

DC Power Supplies R&S NGSM32/10, R&S NGSM60/5

R&S NGSM 32/10:

0 V to 18 V/10 A (20 A)

0 V to 32 V/5 A (10 A)

R&S NGSM 60/5:

0 V to 32 V/5 A (10 A)

0 V to 60 V/2.5 A (5 A)

Designed for car electronics applications in service, laboratory and production

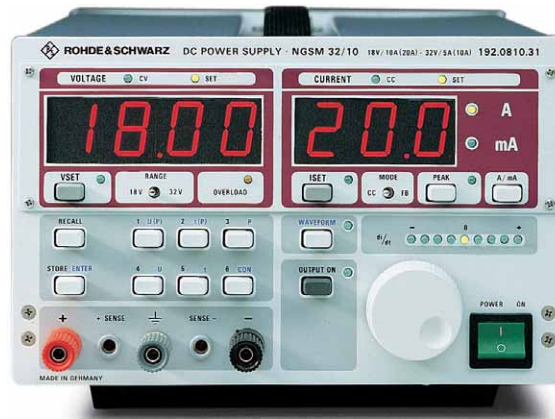


Photo 42945

Brief description

DC Power Supplies R&S NGSM are versatile supply and measuring units for testing electronic car components by simulating real operating conditions. In addition to a wide field of car electronics, it can be used in mobile radio, car hifi applications and mechanical engineering. Due to its compact design, the units take up only one half 19" width. A 19" adapter is available for mounting the R&S NGSM into test racks.

Main features

- ◆ Excellent RF shielding and standby current measurement – ideal for mobile radio applications
- ◆ Trend indication for current measurements
- ◆ Car electronics testing by simulating motor startup
- ◆ Currents up to 20 A for car hifi applications
- ◆ Voltages up to 60 V for 42-V power-net in motor vehicles
- ◆ Storage of up to 12 device setups for short tests

- ◆ DUT protected against erroneous settings by ON/OFF output key
- ◆ IEC/IEEE bus or RS-232-C interface for use in production environments (optional)
- ◆ Acoustic signal upon changeover from voltage to current regulation – ideal for long-time testing
- ◆ Great ease of operation despite numerous functions

Application-specific characteristics

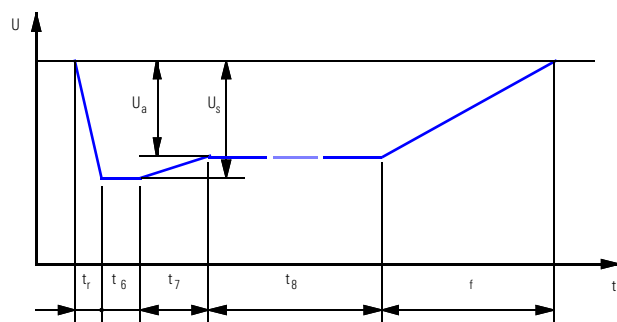
Car electronics

R&S NGSM is a precise and, thanks to its versatility, an extremely economical tool for use in the production of electronics. With the aid of an IEC/IEEE bus or RS-

232-C interface (optional), the power supply can readily be integrated into in-line production systems. The startup curve in line with DIN 40839 can be adapted to other factory standards by reprogramming it. High surge currents typically occur in applications such as central locking or ABS, but with a pulse current of up to 30 A, R&S NGSM32/10 is ideally prepared for these applications.

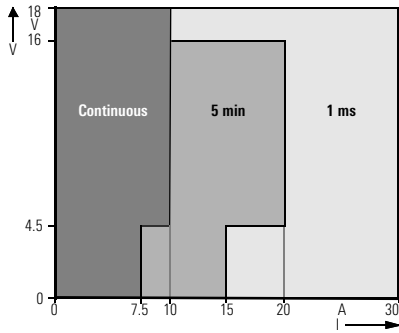
Mobile radio systems

The high resolution for current measurements allows the maximum operating time of a mobile phone to be accurately predicted; typical voltage drops during the startup of a car – which have to be tolerated by telephones operated at a car net – can be simulated.

