



## AF06 Range (PWM Mode version)

High voltage power supply



### Specification Summary

The AF06 Range is a highly compact and efficient, mains powered high voltage power supply. The standard AF06 series (PFM mode) are based on pulse frequency modulation principle and primary application is for air or oil fume purification. We also manufacture pulse width modulation AF06 (PWM mode). PFM mode AF06 has a limited range adjustment of output while PWM mode has a full range adjustment output. It is suitable for all other general purpose application.

The AF06 has a precise, stable and adjustable output voltage and output current. It is safe and reliable, with a high tolerance to the noise generated by electrical discharges.

The power supplies are designed as single output by default. The dual output power supplies are also available when customer specified.

|                      |                          |
|----------------------|--------------------------|
| <b>Input voltage</b> | 220VAC (200VAC - 240VAC) |
| <b>Input current</b> | Less than 6A             |

#### Output specification

|                                   |   |      |      |      |      |      |
|-----------------------------------|---|------|------|------|------|------|
| <b>Output voltage range* (kV)</b> | 0-10  | 0-20 | 0-30 | 0-40 | 0-50 | 0-60 |
| <b>Available output voltages</b>  | 10kV  | 20kV | 30kV | 40kV | 50kV | 60kV |
| <b>Power range</b>                | 300W, 600W, 800W and 1000W                          |      |      |      |      |      |
| <b>Output polarity</b>            | Positive or negative. Please specify when ordering. |      |      |      |      |      |

|                          |  |
|--------------------------|--|
| <b>Line regulation</b>   | Less than 0.1%                               |
| <b>Load regulation</b>   | Less than 0.1%                               |
| <b>Voltage ripple</b>    | Less than 1% at full load.                   |
| <b>Temperature drift</b> | 200ppm/°C maximum when operating under 55°C. |

#### Protection

|                                 |   |
|---------------------------------|---|
| <b>Short circuit protection</b> | In the event of an output short circuit, the output current will remain at the set value.   |
| <b>Over-current protection</b>  | In the event of an output over-current, the output current will remain at the set value.  |
| <b>Spark protection</b>         | When the power supply experiences a spark on the load, the output will be switched off momentarily. After which, it will be restored automatically. |

\*Other output voltage can also be supplied. Please contact Genvolt.

\*\* Some controllers are available. Please contact us if needed.



## Control Interface

### Local control mode:

The output voltage and current can be adjusted by potentiometers next to the IDC12 connector. Winding both potentiometers clockwise increases the output.

### Remote control mode:

Remote control is also available for AF06.

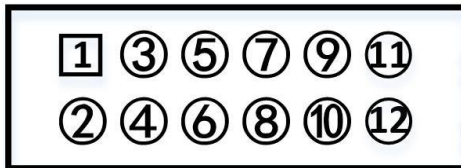
Note: either Local or Remote control, for switching on the power supply, take the two steps

**1 Connect HV INHIBIT(Pin6) to +12V(Pin10) to enable the unit;**

**2 Connect GND to DGND**

### IDC12 male connector

On IDC12 connector:

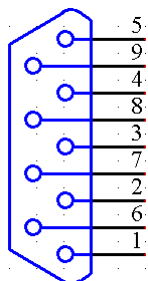


|    |            |  |
|----|------------|--|
| 1  | VFBK       | Regarding Pin 3 GND: voltage feedback 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies).  |
| 2  | IFBK       | Regarding Pin 3 GND: 0 - 5V = 0 - maximum current e.g. 4V = 26.64mA and 5V = 33.3mA (for 30kV 1kW power supplies).   |
| 3  | GND        | Analogue ground.   |
| 4  | IDEM       | Current demand. Regarding Pin 3 GND: 0 - 5V = 0 - maximum current.   |
| 5  | VDEM       | Voltage demand. Regarding Pin 3 GND: 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies) voltage adjustable range from 5% to 100% |
| 6  | HV INHIBIT | Regarding Pin 9 DGND: 0V or FLOATING = HV ON ; +12V = HV OFF.  |
| 7  | CONST I    | Opto-coupler output for spark detection: CLOSE = Constant Current; OPEN = Variable Current.  |
| 8  | L/R MODE   | Regarding Pin 9 DGND: 0V or FLOATING = LOCAL / +12VDC = remote   |
| 9  | DGND       | Digital ground, isolated from Pin 4 GND  |
| 10 | +12V       | Regarding Pin 3 GND: providing an optional +12VDC for customer use. This is provided by the internal power supply.   |
| 11 | CONST V    | Opto-coupler output for spark detection: CLOSE = Constant Voltage; OPEN = Variable Voltage.  |
| 12 | SPK/FAULT  | Opto-coupler output for spark detection: OPEN and then CLOSE within 200ms = SPARK; CLOSE = FAULTY or STOP WORKING; OPEN = FUNCTIONAL.                                  |

