

Technical documentation

Last changed on: 2022-11-07

DPS series

High Precision Built-in or System Capable High Voltage Power Supply Module

- Versions from 500 V 6 kV
- patented resonance converter technology
- available as metal-box or 3U MMC version
- combinable in a multichannel THQ AC/DC HV power supply
- INHIBIT, adjustable hardware limits
- very low ripple and noise, low EMI
- high precision, high stability
- version with reversible polarity





Document history

Version	Date	Major changes
3.6	2023-04-18	HV cable connection (Figure 9: HV cable connection), Color of the LED negative fixed, Description and pictures (Jumper) edited under 3.4.3separation supply ground from signal ground, Glossary refresh
3.5	2022-11-07	short article names, rename document
3.4	2022-08-11	improved documentation
3.3	2021-12-07	Improved documentation connectors, revisions, Overview, Glossary, Table of Contents, Configurations for DP and DK modules, separation of the modules DPS compact metal box/DPS 3U Euro cassette and DPSmini
3.2	2020-09-03	Improved documentation
3.1	2020-08-18	Improved documentation (Set / Monitor accuracy)
3.0	2020-07-13	Improved documentation (safety information, changing polarity)
2.5	2019-09-11	Improved documentation
2.4	2019-07-30	error correction
2.3	2019-06-13	Improved documentation
2.2	2019-03-25	Fixed dimensions for DPS mini Improved documentation
2.1	2017-08-30	Fixed dimensions for DPS mini
	2018-06-13	Improved documentation
2.0	2017-02-28	Relayouted documentation

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

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



 $\label{lem:condition} \mbox{Advices marked as "Information" give important information.}$



Read the manual.



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

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!



The high-voltage cable must be professionally connected to the consumer/ load and the connection insulated with the appropriate dielectric strength. Do not power the consumer/ load outside of its specified range.

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!



Do not operate the unit in wet or damp conditions.



WARNING!



Do not operate the unit in an explosive atmosphere.

WARNING!



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

CAUTION!



Before changing the polarity of modules with switchable polarity, the high voltage generation must be switched off. The HV-Output including connected loads must not have any residual voltage.

Nonobservance of this condition may damage the module.

CAUTION!



CAUTION!

The devices (3UC) must only be used in combination with iseg approved crates.

INFORMATION



Please check the compatibility with the devices used.



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1. General description

DPS modules are highly precise and highly stable analog controlled high voltage power supplies. The modules are available as compact metal box or system capable in 3U Euro cassette. DPS modules (compact metal box) can be used as standalone DC/DC converters, DPS (compact metal box) can be combined to a multichannel AC/DC supply in a THQ AC/DC HV unit or integrated in a modular MMC system as 3U module. The output voltage is controllable via analog interface with either a potentiometer (internal reference voltage) or an analog control voltage. The polarity of standard DPS modules is electronically switchable. To protect the connected load the modules are equipped with INHIBIT, standard DPS modules are also equipped with adjustable current and voltage limits.

Customized versions can be produced on request.

2. Overview

2.1. DPS - compact metal box

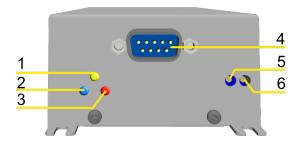




Figure 1: Front side

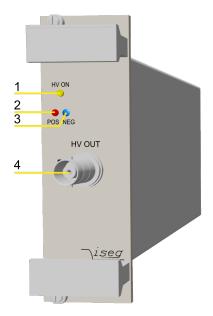
Figure 2: Back side - with HV connector

Number		Description	Detailed explanation in chapter
[1]	HV ON LED	Signals output voltage	3.4.2 Switchable Polarity
[2]	Polarity LED	voltage output is negative	3.4.2 Switchable Polarity
[3]	Polarity LED	voltage output is positive	3.4.2 Switchable Polarity
[4]	Interface connector	Power supply and control signal	5.1 Interface connector D-SUB 9 (compact metal box)
[5]	Current Limit	setting a limit for current (I _{nom})	3 Technical Data, 3.2 Specifications
[6]	Voltage Limit	setting a limit for voltage (V _{nom})	3 Technical Data, 3.2 Specifications
[7] ⁽¹	High voltage output	Sample for DPS with SHV connector	Table 4: Configurations: DPS – compact metal box
Notes:	ding on model (SHV or ca	abla)	

