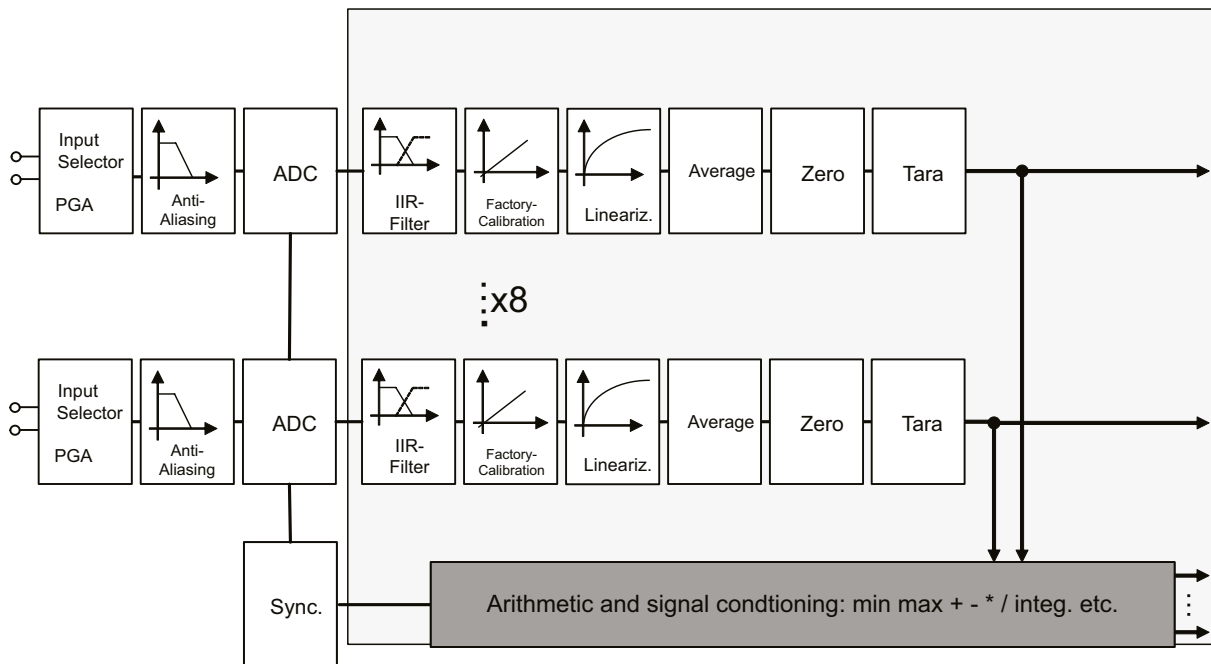


Measurement	Pin assignment
Voltage	<div></div>

Digital I/O	Pin assignment
Digital input	<div></div>
Digital output	<div></div>

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Block diagram



Module 5507A

Measurement module for piezoresistive pressure transmitters (PRT), voltage and current



Key features

- **8 analog input signals**
Voltage till 10 V, current
- **Sensor supply included (2 x 15 VDC/40 mA)**
- **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	8			
Input connector type	Terminal strip, 2x10 pole, color blue			
Accuracy	0.01 % typical			
	0.025 % in controlled environment ¹⁾			
	0.05 % in industrial area ²⁾			
Linearity error	0.01 % typical full-scale			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0 ... 3 000	±2	1.5
Input resistance	>1 MΩ			
Long-term drift	<50 µV/24 h; <200 µV/8 000 h			
Temperature influence	on zero		on sensitivity	
	<200 µV/10 K		<0.01 %/10 K	
Signal-noise-ratio	>100 dB at 100 Hz		>120 dB at 1 Hz	
Overvoltage protection	±200 V			
Measurement current	Range [mA]	Frequency range (-3 dB) [Hz]	Margin of error [µA]	Resolution [nA]
	±25	0 ... 3 000	±22	15
Long-term drift	<500 nA/24 h			
Temperature drift	<150 ppm/10 K			
Input impedance	100 Ω			



Sensor supply

Number	2
Voltage	15 VDC
Current	max. 2 x 40 mA (short-circuit-proof)
Accuracy	<3 %
Load regulation	<0.1 %
Noise	1.2 mV _{rms}

Analog/digital-conversion

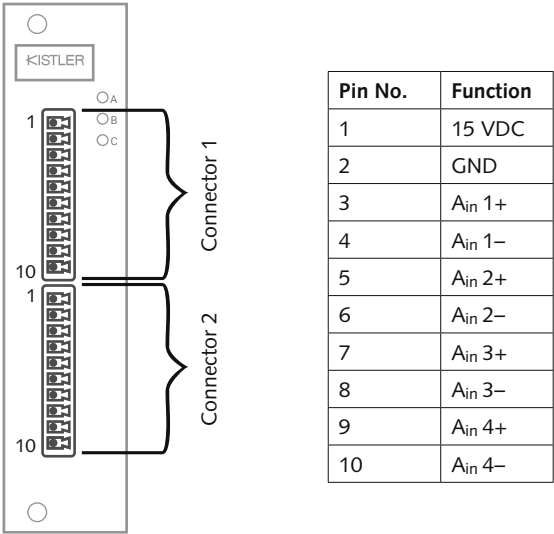
Resolution	24 bit
Sample rate	20 kSps per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate



¹⁾ according EN 61326: 2006, appendix B

²⁾ according EN 61326: 2006, appendix A

³⁾ noise pulses up to 1 000 VDC, permanent up to 250 VDC

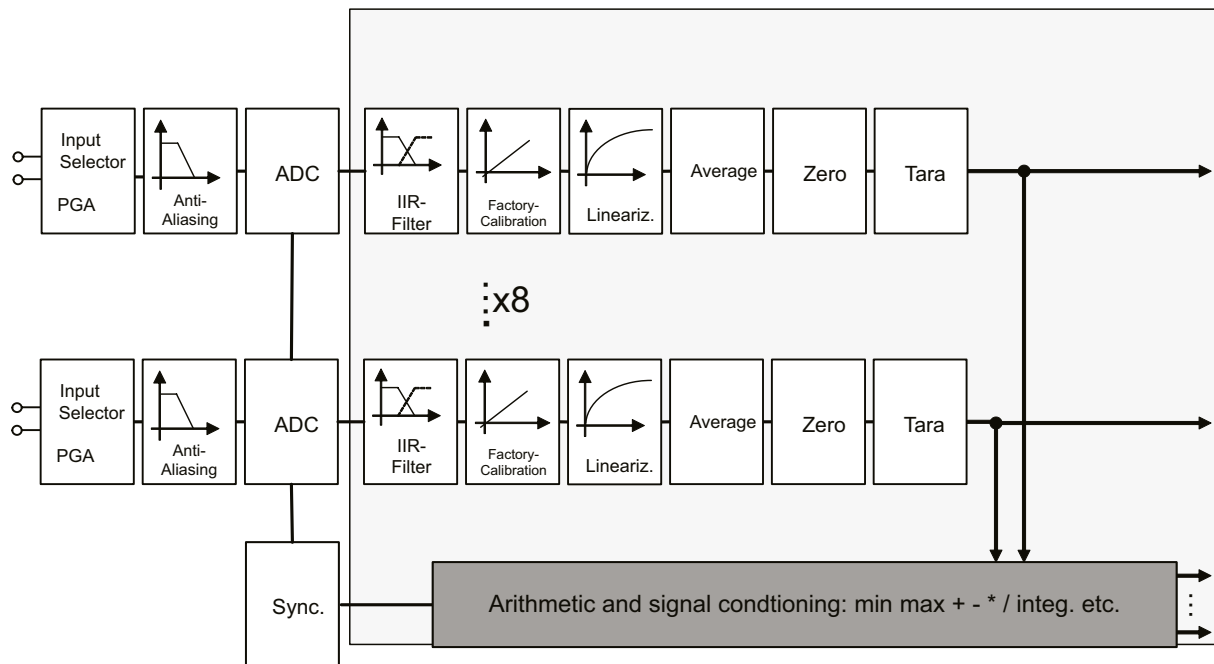
Pin assignment



Measurement	Pin assignment
Voltage	<div><div><div>⌀ 3, 5, 7, 9 (+)</div><div>⌀ 4, 6, 8, 10 (–)</div></div></div>
Current	<div>With external shunt terminal Type 5584A1</div> <div><div><div>⌀ 3, 5, 7, 9 (+)</div><div>⌀ 4, 6, 8, 10 (–)</div></div></div>

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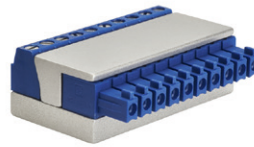
Block diagram



Optional accessories

- **Shunt Terminal for current measurement**
Terminal for 4 current measurements
(4x100 Ω shunt resistor for measurement range ± 25 mA)
2 terminals each module required
(8 current measurements)

Type
5584A1



Module 5509A

Measurement module for piezoelectric sensors (charge amplifier)



Key features

This universal charge amplifier module can be used wherever mechanical quantities are measured with piezoelectric sensors. Piezoelectric sensors produce an electric charge which varies in direct proportion with the load acting on the sensor.

- **4 channels charge amplifier**
For piezoelectric sensors
- **Measuring ranges:**
1 000...1 000 000 pC
- **Low noise and low drift**
- **Switchable time constant**
- **Frequency Range $\approx 0 \dots 20\,000$ Hz**
- **A/D conversion**
100 kSps sampling rate per channel, 24 Bit resolution
- **Galvanic isolation**
Channels to power supply and to interface isolation voltage 500 VDC



Technical data

Analog inputs

Number	4
Input connector type	BNC neg., high-insulation (charge)
Isolation voltage	500 VDC channels to power supply to interface ¹⁾

Measurement charge	Measuring ranges [pC]	Frequency range (-3dB) [Hz]	Input referred noise (typ.) [pCrms]	
			1 Hz ... 10 kHz	1 Hz ... 100 kHz
	$\pm 1\,000$	$\approx 0 \dots 20\,000$	0.04	0.05
	$\pm 10\,000$	$\approx 0 \dots 20\,000$	0.05	0.07
	$\pm 100\,000$	$\approx 0 \dots 2\,000$	3.7	4.2
	$\pm 1\,000\,000$	$\approx 0 \dots 2\,000$	4.3	6.1

Measurement uncertainty	$< \pm 1\%$ FSO
-------------------------	-----------------

Temperature coefficient, typ.	< 50 ppm/K
Linearity error	$< \pm 0.05\%$ FSO
Drift	$< \pm 0.03$ pC/s
Reset-Measure jump	$< \pm 0.3$ pC

Time constant	range [pC]	long [s]	short [s]
	$\pm 1\,000$	$> 10\,000$	≈ 1.3
	$\pm 10\,000$	$> 100\,000$	≈ 1.3
	$\pm 100\,000$	$> 100\,000$	≈ 123
	$\pm 1\,000\,000$	$> 100\,000$	≈ 123
Minimal sensor impedance	$> 10^{11} \Omega$		
Overload	$\approx \pm 105\%$ FS		
Crosstalk between channels	< 0.5 pC		

Analog/digital-conversion

Resolution	24 bit
Sample rate	100 kSps per channel
Conversion method	Sigma-Delta
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 1 Hz up to 10 kHz (freely configurable)
Averaging ²⁾	configurable or automated according the selected data rate

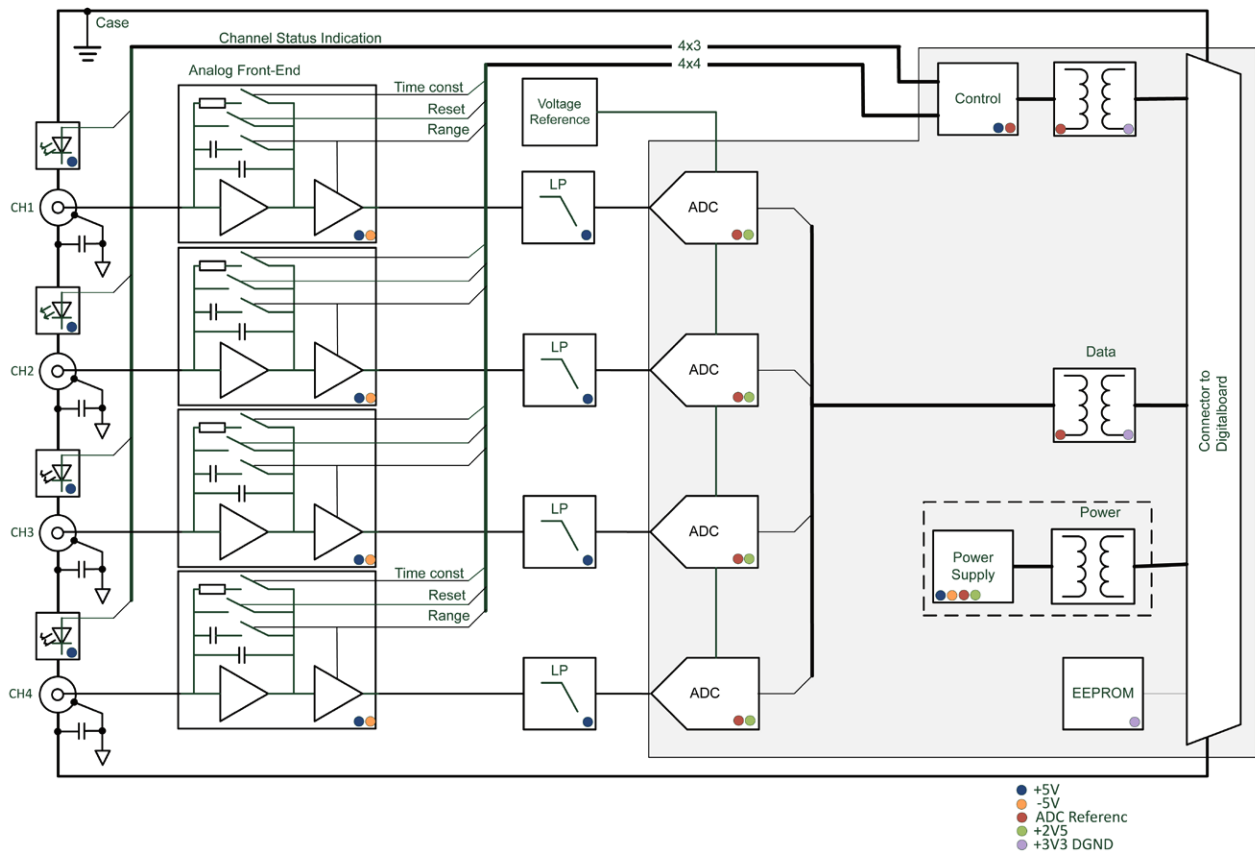
LED status indication (per channel)

