



PLEASE READ THIS INSTALLATION MANUAL CAREFULLY BEFORE INSTALLING THIS PRODUCT AND KEEP THIS MANUAL FOR FUTURE REFERENCE.

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Important installation information

This VCCM600 series of configurable power supplies are intended for use within end customer applications which restrict access to un-authorized personnel. The instructions in this manual and all warning labels on the product must be adhered to carefully.

| | | | | | | | | |
|-------------------------------|---|---------------------|--|-----------------------|--|---------------|---|---|
| SAFETY | The VCCM600S and VCCM600M series are designed in accordance with the relevant safety requirements of IEC/EN/UL/CSA 62368-1, IEC/EN/UL/CSA 60950-1, IEC/EN/UL/CSA 60601-1, Low voltage Directive LVD 2014/35/EU and EMC directive EMC 2014/30/EU. All VCCM600 series power supplies must be installed correctly in a controlled environment which restricts access to any un-authorized personnel. Equipment and system manufacturers must protect service personnel against unintentional contact with the output terminals. | | | | | | | |
| HAZARDS | Dangerous voltages are present within the power supply. It should only be handled by qualified personnel when the power supply has been disconnected from the mains supply voltage for more than 3 minutes. External surfaces of the power supply may become extremely hot during and after operation. Appropriate care should be taken. If series and/or parallel combinations of outputs exceed safe voltage and/or energy levels, the final equipment manufacturer must provide the appropriate protection for both users and service personnel. | | | | | | | |
| DE-RATINGS | <table border="1"> <tr> <td>Ambient Temperature</td> <td> <ul style="list-style-type: none"> The input module power must be de-rated by 2.5%/°C above 50°C ambient up to a maximum ambient temperature of 70°C. </td> </tr> <tr> <td>Baseplate Temperature</td> <td> <ul style="list-style-type: none"> The output module power and current must be de-rated by 2.5%/°C above 85°C baseplate up to a maximum baseplate temperature of 105°C. </td> </tr> <tr> <td>Input Voltage</td> <td> <ul style="list-style-type: none"> The input module power must be de-rated by 5W/V_{RMS} below 120 V_{RMS} (600W @ 120 V_{RMS}, 450W @ 90 V_{RMS}) </td> </tr> </table> | Ambient Temperature | <ul style="list-style-type: none"> The input module power must be de-rated by 2.5%/°C above 50°C ambient up to a maximum ambient temperature of 70°C. | Baseplate Temperature | <ul style="list-style-type: none"> The output module power and current must be de-rated by 2.5%/°C above 85°C baseplate up to a maximum baseplate temperature of 105°C. | Input Voltage | <ul style="list-style-type: none"> The input module power must be de-rated by 5W/V_{RMS} below 120 V_{RMS} (600W @ 120 V_{RMS}, 450W @ 90 V_{RMS}) | Remember to take the appropriate de-rating into consideration before specifying any VCCM600 power supply for an application. If in any doubt, please contact Vox Power directly or your local Vox Power representative. |
| Ambient Temperature | <ul style="list-style-type: none"> The input module power must be de-rated by 2.5%/°C above 50°C ambient up to a maximum ambient temperature of 70°C. | | | | | | | |
| Baseplate Temperature | <ul style="list-style-type: none"> The output module power and current must be de-rated by 2.5%/°C above 85°C baseplate up to a maximum baseplate temperature of 105°C. | | | | | | | |
| Input Voltage | <ul style="list-style-type: none"> The input module power must be de-rated by 5W/V_{RMS} below 120 V_{RMS} (600W @ 120 V_{RMS}, 450W @ 90 V_{RMS}) | | | | | | | |
| HEALTH AND SAFETY | To comply with section 6 of the health and safety at work act, a label that is clearly visible to service personnel must be placed on the final equipment. These labels warn that surfaces of the power supply may be hot and should not be touched when the product is operating. | | | | | | | |
| FUSING | The power supply has internal dual pole fusing. One fuse in each line. Fuses are not replaceable. Damaged units should be returned to Vox Power for analysis and repair. DC operation is not covered by safety approvals. Contact Vox Power for details. | | | | | | | |
| SERVICING | The power supply contains no user serviceable parts. Repairs must be carried out by authorised personnel only. Contact Vox Power for further information. | | | | | | | |
| APPROVAL LIMITATIONS | NORTH AMERICA - When this product is used with 180V _{AC} -253V _{AC} mains where no neutral is present, connect the two live wires to L (Live) and N (Neutral) on the input connector. | | | | | | | |
| COOLING | For proper operation of the power supply, the user must ensure sufficient cooling to maintain all component temperatures within specifications. A thorough review of the user manual should be carried out for details of thermal performance. | | | | | | | |
| EARTH TERMINAL MARKING | To comply with the requirements of IEC/EN/UL/CSA 62368-1, IEC/EN/UL/CSA 60950-1 & IEC/EN/UL/CSA 60601-1, where the incoming wiring earth is intended for connection as the main protective earth conductor and where the terminals for such a connection is not supplied on a component or subassembly, the user shall add an appropriate label displaying a protective earth symbol in accordance with IEC60417-5019 (2006-08) directly adjacent to the terminal. The label should be durable and legible and should withstand the 15 second rub test as per UL60950-1 section 1.7.15. | | | | | | | |
| WARRANTY | Contact your sales agent or Vox Power for product repairs. See Vox Power standard terms and conditions for warranty conditions. | | | | | | | |
| PRODUCT LABELS | The external product label contains information relevant to the power system. The label contains input voltage, maximum input current, input frequency, maximum output power, fuse rating and type, serial number, approvals and product part number in form VCCM600x-yyyy-zzz. | | | | | | | |
| VCCM OUTPUT MODULES | Each output module label contains information relevant to that output. The label contains voltage adjustment range, maximum output current, serial number, approvals and the part number in format OPx. | | | | | | | |
| OTHER | <ul style="list-style-type: none"> A label warning that external surfaces are hot during operation and that the unit should be allowed to cool down properly should be placed on the unit where such a label is clearly visible. The VCCM600 series is designed to comply with EMC standards but it does not imply that the end system will comply. To prolong the life of the unit, use in dust free environment. Units can sometimes be damaged during transit. In the event of transit damage, DO NOT connect power to the unit. Contact your sales agent or Vox Power. Always use adequately sized cables and ensure good crimp connections. Use cable supports to minimise stress on connectors. Avoid excessive shock or vibration. | | | | | | | |

