



HIGH VOLTAGE POWER SUPPLIES FOR RESEARCH AND LARGE EXPERIMENTS



Tobias Pöthig, iseg | 2022-11-28 | Rossendorf, Germany

WWW.ISEG-HV.COM

SPECIALIZED. WITH EXPERIENCE.

Founded by application-oriented physicists today we are an independent, mid-sized company with almost 60 employees and more than 35 years of experience in development and production of customer-specific high voltage power supplies. Our experienced team consisting of physicists, hardware and software developers, electronic engineers and skilled workers on our production site in Rossendorf near Dresden enables us to react quickly and flexible to customer requirements.

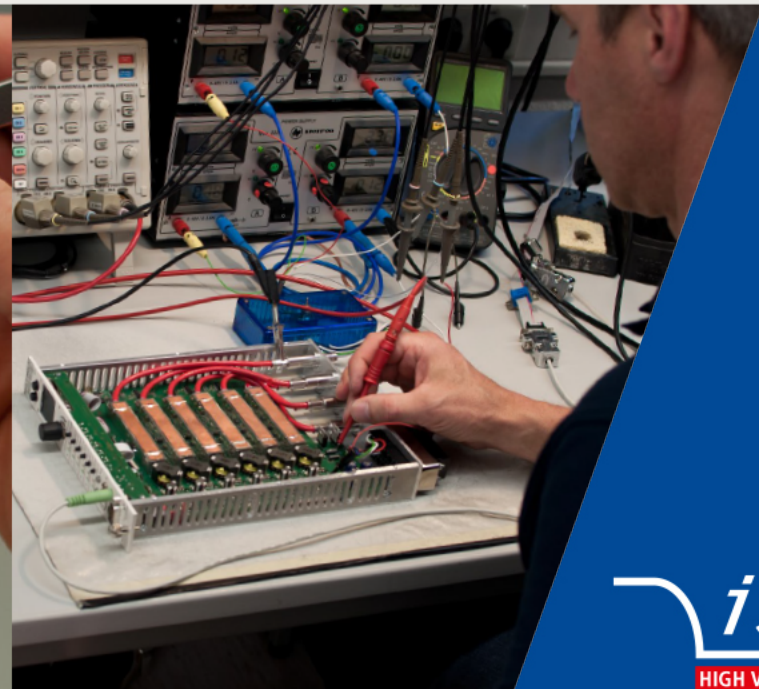
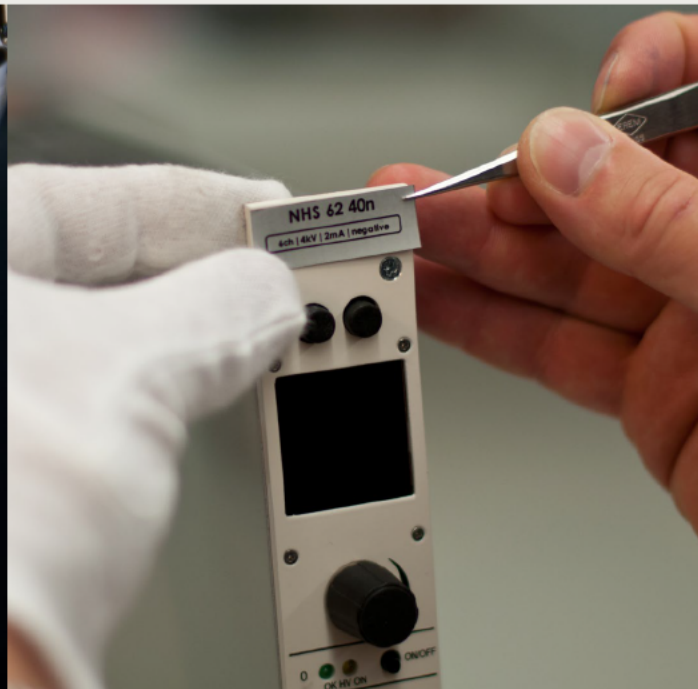
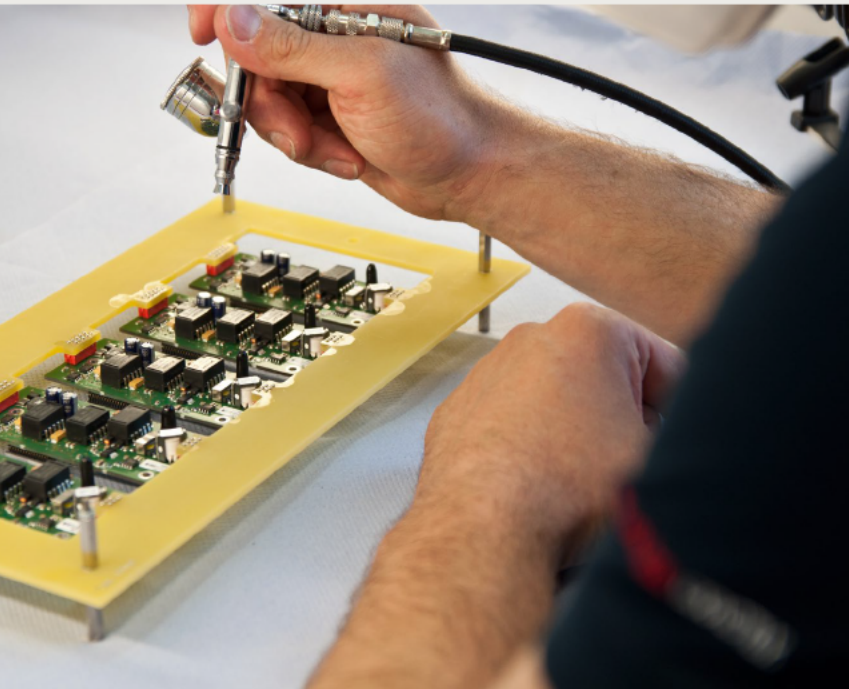
ROSSENDORF
DRESDEN



