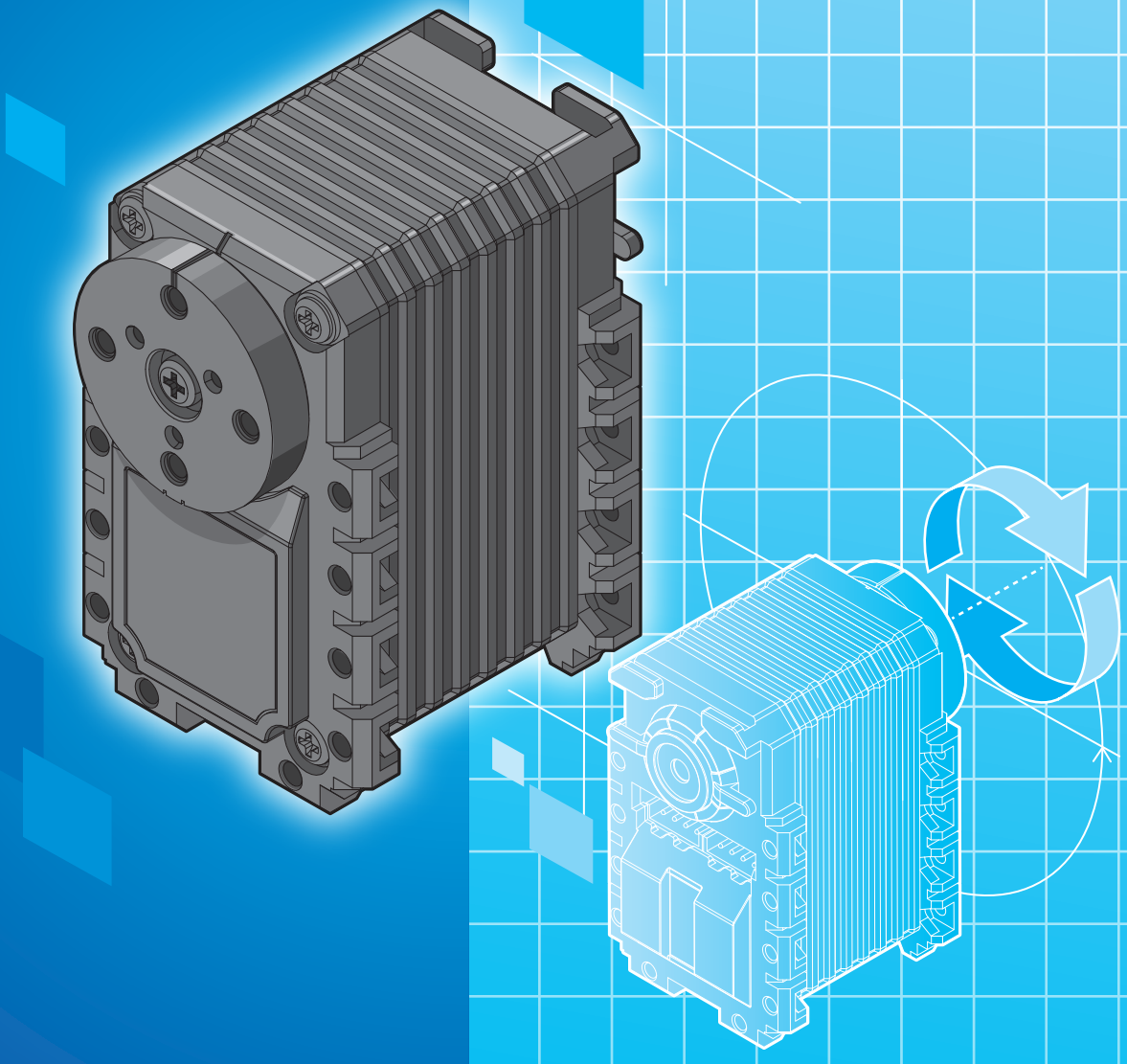
XYZROBOT SERVO TOOL
USER MANUAL



Safety Guideline

Please read the following information: failure to comply with provided information may lead to voiding the warranty.

This document covers safety, proper handling, and regulatory information for use of your smart servo.

General Precautions

Caution: To avoid injury, damage to the servo or equipment, please follow the provided guidelines.

- Please read through the directions before starting.
- To prevent the spread of fire, keep candles or other open flames away from the servo at all times.
- At all times, keep in mind safety first to prevent injury to individuals using or around the servo.
- Review and follow all safety information provided throughout this manual.
- This guide does not cover all possible safety issues or conditions. Always use common sense and good judgment.
- Warning: Conversion or modifications to this product not expressly approved by the party responsible for compliance could void the user's authority to operate the product.
- Please do not break, throw or trample the servo.
- Avoid installation in extremely hot, rainy or water splashing, or being placed in high temperature or moist environment.
- Please use the accessories we match for this servo.
- Never disassemble or modify the smart servo in any way, otherwise, warranty of the product will be lost. For non-human faults or breakdown, please contact authorized distributors.
- Do not use any tools other than those provided in the kit.

Important Notice for Use in Healthcare Environments:

XYZprinting Inc. products are not medical devices and are not listed under UL or IEC 60601 (or equivalent).

You can find th User Guide, the Technical Guide and these Safety Instructions ("Documentation"), visit the following:

http://www.xyzrobot.com

You can contact XYZprinting Inc. support at:

http://www.xyzrobot.com

Safety Guideline

Handling and Personal Safety

Handling

- Handle the servo with care at all times.

General

Working Area

- The working surface must be dry and level; thick carpets or rugs are not recommended for operational stability.
- Keep the servo away from radiators, heat sources and direct sunlight.
- Operating temperatures: between 0°C and 40°C (32°F to 104°F).
- Operating humidity range: between 20% and 80%.

Special Procedures

General

- Do not modify or open any of the actuators.
- Do not drop, crush, bend, deform, puncture, shred, microwave, incinerate any of the components. Doing so can cause fire, electric shock, damage or personal injury.

NOTE: For information on your warranty coverage see the Warranty in this Assembly Manual.

Table of Contents

Prerequisites

Windows Operating System Requirements

- Windows 7 or later, including both 32-bit and 64-bit versions
- Microsoft .Net Framework 4.5

Mac Operating System Requirements

- Mac OS X 10.10 or later

Arduino

- Arduino IDE 1.0.6

Setting Up the Environment

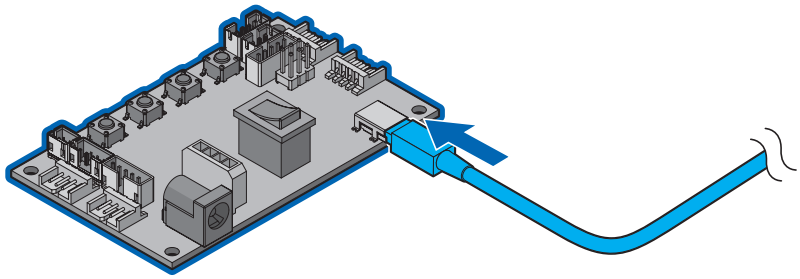
01

New servos must have an ID assigned to them before being included in an assembly.

NOTE: The Bolide Y-01 model was used for the following procedure. The illustrations may differ from the model you purchased.

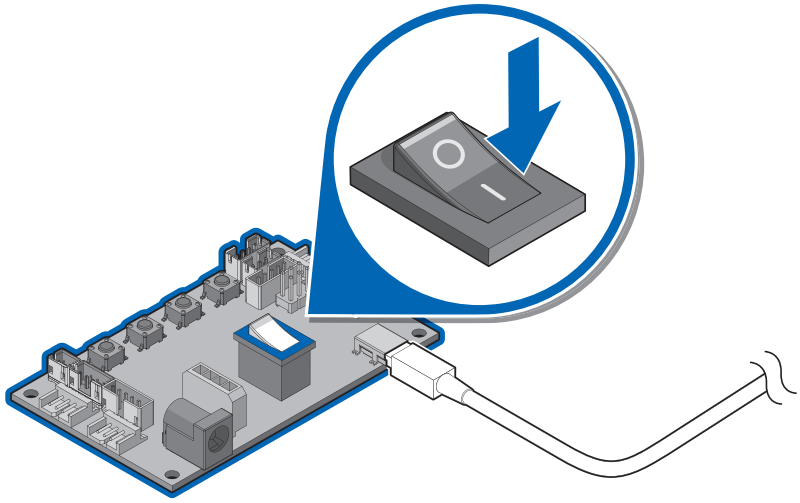
Setup MCU Board

1. Connect the MCU board to your computer. Connect one end of a USB cable to the computer (USB Type A) and the other end to the MCU board (USB Type Mini-B).



Powering on MCU Board

1. Plug the charger cable to the power socket on the MCU board.
2. Press the power switch to turn on the Bolide Y-01.



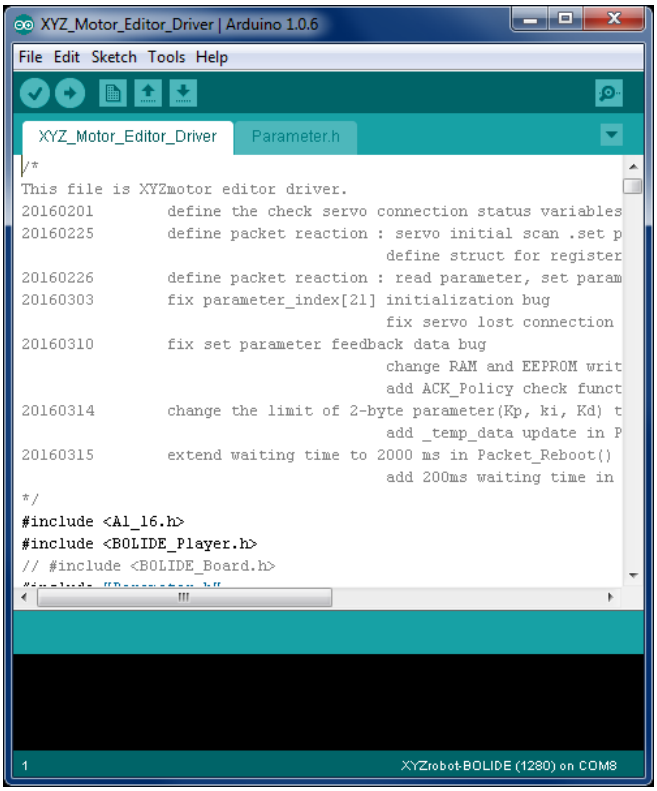
01 Setting Up the Environment

Installing the Motor Editor Driver

The following instructions guide you through the complete installation of the driver required for the Servo Tool.