Specifications

| INPUT MODULE SPECIFICATION SUMMARY | | | | | |
|------------------------------------|--|-----|---------|-----|------------------|
| Parameter | Details | Min | Typical | Max | Units |
| AC Input Voltage | Nominal range is 100V _{RMS} to 240V _{RMS} | 85 | | 264 | V _{RMS} |
| AC Input Frequency | Contact factory for 400Hz operation. | 47 | 50/60 | 63 | Hz |
| DC Input Voltage | Not covered by safety approvals. Contact Vox Power. | 120 | | 370 | V _{DC} |
| Output Power Rating | De-rate linearly from 600Watts at 120V _{RMS} to 425Watts at 85V _{RMS} | | | 600 | Watts |
| Input Current | 600Watts output at 120Vrms input | | | 6 | Amps |
| Fusing | Each line fused (5x20 Fast acting) | | | 8 | Amps |
| Power Factor | | | 0.99 | | |
| Size | 177.8 (L) x 101.6 (W) x 41.0 (see diagram for tolerance details) | | | | mm |
| Weight | 650 + 100 per output module | | | | Grams |
| Note 1. | VCCM input modules can only be used with VCCM output modules and must not be used for any other purpose. | | | | |
| Note 2. | Only use a power source of the type indicated on the product label. | | | | |

| OUTPUT MODULE SPECIFICATION SUMMARY | | | | | | | | | | |
|-------------------------------------|--|------------|------|----------------|-------------|------------|-----------|-----------|------------|---------------------|
| MODEL | Output Voltage | | | Output Current | Rated Power | Peak Power | Load Reg. | Line Reg. | Cross Reg. | Ripple & Noise |
| | Min. | Nom. | Max. | | | | | | | |
| OPA | 1.5V | 5V | 7.5V | 25A | 125W | 187.5W | ±50mV | ±5mV | ±10mV | 50mV _{PP} |
| OPB | 4.5V | 12V | 15V | 15A | 150W | 225W | ±100mV | ±12mV | ±24mV | 120mV _{PP} |
| OPC | 9V | 24V | 30V | 7.5A | 150W | 225W | ±150mV | ±24mV | ±48mV | 240mV _{PP} |
| OPD | 18V | 48V | 58V | 3.75A | 150W | 217.5W | ±300mV | ±48mV | ±96mV | 480mV _{PP} |
| Note 1. | VCCM output modules can only be used with VCCM series input modules and must not be used for any other purpose. | | | | | | | | | |
| Note 2. | VCCM output modules must be used within their ratings at all times. Please review product datasheet and user manual for further information. | | | | | | | | | |

