

Bras Robot Arduino ROS2

- [Projet d'origine](#)
- [Pilotage des servomoteurs : TTL, RS232, RS485](#)
- [SO-ARM100](#)

Projet d'origine

<https://github.com/ AntoBrandi/Robotics-and-ROS-2-Learn-by-Doing-Manipulators>

Pilotage des servomoteurs : TTL, RS232, RS485

<https://esp32io.com/tutorials/esp32-rs485>

Modèles fermés

Niryo Ned 2

<https://niryo.com/fr/produit/bras-robotise-6-axes/>

<https://github.com/NiryoRobotics>

DAGU Six-servo Robot Arm



- 5DOF Manipulateur + 1DOF Pince
- 6 servos

- 3x 13 kg.cm torque metal gear, 40.4 * 19.8 * 36 mm, 48g, 0.22s/60°
- 1x 3.2 kg.cm, 39.5 x20.0x35.5mm, 41g, 0.27s/60°
- 2x 2.3 kg.cm, 28 x14x29.8mm, 18g, 0.13/60°
- Carte de contrôle AREXX Intelligence Centre

<https://seafire.unistra.fr/d/693101e6046d4819a3af/>

<https://arexx.com/product/robot-arm/>

www.arexx.com.cn

Modèles Open Source

Open Manipulator-X

https://emanual.robotis.com/docs/en/platform/openmanipulator_x/specification/#specification

- 5 DOF Manipulateur + 1 DOF Pince
- 6x Dynamixel XM430-W350 <https://emanual.robotis.com/docs/en/dxl/x/xm430-w350/>
- Carte de contrôle Robotis OpenCR1.0
<https://emanual.robotis.com/docs/en/parts/controller/opencr10/>

SO-ARM100

<https://github.com/TheRobotStudio/SO-ARM100>

- 5 DOF Manipulateur + 1 DOF Pince
- 6 servos Feetech STS3215 https://www.feetechrc.com/en/2020-05-13_56655.html
- Waveshare Serial Bus Servo Driver Board
[https://www.waveshare.com/wiki/Bus_Servo_Adapter_\(A\)](https://www.waveshare.com/wiki/Bus_Servo_Adapter_(A))
- OU
- Feetech FE-URT-1 <https://www.feetechrc.com/FE-URT1-C001.html>

https://github.com/huggingface/lerobot/blob/main/examples/10_use_so100.md

<https://medium.com/@sarohapranav/my-experiences-and-tips-for-creating-a-robotic-so100-arm-3df779a4aae7>

https://github.com/JafarAbdi/ros2_so_arm100

Cartes de contrôle

OpenCR1.0

<https://emanual.robotis.com/docs/en/parts/controller/opencr10/>

- STM32F746ZGT6 / 32-bit ARM Cortex®-M7 with FPU (216MHz, 462DMIPS)
[Reference Manual](#), [Datasheet](#)
- Programmer : ARM Cortex 10pin JTAG/SWD connector
USB Device Firmware Upgrade (DFU)
Serial
- Digital I/O
 - 32 pins (L 14, R 18) *Arduino connectivity
 - 5Pin OLLO x 4
 - GPIO x 18 pins
 - PWM x 6
 - I2C x 1
 - SPI x 1
- Communication Ports
 - USB x 1 (Micro-B USB connector/USB 2.0/Host/Peripheral/OTG)
 - TTL x 3 (B3B-EH-A / DYNAMIXEL)
 - RS485 x 3 (B4B-EH-A / DYNAMIXEL)
 - UART x 2 (20010WS-04)
 - CAN x 1 (20010WS-04)

Waveshare Serial Bus Servo Driver Board

[https://www.waveshare.com/wiki/Bus_Servo_Adapter_\(A\)](https://www.waveshare.com/wiki/Bus_Servo_Adapter_(A))

- Supports connecting to a host or MCU
- up to 253 ST/SC series serial bus servos
- RS485
- UART pour contrôle depuis Arduino, ESP32, STM32 (RX-RX, TX-TX)
- USB pour contrôle via Raspberry, Jetson ou PC
- 9~12.6V voltage input (the input voltage and the servo voltage must be matched)

