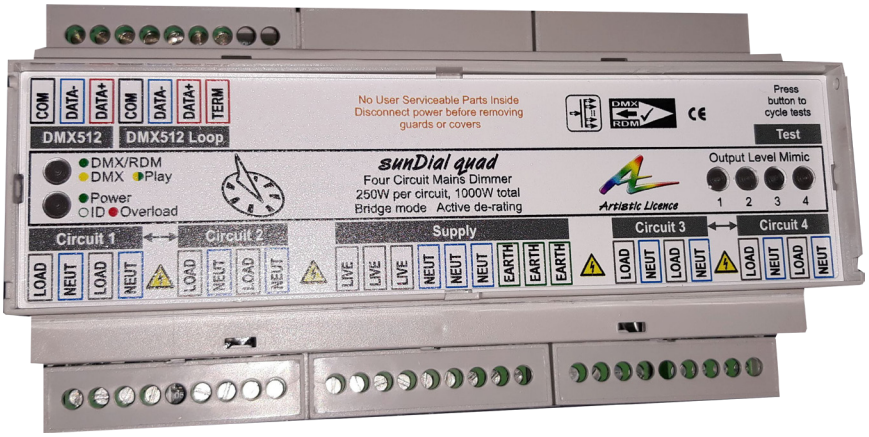
Artistic Licence



sunDial quad dmx 1k

User Guide

Please read these instructions before using the product.

This product has been designed & manufactured for professional use only.
It should only be installed by a suitably qualified electrician and in accordance with electrical regulations in the country of use.

INSTALLATION NOTES

The product is intended to be used as part of an assembly.
The product must be protected by a 6A input fuse or breaker.
The installer is advised to use an additional earth busbar or DIN Rail Earth Terminal to connect all the load and supply earths.
The product must be installed in an earthed metal enclosure with venting suitable for convection cooling.
All stranded conductors must be finished with crimped ferrules.

Unless directed in the instructions there are no user serviceable parts inside the outer case of this product.

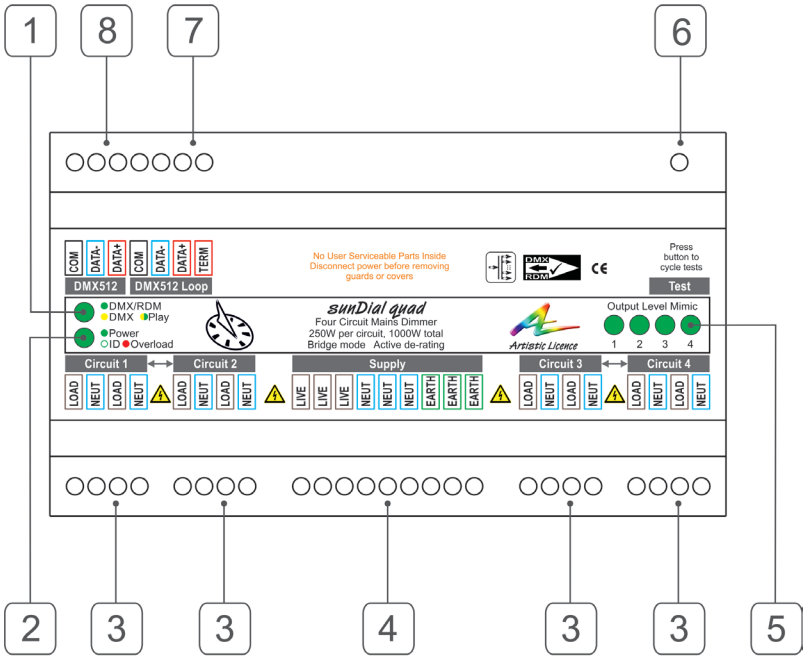
Always disconnect from the power supply when not in use.

Any specific IP rating, where appropriate, is given in the instructions. Unless otherwise stated this product is designed for indoor use only. If used outdoors it MUST be installed in an appropriate IP rated cabinet. Do not allow this product to be exposed to rain or moisture. Do not allow liquid to penetrate the product.

Please recycle all packaging.

