

SDIMR-1-10V-1800VA Compatible with 0-10V, 1-10V and 10V PWM current source lamp control gear

TECHNICAL SPECIFICATIONS

~ 100-240VAC, 50/60Hz, IP20    

Electrical specifications – low voltage control port

Normal Operating Voltage	10VDC
Minimum Operating Voltage	0.7VDC
Dimming Method	Analogue current sink
Dimming Range	0.7% – 100%, depending on control gear characteristics
Minimum Sink Current	0.1mA
Maximum Sink Current	200mA
Maximum Power Consumption	0.5W
Over Voltage Protection	Yes, internal voltage clamp at 15.8VDC, up to 250mA (non resettable and non replaceable fuse)
Reverse Polarity Protection	Yes, up to 250mA (non resettable and non replaceable fuse)
Peak Pulsed Current	3ADC
Surge Protection	Yes, 600W peak pulse capability at 10/1000µs waveform, repetition rate (duty cycles): 0.01%
Load Types	0-10V, 1-10V and 10V PWM lamp control gear

ELECTRICAL AND MECHANICAL SPECIFICATIONS – mains switch

Switch Type	Mechanical: rotate on/off
Neutral Required	No
Nominal Operating Voltage	100-240VAC, 50/60Hz
Minimum Operating Voltage	Not applicable for mechanical switch
Switch Rated Current	10A maximum
Maximum Operating Current	8A
Maximum Load Rating (at 230VAC)	1800VA (1800 x load power factor = max Wattage)
Insulation Resistance	>100MΩ at 250VDC
Overload and Short Circuit Protection	Yes, 10A, 350VAC non resettable and non replaceable IEC 60127 & UL 248-14 approved fuse (I2T = 370-390 A2s)
Rotation Angle	300°±5°
Rotation Torque	10~100gf.cm
Pull-Push Strength	3.5 kgf.cm
Rotational Stop-End Torque	5 kgf.cm minimum
Switch Working Angle	50°±10°
Switch Working Torque	50~150gf.cm

TECHNICAL SPECIFICATIONS continued

Environmental

Operating Temperature	-5 – +40°C
Storage Temperature	-30 – +80°C
Maximum Housing Temperature	65°C
Relative Humidity	90% (non condensing)
Enclosure	44 x 29 x 20mm Black Aluminium

Conformity

EMC and Immunity	SANS 215 (2009 ED.4.2) / CISPR 15 (2009 ED7.2) IEC 61547 (2009 ED2.0)
Safety	IEC 60669-1:2017, SANS 60669-1: 2017 IEC 60669-2-1:2015, SANS 60669-2-1:2015
Quality Management	ISO 9001:2015

Special Features

No Neutral required
Startup circuit for 10V PWM compatible drivers at low intensity
Full range adjustment compensation for dimmer rotation angle

DIMMER MAXIMUM LOAD RATING

The maximum load of the dimmer depends on the maximum ratings of the low voltage control port **in combination** with the maximum current rating of 8A of the mains switch (use a contactor for loads larger than 8A – see DRIVER INRUSH CURRENT).

For a 230VAC supply, the load wattage of the mains switch must not exceed 1800 x Load Power Factor irrespective of the number of drivers connected to the low voltage control port. Similarly, the maximum sink current into the low voltage control port must not exceed 200mA irrespective of the load wattage.

According to IEC 60929 Annex E, the maximum source current of a 0-10V type driver, shall not exceed 2mA. Thus if the source current of the driver is not known then the maximum number of drivers per dimmer is 100 units, provided that the mains switch load does not exceed 1800VA.

Should the mains load wattage of the desired number of drivers per dimmer exceed the mains switch rating, a suitably rated external contactor should be wired to the mains switch.

Example 1: 100W driver with 65% power factor. The 230VAC switch can accommodate $1800 \times 0.65 / 100 = 11.7$ driver, thus maximum number of drivers per dimmer = 11.

Example 2: 10W driver with 90% power factor. The 230VAC switch can accommodate $1800 \times 0.9 / 10 = 162$ drivers, more than the 1-10V port can accommodate and the maximum number of drivers per dimmer = 100.

