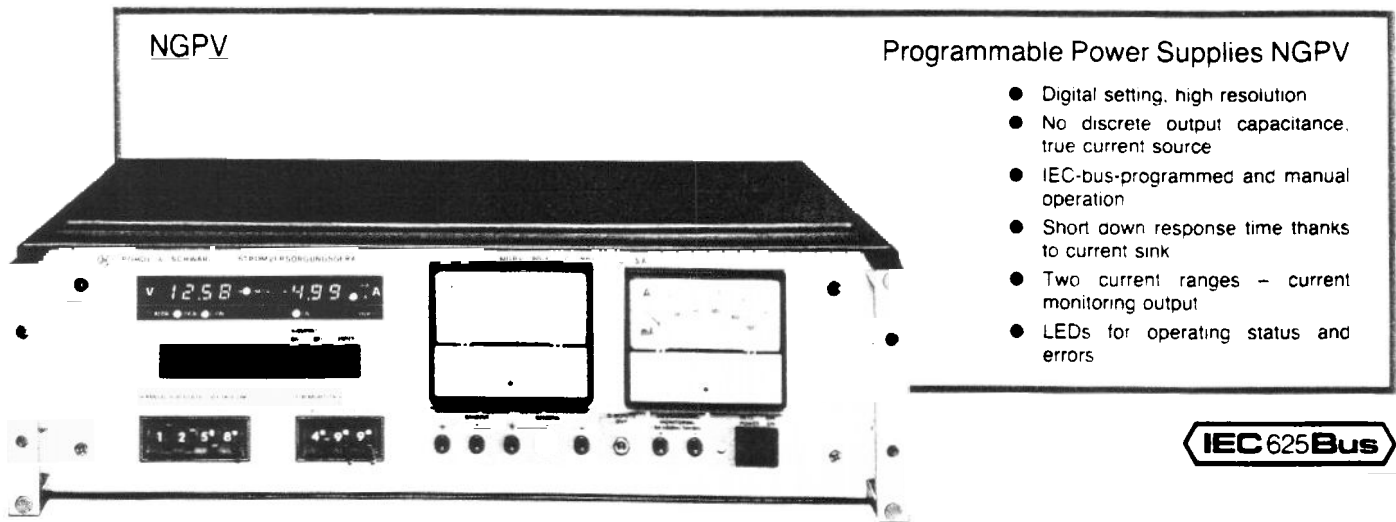


## 12 SYSTEM POWER SUPPLIES



### Programmable Power Supplies NGPV

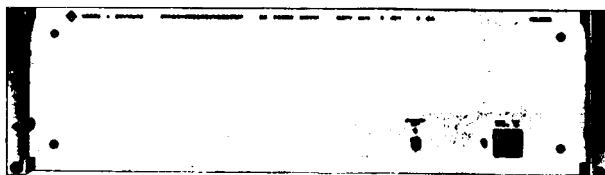
- Digital setting, high resolution
- No discrete output capacitance, true current source
- IEC-bus-programmed and manual operation
- Short down response time thanks to current sink
- Two current ranges – current monitoring output
- LEDs for operating status and errors

IEC 625 Bus

The **NGPV Power Supplies** are suitable for both system applications and general laboratory use. Nine models graded by voltage and current are available in the power range up to 200 W.

NGPV 8/10:	0 to 8 V / 0 to 10 A; 80 W,
NGPV 20/5:	0 to 20 V / 0 to 5 A; 100 W,
NGPV 20/10:	0 to 20 V / 0 to 10 A; 200 W,
NGPV 40/3:	0 to 40 V / 0 to 3 A; 120 W,
NGPV 40/5:	0 to 40 V / 0 to 5 A; 200 W,
NGPV 100/1:	0 to 100 V / 0 to 1 A; 100 W,
NGPV 100/2:	0 to 100 V / 0 to 2 A; 200 W,
NGPV 300/0.3:	0 to 300 V / 0 to 0.3 A; 90 W,
NGPV 300/0.6:	0 to 300 V / 0 to 0.6 A; 180 W.

The user has the choice of two versions. The one for system and laboratory use can be programmed via the IEC bus (IEC 625-1 or IEEE 488) or operated manually. The units of this version have the required operating controls, a LED display for the indication of all input data (including that entered via the IEC bus) and meters for actual voltage and current. The pure system version – without operating controls – provides particularly cost-effective IEC-bus-programmable 19" units for rackmounting or for use on the bench.



