

0.5kV - 30kV; 60W
VERSATILE, PRECISION REGULATED
HIGH VOLTAGE POWER SUPPLIES

▪ **FEATURES**

- Precise high voltages up to 30kV at max. 60W
- Positive or negative polarity
- Output voltage and current control
- Internal reference voltage
- Stable output voltage
- Low ripple and noise
- Low EMI
- Capacitor charger and arc management options
- Patented resonance converter technology
- Metal case
- Modified versions available on request
- Made in Germany



HME modules are versatile, precise and stable analog controlled high voltage power supplies with multiple options. The HME series covers output voltages of up to 30kV in a compact metal box. A version in a 3U/12HP cassette is available too (HEE series). The maximum output power is 60W; for models with higher output power please see the HME 150W series. The HV output is brought out via an HV cable. The control voltages and analog I/O are connected via a D-Sub 9 connector. The control of output voltage and current is achieved by means of control voltages or potentiometers (internal reference voltage). Remote ON and INHIBIT inputs, as well as output voltage and output current monitoring outputs, are provided.

The HME modules can be equipped as capacitor charger with very low output voltage overshoot (option C). They also can be protected against high-frequency arcs (option A).

The patented resonant converter technology and the metal box shielding guarantee high efficiency and low EMI.

The HME modules can be used as standalone DC/DC converters or combined into THQ series multichannel AC/DC HV power supplies.

Output Voltage V_{NOM}	Max. Output Current I_{NOM}	Model		Ripple / Noise ($f > 10\text{Hz}$ typ.)
		Positive Polarity Output	Negative Polarity Output	
0 – 500V	120mA	HME-0.5P120-24-#	HME-0.5N120-24-#	0.25V _{PP}
0 – 1 000V	60mA	HME-1P60-24-#	HME-1N60-24-#	0.5V _{PP}
0 – 1 500V	40mA	HME-1.5P40-24-#	HME-1.5N40-24-#	0.75V _{PP}
0 – 2 000V	30mA	HME-2P30-24-#	HME-2N30-24-#	1V _{PP}
0 – 3 000V	20mA	HME-3P20-24-#	HME-3N20-24-#	1.5V _{PP}
0 – 4 000V	15mA	HME-4P15-24-#	HME-4N15-24-#	2V _{PP}
0 – 5 000V	12mA	HME-5P12-24-#	HME-5N12-24-#	2.5V _{PP}
0 – 6 000V	10mA	HME-6P10-24-#	HME-6N10-24-#	3V _{PP}
0 – 8 000V	7mA	HME-8P7-24-#	HME-8N7-24-#	4V _{PP}
0 – 10 000V	6mA	HME-10P6-24-#	HME-10N6-24-#	5V _{PP}
0 – 15 000V	4mA	HME-15P4-24-#	HME-15N4-24-#	120V _{PP}
0 – 20 000V	3mA	HME-20P3-24-#	HME-20N3-24-#	400V _{PP}
0 – 30 000V	2mA	HME-30P2-24-#	HME-30N2-24-#	500V _{PP}

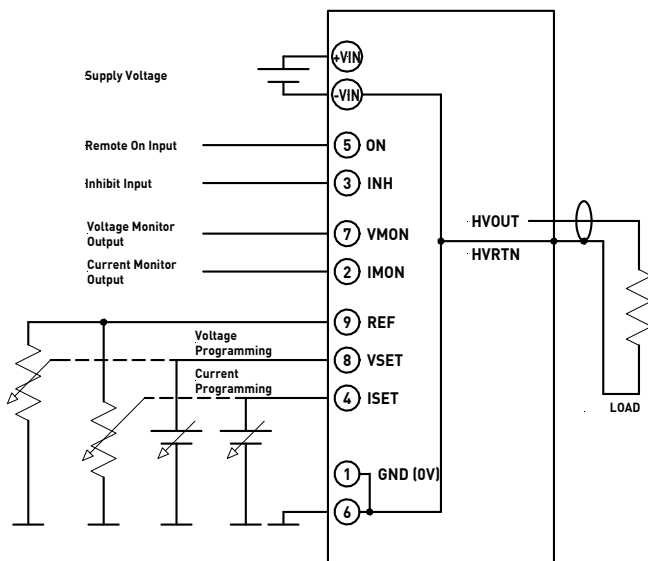
#: set/monitor voltage range designator: "5" or "10" for 0-5V or 0-10V respectively

