Ethernet Sender

User's Guide

Overview

The Sender monitors wired inputs and remotely controls DLI power switches and relays via Ethernet.

Features include:

- Binary inputs measure dry-contacts, AC or DC.
- Wide input voltage range from 3-24V AC or DC allows connection to a wide range of inputs.
- Sender authenticates with power controllers such as DIN Relay, Web Power Switch, Datacenter Power Controller, etc.
- Simple set up via web interface.
- LCD status display shows local inputs and remote relays.

System Requirements

- 10Mbit or faster LAN connection
- AC or DC power
- External inputs (either contacts or switches in DRY mode, or voltage sources in WET mode)
- Web browser for configuration

Quick Installation

1. Determine if you will be applying power to the Sender (ie. monitoring power to an attached device), or connecting to a dry-contact switch. Set DIP switch positions ON for the inputs that are dry contacts. Each input can be switched individually.
2. Configure a PC with a network card to use a static IP address of 192.168.0.1, netmask 255.255.255.0. You may need a crossover cable for older machines.
3. Power up the Sender.
4. The LCD screen should soon cycle, displaying status which includes an IP address. The default is 192.168.0.101, but this can change if a DHCP server and lease are available on your LAN.
5. Open a web browser and go to the address shown on the LCD, ie. http:// 192.168.0.101.
6. You will be prompted for a username and password. Defaults are **admin** and **1234**
7. Follow to the “Network configuration” link to change the network connection parameters.
8. It’s wise to change the default username and password using the **Administrative Functions** page.
9. Enter the target device settings and outlet mapping using the **Remote Device**

Configuration page.

If you are moving or re-installing the Sender, you can reset all settings to factory defaults. To do so, before all of the above steps, power on the Sender, then press and hold the reset button on the back of the case until the LCD indicates settings have been erased. At that point, you may power off the device and proceed with a fresh installation (above).

LCD Display

The Sender features a 16x2 LCD display divided into three sections:

INPUTS	12345678
Status ticker	

The first row of the LCD shows the current INPUT, RELAY, and EXPECTED states. Each of the 8 bits on the display corresponds to an input or target relay on the attached device.

The bottom line of the LCD cycles through status displays.

Inputs to the Sender

The Sender provides 8 optically isolated inputs which can be operated in either wet or dry modes (with or without external power).

Dry Contact Mode
(Non-Isolated, ground referenced)
In dry contact mode, with the DIP switch set to ON, inputs can be:

- Any switch
- Relay contacts (NC or NO)
- Any dry-contact sensor (such as a motion detector or alarm sensor)

In dry-contact mode, the left-most terminal is connected to a pullup-resistor. Connect your switch or contact between the right terminal and any GND pin.

Wet Input Mode
(Fully Isolated)
In “wet” mode, with the DIP switch turned OFF, inputs can be:

- AC power sources (3-24VAC). These will be filtered through a low-pass capacitive filter. Examples are a door buzzer or 24V PoE device.
- DC power sources (3-24VDC). Examples are 3.3-5V logic inputs, batteries, DC operated

loads, etc.

In wet mode (switch down), connect your switch or contact to the two screw terminals under the corresponding input connection. No ground reference is used in wet mode.

Input Damage
While the Sender inputs are relatively rugged, it is possible to damage them in two ways:

1. Applying voltage well in excess of the 24V maximum rating. If you need to monitor higher voltages, add an external series resistor or transformer. The input resistance of the Sender is 2K. For example, a 1W 47K resistor can be connected in series with the input to monitor a 120VAC circuit.

2. Setting the DIP switches ON with wet inputs. Avoid burning out the pullup resistors. Set the switch properly before connecting the Sender.

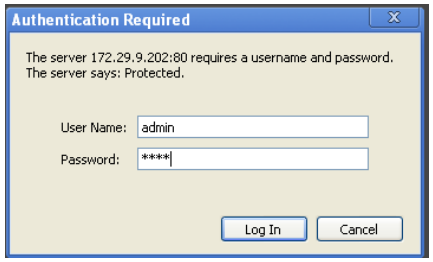
After connecting inputs, check the status display to confirm that the bits change in the INPUTS section.

