Technical documentation
last changed on: 25.05.2020

ECH 224

4 Slot 19” MMS-Crate Series for iseg MMS High Voltage Power Supply Modules

- up to 4 MMS High Voltage Power Supply Modules
- 300W
- wide range of HV-modules
- integrated fan unit

Document history

Version	Date	Major changes
1.0	25.05.2020	Relayouted version

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The information in this manual is subject to change without notice. We take no responsibility for any mistake in the document. We reserve the right to make changes in the product design without reservation and without notification to the users. We decline all responsibility for damages and injuries caused by an improper use of the device.

Safety

This section contains important security information for the installation and operation of the device. Failure to follow safety instructions and warnings can result in serious injury or death and property damage.

Safety and operating instructions must be read carefully before starting any operation.

We decline all responsibility for damages and injuries caused which may arise from improper use of our equipment.

Depiction of the safety instructions

DANGER!

DANGER!

"Danger!" indicates a severe injury hazard. The non-observance of safety instructions marked as "Danger!" will lead to possible injury or death.

WARNING!

WARNING!

"Warning!" indicates an injury hazard. The non-observance of safety instructions marked as "Warning!" could lead to possible injury or death.

CAUTION!

CAUTION!

Advices marked as "Caution!" describe actions to avoid possible damages to property.

INFORMATION

INFORMATION

Advices marked as "Information" give important information.

Read the manual.

HIGH VOLTAGE

Attention high voltage!

Important information.

Intended Use

The device may only be operated within the limits specified in the data sheet. The permissible ambient conditions (temperature, humidity) must be observed. The device is designed exclusively for the generation of high voltage as specified in the data sheet. Any other use not specified by the manufacturer is not intended. The manufacturer is not liable for any damage resulting from improper use.

Qualification of personnel

A qualified person is someone who is able to assess the work assigned to him, recognize possible dangers and take suitable safety measures on the basis of his technical training, his knowledge and experience as well as his knowledge of the relevant regulations.

General safety instructions

- Observe the valid regulations for accident prevention and environmental protection.
- Observe the safety regulations of the country in which the product is used.
- Observe the technical data and environmental conditions specified in the product documentation.
- You may only put the product into operation after it has been established that the high-voltage device complies with the country-specific regulations, safety regulations and standards of the application.
- The high-voltage power supply unit may only be installed by qualified personnel.

Important safety instructions

DANGER!


DANGER!

This device is part of a high voltage supplying systems.
High voltages are dangerous and may be fatal.

USE CAUTION WHILE WORKING WITH THIS EQUIPMENT.
BE AWARE OF ELECTRICAL HAZARDS.

Always follow at the minimum these provisions:

- High voltages must always be grounded
- Do not touch wiring or connectors without securing
- Never remove covers or equipment
- Always observe humidity conditions
- Service must be done by qualified personnel only

WARNING!


WARNING!

To avoid injury of users it is not allowed to open the unit. There are no parts which can be maintained by users inside of the unit. Opening the unit will void the warranty.

WARNING!


WARNING!

Before connecting or disconnecting HV cables or any operation on the HV output or the application, the unit has to be switched off and discharge of residual voltage has to be finished. Depending on application residual voltages can be present for long time periods.

WARNING!


WARNING!

Do not operate the unit in wet or damp conditions.

WARNING!


WARNING!

Do not operate the unit in an explosive atmosphere.

WARNING!


WARNING!

Do not operate the unit if you suspect the unit or the connected equipment to be damaged.

WARNING!


WARNING!

The protective conductor connection must be ensured by an appropriate mains cable. Before connecting to the local power supply, check whether the nominal voltage of the devices corresponds to the mains voltage.

WARNING!


WARNING!

Risk of death due to electric shock!
Disconnect the appliance from the mains before carrying out any work. Do not open the housing of the unit!

WARNING!


WARNING!

The mains connection is made with basic insulation and protective conductor. The device may only be operated with the protective earth conductor (PE) connected!

The protective conductor connections must be checked for proper function after installation.

CAUTION!


CAUTION!

When installing the units, make sure that an air flow through the corresponding air inlet and outlet openings is possible.

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Please check the compatibility with the devices used.

Table of contents

1 General information

These crate devices are used for operating iseg high voltage power supply modules in a desktop compatbile case. Up to 4 slots for MMS high voltage modules are provided. Each module is connected to the backplane of the crate by a vendor specific 96 pin connector. For control and network communcation of the MMS modules a crate controller needs to be plugged into the special Crate Controller Slot.

2 Technical data

SPECIFICATIONS	ECH 224
Slots	4 x MMS modules and 1 x MMS controller
Rated AC mains input	100-264 VAC with PFC
Fuse	5x20mm 6.3AT
AC power connector	IEC 320 C14T
DC module supply voltages	±24 V / +5V
DC output power	300 W
Connection	CAN
Cooling	Vertical, integrated fans, bottom airintake
Operation temperature	0 ... 50°C ambient without derating
Storage temperature	-20 °C ... 70 °C
Floating PE to DC 0V	Clamped ±47 V
Dimensions (L/W/H)	350 mm / 226 mm / 310 mm
Weight	5.5 kg

Table 1: Technical data

3 Operation and maintenance

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.

