

# 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.



**Konstanter 1958**

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.



**Current Syskon Laboratory Power Supply**

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, programming capabilities as well as comprehensive functionality.



## SYSKON P SERIES



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

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**SLP 32N KONSTANTER 120 ... 320 W**  
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## SSP 62N / 64N KONSTANTER



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



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LABKON P SERIES  
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ELECTRONIC LOADS  
SPL / SSL

**SPL SERIES 200 ... 400 W**  
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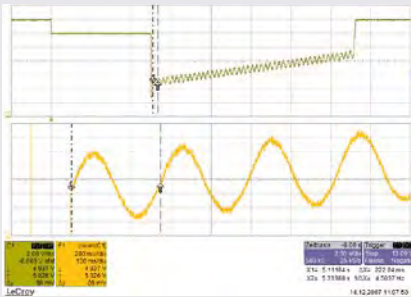


## RANGE OF APPLICATIONS

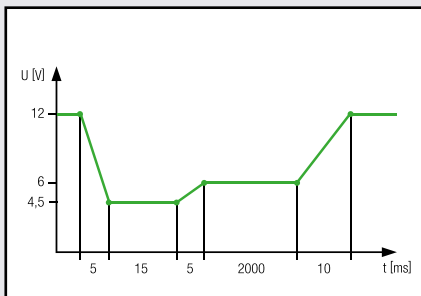
### Application Examples

#### Example:

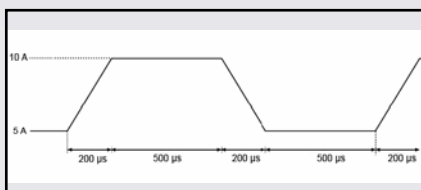
#### Automotive electrical and electronics



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

#### 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 of 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



## 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  
15 memory locations for basic settings

**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:

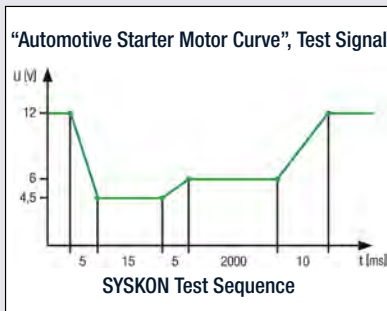
- CD-ROM with user and driver software, operating instructions (D + EN), data sheet (D + EN)
- Clear-cut user software (soft front-panel)
- Mains cable (P500, P800, P1500)
- USB cable (90° angle)
- Installation set for 19" rack mounting
- DAkkS calibration certificate

#### OPTIONAL ACCESSORIES:

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

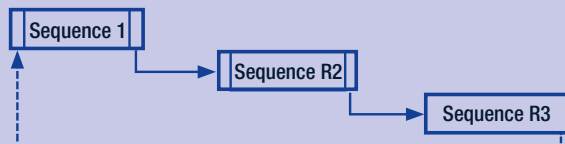
SYSKON Soft-Front Panel – PC user interface for SYSKON P series

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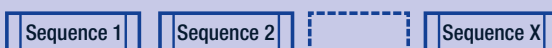


- **Sequence memory:**  
1700 locations for sequence functions

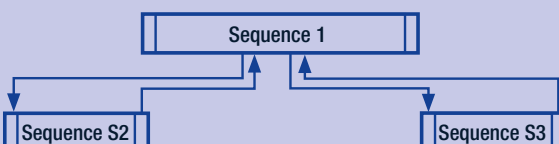
#### ■ Sequence stringing



- **Setup memory:** 15 memory locations for complete configurations



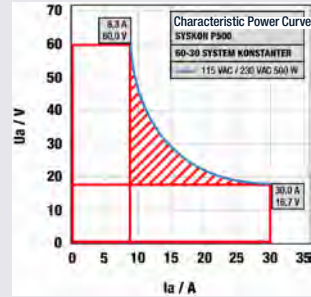
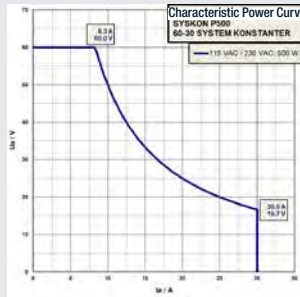
#### ■ Invocation of sub-sequences from primary sequences





