

# MMS

UNIVERSAL LOW / HIGH VOLTAGE MULTICHANNEL POWER SUPPLY SYSTEM

MPOD CRATES BY W-IE-N-ER



ECH CRATES BY ISEG



SYSTEMS

- ▶ two manufacturers - one standard
- ▶ up to 10 slots and 480 channels per crate
- ▶ up to 30 kV, up to 100 W per channel
- ▶ pure LV, HV compatible and mixed setup crates available
- ▶ high quality precision low and high voltage supplies
- ▶ compatible controller boards for networking and software control

The 19" / 6U Eurocassette standard based modular low and high voltage system is the ISEG and W-IE-N-ER vendor specific multichannel power supply standard. With a wide set of modules the MMS system provides the most advanced features in low voltage and high voltage generation.

Many users world-wide trust in the reliability, precision and quality of established MMS hardware. Offering a variety of chassis from a single slot up to 10 slots for desktop or 19" rack-mount use the MMS system is scalable from small to large applications. MMS Systems can be equipped with either the W-IE-N-ER MPOD controller or the new ISEG CC24 controller.

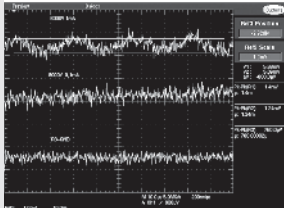
The ISEG CC24 Master with embedded Linux hardware provides EPICS IOC, SNMPservice, easy webbrowser based configuration and control, TCP/IP protocols and much more directly from unit without additional hardware or setup efforts.

# MMS MODULES

LARGE RANGE OF LOW AND HIGH VOLTAGE MULTICHANNEL SUPPLIES



## MODULE OPTIONS



low noise and high stability



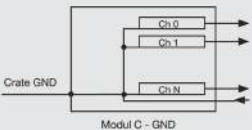
distributor channel supply



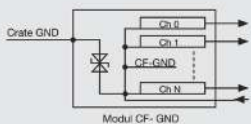
distinct source supply



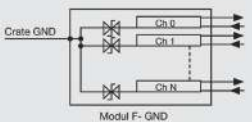
bipolar channel supply



common ground principle



common floating ground principle



floating ground principle

## MODULES

### EDS SERIES



#### DISTRIBUTOR HV MODULE WITH CFG

- ▶ 16 / 24 / 48 channel, 500 V/1.5 kV/ 3 kV versions
- ▶ Low Cost versions with reduced current measurement accuracy
- ▶ very low ripple and noise
- ▶ hardware voltage and current limit
- ▶ voltage control and current measurement per channel
- ▶ programmable parameters

### EHS SERIES



#### VERSATILE HIGH PRECISION HV MODULE in CG/CFG/FG

- ▶ Standard and High Precision versions
- ▶ NEW: Versions "Flex" and "Stack"
- ▶ 4 / 8 / 16 / 32 channel, 100 V - 20 kV versions
- ▶ extreme high stability, low temperature coefficient
- ▶ very low ripple and noise
- ▶ second current measurement range 20  $\mu$ A for high resolution of 50 pA available
- ▶ hardware voltage and current limit
- ▶ voltage control and current measurement per channel
- ▶ programmable parameters (delayed trip etc.)

### EBS SERIES



#### BIPOLAR 4 QUADRANT HIGH VOLTAGE MODULE WITH CFG

- ▶ 4 / 12 / 24 channel, 500 V/1.2 kV/3 kV and custom versions
- ▶ 4-quadrant, usable as bipolar current sink and source
- ▶ perfect for electron optical systems and capacitive loads
- ▶ low ripple and noise
- ▶ floating ground principle
- ▶ voltage control and current measurement per channel
- ▶ programmable parameters (delayed trip etc.)

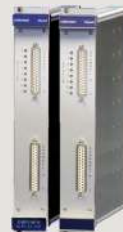
### ESS SERIES



#### SINGLE CHANNEL 2 QUADRANT HV MODULE WITH FG

- ▶ 1 channel, 10 / 20 / 30 kV and customized versions
- ▶ 2-quadrant capabilities, usable as unipolar current sink and source
- ▶ perfect for electron optical systems and capacitive loads
- ▶ low ripple and noise
- ▶ floating ground principle
- ▶ programmable parameters (delayed trip etc.)

### MPV SERIES



#### HIGH PRECISION LOW VOLTAGE MODULE WITH FG

- ▶ 8 channels, 8 / 16 / 30 / 60 / 120 V at 50W per channel
- ▶ 4 channels, 8 / 16 / 30 / 60 at 100W per channel
- ▶ individual return lines, individually sensed, single floating
- ▶ extremely low noise and ripple:  $<3mV_{pp}$  (0-20MHz)
- ▶ voltage or current controlled mode
- ▶ fully programmable for each channel (regulation speed, over / under voltage and current limit, ramp-up / down slopes, ..)
- ▶ user defined action on fault conditions
- ▶ INTERLOCK and safety loop features

SERIES	POWER	CHANNELS	V <sub>NOM</sub>	NOISE	CH. SUPPLY	FLOATING	CONNECTORS	OPTIONS
EHS	-	4/8/16/32/48	0.1 - 20 kV	LN   VLN   ULN	Distinct Source	CG   CFG   FG	REDEL 51   SHV	VCT   L   TC
EDS	-	16/24/48	0.5 - 3 kV	LN	Distributor	CFG	REDEL 51   SHV	
EBS	-	4/12/24	$\pm 0.5 - 3$ kV	LN	Bipolar Distributor	CFG	REDEL 51   SHV   LEM	3UC
ESS	-	1	10/20/30kV	LN	Distinct Source	FG	SHV   GES	
MPV4	100 W/ch.	4	8 / 16 / 30 / 60 V	ULN	Distinct Source	FG	D-SUB	
MPV8	50 W/ch.	8	8 / 16 / 30 / 60 / 120 V	ULN	Distinct Source	FG	D-SUB	

