

# **Turbo Ethernet Adapter User Guide**

RD31101

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Red Dwarf Technologies, Inc.

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## 1.0 Introduction

### 1.1 Welcome

Thank you for choosing the Turbo Ethernet Adapter (RD31101) from Red Dwarf Technologies. The RD31101 requires no new wires™ to establish your home network. It simply turns your existing home wiring into a high-speed broadband connection and instantly turns every power outlet in your home into an Ethernet network jack.

### 1.2 Features

- Up to 85 Mbps bandwidth over existing home wiring
- 56-bit DES encryption ensures data security
- Plug-n-Play
- Advanced sleep mode
- Low power consumption
- 100% lead-free

### 1.3 Using this Guide

This user guide provides details about using your RD31101. The guide includes step-by-step instructions for using your RD31101. If you haven't already, refer to the Quick Setup Guide for an overview of the connection process.

Additional instructions, troubleshooting help, tips, and tricks, and the most up-to-date information about this guide are always available at <http://www.reddwarftech.com>. Please make sure to check the website if your answers aren't found here.

### 1.4 Important Safety Information

Please read all of the instructions and retain for future reference. Follow all warnings and instructions.

- Do not use RD31101 near water.
- Do not place the product near heat source such as direct sunlight, radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not block the ventilation holes. The RD31101 requires adequate ventilation. Do not place RD31101 in a cabinet or built-in installation unless sufficient ventilation is provided.
- Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short-out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.
- Do not open the cover on this product and/or alter this product in any way.

### 1.5 Package Contents

Please make sure you have received the following items with your RD31101.

- One Turbo Ethernet Adapter (RD31101)
- One 6 feet Ethernet cable
- One CD-ROM
- One Quick Setup Guide

If any of the parts are incorrect, missing and/or damaged, contact the retailer where you made your purchase. Please keep the carton, including the original packing materials.

### 1.6 System Requirements

- At least two Turbo Ethernet Adapters (RD31101)
- Available Ethernet port on each computer or network device
- Available power outlet
- CD-ROM Drive (optional)

## 1.7 Getting to know your RD31101

### 1.7.1 The Front Panel



Figure 1: Front Panel of RD31101

Table 1 describes the status light functions in the front panel:

Table 1: LED light description

Status Light	State	Indication
Power LED	Illuminated Green	Device is powered on

	Illuminated Red Off	Device is in sleep mode Device has no power
PLC LED	Blinking Green Off	There is traffic on the home wiring There is no traffic on the home wiring
ETH LED	Solid Green Blinking Green Off	There is an Ethernet link There is traffic on the Ethernet cable There is no traffic on the Ethernet cable

### 1.7.2 The Bottom Panel



Figure 2: Bottom Panel of RD31101



### 1.7.3 The Back Panel



Figure 3: Back panel of RD31101

## **2.0 Preparing to Install your RD31101**

### **2.1 Check that these minimum network requirements are met.**

- An Ethernet port is available on your router
- Your Internet connection is working
- Each computer or device to be used on your network has an Ethernet port

### 3.0 Connect an RD31101 to the Router

Installing the RD31101 takes only seconds and does not require messy cabling. Simply plug the RD31101 directly into any available wall outlet and connect to any device with an Ethernet port using the Ethernet cable provided in the box. Users have the option to change the default encryption key by using the software on the CD-ROM that is provided in the box.

#### 3.1 Hardware Setup

Step 1: Plug the supplied Ethernet that came in the box into the LAN port on your router or switch in your network.

Step 2: Plug the other end of the supplied Ethernet cable into the RD31101.

Step 3: Plug the RD31101 directly into a nearby power outlet.

Note: Plug the RD31101 directly into an electrical wall outlet. Do not plug the RD31101 into a UPS, power strip or other similar device with surge protection. The RD31101 have their own power filter for protection against surges.

#### 3.2 Connect other RD31101

Before plugging in your other RD31101, take a note of the Security ID printed on the label on the back of each device. You will need this password later if you want to change the Powerline network password. If you are adding more than one other Powerline adapter, also note the MAC address given on the label, so that you will know which device the password is for.

Step 1: Plug your other RD31101 (sold separately) into power outlets in your home near the device you want to add to your network.

Step 2: Using the supplied Ethernet cable and connect the RD31101 to an available port of your device.

