

## IUU153 series

V1.0

The IUU153 series of AC/DC switching mode power supplies provide 140 Watts of continuous output power. All supplies are UL94V-1 min compliant. All models meet FCC Part-15 class B and CISPR-22 class B emission Limits and are designed to comply with UL/c-UL. All units are 100% burned in and tested.

**RoHS2**  
2011/65/EU



### APPROVALS:



### Electrical Characteristics:

| Symbol | Characteristic                        | Condition   | Min.             | Typ. | Max.  | Unit  |
|--------|---------------------------------------|---|------------------|------|-------|-------|
| Vins   | Safety Approval Input Voltage Range   | Safety Approval & Specification in Label                | 100              |      | 240   | VAC   |
| Vin    | Input Operate Voltage Range           | Detail to see Fig.1                                     | 90               |      | 260   | VAC   |
| Fi     | Input Frequency                       | Sine wave   | 47               |      | 63    | Hz    |
| PF     | Power Factor Correction               | Io=Full load, Vin=240VAC                                | 0.95             |      | 1     |       |
| Po     | Output Power Range                    | See Rating Chart  |                  |      | 140   | W     |
| Iil    | Low Line Input Current                | Full Load, Vin=100VAC                                   |                  | 2.0  |       | A     |
| Iih    | High Line Input Current               | Full Load, Vin=240VAC                                   |                  | 0.8  |       | A     |
| Irl    | Low Line Input Inrush Current         | Full Load, 25°C, Cool start, Vin=100VAC                 |                  |      | 40    | A     |
| Irh    | High Line Input Inrush Current        | Full Load, 25°C, Cool start, Vin=240VAC                 |                  |      | 100   | A     |
| Ik     | Safety Ground Leakage Current         | Vin=240VAC, Fi=60Hz                                     |                  |      | 0.75  | mA    |
| η      | Efficiency                            | Full Load, Vin=230VAC, Detail to see Rating Chart       | See Rating Chart |      |       |       |
| ΔVoi   | Line Regulation                       | Full Load, Vin=100~120VAC                               | 0.5              |      | 1     | %     |
| ΔVoL   | Load Regulation                       | Vin=230VAC, 10~90% Load Change at Condition             | 2                |      | 5     | %     |
| OVP    | Over Voltage Protection               | Over Voltage Protection                                 | 112              |      | 132   | %     |
| OLP    | Over Load Protection                  | Recovers automatically after fault condition is removed | 110              |      | 150   | %     |
| ttr    | Time of Transient Response            | Full Load, Vin=110VAC                                   |                  |      | 4     | ms    |
| thu    | Hold-Up Time                          | Full Load, Vin=100VAC                                   | See Rating Chart |      |       |       |
| ts     | Start-up time                         | Full Load, Vin=100~240VAC                               |                  |      | 3     | s     |
| Tc     | Temperature Coefficient               | Full load, Vin=100~240VAC                               |                  |      | ±0.04 | %/°C  |
| HV     | Dielectric Withstanding Voltage (P-S) | Primary to Secondary                                    |                  |      | 4242  | VDC   |
| Vpg    | Dielectric Withstanding Voltage (P-G) | Primary to PE   |                  |      | 2121  | VDC   |
| EMI    | EMC Emission                          | Compliance to EN55022 (CISPR22)                         |                  |      | B     | Class |

### Environmental:

| Symbol | Characteristic                 | Condition  | Min. | Typ. | Max. | Unit |
|--------|--------------------------------|--|------|------|------|------|
| To     | Operating Temperature          | Detail to see Fig.2 (Derate linearly from 100% load at 50°C to 50% load at 70°C) | -20  |      | 70   | °C   |
| Ts     | Storage Temperature            | 10 ~ 95% RH  | -40  |      | 85   | °C   |
| Ho     | Operating Humidity             | non-condensing   | 0    |      | 95%  | RH   |
| Hs     | Storage Humidity               |  | 0    |      | 95%  | RH   |
| ESDa   | Electro Static Discharge       | Air Discharge, IEC61000-4-2  |      |      | 8    | kV   |
| ESDc   | Electro Static Discharge       | Contact Discharge, IEC61000-4-2  |      |      | 4    | kV   |
| MTBF   | Mean Time Between Failure      | Operating Temperature at 25°C, Calculated per MIL-HDBK-217F                      | 100k |      |      | h    |
| ELEV   | Operating Altitude (Elevation) | All condition  |      |      | 2000 | m    |
| VBR    | Vibration                      | 10 ~ 500Hz, 10min./1cycle, 60min. each along X, Y, Z axes                        |      |      | 5    | G    |
| Vsl    | Surge Voltage                  | Line-Neutral   |      |      | 1    | kV   |
| Vsg    | Surge Voltage                  | Line-PE & Neutral-PE   |      |      | 2    | kV   |