1. In Windows, go to **Control Panel** then to **Device Manager** to make sure the USB cable is connected.
2. Locate the driver and navigate to the following folder:

   XYZ_Motor_Editor_Driver_v3 (For the latest software visit http://www.xyzrobot.com)
3. Click XYZ_Motor_Editor_Driver.ino to run the application.



4. From the menu toolbar, click **Tools > Board** and select the option **XYZrobot-BOLIDE** option.
5. Next, select the COM port associated with the Bolide Y-01. From the menu toolbar, click **Tools > Serial Port** and select the associated option.

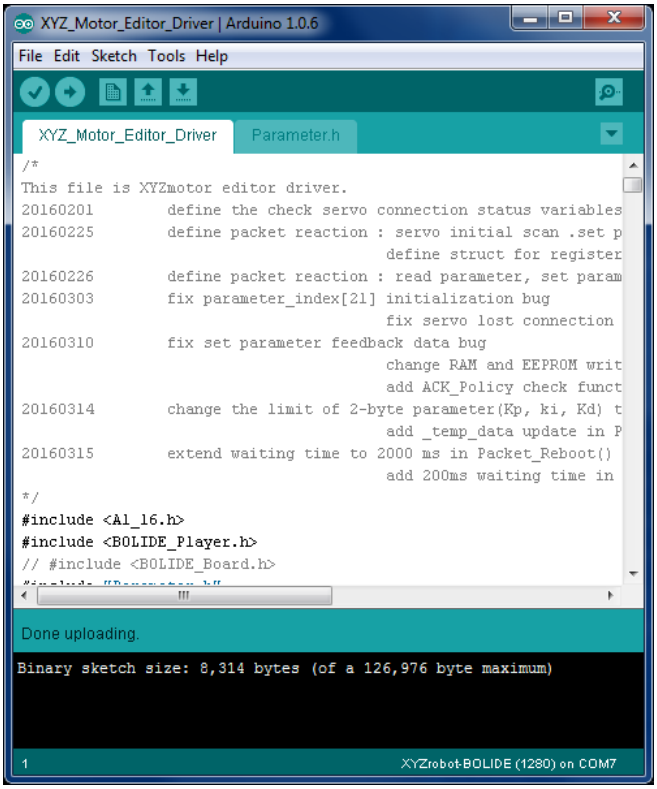
   NOTE: If the device is not detected, the USB driver may not be recognized. The option to select the associated COM port will not be available. You will need to update or re-install the serial port drivers; see ***"USB Drivers"*** on the Bolide Y-01 User Manual.
6. Click  (Verify) to compile the codes.

   After compiling, the message **Done compiling** displays on the bottom of the frame.

   If there are no errors and the compiling is complete, upload the code to the MCU board.

7. Click (Upload) to upload the codes.

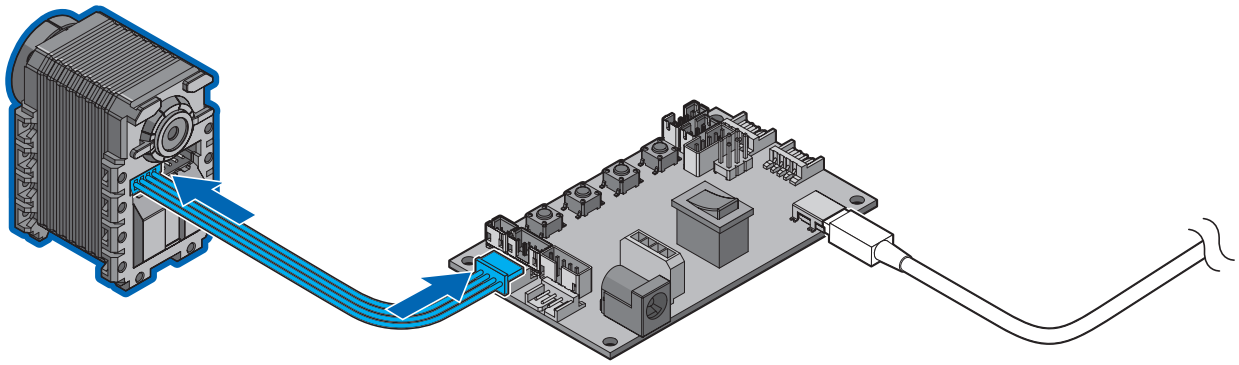
   After uploading, the message **Done uploading** displays. Check that no errors display at the bottom of the frame.



Connecting Smart Servo

1. Connect one end of a cable to the MCU board and the other end to the smart servo.

NOTE: Make sure there is only one smart servo connected to the MCU board.



02 Setting Up the Servo Tool

Installing Servo Tool

Overview

The XYZrobot Servo Tool is designed specifically to configure an ID for a new servo.

Prior to installation, you will need to have the Adruino software and the Bolide driver code installed on your computer system and the Bolide board, respectively.

See the following section for step-by-step instructions on installing the XYZrobot Servo Tool software.

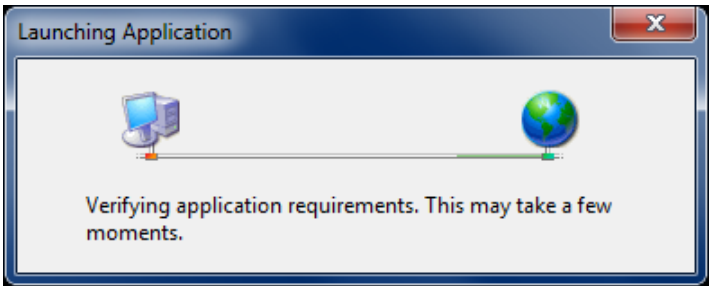
Installing the XYZrobot Servo Tool

Before installing the Tool, download the driver from http:\\www.xyzrobot.com.

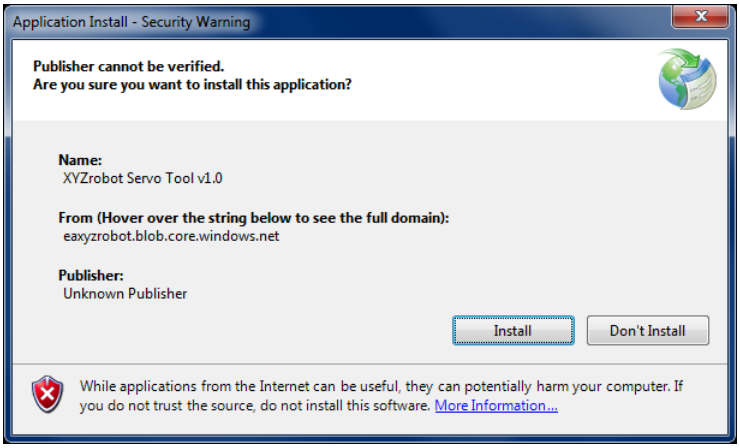
1. Locate the downloaded driver file.
2. Click setup.exe to run the application.

   The Launching Application window displays. Follow the on-screen prompts to continue.

   NOTE: At the time of writing, the file and folder names were under development. File and folder names may differ after production.



3. Click **Install** to install the XYZrobot Servo Tool.



Setting Up the Servo Tool

02

A status screen displays the installation status. Once the installation is complete, the XYZrobot Servo Tool software opens.

NOTE: A security prompt may display requiring authorization to open the software. To continue with the procedure, click **OK** to continue or cancel to end the process.

02 Setting Up the Servo Tool

Uninstalling the XYZrobot Servo Tool

To uninstall the XYZrobot Servo Tool software, follow these step-by-step instructions.

1. Close the Tool to continue.
2. On Windows, click **Start > Control Panel** to open the computer's settings menu.
3. Click **Uninstall** a program to open the Uninstall menu or change a program menu.
4. Select XYZrobot Servo Tool v1.0 from the list and click **Uninstall/Change**.

For Mac users:

1. Drag the app from the Applications folder to the Trash (located at the end of the Dock).
2. Then choose **Finder > Empty Trash**.

The XYZrobot Servo Tool application is removed from the program list.

WARNING: Emptying the Trash bin permanently removes the content and renders it unavailable.

NOTE: The screens and procedure displayed here may vary slightly from what you see in your system, depending on the operating system in use.

Updating the Software

During the course of normal operations, the XYZrobot Servo Tool automatically checks for updates and installs them. When new updates are available, you are notified before the process starts.

Setting Up the Servo Tool

02

Introduction to Servo Tool UI

Main menu

No	Item	Description
1	Tool	Open to reboot the servo or reset the servo to default settings. See ***"Tool"*** *on page 12*.
2	Config	Open to select the Port Settings option. See ***"Config"*** *on page 12*.
3	Help	Open to select the About and Language settings options. See ***"Help"*** *on page 12*.
4	Position	Type a specific number (0-1023) and press **Enter** to manually set a zero position.
5	Zero Position	Drift to rotate the servo hub to the actual position.
6	Relax	Stops the electric pulse signal to the smart servo, allows for manual rotation of the servo.
7	Capture	Capture the zero position on the servo. **CAUTION:** The hub's available range of movement is +/- 165° from servo center. If the zero position is outside this range, incorrect position information will be read and it will not be possible to control the servo effectively. It is strongly recommended that the usage area falls within this range.
8	Set	Type a specific number and click **Set** to manually set a zero position.

No	Item	Description
9	Read	Read the current servo information.
10	Set	Set the modified setting into the servo.
11	Connection Status	If a servo is detected, the dialogue displays a device connected status.
12	Description bar	The dialogue displays a text description of the last initiated action.
13	Configuration Area	The configuration area displays the current information of the smart servo as well as editing functions. See ***"Main menu"*** *on page 11*.

Tool

Item	Description
Reboot Servo	Reboot the connected smart servo.
Reset servo to default setting	Reset the connected smart servo to default setting.

Config

Item	Description
Port setting	Select the current communication port.
Detect Motor	Detect the connected smart servo.

