GOSSEN METRAWATT

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

3-349-078-03
5/9.15

- **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**

Series 62N

Series 64N

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

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 set-point USET, current setpoint ISET, dwell time TSET)

Sequence Function

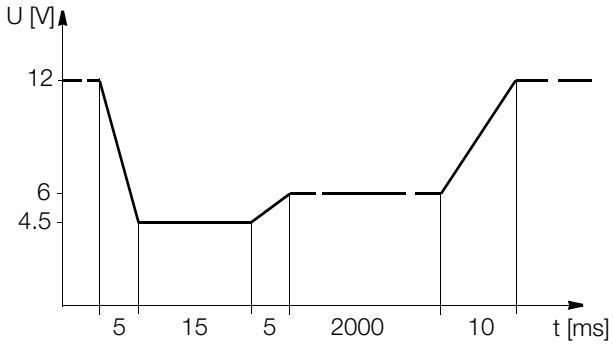
The sequence function allows for automatic recall of settings which have been saved to the sequence memory.

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.

Applicable Standards and Regulations

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

Scope of delivery

Mains power cable (62N series)
Installation set for 19" rack mounting
Operating instructions (printed)

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
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

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

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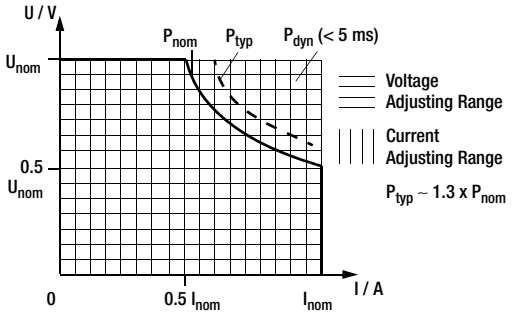
General Characteristics

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; max. admissible potential output–earth 120 V Capacity output-earth (housing) Series 62 N: 500 W / 1000 W: typ. 90 nF Series 64 N: 2000 W / 3000 W: typ. 180 nF

Output Working Ranges



Analog Interface

Functions
- Sensing mode
- Programmable trigger input
- Voltage control input (0 ... 5 V)
- Current control input (0 ... 5 V)
- Voltage monitor output (0 ... 10 V)
- Current monitor output (0 ... 10 V)
- Master-slave parallel operation
- Master-slave series operation

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 %; 47 … 63 Hz 64 N: 3 x 400 / 230 V ~ +10 / –15 %; 47 … 63 Hz
Making current	max. 50 A_s
Mains fuse	62 N: 1 x M 15 A / 250 V (6.3 x 32 mm), UL 64 N:3 x M 15 A / 250 V (6.3 x 32 mm), UL

Electrical Safety

Safety Class	I
Measuring Category	II for mains input I for output and interfaces
Contamination Level	2
Earth Leakage Current	62 N: < 3 mA_{eff} 64 N: < 1 mA_{eff}

Electrical Isolation	Rated Voltage	Test Voltage
Output – Mains	280 V_{eff}	4 kV ~ (type test)
Output – Bus / Earth	120 V_S	1.5 kV ~
Mains – Bus / Earth	230 V_{eff}	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 IP 20 for housing

Extract from table on the meaning of IP codes

IP XY (1st digit X)	Protection against foreign object entry	IP XY (2nd digit Y)	Protection against the 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 EN 61000-4-3: 1996 + A1: 1998 performance feature A EN 61000-4-4: 1995 performance feature C EN 61000-4-5: 1995 performance feature B EN 61000-4-6: 1996 performance feature B EN 61000-4-11: 1994 performance feature A

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; 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 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 with earth contact (L + N + PE) 64 N: 5-pin screw terminal block for cable connection 0.75 ... 2.5 mm^2 (3 L + N + PE)
Output	Rails with drill holes for M8 screws and 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)

