

50W CONVECTION COOLED

AC-DC power supplies

The 50W VEC65 are energy efficiency level VI with 0.15W standby power, these desktop/ external AC-DC power supplies are limited power source (LPS) approved and are designed for high volume/low cost applications.

With class I construction the VEC65 are fitted with an IEC320-C14 inlet or optional IEC320-C6 and have a voltage input range of 90 to 264VAC.

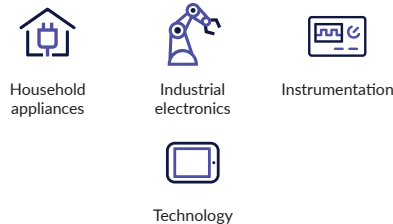
The DC lead is fitted with a centre positive 5.5 x 2.5mm barrel jack connector.



Features

- ▶ Regulated single outputs 12V to 24VDC
- ▶ Energy efficiency level VI
- ▶ CoC Tier 2
- ▶ Limited power source approved
- ▶ <0.15W standby power
- ▶ Optional inlet connector
- ▶ China compulsory certification (CCC) qualified
- ▶ High power density
- ▶ Low cost
- ▶ 0°C to +65°C operation
- ▶ 1 year warranty

Applications



Dimensions

116.3 x 52.4 x 31.3mm (4.58" x 2.06" x 1.23")

Models & ratings

| Model number | Output voltage | Output current | Total regulation | Efficiency ⁽¹⁾ | Output power |
|--------------|----------------|----------------|------------------|---------------------------|--------------|
| VEC65US12 | 12.0VDC | 4.16A | 120mV | 85% | 50W |
| VEC65US15 | 15.0VDC | 3.33A | 150mV | 86% | |
| VEC65US19 | 19.0VDC | 2.63A | 240mV | 88% | |
| VEC65US24 | 24.0VDC | 2.08A | 480mV | 88% | |

Notes:

1. Typical average of efficiencies measured at 25%, 50%, 75% and 100% load and 230 VAC input.

2. For optional IEC320-C6 inlet add suffix -C6 to the part number, e.g. VEC65US24-C6. MOQs apply, contact sales for details.

Input

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|-----------------------|---------------------------------------|---------|---------|-------|-----------------------------|
| Input voltage | 90 | | 264 | VAC | |
| Input frequency | 47 | | 63 | Hz | |
| Input current | | 1.0/0.7 | | A | Measured at 115/230 VAC |
| Inrush current | | | 110 | | 230VAC, cold start at +25°C |
| Power factor | EN61000-3-2 Class A | | | | |
| Earth leakage current | | | 0.7 | mA | 264 VAC, 60 Hz |
| No load input power | | | 0.15 | W | |
| Input protection | T3.15A/250V, fuse fitted in live line | | | | |

Output

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|--------------------------|---|---------|---------|----------|---|
| Output voltage | 12 | | 24 | VDC | See models & ratings |
| Minimum load | No minimum load required | | | | |
| Start up delay | | | 4 | s | |
| Start up rise time | | | 50 | ms | |
| Hold up time | 8 | | | ms | Full load and 115VAC |
| Line regulation | | | ±0.5 | % | |
| Total regulation | | | ±5 | % | Including initial set accuracy |
| Transient response | | | 4 | % | Maximum deviation, recovering to less than 1% within 500µs for 25% step load |
| Ripple & noise | | | 240 | mV pk-pk | Measured with 20MHz Bandwidth and 22µF electrolytic in parallel with 0.1µF ceramic capacitor. |
| Temperature coefficient | | ±0.004 | | %/°C | |
| Short circuit protection | Trip and restart (hiccup), auto resetting | | | | |
| Overshoot | | 5 | | % | At turn on / turn off |
| Overload protection | 110 | | 170 | % | |
| Overvoltage protection | | 175 | | | Recycle mains to reset |