Power Supply NGPV for system applications

**System use** The system power supply is characterized by the short settling time of 2 ms (for the rise and, thanks to a controlled current sink, also for the fall). The NGPVs do not have a discrete output capacitance so they can regulate very small currents. Relay contacts will not be damaged by the switching of current paths. An appreciable output capacitance, however, is provided internally and can be connected manually or via the program as required.

**Remote sensing** Remote sensing makes the NGPV particularly suitable for system applications. It is performed automatically; no sensing links are required. The compensation range is 1 V in each lead. When remote sensing is in operation the maximum output voltage of the power supply exceeds the nominal voltage by the amount of the voltage drop in the leads. The result is that with the NGPV 8/10, for example, the full value of 8 V is available at the load even if a voltage drop of up to 1 V exists in each lead. The maximum voltage increase occurring at the load due to an interruption of the sensing leads is 1 mV, which is negligible for practical purposes.

**Current regulation** The special capability of the NGPV as a current regulator is afforded by two current ranges, which ensure a high resolution of 1 mA and 0.1 mA, respectively.

**Laboratory and system use** The NGPV models equipped with meters and front-panel controls are also versatile laboratory power supplies. Output voltage and current can be read from large analog meters. LEDs indicate the operating mode and operating status. A digital display shows the values entered, also those programmed via the IEC bus. Parallel outputs and sockets for a current monitoring output (referred to the positive terminal) are located on the front and rear panels.

**Cooling** The blowers are thermostat-regulated and run at low RPM in the partial-load region.

Specifications

Power Supply Type	NGPV 8/10	NGPV 20/5	NGPV 20/10	NGPV 40/3	NGPV 40/5	NGPV 100/1	NGPV 100/2	NGPV 300/0.3	NGPV 300/0.6
<b>► Order designation</b>									
System model <sup>1)</sup>	192.0310.80	192.0310.20	192.0326.20	192.0310.40	192.0326.40	192.0310.10	192.0326.10	192.0310.30	192.0326.30
System and laboratory model <sup>2)</sup>	192.0310.81	192.0310.21	192.0326.21	192.0310.41	192.0326.41	192.0310.11	192.0326.11	192.0310.31	192.0326.31
<b>Voltage setting</b>	0 to 7.99 V	0 to 19.99 V	0 to 39.99 V	0 to 99.9 V	0 to 299.9 V				
Resolution (mV/steps)	10 mV/800	10 mV/2000	10 mV/4000	100 mV/1000	100 mV/3000				
Deviation (of full scale)	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>				
<b>Current setting (2 ranges)</b>	0 to 9.99 A	0 to 4.99 A	0 to 9.99 A	0 to 2.99 A	0 to 4.99 A	0 to 0.999 A	0 to 1.99 A	0 to 0.299 A	0 to 0.599 A
Resolution (mA/steps)	10 mA/1000	10 mA/500	10 mA/1000	10 mA/300	10 mA/500	1 mA/1000	10 mA/200	1 mA/300	1 mA/600
Deviation (of full scale)	<10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<10 <sup>-3</sup>	<3 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<10 <sup>-3</sup>	<4 × 10 <sup>-3</sup>	<3 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>
in mA range	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 999 mA	0 to 99.9 mA	0 to 99.9 mA	0 to 99.9 mA	0 to 99.9 mA
Resolution (1000 steps)	1 mA	1 mA	1 mA	1 mA	1 mA	0.1 mA	0.1 mA	0.1 mA	0.1 mA
Deviation (of full scale)	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>	<2 × 10 <sup>-3</sup>
PARD <sup>3)</sup>	<200 μV	<250 μV	<400 μV	<600 μV	<900 μV				
Output C (OFF/ON)	500 pF/220 μF	500 pF/100 μF	750 pF/220 μF	500 pF/47 μF	750 pF/100 μF	500 pF/22 μF	750 pF/47 μF	500 pF/10 μF	750 pF/22 μF
Oversvoltage protection	4.5 to 15 V	4.5 to 25 V	4.5 to 50 V	5 to 110 V	5 to 330 V				

<sup>1)</sup> PARD = periodic and random deviation.

