

## MCS Series



- Rugged Desktop Design
- 65 W – Convection-Cooled
- IP67 Ingress Protection
- Wide Operating Temp. Range  $-40^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$
- MIL-STD EMC, Shock & Vibration
- $<0.5$  W No Load Input Power
- 3 Year Warranty

## Specification

## Input

Input Voltage	• 90-264 VAC
Input Frequency	• 47-440 Hz
Input Current	• 1.1/0.7 A typical at 115/230 VAC
Inrush Current	• 60 A typical at 230 VAC, cold start at $25^{\circ}\text{C}$
Power Factor	• EN61000-3-2, class A compliant
No Load Input Power	• $<0.5$ W
Earth Leakage Current	• 260 $\mu\text{A}$ at 264 VAC/60 Hz max, 0.7/1.5 mA typical 115/230 VAC 400 Hz.
Input Protection	• Internal T3.15/250 V fuse in line and neutral

## Output

Output Voltage	• 12-28 VDC (see table)
Output Voltage Trim	• No user adjustment
Minimum Load	• No minimum load required
Start Up Delay	• 1 s typical
Start Up Rise Time	• 50 ms
Hold Up Time	• 16 ms typ. at 115 VAC
Drift	• $\pm 0.2\%$ after 20 min warm up
Total Regulation	• See table
Transient Response	• 4% max. deviation, recovery to within 1% in 500 $\mu\text{s}$ for a 50-75-50% load change
Ripple & Noise	• 1% pk-pk, 20 MHz bandwidth <sup>(1)</sup>
Overvoltage Protection	• 115-140% Vnom, recycle input to reset
Overload Protection	• 110-160%
Short Circuit Protection	• Continuous trip and restart (hiccup mode)
Temperature Coefficient	• 0.05%/ $^{\circ}\text{C}$

## General

Efficiency	• Up to 88% model dependent
Isolation	• 4000 VAC Input to Output, 1500 VAC Input to Ground, 500 VDC Output to Ground,
Switching Frequency	• 65 KHz typical
MTBF	• 1057 kHrs, to MIL-HDBK-217F at $25^{\circ}\text{C}$ , GB

## Environmental

Operating Temperature	• $-40^{\circ}\text{C}$ to $+70^{\circ}\text{C}$ derate linearly from $+50^{\circ}\text{C}$ at 2.5%/ $^{\circ}\text{C}$ to 50% load at $+70^{\circ}\text{C}$ . See derating curves.
Cooling	• Convection-cooled (see tables)
Operating Humidity	• 95% RH, non-condensing
Storage Temperature	• $-40^{\circ}\text{C}$ to $+80^{\circ}\text{C}$
Operating Altitude	• 3048 m
Shock	• MIL-STD-810G, Method 516, Procedure 1 40g, 3 shocks, 6 axis, total 18 shocks, operational
Vibration	• MIL-STD-810G, Method 514, Procedure 1 (fig 514.5C-3 composite wheeled vehicle) 5 - 500Hz, 3 axis, operational.
Ingress Protection	• IP67

## EMC &amp; Safety

Emissions	• MIL-STD-461G - Ground Army, CE102. MIL-STD-461G - Ground Army, RE102. Figure RE102-3 fixed wing external 2MHz - 18GHz. EN55011/22 level B conducted EN55011/22 level A radiated
Harmonic Currents	• EN61000-3-2, class A
Voltage Flicker	• EN61000-3-3
Radiated Immunity	• EN61000-4-3, level 3 Perf Criteria A
EFT/Burst	• EN61000-4-4, level 3 Perf Criteria A
Surge	• EN61000-4-5, class 3 Perf Criteria A
Conducted Immunity	• EN61000-4-6, level 3 Perf Criteria A
Dips & Interruptions	• EN61000-4-11, Class 3
Other Immunity	• MIL-STD-461G - Ground Army, CS101, Conducted Susceptibility, Power Leads, 30 Hz to 150 kHz. - CS101-1 Curve #1 CS114, Conducted Susceptibility, Bulk Cable Injection, 10 kHz to 200 MHz CS114-1 Curve #2, CS115, Conducted Susceptibility, Bulk Cable Injection, Impulse Excitation. CS116, Conducted Susceptibility, Damped Sinusoidal Transients, Cables and Power RS103, Radiated Susceptibility, Electric Field, 2 MHz to 40 GHz. Table VII - Ground Limits

## Notes

1. Measured at the end of the output cable with 10  $\mu\text{F}$  electrolytic and 0.1  $\mu\text{F}$  ceramic capacitor.

