

Sierra Wireless AirLink LS300

Description

The target of the Airlink LS300 is the Alarming Module. Its purpose is to Send and Receive SMS messages. Essentially, it is going to be utilized as an SMS gateway. As an example, Ignition picks up information from a PLC that the water temperature is too hot. Ignition sends an SMS message via the AirLink LS300 to contacts assigned to that alarm. It is received by a contact, which is then acknowledged via SMS by the contact. This SMS message is sent back and received by Ignition via the AirLink.

LS300 and Network Security

The security settings covered here are basic steps to secure the LS300. Inductive Automation is not responsible for the security of your LS300. You should take the time to configure and test the current and other security measures as appropriate to your network.

Inductive Automation tested this router as a device that sits inside a network. Therefore, it needs to be configured to act simply as another device on the network, not as a router or DHCP Server etc. Its sole purpose is to handle SMS traffic.

Configuration and ACEManager

To access the modem's configuration information and be able to change it, you will be accessing what is called the ACEManager. This can be accessed via Ethernet, USB or Serial. This document will only cover Ethernet access. The recommended browser to use is IE or Firefox. There are problems when using the Chrome browser.

Setup Steps

The sections below should be followed in the order given to setup the AirLink LS300. Note that any change that is made usually requires a reboot of the router/modem, which can be done through the ACEManager. Follow these instructions and reboot at the end.

Default Ethernet Connection

First connect the LS300 directly to your computer and follow the manual's instructions to connect to it.

Default Ethernet settings for access is the following:

Device IP Address: 192.168.13.31

Port: 9191

Username: user

Password: 12345

It should be as simple as changing your computer's LAN settings to DHCP. Then connect to it via a browser with the URL of <http://192.168.13.31:9191>.

Firmware

The first thing to check is if the router's firmware is up-to-date. Go to the Status Tab. If the router's ALEOS Software Version is not 4.3.3a.014 (the latest firmware version as of this writing), it should be updated. This can be found on the Sierra Wireless website at

http://www.sierrawireless.com/en/Support/Downloads/AirLink/Configurable_Intelligent_Gateways/AirLink_LS300.aspx

With the firmware downloaded, follow these instructions to install it:

- 1) In the top right hand corner of the AceManager page, hit the Firmware link. This opens up a window.
- 2) Browse to where the file is located, and hit update firmware. The update runs automatically.

The LS300's manual also covers how to upgrade the firmware easily.

Setting up the AirLink to be on a network

The AceManager will be accessed to change the LAN and other setting to enable it to be accessed via an existing network. After the firmware upgrade, you should still be able to access it via the default Ethernet settings.

Go to the LAN – Ethernet Tab and change the following:

Device IP: <your IP Addr>

Starting IP: <your IP Addr> + 1 on last octet.

The last octet must be set to a number greater than what the Device IP is set to.

Ending IP: <your IP Addr> + X on last octet.

If DHCP Server Mode is disabled, setting this should not matter; however, set it to the Device IP or higher.

DHCP network mask: 255.255.0.0 or 255.255.255.0 depending on your network.

DHCP Server Mode: Disable

The LS300 has a built-in DHCP Server. This must be disabled. If it is not, it may cause network issues, creating conflicts on existing IP addresses already assigned.

The following is a screen shot example of the default LAN settings Inductive Automation is using – you should adjust these as appropriate to you network:

Firmware | Upload | Download | Reboot | Refresh All

Status | WAN/Cellular | LAN | VPN | Security | Services | GPS | Events Reporting | Serial | Applications | I/O | Admin

Last updated time : 07-09-2013 09:35:40 Expand All | Apply | Refresh | Cancel

<p>DHCP/Addressing</p> <p>Ethernet</p> <p>USB</p> <p>Host Port Routing</p> <p>Global DNS</p> <p>PPPoE</p> <p>VLAN</p> <p>VRRP</p> <p>Host Interface Watchdog</p>	<p>[-] General</p> <p><input checked="" type="checkbox"/> Ethernet Port Enable ▾</p> <p><input type="checkbox"/> AT Device IP 192.168.13.31</p> <p><input type="checkbox"/> AT Starting IP 192.168.13.100</p> <p><input type="checkbox"/> Ending IP 192.168.13.150</p> <p><input type="checkbox"/> DHCP network mask 255.255.255.0</p> <p><input checked="" type="checkbox"/> AT DHCP Server Mode Disable ▾</p> <p>[-] Advanced</p> <p><input checked="" type="checkbox"/> Link Radio Coverage to Interface Disable ▾</p> <p><input checked="" type="checkbox"/> Radio Link Delay (Secs) 10</p> <p><input checked="" type="checkbox"/> Interface Disabled Duration Interface Disabled when Radio is disconnected ▾</p> <p><input checked="" type="checkbox"/> Turn Off NAT Disabled ▾</p> <p><input checked="" type="checkbox"/> Starting Ephemeral Port 1024</p> <p><input checked="" type="checkbox"/> Ethernet 1 Link Setting Auto 100/10 ▾</p>
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After the above has been done, go to the LAN – Host Port Routing Tab. The router must be set to NOT act as the gateway on the network.

