# MK series

XP Power

## 75W

HVAC-DC power supplies

The MK Series is a family of sophisticated, medium power, high voltage power supplies that complies with current international safety and EMC directives.

These 75 Watt high voltage supplies feature flexible embedded controls with low ripple and noise, they are air insulated, fast response units, with tight regulation and extremely low arc discharge currents.

Packaged as a space saving module to avoid the expense of front panels and displays, with no compromise in performance and/or operating features. The result is a power supply that offers outstanding value for a wide range of demanding applications.


### Features

- Output voltages 0-1kVDC to 0-60kVDC
- Compact module
- Optional RS232, USB, & Ethernet control
- Constant voltage/constant current operation
- Short circuit, overload & arc protection
- Tight regulation
- Low ripple
- Air insulated
- 3 year warranty

### Applications

- Ion implant
- E-beam/Ion beam
- Industrial technology
- Capacitor charging
- High voltage bias

### Dimensions

120.6 x 131.7 x 279.4 mm (4.75” x 5.187” x 11.0”)

### Documentation

For further information click the link or scan the code

xppower.com

### Models & ratings

| Positive polarity | Negative polarity | Output voltage | Output current | Output cable[3] |
|---|---|---|---|---|
| MK1P75L | MK1N75L | 0 - 1kVDC | 0 - 75mA | RG-59 |
| MK1.5P50L | MK1.5N50L | 0 - 1.5kVDC | 0 - 50mA | RG-59 |
| MK2P37.5L | MK2N37.5L | 0 - 2kVDC | 0 - 37.5mA | RG-59 |
| MK3P25L | MK3N25L | 0 - 3kVDC | 0 - 25mA | RG-59 |
| MK5P15L | MK5N15L | 0 - 5kVDC | 0 - 15mA | RG-59 |
| MK10P7.5[1] | MK10N7.5[1] | 0 - 10kVDC | 0 - 7.5mA | RG-8U |

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**Notes:**

1. Stored energy: 200mJ
2. Stored energy: 1J
3. Detachable, 2.4m (8ft) shielded output cable, mating control connector, and line cord.

## Models & ratings

| Positive polarity | Negative polarity | Output voltage | Output current | Output cable[3] |
|---|---|---|---|---|
| MK15P5 | MK15N5 | 0 - 15kVDC | 0 - 5mA | RG-8U |
| MK20P3.7 | MK20N3.7 | 0 - 20kVDC | 0 - 3.7mA | RG-8U |
| MK25P3 | MK25N3 | 0 - 25kVDC | 0 - 3mA | RG-8U |
| MK30P2.5 | MK30N2.5 | 0 - 30kVDC | 0 - 2.5mA | RG-8U |
| MK35P2 | MK35N2 | 0 - 35kVDC | 0 - 2mA | RG-8U |
| MK40P1.8 | MK40N1.8 | 0 - 40kVDC | 0 - 1.8mA | RG-8U |
| MK50P1.5[2] | MK50N1.5[2] | 0 - 50kVDC | 0 - 1.5mA | RG-8U |
| MK60P1.2 | MK60N1.2 | 0 - 60kVDC | 0 - 1.2mA | RG-8U |

**Notes:**

1. Stored energy: 200mJ
2. Stored energy: 1J
3. Detachable, 2.4m (8ft) shielded output cable, mating control connector, and line cord.

## Options

| Symbol | Description |
|---|---|
| 100 | 100V input: rated for 90 to 110V RMS |
| 220 | 230V input: rated for 198 to 253V RMS. Required for CE. |
| K01 | RS-232/USB control and monitor. |
| K02 | RS-232/USB/Ethernet control and monitor. |

## Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Input voltage | 105 | | 125 | VAC | At full load. |
| Input frequency | 48 | | 420 | Hz | |
| Input current | | | 1.5 | A | Single phase. |
| Input connector | C14 input connector per IEC60320 with mating line cord. | | | | |

**Notes:**

1. A DB25S D-subminiature connector and mating plug are provided for all control input functions. They include common, +10VDC reference, interlock, current monitor, current programming, voltage monitor, voltage programming, TTL, ground, and local control.

## Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Output voltage range | 0 | | 60 | kVDC | See models and ratings table. |
| Output current range | 0 | | 75 | mA | See models and ratings table. |
| Polarity | Available with either positive or negative polarity with respect to chassis ground. | | | | |
| Output control | Continuous, stable adjustment by panel mounted 10-turn potentiometer with 0.05% resolution or by external 0 to +10VDC signals. | | | | |
| Voltage regulation | 0.005 | | | % | +1mV/mA. line and load. |
| Stability | | 0.01 | | % | Per hour after 30 min. warm up. |
| | | 0.05 | | % | Per 8 hours. |
| Temperature coefficient | | 0.01 | | %/°C | |
| Voltage rise/decay time constant | | 50 | 100 | ms | Using either the HV ON/OFF or remote voltage control, with a 75% load. |
| Ripple | 0.03 | | | %RMS | +0.5V at full load. |
| Repeatability | | | 0.1 | % | |
| Current regulation | 0.1 | | | % | From short circuit to rated voltage, at any load. |