Table 1



2.2. DPS - 3U Euro cassette



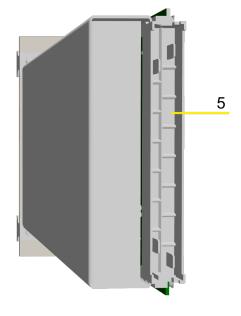


Figure 3: Front side, 3UC

Figure 4: Back side, 3UC

Number		Description	Detailed explanation in chapter
[1]	HV ON LED	Signals output voltage	3.4.2 Switchable Polarity
[2]	Polarity LED	voltage output is positive	3.4.2 Switchable Polarity
[3]	Polarity LED	voltage output is negative	3.4.2 Switchable Polarity
[4]	High voltage output		3 Technical Data
[5]	Interface connector	Power supply and control signal	5.2 System connector H15 (3UC Euro cassette)

Table 2



3. Technical Data

3.1. Specifications

SPECIFICATIONS	DPS	DPS 3UC		
Output voltage V _{nom}	500 V – 6 k	v		
Polarity	Switchable			
Ripple and noise (f > 10 Hz) ⁽¹⁾	typ. < 3 m\ max. 7 mV			
Stability – [ΔV _{out} vs. ΔV _{in}] ⁽¹⁾	< 1 •10 ⁻⁵ • \	Inom		
Stability – [ΔV _{out} vs. ΔR _{load}] ⁽¹⁾	< 5 • 10 ⁻⁵ • \	√ _{nom}		
Temperatur coefficient	50 ppm/K			
Supply voltage V _{in}	22.8 – 25.2	V		
Supply current I _{in}				
at V _{out} = 0	< 120 mA			
at V _{out} = V _{nom} / with load	< 800 mA			
Set / Monitor voltage V _{set}	0 – 5 V opt. 0 – 10 V	0 – 5 V		
Set / Monitor accuracy	± 1 % • V _{nor}	n		
Voltage ramp up/down	0.25 • V _{nom}	/ s		
Protection	Overload and short circuit protected (ATTENTION: there is only one short circuit or arc per second allowed!)			
	INHIBIT, V/I-limit (setting with potentiometer LIMIT I resp. V)	INHIBIT		
Remote connector	D-Sub 9	H15		
HV connector	HV-cable ⁽² SHV	SHV		
Case	metal box (also THQ version)	3U cassette (MMC capable)		
Dimensions – L/W/H	185/75/40 mm³	160mm/8HP/3U		
Operating temperature	0 - 40 °C			
Storage temperature	-20 – 85°C			
Humidity	max. 70 %			

Table 3: Technical data: Specifications

^{1) –} Specifications for stability, ripple and noise are guaranteed in the range $2\% \cdot V_{nom} < V_{o}$ 2) – the HV cable has a length of 600mm as standard, see Figure 9: HV cable connection



3.2. Configurations

							_	
	V _{nom}	I _{nom}	Standard Ripple (mV _{p-p})	Internal Capacitance nominal (nF)	Damping Resistor (kOhm)	Discharge Resistor (MOhm)	HV connector (1	Item Code
DPR 05 106	500 V	10 mA	7	450	0,22	12	cable	DP005106r24oooooccRk
DPR 10 106	1 kV	10 mA	7	240	0.22	12	cable	DP010106r24oooooccRk
DPR 15 805	1.5 kV	8 mA	7	130	0,22	12	cable	DP015805r24oooooccRk
DPR 20 605	2 kV	6 mA	7	20	0,22	25	cable	DP020605r24oooooccRk
DPR 30 405	3 kV	4 mA	7	22	0,22	25	cable	DP030405r24oooooccRk
DPR 40 305	4 kV	3 mA	7	27	0.22	30	cable	DP040305r24oooooccRk
DPR 50 205	5 kV	2 mA	7	10	0.68	30	cable	DP050205r24oooooccRk
DPR 60 155	6 kV	1.5 mA	7	10	0.68	30	cable	DP060155r24oooooccRk

Notes:

 $replacement\ characters:\ o-options,\ c-connector,\ R-revision,\ k-customization,\ y-monitor\ voltages$

1) – the HV cable has a length of 600mm as standard, see Figure 9: HV cable connection

