X5-单臂ROS2话题说明

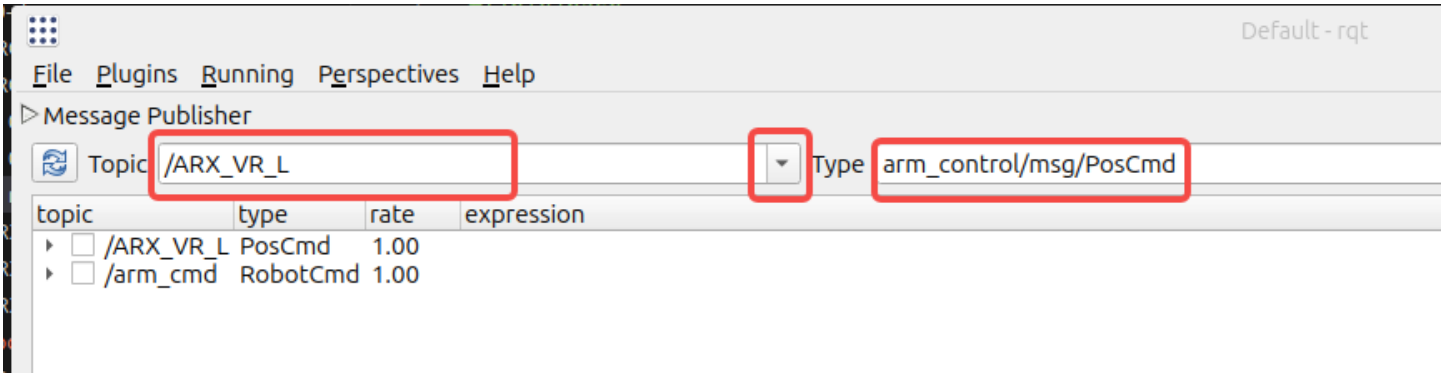
进行以下步骤前，请务必确保掌握以下基础操作

利用rqt进行话题收发

确保在工作空间下，非随意打开终端

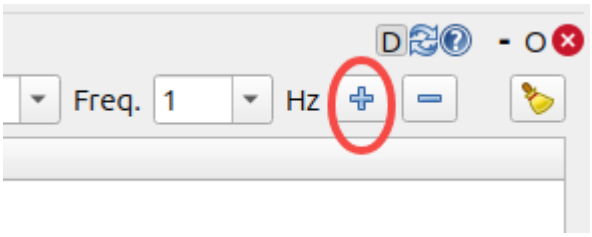
代码块

```
source install/setup.bash
rqt
```

