



Innovative power up to 200 W  
Multitalent up to 130 V and 20 A



**PERFORMANCE IN ABSOLUTE PERFECTION**

200 W laboratory power supply TOE 8941

## Convenient performance for your applications

The power supplies from the TOE 8941 series are suitable for applications associated with:

**Research / development**  
**Laboratory / testing / experiments**  
**Production / test bays**  
**Quality assurance**  
**Service / training**

### 200 W in compact design

The single-output power supplies from the TOE 8941 series have an extremely compact design. As a result of the high efficiency of all units, the complete output power of 200 W is available at the front via safety sockets. The power is also available at the rear via a screw-type terminal block (option).

### Autoranging

Power supplies with autoranging can source their rated power over a wide and stepless range of voltage and current combinations.

Autoranging power supplies from TOELLNER have a significantly larger operating range than standard power supplies with the same output power.

### Adjustment using incremental rotary encoder

The output values are adjusted with a selectable resolution using wear-free incremental rotary encoder, guarantee-

ing reliable and precise setting of all output parameters and operating functions even after many years of use.

### Display

The set and measured values for voltage current, and power as well as the menu control functions are displayed on a 2-row LCD with 20 characters/row.

### Highest degree of safety

is guaranteed for your applications by comprehensive protective measures: adjustable overvoltage protection, limit function, fast power OFF switching, polarity reversal protection, resistance to reverse current, various internal electronic monitoring functions.

### Innovative remote sensing circuit

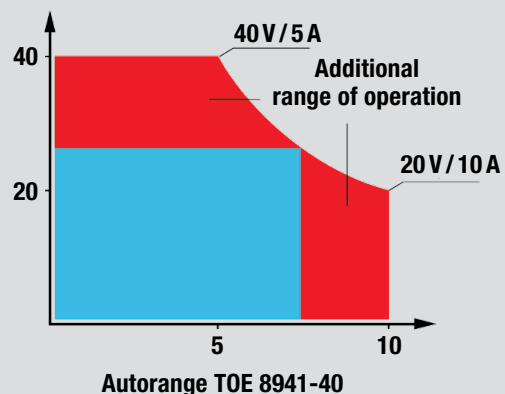
Benefit from an innovative sensing circuit which keeps the correct voltage at the input terminals of the load, additionally it protects sensitive loads if there is a break in the sensor line. The sensing inputs are available at the rear.

### Adjustable output power

The possibility for directly setting the power is a further exceptional feature of this series. The output power of 200 W can then be reduced down to 5 % of the maximum output power.

## Special features

- Active wide range PFC: Input voltage 85 V to 265 V, 47 to 63 Hz
- Autoranging
- Can be used as constant voltage, constant current and constant power source (CV/CC/CP)
- Outputs at front; at rear as option
- On/Off switching of the outputs
- Sensing
- Analog interfaces included as standard
- USB, LAN or GPIB interfaces as option
- Free LabView™ driver
- ½ 19" width, 2 HU design
- Parallel installation possible



Example: TOE 8941-40 (40 V / 10 A)  
compared to a standard power supply  
with 200 W output power.

# 200 W laboratory power supply TOE 8941

## Digital and analog interfaces

### Digital: GPIB/USB/LAN

GPIB, USB and LAN interfaces with the following scope of functions are available for communication between PC and power supply (option):

- Adjustment of output values: voltage current, and power
- OVP and limit adjustment, autocal function, display, store, and recall settings
- Switching on/off of output voltage
- Reading of actual values as well as warning/fault states

The command syntax complies with the IEEE 488.2 standard. Standardized SCPI commands are processed.

### Fast analog control

The power supplies can be controlled in analog mode; i.e. the output voltage and current can be adjusted independent of one another using externally applied control voltages. Short adjustment times for the output voltage are implemented using balanced circuitry. It is therefore possible to generate powerful and fast output signals without problem; up to approx. 700 Hz at 2 Vpp.

### Interlock

By interrupting the interlock circuit, e.g. by an external emergency stop switch, the power supply output becomes deenergized directly.

### Output On/Off

A convenient feature is the output switch-off function which at standby permits immediate reduction of the voltage and current values to 0 V and 0 A. When the output is activated, the set or programmed values for voltage and current are present immediately. The switchover can be carried out manually, via a remote control command from the PC, via an external TTL signal <sup>1)</sup>, or via an external switching contact <sup>1)</sup>.

1) Interlock or inhibit option required

### Autocal function

The power supplies are equipped with a self-calibration function protected by a „security code“. This function can be manually executed from the menu or also remote-controlled.

