



101 N. Washington Street
PO BOX 5189
Sylvester, Georgia 31791
www.aic-wireless.com

Sales: 1-877-4 AIC WLD (424-2953)
Office: 229-776-2510
Fax: 229-776-2512
sales@aic-wireless.com

AIC485 Product Information Sheet:

The AIC485 is designed to transport RS485 communication data over short to extended ranges using the 900 MHz frequency (902-928). All devices are plug-and-play requiring no special programming tools. Using Hyperterminal, radios can be addressed to one another in the field. Configuration instructions are below:

Installation Instructions:

1. Connect RS485 bus to terminals labeled A +, B - and SH (Shield).
2. Connect 12-24 VAC/DC power as labeled.**
3. Digital LED sequence should begin, "AIC", "485", "revision number".
4. AIC485 will begin searching for paired unit(s). *Note: For radios configured as a server, the LED channel numbers will descend from 12 to 0, and reverse for client radios.*
5. Perform a local download on the remote RS485 site.
6. Verify the RF network communication with the Channel, Link Quality "LQ", RFTX, RFRX, SER TX, and SER RX LEDs.
7. Lastly, perform a network commission at the base station site to establish the link with the remote location.

****WARNING: If using AC power option, a 24 VAC isolation transformer must be used! Ensure neither of the two secondaries are bonded.**

Note: As with any RF network, plan ahead for proper antenna selection and placement. It is the intention of AIC Wireless to provide a reliable wireless communication device for existing LonWorks networks. However, in some conditions, reliability is determined largely by correct antenna placement, which is the responsibility of the installer. This product is NOT TO BE USED in situations where life safety issues may arise. AIC Wireless makes no claims, expressed or implied, of the products usefulness with regard to specific applications. Determination of the product's suitability for a particular application is the sole responsibility of the purchasing parties. In any installation, ensure the devices are properly protected from the elements by installing in an appropriate enclosure. Additional surge protection devices may be necessary to protect from lightning and/or power surges.

900 MHz Channel Table

1	903.12500 MHz
2	905.20833 MHz
3	907.29167 MHz
4	909.37500 MHz
5	911.45833 MHz
6	913.54167 MHz
7	915.62500 MHz
8	917.70833 MHz
9	919.79167 MHz
10	921.87500 MHz
11	923.95833 MHz
12	926.04167 MHz

FCC ID: R4N-AW900M
IC: 5303A-AW900M

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference; (2) This device must accept any interference received, including interference that may cause undesired operation.

Step 1: Loading Device Drivers

1. If drivers were obtained in a zip format, unzip them to a place that you can find on your computer such as *Desktop* or *My Documents*.
2. Connect the AIC485 device via USB-B cable to your computer. Power should not be applied at this time.
3. The *Found New Hardware* wizard should pop up and ask how you would like to install the drivers.
4. Select the option that allows you to search for the drivers yourself and select *Next*.
5. Using the *Browse* button, find the unzipped folder that contains the USB drivers and highlight it. The folder name convention should follow the format *AIC485_USB_LINK*. Click *Next*.
6. You will get a pop up window stating that the drivers are not signed by Windows. Select *Continue Anyway*.
7. Windows will grab and install the correct drivers from the folder.
8. **DO NOT UNPLUG THE USB CABLE YET. This installation process (STEP 3-7) will be prompted TWICE AND THE PREVIOUS STEPS SHOULD BE COMPLETED AGAIN.**
9. The drivers should now be installed.

Step 2: Loading Configuration Files

1. With the device connected via USB, adjust COM Port Settings to "115200 baud, 8 data bits, no parity, 1 stop bit, no flow control" in *Device Manager* (Found under *Control Panel>System>Hardware Tab>Device Manager* button>*Port (COM & LPT)>AIC485_USB_LINK>Properties*).
2. **With power disconnected** from the radio and **USB connected**, open Hyper Terminal and create a new connection by typing a connection name in the pop up box on the screen and hit *Enter*.
3. Select the COM port that the device is using along with the serial settings used for programming; 115200, 8 data bits, no parity, 1 stop bit, no flow control. Hit *Enter*.
4. Make sure you have a connection established by verifying the timer is counting at the bottom left corner of the window.
5. If not, click the phone with the receiver-off-the-hook icon at the top of the window.
6. Plug power into the radio.
7. A "ü" (u Dieresis) should appear.
8. The text menu will pop up displaying the firmware version and a selection of <u>, <d>, or <h>
9. Type "u" and the ENTER key for upload. **NOTE:** the u will **NOT** display when typed.
10. The § "Section Symbol" will appear on the next line.
11. Select "Transfer" from the menu bar at the top of the window.
12. Select "Send File" from the drop down menu.
13. A browse window will popup and you need to select "X Modem" from the "Protocol" Dropdown menu.
14. Browse to the configuration file that you want and hit "Send".
15. When complete, hit "d" ENTER to display back to you the file you just uploaded. NOTE: the "d" will NOT display when typed.
16. Unplug USB and cycle power. The radio is now using new settings.

Step 3: Configuration File Parameters

1. **Network:** – 6 digit number. Must be the same for all devices on the wireless network.
2. **Key:** – 32 digit number. Encryption key used by all devices on a network to securely transmit data. Must be the same for all devices on the wireless network.
3. **ID:** – Address assigned to Client radios. There may only be one Client radio per network with the same ID. This number is used by Server radios to set the maximum number of Clients on the network. On Server radios, this number should be set to the maximum number of Clients that are currently on the network. Do not set this number erroneously high.
4. **Bit Delay:** – number of bits to wait for a pad byte. Pad bytes are not used by all brands. Typically, this value will never change.
5. **MTU:** – (Maximum Transmission Units) – the number of bytes allowed to accumulate in the radios buffer before the bytes are sent. This number may be adjusted lower improve response time or higher to improve overall efficiency. MTU will vary according to baud rate. This is because different baud rates require different amounts of time to send packets to the radios buffer thereby changing the available amount of time for RF transmission.
6. **KO:** – (Knock Out) -- buffer clearing mechanism expressed in bit times. If the radio loses power or is interrupted in the middle of a packet, the incomplete packet will only remain in the buffer for this amount of bit time. This number is typically left unchanged
7. **BR:** – (Baud Rate) – Serial communication speed: 6=9600, 5=19200, 4=38400, 3=57600, 2=76800, 1=115200.
8. **CH:** – (Channel) – Typically left at 00(Auto). Available channels are 01 to 12. All radios to stay on a set channel must have the same channel number. There is no intelligent channel swapping in this mode. If interference occurs data will be lost.
9. **MODE:** – Used to assign a radio to a Server or Client. 1=Server, 3=Client
10. **DB:** – (Data Bits) – number of data bits in serial communication. (standard is 8)
11. **P:** – (Parity) – Typically 0 = None (1 = even, 2 = odd)
12. **SB:** – (Stop-Bits) – used to add stop-bit padding to bytes on the serial output. This number should be set to 1 unless otherwise instructed.

Example Configuration Text File

```
Network: 123456
Key: 1234 5678 9098 7654 3212 3456 7890 9876
ID: 01
Bit Delay: 07
MTU: 046
KO: 20
BR: 2
CH: 00
MODE: 3
DB: 8
P: 0
SB: 1
```

For Support Information, contact AIC Wireless at 229-776-2510, or e-mail support@aic-wireless.com
Designed and Engineered by AIC Wireless
Sylvester, Georgia 31791
No reproduction without expressed written consent of AIC Wireless.