General

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|---------------------------|--|------------|---------|--------|------------------------|
| Efficiency | | 89 | | % | |
| Isolation | | 3000 | | VAC | Input to output |
| | | 1500 | | | Input to ground |
| | Negative output is connected to ground | | | | Output to ground |
| Switching frequency | | 65 | | kHz | ±10kHz |
| Mean time between failure | | >200 | | khrs | MIL-HDBK-217F, 25°C GB |
| Weight | | 245 (0.54) | | g (lb) | |

Environmental

| Characteristic | Minimum | Typical | Maximum | Units | Notes & conditions |
|-----------------------|--|---------|---------|-------|---|
| Operating temperature | 0 | | +65 | °C | Derate from 100% load at +45°C to 50% load at +65°C |
| Storage temperature | -20 | | +85 | °C | |
| Cooling | Natural convection | | | | |
| Operating humidity | 5 | | 90 | % | RH, non-condensing |
| Shock | IEC68-2-27, 30g, 11ms half sine, 3 times in each of 6 axes | | | | |
| Vibration | IEC68-2-6, 10-500 Hz, 2g 10 mins/sweep, 60 mins for each of 3 axes | | | | |

EMC: Emissions

| Phenomenon | Standard | Test Level | Notes & conditions |
|-------------------|-------------|------------|--------------------|
| Conducted | EN55032 | Level B | |
| Radiated | EN55032 | Level B | |
| Harmonic currents | EN61000-3-2 | Class A | |
| Voltage flicker | EN61000-3-3 | | |

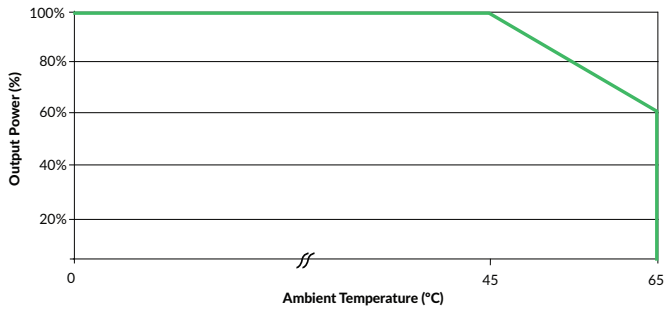
EMC: Immunity

| Phenomenon | Standard | Test Level | Criteria | Notes & conditions |
|------------------------|--------------|------------------------|----------|--------------------|
| ESD immunity | EN61000-4-2 | ±8kV Air, ±4kV contact | A | |
| Radiated immunity | EN61000-4-3 | 3V/m | A | |
| EFT/burst | EN61000-4-4 | Level 3 | A | |
| Surge | EN61000-4-5 | Inst. Class 3 | A | |
| Conducted | EN61000-4-6 | 3V | A | |
| Magnetic fields | | | | |
| Dips and interruptions | EN61000-4-11 | Dip: 30% 500ms | A/B | High line/low line |
| | | Dip: 60% 200ms | A/B | High line/low line |
| | | Int:100% 5000ms | B | |

Safety approvals

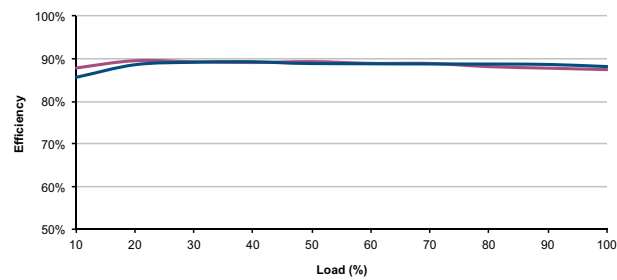
| Certification | Standard | Notes & conditions |
|---------------|--|--|
| UL | UL60950-1, UL62368-1 | Approved at Limited Power Source (LPS) |
| EN | EN60950-1, EN62368-1 | |
| CB | IEC60950-1, IEC62368-1 | |
| AU/NZ | AU/NZ 60950.1 | |
| CCC | China Compulsory Certification, GB4943 | |
| CE | Meets all applicable directives | |
| UKCA | Meets all applicable legislation | |

