DC POWER FOR TEST RIG AND LAB

LABORATORY POWER SUPPLIES ELECTRONIC LOADS
Laboratory power supplies by GMC-I Messtechnik, known under the name of GOSSEN KONSTANTER, unite state-of-the-art circuit technologies, functional diversity and absolute reliability.

Do you remember the germanium transistor? The triumph of electronics began with this semiconductor, as well as the era of the KONSTANTER. We were one of the first European manufacturers to begin series production of adjustable, electronically stabilized direct current power supplies, and at that time, in 1958, users placed only minimal demands on such devices. The customers were happy to have any practical alternative at all to the previously used multi-range rectifiers and battery packs.

It certainly speaks for the quality of our devices when a satisfied customer reports that his “good old KONSTANTER” still functions reliably after well over 20 years of use. But is the use of such a device in keeping with the times, or even advantageous? The times have indeed changed, as well as the conditions of use and the requirements. Today you can rightfully demand a lot more from a laboratory power supply than constant voltage and regulated current.

Electrical and electronic products today fulfill a broader range of tasks and encompass more extensive functions. This means more extensive testing and more in-depth examination for you as a manufacturer or user of such products. As a rule, the range of required testing is also extended by new regulations. And at the same time, productivity must be increased.

The fulfillment of these requirements demands a high level of creativity, farsightedness and cost awareness. Here, the recognition and exploitation of possible areas of application provided by modern test equipment play an important role.

The contemporary KONSTANTER offers a great deal of potential in this area. It includes a multitude of advantageous functions and special features, which result from the desires and suggestions of a large number of users from the most varied areas of application.

The advantages start with the functional housing: All devices are suited for laboratory test bench operation as well as for mounting to a 19" rack. Our KONSTANTERs can be easily integrated in demanding applications in the fields of Research & Development, production or (long-term) test systems.

Thanks to their uniquely short response times, our KONSTANTERs are particularly suited for the generation of complex test signals or the superimposition of low-frequency signals on the output via analogue controlled inputs.

The data memories of the SSP and SYSKON models allow for the storing of U/I time profiles with automatic sequences. Depending on the model, the available interfaces are analogue, RS232, IEEE488 (GPIB) or USB.

In addition to power supply technology, GOSSEN METRAWATT offers a range of electronic loads which is distinguished by short response times, pogramming capabilities as well as comprehensive functionality.
LABORATORY POWER SUPPLIES

SYSKON P SERIES

SYSKON P SERIES 500 ... 4500 W
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SLP 32N KONSTANTER

SSP 32N KONSTANTER 120 ... 320
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SSP 62N / 64N KONSTANTER

SSP 62N / 64N KONSTANTER 500 ... 3000 W
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MSP 64D KONSTANTER

MSP 64D KONSTANTER 24 ... 120 W
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LABKON P SERIES
LSP 32K KONSTANTER

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ELECTRONIC LOADS
SPL / SSL

SPL SERIES 200 ... 400 W
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Please refer to the data sheets for further technical specifications
RANGE OF APPLICATIONS

Example:
Automotive electrical and electronics

Oscillogram of SYSKON output voltage - starter motor curve with rising sine. Sine function integrated into the sequence as a subprogram.

Simulation of a voltage curve in an automotive electrical system when starting the engine.

Fast transient measurement of the connected DUT with separate setting options for high/low level, rise and fall time.

Application Examples

Production and Testing

- Automotive electrical and electronics
- Surface finishing
- Telecommunications technology
- Computer sciences
- Control and drive technology
- Frequency converters
- Motors
- Power semiconductors
- Uninterruptible power supply (UPS) systems
- Circuit breakers and protective motor switches
- Lamps
- Plasma deposition
- Consumer electronics
- Railway technology

Research and Development

- Semiconductor production and processing
- Power and hybrid technology
- Fuel cells
- Photovoltaics
- Energy storage and solar technology
- Batteries
- Capacitors
- Superconducting magnets
- Laser diodes
- Aviation and aerospace
- Defense technology
RANGE OF APPLICATIONS

Application Examples

Automotive Electrical and Electronics

During the development of electrical and electronic automotive components, these must also be tested for their performance with distorted voltage. Testing is based upon diverse voltage sequences which are specified in the EMC standards or by the automobile manufacturers. The short response times and the sequence function offered by the GOSSEN METRAWATT KONSTANTERs are very useful in this area.

These components are frequently produced with automated machines all year long, 24 hours a day. KONSTANTERs can be easily incorporated into the utilized manufacturing systems via convenient interfaces and free software. And thanks to their outstanding reliability, continuous operation is no problem for the devices.

