



ILF-100WD User Manual

Router Watchdog / Connection Monitor
© 2007 Stealth Laboratories, LLC
Patent Pending



Stealth Labs ILF-100WD User Manual

Table of Contents

Installation and Configuration.....	3
Network Configuration	4
ILF-100WD Configuration Web Page	6
Text To Identify This Unit	6
Network Settings.....	7
Internet Monitor Settings	12
ILF-100WD Username & Password	15
Using the ILF-100WD	15
Explanation of the Green & Red Status LEDs	16

List of Figures

Figure 1: Network Logon Dialog Box	5
Figure 2: Text To Identify This Unit	6
Figure 3: Network Settings	7
Figure 4: Email Settings.....	10
Figure 5: Internet Monitor & Delay Settings	12
Figure 6: Username & Password	15
Figure 7: Hookup Example 1.	17
Figure 8: Hookup Example 2.	18

Stealth Laboratories, LLC
26 5th Street, SE
Hickory, NC 28602

Phone: 800-360-4146
or 828-328-8674

Tech Support Forum:
www.stealthlabs.com/support

Stealth Labs ILF-100WD User Manual

Installation and Configuration

Electrical Connections (refer to hookup diagram inserts)

- Connect K1 relay NC and COM terminals to the router's power supply. If the router power supply has multiple output voltages (more than 2 wires), you will need to switch the 120V input by cutting and splicing the AC line cord. If router power supply has a single output voltage (2 wires), cut and splice the striped wire and connect to the relay terminals.
- To use the optional User Input (MNTR IN), connect a common ground wire between the device being monitored and the ILF-100WD. Connect MNTR IN terminal to the device's output. The MNTR IN can accept any DC voltage between 5V and 24V. If the device uses open-collector outputs, a user-supplied pull-up resistor must be connected. See **User Input** in the **ILF-100WD Configuration** section for details on enabling email notices for User Input state changes.
- One or more Server Fail outputs may be used to trigger visual or audible indicators for individual servers that may fail. The total current drawn by these outputs must not exceed 400mA. Note that these are open-collector outputs, which means they must be connected to the "-" terminal of the device being switched. The 12V AUX terminals may be used for powering the "+" terminal of the device.
- Connect the ILF-100WD's Ethernet controller board to an open port on the router using the supplied network cable.

Network Configuration

If you are only concerned with detecting a failed internet connection and do not need any of the email notification features, you may simply plug the ILF-100WD into a DHCP-enabled router and connect the relay terminals to your router's power supply. No further configuration is needed!

The ILF-100WD is designed to be connected to a router. It must initially be configured using a web browser on a computer that is connected to the same router (i.e., on the same local area network). In order to connect to the ILF-100WD, its IP address must be known. The easiest method for determining the IP address is to connect the ILF-100WD to a network that uses DHCP (Dynamic Host Configuration Protocol) and allow it to send the sign-on email to the mailing list at www.ILF100.com. Virtually all home routers support DHCP. Even if a static IP address is going to be assigned to the ILF-100WD, the network configuration will go much smoother if DHCP is initially used. The other (more difficult) method is to connect the ILF-100WD directly to a computer using a crossover cable. If your network does *not* support DHCP, see the section entitled, “**Fallback Method Using a Crossover Cable**” detailed in the extended online manual posted at www.ilf100.com/ILF100Manual.pdf.

DHCP Method

1. Connect the ILF-100WD to your network using the supplied CAT5 patch cable.
2. Power up the ILF-100WD and observe the LEDs on the Ethernet control module (the very small surface mount LEDs located next to the RJ-45 connector). The green LED should be steadily illuminated and the yellow LED should occasionally blink to indicate network activity.
3. The green E-MAIL LED (located on the main circuit board) should illuminate after a few seconds, indicating that the “sign-on” email was successfully sent.
4. Using a computer with an internet connection, type <http://archives.ILF100.com> into the address bar of a web browser.

Stealth Labs ILF-100WD User Manual

5. Click on the archive for the current date by clicking the **View by: [Thread]** link.
6. Newest emails appear at the bottom of the list, so you may simply find your email listed there.
 - a. If the email list is quite large, press <Ctrl> F to open the search dialog box in your web browser and type in the serial number of your ILF-100WD. The serial number is printed on the bar code label that is affixed to the chips on the top side of the Ethernet controller board.
 - b. Click the **Find** button of the dialog box.