iseg
HIGH VOLTAGE .EXACTLY.

SPECIALIZED. WITH EXPERIENCE.

All iseg products and solutions were developed and made in Germany.
High self-defined standards are our daily base for quality assurance measures
in development, production and management.



HIGH VOLTAGE. EXACTLY.

iseg designs and produces
high voltage power supplies
for special purpose in
research applications

- **Source Measure Units (SMU)**
- **large number of detector
bias supplies**
- **custom design for special
purpose applications**
- **wide range of product
series and configurations**



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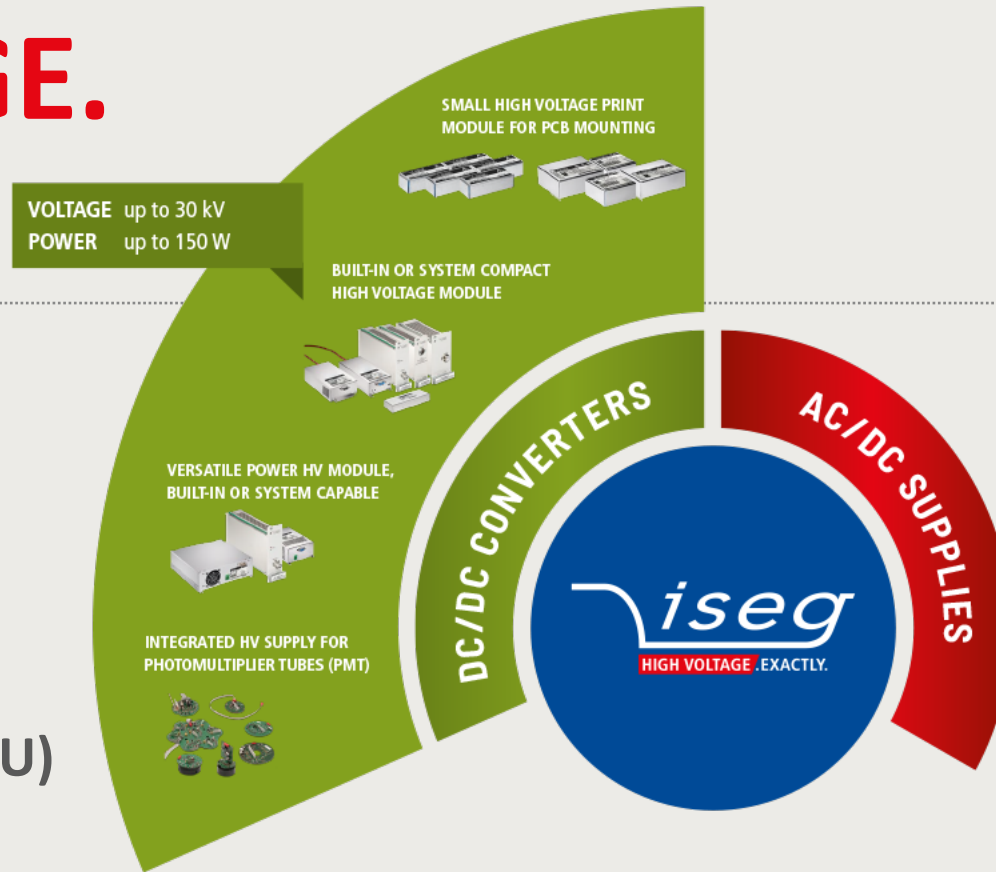