Reset	blue flashing
Measure	blue constant
Overload	red constant

¹⁾ Noise pulses up to 1 000 VDC, permanent up to 250 VDC

²⁾ Averaging not yet supported in the software

Block diagram



Module 5512A

Measurement module for IEPE sensors (Piezotron) and voltage

Key features

- **4 analog input signals**
IEPE sensors (Piezotron), voltage
- **A/D conversion**
100 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	4			
Input connector types	Terminal strip, 2x10 pole, color blue (5512A_A1)/BNC neg (5512A_B1)			
Accuracy	0.01% typical			
	0.025% in controlled environment ¹⁾			
	0.05% in industrial area ²⁾			
Linearity error	0.01% of the final value typical			
Repeatability	0.003% typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³⁾			
Sensor identification	TEDS ⁴⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0 ... 23,000	±2	1.2
	±1	0 ... 20,000	±0.2	0.120
	±0.1	0 ... 20,000	±0.020	0.012
Input resistance	>1 MΩ			
Long-term drift	<20 µV/24 h, <200 µV/8,000 h			
Temperature influence	on zero		on sensitivity	
	<50 µV/10 K		<0.01%/10 K	
Signal-noise-ratio	>90 dB at 1 kHz		>120 dB at 1 Hz	
Measurement IEPE sensor	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0.1 ... 20,000	±10	40
	±1	0.1 ... 20,000	±1	4

¹⁾ according EN 61326: 2006, appendix B

²⁾ according EN 61326: 2006, appendix A

³⁾ noise pulses up to 1,000 VDC, permanent up to 250 VDC

⁴⁾ not yet supported in software



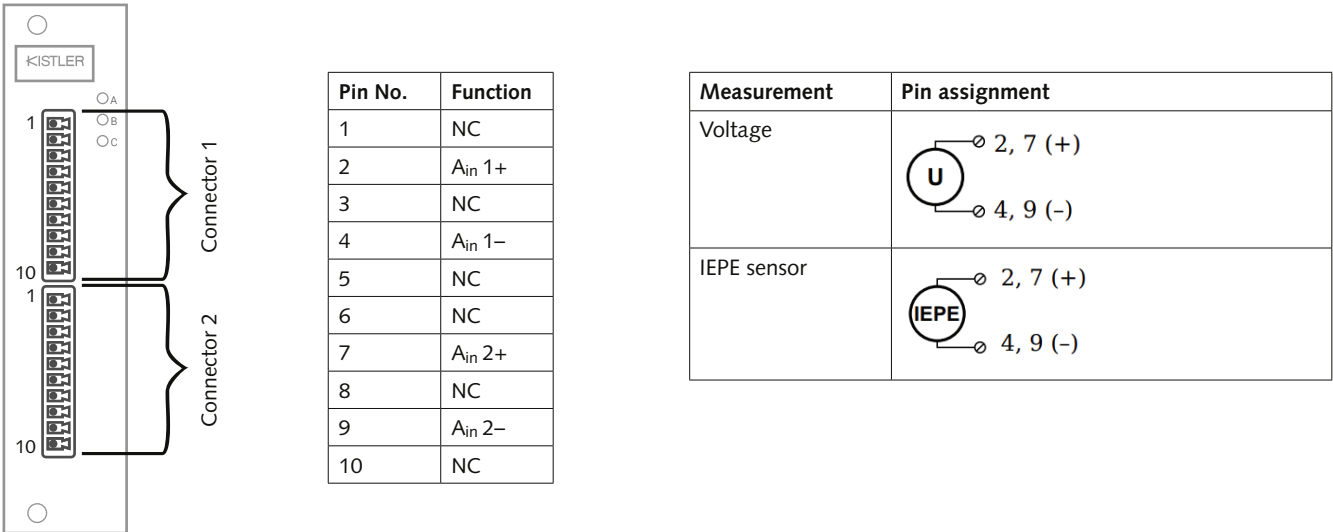
Sensor supply voltage	24 V ($\pm 10\%$)	
Sensor supply current	4 mA ($\pm 10\%$)	
Temperature influence	on zero	on sensitivity
	$<10 \text{ }\mu\text{V}/10 \text{ K}$	$<0.025\%/10 \text{ K}$

Analog/digital-conversion

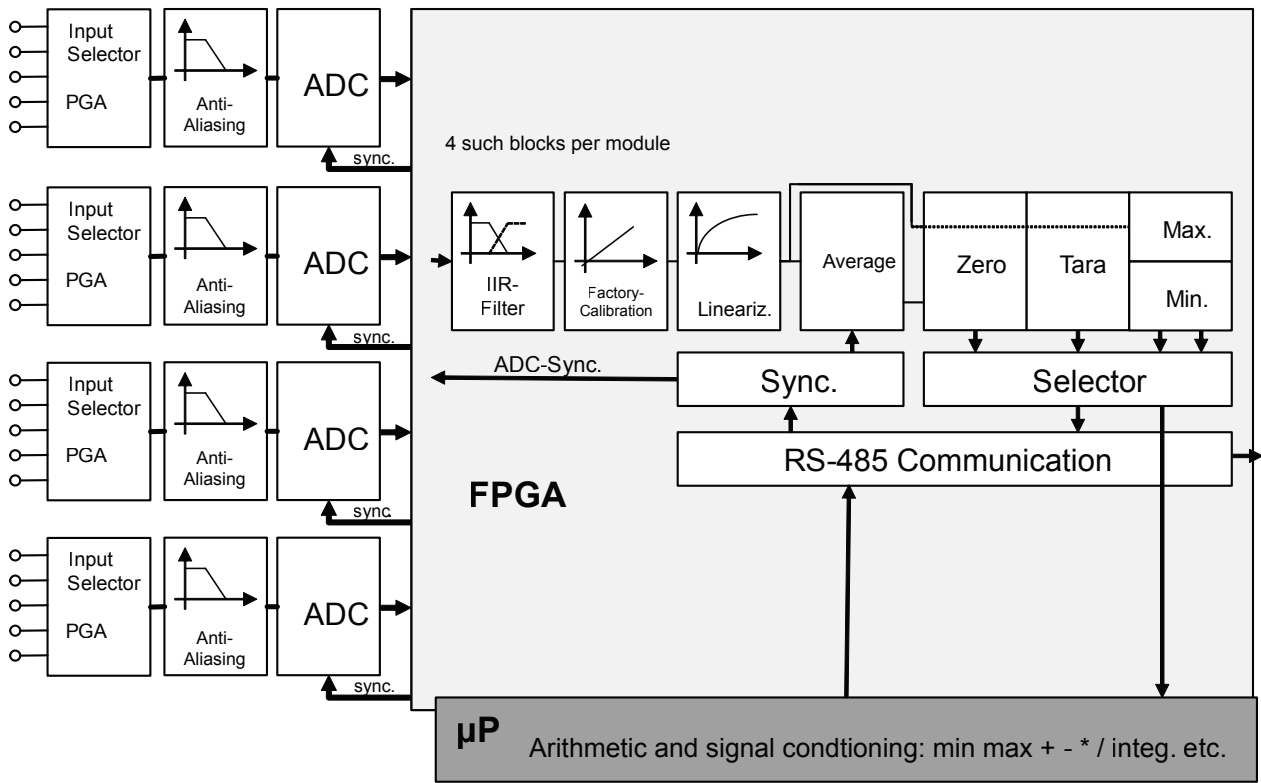
Resolution	24 bit
Sample rate	100 kSps per channel
Conversion method	Sigma-Delta (group delay time 380 μ s)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 1 Hz up to 10 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

Pin assignment

Terminal strip, 2x10 pole, color blue (5512A_A1)



Block diagram



5500A_003-335e-06.25

Module 5514A

Measurement module for MEMS capacitive sensors (K-Beam)



Key features

- **Up to 8 analog input signals**
for 4 single-axis or 2 triaxial MEMS capacitive sensors (K-Beam)
- **Inputs for temperature signals**
- **Sensor supply included**
- **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	8			
Input connector type	4 x 4-pin pos. Comtronic ¼ – 28 (5514A__C1) or 2 x 9-pin neg. D-Sub (5514A__D1)			
Accuracy	0.01 % typical 0.025 % in controlled environment ¹ 0.05 % in industrial area ²			
Linearity error	0.01 % typical full-scale			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	500 VDC channel to channel to power supply to interface ³			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0 ... 3 000	±2	1.5
Input resistance	>1 MΩ			
Long-term drift	<50 µV / 24 h; <200 µV / 8 000 h			
Temperature influence	on zero <200 µV / 10 K		on sensitivity <0.01 % / 10 K	
Signal-noise-ratio	>100 dB at 100 Hz		>120 dB at 1 Hz	
Overvoltage protection	±200 V			

Sensor supply

Number	4 (5514A__C1) 2 (5514A__D1)
Voltage	15 VDC
Current	max. 4 x 20 mA resp. 2 x 40 mA (short circuit proof)
Accuracy	<3 %
Load regulation	<0.1 %
Noise	1.2 mV _{rms}



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, Bessel or Butterworth 4 th order, 0.1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1 000 VDC, permanent up to 250 VDC

Pin assignment

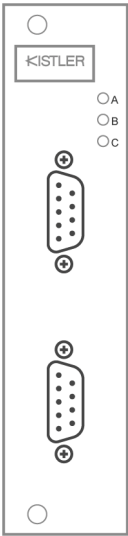
4 x 4-pin pos. Comtronic ¼ – 28 (Type 5514A__C1)



Pin No.	Function
1	+15 VDC
2	GND
3	Ain – / Temperature
4	Ain +

Receptacle view (mirrored)

2 x 9-pin neg. D-Sub (Type 5514A__D1)



Pin No.	Function
1	+15 VDC
2	GND
3	X +
4	Y +
5	Z +
6	X –
7	Y –
8	Z –
9	Temperature

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Module 5517A

Measurement module for strain gages



Key features

- **8 analog input signals for bridges**
Strain gage bridges (full, half, quarter)
- **8 real parallel inputs**
neither scanned nor multiplexed
- **Measuring range**
Quarter bridge ± 1 mV/V or ± 10 mV/V
Full & half bridge ± 2.5 mV/V or ± 10 mV/V
- **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	8
Input connector type	Harting, 68 pole
Sensor connection	68 pole Harting Har-Mik, connecting cable 1m length is not included and is available as accessory
Accuracy	0.02% typical 0.05% in controlled environment ¹ 0.1% in industrial area ²
Repeatability	0.01% typical (within 24 h)
Input resistance	>10 M Ω
Isolation voltage	500 VDC channel to power supply to interface ³
Measurement bridge	resistive full bridge (4/6 wire), resistive half bridge (3/5 wire), resistive quarter bridge 120 Ω and 350 Ω (3 wire incl. cable compensation)
Bridge completion resistor	120 Ω und 350 Ω , selectable by channel temperature stability 0.05 ppm / K
Permitted sensor cable length	<300 m full and half bridge, <100 m quarter bridge
Sensor excitation	2 VDC and 4 VDC selectable
Permitted sensor resistance	>200 Ω at 4 VDC >100 Ω at 2 VDC
Measuring range full and half bridge	± 2.5 mV/V and ± 10 mV/V
Measuring range quarter bridge	± 1 mV/V and ± 10 mV/V ($\pm 2\,000$ $\mu\text{m/m}$ and $\pm 20\,000$ $\mu\text{m/m}$ at $k=2$)



Frequency range (-3 dB)	0 ... 1 000 Hz
Temperature influence on zero	<0.2 $\mu\text{V/V}$ / 10 K
Temperature influence on sensitivity	<0.05% / 10 K
Long-term drift	<0.2 $\mu\text{V/V}$ / 24 h , <2 $\mu\text{V/V}$ / 8 000h
Linearity error	<0.02% f.s.
Noise voltage at 10 Hz	<0.3 $\mu\text{V/V}$
Common mode rejection (CMR)	120 dB

Analog digital conversion

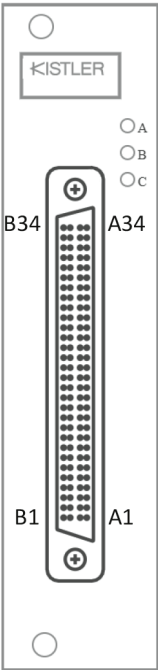
Resolution	24 bit
Sample rate	20 kSps per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 1 Hz up to 10 kHz (freely configurable)
Averaging	configurable or automated according to the selected data rate

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1 000 VDC, permanent up to 250 VDC

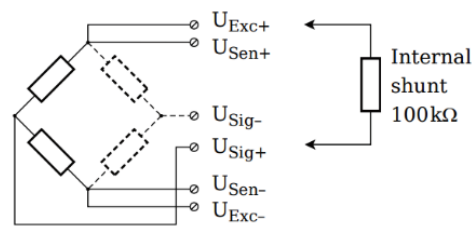
Pin assignment



Pin No.	Function
A1	–
A2	–
A3	Exc1+
A4	Exc1–
A5	Sen1–
A6	–
A7	Exc2+
A8	Exc2–
A9	Sen2–
A10	–
A11	Exc3+
A12	Exc3–
A13	Sen3–
A14	–
A15	Exc4+
A16	Exc4–
A17	Sen4–
A18	–
A19	Exc5+
A20	Exc5–
A21	Sen5–
A22	–
A23	Exc6+
A24	Exc6–
A25	Sen6–
A26	–
A27	Exc7+
A28	Exc7–
A29	Sen7–
A30	–
A31	Exc8+
A32	Exc8–
A33	Sen8–
A34	–

Pin No.	Function
B1	–
B2	–
B3	Sig1+
B4	Sen1+
B5	Sig1–
B6	–
B7	Sig2+
B8	Sen2+
B9	Sig2–
B10	–
B11	Sig3+
B12	Sen3+
B13	Sig3–
B14	–
B15	Sig4+
B16	Sen4+
B17	Sig4–
B18	–
B19	Sig5+
B20	Sen5+
B21	Sig5–
B22	–
B23	Sig6+
B24	Sen6+
B25	Sig6–
B26	–
B27	Sig7+
B28	Sen7+
B29	Sig7–
B30	–
B31	Sig8+
B32	Sen8+
B33	Sig8–
B34	–

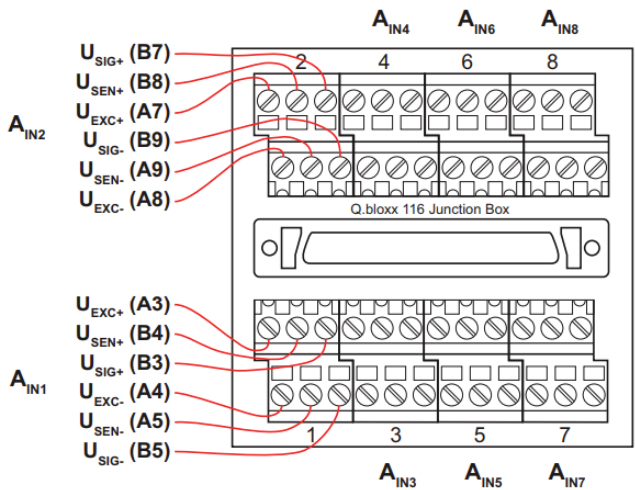
Full and half bridge



Input 1	Input 2	Input 3	Input 4
Exc+ A3	Exc+ A7	Exc+ A11	Exc+ A15
Exc- A4	Exc- A8	Exc- A12	Exc- A16
Sen+ B4	Sen+ B8	Sen+ B12	Sen+ B16
Sen- A5	Sen- A9	Sen- A13	Sen- A17
Sig+ B3	Sig+ B8	Sig+ B11	Sig+ B15
Sig- B5	Sig- B9	Sig- B13	Sig- B17

