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PixLite R1F-S User Manual

Contents [hide]

Introduction

This is the user manual for the PixLite R1F-S pixel receiver .

The PixLite R1F-S is designed to receive differential long distance signals of up to 300m (1000′) from a PixLite T8/T16 transmitter unit, and convert these input signals back into a pixel-ready signal for output directly to pixels. The PixLite R1F-S features 1 full pixel output.

The PixLite R1F-S features a sleek, compact design and accessories for ease of surface mounting as well as an included DIN rail mounting kit. It also features industrial grade protection on all inputs and outputs, making it the ideal option for reliable commercial and industrial applications.

This manual covers physical aspects of the PixLite R1F-S receiver and its essential setup steps only. Separate user manuals are available for the transmitter units. Other manuals may be downloaded from here: www.advateklighting.com/downloads

Safety Notes

This LED pixel receiver should be installed by someone with proper technical knowledge only.

Installation of the device should not be attempted without such knowledge.

Physical Installation

IMPORTANT NOTICE

The device warranty applies only when installed and operated in accordance with these Installation Instructions and when operated in accordance with the limits defined in the specifications.

4.1 – Installation Requirements

The unit MUST be installed according to the mounting methods described below.

DO NOT fasten to objects that generate heat, such as a power supply.

DO NOT install or store the device exposed to direct sunlight.

This device is suitable for indoor installation only.

Where the product has the conformal coating option, the device may be installed outdoors inside a weatherproof enclosure.

Ensure device ambient temperatures do not exceed the limits detailed in the specifications section.

4.2 – Flat Surface Mount

Fasten the Mounting Clip to the mounting surface using two screws of a type suitable for the mounting surface (not supplied). The screws should be a pan head type, 3mm in thread diameter and at least 8mm long, as shown in Figure 1 below. Do not over-tighten; hand-tighten only. Attach the receiver to the clip by aligning the clips with the holes in the base of the receiver and pushing the receiver onto the clip.

Figure 1: Receiver Assembled to Flat Surface
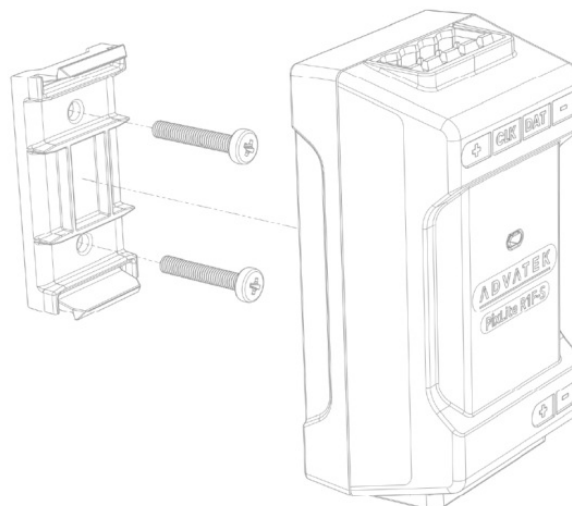
4.3 – DIN Rail Mount

The receiver can be mounted to a DIN rail by fastening the supplied DIN rail adapter to the mounting clip, using the two supplied M3 screws.

1. Align the mounting clip holes with the holes on the DIN rail adapter and fasten using the two supplied M3 x 8 mm screws, as shown in Figure 2 below.

Figure 2: DIN Rail Adapter Assembled to Mounting Clip
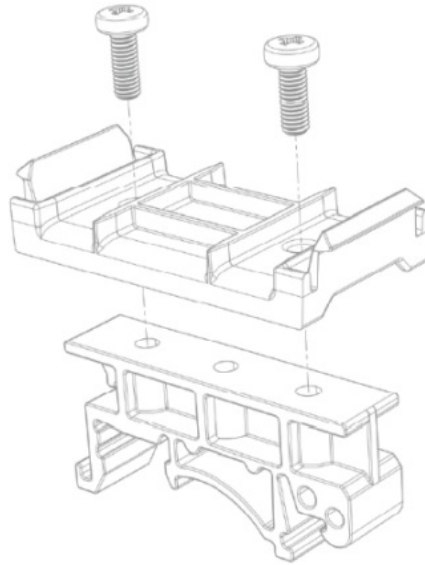
2. Attach the receiver to the clip by aligning the clips with the holes in the bottom of the receiver and pushing the receiver onto the clip, as shown in Figure 3 below.