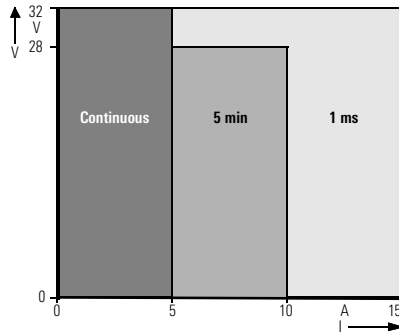


Startup curve to
DIN 40839

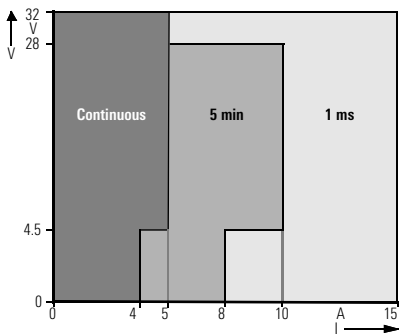
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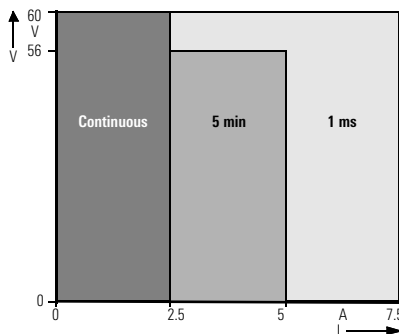
R&S NGSM32/10:
Current loadability in 18 V range



R&S NGSM32/10:
Current loadability in 32 V range



R&S NGSM60/5:
Current loadability in 32 V range



R&S NGSM60/5:
Current loadability in 60 V range

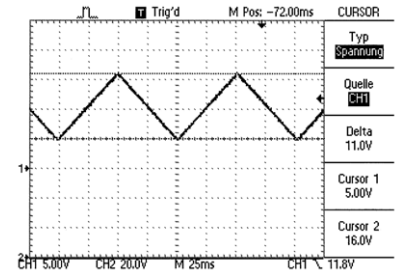
DC Power Supply R&S NGSM is insensitive to the RF voltage conducted from a device under test or radiated from a nearby antenna.

Car hifi

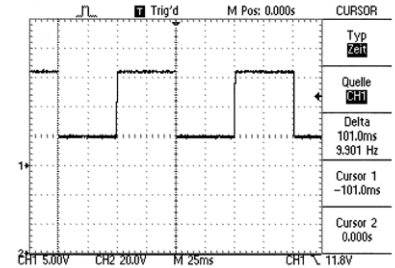
With a short-term load current of 20 A (R&S NGSM32/10), even boosters can be supplied. Peak current measurements allow the power loading of devices to be predicted. Simulation of the startup curve to DIN40839 is also very useful in car hifi applications, e.g. to spot problems due to unexpected data loss of theft-proof car radios with security code.

Simple arbitrary generator

R&S NGSM can also be used as a simple arbitrary generator – but with the high output power of a power supply unit. Up to 60 reference values are available per voltage range which have to be programmed with lengths of stay of each 1 ms to 4 s. R&S NGSM automatically interpolates between two values.



Example of a triangle function, generated with R&S NGSM



Example of a rectangle function, generated with R&S NGSM

Operation

DC Power Supply R&S NGSM features a large-size, extremely easy-to-read display and simple operation despite its versatile functions. It always stores the last instrument setting used. Up to six settings as well as the data of the arbitrary generator can be stored for each voltage range and recalled whenever required. Any faults occurring during operation are immediately displayed and signalled by an acoustic alarm; for protection of the DUT in the event of a fault, the user can choose between the constant-current mode or automatic switch-off. The sensing lines are provided with an integrated protection against wrong polarity for added safety.

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Specifications in brief

Constant-voltage source	R&S NGSM32/10		R&S NGSM60/5	
	Voltage setting	0 V to 18 V	0 V to 32 V	0 V to 32 V
Resolution	10 mV	10 mV	20 mV	20 mV
Deviation of full scale	<0.4%	<0.2%	<0.2%	<0.2%
with $\pm 10\%$ AC supply variation	<0.01%	<0.01%	<0.01%	<0.01%
between 0 and 45 °C	<0.02%/°C	<0.02%/°C	<0.02%/°C	<0.02%/°C
with 10% to 90% nom. current	0.01%	0.01%	0.01%	0.01%
Transient recovery time after load variation	0.1 ms	0.1 ms	0.1 ms	0.1 ms
PARD, V_{rms}	1 mV	1 mV	2 mV	2 mV