Table 4: Configurations: DPS - compact metal box

CONFIGURATI	CONFIGURATIONS DPS – 3U Euro cassette								
	V _{nom}	I _{nom}	Standard Ripple (mV _{p-p})	Internal Capacitance nominal (nF)	Damping Resistor (kOhm)	Discharge Resistor (MOhm)	HV connector	Item Code	
DPR 05 106	500 V	10 mA	7	450	0.1	12	SHV	DK005106r2450oooccRk	
DPR 10 106	1 kV	10 mA	7	240	0.1	12	SHV	DK010106r2450oooccRk	
DPR 15 805	1.5 kV	8 mA	7	130	0.1	12	SHV	DK015805r2450oooccRk	
DPR 20 605	2 kV	6 mA	7	40	0.1	25	SHV	DK020605r2450oooccRk	
DPR 30 405	3 kV	4 mA	7	40	0.1	25	SHV	DK030405r2450oooccRk	
DPR 40 305	4 kV	3 mA	7	27	0.22	30	SHV	DK040305r2450oooccRk	
DPR 50 205	5 kV	2 mA	7	10	0.68	30	S08	DK050205r2450oooccRk	
DPR 60 155	6 kV	1.5 mA	7	10	0.68	30	S08	DK060155r2450oooccRk	
Notes:		<u> </u>	•	•		•	•		

Notes:

replacement characters: o – options, c – connector, R – revision, k – customization

Table 5: Configurations: DPS - 3U Euro cassette

3.3. Options

OPTIONS / ORDER INFO	INFO	EXAMPLE
Set / monitor voltage (1	0 – 5V, standard	DPR 05 106
	0 – 10V, optional	
3UC	3U, Height unit based on the 19-inch standard housing, MMC capable version	
Notes: 1) – only for compact metal box		

Table 6: Technical data: Options and order information



3.4. Functional description

If the high voltage excitation is switched on and off via PIN ON, it rises or falls by means of ramp up (see 3.4.2 Switchable Polarity) to the maximum set voltage via V_{SET} . A monitor voltage for the output current and output voltage is available via the I_{MON} and V_{MON} connections. The pin REF (reference) can be used for the V_{SET} voltage via an additional circuit (see Figure 5: VSET)

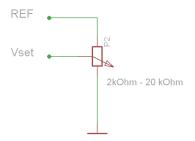


Figure 5: VSET

3.4.1. INHIBIT 1

Modules equipped with the option INHIBIT ² provide the possibility to shut down single channels, a group of channels (monitor group) or the entire module with or without ramp, triggered by an external signal.

3.4.2. Switchable Polarity

The polarity can be switched via the input POL:

signal	level	polarity
POL	High or NC	→ positive
POL	Low	→ negative

INFORMATION



Switching the polarity is only possible with output voltages from 0 to 64 V. At higher voltages, the changeover process is blocked to protect the changeover relay.

If the level at the POL input (see chapter 5 Connectors and PIN assignments) changes from high to low or from low to high, the generation of high voltage is stopped first. If the voltage has fallen below 64V, the polarity is switched and the voltage value specified at input V_{set} is approached with a voltage ramp of 0.25 • $V_{\text{nom}}/$ s.

- 1 Only for 3U Euro cassette
- 2 Only for 3U Euro cassette



3.4.3. separation supply ground from signal ground

In version 3UC, the supply ground (0V) can be separated from the signal ground (GND) by removing the jumper. See Figure 6: view of the top and Figure 7: view of the top (Jumper red marked).