### SYSKON | P500

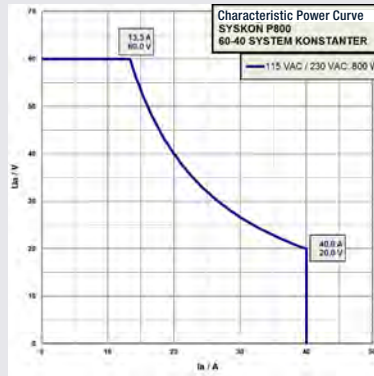
#### 500 W Output Power



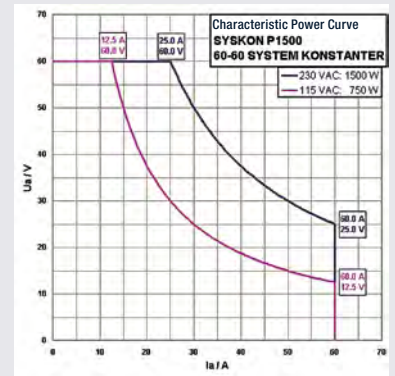
Auto-Range Curve  
Relative to  
Square Waves

### SYSKON | P800

#### 800 W Output Power



#### 1500 W Output Power

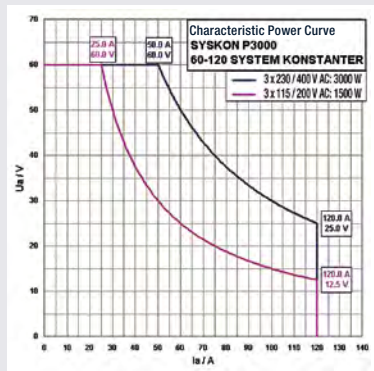


### SYSKON | P1500

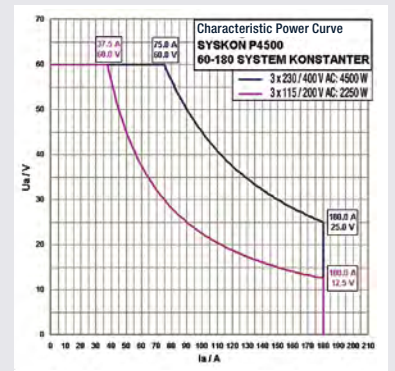


### SYSKON | P3000

#### 3000 W Output Power



#### 4500 W Output Power



### SYSKON | P4500



#### TECHNICAL DATA

Type	Article
SYSKON P500	K346A
SYSKON P800	K347A
SYSKON P1500	K353A
SYSKON P3000	K363A
SYSKON P4500	K364A
IEEE488 interface	K384A

Type	Power	Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)
	P <sub>nom</sub> [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	Benchtop Instrument	19" Rack	
SYSKON P500	500	0 ... 60	0 ... 30	447 x 102 x 541	2 s.h.u.*) x 501	10
SYSKON P800	800	0 ... 60	0 ... 40	447 x 102 x 541	2 s.h.u.*) x 501	10
SYSKON P1500	1500	0 ... 60	0 ... 60	447 x 102 x 541	2 s.h.u.*) x 501	10
SYSKON P3000	3000	0 ... 60	0 ... 120	447 x 191 x 541	4 s.h.u.*) x 501	16
SYSKON P4500	4500	0 ... 60	0 ... 180	447 x 191 x 541	4 s.h.u.*) x 501	20

\*) s.h.u. = standard height units

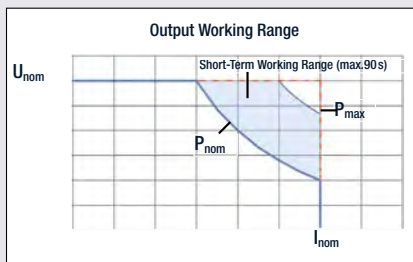


## SSP / SLP 32N 120 ... 320

### Single-Channel, Programmable Laboratory Power Supplies



SSP32N



SSP 32N-Models 120 W / 240 W



SSP 32N-Models 320 W



SLP32N

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)

SLP 32N KONSTANTERs are equipped with the same nominal output values and outstanding control characteristics as the SSP 32N series.