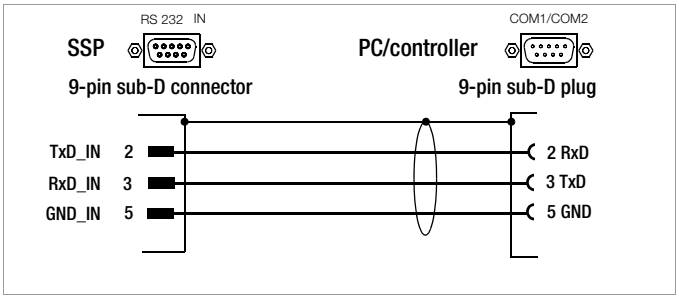
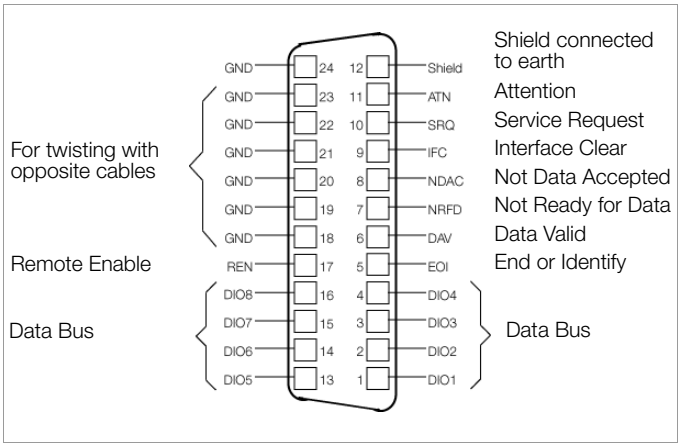


Figure 1 Connection cable for serial interface

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

Pin assignment



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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**
Type			**62 N 52 RU 25 P**	**62 N 52 RU 50 P**	**64 N 52 RU 100 P**
Nominal output data		Voltage setting range	**0 ... 52 V**	**0 ... 52 V**	**0 ... 52 V**
		Current setting range	**0 ... 25 A**	**0 ... 50 A**	**0 ... 100 A**
		Power	**max. 500 W**	**max. 1000 W**	**max. 2000 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
		Current [1]	6.25 mA	12.5 mA	25 mA
Setting accuracy (at 23 ± 5° C)		Voltage	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
Temperature coefficient of		Voltage	50 ppm +0.2 mV	50 ppm +0.2 mV	50 ppm +0.2 mV
the setting Δ / K		Current	100 ppm +0.2 mA	100 ppm +0.2 mA	100 ppm +0.4 mA
Static system deviation		Voltage [2]	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV
with 100% load fluctuation		Current	0.05 % +10 mA	0.05 % +20 mA	0.05 % +40 mA
Static system deviation		Voltage	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV
with 15% line voltage fluctuation		Current	0.03 % +8 mA	0.03 % +15 mA	0.03 % +30 mA
Residual ripple					
U_0	Ripple 10 Hz … 300 Hz		12 mV_{ss}	15 mV_{ss}	20 mV_{ss}
	Ripple 10 Hz … 300 kHz		30 mV_{ss}	30 mV_{ss}	30 mV_{ss}
	Ripple + noise 10 Hz … 10 MHz		50 mV_{ss} / 10 mV_{eff}	50 mV_{ss} / 10 mV_{eff}	50 mV_{ss} / 10 mV_{eff}
I_0	Ripple + noise 10 Hz … 10 MHz		15 mA_{eff}	25 mA_{eff}	80 mA_{eff}
		Tolerance	80 mV	80 mV	80 mV
Output voltage transient recovery time with		ΔI = 10 %	100 µs	100 µs	100 µs
load step within range of 20 to 100% $I_{nominal}$		ΔI = +80 %	300 µs	300 µs	300 µs
		ΔI = -80 %	900 µs	300 µs	300 µs
Output voltage over and undershooting with load		ΔI = 10 %	150 mV	150 mV	150 mV
