

SCP Slim for Engine Indication

Signal Conditioning System, with optional PiezoSmart®

Type 2852A..., 4665Y51,
5064B1..., 5269Y51, 5271Y51

The "Signal Conditioning Platforms" SCP Slim Type 2852A... is a modular system for the conditioning of a wide range of different measuring signals, such as signals from piezoelectric and piezoresistive pressure sensors. It is specifically well suited for combustion pressure measurements on engine test beds and in-vehicle applications.

The key features for SCP Slim are:

- Modular design for maximum flexibility (up to 16 channels)
- Remote controlled via any PC
- Power supply with voltage range from 100 ... 240 VAC and 10 ... 36 VDC
- Graphical User Interface (GUI)
- Function and signal compatible with all combustion analyzers
- PiezoSmart sensor identification for increased process reliability and improved data quality

• Description

The SCP Slim largely consists of a base unit and function-specific measuring modules. For combustion pressure measurements and combustion analysis on engines, a wide range of different and interchangeable measuring modules for front-end signal conditioning is available.

If the automatic sensor identification PiezoSmart is used, all relevant data of an individual sensor are stored on a TEDS (Transducer Electronic Data Sheet) and are available for automatic setting of parameters and adjustments.

Though process reliability of test procedures and quality of measurement data are significantly improved by simultaneously simplifying test bed setup and test preparations.

Application

With the function-specific modules, measuring tasks within combustion pressure and gas exchange, as well as injection pressure and general pressure measurements are efficiently accomplished.

Due to the small dimensions and low voltage power supply, SCP Slim is most suited for in-vehicle testing.



SCP Slim Type 2852A11 for 2 measuring modules



SCP Slim 19" tray consisting of 2 SCP Slim Type 2852A11 and 2852A01 mounted on support plate Type 5746A12 for 4 measuring modules



SCP Slim consisting of Base-Chassis Type 2852A11 and expansion Chassis Type 2852A01 for 8 measuring modules, with optional chassis legs Type 5746A3

Available Software Interfaces (in Preparation)

- FEV CAS
- D2T OSIRIS
- A&D CAS
- ONO SOKKI DS-2000
- (AVL INDICOM)
- (DEWETRON)

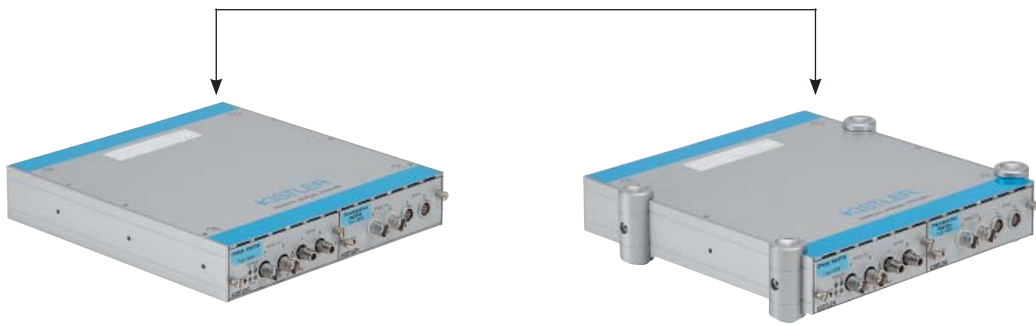
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Measuring Modules for SCP Slim

- Charge amplifier without sensor identification
Type 5064B11
- Charge amplifier with sensor identification Type 5064B12
- Piezoresistive amplifier with sensor identification
Type 4665Y51
- pMax Module Type 5269Y51
- Bridge amplifier Type 5271Y51



Configuration Possibilities of SCP Slim



SCP Slim Type 2852A11

SCP Slim Type 2852A11, with optional chassis legs
Type 5146A3



SCP Slim 19" tray consisting of 2 SCP Slim Type 2852A11 and 2852A01
mounted on support plate Type 5746A12 for 4 measuring modules



SCP Slim consisting of base chassis Type 2852A11 and expansion chassis
Type 2852A01 with optional chassis legs Type 5746A3

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Technical Data SCP Slim Type 2852A...