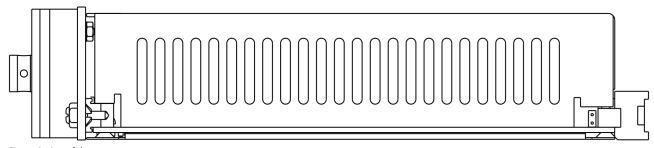


Figure 6: view of the top

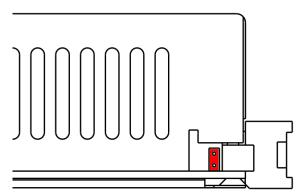


Figure 7: detail view of Figure 7: view of the top (Jumper red



4. Dimensional drawings

4.1. DPS – compact metal box

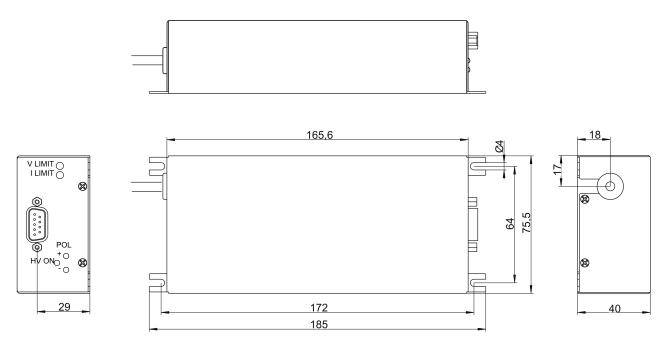


Figure 8: dimensional drawing DPS with cable

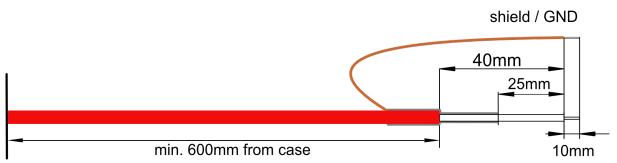


Figure 9: HV cable connection



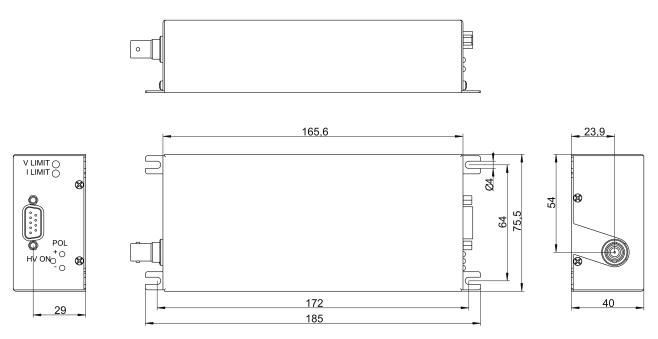


Figure 10: dimensional drawing DPS with SHV

4.2. DPS - 3UC Euro cassette

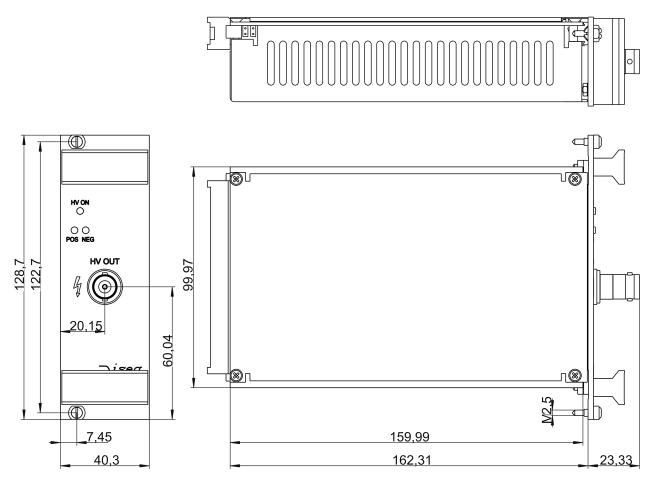


Figure 11: dimensional drawing DPS 3UC



5. Connectors and PIN assignments

CONNECTORS - POWER SIDE		PART NUMBERS (manufacturer code / iseg acce	essory parts item code)
D-SUB9 – male		CABLE SIDE	
PIN 1	connector	D SUD9, Female	(DIN 41652)
	manufacturer	various manufacturer	
	iseg part number		
Figure 12			
SHV		CABLE SIDE	
	part number	57K101-006N3	
((0)	manufacturer	Rosenberger	
	iseg part number	Z590162	
Figure 13			
S08		CABLE SIDE	
	part number	R317.005.000	
	manufacturer	Radiall	
	iseg part number	Z592474	
Figure 14			
H15		CABLE SIDE	
4	connector	Female power plug type H15, compatible with iseg crates	(DIN 41612 / IEC 60603-2)
6	manufacturer	various manufacturer	
30 1 32	iseg part number		
Figure 15			

Table 7



5.1. Interface connector D-SUB 9 (compact metal box)

PIN	NAME	DESCRIPTION	VALUE	
1	0V (1	Supply ground	0 V	
2	IMON	I _{mon} Monitor voltage of output current	0 5 V	(optionally: 0 10 V)
3	ON	HV ON/OFF	TTL-level:	
		with voltage ramp	LOW	→ HV ON
			HIGH or not connected	→ HV OFF
4	POL	Polarity	HIGH or not connected	→ positive
			LOW	→ negative
5	VIN	V _{in} Supply voltage	+24 V DC	
6	GND ⁽¹⁾	Signal ground		
7	VMON	V _{mon} Monitor voltage	0 5 V	(optionally: 0 10 V)
8	VSET	V _{set} Set value of output voltage	0 5V	(optionally: 0 10 V)
9	REF	V _{ref} Internal reference voltage	5 V	(optionally: 10V)
Notes: Case is connected to				

