

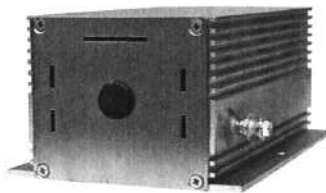
# PRODUCT ADVICE SHEET

## Universal Power / VSD Controllers

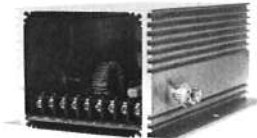
Model RC10x series



SB ver for switchboards



Std ver - stand-alone



IP65 ver



### FEATURES

- **VSD** Remote electronic speed control in fan, blower, pump or applications where the torque varies with speed. Load independent speed control of universal & shaded pole motors.
- **Energy efficient 3-wire PSC** motor configuration. 2 separate outputs for main / auxiliary windings. Can also be connected as simple 2-wire system.
- **Power Control.** Remote stepless electronic power control of resistive loads eg - lamps & heaters.
- **Multiple & dissimilar loads** accommodated.
- **EMI Filters built in.** Ctick approved - no external filters required.
- **Selectable input** 0-10 VDC or 0 - 20ma control signal with adjustable min / max levels.
- **Factory calibrated** for most fans or pumps.
- **Easy custom calibration** internal test source & simple range (span & offset) adjustments.
- **Auto OFF at low signal levels** <0.8V/1.5ma
- **Double isolation** of control signal and mains circuitry via transformer and opto-isolation.
- **Range of power ratings** 1200 VA - 7200 VA.
- **Custom applications.** Specific control parameters, interfaces, environmental probes.
- **RoHS** compliant and Ctick approved.
- **3 different footprint versions**  
Std for stand-alone. SB for switchboards. IP65

### SPECIFICATIONS

### Model RC10x series Universal Power / VSD Controllers

<b>APPLICATIONS</b>	Speed control of most single phase PSC motors with loads such as fans, centrifugal pumps or where the torque of the load varies with speed. Can also control shaded pole / universal motors irrespective of load. Remote stepless power control of all general resistive and inductive loads such as lamp, heating elements or transformers. Multiple & dissimilar loads can be accommodated simply by connecting in parallel.
<b>TECHNICAL BASIS</b>	Phase angle control of AC mains. <b>Std D version</b> - dual outputs for small, medium and large PSC motors and all other types of loads that require main & auxiliary control outputs. <b>B version option</b> - single output for small PSC motors connected as 2-wire, universal and shaded pole motors, lamps, heaters and transformers. Standard proportional control via 0-10 V or 0-20ma DC control signal.
<b>RATINGS</b> RMS continuous	Single phase 240 V AC (+10/-. 20%) 50 Hz. Also available for 110V 60 Hz. Ex stock: <b>RC105</b> - 1200 VA 5A <b>RC108</b> - 2000 VA 8A <b>RC110</b> - 2400 VA 10A. Special order: <b>RC115</b> 3600VA 15A <b>RC120</b> 5000VA 20A (larger sizes also available) Main variable output rated to full rated power and can be varied between ~20 and 100%. Auxiliary output is zero voltage solid state switched and can be rated up to 100% rated power. Total controlled plus auxiliary output power should not exceed 100% of maximum controller rated power. Environmental: up to 50°C in free air for RC105 & RC108 (no de-rating required). For RC110 to RC130 de-rate (max VA) by 1.6% x "max VA rating" per °C above 35°C. Max case temp for all models 65 °C.
<b>PROTECTION</b>	Surge protection network incorporated on board for over voltage / noise spikes. Control circuit for remote control signal operates at 12 volts DC and is totally isolated from the supply mains / load power circuit by a double insulated fully encapsulated BS415 rated transformer and a 5000V opto coupler between control input & power output. Generous power design parameters - controller designed for PSC motor starting and reasonable short term overload conditions. On-board replaceable fuse in ~L line. External DB MCB overload / isolation protection recommended for motor load is usually adequate to protect controller.
<b>CONTROL INPUTS</b>	0-10 volts terminals <b>B</b> (+ve) & <b>C</b> with input resistance 1 Mohm. 0-20ma on terminals <b>B</b> (+) & <b>C</b> sink resistance 500 ohm. An internal 10V DC source (max 50 ma) is provided between terminals <b>A</b> (+) & <b>C</b> which can be used for custom remote control applications, a potentiometer or testing.
<b>AUTO TURN-OFF</b>	At low control levels, the controller is designed to shut down the main control output (ver B) or main control and auxiliary outputs (ver D). Normal operation resumes at higher control levels. Auto turnoff occurs at < 0.8 VDC for voltage input, ~<5% for a potentiometer, < 1.5 ma for 0 - 20 ma. Other options available.
<b>COMPLIANCE</b>	Fitted with internal Electromagnetic Interference suppression network, and complies with AS/NZS CISPR 14.1:2003 when correctly installed. ACA C-Tick lev 2 <b>N29529</b> . ROHS compliant.