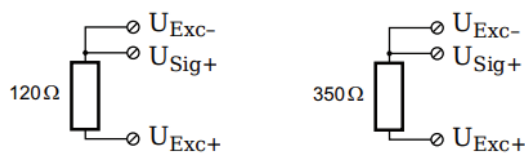
Input 5	Input 6	Input 7	Input 8
Exc+ A19	Exc+ A23	Exc+ A27	Exc+ A31
Exc- A20	Exc- A24	Exc- A28	Exc- A32
Sen+ B20	Sen+ B24	Sen+ B28	Sen+ B32
Sen- A21	Sen- A25	Sen- A29	Sen- A33
Sig+ B19	Sig+ B23	Sig+ B27	Sig+ B31
Sig- B21	Sig- B25	Sig- B29	Sig- B33

Full and half bridge with connection terminal Type 5587A1



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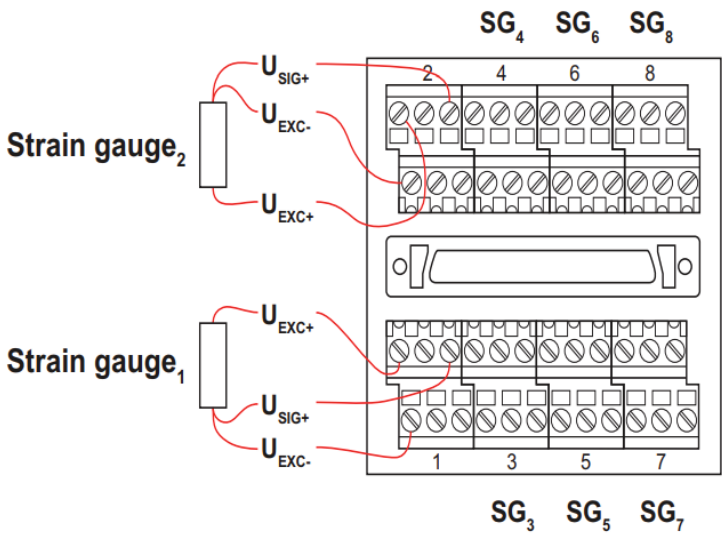
Quarter bridge



Input 1		Input 2		Input 3		Input 4	
Exc+	A3	Exc+	A7	Exc+	A11	Exc+	A15
Exc-	A4	Exc-	A8	Exc-	A12	Exc-	A16
Sig+	B3	Sig+	B8	Sig+	B11	Sig+	B15

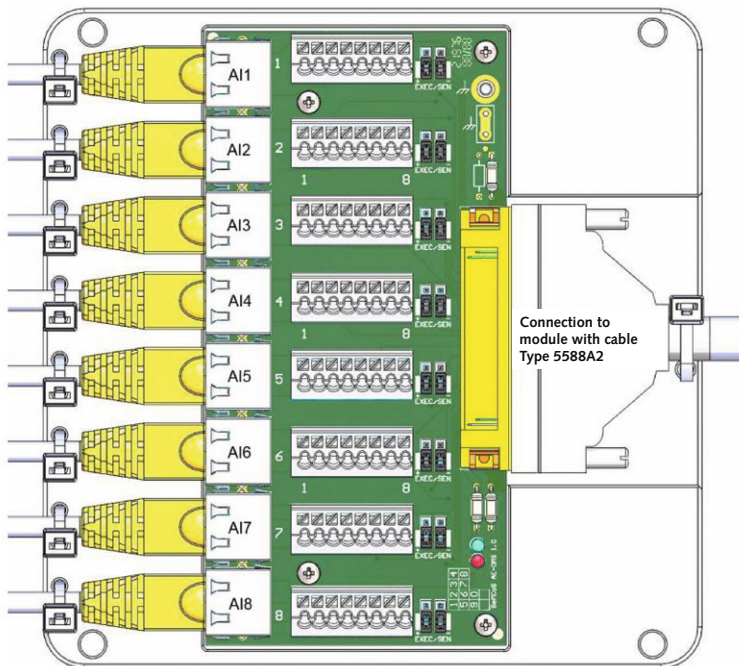
Input 5		Input 6		Input 7		Input 8	
Exc+	A19	Exc+	A23	Exc+	A27	Exc+	A31
Exc-	A20	Exc-	A24	Exc-	A28	Exc-	A32
Sig+	B19	Sig+	B23	Sig+	B27	Sig+	B31

Quarter bridge with connection terminal Type 5587A1



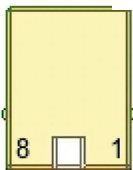
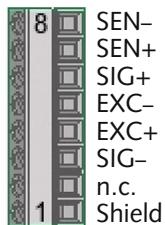
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Connection Board Type 5587A2

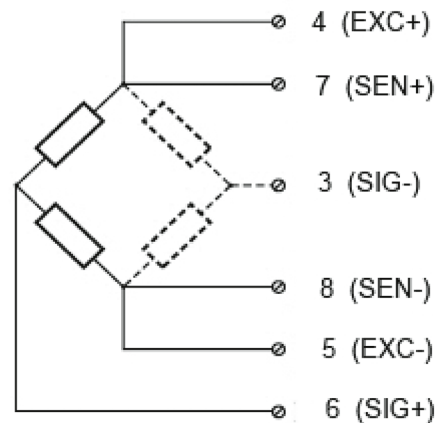


Pinout for each channel

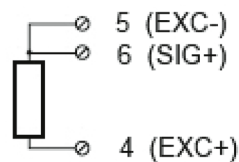
Connection EXC- and SEN-
Connection EXC+ and SEN+



Full- and half-bridge



Quarter-bridge

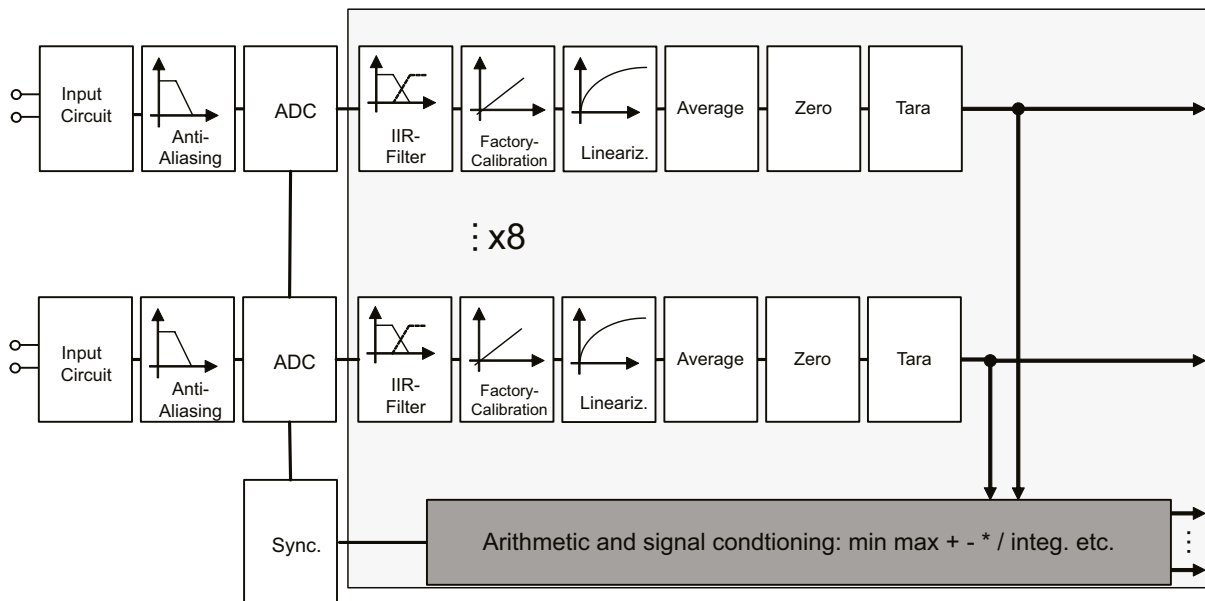


Cable Type 5588A1 (Harting 68 pin to open-end)

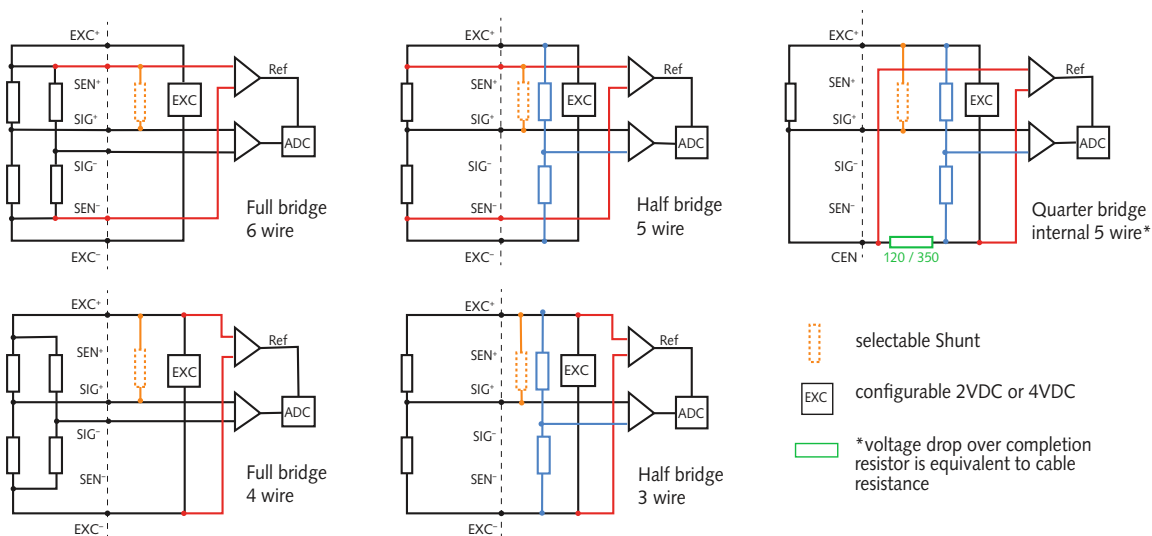
Input/cable bundle	Pairing	Cable color	Sensor connection	Socket connection
1	Pair 1	Light brown	Exc+	A3
		Light brown/red	Exc–	A4
	Pair 2	Light green	Sen+	B4
		Light green/black	Sen–	A5
	Pair 3	White	Sig+	B3
		White/black	Sig–	B5
2	Pair 1	Red/white	Exc+	A7
		Red/blue	Exc–	A8
	Pair 2	Yellow/red	Sen+	B8
		Yellow/blue	Sen–	A9
	Pair 3	Grey/red	Sig+	B7
		Grey/blue	Sig–	B9
3	Pair 1	Blue	Exc+	A11
		Blue/white	Exc–	A12
	Pair 2	Pink/red	Sen+	B12
		Pink/blue	Sen–	A13
	Pair 3	Light green/yellow	Sig+	B11
		Light green/green	Sig–	B13
4	Pair 1	Green/white	Exc+	A15
		Light green/white	Exc–	A16
	Pair 2	Light blue/blue	Sen+	B16
		Light blue/red	Sen–	A17
	Pair 3	Black	Sig+	B15
		Black/white	Sig–	B17
5	Pair 1	Pink	Exc+	A19
		Pink/black	Exc–	A20
	Pair 2	Orange/white	Sen+	B20
		Grey/white	Sen–	A21
	Pair 3	White/red	Sig+	B19
		White/blue	Sig–	B21
6	Pair 1	Light green/red	Exc+	A23
		Green/blue	Exc–	A24
	Pair 2	Red	Sen+	B24
		Red/black	Sen–	A25
	Pair 3	Purple	Sig+	B23
		Purple/white	Sig–	B25
7	Pair 1	Green	Exc+	A27
		Green/black	Exc–	A28
	Pair 2	Light blue/green	Sen+	B28
		Light blue/yellow	Sen–	A29
	Pair 3	Light yellow	Sig+	B27
		Light yellow/red	Sig–	B29
8	Pair 1	Grey	Exc+	A31
		Grey/black	Exc–	A32
	Pair 2	White/yellow	Sen+	B32
		White/green	Sen–	A33
	Pair 3	Brown	Sig+	B31
		Brown/white	Sig–	B33

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Block diagram



Input circuit



5500A_003-335e-06.25

Optional accessories

- **Connection Terminal**
Patching 8 x 6 connections onto screw terminals, inclusive connection cable (length 1 m) to terminal, assembly on DIN rail
- **Connection Board**
Patching 8 x 6 connections onto 8 pluggable screw terminals and in parallel onto 8 RJ-45 sockets, assembling on a wall, as well as the structure under test itself. Cable not included
- **Cable open**
Connector (Harting 68 pin) to open-end cable, grouped for 8 bridge sensors with 6 wires each, length 1 m
- **Cable to Connection Board**
Connector (Harting 68 pin) on both sides, length 5 m

Type
5587A1



5587A2



5588A1



5588A2

Module 5518A

Measurement module for strain gages, inductive bridges and LVDT



Key features

- **2 analog input signals**
Strain gage 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 ¹
	0.1% in industrial area ²
Repeatability	0.01% typical (within 24 h)
Input resistance	>10 MΩ
Isolation voltage	500 VDC channel to channel to power supply to interface ³

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 ⁴
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+		



Sensor excitation (selectable)	DC: 5 VDC	CF: 5 Vrms	DC: 2.5 VDC	CF: 2.5 Vrms
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 24 h	<0.2 μV/V	<0.1 μV/V	<0.2 μV/V	<0.1 μV/V
	<2 μV/V	<1 μV/V	<2 μV/V	<1 μV/V

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1000 VDC, permanent up to 250 VDC

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

Linearity error	<0.02 % f.s.
Noise voltage at 10 Hz	<0.3 µV/V
Noise voltage at 100 Hz	<1 µV/V

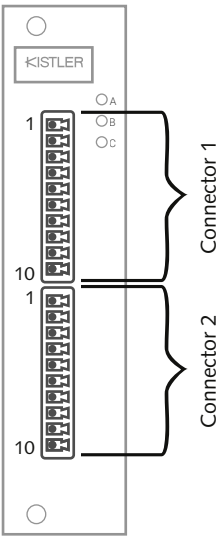
Analog digital conversion

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, Bessel or Butterworth 4 th order, 1 Hz up to 1 kHz (freely configurable)
Averaging	configurable or automated according the selected data rate

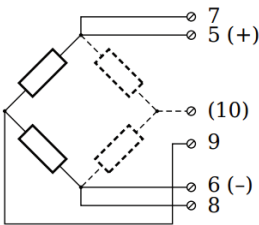
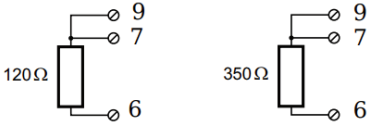
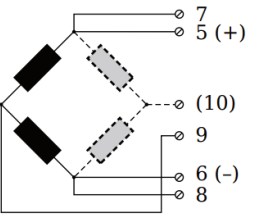
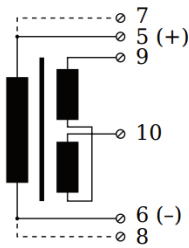
Digital inputs

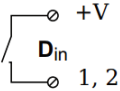
Number	4 configurable inputs
Input	state
Input voltage	max. 30 VDC
Input current	max. 0.5 mA
Upper threshold	>10 V (high)
Lower threshold	<2.0 V (low)