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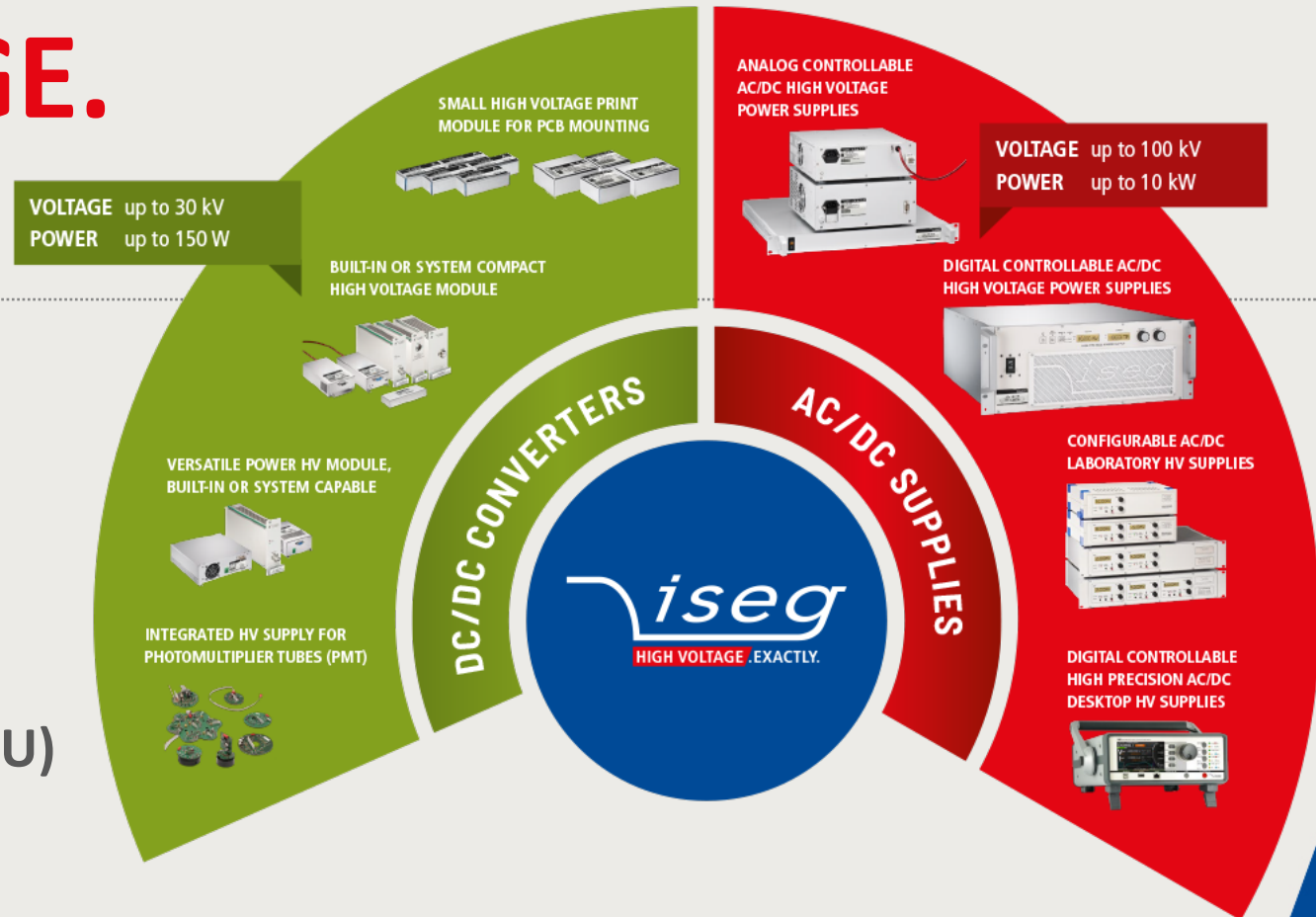
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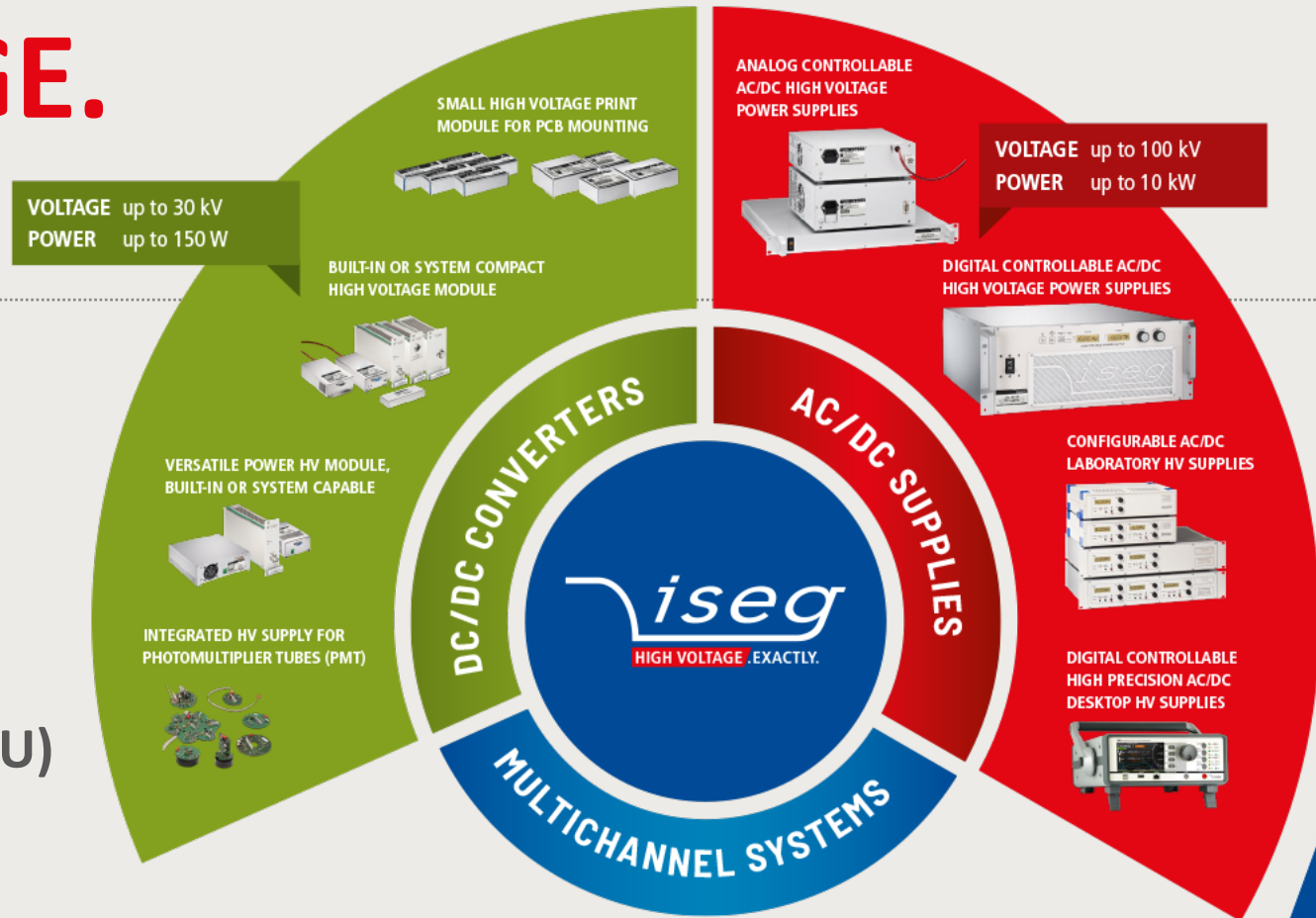
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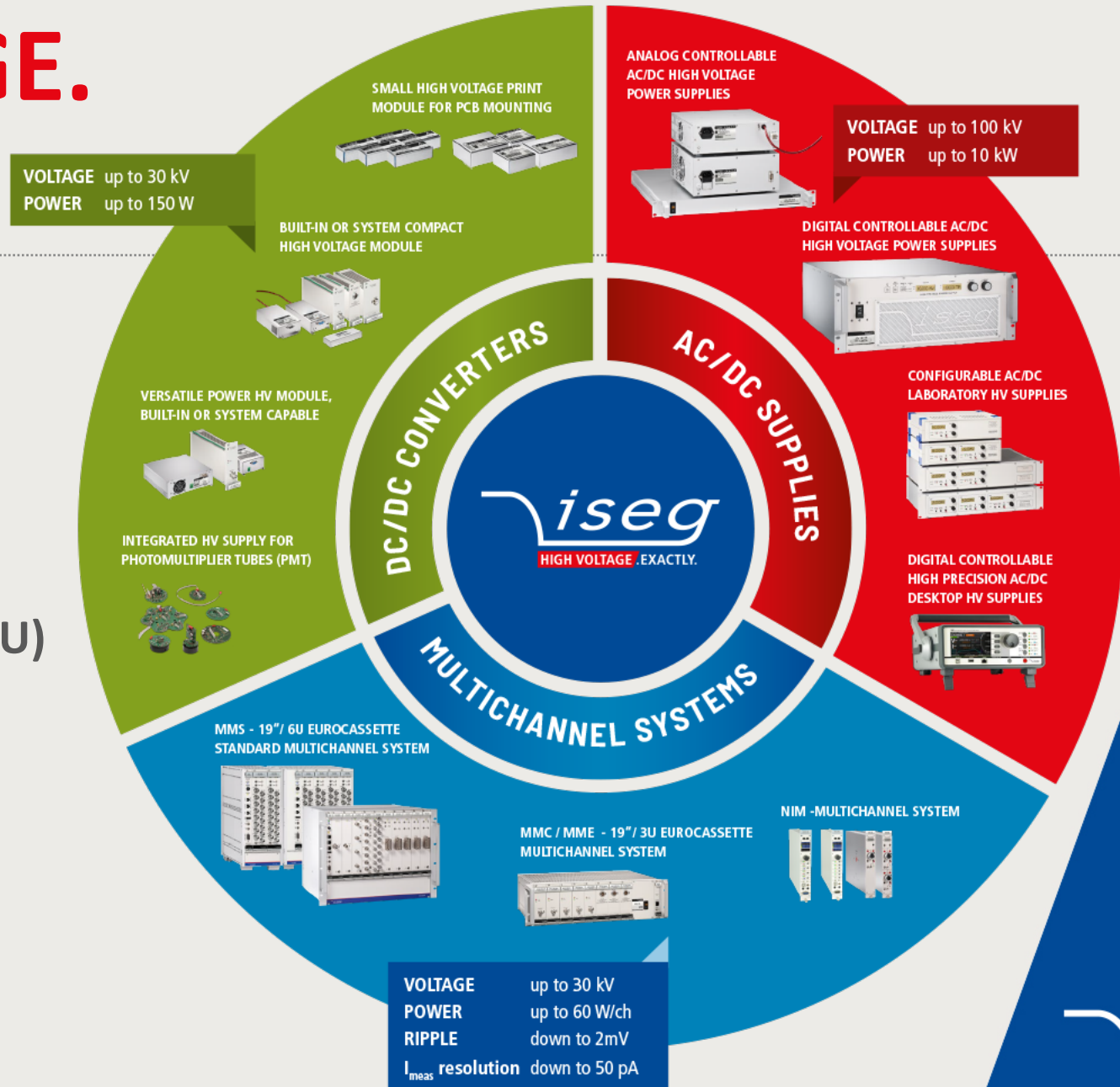
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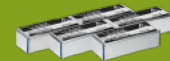