The browser should highlight the subject line of the email that your ILF-100WD just sent
7. Click on the message link to view the email body.
8. Click the link after **IP Addr:** to access your ILF-100WD's configuration page. **Security Note: this link will only work for users connected to the same LAN as your ILF-100WD.**
9. You should see a password dialog box similar to Figure 1.
10. Enter **admin** for the User Name and **pass** for the password. Both are case sensitive.
11. If you were successful, you should see the ILF-100WD configuration screen, illustrated in Figures 2 - 6.



Figure 1: Network Logon Dialog Box

ILF-100WD Configuration Web Page

The ILF-100WD Configuration Web Page is divided into five sections:

1. Text To Identify This Unit
2. Network Settings
3. Email Settings
4. Internet Monitor Settings
5. ILF-100WD Username & Password

Text To Identify This Unit

The first section is shown in Figure 2. This text field allows the user to describe / name the ILF-100WD or the location in which it is installed. All emails sent by the ILF-100WD will include this text in the body of the email to help clarify which unit sent the email. This text may be up to 25 characters in length.

Text To Identify This Unit

This text will be displayed here and in the body of all emails:

My ILF-100WD	25 alpha-numeric characters max
--------------	---------------------------------

Figure 2: Text To Identify This Unit

Network Settings

The Network Settings section is shown in Figure 3. The LAN and WAN IP addresses are displayed at the top of the section. If the ILF-100WD has not yet connected to the internet, the WAN IP will be displayed as **0.0.0.0**, otherwise it will display the IP address that was assigned to the router by your broadband Internet Service Provider. If the ILF-100WD was able to connect to a DHCP server, the LAN IP address will display the IP address that was assigned to it by the router. If no DHCP server was found, the fallback IP address of **192.168.1.10** will be displayed.

Stealth Labs ILF-100WD User Manual

If DHCP is being used, there is no need to make any changes to this section. Just make sure the **Obtain IP address automatically** and **Obtain DNS server address automatically** buttons are selected. Proceed to **the Email Settings** section.

Network Settings

ILF-100WD public (WAN) IP address is: **24.123.456.789**

ILF-100WD private (LAN) IP address is: **192.168.0.114**



Obtain IP address automatically



Use the following IP address:

LAN IP address:
Subnet mask:
Default Gateway



Obtain DNS server address automatically



Use the following DNS server address:

First DNS server:
Second DNS server:

Figure 3: Network Settings

Manually Assigning an IP Address

If your network does not use DHCP, or if you plan on being able to access the ILF-100WD from remote locations, you will need to

Stealth Labs ILF-100WD User Manual

manually assign an IP address. *Note that some routers allow static IP addresses to be assigned while still using DHCP.* If this is the case with your router, you can leave the **Obtain IP address automatically** button selected. Refer to your router's setup manual for more information on enabling static IP addresses.

If your router does not support static IP address assignments through DHCP, you must manually assign an IP address to the ILF-100WD. Click the **Use the following IP address** button. This instructs the ILF-100WD not to use DHCP. A DHCP address suffix typically starts at 100, so you should use a suffix that is not located in the range being used by DHCP. If your router uses addresses **192.168.1.100 – 192.168.1.199** for DHCP, you should use a suffix greater than 1 (which is usually assigned to the router) and less than 100, such as **192.168.1.10** or **192.168.1.15**, etc. You will also need to make sure that the IP address you select is not already in use by another computer on your network.

Once you have entered a valid IP address, press the **Tab** key to highlight the **Subnet mask** field. In most cases, this should be left set at **255.255.255.0**.

Tab to the next field, **Default Gateway**. Enter the IP address of your router. You can determine this address by running “**ipconfig**” from a Windows command prompt (click the **Start** button, then **Run** and type “**cmd**” in Windows XP or Windows 2000, or “**command**” for Windows 98). Use the same Default Gateway IP address shown by the **ipconfig** command.

Next, you must enter the IP address for at least one (preferably two) DNS server(s). You may need to contact your ISP for these addresses, or you may be able to find them listed on your router's status page. The **Obtain DNS server address automatically** button will not work if DHCP is not being used.