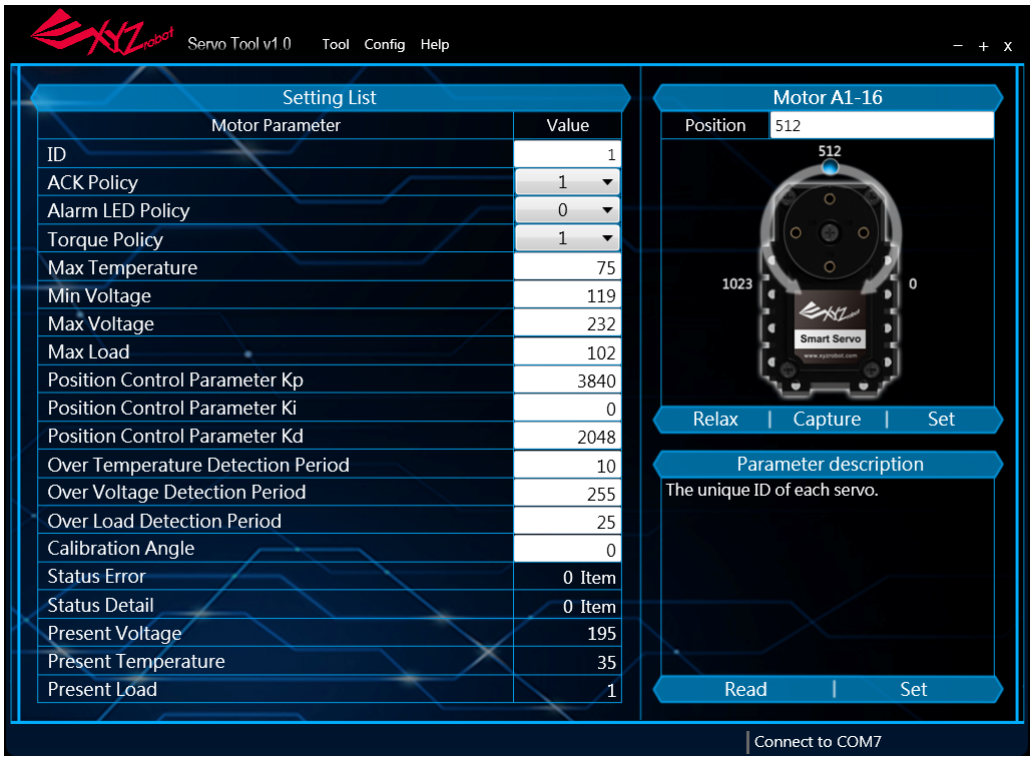
Help

Item	Description
About	Display information about the XYZrobot Servo Tool.
Language	Select an interface language: English, 繁體中文, 简体中文, 日本語, Deutsch, Español, Italiano and Français.

Setting Up the Servo Tool

02

Servo Tool



Item	Description
ID	The unique ID of each servo.
ACK Policy (RAM Register Address 1)	Sets ACK Packet reply policy when Request Packet is received. • 0: No reply to any Request Packet • 1: Only reply to Read CMD • 2: Reply to all Request Packet * When the CMD is “STAT” ACK Packet will be sent regardless of ACK Policy. * There is no reply when the pID in Request Packet is 254 (Broadcast pID) with the exception of “STAT” CMD in which case a reply will be sent.

Alarm LED Policy (RAM Register Address 2)	Sets Alarm LED policy when Error is detected.
	• 0: Error state, Alarm LED blinks
	• 1: User Control LED
	  • When (r(LED Policy) & r(Status Error)) is TRUE, Alarm LED starts to blink, Alarm LED blink period is set by r(LED Blink Period).
	  • When (r(LED Policy) & r(Status Error))is TRUE, Any values written to r(LED Control) will be ignored to prevent confusion with Error state.
	  • Error status r(Status Error) must be resolved first for r(LED Control) to function properly.

Setting Up the Servo Tool

Item	Description
Torque Policy (RAM Register Address 3)	Sets Torque Policy when Error is detected. • 0: Torque is released (Torque off). If an error is detected, servo will not return to Torque On state regardless of the Torque Control. • 1: Servo does not automatically revert to Torque On state even after status error has been resolved. Enable Torque On using Torque Control after status error has been resolved.
Max Temperature	The A1-16 servo's maximum operating temperature. The value is in degrees Celsius.
Min Voltage	The A1-16 servo's minimum operating voltage. The value is 16 times the actual voltage in volts.
Max Voltage	The A1-16 servo's maximum operating voltage. The value is 16 times the actual voltage in volts.
Max Load	The A1-16 servo's maximum operating current. The value is 200 times the actual current in amperes.
Position Control Parameter Kp	Servo position control parameter, proportional gain constant Kp. Output torque applied to motor is adjusted by multiplying Kp and current position error. For more features, see https://en.wikipedia.org/wiki/PID_controller.
Position Control Parameter Ki	Servo position control parameter, integral gain constant Ki. Output torque applied to motor is adjusted by multiplying Ki and summation of error over operating time. For more features, see https://en.wikipedia.org/wiki/PID_controller.
Position Control Parameter Kd	Servo position control parameter, derivative gain constant Ki. Output torque applied to motor is adjusted by multiplying Kd and slope of error over operating time. For more features, see https://en.wikipedia.org/wiki/PID_controller.
Over Temperature Detection Period	Over temperature error check period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.
Over Voltage Detection Period	Over/under voltage error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.
Over Load Detection Period	Over current error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.
Calibration Angle	This value is used to calibrate the central point. The calibrated position is equal to absolute position plus calibration angle and used in position control. The value is 0.969°/count. For example, 0.969° is represented as value 3.
Status Error	This value presents the system operating error. The LED status indicates the corresponding alarm LED policy is set. See ***"Status Error"*** *on page 15*.

Item	Description
Status Detail	This value presents these system operating details. • 1: Motor Moving • 2: Motor In-Position (Position control mode only) • 3: 1: Torque on (Position/Speed control); 0: Torque off • 4: Motor Braked
Present Voltage	This value shows the voltage currently supplied to the servo. The value is 16 times the actual voltage in volts.
Present Temperature	This value shows the servo's current temperature. The value is in degrees Celsius.
Present Load	This value shows the current currently supplied to the servo. The value is 200 times the actual current in amperes.

Status Error

No	Status Error	Error LED on/off
1	Exceed Potentiometer Range Error	LED on (Blue)
2	Over Voltage Limits Error	LED on (Red) LED off (White)
3	Over Temperature Error	LED on (Red) LED off (White)
4	Overload/Over-current Error	LED on (Red) LED off (White)
5	Requested Packet Checksum Error	LED on (Green)
6	Requested Packet Data Error	LED on (Green)
7	Requested Packet RX FIFO Error	LED on (Green)

03 Registering an ID

Overview

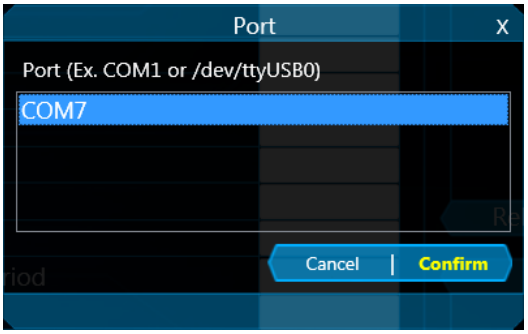
The default ID for a new servo is 1. Use the Servo Tool to configure the correct servo ID you wish to replace the existing ID.

Detecting the Smart Servo

Before you open the Servo Tool, it is necessary to connect the MCU board and computer through a USB cable.

The following procedure provides detailed instructions on how to connect to the smart servo:

1. Set up the hardware environment. See ***"Setting Up the Environment"*** *on page 05*.
2. Locate and open the XYZrobot Servo Tool application.
3. From the toolbar, select **Config > Port** to open the option window.
4. A list of available ports displays in the window. Select the port assigned to the connected MCU board.
5. Click **Confirm** to continue.

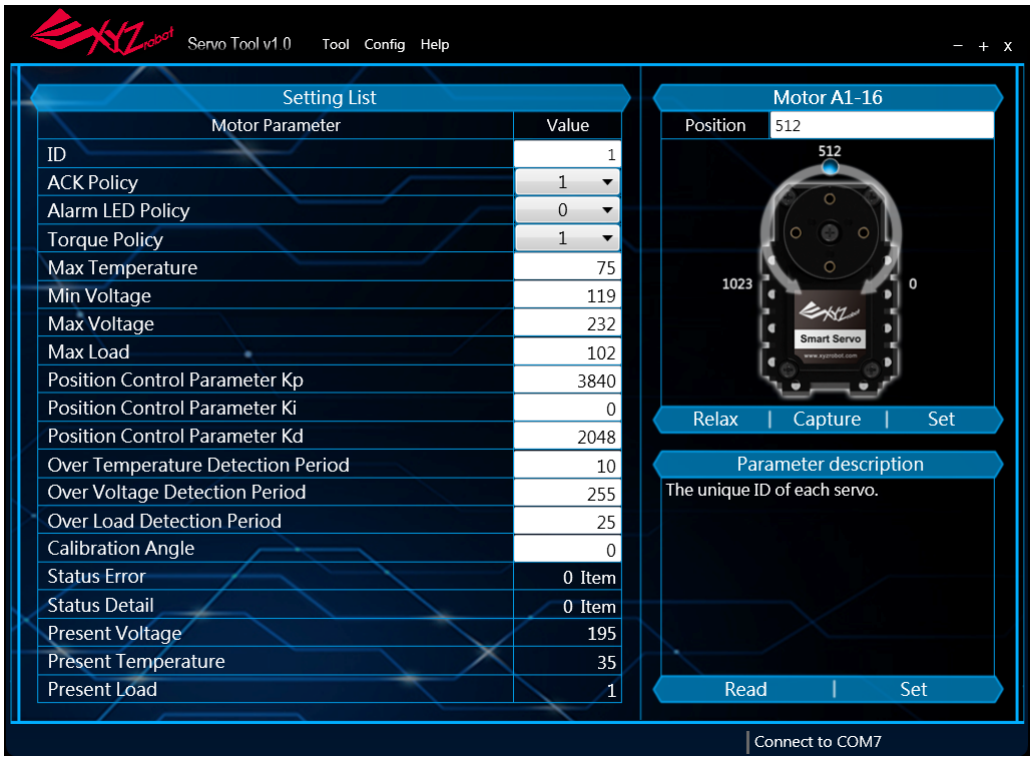


Registering an ID

03

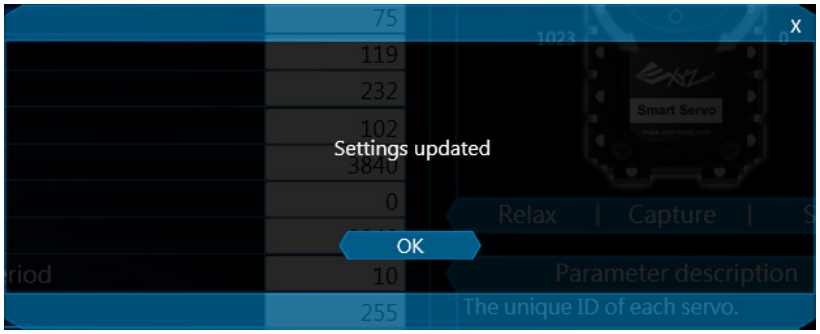
Configuring an ID

1. Enter the correct servo ID in the ID field.



2. Click **Set** under **Parameter description**.

The LEDs will blink to indicate a new ID is being configured for the connected servo.