However, in this case the output parameters are set in the traditional manner with a ten-turn potentiometer.

But an analog interface for remote control and coupling purposes (also included with series SSP 32N devices) is included here as well

#### FUNCTIONALITY:

- Output power: 120W, 240W and 320W
- 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

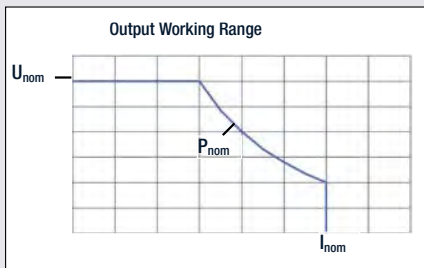
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Type	Article	Power		Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)	
		$P_{nom}$ [W]	$P_{max}$ [W]	$U_{nom}$ [V]	$I_{nom}$ [A]	Benchtop Instrument	19" Rack		
SLP 120 W SSP 120 W	32 N 20 RU 10 P	K220A / K320A	120	200	0 ... 20	0 ... 10	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	2.9
	32 N 40 RU 6 P	K221A / K321A	120	240	0 ... 40	0 ... 6			
	32 N 80 RU 3 P	K222A / K322A	120	240	0 ... 80	0 ... 3			
SLP 240 W SSP 240 W	32 N 20 RU 20 P	K230A / K330A	240	320	0 ... 20	0 ... 20	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	2.9
	32 N 40 RU 12 P	K231A / K331A	240	360	0 ... 40	0 ... 12			
	32 N 80 RU 6 P	K232A / K332A	240	360	0 ... 80	0 ... 6			
SLP 320 W SSP 320 W	32 N 32 RU 18 P	K234A / K334A	320	430	0 ... 32	0 ... 18	221.5 x 102.0 x 397.5	½ 19" x 2 standard height units x 400	3.4
IEEE488 interface for SSP 32N	K380A								0.1





## SSP 62N/64N 500 ... 3000 Single-Channel, Programmable Laboratory Power Supplies



SSP 62N-Models  
500 and 1000 W



SSP 64N Models  
2000 and 3000 W

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

■ Sequence memory: 245 locations for sequence functions

Sequence 1 | Sequence 2 | Sequence X

### 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

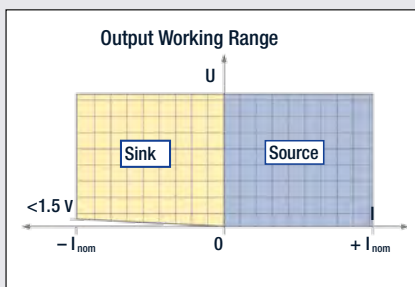
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Type	Article	Power	Voltage	Current	Dimensions (W x H x D in mm)		Weight (approx. kg)
		$P_{nom}$ [W]	$U_{nom}$ [V]	$I_{nom}$ [A]	Benchtop Instrument	19" Rack	
500 W	62 N 80 RU 12,5 P K341A	500	0...80	0...12.5	449x101x500	2 standard height units x 500	12
1000 W	62 N 52 RU 50 P K345A	1000	0...52	0...50	449x101x500	2 standard height units x 500	13
	62 N 80 RU 25 P K343A	1000	0...80	0...25			
2000 W	64 N 52 RU 100 P K352A	2000	0...52	0...100	449x190x500	4 standard height units x 500	22
3000 W	64 N 80 RU 75 P K361A	3000	0...80	0...75	449x190x500	4 standard height units x 500	28
IEEE488 + RS232 interface		K382A	–	–	–	–	–
RS232 port		K383A	–	–	–	–	–



