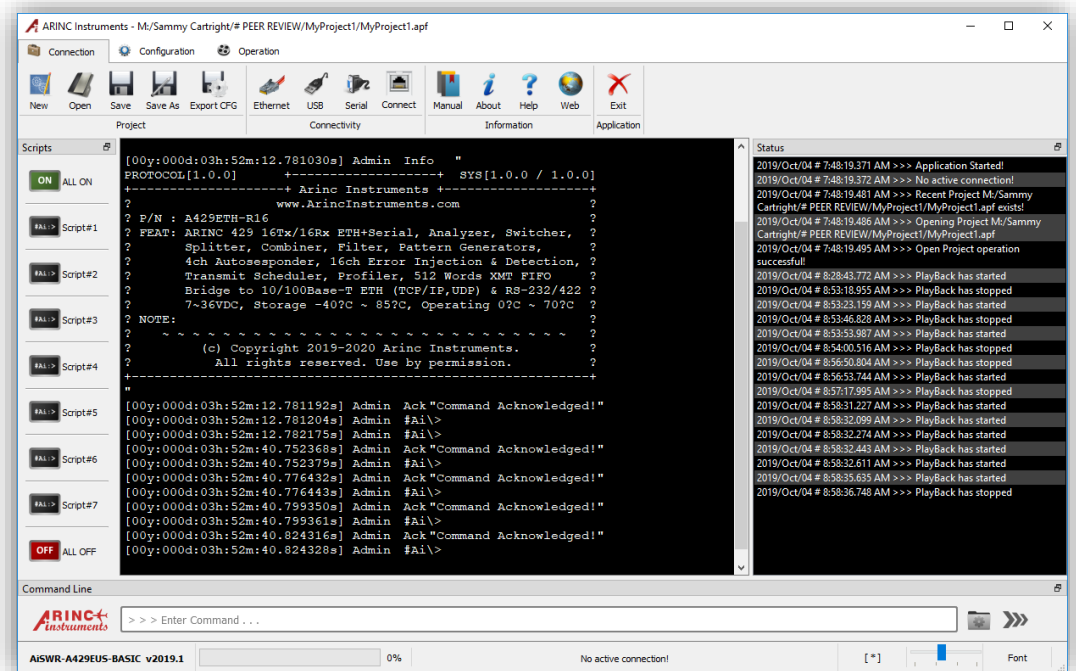


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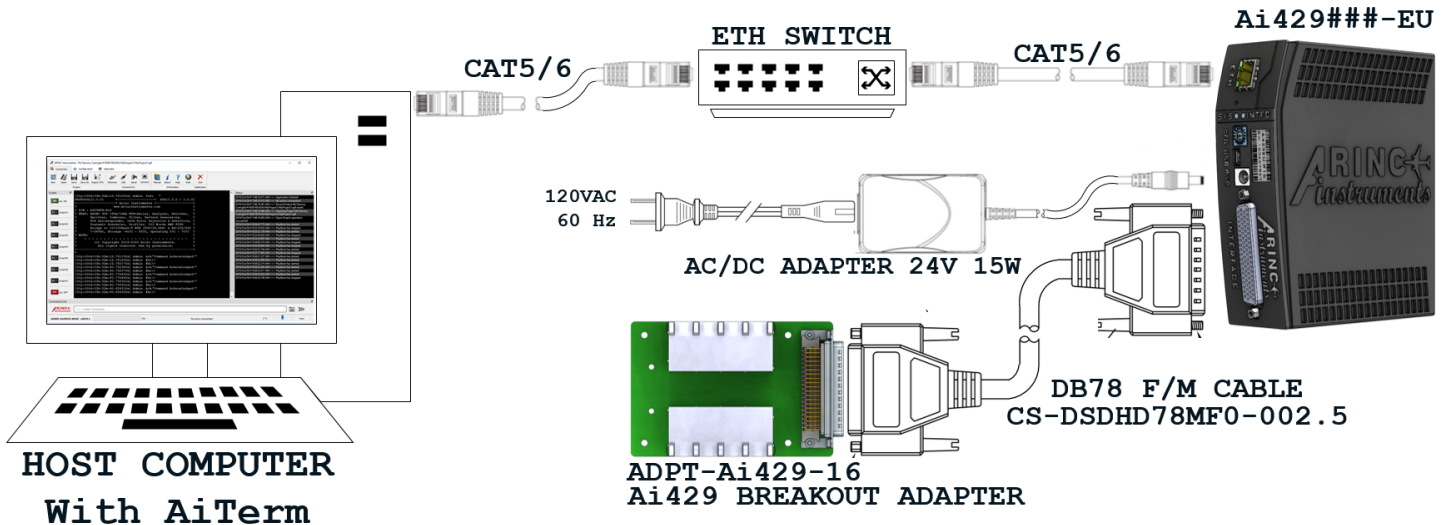
Ai429 USB Model Getting Started Guide



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Ai429 USB Model Ethernet Setup

We will setup the Ethernet arrangement a shown below. It is assumed that the user has a host computer with the AiTerm (or some other terminal emulator program) already installed.