# MMS CRATES

19" AND DESKTOP FRAMES FOR MMS COMPATIBLE MODULES

## CRATES

ECH 54A / 55A / 56A



ECH 242 / 244 / 224 / 238



MPOD / MPOD-MIX



MPOD MINI / MICRO-1 / MICRO-2



## CRATE OPTIONS



**FRONT CONTROL WITH DISPLAY**  
- monitor and control directly



**VERY RELIABLE**  
- perfect air condition by fan trays



**EASY TO MAINTAIN:**  
- removable power supplies with optional UPS

TYPE SERIES	DIMENSIONS (H/W/L)	SLOTS	POWER MAX.	HV/LV	INTERFACES	CONTROLLER	MODULE POS.	SPECIAL FEATURES	OPTIONS
ECH 5xA	8U / 19" / 462 mm	10	3 kW HV / 4 kW LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	19"   removable fan / power	AIR FILTER   UPS
ECH 238	6U / 19" / 450 mm	8	1,200 W	HV	CAN		front	19"   removable fan / power	UPS   FAN
ECH 242	7U / 120 mm / 350 mm	2	200 W	HV	Ethernet   CAN	CC 24   CC 23	front		
ECH 224	7U / 235 mm / 350 mm	4	300 W	HV	CAN	-	front		
ECH 244	7U / 235 mm / 350 mm	4	300 W	HV	Ethernet   CAN	CC 24   CC 23	front		
MPOD	8U / 19" / 462 mm	10	3 kW HV / 4 kW LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	19"   removable fan / power	AIR FILTER   UPS   DISPLAY
MPOD-MIX	8U / 19" / 462 mm	10	3 kW HV / 4 kW LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	like MPOD but with VME, VME64x, PXI or cPCI sub-system	
MPOD MINI	5U / 19" / 412 mm	4	600W HV / 1.6kW LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	19"   removable fan	AIR FILTER   DISPLAY
MPOD MICRO-2	3U / 19" / 412 mm	2	300W HV / 800W LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	19"   removable fan	AIR FILTER   DISPLAY
MPOD MICRO-1	2U / 19" / 412 mm	1	300W HV / 400W LV	HV   LV	Ethernet   CAN	MPODC   CC 24	front   rear	19"   removable fan	AIR FILTER   DISPLAY

# MMS CONTROLLER OPTIONS

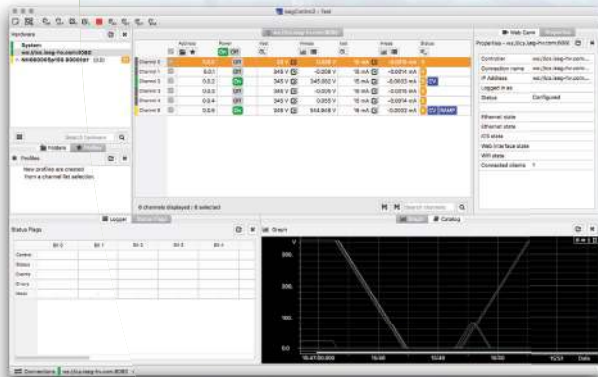
## FLEXIBLE WAYS TO CONTROL MULTICHANNEL VOLTAGE SUPPLIES



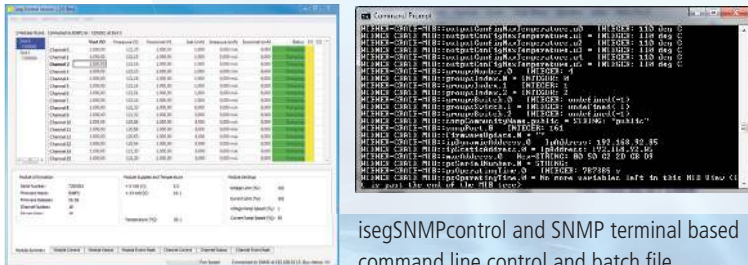
MMS controllers are now exchangeable:



Webbrowser based iControl and iConfig for hardware configuration



isegControl2: unified control software for MMS systems and other power supplies



isegSNMPcontrol and SNMP terminal based command line control and batch file

SYSTEM	CC24 WITH ICS	MPOD CONTROLLER
INTERFACE	100/1000 MBIT ETHERNET	100 MBIT ETHERNET
WIFI	OPTIONAL	-
LINUX SERVER	EMBEDDED	-
SLAVE EXTENSIONS	CC23 (via CAN)	-
HARDWARE INTERLOCK	ONBOARD	ONBOARD
WEBSERVER	CONTROL & CONFIGURATION	MONITORING
SNMP	INTEGRATED	INTEGRATED
EPICS IOC	INTEGRATED	BY SOFTWARE
OPC U/A	INTEGRATED	BY SOFTWARE
LOGGING	INTEGRATED	BY SOFTWARE
LABVIEW SUPPORT	VI AVAILABLE	VI AVAILABLE
<b>SOFTWARE</b>		
ISEG CONTROL 1 (SNMP)	READY	READY
ISEG CONTROL 2	READY	COMING SOON
ISEG SNMP CONTROL	READY	READY



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