



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

Voltages and currents of your free choice

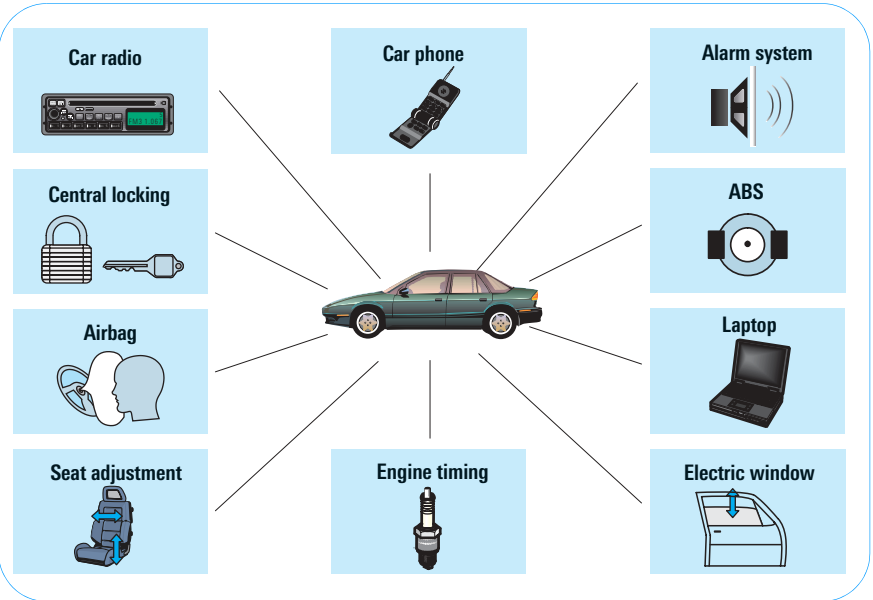
- ◆ Car electronics testing by simulating motor startup
- ◆ Currents up to 20 A for car hifi applications
- ◆ Voltages up to 60 V for 42 V power net in motor vehicles
- ◆ Ideal for mobile radio applications:
 - Excellent RF shielding
 - Standby current measurement
- ◆ Trend indication for current measurements
- ◆ 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 a wealth of functions

The 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 the wide field of car electronics, they can be used in mobile radio, car hifi applications and mechanical engineering. Due to their 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.

Application-specific characteristics

Car electronics

The R&S NGSM is a precise and, owing 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 easily be integrated into 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, the R&S NGSM32/10 is ideally prepared for these applications.



Mobile radio

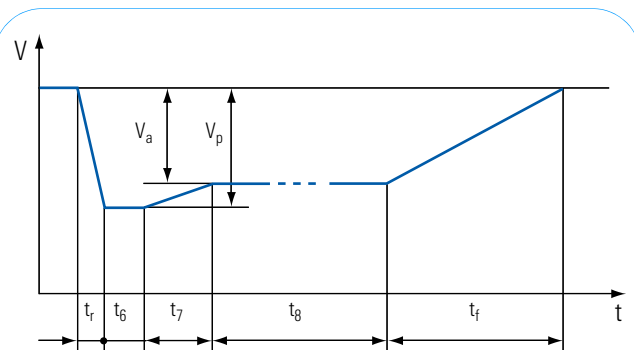
The high resolution for current measurements allows the maximum operating time of a mobile phone to be accurately predicted; typical voltage drops during the startup of a car – which have to be tolerated by telephones operated from the car net – can be simulated. The DC Power Supplies R&S NGSM are insensitive 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 DIN 40839 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

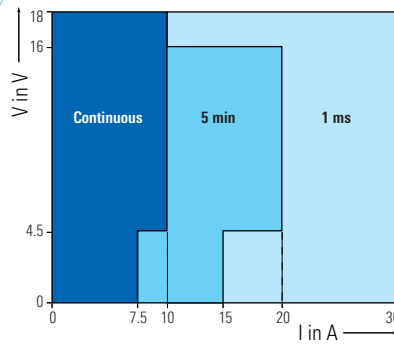
The R&S NGSM can also be used as a simple arbitrary generator – but with the high output power of a power supply unit. Up to 60 reference values are available per voltage range. They have to be programmed with lengths of stay of 1 ms to 4 s each. The R&S NGSM automatically interpolates between two values.



