PHILIPS

dynalite

DRC1205

12 x 5A Relay Controller
Installation Manual

contents

WMGD Pty Limited trading as Dynalite ABN 33 097 246 92
Unit 6, 691 Gardeners Road Mascot NSW 2020 Australia
t +61 8338 9899 f +61 2 8338 9333 dynalite.info@philips.com Philips.com/dynalite

Warning

- TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK, DO NOT EXPOSE THIS DEVICE TO RAIN OR MOISTURE.
- DO NOT ENERGISE UNLESS THE FRONT COVER IS IN PLACE.
- THIS DEVICE MUST BE EARTHED.
- INSTALLATION, PROGRAMMING AND MAINTENANCE MUST BE CARRIED OUT BY QUALIFIED PERSONNEL

features

- **Single / Three Phase Supply**
  Simple supply requirement, 60A single phase. Or by removing the phase link bus can be fed with 3 x 20A phases.
- **12 Relay Outputs**
  Each output is capable of switching up to 5A resistive load. Each channel has a LED indicator making fault finding easy.
- **MCB Protection**
  Each group of 4 outputs is protected by a 20A single pole magnetic circuit breaker.
- **Convection Cooled**
  This device is naturally aspirated, requiring no mechanical cooling system when installed in accordance with these instructions.
- **Many Control Options**
  Control of this device can be from a combination of available methods, eg. serial control port, relay contacts, push button wall stations, infra red receivers and timeclocks. Easy high level interface to other popular AV control systems and Building Management Systems (BMS) is also available.
- **Simple Installation**
  Wall mount enclosure with mounting lugs facilitate installation. Cable knockouts are provided, at the top of the enclosure for supply and load cables, with low voltage (LV) control at the bottom.

important safeguards

Warning – This is a class A product. In a domestic environment this product may cause radio interference, in which case the user may be required to take adequate measures.

Read the Instructions – We recommend that you read this Instruction Manual prior to commencement of installation.

Troubleshooting – If problems are encountered, read the troubleshooting section on page 8.

Special Programming – Once powered and terminated correctly this device will only operate in basic mode. A new Dynalite panel will turn on all lighting channels from button 1 and turn off from button 4 if network terminations are correct. Only once the full network is test correct can commissioning begin. Advanced functions can be commissioned via Envision software. If commissioning is required, contact your local distributor for details.

Check Connections – Treat this device as a switchboard that has been shipped. Tighten all load carrying screw connections, as vibrations from transport can cause MCB and terminal block screws to become loose.

