SAVAGE ELECTRONICS
Electronics for Everyone

Dynamixel library for Arduino .
Version 1.2.0

begin ()

Description
Initialize the serial communication arduino .

Syntax
begin (baudRate);
begin (baudRate , DATACONTROL)

SoftSerial version
begin (baudRate , rxPin , TxPin)
begin (baudRate , rxPin , TxPin , DATACONTROL)

Parameters
baudRate - serial transmission rate in bps
DATACONTROL - pin control for data transmission and recepciondе
RxPin - pin for receiving data
TxPin - pin for data transmission

Example
Dynamixel.begin (1000000) ; Dynamixel.begin (1000000 2) ;
SoftSerial Version: Dynamixel.begin (1000000 , 2, 3) ;
Dynamixel.begin (1000000 , 2 , 3 , 4) ;

ping ( )

Description
Send a question to the servo motor status .

Syntax
ping (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.ping (1) ;

reset ()

Description
Return to the factory settings of the servomotor.

Syntax
reset (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.reset (1) ;

setId ()

Description
Change the ID of the servomotor.

Syntax
setId (ID , newID);

Parameters
ID - identification number of the servomotor newID - new servomotor ID

returns

-1 If there was no response from the servomotor
- # Error found servomotor called

Example

Dynamixel.setID (1, 2) ;

setBD ( )

Description

Change the Baud Rate of the servomotor.

Syntax

setBD (ID , baudRate);

Parameters

ID - identification number of the servomotor buadRate - serial transmission speed in bps

returns

-1 If there was no response from the servomotor
- # Error found servomotor called

Example

Dynamixel.setBD (1, 115200);

move ()

Description

Move the actuator to the position indicated.

Syntax

move (ID , Position) ;

Parameters

ID - identification number of the servomotor
Position - servo position 0 to 1023 (0 to 300 degrees)

returns

-1 If there was no response from the servomotor
- # Error found servomotor called

Example

Dynamixel.move (1, 512) ;

movespeed ()

Description

Move the actuator to the position indicated airspeed .

Syntax

movespeed (ID , Position, Speed) ;

Parameters

ID - identification number of the servomotor
Position - servo position 0 to 1023 (0 to 300 degrees) Speed - speed that will move the servo 0 to 1023

returns

-1 If there was no response from the servomotor
- # Error found servomotor called

Example

Dynamixel.moveSpeed (1, 512 , 1023);

moveRW ( )

Description

Save the instruction that moves the actuator to the position indicated.

Syntax

moveRW (ID , Position) ;

Parameters

ID - identification number of the servomotor
Position - servo position 0 to 1023 (0 to 300 degrees)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.moveRW (1, 512) ;

moveSpeedRW ( )

Description
Save the instruction that moves the actuator to the position indicated airspeed .

Syntax
moveSpeedRW (ID , Position, Speed) ;

Parameters
ID - identification number of the servomotor
Position - servo position 0 to 1023 (0 to 300 degrees)
Speed - speed that will move the servo 0 to 1023

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.moveSpeedRW (1, 512 , 1023);

action ()

Description
Executes the instruction stored in the servomotor.

Syntax
action () ;

Parameters
none

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.action ( ) ;

setEndless ( )

Description
Enables or disables continuous mode servomotor rotation .

Syntax
setEndless (ID , Status);

Parameters
ID - identification number of the servomotor
Status - on or off the Endless (ON or OFF) mode

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setEndless (1, ON) ;

turn ()

Description
Servomotor rotates to the right or left and the speed indicated only if in continuous rotation mode .

Syntax
turn (ID , Side, Speed) ;

Parameters
ID - identification number of the servomotor
Side - direction in which to rotate (RIGTH or LEFT)
Speed - speed that will move the servo 0-1020

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.turn (1, LEFT, 1000) ;

torqueStatus ( )

Description
Enables or disables the torque on the servomotor.

Syntax
torqueStatus (ID , Status);

Parameters
ID - identification number of the servomotor
Status - on or off the touch (ON or OFF)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.torqueStatus (1 , ON) ;

LEDStatus ()

Description
Turns the LED on the back of the servomotor.

Syntax
LEDStatus (ID , Status);

Parameters
ID - identification number of the servomotor
Status - on or off (ON or OFF) LED

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.ledStatus (1, ON) ;

setTempLimit ( )

Description
Configures a maximum operating temperature of the servomotor.

Syntax
setTempLimit (ID , Temperature) ;

Parameters
ID - identification number of the servomotor
Temperature - the maximum temperature to which the servomotor work

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setTempLimit (1, 80) ;

setAngleLimit ( )

Description
Sets a maximum angle CW and CCW operating servomotor.

Syntax
setAngleLimit (ID , CW , CCW);

Parameters
ID - identification number of the servomotor
CW - maximum angle to clockwise
CCW - maximum angle against clockwise

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setAngleLimit (1, 45 , 45) ;

setVoltageLimit ( )

Description
Set a minimum and maximum operating voltage on the actuator .

