

Manipulator E-manual

로보티즈 - 오픈매니퓰레이터 - 'rm-x52-tnm' - e 매뉴얼

https://emanual.robotis.com/docs/en/platform/openmanipulator_x/overview/

[매뉴얼 12.3]

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1. 3. Install ROS 2 Packages

Install dependent packages for OpenMANIPULATOR-X. Run the following commands in a terminal window.

```
$ sudo apt install ros-dashing-python* ros-dashing-rqt*
```

```
$ cd ~/robotis_ws/src/  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/DynamixelSDK.git  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/dynamixel-workbench.git  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator.git  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator_msgs.git  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator_dependencies.git  
$ git clone -b ros2 https://github.com/ROBOTIS-GIT/robotis_manipulator.git  
$ cd ~/robotis_ws && colcon build --symlink-install
```

1. 4. Communication Converter

1. 4. 1. U2D2

1. 4. 1. 1. Connection

Connect micro USB (connected to PC), DYNAMIXEL's(OpenMANIPULATOR-X), and 12V Power to U2D2 a

ctrl+alt+T 터미널열기

cd

ls

sudo apt install ros-dashing-python* ros-dashing-rqt*

cd colcon_ws/src

pwd

git clone -b ros2 https://github.com/ROBOTIS-GIT/DynamixelSDK.git

git clone -b ros2 https://github.com/ROBOTIS-GIT/dynamixel-workbench.git

git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator.git

git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator_msgs.git

git clone -b ros2 https://github.com/ROBOTIS-GIT/open_manipulator_dependencies.git

git clone -b ros2 https://github.com/ROBOTIS-GIT/robotis_manipulator.git

cd ~/robotis_ws && colcon build --symlink-install

cd ..

colcon build --symlink-install

build 후엔 bashrc 하기..(밑에 있음)

cd /dev

장치파일 위치

pwd

ls

usb 케이블을 통해 시리얼 통신을 함 -> tts 파일들

ls ttyUSB*

연결된 usb 케이블번호 확인

ls -l devttyUSB*

매니퓰레이터는 USB0 으로 설정되어있음

source ~/.bashrc

build 를 하면 bashrc 를 하자

cd

cd colcon_ws/src/open_manipulator

ros2 run open_manipulator_x_controller create_udev_rules

[매뉴얼 13.1]

1. 1. Launch Controller

If you are using `u2d2` as a communication converter, open a terminal then enter the following command.

```
$ ros2 launch open_manipulator_x_controller open_manipulator_x_controller.launch.py
```

`gedit ~/.bashrc`

bashrc 파일에서 131 번줄 도메인 ID 수정 -> 각자 다른걸로... 나는 3 번

`source ~/.bashrc`

장비(매니플레이터) 전원켜기

```
ros2 launch open_manipulator_x_controller open_manipulator_x_controller.launch.py
```

터미널 새로 열기(`ctrl+alt+T`)

```
ros2 topic pub /option std_msgs/msg/String "data: print_open_manipulator_x_setting"
```

[매뉴얼 14.2]

1. 2. 1. Keyboard

TIP: Terminal can be found with the Ubuntu search icon on the top left corner of the screen. Shortcut key for Terminal is `Ctrl`+`Alt`+`t`.

Launch `open_manipulator_x_teleop_keyboard` node for simple teleoperation test using the keyboard.

```
$ ros2 run open_manipulator_x_teleop open_manipulator_x_teleop_keyboard
```

터미널 새로 열기(`ctrl+alt+T`)

```
ros2 run open_manipulator_x_teleop open_manipulator_x_teleop_keyboard
```