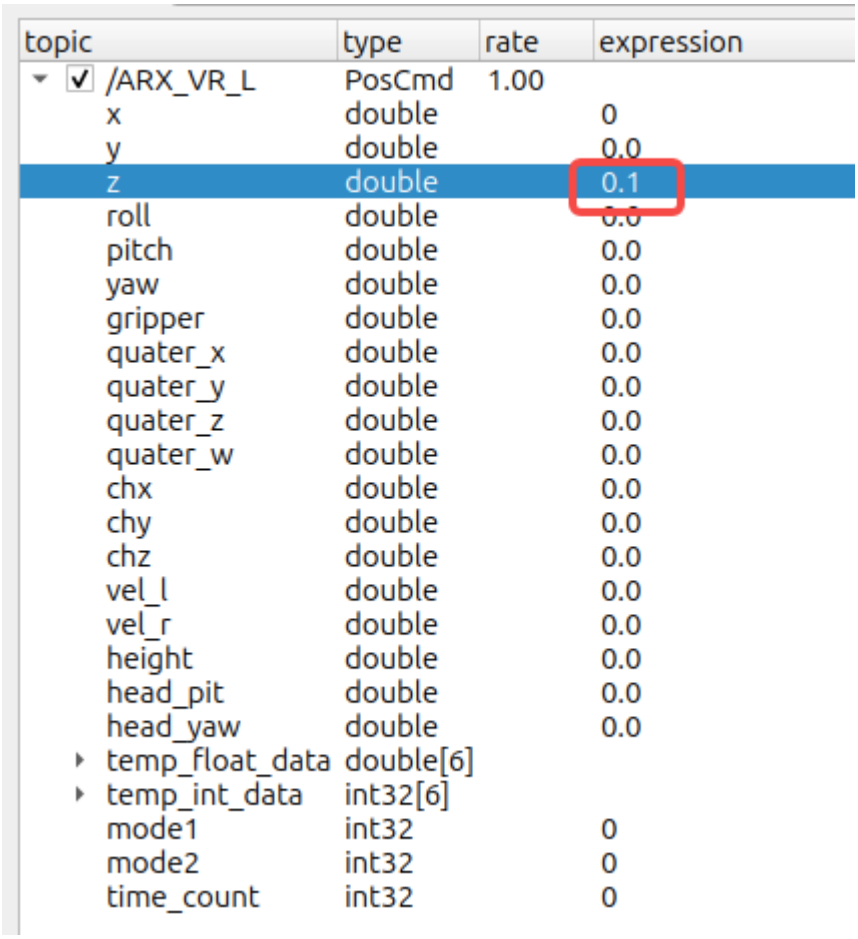


在topic处选择对应话题，确保type类型与其一致。

点击右上角+号，添加对应话题



展开后，在对应位置设定数值即可完成发送命令，注意工作空间，不要超过额定数值



topic	type	rate	expression
/ARX_VR_L	PosCmd	1.00	
x	double		0
y	double		0.0
z	double		0.1
roll	double		0.0
pitch	double		0.0
yaw	double		0.0
gripper	double		0.0
quater_x	double		0.0
quater_y	double		0.0
quater_z	double		0.0
quater_w	double		0.0
chx	double		0.0
chy	double		0.0
chz	double		0.0
vel_l	double		0.0
vel_r	double		0.0
height	double		0.0
head_pit	double		0.0
head_yaw	double		0.0
temp_float_data	double[6]		
temp_int_data	int32[6]		
mode1	int32		0
mode2	int32		0
time_count	int32		0

紧急情况

人员调试时请远离工作空间，避免损伤。若出现紧急情况，请先断电处理。

文件目录

	功能
ARX_CAN	CAN设备配置
ARX_VR_SDK	VR通讯
00-sh	编译及快捷启动脚本

以下操作前务必开启相关CAN

手臂 （注意确保只有一个控制终端运行）

控制

关节控制

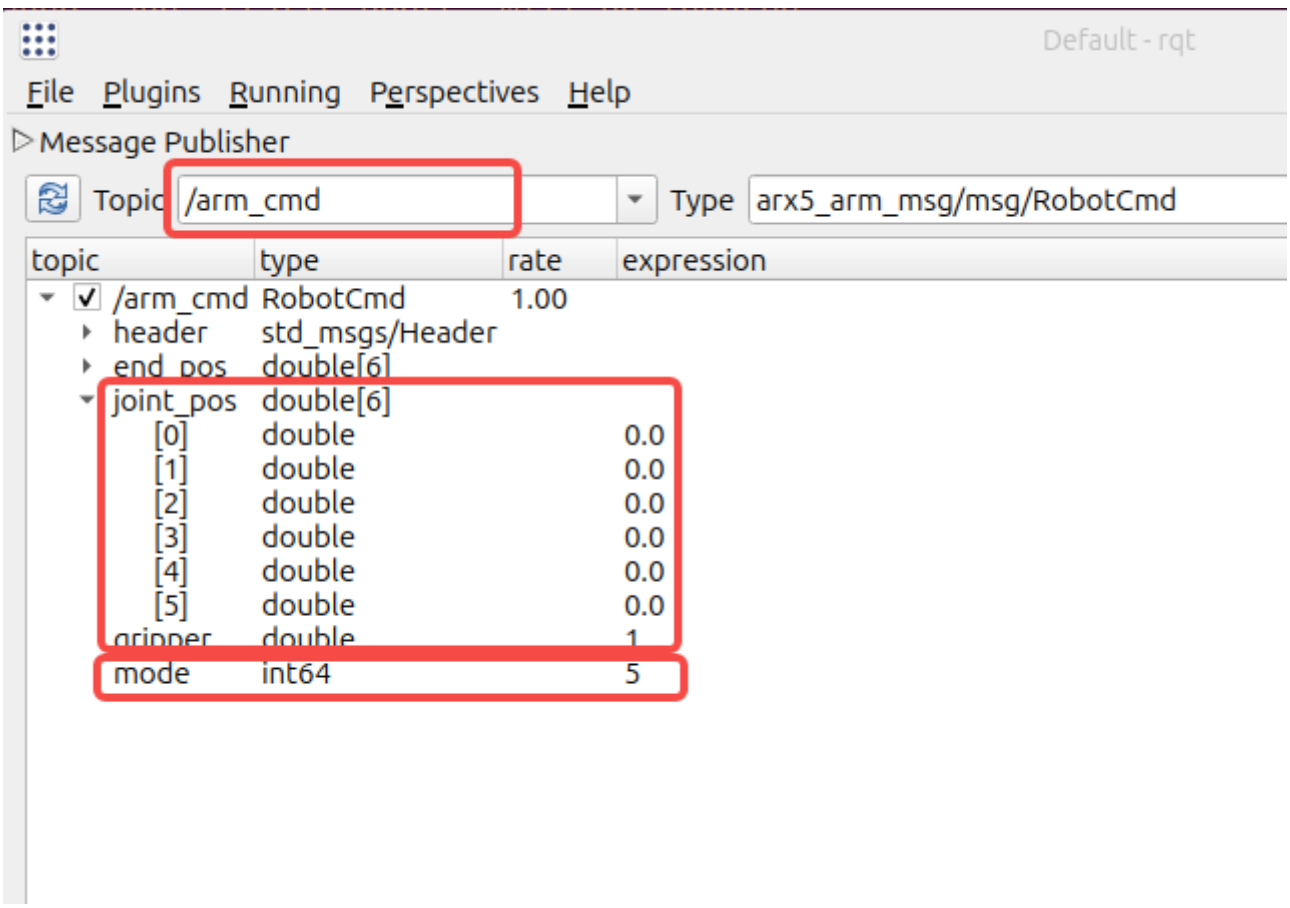
进入ARX_X5/ROS2/X5_ws

```
代码块
1   source install/setup.bash
2   ros2 launch arx_x5_controller open_single_arm.launch.py
```