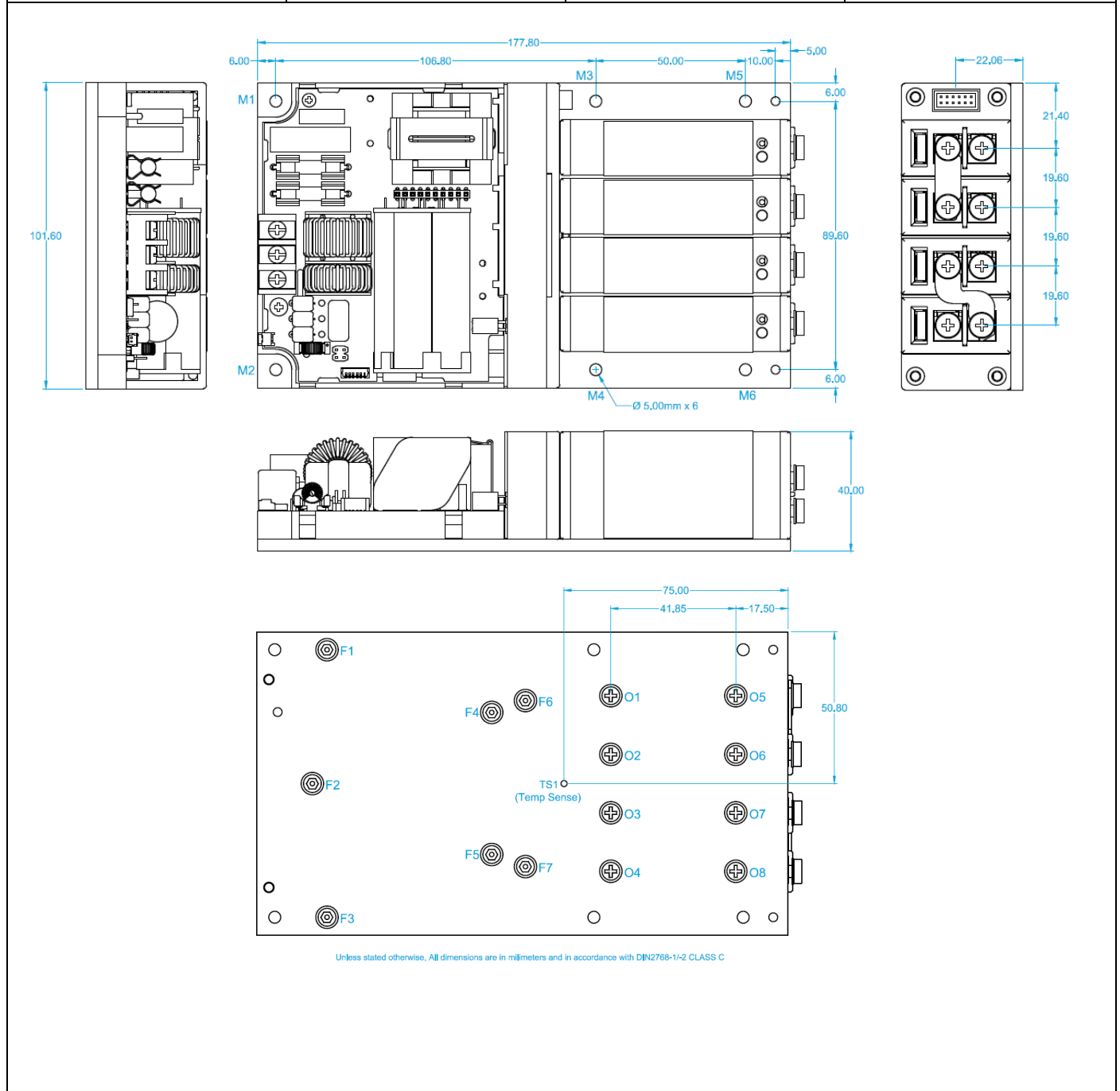
| SAFETY SPECIFICATIONS | | | | |
|-------------------------|--|--------|-----------------|----------------|
| Parameter | Details | Max | Units | Notes |
| Isolation Voltages | Input to Output (2 MOPP) | 4000 | V _{AC} | |
| | Input to J2 standby control (2 MOPP) | 4000 | V _{AC} | |
| | Input to Chassis (1 MOPP) | 1500 | V _{AC} | |
| | Global signals (J3) to Output/Chassis | 500 | V _{DC} | |
| | Output to Output/Chassis (Standard modules) | 500 | V _{DC} | |
| Earth Leakage Current | INDUSTRIAL: Normal condition, 264Vac, 63Hz, 25°C | 1500 | uA | |
| | MEDICAL: Normal condition, 264Vac, 63Hz, 25°C | 200 | uA | |
| Touch Leakage Current | Standard modules NC/SFC | 20/200 | uA | |
| Patient Leakage Current | Standard modules 264Vac, 63Hz, 25°C NC/SFC | ----- | uA | Not applicable |