<b>MOUNTING &amp; CASE OPTIONS</b>	<b>Standard</b> Version. Extruded aluminium. Removable aluminium end plates held in place with cs self tap screws. One end plate for terminal access & cable entry, the other for setting potentiometers. Terminals horizontal and cable entry vertical. <u>Dimensions</u> for Std and SB versions: IP31. 174Lx114Wx74D fixing width 111mm wt 0.8 – 1.1Kg dependant on model <b>SB</b> Version. Switchboard version with single top mounted access plate. Horizontal slot cable entry and vertical terminals. <b>IP65</b> Version. 221L x 145W x 82D 2 part enclosure. Electronics in lid - base free for mounting / drilling / cable entry. IP65 rated cable / glands / cable entry system <b>MUST</b> be used to maintain IP65 rating.
<b>SETTING &amp; ADJUSTMENT</b>	A user selectable 0-20ma control input can be selected on the PCB via a miniature link plug. Span and Offset – two preset potentiometers permit the user to custom calibrate maximum and minimum motor speeds over a range of control inputs. A switchable internal calibration source with a 3rd preset potentiometer can be used to set up and test the installation without needing an external control signal. Two test pins are provided to monitor the control signal during set-up or testing using an external DC voltmeter. Factory calibration is 1VDC for an output of ~120 VAC (RMS) which is ~32% of power or ~38% of most motors maximum speed and 9.2 VDC for an output ~238 (234 for 2-wire) VAC (RMS) which is ~98% of power / maximum speed. Control input protected for voltages >10 VDC.
<b>OPTIONS</b> Specify at the time of ordering	<b>Mounting Case Options</b> – specify suffix <b>SB</b> for switchboard or <b>IP</b> for IP protected versions. <b>B version:</b> only 1 auto-off control output (universal motor, heaters, lighting, transformer loads) specify suffix <b>B</b> eg RC105B <b>Input:</b> Other current or voltages as control input. Eg 0-15V. <b>Pressure Sensors:</b> for proportional or inverse proportional control of air pressure. <b>Temperature Sensors:</b> for proportional or inverse proportional control of air temperature. <b>Airflow Sensors:</b> for proportional or inverse proportional control of air flow. <b>Protection:</b> Automatic over-temperature shutdown/re-start. <b>Set-point controller:</b> ancillary board allows RC10x to function as a pid set-point controller with set-point adjuster and LED bar-graph level display. (available mid 2011)
<b>WARRANTY / RELIABILITY</b>	Powerform controllers are built for long service life and carry a 12/18 month warranty. They have been proudly designed & manufactured in Australia for 30 years using pragmatic design criteria and high grade components. Appropriate quality control is ensured throughout their manufacture. Powerform Controls has a commitment to on-going research and development of its product lines. As of 1st July 2006 all our products were RoHS compliant.
<b>CONNECTION</b>	Internal 300 VAC 30A UL95V0 5-way terminal strip with screw wire protection terminals able to take up to 2 x 2.5mm <sup>2</sup> or a 1 x 4mm <sup>2</sup> conductors. Control input has smaller 300 VAC 5A UL95V0 3-way terminals. Cable entry plate has 2x10 & 1x4mm neoprene grommets or can be specified as blank for customer specific gland / entry requirements. <b>CONTROL SIGNAL</b> <b>B</b> = +ve signal <b>C</b> = -ve or ground <b>A</b> = +10 volts constant voltage source (max 50ma) <b>INPUT/OUTPUT:</b> terminal block mounted inside enclosure end plate marked <b>Mm Ma Mc L Lc</b> . <b>Mm</b> Controlled Output. (Motor main) Up to 100% of total load. NB controlled + aux not to exceed 100% rated VA <b>Ma</b> Auxiliary Switched Output (Motor aux for 3-wire control). Up to 100% of total load <b>Mc</b> Common output Note: Mc & Lc are internally connected. Connection of Mc optional if external common used. <b>L</b> – Mains input <b>Lc</b> – Mains common input <b>Scrn</b> – miniature control signal screen earth terminal provided

## WIRING DIAGRAM

NB 3-wire for all RC108, RC110, RC115, RC120 controllers