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   rqt
```

除夹爪，设置角度建议不要超过+-0.1来验证链路



姿态位置控制

进入ARX_X5/ROS2/X5_ws

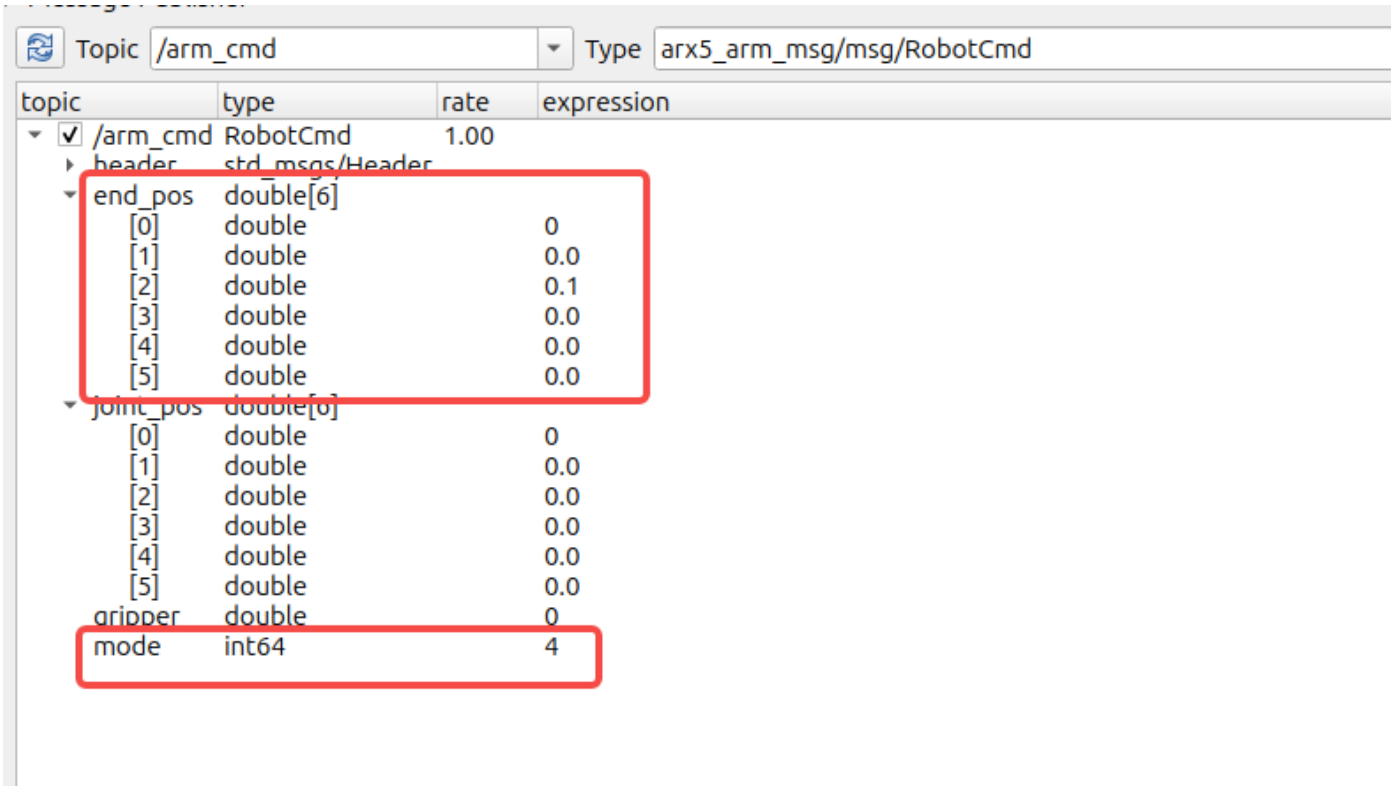
```
代码块
1   source install/setup.bash
```