Chassis

Module cards	max.	2
Channels per rack		4
with rack combination	max.	16
Power supply		
Standard (single module)	VDC	10 ... 36
Standard (cascading up to 4 modules)		11 ... 36
With external power supply	VAC	100 ... 240, ±10 %
Power consumption max.	W	20
Inrush current (Main und 3 Extension)	A	≈13
Degree of protection	IP	40
Fuse		8A slow-blow (SPT)
Operating temperature range ¹⁾	°C	0 ... 50
Min. / max. temperature range ¹⁾	°C	-40/50
Dimensions Type 2852A...		
Height	HE (mm)	1 (41)
Width	mm	220
Depth	mm	230
Weight	kg	≈1,6
Software		Graphical User Interface (GUI) COM components for Microsoft Windows, 2000, XP

¹⁾ non condensing

Connections

Analog-Output/Interface (Integrated)

Analog outputs		4
Voltage	V	0 ... ±10
Current (per channel)	mA	0 ... ±2
Error	%	<±0,1
Trigger output (optocouplers)		
High	V	>2,4
Low	V	<0,8
Pull-up on +5 V RS	kΩ	10
Connection	Type	D-Sub 37 pin neg.

Interface

Interface	Type	RS-232C
Connetion	Type	D-Sub 9 pin neg.

Digital I/O

Digital I/O Trigger/ Operate		
Input Optokoppler	-	Trigger via Optokoppler on analog output
High	V	3 ... 30
Low	V	<2
Current input High	mA	2 ... 29
Pull-up on +24 V (connectable)	kΩ	10
Pull-down on DGND (connectable)	kΩ	1
Connection	Typ	D-Sub 9 pin neg.
Digital output DOUTA1 ... B4	-	isolated solid with Foto/Mos Relais
Current load (continuous)	mA	<100
Voltage (continuous)	V	<±42
Voltage for external devices	V	24
Current draw max.	mA	50
Connection	Type	D-Sub 15 pin neg.

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Technical Data Valid for all Modules

All values for setting the parameters are stored in a non-volatile data memory and are automatically loaded on initial startup. Operating the system and setting the parameters are performed exclusively with a PC via GUI or with a host computer.

Operating temperature range ¹⁾	°C	0 ... 60
Min./max. temperature ¹⁾	°C	-40/60
Vibration resistance (20 ... 2 000 Hz, duration 16 min, cycle 2 min)	gp	10
Shock resistance (1 ms)	g	200
Sound resistance	dBA	120
Degree of protection (EN 60529)	IP	40
Front panel dimensions	mm	106,5x35
	TE	7

¹⁾ non condensing

Charge Amplifier Type 5064B11

The amplifier module Type 5064B11 is a microprocessor controlled 2-channel charge amplifier with analog signal conditioning.

Apart from the sensor-specific data to be entered, it is also possible to preselect different low-pass filters as well as a -8 V offset with simultaneous signal gain with a factor of 1,8 for full utilization of the analog/digital converter.

LED's on the module indicate the following operating conditions:

- Exceeding the overload threshold
- Drift compensation with cycle detection (short/long)
- Measure/reset

A differential amplifier stage prevents ground loops in each channel. The connecting screw M2,5 (on the front of the amplifier module) connects the signal ground at the input to the protective ground (instrument case).



Technical Data

Charge Amplifier Type 5064B11

Number of channels	-	2
Measuring range	pC	±100 ... 100 000
Error (0 ... 60 °C)	%	<±0,5
typical	%	<±0,1
Drift "Long"		
at 0 ... 60 °C	pC/s	<±0,2
at 25 °C	pC/s	<±0,05
typical	pC/s	<±0,03
Reset-operate transition	pC	<±1,5
Time constant ("Long")	s	>100 000
Drift Compensation	1/min	≈100 ... 20 000
Output voltage	V	0 ... ±10
Output current	mA	0 ... ±2
Output impedance	Ω	10
Zero point error (Reset)	mV	<±5
Output noise (0,1 Hz ... 1 MHz)	mV _{pp}	<8
typical	mV _{pp}	<4
Frequency range (20 V _{pp})	kHz	≈0 ... >200
Group delay time	μs	<3
Low-pass filter (2 nd order, selectable)	kHz	0,3/1/3/5/10/ 30/50/100/off
"Overload" threshold	V	≈±11
Offset adjustable (gain 1,8)	V	-8,0 ±0,04
Common mode noise rejection (0 ... 100 Hz)	dB	>70
Crosstalk attenuation Ch1, Ch2	dB	>70
Power supply (module)	-	via SCP
Weight	kg	≈0,42

Connections

Signal inputs	Type	BNC neg.
Signal outputs	Type	BNC neg.
Actuation, outputs, supply	Type	64 pin DIN 41612

Charge Amplifier Type 5064B12

This charge amplifier is a signal conditioning unit which is exactly identical to Type 5064B11 but includes sensor identification. This amplifier enables the recording of sensor operating hours and pressure cycles when using PiezoSmart sensors.

