

Ezi-SERVOII-EC operation manual for < **Elmo** ^{MC} 'Maestro' >

Motion Control



Ezi-SERVOII-EC data Download

Confidential

[ESI(XML)]

ESI(XML) : Download from www.fastech.co.kr webpage [FASTECH Archive]

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Date : 15-09-07 15:28

Click

List Write

[Software Program] [Setup] Ezi-SERVO II EtherCAT & S-SERVO ErhetCAT ESI (XML)

Name : 관리자

Hit : 426

FASTECH_Ezi-SERVO2_EtherCAT.XML (176.2K) [33] DATE : 2015-10-12 0

Ezi-SERVO II EtehrCAT Slave Information (XML)
S-SERVO EtehrCAT Slave Information (XML)

EtherCAT Slave information (ESI) is intergrated into the one *.xml file.

Ezi-SERVOII-EC data Download

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[Manual]

Manual : Download from www.fastech.co.kr webpage [Product information]



Ezi-Servo II EtherCAT series

풍부한 기술력과 경쟁력을 가진 파스텍(주)을 소개합니다

Ezi-SERVO II EtherCAT series

HOME > Production info >

Product Information

- Fastech Product Specifications
- Ezi-SERVO series
- Ezi-SERVO II EtherCAT series
 - MC4N
- Ezi-STEP series
- Ezi-LinearStep series
- Ezi-Robo series
- S-SERVO series
- Ezi-MOTIONGATE series
- Ezi-Motionlink series
- Motor Selection Tool

Ezi-SERVO II EtherCAT
Closed Loop Stepping System

EtherCAT
Conformance tested



Ezi-SERVO II EtherCAT Series is combination package between Fastech's Closed Loop Stepping Motor Drive/Controller system and Ethernet based Fieldbus EtherCAT. Ezi-SERVO II EtherCAT supports CiA402 Drive Profile.

Click

- CiA 402 Drive Profile Support
- Closed Loop Stepping System
 - No Gain Tuning / No Hunting
- Torque Improvement by Boost Current Control

