

# SSP-KONSTANTER, Series 62 N and Series 64 N Computer Controlled Laboratory Power Supplies

3-349-078-03  
3/4.13

- **Series 62 N:** 500 W, 1000 W output power  
**Series 64 N:** 2000 W, 3000 W output power
- Measuring functions for voltage, current and power with extreme value memory
- Minimal residual ripple and short response times
- IEEE488/RS232C or RS232C interfaces (plug-in module option)
- Integrated sequence function for the generation of voltage and current profiles with automatic sequence
- Storage of 10 device configurations
- Output can be activated and deactivated
- Lockable operating elements
- Master-slave operation is possible
- Overvoltage, overcurrent and excessive temperature protection
- Compact design, lightweight and minimal power loss thanks to switching controller technology



## Description

SSP KONSTANTER (single-output system power supplies) DC power supplies can be manually or remote controlled for laboratory or systems applications. Despite high output power, the devices are small in size and lightweight as well.

The floating output is provided with protective isolation from the mains power supply, as well as all optional computer interfaces, and has been classified as a safety extra-low voltage circuit (SELV) in accordance with VDE / IEC. Nominal power supplied by the voltage and current controlled output can be delivered over widely adjustable voltage and current ranges.

These devices are generally equipped with operating elements and displays, as well as an analog interface. An optional IEEE488/RS232C or an RS232C interface can be inserted into the device in order to link it to computer controlled systems.

Manual adjustment of voltage and current is accomplished by means of two rotary knobs with adjustable resolution. A wide variety of additional functions can be selected with the keys. Two 4-place digital LED displays provide information concerning measurement and set values. Current operating modes, selected display parameters and the status of device and interface functions are indicated with LEDs.

The analog interface allows for the adjustment of output voltage and current with external control voltages, and for the linking of several devices in the master-slave operating mode. The power output can be activated and deactivated, the front panel can be locked, and stored configurations can be recalled via the floating optocoupler input.

## Range of Applications

Electrical and electronic devices may be subjected to substantial supply power fluctuations depending upon where they are used and prevailing ambient conditions.

The automotive electrical system characteristics which can be observed when the starter motor is cranked is a typical example. R&D, production and testing departments must therefore assure that electrical equipment reliably fulfills all of the required functions at any point in time under adverse conditions.

Series 62 N and 64 N SSP KONSTANTERs provide the user with a number of functions for solutions to these problems. High throughput rates can be achieved with automatic systems for routine testing in combination with the SSP KONSTANTER.

Short response time assures highly accurate simulation of rapidly changing voltage or current profiles.

The performance of consuming devices as related to dynamic supply power can thus be easily tested and simulated.

# SSP-KONSTANTER, Series 62 N and Series 64 N

## Computer Controlled Laboratory Power Supplies

---

### Adjustable Functions

- Voltage and current setpoints
- Voltage and current limit values (soft limits)
- Output activation and deactivation
- Overvoltage protection trigger value
- Overcurrent protection (limiting with or without shutdown)
- Delay time for overcurrent shutdown
- Power-on status
- Reset device configurations
- Save device configurations to memory
- Recall device configurations individually or sequentially
- Select trigger input function
- Rounding of measurement value for display purposes
- Service request masks (SRQ) \*
- Activate and deactivate digital displays \*
- Start self-test at power-up \*

\* Only via computer interface

---

### Acquirable Information

- Current voltage and current measurement values
- Min. and max. voltage and current measurement values
- Current output power
- Current device settings
- Current device status (control mode, excessive temperature, busy \*)
- Occurred event (power or phase failure, excessive temperature, overvoltage, overload, program error \*)
- Device ID \*

\* Only via computer interface

---

### Protective and Additional Functions

- Sensor terminals protected against pole reversal with automatic switching to sensing mode (auto-sensing)
- Protection against excessive temperature
- Protection against output pole reversal
- Locking of front panel operation
- Device configuration memory with battery backup
- Power and phase failure recognition
- In-rush current limiting

### Auto-Sensing

Operation in the sensing mode (remote sensing) can be activated in order to compensate for voltage drops at the power lines.

The sensing mode is automatically activated by connecting the (–) negative sensing terminal to the negative load level.

Max. compensatable  
voltage drop                      1 V per line

---

### Locking of Front Panel Operation

The control elements can be secured against unauthorized use by pressing a key, with a computer command, or by applying a signal to the trigger input.

---

### Activating and Deactivating the Output

The power output can be activated and deactivated by pressing a key, with a computer command, or by applying a signal to the trigger input (no electrical isolation).

---

### Power-On Status

The power supply can be placed into one of the following conditions after power-up:

- Reset = default setting (0 V, 0 A, output inactive etc.)
- Recall        = last setting (same as prior to last shutdown)
- Standby     = last setting, but with inactive output

---

### Overcurrent Protection

The device can be configured to respond to current limiting in one of the following ways:

- OCP off = continuous current limiting (UI characteristic curve)
- OCP on = deactivate output if duration of current limiting is greater than delay time  
Delay time: setting range from 0.00 to 99.99 s  
resolution: 10 ms

---

### Trigger Selection

The device can be configured to respond to the floating trigger input at the analog interface in one of the following ways:

- output        = activate / deactivate the power output
- local lock    = lock the control elements
- recall         = individual, step-by-step recall of stored settings
- sequence     = start / stop the sequence function

# SSP-KONSTANTER, Series 62 N and Series 64 N

## Computer Controlled Laboratory Power Supplies

### Extreme Measurement Value Memory

The MIN-MAX function causes automatic acquisition and storage to memory of minimum and maximum voltage and current measurement values.

### Memory Function

Device configurations can be saved to, and recalled from the memory with battery backup. The memory has two storage areas:

- 10 memory locations for complete configurations
- 245 memory locations for the sequence function (voltage setpoint USET, current setpoint ISET, dwell time TSET)

### Sequence Function

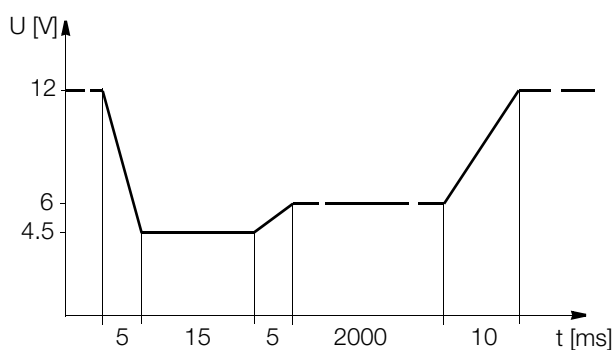
The sequence function allows for automatic recall of settings which have been saved to the sequence memory.