■ SPECIFICATIONS

Input Supply Voltage (V_{IN}):	$+24V_{DC} \pm 5\%$ (max 3.2A)	
Line Regulation:	$< 1 * 10^{-4} * V_{NOM}$	$(\Delta V_{OUT} / \Delta V_{IN})$ min to max supply voltage
Load Regulation:	$< 2 * 10^{-4} * V_{NOM}$	$(\Delta V_{OUT} / \Delta R_{LOAD})$ no load to rated load
Temperature Coefficient:	$2 * 10^{-4}/K$	
Supply Connector:	2-pole screw terminal block, max. 2.5mm ²	
Control Connector:	D-Sub 9 male	
Output:	shielded HV cable (600mm)	
Control:	analog control signals: VSET, ISET, VMON, IMON 5V control inputs: INH, ON	
Reference Voltage (V_{REF}):	5V or 10V (model dependent). This reference voltage is intended for external potentiometers to program the output voltage and/or current (connect wiper to VSET, ISET)	
Voltage Setting (VSET):	$V_{VSET} = 0$ to V_{REF} results in $V_{OUT} = 0$ to $V_{NOM} \pm 1\%$	(input impedance: 10M Ω)
Current Limit Setting (ISET):	$V_{ISET} = 0$ to V_{REF} results in $I_{OUT} = 0$ to $I_{NOM} \pm 1\%$	(input impedance: 10M Ω)
Voltage Monitor (VMON)	$V_{OUT} = 0$ to V_{NOM} results in $V_{VMON} = 0$ to V_{REF}	(output impedance: 10k Ω)
Current Monitor (IMON)	$I_{OUT} = 0$ to I_{NOM} results in $V_{IMON} = 0$ to V_{REF}	(output impedance: 10k Ω)
Remote ON (ON)	active Low Low (0V to 1V):	(10k Ω pullup to +5V) V_{OUT} according to V_{VSET} with ramp ca. $V_{NOM}/4s$
Inhibit (INH)	High (3.5V to 10V) or open: active Low Low (0V to 1V):	$V_{OUT} = 0$ with ramp ca. $V_{NOM}/4s$ (10k Ω pullup to +5V) V_{OUT} off
Protection:	High (3.5V to 10V) or open:	V_{OUT} according to V_{VSET}
Operating temperature:	Overload, arc, output short circuit, over-voltage, over-temperature. 0°C to +50°C	
Storage temperature:	-25°C to +80°C	
Dimensions (LxWxH):	185 x 108 x 56.5 mm ³	
Weight:	1.0kg to 1.25kg, depending on model	