Apart from the sensor-specific data to be entered, it is also possible to preselect different low-pass filters as well as a -8 V offset with simultaneous signal gain with a factor of 1,8 for full utilization of the analog/digital converter.

LED's on the module indicate the following operating conditions:

- Exceeding the overload threshold
- Drift compensation with cycle detection (short/long)
- Measure/reset

A differential amplifier stage prevents ground loops in each channel. The connecting screw M2,5 (on the front of the amplifier module) connects the signal ground at the input to the protective ground (instrument case).



Technical Data

Number of channels	-	2
Measuring range	pC	±100 ... 100 000
Error (0 ... 60 °C)	%	<±0,5
typical	%	<±0,1
Drift "Long"		
at 0 ... 60 °C	pC/s	<±0,2
at 25 °C	pC/s	<±0,05
typical	pC/s	<±0,03
Reset-operate transition	pC	<±1,5
Time constant ("Long")	s	>100 000
Drift compensation	1/min	≈100 ... 20 000
Output voltage	V	0 ... ±10
Output current	mA	0 ... ±2
Output impedance	Ω	10
Zero point error (Reset)	mV	<±5
Output noise (0,1 Hz ... 1 MHz)	mV _{pp}	<8
typical	mV _{pp}	<4
Frequency range (20 V _{pp})	kHz	≈0 ... >200
Group delay time	μs	<3
Low-pass filter (2 nd order, selectable)	kHz	0,3/1/3/5/10/ 30/50/100/off
"Overload" threshold	V	≈±11
Offset adjustable (gain 1,8)	V	-8,0 ±0,04
Common mode noise rejection (0 ... 100 Hz)	dB	>70
Crosstalk attenuation Ch1, Ch2	dB	>70
Power supply (module)	-	via SCP
Weight	kg	≈0,42

Interface, Sensor Detection

Connection according to IEEE1451.4	-	-
Max. length for triax extension cable	m	10
Temperature range for PiezoSmart-coupling	°C	-20 ... 85

Connections

Signal inputs	Type	TRIAX
Signal outputs	Type	BNC neg.
Actuation, outputs, supply	Type	64 pin DIN 41612

Piezoresistive Amplifier Type 4665Y51

The measuring module Type 4665Y51 is a microprocessor-controlled 2-channel amplifier for piezoresistive sensors with analog signal conditioning, automatic sensor identification PiezoSmart, adjustable value, supply current sensor and zero point.

This measuring module is used for signal amplification of piezoresistive pressure sensors and is used typically for measuring injection pressure as well as the pressures in the inlet / exhaust element of combustion engines.

In addition to the input of sensor-specific data, parameter settings also allow selection of three different low-pass filters, a -8V or -10 V.



Technical Data

Piezoresistive Amplifier Type 4665Y51

Number of channels	-	2
Gain	-	10 ... 270
Additional gain	-	1 ... 10 (in 0,1)
Error (0 ... 60 °C)	%	<±0,3
typical	%	<±0,1
Output voltage	V	0 ... ±10
Output current	mA	0 ... ±2
Output impedance	Ω	10
Zero point adjustment range		
referred to input	mV	-100 ... 500
Output interference signal		
(0,1 Hz ... 1 MHz) Amplif. ≤100 Filter off	mV _{pp}	<20
(0,1 Hz ... 1 MHz) Amplif. ≤100 Filter 30kHz	mV _{pp}	<10
(0,1 Hz ... 1 MHz) Amplif. ≤270 Filter off	mV _{pp}	<40
(0,1 Hz ... 1 MHz) Amplif. ≤270 Filter 30kHz	mV _{pp}	<20
Frequency range (20V _{pp}), up to Amplif. 10 ... 270 kHz		0 ... >90
Low-pass filter	kHz	3, 10, 30
Linearity adjustment, second power	%	-3 ... 3 (in 0,1)
"Overload" threshold	V	≈±10,5
Additional zero point shift	V	-8 or -10
or taring range	V	0 ... -10
Power supply (module)	-	via SCP
Weight	kg	0,32

