| **CopleyControl Class Commands** | | | |
| --- | --- | --- | --- |
| Commands | Input Type | Output Type | **Description** |
| Init | DevVoid | DevVoid | inits the device |
| Move | DevVoid | DevVoid | triggers the motor to move. |
| WriteRead | DevString | DevString | writes a command to the serial line and gets the result of this command from the amplifier. |
| State | DevVoid | State | if the motor is in motion, the State is “MOVING”;  if the motor is stationary, the State is “ON”;  if the motor is out of power, the State is “OFF”;  if the motor reaches the hardware limits, the State is “ALARM”; |
| Status | DevVoid | DevString | if the motor is in motion, the Status is “Status is MOVING”;  if the motor is stationary, the Status is “Status is ON”;  if the motor is out of power, the Status is “Status is OFF”;  if the motor reaches the positive hardware limit, the Status is “Positive limit switch Active”;  if the motor reaches the negative hardware limit, the Status is “Negative limit switch Active”; |
| ResetMotor | DevVoid | DevLong | reset the amplifier immediately. The amplifier baud rate is set to 9600 when the amplifier restarts.  NOTE: if a reset command is issued to an amplifier on a multi-drop network, error code 32, “CAN Network communications failure,” will be received. This is because the amplifier reset before responding to the gateway amplifier. This error can be safely ignored in this circumstance. |
| StopMove | DevVoid | DevLong | stops a movement immediately. |
| MoveToCwLimit | DevVoid | DevLong | moves the motor until the CW limit is reached (positive step direction). Software limits are ignored. StopMove works. |
| MoveToCcwLimit | DevVoid | DevLong | moves the motor until the CcW limit is reached (negative step direction). Software limits are ignored. StopMove works. |
| MoveHome | DevVoid | DevString | executes the homing procedure. |

| **CopleyControl Class Attributes** | | | | | |
| --- | --- | --- | --- | --- | --- |
| Attributes | **R/W type** |  | Data type | Value, Range, Unit | **Description** |
| Acceleration | READ\_WRITE | DevDouble | Units: 10 counts/s2 | the acceleration |
| Deceleration | READ\_WRITE | DevDouble | Units: 10 counts/s2 | the deceleration |
| DialPosition | READ\_WRITE | DevDouble | Units: Counts | the dial position |
| Position | READ\_WRITE | DevDouble | Units: Counts | the position |
| SetPoint | READ\_WRITE | DevDouble | Units: Counts | the set point for the movement |
| HomeOffset | READ\_WRITE | DevDouble | Units: Counts | the home offset. The default value is 0. |
| HomingMethod | READ\_WRITE | DevDouble |  | The Homing Mode Variable |
| Velocity | READ\_WRITE | DevDouble | Units: 0.1 counts/s | the velocity |
| State | READ | State |  | device state.  if the motor is in motion, the State is “MOVING”;  if the motor is stationary, the State is “STANDBY”;  if the motor is out of power, the State is “OFF”; |
| Status | READ | DevString |  | device status.  if the motor is in motion, the State is “Status is MOVING”;  if the motor is stationary, the State is “Status is ON”;  if the motor is out of power, the State is “Status is OFF”; |
| CwLimit | READ |  | DevBoolean |  | Positive hardware limit |
| CcwLimit | READ |  | DevBoolean |  | Negative hardware limit |
| SoftwareCcwDialLimit | READ\_WRITE |  | DevDouble |  | Negative software dial limit |
| SoftwareCwDialLimit | READ\_WRITE |  | DevDouble |  | Positive software dial limit |
| SoftwareCcwLimit | READ\_WRITE |  | DevDouble |  | Negative software limit |
| SoftwareCwLimit | READ\_WRITE |  | DevDouble |  | Positive software limit |
| Conversion | READ\_WRITE |  | DevDouble |  | The ratio between the position and the dial position. The default value is 1.0 |

| **CopleyControl Class Properties** | | |
| --- | --- | --- |
| Properties | Value, Reference Value | **Description** |
| ConnectedDeviceName | pyserial/copleyctrl/1 | the name of the connected pyserial device. |
| DesiredState | 21 = Programmed Position Mode, Servo  31 = Programmed Position Mode, Stepper | Desired State |
| NodeId | 0, for Node ID 0 controller  1,for Node ID 1 controller  2, for Node ID 2 controller | node ID |
| ProfileType | 0 = Absolute move, trapezoidal profile.  1 = Absolute move, S-curve profile.  256 = Relative move, trapezoidal profile.  257 = Relative move, S-curve profile. | Profile type |
| ReferenceAcceleration | 200000 | Reference value of the acceleration |
| ReferenceDeceleration | 200000 | Reference value of the deceleration |
| ReferenceVelocity | 15001 | Reference value of the velocity |