Figure 3: Receiver Assembled to DIN Rail Adapter
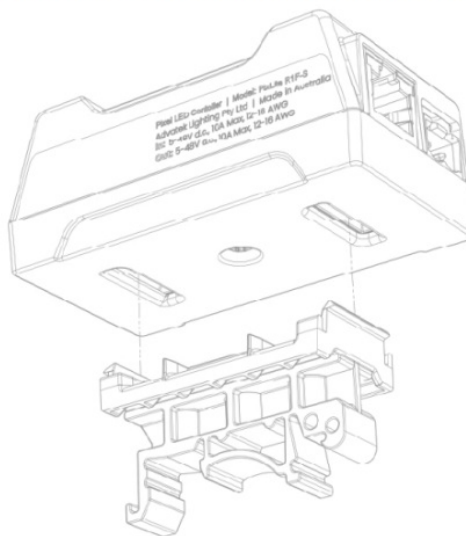
3. Align the lower edge of the DIN clip with the lower edge of the DIN rail (1), and push the receiver down so it clicks onto the DIN rail (2), as shown in Figure 4 below.
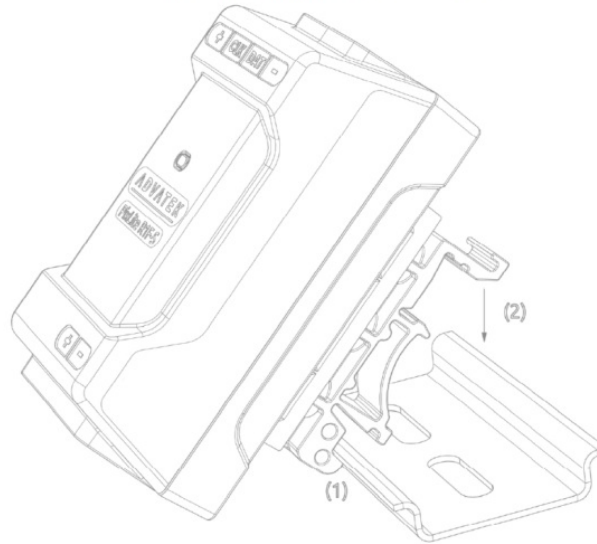
4. To remove the receiver from the DIN rail, pull the receiver horizontally, toward its power connector (1) while rotating the receiver up and off the rail (2), as shown in Figure 5 below.

Figure 5: Removal of Receiver from DIN Rail
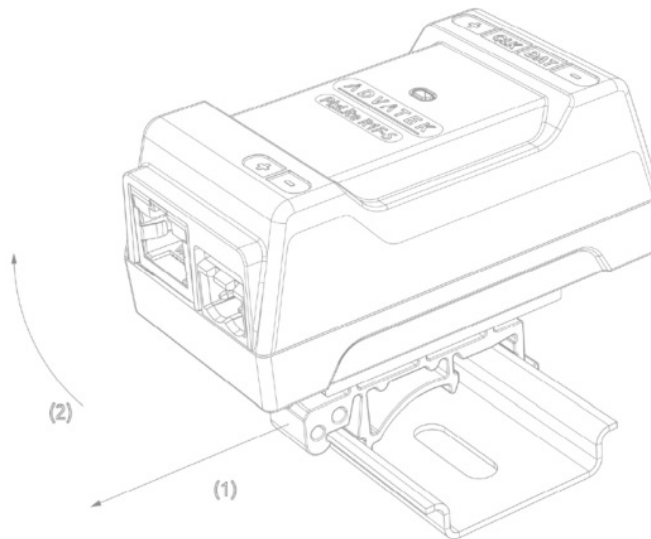
4.4 – Tubular Surface Mount

The receiver can be mounted to a tubular surface, like a truss, pole, or scaffold tube. A minimum diameter of 38mm is best used for this application. Zip ties or screws can be used for securing the receiver to the tubular section. See Section 4.2 for attaching with screws.