## General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Efficiency | 75 | | | % | At full load. |
| HV insulating medium | Outputs are air insulated. | | | | |
| External interlock | Open = OFF, closed = ON. | | | | |
| Remote HV enable/disable | 0 to 1.5VDC = OFF; 2.5 to 15VDC = ON | | | | |
| Voltage accuracy | 1% of setting +0.5% of rated | | | | |
| Voltage monitor | 0 to +10VDC signal is provided for 0 to rated voltage. Accuracy, 1% of reading +0.5% of rated. Output impedance is 10kΩ. | | | | |
| Analog current monitor | 0 to +10VDC signal is provided for 0 to rated current. Accuracy, 1% of reading +0.5% of rated. Output impedance is 10kΩ. | | | | |

**Notes:**

1. Specifications apply from 5% to 100% rated voltage.
2. Operation is guaranteed down to zero voltage with a slight degradation of perfomance.

## Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---|---|---|---|---|---|
| Operating temperature | -20 | | +60 | °C | |
| Storage temperature | -40 | | +85 | °C | |
| Protection | Automatic current regulation protects against all overloads, including arcs and short circuits. Fuses, surge limiting resistors, and low energy components provide the ultimate protection. | | | | |
| RoHS | Restriction of the use of Hazardous Substances | | | | |

## EMC: emissions

| Phenomenon | Standard | Test level | Notes & conditions |
|---|---|---|---|
| Conducted | EN61000-6-4 | | |
| Radiated | EN61000-6-4 | | |

## EMC: immunity

| Phenomenon | Standard | Test level | Notes & conditions |
|---|---|---|---|
| Conducted | EN61000-6-2:2005 | | |
| Radiated | EN61000-6-2:2005 | | |
| Line harmonics | EN61000-3-2 | | |

## Safety approvals

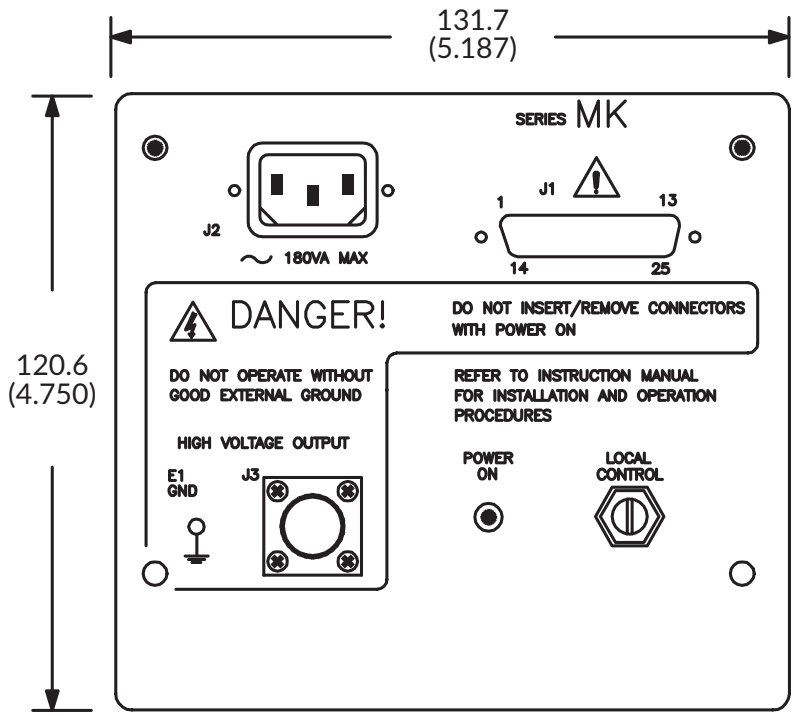
| Certification | Standard | Notes & conditions |
|---|---|---|
| EN | EN61010/IEC61010 | Safety |
| CE | Meets all applicable directives | |
| UKCA | Meets all applicable legislation | |

**Notes:**

1. Full compliance with European Directives for MK Series with 220 option.
2. Specifications apply from 5% to 100% rated voltage.
3. Operation is guaranteed down to zero voltage with a slight degradation of perfomance.