Constant-current source	R&S NGSM32/10		R&S NGSM60/5	
	Current setting	0 A to 20 A	0 A to 10 A	0 A to 10 A
Resolution 0 A to 9.99 A	10 mA	10 mA	10 mA	10 mA
10 A to 20 A	100 mA	100 mA	100 mA	100 mA
Deviation of full scale	<0.5%	<1.5%	<1.5%	<1.5%
with $\pm 10\%$ AC supply variation	<0.02%	<0.02%	<0.02%	<0.02%
between 0 °C and 45 °C	<0.05%/°C	<0.05%/°C	<0.05%/°C	<0.05%/°C
with 10% to 90% nom. voltage	0.2%	0.2%	0.2%	0.2%
PARD, I_{rms}	20 mA	20 mA	20 mA	20 mA
Current loadability				
Continuous current	0 A to 10 A*	0 A to 5 A	0 A to 5 A	0 A to 2.5 A
Surge current (max. 5 min)	0 A to 20 A*	0 A to 10 A	0 A to 10 A	0 A to 5 A
Impulse current (max. 1 ms)	0 A to 30 A*	0 A to 20 A	0 A to 15 A	0 A to 7.5 A

*reduced output currents at $V \leq 4.5$ V

Display	R&S NGSM32/10		R&S NGSM60/5	
	Voltage measurement	0 A to 40 V	0 A to 40 V	0 A to 80 V
Resolution	10 mV	10 mV	20 mV	20 mV
Deviation of full scale	<0.2%	<0.1%	<0.1%	<0.2%
between 0 °C and 45 °C	<0.02%/°C	<0.02%/°C	<0.02%/°C	<0.02%/°C
Measurement rate	6/s	6/s	6/s	6/s
Current measurement in mA range	0 mA to 199 mA	0 mA to 199 mA	0 mA to 199 mA	0 mA to 199 mA
Resolution 0 mA to 99.9 mA	0.1 mA	0.1 mA	0.1 mA	0.1 mA
100 mA to 199 mA	1 mA	1 mA	1 mA	1 mA
Current measurement in A range	0 A to 40 A	0 A to 40 A	0 A to 40 A	0 A to 40 A
Resolution 0 A to 9.99 A	10 mA	10 mA	10 mA	10 mA
10 A to 40 A	100 mA	100 mA	100 mA	100 mA
Deviation of current meas. (mA, A)	<0.5%	<0.5%	<0.5%	<0.5%
between 0 °C and 45 °C	± 1 LS of rdg <0.1%/°C	± 1 LS of rdg <0.1%/°C	± 1 LS of rdg <0.1%/°C	± 1 LS of rdg <0.1%/°C
Peak current measurement	0 A to 40 A	0 A to 40 A	0 A to 40 A	0 A to 40 A
Resolution	100 mA	100 mA	100 mA	100 mA
Deviation of peak current meas.	<2% of fs	<2% of fs	<2% of fs	<2% of fs
between 0 °C and 45 °C	<0.2%/°C	<0.2%/°C	<0.2%/°C	<0.2%/°C

General data

Outputs	max. 120 V DC, floating	
Voltage compensation	1 V per lead (remote sensing)	1 V per lead (remote sensing)
AC supply	100/120/220/240 V $\pm 10\%$, 50 Hz to 60 Hz, 690 VA	
Dimensions (W x H x D); weight	211 mm x 150 mm x 350 mm; 8 kg	

Ordering information

DC Power Supply			Options		
	R&S NGSM32/10	0192.0810.31	19" Adapter (3 HU, 2.8 kg)	R&S NGSM-B0	0192.0810.00
R&S NGSM60/5	0192.0810.61	RS-232-C Interface for R&S NGSM32/10	R&S NGSM-B1	0192.0810.01	
		IEEE-488 Interface for R&S NGSM32/10	R&S NGSM-B2	0192.0810.02	
		RS-232-C Interface for R&S NGSM60/5	R&S NGSM-B3	0192.0810.03	
		IEEE-488 Interface for R&S NGSM60/5	R&S NGSM-B4	0192.0810.04	