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SPS electronic

SPS ELECTRONIC

TEST DEVICES + ACCESSORIES








THE WHOLE RANGE OF
SAFETY TEST TECHNOLOGY

www.spselectronic.com

Wolf-Henning Stoll, CEO

Sascha Aust, CEO

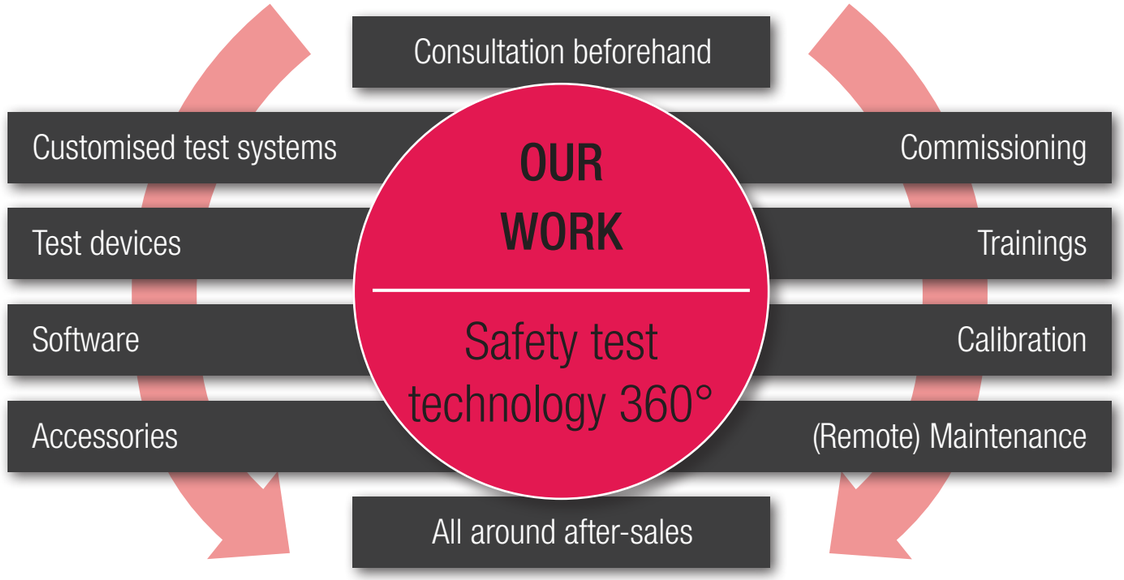
Welcome to SPS electronic

We are the technology-loving experts for electric testing equipment from the heart of Germany. We develop our products from the conviction to only offer the best quality. In doing so, we have always been oriented towards typical German values, such as reliability, accuracy and perfection – in every area. From product development via customer advice to individual support. In short, with SPS electronic you are always on the safe side.

Content

Our work – safety testing 360°

At SPS electronic you will find an all in all offer of safety testing technology and everything that goes with it.



For over 40 years, SPS electronic has designed and produced test technology in the field of electric safety, selling it worldwide. In doing so, our main focus is on providing **safety and function testers** as well as a wide selection of suitable **accessories.** Always at the latest state of the art and, of course, in best quality.

But apart from the continuous extension and further development of our product range, we are specialised in developing **test and checking systems** that are individually tailored to customer requirements. Thus, we also look after implementation apart from planning.

And it goes without saying that this takes place with highest claims. Because no matter what test problem you face – we will always find a solution.

Our range is rounded off by a reliable **all-round service**. This includes, for example, our comprehensive advice before and after purchase, installation, calibration (in accordance with IEC 17025) and, if necessary, repair of the equipment. And that even if the equipment is of a different make. In addition, we offer **training courses and seminars** worldwide as well as comprehensive **online support** to cover all topics - from pure product use to safe handling in test engineering.

True German Quality – This is SPS electronic

Headquarters in Schwäbisch Hall

Good things can be so close at hand – Our distribution and service center:

TEST DEVICES

Test devices
Test devices & Accessories

MULTIFUNCTION SAFETY TESTER
LG 1805B

Multifunction safety LG 1805B, desktop device

Description	Multifunction tester with safety current limitation. Fully-electronic generators, extended voltage range supply 90 up to 250 V, 50 Hz / 60 Hz.	
High voltage test AC	Voltage range	100 up to 5,500 V
	Current range	0 up to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 %
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ
ARC detection (optional)	Range	0 up to 100%
Ground bond test	Measuring range	0 up to 10 Ω
	Test current AC	1 up to 30 A
Equivalent leakage current test	Measuring range	0 up to 10 mA
	Test voltage AC	50 up to 270 V
Continuity test	Measuring range	0 up to 600 mA
Resistance measurement	Measuring range	0 up to 1,000 Ω
Measured variables in function test	Current AC / DC	0 up to 16 A
	Voltage AC / DC	0 up to 300 V
	Active power	0 up to 4,000 W
	Reactive power	0 up to 4,000 VAR
	Apparent power	0 up to 4,000 VA
	Cos φ	-1 up to +1
Subjective tests	Picture step / text step	subjective or informative
General Data	Dimensions (HxWxD) and weight	241 x 380 x 450 mm / approx. 15.0 kg 9.5 x 15.0 x 17.7 in. / approx. 33.1 lbs.
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN, CAN
	Digital interface 24 V DC	8 input + 8 output
	Analogue interface 10 V DC	2 x input + 1 x output
Operation	Touch	10.1“-TFT-colour display

MULTIFUNCTION SAFETY TESTER
KT 1886B / KT 1886J

Multifunction safety tester series KT 1886, plug-in 19“ / 5 HU in housing

		KT 1886B	KT 1886J
High voltage test AC	Voltage range	100 up to 5,500 V	
	Current range	0 up to 3 mA	0 up to 100 mA
	Short circuit current	< 3 mA	> 200 mA
High voltage test DC	Voltage range	100 up to 6,000 V	
	Current range	0 up to 10 mA	0 up to 100 mA
	Short circuit current	< 12 mA	> 50 mA
	Residual ripple	< 3 %	
Insulation measurement DC	Voltage range	100 up to 6,000 V	
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ	
ARC detection (optional)	Range	0 up to 100%	
Ground bond test	Measuring range	0 up to 10 Ω	
	Test current AC	1 up to 30 A	
Equivalent leakage current test	Measuring range	0 up to 10 mA	
	Test voltage AC	50 up to 270 V	
Continuity test	Measuring range	0 up to 600 mA	
Resistance measurement	Measuring range	0 up to 1,000 Ω	
Source function test	Voltage	50 up to 270 V	
	Frequency	50 Hz and 60 Hz	
	Power / current	250 VA / 1 A	500 VA / 2 A
Measured variables in function test	Current AC / DC	0 up to 16 A	
	Voltage AC / DC	0 up to 300 V	
	Active power	0 up to 4,000 W	
	Reactive power	0 up to 4,000 VAR	
	Apparent power	0 up to 4,000 VA	
	Cos φ	-1 up to +1	
Subjective tests	Picture step / text step	subjective or informative	
General Data	Dimensions (HxWxD)	222 x 483 x 491 mm / 8.7 x 19.0 x 19.3 in.	
	Weight	approx. 21.5 kg / 47.5 lbs.	approx. 27.5 kg / 60.5 lbs.
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN, CAN	
	Digital interface 24 V DC	8 input + 8 output	
	Analogue interface 10 V DC	2 x input + 1 x output	
Operation	Touch	10.1“-TFT-colour display	

MULTIFUNCTION SAFETY TESTER
KT 1885K

Multifunction safety tester KT 1885K
Plug-in 19“ / 5 HE

Description	The multifunction safety tester features safety current limiting, fully electronic generators and wide voltage supply from 90 to 250 V, 50 Hz / 60 Hz. The requirements described in the European standard (EN 50191) for workplace safety at test stations above 1,000 V, such as safety switchboard and potential-free high voltage, are also met. This enables worldwide use in the test field, in production and in the laboratory.	
High voltage test AC	Voltage area	100 to 5.500 V
	Power range	0 to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage area	100 to 6.000 V
	Power range	0 to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 % according to VDE 0432
Insulation measurement DC	Voltage area	100 to 6.000 V
	Measuring range (voltage-dependent)	250 kΩ to 1 GΩ
ARC detection (optional)	Area	0 to 100%
Protective conductor test	Measuring range	0 to 10 Ω
	Test current AC	1 to 30 A
Substitute leakage current test	Measuring range	0 to 10 mA
	Test voltage AC	50 to 270 V
Continuity test	Measuring range	0 to 600 mA
Resistance measurement	Measuring range	0 to 1.000 Ω
Subjective tests	Screen step / text step	Subjective or informative
General data	Dimensions (HxWxD) and weight	22 x 483 x 491 mm approx. 19.0 kg
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN, CAN
	Digital interface 24 VDC	8 Input + 8 Output
	Analogue interfaces 10 VDC	2 x input + 1 x output
Operation	Touch	10.1" TFT colour display

MULTIFUNCTION SAFETY TESTER
S 1801M

Multifunction safety tester S 1801M
Desktop device 14“ / 3 HU

Description	High voltage test devices with integrated safety current limitation at DC and AC voltage. With a few exceptions applicable in all global standards. In these devices the protection of the employee is „on-board“, there is no additional safety protection required. The fully electronic safety test device with digital generator generates the programmed constant current according to all test system standards. With the rear connections an almost unlimited application is given in manual test stations and in automatic test systems.	
High voltage test AC	Voltage range	100 up to 5,500 V
	Current range	0 up to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 %
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ
	Residual ripple	< 3 %
Ground bond test	Measuring range	0 up to 400 mΩ
	Test current AC	10 up to 30 A
	Open circuit voltage (OCV)	6 V or 12 V
Subjective tests	Text step	subjective or informative
General data	Threshold values	all programmable
	Error message	visual and audible
	Ramp function	programmable (IEC 601)
	Generator	fully electronic, digital technology
	Memory	180 MByte
	Additional function	programmable inputs and outputs
	Dimensions (HxWxD) and weight	159 x 360 x 331 mm / approx. 11.0 kg 6.3 x 14.2 x 13.0 in. / approx. 24.5 lbs.
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN
	Digital interface 24 VDC	8 input + 8 output
Operation	Keypad for input	4.3“-TFT colour display

MULTIFUNCTION SAFETY TESTER
KT 1880B / LG 1800B

Multifunction safety tester KT 1880B
Plug-in 19“ / 5 HU in housing

Multifunction safety tester LG 1800B
Desktop device

Description	Multifunction tester with safety current limitation, high voltage test and insulation test. Potential-free, fully-electronic generators, extended voltage range supply 90 up to 250 V, 50 Hz / 60 Hz.	
High voltage test AC	Voltage range	100 up to 5,500 V
	Current range	0 up to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 %
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ
	Residual ripple	< 3 %
Ground bond test	Measuring range	0 up to 0.4 Ω
	Test current AC	10 up to 30 A
Equivalent leakage current test	Measuring range	0 up to 10 mA
	Test voltage AC	100 up to 270 V
Continuity test	Measuring range	0 up to 600 mA
Function test	Power consumption AC	4 A (option: 1 A, 10 A or 16 A)
Subjective tests	Text step	subjective or informative
General Data	Dimensions (HxWxD) and weight plug-in 19“ / 5 HU: KT 1880B	222 x 483 x 491 mm / approx. 20.0 kg 8.7 x 19.0 x 19.3 in. / approx. 44.1 lbs.
	Dimensions (HxWxD) and weight desktop device: LG 1800B	233 x 380 x 450 mm / approx. 13.5 kg 9.2 x 15.0 x 17.7 in. / approx. 29.8 lbs.
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN
	Digital interface 24 VDC	8 input + 8 output
Operation	Keypad	4.3“-TFT colour display

HIPOT TESTER
HA 1885B / HA 1805B

Hipot test device HA 1885B
Plug-in 19“ / 5 HU in housing

Hipot test device HA 1805B
Desktop device

Description	Hipot test devices with integrated safety current limitation at DC and AC voltage. With a few exceptions applicable in all global standards. In these devices the protection of the employee is „on-board“, there is no additional safety protection required.	
High voltage test AC	Voltage range	100 up to 5,500 V
	Current range	0 up to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 %
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ
	Residual ripple	< 3 %
ARC detection (optional)	Range	0 up to 100%
Subjective tests	Picture step / text step	subjective or informative
General data	Threshold values	all programmable
	Error message	visual and audible
	Clock / calendar	internal
	Ramp function	programmable (IEC 601)
	Generator	fully electronic, digital technology
	Memory	up to 64 Gbyte
	Additional function	programmable inputs and outputs
	Dimensions (HxWxD) and weight plug-in 19“ / 5 HU: HA 1885B	222 x 483 x 487 mm / approx. 18.0 kg 8.7 x 19.0 x 19.2 in. / approx. 39.7 lbs.
	Dimensions (HxWxD) and weight desktop device: HA 1805B	241 x 380 x 450 mm / approx. 13.0 kg 9.5 x 15.0 x 17.7 in. / approx. 28.7 lbs.
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	USB, RS 232, Ethernet / LAN, CAN
	Digital interface 24 V DC	8 input + 8 output
	Analogue interfaces 10 V DC	2 x input + 1 x output
Operation	Touch	10.1“-TFT colour display

HIPOT TESTER
HA 1885G / HA 1885 J

Hipot test device HA 1885G / HA 1885J
Plug-in 19“ / 5 HU in housing

		HA 1885G	HA 1885J
Description	High-voltage tester with fully electronic high-voltage source up to 500 VA power. This power and a short-circuit current > 200 mA is required in worldwide standards and is fulfilled with these devices. The requirements described in the European standard (EN 50191) for workplace safety at test stations above 1,000 V, such as safety switchboard and potential-free high voltage, are also met. This enables worldwide use in the test field, in production and in the laboratory.		
High voltage test AC	Voltage range	100 to 5.500 V	
	Power range	0 to 100 mA	
	Short-circuit current	> 200 mA	
High voltage test DC	Voltage range	–	100 to 6.000 V
	Power range	–	0 to 100 mA
	Residual ripple	–	< 3 % per VDE 0432
ARC detection (optional)	Area	0 - 100%	
Subjective tests	Screen step / text step	Subjective or informative	
General data	Safety net field	according to EN 50191	
	Limit values	all programmable	
	Error message	Optical and acoustic	
	Clock / Calendar	internal	
	Ramp function	programmable (IEC 601)	
	Generator	fully electronic, digital technology	
	Memory	up to 64 GByte	
	Additional function	Programmable inputs and outputs	
	Dimensions (HxWxD) and weight	222 x 483 x 487 mm / approx. 24.0 kg	
	Mains supply	90 to 250 V, 50 Hz / 60 Hz	
Interfaces	Computer interfaces	USB, RS 232, Ethernet / LAN, CAN	
	Digital interface 24 VDC	8 Input + 8 Output	
	Analogue interfaces 10 VDC	2 x input + 1 x output	
Operation	Touch	10,1“-TFT-colour display	

