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ENTTEC

ENTTEC 73539 DIN PIXIE

Product Information

Specifications:

- Custom Protocol Creation Guide
- Compatible with ENTTEC pixel controllers: DIN PIXIE, PIXELATOR MINI, PIXELATOR MINI MK2, OCTO MK2, OCTO MK3
- Firmware Version Requirements: V1.0 or above for some models, V2.0 or above for others, V4.0 or above for OCTO MK2

Product Usage Instructions

Introduction:
ENTTEC Pixel controllers support over 20 default pixel protocols. The custom protocol feature allows users to create a custom protocol for pixel fixtures not covered by default protocols without the need for new firmware.

Setup Requirements:

- Datasheet of the desired pixel fixture
- Computer to access the device settings page
- For ENTTEC Ethernet Controller: Device IP address (DHCP or static)
- For DIN PIXIE: EMU Software for configuration

Guide to Custom Protocol Creation:

1. Verify datasheet for compatible pixel protocol
2. Navigate to the Device’s User Interface to enablethe custom protocol feature
3. Adjustthe pixel fixture’s data voltage timing viathe web interface based othe n datasheet

Step 1: Verify Datasheet for Compatible Protocol

1. Check the data transmission method from the datasheet
2. Identify data transmission method (e.g., D1-D2-D3…Dn or C1-C2-D1-D2…Dn)
3. Choose a supported protocol with a similar data transmission method

COMPATIBLE FIRMWARE

Custom protocol creation is featured in the following ENTTEC pixel controllers:

SKU	Product	Firmware Version
73539	DIN PIXIE	V2.0 or above
70067	PIXELATOR MINI	V2.0 or above
70068	PIXELATOR MINI MK2	V1.0 or above
71521	OCTO MK2	V4.0 or above
71522	OCTO MK3	V1.0 or above

INTRODUCTION

- ENTTEC Pixel controllers support more than 20 pixel protocols by default. In the event of missing protocol, this custom feature allows users to create a custom protocol for the desired pixel fixture anytime without having to submit a support request for new firmware.
- This feature enables users to adjust the voltage timing based on the supported protocols if the data transmission method matches any of our supported protocols.
- This document provides setup instructions for creating a custom pixel protocol and verifying the criteria.

SETUP REQUIREMENTS

The following are required to create a custom protocol:

1. **Datasheet:** Obtain the datasheet of the desired pixel fixture to gather necessary information. Contact the dealer or manufacturer for this document.
2. **Device:** Use a computer to access the device settings page.
3. **For the TEC Ethernet Controller:** Obtain the device IP address, which can be either DHCP or static, based on your network settings. Discover the IP using the ENTTEC EMU app.
4. **For DIN PIXIE:** Use the EMU Software for configuration.

GUIDE TO CUSTOM PROTOCOL CREATION

This feature allows users to adjust the data voltage timing to meet specific protocol needs. To create a custom protocol:

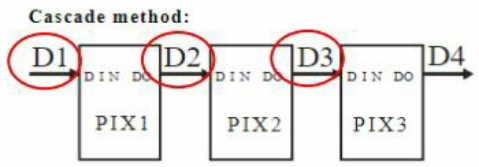
1. Verify the datasheet for the compatible pixel protocol.
2. Navigate to the Device's User Interface to enable the custom protocol feature.
3. Adjust the pixel fixture's data voltage timing via the web interface as per the manufacturer's datasheet.

Step 1: Verify the datasheet for the compatible protocol

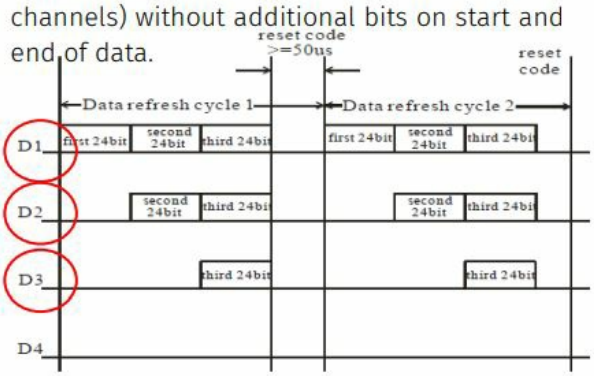
1. Verify the data transmission method of your desired protocol from the datasheet.
    1. The data transmission method implies how the data is forwarded. Below are demonstrated the common data transmission methods:
        - The most common method transmits data without additional bits (e.g., D1-D2-D3…Dn).