FULL RANGE ADJUSTMENT FOR DIMMER ROTATION ANGLE

An analogue dimmer usually displays non-linear behaviour in it's mechanical rotary user control vs the load. In the case of a 1-10V analogue dimmer, the full rotation angle of the rotary control is available when a small number of drivers are connected as per the diagram below, but the usable rotation angle decreases as the number of drivers increases to the maximum of the dimmer rating.

In order to address this non-ideal behaviour the dimmer is equipped with a small potentiometer accessible via a hole in the enclosure. Adjusting the small potentiometer (with a 2mm Philips screwdriver) as follows, will ensure the full range use of the rotation angle of the dimmer:

Method 1 (after the installation is completed)

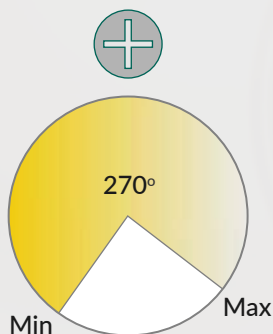
- turn the small recessed potentiometer fully clockwise
- turn the main or user rotary control fully clockwise to maximum lamp intensity
- slowly turn the small recessed potentiometer ant-clockwise until the lamp intensity starts to decrease
- the full rotation angle of the main user rotary control is now set

Method 2 (after the installation is completed)

- turn the small recessed potentiometer fully clockwise
- turn the main or user rotary control fully clockwise to maximum lamp intensity
- use a multimeter set to the DC voltage scale to measure the DC voltage on the + and - of the low voltage control port
- slowly turn the small recessed potentiometer ant-clockwise until the DC voltage on the control port is approximately 9.4VDC
- the full rotation angle of the main user rotary control is now set