Remotely Accessing the ILF-100WD

For remote access, you will have to configure your router to allow outside access to the ILF-100WD's IP. This is usually done by enabling the router's **DMZ (De-Militarized Zone)**. You will need to enable the DMZ and enter the ILF-100WD's local LAN IP address. Once enabled, you will be able to access the ILF-100WD configuration page from a remote computer by entering your

Stealth Labs ILF-100WD User Manual

router's public IP address in the remote computer's web browser address bar (this is the WAN IP address shown at the top of the ILF-100WD configuration page). When the router sees the remote access request, it will connect the remote computer to the ILF-100WD. Refer to your router's setup manual for more information on enabling the DMZ.

Notes:

- **Both the LAN and WAN IP addresses must be static. A static LAN IP is set in your router; a static WAN IP must be set up by your ISP (charges may apply). With some ISPs, your IP address will not change unless you make changes to your equipment, such as replacing your cable or DSL modem. In this case, you may not have to pay extra for a static IP address – it should remain the same as long as you don't change equipment.**
- To prevent unauthorized remote access, be sure to change the ILF-100WD default Username and Password!

Email Settings

Instructions:

- Change **TO** to the email address you wish to use to receive notices.
- Change **FROM** to an email account that allows outgoing SMTP emails.
- Change **POP3 Server** to the incoming mail server (some servers require a POP3 read before SMTP send).
- Change **SMTP Server** to the outgoing mail server.
- Note: It is okay if **Email To** and **Email From** are the same.
- Change **Account Name** to username for the “FROM” account.

Emails will be sent TO:

Emails will be sent FROM:

Incoming Mail Server (POP3):

Outgoing Mail Server (SMTP):

Account (User) Name:

Password:

Figure 4: Email Settings

Stealth Labs ILF-100WD User Manual

Email Settings

If you wish to receive email notification of individual server failures, internet connection restorals, WAN IP changes, or User Input changes, you will need to make changes to this section. The Email Settings section is shown in Figure 4.

1. Enter a valid email address in the **Emails will be sent TO:** field. All outgoing emails will be sent to this email address.
2. Enter a valid email address in the **Emails will be sent FROM:** field. This is the email account that will be used to send the emails. It must be an account that allows SMTP outgoing emails. This will probably be an email address from your ISP or place of business. Free accounts such as Yahoo do not allow SMTP access. This account will also have to either allow relaying or POP3 before SMTP access (this means you can't send outgoing email until you have first checked your incoming email).
3. Enter the incoming POP3 mail server name for the **Incoming Mail Server (POP3):** field. This is typically something like **pop3.youremailprovider.com** or **pop.youremailprovider.com**. Consult your email provider for more information.
4. Enter the outgoing mail server name for the **Outgoing Mail Server (SMTP):** field. This is typically something like **mail.youremailprovider.com** or **smtp.youremailprovider.com**. Consult your email provider for more information.
5. Enter the Username for the **Account (User) Name:** field. This may be just the username or it may be your entire email address. Consult your email provider for more information.
6. Enter your password in the **Password:** field. Note: this is the password for your email account. The password for the ILF-100WD configuration page is set in the last section.

Internet Monitor Settings

Domains / IP addresses to monitor:

Server 1	<input type="text" value="ebay.com"/>	<input type="checkbox"/>	Enable Server 1 fail / restore emails
Server 2	<input type="text" value="stealthlabs.com"/>	<input type="checkbox"/>	Enable Server 2 fail / restore emails
Server 3	<input type="text" value="rr.com"/>	<input type="checkbox"/>	Enable Server 3 fail / restore emails
Server 4	<input type="text" value="vonage.com"/>	<input type="checkbox"/>	Enable Server 4 fail / restore emails
Server 5	<input type="text" value="charter.net"/>	<input type="checkbox"/>	Enable Server 5 fail / restore emails

Locally monitored resources:

Send email notice if WAN IP changes

Send email if user input changes states

Last Input State:

Delay Settings:

Reboot Delay: (1-999 Seconds)

K1 "ON" Time: (1-999 Seconds)

Figure 5: Internet Monitor & Delay Settings

Stealth Labs ILF-100WD User Manual

Internet Monitor Settings

The Internet Monitor Settings section is shown in Figure 5.