```
2   ros2 launch arx_x5_controller open_single_arm.launch.py
```

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   rqt
```

end_pos中 0-5 对应x y z roll pitch yaw



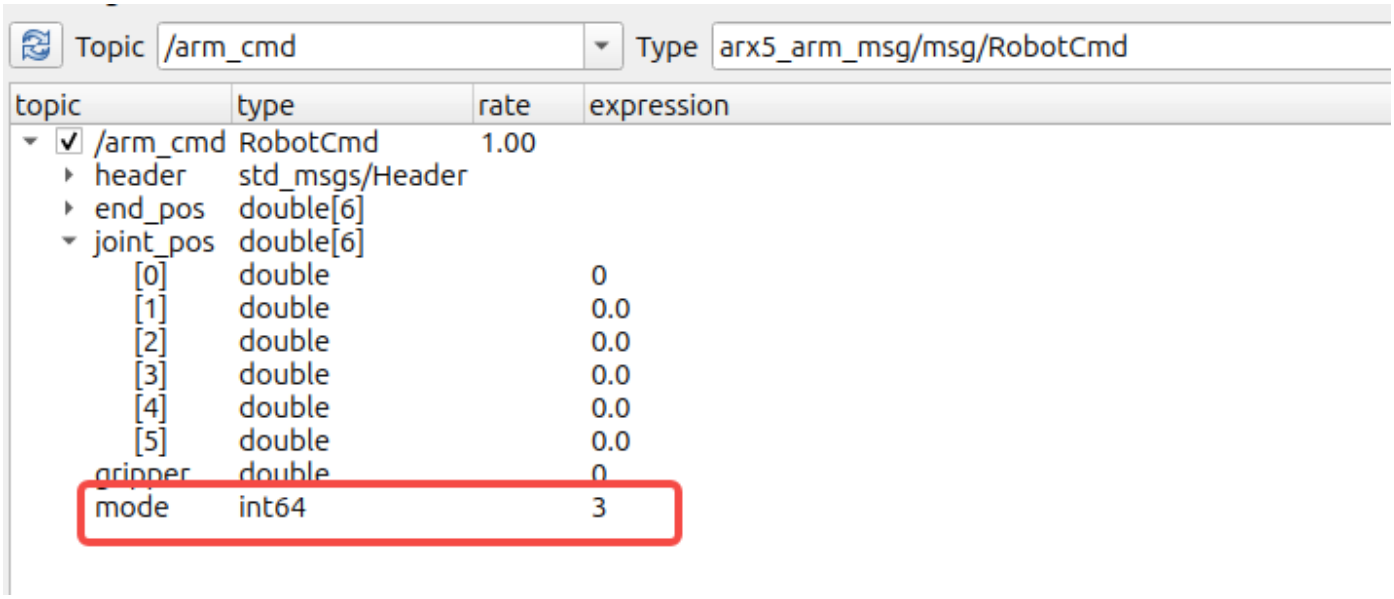
重力补偿模式

进入ARX_X5/ROS2/X5_ws

```
代码块
1   source install/setup.bash
2   ros2 launch arx_x5_controller open_single_arm.launch.py
```

