

HTP-EBS

4 QUADRANT HIGH VOLTAGE DISTRIBUTION MODULES



POSITIVE PROBLEM SOLVING **+ =**

The HTP-EBS series of high voltage cassettes provide 4 quadrant operation. This allows individual channels to sink or source current with negative or positive voltage.

A CAN interface is provided for remote operation. OPC control and a comprehensive GUI is available that allows any number of channels to be grouped for simultaneous control. Grouped channels can also be configured to behave the same way when an event occurs. For example if a current trip limit is breached all related channels can be set to ramp down in a controlled manner.

- + Bidirectional Operation - Sinks & Sources Current
- + Bipolar Operation - Positive & Negative Voltage
- + Adjustable Voltage Ramp up to 3000V/s
- + Flexible Group and Event Handling
- + Software for Operation via CAN
- + Low Cost Crate Options

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FURTHER DETAILS

Front panel potentiometers are provided for setting maximum voltage and current trip limits for the entire module. A common floating return helps minimise the voltage noise levels.

A variety of crates are available for housing these compact cassettes. These range from a single slot desktop crate to a 10 slot rackmounting version with front panel display along with USB & ethernet interfaces.

High voltage modules from the HTP-EHS and HTP-EDS product families can also be operated from within the same crate. For further details on the crates please refer to the options and mainframe tables overleaf.

TECHNICAL DATA

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Ripple & noise	<20mV _{pp} (For V _{OUT} differences of <600V between channel to channel)
Hardware limits	Voltage limit and current trip pot per module sets limits for all output channels
Software limits	Voltage limit and current trip point adjustable per channel via interface
Interface	CAN interface (potential free)
Voltage setting resolution	$4 \times 10^{-5} \times V_{NOM}$
Voltage measurement resolution	$2 \times 10^{-5} \times V_{NOM}$ up to $2 \times 10^{-6} \times V_{NOM}$ (dependent on integration time)
Current measurement resolution	$2 \times 10^{-4} \times I_{NOM}$
Accuracy of voltage measurement	$\pm [0.01\% \times V_{OUT} + 0.02\% \times V_{NOM} + 1 \text{ digit}]$
Accuracy of current measurement	$\pm [0.1\% \times I_{OUT} + 0.4\% \times I_{NOM} + 1 \text{ digit}]$
Rate of voltage change	Up to V _{NOM} /s
Safety loop [2 pole Lemo connector]	5mA < I _s < 20mA = module ON I _s < 0.5mA = module OFF
Power requirements	+24V (< 1A / 2A) and +5V (<200mA)
HV connector type	51 pin REDEL (optional SHV)
Mechanical construction	3U or 6U x 8HP cassette (40.3mm)

SELECTION TABLE

Part Number	Output Voltage Range	Output Current Range	Number of Channels	Output Socket	Module Height
HTP-EBS 40-05	0 to \pm 500V	0 \pm 1mA	4 Channels	REDEL	3U
HTP-EBS 80-05	0 to \pm 500V	0 \pm 1mA	8 Channels	REDEL	6U
HTP-EBS F0-05	0 to \pm 500V	0 \pm 1mA	16 Channels	REDEL	6U
HTP-EBS 80-30	0 to \pm 3kV*	0 to \pm 500 μ A	8 Channels	REDEL	6U
HTP-EBS F0-30	0 to \pm 3kV*	0 to \pm 500 μ A	16 Channels	REDEL	6U

* Please note that a maximum voltage difference of 3kV is possible between output channels on one PCB. Two separated PCBs make up the 16 channel versions so channels 1-8 could operate at -3kV to 0V while channels 9-16 could operate at 0V to +3kV. The maximum voltage difference is limited by firmware.

OPTIONS

CODE	DESCRIPTION
/SHV	SHV connectors in place of REDEL connector
/ECH 224	4 slot desktop mainframe [see below for details]
/ECH 238	8 slot rackmounting mainframe [see below for details]
/ECH 242	2 slot desktop mainframe [see below for details]
/ECH 244	4 slot desktop mainframe with integrated controller [see below for details]
/ECH 43A	10 slot rackmounting mainframe slave to HTP-ECH 44A [see below for details]
/ECH 44A	10 slot rackmounting mainframe with integrated server [see below for details]
/WIFI	Integrated Wi-Fi access point for wireless remote control [for HTP-ECH 44A only]
/ICS	Intelligent remote control and monitoring software [for HTP-ECH 44A only]
/FAN	Fan tray mounted on HTP-ECH 238 mainframe (adds 1.5U to overall height)
/UPS	Uninterruptible Power Supply [for HTP-ECH 238, HTP-ECH 43A & HTP-ECH 44A only]
/MPOD 2H-LX	10 slot mainframe with front panel control and display Ethernet, CAN & USB
/MPODmini	4 slot mainframe with Ethernet, CAN & USB
/MPODmicro	1 slot mainframe with Ethernet, CAN & USB

MAINFRAMES

Part Number	Slots	Power	Fan	Interface	PSU [Integrated AC/DC]	Dimensions [W x H x D]
HTP-ECH 242	2	200W	Yes	Ethernet	Yes	120mm x 7U x 350mm
HTP-ECH 224	4	300W	Yes	CAN & USB	Yes	235mm x 7U x 350mm
HTP-ECH 244	4	300W	Yes	CAN & USB	Yes	235mm x 7U x 350mm
HTP-ECH 238	8	1200W	Option	CAN & USB	Yes	19" x 6U x 450mm
HTP-ECH 43A	10 + 1*	1200W	Yes	2 x CAN	Yes	19" x 8U x 600mm
HTP-ECH 44A	10 + 1*	1200W	Yes	Ethernet & 2 x CAN	Yes	19" x 8U x 600mm
HTP-MPODmicro	1	100W	Yes	Ethernet, CAN & USB	Yes	19" x 1.5U x 480mm
HTP-MPODmini	4	600W	Yes	Ethernet, CAN & USB	Yes	19" x 4U x 480mm
HTP-MPOD 2H-LX	10	1200W	Yes	Ethernet, CAN & USB	Yes	19" x 8U x 460mm

*Additional slot for communications card

Every effort is made to ensure that the information provided within this technical summary is accurate. However, ETPS Ltd must reserve the right to make changes to the published specifications without prior notice. Where certain operating parameters are critical for your application we advise that they be confirmed at the time of order. ETPS Ltd specialises in modifying its proven platforms to suit your needs. Please contact our office if your requirement is non-standard. Please note that your actual unit may differ from those shown.



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