Tips

Welcome to read Siriturbo on-line document. This document will help you understand how to use Sirius module.

Blue text, suggestions and content you may need to know

Orange text, please pay close attention

Red text, must be strictly enforced

Version

Latest versionV: 1.2

Release Notes:

1. Fix 422 interface error

History version： V1.1

Release Notes:

1. Update device factory information

History version: V1.0

Release Notes:

Introduction

Siriturbo is a avionics product launched by AheadX technology to enhance the expansion capability of the AheadX GNC system. As a co-processor, it can be extended to complete data processing functions.

Sirius engine can realize the conversion of hardware interfaces such as CAN, 422, 232, TTL, etc .. It also can complete the communication protocol conversion between GNC and the major brand pods, such as Gemtone Precision Instruments, All VIEW, ZEROTECH, VIEWPRO, SUMBOY, etc..

AheadX provides a one-stop solution for drone pod applications, a full range of GNC products, avionics products and ground control software.

Size
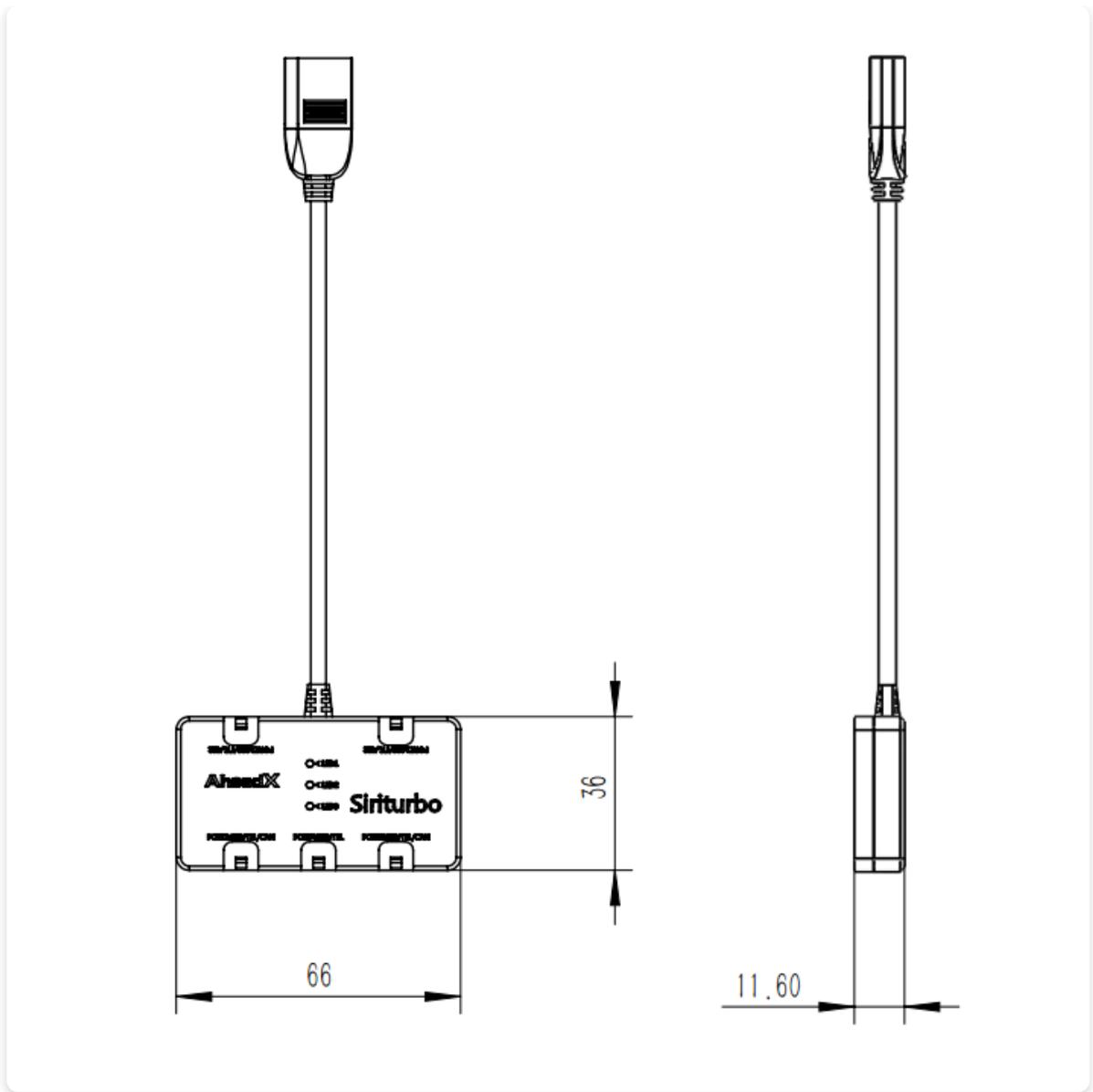
Unit：mm

Voltage	14~53V
Pow	0.3W
Temperature	-40℃~85℃
Size	66*36*11.6

Interface Definiton