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   rqt
```



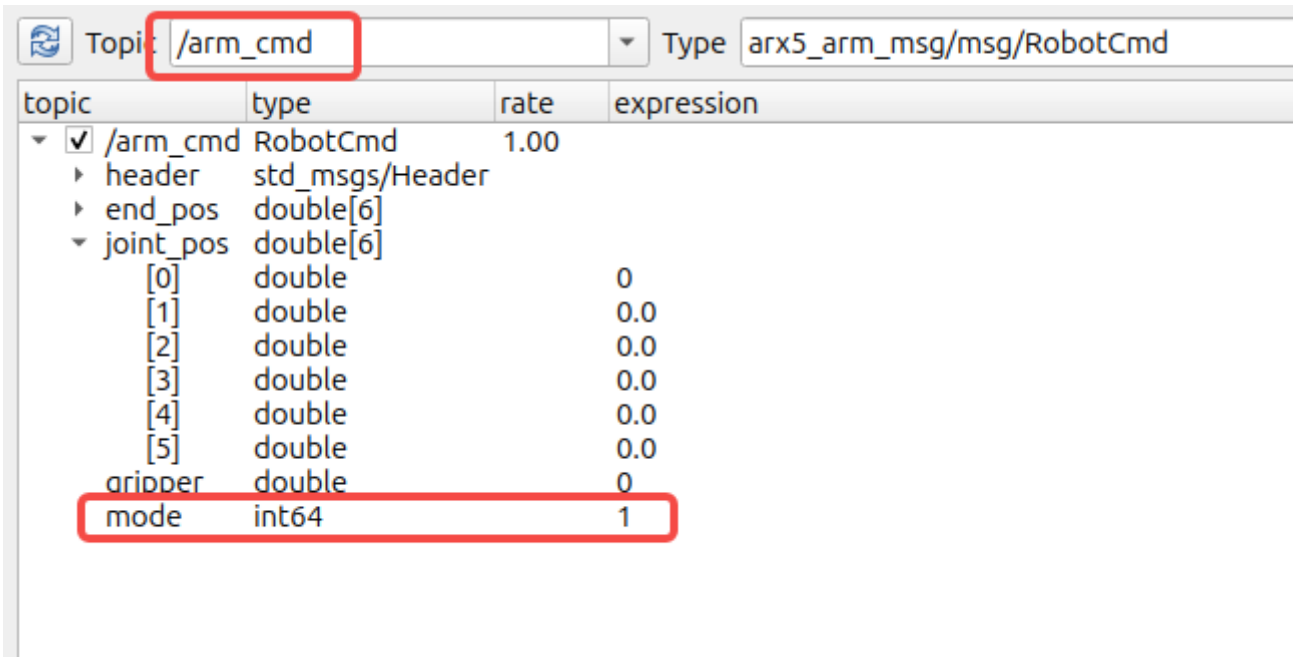
复位

进入ARX_X5/ROS2/X5_ws

```
代码块
1   source install/setup.bash
2   ros2 launch arx_x5_controller open_single_arm.launch.py
```

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   rqt
```