REQUIRED ITEMS

- ITEM #1.** A computer with the AiTerm (or some other terminal emulator program) application installed – to be used as host platform.
- ITEM #2.** One Ethernet switch/hub
- ITEM #3.** Two CAT5/6 Ethernet cables.
- ITEM #4.** One AC/DC 24VDC Adapter – PSAA15W-240L6
- ITEM #5.** One Ai429###-EU## USB device model (Ai429{class}-EU{channels})
- ITEM #6.** One optional breakout adapter – ADPT-Ai429-16
- ITEM #7.** One optional HD78 M/F cable – CS-DSDHD78MF0-*

REQUIRED SETUP

- STEP #1.** Connect the device to the Ethernet switch using a CAT5/6 cable as shown above.
- STEP #2.** Connect the host computer the Ethernet using a CAT5/6 cable as shown above.
- STEP #3.** Decide which mode the device will operate (**Admin/Host**):
 - a. Set the front panel configuration switch to zero/0 for **Ethernet Admin mode**.
 - b. Set the front panel configuration switch to one/1 for **Ethernet Host mode**.
- STEP #4.** **Optionally** connect the HD78 cable to the Ai429 Interface port.
- STEP #5.** **Optionally** connect the HD78 cable to the breakout adapter (ADPT-Ai429-16).
- STEP #6.** Connect the AC/DC power adapter barrel connector to the device's power connector.
- STEP #7.** Connect the AC/DC power adapter to the 120VAC outlet.

Ai429 Embedded Web Server Setup

All Ai429 devices comes with an embedded web server that provides device status and the ability to configure the basic network parameters. By default, the web server uses HTML pages and can be accessed via any web browser by navigating to the IP address: 192.168.1.10:80

The screenshot shows the ARINC Instruments web interface. At the top, there is a navigation menu with 'Information' selected. Below the menu, the 'INFORMATION' section is displayed. Under 'Current Settings', the following information is shown:

| | |
|---------------|-------------------|
| Version | 2.08 - 2.09 |
| Serial Number | 13255 |
| MAC Address | 70-b3-d5-ef-40-25 |
| IP Address | 192.168.1.10 |
| Subnet Mask | 255.255.255.0 |
| Gateway | 192.168.1.1 |


Below the settings, two device models are shown: 'SERIAL MODEL' and 'USB MODEL'. The SERIAL MODEL features an Ethernet port (ETH), a system status indicator (SYS), an interface control port (INTFC CONTROL), and a multi-pin interface (INTERFACE). The USB MODEL features an Ethernet port (ETH), a system status indicator (SYS), an interface control port (INTFC CFG), a USB port (USB), a power port (PWR), and a multi-pin interface (INTERFACE). Both models include a barcode and the ARINC Instruments logo.

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Ai429 USB Model AiTerm Ethernet Startup

To startup the device, it must first be properly setup in accordance to its model. Please review and follow the appropriate setup section for your device model.


☞ Launch the AiTerm application.

☞ In AiTerm application, create a new project by clicking New Project button () in the Main tab.

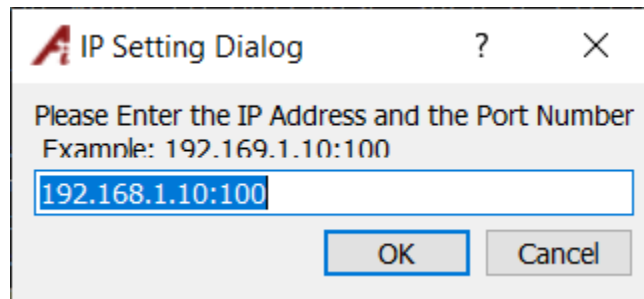
☞ Using the dialog window, browse to the desired project location and click okay.

☞ Enter the new project's name and click okay – the project is created.

☞ If the network has DHCP, then the user must know the **IP address assigned to the device**. This is usually done either by forcing the switch to provide a fix IP address per physical port/connection, or by logging in and looking at the assigned IP table. Otherwise, in the absence of DHCP, the default device IP address is **192.168.1.10:100**.