*\*Local control mode is the default setting for AF06 power supplies. Please specify when ordering.*



## DB9 D type female connector (optional\*):



|   |            |   |
|---|------------|---|
| 1 | DGND       | Digital ground, isolated from Pin 4 GND   |
| 2 | SPARK      | Opto-coupler output for spark detection: OPEN and then CLOSE within 1s = SPARK; OPEN = FAULTY or STOP WORKING; CLOSE = FUNCTIONAL |
| 3 | VDEM       | To be defined   |
| 4 | GND        | Analogue ground   |
| 5 | VFBK       | Regarding Pin 4 GND: voltage feedback 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies)    |
| 6 | L/R MODE*  | To be defined   |
| 7 | HV INHIBIT | Regarding Pin 1 DGND: 0V or FLOATING = HV ON; +12V = HV OFF   |
| 8 | IDEM       | To be defined   |
| 9 | IFBK       | Regarding Pin 4 GND: 0 - 5V = 0 - maximum current e.g. 4V = 26.64mA and 5V = 33.3mA (for 30kV 1kW power supplies)                 |

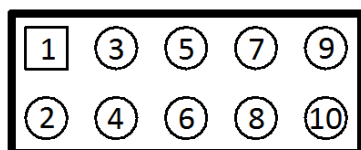
### Remote control mode:

Remote control is also available for AF06. On DB9 connector:

|   |           |   |
|---|-----------|---|
| 3 | VDEM      | Voltage demand. Regarding Pin 4 GND: 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies) Please note that AF06 Range is not adjustable from 0kV. |
| 6 | L/R MODE* | Regarding Pin 1 DGND: when applying +12VDC to this pin, the power supply is in remote control mode.   |
| 8 | IDEM      | Current demand. Regarding Pin 4 GND: 0 - 5V = 0 - maximum current   |

\*Local control mode is the default setting for AF06 power supplies. Please specify when ordering.

### IDC10 male connector (optional\*):



|   |      |  |
|---|------|--|
| 1 | VFBK | Regarding Pin 3 GND: voltage feedback 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies) |
|---|------|--|

|    |            |   |
|----|------------|---|
| 2  | IFBK       | Regarding Pin 3 GND: 0 - 5V = 0 - maximum current e.g. 4V = 26.64mA and 5V = 33.3mA (for 30kV 1kW power supplies)   |
| 3  | GND        | Analogue ground   |
| 4  | IDEM       | Current demand. Regarding Pin 3 GND: 0 - 5V = 0 - maximum current   |
| 5  | VDEM       | Voltage demand. Regarding Pin 3 GND: 0 - 5V = 0 to maximum voltage e.g. 4V = 24kV and 5V = 30kV (for 30kV 1kW power supplies) Please note that AF06 Range is not adjustable from 0kV. |
| 6  | HV INHIBIT | Regarding Pin 9 DGND: 0V or FLOATING = HV ON; +12V = HV OFF   |
| 7  | SPK/FAULT  | Opto-coupler output for spark detection: OPEN and then CLOSE within 1s = SPARK; OPEN = FAULTY or STOP WORKING; CLOSE = FUNCTIONAL   |
| 8  | L/R MODE   | Regarding Pin 9 DGND: when apply +12VDC to this pin, the power supply is in remote control mode.  |
| 9  | DGND       | Digital ground, isolated from Pin 4 GND   |
| 10 | VDC FAN    | Regarding Pin 3 GND: providing an optional +12VDC for customer use. This is provided by the internal fan power supply.  |

\*Please specify the connector type for control interface (DB9, IDC12 or IDC10) when ordering.

