

Linux RS-485 DLL User Manual



1. Usage environment

❖ Test Environment

- Ubuntu - 22.04.3
- Raspberry Pi OS - Bullseye (23.05.03 Release)
- Raspberry Pi OS - Bookworm (23.12.05 Release)

2. How to Download

1) Visit the FASTECH website.

<https://fastech-motions.com>

The screenshot shows the FASTECH website homepage. At the top, there is a yellow navigation bar with the FASTECH logo and the tagline "Fast Accurate Smooth Motion". The navigation menu includes: PRODUCTS, COMPANY, DOWNLOADS, ONLINE EXHIBITION, WEBINARS, DEMOS, and SUPPORT. There are also links for "Global Partners" and "Become a Distributor", and social media icons for "KOR", "f", and "YouTube".

Below the navigation bar is a search bar with the placeholder text "Type keywords to search" and a magnifying glass icon.

The main content area features a "NEW PRODUCT" badge and an image of the Ezi-SPEED RS-485 Modbus-RTU Based Motor Speed Control System. The product is described as a "BLDC Motor Speed Control System" and is associated with "Modbus RTU" communication.

RS-485 Modbus-RTU Based Motor Speed Control System

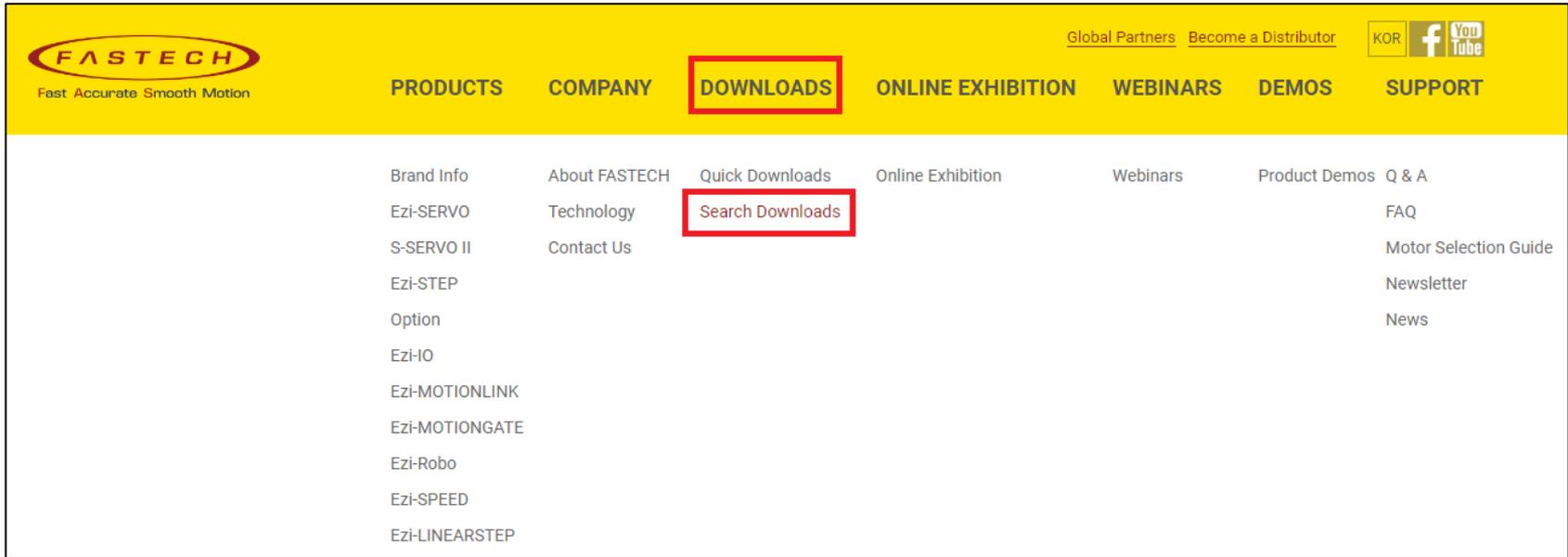
- AC Input (220V) BLDC Motor Speed Control System
- Modbus-RTU Based on RS-485 Communication
- Compact - Light Weight - High Power - High Efficiency Brushless Motor
- Wide Speed Control Range (50-4000 r/min)
- Stable Speed Control by Vector Control (Speed Regulation within 0.2%)
- 'Torque Limit' and 'Load Holding' Functions Supported
- Various Product Line-Up (30, 60, 120, 200, 400W)

A "Learn More" button is located below the product description.