Pin assignment

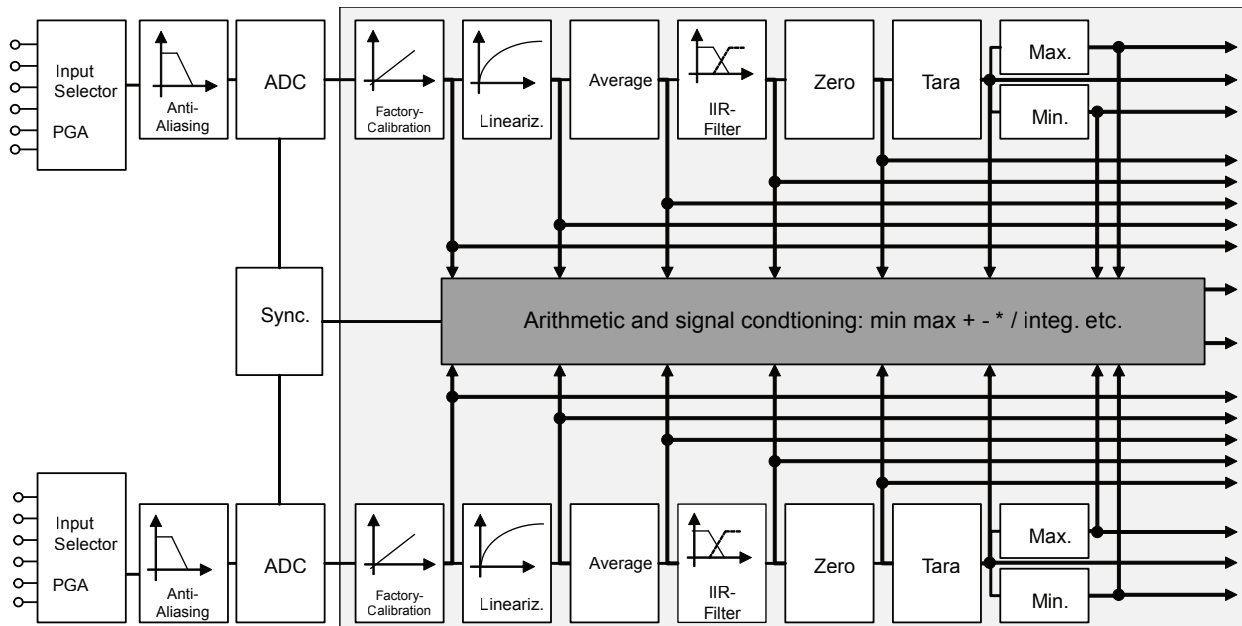


Pin No.	Function
1	DIO 1
2	DIO 2
3	AOut+
4	GND
5	Exc+
6	Exc-
7	Sen+
8	Sen-
9	Sig+
10	Sig-

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

Digital inputs	Pin assignment
Digital input	

Block diagram

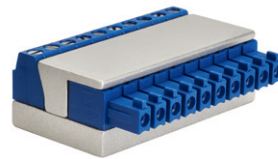


Optional accessories

- Bridge Completion (1/4-bridge)
 - 120 Ω
 - 350 Ω
 - 120 Ω / 350 Ω combined

Type

5583A2R120
 5583A2R350
 5583A2R120R350



Module 5521A

Measurement module for thermocouples



Key features

- **8 analog input signals**
For thermocouples (types B,E,J,K,L,N,R,S,T,U) and voltage
- **Automatic linearization correction**
Optimal position of the interpolation points adjusted to the input range
- **A/D conversion**
100 Sps sampling rate per channel, 24 Bit resolution, 50/60 Hz mains rejection
- **Galvanic isolation**
Channel to channel to power supply and to interface isolation voltage 500 VDC

Technical data

Analog inputs

Number	8
Input connector types	Terminal strip, 2x10 pole, color blue (5521A__A1) / Miniature thermocouple connector type K, color green, IEC (5521A__T1) / Miniature thermocouple connector type K, color yellow, ANSI (5521A__T2)
Accuracy	0.01% typical 0.025% in controlled environment ¹ 0.05% in industrial area ²
Linearity error	0.01% of the final value typical
Repeatability	0.003% typical (within 24 h)
Input resistance	>10 MΩ
Isolation voltage	100 VDC permanent channel to channel 500 VDC channels to power supply to interface ³

Measurement voltage ⁴	Range	Frequency range (-3 dB) [Hz]	Margin of error	Resolution
	±80 mV	0 ... 100	±10 μV	10 nV
Long-term drift	<1 μV / 24 h; <10 μV / 8 000 h			
Temperature influence	on zero <2 μV / 10 K		on sensitivity <0.02% / 10 K	
Signal-noise-ratio	>100 dB at 100 Hz			

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1000 VDC, permanent up to 250 VDC

⁴ Module Type 5521A1_A1 only


Measurement thermocouple	Type	Adjusted with cold junction compensation	Not adjusted with a random CJC terminal
Deviation in the relevant input range	Type B (400°C to 1 820°C) (752°F to 3 308°F)	< ±1.5°C < ±2.7°F	< ±2.5°C < ±4.5°F
	Type E, J, K (-100°C to 1 000°C) (-148°F to 1 832°F)	< ±0.5°C < ±0.9°F	< ±1°C < ±1.8°F
	Type E (-270°C to 1 000°C) (-454°F to 1 832°F)	< ±0.8°C < ±1.44°F	< ±1°C < ±1.8°F
	Type K (-270°C to 1 372°C) (-454°F to 2 502°F)	< ±0.8°C < ±1.44°F	< ±1°C < ±1.8°F
	Type L (-200°C to 900°C) (-328 °F to 1 652°F)	< ±0.5°C < ±0.9°F	< ±1°C < ±1.8°F
	Type N (-100°C to 1 000°C) (-148°F to 1 832°F)	< ±0.5°C < ±0.9°F	< ±1°C < ±1.8°F
	Type N (-270°C to 1 300°C) (-454°F to 2 372°F)	< ±0.8°C < ±1.44°F	< ±1°C < ±1.8°F
	Type R, S (-50°C to 1 768°C) (-58°F to 3 214°F)	< ±1°C < ±1.8°F	< ±1.5°C < ±2.7°F
	Type T, U (-100°C to 400°C) (-148°F to 752°F)	< ±0.5°C < ±0.9°F	< ±1°C < ±1.8°F
	Type T (-270°C to 400°C) (-454°F to 752°F)	< ±0.8°C < ±1.44°F	< ±1°C < ±1.8°F
	The specifications are valid with activated mains rejection 50 Hz resp. 60 Hz		

Long-term drift	<0.025°C / 24 h; <0.05°C / 8 000 h <0.045°F / 24 h; <0.09°F / 8 000 h	
Temperature influence (Type K)	on zero	on sensitivity
	<0.05°C / 10 K <0.09°F / 10 K	<0.02% / 10 K
Uncertainty cold junction compensation	<0.3°C / 0.5°F	

Analog digital conversion

Resolution	24 bit
Sample rate	100 Sps per channel (fast mode) 10 Hz per channel with 60 Hz mains frequency rejection 6 Hz per channel with 50 Hz mains frequency rejection
Conversion method	Sigma-Delta
Digital filter	IIR, low pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 10 Hz (freely configurable)
Averaging	configurable or automated according the selected data rate

Required accessory for Type 5521A_A1

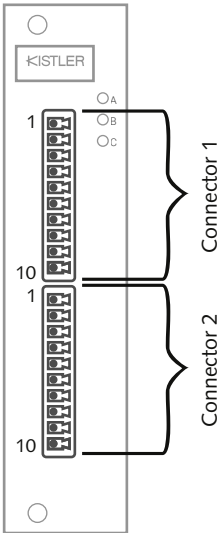
- Cold Junction Compensation
Connection terminal for 4 thermocouples, thermal embedded Pt1000 temperature sensor 2 terminals each module required (8 thermocouples)

Type
5582A2



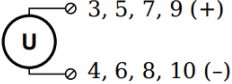
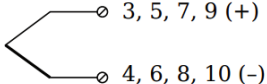
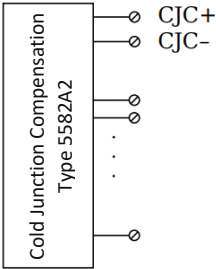
Pin assignment

Terminal strip, 2x10 pole, color blue (5521A_A1)

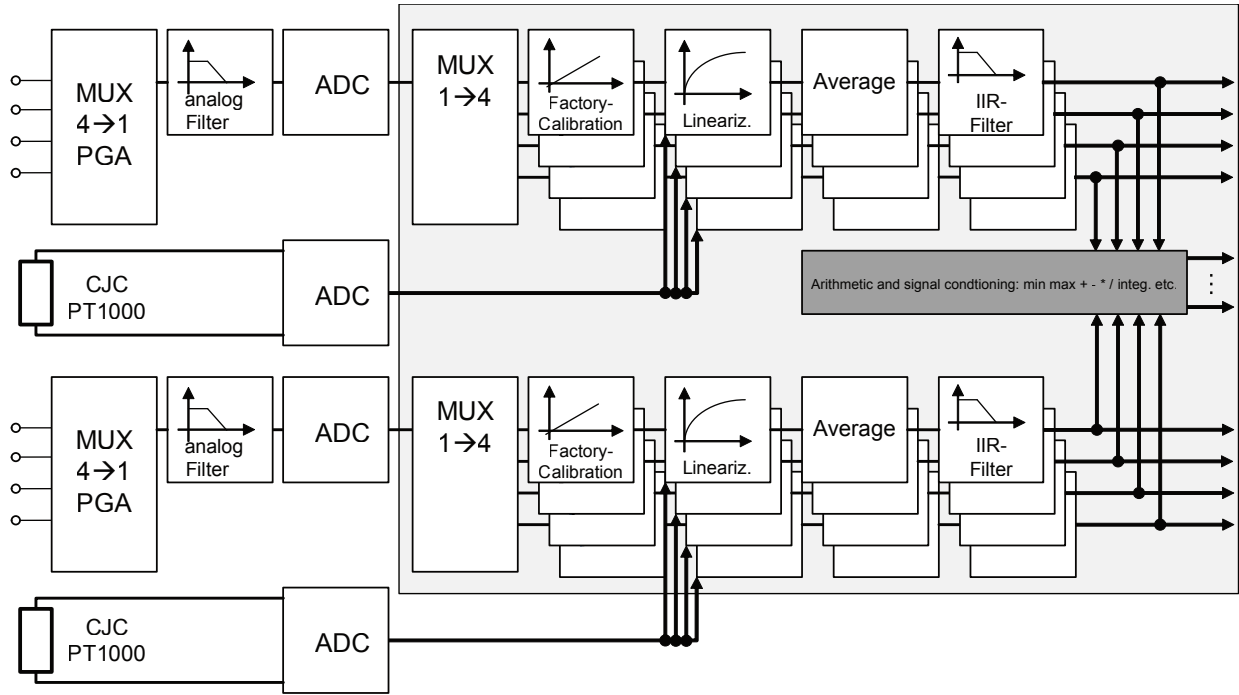


Pin No.	Function
1	CJC+
2	CJC-
3	A _{in} 1+
4	A _{in} 1-
5	A _{in} 2+
6	A _{in} 2-
7	A _{in} 3+
8	A _{in} 3-
9	A _{in} 4+
10	A _{in} 4-

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Measurement	Pin assignment
Voltage	<div></div>
Thermocouple	<div><div></div><div></div></div>

Block diagram



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Module 5522A

Measurement module for RTD (Pt100, Pt1000)
or resistance in 3- or 4- wire technique



Key features

- **4 analog input signals**
Pt100, Pt1000 or resistance in 3- or 4-wire technique
- **A/D conversion**
10 Sps 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	4
Input connector type	Terminal strip, 2x10 pole, color blue
Accuracy	0.01% typical
	0.02 Ω in controlled environment ¹
	0.5 Ω in industrial area ²
Linearity error	0.01% of the final value typical
Repeatability	0.003% typical (within 24 h)
Isolation voltage	500 VDC channel to channel to power supply to interface ³
Sensor excitation	Pt100: 1 mA (500 μ A effective), Pt1000: 100 μ A (50 μ A effective)
Input resistance	470 M Ω

Measurement Pt100

Range	–200°C...350°C / –328°F...662°F
Accuracy (4-wire)	0.05°C / 0.09°F
Resolution	0.1 °mC / 0.18 °mF
Temperature influence	0.02°C / 10 K 0.036°F / 10 K
Long-term drift	0.01°C / 24 h, 0.05°C / 8 000 h 0.018°F / 24 h, 0.09°F / 8 000 h
Range	–200°C...850°C / –328°F...1 562°F
Accuracy (4-wire)	0.08°C / 0.18°F
Resolution	0.1 °mC / 0.18 °mF
Temperature influence	0.04°C / 10 K 0.072°F / 10 K
Long-term drift	0.02°C / 24 h, 0.1°C / 8 000 h 0.036°F / 24 h, 0.18°F / 8 000 h

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ noise pulses up to 1000 VDC, permanent up to 250 VDC



Measurement Pt1000

Range	–200°C...850°C / –328°F...1 562°F
Accuracy (4-wire)	0.1°C / 0.18°F
Resolution	0.5 °mC / 0.9 °mF
Temperature influence	0.1°C / 10 K, 0.18 °F / 10 K
Long-term drift	0.05°C / 24 h, 0.4°C / 8 000 h 0.09°F / 24 h, 0.72°F / 8 000 h

Measurement resistance up to 400 Ω

Range	0 Ω ... 400 Ω
Accuracy (4-wire)	0.015 Ω
Resolution	0.000 2 Ω
Temperature influence	0.01 Ω / 10K
Long-term drift	10 m Ω / 24 h, 20 m Ω / 8 000 h

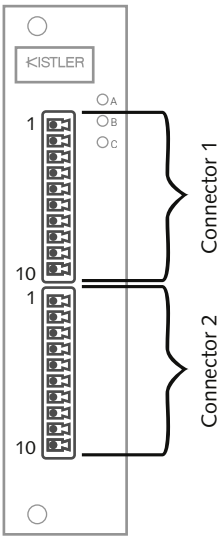
Measurement resistance up to 4 000 Ω

Range	0 Ω ... 4 000 Ω
Accuracy (4-wire)	0.4 Ω
Resolution	0.002 Ω
Temperature influence	0.4 Ω / 10K
Long-term stability	100 m Ω / 24 h, 1 500 m Ω / 8 000 h

Analog/digital-conversion

Resolution	24 bit
Sample rate	10 kSps, reduced by averaging to 10 Sps per channel
Conversion method	Sigma Delta
Digital filter	IIR, low pass, Bessel or Butterworth 1 st order, 0.1 Hz up to 10 Hz (freely configurable)
Averaging	configurable or automated according the selected data rate