Primary Gateway: Disabled

Failure to make the above setting may cause devices on the network to cease functioning.

Host network subnet mask 2: 255.255.255.0

Host network subnet mask 3: 255.255.255.0

Below is a screen shot of the changes:

Firmware | Upload | Download | Reboot | Refresh All

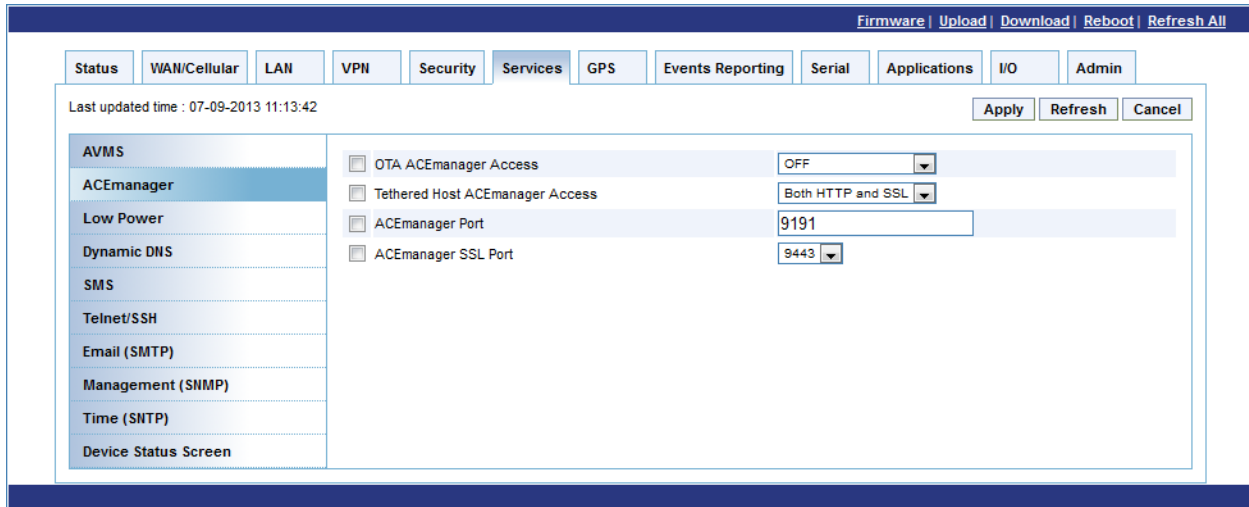
Status | WAN/Cellular | LAN | VPN | Security | Services | GPS | Events Reporting | Serial | Applications | I/O | Admin

Last updated time : 07-09-2013 09:35:57 Apply | Refresh | Cancel

<p>DHCP/Addressing</p> <p>Ethernet</p> <p>USB</p> <p>Host Port Routing</p> <p>Global DNS</p> <p>PPPoE</p> <p>VLAN</p> <p>VRRP</p> <p>Host Interface Watchdog</p>	<p><input checked="" type="checkbox"/> Primary Gateway Disable ▾</p> <p><input checked="" type="checkbox"/> Host Network 2 0.0.0.0</p> <p><input checked="" type="checkbox"/> Host Network Subnet Mask 2 255.255.255.0</p> <p><input checked="" type="checkbox"/> Host Network 2 Route Ethernet Port ▾</p> <p><input checked="" type="checkbox"/> Host Network 2 Gateway 0.0.0.0</p> <p><input checked="" type="checkbox"/> Host Network 3 0.0.0.0</p> <p><input checked="" type="checkbox"/> Host Network Subnet Mask 3 255.255.255.0</p> <p><input checked="" type="checkbox"/> Host Network 3 Route Ethernet port ▾</p> <p><input checked="" type="checkbox"/> Host Network 3 Gateway 0.0.0.0</p>
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ACEManager "Over-The-Air"