## MSP 64D-KONSTANTER

### Modular, Computer Controlled Laboratory Power Supply



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

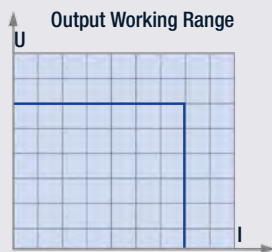
Software device driver for NI LabVIEW, NI LabWindows/CVI and for Agilent VEE



Type	Article	Power	Voltage	Current	Dimensions W x H x D (mm)		Weight (approx. kg)	
		$P_{nom}$	$U_{Set}$	$I_{Set}$	Benchtop Instrument	19" Rack		
		[W]	[V]	[A]				
MSP basic device 64 N 80 RU 75 P	K370A				448 x 177 x 390	4 standard height units x 440	6.6	
ES31	ES 31 K 2x8 R 3 P	K372A	2x24	2x0...8	2x0...±3	60.5 x 172.5	–	3.3
	ES 31 K 2x16 R 1.5 P	K372B	2x24	2x0...16	2x0...±1.5	60.5 x 172.5	–	3.3
	ES 31 K 2x40 R 0.6 P	K372C	2x24	2x0...40	2x0...±0.6	60.5 x 172.5	–	3.3
	ES 31 K 7 R 7 P	K372D	1x49	0...7	0...±7	60.5 x 172.5	–	3.3
ES32	ES 32 K 30 R 4 P	K373A	1x120	0...30	0...±4	121.4 x 172.5	–	6.8
	ES 32 K 80 R 1.5 P	K373B	1x120	0...80	0...±1.5	121.4 x 172.5	–	6.8



## LABKON P SERIES



### Single-Channel, Computer Controlled Laboratory Power Supplies

**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

- Auto-sensing mode
- Benchtop instrument, also suitable for mounting to a 19" rack
- RS 232 port, optional GPIB and USB
- Calibration (adjustment) function

#### SCOPE OF DELIVERY:

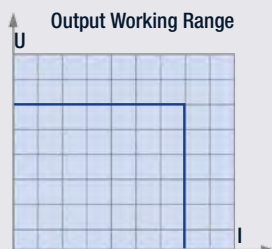
- Benchtop Instrument
- Rubber protector
- Mains cable (earthing contact)
- Safety precautions
- Operating instructions (German and English) on CD-ROM

#### OPTIONAL ACCESSORIES:

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

Type	Article	Power	Voltage	Current	Dimensions B x H x T (mm) Benchtop Instrument	Weight (approx. kg)
		$P_{nenn}$ [W]	$U_{Set}$ [V]	$I_{Set}$ [A]		
500W	LABKON P500 35/14.5	K148A	500	0 ... 35	226x110x414 With rubber protector	5.5
	LABKON P500 80/6.5	K149A	500	0 ... 80		
	LABKON P500 120/4.2	K150A	500	0 ... 120		
800 W	LABKON P800 35/22.5	K158A	800	0 ... 35	213x104x391 Without rubber protector	
	LABKON P800 80/10	K159A	800	0 ... 80		
	LABKON P800 120/6.5	K160A	800	0 ... 120		

## LSP 32K-KONSTANTER



### Single-Channel, Computer Controlled Laboratory Power Supplies

**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  $U_{Set}$  and  $I_{Set}$
- Adjustment is also possible with keys
- Multifunctional LCD panel

- Setup memory for 10 device settings
- Protective functions
- Benchtop instrument, suitable for mounting to a 19" rack

#### 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

Type	Article	Power	Voltage	Current	Dimensions W x H x D (mm)		Weight (approx. kg)
		$P_{nenn}$ [W]	$U_{Set}$ [V]	$I_{Set}$ [A]	Benchtop Instrument	19" Rack	
LSP 32K	32 K 18 R 5	K110A	90	0 ... 18	215x100x280	½19" x 2 standard height units x 243 + 45 mm	6.0
	32 K 36 R 3	K111A	108	0 ... 36			
	32 K 72 R 1.5	K112A	108	0 ... 72			