### Price and performance

The exceptional specifications, extraordinary features, and best possible processing quality provide the power supplies of the TOE 8941 series with an excellent price/performance ratio.

## Options

- GPIB, USB and LAN interfaces
- Interlock
- Inhibit
- Power output at rear



# Overview

## Overview

Model	Output		
	Voltage	Current	Power (max.)
TOE 8941-20	0 – 20 V	0 – 20 A	200 W
TOE 8941-40	0 – 40 V	0 – 10 A	200 W
TOE 8941-60	0 – 60 V	0 – 7 A	200 W
TOE 8941-80	0 – 80 V	0 – 5 A	200 W
TOE 8941-130	0 – 130 V	0 – 3 A	200 W



Developed and manufactured in  
**[ GERMANY ]**

# Technical specifications

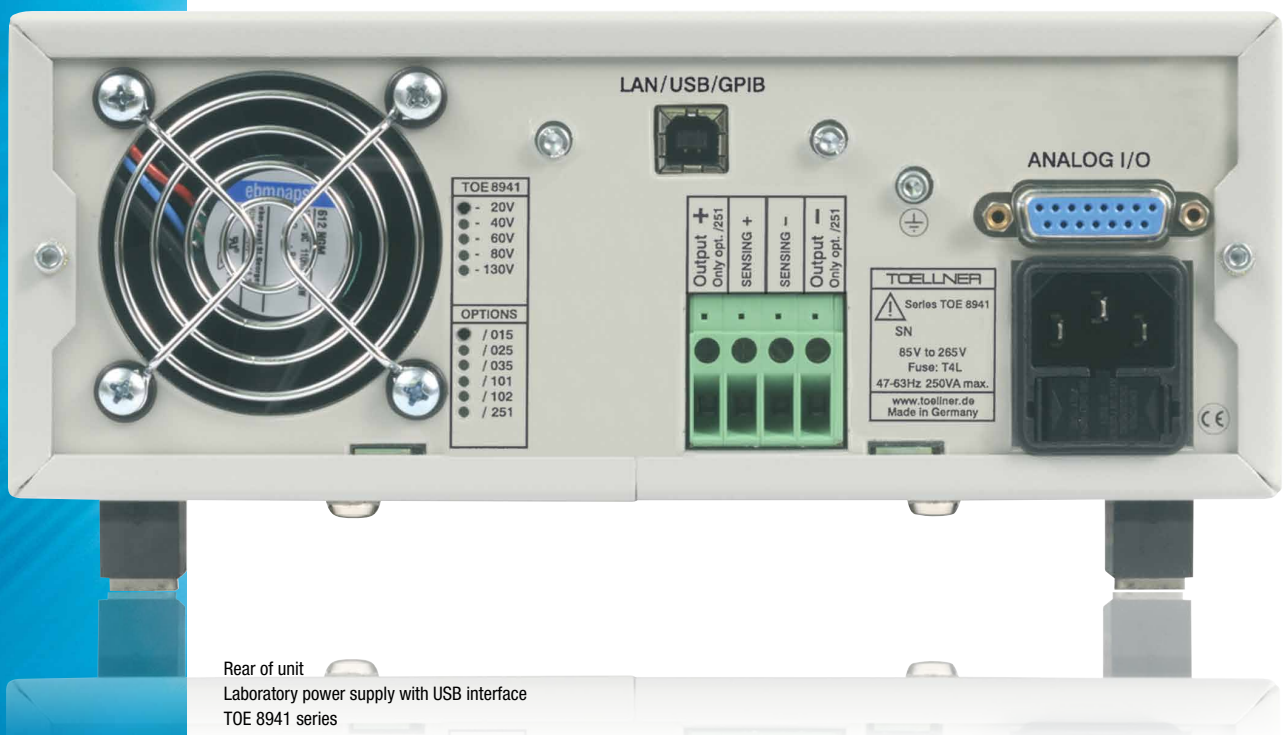
## Technical specifications

Output		TOE 8941-20	TOE 8941-40	TOE 8941-60	TOE 8941-80	TOE 8941-130
Voltage		0 – 20 V	0 – 40 V	0 – 60 V	0 – 80 V	0 – 130 V
Current		0 – 20 A	0 – 10 A	0 – 7 A	0 – 5 A	0 – 3 A
Power adjustable in range		10 – 200 W	10 – 200 W	10 – 200 W	10 – 200 W	10 – 200 W
Setting resolution	Voltage	5 mV	10 mV	10 mV	20 mV	20 mV
	Current	5 mA	2 mA	1 mA	1 mA	1 mA
	Power	0,1 W	0,1 W	0,1 W	0,1 W	0,1 W
Setting accuracy	Voltage	0,1 % + 10 mV	0,1 % + 20 mV	0,1 % + 30 mV	0,1 % + 40 mV	0,1 % + 60 mV
	Current	0,2 % + 20 mA	0,2 % + 10 mA	0,2 % + 7 mA	0,2 % + 5 mA	0,2 % + 3 mA
	Power	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W
Deviation in regulation Voltage with 100 % change in load	Voltage	$10^{-4} + 5$ mV	$10^{-4} + 5$ mV	$10^{-4} + 5$ mV	$10^{-4} + 5$ mV	$10^{-4} + 5$ mV
	Current	$5 \times 10^{-4} + 10$ mA	$5 \times 10^{-4} + 5$ mA	$5 \times 10^{-4} + 3$ mA	$5 \times 10^{-4} + 2$ mA	$5 \times 10^{-4} + 2$ mA
With change in line voltage 85V–265V AC		<0,5 mV	<0,5 mV	<0,5 mV	<0,5 mV	<1 mV
Regulation time with change in load from 20 % auf 100 % $I_{rated}$ Tolerance: 0.2 % $V_{rated}$		100 $\mu$ s	100 $\mu$ s	100 $\mu$ s	100 $\mu$ s	100 $\mu$ s
Setting time of output volta- ge with change in setpoint 0 V to $U_{rated}$ no-load/full load $U_{rated}$ to 1 V no-load/full load		6 ms/10 ms 30 ms/8 ms	8 ms/10 ms 50 ms/10 ms	10 ms/15 ms 100 ms/25 ms	15 ms/20 ms 200 ms/50 ms	50 ms/60 ms 1,5 s/400 ms
Residual ripple (rms) 10 Hz to 10 MHz	Voltage	3 mV	3 mV	6 mV	10 mV	12 mV
	Current	12 mA	10 mA	7 mA	5 mA	2 mA
Measuring accuracy	Voltage	0,1 % + 20 mV	0,1 % + 30 mV	0,1 % + 45 mV	0,1 % + 60 mV	0,1 % + 80 mV
	Current	0,2 % + 30 mA	0,2 % + 20 mA	0,2 % + 10 mA	0,2 % + 7 mA	0,2 % + 5 mA
	Power	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W	0,4 % + 1 W