Click **OK** to confirm.

Validating the Servo ID

Finally, assembly the new smart servo to the correct position. Please refer to the Assembly Manual to identify the servo position.

After assembly, use XYZrobot Editor to validate the servo ID. In the XYZrobot Editor Pose Editor, move the new servo's slide bar. If the slide bar works, the servo ID is defined.

04 Troubleshooting

I can't connect my MCU board to the PC.

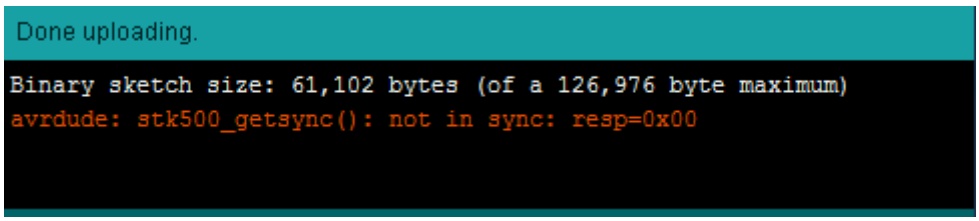
1. Open Device Manager in Windows.

   When the product is connected to the PC, please check whether the connected device's port is detected.

2. If the port is not detected, you may need to install an FTDI serial driver.

   If you have problems with other products, or are unable to solve the problem with the instructions above, please contact your regional manager.

The Arduino displays "Done uploading" but still displays an error message the burn program process.



1. Possible cause: low power.

   Please charge the Li-ion battery fully or connect the adaptor and try again.

2. Possible cause: the selected COM port is wrong.

   Select **Config > Port Setting**. Select the currently connected COM port and click **OK**.

Appendix

繁體中文 | 简体中文 | 日本語

05

ENGLISH	繁體中文	简体中文	日本語
About	關於	关于	概略
Servos A1 - 16 are modular actuators, which combine with gear reducer, DC motor and embedded control board in one package. The servo motors provide sufficient torque to operate the robot. An added function of the motors is to provide information about internal temperature, relay power and display operational status through LED light.	伺服 A1 - 16 為模組式促動器，結合齒輪減速器、DC 馬達與內嵌式控制板。 這款伺服馬達可提供足以帶動機器人的轉矩。 此外，這款馬達也可提供內部溫度、繼電器電源的資訊，並透過 LED 燈顯示運作狀態。	伺服系统 A1-16 属模块化致动器，将齿轮减速机、直流电机和嵌入式控制板整合到一个机组中。 伺服电机提供了足够的转矩来操控机器人。 这些电机的一个附加功能就是提供有关内部温度、中继功率的信息并通过 LED 灯显示运行状态。	サー能によって、内部温度に関する情報の提供、パワーのリレー、LEDライトによる動作状態の表示を行います。
About Servo Tool	關於馬達編輯器	关于电机编辑器	サーボモーター編集ソフトに関する
Cancel	取消	取消	キャンセルします
Capture	擷取	撷取	キャプチャ
Connect to {0}	連線到 {0}	联机到 {0}	接続します {0}
Config	設定	设定	コンフィグ
Parameter	參數	参数	パラメーター
Serial Port:	阜號:	阜号:	シリアルポート:
OK	確認	确认	確認
Connecting…	連線中...	联机中...	Connecting…
Sets ACK Packet reply policy when Request Packet is received. 0. Only STAT command reply 1. Only EEPROM/RAM READ and STAT commands reply 2. All commands reply	ACK 封包回傳,或伺服系統已接收要求的封包時,即呈現數值。 0. 僅有 STAT 指令回覆 1. 僅有 EEPROM/RAM RAED 與 STAT 指令回覆 2. 所有指令回覆	该值说明 ACK 数据包返回时间或伺服系统收到请求的数据包的时间。 0. 仅 STAT 命令回复 1. 仅 EEPROM/RAM RAED和 STAT命令回复 2. 有命令回复	この値は、ACKパケットが返ったタイミング、あるいはサーボが要求したパケットを受け取ったタイミングを表します。 0. STATコマンドのみ応答 1. EEPROM/RAM RAEDコマンドとSTATコマンドのみ応答 2. すべてのコマンドが応答
Sets ACK Packet reply policy when Request Packet is received. 0. Show System Error Alarm LED 1. User Control LED	LED 狀態變更或偵測到系統錯誤時,即顯示數值。 0. 顯示系統錯誤警示LED 1. 使用者控制LED	该值表示 LED 状态是否改变或何时检测到系统错误。 0. 显示系统错误报警 LED 1. 用户控制 LED	この値は、LEDステータスの変化の有無、あるいはシステムエラーが検出されたタイミングを表します。 0. システムエラーアラームLEDを表示します 1. ユーザーコントロールLED
This value is used to calibrate the central point. The calibrated position is equal to absolute position plus calibration angle and used in position control. The value is 0.969°/count. For example, 0.969° is represented as value 3.	此數值可用於校正中點。 已校正角度等於絕對位置加校正角度,且用於位置控制。 此數值為 0.969°/次數。 例如,0.969° 以數值 3 表示。	此值用于校正中心点。校正的位置等于绝对位置加校正角，并在位置控制中使用。 该值是 0.969°/计数。例如，0.969° 表示为值 3。	この値は中心点を調整するために使用されます。校正位置は絶対位置に校正角度を足したものに等しくなり、位置制御で使用されます。数値は0.969°/カウントで表示されます。たとえば、0.969°は3と表示されます。
The maximum value of A1-16 servo operating current. The value is 200 times the actual current in amperes.	A1-16 伺服系統的運作電流最大值。 此數值為實際電流的 16 倍。	A1-16 伺服系统的工作电流最大值。 该值是实际电流的 16 倍。	A1-16サーボの動作電流の最大値。実際の電圧の16倍の数値で表示されます。
The limitation of A1-16 servo operating temperature. The value is in degrees Celsius.	A1-16 伺服系統的運作溫度限制。此數值以攝氏為單位。	A1-16 伺服系统的工作温度限制。该 值以摄氏度表示。	A1-16サーボの動作温度の上限値。数値はセ氏で表示されます。
The maximum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	A1-16 伺服系統的運作電壓最大值。 此數值為實際電壓的 16 倍。	A1-16 伺服系统的工作电压最大值。 该值是实际电压的 16 倍。	A1-16サーボの動作電圧の最大値。実際の電圧の16倍の数値で表示されます。
The minimum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	A1-16 伺服系統的運作電壓最小值。 此數值為實際電壓的 16 倍,以伏特為單位。	A1-16 伺服系统的工作电压最小值。 该值是电压中实际电压的 16 倍	A1-16サーボの動作電圧の最小値。実際の電圧の16倍の数値で表示されます。