HIPOT TESTER
HA 1800M

Hipot test device HA 1800M
Desktop device 14“ / 3 HU

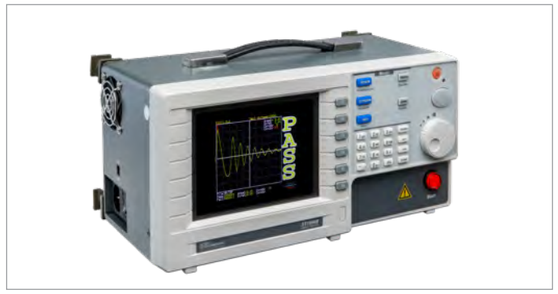
Description	Hipot test devices with integrated safety current limitation at DC and AC voltage. With a few exceptions applicable in all global standards. In these devices the protection of the employee is „on-board“, there is no additional safety protection required.	
High voltage test AC	Voltage range	100 up to 5,500 V
	Current range	0 up to 3 mA
	Short circuit current	< 3 mA
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 3 %
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Measuring range (voltage dependent)	250 kΩ up to 1 GΩ
	Residual ripple	< 3 %
Subjective tests	Text step	subjective or informative
General data	Threshold values	all programmable
	Error message	visual and audible
	Ramp function	programmable (IEC 601)
	Generator	fully electronic, digital technology
	Memory	180 MByte
	Additional function	programmable inputs and outputs
	Dimensions (HxWxD) and weight	159 x 360 x 331 mm / approx. 10.0 kg 6.3 x 14.2 x 13.0 in. / approx. 22.0 lbs.
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN
	Digital interface 24 V DC	8 input + 8 output
Operation	Keypad for input	4.3“-TFT colour display

HIPOT TESTER
HA 3600D

Hipot test device HA 3600D
Desktop device 14“ / 3 HU

Description	High voltage tester with a fully electronic high voltage source up to 500 VA power. This performance and a short circuit current > 200 mA is required by global standards and is met by these devices. The in Europe required standards for work station safety at test stations of more than 1,000 V such as safety control panels and potential-free high voltage are also met. Thereby a global use in the test bay, in production and in the laboratory is possible.	
High voltage test AC	Voltage range 2,500 V	0 up to 2,500 V
	Voltage range 5,000 V	0 up to 5,000 V
	Current range	0 up to 100 mA
	Short circuit current	> 200 mA
Operating modes	Testing (t)	testing with time base up to 60 s
	Testing	static testing
	Burn	fault finding with 150 mA
General data	Safety net field	according to EN 50191
	Threshold values	release current adjustable from 10 to 100%
	Voltage	manually selectable via control knob
	Error message	visual and audible
	Measurement voltage	on the primary side
	Measurement current	on the secondary side
	Dimensions (HxWxD) and weight	159 x 360 x 335 mm / approx. 18.5 kg 6.3 x 14.2 x 13.2 in. / approx. 40.8 lbs.
	Mains supply	230 V / 50 Hz, Option: 115 V / 60 Hz
Start signal per	Test time	test duration on set time basis
	Foot switch	test duration as long as signal is present
Interfaces	Warning lamp set	external connection 230 V
Measuring instruments	Voltage	analogue, class 1.5
	Current	analogue, class 1.5

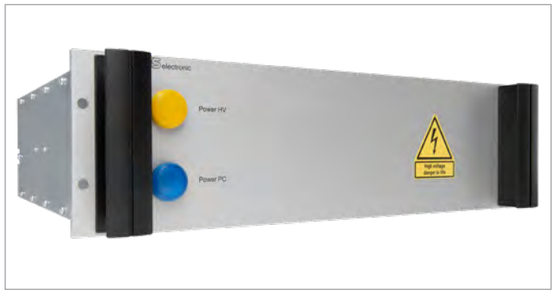
SURGE TESTER
ST 1800B



Surge tester ST 1800B
Desktop device

Description	Small but extremely powerful desktop device. Developed for quality assurance in production of winding goods. But also for application in laboratories, development and repair meets the surge tester ST 1800B the requirements. With the PC software available as an accessory all test data and test results can be comfortably stored. The surge test is the only option to recognize winding short circuits and insulation faults within a winding even before the fault affects the electrical specifications of the DUT. There is no other test method which detects if the DUT has previous damages and this results in a failure. By quickly applying a charged capacitor to the winding to be tested the stored energy of the capacitor is discharged in the inductance. This results in a sinusoidal, damped oscillation. The frequency and the amplitude are typical for the DUT. With the evaluation of partial discharges the insulation quality of the winding can be tested. This is particularly important if the winding good is controlled by electronic inverters.	
Surge test	Voltage range	200 up to 5,000 V
	Surge energy	max. 0.25 J
	DUT inductance	> 10 µH
Evaluation process	Defective area	
	Differential area	
	Corona energy	
	Corona number	
Computer technology	Sampling rate	100 MHz
	Resolution	8 Bit / 10 ns
	Memory depth	6 kByte
	Master curves	360 pieces
	Time base	250 ns to 250 µs
General Data	Error message	visual and audible
	PC software	DAT
	Dimensions (HxWxD) and weight	163 x 315 x 186 mm / approx. 5.5 kg 6.4 x 12.4 x 7.3 in. / approx. 12.1 lbs.
	Mains supply	115 V / 230 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	USB, RS 232
	Digital interface 5 V / TTL	3 input + 3 output
Operation	Keyboard	5.6“-LCD colour display

SURGE TESTER
ST 3820L



Surge tester ST 3820L
Plug-in 19“ / 3 HU

Description	Winding goods like stators, coils or transformers can be examined precisely and comfortably with the surge tester ST 3820L. Thus, winding shorts and insulation faults inside a winding can be recognised even before the fault has an effect on the DUT. This avoids breakdowns of electric motors and any related call-backs.	
Application	The surge tester ST 3820L was developed for OEM applications in systems. A complete PC software (DAT) and a software interface (DLL) is available.	
Surge test	Voltage	100 to 6,000 V
	Surge capacity	18 nF, optional: 40 nF, 100 nF (other capacities on request)
High voltage test DC	Voltage range	100 to 6,000 V / 10 mA
Insulation measurement DC	Measuring range	100 to 6,000 V, 10 GΩ / kV
Internal matrix	L, N + PE	
Evaluation process	Defective area	
	Differential area nF	
	Tolerance band	
Measurement technology	Sampling rate	250 MHz
	Resolution	12 Bit / 4 ns
	Memory depth	256 MByte
	Number of master curves	unlimited
	Recording duration	1 µs to 160 ms
General data	PC software	DAT
	Software interface	DLL
	Dimensions (HxWxD) and weight	133 x 483 x 489 mm / approx. 17.5 kg 5.2 x 17.0 x 19.3 in. / approx. 38.6 lbs.
	Mains supply	90 to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	Ethernet / LAN
Operation	Remote control via separate PC	

SURGE TESTER
ST 4000A

Surge tester ST 4000A
Slide-in 19“ / 6 HE

Description	Winding goods such as stators, coils or transformers can be examined precisely and conveniently with the new ST 4000A surge tester. Winding shorts and insulation faults within a winding can thus be detected before the fault affects the test item. Failures of electric motors and associated recalls can thus be avoided.	
Surge voltage test	Voltage	100 to 6,000 V
	Impact capacity	18 nF, optional: 40 nF, 100 nF (other capacities on request)
	Evaluation method	Error area, differential error area, tolerance band as well as symmetry evaluation
	100 ns typical switch-on time according to EN 60034	
	High-resolution recording of the surge voltage curve for precise evaluation	
Voltage back measurement (optional)	At the DUT connection	100 to 6,000 V
	For compensation at harmonics	
High voltage test DC	Voltage range	100 to 6,000 V / 10 mA
Insulation measurement DC	Measuring range	100 to 6,000 V, 10 GΩ / kV
Resistance measurement (optional)	Measuring range	20 mΩ to 200 kΩ, max. 1A
Internal matrix	3 phases + PE, 4-wire	
General data	PC software	DAT
	Dimensions (HxWxD) and weight	270 x 483 x 491 mm / approx. 50 kg (1.06 x 1.90 x 1.93 in.)
	Mains supply	90 to 250 V, 50 Hz / 60 Hz
Interfaces	Peripheral interface	USB, HDMI
	Remote interfaces	Ethernet / LAN
Operation	Touch	15,6“-Touch Monitor, Full HD
Optional extensions in external housing	High voltage test AC, rotational direction detection, inductance measurement, capacitance measurement	
Accessories	DUT contacting, workplace design	

PARTIAL DISCHARGE TESTER
PD 4020L

Partial discharge tester PD 4020L with active microwave antenna
Plug-in 19“ / 2 HU

Description	The PD 4020L partial discharge tester helps to test insulation materials and insulation systems for their insulation strength. Whether testing individual insulating materials, such as plastics or paints, or components from the drive train, such as stators or connectors, whether in the laboratory or in production, whether in small or large series: The PD 4020L is suitable for all environments and requirements and delivers the most sensitive measurement results with precise repeatability!	
Input HF	Channel / Sensor A & B	TNC socket
		50 Ω impendence
		± 1.5 V peak
		24 V Phantom power supply
Measurement HF	Frequency range	≤ 70 MHz
	Sensitivity	approx. -90 up to -30 dBm
	Damping in the stop band	120 dB
	Sampling rate	250 Mhz
	Resolution	12 Bit / 4 ns
	Memory	256 MS
Input HV	Voltage measurement	5,500 V AC up to 100 Hz / 6,000 V DC
	Input impedance	2 x 90 MΩ against earth, potential free, up to 18 kV peak
Input HV probe	For connecting an external HV probe	
	Voltage measurement	± 8 V peak spite
External trigger	0 - 5 V, TTL signal	
Automatic evaluation	• Limit value partial discharge • PDIV inception voltage • PDEV extinction voltage	
General data	PC-Software	DAT
	Software interface	DLL
	Dimensions (HxWxD) and weight	89 x 483 x 491 mm / approx. 12 kg 3.5 x 19.0 x 19.3 in. / approx. 26.5 lbs
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	Ethernet / LAN, USB 3.0
Operation	Remote only	ModbusTCP

SURGE & PARTIAL DISCHARGE TESTER
ST 3820K

Surge tester ST 3820K
Plug-in 19“ / 3 HE

Application	The surge and partial discharge tester ST 3820K was developed for OEM applications in systems. It enables convenient and precise testing of winding materials. In addition to early fault identification of winding shorts and insulation faults within a winding, the associated failures of electric motors as well as recalls can be avoided. The integrated partial discharge measurement is ideally suited for use in the laboratory and in production. Active sensors are available for partial discharge measurement, enabling reproducible measurements.	
Surge test	Voltage	100 to 6,000 V
	Surge capacity	18 nF, optional: 40 nF, 100 nF (other capacities on request)
Partial discharge test	Voltage measurement	100 to 6,000 V
	Measurement method	according to IEC 61934
High voltage test DC	Voltage range	100 to 6,000 V / 10 mA
Insulation measurement DC	Measuring range	100 to 6,000 V, 10 GΩ / kV
Internal matrix	L, N + PE	
Evaluation process	Surge evaluation • Defective area • Differential area nF • Tolerance band	Automatic evaluation (partial discharge) • Limit value partial discharge • PDIV, RPDIV inception voltage • PDEV, RPDEV extinction voltage
Input HF	PD-Channel	TNC socket
		50 Ω impendence
		± 1.5 V peak
Measurement HF	Frequency range	≤ 70 MHz
	Sensitivity	approx. -90 to -30 dBm
	Damping in the stop band	120 dB
	Memory	256 MS
Measurement technology	Sampling rate	250 MHz
	Resolution	12 Bit / 4 ns
	Number of master curves	unlimited
	Recording duration	1 µs to 160 ms
General data	Error message	visual and audible
	PC software	DAT
	Software interface	DLL
	Dimensions (HxWxD) and weight	133 x 483 x 489 mm / approx. 17.5 kg 5.2 x 17.0 x 19.3 in. / approx. 38.6 lbs.
	Mains supply	115 V, 60 Hz / 230 V, 50 Hz
Interfaces	Computer interfaces	Ethernet / LAN
Operation	Remote control via separate PC	

SURGE & PARTIAL DISCHARGE TESTER
ST 4000B

Surge tester ST 4000B
Slide-in 19“ / 6 HE

Description	Winding goods such as stators, coils or transformers can be examined precisely and conveniently with the new ST 4000B surge and partial discharge tester. Winding shorts and insulation faults within a winding can thus be detected before the fault affects the test item. Failures of electric motors and associated recalls can thus be avoided. The integrated partial discharge measurement is ideally suited for use in the laboratory and in production. Active sensors are available for partial discharge measurement, enabling reproducible measurements.	
Surge voltage test	Voltage	100 to 6,000 V
	Impact capacity	18 nF, optional: 40 nF, 100 nF (other capacities on request)
	Evaluation method	Error area, differential error area, tolerance band as well as symmetry evaluation
	100 ns typical switch-on time according to EN 60034	
	High-resolution recording of the surge voltage curve for precise evaluation	
Partial Discharge test	Voltage measurement	100 to 6,000 V
	Measurement method	according to IEC 61934
Voltage back measurement (optional)	At the DUT connection	100 to 6,000 V
	For compensation at harmonics	
High voltage test DC	Voltage range	100 to 6,000 V / 10 mA
Insulation measurement DC	Measuring range	100 to 6,000 V, 10 GΩ / kV
Resistance measurement (optional)	Measuring range	20 mΩ to 200 kΩ, max. 1A
Internal matrix	4 phases + PE, 4-wire	
General data	PC software	DAT
	Dimensions (HxWxD) and weight	270 x 483 x 491 mm / approx. 50 kg (1.06 x 1.90 x 1.93 in.)
	Mains supply	90 to 250 V, 50 Hz / 60 Hz
Interfaces	Peripheral interface	USB, HDMI
	Remote interfaces	Ethernet / LAN
Operation	Touch	15,6“-Touch Monitor, Full HD
Optional extensions in external housing	High voltage test AC, rotational direction detection, inductance measurement, capacitance measurement	
Accessories	Partial discharge measuring antenna(s), environmental sensor, DUT contacting, workplace design	

GROUND BOND TESTER
P 1800D

Ground bond test device P 1800D
desktop 14“ / 3 HU

Description	The fully electronic ground bond test device with digital generator generates the programmed constant current according to all test system standards. With front and rear connections an almost unlimited application is given in manual test stations and in automatic test systems.	
Ground bond test	Measuring range	0 up to 400 mΩ
	Test current AC	10 up to 30 A
	Open circuit voltage (OCV)	6 V or 12 V
Continuity test	Measuring range	0 up to 600 mA
Technology	• Fully electronic, digital generator	
	• Due to dynamic memory management unlimited number of test programmes storable	
	• For the front panel sockets for all country standards are available	
	• All parameters are freely programmable	
	• Time base 0.1 to 999.9 s	
	• Auto start function	
	• Internal clock / calendar	
Subjective tests	Text step	subjective or informative
General data	Dimensions (HxWxD) and weight	159 x 360 x 328 mm / approx. 7.0 kg 6.3 x 14.2 x 12.9 in. / approx. 15.4 lbs.
	Mains supply	90 up to 250 V, 50 Hz / 60 Hz
Interfaces	Computer interfaces	2 x USB, RS 232, Ethernet / LAN
	Digital interface 24 V DC	8 input + 8 output
Operation	Membrane keyboard	4.3“-TFT colour display