## 140W U Bracket Power Supply for Industrial Purpose

### FEATURES:

- \* Wide Operating Voltage, 90 to 260 VAC, 47 to 63 Hz
- \* Internal EMI filter
- \* Active Power Factor Correction
- \* Crowbar Mode Over Voltage Protection
- \* Synchronous Rectification
- \* Power Fail Detect (Optional)
- \* Single Output
- \* Operating temperature -20~70°C
- \* 5 year warranty

### APPLICATIONS:

- \* Industrial PC
- \* Electrical Test & Measurement Instruments
- \* Communication equipment
- \* AV equipment

### GENERAL SPECIFICATION:

- \* **Short Circuit Protection:** Auto Recovery
- \* **Cooling:** Free Air Convection
- \* **Flammability Rating:** UL94V-1
- \* **Protection Classes:** Class I
- \* **Safety:** UL 60950-1:2nd Edition, CSA C22.2 No.60950-1-07

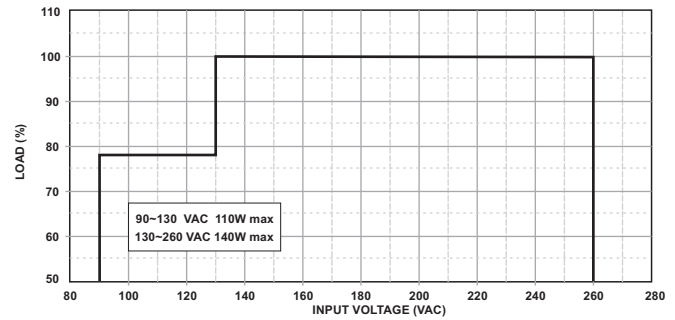
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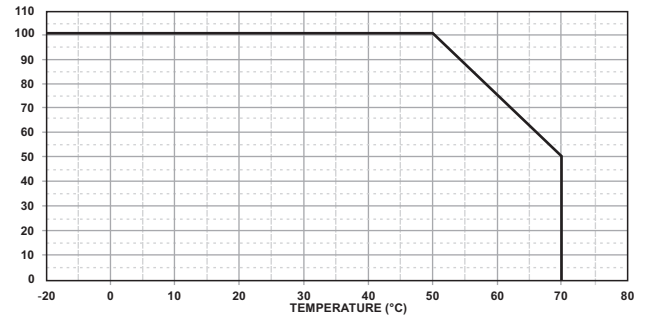
## 140W U Bracket Power Supply for Industrial Purpose

### SPECIFICATION NOTE :

- Output can provide up to peak load when the power supply starts up. Continuous staying in more than rated load is not allowed.
- At factory, in 60% rated load condition, each output is checked to be within voltage accuracy.
- Line regulation is defined by changing  $\pm 10\%$  of input voltage from nominal line at rated load.
- Load regulation is defined by changing  $\pm 40\%$  of measured output load from 60% rated load.
- Ripple & noise is measured by using 20MHz bandwidth limited oscilloscope and terminated each output with a 0.47uF capacitor at rated load and nominal line.
- Hold up time is measured from the end of the last charging pulse to the time which the main output drops down to low limit of main output at rated load and nominal line.
- Efficiency is measured at rated load, and nominal line.