Siriturbo supports CAN, 422, 232, TTL and other hardware interface conversion. PORT1-PORT5 supports predefined interface attributes. The two models of Sirius Engine 3 or Sirius Engine 4 can be selected from the factory, and can also be customized according to user needs.

Interface	Definition	Siriturbo3	Siriturbo4

Interface	Definition	Siriturbo3	Siriturbo4
PORT1	Support 232 / TTL / 422 interface predefined	422	232
PORT2	Support 232 / TTL / 422 interface predefined	TTL	232
PORT3	Support 232 / TTL / CAN interface predefined	232	TTL
PORT4	Support 232 / TTL interface predefined	232, can be used for function configuration and upgrade	232 , can be used for function configuration and upgrade
PORT5	Support 232 / TTL / 422 interface predefined	CAN	CAN

422　R+　R-　T-　T+　　　　　　　　　　R+　R-　T-　T+　422

232/TTL　　GND　Tx　Rx　　　　　　　GND　Tx　Rx　232/TTL

PORT2:232/TTL/422　　　　　　　　　　PORT1:232/TTL/422

● ◀ LED1

AheadX　　　● ◀ LED2

● ◀ LED3　　Siriturbo

PORT3:232/TTL/CAN　　PORT4:232/TTL　　PORT5:232/TTL/CAN

CAN　H　L　GND　　　Rx　Tx　GND　　　H　L　GND　CAN

232/TTL　Rx　Tx　GND　　　　　　　　Rx　Tx　GND　232/TTL
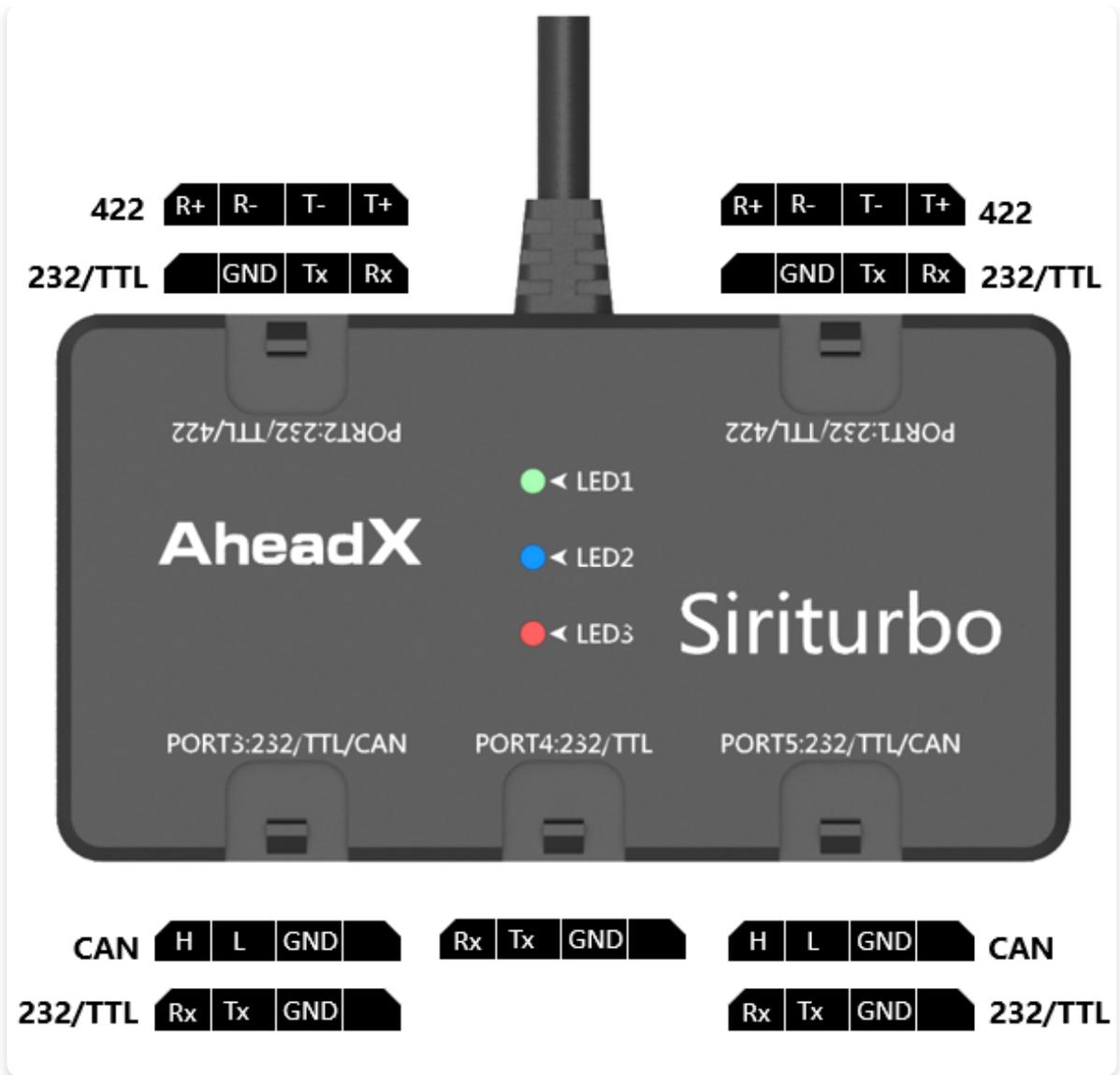
Pin	Definition	Marks
Rx	232/TTL Data reception	
Tx	232/TTL Data transmission	
R+	422 Data reception+	
R-	422 Data reception-	
T+	422 Data transmission+	
T-	422 Data transmission-	
GND	Ground	Connected to the entire electrical system ground, there must be no potential difference

