

Operators manual

Crate ECH 228 x

Crate ECH 328 x

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Caution!

-The unit must not be operated with the cover 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:

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

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1. General information

The crates ECH 228 x or ECH 328 x are able to carry up to 8 Multi Channel HV-modules EHQ xxxx with 220 mm depth. The crates provide the necessary supply voltages and the connections for all remote control capabilities.

Options: - Remote control of all supply voltages via CAN BUS and switching.
- Integrated UPS (bridge time min. 1 min), with CAN-Interface only!

During operation enough air flow has to be given to the unit.

2. Technical data

	<u>ECH 228 L / 328 L</u>	<u>ECH 228 M / 328 M</u>
AC supply voltage	230 V / max. 5 A (fuses double sided)	230 V / max.10 A (fuses double sided)
DC supply voltages	+ 24 V (up to 15 A) + 5 V (up to 5 A)	+ 24 V (up to 25 A) + 5 V (up to 12A)
Power total	max. 400 W	max. 700 W *
Floating	Floating = max. difference of voltage between PE and GND: $\Delta V \leq 30 \text{ V} $, clamped via 2 anti- parallel suppressor-diodes with $V_Z = 56 \text{ V}$	
Mechanical layout	19" – Standard BIN 84 TE / ca. 450 mm depth Module slot depth 220 mm CAN-connectors: 9-pin Sub-D	
	ECH 228 L: height 6 U PS forced air cooling Cover - and bottom shield with air slots	ECH 228 M: height 6 U PS forced air cooling Cover - and bottom shield with air slots
	ECH 328 L: height 7 U PS and module slots with forced air cooling.	ECH 328 M: height 7 U PS and module slots with forced air cooling
Air cooling	ECH 228 L In case of desk operation above and under the unit a free space of 40 mm must be guaranteed. The air flow slot on rear side must be free.	ECH 228 M In case of full power operation enough air flow has to be provided. The air flow slot on rear side must be free.
	In case of rack mounting and the use of several crates in stack forced air cooling and/or the use of special air flow sheets is necessary.	
	ECH 328 L	ECH 328 M
	Above and under the unit no extra room is necessary. The air flow slots in front and on rear side must be free.	

*1200 W on request.

3. PIN assignment

3.1. Module station

Connector				Description	Remarks
1	a	b	c	+ 5 V	
3	a	b	c	+ 24 V	
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 ⁴ , bank switch on front p.
		b		Bank_addr	module address b2 ⁵ , bank switch on front p.
			c	GND	
31	a			Mod_addr	module address b2 ² , fix connected
		b		Bank_addr	module address b2 ³ , bank switch on front p.
			c	GND	
32	a			Mod_addr	module address b2 ⁰ , fix connected
		b		Mod_addr	module address b2 ¹ , fix connected
			c	GND	

3.2. CAN Group Controller

Prepared slot for the use of a CAN Group Controller in order to build up very big hierarchy -structured HV - systems. (with more than 64 CAN-nodes).

Connector				Description	Remarks
1	a	b	c	+ 5 V	
2	a	b	c	+ 24 V	
3	a	b	c	GND	
11	a			CAN_GND	internal CAN-Bus isolated
		b		CAN_L	
			c	CAN_H	
13	a			CAN_GND	external CAN-Bus isolated
		b		CAN_L	
			c	CAN_H	

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 male	9-pin Sub-D connector female	2	CAN_L	
		3	CAN_GND	GND
		5	CAN_SHLD	Shield
		7	CAN_H	

4. Front panel / Operation

Module-RESET-push button

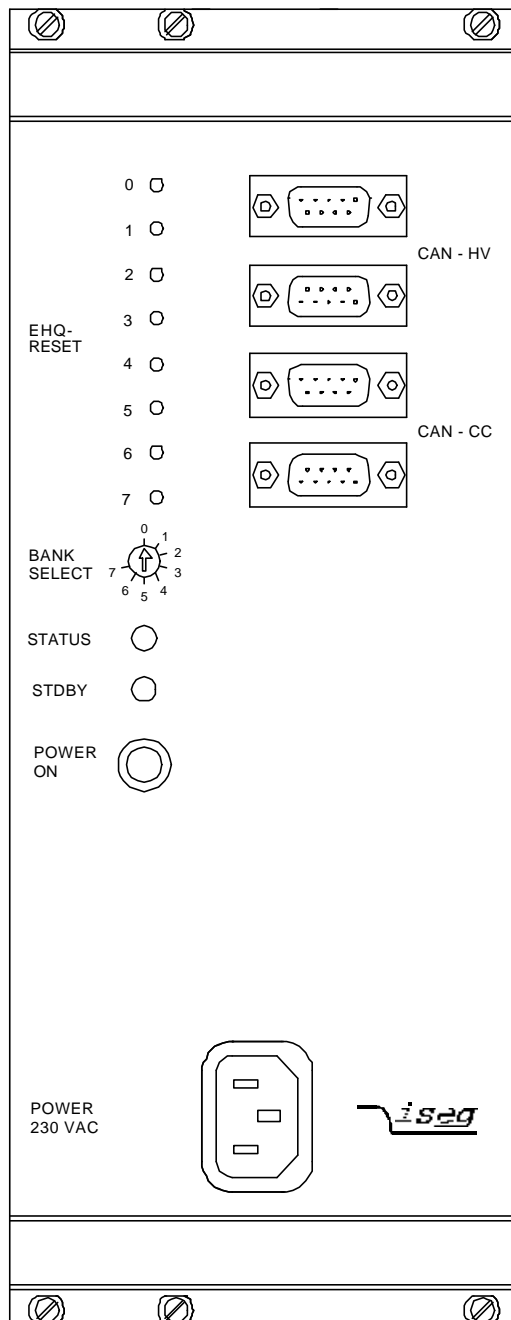
BANK-SELECT-switch
select bank with fixed Module address
(up to 8 Crates with 64 modules)

STATUS
POWER-ON (24V-DC O.K.) and
Option CAN: no error and
Option UPS: Battery load

STDBY
AC-supply ON
Option CAN: remote control possible

POWER-ON
ON – OFF switch 24V-DC Supply

AC-Power



Connector CAN-Bus for
HV-modules

Option CAN:
Connector CAN-Bus for
crate control