☞ Click on the Ethernet button  under the Connection tab.

☞ A dialog windows is presented asking for the device's IP address.



☞ Enter the IP address and the port number separated by a colon with no spaces. For example:
192.168.1.10:100

☞ Hit ENTER or click the OK button.

☞ The Connect button icon changes to an RJ-45 outlet.

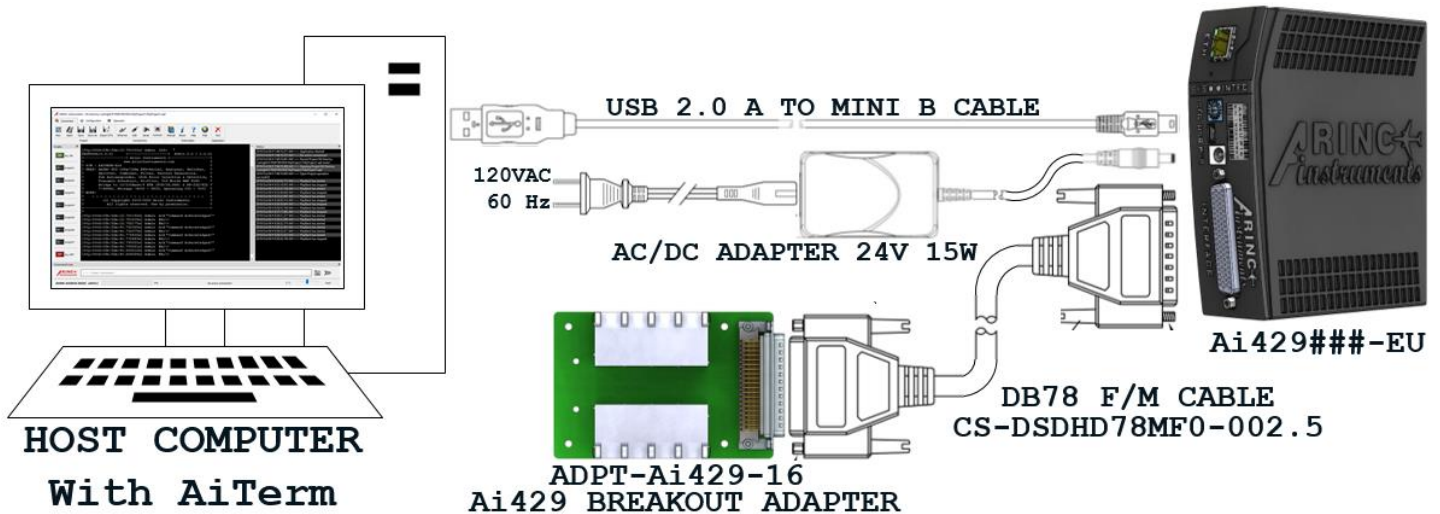
☞ Click on the Connect button.

☞ This should take anywhere from a few seconds to a few minutes depending on the nature of the network.

☞ Once connection is established, the device's information will be printed on the AiTerm console screen.

Ai429 USB Model Serial USB Setup

We will setup the USB arrangement as shown below. It is assumed that the user has a host computer with the AiTerm (or some other terminal emulator program) and the USB driver already installed.



REQUIRED ITEMS

- ITEM #1.** A computer with the AiTerm application installed – to be used as host.
- ITEM #2.** FTDI VCOM USB Driver (Depending on the host platform)
- ITEM #3.** One mini USB 2.0 cable.
- ITEM #4.** One AC/DC 24VDC Adapter – PSAA15W-240L6
- ITEM #5.** One Ai429###-EU## USB device model (Ai429{class}-EU{channels})
- ITEM #6.** One optional breakout adapter – ADPT-Ai429-16
- ITEM #7.** One optional HD78 M/F cable – CS-DSDHD78MF0-*

