DOUG FLEENOR DESIGN

Model E1REL20A-JBOX & E1REL20A-2POLE-JBOX Installation and Operations Manual

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Manual Revision
July 2019

Product Overview and Document Scope

The Doug Fleenor Design E1REL20A-JBOX and E1REL20A-2POLE-JBOX Relay Packs control loads attached to dry contact air-gap relays. Control for these products comes from ArtNet and sACN (E1.31) Ethernet protocols. The protocols are configured using an internal web server. Connection and configuration of the webserver are described in this document.

Power input (line) wiring
Supply the E1REL20A-JBOX or E1REL20A-2POLE-JBOX with a protected branch circuit of no more than 20A. The power input terminals on the E1REL20A-JBOX and E1REL20A-2POLE-JBOX are rated for #12AWG copper wire (maximum). The torque rating for the terminals is 4.51 IN/LB.

Input power wiring must enter the enclosure and route directly to the input power terminals without crossing over the circuit board or any control wiring.

Power output (load) wiring
The output can supply a 20A (maximum) 120VAC load for the E1REL20A-JBOX. The E1REL20A-2POLE-JBOX can supply a 20A (maximum) 240V load. The output terminals are rated for #12AWG copper wire (maximum). The torque rating for the terminals is 4.51 IN/LB.

Load wiring must enter the enclosure and route directly to the input power terminals without crossing over the circuit board or any control wiring.

Control cable wiring
Control cabling must enter the enclosure and route directly to the Ethernet input. The installer must secure low voltage control cabling such that it cannot come in contact with high voltage line or load wiring.

Configuration Overview

Setup begins with a physical connection to a network using the Ethercon connector. Once physically connected, appropriate IP addresses must be set in order to access the web pages and configuration options. The two methods for establishing this web connection are using Dynamic Host Configuration Protocol [DHCP] and Node Discovery, or Static IP addresses. Once connected and configured, the relay stores the settings, which persist after removing power.

Installers may choose to bench configure these products (typically with Static IP) prior to installation, or place them into networks specified in a way where connection is possible after being physically connected into the system (typically with DHCP and Node Discovery on Windows 7 or higher). Mac and Linux users who require additional support can give us a call at (805) 481-9599.

Default IP Configuration

Unique IP addresses are assigned to each DFD Ethernet product at shipping time. The IP Address and Subnet Mask are labeled on the bottom of each unit. DHCP is also enabled at shipping time. When a default configured relay is connected to a network that does not have a DHCP server, the IP from the bottom of the unit is used.

For pages other than the status page the default Username and Password are:

Username: admin

Password: dmx512

Connect using DHCP and Node Discovery

This procedure is valid for PC's using Windows 7 or newer. Mac and Linux users who require assistance can give us a call at (805)481-9599.