          Example: Information captured from WB2812B's datasheet

Datasheet indicates data transmission by D1-D2-D3-D4 between pixels.



Datasheet shows each D1, D2, D3 are transmitted with data batch of 24bit (8bit x 3 channels) without additional bits on start and end of data.

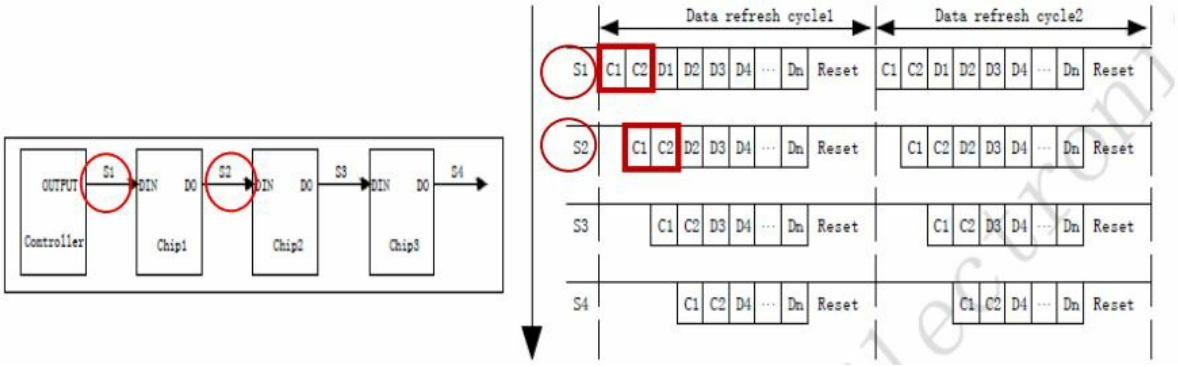


- Some protocols, like TM1814, include additional data at the front (e.g., C1-C2-D1-D2…Dn).

  Example: Information captured from TM1814's datasheet

Datasheet indicates '*Data receiving and forwarding*' with S1-S2-S3-S4 between pixel (chip)

Datasheet shows how S1, S2, S3 are transmitted with extra C1-C2 in the front of data batch.



2. Nominate the matching protocol supported by the device (or choose from the above example) that shares the same data transmission method as your desired pixel protocol.
3. Proceed to Step 2 for further configuration.

Step 2: Navigate to the Device's Settings page to enable the custom protocol feature

In this step, the OCTO/PIXELATOR MINI Series and Din PIXIE are guided accordingly due to their distinct interfaces.

For ENTTEC Ethernet Controllers (OCTO/PIXELATOR MINI Series)

1. Access to the OCTO/PIXELATOR MINI web interface
    1. Google Chrome is suggested as the web browser to access the OCTO/PIXELATOR MINI's web interface.
    2. Free ENTTEC app, EMU can be used to discover OCTO/PIXELATOR MINI's IP address. See the ENTTEC website www.enttec.com to download the app.
    3. After entering the IP address of OCTO/PIXELATOR MINI, the user will land on the Home page of OCTO/PIXELATOR MINI's User Interface.

