

G5.SRC.36.1000.108

Programmable DC Power Supply



Key Values

Power	36 kW
Voltage DC	limited by P_{\max}
Current	limited by P_{\max}
Autoranging factor	$U_{\max} \times I_{\max} / P_{\max}$
Figure 1	3
Master-slave / multi-device configuration	series, parallel, mixed
Max. number of devices in system	44
Max. number in parallel	44
Max. number in series	with midpoint earthing limited by output isolation to PE
Case	19" / 7U

AC Lineside Rating

Mains connection type	delta	3L + PE (no neutral necessary)
Rated voltage		3x 380...480 VAC ±10%
Rated current	@nominal 3 x 380 VAC	58 A _{rms}
	@nominal 3 x 400 VAC	55 A _{rms}
	@nominal 3 x 415 VAC	53 A _{rms}
	@nominal 3 x 440 VAC	50 A _{rms}
	@nominal 3 x 460 VAC	48 A _{rms}
	@nominal 3 x 480 VAC	46 A _{rms}
Rated frequency		50/60 Hz
Power factor	@ P_{\max}	0.99
THDi	@90% P_{\max}	≤3%
Inrush current		<66 A _{rms}
Efficiency	P_{\max} @ U_{\max}	96%
	P_{\max} @ I_{\max}	95%
Standby power		52 W
Isolation	AC terminals to PE	900 VDC
	AC to DC terminals	1500 VDC
Input insulation test voltage	line to case/logic	3100 VDC (2s)
Protective earth conductor current	According to IEC 60990	≤6.5 mA @150Hz
Touch current unweighted	output ON/OFF	≤0.9 mA / 3.7 mA
Touch current weighted	output ON/OFF	≤0.8 mA / 3.6 mA
Input filter discharge		
to <60 V	L-PE / L-L with option XCD	<20 s <1 s

DC Operation

Operation modes	source
Voltage regulation	CV
Current regulation	CC
Power regulation	CP
Internal resistance simulation	programmable
	0...18519 mΩ

DC Operation (continued)

Static accuracy			
At 25° ambient temperature, constant line / load conditions, after 1h warm up time in voltage on state, normal distribution ($k=2$)	power @ I_{max} 1 kHz Filter voltage voltage sense current full range 1 kHz Filter current low range (-10%...10% FS) 1 kHz Filter resistance @ I_{max} 1 kHz Filter	0.03% FS 0.01% FS 0.01% FS 0.025% FS 0.003% FS 0.03% FS	
HMI touchpanel meter resolution	programming/reading	0.1 V 0.01 A	
Output capacitance	X-capacitor LowCap X-capacitor HighCap Y-capacitor @DC	12 μ F 222 μ F 181 nF	
Ripple, voltage	output voltage ripple (<1 MHz): V_{rms} LowCap, ohmic load 90% P_{max} , 90% U_{max} , CV mode output voltage ripple (<1 MHz): V_{rms} HighCap, ohmic load 90% P_{max} , 90% U_{max} , CV mode	\leq 0.03% FS \leq 0.02% FS	
Ripple, current	output Current ripple (<1 MHz): A_{rms} LowCap, ohmic load 90% P_{max} , 90% I_{max} CC mode	\leq 0.05% FS	
Noise	noise (20 kHz...20 MHz): V_{pp} LowCap, ohmic load 90% P_{max} , 90% U_{max} , CV mode noise (20 kHz...20 MHz): V_{pp} HighCap, ohmic load 90% P_{max} , 90% U_{max} , CV mode	\leq 0.15% FS \leq 0.1% FS	
Stability/drift	8h, after 1h warm up time in voltage on state, at constant line input, load and temp. conditions	voltage voltage sense current	\leq 0.01% FS \leq 0.01% FS \leq 0.01% FS
Temperature coefficient	At constant line and load conditions	voltage voltage sense current	\leq 0.005% FS/°C \leq 0.007% FS/°C \leq 0.005% FS/°C
Rise/fall time (10...90% of step)	Voltage set-value step, const. R load, LowCap	voltage step (0...90% U_{max} / 90% P_{max})	\leq 180 μ s
Rise/fall time (10...90% of step)	Current set-value step, const. voltage, LowCap	current step (10...90% I_{max} , @33% U_{max}) 10...90% of step / settling time	20 μ s / 70 μ s
Transient response time	Load step, ohmic load, HighCap	CV, recovery within 0.5% set voltage 0...90% P_{max} @90% U_{max}	\leq 100 μ s
Transient response time	Load step, ohmic load, LowCap	CC, recovery within 2% of set current 45...90% P_{max} @90% I_{max}	\leq 300 μ s
Voltage drop	while load switching on HighCap mode	45...90% P_{max} @90% U_{max}	\leq 0.6% FS
Voltage overshoot	while load switching off HighCap mode	90...45% P_{max} @90% U_{max}	\leq 0.5% FS
Pulsating load	max. load ripple current sine max. amplitude	HighCap LowCap	30% I_{max} @3 kHz 26% I_{max} @ \geq 5 kHz 46% I_{max} @3 kHz 17% I_{max} @ \geq 5 kHz

