

Ethernet to Ethernet Protocol Converter

Model: E2E



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Product Description

The Ethernet to Ethernet (E2E) device supports conversion of four universes from one Ethernet protocol to another Ethernet protocol. The following protocols can be configured on the input and output Ethernet interfaces:

E1.31 sACN

ArtNet v3

KiNeT

Shownet

Draft sACN

Each interface supports one of these protocols at a time.

The E2E can relieve issues of compatibility in Ethernet lighting systems where a transmitter and receiver do not support a common protocol. In addition to handling issues of protocol support the E2E may help with network traffic relief. The E2E uses two separate physical interfaces to allow separation of streams and preserve network resources.

Configuration Overview

Both input and output on the Ethernet to Ethernet protocol converter are configured using two separate web servers. These web servers may be accessed by a PC using any web browser, and a properly configured IP address. Ethernet in and Ethernet out are initially configured for DHCP, but will use the assigned static IP in the absence of a DHCP server.

The Node Discovery program, which is available for download at www.dfd.com may assist users to connect to the E2E using a Windows PC. Using DHCP and Node Discovery is a simple way to get to the configuration pages within the interface.

Below a screenshot displays the output of a successful Node Discovery with a DHCP enabled router and both in and out connections connected on the same network with a Windows PC.

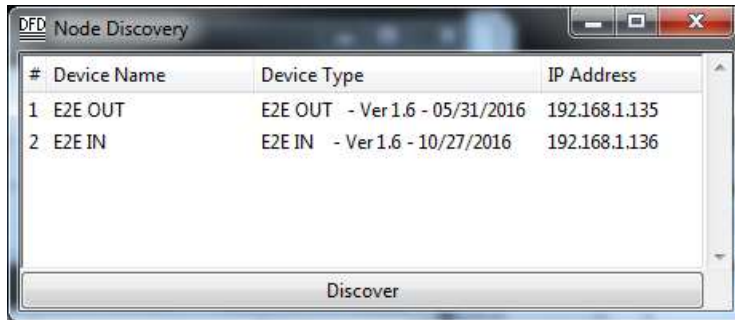


Figure 1: Node Discovery after finding both input and output

Double clicking on an entry in the Node Discovery program will open a default browser to the address listed in the IP Address column. The status page shows by default, and all configuration information for the E2E (IN or OUT) may be observed.

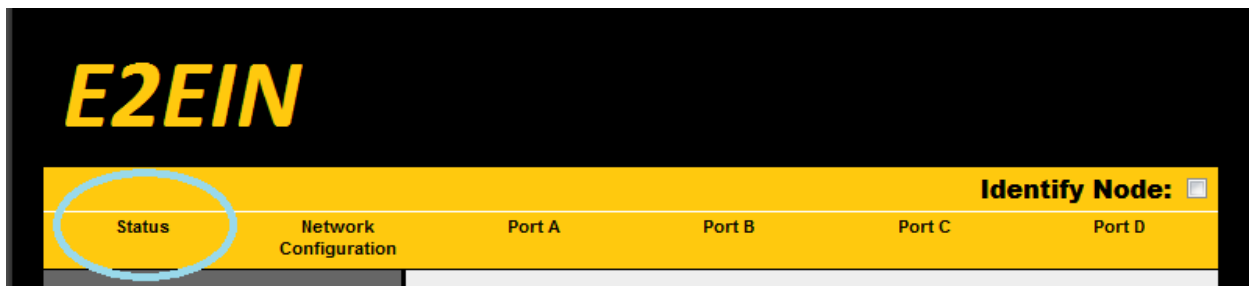
For cases where DHCP is unavailable, each interface is physically marked with a default IP address. A PC with an IPv4 enabled Ethernet adapter set to a 10.?.?.? / 255.0.0.0 address and subnet mask is suitable for direct communications with the default E2E static IP address.

Web Server

There are status and configuration pages contained on the two embedded web servers hosted by the E2E. In and out configure similarly, with the exception that the Ethernet in interface always has its virtual ports as output, and the Ethernet out interface always has its virtual ports as input.

Status Page

The status tab shows the user all current configuration settings on the E2E interface.



The Status page will indicate Device name and Description, DHCP and other IP settings, the universe number of each virtual port, and additional status.

Network Configuration Page

Under the Network Configuration tab, key network configuration options are set. The user may change the lighting protocol supported by the interface by clicking on the Network Protocol box. Use of static IP or DHCP is selected here. A user may change the default IP address when DHCP is turned off. The device name and description may be set here, and will display in Node Discovery, and other programs that request this data.