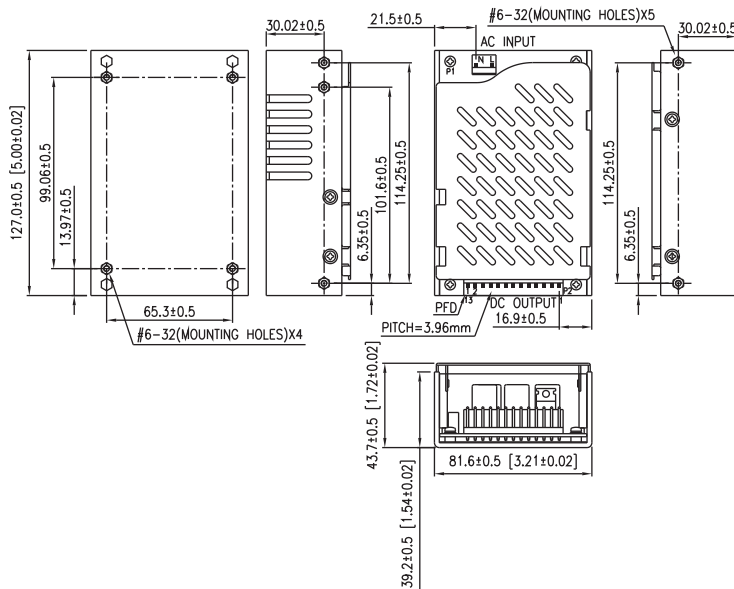


(FIG.1) INPUT VOLTAGE DERATING CURVE



(FIG.2) TEMPERATURE DERATING CURVE

### MECHANICAL DIMENSIONS: ( UNIT: mm )



### PACKING :

- Dimensions are shown in mm.
- Weight: 580gs approx.
- Input connector mates with Molex housing 09-52-4034 and Molex 2478 series crimp terminal.
- Output connector mates with Molex housing 09-52-4134 and Molex 2478 series crimp terminal.

### PIN CHART

| MODEL      | PIN | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13 (Optional) |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|---------------|
| IUU153-1XX | OUT | OUT | OUT | OUT | OUT | OUT | OUT | RTN | RTN | RTN | RTN | RTN | RTN | PFD           |

### Rating Chart:

| MODEL NO.  | Setting Voltage Range<br>(Factory setting, can't be adjusted) | Output Current (A)<br>(Based on the output volt.) |            | Maximum<br>Output Power |         | Ripple & Noise | Total Regulation | Typ. Efficiency | Typ. No Load<br>Consumption | Hold-Up Time | Protection Mode |
|------------|---|---|------------|-------------------------|---------|----------------|------------------|-----------------|-----------------------------|--------------|-----------------|
|            |   | Input Voltage                                     |            |                         |         |                |                  |                 |                             |              |                 |
|            | (VDC)   | 90~130VAC   | 130~260VAC | (W)                     | (mVp-p) | (%)            | (%)              | (W)             | (ms)                        |              |                 |
| IUU153-104 | 9.0   | 12.2  | 15.5       | 110                     | 140     | 90             | ±5               | 84              | 3.5                         | 16           | Hiccup          |
| IUU153-105 | 12.0  | 9.16  | 11.6       | 110                     | 140     | 120            | ±5               | 84              | 3.5                         | 16           | Hiccup          |
| IUU153-106 | 15.0  | 7.33  | 9.33       | 110                     | 140     | 150            | ±5               | 84              | 3.5                         | 16           | Hiccup          |
| IUU153-107 | 18.0  | 6.11  | 8.77       | 110                     | 140     | 180            | ±4               | 85              | 3.5                         | 16           | Hiccup          |
| IUU153-108 | 24.0  | 4.58  | 5.83       | 110                     | 140     | 200            | ±3               | 86              | 3.5                         | 16           | Hiccup          |
| IUU153-109 | 30.0  | 3.66  | 4.66       | 110                     | 140     | 300            | ±2               | 86              | 3.5                         | 16           | Hiccup          |
| IUU153-110 | 36.0  | 3.05  | 3.88       | 110                     | 140     | 300            | ±2               | 86              | 3.5                         | 16           | Hiccup          |
| IUU153-111 | 48.0  | 2.29  | 2.91       | 110                     | 140     | 300            | ±2               | 86              | 3.5                         | 16           | Hiccup          |