Step 3: When you plug in a second RD31101 into a power outlet, check the Powerline Activity LED. They should turn on and then briefly blink at the same time as the Ethernet activity LED. This completes the installation.

## 4.0 Installing the Turbo Ethernet Adapter Utility

This utility is provided as an optional feature to customize device name, password and quality of service. Installing this utility is not a requirement. It is recommended to customize the network password for higher security.

### 4.1 Important features:

- The encryption password is case-sensitive.
- Each device must be set to exactly the same network password in order for it to be on the same network.
- The default network password is HomePlug. Pushing the reset button will reset the device password to the default password.
- The device password can protect your network from unauthorized access through the home wiring.
- A Security ID is printed on each Powerline product from Red Dwarf. This is not the network password, but you are required to enter it if you are setting the network password with another Powerline device.

### 4.2 To install the Turbo Ethernet Adapter Utility, follow these steps:

Step 1: Insert the RD31101 Resource CD into a CD drive on the computer that is connected to your router. The CD starts automatically. When the Introduction screen is displayed, click Continue to begin the installation process.

Step 2: Carefully read the End User License Agreement (EULA) and click Agree to continue with the installation.

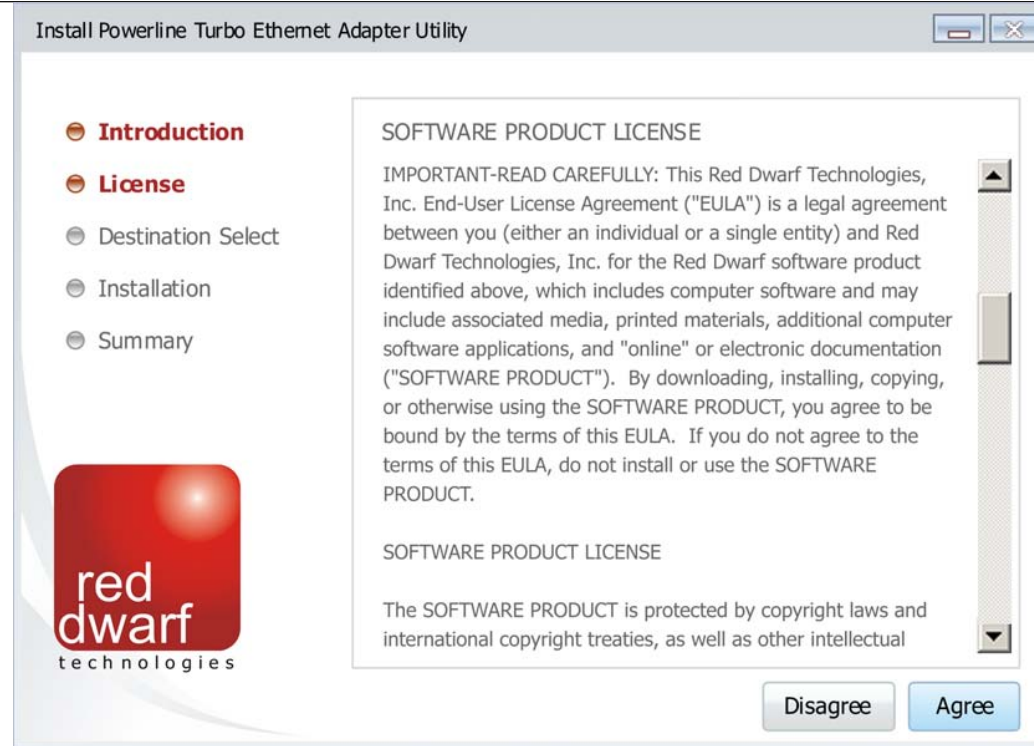


Figure 4: EULA screenshot

Step 3: Confirm the destination location on where to install the software and click Install to start the installation process.