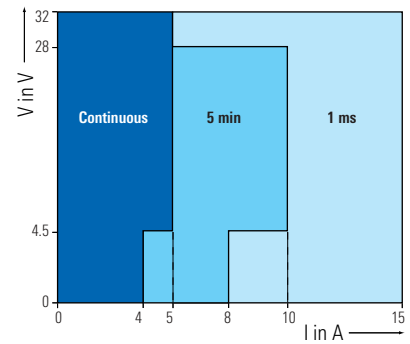
Startup curve to DIN 40839, ISO/TR 7637

Operation

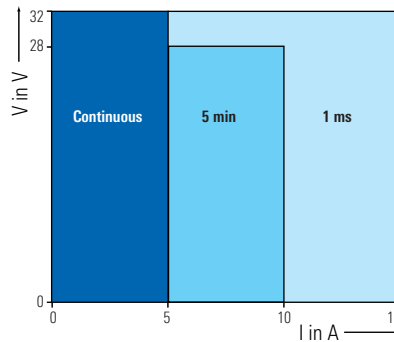
The DC Power Supply R&S NGSM features a large-size, extremely easy-to-read display and simple operation despite its versatile functions. It always stores the last instrument setting used. Up to six settings as well as the data of the arbitrary generator can be stored for each voltage range and recalled 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.



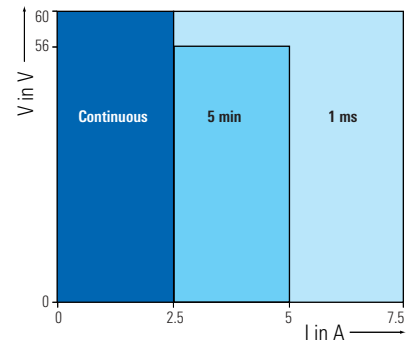
R&S NGSM32/10:
Current loadability in 18 V range



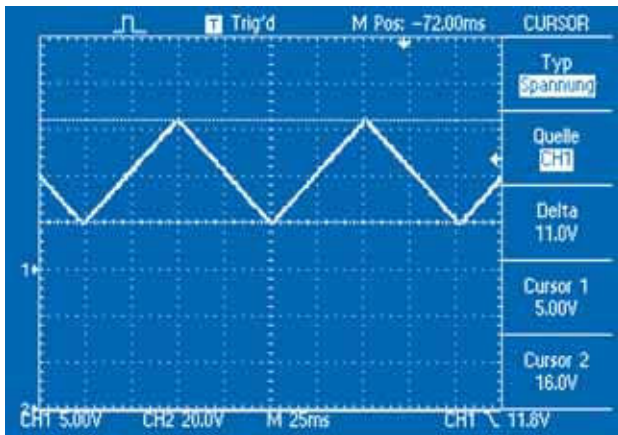
R&S NGSM32/10:
Current loadability in 32 V range



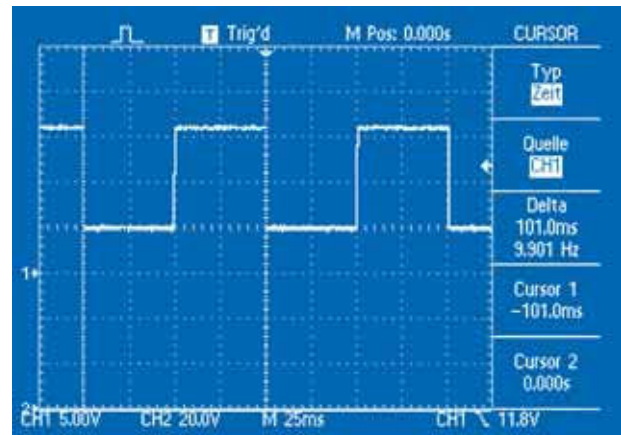
R&S NGSM60/5:
Current loadability in 32 V range



