

brandenburg ALPHA IV

High Voltage Lab Series

| | |
|----------------|---------------|
| Total Power | 100 Watts |
| Input Voltages | 230 / 115V AC |
| # of Outputs | Single |



SPECIAL FEATURES

- AC Input 230/115V, 50/60, P.F.corrected.
- Polarity reversible from front panel or remote.
- Digital voltage and current meters.
- Highly stable output with low ripple & drift.
- Current limit or overload trip - switch selectable.
- Analogue & optional USB interface.

ELECTRICAL SPECIFICATION

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|--------------------------------------|---|
| Supply Input | 90V to 246V AC, true wide range input, 47 to 63Hz, 200VA approx. |
| High Voltage Output | For voltage, current & ripple, see Ordering Information. |
| Line regulation | 10 ppm (max.) for $\pm 10\%$ change in input voltage. |
| Load regulation (static) | 20 ppm (max.) for zero to full load. |
| Output drift (short term) | 50 ppm (typ) over 1 hour period after 1 hour warm up. |
| (long term) | 200 ppm (typ) over an 8 hour period after 1 hour warm up. |
| Temperature coefficient | 25 ppm per degC (max.) |
| Output polarity control | Positive or negative is selected via front panel key switch or TTL logic signal when in remote mode (or via the USB interface, if fitted). |
| Output slew rate | Internally limited to 40V per 1mS. |
| Voltage control (LOCAL) | 10 turn potentiometer sets the output voltage in constant-voltage mode |
| Current control (LOCAL) | 10 turn potentiometer sets the output current in constant-current mode or trip point |
| Voltage & current (REMOTE) | A signal of 0V to 10.0V corresponds to 0% to 100% of output rating (Input Z >100k Ω) or via the optional USB interface (if fitted). |
| Protection | 1) Protected against overloads or short circuits by TRIP/LIMIT options (see below) 2) Protected against output over voltage by pre-set voltage limit potentiometer. |
| Voltage & Current Monitor | Direct reading 4 digit KV and mA meters. Available also are buffered monitor outputs for both output voltage & current from the analogue port on the rear panel, 0 to 10V corresponding to 0 to 100% of the rated output). Accuracy: Voltage mode = 1%. Current mode = 2%. |
| Operation of the supply | |
| AC Input Power switch | When switched ON, indicator lamp is lit and control circuits are activated. |
| Key switch | For LOCAL mode Positive or negative polarity is selected by a front panel key switch, this also allows the supply to be locked into the "OFF / REMOTE" position preventing use of the supply via the front panel controls by unauthorised persons. |
| Polarity indicators | When AC Power Input is ON, the + or - indicator lights to show the selected output polarity, depending on the position of the key switch on the front panel LOCAL mode or that selected via the analogue interface when in REMOTE mode (or USB, if fitted). |
| Control of output (LOCAL) | With "LOCAL +ve" or "LOCAL -ve" selected, front panel controls are effective. These are: HV on/off switch, Trip/Limit switch, Voltage, Current controls. |
| HV ON/OFF push button | (LOCAL mode only) Pressing this switch toggles the HV output ON and OFF. |

ENVIRONMENTAL

| | |
|-----------------------|---|
| Operating temperature | -10 to +50 deg.C |
| Storage temperature | -20 to +75 deg.C |
| Altitude | Operating 2,000m |
| | Storage 18,000m |
| Humidity (RH) | <31°C 80% maximum. |
| | >30°C decrease linearly to 50% at 40°C (non-condensing) |
| | For indoor use only. |

SAFETY

*EN 61010



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**APPLIED
KILOVOLTS**

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14/5/07

ELECTRICAL SPECIFICATION

- TRIP / LIMIT switch** When "LIMIT" mode is selected, the power supply operates either in constant-voltage or constant-current mode, depending on the load impedance, with automatic crossover from one mode to the other.
- When in "TRIP" mode the power supply will trip once the trip level is reached, the "Trip" lamp will illuminate and the HV ON/OFF push button must be pressed to re-enable the supply (after removing the load or increasing the trip level using the current setting potentiometer).
- Control of output (REMOTE)**
- 1) With key switch in the "OFF / REMOTE" (center position), the front panel controls are disabled (except for the Power input switch). Control is then affected via the REMOTE inputs on connector located on the rear panel. All control functions are available as under LOCAL control per above.
 - 2) Links may be made on the REMOTE connector to enable some functions to be controlled from the front panel and others remotely (see user manual for details). For this mode, OFF / REMOTE must be selected.
 - 3) On -04 versions, REMOTE control may be affected via the USB (also see 071).

ORDERING INFORMATION

| Output Voltage | Output Current | Ripple Pk-Pk | Interface | Ordering Code |
|----------------|----------------|--------------|----------------|---------------|
| 20V to 10kV | 0 to 10mA | 100ppm | Analogue | 4607 |
| 20V to 10kV | 0 to 10mA | 100ppm | Analogue & USB | 4607-04 |
| 25V to 20kV | 0 to 5mA | 100ppm | Analogue | 4707 |
| 25V to 20kV | 0 to 5mA | 100ppm | Analogue & USB | 4707-04 |
| 30V to 30kV | 0 to 3.3mA | 100ppm | Analogue | 4807 |
| 30V to 30kV | 0 to 3.3mA | 100ppm | Analogue & USB | 4807-04 |

MECHANICAL SPECIFICATION

- Dimensions** "2U" 482mm (w) x 88.6mm (h) x 406mm (d)
- Weight** 10kg approx.
- AC Input** CEE22 male connector, fuses and RFI filter. A 2m long 3-core mains lead with moulded-on CEE22 connector and wall outlet plug is supplied.
- Earth** Screw terminal, linked to chassis.
- HV output** GES type HB 30T socket. A 2m long output un screened cable with mating connector is supplied.
- HV return** Screw terminal, linked to chassis or screen of the output cable (if coaxial cable is used).
- Remote** 25 way "D" type (male pin, see user manual for pin assignments).
- USB / I²C** All -04 types are fitted with 2 off RJ45 sockets for I²C bus. The USB to I²C controller is fitted with 2 off RJ45 and 1 off "B" type USB socket (also see 071 data sheet for full interface specification).

DRAWINGS