Web Interface

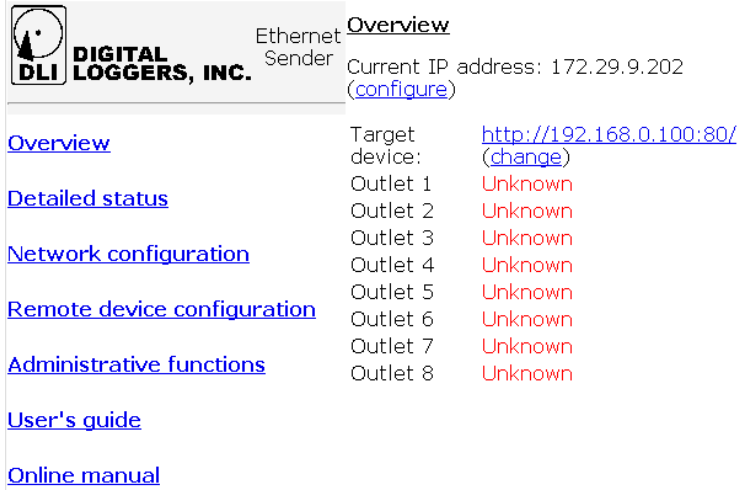
The Sender uses .html web pages for configuration and status monitoring. To connect, enter the URL

displayed on the LCD (either the default 192.168.0.101 or DHCP may be used) in your browser URL bar. Login with defaults:

User: admin
Password: 1234

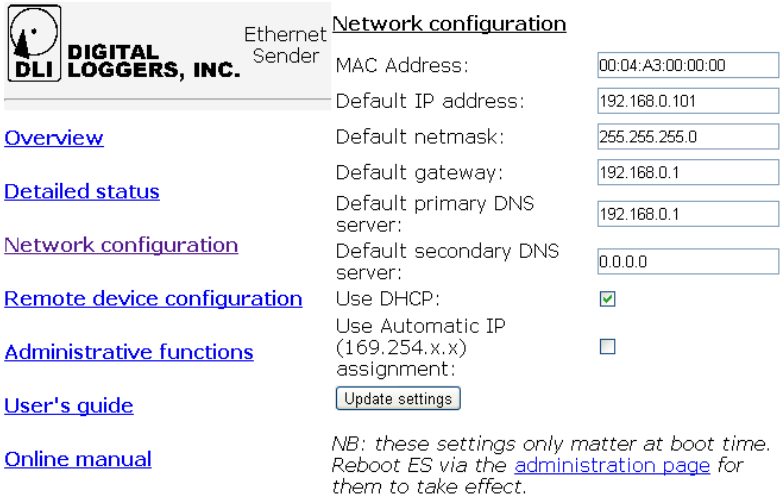


The main page contains links to status, network and device configuration and administrative pages.



Network configuration

Basic network settings, including the MAC address can be changed on the settings page. You may need to reboot the unit, and possibly reset your Ethernet switch when turning DHCP on or off, and when changing the MAC address.



When using DHCP, note that your DHCP server may set an expiration time for the IP lease. Another device may then duplicate this IP, causing a conflict. Consider using a static IP.

By default, the Sender uses a static IP from a private

subnet, namely 192.168.0.101, but it attempts to obtain a DHCP lease. The Network configuration page allows customization: You may force a static IP, netmask and other parameters, disabling DHCP. Alternatively, you can enable automatic IP assignment (typical on Windows-based networks) from the 169.254.x.x subnet if it suits you. If you enable both DHCP and Auto-IP, the Sender will first assign a pseudorandom automatic 169.254.x.x address and will change it if a DHCP lease is obtained later.

You may want to change the default MAC address to avoid conflicts with other devices on the same LAN segment.

DHCP leases take time to obtain, particularly if you are using a Windows DHCP server. When using DHCP, the DHCP server may set an expiration time for the IP lease. Another device may then duplicate this IP, causing a conflict. Consider using a static IP.

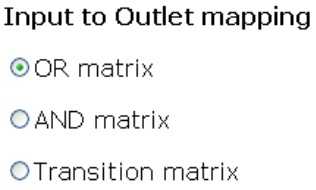
Network parameter changes don't take place immediately. To enact changes, reboot using the Administrative functions page. Most other settings take immediate affect via the Update Settings button.

Remote Device Configuration

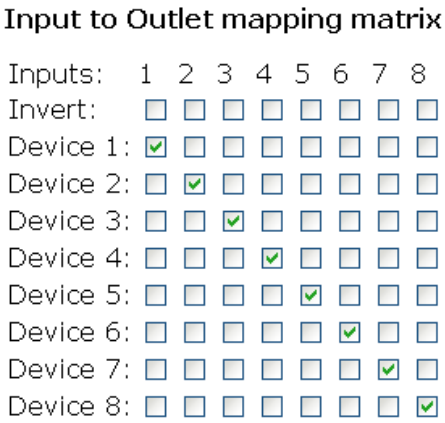
The remote device configuration page allows you to connect to remote relays and define links between Sender inputs and individual relays.

A matrix is used to create links these links which can

be set to control relays in a binary OR, AND, “transition” modes. A transition is a change from ON to OFF (1->0) or from OFF to ON (0->1). Transition mode is edge-triggered.