Common data

**Constant-voltage source**  
 Deviation of output voltage  
 with AC supply variations of ±10% < ±10<sup>-5</sup>  
 with temperature variations from 0 to 50 °C < ±2 × 10<sup>-5</sup>/K  
 with load variations from 10 to 90% <10<sup>-4</sup>  
 Transient recovery time (10 to 90%/90 to 10%) <75 μs (within ±10<sup>-3</sup>)

**Constant-current source**  
 Deviation of output current  
 with AC supply variations of ±10% < ±10<sup>-5</sup>  
 with temperature variations from 0 to 50 °C < ±5 × 10<sup>-5</sup>/K  
 with load variations from 10 to 90% <10<sup>-4</sup>  
 Transient recovery time, output C OFF/ON <50 μs/ <2 ms  
 PARD rms  
 in mA range 10 μA  
 in A range 100 μA/A

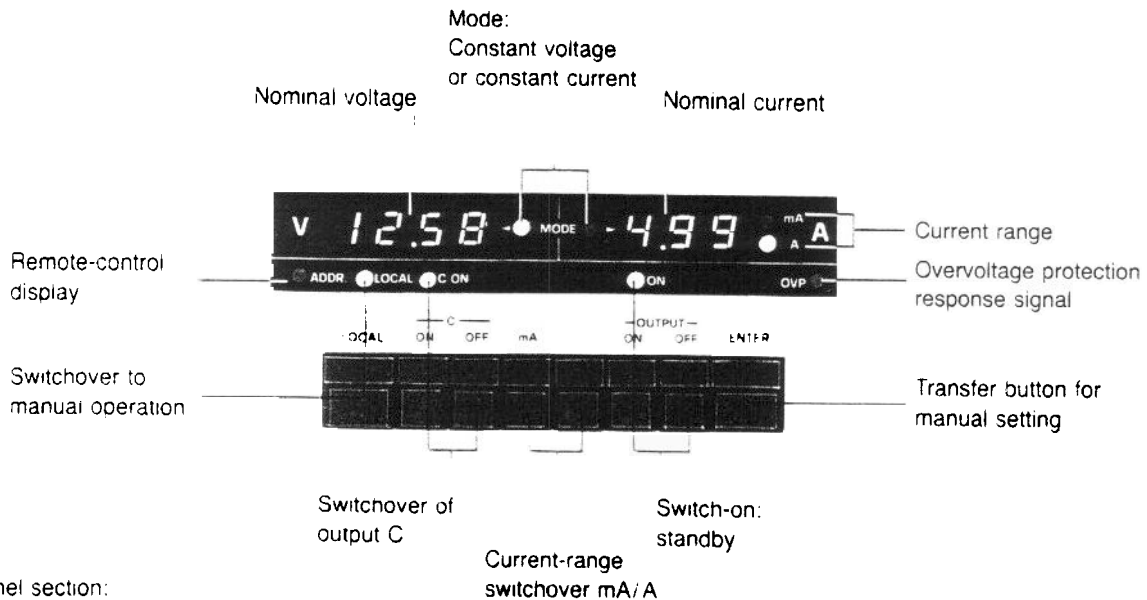
**Programming** IEC 625-1 (IEEE 488)  
 Connector 24-contact  
 Functions SH0, AH1, T0, TE0, L1, LE0, SR0, RL1, PP1, DC1, DT1, C0  
 Settling time 0 to 100%; 100 to 0% <2 ms (within ±2 × 10<sup>-3</sup>)  
 Remote sensing max. voltage compensation 1 V in each lead

Current monitoring output, Z<sub>out</sub> = 1 kΩ (referred to positive terminal)  
 in mA range 100 mV ± 1% for full scale  
 in A range 10 mV ± 1%/A

General data

Meter error ±2.5% of full scale  
 Rated temperature range 0 to +50 °C  
 Safety specifications comply with VDE 0411, class 1  
 EMI specifications comply with VDE 0871/6.78 level B  
 Output terminals 4 mm, floating; test voltage 1000 V/ground  
 AC supply 110/120/220/240 V ±10%  
 47 to 63 Hz  
 Order No. 192.0310... 192.0326...  
 Power consumption ca. 250 VA ca. 500 VA  
 Dimensions (W×H×D) in mm 492×161×392 492×161×420  
 Weight 12 kg 19 kg  
 Panel engravings German/English

Order designations ► see table above



Front-panel section: key row and LED display