Table 8: PIN Assignment D-SUB 9



5.2. System connector H15 (3UC Euro cassette)

PIN	NAME	DESCRIPTION	VALUE		
6	ov	Supply ground			
8	REF	V _{ref} Internal reference voltage	5 V		
10	ov	Supply ground			
12	GND	Signal ground			
14	IMON	I _{mon} Monitor voltage of output current	0 5 V		
16 ON		HV ON/OFF	TTL-level:		
		with voltage ramp	LOW	→	HV ON
			HIGH or not connected	→	HV OFF
18	VIN_C (1	V _{in_s} Supply voltage (Control)	+24 V DC		
20	VSET	V _{set} Set value of output voltage	0 5 V		
22	POL	Polarity	HIGH or not connected	→	positive
			LOW	→	negative
24	VMON	V _{mon} Monitor voltage	0 5 V		
26	VIN ⁽¹	V _{in} Supply voltage (Power)	+24 V DC		
28	ISET	I _{set} Set voltage of output current	0 5 V		
30	KILL_ENA (2	Killenable, high active	TTL-level		
32	INH	Inhibit, LOW = active, shut down the	TTL-level:		
		output voltage	LOW	→	HV OFF
			HIGH or not connected	→	HV ON

Notes:

Case is connected to **0V** and with Jumper J1 connected to **GND**, see chapter 3.4.3 separation supply ground from signal ground ¹⁾ internally connected

Table 9: PIN Assignment 3U Euro cassette (H15)

²⁾ If KillEnable is active the occur of Inhibit will trigger a Kill-signal. This signal will switch off the HV immediately without ramp. Restoring the output voltage is only possible after operating KILL-ENA or HV_ON.



6. Order guides

CONFIGURATION ORDER GUIDE (item code parts)									
Dx	030	405	r	24	50	000	02	0	0
Type	V _{nom}	I _{nom} (nA)	Polarity	Input Voltage	Monitor Voltage	Option	HV-Connector	Revision	Customized Version
x = P Metal box x = K 3U Cassette	three significante digits • 100V	two significante digits + number of zeros	r = reversible	two significante digits	two significante digits 1.th hex • 1V 2.th dez • 0,1V		00 = Cable 02 /03 = SHV	one digit 0 = no revision	one digit 0 = no custo- mization
x = T for THQ	For Example: 030 = 3000V	For Example: 405 = 4mA		For Example: 24 = 24 Volt	For Example: 50 = 5V A0 = 10V			For Example: A = first revision B = second revision	For Example: 1 -first custo- mization

Table 10: Configuration item code

h in m ''	ORDER CODE LLL = length in m	LOAD SIDE CONNECTOR	PTION	CABLE	V _{max}	POWER SUPPLY SIDE CONNECTOR
·LLL	SHV_C04-LLL	open	lded 30kV (HTV-30S-22-2)	04	≤ 5 kV	SHV
LLL	S08_C04-LLL	open	lded 30kV (HTV-30S-22-2)	04	≤ 8 kV	S08
LLL	S08_C04-LLL	open	,			Notes: 1) Length building example 10 to 1

Table 11: Guideline for cable ordering

7. Revisions

date	revision	modification	
2021-07-30	A	 Additional LED for signaling the output voltage separation supply ground from signal ground ⁽¹⁾ 	
Notes: 1) – only 3UC modules			

Table 12



8. Appendix

For more information please use the following download links:

This document

https://iseg-hv.com/download/DC DC/DPS/iseg datasheet DPS en.pdf

DPS series

https://iseg-hv.com/en/products/detail/DPS

Archives

https://iseg-hv.com/download/?dir=DC_DC/DPS/archive

Cables and Connectors

https://iseg-hv.com/download/ACCESSORIES/Adapters%20and%20Cables/iseg_Cables%20and%20Connectors_en.pdf

Manufacturers website (connectors)		
Radiall	https://www.radiall.com/	
Rosenberger	https://www.rosenberger.com/	