### Environmental Requirements

|                       |               |
|-----------------------|---------------|
| Operating temperature | -10°C to 50°C |
| Storage temperature   | -20°C to 80°C |

### Mechanical Specifications

|                     |                                 |                           |  |       |
|---------------------|---------------------------------|---------------------------|--|-------|
| Voltage range       | 10-20kV                         | 30-40kV                   | 50-60kV  |       |
|                     | Width                           | 175mm                     | 195mm  | 195mm |
|                     | Height                          | 105mm                     | 136mm  | 172mm |
|                     | Depth                           | 244mm                     | 310mm  | 320mm |
| HV output connector | On one side of the power supply | Mounted on the back panel | Mounted on the back panel                            |       |
|                     | Control interface connector     |                           |  |       |
|                     |                                 |                           | 12 way IDC connector optional DB9 or IDC10 connector |       |

### Power input connector

Standard 3 way PCB terminal socket & plug 7.62mm pitch.

| Legend | Definition  |         |
|--------|-------------|---------|
| L      | Mains input | Live    |
| N      |             | Neutral |
| E      |             | Earth   |

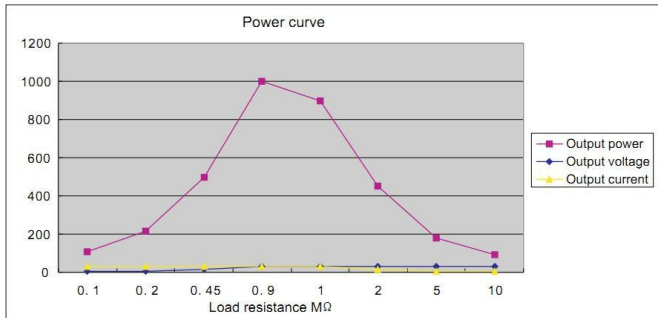


## Model number

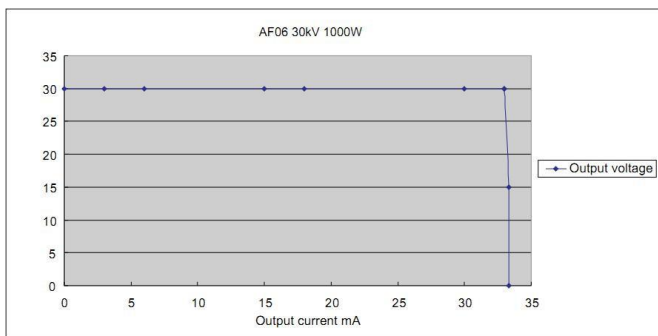
AF06-220-P1000-30L



## Power curve



## Output current versus voltage curve



## Safety

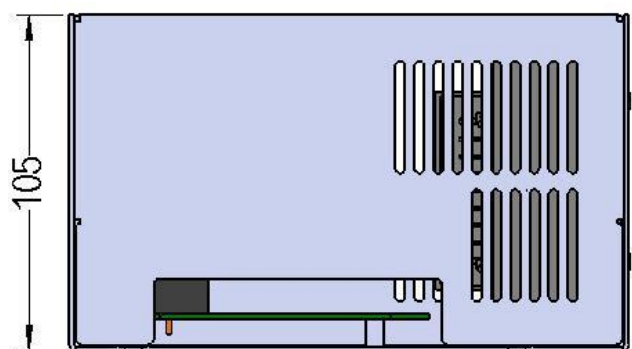
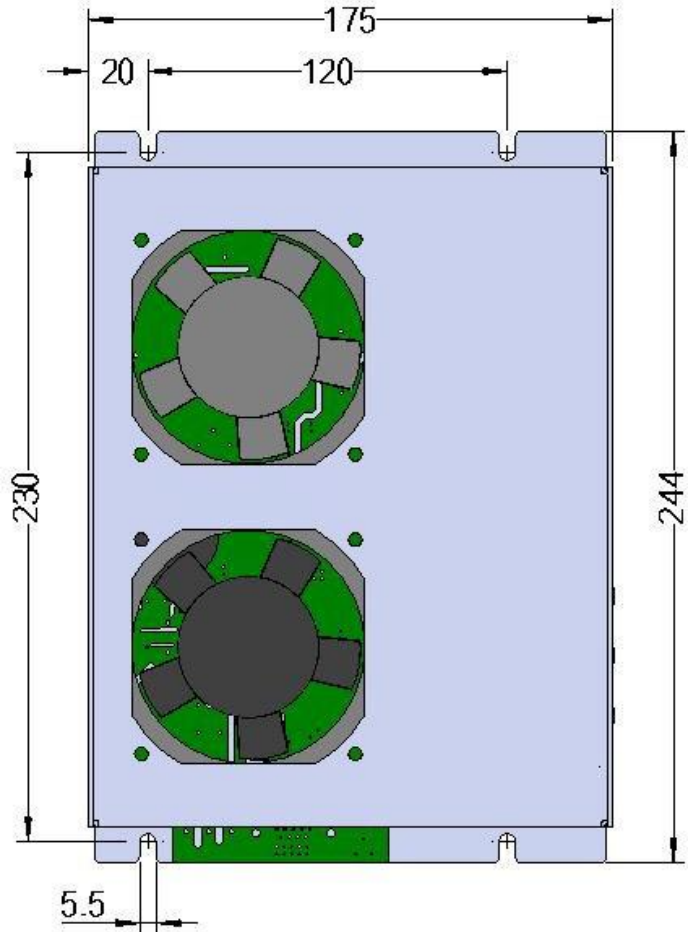
This power supply contains hazardous voltages and stored energy. Contact with the output may result in fatal injury. It should only be used and maintained by trained personnel.

