

# Operators' manual

## Crate ECH 224

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### Caution!

- It is not allowed to use the unit if the covers have been removed.
- We decline all responsibility for damages and injuries caused by improper use of the system. It is highly recommended to read the operator 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 crate ECH 224 is able to carry up to 4 Multi Channel iseg HV-modules with 220 mm depth. The crate provides the necessary supply voltages and the connections for remote control.

During operation enough airflow has to be given to the unit.

## 2. Technical data

	<b>ECH 224</b>
<b>AC supply voltage (switchable)</b>	100-240 V ; 50/60 Hz ; fused with 6,3 A slow (fuses double sided at the jack)
<b>DC supply voltages</b>	+ 24 V (up to 12,5 A) + 5 V (up to 1 A)
<b>Power total</b>	max. 300 W
<b>Floating</b>	Floating = max. difference of voltage between PE and GND: $\Delta V \leq  30 \text{ V} $ , clamped via 2 anti- parallel suppressor-diodes with $V_Z = 56 \text{ V}$
<b>Mechanical layout</b>	Desk-top ½ 19" – Standard Eurocrate (42 TE) with built-in fans depth ca. 320 mm module slot depth 220 mm height 7 U + feet / ca. 330 mm CAN-connectors: 9-pin Sub-D
<b>Air cooling</b>	In case of desk operation a minimal free space e.g. the height of the device feet above and under the unit must be guaranteed. The airflow slot on top and bottom cover must be free.  In case of and the use of several crates in stack a forced air-cooling must be possible.

### 3. PIN assignment

#### 3.1. Module station

connector			description	remarks	
1	a	b	c	+ 5 V	
3	a	b	c	+ 24 V	
4			c	I <sub>SL</sub>	connected to + 24 V with ca. 11 Ω / 3 W via the SL connector on the front panel
5	a	b	c	GND	
11	a			CAN_GND	isolated
		b		CAN_L	
			c	CAN_H	
13	a			RESET	connected to push button on front panel
		b			OFF with ramp (e.g. 10s after power fail)

Connector			Description	Remarks	
30	a			Bank_addr	module address b2 <sup>4</sup> , bank switch on front p.
		b		Bank_addr	module address b2 <sup>5</sup> , bank switch on front p.
31	a			Mod_addr	module address b2 <sup>2</sup> , fix connected
		b		Bank_addr	module address b2 <sup>3</sup> , bank switch on front p.
			c	GND	
32	a			Mod_addr	module address b2 <sup>0</sup> , fix connected
		b		Mod_addr	module address b2 <sup>1</sup> , fix connected
			c	GND	

#### 3.3. External CAN-Bus

The external CAN-Bus is connected through 9-pin Sub-D connectors on the front panel.

input	output	PIN	signal	description
9-pin Sub-D connector female	9-pin Sub-D connector male	2	CAN_L	
		3	CAN_GND	GND
		5	CAN_SHLD	shield
		7	CAN_H	

## 4. Front panel / Operation

The connection with mains is made through an inlet connector on the rear side of the device. The mains switch and the fuse is also located at this place. The internal AC/DC-converter, which offers the necessary supply voltages for the modules and the fans will be switched ON from here.

This AC / DC converter can work in an AC voltage range from 100 to 240 V-AC, 50/60 Hz.

The CANbus interface will be connected by the Sub-D-9 connectors CAN HV (IN/OUT) on the front panel. In case of using more than one crate the final CANbus connector has to be terminated with 120 Ohm.

In case of using more than one crate the different module address for each module on the CANbus has to be configured with help of the bank select switch on the front panel.

After Switch ON and system initialization of CANbus the connected Multi Channel iseg HV-modules can work under remote control via PC.

If using

If using Multi Channel iseg HV-modules with internal supplied safety loop (via the module connector pin C 4 on the backplane), bridging the two pins of the SL connector on the front of the crate will be connect the module SL to the current source in the crate (from + 24 V with ca. 11  $\Omega$  / 3 W).

If the module safety loop is active (see the manual of the module) removing the bridge during operation (opening the loop) then the output voltages on all channels are shut off without ramp and the corresponding bit in the 'Status module' will be cancelled. After the loop will be closed again the channels must be switched 'ON' and a new set voltage must be given before it is able to offer an output voltage.