DC/DC

HIGH VOLTAGE CONVERTERS

APS

SMALL HIGH VOLTAGE PRINT MODULE FOR PCB MOUNTING UP TO 1 W



BPS

HIGH VOLTAGE PRINT MODULE FOR PCB MOUNTING UP TO 4 W



CPS

BUILT-IN COMPACT HIGH VOLTAGE MODULE



DPS

HIGH PRECISION BUILT-IN COMPACT HV MODULE



EPS

VERSATILE BUILT-IN POWER HV MODULE



PHQ

INTEGRATED HV SUPPLY FOR PHOTOMULTIPLIER TUBES (PMT)



AC/DC

HIGH VOLTAGE DEVICES

GPS

ANALOG CONTROLLABLE AC/DC HIGH VOLTAGE POWER SUPPLIES



HPS

DIGITAL CONTROLLABLE AC/DC HIGH VOLTAGE POWER SUPPLIES



FPS

FLOATING AC/DC LOW VOLTAGE SUPPLIES



SHR

SWITCHABLE HIGH END HIGH PRECISION AC/DC DESKTOP HV SUPPLIES



THQ

HIGHLY CONFIGURABLE AC/DC LABORATORY HV SUPPLIES



SYSTEMS

VERSATILE EXTENSIBLE HIGH VOLTAGE SUPPLY SYSTEMS

MMS SYSTEM

THE 19" / 6U EUROCASSETTE STANDARD BASED
MODULAR MULTICHANNEL LOW AND HIGH VOLTAGE SYSTEM



3U SYSTEM (MME, MMC)

THE SYSTEMS MME AND MMC
ARE BASED ON 19" / 3U EUROCASSETTE STANDARD.



