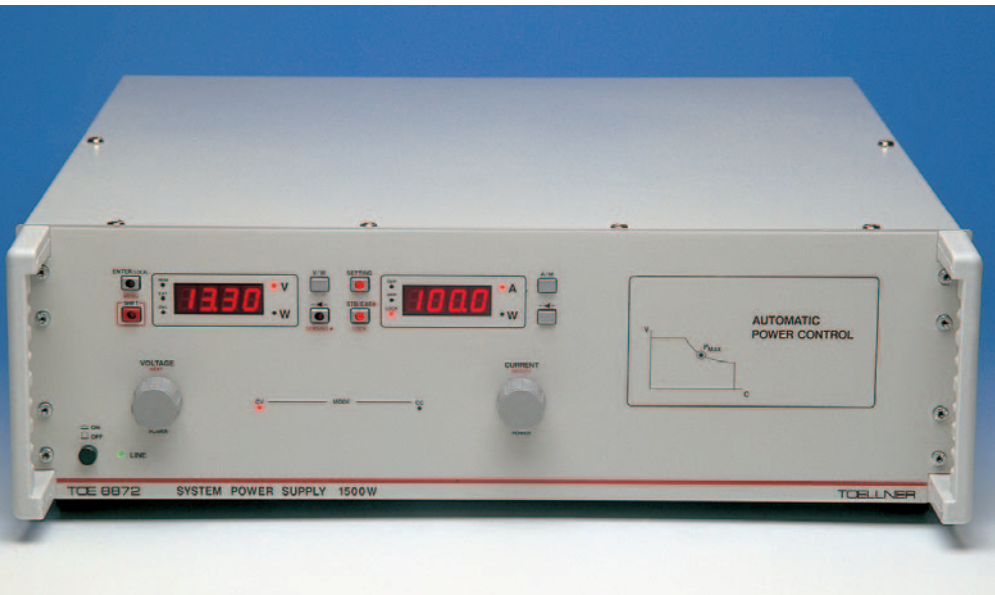


High-performance power supplies up to 1500 W with GPIB/RS 232 remote control from TOELLNER®

TOE 8871 / TOE 8872

**40 V / 60 V / 80 V
130 V / 200 V / 400 V**



Remote control: GPIB, RS 232 and analog

All devices can be remote-controlled as standard in analog mode, and optionally via GPIB and RS 232 interfaces with the standardized SCPI command set (SCPI: Standard Commands for Programmable Instruments). The system interfaces are characterized by a high setting rate and a high measuring rate.

In addition to this, device driver software under „LabView“ is also available. Furthermore, all devices can be controlled at high precision via an electrically isolated analog controller (option).

Automatic calibration

Fast and convenient calibration of all output parameters is possible externally within a few minutes without having to adjust any trimmers or make any interventions in the device. This „Autocalibration“ can be carried out simply using the control elements or with computer support within a test system. An autocalibration function provides significant advantages, particularly when considering the increasing importance of regular calibration intervals as a result of quality assurance systems.

Voltage source, current source and automatic power control

Depending on the set values for voltage, current and power, each power supply can be operated, depending on the load conditions, as a constant voltage source, constant current source, or as a source with a constant output power.

High performance and easy-to-use with automatic power control

- ❖ 1000 W (TOE 8871) and 1500 W (TOE 8872) output power with power factor corrector (PFC).
- ❖ Adjustment of voltage, current and power using wear-free incremental spinwheels.
- ❖ Maximum precision using μ P-controlled autocalibration.
- ❖ System-compatible with GPIB and RS 232 interfaces.
- ❖ Comprehensive protective equipment, OVP and OCP

High performance and easy-to-use

An output power up to 1500 W is provided by the power supplies belonging to the TOE 8871 and TOE 8872 series; at the same time, output voltages can be generated up to 400 V and output currents up to 100 A depending on the model. As a result of state-of-the-art switching controller technology and proven microprocessor control, these devices are suitable for completely universal application. Together with a high efficiency, the power supplies are characterized by permanent load resistance, autoranging and a low weight.