Energy Storage Technologies

Wind and sun – these are the key words to describe the energy sources of the future. In the foreseeable future, our energy will come solely from regenerative sources. The fact, however, that these sources are not available at any time or at the same energy level leads to a potential risk in the form of massive fluctuations within the energy grid.

Therefore the significance of energy storage technologies – mostly in the form of batteries – will increase to ensure the stability of the grid. The test & measurement technology to check lifetime, capacity and efficiency among many other parameters is part of our product portfolio. With power supplies and electronic loads from GOSSEN METRAWATT charge/discharge cycles, endurance as well as stress tests – to mention but a few applications – can be conducted conveniently, either manually or in an automated environment.

Medical Technology

Those who seek out and develop innovative solutions are confronted with challenges again and again. The functional requirements for a universal power supply are accordingly diverse.

GOSSEN METRAWATT KONSTANTERs leave nothing to be desired in this respect, and all of the essential functions are nevertheless easy to use. And in order to assure that the valuable prototype is not damaged – due to either an inadvertent, incorrect setting or a defect – KONSTANTERs are equipped with effective protective and self-monitoring functions.

Semiconductor Production and Processing

From the developmental phase to type testing, from burn-in and stress tests in production right on up to receiving inspection at the processing plants, semiconductors are subjected to numerous, frequently time-consuming tests.

Setup sequences which are run automatically by KONSTANTER devices make it possible to execute testing of this sort without elaborate control devices.

Please refer to the data sheets for further technical specifications.
SYSKON P SERIES

Single-Channel, Programmable Laboratory Power Supplies

SYSKON P series KONSTANTERs (SYSTEM KONSTANTER) are single-channel, programmable laboratory power supplies for demanding professional use in R&D, production and test systems.

FEATURES:
- Digital interfaces: USB, RS232, GPIB (optional)
- Analog interfaces: 2 trigger inputs, 3 signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer
- Display: 2 x 5-place LED display
- Memory: 1700 memory locations for sequences
- Power output: auto-ranging, unipolar
- Sink: dynamic up to 195 W continuous power

FUNCTIONALITY:
- Output power: 500, 800, 1500, 3000 and 4500 W
- Very short response times [as of < 2 ms]
- Very high setting resolution [1 mV, 1 mA, 1 ms]
- High setting accuracy [as of 0.05 % + 30 mV]
- High measuring accuracy [as of 0.05 % + 30 mV]
- Extensive protective functions [overvoltage, overcurrent, overtemperature, limits]
- Flexible programmability [large memory module, import/export of stored sequences and settings]
- Power factor correction for sinusoidal current consumption
- Sensing terminals for auto-sensing operation at the power consumer
- Load resistance display
- Min-Max values display
- Master-slave connection (series and parallel connection)

CORE APPLICATIONS
- Testing of electrical and electronic components
- Execution of electrical test pulses, e.g. for automotive applications
- Execution of long-term testing
- Incorporation into test systems (with analog or digital control)
- Power supply for sensitive devices, e.g. laser controllers

SCOPE OF DELIVERY:
- CD-ROM with user and driver software, operating instructions (D + EN), data sheet (D + EN)
- Clear-cut user software (soft front-panel)
- Mains cable (P500, P800, P1500)
- USB cable (90° angle)
- Installation set for 19” rack mounting
- DAkkS calibration certificate

OPTIONAL ACCESSORIES:
- IEEE488 Interface (K384A)
- 3-phase mains power cable for SYSKON P3000 and P4500 (K991B)

SYSKON Soft-Front Panel – PC user interface for SYSKON P series

FREE Download

Sequence memory:
1700 locations for sequence functions

Sequence stringing

Setup memory: 15 memory locations for complete configurations

Invocation of sub-sequences from primary sequences

www.gossemetrawatt.com
Please refer to the data sheets for further technical specifications.
SSP / SLP 32N 120 ... 320

Single-Channel, Programmable Laboratory Power Supplies

SSP 32N KONSTANTER 120, 240 and 320 devices (single output system power supplies) are single-channel programmable laboratory power supplies for universal use in R&D, production and testing.

BET circuit technology (bidirectional energy transformation) allows for rise and decay times of less than 1 ms almost entirely independent of load (< 4 ms with 80 V device).

