Step 12. Set up Port 1 ID remap.

• Only use this screen to remap "Modbus Slave IDs."
• On each line, select the range of IDs to re-route. In the first box, enter the first serial port of the range to remap from. Valid port IDs range from 1 to 247.
• Second box: Enter the last serial port of the range to remap.
• Third box: Enter starting ID of the range to remap to.
• Fourth box: Auto fills based on ranges entered in the first three columns.

Step 13. Set up Modbus ID routing.

• Only use this screen to re-route "Modbus Slave IDs."
• On each line, select the range of IDs to re-route. In the first box enter the starting ID. Valid IDs range from 1 to 247.
• Second box: Enter the last ID of the range to re-route.
• Third box: Enter the "IP Address" or "Port" that has slave devices attached.
• Fourth box: Shows the IP address of the slave device, if an IP address is chosen in the third box.

Step 14. Set up Modbus priority.

• Only use this screen to set "Modbus Priority."
• Enter up to five different priorities, based on "Originating IP Address," "Modbus ID," "Modbus Function Code," or a combination of these.
• "IP Address" sets a static IP address for the Modbus Hardened Serial Server.
• "Modbus ID" has a valid range from 1 to 247.
• Function code has a valid range from 1 to 99.

Step 15. Save and logout.

• If you have completed the configuration, click "Save" to save the configuration to the serial server.
• To logout, click the "Logout" button.

Step 16. Test and verify operation.

• The primary check for normal operation is the device LEDs. See Step 3 in this document for more information.
• For advanced information, see the "Modbus Configuration Manager" menu, at the top of the Modbus Hardened Serial Server Manager screen.
• Select "Diagnostic" to check communications status with the Modbus Hardened Serial Server, then select the device for which you want to check communications data.
• A report of reply times and ping statistics is generated and can be saved.
• Select "Monitor" to review activity logs of attached LES431A devices, then select the device for which logged information is needed.
• Logged information includes "Time," "Source and Destination," "Type of event," "Subscriber ID," "Data collected," and "Information" the Modbus Hardened Serial Server software has gathered since the current login of the affected device.

Customer Support Information	Order toll-free in the U.S.: Call 877-877-BBOX (outside U.S. call 1-724-746-5500)
	FREE technical support 24 hours a day, 7 days a week: Call 724-746-5500 or fax 724-746-0746
	Mailing address: Black Box Corporation 1000 Park Drive Lawrence, PA 15055-1018
	Web site: www.blackbox.com
	E-mail: info@blackbox.com

LES431A Quick Start Guide, rev. 1

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NETWORK SERVICES

LES431A

Modbus Hardened Serial Server

Quick Start Guide

Step 1. Check for all required hardware.
Your package includes:
• 1-Port Modbus Hardened Serial Server
• CD-ROM containing software
• This Quick Start Guide

You will also need:
• Network and serial cables (not included)
• Power supply (not included)

Step 2: Install the hardware.
• Connect a 10- to 48-VDC (58 VDC max.) power supply (4.0 W required).
• Connect the network cable from the serial server to a network drop using a standard serial cable.
• Connect the serial device to the RS-232 DB9 or terminal block serial connector with a straight-through cable for a DCE device or a null-modem cable for a DTE device.

NOTE: UL® requires one conductor per terminal, 28 to 16 AWG copper-wire, tightening torque of 5 kg-cm, and 105° C rating sized for 60° C ampacity.

Step 3: LED status.

LED	Status
Ready	Blinks if system is operating correctly.
Port 1	ON when port is open; blinks when data present on serial port.
Link	ON when device is operating in 100BASE-TX mode. Blinks when data is present on the Ethernet link.

Step 4: Mode switch.

Hold in Mode switch for...	Result
0 to 2 seconds	Initiates a hardware reset.
2 to 10 seconds	Enters Console mode.
More than 10 seconds	Resets to factory defaults.

Step 5. Install Black Box Modbus Hardened Serial Server software.

• Insert the included CD and it should autostart.
• Follow the prompts to install the software.

NOTE: Make sure you have administrative rights and disable firewalls.

Step 6. Set up Black Box Modbus Hardened Serial Server software.

• Open the software. Click "Start—>Programs—> Black Box—> Modbus Hardened Serial Server Software." The "Discovery" page opens.

NOTE: If the device does not connect, cycle (unplug then replug) the power, then try again to connect.

• To configure via the network, select "Network."

• If you know the IP address, select "The device is at this address" and type in the address. If not, select "I don't know the IP address of the device."

• Click "Connect."

OR

Step 6. Set up the Web interface.

• Open a browser and type the IP address of the serial server into the address bar.
• When the Modbus Hardened Serial Server is found, the "Login" window appears.

Step 7. Login.

• Click "Login." (The password is blank from the factory.)
• The "Configuration/General" page appears.

Step 8. Set up the network.

• "I want DHCP" is pre-selected to set up the network using dynamic IP addressing. The Modbus Hardened Serial Server is set up at the factory to receive an IP assignment from a DHCP server. If a DHCP server is not available on your network, it will default to **169.254.102.39**.
• If this address does not work with your PC, change your network settings to:
  - IP Address = 169.254.102.1
  - Subnet Mask = 255.255.255.0
  - Default Gateway = 169.254.102.100

• If you need to use different settings, refer to the user's manual for instructions.

Step 9. Set up Modbus TCP.

Modbus TCP settings:
• "Connect to Port" identifies the TCP port used in TCP client mode. Valid range is 1 to 65535.
• "Response Timeout" is the maximum response time. Valid range is 1 to 65535.

TCP Server Settings:
• "Listen on port" identifies a TCP port in TCP server mode.

• "Limit the number of connections" controls the number of simultaneous TCP clients that can be connected.

• "Allow everyone," "allow specific IP address," and "allow a range of IP addresses" are Connection Filter mode options that control which TCP clients can connect.

Step 10. Set up Port 1 Serial.

• Change the "Description" of the serial port if needed.
• Select the "Mode" to RS-232, RS-422, RS-485 2-wire, or RS-485 4-wire.
• Select the baud rate, data bits, stop bits, parity, and flow control needed to communicate with the serial device.

Step 11. Set up Port 1 Modbus.

• Select the "Attached" as "Master" or "Slave."
• Select the Modbus protocol to be used, either RTU or ASCII.
• As needed, check option boxes for "Enable Modbus broadcast," "Enable OBh Exception," and "Enable serial message buffering."
• Select from 0 to 5 "Modbus Serial Retries."
• Enter "Milliseconds Modbus Message Timeout," from 1 to 65535.
• Enter "Milliseconds TX Delay," from 1 to 65535.