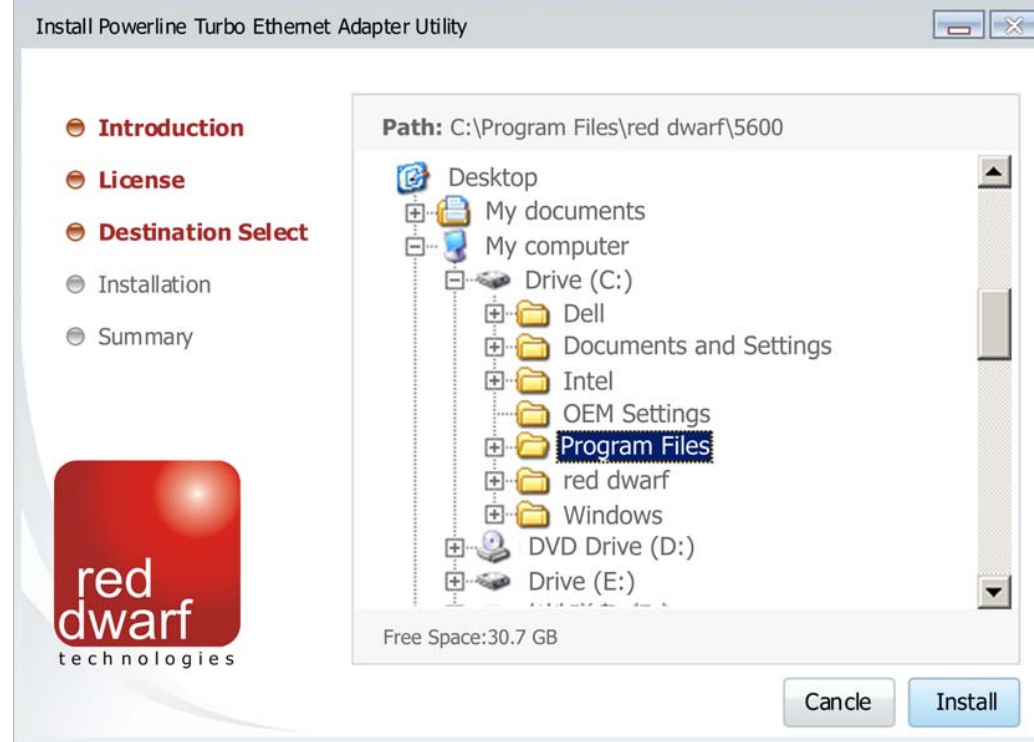


Figure 5: Installation destination screenshot

Step 4: Click Complete when the screen says, "Installation is now complete."

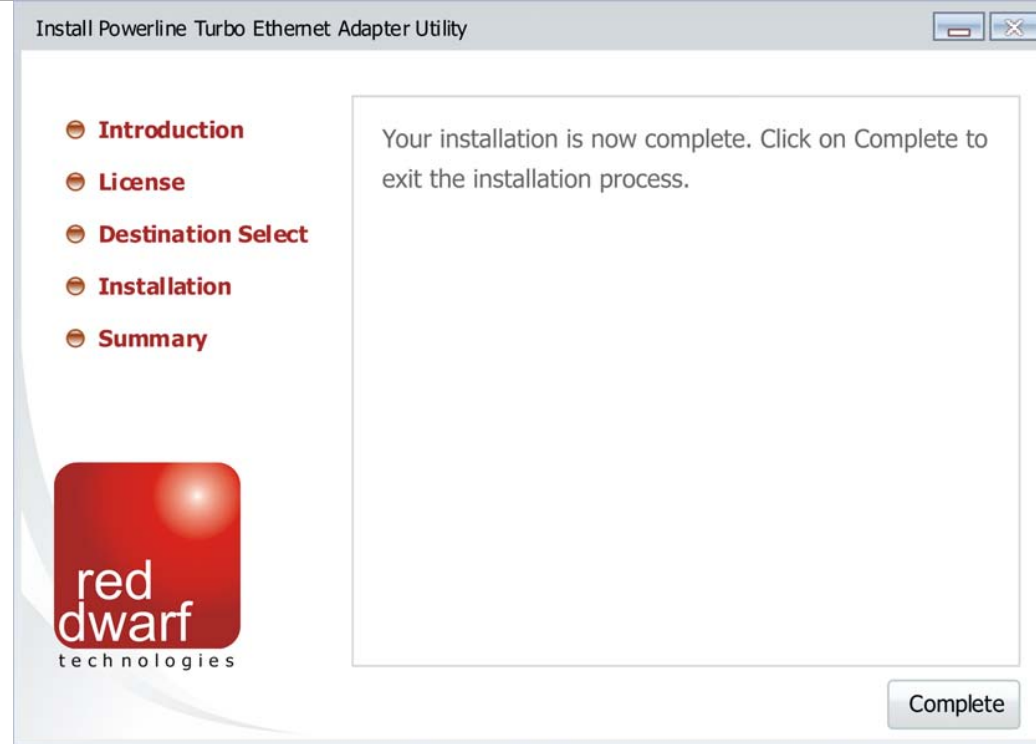


Figure 6: Installation complete screenshot



## 5.0 Accessing the Turbo Ethernet Adapter Utility

To access the Turbo Ethernet Adapter Utility, double-click the Turbo Ethernet Adapter Utility on your desktop as shown in figure X.