PFC

A highly effective power factor corrector (PFC) ensures that the TOE 8871 and TOE 8872 power supplies react with respect to the mains source like a resistance without any capacitive, inductive or non-linear components whatsoever. The mains current input is therefore sinusoidal, in-phase with the mains voltage, and thus free of reactive current components.

Easy-to-use

The devices are extremely easy-to-use, and the specifications are exceptional. Superb processing quality together with a large number of special functions mean that the power supplies of the TOE 8871 and TOE 8872 series can be counted among the very best currently available.

Integrated measurement

A further significant feature is the high-resolution measurement of voltage, current and power values. These are shown on 4-digit LEDs and can be read out at a high rate in bus mode, thus meaning that additional measuring instruments are not usually necessary.

Adjustment using incremental spinwheel

The output values are set using a wear-free incremental spinwheel with selectable sensitivity, thus guaranteeing reliable, exact setting of the output voltage and current even after many years of use.

High-performance power supplies up to 1500 W with GPIB/RS 232 remote control from TOELLNER®

TOE 8871 / TOE 8872

Exceptional features

- 1000 W (TOE 8871) and 1500 W (TOE 8872) output power with autoranging
- Highly efficient power factor corrector (PFC)
- GPIB, RS 232 and analog interfaces
- Voltage, current and power settings using incremental spinwheels
- Very short setting time for output voltage at no-load and full-load
- Electronic self-calibration
- Disabling of controls using LOCK key.
- Master/slave operation for 3 x TOE 8871 or 3 x TOE 8872

Remote control

GPIB interface (option)

Interface connection to IEEE 488.1; electrically isolated from main output

Interface functions:

AH1, SH1, L4, T6, SR1, PP1, RL1, DC1, DT0, E1/E2, C0

Device address: adjustable from 0 to 30 decimal in menu

Software standard: command syntax to IEEE 488.2 with command set switchable between compatible TOELLNER commands and SCPI commands

Setting rate: approx. 25 settings/s

Measuring rate: approx. 20 measurements/s

RS 232 interface (option)

Interface connection: 9-pin Sub-D plug, electrically isolated from main output

Transmission: half-duplex mode, asynchronous; 110 - 19200 bit/s adjustable in menu

Software standard: command syntax to IEEE 488.2 with command set switchable between compatible TOELLNER commands and SCPI commands

Setting rate: approx. 20 settings/s

Measuring rate: approx. 15 measurements/s

Additional functions

Further functions such as the storage of 100 instrument settings, the standby circuit for the power output,

sense mode as well as overvoltage and overcurrent protection circuits (OVP/OCP) round off the features of this modern and exceptionally well equipped power supply.

Short setting times for the output voltage are achieved using a balanced circuit principle. It is then possible to control the output voltage and current via the analog interface even using AC signals with a wide frequency range.

Low-noise output (option)

For instruments up to 130 V output. Output at front!

The output noise has been reduced by installing an additional matched output filter.

The noise voltage is then 1 to 2m V_{rms} (20 Hz to 20 MHz).

Price and performance

In addition to the exceptional specifications and features, the power supplies of the TOE 8871 and TOE 8872 series have an exceptionally favorable price/performance ratio.

General data

Output:

floating and electrically isolated. Output terminals: at rear; at front as option

Insulation: ± 260 V against earth

Overvoltage protection: 3 V to 1.25 x V_{MAX}

Resolution: 100 mV

Overcurrent: 10 ms to 100 s switch-off delay

Resolution: 10 ms/100 ms/1s

Analog control: input voltage 0 to 10 V for 0 to V_{MAX} or 0 to I_{MAX}

Mains voltage: 230 V ± 10 %, 47 to 63 Hz

Power consumption:

TOE 8871: approx. 1250 W/1250 VA at rated load

TOE 8872: approx. 1900 W/1900 VA at rated load

Protective measures: protection class I to DIN VDE 0411, Part 1

EMC:

DIN VDE 0871 class B
DIN VDE 0843 T2, IEC 801-2

Operating

temperature range: 0 to 40 °C

Reference temperature: 23 °C

Storage

temperature range: -20 °C to 70 °C

Cooling:

by thermostatically-controlled fan

Warm-up time: approx. 30 min.

Dimensions (W x H x D):

445 x 134 x 515 mm

445 x 147 x 557 mm with handles and feet

Weight: approx. 15 kg

Housing: Aluminium

Ordering data:

1000 W output power:

Power supply 40 V/ 50 A TOE 8871-40

Power supply 60 V/ 35 A TOE 8871-60

Power supply 80 V/ 25 A TOE 8871-80

Power supply 130 V/ 16 A TOE 8871-130

Power supply 200 V/ 10 A TOE 8871-200

Power supply 400 V/ 5 A TOE 8871-400

1500 W output power:

Power supply 40 V/100 A TOE 8872-40

Power supply 60 V/ 65 A TOE 8872-60

Power supply 80 V/ 50 A TOE 8872-80

Power supply 130 V/ 25 A TOE 8872-130

Power supply 200 V/ 15 A TOE 8872-200

Power supply 400 V/ 7.5 A TOE 8872-400

Supplied accessories

1 mains cable

1 Instruction Manual

1 19" adapter

Options/accessories

Parallel connection set for

2 x TOE 8871/8872 TOE 8870/102

3 x TOE 8871/8872 TOE 8870/103

System remote control according

to IEEE 488 and RS 232 including

software driver under LabView

(basic version) TOE 8871/015

Analog remote control,

floating TOE 8871/016

Front output TOE 8871/017

Low-noise output TOE 8871/018

Sensing-voltage 3 V TOE 8871/019

3-Phase-adapter TOE 8871/020

High-C-output TOE 8871/021

Software driver

under LabView

(full version) TOE 9070

Adapter,

20 contact Sub-D/screw

terminals TOE 9011

Specifications

TOE 8871, 1000 W

Output		TOE 8871-40	TOE 8871-60	TOE 8871-80	TOE 8871-130	TOE 8871-200	TOE 8871-400
Voltage		0 ... 40 V	0 ... 60 V	0 ... 80 V	0 ... 130 V	0 ... 200 V	0 ... 400 V
Current		0 ... 50 A	0 ... 35 A	0 ... 25 A	0 ... 16 A	0 ... 10 A	0 ... 5 A
Output power, adjustable		100 ... 1000 W	100 ... 1000 W	100 ... 1000 W	100 ... 1040 W	100 ... 1000 W	100 ... 1000 W
Setting resolution	Voltage	10 mV	20 mV	20 mV	100 mV	100 mV	100 mV
	Current	10 mA	10 mA	10 mA	10 mA	5 mA	2 mA
	Power < 1000 W > 1000 W	0.1 W	0.1 W	0.1 W	0.1 W 1 W	0.1 W	0.1 W
Setting accuracy	Voltage	0.1 % + 20 mV	0.1 % + 30 mV	0.1 % + 40 mV	0.1 % + 100 mV	0.1 % + 100 mV	0.1 % + 100 mV
	Current	0.2 % + 40 mA	0.2 % + 40 mA	0.2 % + 20 mA	0.2 % + 20 mA	0.2 % + 20 mA	0.2 % + 20 mA
	Power	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W