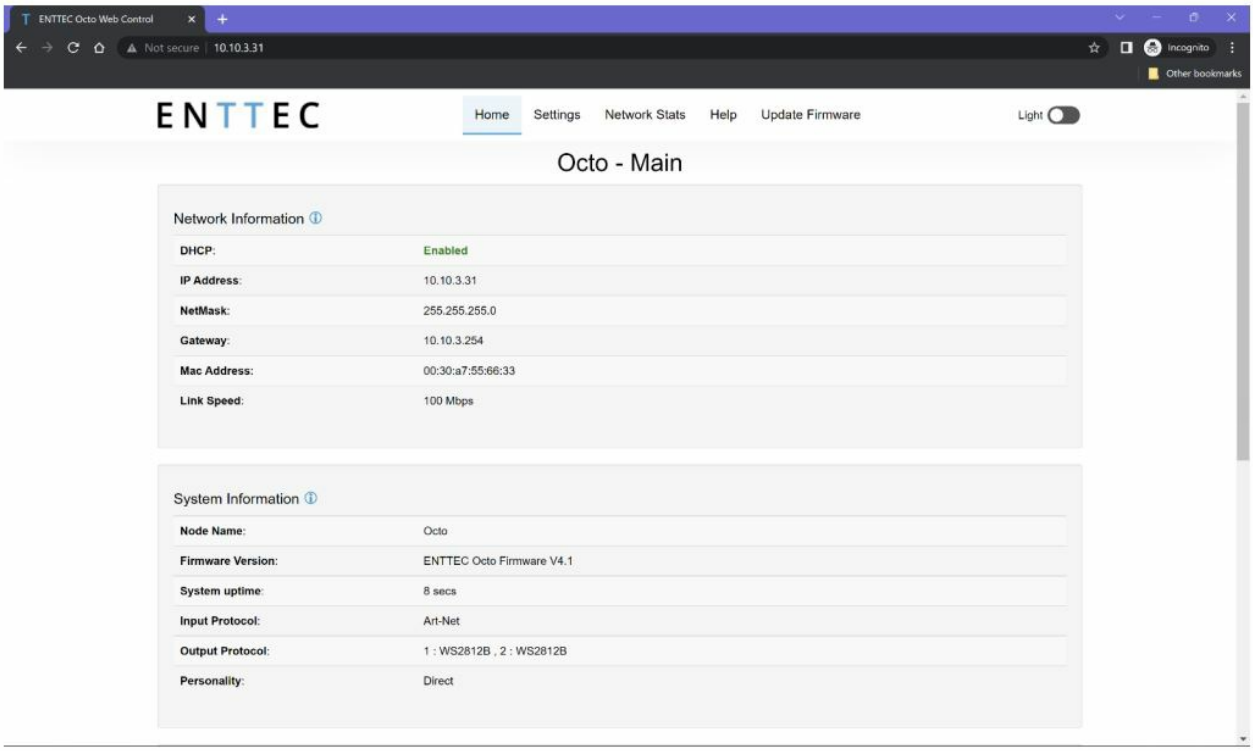


Figure 1 – Example of OCTO Home Page

Example of the OCTO homepage in Figure 1 indicates IP address 10.10.3.31, which was assigned by the DHCP server. For the out-of-box OCTO/PIXELATOR MINI that is connected directly to a computer (no DHCP server), the default IP address is 192.168.0.10.

See OCTO/PIXELATOR MINI User Manual ‘Networking’ section for more information.

2. **Navigate to the Settings page – Output Setting.**

   Go to the output where the desired pixel fixture is connected to. Pick a pixel protocol from the dropdown list that shares the same transmission method verified in Step 1.