FEATURES:
- Analog interfaces: trigger input, signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer
- Display: 2 x 4-place LED display
- Power output: auto-ranging + increased output power for brief intermittent periods
- Sink: dynamisch bis zu 15 W
- Memory: 242 Sequenzspeicherplätze, 10 Grundeinstellungsspeicherplätze (SSP 32N)
- Digital interfaces: RS232, GPIB (optional SSP 32N)

FUNCTIONALITY:
- Output power: 120 W, 240 W and 320 W
- Very short response times [as of 1 ms]
- High setting resolution [as of 5 mV, as of 1 mA]
- High setting accuracy [as of 0.15% + 30 mV]
- High measuring accuracy [as of 0.05% + 20 mV]
- Master-slave connection
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Sensing terminals for auto-sensing operation at the power consumer
- Flexible programmability – large memory module, import/export of stored sequences – (SSP 32N)
- Min-Max values display (SSP 32N)

CORE APPLICATIONS:
- Testing of electrical and electronic components
- Execution of electrical test pulses (e.g. for automotive applications)
- Execution of long-term testing
- Incorporation into test systems

SCOPE OF DELIVERY:
- Mains power cable with earthing contact plug
- Operating Instructions

OPTIONAL ACCESSORIES:
- IEEE488 Interface (SSP32N) (K380A)
- Installation sets for 19” rack mounting (K990A), (K990B)
- Mains power cable for connecting two 32N devices (K991A)
- Factory calibration certificate

Software SSP Soft-Front Panel – PC user interface for SSP KONSTANTER

FREE Download

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Power</th>
<th>Voltage</th>
<th>Current</th>
<th>Dimensions (W x H x D in mm)</th>
<th>Weight (approx. kg)</th>
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<tr>
<td></td>
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<td>Pnom (W)</td>
<td>Pmax (W)</td>
<td>Unom (V)</td>
<td>Inom (A)</td>
<td>Benchtop Instrument</td>
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<tr>
<td>SLP 120 W</td>
<td>K220A / K320A</td>
<td>120</td>
<td>200</td>
<td>0...20</td>
<td>0...10</td>
<td>221.5x102.0x397.5</td>
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<td>SLP 240 W</td>
<td>K220A / K320A</td>
<td>120</td>
<td>240</td>
<td>0...40</td>
<td>0...6</td>
<td>221.5x102.0x397.5</td>
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<tr>
<td>SLP 320 W</td>
<td>K220A / K320A</td>
<td>120</td>
<td>240</td>
<td>0...80</td>
<td>0...3</td>
<td>221.5x102.0x397.5</td>
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</table>

IEEE488 interface for SSP 32N | K380A | – | – | – | – | – | 0.1 |
SSP 62N/64N 500 ... 3000

Single-Channel, Programmable Laboratory Power Supplies

SSP KONSTANTER 500, 1000, 2000 and 3000 devices (single output system power supplies) are single-channel, programmable laboratory power supply for universal use in R&D, production and testing.

FEATURES:
- Digital interfaces: RS 232 (optional), RS 232/GPIB (optional)
- Analog interfaces: trigger input, signal outputs, control voltage inputs (5 V) for voltage and current, monitor voltage outputs (10 V) for voltage and current, sense terminals for auto-sensing operation at the power consumer
- Display: 2 x 4-place LED display
- Memory: 242 memory locations for sequences, 10 memory locations for basic settings
- Power output: auto-ranging – increased output power for brief intermittent periods
- Sink: dynamic up to 75 W

FUNCTIONALITY:
- Output power: 500 W, 1000 W, 2000 W and 3000 W
- Short response times [as of 6 ms]
- High setting resolution [16.7 mV, 3.125 mA, 10 ms]
- High setting accuracy [as of 0.1% + 17 mV]
- High measuring accuracy [as of 0.05% + 20 mV]
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Flexible programmability [large memory module, import/export of stored sequences]
- Sensing terminals for auto-sensing operation at the power consumer
- Min-Max values display
- Master-slave connection

CORE APPLICATIONS:
- Testing of electrical and electronic components
- Execution of electrical test pulses
- Execution of long-term testing
- Incorporation into test systems (with analog or digital control)

SCOPE OF DELIVERY:
- Mains power cable (62N series)
- Installation set for 19” rack mounting
- Operating instructions (printed)

OPTIONAL ACCESSORIES:
- IEEE488 + RS232 Interface (K382A)
- RS232 port (K383A)
- 3-phase mains power cable for SSP 64N models (K991B)
- Factory calibration certificate

Software SSP Soft-Front Panel – PC user interface for SSP KONSTANTER

Please refer to the data sheets for further technical specifications.
The MSP KONSTANTER (multi-output system power supply) is a modular, manually operated and computer controlled DC power supply. It offers extensive flexibility, ease of operation and economy for universal use in R&D, production and testing.

The basic instrument accepts up to four single or 2-channel plug-in power supply modules, and one control module. The control module allows for manual operation of all 8 channels. The outputs have a 2-quadrant operating range (source and sink). Source and sink functions are possible for constant voltage as well as constant current operation. Parallel or series connection, as well as bridging for the generation of bipolar voltages, is also possible.