Pin assignment

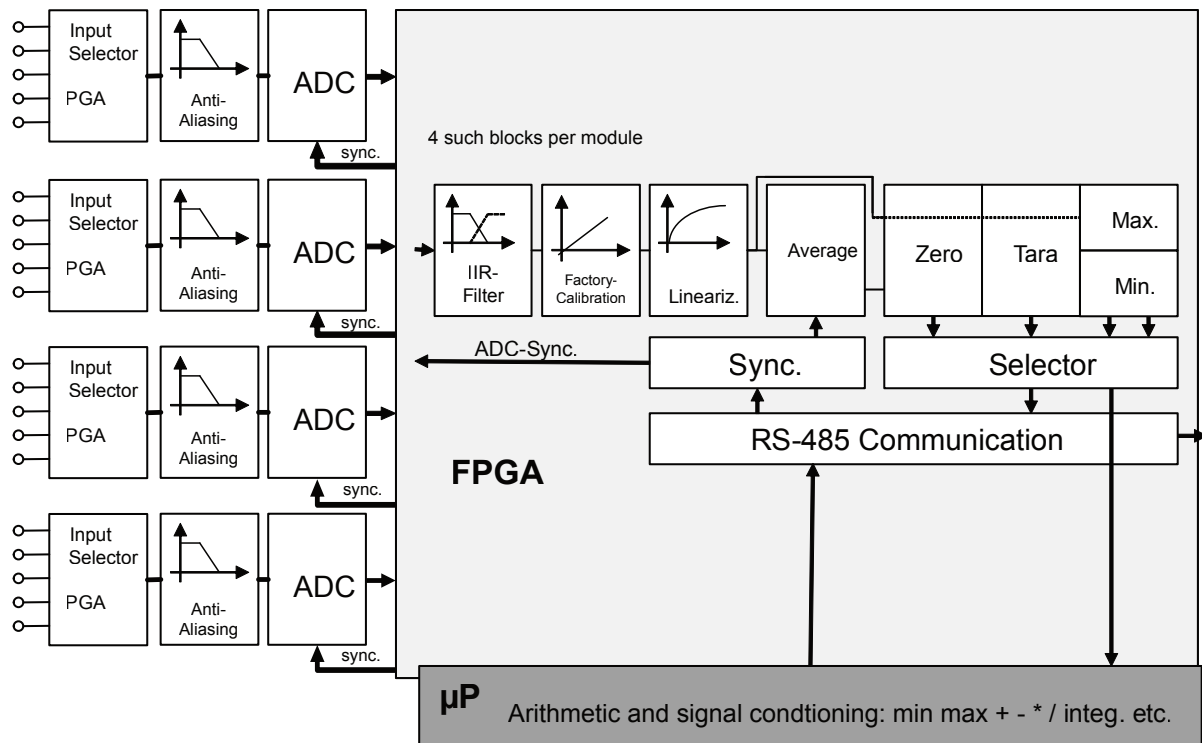


Pin No.	Function
1	–
2	A _{in} 1
3	A _{in} 2
4	A _{in} 3
5	GND
6	–
7	A _{in} 4
8	A _{in} 5
9	A _{in} 6
10	GND

Measurement	Pin assignment		
Resistance/RTD	2-wire circuit	3-wire circuit	4-wire circuit

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Block diagram



Module 5525A

Measurement module for non-insulated thermocouples at high potential

Key features

- **4 analog input signals**
For non-insulated thermocouples (types B,E,J,K,L,N,R,S,T,U) at high potential
- **Automatic linearization correction**
Optimal position of the interpolation points adjusted to the input range
- **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 1200 VDC / 858 VACrms

Technical data

Analog inputs

Number	4	
Input connector type	Weidmüller Type LSF-SMT 3.50/02/90 1.5SN BK TU	
Accuracy	0.01 % typical	
	0.025 % in controlled environment ¹	
	0.05 % in industrial area ²	
Linearity error	0.01 % typical full-scale	
Repeatability	0.003 % typical (within 24 h)	
Isolation voltage	1200 VDC / 858 VACrms permanent, channel to channel to power supply to interface ³	
Measurement thermocouple	Type	Whole range incl. cold junction compensation
	Type B	better than $\pm 5^{\circ}\text{C}$ / 9°F
	Type E, J, K, L, T, U	better than $\pm 1^{\circ}\text{C}$ / 1.8°F
	Type N	better than $\pm 2^{\circ}\text{C}$ / 3.6°F
	Type R, S	better than $\pm 3^{\circ}\text{C}$ / 5.4°F
Input resistance	>100 M Ω	
Frequency range (-3 dB)	0 ... 900 Hz	
Long-term drift	<0.05°C / 24 h; <0.5°C / 8 000 h	
	<0.09°F / 24 h; <0.9°F / 8 000 h	
Temperature influence	on zero	on sensitivity
	<0.02°C / 10 K	<0.025 % / 10 K
	<0.036°F / 10 K	
Uncertainty cold junction compens.	<0.5°C / <0.9°F	



Analog/digital-conversion

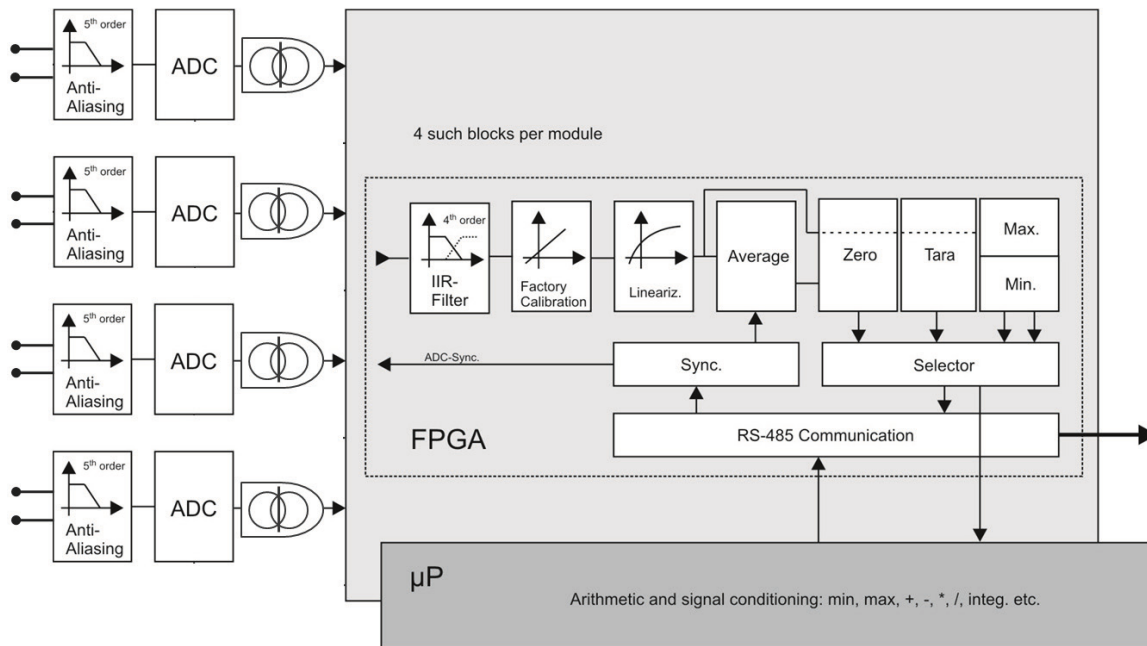
Resolution	24 bit
Sample rate	20 kSps per channel
Conversion method	Sigma-Delta (group delay time 600 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 100 Hz (freely configurable)
Averaging	configurable or automated according the selected data rate

¹ according EN 61326: 2006, appendix B

² according EN 61326: 2006, appendix A

³ high voltage lifetime (TDDb E Model): time to fail approx. 4 years at 1200 VDC and 60°C / 140°F

Block diagram



- Attention high voltage device, danger for life and health in case of non-regular use.
- Special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safely and permanently connected to protected earth (PE).
- Only plugs and connectors with a sufficient protection against contact 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 have to be considered.

Base is the european standard EN61010-1

The module 5525A can be used in the following categories:
 1000 V CAT II 600 V CAT III

5500A_003-335e-06.25

Module 5526A

Measurement module for voltage and current at high potential



Key features

- **4 analog input signals**
Voltage and current (via external shunt) at high potential
- **A/D conversion**
100 kSps sampling rate per channel, 24 Bit resolution
- **Galvanic isolation**
Channel to channel to power supply and to interface
isolation voltage 1200 VDC / 858 VACrms

Technical data

Analog inputs

Number	4			
Input connector type	Laboratory socket (banana), 4 mm			
Accuracy	0.01 % typical			
	0.025% in controlled environment ¹⁾			
	0.05 % in industrial area ²⁾			
Linearity error	0.01 % typical full-scale			
Repeatability	0.003% typical (within 24 h)			
Isolation voltage	1 200 VDC / 858 VACrms permanent, channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [µV]
	±10	0 ... 14 000	±2	1.2
	±1	0 ... 14 000	±0.200	0.120
	±0.1	0 ... 14 000	±0.020	0.012
Input resistance	>10 MΩ			
Temperature influence	on zero		on sensitivity	
	<50 µV / 10 K		<0.01 % / 10 K	
Signal-noise-ratio	>100 dB at 100 Hz			
Overvoltage protection	100 VDC permanent; 500 VDC max. 100 ms			

Analog/digital-conversion

Resolution	24 bit
Sample rate	100 kSps per channel
Conversion method	Sigma-Delta (group delay time 380 µs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 10 kHz (freely configurable)
Averaging ⁴⁾	configurable or automated according the selected data rate



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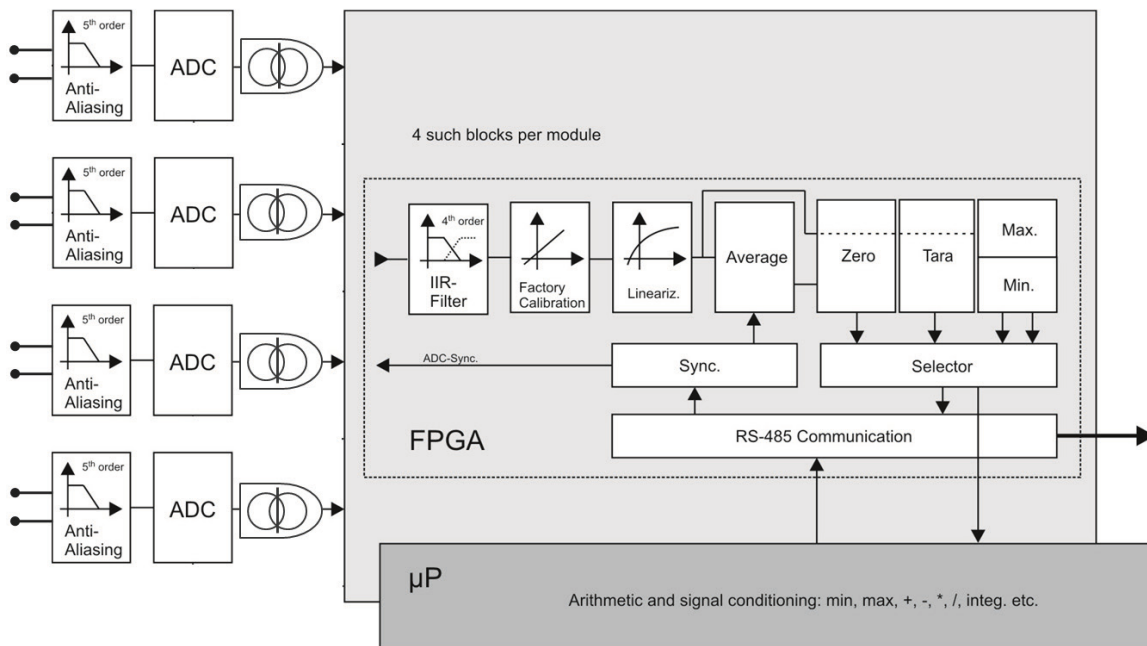
¹⁾ According EN 61326: 2006, appendix B

²⁾ According EN 61326: 2006, appendix A

³⁾ High voltage lifetime (TDD B E Model): time to fail approx. 4 years at 1 200 VDC and 60°C / 140°F

⁴⁾ Averaging not yet supported in software

Block diagram



- Attention high voltage device, danger for life and health in case of non-regular use.
- Special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safely and permanently connected to protected earth (PE).
- Only plugs and connectors with a sufficient protection against contact may be used. All parts must be approved for voltages up to 1 200 VDC.
- During installation, the whole system must be without voltage and safely be disconnected from the mains.
- All relevant safety regulations have to be considered.

Base is the european standard EN61010-1

The module 5526A can be used in the following categories:

1000 V CAT II 600 V CAT III

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Module 5528A

Measurement module for high voltage
(up to 1.2 kV) and current at high potential



Key features

- **4 analog input signals**
2 inputs for high voltage up to 1.2 kV at high potential
2 inputs for current (via external shunt or hall sensor) at high potential
- **A/D conversion**
100 kSps sampling rate per channel, 24 Bit resolution
- **Galvanic isolation**
Channel to channel to power supply and to interface
isolation voltage 1200 VDC / 858 VACrms

Technical data

Analog inputs

Number	4 (2x voltage; 2x current)			
Input connector type	Laboratory socket (banana), 4 mm			
Accuracy	0.01 % typical			
	0.025 % in controlled environment ¹⁾			
	0.05 % in industrial area ²⁾			
Linearity error	0.01 % typical full-scale			
Repeatability	0.003 % typical (within 24 h)			
Isolation voltage	1200 VDC / 858 VACrms permanent, channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [mV]
Channel 1 and 3	±1 200	0 ... 20 000	±300	6
	±400	0 ... 20 000	±100	2
	±120	0 ... 20 000	±30	0.6
	±40	0 ... 20 000	±10	0.2
Long-term drift	<10 mV / 24 h; <100 mV / 8 000 h			
Temperature influence	on zero		on sensitivity	
	<50 mV / 10 K		<0.025 % / 10 K	
Measurement current via external shunt or hall sensor	Range [mV]	Frequency range (-3 dB) [Hz]	Margin of error [µV]	Resolution [µV]
Channel 2 and 4	±2 400	0 ... 13 000	±600	12
	±800	0 ... 13 000	±200	4
	±240	0 ... 13 000	±60	1.2
	±80	0 ... 13 000	±20	0.4
Long-term drift	<20 µV / 24 h; <200 µV / 8 000 h			
Temperature influence	on zero		on sensitivity	
	<50 µV / 10 K		<0.02 % / 10 K	



Analog/digital-conversion

Resolution	24 bit
Sample rate	100 kSps per channel
Conversion method	Sigma-Delta (group delay time 380 µs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 10 kHz (freely configurable)
Averaging ⁴⁾	configurable or automated according the selected data rate

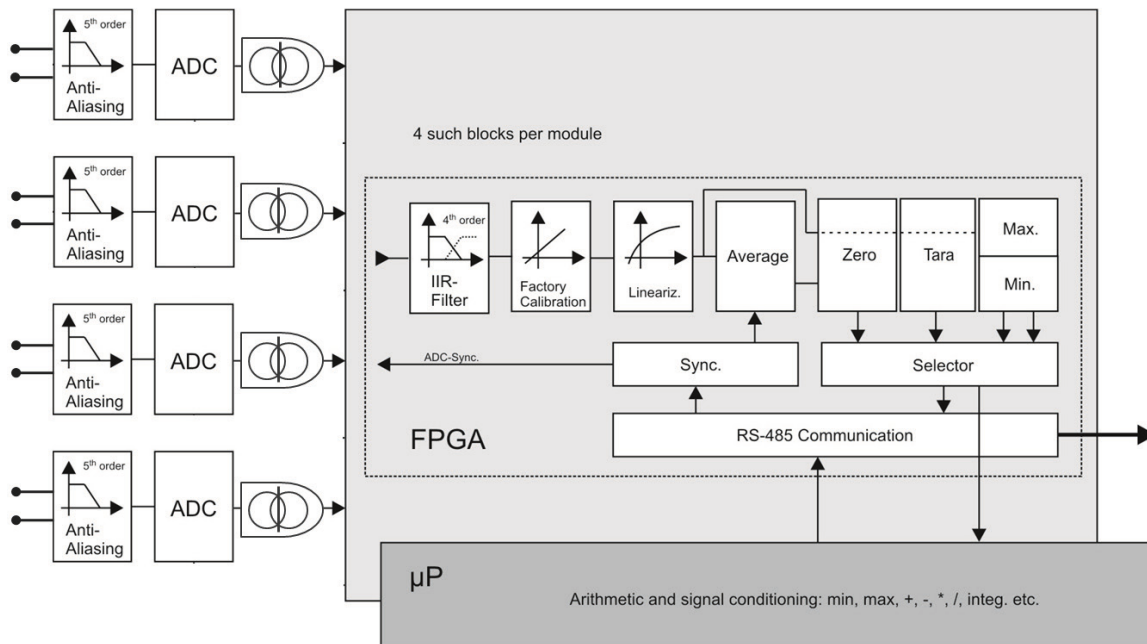
¹⁾ According EN 61326: 2006, appendix B

²⁾ According EN 61326: 2006, appendix A

³⁾ High voltage lifetime (TDD B E Model): time to fail approx. 4 years at 1 200 VDC and 60°C / 140°F

⁴⁾ Averaging not yet supported in software

Block diagram



- Attention high voltage device, danger for life and health in case of non-regular use.
- Special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safely and permanently connected to protected earth (PE).
- Only plugs and connectors with a sufficient protection against contact 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 have to be considered.