| INSTALLATION SPECIFICATIONS | | | |
|-----------------------------|-----------------------|----------------------------|-------------------------------------|
| Parameter | Details | Parameter | Details |
| Equipment class | I | Flammability Rating | 94V-2 |
| Overvoltage category | II | Ingress protection rating | IP10 |
| Material Group | IIb (indoor use only) | ROHS compliance | 2011/65/EU |
| Pollution degree | 2 | Intended usage environment | Home Healthcare (M)/ Industrial (S) |

| ENVIRONMENTAL SPECIFICATIONS | | | | | | |
|------------------------------|--|-----------------|-----------|--------------------|----------|--------------------------------------|
| Parameter | Details | Non-Operational | | Operational | | Units |
| | | Min | Max | Min | Max | |
| Air Temperature | Operational limits subject to appropriate de-ratings | -51 | +85 | -40 ⁽¹⁾ | 70 | °C |
| Humidity | Relative, non-condensing | 5 | 95 | 5 | 95 | % |
| Altitude | | -200 | 5000 | -200 | 3000 | m |
| Shock | EN 60068-2-27: Half sine, 3 axes, 3 positive & 3 negative. 810G: Method 516.6, Procedure IV, Transit drop | | 50, 11 | | 30,18 | g, mS |
| Vibration | EN 60068-2-6: Sine, 10 – 500 Hz, 3 axes, 1 oct/min., 10 cycles each axis | | | | 2 | g |
| | EN 60068-2-64: Random, 5 – 500 Hz, 3 axes, 30 min. | | 0.02,2.56 | | 0.0122,1 | g ² /Hz, g _{RMS} |
| | 810G: Method 514.6, Procedure I (General Vibration) | | | | | |
| | Category 4 (Trucks & Trailers, Composite wheeled vehicle), Figure 514.6C-3. Category 7 (Aircraft, Jet cargo), Figure 514.6C-5 General exposure Category 24, (All, Minimum integrity) Figure 514.6E-1 | | | | | |
| Thermal shock | MIL-STD-810G Method 503.5 Procedure I-C. Multi-cycle. 3 shocks. | -51 | 85 | | | °C |
| Notes | 1. Some specifications may not be met below -20°C. | | | | | |