To attach the receiver to a tubular section using zip ties, first attach the mounting clip to the receiver, and then thread two zip ties (not supplied) through the holes as shown in Figure 6 below.

The zip ties can then be fastened to a tubular section, as shown in Figure 7 below.

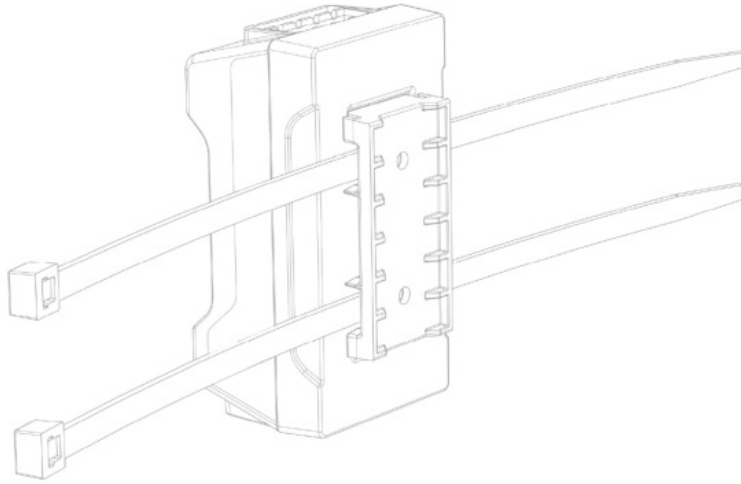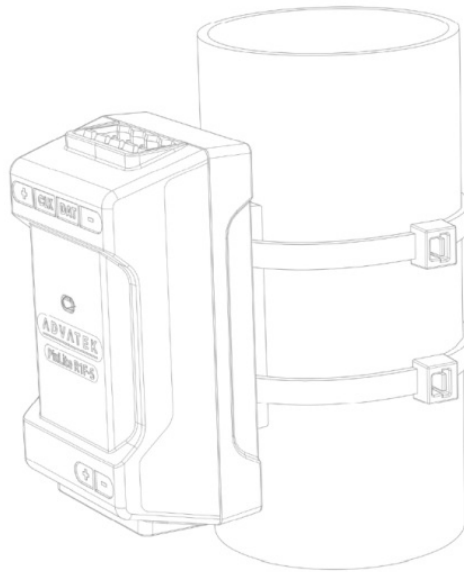*Figure 6: Cable Ties Threaded Through the Mounting Clip*

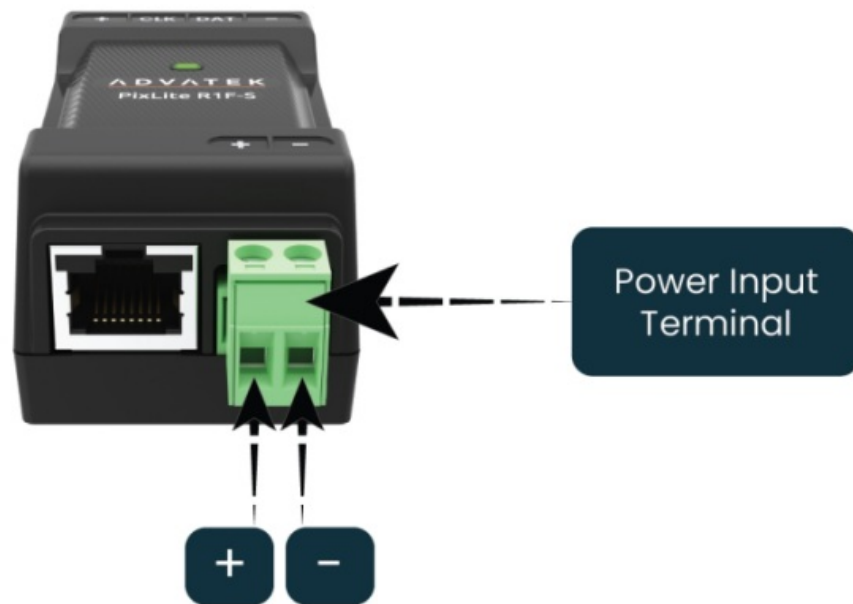*Figure 7: Receiver Assembled to Tubular Surface*