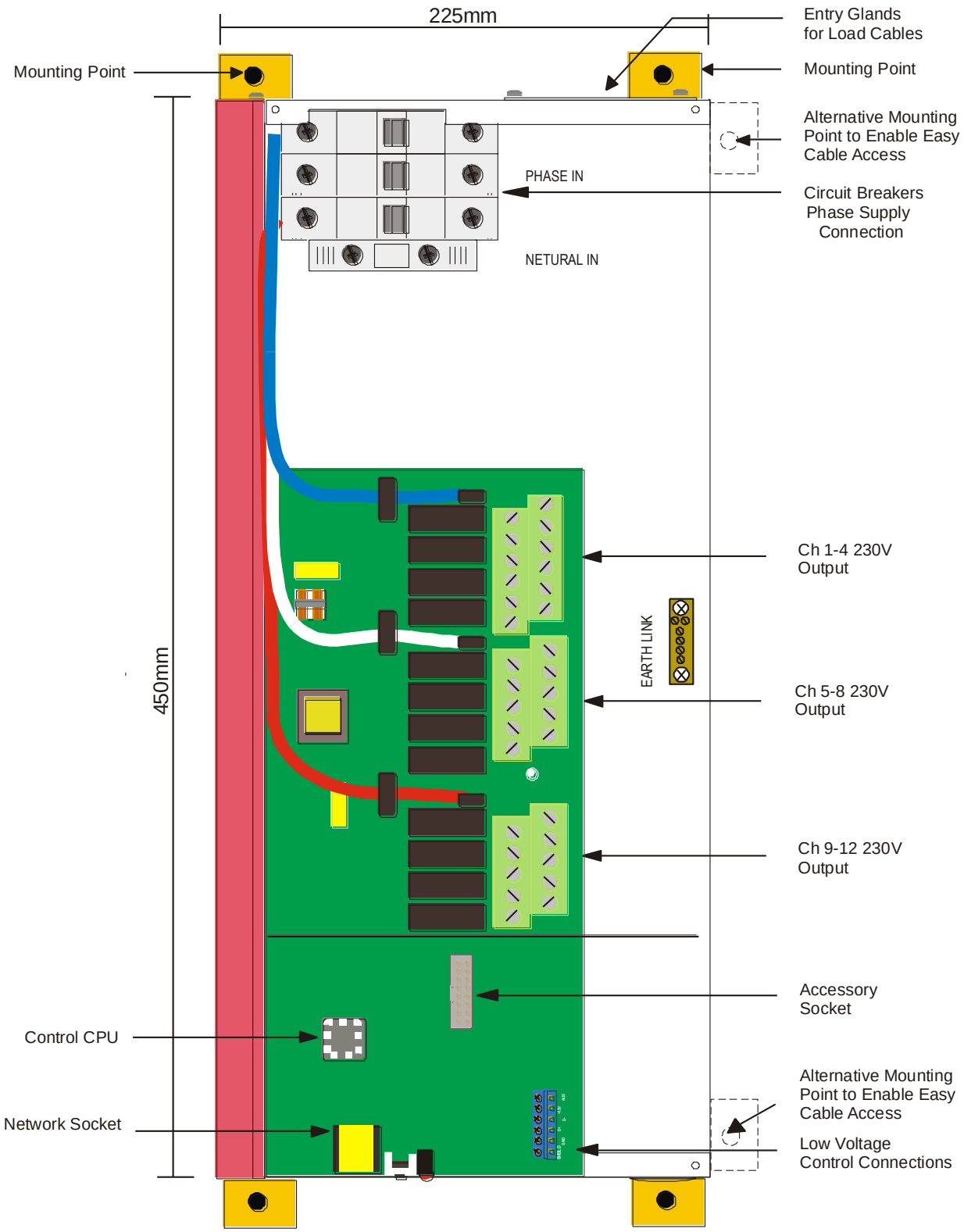
Power Sources – This device should only be operated from the type of supply specified on the front panel. This device *must* be earthed.

Output Circuits – The load on a circuit should not exceed the specified capacity of 5A. Loads should be calculated to ensure that the overall maximum capacity of 60A is not exceeded. Some types of load will need to be de rated.

Megger Testing – Do not megger test any circuitry connected to the dimming system, as damage to the electronics may result.

Mounting Location – This device must be mounted right way up, on a vertical surface (refer to page 4 for mounting instructions). The specified minimum clearance of 100mm for all sides must be adhered to. Install in a dry, well-ventilated location. Controllers may emit some mechanical noise. Take this into account when deciding the mounting location.

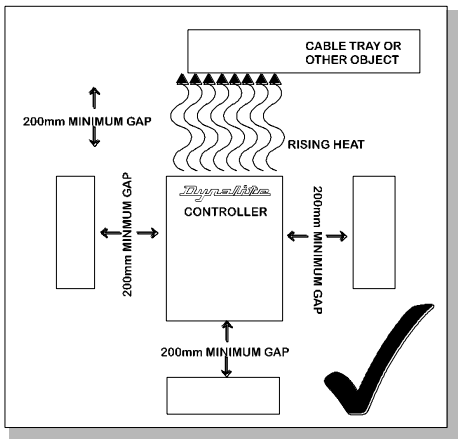
Data Cable – The recommended cable for connections to the serial port is screened, stranded RS485 data cable with three twisted pairs. Part numbers for various manufacturers are listed on page 6. This cable should be segregated from mains cables by a minimum distance of 300mm. If anticipated cable runs are over 600 metres for serial cables or 12 metres for analogue cables, consult your dealer for advice. Do not cut or terminate live data cables.