Temperature coefficient	Voltage	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$
	Current	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$	$10^{-4}/K$
Analog interface Control voltage (reference potential is the negative pole of the output)	0 -5 V for 0 -5 V for	0 – 20 V 0 – 20 A	0 – 40 V 0 – 10 A	0 – 60 V 0 – 7 A	0 – 80 V 0 – 5 A	0 – 130 V 0 – 3 A
Protection functions Adjustment range for OVP Adjustment range for limit		3 – 22 V 0 – 20 V	3 – 44 V 0 – 40 V	3 – 66 V 0 – 60 V	3 – 88 V 0 – 80 V	3 – 143 V 0 – 130 V
Resistant to feedback	Voltage	100 V	100 V	100 V	100 V	160 V
	Current	20 A	10 A	7 A	5 A	3 A

# General data

## General data

<b>Output</b>	Floating and electrically isolated
Insulation	± 250 V against ground
<b>Analog interface</b>	
Control voltage	0 - 5 V each for 0 - $U_{max}$ and 0 - $I_{max}$
Input impedance	Approx. 10 kOhm
<b>Line voltage</b>	85 V – 265 V, 47 – 63 Hz
<b>Power consumption</b>	250 VA/250W
<b>Protective measures</b>	Protection class 1 in accordance with EN 61010-1
<b>EMC</b>	EN 61326
<b>Operating temperature</b>	0 °C to 40 °C
<b>Storage temperature</b>	- 20 °C to 70 °C
<b>Reference temperature</b>	23 °C ± 1 °C
<b>Dimensions</b>	224 x 88 x 357 mm (W x H x T)
With feet	224 x 103 x 357 mm (W x H x T)
<b>19" system</b>	½ 19", 2 HU
<b>Weight</b>	Approx. 3.5 kg
<b>Housing</b>	Aluminium/steel



# Ordering data / Options

## Ordering data

### Single-output power supplies

TOE 8941-20	Power supply	20 V / 20 A
TOE 8941-40	Power supply	40 V / 10 A
TOE 8941-60	Power supply	60 V / 7 A
TOE 8941-80	Power supply	80 V / 5 A
TOE 8941-130	Power supply	130 V / 3 A

## Options

### GPIB interface

TOE 8940/015	For TOE 8941-xx
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### USB interface

TOE 8940/025	For TOE 8941-xx
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### USB and LAN interfaces

TOE 8940/035	For TOE 8941-xx
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### Output at rear

TOE 8940/251	For TOE 8941-xx
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### Cables and adapters

TOE 9101	USB-GPIB adapter
TOE 9009	IEEE-488 cable, 2 m
TOE 9521	19" adapter, 2 HU asymmetric for single installation
TOE 9522	19" adapter, 2 HU parallel installation set for 2 units

### Interlock/inhibit options

The interlock and inhibit control options permit external enabling or OFF/ON switching of the main output by means of a switch or a TTL signal.