Sensor

Sensor supply (I ref)	mA	1 or 4
Maximum load (I ref: 4 mA)	kΩ	5
Minimum load (I ref: 1 mA)	kΩ	20

Interface, Sensor Detection

Connection according to IEEE 1451.4	-	-
Max. length for extension cable	m	10
Temperature range for PiezoSmart-coupling	°C	-20 ... 85

Connections

Signal inputs	Type 103 (Fischer, 5 pin)
Signal outputs	Type BNC neg.
Actuation, outputs, supply	Type 64 pin DIN41612

pMax Module Type 5269Y51 for Measuring and Monitoring Maximum Pressures

The new two-channel pMax module Type 5269Y51 offers an ideal expansion for the universal Signal Conditioning Platform (SCP Slim) for continuous monitoring and measurement of the cylinder peak pressure pmax on Diesel and spark ignition engines. The SCP charge amplifiers Type 5064B1... supply the pMax module with a voltage signal proportional to the cylinder pressure. When a specified threshold value is reached, a warning or a digital emergency stop signal is generated. At the same time, the unit produces an output voltage signal which is proportional to the maximum cylinder pressure of the last combustion cycle. This signal can simply be picked off via the usual analog inputs of the test stand measuring setup. As a result, the pMax module is ideal for the monitoring and measurement of endurance running. Expensive combustion analysis systems can often be replaced. Signal noise, e.g. due to pipe oscillations and valve vibrations, can be effectively suppressed by using a high performance filtering system on the input signal.



Functional Description

The pressure signal measured, which comes from the amplifier, is investigated with regard to the pmin and pmax values in each combustion cycle. The data acquisition of the pmin and pmax value is done by an analogue peak value memory. These values are recorded and used to determine the peak-peak value of the combustion cycle concerned. A distinction is made between three measuring modes: "peak - peak", "(peak - peak) + pInlet" and "(peak - peak) + const. pInlet". Depending on the measuring method selected, the maximum pressure which is output represents the pure peak-peak value of the combustion cycle or a

peak-peak value corrected by either the constant induction-pressure value or the measured induction pressure value. The maximum pressure values measured can be averaged over a selectable number of combustion cycles ($n = 1 \dots 50$) for the analog output. The pressure signal measured is constantly monitored in relation to various criteria. When certain events are recorded, an "emergency stop signal" is triggered. An action (shutting off the engine, changing the rate of injection etc.) can thereby be initiated manually or automatically. Three thresholds are used for signal monitoring: the min. threshold, the max. threshold and the emergency stop threshold. These thresholds can be set with respect to one another so that a large number of possible situations can be monitored according to individual requirements. A cycle monitoring system investigates the quality of the pressure signal and indicates if a "meaningful" pressure signal is no longer detected, because for example the measuring chain breaks down or the speed drops below 100 1/min. If the max. threshold is exceeded by more than a selectable number (based on the last 50 cycles), an emergency stop is triggered. If the emergency threshold is exceeded on any one occasion, an emergency stop signal is likewise output. Failure of the cycle detection also leads to a stop signal, since in this case monitoring can no longer be guaranteed. In addition, an overload at the input of the pMax module produces an emergency stop. The measurement which has been started with the command "Measure" on the Graphical User Interface (GUI), also continues to run in the event of an emergency stop until a "Reset" is carried out. Analog output of the pmax values can, on the one hand, take place continuously via the two BNC connections (pmax Out) or via SCP analog output interface. On the other hand, the 40 pmax values before and the 10 values after an emergency event are recorded in a memory and remain available until a reset or a new measurement is carried out. This history allows the reasons for an emergency event to be investigated and any appropriate adjustments made. For the monitoring, individual pmax values of a combustion cycle are always observed. The various states of the pmax monitoring are additionally visually indicated with LED's. The various ancillary functions can be utilized using the integral D-Sub 15 neg. connector. For example, the cycle monitoring can be switched off, the analog inlet of the induction pressure measured can be undertaken and an emergency stop circuit via several pMax modules can be set up with the digital output for the emergency signal.