## 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  $\mu$ s
- 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  $\mu$ s per step)

- 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

#### OPTIONAL ACCESSORIES:

- IEEE 488 interface (K890A)
- USB port (K891A)
- 19" installation set (Z990A)
- Factory calibration certificate

Type	Article	Power	Voltage	Current	Resistance	Dimensions W x H x D (mm)		Weight (approx. kg)
		$P_{Set}$ [W]	$U_{Set}$ [V]	$I_{Set}$ [A]	$R_{Set}$ [ $\Omega$ ]	Benchtop Device	19" Rack	
SPL 250-30	K852A	0.001 ... 250.00	0.001 ... 80.000	0.0001 ... 30.000	0.0200 ... 2000	226x110x414	½19" x 2 standard height units x 350 + 45 mm	5.8
SPL 400-40	K853A	0.001 ... 400.00	0.001 ... 80.000	0.0001 ... 40.000	0.0200 ... 2000			
SPL 200-20	K854A	0.001 ... 200.00	0.001 ... 200.00	0.0001 ... 20.000	0.0666 ... 6660			
SPL 350-30	K855A	0.001 ... 350.00	0.001 ... 200.00	0.0001 ... 30.000	0.0666 ... 6660			

## 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

- 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

#### OPTIONAL ACCESSORIES:

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

ELOAD Management System Software –  
PC user interface for SSL electronic loads



Type	Article	Power	Voltage	Current	Resistance	Dimensions W x H x D (mm)		Weight (approx. kg)
		$P_{Set}$ [W]	$U_{Set}$ [V]	$I_{Set}$ [A]	$R_{Set}$ [ $\Omega$ ]	Benchtop Instrument	19" Rack	
32 EL 150 R 30	K850A	0.1 ... 150.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0	215x100x280	½19" x 2 s.h.u. x 243 + 45 mm	5.0
32 EL 300 R 30	K851A	0.1 ... 300.0	0.001 ... 360.0	0.001 ... 30.00	0.01 ... 500.0			



## ACCESSORIES

### Laboratory Power Supply

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

## SOFTWARE

### Device Drivers, Soft Front-Panel, Management System

Software	SYSKON P	SSP 32N	SSP 62N/64N	MSP 64D	LSP 32K	SSL 32EL	SPL
Device driver for NI LabVIEW	■	■	■	■	–	–	■
Device driver for NI LabWindows/CVI	■	■	■	■	–	–	–
Device driver for NI Agilent VEE	■	■	■	■	–	–	–
SYSKON Soft Front-Panel	■	–	–	–	–	–	–
SSP Soft Front-Panel	–	■	■	–	–	–	–
POWER Management System	–	–	–	–	■	–	–
ELOAD Management System	–	–	–	–	–	■	–

