

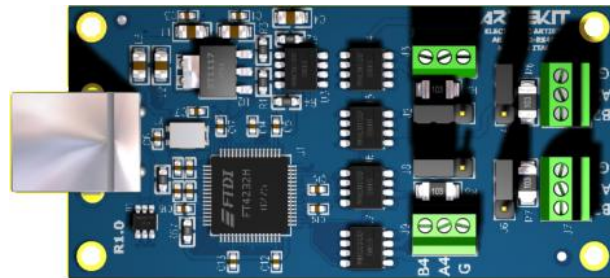


# ARTEKIT

electronic artists

## AK-4XRS485 Board

Reference manual





# Contents

About this document .....	3
Revision history .....	3
Contact information.....	3
Life support policy .....	3
Copyright information.....	3
Specifications .....	4
General description.....	4
Environmental requirements .....	4
Handling the board .....	4
Board Description .....	5
Important .....	5
Drivers .....	5
Dimensions .....	5
Board layout.....	6
Notes .....	6
Electrical characteristics .....	7
Test conditions .....	7
Minimum and maximum values .....	7
Typical values.....	7
Absolute maximum ratings .....	7
Current consumption in operating mode .....	7
Normal operating parameters.....	7
Notes .....	8



# About this document

## Revision history

The table below displays the revision history for the chapters in this manual.

Chapter	Date	Revision	Changes made
All	March 2012	1.0	First publication

## Contact information

For the latest news, upgrades and information about Artekit products, visit the Artekit web site at <http://www.artekit.eu>

For technical support on this product, visit the support page at <http://www.artekit.eu/support>

For additional information about Artekit products, consult the sources below.

Information type	Resource
Technical support	<a href="mailto:support@artekit.eu">support@artekit.eu</a>
Literature	<a href="http://www.artekit.eu">www.artekit.eu</a>
Sales	<a href="mailto:sales@artekit.eu">sales@artekit.eu</a>
Products forum	<a href="http://www.artekit.eu">www.artekit.eu</a>

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# Specifications

## **General description**

The AK-4XRS485 is a board capable of generating 4 Virtual COM Ports (VCP) that can be used as RS485/RS422 communication channels from/to any host that is able to load the board USB drivers.

## **Environmental requirements**

The AK-4XRS485 board must be stored between  $-40^{\circ}\text{C}$  and  $100^{\circ}\text{C}$ . The recommended operating temperature is between  $0^{\circ}$  and  $70^{\circ}\text{C}$ .

The AK-4XRS485 board can be damaged without proper anti-static handling.

## **Handling the board**

When handling the board, it is important to observe the following precaution:

*Static discharge precaution* — Without proper anti-static handling the board can be damaged. Therefore, take anti-static precautions while handling the board.



## Board Description

The AK-4XRS485 is a utility board featuring a FT4232H USB Front End to four RS485/422 channels. Each channel is seen by the host as a Virtual COM Port (VCP), and can be used by any application as a serial port.

Every single channel is driven by a dedicated low-power buffer (ST485CN) able to connect up to 32 transceivers in the channel bus.

Each channel has its own jumper to select the 120 ohm terminator resistor.

For more information about the ST485CN buffer visit the following website:

[http://www.st.com/internet/com/TECHNICAL\\_RESOURCES/TECHNICAL\\_LITERATURE/DATASHEET/CD00002183.pdf](http://www.st.com/internet/com/TECHNICAL_RESOURCES/TECHNICAL_LITERATURE/DATASHEET/CD00002183.pdf)

For more information about the FTDI FT4232H visit the following website:

[http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS\\_FT4232H.pdf](http://www.ftdichip.com/Support/Documents/DataSheets/ICs/DS_FT4232H.pdf)

## Important

The AK-4XRS485 board communicates through High Speed USB (480 Mb/s), and it is very important to use a good USB cable. Some cables purchased in general stores do not have the enough quality to support this speed. Please use a certified brand USB cable.