Base is the european standard EN61010-1

The module 5528A can be used in the following categories:
 1000 V CAT II 600 V CAT III

5500A_003-335e-06.25

Module 5529A

Measurement module for high voltage
(up to 1.2 kV) at high potential



Key features

- **4 analog input signals**
High voltage up to 1.2 kV at high potential
- **A/D conversion**
100 kSps sampling rate per channel, 24 Bit resolution
- **Galvanic isolation**
Channel to channel to power supply and to interface
isolation voltage 1200 VDC / 858 VACrms

Technical data

Analog inputs

Number	4			
Input connector type	Laboratory socket (banana), 4 mm			
Accuracy	0.01% typical			
	0.025% in controlled environment ¹⁾			
	0.05% in industrial area ²⁾			
Linearity error	0.01% typical full-scale			
Repeatability	0.003% typical (within 24 h)			
Isolation voltage	1200 VDC / 858 VACrms permanent, channel to channel to power supply to interface ³⁾			
Measurement voltage	Range [V]	Frequency range (-3 dB) [Hz]	Margin of error [mV]	Resolution [mV]
	±1 200	0 ... 20 000	±300	6
	±400	0 ... 20 000	±100	2
	±120	0 ... 20 000	±30	0.6
	±40	0 ... 20 000	±10	0.2
Input resistance	>10 MΩ			
Long-term drift	<10 mV / 24 h; <100 mV / 8 000 h			
Temperature influence	on zero		on sensitivity	
	<50 mV / 10 K		<0.025% / 10 K	
Signal-noise-ratio	>100 dB at 100 Hz			



Analog/digital-conversion

Resolution	24 bit
Sample rate	100 kSps per channel
Conversion method	Sigma-Delta (group delay time 380 μs)
Digital filter	IIR, low pass, high pass, band pass, Bessel or Butterworth 4 th order, 0.1 Hz up to 10 kHz (freely configurable)
Averaging ⁴⁾	configurable or automated according to the selected data rate

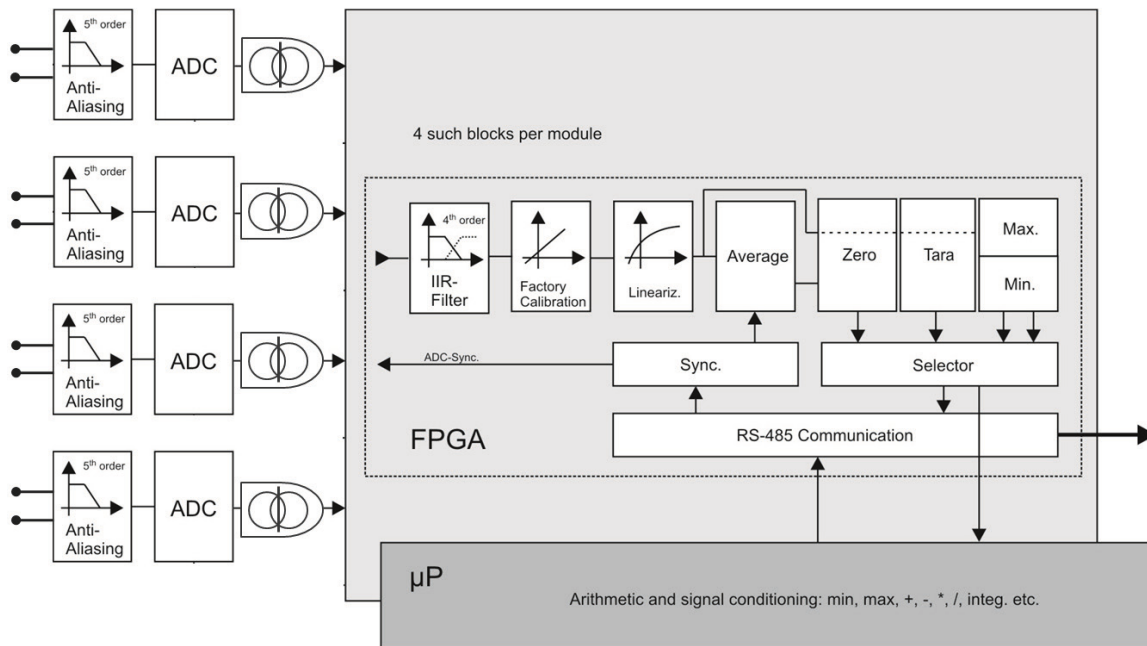
¹⁾ According EN 61326: 2006, appendix B

²⁾ According EN 61326: 2006, appendix A

³⁾ High voltage lifetime (TDD B E Model): time to fail approx. 4 years at 1 200 VDC and 60°C / 140°F

⁴⁾ Averaging not yet supported in software

Block diagram



- Attention high voltage device, danger for life and health in case of non-regular use.
- Special and sufficient educated persons are permitted to handle this device only.
- All metal housing parts must be safely and permanently connected to protected earth (PE).
- Only plugs and connectors with a sufficient protection against contact 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 have to be considered.

Base is the european standard EN61010-1

The module 5529A can be used in the following categories:
 1000 V CAT II 600 V CAT III

5500A_003-335e-06.25

Module 5534A

Measurement module for digital signals



Key features

- **8 digital input signals**
Frequency, pulse width, counter signal, time and status
- **Frequency measurement up to 1 MSps (Chronos method)**
- **Counter**
Forward/backward counter, quadrature counter with reference zero recognition (reset/enable), up to 1 MSps
- **PWM input**
Measurement of duty cycle and frequency
- **Galvanic isolation**
Channel to channel to power supply and to interface isolation voltage 500 VDC

Technical data

Digital inputs

Number	8
Input connector type	Terminal strip, 2x10 pole, color blue
Input voltage	max. 30 VDC
Input current	max. 2 mA
Threshold	TTL or 24 VDC according to IEC 61131-2, Type 1 (HTL)
Signal voltage „0“	–3... 5 VDC (EN61131-2, Type1)
Signal voltage „1“	11... 30 VDC (EN61131-2, Type1)
Isolation Voltage	500 VDC group/group and against power supply and interface ¹⁾

Function

State

Reaction time	10 µs
8-fold Bit-Set	Specification such as simple state-input, but the binary coded information of 8 inputs can be transmitted as a single variable. This functionality covers all 8 inputs even if they are already used by other functionalities such as counter or frequency measurement. In case of a conflict the Bit-Set is lower prior



Frequency measurement

Method	Chronos optimized by combination of time measurement and pulse counting Recognition of the direction of rotation (0°, 90°)
Frequency range	0.1 Hz up to 1 MHz
Time base	0.001 up to 10 s
Counter frequency	48 MHz
Resolution	0.002 %
Frequency measurement with recognition of the direction of rotation	Specification like frequency measurement. For the recognition of the direction of rotation the phasing of both inputs is being used.

PWM measurement

Input frequency	0.1 Hz up to 1 MHz
Resolution	21 ns
Configuration of the measurement type	counter for duty cycle, frequency

¹⁾ Noise pulses up to 1,000 VDC, permanent up to 250 VDC

Counter

Counter	32 bit (±31 bit)
Counter frequency	1 MHz
Back/forward counter	Specification like counter but with an additional input for the direction of counting.
Quadrature counter	Specification like counter. For the recognition of the direction the phasing of both inputs is being used.
Quadrature counter with zero reference and reset/enable	Specification like quadrature counter but with an additional input for the „0“ reference recognition and an additional input to activate „0“ reference recognition individually.

Time measurement

Function	Measuring of time between two edges, measuring of high time, low time and high/low relation
Time range	1 µs up to 2 s
Resolution	21 ns

Digital outputs ¹⁾

Number	8
Contact	open drain p-channel MOSFET (short circuit proof)
Output voltage	10 V up to 30 V, external supply required

Function

State			
Reaction time (depending on load)	>0.5 A	>0.1 A	<0.1 A
	10 µs	100 µs	1,000 µs
8-fold Bit-Set	Specification such as a simple state output but 8 outputs can be set with only one variable in binary coding. This functionality covers all 8 outputs even if they are used by other functionalities such as frequency or PWM output. In case of a conflict the Bit-Set is lower prior.		

Frequency output

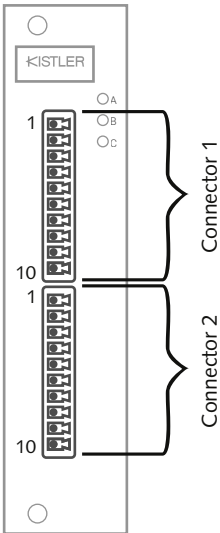
Frequency range	0.1 Hz up to 1 kHz/10 kHz depending on load
Accuracy	0.1 %
Resolution	1 µs

PWM output

Frequency range	0.1 Hz up to 1 kHz/10 kHz depending on load
Accuracy	0.1 %
Resolution	1 µs

¹⁾ Digital outputs are not yet supported in the software

Pin assignment



Pin No.	Function
1	+V
2	D _{out} 1
3	D _{out} 2
4	D _{out} 3
5	D _{out} 4
6	D _{in} 1
7	D _{in} 2
8	D _{in} 3
9	D _{in} 4
10	GND (0 V)

Digital I/O	Pin assignment
Digital input	+V ● ○ 6, 7, 8, 9 D _{in} ○ 10 (0V)
Digital output	+V ● 1 ○ 2, 3, 4, 5 D _{out} ○ 10 (0V)

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With this module 2 x 4 connectors for digital inputs are available. Those will accept all mentioned signals as it is required.

The following combinations are possible:

Connector 1				Connector 2			
Terminal 1.6	Terminal 1.7	Terminal 1.8	Terminal 1.9	Terminal 2.6	Terminal 2.7	Terminal 2.8	Terminal 2.9
State	State	State	State	State	State	State	State
State	State	State	State	State	State	2 channel signal ¹⁾	
State	State	State	State	2 channel signal ¹⁾		2 channel signal ¹⁾	
State	State	State	State	4 channel signal ²⁾			
State	State	2 channel signal ¹⁾		2 channel signal ¹⁾		2 channel signal ¹⁾	
State	State	2 channel signal ¹⁾		4 channel signal ²⁾			
2 channel signal ¹⁾		2 channel signal ¹⁾		4 channel signal ²⁾			
2 channel signal ¹⁾		2 channel signal ¹⁾		2 channel signal ¹⁾		2 channel signal ¹⁾	
4 channel signal ²⁾				4 channel signal ²⁾			

¹⁾ all digital input functionalities except state and „quadrature counter with reference zero and reset/enable“

²⁾ Quadrature counter with reference zero and reset/enable

Module 5535A

Measurement module for differential digital signals



Key features

- **Up to 6 digital input signals (depending on configuration)**
Frequency, pulse width, counter signal, time and status
- **2 independent sensor supplies**
- **Frequency measurement up to 1 MHz (Chronos method)**
- **Counter**
Forward/backward counter, quadrature counter with reference zero recognition (reset/enable), up to 1 MSps
- **PWM input**
Measurement of duty cycle and frequency
- **Galvanic isolation**
Channel to channel to power supply and to interface isolation voltage 500 VDC

Technical data

Digital inputs

Number	2 to 6 galvanic isolated inputs, configurable as differential or single-ended	
Input connector type	Terminal strip, 2x10 pole, color blue, Lemo 2B 8-pin	
Input voltage	max. 30 VDC	
Input resistance	differential	single-ended
	20 kΩ	10 kΩ
Threshold, adjustable in 256 steps	differential	single-ended
	-20 V to +20 V	0 to +26 V
Isolation voltage	500 VDC, input 1 to input 2 to input to interface	

Function digital inputs

State

Reaction time	10 μs
---------------	-------

Frequency measurement

Method	Chronos (optimized by a combination of time measurement and pulse counting, detection of rotational direction (0 deg./90 deg.))
Frequency range	0.1 Hz up to 1 MHz
Time base	0.001 s up to 10 s
Internal reference frequency	288 MHz
Accuracy	0.01% at time base >1 ms
Frequency measurement with recognition of the direction of rotation	specification like frequency measurement, for the recognition of the rotation direction the phasing of both inputs is being used



Pulse counting

Counter depth	32 bit (±31 bit)
Counter frequency	1 MHz
Modes of operation	- Forward and backward counting (additional input for direction of counting) - Quadrature counter (additional input for detection of rotational direction) - Quadrature counter with zero reference and reset/enable (two additional inputs)

PWM measurement

Input frequency	0.1 Hz up to 1 MHz
Accuracy	0.01% for f < 2 kHz 0.1% for f from 2 kHz to 20 kHz 3% for f > 20 kHz
Resolution	3.5 ns

Time measurement

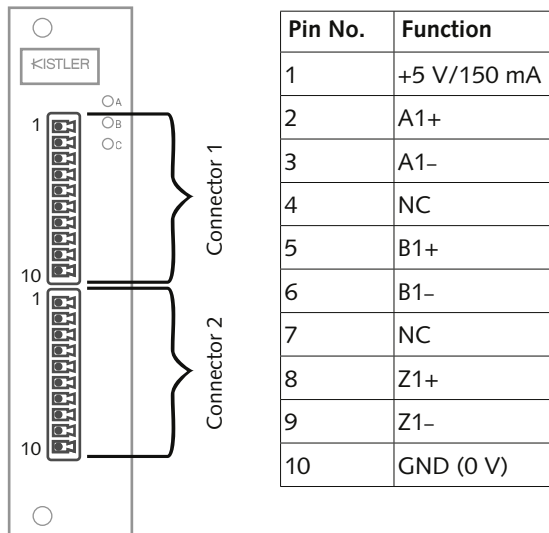
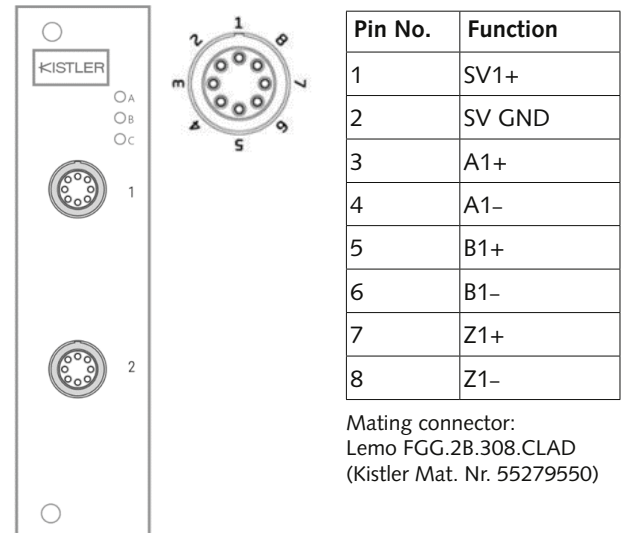
Function	Measuring of time between two edges, measuring of high time, low time and high/low relation
Time range	1 μs up to 32 s
Resolution	3.5 ns