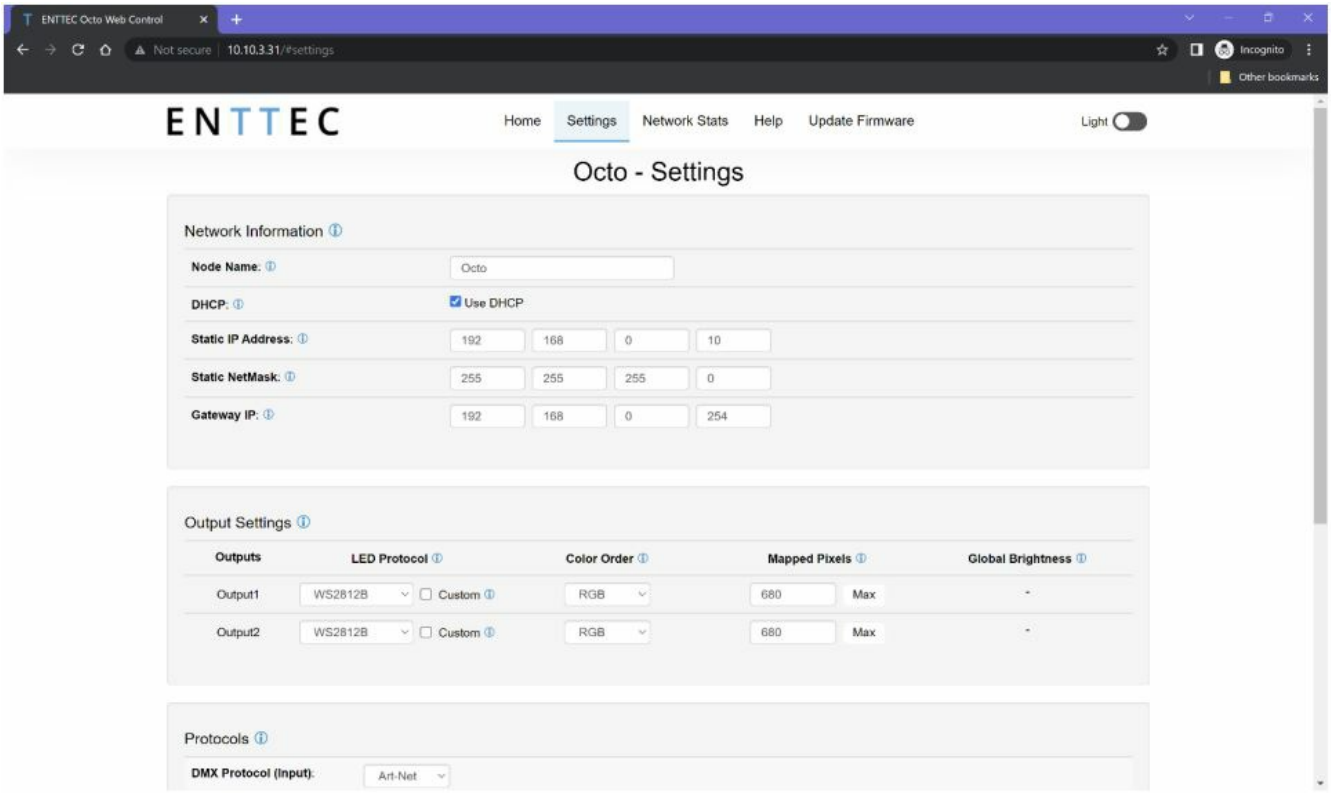


Figure 2 – Example of OCTO Settings Page

3. **Enable Custom protocol (Continue to Step 3)**

   Enable the ‘Custom’ tick box to access the data voltage timing setup. Untick to disable the custom protocol.

