

T1EP vvv x)¹
High Voltage Desk Top Power Supply
with built-in HV module of EPS series
Operators Manual

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WARNING!

- It is not allowed to use the unit if the covers have been removed.
- It is not allowed to connect or disconnect the HV cable if HV is ON !
- We decline all responsibility for damages and injuries caused by an improper use of the module. It is highly recommended to read the operators manual before any kind of operation.

Note

The information in this manual is subject to change without notice. We take no responsibility for any error in the document. We reserve the right to make changes in the product design without reservation and without notification to the users.

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1. General information

The model T1 **EPvvvx**¹ is a one channel high voltage desk top supply which offer a very stable output voltage up to 30 kV for use in industry and research. The output is generated with a built-in high voltage module of the EPS-series, which is supplied by means of an AC/DC converter.

Main Characteristics:

- High voltage desk top power supplies with either front-panel or remote control via analog I/O or interface
- Output voltage with low ripple and noise
- Compact and ruggedized enclosure
- Output short circuit and overload protected
- Polarity fixed ex works

2. Technical Data

1-channel HV-PS		T1EP200 x) ¹	T1EP300 x) ¹
Output voltage V _{Onom} [kV]		20	30
Output current I _{Onom} [mA]		3	2
Ripple & noise [V _{p-p}]		0,4	0,5
Polarity		positive () ¹ x = p) or negative () ¹ x = n), ex works	
Stability		$\Delta v < 0,03\% * V_{nom}$ (after 0,5 h warming, for 8 h at constant conditions)	
Tolerance of voltage control		$\Delta v < 0,02\% * V_{nom}$ (Δv_{in} , $0 \leq I_{OUT} \leq I_{nom}$)	
Tolerance of current control		$\Delta i < 0,01\% * I_{nom}$ (Δv_{in} und Kurzschluss $\leq R_L < \text{Leerlauf}$)	
Temperature coefficient		$< 2 * 10^{-4}/K$	
Voltage measurement	Resolution:	10 V, 4-digit LCD display	
	Accuracy:	$\pm (1\% * V_{Onom})$ (for one year)	
Voltage setting	manual:	via 10-turn potentiometer V _{SET} ("LOC")	
	REMOTE:	via analog I/O with V _{SET/MON} = 0 to 5 V ("REM") or interface	
Current measurmenet	Resolution:	1 μ A, 4-digit LCD display	
	Accuracy:	$\pm (1\% * I_{Onom})$ (for one year)	
Current setting	manual:	via 10-turn potentiometer I _{SET} ("LOC")	
	REMOTE:	via analog I/O with V _{SET/MON} = 0 to 5 V ("REM") or interface	
Change of output voltage		fixedt: V _{Onom} / 4s (at HV-ON/OFF)	
Protection		Output short circuit and overload protected. Attention ! There is only one short circuit or arc per second allowed! The integral output current must limited to the max. output current of the module external otherwise.	
Remote control		via analog I/O ("REM") or USB ("USB") interface	
Line voltage AC (V _{INPUT})		100 to 240 V-AC; 50/60 Hz; fused with 2 A-slow	

Connectors		HV output: LEMO straight plug 30kV on the rear (ERA.3Y.425.CLL) Attention: Use with connected HV connector only ! analog I/O: 9-pin male D-Sub connector USB: USB-B
Desk case		Size (W/H/D) :: (310/90/280) mm; Weight: ca. 4 kg
Operating temperature		0°C ... +40 °C
Storage temperature		-25°C ... +60 °C
PIN	Name	Description 9-pin male D-Sub connector "analog I/O"
1	n.c.	
2	V_I _{MON}	Monitor voltage corresponding I _O : I _O = 0 to I _{O_{nom}} ⇒ V ₂₋₆ = 0 to 5 V (R _i = 10 kΩ)
3	INH	INHIBIT (TTL level, LOW ⇒ V _O = 0, [LOW to] HIGH or open ⇒ V _O = V _{SET} with ramp)
4	V_I _{SET}	Setting current (R _{IN} = 10 kΩ): V ₄₋₆ = 0 to 5 V ⇒ I _O = 0 to I _{O_{nom}} n.c. ⇒ I _{O_{nom}} is possible
5	n.c.	
6	GND	GND = V _{SET_0V} Signal 0 V (connected to the metal module box)
7	V_V _{MON}	Monitor voltage corresponding V _O : V _O = 0 to V _{O_{nom}} ⇒ V ₇₋₆ = 0 to 5 V (R _{OUT} = 10 kΩ)
8	V_V _{SET}	Setting voltage: V ₈₋₆ = 0 to 5 V (R _{IN} ≈ 300kΩ) ⇒ V _O = 0 to V _{O_{nom}} (R _{IN} ≈ 300kΩ)
9	V _{REF}	V ₉₋₆ = 5 V (1 mA) Reference voltage for a external potentiometer (Sliding contact on V_V _{SET} and/or V_I _{SET})

3. Front panel