NIM

NUCLEAR INSTRUMENTATION MODUL-STANDARD



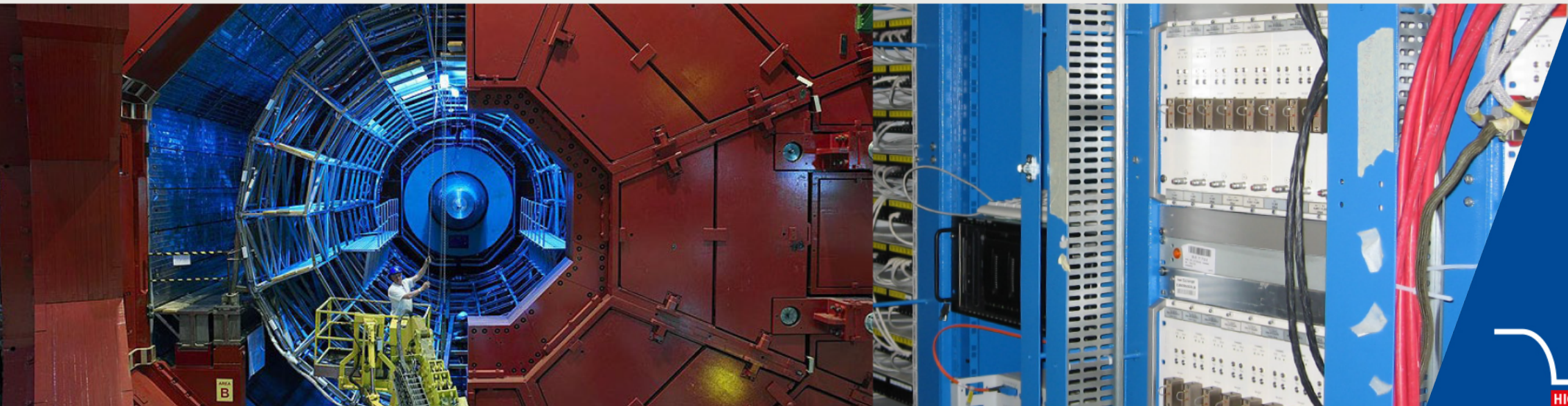
WORLDWIDE SALES & SERVICE NETWORK

As customer and user of iseg hardware you benefit from a worldwide sales network. Qualified representatives advice and support you and your projects.



ISEG @CERN

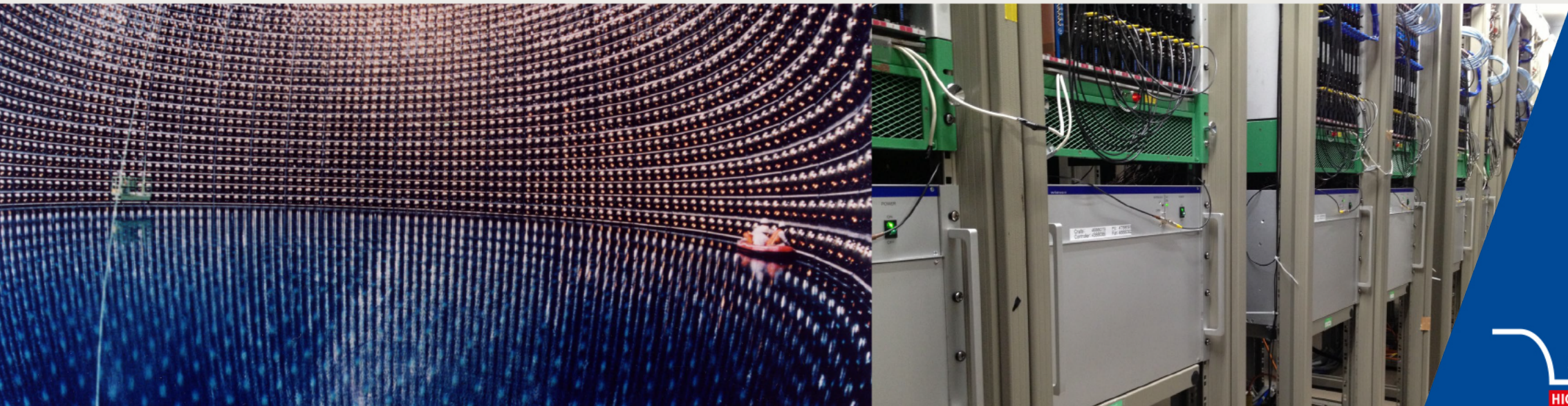
- LHC equipped with iseg HV
- iseg delivered different equipment for the LHCb, ATLAS and ALICE, Isolde, AA detector