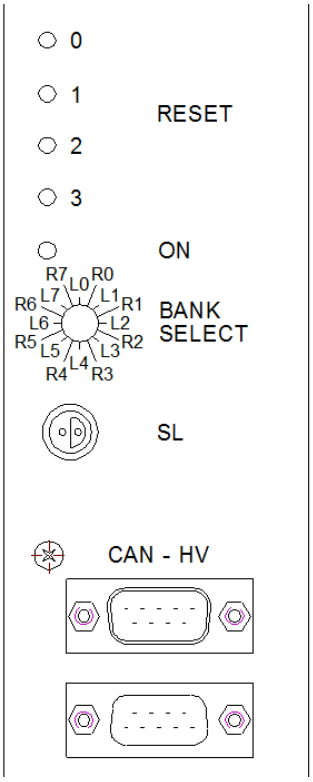
3.1 Front panel

The CANbus interface will be connected by the DSUB-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 (see Chapter 3.2 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 Multi Channel iseg HV-modules with internal supplied safety loop, 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. 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.



	Description
RESET	It is able to send a module RESET with the built-in module RESET push bottom.
ON	On LED
BANK SELECT	With the BANK-SELECT-switch select the used bank with fixed module address.
SL	With help of the SL connector it is able to provide the internal safety loop of built-in custom specific multichannel HV modules with a current up to 300 mA.
CAN	The external CAN-Bus (CAN-HV) to control the iseg HV module is connected through DSUB-9 connectors on the front panel.

Figure 1: Controller

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Please use a CAN-Bus termination.

3.2 Bank select switch

The BANK SELECT switch assigns an address to the ECH. This is necessary when extending an existing system. The letters "L" and "R" are intended to help with spatial orientation (left / right). Each step of the switch expands the system by one more ECH with 4 slots.

Example

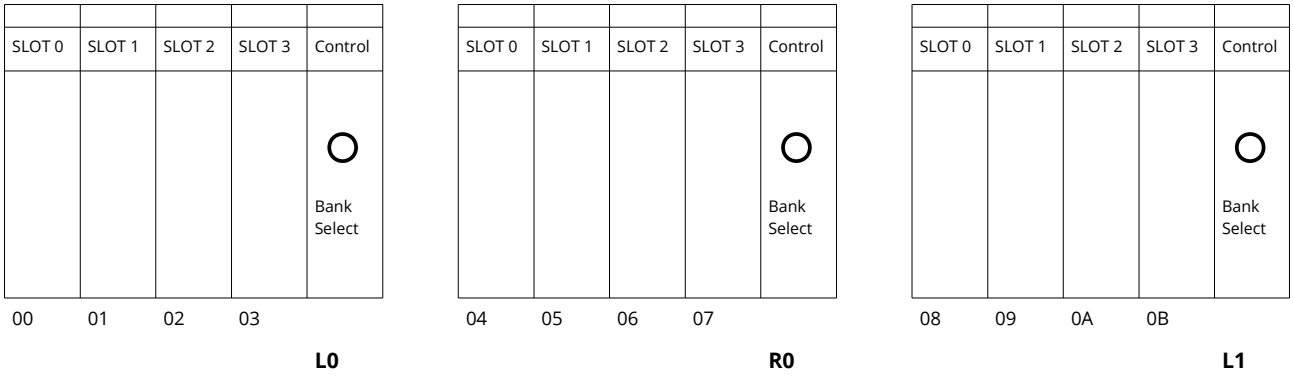

Figure 2: Crate (schematic)

3.3 Forced air cooling

The crate offers an internal forced air cooling with temperature dependent speed regulation by the crate controller. The fresh air intake is on the bottom, for propper ventilation it needs to be sure that the airflow is not blocked.

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Further it is recommended to cover unused module slots with blind front panels to provide optimal airflow and cooling performance.