step within range of 20 to 100% $I_{nominal}$		ΔI = 80 %	500 mV	750 mV	750 mV
Output voltage response time [3]		Tolerance	80 mV	80 mV	80 mV
where Uset step = 0 V –> $U_{nominal}$	No load, nominal load		6 ms, 12.5 ms	6 ms, 12.5 ms	6 ms, 12.5 ms
where Uset step = $U_{nominal}$ –> 1 V	No load, nominal load		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
		Power	25 W	25 W	50 W
Measuring Function					
Measuring Range		Voltage	-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
		Power	0 … >550 W	0 … >1100 W	0 … >2200 W
Measuring resolution: local, remote		Voltage	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
		Power	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
		Current	0.3 % +20 mA	0.3 % +30 mA	0.4% +60 mA
		Power	0.4% +1 W	0.4% +1.5 W	0.5 % +2.5 W
Measured value temperature coefficient Δ / K		Voltage	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
Protective functions					
Trigger value for output overvoltage protection					
		Setting range	3 … 62.5 V	3 … 62.5 V	3 … 62.5 V
		Setting resolution	100 mV	100 mV	100 mV
		Setting accuracy	0.3% + 100 mV	0.3% + 100 mV	0.3% + 100 mV
Response time			200 µs	200 µs	200 µs
Reverse polarity protection load capacity		Continuous	30 A	55 A	110 A
Reverse voltage withstand capacity		Continuous	60 V –	60 V –	60 V –
Additional Functions					
Sensing mode operation Compensatable voltage drop per line			1 V	1 V	1 V
General					
Power Supply		Line	230 V~ + 10 / – 15%	230 V~ + 10 / – 15%	3 x 400 / 230 V~
		voltage	47 … 63 Hz	47 … 63 Hz	+ 10 / – 15 %
					47 … 63 Hz
Power consumption		At nom. load	1100 VA, 650 W	1800 VA, 1200 W	5000 VA, 2800 W
		At no load	50 VA, 25 W	50 VA, 25 W	150 VA, 40 W
Max. power loss			150 W	200 W	700 W
Efficiency		At nom. load	> 75 %	> 80 %	> 72 %
Switching frequency		Typical	100 kHz	200 kHz	200 kHz
Inrush current		Max.	50 A_s	50 A_s	50 A_s
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