The ILF-100WD includes five predefined servers, but the user is free to change any or all of them. There are a few things you must keep in mind, however:

1. You do not need to enter “www” or “http://” - just type in the domain name or IP address.
2. Do **not** include a trailing ‘/’ or index.html, etc.
3. IP addresses can and do change. If a server has a domain name, it is always better to use that rather than the IP address. The ILF-100WD will automatically resolve the domain names into IP addresses, assuming valid DNS servers were setup.
4. If you use IP addresses, be sure they resolve to external internet sites and not a computer on your local network. Otherwise, the ILF-100WD will not be able to determine when your internet connection has failed (the local IP address will probably respond even if the internet connection is bad).
5. If you want to poll a server more often than once every five minutes, you may list the server multiple times. However, it is not recommended that the same server be listed for all five servers.
6. Finally, select the checkboxes for any email notices you wish to receive: server outages, WAN IP changes, and User Input state changes.

MNTR IN Terminal (User Input)

The user input allows you to monitor the state of an external device, such as a freezer / flood alarm or a security system violation output. The signal being monitored should be a voltage level in the range of **5V** to **24V DC**. Press the **Refresh** button to update the input state. If enabled, the ILF-100WD will send emails anytime this input changes from high to low, or low to high. It is up to you to know the meaning of the high or low states. Keep in mind that the ILF-100WD can quickly generate excessive emails which can cause them to be flagged as spam. If this happens, your emails may be blocked by your email

Stealth Labs ILF-100WD User Manual

provider. It is not recommended that this input be connected to an output that changes states often, such as a motion sensor in a high traffic area. To help prevent runaway emails, the ILF-100WD has a built-in limiter. It will send no more than 3 emails every 5 minutes. Additional state changes are counted and this count will be emailed once the email limiter has timed out.

Even with the limiter, it is highly possible that your emails will be flagged as spam if your ILF-100WD's user input is connected to an output that changes states multiple times within a minute. USE THIS FEATURE WITH CAUTION.

Delay Settings

Reboot Delay is the amount of time the ILF-100WD will wait for a restored internet connection. This value must be high enough to allow the router and / or modem sufficient time to login to the network. Default value is 120 seconds.

K1 "ON" Time is the amount of time the ILF-100WD will leave K1 activated. Since K1 is connected to the router's power and is triggered by an internet failure, this value equates to the amount of time the router is powered down during a power cycle sequence (reboot). Default value is 30 seconds.

ILF-100WD Username & Password

If you have enabled remote access to the ILF-100WD, it is very important that you change the default username and password. The username can be up to eight characters long and the password can be up to ten characters long. Both fields are case sensitive. Refer to Figure 6.

🔑 ILF-100WD Username & Password

Change **Username** and **Password** to prevent unauthorized access of this page.

Username: 8 alpha-numeric characters max
Password: 10 alpha-numeric characters max

Figure 6: Username & Password

Saving Your Changes

Once you have made all the necessary changes to the ILF-100WD configuration page, press the **Submit** button. The web browser will be redirected to a page that displays the progress as the ILF-100WD saves all parameters to flash memory. Once the configuration is complete, click the **Close Window** button to close the browser window. The ILF-100WD will reboot itself in order to begin using the new settings.

Using the ILF-100WD

Restoring Factory Defaults

To return the ILF-100WD to the factory default settings, press the INIT switch SW2 when powering up the ILF-100WD.

To restore factory defaults without removing power, press and hold the RESET switch SW1, then press and hold the INIT switch SW2. Release the RESET switch, then release the INIT switch when you see all the red / green LED pairs illuminate. The red / green LED pairs will blink once a second as an indication that factory defaults are being re-written to flash memory. When the blinking ceases, the initialization is complete.

Stealth Labs ILF-100WD User Manual

Hard Reset

The ILF-100WD can be reset by momentarily pressing the RESET switch SW1.

Re-sending the Sign-On Email

To prompt the ILF-100WD to re-send its sign-on email (with serial number, IP address, and firmware version), momentarily press the INIT switch SW2.

Explanation of the Green & Red Status LEDs

INTERNET

- Green: One or more of the monitored servers are responding.
- Red: No servers are responding; the internet connection is down.

EMAIL

- Green: An email was successfully sent.
- Red: The last email attempt failed.

PING

- Green: The server being tested replied to the ping test.
- Red: The ping test failed / timed out. **Note: some servers reject all pings. This is normal and can be ignored as long as the HTTP test passes.**

HTTP

- Green: The server replied to an HTTP request.
- Red: The server did not reply to an HTTP request and is not reachable.