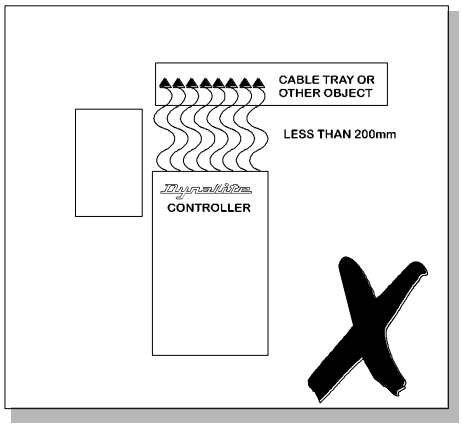


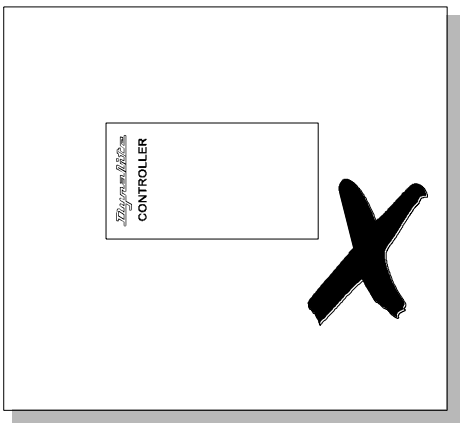
For spare parts, please call your nearest Philips Dynalite Customer Service Centre, and specify:

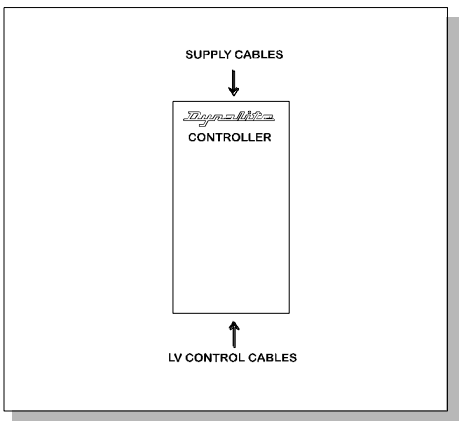
DRC1205

mounting









Select A Suitable Location

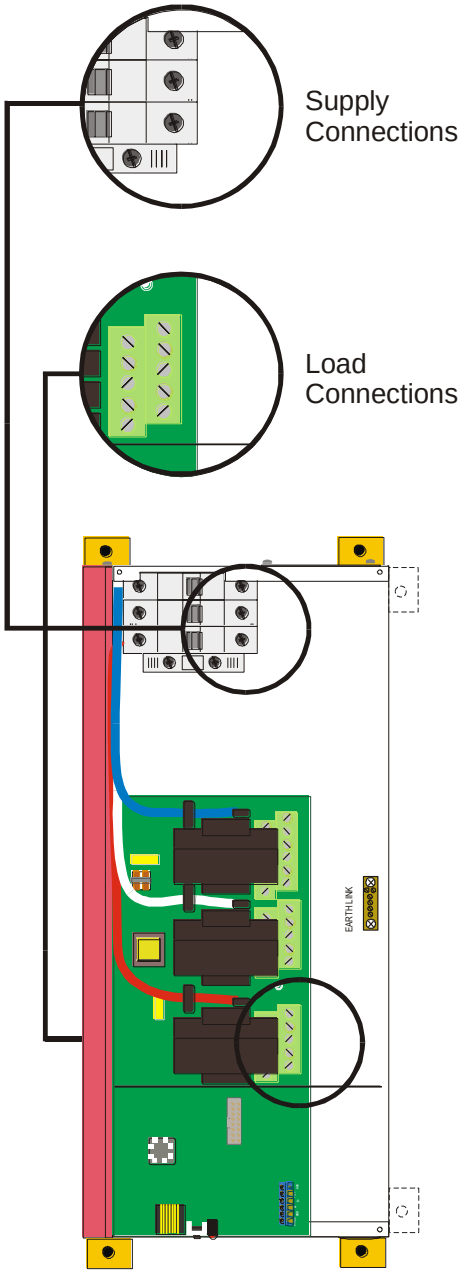
This device is designed for indoor use only. If installing in an external location, the DRC1205 must be housed in a suitable well ventilated enclosure. Choose a dry location that will be accessible after the installation is complete. To ensure the cooling system functions correctly, the DRC1205 should only be mounted *vertically, the right way up*. An air gap of 100mm on each side and at the top and bottom of the device should be maintained to ensure serviceability of the DRC1205 without complete removal from the mounting surface. This device may emit some mechanical noise. Take this into account when deciding the mounting location.