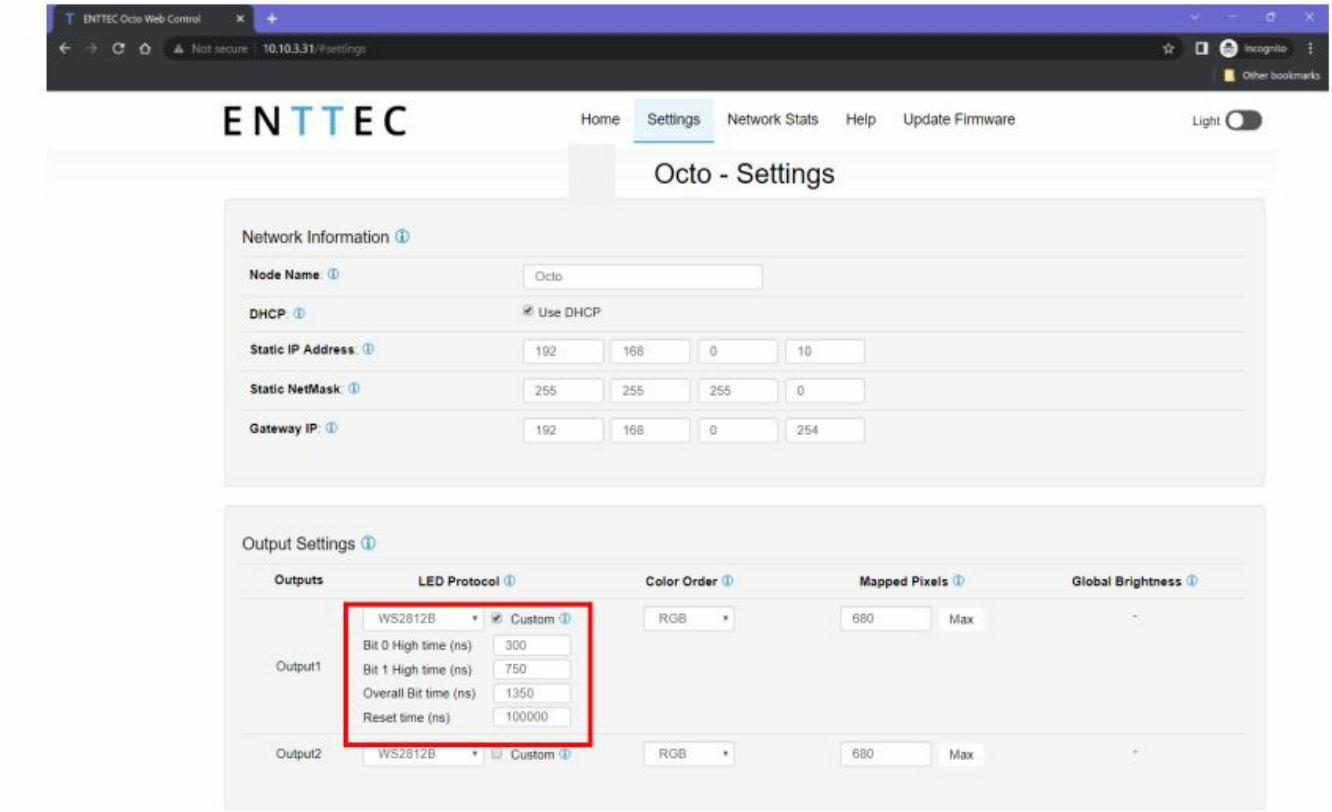


Figure 3 -Example of OCTO Custom field after enabling 'Custom' tick box

For DIN PIXIE

1. Connect DIN PIXIE to a computer using USB Type-B.
2. Launch EMU Software.
3. Scan for the device and click on the Conf of the discovered DIN PIXIE.