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Technical Data

Inputs for pMax Analysis

Number of cylinder pressure channels (input for p cylinders A & B)	-	2
Input for boost pressure (pInlet)	-	1
Analog input voltage (p cylinder A, p cylinder B, pInlet)	V	0 ... ±10

Signal Processing

Input voltage ranges FS range (3 ranges)	V	0 ... 10 -8 ... 10 -10 ... 10
Speed range	1/min	100 ... >6 000
TP-SC filter (5th order, Bessel)	kHz	5, 10, off
Frequency range with TP filter "off"	kHz	0 ... ≈17
Resolution (AD-converter for all outputs)	bit	12
Number of combustion cycles for creating pmaxppav by averaging pmaxpp	ASP	1 ... 50
Sampling rate per channel (analog peak value memory)	/ASP	1
Number of overranges th_pmax for emergency stop	/50 ASP	1 ... 50
Threshold values for (th_pmax, th_pmin, th_pstop), per channel	-	3
threshold pmax_A, pmax_B	M.U. ¹⁾	1,0 ... 4 350
threshold pmin_A, pmin_B	%pmax	1 ... 99
threshold pstop	M.U.	1,0 ... 4 350
Input overload at...	V	FS Range ±0,5

Analog Outputs for Peak-Peak Pressure

Output voltage ranges (pmax Out A/B) selectable	V	0 ... 5 0 ... 10 -8 ... 10 -10 ... 10
Output current	mA	0 ... ±2
Output resistance	Ω	10
Error	%	<±1
Output interference signal (0,1Hz ... 1 MHz)	mV _{pp}	<10
Zero error	mV	±10

¹⁾ Mechanical Units (z.B. bar)

Digital Outputs

Digital warning outputs	-	4 (2/Kanal)
Digital stop output	-	1 /Modul
Current loading (constant)	mA	<100
Pulsed current loading (<0,1 s)	mA	<300
Resistance in the powered-up condition	Ω	<50 (typ. 30)
Continuous voltage	V	<±42
Voltage between outputs and protective ground	V _{rms}	<30

Digital Inputs (Optocoupler)

Cycle monitoring	deactivate	V	3 ... 30
	activate	V	<2
	or Input open		
Trigger current	mA		0,6 ... 9

General Information

Weight	kg	0,3
Display		
LED for warning signals		
MinChA, MinChB	-	(yellow) 2
MaxChA, MaxChB	-	(red) 2
LED for emergency stop signal		
Stop	-	(red) 1
LED for error display		
Error	-	(red) 1

Connections

Signal inputs and outputs (boost pressure, Emergency stop etc.)	Typ	D-Sub 15 pin neg.
Signal inputs (input cylinders A & B)	Typ	BNC neg.
Signal outputs	Typ	BNC neg.
Trigger, supply	Typ	64 pin DIN 41612

Included Accessories

- D-Sub connector 15 pin pos.
with soldered connection
- Type/Art. No.**
7.640.049

Optional Accessories

- D-Sub connector 15 pin pos.
with screw connection
 - Connecting cable BNC pos., l = 0,2 m
- 5.510.422
1601B0,2

Bridge Amplifier Type 5271Y51

This 2-channel bridge amplifier has two differential inputs and is designed for bridge sensors and especially for strain gauge sensors.

The amplifier provides an adjustable and stabilized voltage supply for piezoresistive sensors. High bandwidth electronics with selectable filters ensure that the Type 5271Y51 can be utilized in a wide range of applications

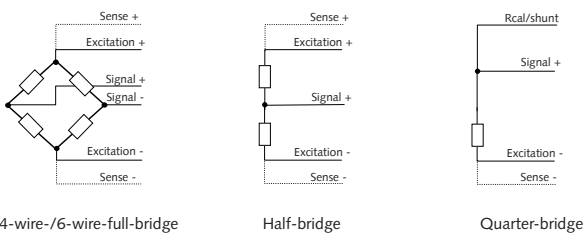


Type 5271Y51

Product Features

- For universal applications for strain gage sensors and piezoresistive sensors with voltage excitation
- Variable bridge excitation 1 ... 12 Volt
- Voltage amplifier (with variable gain up to 5 000)
- Automatical zero adjustment (tare)
- Prepared for automatic sensor identification (PiezoSmart)