Syntax
setVoltageLimit (ID , minVoltage , maxVoltage);

Parameters
ID - identification number of the servomotor
minVoltage - minimum operating voltage of the servomotor maxVoltage - maximum operating voltage of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setVoltageLimit (1, 70 , 160) ;

setMaxTorque ( )

Description
Sets a maximum torque on the actuator .

Syntax
setMaxTorque (ID , Maxtorque);

Parameters
ID - identification number
Maxtorque - servomotor maximum torque (0-1023)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setMaxTorque (1, 1023) ;

setSRL ( )

Description
Sets the Status Return Level of servomotor.

Syntax
setSRL (ID , SRL);

Parameters
ID - identification number of the servomotor
SRL - (0 Return none), (read Return 1) , (2 Return all)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setSRL (1, 2) ;

setRDT ( )

Description
Return Delay Time Sets the servomotor .

Syntax
setRDT (ID , RDT);

Parameters
ID - identification number of the servomotor
*RDT - time information return (0-255) * 2us*

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setRDT (1, 255) ;

setLEDAlarm ( )

Description
Set the alarm LED servomotor.

Syntax
setLEDAlarm (ID , LEDAlarm);

Parameters
ID - identification number of the servomotor
LEDAlarm - alarm LED (0-255)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setLEDAlarm (1 , 255) ;

setShutdownAlarm ( )

Description
Set the alarm off the booster.

Syntax
setShutdownAlarm (ID , shutdownAlarm);

Parameters
ID - identification number of the servomotor shutdownAlarm - shutdown

alarm (0-255)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setShutdownAlarm (1, 255) ;

setCMargin ( )

Description
Compliance Margin Sets the servomotor .

Syntax
setCMargin (ID , CWCM , CCWCM);

Parameters
ID - identification number of the servomotor CWCM - CW Compliance Margin (0-255) CCWCM - CCW Compliance Margin (0-255)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setCMargin (1, 1 , 1) ;

setCSlope ( )

Description
Set the servomotor Compliance Slope .

Syntax
setCSlope (ID , CWCS , CCWCS);

Parameters
ID - identification number of the servomotor CWCS - CW Compliance Slope (0-255) CCWCS - CCW Compliance Slope (0-255)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setCSlope (1, 64, 64) ;

setPunch ( )

Description
Punch Sets the maximum current or servomotor.

Syntax
setPunch (ID , Punch);

Parameters
ID - identification number of the servomotor
Punch - current in the servomotor (0-1023)

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.setPunch (1, 1023) ;

moving ()

Description
Check or read if the servomotor is moving.

Syntax
moving (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called
-0 If the actuator is not in motion
-1 If the servo is still moving

Example
var = Dynamixel.moving int (1) ;

RWStatus ( )

Description
Lee REG_WRITE state servomotor .

Syntax
RWStatus (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called
0 if the servo does not have a saved instruction
1 if the actuator has a saved statement

Example
var = Dynamixel.RWStatus int (1) ;

lockRegister ( )

Description
Blocks 24 to 35 records of the servomotor.

Syntax
lockRegister (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called

Example
Dynamixel.lockRegister (1) ;

readTemperature ( )

Description
Reads the internal temperature of the servomotor .

Syntax
readTemperature (ID) ;

Parameters
ID - identification number of the servomotor

returns
-1 If there was no response from the servomotor
- # Error found servomotor called
 # Internal temperature of the servomotor

Example
var = Dynamixel.readTemperature int (1) ;

readVoltage ( )

Description
Read the supply voltage of the servomotor.

Syntax
readVoltage (ID) ;

Parameters
ID - identification number of the servomotor

returns

-1 If there was no response from the servomotor
- # Error found servomotor called
 # Supply voltage servomotor

Example

var = Dynamixel.readVoltage int (1) ;

readPosition ( )

Description

Reads the position in which the actuator is located .

Syntax

readPosition (ID) ;

Parameters

ID - identification number of the servomotor

returns

-1 If there was no response from the servomotor
- # Error found servomotor called
- # Position of the servomotor

Example

var = Dynamixel.readPosition int (1) ;

readSpeed ( )

Description

Read the rpm of the servomotor.

Syntax

readSpeed (ID) ;

Parameters

ID - identification number of the servomotor

returns

-1 If there was no response from the servomotor
- # Error found servomotor called
- # Speed in rpm of the servomotor

Example

var = Dynamixel.readSpeed int (1) ;

readLoad ( )

Description

Read the current used by the servomotor.

Syntax

readLoad (ID) ;

Parameters

ID - identification number of the servomotor

returns

-1 If there was no response from the servomotor
- # Error found servomotor called
- # Used by current servomotor

Example

var = Dynamixel.readLoad int (1) ;