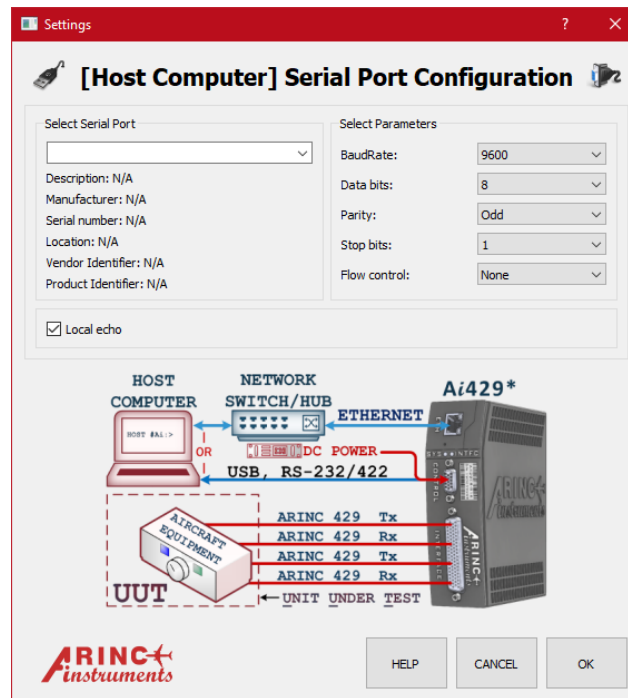
REQUIRED SETUP

- STEP #8.** Decide which mode the device will operate (**Admin/Host**):
 - a. If it is desired for the device to be in **USB Admin mode**, then set the front panel configuration switch to four/4 – *recommended for initial setup*.
 - b. If it is desired for the device to be in **USB Host mode**, then set the front panel configuration switch to five/5.
- STEP #9.** Connect the AC/DC power adapter barrel connector to the device's power connector.
- STEP #10.** Connect the device to the host computer using a USB cable as shown above.
- STEP #11.** **Optionally** connect the HD78 cable to the Ai429 Interface port
- STEP #12.** **Optionally** connect the HD78 cable to the breakout adapter (ADPT-Ai429-16)
- STEP #13.** Connect the AC/DC power adapter barrel connector to the device's power connector.
- STEP #14.** Connect the AC/DC power adapter to the 120VAC outlet.

Ai429 USB Model AiTerm Serial USB Startup

To startup the device, it must first be properly setup in accordance to its model. Please review and follow the appropriate section for your device model.

- 🖱️ Launch the AiTerm application.
- 🖱️ In AiTerm application, create a new project by clicking New Project button in the Main tab.
- 🖱️ Using the dialog window, browse to the desired project location and click okay.
- 🖱️ Enter the new project's name and click okay – the project is created.
- 🖱️ Click on the Serial or the USB button under the Connection tab.
- 🔗 A popup dialog is presented asking to select a serial port along with the necessary parameters.



- 🖱️ Select the appropriate serial port from the dropdown and set the connection parameters to: **9600 baud, one start bit, odd parity, one stop bit, hardware flow control** and click the Apply button.
- 📖 Note: for RS-422, the flow control must be “**software XON/XOFF**” or “**None**” because the hardware signals are not present.
 - 🔗 The connect button icon changed to a DB9 connector for serial or a USB connector for USB.
- 🖱️ Click on the Connect button.
 - 🔗 This should take only a few seconds. Once connected, the device’s information will be printed on the AiTerm console screen.
- 📖 In **Admin** mode, the Ai429 device automatically starts with auto-flow control. This means that choose either software, hardware or no flow control and the connection will still work. For RS-232, hardware flow control. For RS-422, software flow control is recommended because the hardware signals are not present.
- 📖 For USB connection, the device enumerates as a serial port. This makes the connection procedure the same as a serial port. Also, know that the USB virtual serial bus has both hardware and software flow control.

USB Device Model Configuration Strap Table

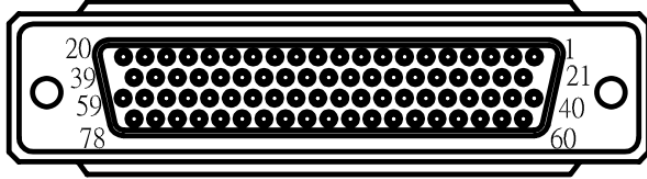


The table below shows the USB device model's mode based on the front panel configuration switch.

| *CFG SW VALUE | ACTIVE BUS | DEVICE MODE | DESCRIPTIONS |
|---------------|------------|-------------|--|
| 0 | Ethernet | ADMIN | 10/100/1000Based-T Ethernet Admin, with TCP/IP – full access. |
| 1 | Ethernet | HOST | 10/100/1000Based -T Ethernet Host, with TCP/IP – programmable restricted access. |
| 2 | Ethernet | HOST LOCK | 10/100/1000Based -T Ethernet Host, with TCP/IP – fixed access restriction. |
| 3 | - | - | RESERVED |
| 4 | USB | ADMIN | USB Admin, forced 9600 baud with no flow control – full access. |
| 5 | USB | HOST | USB Serial Host. Up to 1Mbps – programmable restricted access. |
| 6 | USB | HOST LOCK | USB Serial Host. Up to 1Mbps – fixed access restriction. |
| 7 | - | - | RESERVED |
| 8-F | ISOLATED | NONE | ISOLATED – No Host Interface. |

* The "CFG SW VALUE" column represents the hex switch value from the USB model's front panel.