Fixing the Device

The DRC1205 has integral mounting brackets attached to the enclosure. The brackets are designed to accommodate 4 fixing screws up to 8mm diameter. The DRC1205 can be fixed to the wall without opening the cabinet or removing covers. Make sure no dust or other debris enters the device during installation. Do not leave the front cover off for any length of time. Excessive dust and dirt can degrade the cooling of internal components.

Allow For Cable Entry

Supply and load cables enter the enclosure at the top. If these cables are fed from below the mounting position, they should be routed around the enclosure to enter at the top. An alternative method is to stand the enclosure off from the mounting surface by mounting it on a cable tray or a Unistrut style product. The cables can then be routed between the enclosure and the mounting surface, and enter the enclosure via the cutout provided on the mounting face. The control cables enter at the bottom of the enclosure. Control cables should never be run in the mains voltage sections of the enclosure.



Supply Cables

The Phase terminals are located toward the top of the enclosure and consist of three circuit breakers that are linked. You may either terminate one single supply up to 60A leaving the link bar in place or remove the link bar and terminate three 20A phases. The Neutral terminal is located next to the circuit breakers.

Load Cables

Load cables can be terminated on one of the three 8-way load terminal blocks (both phase and netural are provided here), an Earth link located at the centre of the enclosure. These connectors will accept up to 6mm^2 cables. *It is important that an individual output circuit is not overloaded*. Calculate the intended load, and ensure that it is below the maximum capacity of an individual channel, which is 5A. To ensure compliance with interference standards, the load neutral cables must be individually connected to the neutral terminals inside the cabinet. *Never use a common neutral at a remote location.*

Emergency Lighting Connections

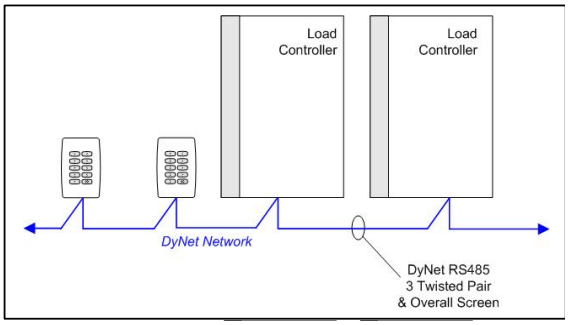
Connect emergency lighting circuit phase to the load side on the circuit breaker for the relevant bank of 4 channels, as indicated by the front panel markings next to the circuit breakers. Do not remove any cables that may already be terminated at this location.

Energising the Device

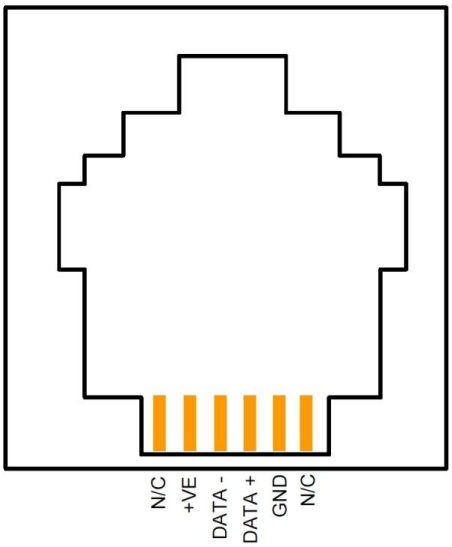
If it is necessary to energise load circuits before any control cables are connected, it is acceptable to replace the cover and energise the device immediately, as the default factory programming is to have all channels set to 100% output. If there is no output on any or all channels, see the “Troubleshooting” section (page 8). This device should be de-energised before terminating the control and data cables.