The bridge amplifier Type 5271Y51 is suitable for the following connections:



Technical Data

Number of channels	–	2
Input Voltage range (differential)	V	0 ... ±10
Gain	–	0,5 ... 5 000
Input resistance	MΩ	>100
Gain error (0 ... 60 °C) typical (25 °C)	%	<±0,2 ±0,05
Zero point error	%	<10 mV
Linearity error	%	<±0,01
Zero adjustment (tare)	%	0 ... ±100

Low-pass filter (2nd order, selectable/Butterworth)	Hz	10/30/100/300
	kHz	1/3/10/30/100

Sensor Excitation (Bridge Voltage)

Sensor excitation voltage	V	1,0 ... 12,0
Voltage error (>2,5 V)	%	<±0,1
Output current	mA	<50

Bridge Completion (Amplifier Internal)

Half-bridge (completion)	Ω	10 000
Quarter-bridge (completion)	Ω	120/350/1 000

Sensor Bridge Resistance

Sensor excitation	= 1 V	Ω	20 ... 10 000
	= 2,5 V	Ω	50 ... 10 000
	= 5 V	Ω	100 ... 10 000
	= 10 V	Ω	200 ... 10 000

Sensor Sensitivity

Sensor excitation	= 1 V	mV/V	2 ... 2 000
	= 2,5 V	mV/V	0,8 ... 800
	= 5 V	mV/V	0,4 ... 400
	= 10 V	mV/V	0,2 ... 200

Output Signals

Output voltage (short circuit proof)	V	0 ... ±10
Output current	mA	0 ... ±5
Output impedance	Ω	10
Output noise signal (0,1 Hz ... 1 MHz)		
Gain <100	mV _{pp}	<15
Gain <1 000	mV _{pp}	<40
Gain ≥1 000	mV _{pp}	<180
Frequency range (20 V _{pp} , –3 dB)	kHz	0 ... >120
Power supply (module)	–	via SCP
Weight	kg	≈0,4

Connections

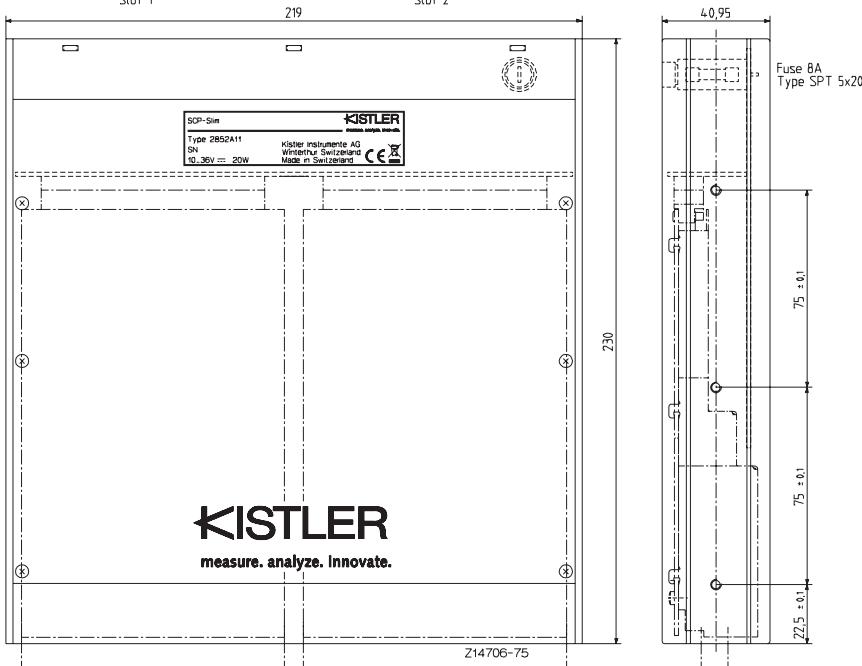
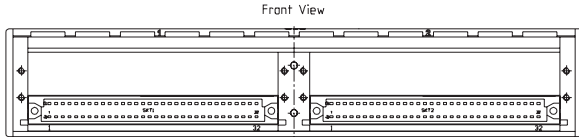
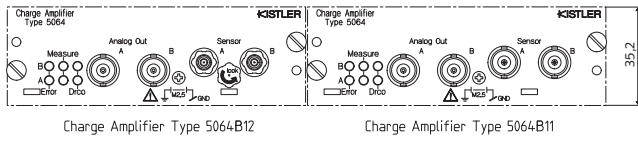
Voltage output	Type	BNC-neg.
Sensor input	Type	DB9 female
Actuation, outputs, supply	Type	64 pin DIN41612