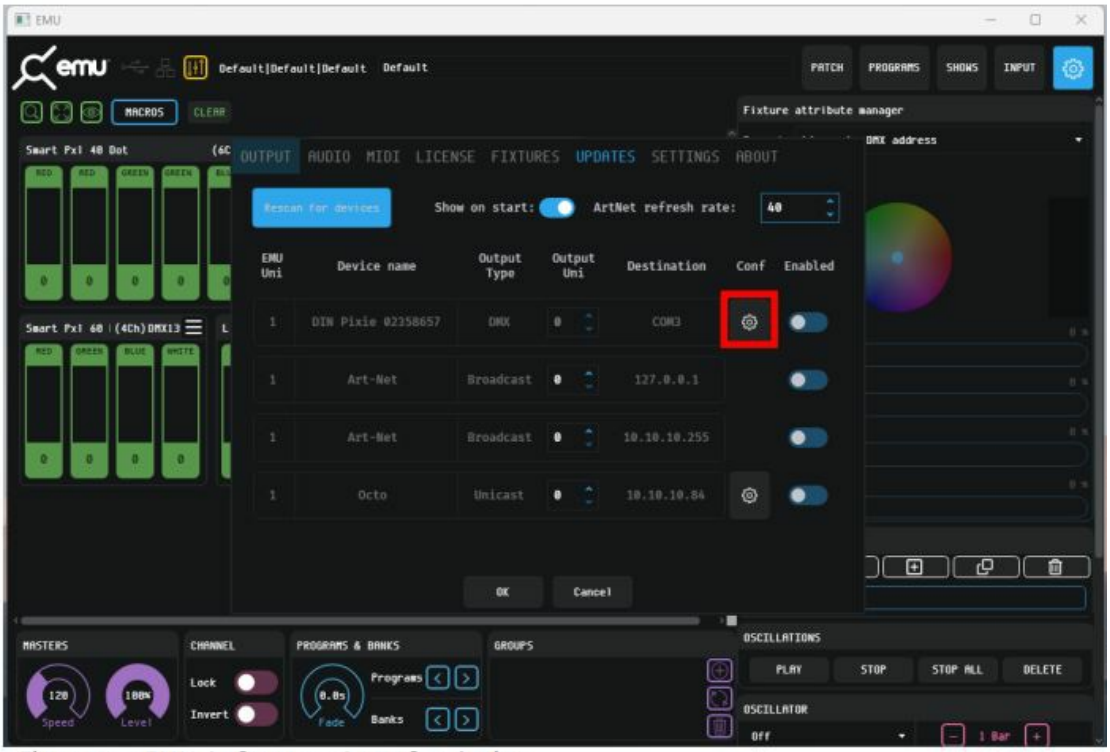


Figure 4 - EMU Software - Scan for device

4. Enable Custom Protocol (Continue to Step 3)

   Pick a pixel protocol from the dropdown list that shares the same transmission method verified in tp,1, and enable Custom.

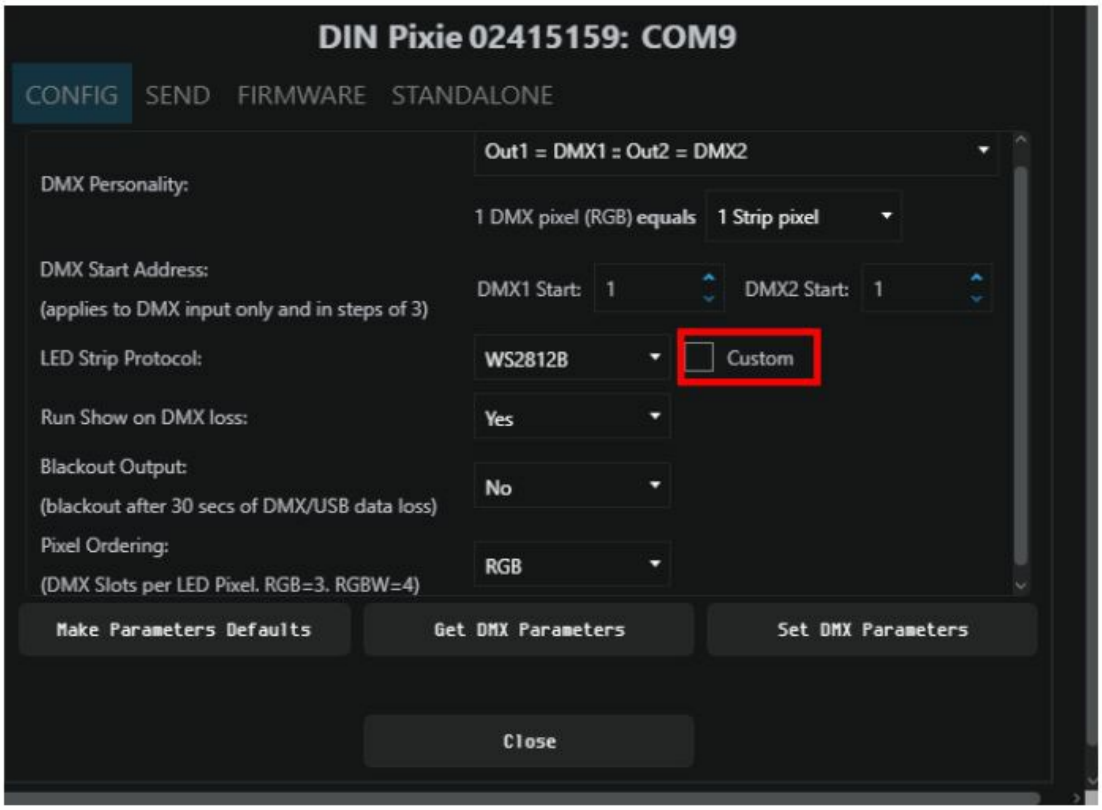


Figure 5 - DIN PIXIE Configuration in EMU

Step 3: Set custom voltage timing

1. Match the voltage timing on the datasheet of your desired protocol. Custom Protocol requires 4 inputs to complete data voltage timing adjustment:

Voltage Timing Definition	
Bit 0 High Time (T0H)	The voltage high time required for code 0.
Bit 1 High Time (T1H)	The voltage high time required for code 1.
Overall Bit Time:	The total voltage time for a single bit. Lower limit = T0H+T0L Upper limit = T1H+T1L
Reset Time	The total voltage low time required to reset the data trans mission between each data batch.