**FEATURES:**
- Digital interfaces: RS 232, GPIB
- Display: multifunction display
- Memory: 10 memory locations for basic settings
- Power output: source/sink mode

**FUNCTIONALITY:**
- Output power: 2 x 24 W, 49 W, 120 W – combinable
- Up to 8 channels [can be grouped]
- Very high setting resolution [as of 2 mV, 0.2 mA]
- High setting accuracy [as of 0.05% + 4 mV]
- High measuring accuracy [as of 0.05% + 4 mV]
- Extensive protective functions [overvoltage, current regulation, overtemperature, limit]
- Programmability [basic settings memory]
- Source/sink mode [automatic]
- Bridge circuits
- Sensing terminals for auto-sensing operation at the power consumer
- Min-Max values display

**CORE APPLICATIONS:**
- Testing of electrical and electronic components
- Execution of long-term testing
- Incorporation into test systems (with digital control)
- Charging and discharging tests (e.g. batteries)

**SCOPE OF DELIVERY:**
- Mains power cable with earthing contact plug
- 5 blanking plates for unused module slots
- Installation set for 19” rack mounting
- Operating instructions (printed)

Modules and control unit not included

**OPTIONAL ACCESSORIES:**
- Factory calibration certificate

Software device driver for NI LabVIEW, NI LabWindows/CVI and for Agilent VEE

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Power</th>
<th>Voltage</th>
<th>Current</th>
<th>Dimensions W x H x D (mm)</th>
<th>Weight (approx. kg)</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>( P_{\text{nom}} )</td>
<td>( U_{\text{set}} )</td>
<td>( I_{\text{set}} )</td>
<td>Benchtop Instrument</td>
<td>4 standard height units x 440</td>
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<tr>
<td>MSP basic device 64 N 80 RU 75 P</td>
<td>K370A</td>
<td>448 x 177 x 390</td>
<td>60.5 x 172.5</td>
<td>6.6</td>
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<tr>
<td>ES31</td>
<td>ES 31 K 2x8 R 3 P</td>
<td>K372A</td>
<td>2 x 24</td>
<td>2 x 0...8</td>
<td>0...3</td>
<td>60.5 x 172.5</td>
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<tr>
<td></td>
<td>ES 31 K 2x16 R 1.5 P</td>
<td>K372B</td>
<td>2 x 24</td>
<td>2 x 0...16</td>
<td>2 x 0...1.5</td>
<td>60.5 x 172.5</td>
</tr>
<tr>
<td></td>
<td>ES 31 K 2x40 R 0.6 P</td>
<td>K372C</td>
<td>2 x 24</td>
<td>2 x 0...40</td>
<td>2 x 0...0.6</td>
<td>60.5 x 172.5</td>
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<tr>
<td></td>
<td>ES 31 K 7 R 7 P</td>
<td>K372D</td>
<td>1 x 49</td>
<td>0...7</td>
<td>0...1.5</td>
<td>60.5 x 172.5</td>
</tr>
<tr>
<td>ES32</td>
<td>ES 32 K 30 R 4 P</td>
<td>K373A</td>
<td>1 x 120</td>
<td>0...30</td>
<td>0...4</td>
<td>121.4 x 172.5</td>
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<tr>
<td></td>
<td>ES 32 K 80 R 1.5 P</td>
<td>K373B</td>
<td>1 x 120</td>
<td>0...80</td>
<td>0...1.5</td>
<td>121.4 x 172.5</td>
</tr>
</tbody>
</table>
LABKON P SERIES

LABKON P series devices (LABoratory KONstanter) offer convenient controls, a rugged design with minimal noise emission and high levels of accuracy. The devices provide an ideal, reliable solution for many applications at the industrial level and for laboratory use.

FEATURES:
- CV and CC operating modes, automatic switching
- Several groups of parameters (device settings) can be saved and retrieved.
- Floating power output / no grounding
- Output can be switched on and off
- Supports SCPI (standard commands for programmable instruments)
- Protective devices, amongst others overvoltage protection

SCOPE OF DELIVERY:
- Benchtop Instrument
- Rubber protector
- Mains cable (earthing contact)
- Safety precautions
- Operating instructions (German and English) on CD-ROM

OPTIONAL ACCESSORIES:
- IEEE488 interface (K890A)
- USB port (K891A)
- 19" installation set (Z990A)
- Factory calibration certificate