Indicator light

Indicator light	Status	Marks
LED1	Working status indicator	Slow flashing red when Siriturbo is working normally
LED2	GNC data indicator	Blinks when the flight control data is received normally, the blinking frequency is positively related to the data frequency
LED3	Device data indicator	Blinks when the device data is received normally, the flashing frequency is positively related to the data frequency
Combination status		
System updata	LED1、LED3 Always on；LED2 Blinks slowly	

Functions Configuration

The interface attributes and communication protocol can be configured through the Siriturbo configuration tool.

Connect Siriturbo to computer：

1. Make a configuration line：

Cut a built-in Molex cable, you can see 4 lines in different color. Solder a DB9 female in the following colors: **Gray--DB9 Pin2 Orange--DB9 Pin3   Black-- DB9 Pin5 Red not connected**
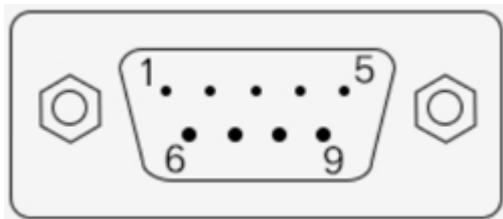
DB9 female**Soldering surface** definition

2.Device connection：

Install Siriturbo configuration tool according to the installation prompts, then power on the Siriturbo(**14-53V**). Use the serial port (RS232) to USB data cable connect to Siriturbo configuration cable(Configuration cable Molex connects to Siriturbo (**Port4**) and computer.

Search the serial port of the device. If the serial port cannot be searched or the data cannot be read after connecting to the serial port, please check whether there is a serial device recognition abnormality in the computer device manager. .

Search the serial port of the device. If the serial port cannot be searched or the data cannot be read after connecting to the serial port, please check whether there is a serial device recognition abnormality in the computer device manager.

Port4   Configuration cable   Serial port cable

Fuctions configuration: The connection configuration tool will automatically read the device parameters (including version information and interface information) once. At this time, function configuration can be performed according to actual application requirements.