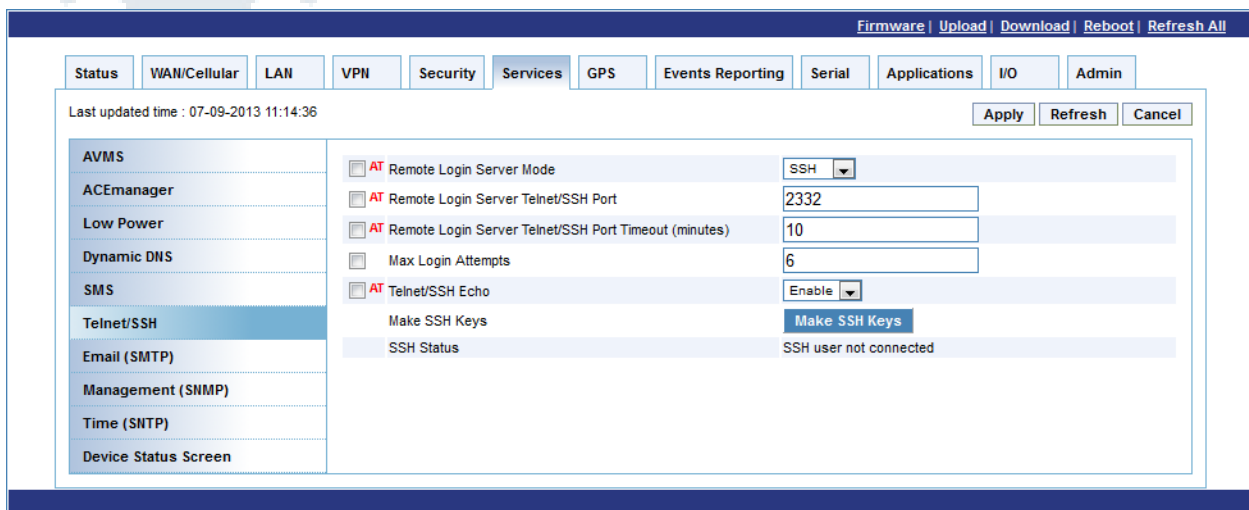
By default the ACE Manager can be accessed “over-the-air”. If you load the Inductive Automation default configuration, it is disabled. This will add security to the device to prevent access from outside the network via the cellular network.



SSH Interface to the Modem

If you load the Inductive Automation default configuration, SSH is used in preference to Telnet. To SSH into the router, use Putty or some other SSH Client. See Ethernet section for IP and login credentials. Make the following changes in the Telnet/SSH section of the Services tab:

Remote Login Server Mode: SSH



Configuring SMS

In order to send SMS it must be enabled. Go to the Services – SMS tab.

SMS Mode: Control and Gateway

ALEOS Command Password: 12345

Local Host IP: this should be set to the IP of the Ignition Server.

Local Host Port: 17342

ALEOS Port: 17341

The screenshot displays the configuration page for the ALEOS service. The interface includes a top navigation bar with links for Firmware, Upload, Download, Reboot, and Refresh All. Below this is a menu of configuration categories: Status, WAN/Cellular, LAN, VPN, Security, Services, GPS, Events Reporting, Serial, Applications, I/O, and Admin. The 'Services' category is selected, and the 'SMS' sub-section is active. The left sidebar lists various system settings like AVMS, ACEmanager, Low Power, Dynamic DNS, Teletnet/SSH, Email (SMTP), Management (SNMP), Time (SNTP), and Device Status Screen. The main configuration area is divided into several sections: 1. SMS Mode: Includes checkboxes for SMS Mode, ALEOS Command Password (set to 12345), ALEOS Command Prefix (set to &&&), SMS Destination (set to IP), and Include Phone Number On Serial (set to Yes). 2. Local Host Interface Configuration: Includes checkboxes for Local Host IP, Local Host Port (set to 17342), and ALEOS Port (set to 17341). 3. Message Format Configuration: Includes checkboxes for Start Field (set to <<<), Field Delimiter (set to), End Field (set to >>>), ACK Field (set to ACK), and Message Body Format (set to ASCII Hex). 4. SMS Security - Inbound SMS Messages: This section is currently collapsed. 5. Advanced: Includes checkboxes for SMS Address Type (set to Unknown), SMS Address Numbering Plan (set to ISDN/Telephone), AT+CGSMS (set to Do Nothing), and Quick Test (with a Quick Test button). There is also a Quick Test Destination field.