The sequence function includes the following parameters:

- START = beginning memory location address
- STOP = ending memory location address
- REPETITION = number of sequence repetitions (1 to 255 or 0 = continuous repetition)
- TSET = dwell time specific to memory location (10 ms to 99.99 s)
- TDEF = dwell time independent of memory location (10 ms to 99.99 s)

Application Example:

Generation of a voltage profile in accordance with DIN 40839 (automotive electrical system while cranking the starter motor)



Note:

Maintenance of voltage rise and decay times can only be assured within a limited load impedance range.

### Order Information

| Description (short name)                    | Article number |
|---------------------------------------------|----------------|
| 62 N 52 RU 25 P                             | K344A          |
| 62 N 52 RU 50 P                             | K345A          |
| 64 N 52 RU 100 P                            | K352A          |
| 64 N 52 RU 150 P                            | K362A          |
| 62 N 80 RU 12.5 P                           | K341A          |
| 62 N 80 RU 25 P                             | K343A          |
| 64 N 80 RU 50 P                             | K351A          |
| 64 N 80 RU 75 P                             | K361A          |
| IEEE488/RS232 interface, for SSP-62/64N-BZ3 | K382A          |
| RS232 interface, for SSP-62/64N-BZ3         | K383A          |

### Software

| Type  | Designation                                                                                                    | Article No. |
|-------|----------------------------------------------------------------------------------------------------------------|-------------|
| K930D | LabView, device driver for SSP-KONSTANTER series 120 / 240 / 320, and series 500 / 1000 / 2000 / 3000          | K930D       |
| K930E | LabWindows / CVI, device driver for SSP-KONSTANTER series 120 / 240 / 320, and series 500 / 1000 / 2000 / 3000 | K930E       |
| K930F | HPVee / VXi PnP, device driver for SSP-KONSTANTER series 120 / 240 / 320, and series 500 / 1000 / 2000 / 3000  | K930F       |

### Installation Accessories

| Description                    | Note                                                                                       | Article No.      |
|--------------------------------|--------------------------------------------------------------------------------------------|------------------|
| Bus Cable RS-232, 2 m          | For connecting a device to an RS-232 interface (extension cable 9-pin socket / 9-pin plug) | GTZ32410 00R0001 |
| Bus Cable IEEE / IEEE, 2 m     | For connecting a device to the IEEE-488 bus system                                         | K931A            |
| Three-phase current cable, 3 m | To connect SYSKON P3000, SYSKON P4500 to the Three-phase-AC grid                           | K991B            |

### Applicable Standards and Regulations

|                                       |                                                                                     |
|---------------------------------------|-------------------------------------------------------------------------------------|
| IEC 61010-1/EN 61010-1/<br>VDE 0411-1 | Safety regulations for electrical measurement, control and laboratory devices       |
| EN 60529<br>VDE 0470 Part 1           | Test instruments and test procedures protection provided by enclosures (IP code)    |
| DIN EN 61326<br>VDE 0843 Part 20      | Electrical equipment for measurement, control and laboratory use - EMC requirements |

# SSP-KONSTANTER, Series 62 N and Series 64 N

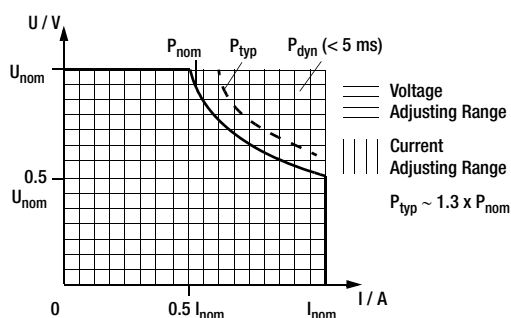
## Computer Controlled Laboratory Power Supplies

### General Characteristics

#### Output

|                      |                                                                                                                                                                                                                                                                       |
|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Controller principle | Primary switching controller                                                                                                                                                                                                                                          |
| Operating modes      | Adjustable constant voltage/constant current source with automatic sharp transition                                                                                                                                                                                   |
| Output isolation     | Floating output with protective isolation from mains power supply and computer interfaces;<br>max. admissible potential output-earth 120 V<br>Capacity output-earth (housing)<br>Series 62 N: 500 W / 1000 W: typ. 90 nF<br>Series 64 N: 2000 W / 3000 W: typ. 180 nF |

#### Output Working Ranges



#### Analog Interface

|           |                                                                                                                                                                                                                                                                                                                                                                                    |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Functions | <ul style="list-style-type: none"> <li>– Sensing mode</li> <li>– Programmable trigger input</li> <li>– Voltage control input (0 ... 5 V)</li> <li>– Current control input (0 ... 5 V)</li> <li>– Voltage monitor output (0 ... 10 V)</li> <li>– Current monitor output (0 ... 10 V)</li> <li>– Master-slave parallel operation</li> <li>– Master-slave series operation</li> </ul> |
|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

#### IEC-625/IEEE 488 Interface (joint option with RS-232, Variant 2)

##### Interface functions

|        |                               |
|--------|-------------------------------|
| SH1    | – SOURCE HANDSHAKE            |
| AH1    | – ACCEPTOR HANDSHAKE          |
| T6     | – TALKER                      |
| L4     | – LISTENER                    |
| TE0    | no extended talker function   |
| LE0    | no extended listener function |
| SR1    | – SERVICE REQUEST             |
| RL1    | – REMOTE / LOCAL              |
| DC1    | – DEVICE CLEAR                |
| PP1    | – PARALLEL POLL               |
| DT1    | – DEVICE TRIGGER              |
| C0     | – no controller function      |
| E1 / 2 | – Open collector driver       |

|                 |                               |
|-----------------|-------------------------------|
| Codes / formats | in accordance with IEEE 488.2 |
| max. settings   | approx. 40 settings / s       |
| max. meas. rate | approx. 15 measurements / s   |