Download the user guide by scanning the following QR code:

Connections



Ref.	Type	Description
1	LED indicator	DMX/RDM/ Playback
2	LED indicator	Power/ RDM Identify/ Overload
3	Connection	Mains dimmed output circuits
4	Connection	230 VAC supply input
5	LED indicator	Output mimic
6	Switch	Test button
7	Connection	DMX Loop-through** & Term
8	Connection	DMX Input

DMX512 Wiring

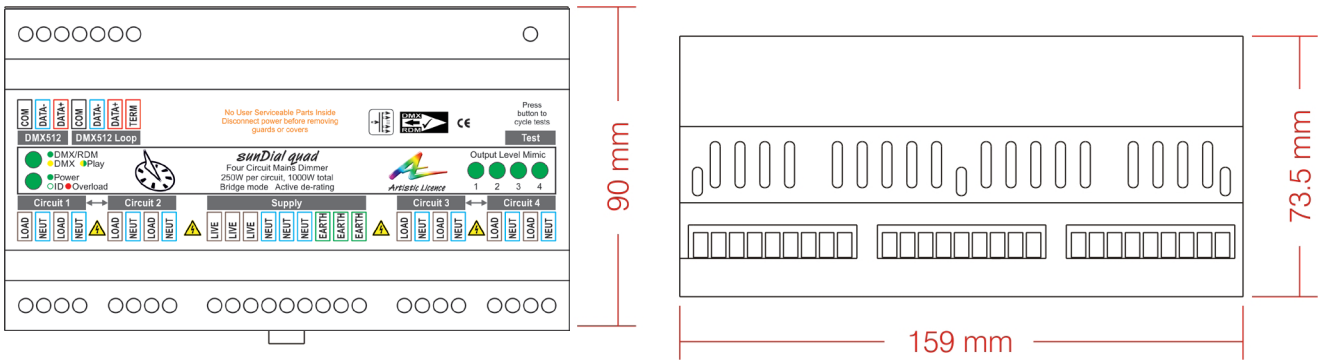
XLR Pin (Convention)	Function	Colour
1	Ground	**Black**
2	Data -	**Blue**
3	Data +	**Red**

** A passive loop-through connection allows onward connection to other DMX512 devices. If this feature is not required then the signal must be terminated. The product contains an internal termination resistor. This is enabled by fitting a wire link between Term and DAT+.

Internal Earth and Isolation

Circuit	Description	
DMX512 Input (including Loop Through)	Type:	Non-isolated
	Pin 1:	Connects to Internal Logic Ground
Dimming Outputs	230 VAC	
Internal Logic Ground	Floating	

Mounting Diagram



Overview

sunDial is a four channel mains voltage dimmer with DMX512/RDM control. It is designed to control dimmable LED, CFL and incandescent loads up to a total of 1kW at 230 VAC. Each output is controlled by the DMX512 input with an individual start address for each output.

All product control and configuration is via DMX512/RDM.

Summary of Key Features

- Trailing edge mains dimmer
- DMX/RDM controlled
- Compatible with dimmable LED replacement bulbs, CFL and incandescent sources
- 4 outputs, 250W per circuit
- Bridge mode provides 500W per pair of outputs
- Choice of 4 dimming curves
- LED indication for DMX/RDM/playback, power, identify, output level mimics, over-temp, over-current and output short circuit conditions
- RDM sensors for temperature and power
- Automatic heat and current management
- CAT III rated for installation directly into distribution boards
- Preset, data loss and test modes
- DIN Rail or surface mount

Power/Wiring

sunDial quad dmx is powered from a mains supply. The operating voltage is 230 VAC+/-10%.

Mains connections are provided with multiple terminals for ease of installation. Note that the terminal maximum rating is 10A. 'Looping through' of the mains input is allowed so long as the total current does not exceed 10A.

DMX Connection

Input

The DMX512 input is attached via a 3-pin screw terminal. Please refer to the connections diagram.

Loop Through

A passive loop-through connection allows onward connection to other DMX512 devices. If this feature is not required then the signal must be terminated. The product contains an internal termination resistor. This is enabled by fitting a wire link between the screw terminals that will terminate the DMX line (Term and DAT+).