Deviation in regulation with 100 % change in load with ± 10 % change in mains voltage	Voltage	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 10 \text{ mV}$	$1 \times 10^{-4} + 10 \text{ mV}$	$1 \times 10^{-4} + 10 \text{ mV}$
	Current	$5 \times 10^{-4} + 25 \text{ mA}$	$5 \times 10^{-4} + 20 \text{ mA}$	$5 \times 10^{-4} + 12 \text{ mA}$	$5 \times 10^{-4} + 8 \text{ mA}$	$5 \times 10^{-4} + 2.5 \text{ mA}$	$5 \times 10^{-4} + 2.5 \text{ mA}$
Regulation time for a change in load from 20 % to 100 % I_{rated} Tolerance: 0.2 % V_{rated}		400 μs	400 μs	400 μs	500 μs	500 μs	500 μs
Regulation time of output voltage with change in setpoint 0 V to V_{rated} no-load/full-load V_{rated} to 1 V no-load/full-load		2.5 ms/5 ms 100 ms/10 ms	5 ms/10 ms 120 ms/12 ms	10 ms/15 ms 200 ms/20 ms	10 ms/15 ms 200 ms/20 ms	10 ms/10 ms < 5 s/20 ms	15 ms/20 ms < 3 s/60 ms
Residual ripple(rms) 10 Hz ... 10 MHz	Voltage	5 mV	8 mV	10 mV	15 mV	15 mV	20 mV
	Current	25 mA	20 mA	20 mA	20 mA	20 mA	15 mA
Measuring accuracy	Voltage	0.1 % + 30 mV	0.1 % + 40 mV	0.1 % + 60 mV	0.1 % + 100 mV	0.1 % + 200 mV	0.1 % + 300 mV
	Current	0.2 % + 60 mA	0.2 % + 50 mA	0.2 % + 40 mA	0.2 % + 40 mA	0.2 % + 40 mA	0.2 % + 40 mA
	Power	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W	0.4 % + 1 W
Temperature coefficient	Voltage	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$
	Current	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$
Analog interface Control voltage: Reference potential is the negative pole of the output	0 ... 10 V for	0 ... 40 V	0 ... 60 V	0 ... 80 V	0 ... 130 V	0 ... 200 V	0 ... 400 V
	0 ... 10 V for	0 ... 50 A	0 ... 35 A	0 ... 25 A	0 ... 16 A	0 ... 10 A	0 ... 5 A
Floating analog interface Isolation: 1 kV DC Control voltage:	0 ... 10 V for	0 ... 40 V	0 ... 60 V	0 ... 80 V	0 ... 130 V	0 ... 200 V	0 ... 400 V
	0 ... 10 V for	0 ... 50 A	0 ... 35 A	0 ... 25 A	0 ... 16 A	0 ... 10 A	0 ... 5 A
Accuracy	Voltage	0.2 % + 50 mV	0.2 % + 50 mV	0.2 % + 100 mV	0.2 % + 100 mV	0.2 % + 200 mV	0.2 % + 400 mV
	Current	0.3 % + 50 mA	0.3 % + 20 mA	0.3 % + 20 mA	0.3 % + 20 mA	0.3 % + 10 mA	0.3 % + 5 mA

