# 65 Watts

# MCS Series



- Rugged Desktop Design
- 65 W – Convection–Cooled
- IP67 Ingress Protection
- Wide Operating Temp. Range –40°C to +70°C
- MIL–STD EMC, Shock & Vibration
- 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 ˚C |
| Power Factor | • EN61000-3-2, class A compliant |
| Earth Leakage Current | • 260 µA 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 | • ±0.2% after 20 min warm up |
| Total Regulation | • See table |
| Transient Response | • 4% max. deviation, recovery to within 1% in 500 µs for a 50-75-50% load change |
| Ripple & Noise | • 1% pk-pk, 20 MHz bandwidth[1] |
| 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%/˚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 ˚C, GB |

### Environmental

| | |
|---|---|
| Operating Temperature | • -40 ˚C to +70 ˚C derate linearly from +50 ˚C at 2.5%/˚C to 50% load at +70 ˚C. See derating curves. |
| Cooling | • Convection-cooled (see tables) |
| Operating Humidity | • 95% RH, non-condensing |
| Storage Temperature | • -40 ˚C to +80 ˚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 & Safety

| | |
|---|---|
| Emissions | • MIL-STD-461G - Ground Army, CE102. MIL-STD-461G - Ground Army, RE102. Figure RE102-3 fixed wing external 2MHz - 18GHz. EN55011/32 level B conducted EN55011/32 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, CE & UKCA meets all applicable directives & legislation. |

### Notes

1. Measured at the end of the output cable with 10 µF electrolytic and 0.1 µF ceramic capacitor.

## Models and Ratings

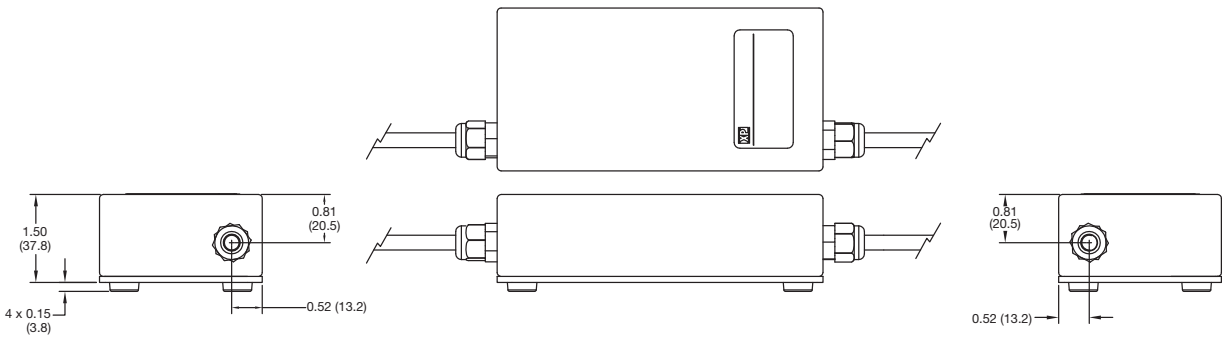
MCS65 XP

| Output Power | Output Voltage | Output Current | Regulation | Model Number[1] |
|---|---|---|---|---|
| 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 |

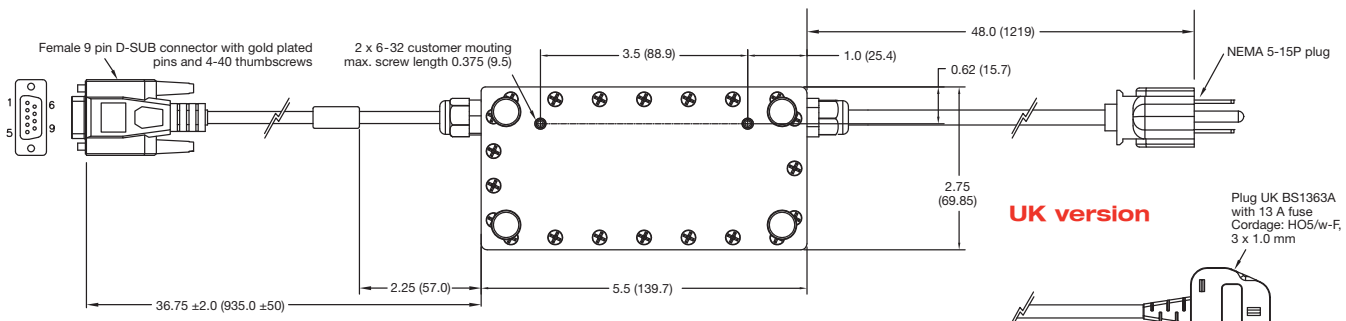
### Notes

*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



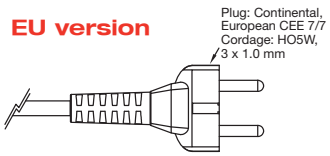

### US version




### UK version




### EU version




| Ouput Connector D-SUB 9 Pin | | | |
|---|---|---|---|
| Pin | Connection | Pin | Connection |
| Pin 1 | Ground | Pin 6 | N/C |
| Pin 2 | N/C | Pin 7 | N/C |
| Pin 3 | N/C | Pin 8 | -Vout |
| Pin 4 | +Vout | Pin 9 | -Vout |
| Pin 5 | +Vout | | |

### 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