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.**



## OVERVIEW

## Technical Specifications

Type	Article	Max. Power		Setting Range		Response Times (at nominal load)		Setting Resolution			Setting Accuracy		Settling Time for U with Sudden Load Variation 20 % ... 100 % I <sub>nom</sub>	
		Durati-on [W]	< 90 s [W]	U <sub>Set</sub> [V]	I <sub>Set</sub> [A]	0 V → U <sub>nom</sub> (ms)	U <sub>nom</sub> → 1 V (ms)	U <sub>Set</sub> (mV)	I <sub>Set</sub> (mA)	t <sub>Set</sub> (ms)	U <sub>Set</sub> ± (%+mV)	I <sub>Set</sub> ± (%+mA)	Tolerance (mV)	Time (ms)
<b>Programmable Laboratory Power Supplies</b>														
SYSKON P500-60-30	K346A	500	–	0...60	0... 30	2	20	1	1	1	0.05+30	0.05+ 90	120	0.6
SYSKON P800-60-40	K347A	800	–	0...60	0... 40	2	15	1	1	1	0.05+30	0.05+ 90	120	0.5
SYSKON P1500-60-60	K353A	1500	–	0...60	0... 60	2	11	1	1	1	0.05+30	0.05+ 90	120	0.4
SYSKON P3000-60-120	K363A	3000	–	0...60	0...120	15	11	1	1	1	0.07+48	0.10+135	120	1.2
SYSKON P4500-60-180	K364A	4500	–	0...60	0...180	19	11	1	1	1	0.10+48	0.15+180	120	1.6
SSP 32 N 20 RU 10 P	K320A	120	(200)	0...20	0...10	1	1	5	2.5	10	0.15+30	0.4+35	40	0.2
SLP 32 N 20 R 10	K220A									–				
SSP 32 N 40 RU 6 P	K321A	120	(240)	0...40	0...6	1	1	10	2	10	0.15+40	0.5+20	80	0.2
SLP 32 N 40 R 6	K221A									–				
SSP 32 N 80 RU 3 P	K322A	120	(240)	0...80	0...3	4	4	20	1	10	0.15+80	0.5+10	160	0.2
SLP 32 N 80 R 3	K222A									–				
SSP 32 N 20 RU 20 P	K330A	240	(320)	0...20	0...20	1	1	5	5	10	0.15+40	0.5+70	40	0.6
SLP 32 N 20 R 20	K230A									–				
SSP 32 N 40 RU 12 P	K331A	240	(360)	0...40	0...12	1	1	10	3.33	10	0.15+45	0.5+45	80	0.3
SLP 32 N 40 R 12	K231A									–				
SSP 32 N 80 RU 6 P	K332A	240	(360)	0...80	0...6	4	4	20	2	10	0.15+80	0.5+25	160	0.2
SLP 32 N 80 R 6	K232A									–				
SSP 32 N 32 RU 18 P	K334A	320	(430)	0...32	0...18	1	1	10	5	10	0.15+50	0.5+70	64	0.5
SLP 32 N 32 R 18	K234A									–				
SSP 62 N 80 RU 12.5 P	K341A	500	–	0...80	0...12.5	15	15	20	3.125	10	0.1+20	0.2 + 15	160	0.7
SSP 62 N 52 RU 50 P	K345A	1000	–	0...52	0...50	12.5	12.5	16.7	12.5	10	0.1+17	0.2 + 50	80	0.3
SSP 62 N 80 RU 25 P	K343A	1000	–	0...80	0...25	10	15	20	6.25	10	0.1+20	0.2 + 25	160	0.4
SSP 64 N 52 RU 100 P	K352A	2000	–	0...52	0...100	12.5	12.5	16.7	25	10	0.1+17	0.25+100	80	0.3
SSP 64 N 80 RU 75 P	K361A	3000	–	0...80	0...75	10	15	20	20	10	0.1+20	0.3 + 80	160	0.4
LABKON P500 35/14.5	K148A	500	–	0...35	0...14.5	50	50	1	1	–	0.15+5	0.5+6	n.a.	n.a.
LABKON P500 80/6.5	K149A	500	–	0...80	0...6.5	50	50	1	1	–	0.03+10	0.5+3	n.a.	n.a.
LABKON P500 120/4.2	K150A	500	–	0...120	0...4.2	60	60	As of 1	1	–	0.03+15	0.5+10	n.a.	n.a.
LABKON P800 35/22.5	K158A	800	–	0...35	0...22.5	50	50	1	1	–	0.03+8	0.5+6	n.a.	n.a.
LABKON P800 80/10	K159A	800	–	0...80	0...10	50	50	1	1	–	0.03+10	0.5+5	n.a.	n.a.
LABKON P800 120/6.5	K160A	800	–	0...120	0...6.5	60	60	As of 1	1	–	0.03+15	0.5+12	n.a.	n.a.
LSP 32 K 18 R 5	K110A	90	–	0...18	0...5	200	1500	10	1	–	0.1+20	0.2+20	70	50
LSP 32 K 36 R 3	K111A	108	–	0...36	0...3	200	1500	10	1	–	0.1+20	0.2+20	70	50
LSP 32 K 72 R 1.5	K112A	108	–	0...72	0...1.5	200	3000	20	1	–	0.1+20	0.2+20	70	50
<b>MSP Plug-In Modules</b>														
ES 31 K 7 R 7 P	K372D	49	–	0... 7	0...±7	0.5	0.5	2	2	–	0.05+ 4	0.1+4	20	0.2
ES 32 K 30 R 4 P	K373A	120	–	0...30	0...±4	2	3	8	1	–	0.05+16	0.1+2	60	0.2
ES 32 K 80 R 1.5 P	K373B	120	–	0...80	0...±1.5	2	3	20	0.5	–	0.05+40	0.1+1	160	0.2
ES 31 K 2x8 R 3 P	K372A	2x24	–	2x0... 8	2x0...±3	0.5	0.5	2	2	–	0.05+ 4	0.1+2	20	0.2
ES 31 K 2x16 R 1.5 P	K372B	2x24	–	2x0...16	2x0...±1.5	0.5	0.5	4	0.5	–	0.05+ 8	0.1+1	40	0.2
ES 31 K 2x40 R 0.6 P	K372C	2x24	–	2x0...40	2x0...±0.6	1	1	10	0.2	–	0.05+20	0.1+0.5	80	0.2