INSULATION TESTER
IS 1885L

Insulation tester IS 1885L
Plug-in 19“ / 2 HU

Description	Developed for the quick insulation measurement and high voltage test in automatic test systems. With a separate measuring circuit the back measurement is implemented for contact monitoring.	
High voltage test DC	Voltage range	100 up to 6,000 V
	Current range	0 up to 10 mA
	Short circuit current	< 12 mA
	Residual ripple	< 1 % according to VDE 0432 / EN 61180
Insulation measurement DC	Voltage range	100 up to 6,000 V
	Short circuit current	< 12 mA
	Resistance range	250 kΩ up to 600 GΩ, 100 GΩ / kV
	Residual ripple	< 1 % according to EN 61180
Technology	• Electronic source up to 6,000 V DC	
	• Safety current limitation according to EN 50191	
	• Back measurement (4-wire-technique for contact monitoring), optional according to EN 50191 and potential-free	
	• Minus pole grounded	
	• Potential-free interface (Ethernet)	
General data	Dimensions (HxWxD) and weight	89 x 480 x 440 mm / approx. 8 kg 3.5 x 18.9 x 17.3 in. / approx. 17.6 lbs
	Mains supply	90 up to 253 V AC / 50 up to 60 Hz
Interfaces	Test voltage	High voltage sockets 4 mm
	Back measurement	High voltage sockets 4 mm
	Guard	4 mm sockets
Operation	Remote control through a separate PC via Ethernet & DAT software	

RELAYS

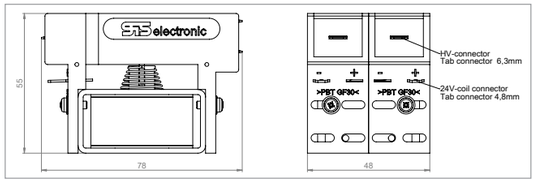
RELAYS
RL 42-I / RL 42 / RL 21

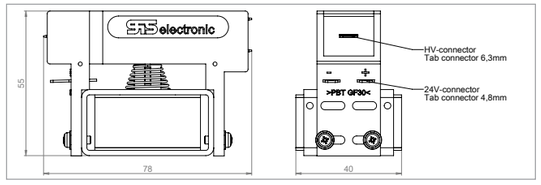
High voltage relay RL 42-I, up to 5,000 V, low current

High voltage relay RL 42, up to 5,000 V

High voltage relay RL 21, up to 5,000 V

		RL 42-I	RL 42	RL 21
Contacts		double pole double throw		single pole double throw
Field coil	Coil voltage	24 V DC (5 – 55 °C)		
	Holding current	0.07 A (20 °C)	0.20 A (20 °C)	
	Inrush current (first 100 ms)	0.25 A		
Coil resistance		115 Ω (20 °C)		
Status indication		LED		–
Connections	Switching circuits	flat plug 6.3 mm (0.25 in.)		
	Field coil	flat plug 4.8 mm (0.19 in.)		
Switching voltage / capacity		For applications up to 5,000 V AC / max. 5,000 VA (ohmic load)		
Test voltage	Contact / field coil	20,000 V DC		
	Contact / contact	8,000 V DC		
	Isolating voltage	5,000 V AC		
Switching current		max. 10 A AC		
Continuous current		max. 30 A AC / DC		
Transition resistance		< 30 mΩ		–
Switching frequency		max. 3 / s		
Mechanical switching cycles		> 5 x 10^6		
B10d value	I ≤ 10% Imax	> 3 x 10^6		
Vibration resistance	10 – 55 Hz/g	5		
Shock strength	g – 11ms	5		
Carrier material		PBT GF30		
Protection system		IP 20		
General data	Dimensions (HxWxD) and weight:	55 x 78 x 48 mm / approx. 300 g 2.2 x 3.1 x 1.9 in. / approx. 0.66 lbs.		55 x 78 x 40 mm / approx. 260 g 2.2 x 3.1 x 1.6 in. / approx. 0.57 lbs.
	Storage / Operation temp.	-25 up to +40 °C / +5 up to +55 °C		
Fastening		Top rail (via Mounting Clip)		
Accessories		Mounting Clip MC 22, Contact Protection DK 21		

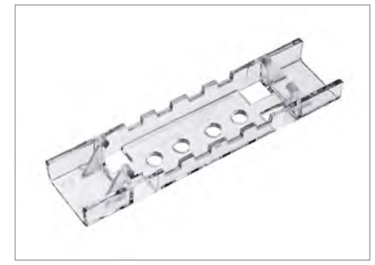




RELAYS
MOUNTING CLIP MC 22

To ensure the correct installation of SPS electronic high voltage relays the MC 22 mounting clip was developed. The sturdy poly-carbonate mounting clip guarantees an easy and space-saving fastening of the high voltage relays RL 21, RL 42 and RL 42-I on a 35 mm DIN rail. The mounting clips can also be easily dismantled for any maintenance work that may be required.

RELAYS
CONTACT PROTECTION DK 21



The contact protection ensures the safety of your employees while handling voltage-carrying conductors. It was developed by SPS electronic to provide protection against accidental contact. This, according to relevant safety regulations necessary protection, can be attached to preexisting relays and removed just as easy. There are no additional modifications required. By using transparent materials the switching state of the relays can be observed during operation.

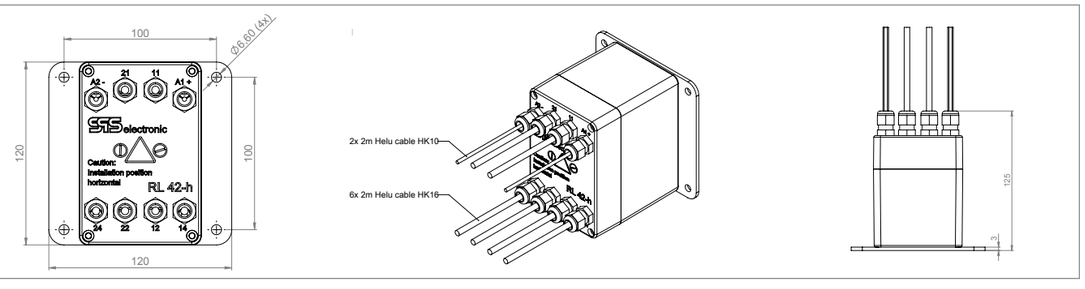
RELAYS

RL 38-H / RL 42-H

High voltage relay RL 38-h, up to 10,000 V, Double pole single throw

High voltage relay RL 42-h, up to 10,000 V, Double pole double throw

		RL 38-h	RL 42-h
Description	Electro mechanical relays for practical and robust application in system and switch cabinet manufacture. Monostable DC relay with proven technology and almost unlimited life.		
Contacts		double pole single throw	double pole double throw
Field coil	Coil voltage	24 V DC (5 – 55 °C)	
	Coil current	0.20 A (20 °C)	
Coil resistance		115 Ω (20 °C)	
Connections		Free cable ends, 2 m (6.6 ft.) long	
Switching voltage / capacity		For applications up to 10,000 V AC / max. 10,000 VA (ohmic load)	
Test voltage	Contact / field coil	25,000 V DC	
	Contact / contact	25,000 V DC	
	Isolating voltage	10,000 V AC	
Switching current		max. 10 A AC	
Continuous current		max. 30 A AC / DC	
Transition resistance		< 30 mΩ	
Switching frequency		max. 3 / s	
Mechanical switching cycles		> 1 x 10^6	
Vibration resistance	10 – 55 Hz/g	5	
Shock strength	g – 11ms	5	
Carrier material		PBT GF30	
Protection system		IP 20	
General data	Dimensions (HxWxD) and weight:	125 x 120 x 120 mm / approx. 2,000 g 4.9 x 4.7 x 4.7 in. / approx. 4.4 lbs.	
	Storage / Operation temp.	-25 up to +40 °C / +5 up to +55 °C	
Fastening		4-hole-mounting panel	



SOFTWARE

Accessories
Test devices & Accessories

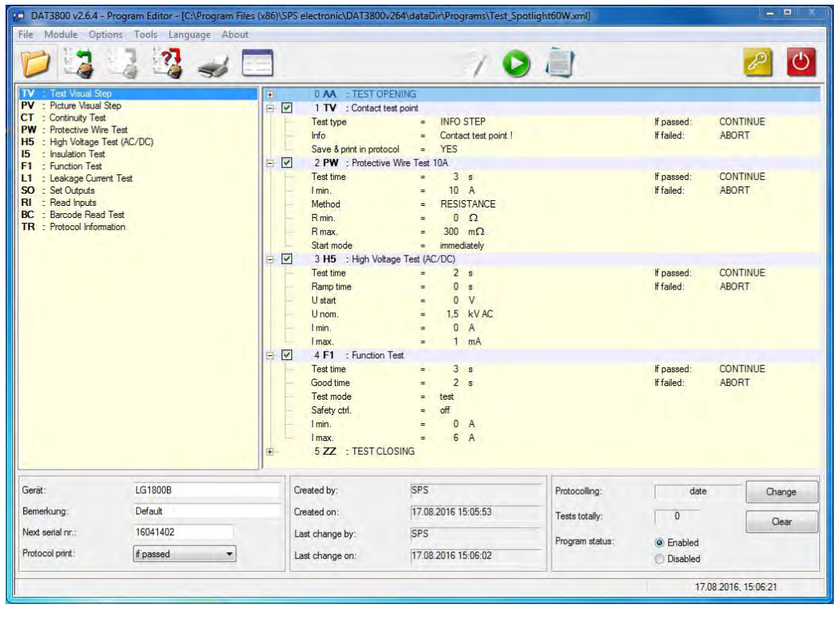
SOFTWARE
DAT 3805

Description	On the basis of many years of experience and at the request of many customers SPS electronic developed its own basic software. This is continuously improved by internal software developers and is therefore always up-to-date. In addition the experiences of a variety of customer-specific projects are included in the remote control software. You have any special requirements? Just let us know - we are happy to consider this in an especially for you programmed application software. Combined with your ERP (enterprise resource planning) system we guarantee standardized tests and a simple and clear management of the test results with assignment to each one of your products.	
Structure	Operating System	Windows
	Operation	Intuitive and easy, freely programmable
	Connection	Network-compatible
	User levels	Password protected user hierarchy
	Barcode filter	Article number, device, serial number, note
	Remote control via	Ethernet, USB, RS 232
	Languages	German, English, French, Italian, Dutch, Czech, Polish, Turkish, Chinese, Spanish, Hungarian, Russian.

1. Creation and parameter setting

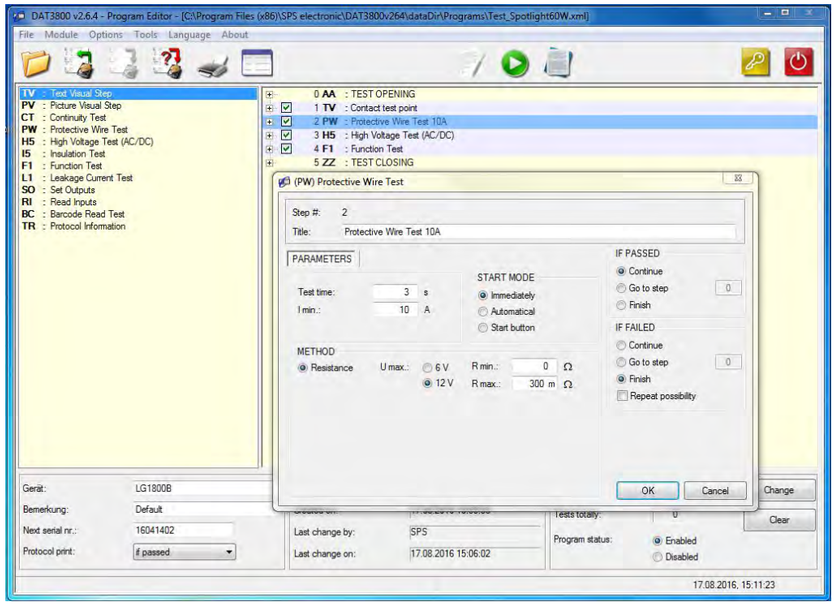
In editor mode intuitively different test programmes can be created which can be adapted flexibly in regard to the desired test methods and the cycle time:

- Easy creation of complex test sequences
- Free configuration of test sequence within the programmes
- Clear presentation of the programmed test methods, such as e.g.: continuity test, ground bond test, high voltage test etc.
- Storage of any number of programmes on the hard disk or in the network: XML and ACCESS format



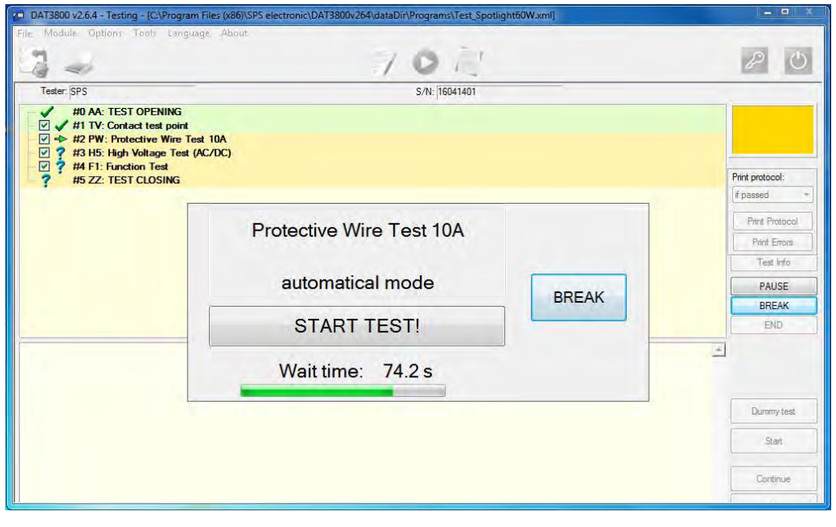
The parameters within the individual test methods can also be selected as required:

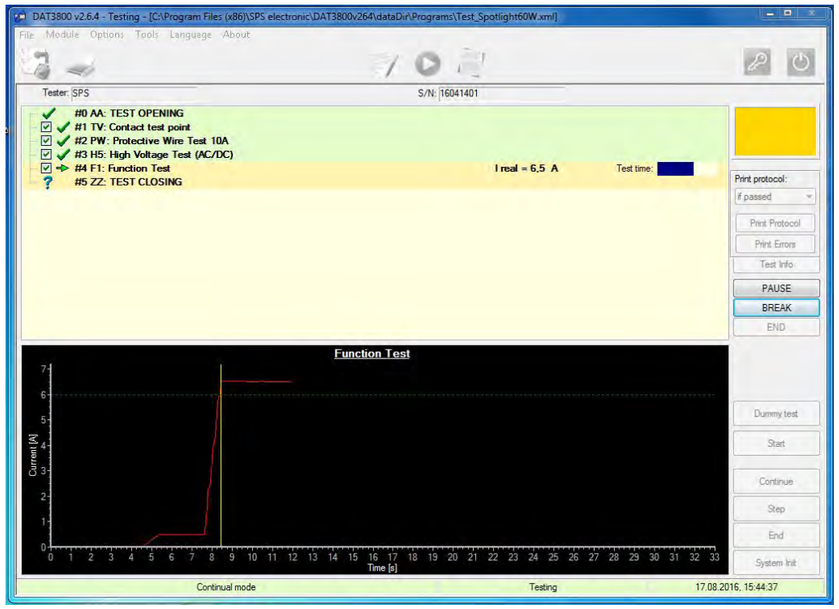
- Complete and simple parameterisation of the individual test methods - e.g. for the high-voltage test: test time, ramp time, test voltage, trigger-current, etc.
- Via programme branches - depending on the result of the test step - the further test sequence can be controlled
- Text and image view steps to guide the tester or to request additional information