#### V.24 / RS 232C Interface (option variant 1 or 2)

|                    |                                |
|--------------------|--------------------------------|
| Transmission mode  | half-duplex, asynchronous      |
| Transmission speed | 110 ... 19200 baud, adjustable |
| Codes / formats    | in accordance with IEEE 488.2  |
| max. setting rate  | approx. 2 settings / s         |
| max. meas. rate    | approx. 2 measurements / s     |

#### Power Supply

|                |                                                                                                    |
|----------------|----------------------------------------------------------------------------------------------------|
| Mains voltage  | 62 N: 230 V ~ +10 / –15 %;<br>47 ... 63 Hz<br>64 N: 3 x 400 / 230 V ~ +10 / –15 %;<br>47 ... 63 Hz |
| Making current | max. 50 A <sub>S</sub>                                                                             |
| Mains fuse     | 62 N: 1 x M 15 A / 250 V<br>(6.3 x 32 mm), UL<br>64 N: 3 x M 15 A / 250 V<br>(6.3 x 32 mm), UL     |

#### Electrical Safety

|                       |                                                            |
|-----------------------|------------------------------------------------------------|
| Safety Class          | I                                                          |
| Measuring Category    | II for mains input<br>I for output and interfaces          |
| Contamination Level   | 2                                                          |
| Earth Leakage Current | 62 N: < 3 mA <sub>eff</sub><br>64 N: < 1 mA <sub>eff</sub> |

|                      |                      |                    |
|----------------------|----------------------|--------------------|
| Electrical Isolation | Rated Voltage        | Test Voltage       |
| Output – Mains       | 280 V <sub>eff</sub> | 4 kV ~ (type test) |
| Output – Bus / Earth | 120 V <sub>S</sub>   | 1.5 kV ~           |
| Mains – Bus / Earth  | 230 V <sub>eff</sub> | 2.2 kV –           |
| Bus – Earth          | no isolation         |                    |

IEC 61010-1: 1990 + A1: 1992  
DIN EN 61010-1: 1993  
VDE 0411-1: 1994  
DIN VDE 0160: 1988 + A1: 1989 class W1  
VDE 0805: 1990  
EN 60950: 1992

|            |                                                                                 |
|------------|---------------------------------------------------------------------------------|
| Protection | IP 00 for terminals on device side and interface terminals<br>IP 20 for housing |
|------------|---------------------------------------------------------------------------------|

Extract from table on the meaning of IP codes

| IP XY<br>(1 <sup>st</sup> digit X) | Protection against<br>foreign object entry | IP XY<br>(2 <sup>nd</sup> digit Y) | Protection against the<br>penetration of water     |
|------------------------------------|--------------------------------------------|------------------------------------|----------------------------------------------------|
| 0                                  | not protected                              | 0                                  | not protected                                      |
| 1                                  | ≥ 50.0 mm Ø                                | 1                                  | vertically falling drops                           |
| 2                                  | ≥ 12.5 mm Ø                                | 2                                  | vertically falling drops with enclosure tilted 15° |

#### Electromagnetic Compatibility (EMC)

|                       |                                                                                                                                                                                                                                                                                  |
|-----------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Product standard      | EN 61326-1: 1997 + A1: 1998                                                                                                                                                                                                                                                      |
| Interference Emission | EN 55022: 1998 class A                                                                                                                                                                                                                                                           |
| Interference Immunity | EN 61000-4-2: 1995 performance feature B<br>EN 61000-4-3: 1996 + A1: 1998 performance feature A<br>EN 61000-4-4: 1995 performance feature C<br>EN 61000-4-5: 1995 performance feature B<br>EN 61000-4-6: 1996 performance feature B<br>EN 61000-4-11: 1994 performance feature A |

# SSP-KONSTANTER, Series 62 N and Series 64 N Computer Controlled Laboratory Power Supplies

## Ambient Conditions

|                   |                                                                    |                                             |             |
|-------------------|--------------------------------------------------------------------|---------------------------------------------|-------------|
| Climatic category | KYG per DIN 40 040                                                 |                                             |             |
| Temperature range | operation:                                                         | 0 bis 40 °C                                 |             |
|                   | storage:                                                           | -20 bis +70 °C                              |             |
| Humidity          | operation:                                                         | ≤ 75 % relative humidity;<br>no condensaion |             |
|                   | storage:                                                           | ≤ 65 % relative humidity                    |             |
| Cooling           | by integrated fan                                                  |                                             |             |
|                   | (2-stage temperature-controlled)                                   |                                             |             |
|                   | air inlet:                                                         | side panels                                 |             |
|                   | air outlet:                                                        | rear panel                                  |             |
| Operating noise   | sound pressure level at a distance of 30 cm<br>for fan slow / fast |                                             |             |
|                   |                                                                    | 62 N:                                       | 64 N:       |
|                   | front                                                              | 18 / 28 dBA                                 | 20 / 30 dBA |
|                   | rear                                                               | 23 / 35 dBA                                 | 26 / 38 dBA |
|                   | left, right                                                        | 20 / 30 dBA                                 | 26 / 36 dBA |
|                   |                                                                    |                                             |             |
|                   |                                                                    |                                             |             |

## Mechanical Characteristics

### Device Type

Benchtop device, suitable for rack mounting

Dimensions  
(W x H x D)

see also dimensional drawings  
62 N: 19" x 2 std. height units x 500 mm  
64 N: 19" x 4 std. height units x 500 mm

Weight

|       |         |               |
|-------|---------|---------------|
| 62 N: | 500 W:  | approx. 12 kg |
|       | 1000 W: | approx. 13 kg |
| 64 N: | 2000 W: | approx. 22 kg |
|       | 3000 W: | approx. 28 kg |

Interface RS 232C (optional) approx. 0.1 kg

Interface IEEE 488 /  
RS 232C (optional) approx. 0.14 kg

### Terminals (rear panel)

|                  |                                                                       |                                                                                                   |
|------------------|-----------------------------------------------------------------------|---------------------------------------------------------------------------------------------------|
| Mains input      | 62 N:                                                                 | 10-A-IEC inlet connector<br>with earth contact (L + N + PE)                                       |
|                  | 64 N:                                                                 | 5-pin screw terminal block for<br>cable connection<br>0.75 ... 2.5 mm <sup>2</sup> (3 L + N + PE) |
| Output           | Rails with drill holes for M8 screws and<br>4 mm diameter drill holes |                                                                                                   |
| Analog interface | 14-pin plug connector with screw terminals                            |                                                                                                   |