OUTSTANDING LONG TERM QUALITY

SUPER KAMIOKANDE PROJECT IN JAPAN

- 12.240 channels
- Very few failures since launch in 2013
- iseg delivered 510 modules of an adaptation of the distributor HV-modules EDS 18325p-K, a modified module EDS 18330p with 2.5 KV output voltage and 24 channels.



CLIENTS AND PARTNERS

ISEG PRODUCTS IN USE



SHR

DESIGNED FOR UNIVERSAL LABORATORY USE



ALSO AVAILABLE
AS NIM-DEVICE:
NHR

ULTRA PRECISE HIGH VOLTAGE SOURCE+MEASURE UNIT

iseq
HIGH VOLTAGE .EXACTLY.

SHR

SWITCHABLE HIGH END HIGH PRECISION AC/DC DESKTOP HV SUPPLY

- 2 / 4 channels, 2 kV / 6 kV versions
- Electronically switchable polarity
- 6 kV channel with electronically switchable modes: up to 2 kV/4 mA, 4 kV/3 mA or 6 kV/2 mA
- High precision / very low ripple and noise
- Ethernet / USB interfaces, integrated iCS2 on
- ARM Linux server hardware
- 4.3" TFT capacitive touch display
- Comprehensive features like logging, diagrammatic display and script control



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HIGH VOLTAGE .EXACTLY.

SPECIFICATIONS

SHR STANDARD

SHR HIGH PRECISION

Polarity	electronically switchable	electronically switchable
Ripple and noise	< 10 mV	< 2 - 3 mV
Temperature coefficient	50 ppm / K	30 ppm/K opt. 10 ppm/K (TC)
Resolution voltage setting	$2 \cdot 10^{-6} \cdot V_{nom}$	$2 \cdot 10^{-6} \cdot V_{nom}$
Resolution current setting	$2 \cdot 10^{-6} \cdot I_{nom}$	$2 \cdot 10^{-6} \cdot I_{nom}$
Resolution voltage measurement	$2 \cdot 10^{-6} \cdot V_{nom}$	$1 \cdot 10^{-6} \cdot V_{nom}$
Resolution current measurement - full range	$2 \cdot 10^{-6} \cdot I_{nom}$	$1 \cdot 10^{-6} \cdot I_{nom}$
Resolution current measurement - 2nd range	n/a	50 pA [$I_{out} < 20\mu A$]
Accuracy voltage measurement *	$\pm (0.01 \% \cdot V_{out} + 0.02 \% \cdot V_{nom})$	$\pm (0.01 \% \cdot V_{out} + 0.01 \% \cdot V_{nom})$
Accuracy current measurement * - full range	$\pm (0.01 \% \cdot I_{out} + 0.02 \% \cdot I_{nom})$	$\pm (0.01 \% \cdot I_{out} + 0.01 \% \cdot I_{nom})$
Accuracy current measurement * - 2nd range	n/a	$\pm (0.01 \% \cdot I_{out} + 4 \text{ nA})$
Rate of voltage change	$1 \cdot 10^{-6} \cdot V_{nom} / s$ up to $0.2 \cdot V_{nom} / s$	$1 \cdot 10^{-6} \cdot V_{nom} / s$ up to $0.2 \cdot V_{nom} / s$
Supply voltage	100 - 264 VAC / 50-60 Hz	100 - 264 VAC / 50-60 Hz
Protection	INHIBIT, Safety loop, short circuit, overload, hardware V/I limits	INHIBIT, Safety loop, short circuit, overload, hardware V/I limits
Interfaces	Ethernet, USB(A) 2.0 (Host: Wifi, Logging, Webcam), USB(B) (remote control)	Ethernet, USB(A) 2.0 (Host: Wifi, Logging, Webcam), USB(B) (remote control)
HV connector	SHV	SHV
Case	desktop case	desktop case
Dimensions (L/W/H)	331/257/103 mm	331/257/103 mm