9. Glossary

OV Supply ground Venn nominal output voltage Val output voltage Val set value of output voltage Vann monitor voltage of output voltage Venn digital measured value of output voltage Vann digital measured value of output voltage Van input / supply voltage Val input / supply voltage (Control) Vac type of output voltage (AC, DC) Var init (max.) value of output voltage Van init (max.) value of output voltage Van voltage limit Var voltage limit Var deviation of Var, depending on variation of supply voltage Var voltage bounds, a tolerance tube Var, ± Variance, around Var Variance voltage bounds, a tolerance tube Var, ± Variance, around Var Variance set value of output current Var injut fumas, value of output voltage Var injut fumas, value o	SHORTCUT	MEANING
Vost output voltage Visc set value of output voltage Vosos monitor voltage of output voltage Vosos digital measured value of output voltage Vp. peak to peak ripple voltage Vo. input / supply voltage Vp.c. Vp.c. Visc voltage limit AVost (visc Visc voltage limit AVost (visc Viscon voltage limit AVost (visca depending on variation of supply voltage AVost (visca depending on variation of supply voltage AVost (visca depending on variation of output load Viscon voltage bounds, a tolerance tube Visa ± Visuous around Visa Iva deviation of Visa depending on variation of output load Iva devince	0V	Supply ground
Vost output voltage Visc set value of output voltage Vosos monitor voltage of output voltage Vosos digital measured value of output voltage Vp. peak to peak ripple voltage Vo. input / supply voltage Vp.c. Vp.c. Visc voltage limit AVost (visc Visc voltage limit AVost (visc Viscon voltage limit AVost (visca depending on variation of supply voltage AVost (visca depending on variation of supply voltage AVost (visca depending on variation of output load Viscon voltage bounds, a tolerance tube Visa ± Visuous around Visa Iva deviation of Visa depending on variation of output load Iva devince	V _{nom}	nominal output voltage
V _{ren} monitor voltage of output voltage V _{ren} digital measured value of output voltage V _{ren} peak to peak ripple voltage V _{ren} input / supply voltage (Control) V _{rec} V _{rec} Supply voltage (Control) V _{rec} type of output voltage (AC, DC) V _{rec} internal reference voltage V _{rec} Ilmit (max.) value of output voltage V _{rec} voltage limit ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of supply voltage ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (ΔAV _{cal}) deviation of V _{sec} depending on variation of output load ΔV _{car} = (Δ		output voltage
V _{reset} digital measured value of output voltage V _{Po} peak to peak ripple voltage V _{r.} input / supply voltage (Control) V _{r.C} V _{r.S} Supply voltage (Control) V _{ope} type of output voltage (AC, DC) V _{ot} internal reference voltage V _{rese} limit (max.) value of output voltage V _{inis} voltage limit ΔV _{cot} – [ΔN _{col}] deviation of V _{cot} depending on variation of supply voltage ΔV _{cot} – [ΔN _{col}] deviation of V _{cot} depending on variation of output load V _{cotob} voltage bounds, a tolerance tube V _{cot} ± V _{contrès} around V _{yot} I _{non} nominal output current I _{st} set value of output current I _{st} set value of output current I _{mas} digital measured value of current I _{non} current limit to shut down the output voltage I _n current limit to shut down the output voltage I _n current limit (max.) value of output current I _{non} current limit (max.) value of output current I _{non} current limit (max.) value of output current I _n curren	V _{set}	set value of output voltage
V _{reset} digital measured value of output voltage V _{Po} peak to peak ripple voltage V _{r.} input / supply voltage (Control) V _{r.C} V _{r.S} Supply voltage (Control) V _{ope} type of output voltage (AC, DC) V _{ot} internal reference voltage V _{rese} limit (max.) value of output voltage V _{inis} voltage limit ΔV _{cot} – [ΔN _{col}] deviation of V _{cot} depending on variation of supply voltage ΔV _{cot} – [ΔN _{col}] deviation of V _{cot} depending on variation of output load V _{cotob} voltage bounds, a tolerance tube V _{cot} ± V _{contrès} around V _{yot} I _{non} nominal output current I _{st} set value of output current I _{st} set value of output current I _{mas} digital measured value of current I _{non} current limit to shut down the output voltage I _n current limit to shut down the output voltage I _n current limit (max.) value of output current I _{non} current limit (max.) value of output current I _{non} current limit (max.) value of output current I _n curren	V _{mon}	monitor voltage of output voltage
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Vn. c Vn. supply voltage (Control) Voge type of output voltage (AC, DC) Vret internal reference voltage Vnex limit (max.) value of output voltage Vnex voltage limit ΔV _{cut.} − [ΔN _{cut.}] deviation of V _{cut.} depending on variation of supply voltage ΔV _{cut.} − [ΔR _{cut.}] deviation of V _{cut.} depending on variation of output load Vcut. voltage bounds, a tolerance tube V _{set.} ± V _{counts} around V _{set.} lom nominal output current log set value of output current log set value of output current log current limit to shut down the output voltage log current limit to shut down the output voltage log current limit (max.) value of output current log current limit beams current bounds, a tolerance tube l _{set.} ± l _{sourse} around l _{set.} Prom nominal output power Prom nominal output power Prom nominal input power Prom nominal output power Prom nominal output power Prom reference temperature	V _{p-p}	peak to peak ripple voltage