DC Operation (continued)

Max. ripple <i>DC+ to PE / DC- to PE</i>	max. allowed ripple V_{rms} $\leq 1\text{ kHz}: 1050\text{ }V_{rms}$ $>1\text{ kHz}: ((1.26 \times 10^6)/f + 5)\text{ }V_{rms}$	$\leq 1\text{ kHz}: 1050\text{ }V_{rms}$ 2 kHz: 630 V_{rms} 5 kHz: 250 V_{rms} 10 kHz: 130 V_{rms} 20 kHz: 65 V_{rms} 50 kHz: 30 V_{rms} 80 kHz: 20 V_{rms}
Protection	OVP (over voltage protection) OCP (over current protection) OPP (over power protection) OTP (over temperature protection)	programmable programmable programmable ✓
Output discharge <i>to <60V</i>	active discharge enabled active discharge disabled	$\leq 1\text{ s}$ $<75\text{ s}$
Small signal modulation <i>Voltage Controller LowCap mode</i>	frequency CV, CC max. output voltage V_{rms} sine @10 kHz attenuation @5 kHz / 10 kHz op. point: 90% U_{nom} + 5% U_{nom} ampl. phase lag analog input to voltage out	0...10 kHz 0...5% FS -0.4 dB / -6 dB 130 μs
Small signal modulation <i>Current controller LowCap mode</i>	max. output amplitude current @10 kHz attenuation @5 kHz / 10 kHz op. point: 90% I_{nom} + 5% I_{nom} ampl. phase lag analog input to current out	0...5% FS -1.8 dB / -3.8 dB 110 μs
Sense voltage compensation		Programmable $U_{out} + U_{drop}$ limited by $U_{out_{max}}$
Sense input impedance	@operation @output off no RPP or RPP closed @output off and activated "disconnect output measurement at voltage-off" feature	1212 k Ω 1212 k Ω $>10\text{ M}\Omega$
Ballast resistor DC power port	@output off no RPP or RPP closed @output off RPP, disconnect output measurement at voltage-off deactivated @output off RPP, disconnect output measurement at voltage-off activated	74 k Ω 1212 k Ω $>10\text{ M}\Omega$
Resistance	DC+/DC- output to PE X713 jumper inserted DC+/DC- output to PE X713 jumper removed	22 M Ω open
Output isolation	DC+/DC- output to PE	1500 VDC
Output insulation test voltage	output to case/logic	3400 VDC (2s)
Various		
Case dimensions <i>Figure 3</i>	H x W x D without terminals	311 x 483 x 672 [mm] 12 1/4" x 19" x 26 1/2"
Weight		87 kg
AC terminals		screw terminals for 6...35 mm ² wires $d \leq 8.5\text{ mm}$
DC terminals		output bars for M8 bolts
Communication interface	speed depending on bus load	Ethernet (max. 800 x 16 bit/s), USB (max. 450 x 16 bit/s)
Enclosure	rating	IP20
Option cards	# of free slots	2

Analog Inputs

Number of inputs	4
Resolution	16 Bit
Sampling rate	48 kS/s
Input voltage range	selectable
Accuracy	-10...10 V; -5...5 V; 0...5 V; 0...10 V bipolar range: $\pm 0.1\%$, unipolar range: $\pm 0.2\%$
Input impedance	1 M Ω
Absolut max. input voltage	± 30 VDC
Input filter	2nd order low pass filter, cutoff frequency: 15 kHz
Delay analog in to power out	89 μ s
Temperature coefficient	0.02% FS/ $^{\circ}$ C

Analog Outputs

Number of outputs	4
Resolution	16 Bit
Update rate	48 kS/s
Settling time	10 μ s
Output voltage range	selectable
Accuracy	-10...10 V; -5...5 V; 0...5 V; 0...10 V $\pm 0.2\%$
Output impedance	0.5 Ω
Max. output current	short-circuit proof
Delay power out to analog out	20 mA
Temperature coefficient	42 μ s
	0.02% FS/ $^{\circ}$ C

Digital I/O

Number of digital inputs/outputs	programmable (each can be used as input or ouput)	6
Output voltage supplied for digital I/O	24 VDC (-15%/+20%)	
Digital input characteristic	IEC 61131-2 Type 1	
Digital input filter	3.2 ms (10 μ s, 1 ms, and 10 ms factory configurable)	
Max. voltage digital inputs	30 VDC	
Sampling rate digital inputs	1 kS/s	
Digital output type	high-side switch	
Load type	ohmic, inductive, lamp load	
Max. total output current (all channels)	0.65 A	
Max output current per channel	short-circuit proof	0.625 A
Digital output switching time	T _{ON} : 64...120 μ s, T _{OFF} : 90...170 μ s	
Update rate digital outputs	1 kS/s	