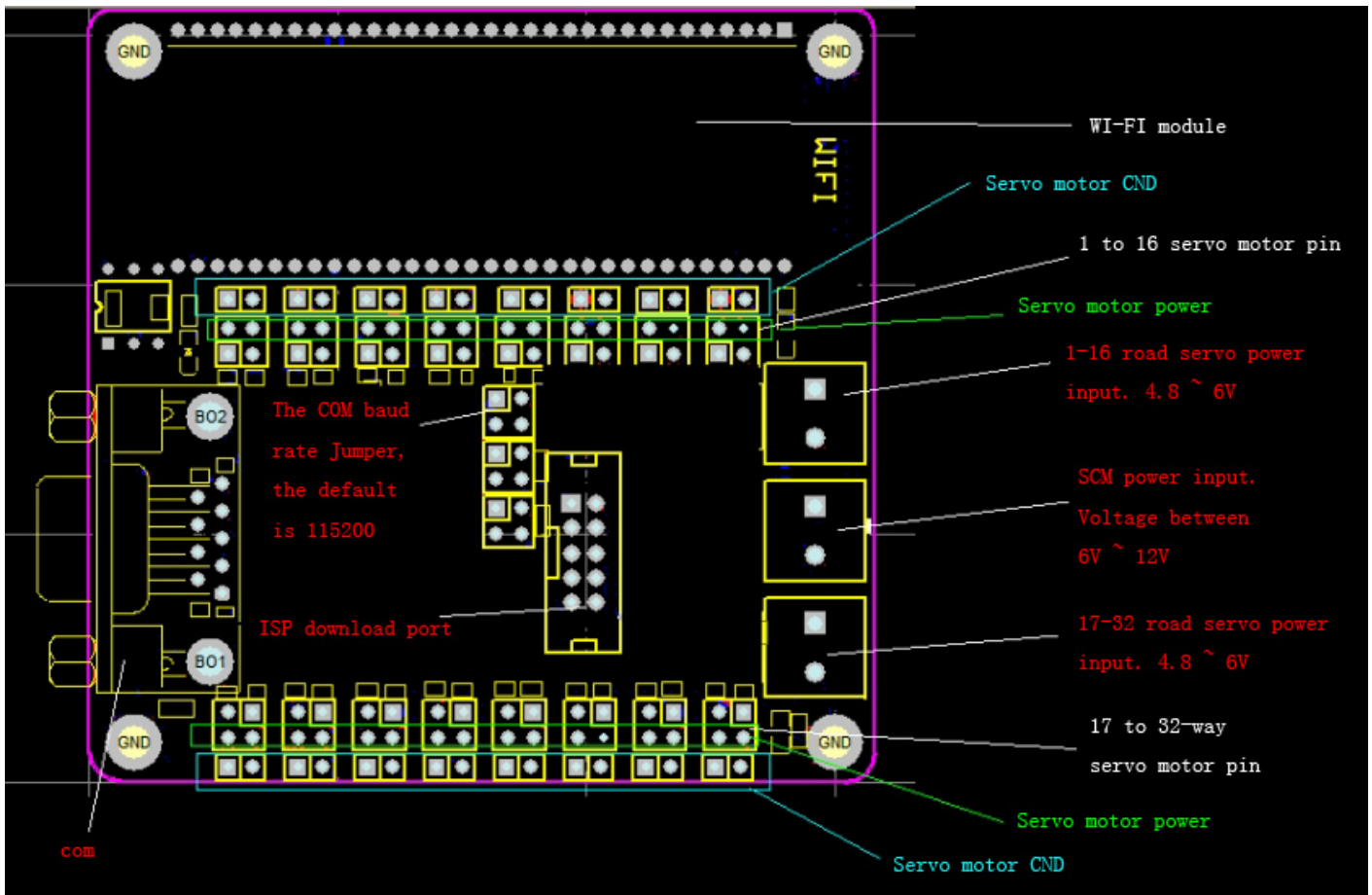
Feetech FE-URT-1

<https://www.feetechrc.com/FE-URT1-C001.html>

AREXX Intelligence Centre

<https://seafire.unistra.fr/d/693101e6046d4819a3af/>

- atmega168 MCU
- RS232
- default baud rate is 115.2k
- Wifi wireless control reserve the ISP downloaded, you can download the MCU controller program using the STK500 ISP cable





- dual - Power Supply
 - 6 ~ 12 V SCM power
 - 4.8 ~ 6 V, 1.2A servo motor power [servo motor power supply Road 1-16 respectively, a 17-32 road supply port])

Servomoteurs

Dynamixel XM430-W350

<https://emanual.robotis.com/docs/en/dxl/x/xm430-w350/>

- 4.1 [N.m] (at 12.0 [V], 2.3 [A])
- 46 [rev/min] (at 12.0 [V])
- 10.0 ~ 14.8 [V]
- Operating Modes
 - Current Control Mode
 - Velocity Control Mode
 - Position Control Mode (0 ~ 360 [°])
 - Extended Position Control Mode (Multi-turn)
 - Current-based Position Control Mode

- PWM Control Mode (Voltage Control Mode)
- baud rate 9,600 [bps] ~ 4.5 [Mbps]
- TTL Half Duplex Asynchronous Serial Communication with 8bit, 1stop, No Parity
- RS485 Asynchronous Serial Communication with 8bit, 1stop, No Parity

Feetech STS3215

https://www.feetechrc.com/en/2020-05-13_56655.html

SO-ARM100

LeRobot sur Ubuntu

La carte fournie par Feetech n'est pas détectée à cause d'un conflit avec un paquet de brail. On le désinstalle :

```
sudo apt-get autoremove brlTTY
```

<https://askubuntu.com/questions/1321442/how-to-look-for-ch340-usb-drivers/1472246#1472246>

ROS2

- Cloner la paquet dans un workspace https://github.com/JafarAbdi/ros2_so_arm100
- Cloner le submodule <https://www.freecodecamp.org/news/how-to-use-git-submodules/>

```
cd src/ros2_so_arm100/  
git submodule init  
git submodule update
```

Ce qui viendra cloner <https://github.com/TheRobotStudio/SO-ARM100> dans

```
so_arm100_description/SO-ARM100
```