DB78 INTERFACE Connector Pinout



| PIN# | SIGNALS |
|------|------------------------|
| 59 | SIGNAL GROUND |
| 20 | SIGNAL GROUND |
| 78 | N/C |
| 58 | N/C |
| 39 | N/C |
| 19 | N/C |
| 77 | N/C |
| 57 | N/C |
| 38 | N/C |
| 18 | N/C |
| 74 | ARINC 429 XMT (A) CH16 |
| 54 | ARINC 429 XMT (B) CH16 |
| 76 | ARINC 429 RCV (A) CH16 |
| 56 | ARINC 429 RCV (B) CH16 |
| 35 | ARINC 429 XMT (A) CH15 |
| 15 | ARINC 429 XMT (B) CH15 |
| 37 | ARINC 429 RCV (A) CH15 |
| 17 | ARINC 429 RCV (B) CH15 |
| 73 | ARINC 429 XMT (A) CH14 |
| 53 | ARINC 429 XMT (B) CH14 |
| 75 | ARINC 429 RCV (A) CH14 |
| 55 | ARINC 429 RCV (B) CH14 |
| 34 | ARINC 429 XMT (A) CH13 |
| 14 | ARINC 429 XMT (B) CH13 |
| 36 | ARINC 429 RCV (A) CH13 |
| 16 | ARINC 429 RCV (B) CH13 |
| 70 | ARINC 429 XMT (A) CH12 |
| 50 | ARINC 429 XMT (B) CH12 |
| 72 | ARINC 429 RCV (A) CH12 |
| 52 | ARINC 429 RCV (B) CH12 |
| 31 | ARINC 429 XMT (A) CH11 |
| 11 | ARINC 429 XMT (B) CH11 |
| 33 | ARINC 429 RCV (A) CH11 |
| 13 | ARINC 429 RCV (B) CH11 |

| PIN# | SIGNALS |
|------|------------------------|
| 10 | ARINC 429 XMT (A) CH10 |
| 29 | ARINC 429 XMT (B) CH10 |
| 71 | ARINC 429 RCV (A) CH10 |
| 51 | ARINC 429 RCV (B) CH10 |
| 49 | ARINC 429 XMT (A) CH9 |
| 68 | ARINC 429 XMT (B) CH9 |
| 32 | ARINC 429 RCV (A) CH9 |
| 12 | ARINC 429 RCV (B) CH9 |
| 69 | SIGNAL GROUND |
| 30 | SIGNAL GROUND |
| 7 | ARINC 429 XMT (A) CH8 |
| 26 | ARINC 429 XMT (B) CH8 |
| 9 | ARINC 429 RCV (A) CH8 |
| 28 | ARINC 429 RCV (B) CH8 |
| 46 | ARINC 429 XMT (A) CH7 |
| 65 | ARINC 429 XMT (B) CH7 |
| 48 | ARINC 429 RCV (A) CH7 |
| 67 | ARINC 429 RCV (B) CH7 |
| 6 | ARINC 429 XMT (A) CH6 |
| 25 | ARINC 429 XMT (B) CH6 |
| 8 | ARINC 429 RCV (A) CH6 |
| 27 | ARINC 429 RCV (B) CH6 |
| 45 | ARINC 429 XMT (A) CH5 |
| 64 | ARINC 429 XMT (B) CH5 |
| 47 | ARINC 429 RCV (A) CH5 |
| 66 | ARINC 429 RCV (B) CH5 |
| 3 | ARINC 429 XMT (A) CH4 |
| 22 | ARINC 429 XMT (B) CH4 |
| 5 | ARINC 429 RCV (A) CH4 |
| 24 | ARINC 429 RCV (B) CH4 |
| 42 | ARINC 429 XMT (A) CH3 |
| 61 | ARINC 429 XMT (B) CH3 |
| 44 | ARINC 429 RCV (A) CH3 |
| 63 | ARINC 429 RCV (B) CH3 |
| 2 | ARINC 429 XMT (A) CH2 |
| 21 | ARINC 429 XMT (B) CH2 |
| 4 | ARINC 429 RCV (A) CH2 |
| 23 | ARINC 429 RCV (B) CH2 |
| 41 | ARINC 429 XMT (A) CH1 |
| 60 | ARINC 429 XMT (B) CH1 |
| 43 | ARINC 429 RCV (A) CH1 |
| 62 | ARINC 429 RCV (B) CH1 |
| 40 | SIGNAL GROUND |
| 1 | SIGNAL GROUND |