Sensor power supply Types 5535A__A1

Number	2
Voltage	5 V
Current	max. 2 x 150 mA

Sensor power supply Types 5535A__E8

Number	2
Voltage	3.3 V to 24 V (max. VS -3 V)
	Accuracy: $\pm 3\%$ @ 100 mA
	Resolution: 10 mV
Current	50 mA to 250 mA
	Accuracy: $\pm 5\%$
	Resolution: 100 μ A
Load control	< 3% @ 3.3 V up to 12 V
	< 1% @ 12 V up to 24 V
Noise	< 5 mV (RMS)

Pin assignment Types 5535A__A1**Pin assignment Types 5535A__E8****Possible configurations per terminal for Types 5535A__A1**

Terminal contact each terminal	1 (+5 V)	2 (A1+)	3 (A1-)	4 (NC)	5 (B1+)	6 (B1-)	7 (NC)	8 (Z1+)	9 (Z1-)	10 (GND)
3 x single ¹⁾ , differential	5 VDC	D1 ₁₊	D1 ₁₋	NC	D2 ₁₊	D2 ₁₋	NC	D3 ₁₊	D3 ₁₋	GND
3 x single ¹⁾ , single-ended	5 VDC	D1 ₁₊	-	NC	D2 ₁₊	-	NC	D3 ₁₊	-	GND
1 x double ²⁾ + 1 single ¹⁾ , differential	5 VDC	D1 ₁₊	D1 ₁₋	NC	D1 ₂₊	D1 ₂₋	NC	D2 ₁₊	D2 ₁₋	GND
1 x double ²⁾ + 1 single ¹⁾ , single-ended	5 VDC	D1 ₁₊	-	NC	D1 ₂₊	-	NC	D2 ₁₊	-	GND
1 x triple ³⁾ , differential	5 VDC	D1 ₁₊	D1 ₁₋	NC	D1 ₂₊	D1 ₂₋	NC	D1 ₃₊	D1 ₃₋	GND
1 x triple ³⁾ , single-ended	5 VDC	D1 ₁₊	-	NC	D1 ₂₊	-	NC	D1 ₃₊	-	GND

Possible configurations per socket for Types 5535A__E8

Socket contact each pin	1 (SV1+)	2 (SV GND)	3 (A1+)	4 (A1-)	5 (B1+)	6 (B1-)	7 (Z1+)	8 (Z1-)	9 (Z1-)	10 (GND)
3 x single ¹⁾ , differential	SV1+	SV GND	D1 ₁₊	D1 ₁₋	D2 ₁₊	D2 ₁₋	D3 ₁₊	D3 ₁₋	D3 ₁₋	GND
3 x single ¹⁾ , single-ended	SV1+	SV GND	D1 ₁₊	-	D2 ₁₊	-	D3 ₁₊	-	-	GND
1 x double ²⁾ + 1 single ¹⁾ , differential	SV1+	SV GND	D1 ₁₊	D1 ₁₋	D1 ₂₊	D1 ₂₋	D2 ₁₊	D2 ₁₋	D2 ₁₋	GND
1 x double ²⁾ + 1 single ¹⁾ , single-ended	SV1+	SV GND	D1 ₁₊	-	D1 ₂₊	-	D2 ₁₊	-	-	GND
1 x triple ³⁾ , differential	SV1+	SV GND	D1 ₁₊	D1 ₁₋	D1 ₂₊	D1 ₂₋	D1 ₃₊	D1 ₃₋	D1 ₃₋	GND
1 x triple ³⁾ , single-ended	SV1+	SV GND	D1 ₁₊	-	D1 ₂₊	-	D1 ₃₊	-	-	GND

¹⁾ e.g. status input, frequency measurement or counter²⁾ e.g. counter with additional input for counting direction (forward/backward counter) or 2-phase counter signals (quadrature counter) or frequency measurement with direction detection (torque transducers)³⁾ e.g. 2-phase counter signal or angle sensor with additional input for zero reference

Controller 5551A

The KiDAQ Controller Type 5551A provides power to the measurement modules and ensures the proper configuration. The measurement data is aggregated with a time-synchronized internal bus and provided to the KiStudio software with the KiConnect protocol. This allows both local and remote setups over standard networks.

Features

- Gigabit Ethernet interface for KiConnect over TCP/IP
- Time-synchronized data acquisition from measurement modules e.g. up to 16 channels with 100 kSps internal data rate or up to 256 channels with 10 kSps internal data rate or mixed setups
- Time synchronization to other devices with the precision time protocol (PTP)
- Data buffering with internal memory
- Digital inputs

Processing unit

Processor	Single Core Prozessor Intel Atom E3815, 1.46 GHz
Memory	2 GB DDR3L RAM
	4 GB eMMC Flash

Interfaces

Ethernet	1 Gbps, RJ45, PTP ¹⁾ (IEEE 1588-2000 v2)
USB	2x USB 2.0 (socket type A) for maintenance
Digital	6x configurable digital inputs ²⁾ : counter, frequency, PWM and status Threshold: >3.5 V (high) / <1.0 (low) Input: max. 30 VDC / max. 1.5 mA Socket: LEMO EGG.1B.308.CLL (mating plug: FGG.1B.308.XXX)

Status indication

LEDs	1x blue, 1x yellow
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Power supply

Power supply	10 up to 30 VDC, overvoltage and overload protection, max. 1.5 A
Connector	Binder: 09-3441-00-05 (mating plug: 99-0436-19-05)
Power consumption	~12 W



Environmental

Operating temperature	-20°C ... 60°C (-4°F ... 140°F)
Storage temperature	-40°C ... 85°C (-40°F ... 185°F)
Relative humidity	5% ... 95% at 50°C (122°F), non condensing
Electromagnetic compatibility	EN 61000-4 and EN 55011

Communication interface to measurement modules

Standard	RS-485, 2-wire
Data format	8e1
Protocol	Local-Bus: 115,200 bps up to 24 Mbps

Mechanical

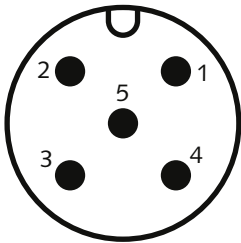
Case	Aluminum and ABS (for DIN Rail)
Dimensions (W x H x D)	see drawings in appendix
Weight	see table in appendix

¹⁾ Precise time synchronization

²⁾ Not yet supported in KiStudio software



Pin	Digital input plug assignment
1 (red marking)	+5 V auxiliary voltage for digital inputs
2	DI1
3	DI2
4	DI3
5	DI4
6	DI5
7	DI6
8	Digital input 0 V, GND



Pin	Function
1	+24 V module supply
2	GND module supply
3	GND external sensor supply
4	+5 – 24 V external sensor supply (VS)
5	potential equalization (PE)

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Controller 5552A

The KiDAQ Controller Type 5552A provides power to the measurement modules and ensures the proper configuration. The measurement data is aggregated with a time synchronized internal bus and provided to the KiStudio software with the KiConnect protocol. This allows both local and remote setups over standard networks.

In addition to the controller 5551A, this controller is able to acquire data via four CAN and CAN-FD interfaces, making it perfect for acquiring data for automotive testing and other applications.

Features

- Gigabit Ethernet interface for KiConnect over TCP/IP
- Time-synchronized data acquisition from measurement modules e.g. up to 16 channels with 100 kSps internal data rate or up to 256 channels with 10 kSps internal data rate or mixed setups
- 4 TB SSD for data recording on device ²⁾
- 4x CAN / CAN-FD
- Digital inputs

Processing unit

Processor	Intel Atom E3826 Dual-Core 1.46 GHz
Memory	2 GB DDR3L RAM
	4 GB eMMC Flash

Interfaces

Ethernet	1 Gbps, RJ45, PTP ¹⁾ (IEEE 1588-2000 v2)
USB	2x USB 2.0 (socket type A) for maintenance
Digital	6x configurable digital inputs ²⁾ : counter, frequency, PWM and status Threshold: >3.5 V (high) / <1.0 V (low) Input: max. 30 VDC / max. 1.5 mA Socket: LEMO EGG.1B.308.CLL (mating plug: FGG.1B.308.XXX)
CAN / CAN-FD Specification	CAN 2.0 A/B and FD
Data transfer rate	CAN: 25 kbit/s to 1 Mbit/s CAN-FD: 25 kbit/s to 12 Mbit/s 4 x 9-pin pos. D-Sub
Isolation voltage	300 V channel per channel

Power supply

- ¹⁾ Precise time synchronization
²⁾ Not yet supported in KiStudio



Power supply	10 up to 30 VDC, overvoltage and overload protection, max. 1.5 A
Power consumption	~15 W
Connector	Binder: 09-3441-00-05 (mating plug: 99-0436-19-05)

Environmental

Operating temperature	-20°C ... 60°C (-4°F ... 140°F)
Storage temperature	-40°C ... 85°C (-40°F ... 185°F)
Relative humidity	5% ... 95% at 50°C (122°F), non condensing
Electromagnetic compatibility	EN 61000-4 and EN 55011

Communication interface to measurement modules

Standard	RS-485, 2-wire
Data format	8e1
Protocol	Local-Bus: 115,200 bps up to 24 Mbps

Mechanical

Case	Aluminum and ABS (for DIN Rail)
Dimensions (W x H x D)	see drawings in appendix
Weight	see table in appendix

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Accessories

Included accessories

for all housings

- Screwdriver for terminal strip connectors

for portable and DIN Rail housing

- Carrying bag

for controller 5551A and 5552A

- Power connector
(Binder 99-0436-19-05)

Optional accessories

for Controller 5551A and 5552A

- Power Supply
- DC/DC Converter 12 V to 24 V

for Power Supply 5567A0

- Country-specific power cord

Type J connector

Type B connector

Type E+F connector

Type I connector

Type G connector

Type M connector

Type K connector

Type L connector

(see drawings in appendix)

for Controller 5551A and 5552A

- USB 3.0 to Ethernet adapter

for Rack housing

- Blind covers (where required)

for Portable Housing

- Mounting plates (kit)

for measurement modules

- Terminal Strip as spare part
for modules 5501A, 5502A, 5505A,
5506A, 5507A, 5512A, 5518A, 5521A,
5522A, 5531A, 5534A, 5535A
(2 pcs included with every applicable
module)

Type/Mat. No.

–

–

–

Type/Mat. No.

5567A0

5567A1

1507

1508

1509

1515A4

1515A5

1515A6

–

1515A8

Z21014-2003

5562A10

5568A22

5581A1

Ordering keys

Ordering key

of measurement modules

Type 55xxA ☐ ☐ ☐

Housing option Rack	1
Housing option Portable	2
Housing option DIN Rail	3
Firmware "LocalBus"	1
Connector type and variant (module specific) ¹⁾ :	
Terminal strip, 10 pole	A1
BNC neg. (standard)	B1
BNC neg. high-insulation (for charge)	B2
Comtronic ¼ - 28	C1
Lemo 2B 8-pin	E8
Sub-D, 9 pole	D1
Harting	H1
Laboratory socket (banana), for high potentials, 4 mm	L8
Weidmüller Type LSF-SMT 3.50/02/90 1.5SN BK TU	W8
Thermocouple Type K, color green (IEC)	T1
Thermocouple Type K, color yellow (ANSI)	T2

¹⁾ Available connectors types depend on module type
(see technical data of modules)

Ordering key of controller

Type 5551A ☐ ☐

Housing option Rack	1
Housing option Portable	2
Housing option DIN Rail	3
Firmware "LocalBus"	1

Ordering key of controller

Type 5552A ☐ ☐ ☐

Housing option Rack	1
Housing option Portable	2
Housing option DIN Rail	3
Firmware "LocalBus"	1
with SSD and 4x CAN-FD	D2

Ordering key of housing

Type 5561A ☐

Rack housing (19")	11
Rack housing for desktop use	12
Portable	20
DIN Rail	30

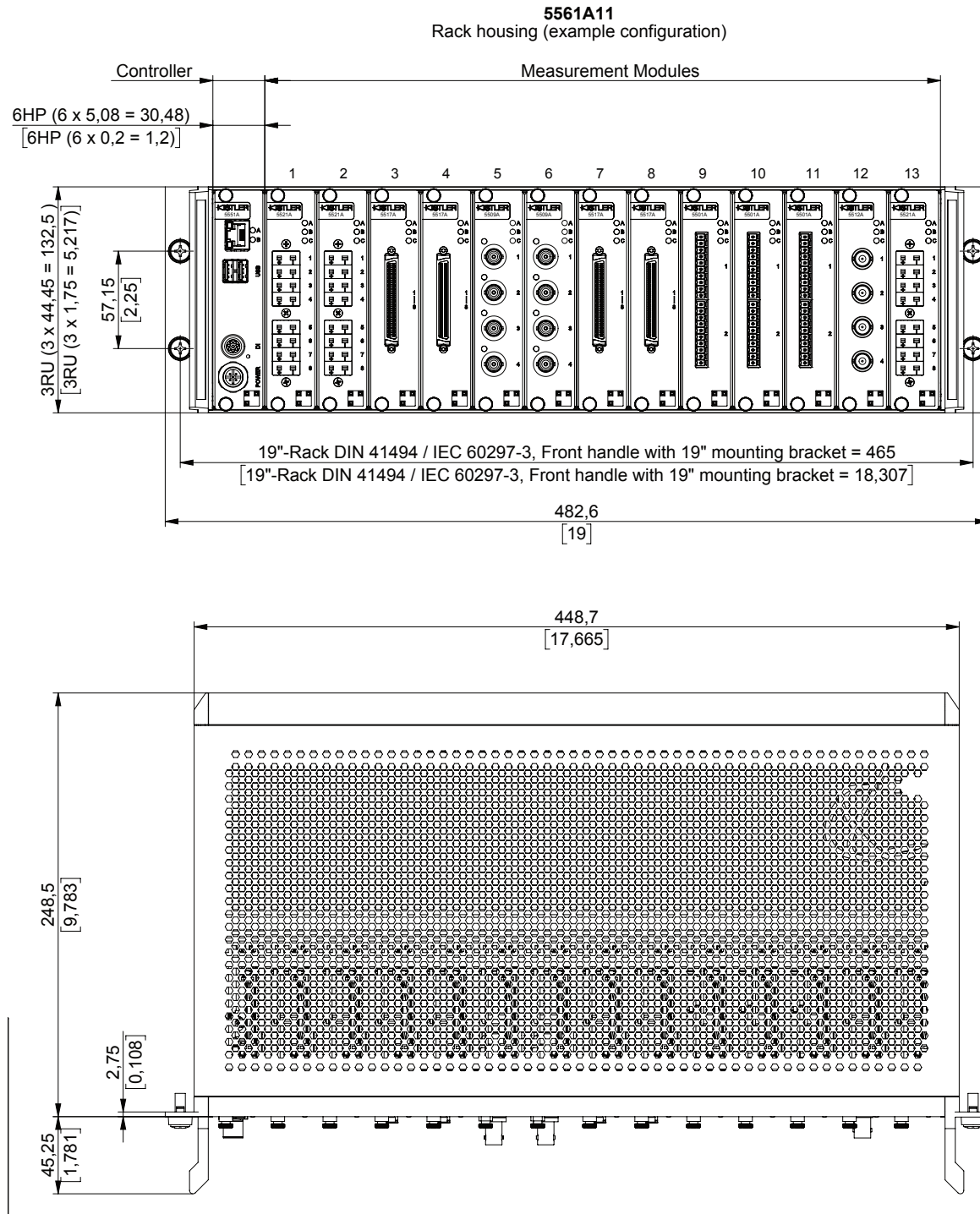
Module-specific accessories can be found in the module sections.