2. Testing

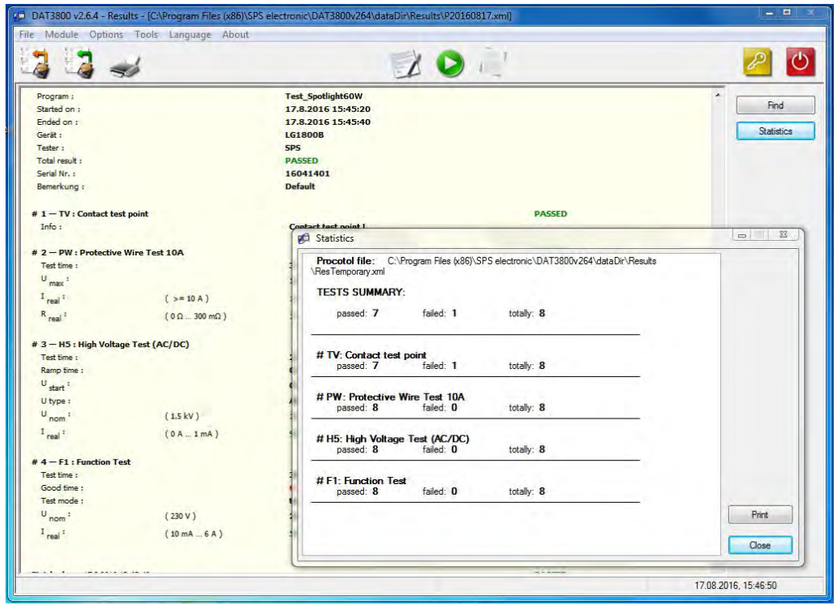
After defining the requested test sequence the test procedure can be started:





- In the »CHECK « module, the selected sequence of the current test programme is displayed
- The results of the current test step are displayed and the progress of the performed steps is shown
- A manual single-step mode facilitates troubleshooting for complex tests
- Large GOOD / FAULT display

3. Results



The results can be easily evaluated, stored and processed:

- In order to provide a complete record of the tests, the test results and measured values are stored in XML or an ACCESS format
- Nothing stands in the way of simple further processing in external programs
- The test results can be analysed easily and intuitively
- Test reports can be printed or saved as PDF files
- Customer-specific results and product labels can be printed directly from the software using the label designer (LBD 18)

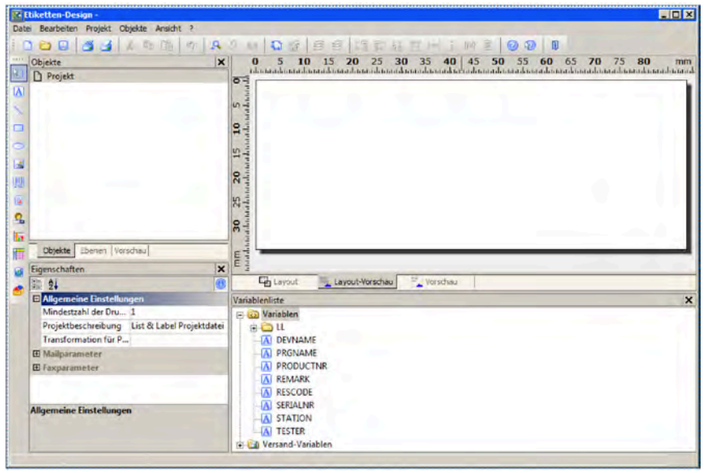
SOFTWARE
DAB 3805

In addition to our popular control software, we recommend the use of the DAB 3805 office license. This allows you to create programs directly from your office workstation, which you can load into your testing system - without interfering with production - and then analyze and evaluate the results at your office workstation.

SOFTWARE
LBD 3805

The „List & Label Viewer“ application is a comprehensive application that provides a great many functions from the ground up. In connection with the remote software DAT 3805, the possibilities of the „List & Label“ module have been extended to the extent that additional variables are available within the „Label Designer“. These variables are used by the DAT 3805 software to transfer DUT information (such as the serial number or device designation) to the label module. This allows the labels to be generated individually for each DUT, depending on information that only becomes available during the test procedure.

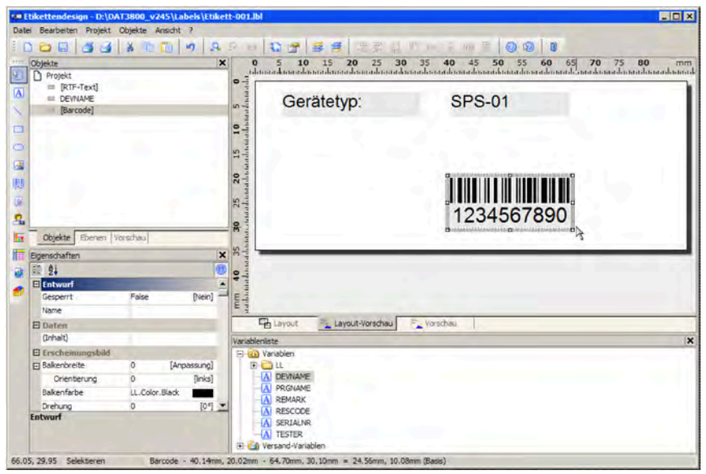
For each individual test program, it can be individually determined which label template is to be used. In addition, the dimensions of the label can also be freely selected.

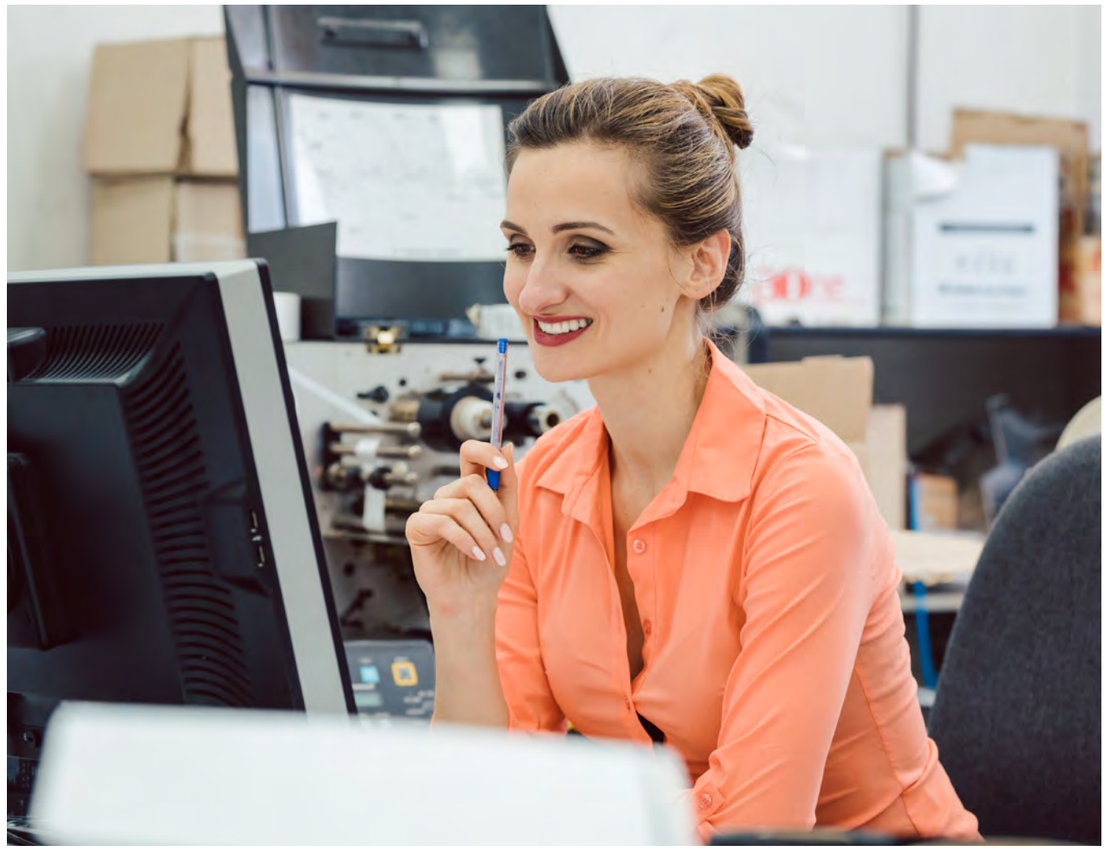


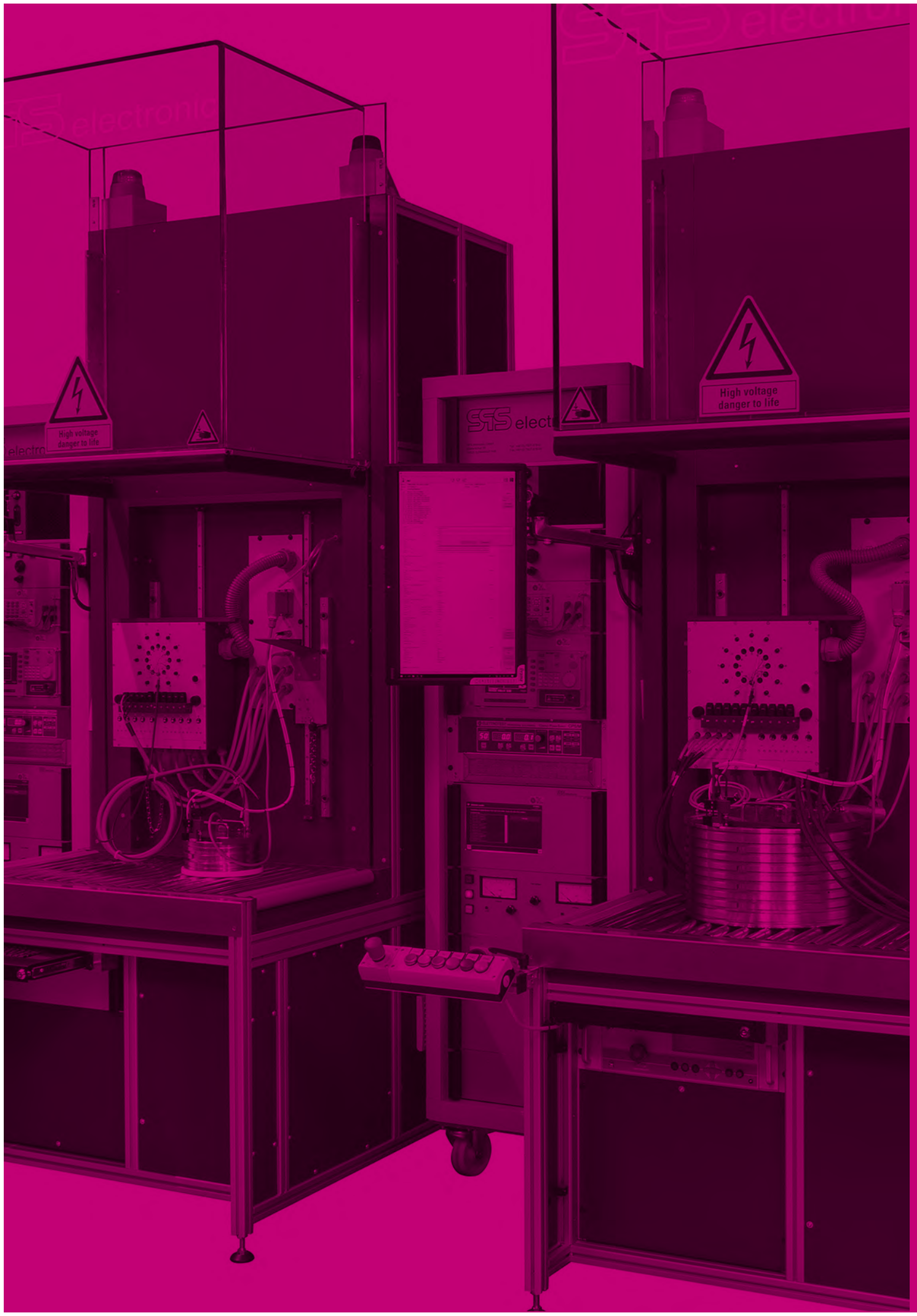
The right half of the window shows the still empty label. The lower half already shows the additional variables that are available for label printing:

- DEVNAME	Name of DUT
- PRGNAME	Name of test program
- PRODUCTNR	Product-ID / Item number
- REMARK	Comment
- RESCODE	Result of the test
- SERIALNR	Serial number
- STATION	Station-ID
- TESTER	Name of the user logged in

Editing is simple and intuitive via „drag and drop“. Afterwards, the contents of the inserted fields can be formatted as desired (character set, character size or colour, addition of more text, etc.) Standardized barcodes, which can later be read by standard barcode scanners, can also be integrated into the label.







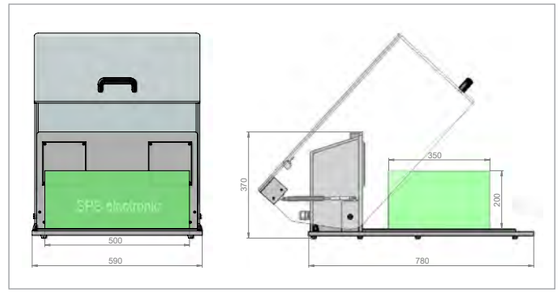
DUT ENCLOSURES

DUT ENCLOSURES
Overview

Versions

Design types	Specialty	Max. dimensions of DUT (HxWxD) in mm (in.)	Type
Simple DUT enclosure	Device compartment 19“ / 5 HU	180 x 410 x 350 (7.1 x 16.1 x 13.8)	HB 2100A
Simple DUT enclosure	Swivel hood	200 x 500 x 350 (7.9 x 19.7 x 13.8)	HB 3400A
Extra wide DUT enclosure	Device compartment 19“ / 5 HU	350 x 580 x 700 (13.8 x 22.8 x 27.6)	HB 5000A
Extra wide DUT enclosure	Double width, device compartment 2 x 19“ / 5 HU	300 x 700 x 400 (11.8 x 27.6 x 15.7)	HB 6000A
Extra wide test hood	Double width, device compartment 2 x 19“ / 5 HU	300 x 1,200 x 400 (11.8 x 47.2 x 15.7)	HB 7000A
Tandem DUT enclosure	Sliding hood, device compartment 2 x 19“ / 3 HU	400 x 568 x 580 (15.7 x 22.4 x 22.8)	TK 6000A
Tandem test hood	Sliding hood	450 x 500 x 680 (17.7 x 19.7 x 26.8)	TK 7000A
DUT enclosure with trapdoor	Trapdoor	755 x 800 x 640 (29.7 x 31.5 x 25.2)	FK 1000A
DUT enclosure with light curtain	Light curtain on one side	790 x 640 x 660 (31.1 x 25.2 x 26.0)	PK 2000A
DUT enclosure with light curtain	Double width, displaced foot space	940 x 1,890 x 975 (37.0 x 74.4 x 38.4)	PK 6000A
DUT enclosure with light curtain	Triple width, displaced foot space	1,984 x 2,000 x 1,100 mm (78.1 x 78.7 x 43.3)	PK 6500A
DUT enclosure with light curtain	Device compartment 19“ / 16 HU, displaced foot space	945 x 1,010 x 800 (37.2 x 39.8 x 31.5)	PK 7000A

DUT ENCLOSURE
HB 3400A (WITH SWIVEL HOOD)

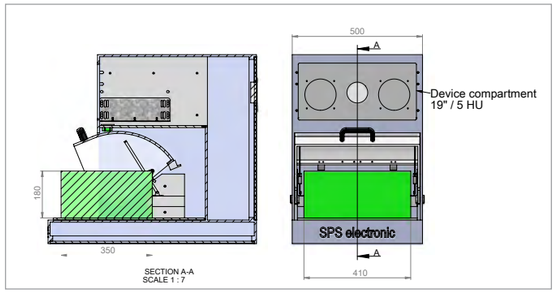


DUT enclosure HB 3400A

Simple DUT enclosure with swivelling acrylic glass hood for small quantities and low weight DUT.