Example1：

- Load： Gemtone Precision Instruments， 422
- Siriturbo： Buy Siriturbo3 （Interface Definition: Port1-422、 Port2-TTL、 Port3/4-232、 Port5-CAN）
- GNC： AheadX SAGI， 2 serial ports reserved， COM4(TTL,Multiplexing with speed monitoring) COM5(232)

(Has been occupied, access to differential equipment)。

Interface configuration：

1. Set **Port2** receiving and sending functions to "AheadX pod protocol"
2. Modify the parameters of **Port1** such as baud rate according to the definition of the 422 given by the pod manufacturer, and configure the receiving and sending functions to Gemtone Precision INstruments.
3. Click **Configuration** to pop up the secondary confirmation menu. After confirmation, the parameter configuration is completed, and **restart the device** to take effect.

Connection test：

1. Set **COM4** function to **Gimbal**, [Click here for details](#)
2. Connect Siriturbo's **Port2** to GNC's **COM4**
3. Connect Siriturbo's **Port1** to Gimbal's **422 serial port**
4. Power on the whole system, open the AheadX Space V3 ground control software and connect GNC correctly, open the "Pod Video" window, and check whether the pod can be controlled normally and receive pod telemetry information.

Example2：

- Load： Pinling Gimbal， TTL
- Siriturbo： Buy Siriturbo3 （Interface Definition: Port1-422、Port2-TTL、Port3/4-232、Port5-CAN）
- GNC： AheadX SAGI， 2 serial ports reserved COM4 （TTL）及COM5 （232） ，use COM5

Interface configuration：

1. Set **Port4** receiving and sending functions to "AheadX pod protocol"

2. Modify the parameters of **Port2** such as baud rate according to the definition of the 422 given by the pod manufacturer, and configure the receiving and sending functions to Gemtone Precision INstruments.
3. Click **Configuration** to pop up the secondary confirmation menu. After confirmation, the parameter configuration is completed, **Restart the device** and it will take effect

Configuration test:

1. Set **COM5** function to **Gimbal**, [Click here for details](#)
2. Connect Siriturbo's **Port4** to GNC's **COM5**
3. Connect Siriturbo's **Port4** to Pinling Gimbal's **TTL**
4. Power on the whole system, open the AheadX Space V3 ground control software and connect GNC correctly, open the "Pod Video" window, and check whether the pod can be controlled normally and receive pod telemetry information.
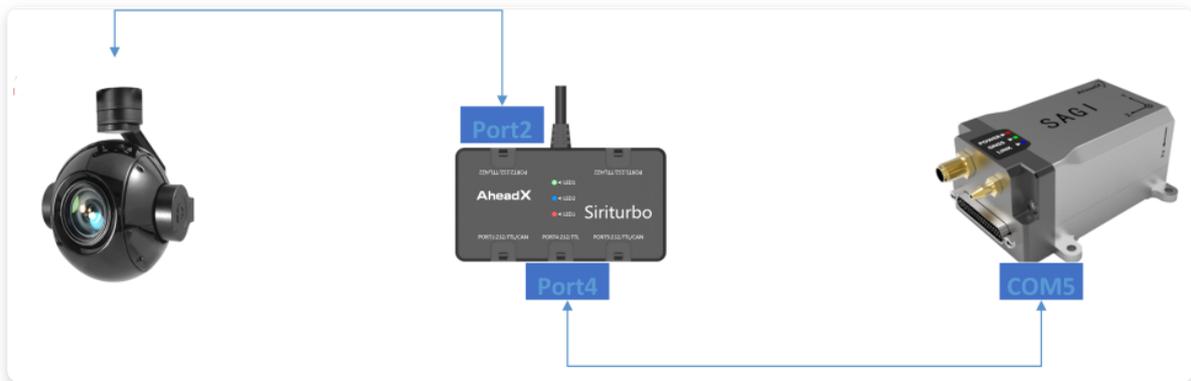
Upgrade

Siriturbo supports online firmware upgrade

The Siriturbo's upgrade interface is multiplexed with the configuration interface. Download and install the latest Siriturbo upgrade tool. After powering the Sirius engine (**14-53V**), use the serial port (RS232) to connect the USB data cable to the Siriturbo's **PORT4** and computer.

Search the serial port of the device. If the available serial port cannot be searched or the data cannot be read after connecting to the serial port, please check whether there is a serial device recognition abnormality in the computer device manager. installation.

After successfully connecting the device, make sure that your computer is connected to the Internet, click the "**Get the latest firmware**" button, the tool will retrieve the latest firmware, after obtaining the firmware, click the "**Upgrade**" button, after the upgrade is complete Restart the device to complete the upgrade.