4 Dimensional drawings

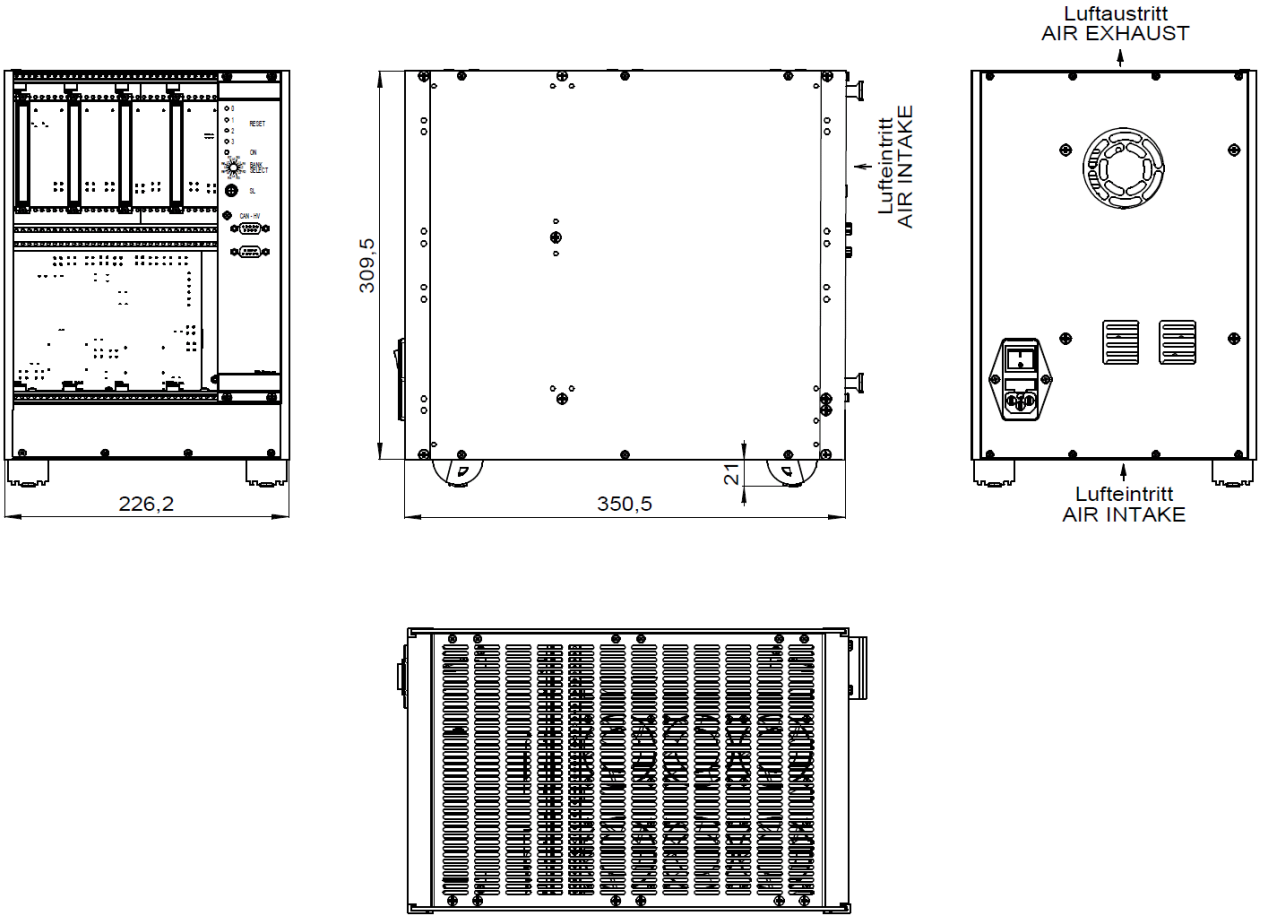


Figure 3: Dimensions ECH 224

5 Connectors and PIN assignments

PIN	NAME	DESCRIPTION	VALUE
2	**CAN_L**	CAN low	
3	**CAN_GND**	CAN ground	
7	**CAN_H**	CAN high	

Table 2: PIN assignment

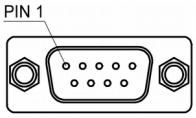
CONNECTOR ASSIGNMENTS				
Name	DSUB9	Safety Loop socket		
Figure				

Table 3: Connector Assigment

CONNECTORS PART NUMBERS (manufacturer code / iseg accessory parts item code)			
POWER SUPPLY SIDE		**CABLE SIDE**	
Safety Loop (LEMO)			
Socket	ERA.0S.302.CLL	Connector	FFA.0S.302.CLAC / Z592312

Table 4: Part numbers

6 Accesories

CAUTION!

CAUTION!

Only use genuine iseg parts like power cables, CAN cables and terminators for stable and safe operation.

ACCESSORY ITEM	ORDER ITEM CODE
SHV coupler screw for RG58	Z590162
SHV coupler screw for >5kV	Z592474
Lemo plug 2-pole without collet chuck (SL)	Z592312

Table 5: Accesories

7 Order guides

CONFIGURATION ORDER GUIDE (item code parts)						
G	**2**	**2**	**4**	**32**	**000**	**00**
Type	System height	System modules	Number of available inserts	Output Power	Option (hex)	Customized Version
Crate	2 = 6U	2 = for MMC System modules	one significante digits. 4 = 4 Slot	two significante digits • exponent For Examle: 032 = 3 • 10^2 [W] = 300W	not available	00 = none

Tabelle 6: Order guides

8 Appendix

For more information please use the following download links:

This document
http://download.iseg-hv.com/SYSTEMS/MMS/EHS/iseg_manual_ECH224_en.pdf
Iseg HV Modules
https://www.iseg-hv.com/

9 Warranty & Service

This device is made with high care and quality assurance methods. The standard factory warranty is 36 months. Please contact the iseg sales department if you wish to extend the warranty.

CAUTION!

CAUTION!

Repair and maintenance may only be performed by trained and authorized personnel.

For repair please follow the RMA instructions on our website: www.iseg-hv.com/en/support/rma

10 Disposal

INFORMATION

INFORMATION

All high-voltage equipment and integrated components are largely made of recyclable materials. Do not dispose the device with regular residual waste. Please use the recycling and disposal facilities for electrical and electronic equipment available in your country.

11 Manufacturer contact

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