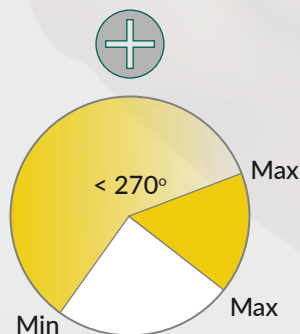
Small quantity drivers

No adjustment

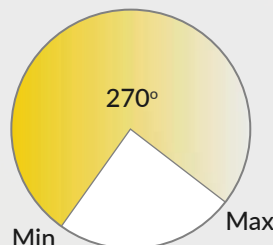


Larger quantity drivers

No adjustment

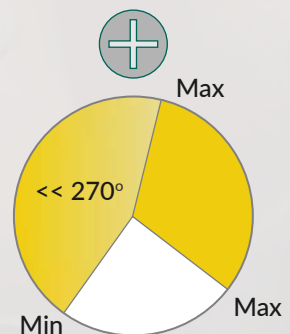


Adjust

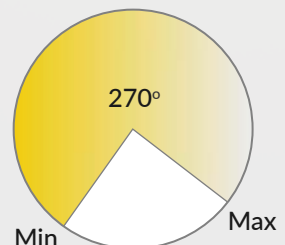


Maximum quantity drivers

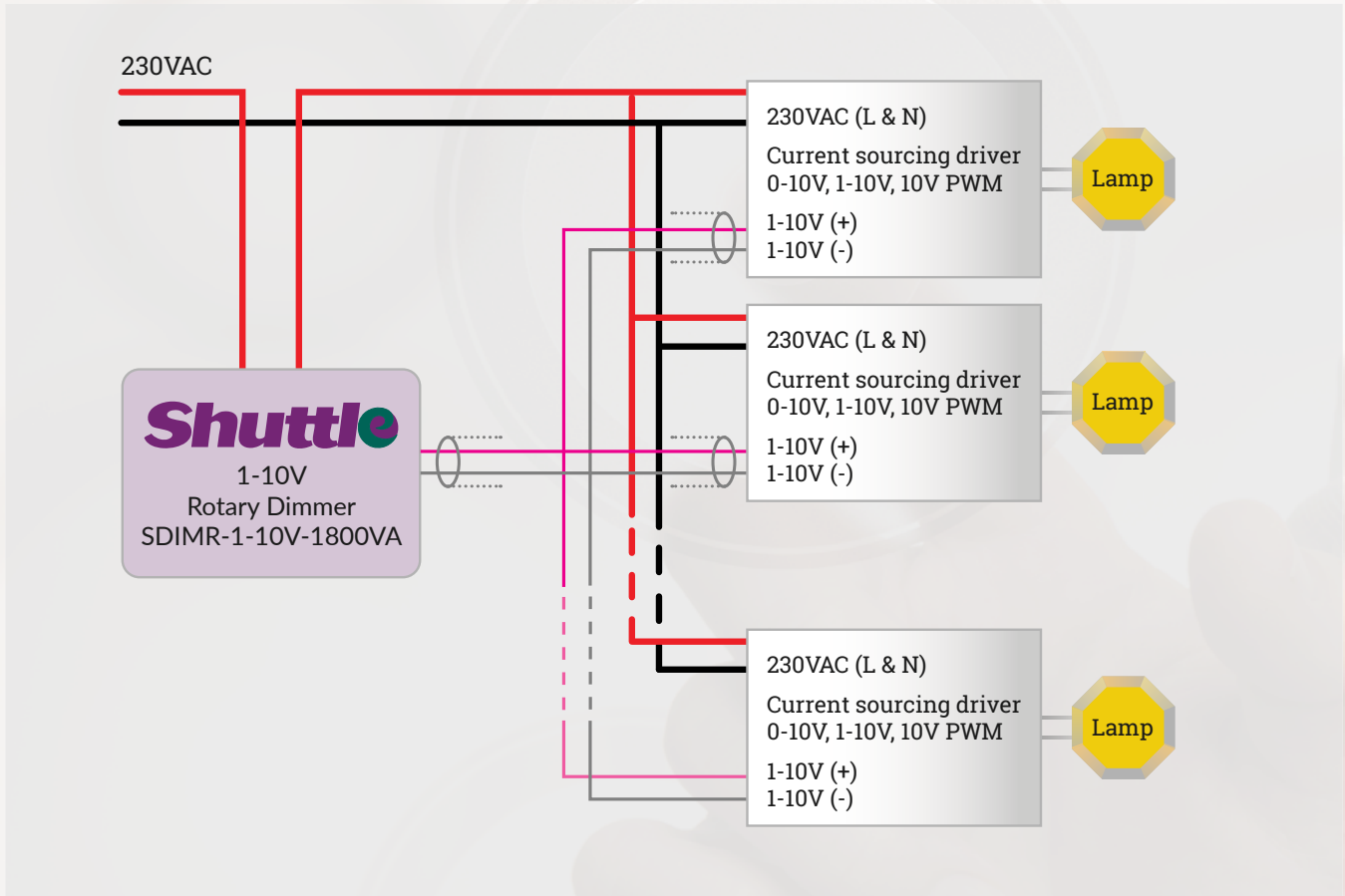
No adjustment



Adjust



WIRING DIAGRAM



OPERATING INSTRUCTIONS

Adjust light output by turning the rotary knob.

Turn the rotary knob anticlockwise to the “click” position to turn the light off.

INSTALLATION INSTRUCTIONS

- Installation must be carried out by a qualified and registered electrician
- Installation must be carried out in accordance with the local code of practice
- Never connect the 0-10V port to mains live, neutral or earth
- Install only one dimmer per wall box
- Internal use only
- Do not install or operate close to flammable materials
- Adjust the rotation angle of the rotary user interface if required
- A 1-10V signal can be sensitive to external disturbances. The 1-10V wires should thus not run close to mains cables or be placed close to potential noise sources like big motors or fans. Due to different lengths in signal wires, voltage drops can cause different light outputs – 0.5mm² or larger diameter wiring is thus recommended. Where possible, use shielded wire for the controls and connect the shield to the 1-10V ground (grey wire) terminal close to the dimmer.