Installation

- Operating Voltage: 230 VAC +/-10%
- Maximum conductor gauge: 1.5mm^2
- Maximum conductor temperature at product terminals: 90°C
- Screw terminal torque: 0.5 Nm
- The product is intended to be used as part of an assembly and must be installed by a qualified electrician.
- The product must be protected by a 6A input fuse or breaker.
- The installer is advised to use an additional earth busbar or DIN Rail Earth Terminal to connect all the load and supply earths.
- The product must be installed in an earthed metal enclosure with venting suitable for convection cooling.
- All stranded conductors must be finished with crimped ferrules.
- Each output is protected by a 7A slow blow fuse (not user-accessible).
- Complies with BS EN 62368-1:2014+A11:2017

Outputs

1. The product is designed to drive a maximum of 250W per channel of dimmable CFL, incandescent or LED load.
2. A minimum load of 12W is recommended to avoid any LED flicker at switch on.
3. Automatic bridging mode can be used to drive higher individual loads. The output pairs 1 & 2 and 3 & 4 can drive a total of 500W in any combination. For example, if channel 3 is driving 100W then channel 4 can drive 400W.

Active overload detection

1. Total product power consumption is microprocessor monitored once per half cycle. An overload of 6A will cause the product to shutdown until the next half cycle.
2. This means that in an output short circuit condition, total current is limited to 6A which protects the electronics.
3. In the event that the overload is due to high inrush current, the product will current limit the output for several half cycles - allowing the surge to abate prior to full power feed through. Visually, this looks like a conventional soft-start.

Output priority

The priority of output is as follows (highest at the top):

1. Fault shutdown
2. Test button
3. Preset playback
4. Data loss event
5. DMX512

Sensors

1. Temperature of the combined channels 1 & 2 heatsink. In the event that this temperature exceeds 70°C, outputs 1 & 2 will shutdown until the temperature drops below 50°C.
2. Temperature of the combined channels 3 & 4 heatsink. In the event that this temperature exceeds 70°C, outputs 3 & 4 will shutdown until the temperature drops below 50°C.
3. Product power consumption in 50W increments.
4. Mains frequency.

Test button

Press the button under the terminal guard to force all outputs to full.

Soft start mode

The product has a soft start feature such that it will slowly fade all outputs over a 2.5 sec period if powered on with the control input at full.

Configuration

sunDial quad dmx uses one channel to control each output, requiring 4 channels in total.

There are various configuration options (including start address programming). These are accessed using RDM, which requires a suitable programming interface.

DMX-Workshop

DMX-Workshop, our free windows-based application, provides a convenient means of accessing the sunDial quad dmx configuration menus. (sunDial quad dmx must first be connected to an Art-Net network using a suitable gateway, e.g. artLynx).

The main configuration options are described below:

RDM footprint

1. 4 slot root device. Set start address will reset all sub-device start addresses.
2. 4 x 1 slot sub-devices with independent start addresses.

RDM Identify

1. Root device
   - Dynamic Identify causes all outputs to flash at approx 1Hz. Power LED flashes green at 1Hz.
   - Static Identify causes all outputs to switch on full. Power LED flashes green at 1Hz.
2. Sub-device
   - Dynamic Identify causes sub-device output to flash at approx 1Hz. Power LED flashes green at 1Hz.
   - Dynamic Identify causes sub-device output to switch on full. Power LED flashes green at 1Hz.

Dimming personalities

1. CFL / Incandescent: a linear curve suited to incandescent and CFL.
2. LED: inverted hockey stick curve brings LED lamps on at 5% and then linear fade.
3. Squirrel: a non-linear curve suited to 'squirrel cage' LED lamps.
4. Relay: switches at 50% input value.

Preset mode

It is possible to pre-programme sunDial such that it can be installed without a DMX controller. The product has 8 preset memories which can be used to record various output level configurations.

DMX-Workshop allows these settings to be captured and played back (to access the relevant menus, right-click on the sunDial RDM device). Please note that the data captured is always the DMX512 input, independent of the currently selected output.

Preset playback is non-volatile. This means that if a preset is played back, sunDial can be then disconnected from DMX and power cycled and will still playback the preset.

Data loss mode

DMX-Workshop (or a suitable RDM tool) also allows programming of data loss mode. This mode is intended to be used when sunDial quad dmx is being controlled by DMX (i.e. when it is not running in preset mode).