Figure 7: Turbo Ethernet Adapter Utility icon

### 5.1 Network Overview

When you open the Turbo Ethernet Adapter Utility, the first screen you see is the Network Overview. The Network Overview lists all the powerline devices on your network. To refresh the list of devices on your home network, click on Refresh .

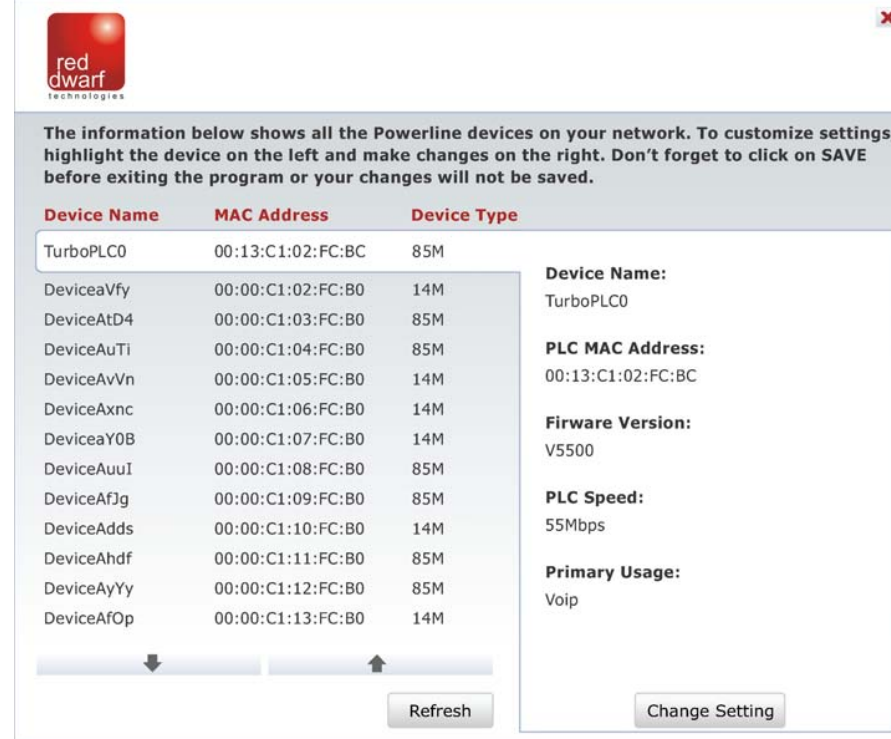


Figure 8: Network Overview screenshot

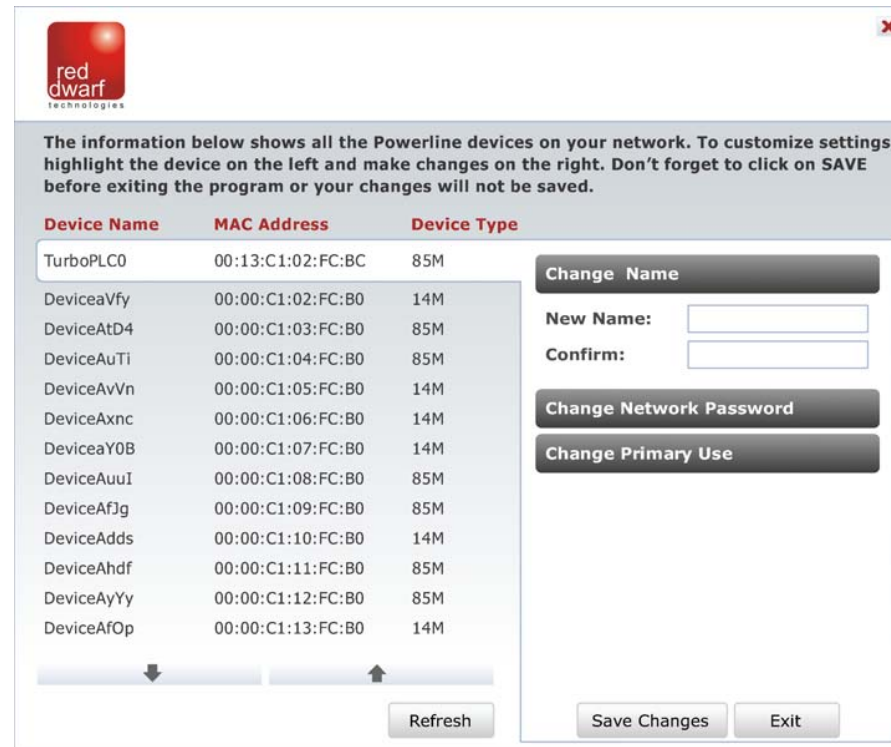
The first device listed is the local powerline device your computer is directly connected to. When you highlight a device from the list on the left, the device information would be displayed on the right.