## Interface Options

- a) RS 232C
- b) IEEE 488/RS 232C

**RS 232C Interface** (option a), b))  
9-pin sub-D socket connector  
DIN 41652

### Pin Assignment

Pin 2: TXD (transmitted data)  
Pin 3: RXD (received data)  
Pin 5: GND (Earth)

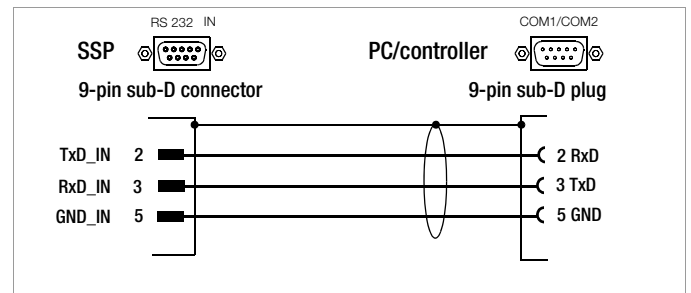
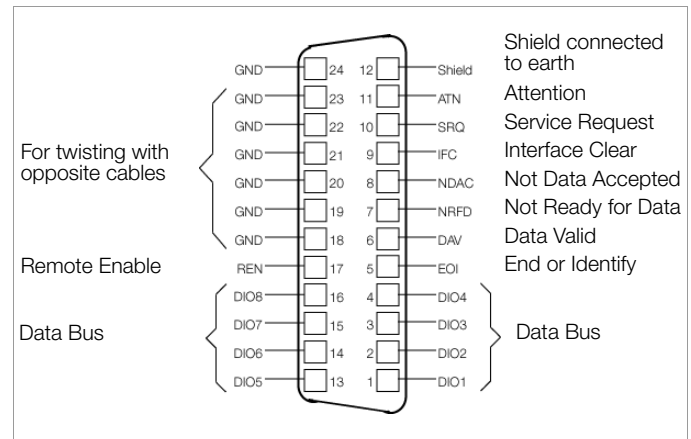


Figure 1 Connection cable for serial interface

**IEC 625 / IEEE 488 interface** (option b))  
24-pin IEEE 488 socket connector  
IEC 625.1, IEEE 488.1

### Pin assignment



# SSP-KONSTANTER, Series 62 N and Series 64 N

## Computer Controlled Laboratory Power Supplies

### Electrical Data for 52 V Models

Unless otherwise specified, entries are maximum values and apply within an operating temperature range of 0 to 50° C after a warm-up period of 30 minutes.