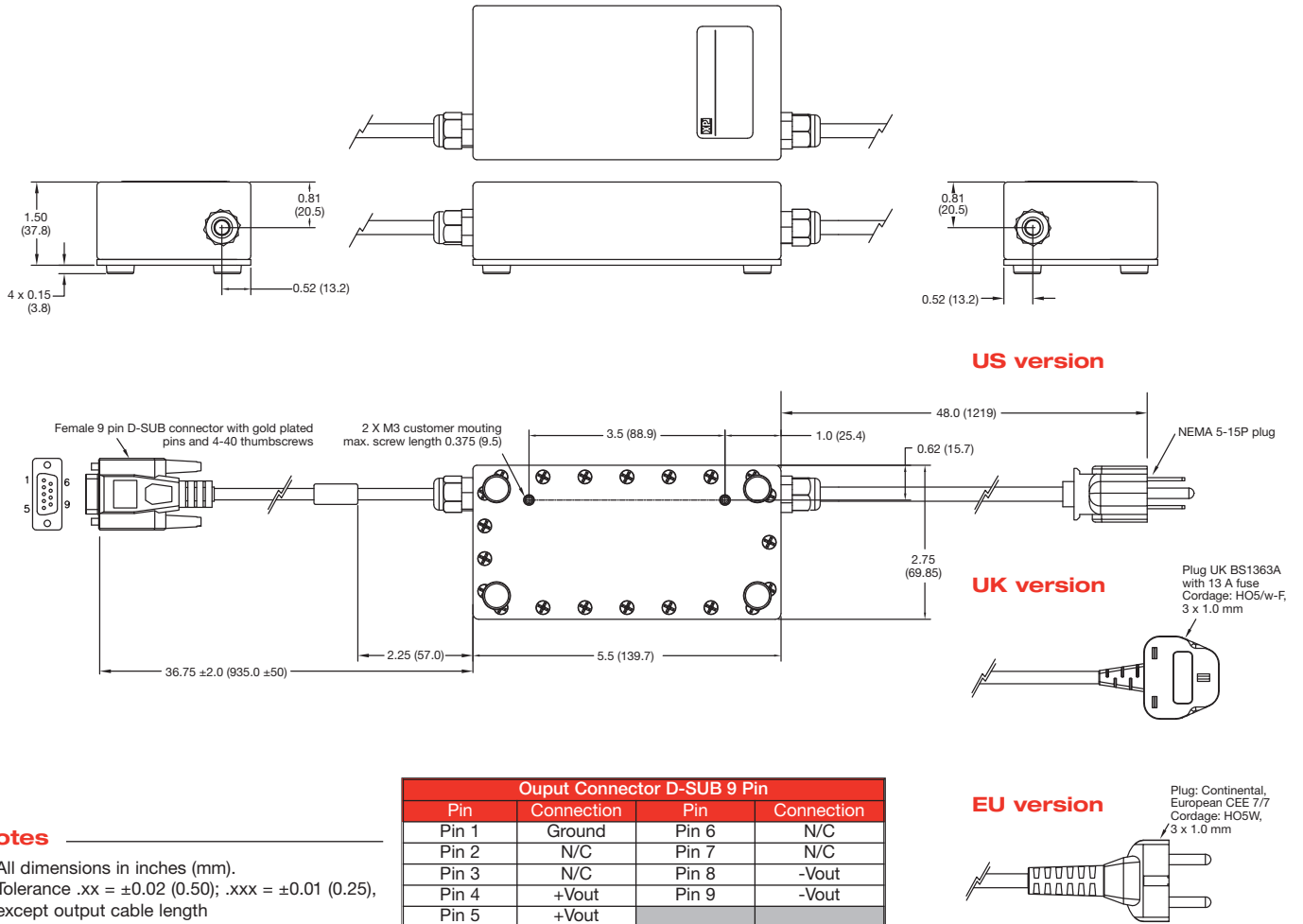
**Models and Ratings**

Output Power	Output Voltage	Output Current	Regulation	Model Number <sup>(1)</sup>
65 W	12.0 VDC	5.4 A	11.40V - 12.60V	MCS65US12-D9
65 W	15.0 VDC	4.3 A	14.25V - 15.75V	MCS65US15-D9
65 W	18.5 VDC	3.4 A	17.10V - 18.90V	MCS65US18-D9
65 W	24.0 VDC	2.7 A	22.80V - 25.20V	MCS65US24-D9
65 W	28.0 VDC	2.3 A	26.60V - 29.40V	MCS65US28-D9

**Notes**

1. These models are supplied with integral US style AC plug, for UK or EU alternatives add suffix -UK or -EU respectively e.g. MCS65US12-D9-EU.

**Mechanical Details**



**Notes**

- 1. All dimensions in inches (mm). Tolerance .xx = ±0.02 (0.50); .xxx = ±0.01 (0.25), except output cable length
- 2. Weight: 2.50 lbs (1.13 Kg)

**Derating Curves**