## 5.2 Making Changes

To change device settings, select the device you want to customize and click on **Change Setting**.

### 5.2.1 Changing Device Name

The utility allows you to customize the device name for easier identification. To change device name, click on **Change Name**. Then, type in the new device name twice and click **Save Changes**.



The screenshot shows a utility window titled "red dwarf technologies". It contains a list of Powerline devices with columns for Device Name, MAC Address, and Device Type. The first device, TurboPLC0, is highlighted. To the right of the list are buttons for "Change Name", "Change Network Password", and "Change Primary Use". The "Change Name" button is active, showing input fields for "New Name:" and "Confirm:". At the bottom of the list are "Refresh", "Save Changes", and "Exit" buttons.

Device Name	MAC Address	Device Type
TurboPLC0	00:13:C1:02:FC:BC	85M
DeviceaVfy	00:00:C1:02:FC:B0	14M
DeviceAtD4	00:00:C1:03:FC:B0	85M
DeviceAuTi	00:00:C1:04:FC:B0	85M
DeviceAvVn	00:00:C1:05:FC:B0	14M
DeviceAxnc	00:00:C1:06:FC:B0	14M
DeviceaY0B	00:00:C1:07:FC:B0	14M
DeviceAuuI	00:00:C1:08:FC:B0	85M
DeviceAfJg	00:00:C1:09:FC:B0	85M
DeviceAdds	00:00:C1:10:FC:B0	14M
DeviceAhdF	00:00:C1:11:FC:B0	85M
DeviceAyYy	00:00:C1:12:FC:B0	85M
DeviceAfOp	00:00:C1:13:FC:B0	14M

Figure 9: Changing device name screenshot

### 5.2.2 Setting your Network Password

It is highly recommend changing the network password on all devices at once for enhanced security. To do this, you need the device password on the back label of each powerline device.

Note: When changing the network password, remember to use the same network password on all devices on your network. You will not be able to view devices on your network that has a different network password.

Step 1: Highlight the device you want to update on the left.

Step 2: Enter the Security ID for the remote powerline device.

Note: a Security ID is not required when changing your local powerline device.

Step 3: Enter the new network password twice.

Step 4: Click on **Save Changes**.