| Article Number                                                                                                 |                                     | K344A                                      | K345A                                      | K352A                                      | K362A                                      |
|----------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| Type                                                                                                           |                                     | 62 N 52 RU 25 P                            | 62 N 52 RU 50 P                            | 64 N 52 RU 100 P                           | 64 N 52 RU 150 P                           |
| Nominal output data                                                                                            | Voltage setting range               | 0 ... 52 V                                 | 0 ... 52 V                                 | 0 ... 52 V                                 | 0 ... 52 V                                 |
|                                                                                                                | Current setting range               | 0 ... 25 A                                 | 0 ... 50 A                                 | 0 ... 100 A                                | 0 ... 150 A                                |
|                                                                                                                | Power                               | max. 500 W                                 | max. 1000 W                                | max. 2000 W                                | max. 3000 W                                |
| Output characteristics (ppm and percentage values make reference to the respective setting or measuring range) |                                     |                                            |                                            |                                            |                                            |
| Setting resolution                                                                                             | Voltage                             | 16.7 mV                                    | 16.7 mV                                    | 16.7 mV                                    | 16.7 mV                                    |
|                                                                                                                | Current <sup>1)</sup>               | 6.25 mA                                    | 12.5 mA                                    | 25 mA                                      | 40 mA                                      |
| Setting accuracy (at 23 ± 5° C)                                                                                | Voltage                             | 0.1 % +17 mV                               | 0.1 % +17 mV                               | 0.1 % +17 mV                               | 0.1 % +17 mV                               |
|                                                                                                                | Current                             | 0.2 % +25 mA                               | 0.2 % +50 mA                               | 0.25 % +100 mA                             | 0.3 % +150 mA                              |
| Temperature coefficient of the setting Δ / K                                                                   | Voltage                             | 50 ppm +0.2 mV                             | 50 ppm +0.2 mV                             | 50 ppm +0.2 mV                             | 50 ppm +0.2 mV                             |
|                                                                                                                | Current                             | 100 ppm +0.2 mA                            | 100 ppm +0.2 mA                            | 100 ppm +0.4 mA                            | 100 ppm +0.6 mA                            |
| Static system deviation with 100% load fluctuation                                                             | Voltage <sup>2)</sup>               | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                               |
|                                                                                                                | Current                             | 0.05 % +10 mA                              | 0.05 % +20 mA                              | 0.05 % +40 mA                              | 0.05 % +60 mA                              |
| Static system deviation with 15% line voltage fluctuation                                                      | Voltage                             | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                               |
|                                                                                                                | Current                             | 0.03 % +8 mA                               | 0.03 % +15 mA                              | 0.03 % +30 mA                              | 0.03 % +40 mA                              |
| Residual ripple                                                                                                |                                     |                                            |                                            |                                            |                                            |
| U <sub>0</sub>                                                                                                 | Ripple 10 Hz ... 300 Hz             | 12 mV <sub>SS</sub>                        | 15 mV <sub>SS</sub>                        | 20 mV <sub>SS</sub>                        | 20 mV <sub>SS</sub>                        |
|                                                                                                                | Ripple 10 Hz ... 300 kHz            | 30 mV <sub>SS</sub>                        | 30 mV <sub>SS</sub>                        | 30 mV <sub>SS</sub>                        | 30 mV <sub>SS</sub>                        |
| I <sub>0</sub>                                                                                                 | Ripple + noise 10 Hz ... 10 MHz     | 50 mV <sub>SS</sub> / 10 mV <sub>eff</sub> | 50 mV <sub>SS</sub> / 10 mV <sub>eff</sub> | 50 mV <sub>SS</sub> / 10 mV <sub>eff</sub> | 50 mV <sub>SS</sub> / 10 mV <sub>eff</sub> |
|                                                                                                                | Ripple + noise 10 Hz ... 10 MHz     | 15 mA <sub>eff</sub>                       | 25 mA <sub>eff</sub>                       | 80 mA <sub>eff</sub>                       | 120 mA <sub>eff</sub>                      |
| Output voltage transient recovery time with load step within range of 20 to 100% I <sub>nominal</sub>          | Tolerance                           | 80 mV                                      | 80 mV                                      | 80 mV                                      | 80 mV                                      |
|                                                                                                                | ΔI = 10 %                           | 100 μs                                     | 100 μs                                     | 100 μs                                     | 100 μs                                     |
|                                                                                                                | ΔI = +80 %                          | 300 μs                                     | 300 μs                                     | 300 μs                                     | 300 μs                                     |
|                                                                                                                | ΔI = -80 %                          | 900 μs                                     | 300 μs                                     | 300 μs                                     | 300 μs                                     |
| Output voltage over and undershooting with load step within range of 20 to 100% I <sub>nominal</sub>           | ΔI = 10 %                           | 150 mV                                     | 150 mV                                     | 150 mV                                     | 150 mV                                     |
|                                                                                                                | ΔI = 80 %                           | 500 mV                                     | 750 mV                                     | 750 mV                                     | 750 mV                                     |
| Output voltage response time <sup>3)</sup>                                                                     |                                     |                                            |                                            |                                            |                                            |
| where Uset step = 0 V → U <sub>nominal</sub>                                                                   | Tolerance                           | 80 mV                                      | 80 mV                                      | 80 mV                                      | 80 mV                                      |
|                                                                                                                | No load, nominal load               | 6 ms, 12.5 ms                              | 6 ms, 12.5 ms                              | 6 ms, 12.5 ms                              | 6 ms, 12.5 ms                              |
| where Uset step = U <sub>nominal</sub> → 1 V                                                                   | No load, nominal load               | 150 ms, 12.5 ms                            | 150 ms, 12.5 ms                            | 150 ms, 12.5 ms                            | 150 ms, 12.5 ms                            |
| Output capacitor discharging circuit                                                                           | Nominal value                       | 2000 μF                                    | 2000 μF                                    | 4000 μF                                    | 6000 μF                                    |
|                                                                                                                | Power                               | 25 W                                       | 25 W                                       | 50 W                                       | 75 W                                       |
| Measuring Function                                                                                             |                                     |                                            |                                            |                                            |                                            |
| Measuring Range                                                                                                | Voltage                             | -2.666 ... +58.770 V                       | -2.666 ... +58.770 V                       | -2.666 ... +58.770 V                       | -2.666 ... +58.770 V                       |
|                                                                                                                | Current                             | -0.48 ... +26.68 A                         | -1.92 ... +53.37 A                         | -3.84 ... +106.74 A                        | -5.76 ... +160.12 A                        |
|                                                                                                                | Power                               | 0 ... >550 W                               | 0 ... >1100 W                              | 0 ... >2200 W                              | 0 ... >3300 W                              |
| Measuring resolution: local, remote                                                                            | Voltage                             | 10 mV, 3.3 mV                              | 10 mV, 3.3 mV                              | 10 mV, 3.3 mV                              | 10 mV, 3.3 mV                              |
|                                                                                                                | Current                             | 5 / 10 mA, 5 mA                            | 10 mA, 10 mA                               | 20 mA, 20 mA                               | 2 / 100 mA, 20 mA                          |
|                                                                                                                | Power                               | 1 W, 0.1 W                                 | 1 W, 0.1 W                                 | 1 W, 0.1 W                                 | 1 W, 0.1 W                                 |
| Measuring accuracy (at 23 ± 5° C)                                                                              | Voltage                             | 0.05% +20 mV                               | 0.05% +20 mV                               | 0.05% +20 mV                               | 0.05% +20 mV                               |
|                                                                                                                | Current                             | 0.3 % +20 mA                               | 0.3 % +30 mA                               | 0.4% +60 mA                                | 0.4% +90 mA                                |
|                                                                                                                | Power                               | 0.4% +1 W                                  | 0.4% +1.5 W                                | 0.5 % +2.5 W                               | 0.4% +4 W                                  |
| Measured value temperature coefficient Δ / K                                                                   | Voltage                             | 80 ppm +0.2 mV                             | 80 ppm +0.2 mV                             | 80 ppm +0.2 mV                             | 80 ppm +0.2 mV                             |
|                                                                                                                | Current                             | 150 ppm +0.2 mA                            | 150 ppm +0.2 mA                            | 150 ppm +0.4 mA                            | 150 ppm +0.6 mA                            |
| Protective functions                                                                                           |                                     |                                            |                                            |                                            |                                            |
| Trigger value for output overvoltage protection                                                                |                                     |                                            |                                            |                                            |                                            |
| Response time                                                                                                  | Setting range                       | 3 ... 62.5 V                               | 3 ... 62.5 V                               | 3 ... 62.5 V                               | 3 ... 62.5 V                               |
|                                                                                                                | Setting resolution                  | 100 mV                                     | 100 mV                                     | 100 mV                                     | 100 mV                                     |
|                                                                                                                | Setting accuracy                    | 0.3% + 100 mV                              | 0.3% + 100 mV                              | 0.3% + 100 mV                              | 0.3% + 100 mV                              |
| Reverse polarity protection load capacity                                                                      | Continuous                          | 30 A                                       | 55 A                                       | 110 A                                      | 170 A                                      |
| Reverse voltage withstand capacity                                                                             | Continuous                          | 60 V –                                     | 60 V –                                     | 60 V –                                     | 60 V –                                     |
| Additional Functions                                                                                           |                                     |                                            |                                            |                                            |                                            |
| Sensing mode operation                                                                                         | Compensatable voltage drop per line | 1 V                                        | 1 V                                        | 1 V                                        | 1 V                                        |
| General                                                                                                        |                                     |                                            |                                            |                                            |                                            |
| Power Supply                                                                                                   | Line                                | 230 V~ + 10 / – 15%                        | 230 V~ + 10 / – 15%                        | 3 x 400 / 230 V~                           | 3 x 400 / 230 V~                           |
|                                                                                                                | voltage                             | 47 ... 63 Hz                               | 47 ... 63 Hz                               | + 10 / – 15 %<br>47 ... 63 Hz              | + 10 / – 15 %<br>47 ... 63 Hz              |
| Power consumption                                                                                              | At nom. load                        | 1100 VA, 650 W                             | 1800 VA, 1200 W                            | 5000 VA, 2800 W                            | 7400 VA, 4000 W                            |
|                                                                                                                | At no load                          | 50 VA, 25 W                                | 50 VA, 25 W                                | 150 VA, 40 W                               | 160 VA, 55 W                               |
| Max. power loss                                                                                                |                                     | 150 W                                      | 200 W                                      | 700 W                                      | 1000 W                                     |
| Efficiency                                                                                                     | At nom. load                        | > 75 %                                     | > 80 %                                     | > 72 %                                     | > 75 %                                     |
| Switching frequency                                                                                            | Typical                             | 100 kHz                                    | 200 kHz                                    | 200 kHz                                    | 200 kHz                                    |
| Inrush current                                                                                                 | Max.                                | 50 A <sub>s</sub>                          | 50 A <sub>s</sub>                          | 50 A <sub>s</sub>                          | 50 A <sub>s</sub>                          |
| Fuses                                                                                                          |                                     | 1 ea. M 15 A / 250 V (6.3 x 32 mm, UL)     |                                            | 3 ea. M 15 A / 250 V (6.3 x 32 mm, UL)     |                                            |
| MTBF                                                                                                           | At 40° C                            | > 50,000 h                                 | > 47,000 h                                 | > 33,000 h                                 | > 29,000 h                                 |