To begin setup, plug in your Ethernet Relay and ensure that the red "PWR" LED illuminates. Run a cable from the Ethercon connector to a router configured to serve DHCP (default for most 'home' routers). Run another cable from the router to a Windows 7 (or newer) PC with an Ethernet card set to use DHCP (standard for most 'home' PCs). Next, download Node Discovery from our webpage at www.dfd.com. To do so, navigate to the Node Discovery Page under the Ethernet Products heading. Node Discovery is a simple application that allows you to find your Doug Fleenor Design Ethernet devices on your network. There is no need to install the program, just unzip the file and double-click on NodeDiscovery.exe. Below is a screenshot that displays the output of a successful Node Discovery. Type in your IP and subnet, click Discover, and then double-click on the Node you wish to configure. It opens the device's built-in webserver for configuration.
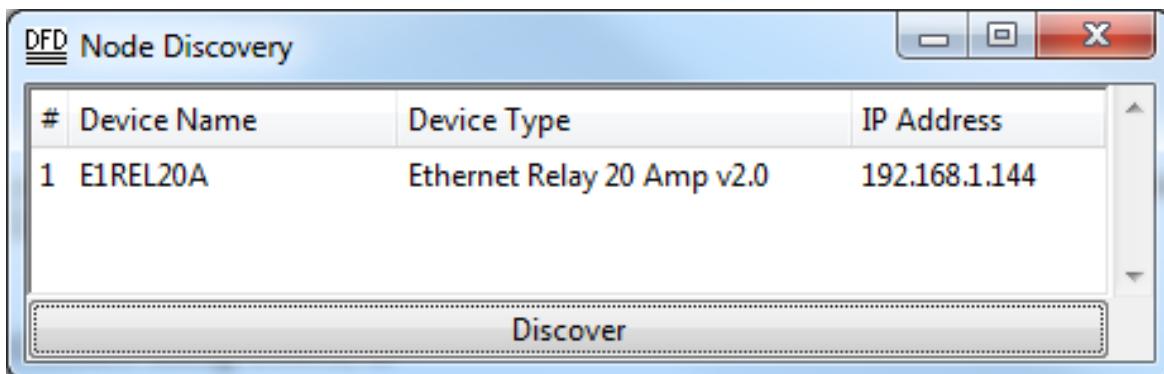
You will be brought to a page in the Ethernet relay's built-in webserver to configure your Ethernet relay. The username and password are as follows:
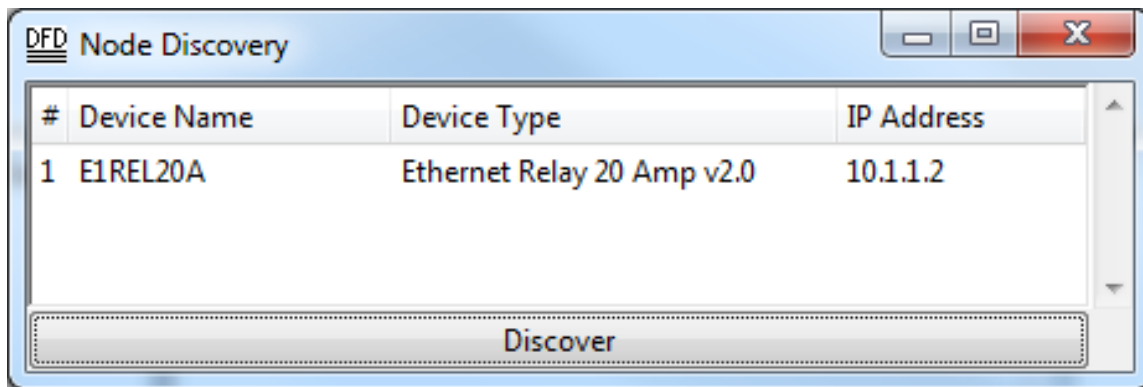
Username: admin

Password: dmx512

Once entered, you can edit your password in the Admin tab.

Connect using STATIC IP

To begin setup, plug in your Ethernet Relay and ensure that the red "PWR" LED illuminates. Run a cable from the Ethercon connector on the back of the Ethernet Relay to the Ethernet port of your computer. The computer's Ethernet interface will need an IP Address set to 10.X.X.X and a Subnet Mask of 255.0.0.0. The X's can be any number between 1 and 255, but cannot be the same as the IP printed on the bottom of the relay. Open any web browser and type the IP Address from the bottom of the unit into the address bar. This opens the internal web server of the relay. Additionally Node Discovery may be used with a static IP. The above section describes how to download Node Discovery.

With the browser open, and the correct IP address in the address bar, you will be brought to a page in the Ethernet relay's built-in webserver to configure your Ethernet relay. The username and password are as follows:

    Username: admin

    Password: dmx512

Once entered, you can edit your password in the Admin tab.

Web Server

DOUG FLEENOR DESIGN | E1REL20A

Ethernet Relay Status

- Status
- IP Address
- sACN
- ArtNet
- Admin
- Name
- Test

Device Name: E1REL20A
Description: Ethernet Relay 20 Amp v2.0
Firmware: 2.0

DHCP: Disabled
IP Address: 10.1.1.2
Subnet Mask: 255.0.0.0
MAC Address: d8:80:39:19:43:a7

sACN: Enabled
Universe: 1
Start Slot: 1

Artnet: Enabled
Universe: 0
Subnet: 0
Net: 0
Start Slot: 1

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The Status page displays all of the details of your current setup for your Ethernet relay. This includes its name, description, current version of firmware, DHCP status, IP Address, Subnet Mask, MAC Address, sACN parameters, and ArtNet parameters. Adjustments to these settings can be made in the other pages.