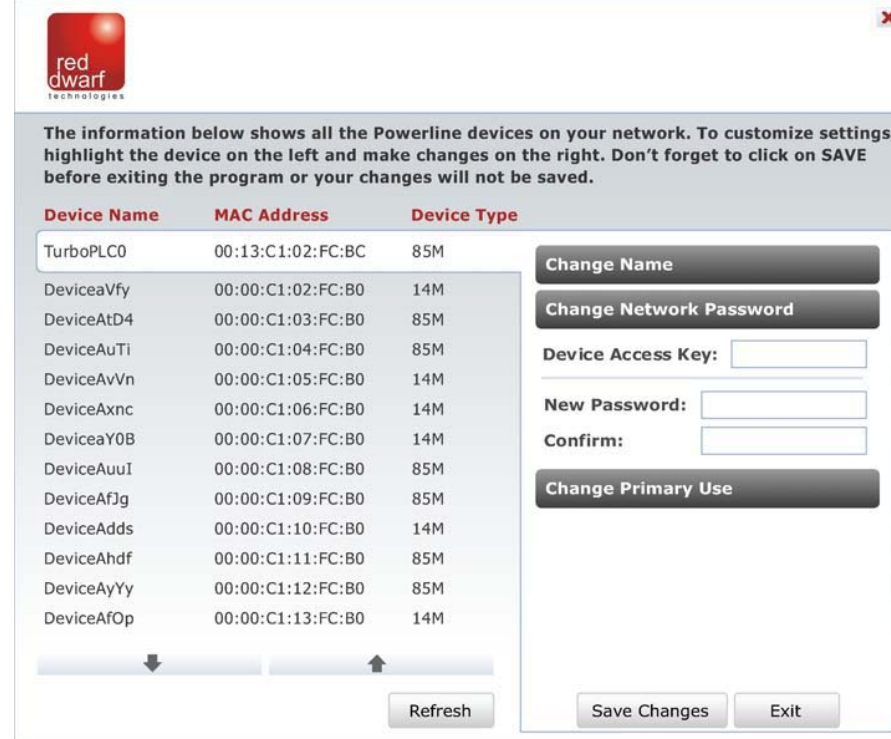


Figure 10: Changing network password screenshot

### 5.2.3 Quality of Service

The Turbo Ethernet Adapter Utility allows you to improve quality of service by providing the ability to customize device usage. To do this, highlight the device on the left and click on Change Primary Use . Select the primary use of the device from the drop down menu and click on Save Changes.

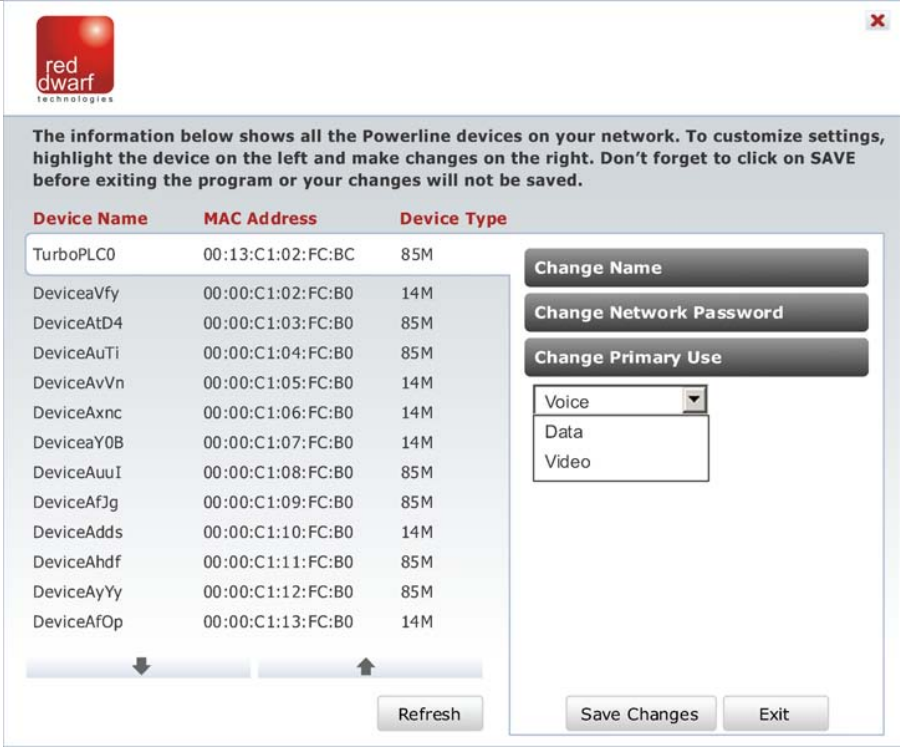


Figure 11: Changing quality of service

## 6.0 Default Settings

This section provides default settings and technical specifications for the RD31101 Turbo Ethernet Adapter.

### 6.1 Default Configuration Settings

Table 2 list the RD31101 default configuration settings.