connecting serial control cables

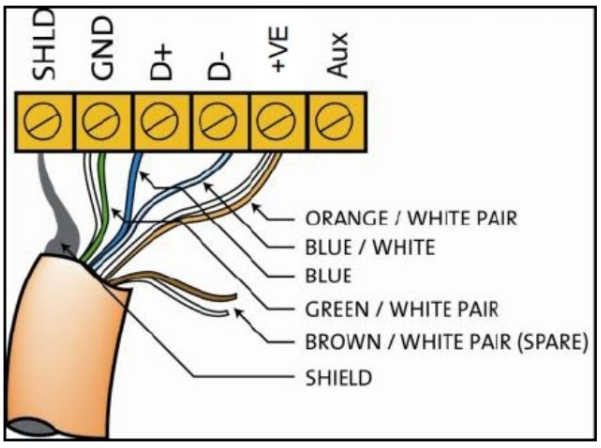
Connect Data Cable in a 'Daisy Chain'



RJ12 Socket Connections



Serial Cable Permanent Connections



Determine Your Requirements

Serial Ports are used to interconnect other dimmers, smart control panels, sensors and AV controllers. Serial port devices can be identified by 4 terminals, labelled: GND, DATA+, DATA-, +VE.

Serial Cable Connections

There is one RS485 port for DyNet® signals, in the form of a RJ12 socket, on the front panel, which is used for the temporary connection of a PC for commissioning with Envision or a Portable Programmer (DPP601). There are data terminals on the control card, for permanent connections. The recommended cable for connections to the serial port is screened, stranded RS485 data cable with three twisted pairs. Recommended cable types include:

Belden:	9503
Garland:	MCP3S
Hartland:	HCK603
M&M Cable:	B2003CS
M&M cable:	B9503CS
Multicables:	AWM E120236 2092 20
RS Components:	368-687

One pair is paralleled for GND, one pair paralleled for +VEV and one pair used for DATA+ and DATA -

Recommended Cable Colour Coding

Green/White pair:	paralleled for GND
Orange/White pair:	paralleled for +VE
Blue/White pair:	Blue for DATA +
	White for DATA-

The colour-coding scheme used is not critical, as long as the same scheme is used throughout the installation. The shield should be terminated in the "SHIELD" terminal if present, otherwise it should be terminated to the metal chassis of electrically earthed devices, and looped through on devices that are not electrically earthed.

Serial Cable Connecting Method

The recommended connecting method is to 'daisy chain' devices (starting at the first device, then looping in then out of devices, with a single cable terminating at the last device. There should not be any spurs or stubs, and only the first and last device should terminate one cable. All other devices should terminate two cables). Devices may be wired in any order. The Data Cable should be segregated from any Mains Cables. *A data cable that is connected to an energised dimmer is live. Do not cut or terminate live data cables*. If the Data Cable has to cross over any Mains Cables, it should do so at a 90° angle.

Service LED - The Service LED has 3 signalling modes, which are useful for troubleshooting:

Normal Operation
The Service LED should turn on and off at 50% duty approximately once per second when the dimmer is operating correctly on a quiet network or with no data cable connected.

Network Activity Detected
When network activity is detected, the Service LED will blink on and off at approximately twice the normal speed for a few seconds and then revert to normal speed. This will happen even when no network cable is connected if a control panel is connected to the control panel inputs as the directly connected panel actually communicates with the dimmer channels via an internal network connection.

Internal Variable Updated
When a network message is processed which results in changes to levels of the dimmer channels within the device, the Service LED will blink rapidly at approximately 5% duty for a few seconds and then revert to normal. Changes to system variables associated with the keypad inputs will be ignored.