## Mechanical details

### Front view




| Connectors | |
|---|---|
| J1 | 25 pin (D-sub) connector;<br>Mating connector supplied. |
| J2 | Input receptacle per IEC 320;<br>Mated line cord supplied. |
| J3 | G.H.V. RG8U connector.<br>2.4m (8ft.) mated cable supplied. |

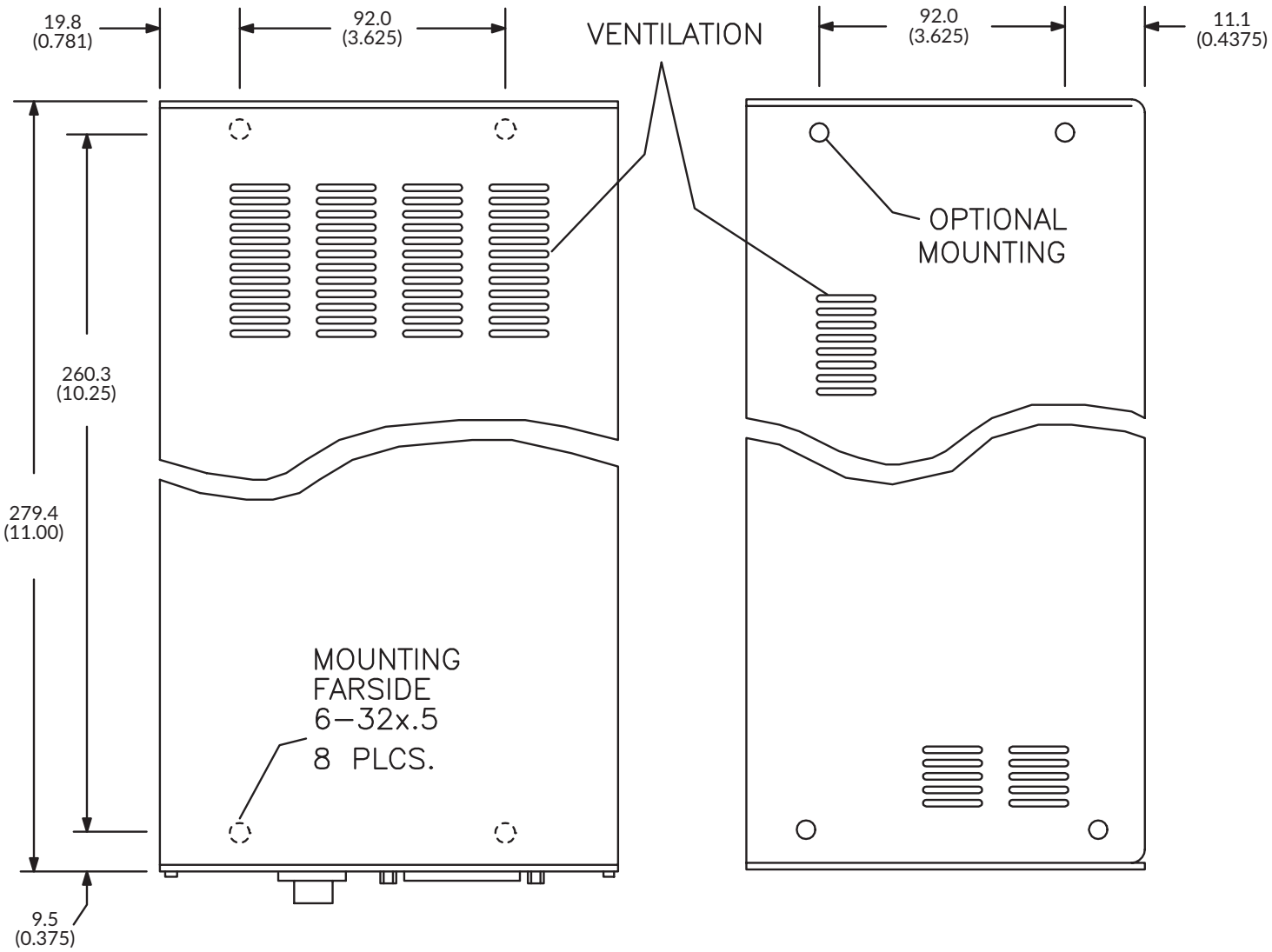
| J1 | | | | | |
|---|---|---|---|---|---|
| Pin | Function | Pin | Function | Pin | Function |
| 1 | GROUND | 10 | CURRENT MONITOR | 19 | COMMON |
| 2 | TTL | 11 | X3 | 20 | COMMON |
| 3 | X1 | 12 | LOCAL CONTROL | 21 | N.C. |
| 4 | VOLTAGE MONITOR | 13 | CURRENT PROGRAM | 22 | X7 |
| 5 | COMMON | 14 | X4 | 23 | REF. |
| 6 | VOLTAGE PROGRAM | 15 | X5 | 24 | REF. |
| 7 | X2 | 16 | X6 | 25 | REF. |
| 8 | COMMON | 17 | N.C. | | |
| 9 | INTERLOCK | 18 | COMMON | | |

**Notes:**

1. Allow minimum 9mm (0.35 inches) clearance for proper cooling.
2. All dimensions shown in mm (inches).
3. Weight: 5kg (11lbs) approx.

## Mechanical details

**Front & side view**

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