The data loss programming determines what sunDial quad dmx should do if DMX is lost for more than 2.5 seconds. It can be selected to play one of the 8 presets or hold the last state. If DMX returns, the control is immediately returned. sunDial quad dmx will also power up in this mode until DMX is detected.

To access the data loss mode menu, right-click the sunDial quad dmx RDM device, then go to Advanced - Artistic Licence products - Data loss mode.

Test pattern

sunDial quad dmx offers two test patterns, which can be useful during show commissioning or rehearsals.

Test 1 = Outputs on & Test 2 = Outputs off

LED Indicators

	Off	Green
Outputs	No activity	Level mimic

	Off	Green	Yellow	Alternating green/yellow
Data	No DMX	DMX & RDM received	DMX received	Preset playback or test pattern active

	Off	Green	Red	Green flashing
Power	Product not powered	Normal operation	Over-Temp / Over-Current / Output short circuit detected	Identify command received

sunDial quad dmx 1k Specification

Mechanical

- Housing: DIN Rail Case
- Material: Polycarbonate plastic, UL94-V0 rated
- Overall dimensions: 90 mm (H) x 159 mm (W) x 73.5 mm (D)
- Weight: 0.3 kg
- Mounting: 35 mm DIN Rail or Surface Mount
- Maximum conductor gauge: 1.5 mm^2
- Screw terminal torque: 0.5 Nm
- Maximum conductor temperature at product terminals: 90°C
- Country of manufacture: UK

Environmental

- Operating temperature: 0°C to 40°C
- Storage temperature: -10°C to +50°C
- Operating relative humidity (max): 80% non-condensing
- IP rating: IP20 indoor use only
- Certification: BS EN 62368-1:2014 +A11:2017, CE, WEEE, RoHS
- Warranty: 2-year (return to base)

Power & Electrical

- Input voltage: 230 VAC +/-10%
- Input connector: Screw terminals
- Max. terminal rating: 10 A
- Duty cycle: 100% @ 25°C
- Input protetction: User must supply (6A required)

DMX512 input

- Input mode: Non-isolated
- Input ESD protection: 12 kV
- Input voltage protection: +/- 80 V
- 3-pin Screw Terminal DMX Input (1 no.)
- 4-pin Screw Terminal DMX Loop / Term (1 no.)

Outputs

- Type: 4 x mains dimming circuits
- Connectors: 4-pin screw terminals (4 no.)
- Min. recommended load: 12 W
- Max. load: 250 W per channel or 500 W per paired Channels 1+2 or 3+4
- Protection: Electronic & 7A slow blow fuse

Control

- Input Protocols: DMX512, DMX512(1990), DMX512-A
- RDM V1.0 (E1.20 - 2010 ESTA Standard)

Sensors

- Heatsink temp. of channels 1+2
- Heatsink temp. of channels 3+4
- Product power consumption in 50W increments
- Mains frequency

LED Indication

- Power / DMX / RDM / Playback / RDM Identify / Over-Temp / Over-Current / Output short circuit / Level mimic

Configuration

- DMX Workshop compatible
- Configurable settings include:
  - Start address
  - Dimming personality
  - Preset & data loss modes, test pattern

Package Contents

- sunDial quad dmx 1k

Ordering Info

- Product code: sunDial quad dmx 1k

Compliance

All Products manufactured or sold by Artistic Licence Engineering Ltd are fully compliant with the appropriate CE and RoHS regulations. Product specific information is available on request.

Waste Electrical & Electronic Equipment (WEEE)

Artistic Licence is a member of a WEEE compliance scheme and will happily recycle any of our products that you, at your expense, return to us.

Warranty

All products are covered from date of purchase by a two-year return to base warranty.

By return to base, we mean that the customer is responsible for all costs of transport to and from Artistic Licence.

Returns will not be accepted without prior authorisation. In order to discuss a request to return goods, please email:

Sales@ArtisticLicence.com

CE Compliance CE

sunDial quad dmx is CE compliant when installed in a shielded and earthed metal case.

Safety Warning

This product has been designed & manufactured for professional use only. It should only be installed by a suitably qualified electrician and in accordance with electrical regulations in the country of use.

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