Appendix

Mechanical drawings (dimensions)

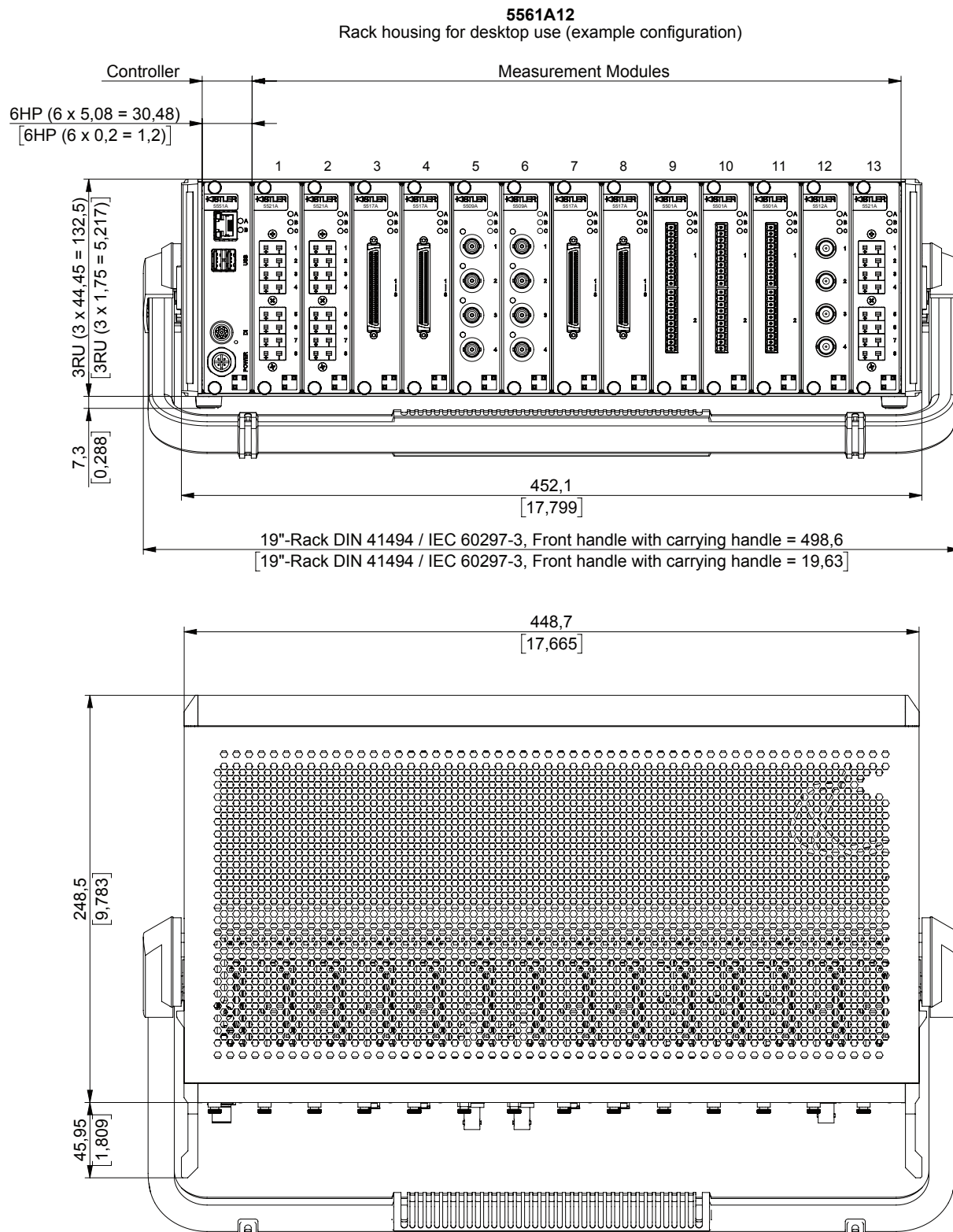
All measures in mm [inch]. STEP files are available on www.kistler.com

KiDAQ Rack (19")



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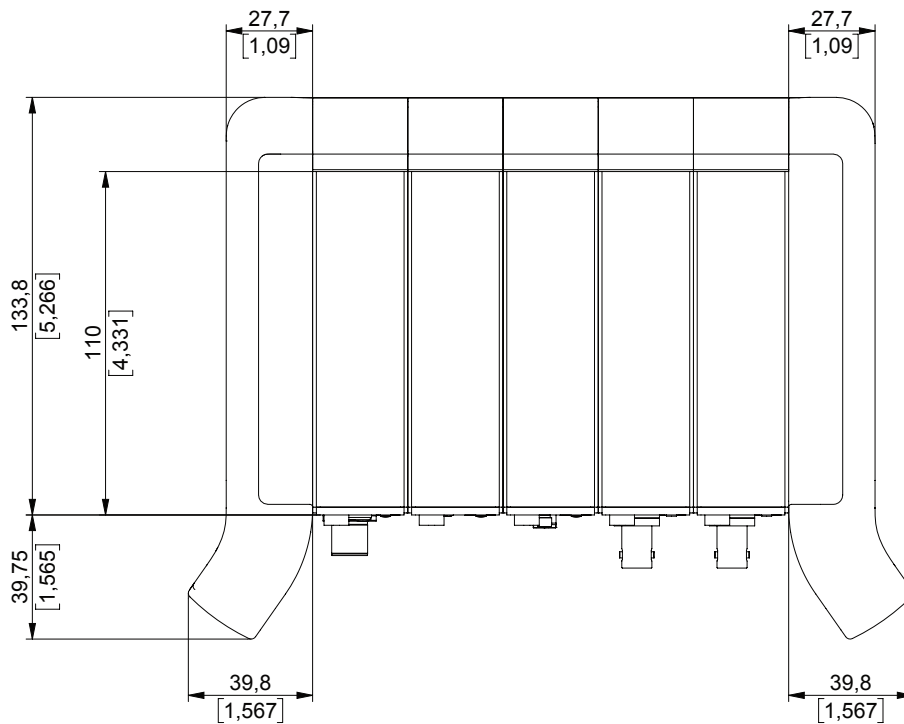
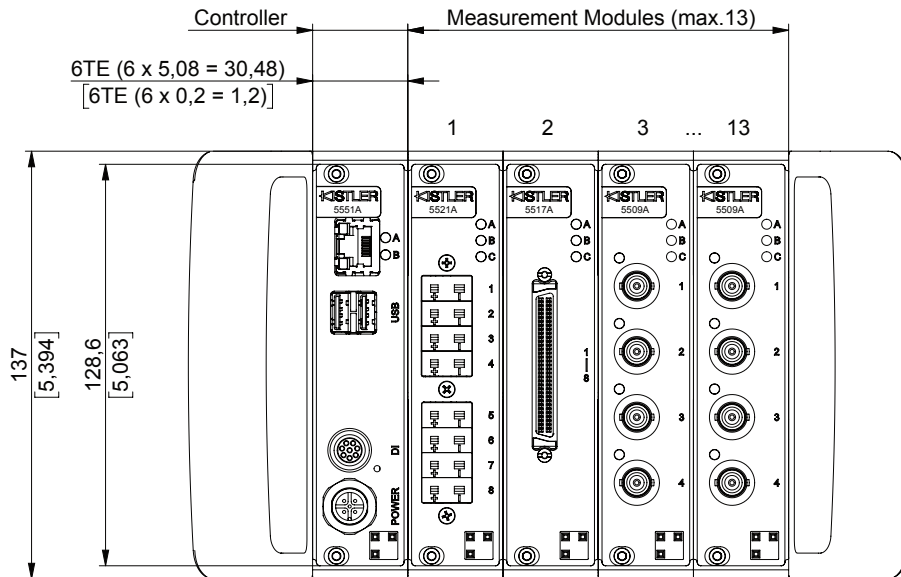
KiDAQ Rack with carrying handles



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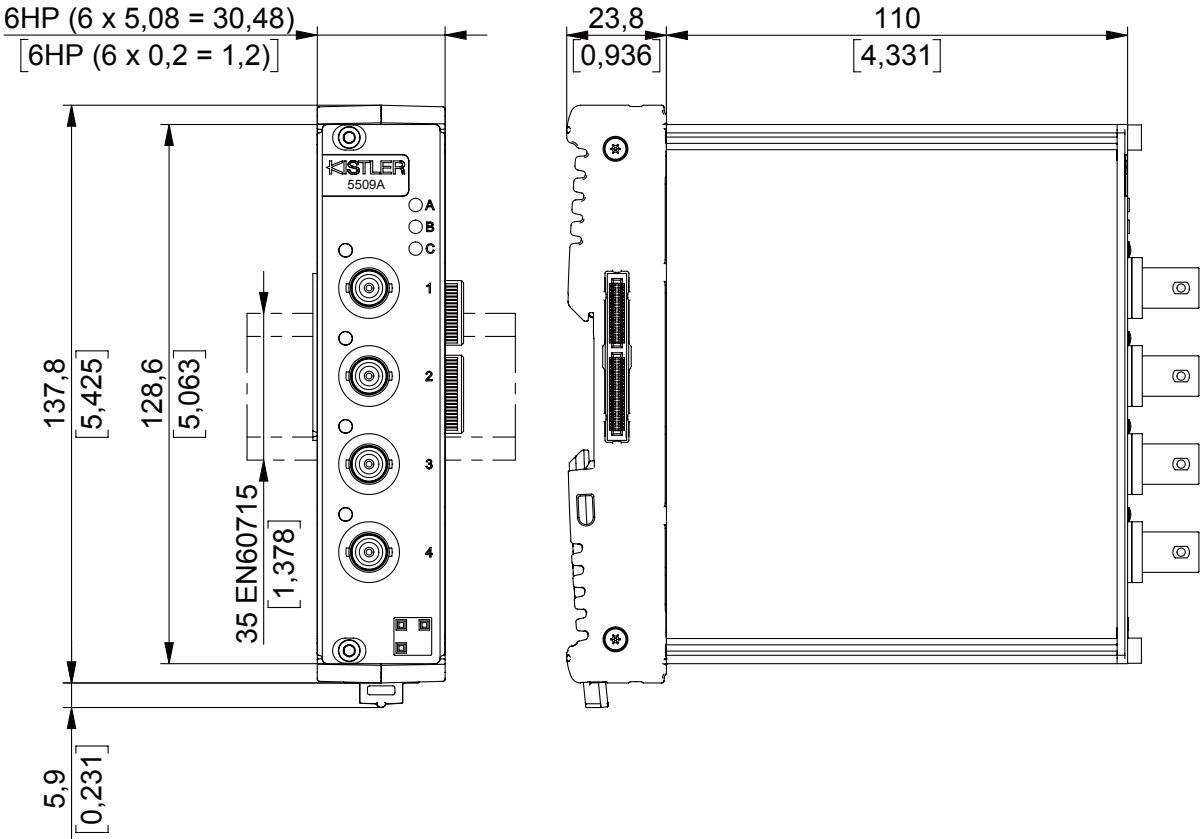
KiDAQ Portable

5561A20 Portable housing (example configuration)



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KiDAQ DIN Rail

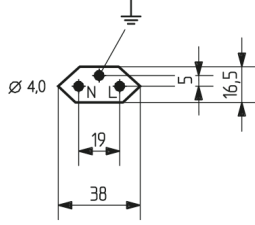
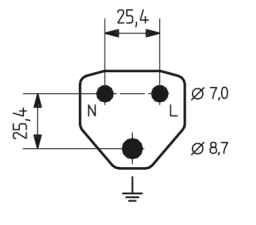
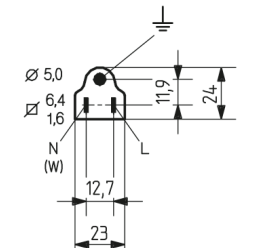
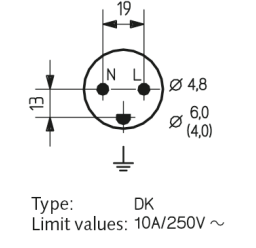
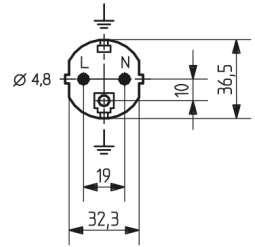
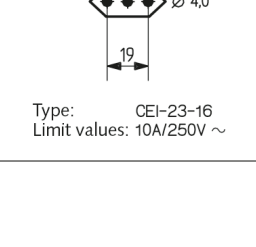
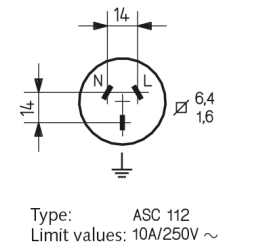
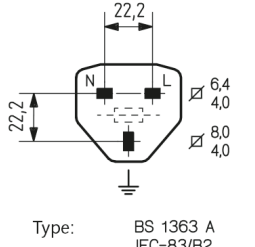


Weights

Weight per component (approx.)	Rack	Portable	DIN Rail
KiDAQ device housing (empty)	2,800 g	1,980 g	n/a
KiDAQ Controller 5551A	310 g	600 g	550 g
KiDAQ measurement module	220 g	570 g	490 g

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Power cord connector types

Type J connector	1507	Switzerland	 <p>Type: SEV Typ12 Limit values: 10A/250V ~</p>	Type M connector	1515A6	e.g. South Africa etc.	 <p>Type: SABS 164 Limit values: 16A/250V ~</p>
Type B connector	1508	e.g. USA, Japan etc.	 <p>Type: NEMA 5-15P IEC-83/A5-15 Limit values: 15A/125V ~</p>	Type K connector	–	Denmark	 <p>Type: DK Limit values: 10A/250V ~</p>
Type E+F connector	1509	e.g. Germany, France, Spain, Korea etc.	 <p>Type: CEE-7/VII IEC-83/C4 Limit values: 16A/250V ~</p>	Type L connector	1515A8	e.g. Chile, Italy etc.	 <p>Type: CEI-23-16 Limit values: 10A/250V ~</p>
Type I connector	1515A4	e.g. Argentina, Australia, China New Zealand	 <p>Type: ASC 112 Limit values: 10A/250V ~</p>	Type G connector	1515A5	e.g. GB, India, Hongkong, Malta etc.	 <p>Type: BS 1363 A IEC-83/B2 Limit values: 13A/250V ~</p>

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