- Housing made of PVC (colour: RAL 7011)
- Swivelling acrylic glass hood with damper cylinder
- Positively driven safety switch or optional positively driven safety interlock type AZM 161
- External dimensions (HxWxD): 370 x 590 x 780 mm / maximum DUT dimensions (HxWxD): 200 x 500 x 350 mm
- Setup CE-compliant (European regulation)
- Optionally available: positively driven solenoid interlock working current principle (ZH 61) or closed current principle (ZH 66)

DUT ENCLOSURE
HB 2100A (WITH DEVICE COMPARTMENT)

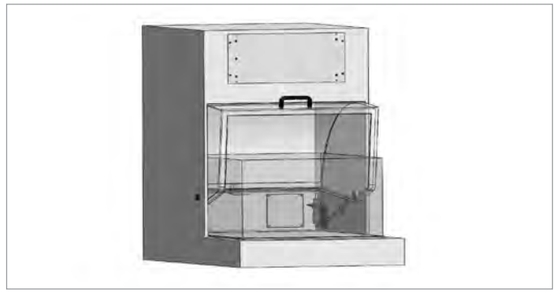


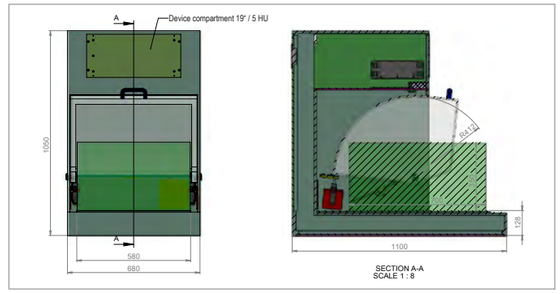
DUT enclosure HB 2100A with device compartment 19“ / 5 HU

Simple DUT enclosure with swivelling acrylic glass hood for small quantities and low weight DUT.

- Housing made of PVC (colour: RAL 7011) with device compartment 19“ / 5 HU to house the test device
- Swivelling acrylic glass hood with damper cylinder
- Safety switch with positive opening or optional positively driven safety interlock type AZM 161
- External dimensions (HxWxD): 725 x 500 x 800 mm / maximum DUT dimensions (HxWxD): 180 x 410 x 350 mm
- Setup CE-compliant (European regulation)
- Optionally available: positively driven solenoid interlock working current principle (ZH 61) or closed current principle (ZH 66)

DUT ENCLOSURE
HB 5000A (WITH DEVICE COMPARTMENT)



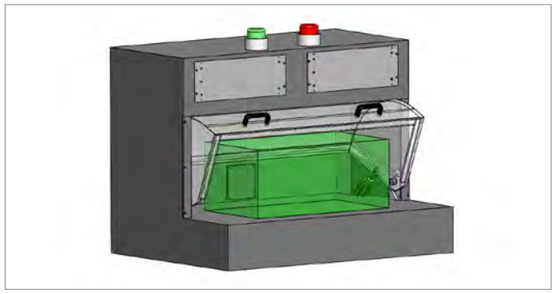


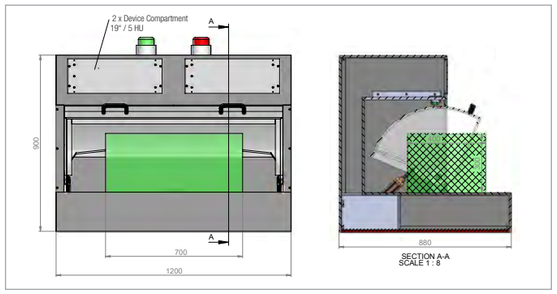
DUT enclosure HB 5000A with device compartment 19“ / 5 HU

The extra wide DUT enclosures with swivelling acrylic glass hoods are suitable for small quantities and large DUT.

- Housing made of PVC (colour: RAL 7011) with device compartment 19“ / 5 HU to house the test device
- Swivelling acrylic glass hood with damper cylinder
- Forcibly guided safety switch or optional positively driven safety interlock type AZM 161 (device compartment 4 HU)
- External dimensions (HxWxD): 1,050 x 680 x 1,100 mm / maximum DUT dimensions (HxWxD): 350 x 580 x 700 mm
- Setup CE-compliant (European regulation)
- Optionally available: positively driven solenoid interlock working current principle (ZH 61) or closed current principle (ZH 66)

DUT ENCLOSURE
HB 6000A (DOUBLE WIDTH)



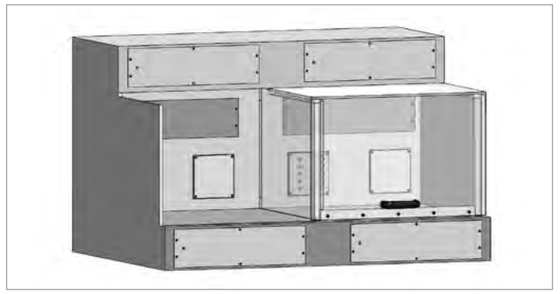


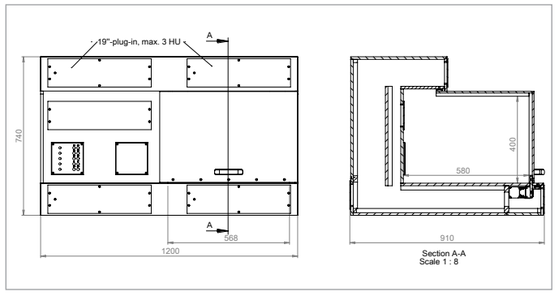
DUT enclosure HB 6000A with double width and device compartment 2 x 19“ / 5 HU

The extra wide DUT enclosures with swivelling acrylic glass hoods are suitable for small quantities and large DUT.

- Housing made of PVC (colour: RAL 7011) with device compartment 2 x 19“ / 5 HU to house the test devices
- Swivelling acrylic glass hood with damper cylinder
- Safety switch with positive opening
- External dimensions (HxWxD): 900 x 1,200 x 880 mm / maximum DUT dimensions (HxWxD): 300 x 700 x 400 mm
- Setup CE-compliant (European regulation)

DUT ENCLOSURE
TK 6000A (TANDEM, WITH DEVICE COMPARTMENT)



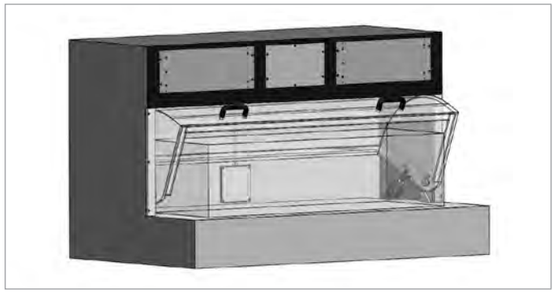


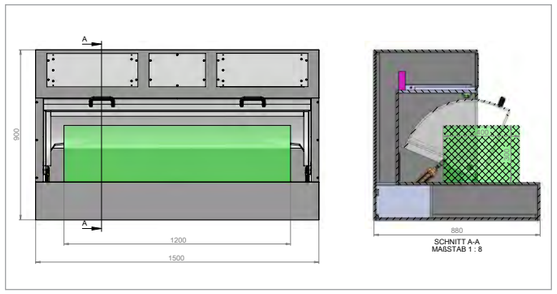
Tandem DUT enclosure TK 6000A with device compartment 2 x 19“ / 3 HU

Tandem DUT enclosures are particularly suitable for high quantities and test DUT with similar testing and handling time.

- Housing made of PVC (colour: RAL 7011) with device compartment 2 x 19“ / 3 HU to house the test devices
- Movable acrylic glass hood
- Positively driven safety switch for each test station
- External dimensions (HxWxD): 740 x 1,200 x 910 mm / internal dimensions (HxWxD): 400 x 568 x 580 mm

DUT ENCLOSURE
HB 7000A (TRIPLE WIDTH)



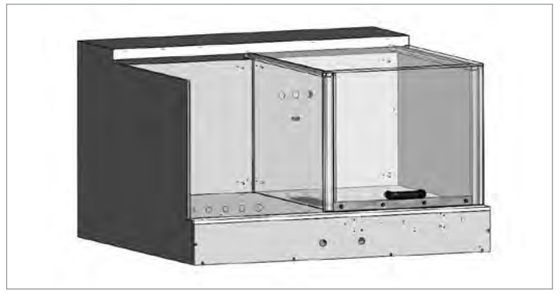


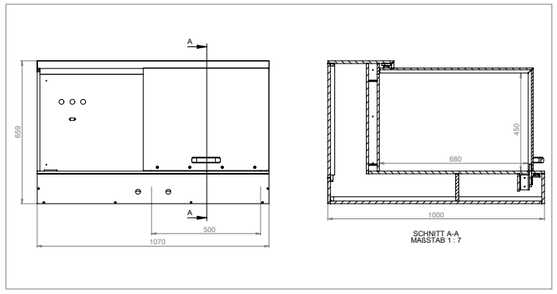
DUT enclosure HB 7000A with triple width and device compartment 2 x 19“ / 5 HU

The extra wide DUT enclosures with swivelling acrylic glass hoods are suitable for small quantities and large DUT.

- Housing made of PVC (colour: RAL 7011) with device compartment 2 x 19“ / 5 HU to house the test devices
- Swivelling acrylic glass hood with damper cylinder
- Safety switch with positive opening
- External dimensions (HxWxD): 900 x 1,500 x 880 mm / maximum DUT dimensions (HxWxD): 300 x 1,200 x 400 mm
- Setup CE-compliant (European regulation)

DUT ENCLOSURE
TK 7000A (TANDEM)



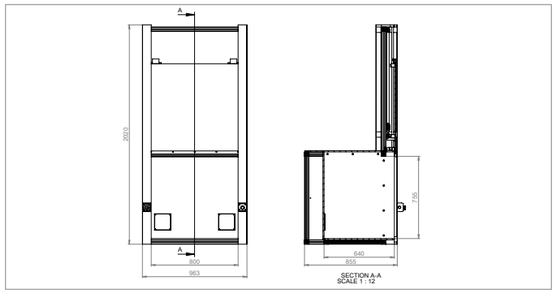


Tandem DUT enclosure TK 7000A

Tandem DUT enclosures are particularly suitable for high quantities and test DUT with similar testing and handling time.

- Housing made of PVC (colour: RAL 7011)
- Movable acrylic glass hood
- Positively driven safety switch for each test station
- External dimensions (HxWxD): 659 x 1,070 x 1,000 mm / internal dimensions (HxWxD): 450 x 500 x 680 mm

DUT ENCLOSURE
FK 1000A (WITH TRAPDOOR)

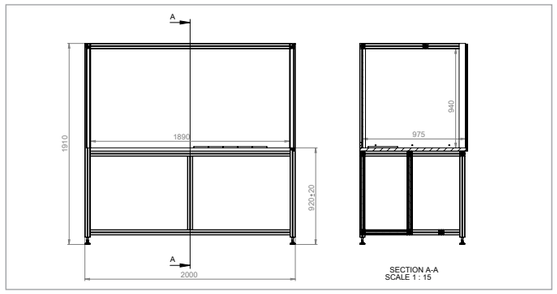


DUT enclosure FK 1000A with trapdoor

DUT enclosure with a trapdoor are particularly suitable for the ergonomic testing of large numbers of DUT and those with a high weight.

- Setup made of aluminium profile 40 x 40 mm
- Fully insulated test room made of PVC (colour: RAL 7011), casing made of Pertinax (colour: RAL 7035)
- Pneumatically moving trap door made of polycarbonate (PC) with safety edge
- Positively driven safety limit switch
- External dimensions (HxWxD): 2,020 x 963 x 855 mm / internal dimensions (HxWxD): 755 x 800 x 640 mm

DUT ENCLOSURE
PK 6000A (LIGHT CURTAIN DOUBLE WIDTH)

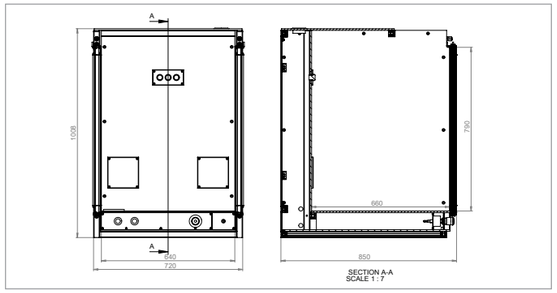


DUT enclosure PK 6000A with light curtain and displaced foot space

DUT enclosures with light curtain and double width are particularly suitable for the testing of large quantities and large DUT.

- Setup made of aluminium profile 50 x 50 mm
- Fully insulated test room made of PVC (colour: RAL 7011), casing made of PVC (colour: RAL 7011)
- Safety light curtain with finger protection, 14 mm (type 4, FIL3, PLe)
- External dimensions (HxWxD): 1,910 x 2,000 x 1,030 mm / internal dimensions (HxWxD): 940 x 1,890 x 975 mm

DUT ENCLOSURE
PK 2000A (LIGHT CURTAIN)



DUT enclosure PK 2000A with light curtain

Due to their simple and convenient handling, DUT enclosures with light curtain are particularly suitable for the testing of large numbers of DUT.

- Setup made of aluminium profile 30 x 30 mm
- Fully insulated test room made of PVC (colour: RAL 7011), casing made of Pertinax (colour: RAL 7035)
- Safety light curtain with finger protection, 14 mm (type 4, FIL3, PLe)
- Optional: mobile base with device compartment 19“ / 14 HU
- External dimensions (HxWxD): 1,008 x 720 x 850 mm / internal dimensions (HxWxD): 790 x 640 x 660 mm

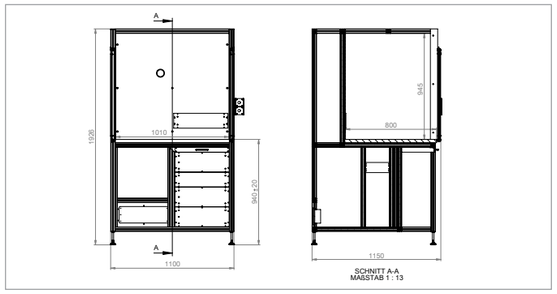
DUT ENCLOSURE
PK 6500A (LIGHT CURTAIN, TRIPLE WIDTH)

DUT enclosure PK 6500A with light curtain and displaced foot space

DUT enclosures with light curtain and triple width are particularly suitable for the testing of large quantities and large DUT.