E2EIN

Identify Node:

Status **Network Configuration** Port A Port B Port C Port D

Identification

The *NODE4*'s Device Name is the text displayed on the home screen. This can be used for easy identifying of particular units.

The Description is used to describe the *NODE4* to other nodes and controllers on the network.

Device Name:

Description:

IP Settings

DHCP:

IP Address: . . .

Subnet Mask: . . .

MAC Address: 54:10:EC:0D:40:4C

Network Protocol:

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Virtual Ports

The E2E communicates between its two Ethernet interfaces using virtual Ports. The four virtual Ports are always connected by letter. This means Port A on the E2E in side will communicate universe data to Port A on the E2E out side. These virtual connections remain linked at all times for each of the four ports. The configuration for universe number and other protocol specific details are configurable on the web server. The direction of the virtual port is not configurable. The Ethernet in side will have a virtual port set to an output, which then feeds to the Ethernet out side's virtual input.



Figure 2: An E2E's virtual Port A configuration for sACN in and ArtNet out

Network Topologies

The two network interfaces on the E2E can provide physical separation between the two data streams. Systems wishing to minimize network usage may isolate the output stream to a separate network. Below are two examples, the first isolates ArtNet data from a larger sACN system, the second allows all traffic to reach all devices, and has a simple configuration. Please note that the protocols used in the example can be changed to any of the supported protocols on the supported protocols list located at the top of this manual.

Example 1 – Traffic Separation – sACN system with ArtNet dimmer:

In the below example ArtNet traffic is not seen by the sACN equipment, and the sACN light board traffic gets converted to ArtNet based on the virtual port settings in the E2E. The Ethernet Router may or may not use DHCP, and the E2E out and ArtNet dimmer use static IP. In cases where the sACN side uses static addressing, or the light board provides a DHCP server, the Ethernet router should be changed to an Ethernet switch in the example below.

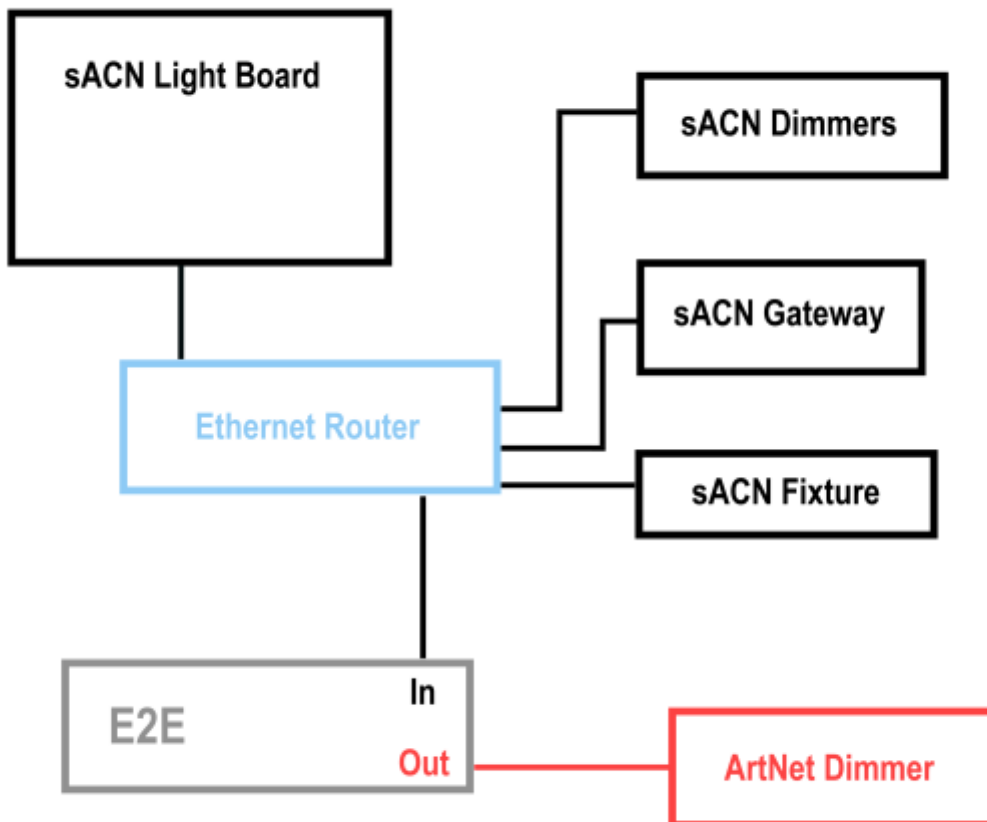


Figure 3: Traffic Separation described in Example 1

Example 2 – No Traffic Separation – sACN system with ArtNet dimmer:

When there is a single router in a system, and network traffic is not a concern, both the Ethernet in and Ethernet out may be connected to the router. The router will issue IP addresses to all of the DHCP enabled devices on the network, and Node Discovery will be able to see both interfaces on the E2E. The network usage is doubled for each universe going into the E2E in port. This is represented with the black/red lines in the below diagram. In cases where the network uses static addressing, or the light board provides a DHCP server, the Ethernet router should be changed to an Ethernet switch in the example below.

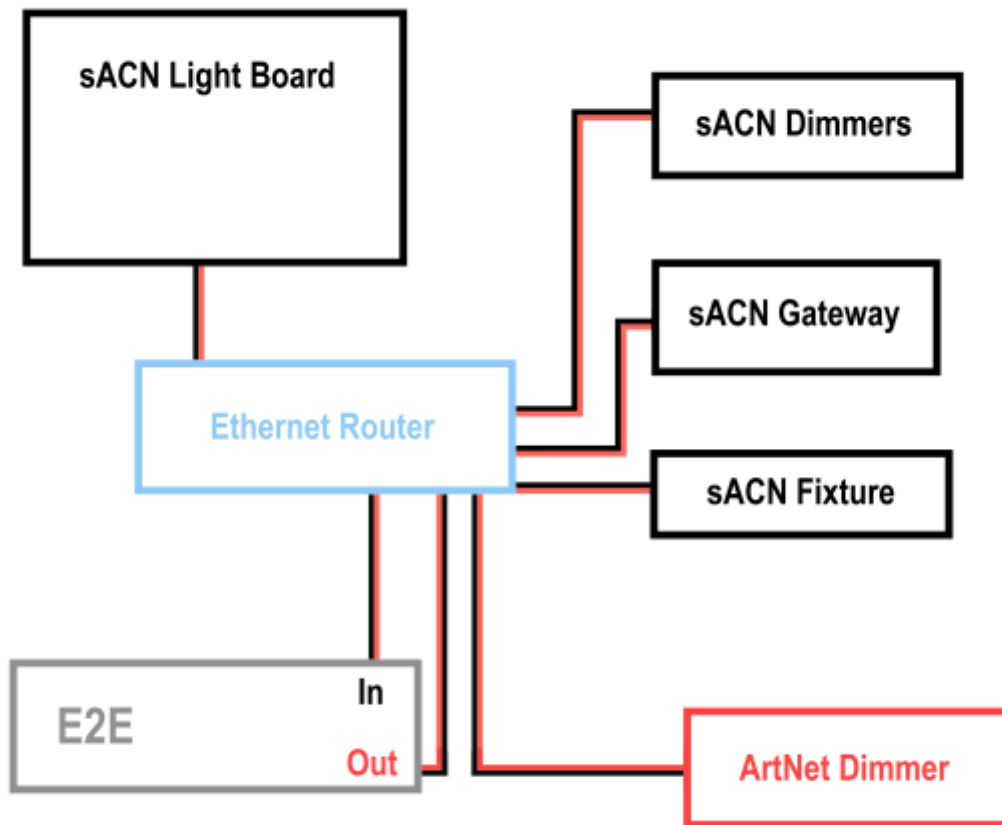


Figure 4: Single Network described in Example 2

Environmental

Operating temperature: 0-40° C

Operating humidity: 10-90% non-condensing

Indoor use only

Limited Manufacturer's Warranty

Products manufactured by Doug Fleenor Design (DFD) carry a five-year parts and labor warranty against manufacturing defects. It is the customer's responsibility to return the product to DFD at the customer's expense. If covered under warranty, DFD will repair the unit and pay for return ground shipping. If a trip is necessary to the customer's site to solve a problem, the expenses of the trip must be paid by the customer.

This warranty covers manufacturing defects. It does not cover damage due to abuse, misuse, negligence, accident, alteration, or repair by other than by Doug Fleenor Design.

Most non-warranty repairs are made for a fixed \$50.00 fee, plus shipping.

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