

### DESCRIPTION

The 3F/3RF is a series of fan-less AC/DC switching power adapters with 150 watts of continuous output power. The units are enclosed in a 94V-1 rated polyphenylene-oxide case with an IEC 320/C14 or IEC320/C6 AC inlet to mate with interchangeable cord for world-wide use. All model meet CISPR 22 and FCC class B emission limits, and comply with UL, CSA, IEC and CE requirements.

### FEATURES

- High efficiency
- Low ripple & noise
- Overvoltage protection
- Short-circuit protection
- Overpower protection
- Over temperature protection
- 100% burn-in at full rated load
- Standby consumption less than 1W
- Compliant with RoHS requirements

### INPUT SPECIFICATIONS

|                        |                                                                    |
|------------------------|--------------------------------------------------------------------|
| Input voltage :        | 90 to 264VAC                                                       |
| Input frequency :      | 47 to 63 Hz                                                        |
| Input current :        | 2.0A ( rms ) for 115VAC<br>1.0A ( rms ) for 230VAC                 |
| Earth leakage current: | 150 $\mu$ A max. @ 115VAC, 60Hz<br>250 $\mu$ A max. @ 230VAC, 50Hz |

### OUTPUT SPECIFICATIONS

|                          |                                                                                                                                  |
|--------------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Output voltage/current:  | See rating chart                                                                                                                 |
| Total output power:      | See rating chart                                                                                                                 |
| Ripple and noise:        | 380mV peak to peak maximum                                                                                                       |
| Overvoltage protection:  | Set at 110-140% of its nominal output voltage                                                                                    |
| Overcurrent protection:  | All models protected to short circuit conditions                                                                                 |
| Temperature coefficient: | All outputs $\pm 0.04\%/^{\circ}\text{C}$ maximum                                                                                |
| Transient response:      | Maximum excursion of 4% or better on all models, recovering to 1% of final value within 500 $\mu$ s after a 25% step load change |

### ENVIRONMENTAL SPECIFICATIONS

|                        |                           |
|------------------------|---------------------------|
| Operating temperature: | 0°C to +40°C              |
| Storage temperature:   | -20°C to +80°C            |
| Relative humidity:     | 10% to 90% non-condensing |

### 3F/3RF SERIES



### Safety Standard Approvals :



UL 60950-1  
CSA C22.2 No. 60950-1



Nemko EN60950: 2000

### GENERAL SPECIFICATIONS

|                     |                                                                           |
|---------------------|---------------------------------------------------------------------------|
| Hold-up time:       | 3 msec minimum at 100VAC                                                  |
| Turn on delay time: | 5 seconds maximum at 100VAC                                               |
| Power factor:       | 0.95 typical                                                              |
| Efficiency:         | 88% min.                                                                  |
| Line regulation:    | $\pm 0.5\%$ maximum at full load                                          |
| Inrush current:     | 60A @ 115VAC or 100A @ 230VAC, at 25°C cold star                          |
| Withstand voltage:  | 3000VAC from input to output<br>1500VAC from input to ground              |
| MTBF:               | 150,000 hours at full load at 25°C ambient, calculated per MIL-HDBK- 217F |

### EMC Performance (EN55024)

|               |                                                                   |
|---------------|-------------------------------------------------------------------|
| EN55022:      | Class B conducted, Class B radiated                               |
| FCC:          | Class B conducted, Class B radiated                               |
| VCCI:         | Class B conducted, Class B radiated                               |
| EN61000-3-2:  | Harmonic distortion, Class D                                      |
| EN61000-3-3:  | Line flicker                                                      |
| EN61000-4-2:  | ESD, $\pm 8\text{KV}$ air and $\pm 4\text{KV}$ contact            |
| EN61000-4-3:  | Radiated immunity, 3V/m                                           |
| EN61000-4-4:  | Fast transient/burst, $\pm 1\text{KV}$                            |
| EN61000-4-5:  | Surge, $\pm 1\text{KV}$ diff, $\pm 2\text{KV}$ com.               |
| EN61000-4-6:  | Conducted immunity, 3Vrms                                         |
| EN61000-4-8:  | Magnetic field immunity, 1A/m                                     |
| EN61000-4-11: | Voltage dips, 30% reduction for 500ms and >95% reduction for 10ms |