Vopes type of output voltage (AC, DC) Ver internal reference voltage Vanax limit (max.) value of output voltage Variax voltage limit ΔVour − [ΔV _{ru}] deviation of V _{our} depending on variation of supply voltage ΔVour − [ΔR _{out}] deviation of V _{our} depending on variation of output load Vocarda voltage bounds, a tolerance tube V _{set} ± V _{scards} around V _{set} Insum nominal output current Insum output current Insum ext value of output current Insum omoritor voltage of output current Insum current limit to shut down the output voltage Insum limit (max.) value of output current Insum current limit to shut down the output voltage Insum current limit (max.) value of output current Insum current limit Insum current limit Insum current bounds, a tolerance tube l _{int} ± l _{louvels} around l _{int} Poon nominal output power Poon input power Poon input power Test temperature	V _{in}	input / supply voltage
V _{ref} Internal reference voltage V _{rinta} Imit (max.) value of output voltage V _{rint} voltage limit Δν _{cut} − [Δν _{cut}] deviation of V _{cut} depending on variation of supply voltage Δν _{cut} − [Δν _{cut}] deviation of V _{cut} depending on variation of output load V _{source} Δν _{cut} Δν _c	V _{IN_C}	V _{in_s} Supply voltage (Control)
V _{ref} Internal reference voltage V _{rinta} Imit (max.) value of output voltage V _{rint} voltage limit Δν _{cut} − [Δν _{cut}] deviation of V _{cut} depending on variation of supply voltage Δν _{cut} − [Δν _{cut}] deviation of V _{cut} depending on variation of output load V _{source} Δν _{cut} Δν _c	V _{type}	type of output voltage (AC, DC)
V _{limit} voltage limit ΔV _{cut} – [ΔV _{val}] deviation of V _{out} depending on variation of supply voltage ΔV _{cut} – [ΔR _{load}] deviation of V _{out} depending on variation of output load V _{bounds} voltage bounds, a tolerance tube V _{set} ± V _{bounds} around V _{set} I _{mam} nominal output current I _{bat} output current I _{max} set value of output current I _{mass} digital measured value of current I _{mass} digital measured value of current I _{max} current limit to shut down the output voltage I _{max} limit (max.) value of output current I _{max} current limit I _{baunds} current limit I _{baunds} current bounds, a tolerance tube I _{bat} ± I _{bounds} around I _{bat} P _{rom} nominal output power P _{rom} nominal input power T temperature T _{res} reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage GND signal ground		internal reference voltage
ΔV _{cut} - [ΔV _{ru}] deviation of V _{out} depending on variation of supply voltage ΔV _{cut} - [ΔR _{cad}] deviation of V _{out} depending on variation of output load V _{Sounds} voltage bounds, a tolerance tube V _{set} ± V _{Sounds} around V _{set} Irem nominal output current Iost output current Ires set value of output current Irem monitor voltage of output current Irem digital measured value of current Irem current limit to shut down the output voltage Irem limput / supply current Irem current limit Irem current limit Irem current bounds, a tolerance tube I _{set} ± I _{sounds} around I _{set} Prom nominal output power Prom nominal input power Prom nominal input power T temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage GND signal ground	V _{max}	limit (max.) value of output voltage
ΔV _{out} − [ΔR _{oad}] deviation of V _{out} depending on variation of output load V _{sounds} voltage bounds, a tolerance tube V _{set} ± V _{bounds} around V _{set} I _{out} nominal output current I _{set} set value of output current I _{mon} monitor voltage of output current I _{mos} digital measured value of current I _{trip} current limit to shut down the output voltage I _n input / supply current I _{mos} limit (max.) value of output current I _{loug} current limit I _{sounds} current bounds, a tolerance tube I _{set} ± I _{sounds} around I _{set} P _{rom} nominal output power P _n input power P _{n, rom} nominal output power T temperature T _{ses} reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage GND signal ground	V _{limit}	voltage limit
Vocands voltage bounds, a tolerance tube V₂er ± V₂ounds around V₂er I₂orn nominal output current I₂or output current I₂et set value of output current I₂or monitor voltage of output current I₂or digital measured value of current I₂or current limit to shut down the output voltage I₂or input / supply current I₂or limit (max.) value of output current I₃or current limit I₃or current bounds, a tolerance tube I₂or ± I₃ounds around I₂or I₃or current bounds, a tolerance tube I₂or ± I₃ounds around I₂or P₂or nominal output power P₂or nominal output power P₂or nominal input power T temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage GND signal ground	$\Delta V_{out} - [\Delta V_{in}]$	deviation of V _{out} depending on variation of supply voltage