Electrical Connections

5.1 – Supplying Power

Power is applied to the PixLite R1F-S via the 2-pin screw terminal connector. Polarity for the connector is clearly marked on the lid, as shown in Figure 8 below. The type of wire required for supply connection is 1.3mm2, 16AWG to 3.3mm2, 12AWG, VW-1.

Figure 8: Location of Power Input

The output should not exceed 10A.

Logic power is automatically regulated from the power input. Simply connect your DC power supply in accordance with specifications listed in Section 7.1 to the power input.

5.2 – Data Input

Data from the transmitter is connected via the RJ45 port located on the front panel of the unit, as shown in Figure 9 below.

Figure 9: Position of Data Input
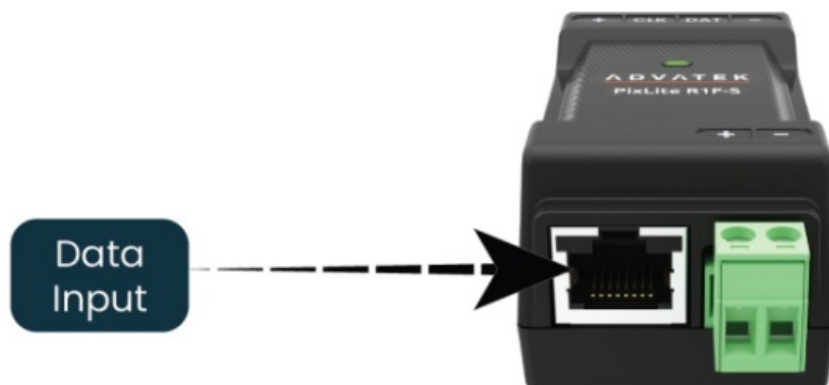
Receivers are connected to the transmitter via the RJ45 jacks on the rear panel of the PixLite transmitter. Each jack is labelled with its output number. These ports are not Ethernet network ports, and should not be connected to any networking equipment. They are specifically designed to connect a PixLite transmitter with a PixLite receiver. The cable used should be twisted pair cable with nominal 100 Ohm characteristic impedance (e.g. Cat 5 or Cat 6 cable), and can be up to 300 meters in length.

There are various system topologies that can be achieved by pairing a specific transmitter with a specific receiver. Not all permutations can be connected. The pairings that are supported by this device are shown in Figure 10 below.


Figure 10: Connecting Receivers to Transmitter
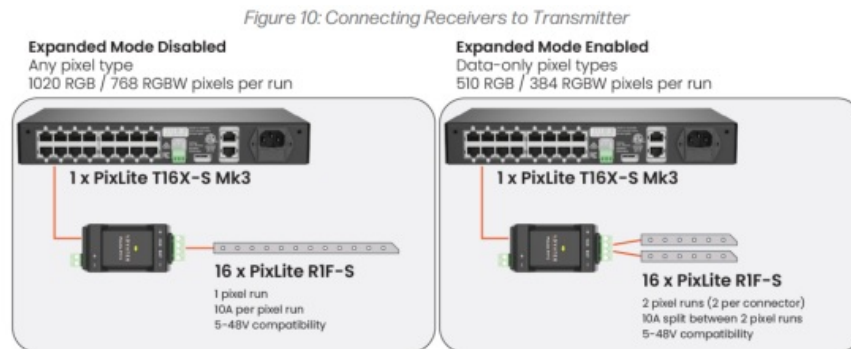
5.3 – Connecting Pixel LEDs

The pixel lights are connected directly via the pluggable screw terminal connector on the rear of the unit. The connector pin-out is clearly marked on the unit. Simply wire your lights into the screw terminal and then plug this into the mating socket.