1) Current setting values are rounded off at the digital display to multiples of 10 mA (< 100 A) or 100 mA (> 100 A).
2) In sensing mode at the output terminals
3) At maximum current setting not including processing time for the previous voltage setting command

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 [1]	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		Voltage	50 ppm +0.4 mV	50 ppm +0.4 mV	50 ppm +0.4 mV	50 ppm +0.4 mV
the setting Δ / K		Current	50 ppm +0.2 mA	100 ppm +0.1 mA	100 ppm +0.2 mA	100 ppm +0.4 mA
Static system deviation		Voltage [2]	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV
with 100% load fluctuation		Current	0.05 % +10 mA	0.05 % +10 mA	0.05 % +20 mA	0.05 % +30 mA
Static system deviation		Voltage	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV	0.01 % +5 mV
with 15% line voltage fluctuation		Current	0.03 % +5 mA	0.03 % +10 mA	0.03 % +20 mA	0.03 % +30 mA
Residual ripple						
U_0	Ripple 10 Hz … 300 Hz		35 mV_{ss}	35 mV_{ss}	35 mV_{ss}	35 mV_{ss}
	Ripple 10 Hz … 300 kHz		50 mV_{ss}	50 mV_{ss}	50 mV_{ss}	50 mV_{ss}
	Ripple + noise 10 Hz … 10 MHz		60 mV_{ss} / 10 mV_{eff}	80 mV_{ss} / 15 mV_{eff}	80 mV_{ss} / 15 mV_{eff}	80 mV_{ss} / 15 mV_{eff}
I_0	Ripple + noise 10 Hz … 10 MHz		15 mA_{eff}	20 mA_{eff}	30 mA_{eff}	60 mA_{eff}
		Tolerance	160 mV	160 mV	160 mV	160 mV
Output voltage transient recovery time with		ΔI = 10 %	100 µs	100 µs	100 µs	100 µs
load step within range of 20 to 100% $I_{nominal}$		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		ΔI = 10 %	200 mV	200 mV	200 mV	200 mV
step within range of 20 to 100% $I_{nominal}$		ΔI = 80 %	500 mV	650 mV	650 mV	650 mV
Output voltage response time [3]		Tolerance	160 mV	160 mV	160 mV	160 mV
where Uset step = 0 V –> $U_{nominal}$	No load, nominal load		5 ms, 15 ms	5 ms, 10 ms	5 ms, 10 ms	5 ms, 10 ms
where Uset step = $U_{nominal}$ –> 1 V	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						
		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
Response time			200 µs	200 µs	200 µs	200 µs
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% 47 … 63 Hz	230 V~ + 10 / – 15% 47 … 63 Hz	3 x 400 / 230 V~ + 10 / – 15 % 47 … 63 Hz	3 x 400 / 230 V~ + 10 / – 15 % 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_s	50 A_s	50 A_s	50 A_s
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