Service Switch - The Service Switch, when pressed, causes a "sign-on" message to be transmitted onto the network. If the transmission is successful, the Service LED will indicate network activity detected. The sign-on message contains information about the device, such as: box number, device type and embedded software version. This information is captured by Envision configuration software to speed up commissioning of large systems.

specification

Supply:	230V ±14% 50/60Hz Single Phase at 60 Amps (supply link installed)
	230V ±14% 50/60Hz 3-Phase Y at 20 Amps (supply link removed)
Supply Terminals:	L1, L2, L3, N - 1 x 10mm^2 max cable size
Outputs:	12 x Switched outputs at 5 Amps per Channel
Switching Device:	Relay - 12A rated
Overload Protection:	3 x 20A Single Pole Circuit Breakers, 1 for each group of 4 channels
Maximum Total Load:	20 Amps per group of 4 channels
	60 Amps total
DyNet DC Supply +VE:	120mA (supply for approx. 6 Panels)
Control Inputs:	1 x RS485 DyNet serial port
	1 x programmable dry contact AUX input
User Controls:	Service Switch
	Diagnostic LED
	Override switch - All channels to 100%
Presets:	170
Compliance:	CE, C-Tick
Operating Environment:	0º to 50ºC ambient temperature
	0% to 95% RH non condensing
Construction:	Alloy / Steel wall mount case with epoxy finish
Dimensions:	Height 450mm x Width 225mm x Depth 75mm
Weight:	4.8 Kilograms

Check the following list. If you are still unable to rectify the situation, contact your nearest Dynalite dealer. A complete list of distributors worldwide can be found on the Internet at: www.philips.com/dynalite
Please ensure that you have completed the following prior to calling our technical support department.

- Check all symptoms in the Troubleshooting list
- Check for any deviations between the installation and the installation instructions
- Make a list of the model numbers of all devices used in the system

SYMPTOM	PROBABLE CAUSE	ACTION
Dimmer does not operate at all. No Service LED activity. Power supply indicator LED on PCB not lit.	Incorrect connection of Mains supply, or no power available.	Check power supply to dimmer. Check Line and Neutral input connections.
Power supply indicator LED lit, but no Service LED activity.	Supply voltage too low, short circuit on network or short circuit on analogue inputs. Control PCB faulty.	Check supply voltage is at least 75% of rated voltage. Check 5V & 12V terminal voltages, 5V supply must be present. Disconnect network bus and restore power. Replace control PCB.
Dimmer appears to be operating but all channels at full output.	Incorrect wiring on analogue inputs. Incorrect Dip Switch settings. PANIC function activated.	Check analogue wiring, verify Dip Switch settings. Check wiring of panic switch.
Dimmer will not respond to control panel push buttons.	Control panel incorrectly wired or “Buttons” Dip Switch turned off. Incorrect configuration.	Check operation of LEDs on control panel. Check Dip Switch settings. Push button on panel and study response of service LED.
Dimmer will not respond to analogue inputs.	Incorrect wiring on analogue inputs. Incorrect Dip Switch settings.	Check analogue wiring, verify Dip Switch settings.
Dimmer operates properly but circuit breakers keep tripping.	Instant tripping: - short circuit on load. Delayed tripping: - Dimmer overloaded.	Check load wiring for short circuits. Verify dimmer loading with current tester (don’t forget to de-rate for low power-factor loads and transformer losses). Check that the breaker terminals are tight.
Fluorescent lights won’t dim.	Wrong type of ballast or ballast incorrectly wired	Check ballast type. Check actual wiring against ballast manufacturer’s diagram.
Controllers “snap off” at high level	“Fluor” Dip switch turned on when controlling normal lamps	Switch off power, adjust Dip Switch settings, restore power.

Unit 6, 691 Gardeners Road Mascot NSW 2020 Australia Tel: +61 2 8338 9899 Fax: +61 2 8338 9333
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