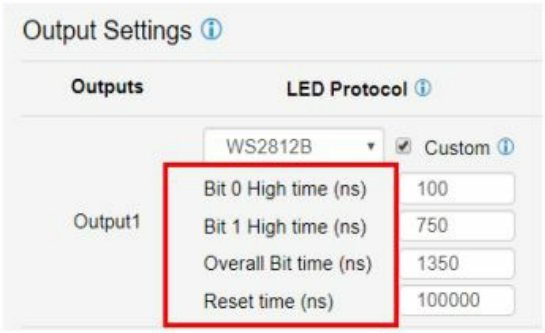
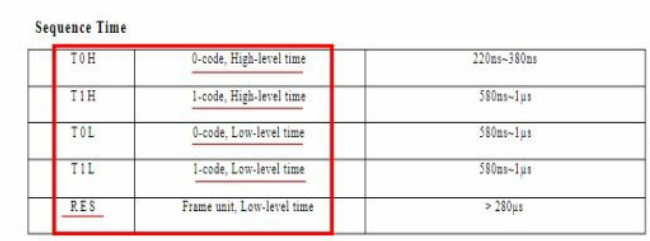


Figure 6 - Custom Voltage Timing values

2. **Datasheet – Data voltage timing info Example**

   From WB2818B's datasheet

   - Locate the 'Sequence Time' table in WB2818B's datasheet for the voltage timing range.
   - Fill the voltage timing range in the custom field in Output Settings.



Sequence Time

T0H	0-code, High-level time	220ns~380ns
T1H	1-code, High-level time	580ns~1μs
T0L	0-code, Low-level time	580ns~1μs
T1L	1-code, Low-level time	580ns~1μs
RES	Frame unit, Low-level time	> 280μs

Figure 7 - Voltage Timing from WB2818B Datasheet

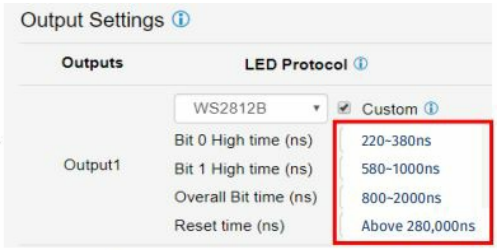


Figure 8 - Datasheet information interpreted into LED Protocol's custom field

IMPORTANT

- ENTTEC recommends taking the median value of the range for the start.
- The user will have to SAVE settings for the modified value to take effect.
- Fine adjustment of value required, followed by actual output test to optimise custom protocol for pixel fixture control.
- ENTTEC recommends a trial run on the actual setup before finalising the custom protocol setup.
- Typical issues of incorrect setup include, including and not limited to, failure to light up and output flickering.

CONCLUSION

- This guide demonstrated how to set up a custom protocol for eligible ENTTEC devices and provided technical knowledge on verifying the datasheet of your desired pixel fixtures.

- By following these steps, users can create a custom pixel protocol not found in the drop-down list without waiting for technical support or a new firmware release. If you have questions or difficulty finding the right information, reach out to our friendly support team at the local offices.

FAQ

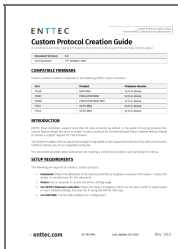
How do I access the device settings page on my computer?

You can access the device settings page by connecting your computer to the device's network and entering the IP address in a web browser.

Can I create a custom protocol without the datasheet?

It is recommended to have the datasheet to ensure accurate customization of the protocol based on the pixel fixture's specifications.

Documents / Resources

	ENTTEC 73539 DIN PIXIE [pdf] Instruction Manual DIN PIXIE, PIXELATOR MINI, PIXELATOR MINI MK2, OCTO MK2, OCTO MK3, 73539 DIN PIXIE, 73539, DIN PIXIE, PIXIE

References

- User Manual

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73539, 73539 DIN PIXIE, Din Pixie, ENTTEC, OCTO MK2, OCTO MK3, PIXELATOR MINI, PIXELATOR MINI MK2, PIXIE

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