- Setup made of aluminium profile 40 x 40 mm
- Fully insulated test room, PVC rear panel (colour: RAL 7011), 2 x connection panel on rear panel through 19“- 4 HU plate, double rear panel for electrical installation space, side panels of Makrolon colourless (transparent), laboratory table top (colour: RAL 7035), substructure covered with Pertinax (colour: RAL 7035), removable via screws
- Substructure: integration of 19“ technology 3 x 15 HU
- Ergonomic workstation with a working height (table top) of approx. 900 mm / offset foot space for more legroom
- Safety light curtain with finger guard, 14 mm (type 4, FIL3, PLe)
- External dimensions (HxWxD): 2.000 x 2.000 x 1.150 mm / Test room dimensions (HxExD): 1.020 x 1.900 x 750 mm

DUT ENCLOSURE
PK 7000A (LIGHT CURTAIN)



DUT enclosure PK 7000A with light curtain and displaced foot space

DUT enclosures with light curtain and double width are particularly suitable for the testing of large quantities and large DUT.

- Setup made of aluminium profile 40 x 40 mm with device compartment 19“ / 16 HU
- Fully insulated test room made of PVC (colour: RAL 7011), casing made of PVC (colour: RAL 7011) and PC-polycarbonate (laterally)
- Safety light curtain with finger protection, 14 mm (type 4, FIL3, PLe)
- External dimensions (HxWxD): 1,926 x 1,100 x 1,150 mm / internal dimensions (HxWxD): 945 x 1,010 x 800 mm

ACCESSORIES

Accessories

Test devices & Accessories

ACCESSORIES
CONNECTION AND CONTROL PANELS

Connection and control panel A3 / 1800
with safety 2-hand operation

Connection panel A7 / 3800

Connection panel A8 / 3800

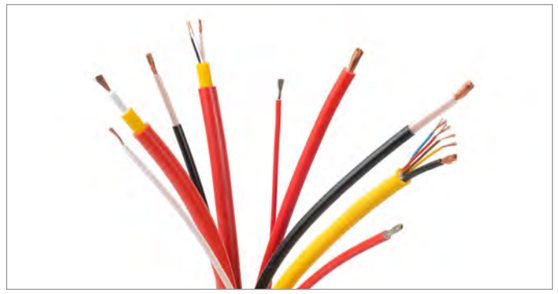
Description	It is often necessary and useful to optimise the work station design at test stations in the production of electrotechnical / electronic products. With the use of connection and control panels this is possible. The operation and connection to the DUT can be flexibly adapted to the requirements. From practical application two basic types result: Panels for electrical connection via sockets and / or terminals or respectively lab sockets as well as panels for electrical connection and for operation. In case of dangerous voltages there are also connection and control panels with 2-hand operation available in the delivery program. As always with SPS electronic highest attention was paid to the ergonomics with these products, too. Three console housings have been developed for various applications. Adapted to the requirements of the customer the optimal connection and control panels are taken from these three housing sizes. The equipping of the individual elements, sockets and lamps are always customer-specific and can also be changed later. The socket concept is designed to easily replace the sockets. In almost all applications it is the most economical solution to contact the DUT via standard sockets. However thereby it is important that the wear parts can be quickly and easily replaced. The connection to the test device or the test system is performed via a special cable with 3 m (9.8 ft.) length. Both the cable and the plug connection are designed for voltages up to 5,500 V AC and currents up to 30 A AC. For the connection to the ground bond test probe the connection and control panels have an additional high current socket. With this the ground bond test probe can be directly connected at the work station.
Safety	Application with safety current limitation, safety 2-hand operation
Setup	• Ergonomic setup as panel made of impact-proof plastic • Equipping of sockets according to the application • Additional terminals and laboratory sockets for free cable ends (flying leads) and manual measurements • Bridges for the sensor cables at the ground bond test • Special cable with high voltage plug • High current socket for the connection to the ground bond test probe

Versions

	A3 / 1800	A7 / 3800	A8 / 3800
Equipment	3 sockets according to national standard	4 sockets according to national standard	1 socket according to national standard
	4 mm (0.16 in.) laboratory sockets		
	Quick-release-terminal	-	-
	High current socket for ground bond test probe		
	Push button, lamps, emergency stop	-	-
2-hand control buttons	Option	-	-
Connection	Connection cable 3 m (9.8 ft.) long with high voltage plug for test cables and industrial plug for control wires		
Dimensions (HxWxD)	130 x 390 x 265 mm (5.1 x 15.4 x 10.4 in.)	112 x 290 x 184 mm (4.4 x 11.4 x 7.2 in.)	66 x 190 x 153 mm (2.6 x 7.5 x 6.0 in.)

Accessories	• User-specific equipping • Universal socket PP 20

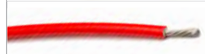
ACCESSORIES
HIGH VOLTAGE CABLE



High voltage cable

Description	If voltages of more than 230 V / 400 V are applied, corresponding components are necessary meeting the requirements of these voltages. In this case the cable connections are of specific interest. Electric strength, insulation resistance and current load have to be exactly adapted to the application. As a leading manufacturer of high voltage test technique SPS electronic also offers high voltage cables for versatile applications. Most of these cables are in-house developments with highest quality standards and only available from us. We supply all quantities, from 1-metre (3.28 ft.) pieces to cable drums with several kilometres (miles). You can find more high voltage components in the categories “accessories“ and “high voltage relays“.

Versions:

	Outer diameter in mm (in.)	Cross section in mm² (in.²)	Max. voltage in kVAC	Max current in A	Type	Comment
	8.1 (0.32)	1.0 (0.04)	10	10	HK 02	
	8.1 (0.32)	1.0 (0.04)	10	10	HK 03	Control line
	7.0 (0.27)	1.5 (0.06)	4	16	HP 14	
	3.0 (0.12)	0.5 (0.02)	10	6	HK 10	
	4.0 (0.16)	1.5 (0.06)	10	16	HK 14	
	5.2 (0.20)	4.0 (0.16)	10	40	HK 16	
	2.3 (0.09)	0.5 (0.02)	6	10	HK 10-f	Flexible
	4.0 (0.16)	0.5 (0.02)	12.5	6	HK 11-f	Partial discharge-free flexible
	3.9 (0.15)	1.5 (0.06)	6	25	HK 14-f	Flexible
	6.0 (0.24)	2.5 (0.10)	12.5	27	HK 15-f	Partial discharge-free flexible
	6.0 (0.24)	4.0 (0.16)	8	40	HK 16-f	Flexible

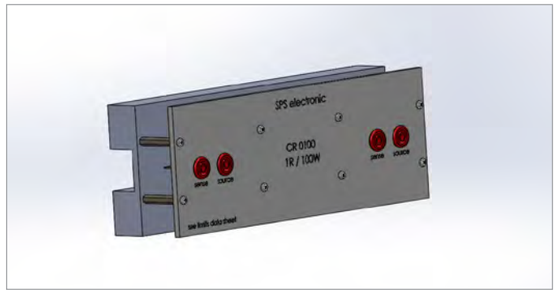
ACCESSORIES
CALIBRATOR

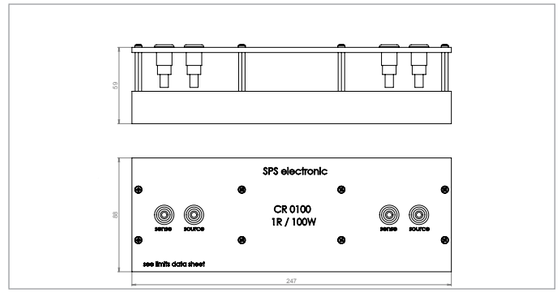
Calibrator CR 4000

Connection options on the underside of the CR 4000

Description	The battery-operated, mobile high-frequency transmitter can be used for testing and calibrating partial discharge testers. Despite its compact external dimensions, the CR 4000 has two separate antennas for VHF and SHF emission. A switch on the front of the instrument can be used to switch between the two frequencies. The transmission power of the calibrator is freely scalable from -85 dBm to -40 dBm in 5 db steps. If the battery capacity is no longer sufficient, the CR 4000 can also be operated via an external power supply with standard USB cable.	
Frequency range	wired	317 MHz
	Antenna	1.575 GHz
Impulse modulation	switchable in 10 binary steps	50 Hz – 25.4 KHz
Transmission power	switchable in 5 db-steps	-85 dBm up to -40 dBm
Antenna	Beam width	90°
	switchable	VHF / SHF emission
Power supply	Battery-operated	5x AA, 7.5 V / 2,000 mA
	Operating time with battery	up to 40 hours
	USB	Type C

ACCESSORIES
CALIBRATION RESISTANCES





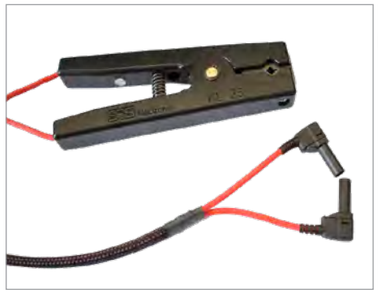
Calibration resistor CR 0100

Description	In addition to the daily dummy tests the test device or the test system can be checked at regular intervals with calibration resistances. This is not a calibration of the test devices or the test systems, but an important part in a quality system. In contrast to the dummy test not only the function of the test technique is checked but the measuring system, too. The calibrators are supplied with a factory calibration or with a DAkkS document. For regular use the calibrators should be calibrated at least once a year. Only then it is ensured that the measured values of the test technique are retraceable. The calibrators contain resistances with high precision and high long-term and temperature stability. The resistances are adapted to the application. Thus high voltage resistant resistance decades are used for the high voltage test. The calibrators for the ground bond tests are designed in 4-wire-technique, so that contact resistances are compensated. For the heat dissipation the resistances are mounted in thermoconductive material. To avoid measurement errors only capacitance and low-inductance components/ resistances are used. The connections are made via 4 mm (0.16 in.) laboratory sockets and are adapted to the high voltages and currents through the installation in plastic housings.
CR 0100	• Calibrator for 1 Ω • Power is 100 W • Connection via 4 mm (0.16 in.) laboratory sockets in 4-wire-technique • Dimensions (HxWxD): 88 x 247 x 59 mm (3.5 x 9.7 x 2.3 in.)

Versions

Data	Tolerances	Dimensions mm (in.)	Type
PE: 1 Ω // 100 W	5% ±100 ppm/K	88 x 247 x 59 (3.5 x 9.7 x 2.3)	CR 0100
PE: 100 mΩ / 200 mΩ / 300 mΩ // 300 W	5% ±100 ppm/K	88 x 247 x 106 (3.5 x 9.7 x 4.2)	CR 0101
CT: 3 mA / 200 mA / 450 mA // 22 V DC	1% ±50 ppm/K	80 x 160 x 55 (3.1 x 6.3 x 2.2)	CR 0200
HV: 25 kΩ / 50 kΩ / 220 kΩ / 440 kΩ // 200 W		88 x 247 x 55 (3.5 x 9.7 x 2.2)	CR 0300
HV: 1 mA / 2 mA // 1,500 V DC	1% ±50 ppm/K	80 x 160 x 55 (3.1 x 6.3 x 2.2)	CR 0301
HV: 1 mA / 2 mA // 1,875 V DC		80 x 160 x 55 (3.1 x 6.3 x 2.2)	CR 0302
IS: 1MΩ / 1,1 MΩ / 2 MΩ / 3 MΩ / 10 MΩ / 20 MΩ / 30 MΩ // U ≤ 500 V DC	1% ±50 ppm/K	80 x 200 x 55 (3.1 x 7.9 x 2.2)	CR 0400
IS: 0,5 MΩ / 5 MΩ / 50 MΩ / 500 MΩ / 1 GΩ // U ≤ 3,000 V DC	0,5 to 50 MΩ: 1% ±50 ppm/K 0,5 to 1 GΩ: 1% ±10 ppm/K	80 x 200 x 55 (3.1 x 7.9 x 2.2)	CR 0401
IS: 0,5 MΩ / 1 MΩ / 5 MΩ // U ≤ 3,000 V DC 10 MΩ / 50 MΩ / 100 MΩ / 250 MΩ / 500 MΩ / 1 GΩ // U ≤ 4,000 V DC	1% ±250 ppm/K	120 x 200 x 70 (4.7 x 7.9 x 2.8)	CR 0402

ACCESSORIES
CONNECTION TERMINALS



Klemme KL 25-I

Klemme KL 19-f

Klemme KL 20

Description Battery terminal	The high-quality battery terminal from SPS electronic is made of yellow galvanised sheet steel and insulated with PVC handles. It can be loaded with up to 80 A and has a contact area of 10 mm².
Description Kelvin terminals	When connections such as threaded bolts or free cable ends have to be contacted, Kelvin terminals are used. The name Kelvin describes the 4-wire technique used. This means that the test signal and the measurement signal (sensor cable) are routed separately to the test object. In this way, contact resistances can be compensated. Low-resistance measurements on lines or coils are only possible with this technique. The Kelvin terminal can also be used for protective conductor tests. Here, low-resistance lines are to be measured with the protective conductor tester. Different versions are offered depending on the application. Interchangeable clamping jaws can be used to connect free cable ends or threaded bolts.

Ausführungen

	KL 01	KL 89	KL 19	KL 25	KL 88	KL 90
Type	Battery terminal	Alligator clip	Kelvin terminals			
Opening width	25 mm	15 mm	15 mm	15 mm	7 mm	30 mm
Connection type		Laboratory socket, 4 mm free cable ends High-current connector	-I -f -i (ST 04-i for ground bond test)			
Cable lengths	without connection cable	2 m cable 5 m cable 10 m cable 15 m cable	standard KL 05 KL 10 KL 15			

ACCESSORIES
TEST VERIFICATION BOXES

Test Verification Box D 1885

Test Verification Box D 2001

Test Verification Box D 2120

Test Verification Box D 2012

Test Verification Box D 4010

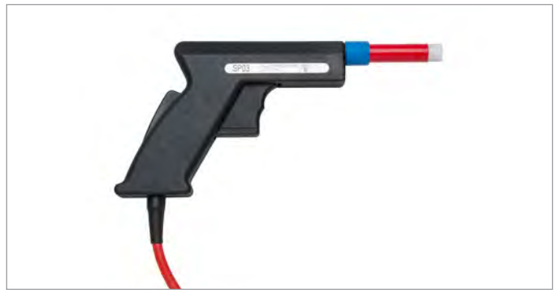
Description	Regular use of test verification boxes is an absolute must in every production of electrotechnical / electronic devices. If verification tests are not carried out and afterwards an error is detected in the test system then a recall is unavoidable. The later the more expensive. The test verification box simulates FAIL and OK results in safety tests such as high voltage test and ground bond test. This is not a substitute for a calibration but ultimately just as important. The verification test is performed in a few minutes and should be recorded. The test devices and test systems of SPS electronic request depending on the programming daily or cyclic test intervals. The performance and the test result are automatically documented. SPS electronic recommends performing this test at least daily and at every change of shifts. The test verification box itself must just as the test device be checked and calibrated at least once a year. With high product quantities this test cycle has to be adjusted. Only with the daily verification test the performance of the safety testing in production of electro-technical / electronic devices is ensured. With only one test verification box, a verification test for all kinds of the safety test can be carried out. The OK and FAIL simulation is installed for the high voltage test, insulation measurement, ground bond test and line leakage test in a plastic housing. As there are many individual applications for the high voltage test additional test verification boxes are offered applicable only for the high voltage test devices. Finally it should be mentioned that a built-in test verification box is no solution. Only if the test verification box is connected the same as the original DUT it is ensured that test voltages really get there where they are needed. Safety without compromise.
Safety	Application only in the test bay
Connection	IEC socket, test probe / high voltage test probe

Versions

Test type	Type	Dimensions (HxWxD)
Function test (cos φ 0 / 0,5 for performance test)	D 1885	85 x 80 x 80 mm / 3.3 x 3.1 x 3.1 in.
High voltage test (1 mA / kV)	D 2001	80 x 120 x 100 mm / 3.1 x 4.7 x 3.9 in.
High voltage test (5 mA / kV)	D 2005	80 x 120 x 100 mm / 3.1 x 4.7 x 3.9 in.
High voltage test / UL-application (120 kΩ)	D 2120	80 x 120 x 100 mm / 3.1 x 4.7 x 3.9 in.
High voltage / insulation / ground bond / line leakage test	D 2012	120 x 160 x 120 mm / 4.7 x 6.3 x 4.7 in.
Partial discharge HV / ST	D 4010	160 x 80 x 74 mm / 6.3 x 3.1 x 2.9 in.