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Power</th>
<th>Voltage</th>
<th>Current</th>
<th>Dimensions B x H x T (mm)</th>
<th>Weight (approx. kg)</th>
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<tr>
<td>500W</td>
<td>LABKON P500 35/14.5 K148A</td>
<td>500</td>
<td>0...35</td>
<td>0...14.5</td>
<td>226 x 110 x 414</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>LABKON P500 80/6.5 K149A</td>
<td>500</td>
<td>0...60</td>
<td>0...6.5</td>
<td>213 x 104 x 391</td>
<td></td>
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<tr>
<td></td>
<td>LABKON P500 120/4.2 K150A</td>
<td>500</td>
<td>0...120</td>
<td>0...4.2</td>
<td>Without rubber protector</td>
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<td>800W</td>
<td>LABKON P800 35/22.5 K158A</td>
<td>800</td>
<td>0...35</td>
<td>0...22.5</td>
<td>213 x 104 x 391</td>
<td></td>
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<tr>
<td></td>
<td>LABKON P800 80/10 K159A</td>
<td>800</td>
<td>0...80</td>
<td>0...10</td>
<td>Without rubber protector</td>
<td></td>
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<tr>
<td></td>
<td>LABKON P800 120/4.2 K160A</td>
<td>800</td>
<td>0...120</td>
<td>0...6.5</td>
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</tr>
</tbody>
</table>

LSP 32K-KONSTANTER

Series LSP 32K KONSTANTERs (laboratory and system power supply) are linear controlled power supplies for use in R&D, production, service and training applications. The devices are distinguished by outstanding ease of operation, excellent regulating accuracy and minimal residual ripple.

FEATURES:
- Process controlled
- Serial device interface
- Output can be switched on and off
- Voltage and current regulating
- Rotary encoder for adjusting $U_{\text{set}}$ and $I_{\text{set}}$
- Adjustment is also possible with keys
- Multifunctional LCD panel

SCOPE OF DELIVERY:
- Mains power cable with earthing contact plug
- Operating instructions on CD-ROM

OPTIONAL ACCESSORIES:
- Interface adapter for USB (K910B)
- Interface adapter for RS 232 (K910A)
- Factory calibration certificate

Software Power Management System – PC user interface for LSP KONSTANTER 32K

FREE Download

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Power</th>
<th>Voltage</th>
<th>Current</th>
<th>Dimensions W x H x D (mm)</th>
<th>Weight (approx. kg)</th>
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</thead>
<tbody>
<tr>
<td>LSP 32K</td>
<td>32 x 18 R 5 K110A</td>
<td>90</td>
<td>0...18</td>
<td>0...5</td>
<td>215 x 100 x 280</td>
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<td>32 x 36 R 3 K111A</td>
<td>108</td>
<td>0...36</td>
<td>0...3</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>32 x 72 R 1.5 K112A</td>
<td>108</td>
<td>0...72</td>
<td>0...15</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Please refer to the data sheets for further technical specifications.
## SPL SERIES

**Single-Channel, Programmable Electronic Loads**

Series SPL devices (single-channel programmable load) are programmable electronic loads with outstanding dynamic control characteristics. They’re used for loading direct voltage/current sources with constant current, resistance, voltage or power in an adjustable fashion. Their range of applications includes static and dynamic testing of power packs, batteries, PV modules, fuel cells, inductances etc.

### FEATURES:
- 4 operating modes: CC, CV, CR and CP
- Adjustable current edges: 0.1 mA to 4 A per µs
- 3 transient functions
- The load can be activated as of an adjustable voltage level
- Short-circuit and battery discharging functions
- Sense terminal + trigger input
- Memory for 7 sequences with up to 50 steps each (at least 10 µs per step)

### CONFIGURATION:
- Low load voltage: < 0.6 V at max. current
- Load input on/off switching function
- Multifunctional, illuminated LCD panel
- Extensive protective functions: OV, OC, OP, OT, RV
- PC control via RS 232 port or optional IEEE 488 interface, or USB port
- SCPI command set

### SCOPE OF DELIVERY:
- Mains power cable with earthing contact plug
- Operating instructions and SCPI Command Guide on CD-ROM
- Operating instructions and SCPI Command Guide on CD-ROM
- RS 232 cable
- IEEE 488 interface (K890A)
- USB port (K891A)
- 19" installation set (Z990A)
- Factory calibration certificate

### SSL SERIES

**Single-Channel, Programmable Electronic Loads**

Series SSL devices (single-channel system load) are programmable electronic loads with a maximum sink power of 150 or 300 W. They’re used for loading direct voltage sources with constant current, resistance or power in an adjustable fashion. Their range of applications includes testing power packs, batteries, PV modules, fuel cells etc.