1) Current setting values are rounded off at the digital display to multiples of 10 mA (< 100 A) or 100 mA (> 100 A).
2) In sensing mode at the output terminals
3) At maximum current setting not including processing time for the previous voltage setting command

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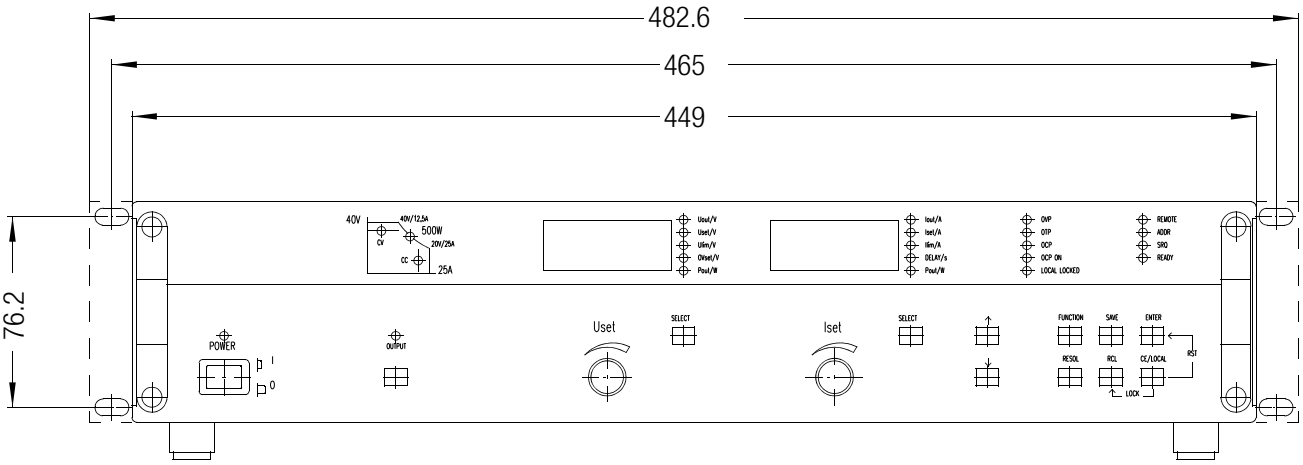
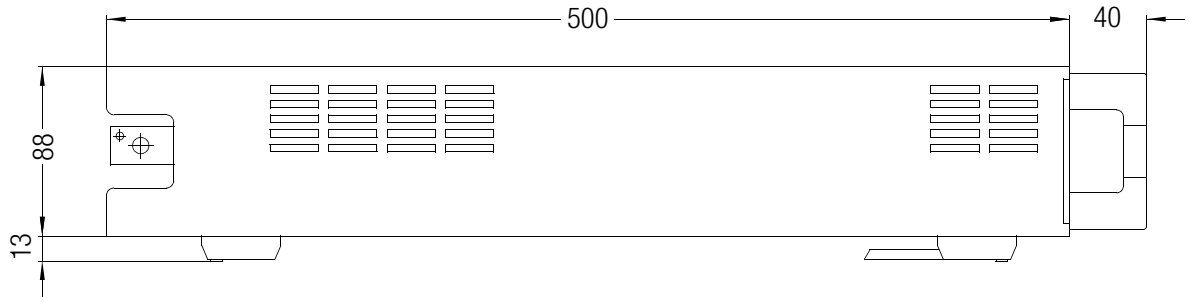
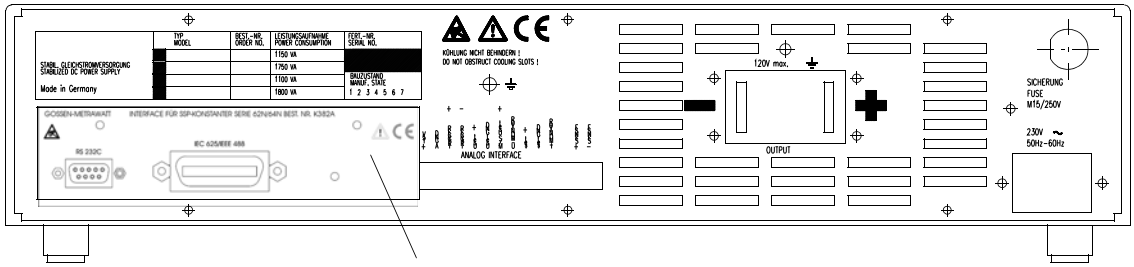
Dimensional Drawing **Series 62 N**