Table 2: Default settings

Feature	Description
Encryption Utility	Enable
Network	
Port Speed	Auto-negotiation
Port Duplex	Auto-negotiation
Administration	
Device Password	See product label
Management IP Configuration	DHCP
Powerline	
Encryption Password	HomePlug

## 7.0 Technical Specifications

Standard Compliance	HomePlug® I IEEE 802.3 10BASE-T Ethernet
Network Protocol	TCP/IP
Network Interface	Ethernet (RJ-45)
Bandwidth	85 Mbps
Operating Frequency	4 to 21 MHz
Modulation Schemes	Orthogonal Frequency Division Multiplexing (OFDM) Symbol Modulation DQPSK DBPSK ROBO Carrier Modulation
Security	56-bit DES Encryption
Additional Protocols	Forward Error Correction (FEC) Automatic Channel Adaptation
Power Supply	100-240V
LEDs	Power PLC Activity Ethernet Activity
Dimensions	Size: 3.5" x 2.4" x 1.8" (L x W x H)
Weight	0.276lbs



Cable Length	6 feet
Environmental Specifications	Operating temperature: 32°F to 113°F (0°C to 40°C) Operating humidity: 10% to 85% Non-condensing Storage temperature: -4°F to 158°F (-20°C to 70°C) Storage humidity: 5% to 90% Non-condensing
Electromagnetic Specifications	FCC Part 15 Class B UL (US and Canada) CE

## 8.0 Technical Support

For more information about the Turbo Ethernet Adapter (RD31101) or any of other Products from Red Dwarf Technologies, please contact us using any of the following methods:

- Email: You can send information requests to our e-mail address:  
[sales@reddwarftech.com](mailto:sales@reddwarftech.com).
- Web site: Our Web site contains valuable information about our products, solutions, and services. We encourage you to visit us at  
<http://www.reddwarftech.com>.

When contact us, please have the following information handy to provide to the agent:

- Product name, model number, part number (if applicable) and serial number
- System configuration, including a description of the devices connected to your RD31101
- The circumstances surrounding the error or failure
- A detailed description of the problem and what has been done to try to solve it

## 9.0 Regulatory Information

### 9.1 Federal Communications Commission (FCC) Compliance Notice

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

### 9.2 FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

### 9.3 Industry Canada (Canada)

This Class B digital apparatus complies with the Canadian ICES-001.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### 9.4 EC Declaration of Conformity (Europe)

In compliance with the EMC Director 89/336/EEC, Low Voltage Director 73/23/EEC, and Amendment Directive 93/68/EEC, this product meets the requirements of the following standards:

- EN55022 Emission
- EN55024 Immunity

## 10.0 Warranty Information

Red Dwarf Technologies warrants that (a) the hardware components of the product will be free from defects in materials and workmanship under normal use for one (1) year from the date of purchase when used within the limits set forth in the Specifications section of the User Guide, and (b) the software components will perform substantially in accordance with Red Dwarf Technologies' published specifications for ninety (90) days from the date of purchase, but does not warrant that the software will be error-free or free of all defects.

Should a product fail to perform as described in the User Guide within the warranted period, it will be repaired or replaced with the same or functionally equivalent product by Red Dwarf Technologies, at its discretion, free of charge provided that you: (a) return the failed product to an Red Dwarf Technologies designated repair facility with shipping charge prepaid, and (b) provide Red Dwarf Technologies with proof of the original date of purchase. Repaired or replacement products will be returned to you with shipping charges prepaid. Red Dwarf Technologies warrants any replaced or repaired product or component for the remainder of the initial warranty period whichever is longer. Replacement products may be refurbished or contain refurbished materials or components. If Red Dwarf Technologies, by its sole determination, is unable to restore the product to proper operating condition, it will refund the depreciated purchase price of the product.

This warranty extends only to you, the original purchaser and is not transferable to any subsequent purchasers.

This warranty does not apply if, in the judgment of Red Dwarf Technologies, the product fails due to damage from shipment, handling, storage, accident, abuse, misapplication or misuse, or if it has been used or maintained in a manner not conforming to product manual instructions, has been modified in any way, or has had any serial number removed or defaced. Repair by anyone other than Red Dwarf Technologies or an approved agent will void this warranty. The maximum liability of Red Dwarf Technologies under this warranty is limited to the purchase price of the product covered by the warranty. Prior to returning any defective product, the purchaser or the authorized merchant from whom the purchaser originally bought the product must obtain a Return Material Authorization (RMA) number from Red Dwarf Technologies. All defective products should be returned to Red Dwarf Technologies with shipping charges prepaid. Red Dwarf Technologies will not accept collect shipments.

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11.0 Notes




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