05 Appendix

繁體中文 | 简体中文 | 日本語

ENGLISH	繁體中文	简体中文	日本語
Over current error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	過電流錯誤檢查時段。 此數值為 10ms/刻點。 例如,120 ms 以數值 12 表示。	过电流错误的检查期。该值为 10 毫秒//节拍。例如，120 ms 表示为值 12。	過剰電流エラーチェック期間。数値は10ms/一目盛りで表示されます。たとえば、120msは12と表示されます。
Over temperature error check period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	高溫錯誤檢查時段。 此數值為 10ms/刻點。 例如,120 ms 以數值 12 表示。	过温错误检查期间。该值为 10毫秒/节拍。例如，120 ms 表示为值 12。	過熱エラーチェック期間。数値は10ms/一目盛りで表示されます。たとえば、120msは12と表示されます。
Over/under voltage error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	過電壓/低電壓錯誤檢查時段。 此數值為 10ms/刻點。 例如，120 ms 以數值 12 表示。	过/欠电压错误检查期。该值为 10毫秒/节拍。例如，120 ms 表示为值 12。	過剰電圧/不足電圧エラーチェック期間。数値は10ms/一目盛りで表示されます。たとえば、120msは12と表示されます。
Servo position control parameter, derivative gain constant Ki. Output torque applied to motor is adjusted by multiplying Kd and slope of error over operating time.	伺服系統位置控制參數,衍生增益係數即 Kd。 適用於馬達的輸出轉矩,透過與 Kd和運作時間錯誤斜率相乘進行調整。	伺服位置控制参数，微分增益常数 Ki。 应用于电机的输出转矩通过乘以 Kd 及操作时间误差斜率来调整。	サーボ位置制御パラメーター、微分ゲイン定数Ki。モーターに適用される出力トルクは、Kiと動作時間のエラーの傾きを乗じることで調整されます。
Servo position control parameter, integral gain constant Ki. Output torque applied to motor is adjusted by multiplying Ki and summation of error over operating time.	伺服系統位置控制參數,積分增益係數即 Ki。 適用於馬達的輸出轉矩,透過與 Ki和運作時間錯誤總和相乘進行調整。	伺服位置控制参数，比例增益常数 Ki。 应用于电机的输出转矩通过乘以 Ki 及操作时间误差之和来调整。	サーボ位置制御パラメーター、積分ゲイン定数Ki。モーターに適用される出力トルクは、Kiと動作時間のエラーの合計を乗じることで調整されます。
Servo position control parameter, proportional gain constant Kp. Output torque applied to motor is adjusted by multiplying Kp and current position error	伺服系統位置控制參數,比例增益係數即 Kp。 適用於馬達的輸出轉矩,透過與 Kp 和電流位置錯誤相乘進行調整。	伺服位置控制参数，比例增益常数 Kp。 应用于电机的输出转矩通过乘以 Kp 及当前的位置误差来调整。	サーボ位置制御パラメーター、比例ゲイン定数Kp。モーターに適用される出力トルクは、Kpに現在位置エラーを乗じることで調整されます。
This value shows present supplying current. The value is 200 times the actual current in amperes.	此數值顯示當前供應電流。 此數值為實際電流的 200 倍。	该值表示当前供电电流。 该值是实际电流的 200 倍。	この値は現在の供給電流を示します。実際の電流の200倍の数値で表示されます。
This value shows present temperature of servo. The value is in degrees Celsius.	此數值顯示當前伺服系統的溫度。此數值以攝氏為單位。	该值表示当前伺服温度。 该 值以摄氏度表示。	この値は、サーボの現在の温度を示します。数値はセ氏で表示されます。
This value shows present supplying voltage of servo. The value is 16 times the actual voltage in volts.	此數值顯示當前伺服系統的供應電壓。 此數值為實際電壓的 16 倍。	该值表示当前供应伺服电压。 该值是实际电压的 16 倍。	この値は、サーボの現在の供給電圧を示します。実際の電圧の16倍の数値で表示されます。
The unique ID of each servo.	每台伺服系統的唯一ID。	各伺服电机的唯一 ID。	各サーボの固有ID
This value presents the system operating detail. The meaning is described as followed.	此數值表示系統運作詳細資料。 定義如下所述。	此数值表示系统运作详细数据。 定义如下所述。	この値はシステムの動作の詳細を表します。その意味は以下の表のとおりです。
This value presents the system operating error. The meaning is described as followed. The LED status describes corresponding alarm LED policy is set.	此數值表示系統運作錯誤。 定義如下所述。 LED 狀態說明對應警示 LED 原則已設定。	此数值表示系统运作错误。 定义如下所述。 LED 状态说明对应警示 LED 原则已设定。	この値はシステム動作エラーを表します。その意味は以下の表のとおりです。LEDステータスは対応するアラームLEDポリシーが設定されていることを示します。
Sets Torque Policy when Error is detected. 0. Disable Shut Down Operation 1. Shut Down Servo When Voltage/ Current/Temperature Is Over The Setting Value	伺服系統適用的轉矩關閉或偵測到系統錯誤時,即顯示數值。 0. 停用轉矩關閉操作 1. 電壓/電流/溫度超過設定值時,停用伺服系統轉矩輸出	该值表示应用到伺服系统的转矩是否关闭或何时检测到系统错误。 0. 禁用转矩关闭操作 1. 电压、电流、温度超过设定值时禁用伺服转矩输出	この値は、サーボに適用されたトルクのオフへの切り替えの有無、あるいはシステムエラーが検出されたタイミングを表します。 0. トルクオフ操作を無効にする 1. 圧力/電流/温度が設定値を超えると、サーボトルク出力を無効にします
Parameter description	參數說明	参数说明	パラメーター説明
Detect Motor	偵測馬達	侦测伺服电机	サーボモーターを検出します
Error	錯誤	错误	エラー
Help	說明	说明	説明
ACK Policy	ACK原則	ACK 策略	ACKポリシー

Appendix

繁體中文 | 简体中文 | 日本語

05

ENGLISH	繁體中文	简体中文	日本語
Alarm LED Policy	警示LED原則	报警器 LED 策略	アラームLEDポリシー
Calibration Angle	校正角度	校正角	校正角度
Max Load	最大負載	最大负载	最大負荷
Max Temperature	最大溫度	最高温度	最大温度
Max Voltage	最大電壓	最大电压	最大電圧
Min Voltage	最小電壓	最低电压	最小電圧
Over Load Detection Period	過載偵測時段	过载检测期间	過負荷検出期間
Over Temperature Detection Period	高溫偵測時段	过温检测期间	過熱検出期間
Over Voltage Detection Period	過電壓偵測時段	过电压检测期间	過圧検出期間
Position Control Parameter Kd	位置控制參數Kd	位置控制参数Kd	位置制御パラメーターKd
Position Control Parameter Ki	位置控制參數Ki	位置控制参数Ki	位置制御パラメーターKi
Position Control Parameter Kp	位置控制參數Kp	位置控制参数Kp	位置制御パラメーターKp
Present Load	當前負載(電流)	当前负载(电流)	現在の負荷(電流)
Present Temperature	當前溫度	当前温度	現在の温度
Present Voltage	當前電壓	当前电压	現在の電圧
ID	ID	ID	ID
Status Detail	狀態細節資料	状态详情	ステータス詳細
Reserved	已保留	已保留	予約済み
Motor Moving	馬達移動中	电机运动	モーターの動き
Motor In-Position (Position control\n\tmode only)	馬達就定位(僅限定位控制模式)	电机到位 (仅位置控制模式)	適切な位置のモーター(位置制御モー\n\tドのみ)
Torque off	轉矩停用	转矩 关	トルクオフ
Torque on (Position/Speed control)	轉矩啟用(位置/速度控制)	转矩 开 (位置/速度控制)	トルクオン(位置/速度制御)
Motor Braked	馬達已停止	制动电机	ブレーキをかけたモーター
Status Error	狀態錯誤	状态错误	ステータスエラー
Exceed Potentiometer Range Error	超出電位器範圍錯誤	超过电位器范围错误	ポテンショメーター範囲超過エラー
Over Voltage Limits Error	過電壓限制錯誤	过电压限制错误	過圧限度エラー
Over Temperature Error	高溫錯誤	过温误差	過剰温度エラー
Overload/Over-current Error	過載/過電流錯誤	过载/过电流错误	過負荷/過剰電流エラー
Requested Packet Checksum Error	要求的封包校驗錯誤	请求的数据包校验和错误	要求されたパケットチェックサムエ\n\tラー
Requested Packet Data Error	要求的封包資料錯誤	请求的数据包错误	要求されたパケットデータエラー
Requested Packet RX FIFO Error	要求的封包 RX FIFO 錯誤	请求的数据包 RX FIFO 错误	要求されたパケット RX FIFO エラー
Torque Policy	轉矩原則	转矩策略	トルクポリシー
Language	語言	语言	言語
Motor A1-16	Motor A1-16	Motor A1-16	Motor A1-16
Servo Tool v1.0	馬達編輯器 v1.0	电机编辑器 v1.0	高性能サーボモーター v1.0
Motor Parameter	馬達設定項目	伺服电机设定项目	サーボモーターパラメーター
Please choose COM Port and Connect to device	請選擇通訊埠並與設備連接	请选择通讯端口并与设备连接	COMポートを選択し、デバイスを接続してください
There are more than one servo connected to device!	有多於一個馬達連接到此設備!	有多于一个伺服电机连接到此设备!	一つより多いサーボーを接続するのデバイスがあります!
There is none servo connected to device!	沒有偵測到馬達訊號	没有侦测到伺服电机讯号	サーボーを検出されませんでした

05 Appendix

繁體中文 | 简体中文 | 日本語

ENGLISH	繁體中文	简体中文	日本語
Warning!This operation would reboot servo. Would you like to continue?	警告!此操作方式可能重新啟動馬達,請問要繼續執行嗎?	警告!此操作方式可能重新启动伺服电机,请问要继续执行吗?	警告！この操作はサーボモーターを再起動の可能になります。操作を継続しますか？
Warning!This operation would reset servo to default setting. Would you like to continue?	警告! 此操作方式可能重置馬達為預設值,請問要繼續執行嗎?	警告! 此操作方式可能重置伺服电机为默认值,请问要继续执行吗?	警告!サーボーは初期設定になるので、続けしますか？
Torque Policy	轉矩原則	转矩策略	トルクポリシー
Language	語言	语言	言語
Setting value is out of range	設定值超出範圍	设定值超出范围	パラメーターの範囲を超えます
Not connect	未連線	未联机	接続しませんでした
OK	確認	确认	確認
Please check the device is ready.	請檢查裝置是否準備就緒	请检查装置是否准备就绪	装置を確認してください
Port (Ex. COM1 or /dev/ttyUSB0)	連接阜 (Ex. COM1 or /dev/ttyUSB0)	连接阜 (Ex. COM1 or /dev/ttyUSB0)	ボート (Ex. COM1 or /dev/ttyUSB0)
Port	連接阜設定	连接阜设定	ボート設定
Position	位置	位置	ポジション
Exit Servo Tool	離開馬達編輯器	离开伺服电机编辑器	サーボモーター編集ソフトを退出します
Read	讀取	读取	読み取ります
Ready	準備就緒	准备就绪	確認します
Reboot Servo	重新啟動馬達	重新启动伺服电机	口ボットサーボモーター
Relax	洩力	泄力	リラックス
Reset servo to default setting	回復馬達原廠設定	回复伺服电机原厂设定	サーボーは初期設定をリセットします
Serial port start initialization...	序列阜正在初始化...	序列阜正在初始化...	シリアルポートを初期化します...
Set	設定	设定	設定
Setting List	設定列表	设定列表	リスト設定
Settings updated	設定完成	设定完成	Settings updated
Tool	工具	工具	ツールズ
Value	參數設定	参数设定	パラメーター設定
Warning!!	警告!!	警告!!	警告！
Set	寫入	写入	書き込みます