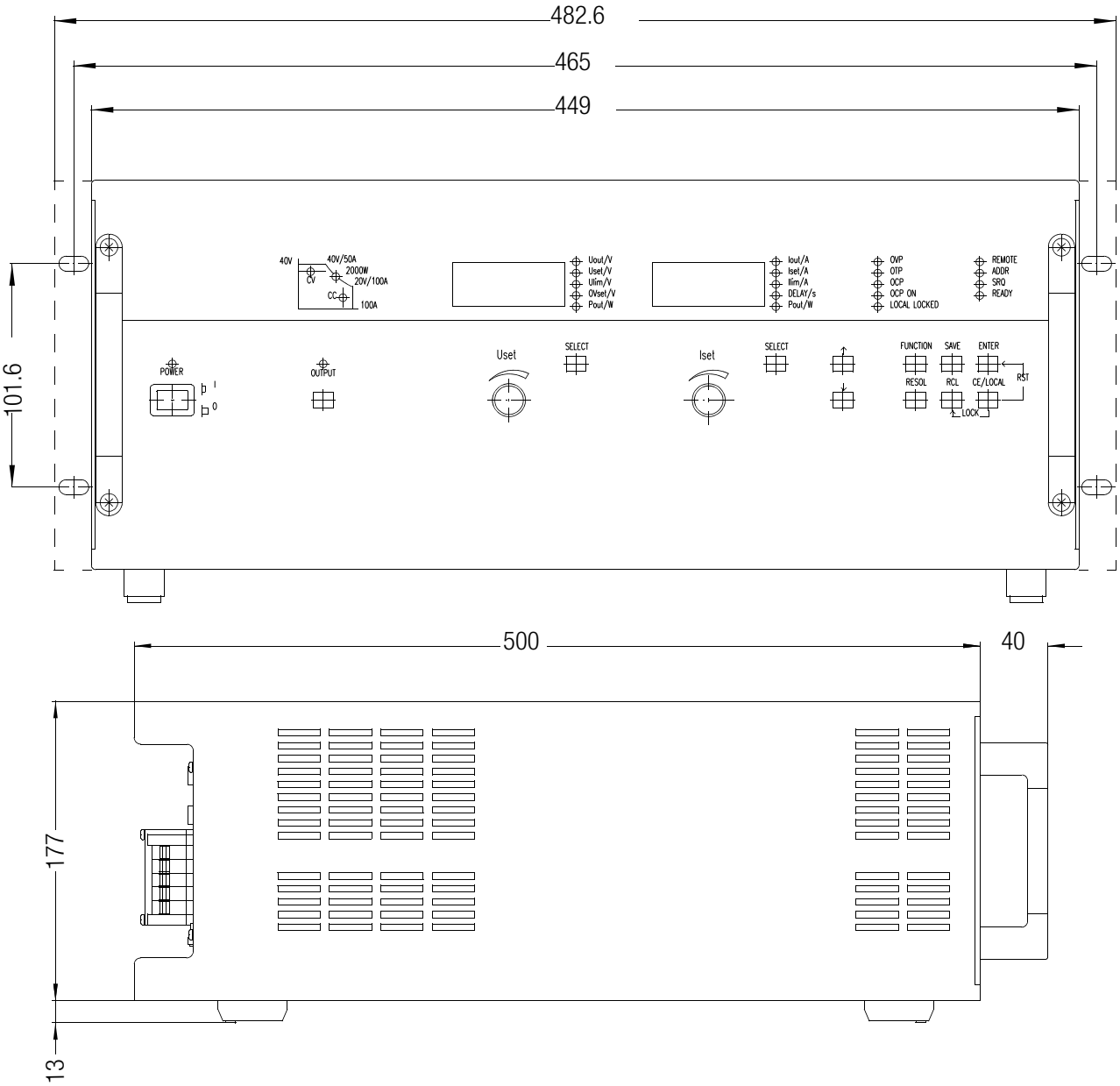


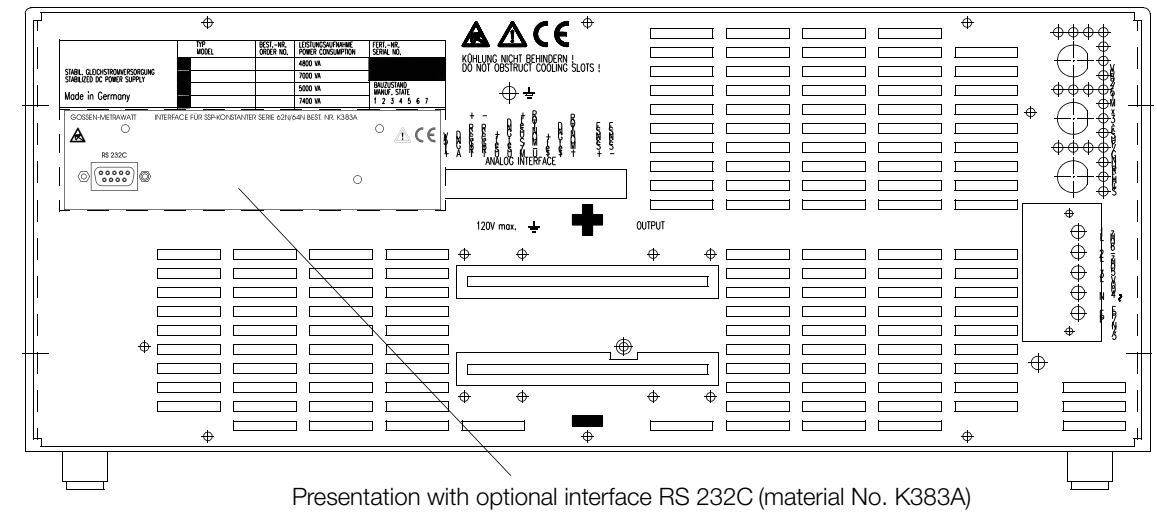


Here is the plug-in possibility for optional interfaces IEEE-488/RS 232C or RS 232C.
Interface IEEE-488/RS 232C (material No. K382A) is shown.

Dimensions in millimeter

Series 64 N





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

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