### FEATURES:
- 3 operating modes: CC, CR and CP
- Setting selected by means of rotary switch and keypad
- PC control via optional interface adapter
- High resolution measurement of U, I and P

### CONFIGURATION:
- Multifunctional, illuminated LCD panel
- Memory for 10 setting values with time regulated sequence control (at least 1 second per step)
- Extensive protective functions: OV, OC, OP, OT, RV
- Load on/off switching function

### SCOPE OF DELIVERY:
- Mains power cable with earthing contact plug
- Operating instructions on CD-ROM
- Interface adapter for USB (K910B)
- Interface adapter for RS 232 (K910A)
- Factory calibration certificate

### Tables

#### SPL SERIES

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Power $P_{\text{Set}}$ [W]</th>
<th>Voltage $U_{\text{Set}}$ [V]</th>
<th>Current $I_{\text{Set}}$ [A]</th>
<th>Resistance $R_{\text{Set}}$ [Ω]</th>
<th>Dimensions W x H x D (mm)</th>
<th>Weight (approx. kg)</th>
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<tr>
<td>SPL 250-30</td>
<td>K852A</td>
<td>0.001...250.00</td>
<td>0.001...80.00</td>
<td>0.0001...30.00</td>
<td>0.0200...2000</td>
<td>226x110x414</td>
<td>5.8</td>
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<td>K853A</td>
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<td>0.0001...40.00</td>
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<tr>
<td>SPL 200-20</td>
<td>K854A</td>
<td>0.001...200.00</td>
<td>0.001...200.00</td>
<td>0.0001...20.00</td>
<td>0.0666...6660</td>
<td>350 + 45 mm</td>
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<tr>
<td>SPL 350-30</td>
<td>K855A</td>
<td>0.001...350.00</td>
<td>0.001...350.00</td>
<td>0.0001...30.00</td>
<td>0.0666...6660</td>
<td>350 + 45 mm</td>
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#### SSL SERIES

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<th>Type</th>
<th>Article</th>
<th>Power $P_{\text{Set}}$ [W]</th>
<th>Voltage $U_{\text{Set}}$ [V]</th>
<th>Current $I_{\text{Set}}$ [A]</th>
<th>Resistance $R_{\text{Set}}$ [Ω]</th>
<th>Dimensions W x H x D (mm)</th>
<th>Weight (approx. kg)</th>
</tr>
</thead>
<tbody>
<tr>
<td>32 EL 150 R 30</td>
<td>K850A</td>
<td>0.1...150.0</td>
<td>0.001...360.0</td>
<td>0.001...30.00</td>
<td>0.01...500.0</td>
<td>215x100x280</td>
<td>5.0</td>
</tr>
<tr>
<td>32 EL 300 R 30</td>
<td>K851A</td>
<td>0.1...300.0</td>
<td>0.001...360.0</td>
<td>0.001...30.00</td>
<td>0.01...500.0</td>
<td>243 + 45 mm</td>
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ACCESSORIES

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Designation</th>
<th>Usable for</th>
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<tbody>
<tr>
<td>Mounting kit</td>
<td>K990A</td>
<td>Mounting kit 1x32N for KONSTANTER SSP/SLP 32N</td>
<td>SSP 32N, SLP 32N</td>
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<tr>
<td>Mounting kit</td>
<td>K990B</td>
<td>Mounting kit 2x32N for KONSTANTER SSP/SLP 32N</td>
<td>SSP 32N, SLP 32N</td>
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<tr>
<td>Mounting kit</td>
<td>Z990A</td>
<td>Mounting kit for SPL and LABKON P series</td>
<td>SPL series, LABKON P series</td>
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<tr>
<td>Mains jumper cable</td>
<td>K991A</td>
<td>Mains jumper cable, 0.4 m, for SLP32N and SSP32N</td>
<td>SLP 32N</td>
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<tr>
<td>Mains power cable</td>
<td>K991B</td>
<td>3-phase mains power cable, 3 m, for SSP64N and SYPKON</td>
<td>SSP 64N, SYPKON P3000 / P4500</td>
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<tr>
<td>RS232 cable</td>
<td>GTZ3241000 R0001</td>
<td>RS 232 interface cable, 2 m</td>
<td>SSP 32N, SSP 62N / 64N, MSP 64D, SYPKON, SLP, LABKON</td>
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<tr>
<td>RS232 adapter</td>
<td>K910A</td>
<td>Interface adapter, RS 232 / LSP, SSL</td>
<td>LSP 32K, SSL 32EL</td>
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<tr>
<td>USB adapter</td>
<td>K910B</td>
<td>Interface adapter, USB / LSP, SSL</td>
<td>LSP 32K, SSL 32EL</td>
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<td>IEEE488 interface</td>
<td>K890A</td>
<td>Optional IEEE 488 interface for SPL and LABKON P series</td>
<td>SPL series, LABKON P series</td>
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<td>USB interface</td>
<td>K891A</td>
<td>Optional USB port for SPL and LABKON P series</td>
<td>SPL series, LABKON P series</td>
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<td>RS232 - USB converter</td>
<td>Z501L</td>
<td>Adapter cable for connecting instruments with an RS 232 port to the USB port at a PC</td>
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SOFTWARE