Appendix

Italiano | Français

05

ENGLISH	ITALIANO	FRANÇAIS
About	Su	Sur
Servos A1 - 16 are modular actuators, which combine with gear reducer, DC motor and embedded control board in one package. The servo motors provide sufficient torque to operate the robot. An added function of the motors is to provide information about internal temperature, relay power and display operational status through LED light.	I servomotori A1 - 16 sono attuatori modulari, che combinano riduttore, motore CC e quadro di comando integrato in un unico pacchetto. I servomotori forniscono una coppia sufficiente per il funzionamento del robot. Una funzione aggiuntiva dei motori è di fornire informazioni sulla temperatura interna, la potenza del relè e lo stato operativo del display tramite la spia LED.	Servos A1 - 16 sont des actionneurs modulaires, qui se combinent à un réducteur, un moteur CC et un panneau de commandes intégré en un seul ensemble. Les servomoteurs offrent un couple suffisant permettant de faire fonctionner le robot. Une des fonctions supplémentaires des moteurs est de fournir les informations sur la température interne, le relais de puissance et d'afficher l'état opérationnel grâce au voyant DEL.
About Servo Tool	Informazioni sull'editor motore	À propos de l'Éditeur moteur
Cancel	Annulla	Annuler
Capture	Acquisisci	Capture
Connect to {0}	Connetti a {0}	Se connecter à {0}
Config	Config	Config
Parameter	Parametro	Paramètre
Serial Port:	Porta seriale:	Port série :
OK	Conferma	Confirmer
Connecting…	Connecting…	Connecting…
Sets ACK Packet reply policy when Request Packet is received. 0. Only STAT command reply 1. Only EEPROM/RAM READ and STAT commands reply 2. All commands reply	Il valore indica se ritorna il pacchetto ACK o se il servomotore ha ricevuto il pacchetto richiesto. 0. Solo risposta comando STAT 1. Solo risposta comandi EEPROM/RAM RAED e STAT 2. Risposta tutti i comandi	La valeur indique s'il y a retour du paquet ACK ou si le servo reçu est un paquet demandé. 0. Réponse unique de la commande STAT 1. Réponse unique des commandes EEPROM/RAM RAED et STAT 2. Réponse de toutes les commandes
Sets ACK Packet reply policy when Request Packet is received. 0. Show System Error Alarm LED 1. User Control LED	Il valore indica se lo stato del LED cambia o se si è rilevato un errore di sistema. 0. Mostra il LED di allarme errore di sistema 1. LED di controllo utente	La valeur indique si l'état du DEL change ou si une erreur de système est détectée. 0. Montre le voyant DEL l'alarme d'erreur de système 1. DEL de contrôle de l'utilisateur
This value is used to calibrate the central point. The calibrated position is equal to absolute position plus calibration angle and used in position control. The value is 0.969°/count. For example, 0.969° is represented as value 3.	Questo valore viene utilizzato per calibrare il punto centrale. La posizione calibrata è uguale alla posizione assoluta più l'angolo di calibrazione e viene utilizzato per la regolazione della posizione. Il valore è 0,969°/conteggio. Ad esempio, 0,969° viene rappresentato come valore 3.	Cette valeur est utilisée pour étalonner le point central. La position étalonnée est égale à la position absolue plus l'angle d'étalonnage et utilisée en contrôle de position. La valeur est de 0,969°/compte. Par exemple, 0,969° est représenté comme la valeur 3.
The maximum value of A1-16 servo operating current. The value is 200 times the actual current in amperes.	Valore massimo di corrente operativa dei servomotori A1-16. Il valore è 16 volte la tensione effettiva.	Valeur maximum du courant de fonctionnement du servo A1-16. La valeur équivaut à 16 fois la tension réelle.
The limitation of A1-16 servo operating temperature. The value is in degrees Celsius.	Limite di temperatura operativa dei servomotori A1-16. Il valore è in gradi Celsius.	Limitation de la température de fonctionnement du servo A1-16. La valeur est exprimée en degrés Celsius.
The maximum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	Valore massimo di tensione operativa dei servomotori A1-16. Il valore è 16 volte la tensione effettiva.	Valeur maximum de la tension de fonctionnement du servo A1-16. La valeur équivaut à 16 fois la tension réelle.
The minimum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	Valore minimo di tensione operativa dei servomotori A1-16. Il valore è 16 volte la tensione effettiva.	Valeur minimum de la tension de fonctionnement du servo A1-16. La valeur équivaut à 16 fois la tension réelle en tension.
Over current error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Periodo di controllo errore di sovraccarico. Il valore è 10 ms/Tick. Ad esempio, 120 ms viene rappresentato come valore 12.	Période de vérification de l'erreur de surintensité. La valeur est de 10ms/Tick. Par exemple, 120 ms est représenté comme la valeur 12.

05 Appendix

Italiano | Français

ENGLISH	ITALIANO	FRANÇAIS
Over temperature error check period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Periodo di controllo errore surriscaldamento. Il valore è 10 ms/Tick. Ad esempio, 120 ms viene rappresentato come valore 12.	Période de vérification d'erreur de surtempérature. La valeur est de 10ms/Tick. Par exemple, 120 ms est représenté comme la valeur 12.
Over/under voltage error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Periodo di controllo errore di sovratensione/ sottotensione. Il valore è 10 ms/Tick. Ad esempio, 120 ms viene rappresentato come valore 12.	Période de vérification de l'erreur de sur/ sous tension. La valeur est de 10ms/Tick. Par exemple, 120 ms est représenté comme la valeur 12.
Servo position control parameter, derivative gain constant Ki. Output torque applied to motor is adjusted by multiplying Kd and slope of error over operating time.	Parametro di regolazione posizione servomotore, Ki costante guadagno derivativo. La coppia di uscita applicata al motore viene regolata moltiplicando Kd per la pendenza di errore nel tempo di funzionamento.	Paramètre de contrôle de position du servo, constante Ki du gain dérivé. Le couple de sortie appliqué au moteur est ajusté en multipliant Kd et la pente d'erreur sur la durée de fonctionnement.
Servo position control parameter, integral gain constant Ki. Output torque applied to motor is adjusted by multiplying Ki and summation of error over operating time.	Parametro di regolazione posizione servomotore, Ki costante guadagno integrale. La coppia di uscita applicata al motore viene regolata moltiplicando Ki per la somma di errore nel tempo di funzionamento.	Paramètre de contrôle de position du servo, constante Ki du gain intégral. Le couple de sortie appliqué au moteur est ajusté en multipliant Ki avec la somme de l'erreur sur la durée de fonctionnement.
Servo position control parameter, proportional gain constant Kp. Output torque applied to motor is adjusted by multiplying Kp and current position error	Parametro di regolazione posizione servomotore, Kp costante guadagno proporzionale. La coppia di uscita applicata al motore viene regolata moltiplicando Kp per l'errore di posizione attuale	Paramètre de contrôle de position du servo, constante Kp du gain proportionnel. Le couple de sortie appliqué au moteur est ajusté en multipliant Kp et l'erreur de position actuelle
This value shows present supplying current. The value is 200 times the actual current in amperes.	Questo valore indica la corrente attualmente fornita. Il valore è 200 volte la corrente effettiva.	Cette valeur indique le courant d'alimentation actuel. La valeur équivaut à 200 fois le courant actuel.
This value shows present temperature of servo. The value is in degrees Celsius.	Questo valore indica la tensione attuale del servomotore. Il valore è in gradi Celsius.	Cette valeur indique la température actuelle du servo. La valeur est exprimée en degrés Celsius.
This value shows present supplying voltage of servo. The value is 16 times the actual voltage in volts.	Questo valore indica la tensione attualmente fornita del servomotore. Il valore è 16 volte la tensione effettiva.	Cette valeur indique la tension d'alimentation actuelle du servo. La valeur équivaut à 16 fois la tension réelle.
The unique ID of each servo.	ID univoco di ogni servomotore.	L'ID unique de chaque servo.
This value presents the system operating detail. The meaning is described as followed.	Questo valore indica i dettagli di funzionamento del sistema. Il significato viene descritto di seguito.	Cette valeur indique les détails du système d'exploitation. La signification est décrite comme suit.
This value presents the system operating error. The meaning is described as followed. The LED status describes corresponding alarm LED policy is set.	Questo valore indica l'errore di funzionamento del sistema. Il significato viene descritto di seguito. Lo stato del LED descrive i criteri del relativo LED di allarme impostato.	Cette valeur présente l'erreur du système d'exploitation. La signification est décrite comme suit. L'état du voyant DEL indique que la politique de la DEL d'alarme est paramétrée.
Sets Torque Policy when Error is detected. 0. Disable Shut Down Operation 1. Shut Down Servo When Voltage/ Current/Temperature Is Over The Setting Value	Il valore indica se la coppia applicata al servomotore si disattiva e se è stato rilevato un errore di sistema. 0. Disabilita l'operazione Coppia Off 1. Disabilita l'uscita di coppia servomotore quando la tensione/corrente/temperatura supera il valore impostato	La valeur indique si le couple appliqué au servo s'éteint ou si une erreur de système a été détectée. 0. Désactive le fonctionnement du couple 1. Désactive la sortie du couple de servo si la tension/ le courant/ la température excède la valeur de réglage
Parameter description	Descrizione parametro	Description du paramètre
Detect Motor	Rileva motore	Détecter Moteur
Error	Errore	Erreur
Help	Aiuto	Aidez-moi
ACK Policy	Criteri ACK	Politique de ACK
Alarm LED Policy	Criteri LED di allarme	Politique de DEL d'alarme
Calibration Angle	Angolo di calibrazione	Angle d'étalonnage
Max Load	Carico max.	Charge maximum
Max Temperature	Temperatura max.	Température maximum
Max Voltage	Tensione max.	Tension maximum