<sup>1)</sup> Current setting values are rounded off at the digital display to multiples of 10 mA (< 100 A) or 100 mA (> 100 A).

<sup>2)</sup> In sensing mode at the output terminals

<sup>3)</sup> At maximum current setting not including processing time for the previous voltage setting command

# SSP-KONSTANTER, Series 62 N and Series 64 N

## Computer Controlled Laboratory Power Supplies

### Electrical Data for 80 V Models: xx N 80 RU ...

Unless otherwise specified, entries are maximum values and apply within an operating temperature range of 0 to 50° C after a warm-up period of 30 minutes.

| Article Number                                                                                                                          |                                     | K341A                                      | K343A                                      | K351A                                             | K361A                                             |
|-----------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------|--------------------------------------------|--------------------------------------------|---------------------------------------------------|---------------------------------------------------|
| Type                                                                                                                                    |                                     | 62 N 80 RU 12.5 P                          | 62 N 80 RU 25 P                            | 64 N 80 RU 50 P                                   | 64 N 80 RU 75 P                                   |
| Nominal output data                                                                                                                     | Voltage setting range               | 0 ... 80 V                                 | 0 ... 80 V                                 | 0 ... 80 V                                        | 0 ... 80 V                                        |
|                                                                                                                                         | Current setting range               | 0 ... 12.5 A                               | 0 ... 25 A                                 | 0 ... 50 A                                        | 0 ... 75 A                                        |
|                                                                                                                                         | Power                               | max. 500 W                                 | max. 1000 W                                | max. 2000 W                                       | max. 3000 W                                       |
| Output characteristics (ppm and percentage values make reference to the respective setting or measuring range)                          |                                     |                                            |                                            |                                                   |                                                   |
| Setting resolution                                                                                                                      | Voltage                             | 20 mV                                      | 20 mV                                      | 20 mV                                             | 20 mV                                             |
|                                                                                                                                         | Current <sup>1)</sup>               | 3.125 mA                                   | 6.25 mA                                    | 12.5 mA                                           | 20 mA                                             |
| Setting accuracy (at 23 ± 5 °C)                                                                                                         | Voltage                             | 0.1 % +20 mV                               | 0.1 % +20 mV                               | 0.1 % +20 mV                                      | 0.1 % +20 mV                                      |
|                                                                                                                                         | Current                             | 0.2 % +15 mA                               | 0.2 % +25 mA                               | 0.25 % +50 mA                                     | 0.3 % +80 mA                                      |
| Temperature coefficient of the setting Δ / K                                                                                            | Voltage                             | 50 ppm +0.4 mV                             | 50 ppm +0.4 mV                             | 50 ppm +0.4 mV                                    | 50 ppm +0.4 mV                                    |
|                                                                                                                                         | Current                             | 50 ppm +0.2 mA                             | 100 ppm +0.1 mA                            | 100 ppm +0.2 mA                                   | 100 ppm +0.4 mA                                   |
| Static system deviation with 100% load fluctuation                                                                                      | Voltage <sup>2)</sup>               | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                                      | 0.01 % +5 mV                                      |
|                                                                                                                                         | Current                             | 0.05 % +10 mA                              | 0.05 % +10 mA                              | 0.05 % +20 mA                                     | 0.05 % +30 mA                                     |
| Static system deviation with 15% line voltage fluctuation                                                                               | Voltage                             | 0.01 % +5 mV                               | 0.01 % +5 mV                               | 0.01 % +5 mV                                      | 0.01 % +5 mV                                      |
|                                                                                                                                         | Current                             | 0.03 % +5 mA                               | 0.03 % +10 mA                              | 0.03 % +20 mA                                     | 0.03 % +30 mA                                     |
| Residual ripple                                                                                                                         |                                     |                                            |                                            |                                                   |                                                   |
| U <sub>0</sub>                                                                                                                          | Ripple 10 Hz ... 300 Hz             | 35 mV <sub>ss</sub>                        | 35 mV <sub>ss</sub>                        | 35 mV <sub>ss</sub>                               | 35 mV <sub>ss</sub>                               |
|                                                                                                                                         | Ripple 10 Hz ... 300 kHz            | 50 mV <sub>ss</sub>                        | 50 mV <sub>ss</sub>                        | 50 mV <sub>ss</sub>                               | 50 mV <sub>ss</sub>                               |
| I <sub>0</sub>                                                                                                                          | Ripple + noise 10 Hz ... 10 MHz     | 60 mV <sub>ss</sub> / 10 mV <sub>eff</sub> | 80 mV <sub>ss</sub> / 15 mV <sub>eff</sub> | 80 mV <sub>ss</sub> / 15 mV <sub>eff</sub>        | 80 mV <sub>ss</sub> / 15 mV <sub>eff</sub>        |
|                                                                                                                                         | Ripple + noise 10 Hz ... 10 MHz     | 15 mA <sub>eff</sub>                       | 20 mA <sub>eff</sub>                       | 30 mA <sub>eff</sub>                              | 60 mA <sub>eff</sub>                              |
| Output voltage transient recovery time with load step within range of 20 to 100% I <sub>nominal</sub>                                   | Tolerance                           | 160 mV                                     | 160 mV                                     | 160 mV                                            | 160 mV                                            |
|                                                                                                                                         | ΔI = 10 %                           | 100 μs                                     | 100 μs                                     | 100 μs                                            | 100 μs                                            |
|                                                                                                                                         | ΔI = +80 %                          | 700 μs                                     | 400 μs                                     | 400 μs                                            | 400 μs                                            |
|                                                                                                                                         | ΔI = -80 %                          | 700 μs                                     | 800 μs                                     | 800 μs                                            | 800 μs                                            |
| Output voltage over and undershooting with load step within range of 20 to 100% I <sub>nominal</sub>                                    | ΔI = 10 %                           | 200 mV                                     | 200 mV                                     | 200 mV                                            | 200 mV                                            |
|                                                                                                                                         | ΔI = 80 %                           | 500 mV                                     | 650 mV                                     | 650 mV                                            | 650 mV                                            |
| Output voltage response time <sup>3)</sup> where Uset step = 0 V → U <sub>nominal</sub><br>where Uset step = U <sub>nominal</sub> → 1 V | Tolerance                           | 160 mV                                     | 160 mV                                     | 160 mV                                            | 160 mV                                            |
|                                                                                                                                         | No load, nominal load               | 5 ms, 15 ms                                | 5 ms, 10 ms                                | 5 ms, 10 ms                                       | 5 ms, 10 ms                                       |
|                                                                                                                                         | No load, nominal load               | 300 ms, 15 ms                              | 300 ms, 15 ms                              | 300 ms, 15 ms                                     | 300 ms, 15 ms                                     |
|                                                                                                                                         |                                     |                                            |                                            |                                                   |                                                   |