Relay Outputs

Number of relay outputs	2 x SPST (NO), 1 x SPDT
Load type	ohmic, inductive, lamp load
Max. switching voltage	30 VDC
Max. switching current	SPST: 3 A, SPDT: 1 A
Switching time	typ. 20 ms

Ambient

Operating altitude	above sea level above 1000 m, slight temp. derating possible	≤ 2000 m
Operating temperature	with airfilter	-5...50 $^{\circ}$ C -5...40 $^{\circ}$ C
Storage temperature		-25...70 $^{\circ}$ C
Installation	IEC 60721-3-3	indoor, air-conditioned in 19" switch cabinet
Orientation	storage, installation, operation	upright
Relative humidity	non-condensing	0...95%
Vibration	IEC 60068-2-6	Test Fc
Cooling		direct forced air, front to back
Acoustic noise level 1 m dist. front (typ.)	90% P _{max} , 90% I _{max} @25 $^{\circ}$ C ambient	≤ 54 dB

Ambient (continued)

Acoustic noise level	90% P _{max} , 90% I _{max} @40 °C ambient	≤71 dB
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Standards

Protection Class	EN 62477-1	1
Degree of pollution	EN 60664-1	2
Overvoltage category	mains input, EN 60664-1 other interfaces	3 2
Area of application		industrial
Approval		CE Marking
EN 62477-1:2012	Low Voltage Directive 2014/35/EU	✓
EN 61010-1:2010	Low Voltage Directive 2014/35/EU	✓
EN ISO 13849-1:2015	w/o ISR with ISR 2-channel with ISR 2-channel and external safety relay	- PL c PL e
EN 61000-6-4:2007 A1:2011	Directive 2014/30/EU EMC emission (industrial)	✓
EN 61000-6-2:2005	Directive 2014/30/EU EMC immunity (industrial)	✓
EN 61326-1:2013	Directive 2014/30/EU EMC industrial level A	✓
EN IEC 63000:2018	RoHS Directive	✓

Operating area

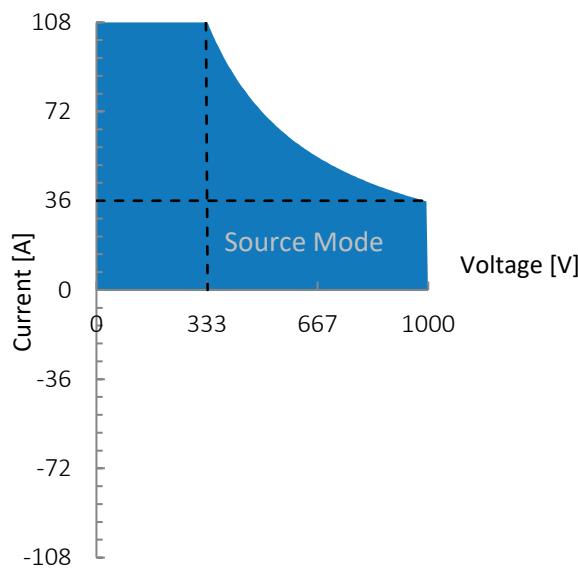


Figure 1: G5.SRC.36.1000.108, voltage/current operating area.

Dimensions

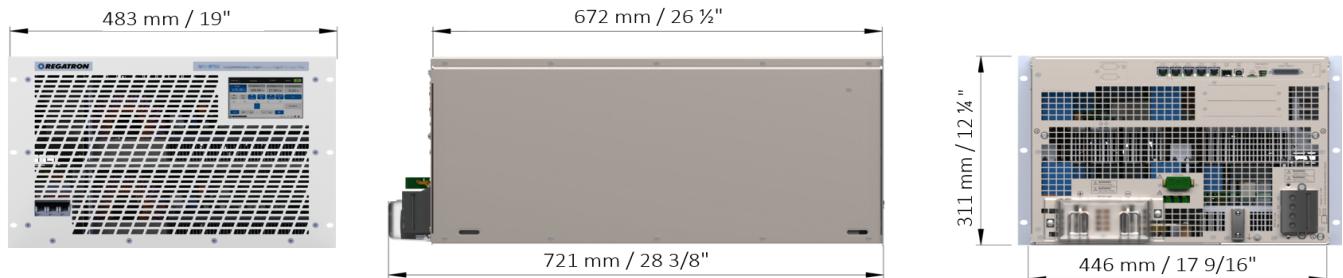


Figure 3: Front, right hand side and rear view. 19-inch module with 7 units in height.

For further information to included features see related product description <PD_G5.SRC....> on www.regatron.com
 This product is developed, produced and tested according to ISO 9001 by REGATRON.

For detailed technical information, contact REGATRON or your local sales partner.

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