Stealth Labs ILF-100WD User Manual

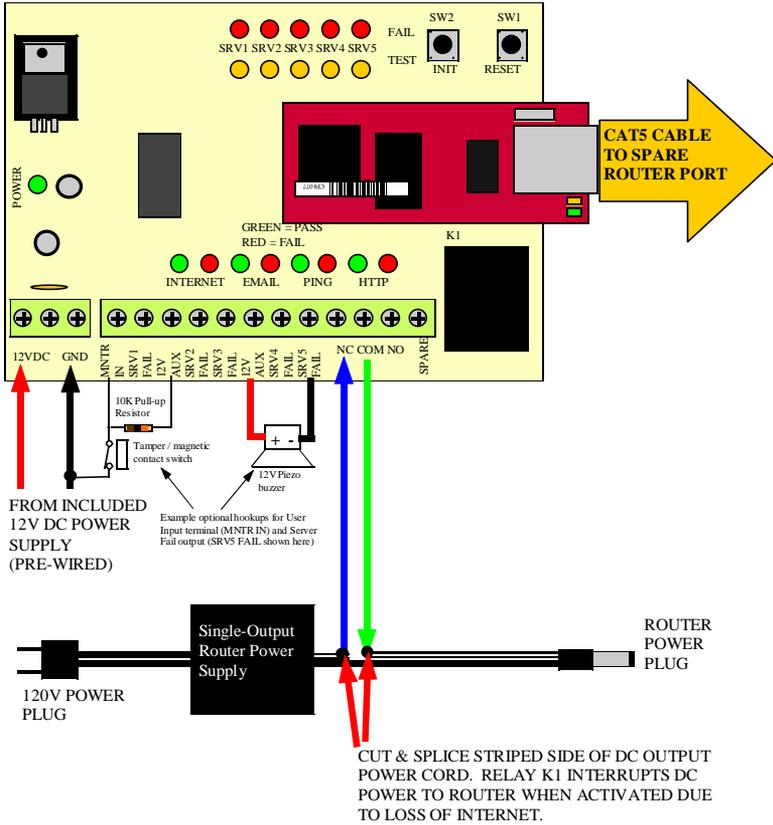


Figure 7: Switching the DC output of a single-output power supply (2 output wires).

Stealth Labs ILF-100WD User Manual

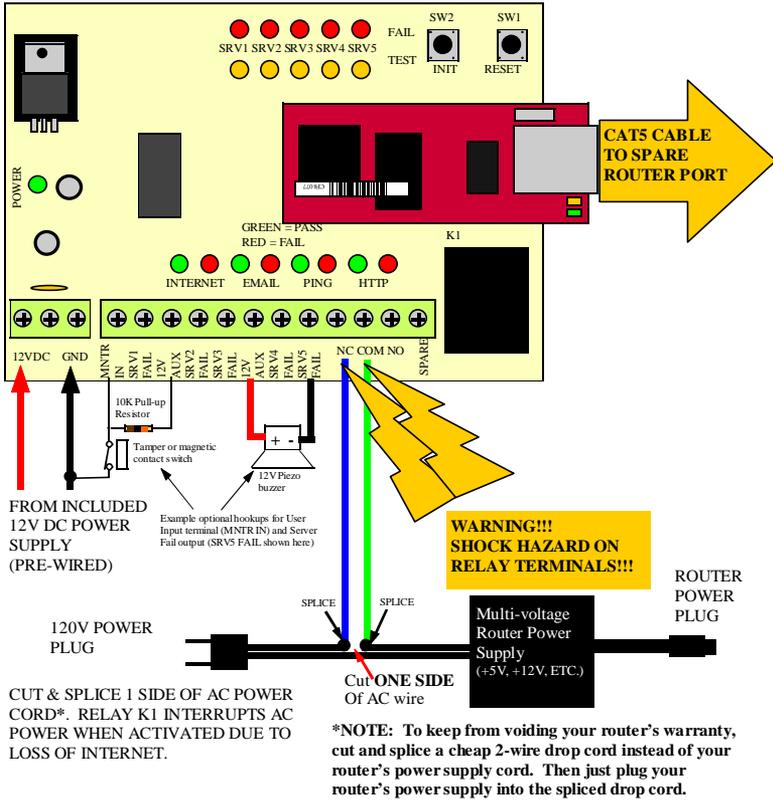


Figure 8: Switching the AC input of a multi-voltage power supply (more than 2 output wires).