All voltages are referenced to GND

■ CONNECTION DIAGRAM

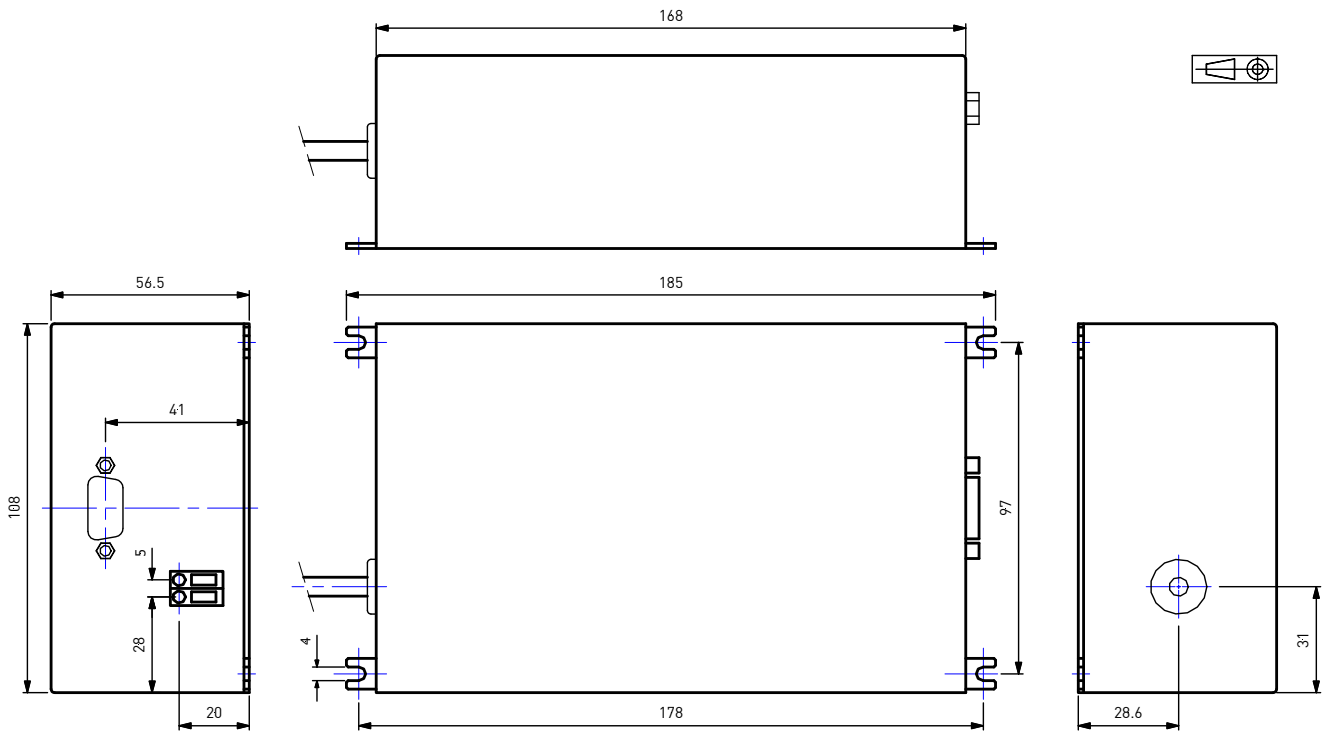


■ PIN FUNCTION DESCRIPTIONS

Pin No.	Designation	Function
1	GND (0V)	Signal GND (connected to pin 6)
2	IMON	Current Monitor Output
3	INH	Inhibit Input
4	ISET	Current Programming Input
5	ON	Remote On Input
6	GND	Signal GND (connected to pin 1)
7	VMON	Voltage Monitor Output
8	VSET	Voltage Programming Input
9	REF	Reference Voltage Output
	+VIN	Input Supply Voltage
	-VIN	Supply Voltage Ground

GND, -VIN and HVRTN are internally connected; the case is connected to GND.

▪ DIMENSIONS



Dimensions in mm

Drawing not to scale

▪ OPTIONS

- A** protection against high-frequency arcs
- C** capacitor charger with very low output voltage overshoot

▪ ORDERING INFORMATION

HME	-	2	P	30	-	24	-	5	-	C
Base Part Designation		Output Voltage [kV _{DC}]	Output Polarity	Output Current [mA]		Input Supply Voltage [V _{DC}]		Set/Monitor Voltage Range [V _{DC}]		Options (if applicable)

Examples: HME-2P30-24-5 (HME series, 2kV, positive polarity, 30mA, 24V supply, 5V reference)

HME-2P30-24-5-C (HME series, 2kV, positive polarity, 30mA, 24V supply, 5V reference, capacitor charger option)

Disclaimer

The information given in this data sheet is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects. hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described.

Safety Advice

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with. Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!