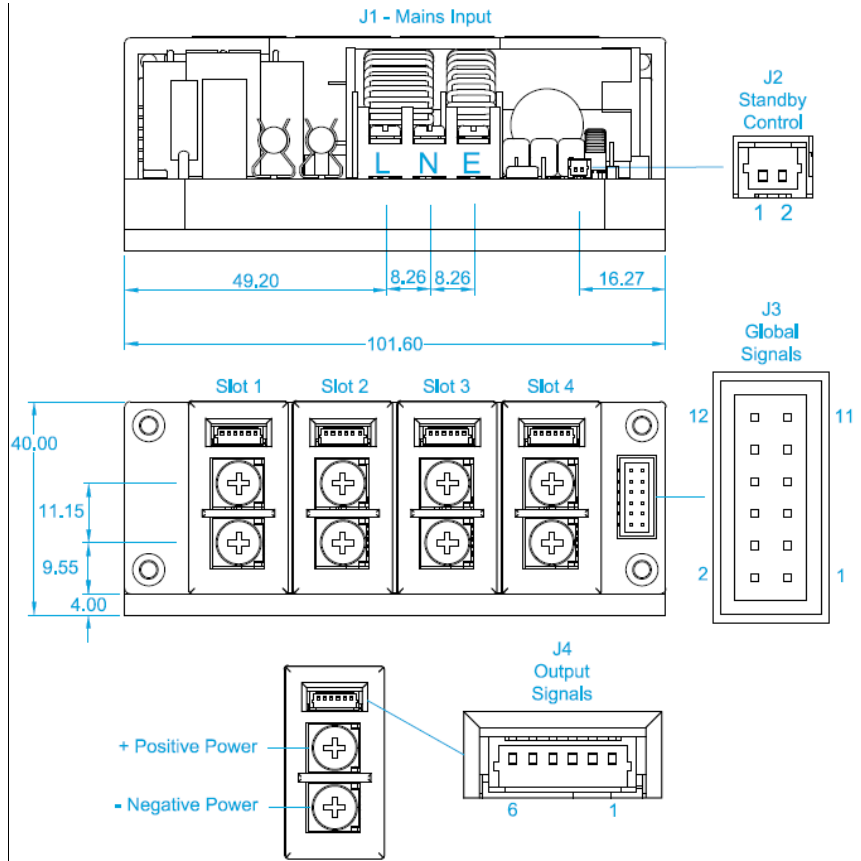
Mechanical Dimensions and Mounting

| SCREWS | | | |
|-----------------------------------|----------------------------|------------------------------|-------------------------|
| Location | Details | Penetration | Tightening |
| Baseplate Mount: M1 – M6 | Hole size, Diameter 5.00mm | 4mm Baseplate thickness | 0.55NM |
| Output Module Mount: O1 – O8 | M3 CSK | M3 CSK screw, 8mm max length | 0.5NM |
| Input module Mount: F1 – F5 | Do not remove or adjust | Do not remove or adjust | Do not remove or adjust |
| Transformer module Mount: F6 – F7 | M3 CSK | M3 CSK screw, 6mm max length | 0.5NM |
| Output Module Terminal | M4 SEM | M4 SEM screw, 8mm max length | 0.55NM |



Connector details

| PINOUTS | |
|-----------------------------|---------------------------------------|
| Circuit | Details |
| J1 – Mains Input | |
| 1 | Live |
| 2 | Neutral |
| 3 | Earth |
| J2 – Standby control | |
| 1 | Standby control negative |
| 2 | Standby control positive |
| J3 – Global Signals | |
| 1 | Slot 4 - Power Good |
| 2 | Slot 4 - Inhibit |
| 3 | Slot 3 - Power Good |
| 4 | Slot 3 - Inhibit |
| 5 | Slot 2 - Power Good |
| 6 | Slot 2 - Inhibit |
| 7 | Slot 1 - Power Good |
| 8 | Slot 1 - Inhibit |
| 9 | Temperature sense (T _{SNS}) |
| 10 | AC OK |
| 11 | +5V (Bias Supply 1A) |
| 12 | COM |
| J4 -Output Signals | |
| 1 | - Sense |
| 2 | + Sense |
| 3 | COM |
| 4 | I Control |
| 5 | V Control |
| 6 | +5V (Bias Supply 10mA) |



| MATING CONNECTORS | | | | |
|----------------------|--|--------------|------------|------------|
| Ref. | Details | Manufacturer | Housing | Terminal |
| J1 - Mains Input | 3 Pin, Barrier, 6-32 Steel Screws, 0.8 Nm or 7 Lb-In Torque ⁽¹⁾ | | | |
| J2 - Standby control | 2 Pin, 1.25mm, with Friction Lock, 28-30AWG | MOLEX | 0510210200 | 0500588000 |
| J3 - Global Signals | 12 Pin, 2mm, with Friction Lock, 24-30 AWG, WIRE TO BOARD | MOLEX | 0511101260 | 0503948051 |
| | 12 Pin, 2mm, with Friction Lock, 24-30 AWG, IDT CABLE TO BOARD | MOLEX | 0875681273 | |
| J4 - Output Signals | 6 PIN, 1.25mm, with Friction Lock, 28-30AWG | MOLEX | 0510210600 | 0500588000 |
| Output Power | Positive/Negative, M4 terminal, 0.55Nm, use appropriately rated crimp terminal | | | |

Notes

1. Cable 14-18AWG, 300V, 16A, 105°C, use appropriately rated crimp terminal.
2. Direct equivalents may be used for any connector parts.
3. All cables must be rated 105°C min, equivalent to UL1015

PART NUMBERS AND ORDERING INFORMATION