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Iout output current Iset set value of output current Immon monitor voltage of output current Immoss digital measured value of current Imperation current limit to shut down the output voltage In input / supply current Immit current limit Immit current limit Immon nominal output power Pnon nominal output power Pnon nominal input power T temperature T temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage GND signal ground	V _{bounds}	voltage bounds, a tolerance tube V _{set} ± V _{bounds} around V _{set}
Iset set value of output current Immon monitor voltage of output current Immos digital measured value of current Imp current limit to shut down the output voltage Immos limput / supply current Immax limit (max.) value of output current Immax limit (max.) value of output current Immax current limit Isounds current bounds, a tolerance tube Iset ± Isounds around Iset Pnom nominal output power Pn input power Pn. nominal input power T temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{nom}	nominal output current
Image:	l _{out}	output current
Image digital measured value of current Imp current limit to shut down the output voltage In input / supply current Imax limit (max.) value of output current Imax current limit Isounds current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set} Pom nominal output power Pin input power Pin, nom nominal input power T temperature TREF reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{set}	set value of output current
Itrip current limit to shut down the output voltage In input / supply current Imax limit (max.) value of output current I _{limit} current limit I _{bounds} current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set} P _{nom} nominal output power P _{in} input power T temperature T _{REF} reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{mon}	monitor voltage of output current
In input / supply current I _{max} limit (max.) value of output current I _{limit} current limit I _{bounds} current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set} P _{nom} nominal output power P _{in} input power P _{in,nom} nominal input power T temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{meas}	digital measured value of current
Imax limit (max.) value of output current I _{limit} current limit I _{bounds} current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set} P _{nom} nominal output power P _{in} input power P _{in,nom} nominal input power T temperature TREF reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{trip}	current limit to shut down the output voltage
Image current limit Ibounds current bounds, a tolerance tube Iset ± Ibounds around Iset Pnom nominal output power Pin input power Pin,nom nominal input power T temperature TREF reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{in}	input / supply current
Ibounds current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set} P _{nom} nominal output power P _{in} input power P _{in,nom} nominal input power T temperature T _{REF} reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	I _{max}	limit (max.) value of output current
Pnomnominal output powerPininput powerPin_nomnominal input powerTtemperatureTREFreference temperatureONHV ONOFFHV OFFCHchannel(s)HVhigh voltageLVlow voltageGNDsignal ground	I _{limit}	current limit
Pininput powerPin_nomnominal input powerTtemperatureT_REFreference temperatureONHV ONOFFHV OFFCHchannel(s)HVhigh voltageLVlow voltageGNDsignal ground	I _{bounds}	current bounds, a tolerance tube I _{set} ± I _{bounds} around I _{set}
Pin_nomnominal input powerTtemperatureTREFreference temperatureONHV ONOFFHV OFFCHchannel(s)HVhigh voltageLVlow voltageGNDsignal ground	P _{nom}	nominal output power
T temperature T _{REF} reference temperature ON HV ON OFF HV OFF CH channel(s) HV high voltage LV low voltage GND signal ground	P _{in}	input power
TREF reference temperature ON HV ON OFF HV OFF CH channel(s) HV Iow voltage LV low voltage GND signal ground	P _{in_nom}	nominal input power
ON HV ON OFF HV OFF CH channel(s) HV low voltage GND signal ground	Т	temperature
OFF CH channel(s) HV high voltage LV low voltage GND signal ground	T _{REF}	reference temperature
CH channel(s) HV high voltage LV low voltage GND signal ground	ON	HV ON
HV high voltage LV low voltage GND signal ground	OFF	HV OFF
LV low voltage GND signal ground	СН	channel(s)
GND signal ground	HV	high voltage
	LV	low voltage
INH Inhibit	GND	signal ground
	INH	Inhibit



POL	Polarity
KILL	KillEnable

Table 13: Glossary

10. Warranty & Service

This device is made with high care and quality assurance methods. The standard factory warranty is 12 months. Please contact the iseg sales department if you wish to extend the warranty.

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

11. Disposal

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.

INFORMATION

12. Manufacturer contact

iseg Spezialelektronik GmbH

Bautzner Landstr. 23 01454 Radeberg / OT Rossendorf

GERMANY

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