At the bottom of the main content area, there are five icons representing different sections: Product, Motor Guide, Download, FAQ, and Q & A.

2. How to Download

2) Click 'DOWNLOADS – Search Downloads'

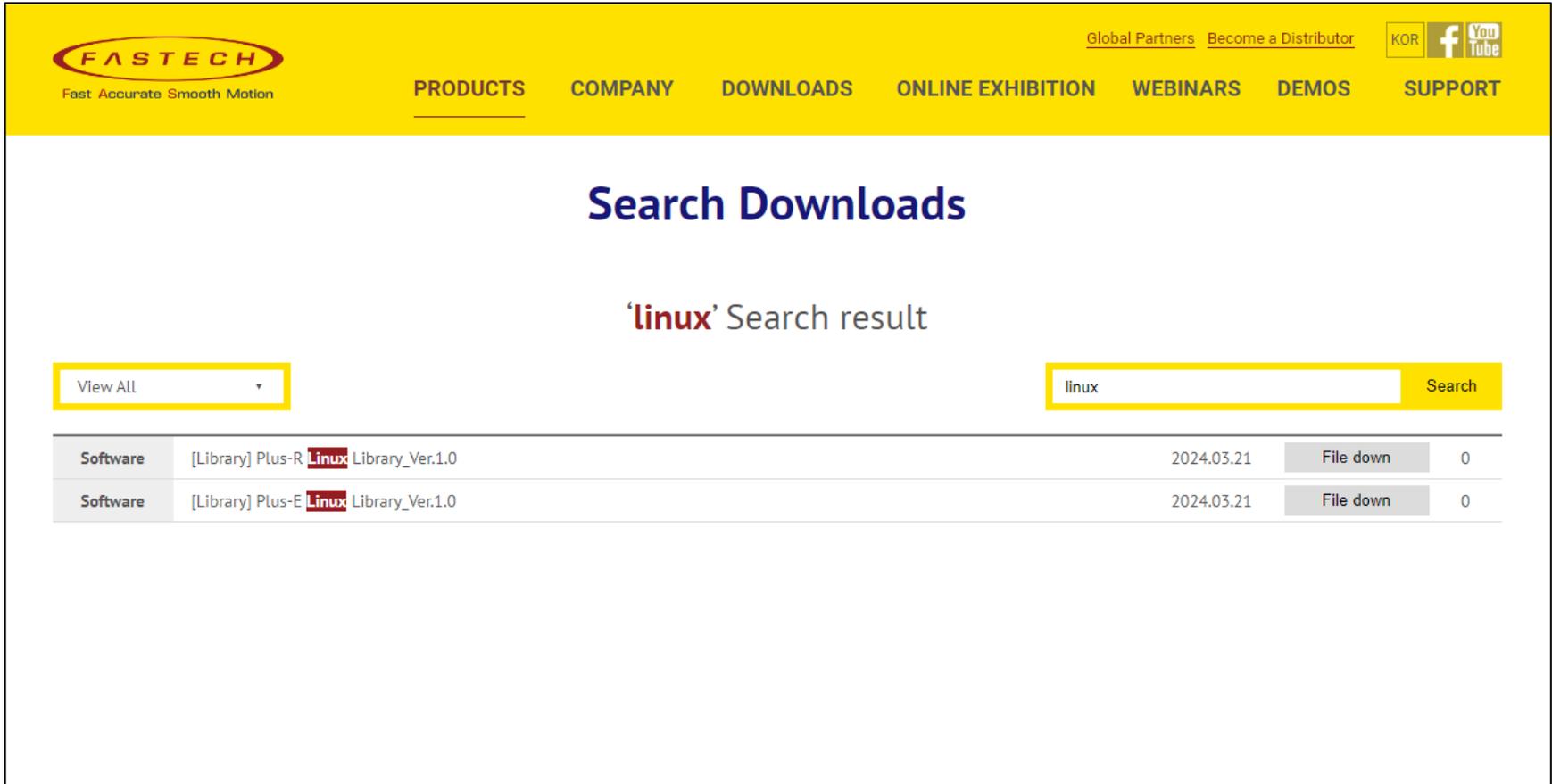


The screenshot shows the FASTECH website navigation menu. The 'DOWNLOADS' menu item is highlighted with a red box. Underneath it, the 'Search Downloads' sub-item is also highlighted with a red box. The website header includes the FASTECH logo, navigation links for PRODUCTS, COMPANY, DOWNLOADS, ONLINE EXHIBITION, WEBINARS, DEMOS, and SUPPORT, and social media icons for KOR, Facebook, and YouTube.