Derating curve

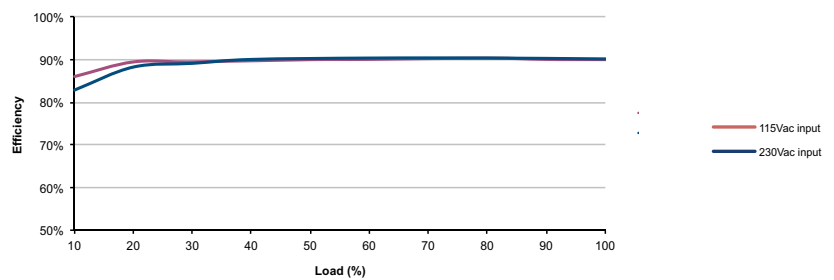


Efficiency curve

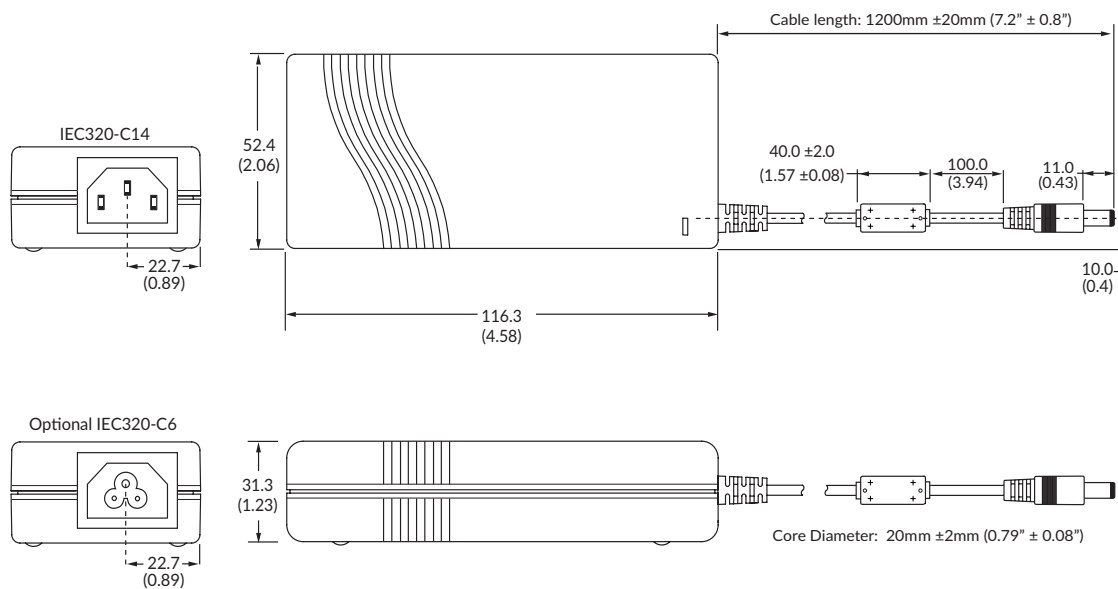
VEC65US12



VEC65US24



Mechanical details



Power Cord for C14 inlet, Order Part:
 UK - UK-MAINS-IEC
 European - EU-MAINS-IEC
 US - US-MAINS-IEC

Power Cord for C6 inlet, Order Part:
 UK - UK-MAINS-5
 European - EU-MAINS-5
 US - US-MAINS-5

Notes:

- All dimensions are shown in mm (inches), Tolerance is ±1.0 (0.04") max except output lead.
- Weight: 245g (0.54lbs) approx.
- Output connector is barrel type with 11mm length, 5.5mm dia. outer, 2.5mm dia. inner with center + and outer shell - polarity.

Specifications subject to change without notice.