■ Standard equipment ◆ Optional



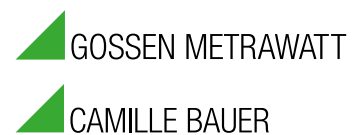
# OVERVIEW

## Technical Specifications

Residual Ripple		Interfaces				Programmable Sequences	Number of Basic Setting Memory Locations	Number of Sequence Memory Locations	Sink Mode	Overvoltage Protection	Overcurrent Protection	Auto-Ranging Output	Output On/Off	Front Panel Output	Rear Panel Output	Sense Terminals	SELV (safety extra-low voltage)							
U (mV <sub>TRMS</sub> )	I [mA <sub>TRMS</sub> ]	Analog	RS 232	USB	IEEE 488																			
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
6	50	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
10	70	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
15	100	■	■	■	◆	■	15	1700	Dyn.	■	■	■	■	-	■	■	-							
10	25	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	20	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	10	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	-							
15	50	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
15	25	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
15	20	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	-							
30	50	■	■	-	◆	■	10	242	Dyn.	■	■	■	■	■	■	■	■							
10	15	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
10	25	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
15	20	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
10	80	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
15	60	■	◆	-	◆	■	10	245	Dyn.	■	■	■	■	-	■	■	-							
5	8	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	■							
8	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
15	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
10	8	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	■							
16	6	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
16	10	-	■	◆	◆	-	10	-	-	■	■	-	■	■	-	■	-							
2	5	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■							
2	4	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	■							
2	3	-	◆	◆	-	-	-	-	-	■	■	-	■	■	-	-	-							
1	3	-	Via basic instrument	-	-	-	-	-	-	■	■	■	-	■	■	-	■	■						
3	3	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
3	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	-
1	3	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
1	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■
3	2	-								■	■	■	-	■	■	-	■	■	-	■	■	-	■	■

■ Standard equipment ◆ Optional

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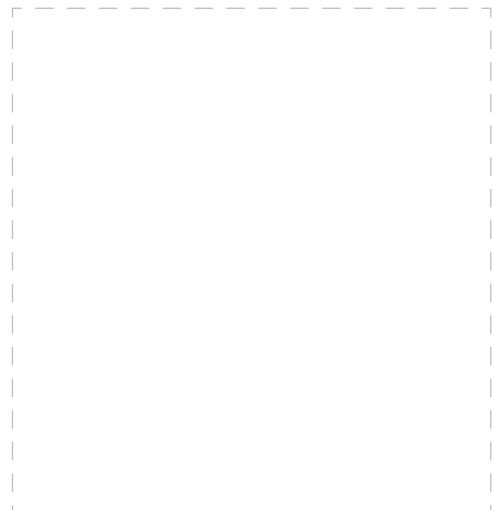
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