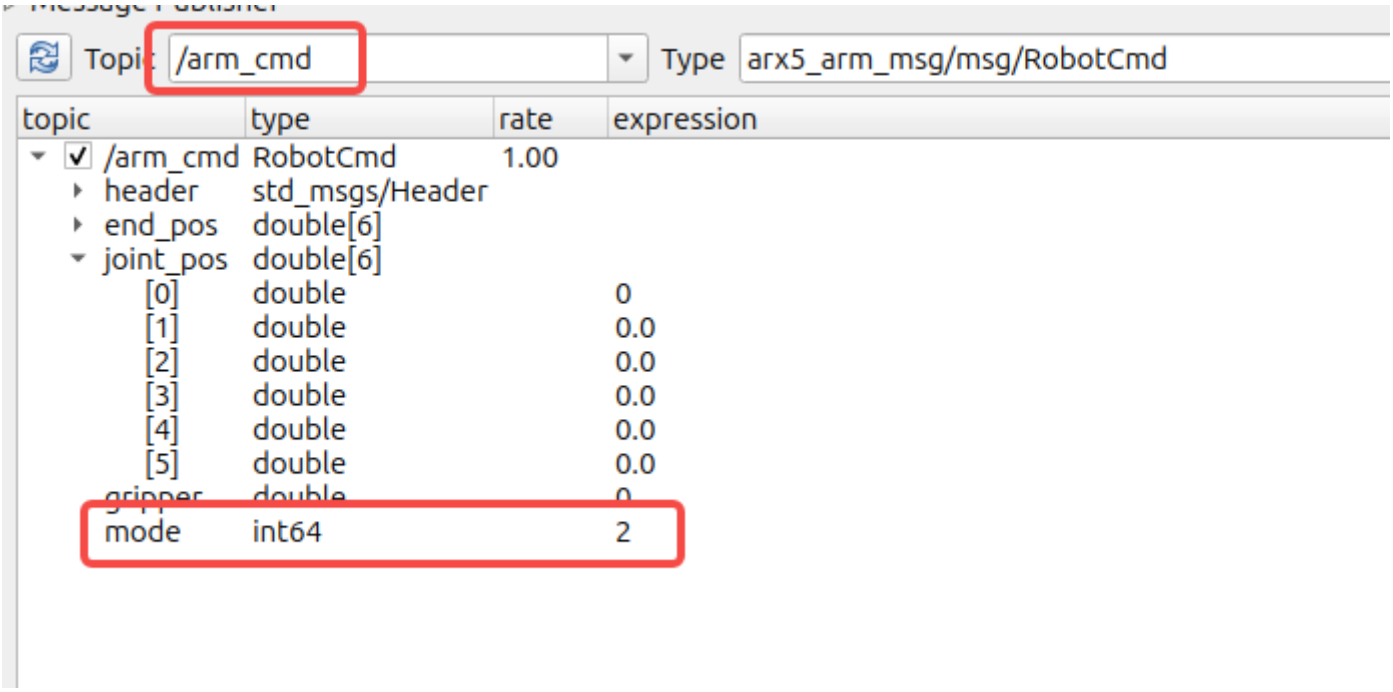
阻尼模式

进入ARX_X5/ROS2/X5_ws

```
代码块
1   source install/setup.bash
2   ros2 launch arx_x5_controller open_single_arm.launch.py
```

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   rqt
```



反馈

关节反馈

在启动对应控制命令后

进入ARX_X5/ROS2/X5_ws另开终端

```
代码块
1   source install/setup.bash
2   ros2 topic echo /arm_status
```

```
header:
  stamp:
    sec: 1765363339
    nanosec: 466845457
  frame_id: ''
end_pos:
- 2.486444653154729e-05
- -3.8198192558198 26e-05
- 0.0010755449498 01055
- -0.0074528067100 44608
- 0.0009536783639875621
- 2.828447111991652e-08
joint_pos:
- -0.00057220458984375
- 0.00476837158203125
- 0.00438690185546875
- -0.00057220458984375
- -0.00057220458984375
- -0.00743865966796875
- 0.9018087387084961
joint_vel:
- 0.013187408447265625
- -0.021978378295898438
- -0.0043964385986328125
- -0.010990142822265625
- 0.010990142822265625
- -0.03296661376953125
- 0.010990142822265625
joint_cur:
- -0.0073261260986328125
- 0.0073261260986328125
- 2.7326011657714844
- 1.6532354354858398
- -0.0073261260986328125
- 0.05616569519042969
- -0.021978378295898438
---
```

姿态反馈

在启动对应控制命令后

进入ARX_X5/ROS2/X5_ws另开终端

代码块

```
source install/setup.bash
ros2 topic echo /arm_status
```

```
header:
  stamp:
    sec: 1765364199
    nanosec: 246850686
  frame_id: ''
end_pos:
- -0.00011556782615482208
- -4.81408087244193 65e-05
- 0.100193773276676
- 0.005898452665231465
- 0.0005722059386991231
- -0.0003795528287340 2147
joint_pos:
- -0.00057220458984375
- 0.2645530700683594
- 0.3942546844482422
- -0.13027381896972656
- -0.00019073486328125
- 0.00591278076171875
- -0.0286102294921875
joint_vel:
- -0.0043964385986328125
- -0.013187408447265625
- -0.0043964385986328125
- -0.010990142822265625
- -0.010990142822265625
- -0.010990142822265625
- -0.010990142822265625
joint_cur:
- 0.0073261260986328125
- 0.2417583465576172
- 2.6886444091796875
- 1.7362632751464844
- -0.0073261260986328125
- -0.07570171356201172
- -0.5787544250488281
---
```

mode	模式功能	备注
0	力矩清零	所有关节力矩为0
1	机械臂复位	回到初始位形
2	阻尼模式	在“0”的基础上增加阻尼
3	重力补偿	可任意拖动
4	末端位姿控制	通过“end_pos”控制
5	关节控制	通过“joint_pos”控制