Optional Accessories

• D-Sub connector 9 pin pos. with soldered connection	Type/Art. No	7.640.048
• Extension cable D-Sub 9 pin pos. with open ends, length = 5 m		5.590.183
• D-Sub connector 9 pin pos. with screw connection		5.510.337

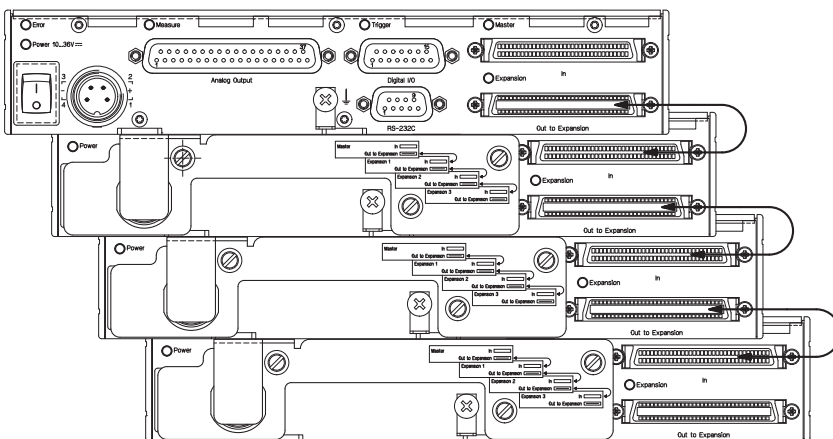
Dimensions

Examples of Measuring Modules



Cascading for SCP Slim

Rear View
 System Expansion up to 4 Units, 8-Slot, 16/32-Channels



Main Chassis
 Type 2852A11
 Type 2852A12

Expansion Chassis 1
 Type 2852A01

Expansion Chassis 2
 Type 2852A01

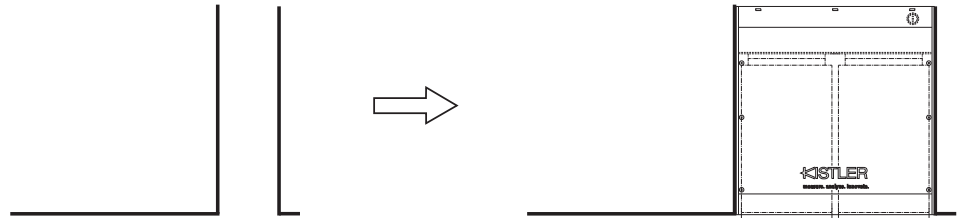
Expansion Chassis 3
 Type 2852A01

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Expansion Facilities for the SCP-Slim for the 19" Module

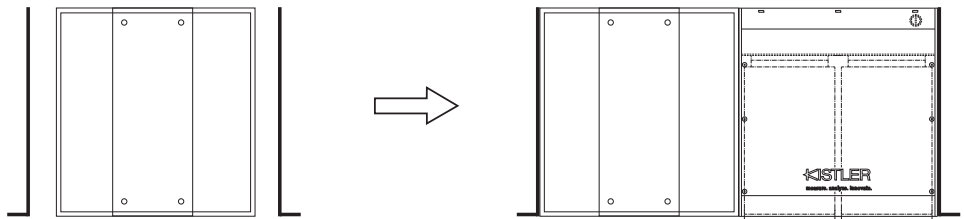
19" Mounting Kit for 1 SCP-Slim, Type 5746A10

19" mounting kit consisting of 2 brackets for mounting an SCP-Slim Type 2852A... in a 19" rack.