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



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



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



Specifications

| Constant-voltage source | R&S NGSM 32/10 | | R&S NGSM 60/5 | |
|--|-------------------------------|-------------|---------------|--------------|
| Voltage setting | 0 V to 18 V | 0 V to 32 V | 0 V to 32 V | 0 V to 60 V |
| Resolution | 10 mV | 10 mV | 20 mV | 20 mV |
| Deviation from 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°C 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 NGSM 32/10 | | R&S NGSM 60/5 | |
| Current setting | 0 A to 20 A | 0 A to 10 A | 0 A to 10 A | 0 A to 5 A |
| Resolution 0 A to 9.99 A | 10 mA | 10 mA | 10 mA | 10 mA |
| Resolution 10 A to 20 A | 100 mA | 100 mA | — | — |
| Deviation from full scale | <0.5% | <1.5% | <1.5% | <0.5% |
| 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. current | 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 ¹⁾ | 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 ¹⁾ | 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 ¹⁾ | 0 A to 20 A | 0 A to 15 A | 0 A to 7.5 A |
| Display | R&S NGSM 32/10 | | R&S NGSM 60/5 | |
| Voltage measurement | 0 V to 40 V | 0 V to 40 V | 0 V to 80 V | 0 V to 80 V |
| Resolution | 10 mV | 10 mV | 20 mV | 20 mV |
| Deviation from 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 | | | |
| Resolution 0 mA to 99.9 mA | 0.1 mA | | | |
| Resolution 100 mA to 199 mA | 1 mA | | | |
| Current measurement in A range | 0 A to 40 A | | | |
| Resolution 0 A to 9.99 A | 10 mA | | | |
| Resolution 10 A to 40 A | 100 mA | | | |
| Deviation of current meas. (mA, A) | <0.5%, ± 1 LSD of reading | | | |
| between 0°C and 45°C | <0.1%/°C | | | |
| Peak current measurement | 0 A to 40 A | | | |
| Resolution | 100 mA | | | |
| Deviation of peak current meas. | <2% of full-scale value | | | |
| between 0°C and 45°C | <0.2%/°C | | | |

General data

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

¹⁾ Reduced output currents at ≤ 4.5 V.

Ordering information

| Order designation | Type | Order No. |
|--------------------------------------|---------------|--------------|
| DC Power Supply | R&S NGSM32/10 | 0192.0810.31 |
| | R&S NGSM60/5 | 0192.0810.61 |
| Options | | |
| 19" Adapter (3 HU, 2.8 kg) | R&S NGSM-B0 | 0192.0810.00 |
| 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 |





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Voltages and currents of your free choice

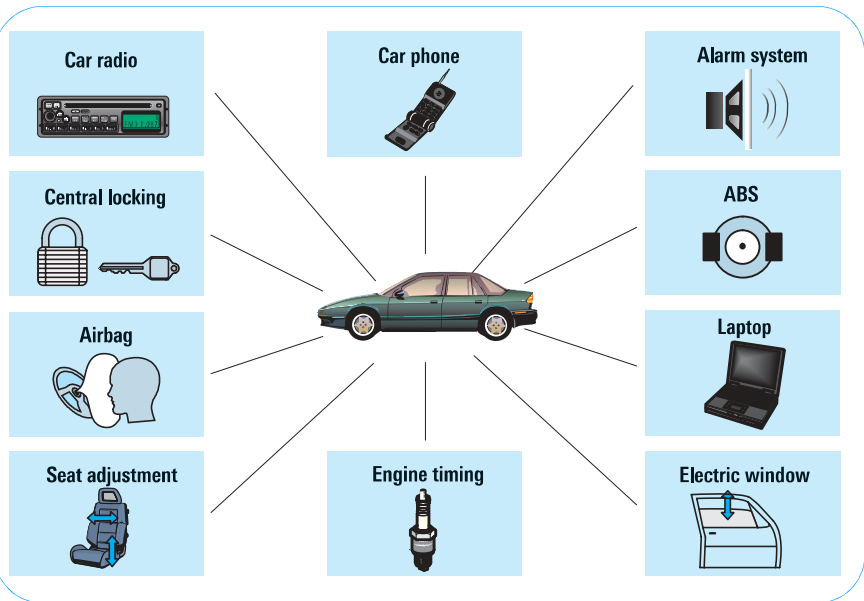
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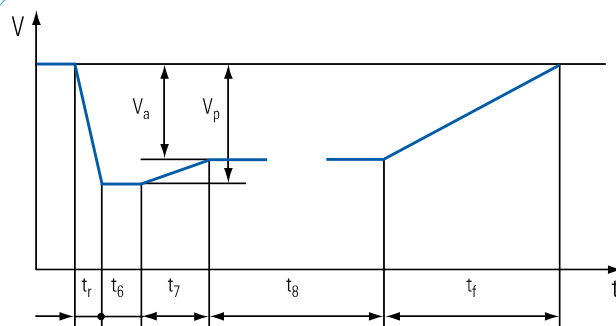
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Car hifi