| Output capacitor discharging circuit                                                                                                    | Nominal value                       | 2000 μF                                    | 2000 μF                                    | 4000 μF                                           | 6000 μF                                           |
|                                                                                                                                         | Power                               | 25 W                                       | 25 W                                       | 50 W                                              | 75 W                                              |
| Measuring Function                                                                                                                      |                                     |                                            |                                            |                                                   |                                                   |
| Measuring Range                                                                                                                         | Voltage                             | -4.00 ... +88.16 V                         | -4.00 ... +88.16 V                         | -4.00 ... +88.16 V                                | -4.00 ... +88.16 V                                |
|                                                                                                                                         | Current                             | -0.48 ... +13.34 A                         | -0.96 ... +26.68 A                         | -1.92 ... +53.37 A                                | -2.88 ... +80.06 A                                |
|                                                                                                                                         | Power                               | 0 ... >550 W                               | 0 ... >1100 W                              | 0 ... >2200 W                                     | 0 ... >3300 W                                     |
| Measuring resolution: local, remote                                                                                                     | Voltage                             | 10 mV                                      | 10 mV                                      | 10 mV                                             | 10 mV                                             |
|                                                                                                                                         | Current                             | 2 / 10 mA, 2 mA                            | 5 mA, 10 mA                                | 10 mA, 10 mA                                      | 10 mA, 10 mA                                      |
|                                                                                                                                         | Power                               | 1 W, 0.1 W                                 | 1 W, 0.1 W                                 | 1 W, 0.1 W                                        | 1 W, 0.1 W                                        |
| Measuring accuracy (at 23 ± 5° C)                                                                                                       | Voltage                             | 0.05% +40 mV                               | 0.05% +40 mV                               | 0.05% +40 mV                                      | 0.05% +40 mV                                      |
|                                                                                                                                         | Current                             | 0.3 % +10 mA                               | 0.3 % +20 mA                               | 0.3 % +30 mA                                      | 0.4% +40 mA                                       |
|                                                                                                                                         | Power                               | 0.4% +1 W                                  | 0.4% +1.5 W                                | 0.4% +2.5 W                                       | 0.4% +4 W                                         |
| Measured value temperature coefficient Δ / K                                                                                            | Voltage                             | 80 ppm +0.4 mV                             | 80 ppm +0.4 mV                             | 80 ppm +0.4 mV                                    | 80 ppm +0.4 mV                                    |
|                                                                                                                                         | Current                             | 150 ppm +0.1 mA                            | 150 ppm +0.1 mA                            | 150 ppm +0.2 mA                                   | 150 ppm +0.4 mA                                   |
| Protective functions                                                                                                                    |                                     |                                            |                                            |                                                   |                                                   |
| Trigger value for output overvoltage protection                                                                                         |                                     |                                            |                                            |                                                   |                                                   |
| Response time                                                                                                                           | Setting range                       | 3 ... 100 V                                | 3 ... 100 V                                | 3 ... 100 V                                       | 3 ... 100 V                                       |
|                                                                                                                                         | Setting resolution                  | 100 mV                                     | 100 mV                                     | 100 mV                                            | 100 mV                                            |
|                                                                                                                                         | Setting accuracy                    | 0.3% + 100 mV                              | 0.3% + 100 mV                              | 0.3% + 100 mV                                     | 0.3% + 100 mV                                     |
| Reverse polarity protection load capacity                                                                                               | Continuous                          | 30 A                                       | 55 A                                       | 110 A                                             | 170 A                                             |
| Reverse voltage withstand capacity                                                                                                      | Continuous                          | 100 V –                                    | 100 V –                                    | 100 V –                                           | 100 V –                                           |
| Additional Functions                                                                                                                    |                                     |                                            |                                            |                                                   |                                                   |
| Sensing mode operation                                                                                                                  | Compensatable voltage drop per line | 1 V                                        | 1 V                                        | 1 V                                               | 1 V                                               |
| General                                                                                                                                 |                                     |                                            |                                            |                                                   |                                                   |
| Power Supply                                                                                                                            | Line voltage                        | 230 V~ + 10 / – 15%<br>47 ... 63 Hz        | 230 V~ + 10 / – 15%<br>47 ... 63 Hz        | 3 x 400 / 230 V~<br>+ 10 / – 15 %<br>47 ... 63 Hz | 3 x 400 / 230 V~<br>+ 10 / – 15 %<br>47 ... 63 Hz |
|                                                                                                                                         |                                     |                                            |                                            |                                                   |                                                   |
| Power consumption                                                                                                                       | At nom. load                        | 1150 VA, 680 W                             | 1750 VA, 1150 W                            | 4800 VA, 2500 W                                   | 7000 VA, 3800 W                                   |
|                                                                                                                                         | At no load                          | 50 VA, 25 W                                | 50 VA, 25 W                                | 150 VA, 40 W                                      | 160 VA, 55 W                                      |
| Max. power loss                                                                                                                         |                                     | 150 W                                      | 200 W                                      | 700 W                                             | 1000 W                                            |
| Efficiency                                                                                                                              | At nom. load                        | > 74 %                                     | > 85 %                                     | > 80 %                                            | > 80 %                                            |
| Switching frequency                                                                                                                     | Typical                             | 100 kHz                                    | 200 kHz                                    | 200 kHz                                           | 200 kHz                                           |
| Inrush current                                                                                                                          | Max.                                | 50 A <sub>s</sub>                          | 50 A <sub>s</sub>                          | 50 A <sub>s</sub>                                 | 50 A <sub>s</sub>                                 |
| Fuses                                                                                                                                   |                                     | 1 ea. M 15 A / 250 V (6.3 x 32 mm, UL)     |                                            | 3 ea. M 15 A / 250 V (6.3 x 32 mm, UL)            |                                                   |
| MTBF                                                                                                                                    | at 40 °C                            | > 50,000 h                                 | > 47,000 h                                 | > 33,000 h                                        | > 29,000 h                                        |