Port Filtering and Outbound Ports

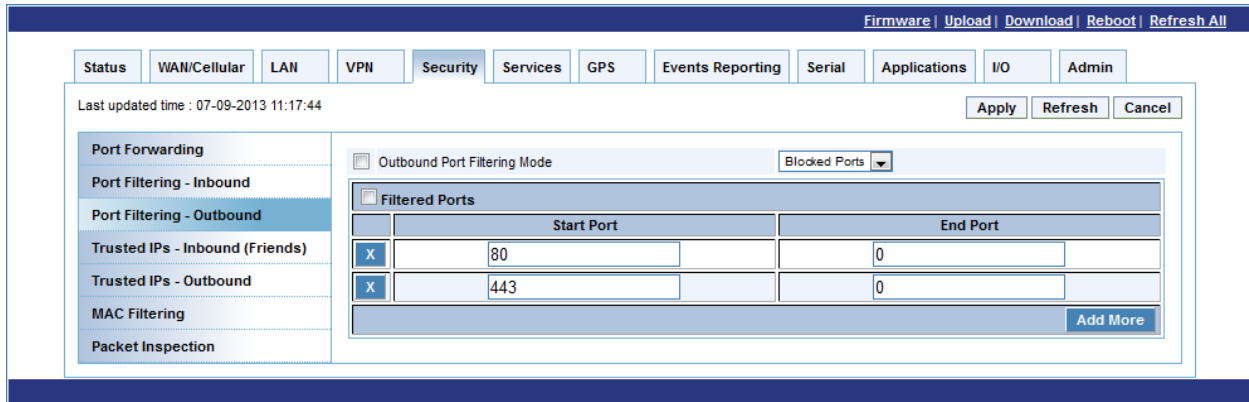
To prevent outbound http and https traffic over the air from the LS300, port filtering is utilized. Under Security – Port Filtering Outbound:

Outbound Port Filtering Mode: Blocked Ports

Filtered Ports:

Start Port 80 and End Port 0

Start Port 443 and End Port 0.



Trusted Inbound/Outbound IP Address

Using the AceManager, you can set certain Static IP addresses as trusted for both Inbound and outbound traffic for the modem. If this router will be put inside a network, this option should be looked at.

Per the manual, Trusted IPs Inbound restricts access to the modem and all LAN connected devices. You would use the Public IP Address that someone would be accessing the LS300 over the air.

Per the manual, Trusted IPs Outbound restrict access to external networks to IPs in the list.

Reboot the LS300

At this point in the setup, reboot the device. You should also be able to access it via the web interface ACEManager.

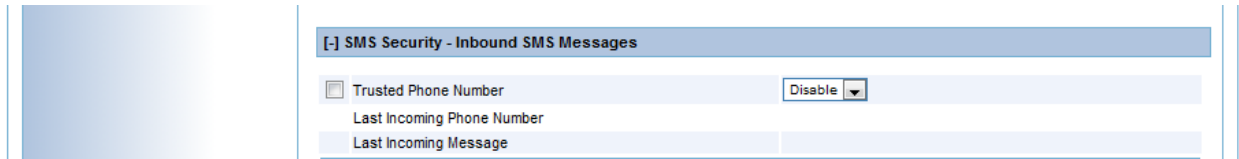
Using the AirLink and Additional Information

Sending & Receiving SMS Messages

To send SMS messages, login to the LS300 via SSH. The following is the basic command to send the message:

```
at*smsm2m="1XXXXXXXXX This is SMS test message."
```

To see if the LS300 is receiving text messages, send one to it. Then from the ACEManager, go to Services – SMS, and under the SMS Security–Inbound SMS Messages heading, there are 2 fields called Last Incoming Phone Number and Last Incoming Message. Check if the number and message are there. Press **Refresh** if you do not see it immediately.

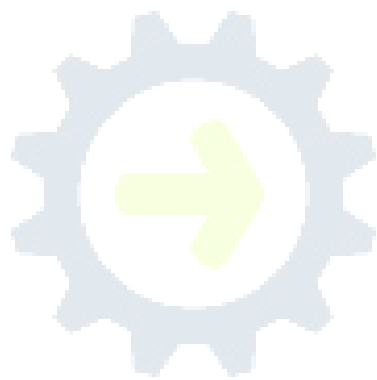


Troubleshooting Notes:

To reset your device back to factory defaults in IE (this does not work using Firefox or Chrome), go to the Admin - Advanced tab and hit the Reset to Factory Default button.

If the above doesn't work:

- Hold down the reset button between 45 and 60 seconds. You will see the 4 lights flash sequentially.
- When the device's is resetting when all four lights flash yellow then red and then turn green for about a minute before it boots up again.



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