The cable length between the output and the first pixel should not exceed 15m.

Figure 11 shows the pin-out of the pixel output connectors.

Figure 11: Pixel Output Pinout - Expanded Mode Disabled
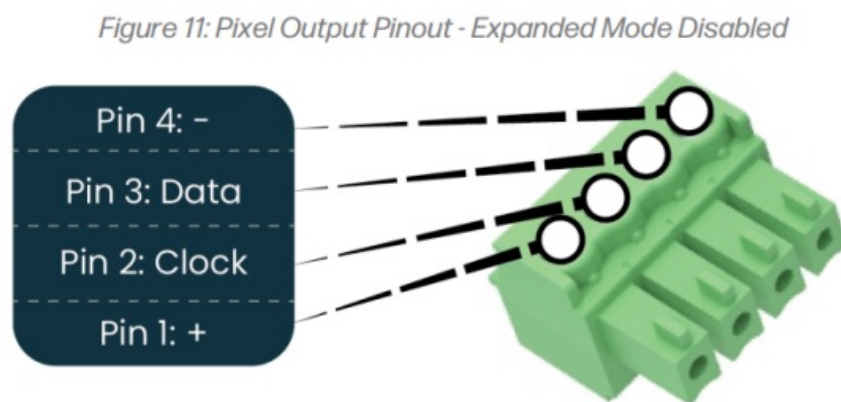
5.4 – Differential DMX512 Pixels

The PixLite R1F-S can connect to differential DMX512 pixels, as well as single-wire serial DMX512 pixels. Single wired DMX512 pixels can connect as per the pinout above. DIfferential DMX512 pixels require connection of an additional data wire. This pinout can be seen in Figure 12 below.

Notes:

When driving differential DMX512 pixels, you should ensure that the data transmission speed is set appropriately, based on the specification of your pixels. The standard speed for DMX512 transmission is 250kHz, however many DMX pixel protocols can accept

faster speeds.

With DMX pixels, the outgoing data stream is not limited to a single universe, as a standard DMX universe would be.

When connected to a PixLite R1F- S , the maximum number of DMX512- D pixels that can be configured is the same as if expanded mode were enabled, which is 510 RGB pixels per output.

Figure 12: Pixel Output Pinout for Differential DMX512 Pixels
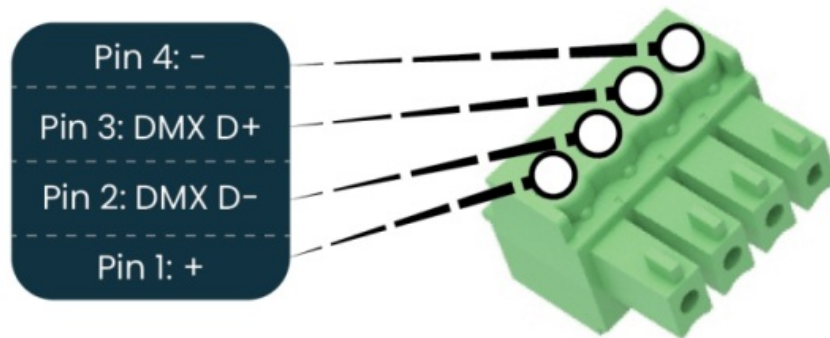
5.5 – Backup Data for Select Pixels

Many pixels with a backup data input do not require it to be connected to the PixLIte, however some select pixel types require a backup line to be connected to a secondary source of data, which generates a modified version of the original data signal. Without this connection, the first few pixels in a run will not operate correctly. For these select pixels, the backup wire must be connected to the "Clock" pin on the pixel output, which provides this modified data signal. See pixel glossary on the Advatek website to confirm pixels which require a backup connection to the PixLite.

This pinout can be seen in Figure 13 below.