Appendix

Italiano | Français

05

ENGLISH	ITALIANO	FRANÇAIS
Min Voltage	Tensione min.	Tension minimum
Over Load Detection Period	Periodo di rilevamento sovraccarico	Période de détection de surcharge
Over Temperature Detection Period	Periodo di rilevamento surriscaldamento	Période de détection de surtempérature
Over Voltage Detection Period	Periodo di rilevamento sovratensione	Période de détection de surtension
Position Control Parameter Kd	Kd parametro di regolazione posizione	Paramètre Kd de contrôle de position
Position Control Parameter Ki	Ki parametro di regolazione posizione	Paramètre Ki de contrôle de position
Position Control Parameter Kp	Kp parametro di regolazione posizione	Paramètre Kp de contrôle de position
Present Load	Carico attuale (corrente)	Charge actuelle (courant)
Present Temperature	Temperatura attuale	Température actuelle
Present Voltage	Tensione attuale	Tension actuelle
ID	ID	ID
Status Detail	Dettagli di stato	Détails de l'état
Reserved	Riservato	Réservé
Motor Moving	Movimento motore	Déplacement du moteur
Motor In-Position (Position control\n\tmode only)	Motore in posizione (solo modalità di regolazione posizione)	Moteur en-position (Mode de \n\tcontrôle de position uniquement)
Torque off	Coppia Off	Couple désactivé
Torque on (Position/Speed control)	Coppia On (regolazione posizione/velocità)	Couple activé (Position/Contrôle de \n\tla vitesse)
Motor Braked	Motore frenato	Moteur freiné
Status Error	Errore di stato	Erreur d'état
Exceed Potentiometer Range Error	Errore gamma potenziometro superata	Erreur de dépassement de la plage \n\tdu potentiomètre
Over Voltage Limits Error	Errore limiti di sovratensione	Erreur de limites de surtension
Over Temperature Error	Errore surriscaldamento	Erreur de surtempérature
Overload/Over-current Error	Errore sovraccarico/sovracorrente	Erreur de sur/sous charge de \n\tcourant
Requested Packet Checksum Error	Errore checksum pacchetto richiesto	Erreur de la somme de contrôle du \n\tpaquet demandé
Requested Packet Data Error	Errore dati pacchetto richiesto	Erreur de données du paquet demandé
Requested Packet RX FIFO Error	Errore RX FIFO pacchetto richiesto	Erreur RX FIFO du paquet \n\tdemandé
Torque Policy	Criteri di coppia	Politique de couple
Language	Lingua	La langue
Motor A1-16	Motor A1-16	Motor A1-16
Servo Tool v1.0	Editor servomotori intelligenti v1.0	Éditeur Smart Servo v1.0
Motor Parameter	Parametro motore	Paramètre Moteur
Please choose COM Port and Connect to device	Selezionare la porta COM e connettere al dispositivo	Veuillez choisir le port COM et vous connecter au dispositif
There are more than one servo connected to device!	È presente più di un servo connesso al dispositivo!	Il y a plus d'un servo connecté au dispositif !
There is none servo connected to device!	Nessun servo rilevato	Aucun servo n'a été détecté
Warning!This operation would reboot servo. Would you like to continue?	Avviso! Questa operazione potrebbe riavviare il servomotore. Continuare?	Avertissement ! Cette opération va redémarrer Servo. Voulez-vous continuer ?
Warning!This operation would reset servo to default setting. Would you like to continue?	Avvertenza! Questa operazione ripristina le impostazioni predefinite del servo. Continuare?	Attention ! Cette opération va réinitialiser les réglages du servo par défaut. Voulez-vous continuer ?
Torque Policy	Valore di impostazione fuori range	La valeur de réglage est hors de portée
Language	Non connesso	Non connecté
Setting value is out of range	OK	OK

05 Appendix

Italiano | Français

ENGLISH	ITALIANO	FRANÇAIS
Not connect	Controllare che il dispositivo sia pronto.	Veuillez vérifier que l'appareil est prêt.
OK	Port (Ex. COM1 or /dev/ttyUSB0)	Port (Ex. COM1 or /dev/ttyUSB0)
Please check the device is ready.	Impostazione porta	Réglage du port
Port (Ex. COM1 or /dev/ttyUSB0)	Port (Ex. COM1 or /dev/ttyUSB0)	Port (Ex. COM1 or /dev/ttyUSB0)
Port	Impostazione porta	Réglage du port
Position	Posizione	Position
Exit Servo Tool	Esci da editor motore	Quitter l'Éditeur moteur
Read	Leggi	Lire
Ready	Pronto	Prêt
Reboot Servo	Riavvia servomotore	Redémarrer Servo
Relax	Relax	Relâche
Reset servo to default setting	ripristina impostazioni predefinite servo	Réinitialiser les réglages du servo par défaut
Serial port start initialization...	Inizializzazione avvio porta seriale...	Initialisation du démarrage du port série...
Set	Imposta	Régler
Setting List	Elenco impostazioni	Liste des réglages
Settings updated	Impostazioni aggiornate	Paramètres mis à jour
Tool	Utensili	Outils
Value	Valore	Valeur
Warning!!	Avviso!!	Avertissement !!
Set	Imposta	Régler

Appendix

Español | Deutsche

05

ENGLISH	ESPAÑOL	DEUTSCHE
About	Sobre	über
Servos A1 - 16 are modular actuators, which combine with gear reducer, DC motor and embedded control board in one package. The servo motors provide sufficient torque to operate the robot. An added function of the motors is to provide information about internal temperature, relay power and display operational status through LED light.	Los servomecanismos A1 - 16 son accionadores modulares que se combinan con el reductor de engranajes, el motor de CC y la placa de control integrada en un paquete. Los servomotores proporcionan un par de fuerzas suficiente para operar el robot. Una función añadida de los motores es proporcionar información acerca de la temperatura interna y la potencia del relé, así como mostrar el estado operativo a través de indicadores luminosos LED.	Die Servos A1 - 16 sind modulare Stellglieder, die mit Getriebe, Gleichstrommotor und eingebetteter Steuerungsplatine kombiniert sind. Die Servomotoren liefern genügend Drehkraft zum Betreiben des Roboters. Eine zusätzliche Funktion der Motoren ist die Bereitstellung von Informationen über interne Temperatur, Relaisleistung und Anzeigebetriebsstatus über LEDs.
About Servo Tool	Acerca del editor de movimiento	Über den Motoreditor
Cancel	Cancelar	Abbrechen
Capture	Capturar	Erfassen
Connect to {0}	Conectar con {0}	Verbinden mit {0}
Config	Configuración	Konfig.
Parameter	Parámetro	Parameter
Serial Port:	Puerto serie:	Serieller Port:
OK	Confirmar	Bestätigen
Connecting…	Connecting…	Connecting…
Sets ACK Packet reply policy when Request Packet is received. 0. Only STAT command reply 1. Only EEPROM/RAM READ and STAT commands reply 2. All commands reply	Valor presente cuando el paquete ACK regresa o cuando el servomecanismo recibió un paquete solicitado. 0. Solo la respuesta del comando STAT 1. Sólo la respuesta de los comandos EEPROM/RAM RAED y STAT 2. Respuesta de todos los comandos	Der Wert gibt an, wann das ACK-Paket zurückkehrt oder wann der Servo ein angefordertes Paket erhalten hat. 0. Nur STAT-Befehlsantwort 1. Nur EEPROM/RAM-RAED- und STAT-Befehlsantwort 2. Antwort auf alle Befehle
Sets ACK Packet reply policy when Request Packet is received. 0. Show System Error Alarm LED 1. User Control LED	Valor presente si el estado del LED cambia o cuando se detecta un error del sistema. 0. Mostar LED de alarma de error del sistema 1. LED de control del usuario	Der Wert gibt an, ob sich der LED-Status ändert oder wann ein Systemfehler erkannt wird. 0. Alarm-LED bei Systemfehler anzeigen 1. Nutzersteuerung-LED
This value is used to calibrate the central point. The calibrated position is equal to absolute position plus calibration angle and used in position control. The value is 0.969°/count. For example, 0.969° is represented as value 3.	Este valor se utiliza para calibrar el punto central. La posición calibrada es igual a la posición absoluta más el ángulo de calibración y se utiliza en control de posición. El valor es de 0,969°/recuento. Por ejemplo, 0,969° se representa como el valor 3.	Dieser Wert dient zur Kalibrierung des zentralen Punkts. Die kalibrierte Position entspricht der absoluten Position plus dem Kalibrierungswinkel und wird in der Positionssteuerung verwendet. Der Wert beträgt 0,969 °/Anzahl. Beispielsweise werden 0,969 ° mit dem Wert 3 angegeben.
The maximum value of A1-16 servo operating current. The value is 200 times the actual current in amperes.	Valor máximo de la corriente de funcionamiento de los servomecanismos A1-16. El valor es 16 veces el voltaje real.	Der Höchstwert des Betriebsstroms des Servos A1-16. Der Wert entspricht dem 16-Fachen der tatsächlichen Spannung.
The limitation of A1-16 servo operating temperature. The value is in degrees Celsius.	Limitación de la temperatura de funcionamiento de los servomecanismos A1-16. El valor se da en grados centígrados.	Der Höchstwert der Betriebstemperatur des Servos A1-16. Der Wert wird in Grad Celsius angegeben.
The maximum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	Valor máximo del voltaje de funcionamiento de los servomecanismos A1-16. El valor es 16 veces el voltaje real.	Der Höchstwert der Betriebsspannung des Servos A1-16. Der Wert entspricht dem 16-Fachen der tatsächlichen Spannung.
The minimum value of A1-16 servo operating voltage. The value is 16 times the actual voltage in volts.	Valor mínimo del voltaje de funcionamiento de los servomecanismos A1-16. El valor es 16 veces el voltaje real.	Der Mindestwert der Betriebsspannung des Servos A1-16. Der Wert entspricht dem 16-Fachen der tatsächlichen Spannung.
Over current error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Período de comprobación del error de exceso de corriente. El valor es de 10 ms/marca. Por ejemplo, 120 ms se representa como el valor 12.	Zeitraum zur Prüfung auf Überstrom. Der Wert ist 10 ms/Tick. Beispielsweise werden 120 ms mit dem Wert 12 angegeben.