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Simple arbitrary generator

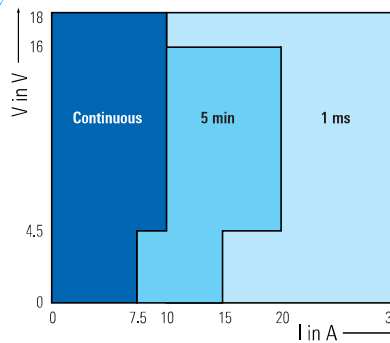
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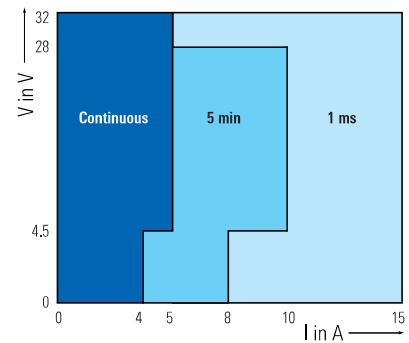
Startup curve to DIN 40839, ISO/TR 7637

Operation

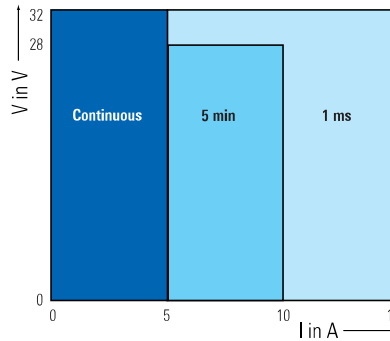
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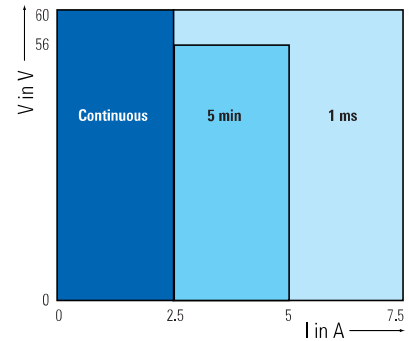
R&S NGSM32/10:
Current loadability in 18 V range



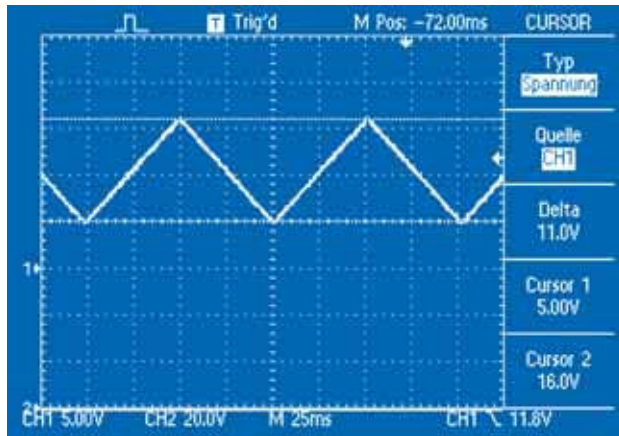
R&S NGSM32/10:
Current loadability in 32 V range