Note : The maximum number of these pixels per output is the same as if expanded mode were enabled, which is 510 RGB pixels per output.

Figure 13: Pixel Output Pinout for Select Backup Pixels
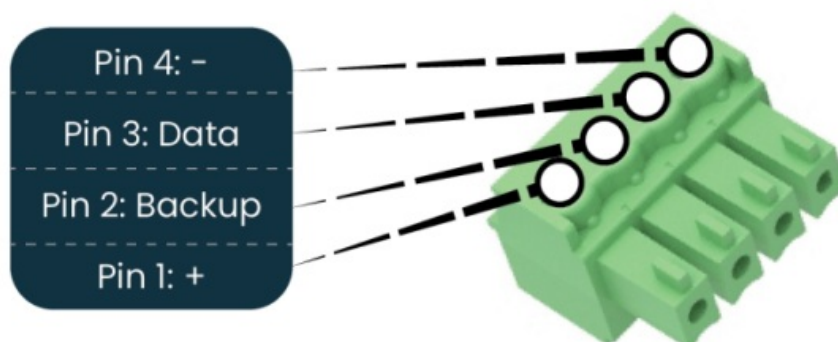
5.6 – Expanded Mode

If your pixels only use a single data line, you may optionally activate expanded mode on the controller. If using the PixLite R1F-S with a PixLite T16X-S Mk3, expanded mode must be used, meaning that pixels can only use a single data line. The clock pins are not connected, as per the pintout below. In expanded mode, the clock signals are re-purposed for data signals instead. This means the receiver effectively has twice as many pixel outputs (2), but half as many pixels per output can be run.

The pinout for expanded mode is shown in Figure 14 below.

Figure 14: Expanded Mode Pixel Output Pinout

Pin 4: –
Pin 3: Data 2
Pin 2: Data 1
Pin 1: +
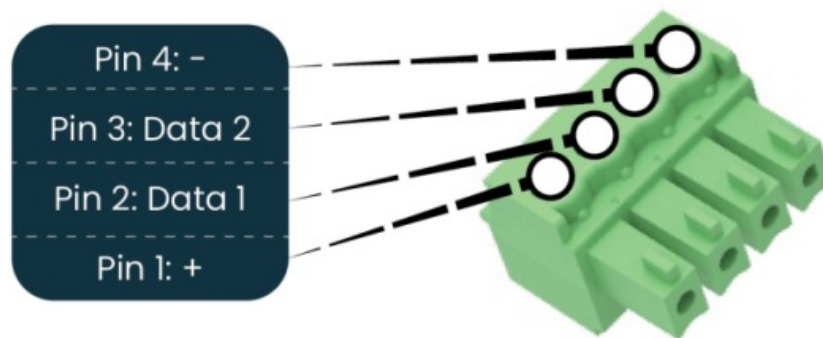
Operation

6.1 – Start-up

When power is applied to the receiver, the green power LED on the center of the front panel should be illuminated, as shown in Figure 15 below.

Figure 15: Position of the Power LED

Power LED

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PixLite R1F-S

If pixels have been correctly connected to the outputs and the data cable is connected to the transmitter and valid data is being sent, you should see the pixels turn on.

6.2 – Outputs

The number of pixels per output is configured in the transmitter device and may vary depending on the pixel capacity of the specific device.

The refresh rate of the pixels will depend on the operating frequency of the specific pixel chip type.

Refer to the user manual of the PixLite Transmitter device for more information about this topic as the Transmitter will be responsible for the refresh rate of this receiver.

Specifications

7.1 – Operating Specifications

The table below specifies the recommended operating conditions for a PixLite R1F-S receiver.

For a full list of specifications, refer to the product datasheet.

Parameter	Value/Range	Units
Input Voltage Range	5-48	V DC
Max Current	10	A
Max Logic Current Consumption @ 5V	300	mA
Ambient Operating Temperature	-20 to +55	°C
Storage Temperature	-20 to +55	°C
Maximum Current Per Pixel Output	10	A

7.2 – Mechanical Specifications

The PixLite R1F-S receiver has dimensions as below.