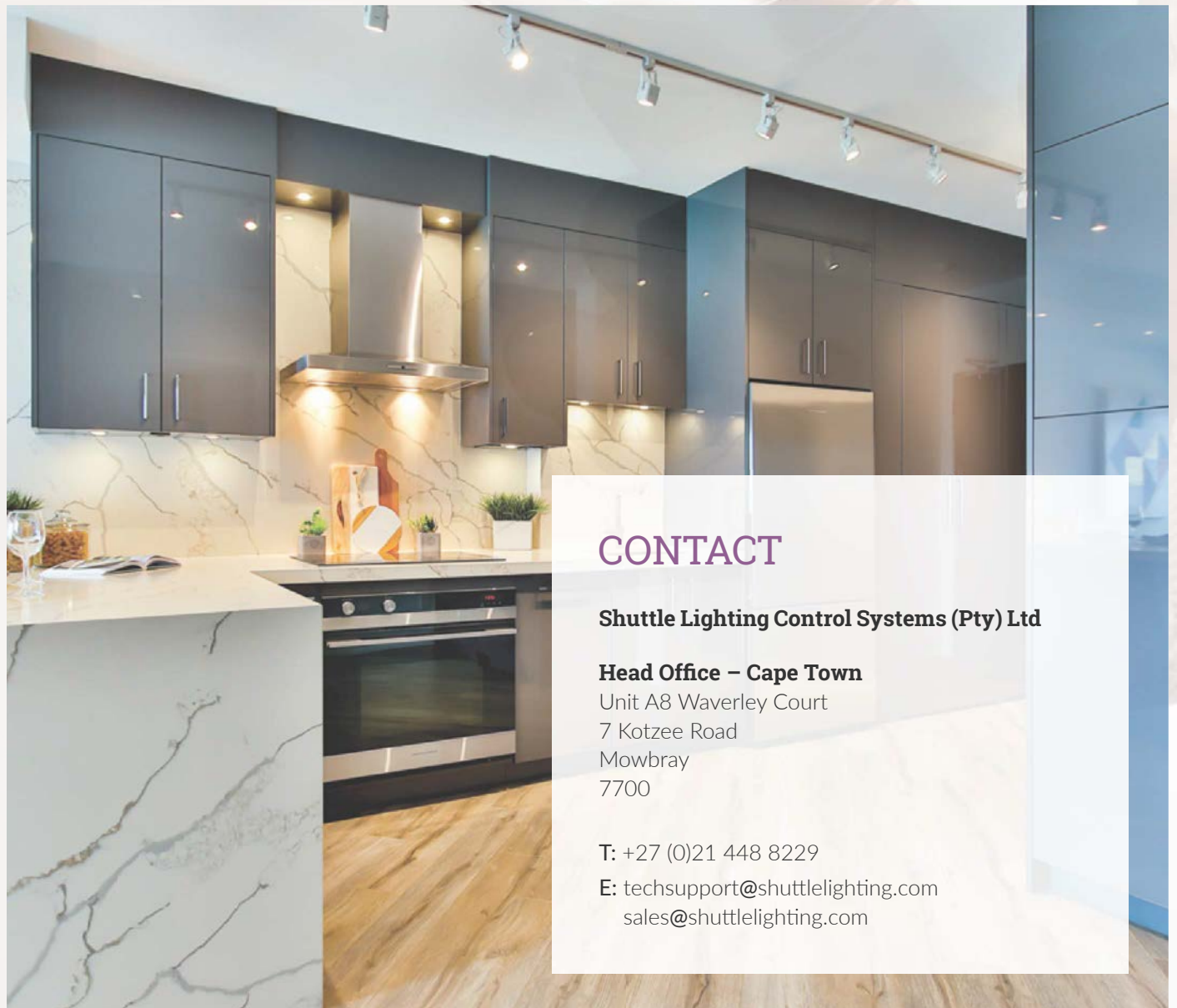
DRIVER IN-RUSH CURRENT

Many lamp drivers have an in-rush current when turning on. The non-replaceable and nonresettable fuse in the dimmer is selected for a high I²T rating and is generally suited to driver in-rush currents within the steady state 8 Amp rating. It is however recommended to verify the installation in-rush current based on the driver data sheet vs the dimmer fuse rating, especially for larger installations.

The same applies for the number of drivers per MCB, contactor or alternative energy inverter (some driver data sheets specify the number of drivers per MCB rating).

DRIVER FOR 12V OR 24V LED STRIP LIGHTING

Please note that only drivers with a PWM output should be used for 12V or 24V LED strip lighting when dimming is required. Drivers with a constant voltage output provide a poor dimming range of approximately 100% – 65% for these types of lamps.



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