- The area where the power supply is to be used should be kept clean and dry.
- Keep a safe distance from the output connector and remove any item which may come in to contact with the output.
- Ensure that a secure connection is made between the Earth side of the load and the green and yellow Earth lead.

For requirements other than those specified, please do not hesitate to contact Genvolt.

## Dimensions

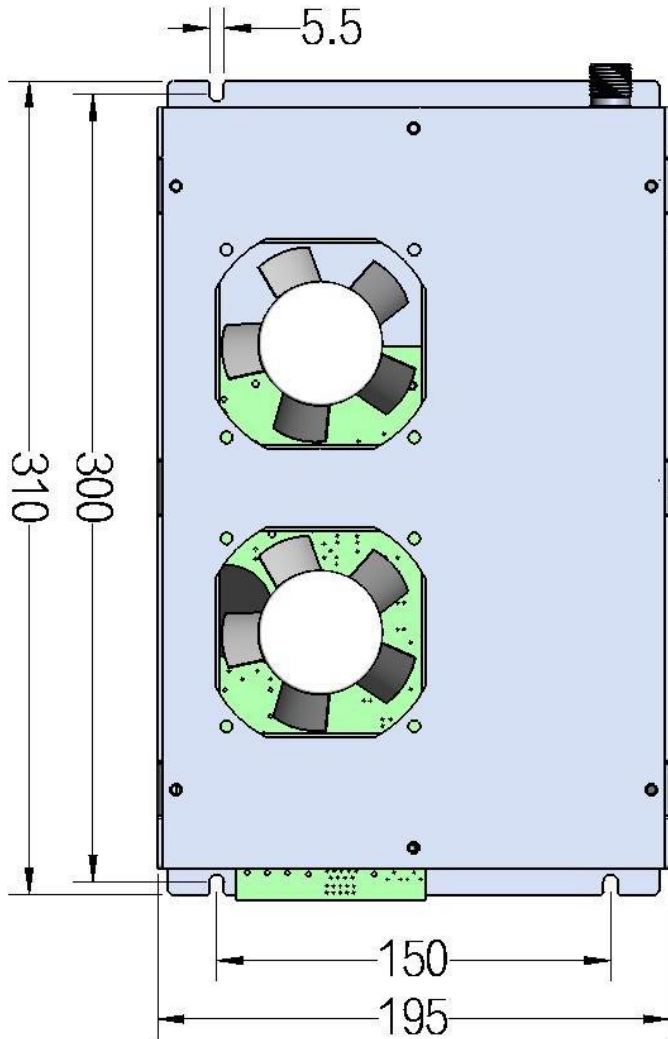
10-20kV power supplies:





### Dimensions

30-40kV power supplies:



50-60kV power supplies:

