



ADVATEK LIGHTING Pixlite R2F-S Professional LED Pixel Control User Manual

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ADVATEK

ADVATEK LIGHTING Pixlite R2F-S Professional LED Pixel Control



Introduction

This is the user manual for the PixLite R2F-S pixel receiver, hardware version 1.0. The PixLite R2F-S is designed to receive differential long distance signals of 300m (1000') or more over a standard network cable from a PixLite T8 transmitter unit, and convert these input signals back into a pixel-ready signal for output directly to pixels. The PixLite R2F-S features 2 pixel outputs, each having both a dedicated fuse and 'fuse good' LED indicator. The PixLite R2F-S features a sleek, compact design and 4 holes for ease of wall mounting as well as an optional 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 R2F-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

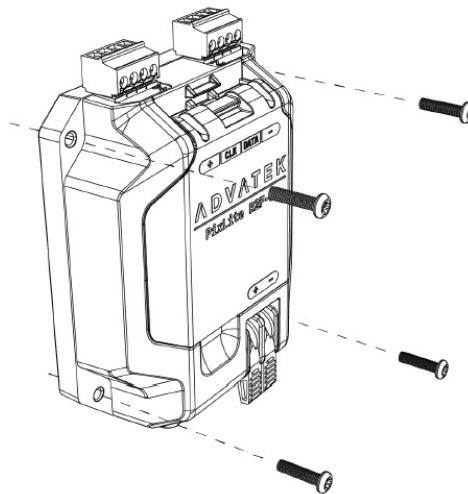
This LED pixel receiver should be installed by someone with proper technical knowledge only. Installation of the device and/or replacement of pixel output fuses should not be attempted without such knowledge. Specification and certification markings are located on the of the device.

Physical Installation

Wall Mount

Assemble the unit onto the wall / ceiling using four 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 15mm long, as shown in Figure 1 below.

Figure 1: receiver Assembled to Wall

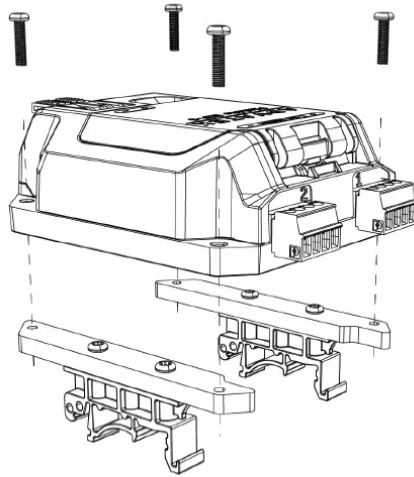


DIN Rail Mount

The receiver can be mounted to a DIN rail using the optional mounting kit (part number MNT0101).

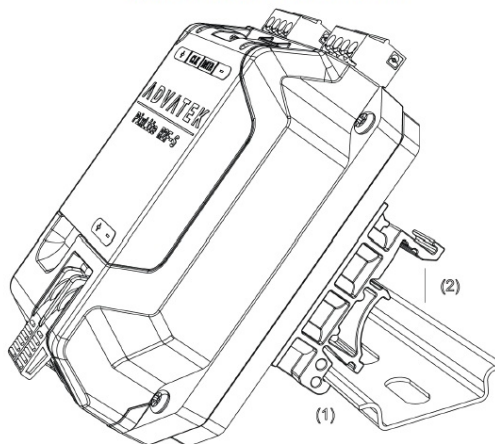
1. Align the receiver's mounting holes with the outermost mounting holes on each bracket. Using the four supplied M3, 12mm long screws, assemble the receiver to the mounting brackets, as shown in Figure 2 below.

Figure 2: receiver Assembled to Bracket



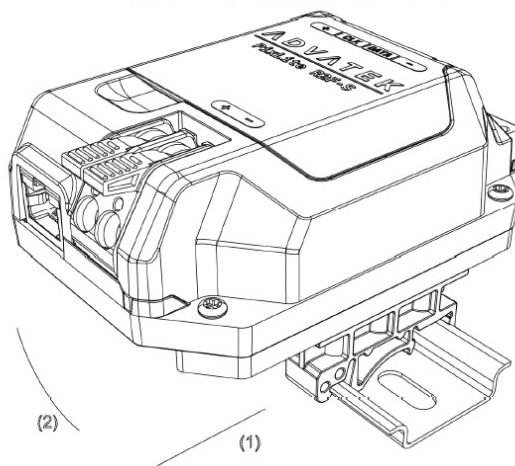
2. Align the lower edge of the bracket with the lower edge of the DIN rail (1), and push the receiver down so it clicks onto the DIN rail (2), as shown in Figure 3 below

Figure 3: receiver Assembled to DIN Rail



3. To remove the receiver from the DIN rail, pull the receiver horizontally, toward its power connector (1) and rotate the receiver up and off the rail (2), as shown in Figure 4 below.

Figure 4: Removal of receiver from DIN Rail

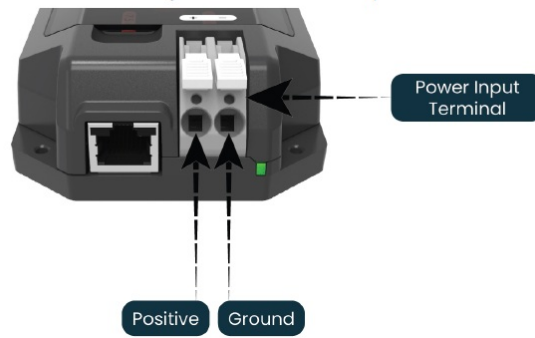


Electrical Connections

Supplying Power

Power is applied to the PixLite R2F-S via the large lever clamp connector. The levers should be lifted up for wire insertion and then clamped back down, providing a highly robust and secure connection. Ensure the wire's insulation is stripped back 11-12mm, so that the clamp does not rest on the insulation when closing the connector. Polarity for the connector is clearly marked on the lid, as shown in Figure 5 below. The type of wire required for supply connection is 1.5mm², 14AWG, VW-1.

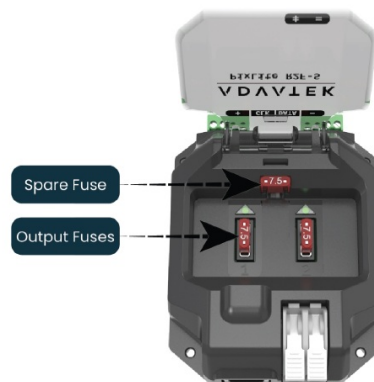
Figure 5: Location of Power Input



Output Fuses & Power Injection

Each individual output is protected by a mini blade fuse. The PixLite R2F-S comes with n7.5A fuses by default. You may use any value of fuse, up to and including 7.5A, depending on your specific application. Individual outputs should not exceed 7.5A and the total current should not exceed 15A. If your application requires more current than this, then you will need to inject power into the pixels directly. The number of pixels that can be physically powered through this device may not be as high as the amount of pixel control data that is being output. There is no definitive rule as to how many pixels can be powered from the receiver, as it depends on the type of pixel. You need to consider if your pixel load will draw more than 7.5A of current and whether there will be too much voltage drop in the pixel load for it to only be powered from one end. If you need to “inject power” we recommend bypassing the receiver’s power output pins entirely. If a fuse needs replacing, a suitable replacement fuse is of type “F7.5A E 32V”. An additional spare fuse is also provided for quick replacement which can be accessed by opening the lid, as shown in Figure 6 below.

Figure 6: Internal View of the PixLite R2F-S

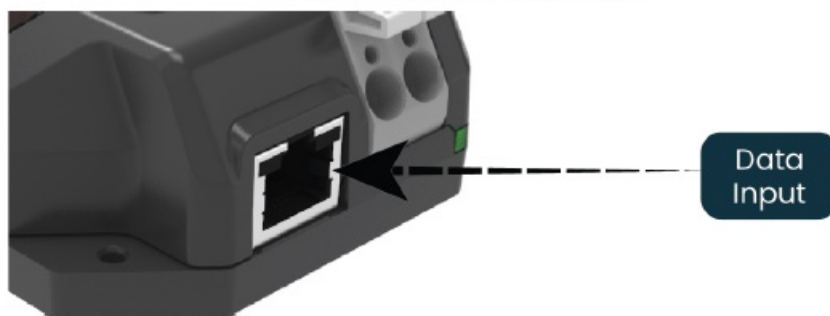


No on- board power configuration is required. Power to the logic circuitry is automatically regulated from the power input. Simply connect your DC power supply in accordance with specifications listed in Section 7.1 to the power screw terminal, as shown in Figure 5 above

Data Input

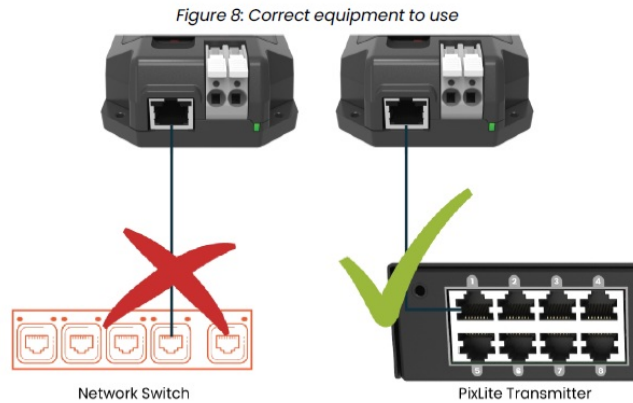
Data is connected via a standard network cable into the RJ45 jack located on the front panel of the unit, as shown in Figure 7 below.

Figure 7: Position of Data Input

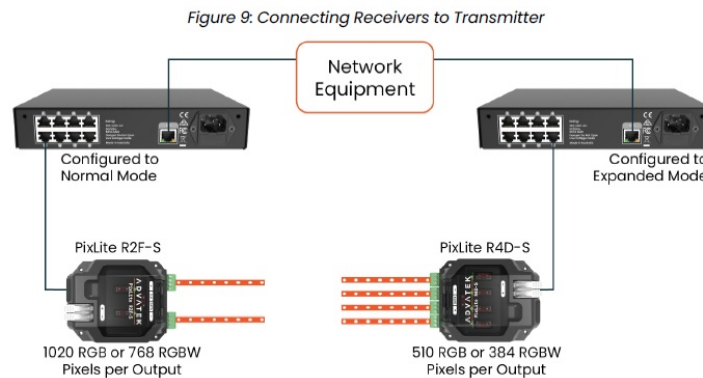


Receivers are connected to the transmitter via the RJ45 jacks on the rear panel of the PixLite T8. Each jack is

labelled with its output number 1-8. These ports are not network ports, and should not be connected to any networking equipment, as shown in Figure 8 below. They are specifically designed to connect a PixLite transmitter with a PixLite receiver. For this reason, the standard network cable you use can be safely used in excess of 300m.

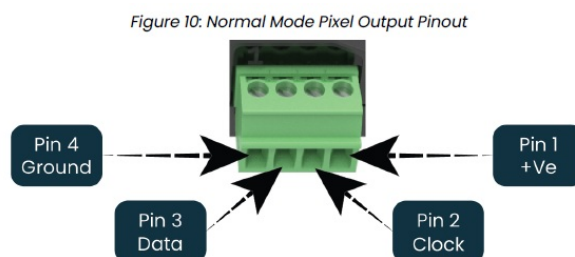


A typical setup is shown in Figure 9 below, which also shows how many pixels can be run off each output.



Connecting Pixel LEDs

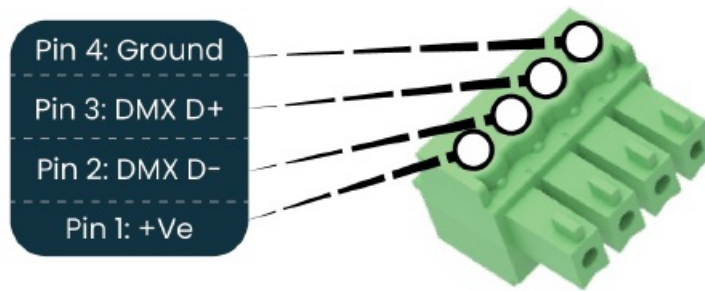
The pixel lights are connected directly via the 2 pluggable screw terminal connectors on the rear of the unit. Each connector is labelled with its output channel number (1- 2) and on the top of the lid the pin-out is clearly marked. Simply wire your lights into each screw terminal and then plug them into the mating sockets. The cable length between the output and the first pixel should not exceed 15m. Figure 10 shows the pin-out of the pixel output connectors.



Differential DMX512 Pixels

When paired with a Mk3 transmitter, the PixLite R2F-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 11 below. Note that 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. Also note that with DMX pixels, the outgoing data stream is not limited to a single universe, as a standard DMX universe would be. The maximum number of DMX pixels that can be configured is the same as the maximum number of pixels of any other protocol.

Figure 11: Pixel Output Pinout for Differential DMX512 Pixels

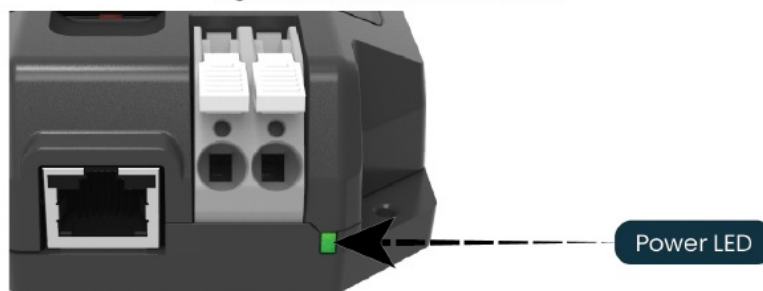


Operation

Start-up

When power is applied to the receiver, the green power led in the bottom right-hand corner on the front panel should be illuminated, as shown in Figure 12 below.

Figure 12: Position of the Power LED

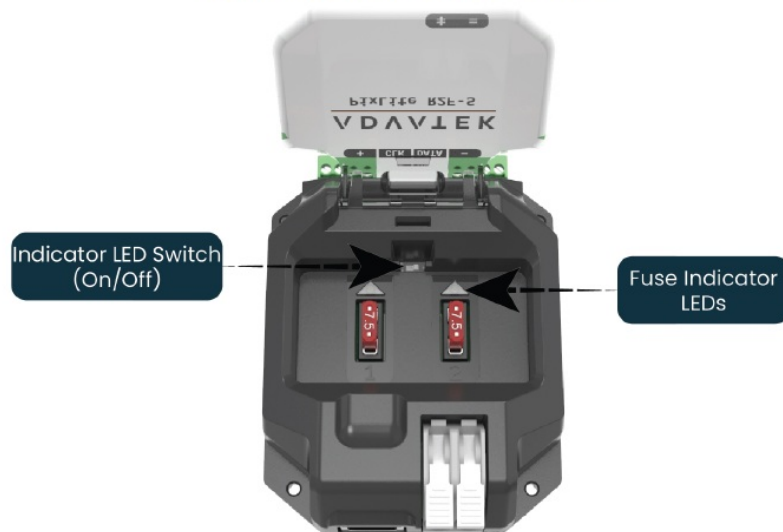


If pixels have been correctly connected to the outputs and the data cable is connected to the transmitter and valid data is being sent, you should see the pixels turn on.

Indicator LEDs

Each fuse is paired with a green LED which indicates the condition of the fuse. If the fuse is good, the LED will be on. If the fuse has been blown or is not connected, the LED will be off. This feature offers a quick method for determining the state of each fuse, however in environments where these LEDs are needed to be turned off, a switch is located underneath the spare fuse that will turn off this feature. If the switch is pushed to the right, it is off, and all indicator LEDs and the power LED will always be off. This switch is shown in Figure 13 below.

Figure 13: Position of Indicator LEDs and Switch



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

Operating Specifications

The table below specifies the recommended operating conditions for a PixLite R2F-S receiver.

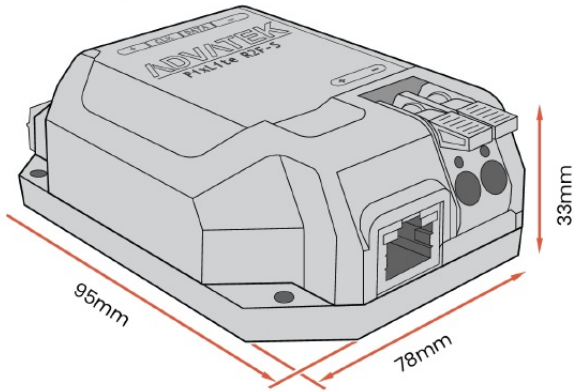
Parameter	Value/Range	Units
Input Voltage Range	5-24	V DC
Max Current	15	A
Max Logic Current Consumption @ 5V	150	mA
Ambient Operating Temperature	-20 to +55	°C
Maximum Current Per Pixel Output	7.5	A

Mechanical Specifications

The PixLite R2F-S receiver has dimensions as below.

Dimension	Metric	Imperial
Length	95mm	3.7"
Width	78mm	3.1"
Height	33mm	1.3"
Weight	0.2kg	0.4lbs

Figure 14: Receiver Mechanical Specifications



Fault Protection

The PixLite R2F-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 shorts to external voltages of up to +/- 24V. All pixel output lines are protected against direct shorts of up to +/- 24V. This means that even if your pixels or wiring have a fault that causes a direct short between the power and data or clock lines on any output, it will not damage the device. The PixLite R2F-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

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 all outputs and see if the receiver then turns on.

No Pixel Control

Check that the correct pixel IC type has been selected on the transmitter unit in the dropdown box in the Advatek Assistant under the 'LEDs' tab. Also check the physical wiring and pinout of the pixels, as well as the output fuses. Ensure that the green 'fuse good' indicator LEDs under the lid compartment are all visible (one per output channel). If any are off, replace any blown output fuses as required.

Other Issues

For the latest information, more specific troubleshooting guides and other help, you should refer to our online Knowledge Base here:

www.advateklighting.com/knowledge-base

Alternatively, you can contact our support team at:

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. The PixLite R2F- S receiver is supplied with a 3 – year limited warranty and a repair/replacement guarantee. Please see the terms and conditions on our website for more information. The PixLite R2F-S has been tested against and independently certified as compliant with the Standards listed in the table below.

Audio/Video and ICTE – Safety Requirements	
Radiated Emissions	
Immunity for ITE EN 55024	Electrostatic Discharge
	Radiated Immunity
	Power Frequency Magnetic Field Immunity
Restriction of Hazardous Substances	

Through testing to the above standards, the PixLite R2F-S has the certifications and marks listed in the table below.

Certification	Relevant Country
ETL Listing	North America and Canada. Equivalent to UL Listing.
CE	Europe
FCC	North America
ICES3	Canada
RCM	Australia and New Zealand
UKCA	United Kingdom

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.

Documents / Resources

	ADVATEK LIGHTING Pixlite R2F-S Professional LED Pixel Control [pdf] User Manual Pixlite R2F-S Professional LED Pixel Control, Pixlite R2F-S, Professional LED Pixel Control, LE D Pixel Control, Pixel Control
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References

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