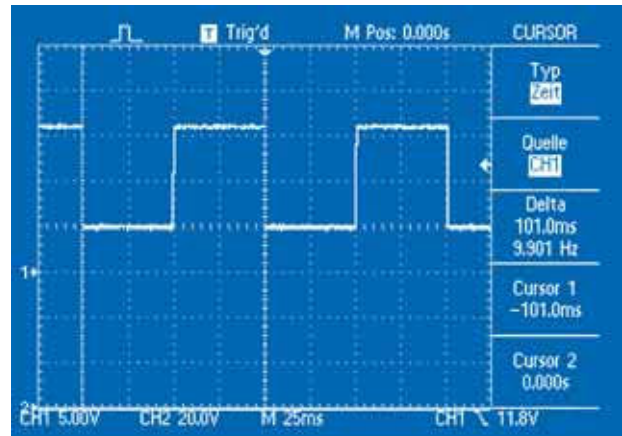
R&S NGSM60/5:
Current loadability in 32 V range



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



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



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

Certified Quality System

ISO 9001

DQS REG. NO 1954 QM

Certified Environmental System

ISO 14001

DQS REG. NO 1954 UM

Specifications

| Constant-voltage source | R&S NGSM 32/10 | | R&S NGSM 60/5 | |
|--|-------------------------------|-------------|---------------|--------------|
| Voltage setting | 0 V to 18 V | 0 V to 32 V | 0 V to 32 V | 0 V to 60 V |
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| Deviation from 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°C 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 NGSM 32/10 | | R&S NGSM 60/5 | |
| Current setting | 0 A to 20 A | 0 A to 10 A | 0 A to 10 A | 0 A to 5 A |
| Resolution 0 A to 9.99 A | 10 mA | 10 mA | 10 mA | 10 mA |
| Resolution 10 A to 20 A | 100 mA | 100 mA | — | — |
| Deviation from full scale | <0.5% | <1.5% | <1.5% | <0.5% |
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| with 10% to 90% nom. current | 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 ¹⁾ | 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 ¹⁾ | 0 A to 10 A | 0 A to 10 A | 0 A to 5 A |
| Pulse current (max. 1 ms) | 0 A to 30 A ¹⁾ | 0 A to 20 A | 0 A to 15 A | 0 A to 7.5 A |
| Display | R&S NGSM 32/10 | | R&S NGSM 60/5 | |
| Voltage measurement | 0 V to 40 V | 0 V to 40 V | 0 V to 80 V | 0 V to 80 V |
| Resolution | 10 mV | 10 mV | 20 mV | 20 mV |
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| 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 | | | |
| Resolution 0 mA to 99.9 mA | 0.1 mA | | | |
| Resolution 100 mA to 199 mA | 1 mA | | | |
| Current measurement in A range | 0 A to 40 A | | | |
| Resolution 0 A to 9.99 A | 10 mA | | | |
| Resolution 10 A to 40 A | 100 mA | | | |
| Deviation of current meas. (mA, A) | <0.5%, ± 1 LSD of reading | | | |
| between 0°C and 45°C | <0.1%/°C | | | |
| Peak current measurement | 0 A to 40 A | | | |
| Resolution | 100 mA | | | |
| Deviation of peak current meas. | <2% of full-scale value | | | |
| between 0°C and 45°C | <0.2%/°C | | | |

General data

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

¹⁾ Reduced output currents at ≤ 4.5 V.

Ordering information

| Order designation | Type | Order No. |
|---------------------------------------|----------------|--------------|
| DC Power Supply | R&S NGSM 32/10 | 0192.0810.31 |
| | R&S NGSM 60/5 | 0192.0810.61 |
| Options | | |
| 19" Adapter (3 HU, 2.8 kg) | R&S NGSM-B0 | 0192.0810.00 |
| RS-232-C Interface for R&S NGSM 32/10 | R&S NGSM-B1 | 0192.0810.01 |
| IEEE-488 Interface for R&S NGSM 32/10 | R&S NGSM-B2 | 0192.0810.02 |
| RS-232-C Interface for R&S NGSM 60/5 | R&S NGSM-B3 | 0192.0810.03 |
| IEEE-488 Interface for R&S NGSM 60/5 | R&S NGSM-B4 | 0192.0810.04 |