Device Drivers, Soft Front-Panel, Management System

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<th>Software</th>
<th>SYSKON P</th>
<th>SSP 32N</th>
<th>SSP 62N/64N</th>
<th>MSP 64D</th>
<th>LSP 32K</th>
<th>SSL 32EL</th>
<th>SPL</th>
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<td>Device driver for NI LabVIEW</td>
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<td>■</td>
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<tr>
<td>Device driver for NI Agilent VEE</td>
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<tr>
<td>SYSKON Soft Front-Panel</td>
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<td>POWER Management System</td>
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<td>ELOAD Management System</td>
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Please refer to our Test and Measurement Catalog or company website for a detailed description of the software features.

OEM POWER SUPPLIES

Panel Mount Power Supplies

OEM (Original Equipment Manufacturer) power supplies for special applications, or in accordance with customer specifications.

In addition to our standard power supply ranges (laboratory KONSTANTERS), we also fabricate power supplies for special applications, or in accordance with customer specifications, for example:

- Fixed voltage switched-mode power supplies as European plug-in module or in cartridge format
- 24 to 12V DC-DC converters for commercial vehicles
- Customer-specific power supplies

The photos show examples of our OEM power supplies.

Please refer to the data sheets for further technical specifications.
### OVERVIEW

#### Technical Specifications

<table>
<thead>
<tr>
<th>Type</th>
<th>Article</th>
<th>Max. Power</th>
<th>Setting Range</th>
<th>Response Times (at nominal load)</th>
<th>Setting Resolution</th>
<th>Setting Accuracy</th>
<th>Tolerance (mV)</th>
<th>Time (ms)</th>
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<tr>
<td></td>
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<td>Duration</td>
<td>U&lt;sub&gt;max&lt;/sub&gt;</td>
<td>I&lt;sub&gt;set&lt;/sub&gt;</td>
<td>U&lt;sub&gt;max&lt;/sub&gt; → U&lt;sub&gt;nom&lt;/sub&gt; (ms)</td>
<td>U&lt;sub&gt;max&lt;/sub&gt; → 1 V (ms)</td>
<td>I&lt;sub&gt;set&lt;/sub&gt; (mA)</td>
<td>t&lt;sub&gt;set&lt;/sub&gt; (ms)</td>
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<td>0.05 + 90</td>
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<td>0.10 + 125</td>
<td>120</td>
<td>1.2</td>
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<td>0.10 + 48</td>
<td>0.15 + 180</td>
<td>120</td>
<td>1.6</td>
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**Programmable Laboratory Power Supplies**

<table>
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<th>Type</th>
<th>Article</th>
<th>Max. Power</th>
<th>Setting Range</th>
<th>Response Times (at nominal load)</th>
<th>Setting Resolution</th>
<th>Setting Accuracy</th>
<th>Tolerance (mV)</th>
<th>Time (ms)</th>
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<tbody>
<tr>
<td>SYSKON P50-60-30</td>
<td>K346A</td>
<td>500</td>
<td>0...60 0...30</td>
<td>2 20 1 1 1</td>
<td>0.05 + 30 0.05 + 90</td>
<td>120 0.6</td>
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<tr>
<td>SYSKON P800-60-40</td>
<td>K347A</td>
<td>800</td>
<td>0...60 0...40</td>
<td>2 15 1 1 1</td>
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<td>120 0.5</td>
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<tr>
<td>SYSKON P1500-60-60</td>
<td>K353A</td>
<td>1500</td>
<td>0...60 0...60</td>
<td>2 11 1 1 1</td>
<td>0.05 + 30 0.05 + 90</td>
<td>120 0.4</td>
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<tr>
<td>SYSKON P3000-60-120</td>
<td>K363A</td>
<td>3000</td>
<td>0...60 0...120</td>
<td>15 11 1 1 1</td>
<td>0.07 + 48 0.10 + 125</td>
<td>120 1.2</td>
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<tr>
<td>SYSKON P4500-60-180</td>
<td>K364A</td>
<td>4500</td>
<td>0...60 0...180</td>
<td>19 11 1 1 1</td>
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<td>120 1.6</td>
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**Programmable Sequences**