05 Appendix

Español | Deutsche

ENGLISH	ESPAÑOL	DEUTSCHE
Over temperature error check period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Período de comprobación del error de exceso de temperatura. El valor es de 10 ms/marca. Por ejemplo, 120 ms se representa como el valor 12.	Zeitraum zur Prüfung von Überhitzungsfehlern. Der Wert ist 10 ms/Tick. Beispielsweise werden 120 ms mit dem Wert 12 angegeben.
Over/under voltage error's checking period. The value is 10ms/Tick. For example, 120 ms is represented as value 12.	Período de comprobación del error de exceso o deficiencia de voltaje. El valor es de 10 ms/marca. Por ejemplo, 120 ms se representa como el valor 12.	Zeitraum zur Prüfung auf Über-/Unterspannungsfehler. Der Wert ist 10 ms/Tick. Beispielsweise werden 120 ms mit dem Wert 12 angegeben.
Servo position control parameter, derivative gain constant Ki. Output torque applied to motor is adjusted by multiplying Kd and slope of error over operating time.	Parámetro de control de posición del servomecanismo, constante de ganancia derivada Ki. El par de fuerzas de salida aplicado al motor se ajusta multiplicando Kd y el gradiente del error sobre el tiempo de funcionamiento.	Servopositionssteuerungsparameter, derivative Verstärkungskonstante Kd. Der auf den Motor angewandte Ausgabedrehmoment wird durch Multiplikation von Kd und der Neigung der Fehler während der Betriebszeit angepasst.
Servo position control parameter, integral gain constant Ki. Output torque applied to motor is adjusted by multiplying Ki and summation of error over operating time.	Parámetro de control de posición del servomecanismo, constante de ganancia integral Ki. El par de fuerzas de salida aplicado al motor se ajusta multiplicando Ki y la suma del error sobre el tiempo de funcionamiento.	Servopositionssteuerungsparameter, integrale Verstärkungskonstante Ki. Der auf den Motor angewandte Ausgabedrehmoment wird durch Multiplikation von Ki und der Summe der Fehler während der Betriebszeit angepasst.
Servo position control parameter, proportional gain constant Kp. Output torque applied to motor is adjusted by multiplying Kp and current position error	Parámetro de control de posición del servomecanismo, constante de ganancia proporcional Kp. El par de fuerzas de salida aplicado al motor se ajusta multiplicando Kp y el error de la posición actual.	Servopositionssteuerungsparameter, proportionale Verstärkungskonstante Kp. Der auf den Motor angewandte Ausgabedrehmoment wird durch Multiplikation von Kp und aktuellem Positionsfehler angepasst.
This value shows present supplying current. The value is 200 times the actual current in amperes.	Este valor muestra la corriente actual que se suministra. El valor es 200 veces la corriente real.Reservado	Dieser Wert zeigt den gegenwärtigen Versorgungsstrom. Der Wert entspricht dem 200-Fachen der tatsächlichen Stromstärke.
This value shows present temperature of servo. The value is in degrees Celsius.	Este valor muestra la temperatura presente del servomecanismo. El valor se da en grados centígrados.	Dieser Wert zeigt die gegenwärtige Temperatur des Servos. Der Wert wird in Grad Celsius angegeben.
This value shows present supplying voltage of servo. The value is 16 times the actual voltage in volts.	Este valor muestra el voltaje de suministro presente del servomecanismo. El valor es 16 veces el voltaje real.	Dieser Wert zeigt die gegenwärtige Versorgungsspannung des Servos. Der Wert entspricht dem 16-Fachen der tatsächlichen Spannung.
The unique ID of each servo.	Identificador único de cada servomecanismo.	Die eindeutige ID jedes Servos.
This value presents the system operating detail. The meaning is described as followed.	Este valor presenta los detalles de funcionamiento del sistema. El significado se describe a continuación.	Dieser Wert präsentiert die Systembetriebsdetails. Die Bedeutung wird nachfolgend beschrieben.
This value presents the system operating error. The meaning is described as followed. The LED status describes corresponding alarm LED policy is set.	Este valor presenta el error de funcionamiento del sistema. El significado se describe a continuación. El estado del LED describe que la política de LED de alarma correspondiente está establecida.	Dieser Wert präsentiert den Systembetriebsfehler. Die Bedeutung wird nachfolgend beschrieben. Der LED-Status beschreibt entsprechend der festgelegten Alarm-LED-Richtlinie.
Sets Torque Policy when Error is detected. 0. Disable Shut Down Operation 1. Shut Down Servo When Voltage/ Current/Temperature Is Over The Setting Value	Valor presente si el par de fuerzas aplicado al servomecanismo se desactiva o cuando se detecta un error del sistema. 0. Deshabilitar la operación de desactivación del par de fuerzas 1. Deshabilitar la salida del par de fuerzas del servomecanismo cuando el voltaje, la corriente o la temperatura es superior al valor establecido	Der Wert gibt an, ob bei Abschaltung oder Erkennung eines Systemfehlers Drehkraft auf den Servo angewandt wird. 0. Drehkraft bei Abschaltung deaktivieren 1. Servo-Drehmomentausgabe deaktivieren, wenn Spannung/Strom/Temperatur den eingestellten Wert übersteigt
Parameter description	Descripción del parámetro	Parameterbeschreibung
Detect Motor	Detectar motor	Motor erkennen
Error	Error	Fehler
Help	Ayuda	Hilfe
ACK Policy	Política ACK	ACK-Richtlinie
Alarm LED Policy	Política de LED de alarma	Alarm-LED-Richtlinie

Appendix

Español | Deutsche

05

ENGLISH	ESPAÑOL	DEUTSCHE
Calibration Angle	Ángulo de calibración	Kalibrierungswinkel
Max Load	Carga máxima	Max. Last
Max Temperature	Temperatura máxima	Max. Temperatur
Max Voltage	Voltaje máximo	Max. Spannung
Min Voltage	Temperatura máxima	Min. Spannung
Over Load Detection Period	Período de detección de exceso de carga	Überlastungserkennungszeitraum
Over Temperature Detection Period	Período de detección de exceso de temperatura	Überhitzungserkennungszeitraum
Over Voltage Detection Period	Período de detección de exceso de voltaje	Überspannungserkennungszeitraum
Position Control Parameter Kd	Parámetro Kd de control de posición	Positionssteuerungsparameter Kd
Position Control Parameter Ki	Parámetro Ki de control de posición	Positionssteuerungsparameter Ki
Position Control Parameter Kp	Parámetro Kp de control de posición	Positionssteuerungsparameter Kp
Present Load	Carga presente (corriente)	Gegenwärtige Last (Strom)
Present Temperature	Temperatura presente	Gegenwärtige Temperatur
Present Voltage	Voltaje presente	Gegenwärtige Spannung
ID	Identificador	ID
Status Detail	Detalles del estado	Statusdetails
Reserved	Reservado	Reserviert
Motor Moving	Motor en movimiento	Motor in Bewegung
Motor In-Position (Position control\n\tmode only)	Motor en posición (solo modo de \n\tcontrol de posición)	Motor in Position (nur Positionssteuerungsmodus)
Torque off	par de fuerzas desactivado	Drehkraft ausgeschaltet
Torque on (Position/Speed control)	par de fuerzas activado (control de \n\tposición y velocidad).	Drehkraft eingeschaltet (Positions-/ Geschwindigkeitssteuerung)
Motor Braked	Motor frenado	Motor gebremst
Status Error	Error de estado	Statusfehler
Exceed Potentiometer Range Error	Error de intervalo del potenciómetro \n\ tsuperado	Fehler aufgrund von überschrittenem Potentiometerbereich
Over Voltage Limits Error	Error de límites de exceso de voltaje	Fehler aufgrund überschrittener Spannungsgrenzen
Over Temperature Error	Error de exceso de temperatura	Fehler aufgrund von Überhitzung
Overload/Over-current Error	Error de exceso de carga o exceso \n\tde corriente	Fehler aufgrund von Überlastung/Überstrom
Requested Packet Checksum Error	Error de suma de comprobación del \n\ tpaquete solicitado	Fehler bei angefragter Paketprüfsumme
Requested Packet Data Error	Error de datos del paquete \n\tsolicitado	Fehler bei angefragten Paketdaten
Requested Packet RX FIFO Error	Error FIFO RX del paquete \n\tsolicitado	Fehler bei angefragtem Paket-RX-FIFO
Torque Policy	Política de par de fuerzas	Drehmomentrichtlinie
Language	Idioma	Sprache
Motor A1-16	Motor A1-16	Motor A1-16
Servo Tool v1.0	Editor de servosistemas inteligentes v1.0	Intelligenter Servoeditor v1.0
Motor Parameter	Parámetro del motor	Motorparameter
Please choose COM Port and Connect to device	Elija el puerto COM y conecte el dispositivo.	Bitte COM-Port wählen und Verbindung zum Gerät herstellen
There are more than one servo connected to device!	¡Hay más de un servosistema conectado al dispositivo!	Es ist mehr als ein Servo mit dem Gerät verbunden!
There is none servo connected to device!	No se ha detectado ningún servosistema.	Es wurde kein Servo erkannt
Warning!This operation would reboot servo. Would you like to continue?	¡Advertencia! Esta operación reiniciará el servosistema. ¿Desea continuar?	Warnung! Dieser Vorgang würde den Servo neu starten. Möchten Sie fortfahren?

05 Appendix

Español | Deutsche

ENGLISH	ESPAÑOL	DEUTSCHE
Warning!This operation would reset servo to default setting. Would you like to continue?	¡Advertencia! Esta operación restablecerá la configuración predeterminada del servosistema. ¿Desea continuar?	Warnung! Mit diesem Vorgang setzen Sie den Servo auf seine Standardeinstellungen zurück. Möchten Sie fortfahren?
Setting value is out of range	Valor de configuración fuera de intervalo	Einstellungswert liegt außerhalb des Bereichs
Not connect	No conectado	Nicht verbunden
OK	OK	OK
Please check the device is ready.	Compruebe que el dispositivo esté preparado.	Bitte prüfen, ob Gerät bereit ist.
Port (Ex. COM1 or /dev/ttyUSB0)	Port (Ex. COM1 or /dev/ttyUSB0)	Port (Ex. COM1 or /dev/ttyUSB0)
Port	Configuración de puerto	Porteinstellung
Position	Posición	Position
Exit Servo Tool	Salir del editor de motores	Motoreditor verlassen
Read	Leer	Lesen
Ready	Preparado	Bereit
Reboot Servo	Reiniciar servosistema	Servo neu starten
Relax	Relax	Entspannen
Reset servo to default setting	restablecer la configuración predeterminada del servosistema	Servo auf Standardeinstellungen rücksetzen
Serial port start initialization...	Inicialización del puerto serie...	Serieller Port beginnt mit Initialisierung...
Set	Establecer	Einstellen
Setting List	Lista de configuraciones	Einstellungsliste
Settings updated	Ajustes actualizados	Update der Einstellungen erfolgt.
Tool	Instrumentos	Werkzeuge
Value	Valor	Wert
Warning!!	¡Advertencia!	Warnung!
Set	Establecer	Einstellen