Interface Configuration

Status

IP Address

sACN

ArtNet

Admin

Name

Test

This page allows the configuration of the board's network settings.

CAUTION: Incorrect settings may cause the board to lose network connectivity. Recovery options will be provided on the next page.

Enter the new settings for the network interface below:

☐ Enable DHCP

Static IP: 10.1.1.2

Static Subnet Mask: 255.0.0.0

Restart Interface

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The IP Address page allows you to configure your Ethernet relay's network interface. From this page, you can enable and disable DHCP and change both your Static IP and Static Subnet Mask to best fit your needs for your system.

sACN Lighting Protocol

Status

IP Address

sACN

ArtNet

Admin

Name

Test

This page allows the configuration of the board's network settings.

CAUTION: New settings will adjust what data streams this device listens to and may cause the relay to toggle on or off.

Enter the new settings for the relay below:

Enable sACN: ☑

Universe: 1 (1-63999)

Slot: 1 (1-512)

Apply Protocol Configuration

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The sACN page allows you to configure your Ethernet relay using the sACN lighting protocol. From this page, you can enable and disable sACN, as well as configure its universe (from 1 to 63,999) and its slot (from 1 to 512). This allows you to configure this protocol to best suit your needs.

The ArtNet page allows you to configure your Ethernet relay using the ArtNet lighting protocol. From this page, you can enable and disable ArtNet, as well as configure its universe (from 0 to 15), its subnet (from 0 to 15), its net (from 0 to 127), and its slot (from 1 to 512). This allows you to configure this protocol to best suit your needs.

Interface Configuration

Enter the passwords below:

Old Password:	
New Password:	
Retype New Password:	
	Submit

Status
IP Address
sACN
ArtNet
Admin
Name
Test

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The Admin page allows you to change your password to access the Ethernet interface. Note that your username is "admin", and that your original password is "dmx512". If you feel the need to change this password, this is where you do so.

Interface Configuration

Enter the names for the interface below:

Long Name:	Ethernet Relay 20 Amp v2.0
Short Name:	E1REL20A
	Submit

Status
IP Address
sACN
ArtNet
Admin
Name
Test

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The Name page allows you to adjust the name of your Ethernet relay. It provides both a long name and a short name, and both can be seen on the Status page. On the Status page, the short name is displayed as your device's name, and the long name is displayed as your device's description. This feature allows you to adjust the name and description of your Ethernet relay to best suit your needs.

Test and Debug

| Status |
| IP Address |
| sACN |
| ArtNet |
| Admin |
| Name |
| Test |

Test Relay:
○ Force On
○ Force Off
◉ Stop Test

[Submit]

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The Test page allows you to test and debug your Ethernet relay. To check your relay, you can force it both on and off from this page. When you select the "Force On" option and hit "Submit", you will hear the relay click on. In addition, the green "SIGNAL" LED will blink on and off, and the green "MIMIC 1" LED will be on. When you select the "Force Off" option and hit "Submit", you will hear the relay click off. In addition, the green "MIMIC 1" LED will turn off, but the green "SIGNAL" LED will continue to blink on and off. When the "SIGNAL" LED blinks on and off, this is indicating that the relay is in its test mode. The "MIMIC 1" LED mimics the output of the relay; when the relay is closed, the LED is illuminated, and when the relay is open, the LED is off. Selecting the "Stop Test" option and hitting "Submit" will stop the test and bring the relay back to its normal state with only the red "PWR" LED still illuminated. This can help you troubleshoot both your Ethernet Relay and your system's setup.

LED indicators

The LED indicators on the E1REL20A-JBOX and E1REL20A-2POLE-JBOX have the following functions:

LED label	Function
SIGNAL	On when DMX is present, flashes when the unit is in test mode
MIMIC 1	On when the relay is closed, supplying power to the output
POWER	On whenever power is applied

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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