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<th>Type</th>
<th>Article</th>
<th>Max. Power</th>
<th>Setting Range</th>
<th>Response Times (at nominal load)</th>
<th>Setting Resolution</th>
<th>Setting Accuracy</th>
<th>Tolerance (mV)</th>
<th>Time (ms)</th>
</tr>
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<tbody>
<tr>
<td>LABKON P500 35/14.5</td>
<td>K148A</td>
<td>500</td>
<td>0...35 0...14.5</td>
<td>50 50 1 1</td>
<td>– 0.15 + 5 0.5 + 6</td>
<td>n.a. n.a.</td>
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<tr>
<td>LABKON P500 65/6.5</td>
<td>K149A</td>
<td>500</td>
<td>0...65 0...6.5</td>
<td>50 50 1 1</td>
<td>– 0.03 + 10 0.5 + 3</td>
<td>n.a. n.a.</td>
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<td>LABKON P500 120/4.2</td>
<td>K150A</td>
<td>500</td>
<td>0...120 0...4.2</td>
<td>60 60 As of 1</td>
<td>– 0.03 + 15 0.5 + 10</td>
<td>n.a. n.a.</td>
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<tr>
<td>LABKON P800 35/22.5</td>
<td>K158A</td>
<td>800</td>
<td>0...35 0...22.5</td>
<td>50 50 1 1</td>
<td>– 0.03 + 8 0.5 + 6</td>
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<tr>
<td>LABKON P800 80/10</td>
<td>K159A</td>
<td>800</td>
<td>0...80 0...10</td>
<td>50 50 1 1</td>
<td>– 0.03 + 10 0.5 + 6</td>
<td>n.a. n.a.</td>
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<td>LABKON P800 120/8.5</td>
<td>K160A</td>
<td>800</td>
<td>0...120 0...8.5</td>
<td>60 60 As of 1</td>
<td>– 0.03 + 15 0.5 + 12</td>
<td>n.a. n.a.</td>
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**MSP Plug-In Modules**

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<th>Max. Power</th>
<th>Setting Range</th>
<th>Response Times (at nominal load)</th>
<th>Setting Resolution</th>
<th>Setting Accuracy</th>
<th>Tolerance (mV)</th>
<th>Time (ms)</th>
</tr>
</thead>
<tbody>
<tr>
<td>ES 31 K 7 R 7 P</td>
<td>K372D</td>
<td>49</td>
<td>0...7 0...±7</td>
<td>0.5 0.5 2 2</td>
<td>– 0.05 + 4 0.1 + 1</td>
<td>20 0.2</td>
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<tr>
<td>ES 32 K 30 R 4 P</td>
<td>K373A</td>
<td>120</td>
<td>0...30 0...±4</td>
<td>2 3 8 1</td>
<td>– 0.05 + 16 0.1 + 2</td>
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<td>ES 32 K 80 R 1.5 P</td>
<td>K373B</td>
<td>120</td>
<td>0...80 0...±1.5</td>
<td>2 3 20 0.5</td>
<td>– 0.05 + 40 0.1 + 1</td>
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<tr>
<td>ES 31 K 2 x 8 R 3 P</td>
<td>K372A</td>
<td>2x24</td>
<td>2x0...8 2x0...±3</td>
<td>0.5 0.5 2 2</td>
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<tr>
<td>ES 31 K 2 x 16 R 1.5 P</td>
<td>K372B</td>
<td>2x24</td>
<td>2x0...16 2x0...±1.5</td>
<td>0.5 0.5 4 0.5</td>
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<td>40 0.2</td>
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<td>ES 31 K 2 x 40 R 0.6 P</td>
<td>K372C</td>
<td>2x24</td>
<td>2x0...40 2x0...±0.6</td>
<td>1 1 10 0.2</td>
<td>– 0.05 + 20 0.1 + 0.5</td>
<td>80 0.2</td>
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</table>
## OVERVIEW

### Technical Specifications

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<tr>
<th>Residual Ripple</th>
<th>Interfaces</th>
<th>Programmable Sequences</th>
<th>Number of Basic Setting Memory Locations</th>
<th>Number of Sequence Memory Locations</th>
<th>Sink Mode</th>
<th>Overvoltage Protection</th>
<th>Overcurrent Protection</th>
<th>Auto-Ranging Output</th>
<th>Output On/Off</th>
<th>Front Panel Output</th>
<th>Rear Panel Output</th>
<th>Sense Terminals</th>
<th>SELV (safety extra-low voltage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>U (mV&lt;sub&gt;max&lt;/sub&gt;)</td>
<td>I [mA&lt;sub&gt;max&lt;/sub&gt;]</td>
<td>Analog</td>
<td>RS 232</td>
<td>IEEE 488</td>
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Please refer to the data sheets for further technical specifications