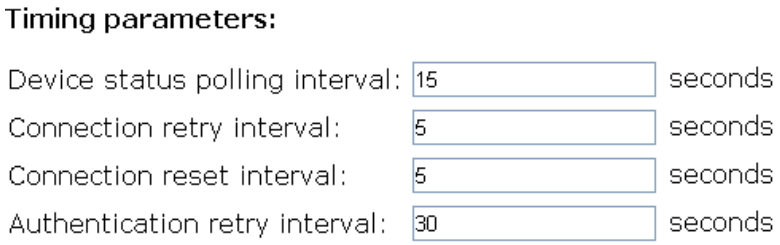
By default, each input is mapped 1:1 to an output in a binary mode as shown:



The top row of checkboxes can be used to “invert” the inputs, effectively changing a normally-open (NO) switch or contact into a normally-closed (NC) switch or contact in firmware.

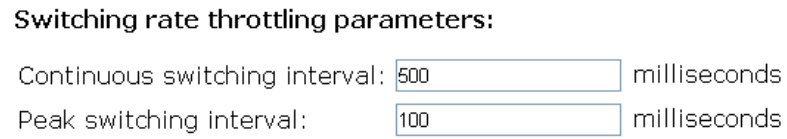
Timing parameters can also be adjusted. Defaults will work for most applications. Increasing speed will

increases network load. The maximum switching speed of most DLI products is limited to 2-3 switches per second. Use your own judgment. These are the defaults:



The relay switching rate can be limited via the polling interval setting. Be aware that mechanical relays have finite lifetimes, typically 100,000 to 1 million operations, depending on load. It's best to adjust conservatively if you think an input may change state quickly.

Default throttling parameters are:



Find information on relay contact protection here:

www.digital-loggers.com/relaycare.pdf

The remote configuration page also allows you to configure the LCD display mode with the settings on the bottom of the page. These settings affect only the LCD. Select your preference.

The remaining settings are relatively self-explanatory,

but feel free to contact us at:

Engineering@digital-loggers.com with any questions.

Security

To improve security, please change the default username and/or password on the Administrative functions page. These values are limited to 16 characters. Blank passwords are disallowed.

Reset to Defaults

Some configuration options are effective only after a reboot. To reset, press and release the Reset button on the back of the unit, or use the Administrative functions page.

To completely restore to factory defaults, press and hold the Reset button while the Sender starts, releasing it only after the LCD confirms settings have been erased.

Support

Please visit http://www.digital-loggers.com for more frequently asked questions, free updates, manuals and accessories. If we haven't answered your questions here, please call (408) 330-5599 or send an email to support@digital-loggers.com. We'll be glad to help.

Specifications

Alert Beeper .....58dBa at 12".
Applications.....Controls remote relays
Display.....2x16 Backlit LCD w/ PowerSave
Dimensions .....5.5x4x1.3”
Enclosure .....062 Aluminum
Environment..... Indoor use only.
FCC Testing.....Part 15 S/D
Humidity .....8-80% RH Operating
Input Frequency.....50-60Hz using supplied adapter
Input Voltage (adapter).....90-240VAC using supplied adapter
Input Voltage (Sender) .....5V 650mA typical
Input Voltage (wet mode)...3-24V AC/DC
Input Isolation.....2500V optical in WET mode only
Operating Temperature.....-30º to 170ºF, -34º to 77ºC
Power Supply.....5V 1A Switching
Weight .....2.2 lbs w/ Power Supply

Limited One Year Warranty

The terms of this warranty may be legally binding. If you do not agree return the product immediately in original unopened condition for a full refund. The purchaser assumes the entire risk as to the results and performance of the unit. DLI warrants this power controller to be free from major defects. No agency, country, or local certifications are included with this unit. It is the responsibility of the user to obtain such certifications if they necessary for the customer's application. DLI's entire liability and exclusive remedy shall be, at DLI's option, either (a) return of the purchase price or (b) replacement or repair of the hardware that does not meet DLI's quality control standards and has been returned through proper RMA procedures. DLI's liability for repair or replacement is to DLI's customer ONLY. WARRANTY SERVICE DOES NOT INCLUDE DAMAGE FROM INCORRECT SETTING OF WET/DRY SWITCH OR FROM APPLYING EXTERNAL POWER IN DRY MODE. No warranty service will be provided without an original invoice from DLI and an RMA number provided by technical support. RMA material must be shipped prepaid to DLI. RMA numbers are valid for 15 days from date of issue. This warranty does not cover products modified, subjected to rough handling, or used in applications for which they were not originally intended. Products are not designed for life-support, military, airborne, vehicular or high-reliability applications. Physical damage caused by customer or in transit to DLI is not covered under warranty. No oral advice or verbal warranties made by DLI's employees, dealers, or distributors shall in any way increase the scope of this warranty. DLI makes no warranty as to merchantability or fitness for any particular purpose. DLI assumes no liability for incidental or consequential damages arising from the use or inability to use this product. This warranty gives you specific legal rights. You may also have other rights that vary from state to state. Since some states do not allow the exclusion of liability for consequential damages, some of the above limitations may not apply to you.

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