PRODUCTS	COMPANY	DOWNLOADS	ONLINE EXHIBITION	WEBINARS	DEMOS	SUPPORT
Brand Info	About FASTECH	Quick Downloads	Online Exhibition	Webinars	Product Demos	Q & A
Ezi-SERVO	Technology	Search Downloads				FAQ
S-SERVO II	Contact Us					Motor Selection Guide
Ezi-STEP						Newsletter
Option						News
Ezi-IO						
Ezi-MOTIONLINK						
Ezi-MOTIONGATE						
Ezi-Robo						
Ezi-SPEED						
Ezi-LINEARSTEP						

2. How to Download

3) Search "linux" and download RS-485 Linux Library



The screenshot shows the FASTECH website's search results page. The header includes the FASTECH logo with the tagline "Fast Accurate Smooth Motion" and navigation links for PRODUCTS, COMPANY, DOWNLOADS, ONLINE EXHIBITION, WEBINARS, DEMOS, and SUPPORT. There are also links for Global Partners, Become a Distributor, and social media icons for KOR, Facebook, and YouTube.

Search Downloads

'linux' Search result

View All Search

Software	[Library] Plus-R Linux Library_Ver.1.0	2024.03.21	File down	0
Software	[Library] Plus-E Linux Library_Ver.1.0	2024.03.21	File down	0

3. Linux System Setting – Serial Port

Serial Port setting required to communicate with FASTECH products.

1. Activate the Serial Port according to the OS configuration methods.

Example) For Raspberry Pi OS, set as follows

> sudo raspi-config > Interface Options > Login Shell(No) > Serial Port Enable(Yes)

2. Check the connected serial port. (Serial Port name varies depending on connection method and environment)

> ls -l /dev/tty*

```
crw-rw---- 1 root tty 4, 64 1 3 17:17 /dev/ttyS0
crw-rw-rw- 1 root dialout 188, 0 1 3 17:17 /dev/ttyUSB0
crw----- 1 root root 5, 3 1 3 17:17 /dev/ttyprintk
```