Specifications

TOE 8872, 1500 W

Output		TOE 8872-40	TOE 8872-60	TOE 8872-80	TOE 8872-130	TOE 8872-200	TOE 8872-400
Voltage		0 ... 40 V	0 ... 60 V	0 ... 80 V	0 ... 130 V	0 ... 200 V	0 ... 400 V
Current		0 ... 100 A	0 ... 65 A	0 ... 50 A	0 ... 25 A	0 ... 15 A	0 ... 7.5 A
Output power, adjustable		100 ... 1500 W	100 ... 1500 W	100 ... 1500 W	100 ... 1500 W	100 ... 1500 W	100 ... 1500 W
Setting resolution	Voltage	10 mV	20 mV	20 mV	100 mV	100 mV	100 mV
	Current	50 mA	20 mA	10 mA	10 mA	10 mA	2 mA
	Power						
	< 1000 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W	0.1 W
	> 1000 W	1 W	1 W	1 W	1 W	1 W	1 W
Setting accuracy	Voltage	0.1 % + 20 mV	0.1 % + 30 mV	0.1 % + 40 mV	0.1 % + 100 mV	0.1 % + 100 mV	0.1 % + 100 mV
	Current	0.2 % + 50 mA	0.2 % + 50 mA	0.2 % + 30 mA	0.2 % + 20 mA	0.2 % + 20 mA	0.2 % + 20 mA
	Power	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1 W	0.4 % + 1.5 W
Deviation in regulation with 100 % change in load	Voltage	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 5 \text{ mV}$	$1 \times 10^{-4} + 10 \text{ mV}$	$1 \times 10^{-4} + 10 \text{ mV}$	$1 \times 10^{-4} + 15 \text{ mV}$
	Current	$5 \times 10^{-4} + 50 \text{ mA}$	$5 \times 10^{-4} + 30 \text{ mA}$	$5 \times 10^{-4} + 25 \text{ mA}$	$5 \times 10^{-4} + 12 \text{ mA}$	$5 \times 10^{-4} + 2.5 \text{ mA}$	$5 \times 10^{-4} + 3.5 \text{ mA}$
with $\pm 10 \%$ change in mains voltage		5×10^{-5}	5×10^{-5}	5×10^{-5}	5×10^{-5}	5×10^{-5}	5×10^{-5}
Regulation time for a change in load from 20 % to 100 % I_{rated} Tolerance: 0.2 % V_{rated}		400 μs	400 μs	400 μs	500 μs	500 μs	500 μs
Regulation time of output voltage with change in setpoint 0 V to V_{rated} no-load/full-load V_{rated} to 1 V no-load/full-load		2.5 ms/5 ms 150 ms/15 ms	5 ms/10 ms 200 ms/20 ms	10 ms/15 ms 300 ms/30 ms	10 ms/15 ms 400 ms/40 ms	15 ms/15 ms < 5 s/15 ms	15 ms/20 ms < 3 s/40 ms
Residual ripple(rms) 10 Hz ... 10 MHz	Voltage	10 mV	12 mV	15 mV	15 mV	15 mV	20 mV
	Current	50 mA	50 mA	40 mA	40 mA	20 mA	20 mA
Measuring accuracy	Voltage	0.1 % + 30 mV	0.1 % + 40 mV	0.1 % + 60 mV	0.1 % + 200 mV	0.1 % + 200 mV	0.1 % + 200 mV
	Current	0.2 % + 100 mA	0.2 % + 80 mA	0.2 % + 60 mA	0.2 % + 40 mA	0.2 % + 40 mA	0.2 % + 40 mA
	Power	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W	0.4 % + 1.5 W
Temperature coefficient	Voltage	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$
	Current	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$	$10^{-4}/\text{K}$
Analog interface Control voltage: Reference potential is the negative pole of the output	0 ... 10 V for	0 ... 40 V	0 ... 60 V	0 ... 80 V	0 ... 130 V	0 ... 200 V	0 ... 400 V
	0 ... 10 V for	0 ... 100 A	0 ... 65 A	0 ... 50 A	0 ... 25 A	0 ... 15 A	0 ... 7.5 A
Floating analog interface Isolation: 1 kV DC							
Control voltage:	0 ... 10 V for 0 ... 10 V for	0 ... 40 V 0 ... 100 A	0 ... 60 V 0 ... 65 A	0 ... 80 V 0 ... 50 A	0 ... 130 V 0 ... 25 A	0 ... 200 V 0 ... 15 A	0 ... 400 V 0 ... 7.5 A
Accuracy	Voltage	0.2 % + 50 mV	0.2 % + 50 mV	0.2 % + 100 mV	0.2 % + 100 mV	0.2 % + 200 mV	0.2 % + 400 mV
	Current	0.3 % + 100 mA	0.3 % + 50 mA	0.3 % + 50 mA	0.3 % + 20 mA	0.3 % + 15 mA	0.3 % + 7.5 mA