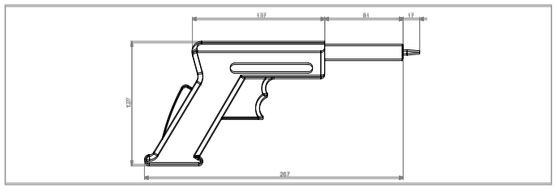
ACCESSORIES
TEST PROBES

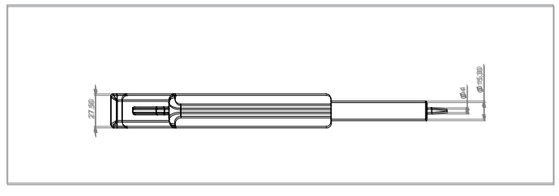
High voltage test probe SP 02
Without start switch



High voltage test probe SP 03
With start switch

Description	The most important method of all safety tests is the high voltage test, which is still frequently carried out by hand. The high voltages test probe acts as the link between human, high voltage tester and DUT. Its purpose is to safely contact the DUT while protecting the user against life-threatening contact with high voltage. The safety test probes SP 02 and SP 03 completely meet these requirements. Additionally special attention has been paid to the ergonomics and the handling of the the probe. With hundreds of tests daily this aspect plays a crucial role in the convenient usage of the test probes.	
Max. operating voltage	AC	8,000 V AC
	DC	10,000 V DC
Test voltage	Contour / connection	25,000 V DC
	Connection / start switch	25,000 V DC
Safety	Double control	
Setup	Teflon sleeve	SP 02 / SP 03
	Tungsten tip	SP 02 / SP 03
	Multilayer safety cable	SP 02 / SP 03
	Impact-resistant plastic housing	SP 02 / SP 03
Connection	High voltage	Plug ST 02
	Start switch	Jack plug ST 01
Versions	Test probe with a 2 m (6.6 ft.) connection cable and plug	SP 02
	Test probe with a 2 m (6.6 ft.) connection cable, plug and start switch	SP 03
	High voltage plug with a 2 m (6.6 ft.) high voltage cable	ST 02
	High voltage socket	BU 02
Cable lengths SP 02 / SP 03 / ST 02	2 meters (6.6 ft.)	Standard
	3 meters (9.8 ft.)	- 3
	5 meters (16.4 ft.)	- 5
	10 meters (32.8 ft.)	- 10
	15 meters (49.2 ft.)	- 15





ACCESSORIES
GROUND BOND TEST PROBES

Ground bond test probe PE 81-i with start button

Description	When a device of protection class I is tested, at least one protective conductor test is required. For many products, several points must be tested individually and consecutively, which makes the protective conductor test the most complex type of test in safety testing technology. In practice, the tests, which are usually carried out manually, require a lot of time and therefore a high level of manpower. This is exactly where the development of SPS electronic came in. All protective conductor test probe on the market were real „probe“ that had to be held horizontally. The result was an unnatural, strenuous posture for the test personnel‘s hand. Only with the PE 81 protective conductor test probe is a test probe on the market that meets the ergonomic requirements in a test field. It enables the test personnel to perform the frequently required PE conductor tests with a natural and therefore ergonomic hand position. In test series with customers, the concept was optimized with an integrated start button. Of course, the test probe is designed in 4-wire technology (Kelvin technology), which means that the measuring lead and the test lead are routed separately. Thus all feed lines are compensated. This is made possible by a highly flexible special cable that was developed specifically for this application. Both the test lead for currents up to 30 A AC and the measuring and control lead are integrated in one cable. In connection with the test devices from SPS electronic, it is possible to start the PE conductor test automatically. For this purpose, a small voltage is fed to the DUT via the PE 81 protective conductor test probe. When the DUT is contacted, the PE test starts automatically - a considerable simplification for many PE test points. Due to the high operating voltage of 1,500 V DC, the protective conductor test probe can also be used to perform safety current-limited insulation measurements and high-voltage tests. Insulation measurements / high voltage tests must be performed at several points on protection class II devices. The electrical connection for all test voltages and all control lines to the test instrument is made via a high quality, multi-pole high current connector. The tungsten test probe can be replaced without tools and is available as a spare part.	
Max. operating voltage	DC voltage	1,500 V DC
Test voltage	Contour / connection	2,500 V DC
	Connection / start switch	1,500 V DC
Safety	Safety extra-low voltage (SELV)	
Setup	• Ergonomic lightweight test pistol made of impact resistant plastic • Exchangeable tungsten test probe for a long service life, spring bushing for easy replacement • Integrated, high-quality start switch • Multi-pole, highly flexible special cable for test voltage and control signals • Electrical connection via multi-pole high current connector	
Cable lengths	2 m (standard), 5 m (KL 05), 10 m (KL 10) and 15 m (KL 15) 6.6 ft (standard), 16.4 ft (KL 05), 32.8 ft (KL 10) and 49.2 ft (KL 15)	

Versions

	Type
Ground bond test probe with 2 m (6.6 ft) connection cable and free cable ends	PE 81-f
Ground bond test probe with 2 m (6.6 ft) connection cable and high current plug ST 04-i	PE 81-i
Ground bond test probe with 2 m (6.6 ft) connection cable and 4 mm laboratory plug	PE 81-l
Replacement tungsten tip, plug-in fastening, 34 mm	KS 12-w
Tungsten replacement tip, plug-in attachment, 55 mm	KS 12-wl

ACCESSORIES
WARNING LAMP SET

Warning lamp set WL 25

Description	In Europe warning lamps are required at work stations with voltages ≥1,000 V. These red and green lights indicate the status of the high voltage generation in the test bay. If the red light is active high voltage can principally be produced. However this does not necessarily mean that high voltage is applied. If the green light is active it is confirmed that with certainty no high voltage is applied and generated. The warning lamp must not be associated with the test result “PASS“ or “FAIL“. It solely serves for the protection of the test personnel.
Operating voltage	230 V
Nominal current	17 mA
Technology	LED
Connection	4-pole round plug
Connection cable	1.5 m (4.9 ft) long
Dimensions (HxWxD)	120 x 170 x 85 mm (4.7 x 6.7 x 3.3 in.)

Versions

	Type
Warning lamp set	WL 25
Replacement LED	LE 25
Built-in socket	BU 04-8

ACCESSORIES
HIGH VOLTAGE CONNECTORS

Cable plug ST 91 and built-in socket BU 91

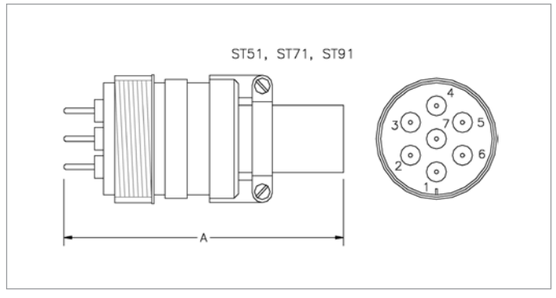
Cable plug ST 71 and built-in socket BU 71

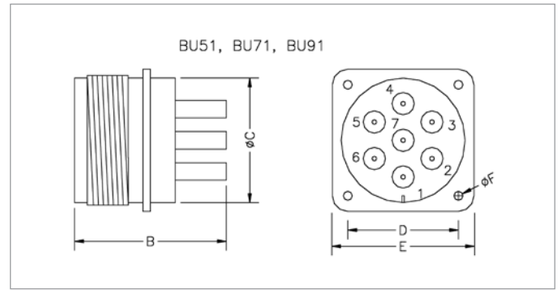
Cable plug ST 51 and built-in socket BU 51

Description	When high voltages must be transferred in connection with high currents, the high voltage connectors ST / BU find their application. Both internally in the control cabinet and with device connections. Additionally available are suitable accessories for high voltages and high currents.	
Max. operating voltage	AC voltage	7,000 V AC
	DC voltage	10,000 V DC
Max. current	30 A AC	
Test current	Contact / housing	15,000 V DC
	Contact / contact (mated)	15,000 V DC
Safety	Teflon protection	
Connection	Solder lugs	
	Strain relief	

Versions

Description	Dimensions mm (in.)						Type
	A	B	C	D	E	F	
Cable plug 5-pole	122.0 (4.8)	–	–	–	–	–	ST 51
Cable plug 7-pole	125.0 (4.9)	–	–	–	–	–	ST 71
Cable plug 9-pole	127.0 (5.0)	–	–	–	–	–	ST 91
Built-in socket 5-pole	–	57.0 (2.2)	41.0 (1.6)	39.7 (1.6)	51.0 (2.0)	3.7 (0.15)	BU 51
Built-in socket 7-pole	–	60.0 (2.4)	48.0 (1.9)	44.5 (1.8)	57.0 (2.2)	4.4 (0.17)	BU 71
Built-in socket 9-pole	–	60.0 (2.4)	54.0 (2.1)	49.2 (1.9)	63.5 (2.5)	4.4 (0.17)	BU 91





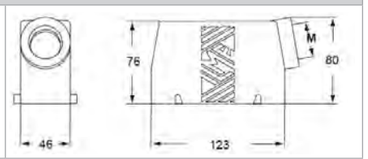
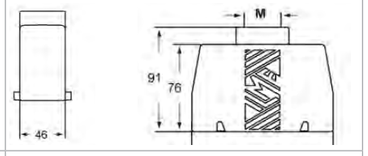
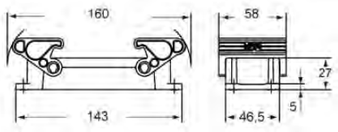
ACCESSORIES
HIGH VOLTAGE CONNECTORS

Multipole connectors for voltages up to 10,000 V and currents up to 30 A.

+ completely individually pluggable
+ multi-pole (up to 14)
+ allows coding of applications with multiple connectors
+ combines high voltage, low voltage and compressed air

Description:
The multi-pole individually assemblable high-voltage connectors ST / BU series 22 find their application when high voltages are transmitted in connection with high currents. They are available in different versions and are suitable for internal use in the control cabinet as well as for use in device connections. Suitable accessories are also available.

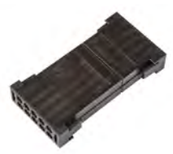
HOUSINGS FOR PLUG/SOCKET MODULES

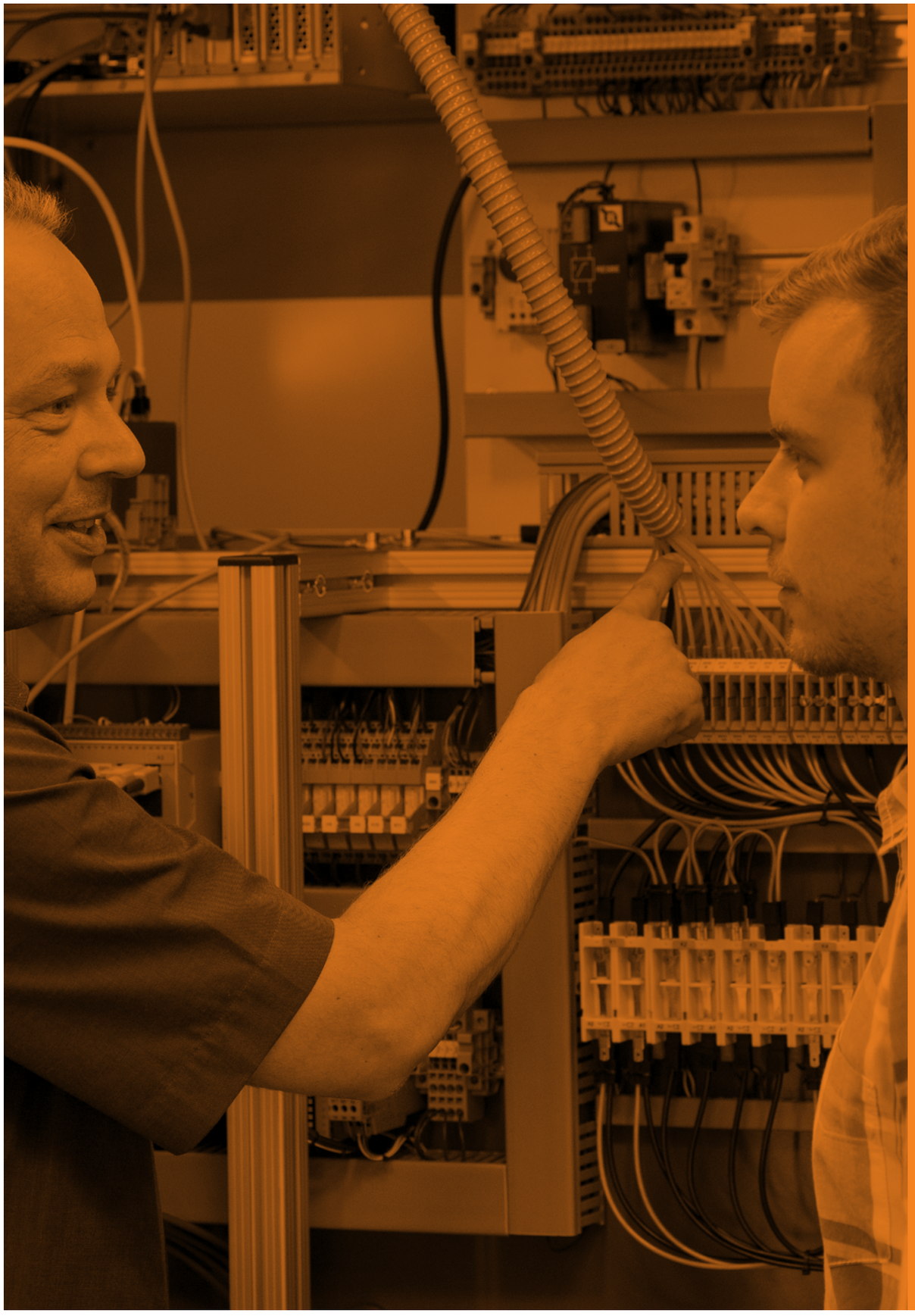
Housings		
	Grommet housing TG 22 with lateral outlet suitable for installation housing FG 22	
	Grommet housing TG 23 with outlet at the rear suitable for installation housing FG 22	
	Installation housing FG 22 suitable for grommet housing TG 22/23	
	Cable gland TG 22-k suitable for grommet housing TG 22/23	
	Tube fitting TG 22-s suitable for grommet housing TG 22/23	

FRAMES FOR PLUG/SOCKET MODULES

Frames	
	Frame for plug ST 22 suitable for grommet housing TG 22/23
	Frame for socket BU 22 suitable for installation housing FG 22

PLUG/SOCKET MODULES

High-voltage module				
	Module for plug ST 22-h	Number of poles	2	
		Connection technology	solder	
		Connection cross-section	2.5 mm² (0.004 in²)	
	Module for socket BU 22-h	Operating voltage	12 kVDC	
		Test voltage	18 kVDC	
		Max. current	30 A AC	
Pneumatic module				
	Module for plug ST 22-p	Number of poles	2	
		Connection technology	Hose connection	
	Module for socket BU 22-p	Hose diameter (internal)	4 mm (0.157 in)	
		Operating pressure	8 bar	
Mains insert incl. contact plug/socket (1 set = 10 pieces)				
	Plug insert ST 22-n Contactpl.: KS 22-e	Number of poles	10	
		Connection technology	solder	
		Connection cross-section	0,14 - 2,5 mm² (0.002 - 0.004 in²)	
	Socket insert BU 22-n Contactso.: BB 22-e	Operating voltage	400 V	
		Max. current	16 AAC	
		Contact plug/socket available as spare part.		
Dummy socket				
	Module for plug ST 22-x			
	Module for socket BU 22-x			



TEST SYSTEMS

With our products we normally offer a suitable solution for all tasks in electrical safety testing. However, it can happen that very special requirements apply to a particular test task. Be it in terms of the sequence of parameters to be tested, the conditions under which it shall be tested or also the kind in which the approval of the test finally takes place.
Here we are also glad to help you – with special solutions which are fully coordinated with your individual needs and the desired requirements. You can learn more about this on the next pages.