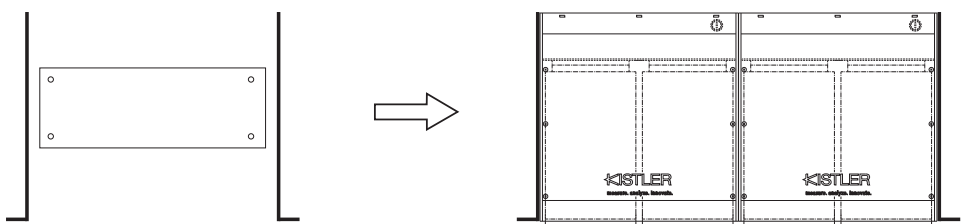
19" Mounting Kit for 1 and 2 SCP-Slim, Type 5746A11

19" mounting kit consisting of 1 empty case and 2 brackets for mounting an SCP-Slim Type 2852A... in a 19" rack. This kit includes a base plate which can be used for mounting a second SCP-Slim in a 19" rack.



19" Mounting Kit for 2 SCP-Slim, Type 5746A12

19" mounting kit consisting of 2 brackets and 1 base plate for mounting 2 SCP-Slim Type 2852A... in a 19" rack.



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Included Accessories
for SCP Slim

- SCP instruction manual 2853A_002-291 incl. CD-ROM with configuration Software
- Power cable
- Null modem cable wire to connect SCP and PC/Host (not included with extension rack) 1200A27
- Power supply (AC Adapter) 90 ... 260 VAC/ 50 ... 60 Hz, only for Type 2852A12 5781A1
- Expansion-kit for cascading SCP Slim (cascading cable l = 0,4 m), cover plate for plugs including mounting material, only for Type 2852A01 5746A4
- 4 rubber pads self-adhesive for SCP Slim chassis 5.211.238
- Connector for DC power supply, only for Type 2852A11 5.511.384

Type/Art. No.

Optional Accessories

Type/Art. No.

- Power supply (AC Adapter) 90 ... 260 VAC/ 50 ... 60 Hz 5781A1
- Null modem cable to connect SCP and PC/Host (cable length 1 ... 10 m) 1200A27sp
- USB/RS-232C Adapter 2867
- TEDS-Editor for PC 2839A-01-003
- TEDS-Editor for Pocket-PC 2839A-01-013
- D-Sub connector 37 pin (pos.) 7.640.062
- Remote Switch (measure/reset) connectable to digital I/O interface Z20979
- Remote Switch, l = 2,0 m (measure/reset) connectable to digital I/O interface Z20979-10

Optional Accessories
for SCP Slim

- Adapter BNC neg. → TRIAX neg. 1704A1
- Adapter KIAG 10-32 neg. → TRIAX neg. 1704A2
- Adapter M4x0,35 neg. → TRIAX neg. 1704A3
- Adapter TRIAX pos → BNC pos. 1704A4
- Adapter M3x0,35 neg. → TRIAX neg. 1704A5
- PiezoSmart extension cable (TRIAX neg. – TRIAX pos.) 1987B...
- Chassis legs 5746A3
- Expansion-kit for cascading SCP Slim (cascading cable l = 0,4 m), cover plate for plugs including mounting material 5746A4
- Adaption-kit to fit SCP Slim Modules into SCP Types 2853A... and 2854A... 5746A5

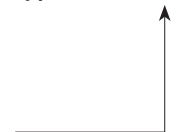
Type

Order form with Ordering Code

SCP Slim Chassis (without moduls)

Type 2852A

Associated facility 10 (11) ... 36 VDC	
2 slot expansion chassis	01
2 slot base chassis	11
2 slot base chassis with external AC-adapter	12



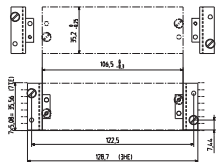
Modules for SCP Slim

Number Type

- _____ 4665Y51 2-channel piezoresistive amplifier with sensor identification
- _____ 5064B11 2-channel charge amplifier without sensor identification
- _____ 5064B12 2-channel charge amplifier with sensor identification
- _____ 5269Y51 2-channel pMax Modul
- _____ 5271Y51 2-channel bridge amplifier
- _____ 5700A19 Dummy front plate for SCP Slim

19" Mounting-Kit

- _____ 5746A10 for 1 SCP Slim
- _____ 5746A11 for 1 und 2 SCP Slim
- _____ 5746A12 for 2 SCP Slim



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