3. Permission is required to use a serial port. (Choose the options below)

3-1. Use root privileges when running a program

> sudo ./test

3-2. Grant execute permission to serial port

> sudo chmod 666 /dev/ttyUSB0

3. Linux System Setting – Library Setting

The structure of the 'Include' directory containing the FASTECH library is as follows.

```
rw-r--r-- 1 fastech fastech 305 2月 23 12:09 COMM_Define.h
rw-r--r-- 1 fastech fastech 15300 2月 23 12:09 FAS_EziMOTIONPlusR.h
rw-r--r-- 1 fastech fastech 2753 2月 23 12:09 FAS_EziMOTIONPlusR_V8.h
rwxr-xr-x 1 fastech fastech 21975 2月 23 12:09 MOTION_DEFINE.h
rwxr-xr-x 1 fastech fastech 12804 2月 23 12:09 MOTION_EziMotionLink2_DEFINE.h
rwxr-xr-x 1 fastech fastech 12625 2月 23 12:09 MOTION_EziMotionLink_DEFINE.h
rwxr-xr-x 1 fastech fastech 12508 2月 23 12:09 MOTION_EziSERVO2_86_DEFINE.h
rwxr-xr-x 1 fastech fastech 12001 2月 23 12:09 MOTION_EziSERVO2_DEFINE.h
rwxr-xr-x 1 fastech fastech 13015 2月 23 12:09 MOTION_EziSERVO2_TO_DEFINE.h
rwxr-xr-x 1 fastech fastech 12854 2月 23 12:09 MOTION_EziSERVO_ADC_DEFINE.h
rwxr-xr-x 1 fastech fastech 9224 2月 23 12:09 MOTION_EziSERVO_ALL_28_DEFINE.h
rwxr-xr-x 1 fastech fastech 9342 2月 23 12:09 MOTION_EziSERVO_ALL_28_V2_DEFINE.h
rwxr-xr-x 1 fastech fastech 13025 2月 23 12:09 MOTION_EziSERVO_ALL_ABS_DEFINE.h
rwxr-xr-x 1 fastech fastech 12441 2月 23 12:09 MOTION_EziSERVO_ALL_DEFINE.h
rwxr-xr-x 1 fastech fastech 11851 2月 23 12:09 MOTION_EziSERVO_DEFINE.h
rwxr-xr-x 1 fastech fastech 12592 2月 23 12:09 MOTION_EziSERVO_mini_DEFINE.h
rwxr-xr-x 1 fastech fastech 11740 2月 23 12:09 MOTION_EziSTEP2_DEFINE.h
rwxr-xr-x 1 fastech fastech 12240 2月 23 12:09 MOTION_EziSTEP_ALL_DEFINE.h
rwxr-xr-x 1 fastech fastech 11655 2月 23 12:09 MOTION_EziSTEP_DEFINE.h
rwxr-xr-x 1 fastech fastech 12384 2月 23 12:09 MOTION_EziSTEP_mini_DEFINE.h
rwxr-xr-x 1 fastech fastech 11971 2月 23 12:09 MOTION_SSERVO_DEFINE.h
rwxr-xr-x 1 fastech fastech 8045 2月 23 12:09 PROTOCOL_FRAME_DEFINE.h
rwxr-xr-x 1 fastech fastech 954 2月 23 12:09 PROTOCOL_V8_FRAME_DEFINE.h
rwxr-xr-x 1 fastech fastech 808 2月 23 12:09 ReturnCodes_Define.h
lrwxrwxrwx 1 fastech fastech 24 2月 23 12:09 libEziMOTIONPlusR.so -> libEziMOTIONPlusR.so.1.0
lrwxrwxrwx 1 fastech fastech 24 2月 23 12:09 libEziMOTIONPlusR.so.1 -> libEziMOTIONPlusR.so.1.0
rwxr-xr-x 1 fastech fastech 1608668 2月 23 12:09 libEziMOTIONPlusR.so.1.0
```

1. Copy the 'Include' directory to your project path.

2. Copy FASTECH shared library files and symbolic links to the Linux shared library directory.

```
sudo cp -df ./libEziMOTIONPlusR.so* /usr/local/lib
```

```
sudo ldconfig
```

4. How to Use RS-485 Library

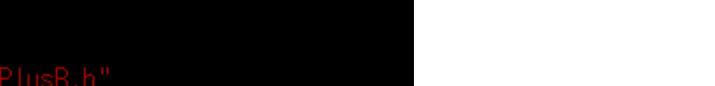
Unlike the Windows library, the Linux library sets the Port ID during the connection. When using the API, Slaves are identified by Port ID.

```
#include <stdlib.h>
#include <iostream>
#include <unistd.h>
#include <time.h>
#include <sys/time.h>

#include "../Include/FAS_EziMOTIONPlusR.h"

int main(void)
{
    int nRtn;
    nRtn = FAS_Connect(L"ttyUSB0", 115200, 2);
    if( 1 != nRtn )
    {
        printf("Connect Error\n");
    }

    nRtn = FAS_ServoAlarmReset(2, 1);
    if( 0 != nRtn )
    {
        printf("Alarm Reset Error\n");
    }
}
```



The diagram illustrates the flow of the Port ID value. A blue box highlights the number '2' in the FAS_Connect function call. A blue arrow points from this box to the number '2' in the FAS_ServoAlarmReset function call, indicating that the Port ID is passed from the connection function to the alarm reset function.

4. How to Use RS-485 Library

1) To use the FASTECH API, you need to include FAS_EziMOTIONPlusR.h first.

```
#include <stdlib.h>
#include <iostream>
#include <unistd.h>
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#include "../Include/FAS_EziMOTIONPlusR.h"

int main(void)
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    if( 0 != nRtn )
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        printf("Alarm Reset Error\n");
    }
}
```

2) When building a program, you need to import the FASTECH library first.

```
fastech@fastech:~/Desktop/LibPrj/PR $ g++ -o test test.cpp -IEziMOTIONPlusR
```



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