#### Interlock option TOE 8940/101

Control via contact	Control via TTL signal	Power supply output
Close	Low	<b>On</b>
Open	High	<b>Off</b>

#### Inhibit option TOE 8940/102

Control via contact	Control via TTL signal	Power supply output
Close	Low	<b>Off</b>
Open	High	<b>On</b>

## Supplied accessories

- 1 power cord
- 1 instruction manual

Free drivers for LabView™ at [www.TOELLNER.de](http://www.TOELLNER.de)



19" adapter, TOE 9522

2 HU, parallel installation set for 2 units of the TOE 8941 series

## Our customers

AEG	EADS	KES	Rohde & Schwarz
Airbus	ebm-papst Gruppe	KMW	RUAG
A.M.S. Software GmbH	ELMOS	Knorr Bremse AG	RUB LEMS
Alps Electric GmbH	elster	KOSTAL	
artesynt	Endress+Hauser	Krupp GmbH	H.-J. Schleißheimer
ASKON	e-on	KUHNKE	S&K Prüftechnik
Atlas Elektronik	Eurocopter GmbH		SENNHEISER
Audi		Labom	SIEMENS
		Leica Camera GmbH	Skoda
BASF AG	FH Braunschweig/Wolfenbüttel	Ernst Leitz Wetzlar GmbH	ST Microelectronics GmbH
Bayer AG	Fachhochschule Dortmund	Lenze	Stocko
Behr Hella Thermocontrol	Ferrari	Linde	
Beiersdorf AG	FESTO	Lucas Automotive GmbH	Takati Petri AG
BENDER	Fiat Automobile AG	Lufthansa Technik AG	TU Darmstadt
Beru AG	Ford-Werke AG		Tektronix GmbH
BIOMET	Fraunhofer Gesellschaft		theben
Boehringer Ingelheim KG	Karl Freudenberg	MAN technologie	Thomas Magnete
Boombardier	fuba	Maserati	Thyssen Krupp
Robert Bosch GmbH	Fujitsu GmbH	MAXIMATOR	TRW Automotive
B. Braun Melsungen AG		Max-Planck-Institute	TT electronics
Brose Fahrzeugteile	Gidemeister Automation GmbH	Mercedes-Benz AG	TÜV-Rheinland
Bugatti Engineering GmbH	GÖPEL electronic	E.Merck	Tyco Electronics
Busch-Jaeger GmbH	Gossen-Metrawatt	Motorola	
Bühler Motor	GSI	mtu	Valeo GmbH
			VDE
CERN	Haas Laser GmbH	NOKIA	Vickers System GmbH
Continental AG	Hahn-Meitner-Institut	Opel AG	Voith Sulzer GmbH
	HARMAN/BECKER	Osram GmbH	Voith Turbo GmbH
Daimler AG	Hauni Werke, Körber		Volkswagen AG
John Deere	Hella KG Hueck & Co.	Pepperl + Fuchs GmbH	
Degussa Hanau	Heraeus Sepatech GmbH	Philips GmbH	WACHENDORFF
DELPHI	HIMA	Phoenix Contact	Wacker Chemie GmbH
DeltaTech Controls	HIRSCHMANN	PHOENIX TESTLAB	WAGO
DESY	Hochschule Furtwangen	Pierburg GmbH	Webasto
Deutsche Lufthansa AG	Hoechst AG	Dr. Ing. h.c.F. Porsche AG	WEBER
Diehl Avionik Systeme	Hüls AG	preh	Weidmüller
Diehl GmbH & Co.	IAV GmbH	PTB	YAZAKI
DLR	IBM Deutschland GmbH		
DMT	iC Haus	RAFI	ZF Antriebs- und
Dornier Luftfahrt GmbH	Infineon AG	Rank Xerox GmbH	Fahrwerktechnik
Dräger	Iskratec	Reis Robotics GmbH	Carl Zeiss
dSpace GmbH		Rexroth Bosch Group	ZOLLNER
Du pont	Jena-Optronik GmbH	Rheinmetall GmbH	
	Kabelmetal electro GmbH	Roche AG	
	Kathrein-Werke KG	Rockwell Automotive	