<sup>1)</sup> Current setting values are rounded off at the digital display to multiples of 10 mA (< 100 A) or 100 mA (> 100 A).

<sup>2)</sup> In sensing mode at the output terminals

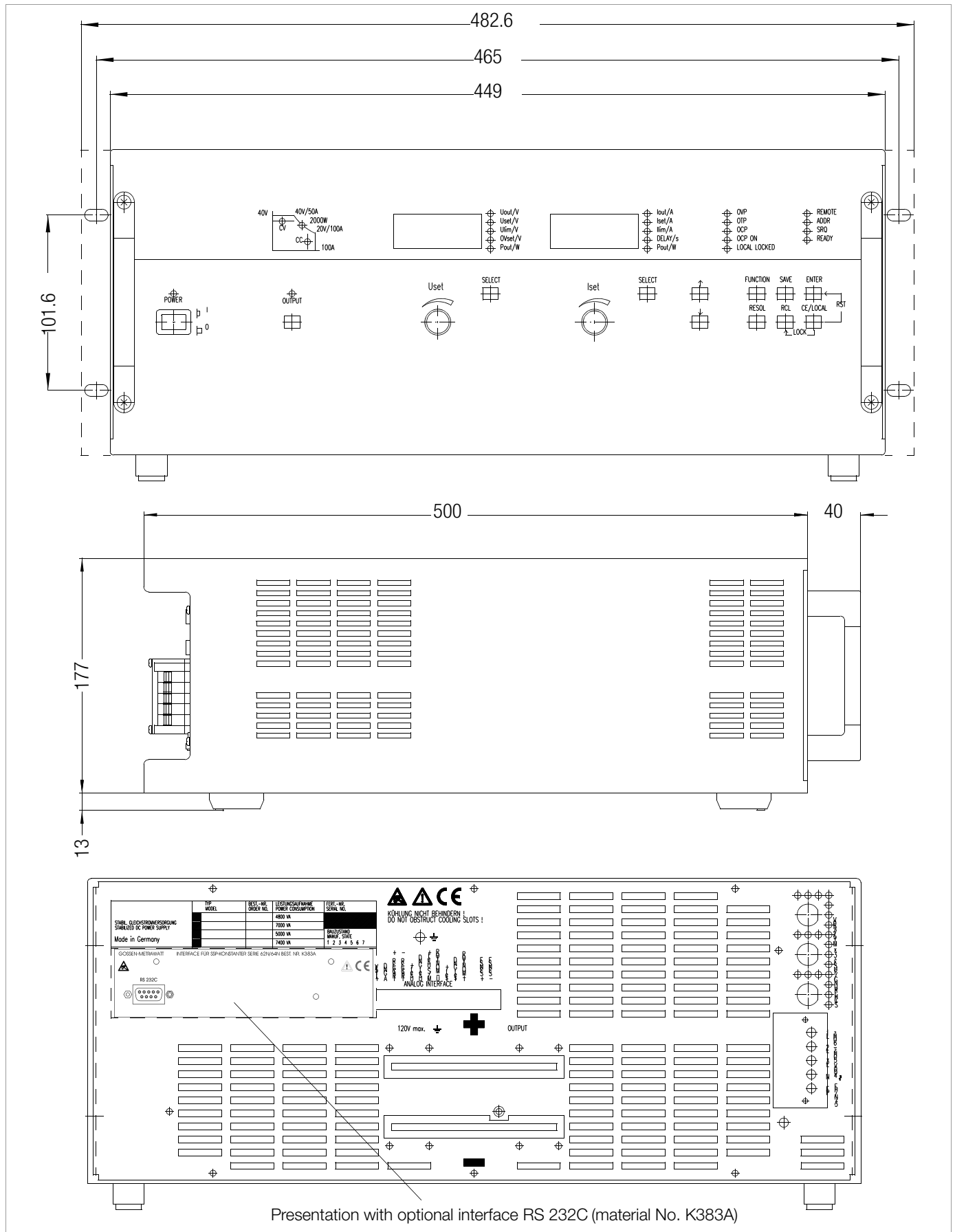
<sup>3)</sup> At maximum current setting not including processing time for the previous voltage setting command





# SSP-KONSTANTER, Series 62 N and Series 64 N Computer Controlled Laboratory Power Supplies

## Series 64 N



Presentation with optional interface RS 232C (material No. K383A)

# **SSP-KONSTANTER, Series 62 N and Series 64 N**

## **Computer Controlled Laboratory Power Supplies**

---

---

Edited in Germany • Subject to change without notice • A pdf version is available on the Internet



GMC-I Messtechnik GmbH  
Südwestpark 15  
90449 Nürnberg • Germany

Phone +49 911 8602-111  
Fax +49 911 8602-777  
E-Mail [info@gossenmetrawatt.com](mailto:info@gossenmetrawatt.com)  
[www.gossenmetrawatt.com](http://www.gossenmetrawatt.com)