## Drivers

The drivers for Windows, MAC OS and Linux can be download freely from the FTDI website at

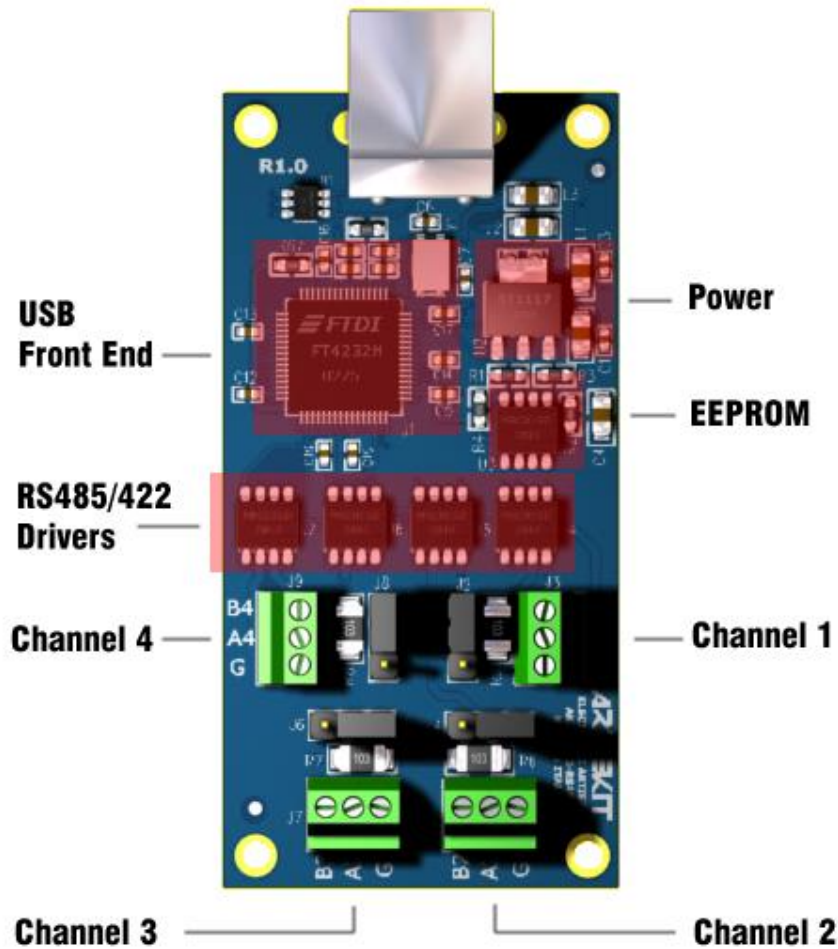
<http://www.ftdichip.com/Drivers/VCP.htm>

<http://www.ftdichip.com/Drivers/D2XX.htm>

## Dimensions

Dimension	Value	Unit
Height	70	mm
Width	35	mm

## Board layout



### Notes

- 1) The jumpers position in the board layout shows the 120 ohm terminator resistor as **CONNECTED**
- 2) The terminals named **G** are the board electrical ground. These are not used in the RS485/422 bus.

## Electrical characteristics

### Test conditions

Unless otherwise specified, all voltages are referenced to GND.

### Minimum and maximum values

Unless otherwise specified, the minimum and maximum values are guaranteed in the worst conditions of ambient temperature, supply voltage and frequencies by tests in production on 100% of the devices with an ambient temperature  $T_A = 25\text{ }^\circ\text{C}$ .

### Typical values

Unless otherwise specified, typical data are based on  $T_A = 25\text{ }^\circ\text{C}$ ,  $V_{CC} = 3.3\text{ V}$  (for the  $2\text{ V} < V_{CC} < 3.6\text{ V}$  voltage range). They are given only as design guidelines and are not tested.

### Absolute maximum ratings

**WARNING** Exceeding values beyond these absolute maximum values may cause permanent damage to the device. Operating at absolute maximum rating conditions for extended periods may affect the device.

Symbol	Ratings	Min.	Max.	Unit
VCC-GND	External main supply voltage.	-0.3	5.5	V

### Current consumption in operating mode

Symbol	Parameter	Max.	Unit
I <sub>CC</sub>	Supply current	80	mA

### Normal operating parameters

Symbol	Parameter	Value	Unit
V <sub>CC</sub>	Power supply applied to USB connector	5	V



## Notes