# UNIVERSAL INPUT

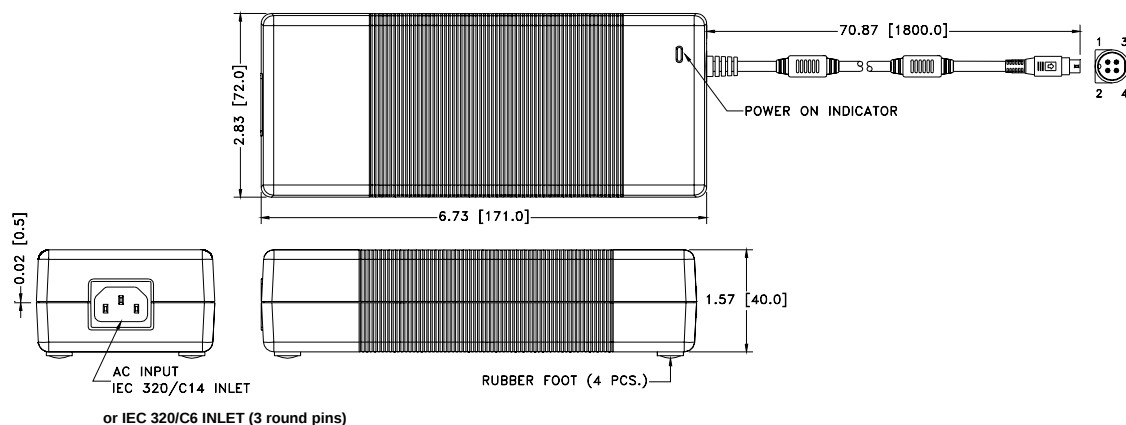
# 3F & 3RF SERIES

## OUTPUT VOLTAGE/CURRENT RATING CHART

| Product No.       |                  | Output |                   |                   |      | Maximum      |
|-------------------|------------------|--------|-------------------|-------------------|------|--------------|
| IEC 320/C14 Inlet | IEC 320/C6 Inlet | Vnom.  | I <sub>max.</sub> | I <sub>min.</sub> | Tol. | Output Power |
| 3F-12-150         | 3RF-12-150       | 12V    | 12.5A             | 0A                | 5%   | 150W         |
| 3F-15-150         | 3RF-15-150       | 15V    | 10.0A             | 0A                | 5%   | 150W         |
| 3F-19-150         | 3RF-19-150       | 19V    | 7.89A             | 0A                | 5%   | 150W         |
| 3F-20-150         | 3RF-20-150       | 20V    | 7.5A              | 0A                | 5%   | 150W         |
| 3F-24-150         | 3RF-24-150       | 24V    | 6.25A             | 0A                | 5%   | 150W         |

NOTE: Ripple and noise: Peak-to-peak with 20MHz bandwidth and 47μF tantalum capacitor in parallel with a 0.1μF ceramic capacitor at rated line voltage and load ranges.

## MECHANICAL SPECIFICATIONS



### NOTES:

1. Dimensions shown in inch [mm]
2. Tolerance 0.02 [0.5] maximum
3. Weight: 800 grams approx.
4. Standard output connector is a 4-pin power DIN. Please consult TRUMPower for other connector options.
5. The length of the output cable on 3F-12-150 and 3RF-12-150 is 37.4" (950.0mm).

## PIN CHART

| 1         | 2         | 3      | 4      | Shell of connector    |
|-----------|-----------|--------|--------|-----------------------|
| Output +V | Output +V | Return | Return | DC Return & AC Ground |

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