

Ty<sup>)1</sup>CP vv<sup>)2</sup> iii<sup>)3</sup> xxx<sup>)4</sup>

## 2 or 3 Channel High Voltage Desk Top Power Supply

<sup>)1</sup>y = number of channels

<sup>)2</sup>v = voltage code

<sup>)3</sup>i = current code

<sup>)4</sup>x = p:positive polarity

<sup>)4</sup>x = n:negative polarity

## Operators Manual

### Contents:

1. General information
2. Technical Data
3. Front panel
4. Operation
5. Polarity setting
6. Control via RS232/USB Interface

### 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.

Filename TYCPvviiiixx\_10kV-30kV\_USB\_eng.\_\_\_\_; Version 3.00 as of 09-08-25

## 1. General information

The model TYCP vvv iii **xxx**<sup>1</sup> is a 2 or 3 channel high voltage desk top supply which offer very stable output voltages up to 30 kV for use in industry and research. The output is generated by means of a high voltage module of the CPS-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 analogue I/O
- Output voltages with low ripple and noise
- Compact and ruggedized enclosure
- Output short circuit and overload protected
- Control manually, via analogue I/O and USB Interface

## 2. Technical Data

TYCP	100 105 x <sup>1</sup>	150 604x <sup>1</sup>	200 504x <sup>1</sup>	300 304x <sup>1</sup>
Output voltage V <sub>Onom</sub>	10kV	15kV	20kV	30kV
Output current I <sub>Onom</sub>	1mA	600 µA	500µA	300µA
Output polarity	<b>factory fixed:</b> x <sup>1</sup> = p: positive, x <sup>1</sup> = n: negative			
Ripple and noise	typical < 2 * 10 <sup>-5</sup> * V <sub>outnom</sub> , max. 5 * 10 <sup>-5</sup> * V <sub>outnom</sub>			
Stability:	$\frac{\Delta V_O}{\Delta V_{INPUT}}$	< 1 * 10 <sup>-4</sup>		
	$\Delta V_O$ (no load/ load)	< 2 * 10 <sup>-4</sup>		
Temperature coefficient	< 1 * 10 <sup>-4</sup> /K			
Voltage measurement	resolution:	10 V / 4-digit LCD display		
	accuracy:	± ( 1% * V <sub>Onom</sub> ) (for one year)		
Voltage settings	manual:	via 10-turn potentiometer ("LOC")		
	REMOTE:	via analog I/O with V <sub>SET/MON</sub> = 0 to 5 V ("REM") or USB ("USB")		
Current measurement	resolution:	I <sub>Onom</sub> = 1mA: 1 µA    300 µA ≤ I <sub>Onom</sub> ≤ 600 µA: 100 nA 4-digit LCD display		
	accuracy:	± ( 1% * I <sub>Onom</sub> ) (for one year)		
Current settings	manual:	via 10-turn potentiometer		
	REMOTE:	via analog I/O with V <sub>SET/MON</sub> = 0 to 5 V ("REM") or USB ("USB")		
Rate of change of output voltage	fixed: V <sub>Onom</sub> / 4 s (at HV-ON/OFF)			
Protection		Output short circuit and overload protected.		
	<b>Attention!</b>	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.		
	<b>Attention!</b>	<b>Units must not be used without HV-Connectors plugged in!</b>		

TyCP	100 105x <sup>1</sup> 150 604x <sup>1</sup>	200 504x <sup>1</sup> 300 304x <sup>1</sup>
Connectors HV output:	CPE HV-plug socket 15 kV: CPE 23.100.051-047 or GES HV-plug socket 15 kV: GES HB 21 T	HV-plug socket 30 kV: LEMO ERA.3Y.425.CLL
analogue I/O / RS232:	9-pin D-Sub connector	9-pin D-Sub connector
Line voltage AC ( $V_{INPUT}$ )	100 to 240 V-AC; 50/60 Hz; fused with 2 A-slow	
Desk case	Size (W/H/D) : (19 inch /2U = 88.90 mm / 305 mm)	
Operating temperature	-20 ... +40 °C	
Storage temperature	-40 ... +85 °C	
9-pin male D-Sub connector "analog I/O" on the rear side		
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 $I_{Onom}$ ( $R_i = 10\text{ k}\Omega$ ) $\Rightarrow V_{2-6} = 0$ to 5 V
3	INH	INHIBIT (TTL level, LOW $\Rightarrow V_O = 0$ , [LOW to] HIGH or open $\Rightarrow V_O = V_{SET}$ with ramp)
4	$V_{I\_SET}$	Setting current ( $R_{IN} = 10\text{ k}\Omega$ to $V_{REF}$ ): $V_{4-6} = 0$ to 5 V $\Rightarrow I_O = 0$ to $I_{Onom}$ n.c. $\Rightarrow I_{Onom}$ 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 $V_{Onom}$ ( $R_{OUT} = 10\text{ k}\Omega$ ) $\Rightarrow V_{7-6} = 0$ to 5 V
8	$V_{V\_SET}$	Setting voltage: $V_{8-6} = 0$ to 5 V $\Rightarrow V_O = 0$ to $V_{Onom}$ ( $R_{IN} \approx 300\text{ k}\Omega$ )
9	$V_{REF}$	$V_{9-6} = 5\text{ V}$ ( 1 mA) Reference voltage for a external potentiometer (Sliding contact on $V_{V\_SET}$ and/or $V_{I\_SET}$ )

## Front panel (principle picture)