When there is a testing task, there is always a solution.

And, at best, it comes from the experts for electric safety test technology: SPS electronic.

We would not be experts if we did not know everything about electric safety tests. Therefore we have the possibility to respond quickly and coherently even to new questions: in the form of customer-specific test systems, supporting you in your work and making it easier. Just put us to the test – what can we do for you?

A TEST SYSTEM – WHAT DOES THAT MEAN?

In a test system, different components from the field of electric test technology are combined with each other and thus summarised to an independent test system. That can mean that a whole production line comes into being on which various electric safety tests are carried out on several stations. Even automated, if it is desired. But it can also mean to develop a safety test for a special, completely new product, first-time where appropriate. The opportunities for that are almost unlimited.

FOR WHOM AND IN WHICH CASE DO TEST SYSTEMS COME INTO CONSIDERATION?

Test systems come into consideration for everyone who is not satisfied with the standardised procedures for electric safety testing. This might have different reasons. For example, if safety testing has not been applied in the required manner yet. This is often the case with new or also very exotic products. Or particular test parameters are required, for example whenever a product must also function underwater or in other extreme situations. No matter how unusual a customer wish is – we will find a solution.

FOR WHICH INDUSTRIES, APPLICATIONS AND APPLIANCES CAN TEST SYSTEMS BE REALISED?

Our individual test systems are used in almost all industries dealing with electric technology. Because once current is flowing within an appliance, it must be ensured that safety is guaranteed for the user at any time. In the process, it is rather unimportant whether it is about household appliances, lightings, tools, motors or even medical equipment. What is essential is always the type of carrying out the test.

THE KEY TEST PARAMETERS ARE YOUR WISHES.

The advantages of an individual test system are clearly obvious. Because it is especially designed to solve your day-to-day problems at the best. You would like to know whether a test system is also possible for you? Then please contact us. We will jointly analyse your task and develop a set of specifications. Then we will look after the development, realisation and commissioning of the system. On request, you and your employees will then get a comprehensive training and introduction, and we will, of course, continue to provide you with technical support. It almost sounds too simple, doesn't it?

OUR TEST SYSTEMS CERTAINLY OFFER YOU MANY ADVANTAGES:

+ Individual problem solutions
+ Controllable via software
+ Complete integration into existing systems, on request
+ Comprehensive after-sales support

From the field:

TEST SYSTEM FOR ELECTRIC MOTORS WITH COOLING

Electric motors of mild hybrid vehicles are tested with this system under conditions that are as real as possible. In addition to various static and dynamic function tests, the 3-phase asynchronous motor and the inverter are cooled down to -20 °C, then heated to +70 °C. This will simulate the demands on the motors that can occur during operation in electric vehicles / hybrid vehicles. The test system is used in the analysis for endurance tests, which are not possible in production due to low cycle times.

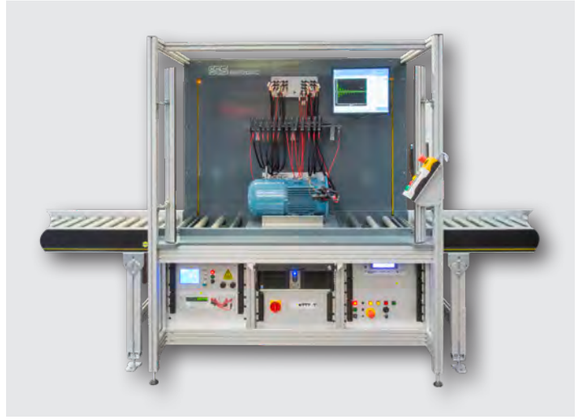
FACTS AND FIGURES

+ Current measurement up to 500 A
+ Continuous test with cooling/heating circuit from -20 °C to +70 °C
+ Freely adjustable load points via load machine (+/- 120 Nm, +/- 3,000 rpm)
+ Numerous communication interfaces
+ Electronically controlled voltage and current sources: +/- 385 A as well as 0 - 60 V
+ High voltage DC 500 - 6,000 V
+ Resistance measurement 2 mΩ - 200 kΩ
+ Alignment of a rotor for surge testing 0 - 20 A / 0 - 40 V DC

From the field:

TESTING SYSTEM FOR STATORS 1-, 2- AND 3-PHASE

After the production of electric motors in the medium power range, the stators are tested for safety and function. Large product variety, low quantities and highest quality characterize the production. The product liability law requires that all test data be permanently stored. With this test system, the existing test field was automated and the cycle time reduced. At the same time, the test depth was improved and the quality assured. Operation is as simple as possible so that semi-skilled assistants can also be used. The highest safety standard for the employees goes without saying.



FACTS ANF FIGURES

+ High voltage test with 5,500 V: Windings - housings - sensors
+ Resistance measurement: windings - sensors
+ Surge voltage test up to 6,000 V
+ Rotating field check via sensors
+ High voltage AC 500 - 5.500 V
+ High voltage DC 500 - 6,000 V
+ Resistance measurement 2 mΩ - 200 kΩ
+ Alignment of a rotor for surge voltage testing 0 - 20 A / 0 - 40 V DC

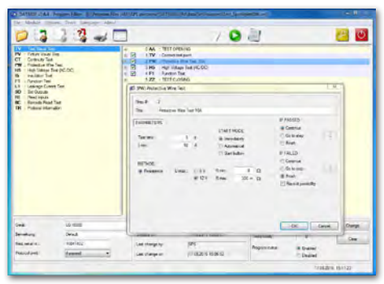
Customised test systems – and everything related

We inspire our customers with the almost unlimited combination possibilities of functions, test methods and components.

Safety and function tests

- Ground bond tests
- High voltage tests
- Insulation tests
- Leakage current tests
- Surge test
- Partial discharge test
- Resistance measurement
- Current power measurement
- Leakage test
- ...

Software



- Creation of test plans
- Tests
- Browsing of test protocols
- Network connection
- Data exchange with IT-systems

Interfaces / DUT connection

...and many more!

Workplace design

Test systems
Test devices & Accessories

SERVICE

Service
Test devices & Accessories

Our Service – Everything from a single source!

When it comes to service we do it thoroughly. The products we offer come with the appropriate advice and support – before and after purchasing. Do you have a question? Need a replacement part or support? Call one of our experienced team members: **+49 791 20 212 327**

SERVICE CENTER
+49 791 20 212 327

Regular firmware updates

All testers from SPS electronic always come with up-to-date software. We provide you with regular firmware updates to stay on the cutting edge of technology also in the course of operation of the device. You can download the latest version on our website: www.spselectronic.com

Service for unit on loan

No loss of time – even if your equipment and systems are under repair or maintenance. Numerous loaners are available from the product range of SPS electronic for the duration of the repair of your equipment. Whether they are hipot testers, insulation testers, ground bond testers, leakage current testers or multifunctional units. We also provide a trial unit if you are unsure about the new unit you want to buy. Just let us know about it!

OEM spare parts service

Using our OEM spare parts ensures optimum performance and maximum service life of your equipment. We at SPS electronic supply you with the spare parts for all device types and generations worldwide. Common spare parts are immediately available from stock. Should we not have something in stock, we will produce or procure it as quickly as possible.

After-Sales-Support

We start exactly there, where others give up! And that is why our service does not end with the purchase of one of our units. We want you to have long-term satisfaction with us and our products. Especially for this purpose, we have a large service team that is always on-hand with technical advice and support.

On-site service

We are at your service wherever you need us! The optimum support provided by our service technicians restores the operation of your devices and customised systems. Our customer-focused field service is tailored to your needs, so as to consistently meet your technical requirements. We will work out the repair and maintenance plan jointly with you, so as to keep the downtime of your systems and equipment at a minimum.

Seminars and training programs

Get the best from your testers! The effectiveness of your equipment and customised systems not only depends on the technology but also its proper handling. We offer training programs that focus on the issues, needs and testing tasks of our customers. We first analyse the training needs together with you and then specifically design the contents according to your requirements. Thus, you get to know your safety tester in a practical and application-oriented way.

Remote service

Our service is also remotely available as an alternative to our on-site support. This saves considerable time and significantly reduces the cost especially when it comes to sites that are far away.

Calibration and maintenance

The annual calibration of the testers is an essential prerequisite for the assured quality and is a requirement to be met by any company as part of the control of inspection, measuring and test equipment. We calibrate your safety testers – either directly at your location or in our premises. Thanks to our large service network, our numerous subsidiaries and our partners, we are represented worldwide and always close to you.

The special extra – the calibration service of SPS electronic

Because a calibration is not just a calibration, customers worldwide rely on our expertise.

IF A „SIMPLE“ CALIBRATION IS NOT SUFFICIENT: DAKKS CALIBRATION ACCORDING TO DIN EN ISO / IEC 17025

We are very pleased to have received the official accreditation certificate and the certificate for our calibration laboratory in Twist from the DAkkS (Deutsche Akkreditierungsstelle/ national accreditation body for the Federal Republic of Germany). This means that we are retroactively authorized to offer accredited calibrations according to DIN EN ISO / IEC 17025 since November 2019 (a competence that only very few laboratories can provide). The final accreditation was preceded by about 5 years of preparation and a lengthy accreditation process – a period of time which, last but not least, makes clear the great importance of this success.

WHAT ARE THE CHARACTERISTICS OF A DAKKS CALIBRATION?

DAkkS calibration certificates are valid at any time, internationally and without further valid proof of traceable measurement results. They are issued with standards whose traceability is guaranteed by DAkkS certificates or calibration certificates issued by PTB laboratories. DAkkS calibration certificates can only be issued by the accredited calibration laboratories within the scope of the accredited measured quantities. This ensures that high quality calibration is guaranteed by regular external assessment and re-accreditation, traceable standards, precisely defined environmental conditions and specially trained personnel.

WHAT IS THE DIFFERENCE BETWEEN A DAKKS AND A TRACEABLE FACTORY CALIBRATION?

The main difference lies in the evaluation of the measurement results: A factory calibration includes the evaluation of the results without consideration of the measurement uncertainty on the basis of the specifications published in standards, guidelines or by the manufacturer. The DAkkS, on the other hand, provides for an evaluation of results exclusively on the basis of the actual values determined and the associated measurement uncertainties, i.e. all influencing variables occurring during calibration, such as the accuracy of measuring equipment, temperature, type of connection, device-specific parameters, resolution, tolerance limits etc., are taken into account. The results are evaluated by the customer and the usability for the required measuring process is determined.

WHICH IS THE RIGHT CALIBRATION FOR ME?

The DAkkS calibration according to DIN EN ISO / IEC 17025 becomes necessary if special requirements demand it. This procedure has no influence on the traceability of the measured variables. Both the measured variables of the factory calibration and those of the DAkkS calibration can be represented equally.

Factory calibration certificates are issued with standards that are subject to regular test equipment monitoring, the traceability of the standards used is ensured by regular test equipment monitoring.

When recalibrating test equipment, which in turn serve as standards for monitoring other measuring and test equipment, a DAkkS calibration should always be used because of the assured traceability to national standards.

You are not sure which calibration you need?
Contact us – our experts will be happy to provide you with detailed and competent advice: **+49 791 20 212 327**

DAkkS
Deutsche Akkreditierungsstelle

German Accreditation Body

Deutsche Akkreditierungsstelle GmbH

Beliehene gemäß § 8 Absatz 1 AkkStelleG i.V.m. § 1 Absatz 1 AkkStelleGBV
Unterzeichnerin der Multilateralen Abkommen
von EA, ILAC und IAF zur gegenseitigen Anerkennung

Signatory of the multilateral agreements of EA, ILAC and IAF on mutual recognition

Akkreditierung **Accreditation**

Die Deutsche Akkreditierungsstelle GmbH bestätigt hiermit, dass das Kalibrierlaboratorium

SPS electronic GmbH
Boschstraße 15, 49767 Twist

*The German Accreditation Body hereby confirms that the calibration laboratory **SPS electronic GmbH, Boschstraße 15, 49767 Twist***

die Kompetenz nach DIN EN ISO/IEC 17025:2018 besitzt, Kalibrierungen in folgenden Bereichen durchzuführen:

has the competence according to DIN EN ISO / IEC 17025:2018 to perform calibrations in the following areas:

Elektrische Messgrößen
Gleichstrom- und Niederfrequenzmessgrößen
- **Gleichspannung**
- **Gleichstromstärke**
- **Gleichstromwiderstand**
- **Wechselspannung**
- **Wechselstromstärke**
- **Hochspannungsmessgrößen**

Electrical measurands
DC and low-frequency measurands
DC voltage
DC intensity
DC resistance
AC voltage
AC intensity
High voltage measurands

Die Akkreditierungsurkunde gilt nur in Verbindung mit dem Bescheid vom 21.11.2019 mit der Akkreditierungsnummer D-K-20497-01. Sie besteht aus diesem Deckblatt, der Rückseite des Deckblatts und der folgenden Anlage mit insgesamt 9 Seiten.

The accreditation certificate is only valid in connection with the notification of 21.11.2019 with the accreditation number D-K-20497-01. It consists of this cover sheet, the back of the cover sheet and the following annex with 9 pages in total.

Registrierungsnummer der Urkunde: **D-K-20497-01-00**

Registration number of the certificate:
D-K-20497-01-00

Berlin, 21.11.2019

Im Auftrag Dr. Heike Manke
Abteilungsleiterin

Siehe Hinweise auf der Rückseite

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