Dimension	Metric	Imperial
Length	72mm	2.8″
Width	39mm	1.5″
Height	31mm	1.2″
Weight	0.05kg	0.11lbs

Figure 16: Receiver Mechanical Specifications

7.3 – Fault Protection

The PixLite R1F-S features notable protection from potential damage due to various types of faults.

This makes the device extremely robust and reliably able to withstand installation and operation even in harsh environments.

ESD protection is present on all data input lines and on all pixel output lines.

The data input port is protected against faults of up to +/- 48V between signal and common. All pixel output lines are protected against faults of up to +/- 48V.

The PixLite R1F-S itself is protected against damage from reversed polarity power input. However it does not provide external reverse polarity protection for any loads that you may have connected to the pixel outputs.

Troubleshooting

8.1 – No Power LED

Ensure that your power supply is supplying correct voltage. Additionally, ensure that it can supply enough current to drive the lights that are connected. You should also try disconnecting the pixel output and see if the receiver then turns on.

8.2 – No Pixel Control

Check that the correct pixel IC type has been configured on the transmitter unit. Also check the physical wiring and pinout of the pixels.

8.3 – Other Issues

For the latest information, and industry advice, you can refer to our online guides here: www.advateklighting.com/blog/guides

You'll find information on management and configuration of the device, including its

internal SHOWTime feature set in the PixLite Mk3 Management Guide: www.advateklighting.com/downloads/user-manuals/pixlite-mk3-anagement-guide

For any other questions, you can reach out to our support team at the link below: www.advateklighting.com/contact

support@advateklighting.com

Disclaimer

If you require support or warranty, please refer to Section 8.3 for information on creating a support ticket. You must be issued with a return authorization by Advatek support staff before returning any product.

This device is only suitable for use in accordance with the specifications. This device is only suitable for use in an indoor environment which is protected from the weather unless a conformal coating option has been selected. In case of products protected by conformal coating, the device can be used outdoors, provided it is protected from the weather using an enclosure suitable for the environment.

The PixLite R1F-S receiver is supplied with a 5-year limited warranty and a repair/replacement guarantee. Please see the terms and conditions on our website for more information.

The PixLite R1F-S has been tested against and independently certified as compliant with the standards and directives listed in the table below.

Audio/Video and ICTE – Safety Requirements		UL 62368-1, CSA C22.2#62368-1
Radiated Emissions		EN 55032, AS/NZS CISPR32, FCC Part 15 Class A
Immunity f	Electrostatic Discharge	EN 61000-4-2
	Radiated Immunity	EN 61000-4-3

or ITE EN 55 024	Electrical Fast Transient/Burst	EN 61000-4-4
	Injected Current (0.15 MHz to 80 MHz)	EN 61000-4-6
	Power Frequency Magnetic Field Immunity	EN 61000-4-8

Through testing to the above standards, the PixLite R1F-S has the certifications and marks listed in the table below.

Certification	Relevant Country
ETL Listing (UL 662368-1)	North America and Canada
CE	Europe
FCC	North America
ICES3	Canada
RCM	Australia and New Zealand
UKCA	United Kingdom

Restriction of Hazardous Substances (RoHS) declarations:

Jurisdiction	RoHS 3
The product is in conformity with the following relevant European Union harmonisation legislation	Directive 2011/65/EU + Directive 2015/863/EU + Directive 2017/2102/EU
UK Statutory Instruments and their amendments	UK SI 2012 No. 3032

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Note: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to

provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at their own expense.

This product has been manufactured by:

Advatek Lighting Pty Ltd

U1, 3-5 Gilda Court

Mulgrave, 3170

VIC, AUSTRALIA

www.advateklighting.com

PixLite R1F-S User Manual V20250606

Documents / Resources

	[ADVATEK PixLite R1F-S Pixel Receiver](#) [[pdf](#)] User Manual R1F-S, PixLite R1F-S Pixel Receiver, PixLite R1F-S, Pixel Receiver, Receiver

References

- [User Manual](#)

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