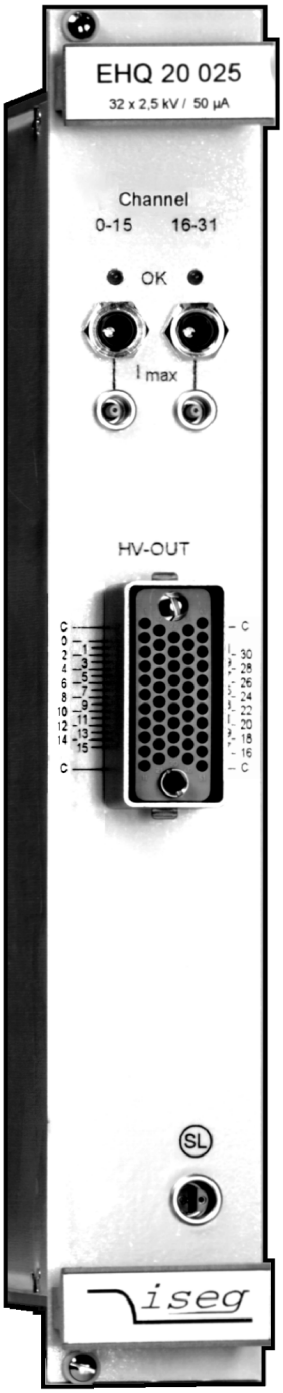
EHQ 20 025 32-channel High Voltage Power Supply series

The EHQ 20 025 is a 32-channel high voltage power supply in 6U Eurocard format. Each single channel is independently controllable. The EHQ 20 025 is made ready for mounting into a crate. The powered system crate ECH 228 (19“ rack) carries up to 8 modules. It is also possible to supply the modules separately with the necessary power. The unit is software controlled via CAN Interface directly through a PC or similar controller. With the CAN Controller MHCC 64 it is possible to create a multi-channel high voltage system of any configurable size. The HV output at the EHQ 20 025 is available with Redel Multipin-Connector.

Technical data	EHQ 20 025
Output current I_O	max. 50 µA
per channel at V_O	0 to 2500 V
Ripple and noise	f = 10 Hz to 100 MHz: < 10 mV (at max. load) at V_O > 400 V
Current limit I_{max}	Potentiometer (I_{max} is the same for 16 channels)
Interface	CAN-Interface
Voltage setting	via software, resolution 100 (50) mV
Voltage measurement	via software, resolution 100 (50) mV
Current measurement	via software, resolution 10 (2) nA
Accuracy of voltage measurement	$\pm$ (0,01% $*$ V_O + 0,01% $*$ $V_{O\,max}$ + 1 digit) for one year
Accuracy of current measurement	$\pm$ (0,1% $*$ I_O + 0,4% $*$ $I_{O\,max}$ + 1 digit) for one year
Temperature coeffizient	< 5 $*$ $10^{-5}/_K$
Stability	< 5 $*$ 10^{-5} (no load/load and Δ V_{IN})
Rate of change of output voltage via softw.	0,5 V/s to 125 V/s resolution 0,5 V/s 125 V/s to 250 V/s resolution 5 V/s
Channel control via software	Status 8 bit: voltage and current limit, KILL-enable, channel emergency cut-out, ramp, channel on/off, input error
16 Channels error control via software	voltage limit current limit (”16 Channels OK” is signalled if these limits do not exceed on each.)
Error signal	Green LED at ”16 Channels OK”
Protection loop (I_s) (2 pin Lemo-socket)	5 mA < I_s < 20 mA $\Rightarrow$ module on I_s < 0,5 mA $\Rightarrow$ module off
Power requirements V_{IN}	+ 24 V (<1 A) and + 5 V (< 1,3 A)
Packing	32 channels in 6U Eurocassette, wide = 40.3 mm, depth = 220 mm
Connector	96 pin connector according to DIN 41612
HV connector	32 pin Redel Multipin-Connector



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CAN Commands The module EHQ 20 xxx is software controlled with the data frames as follow:

EXT_ INSTR	DATA_ DIR	DATA_ID Bit								Access	read/ write/ active	DATA - Bytes
ID1	ID0	7	6	5	4	3	2	1	0			
	x	**0**	x	x	x	x	x	x	x	**No DATA_ID**		
x	**x**	**1**	**0**	**C1**	**C0**	**N3**	**N2**	**N1**	**N0**	**Single access CHANNEL:**		
1	1/0	1	0	0	0	N3	N2	N1	N0	Current trip	r/w	3
0	1	1	0	0	0	N3	N2	N1	N0	Actual voltage	r	3
0	1	1	0	0	1	N3	N2	N1	N0	Actual current	r	3
0	1/0	1	0	1	0	N3	N2	N1	N0	Set voltage	r/w	3
0	1	1	0	1	1	N3	N2	N1	N0	Status channel	r	3
		1	**1**	**C3**	**C2**	**C1**	**C0**	**G1**	**G0**	**Group access module**		
1	1/0	1	1	0	0	0	0	0	0	Voltage supplies and module temperature	r/w	8
0	1/0	1	1	0	0	0	0	0	0	General status module	r/w a	2
0	1	1	1	0	0	0	1	0	0	Status1 Voltage limit was exceeded at single channel	r	3
0	1	1	1	0	0	1	0	0	0	Status2 Hardware current limit was exceeded at single channel	r	3
0	1/0	1	1	0	0	1	1	0	0	Channel ON / OFF	r/w	3
0	1/0	1	1	0	1	0	0	0	0	Ramp speed	r/w	3
0	0	1	1	0	1	0	1	0	0	Emergency cut-out	w	3
0	1	1	1	0	1	1	0	0	0	Log-on Front-end device in superior layer	a	2
0	0	1	1	0	1	1	0	0	0	Log-off superior layer at Front-end device	w	2
0	1/0	1	1	0	1	1	1	0	0	Bit rate	r/w	3
0	1/0	1	1	1	0	0	0	0	0	Serial number, software release and CAN message configuration	r/w	6/2
0	0	1	1	1	0	0	1	0	0	Set voltage for all channels	w	3
0	1	1	1	1	0	1	0	0	0	Read hardware current limit	r	3
0	1/0	1	1	1	0	1	1	0	0	KILL-enable	r/w	3
0	1/0	1	1	1	1	0	0	0	0	ADC filter setting	r/w	3
0	1	1	1	1	1	0	1	0	0	Module nominal values	r	5
0	1	1	1	1	1	1	0	0	0	Status3 Software current trip was exceeded at single channel	r	3
		C_i:				Accesses						
		N_i		0 to 15:		Channel 0 to 15						
		G_i:		0 to 3:		Group 0 to 3 / Only needed if group controller (GC) used						

Software isegcc20 is a user friendly control and data acquisition software for multi-channel HV-systems with CAN Interface.