***) All specifications guaranteed from $1\% \cdot V_{mode} < V_{out} < V_{mode}$**

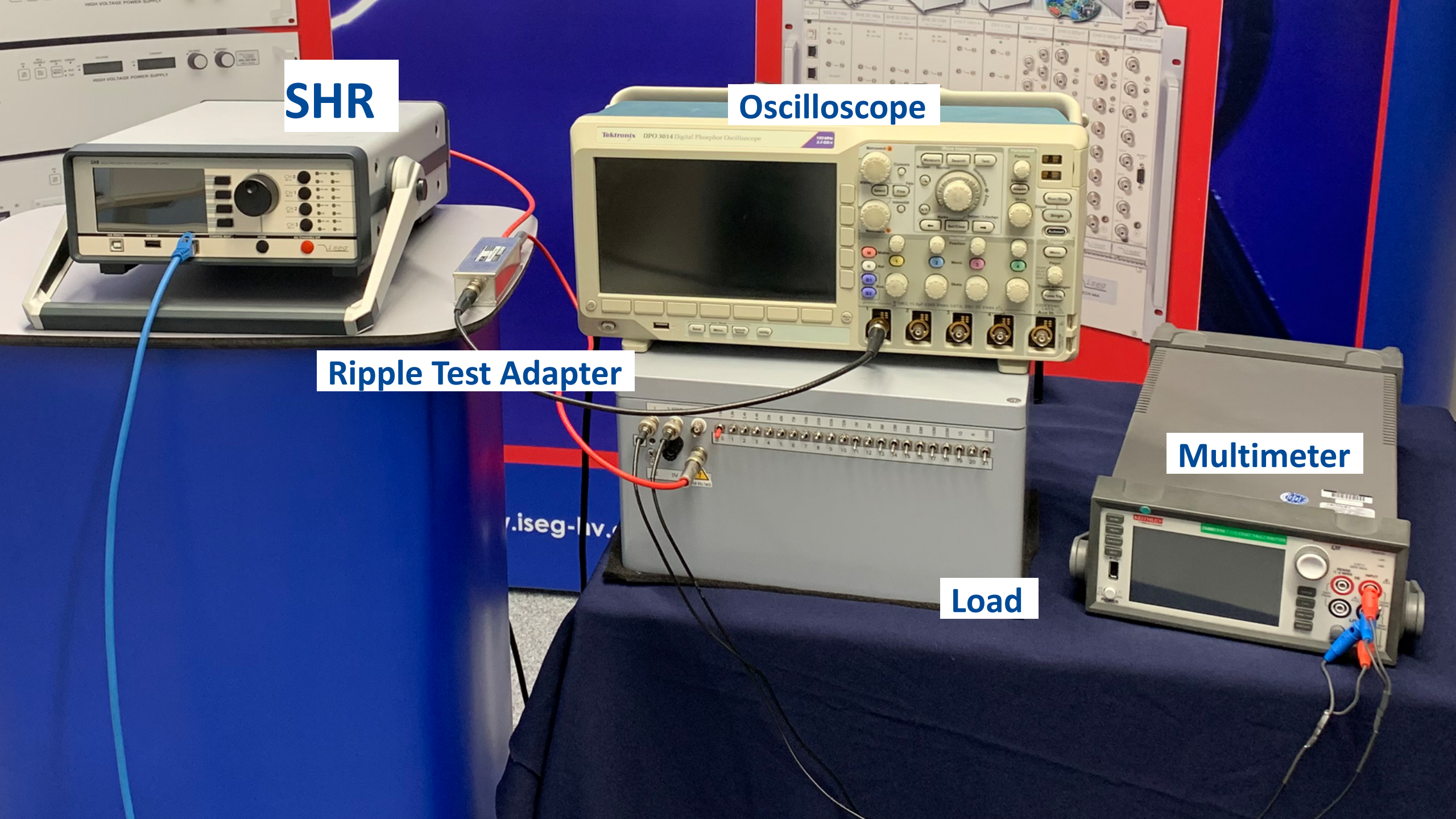
SHR

Oscilloscope

Ripple Test Adapter

Multimeter

Load



THANK YOU!

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