SPEC PART NUMBERING & DRAWING CATALOGUE **MANUAL**

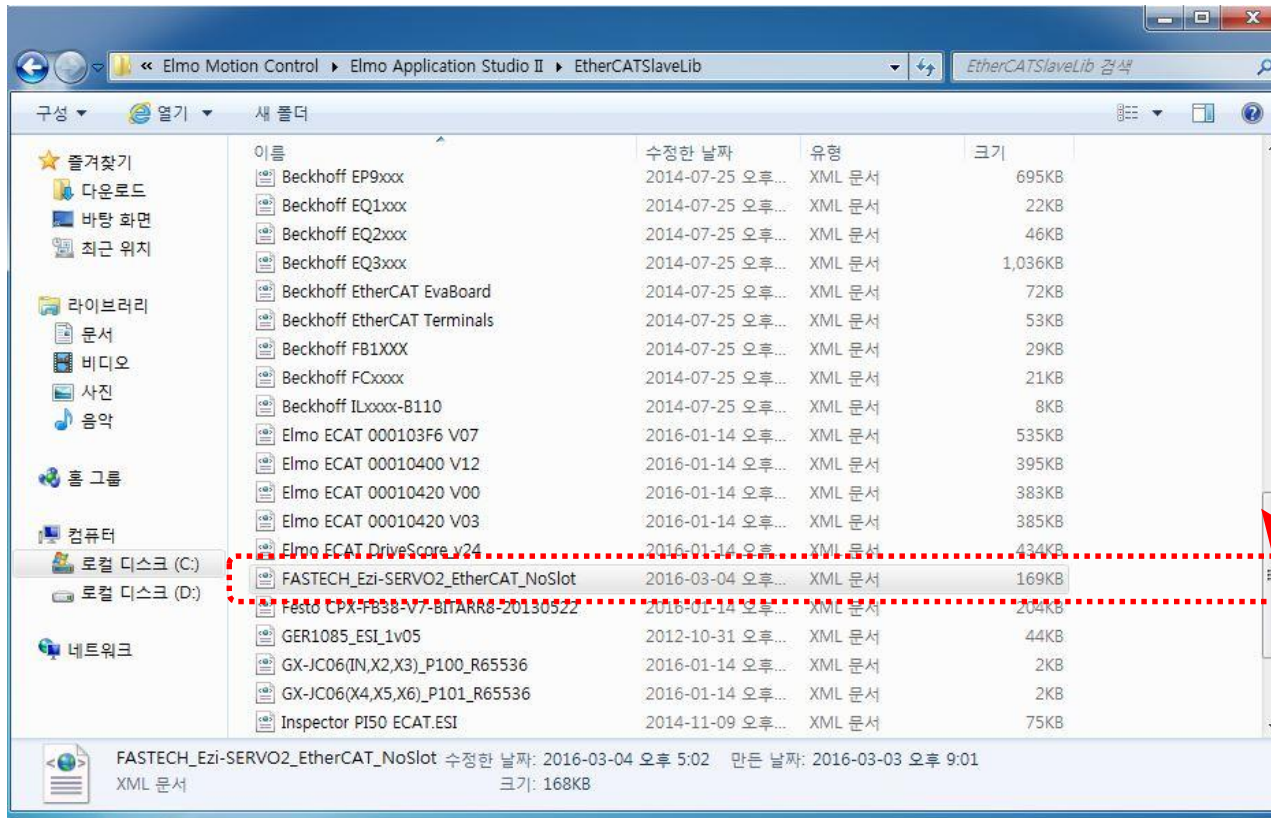
Ezi-SERVO
Closed Loop Stepping System

ESI(XML) file save

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Make copy of ESI (XML) file from FASTECH website through below path

Path : C:\Program Files (x86)\Elmo Motion Control\Elmo Application Studio II\EtherCATSlaveLib



FASTECH
ESI(XML)file

■ PC Setting [IP address change]

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❑ Change Ethernet networks 'IP addresses' & Subnet Mask ' on the PC connected to the Maestro, '

Internet Protocol Version 4 (TCP/IPv4) 속성

일반

네트워크가 IP 자동 설정 기능을 지원하면 IP 설정이 자동으로 할당되도록 할 수 있습니다. 지원하지 않으면, 네트워크 관리자에게 적절한 IP 설정값을 문의해야 합니다.

자동으로 IP 주소 받기(O)

다음 IP 주소 사용(S):

IP 주소(I): 192 . 168 . 1 . 2

서브넷 마스크(U): 255 . 255 . 255 . 0

기본 게이트웨이(D): . . .

자동으로 DNS 서버 주소 받기(B)

다음 DNS 서버 주소 사용(E):

기본 설정 DNS 서버(P): . . .

보조 DNS 서버(A): . . .

끝낼 때 설정 유효성 검사(L)

고급(V)...

확인 취소

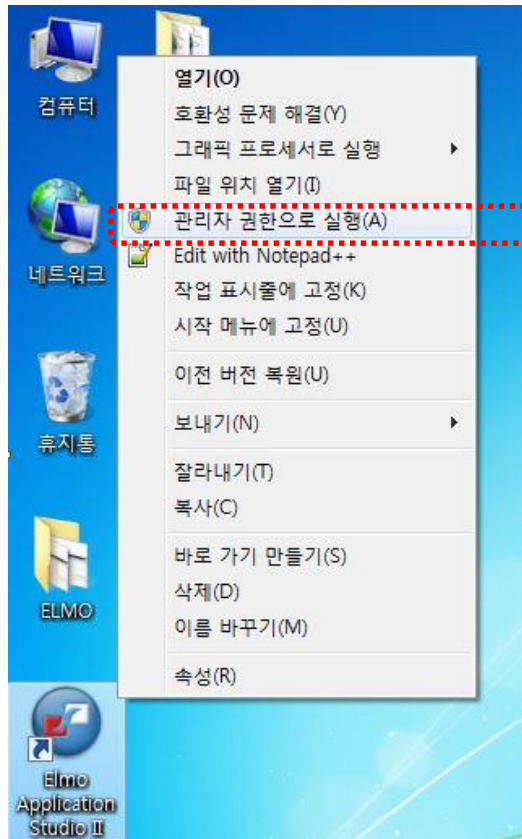
ex) Not to use "3" at the end of address

- Setting not to conflict to connection to Master
- In case of Gold Maestro use IP address 192.168.1.3

Elmo Application Studio II [Execute GUI] Confidential

Elmo Application Studio II

EXE file is created on wallpaper



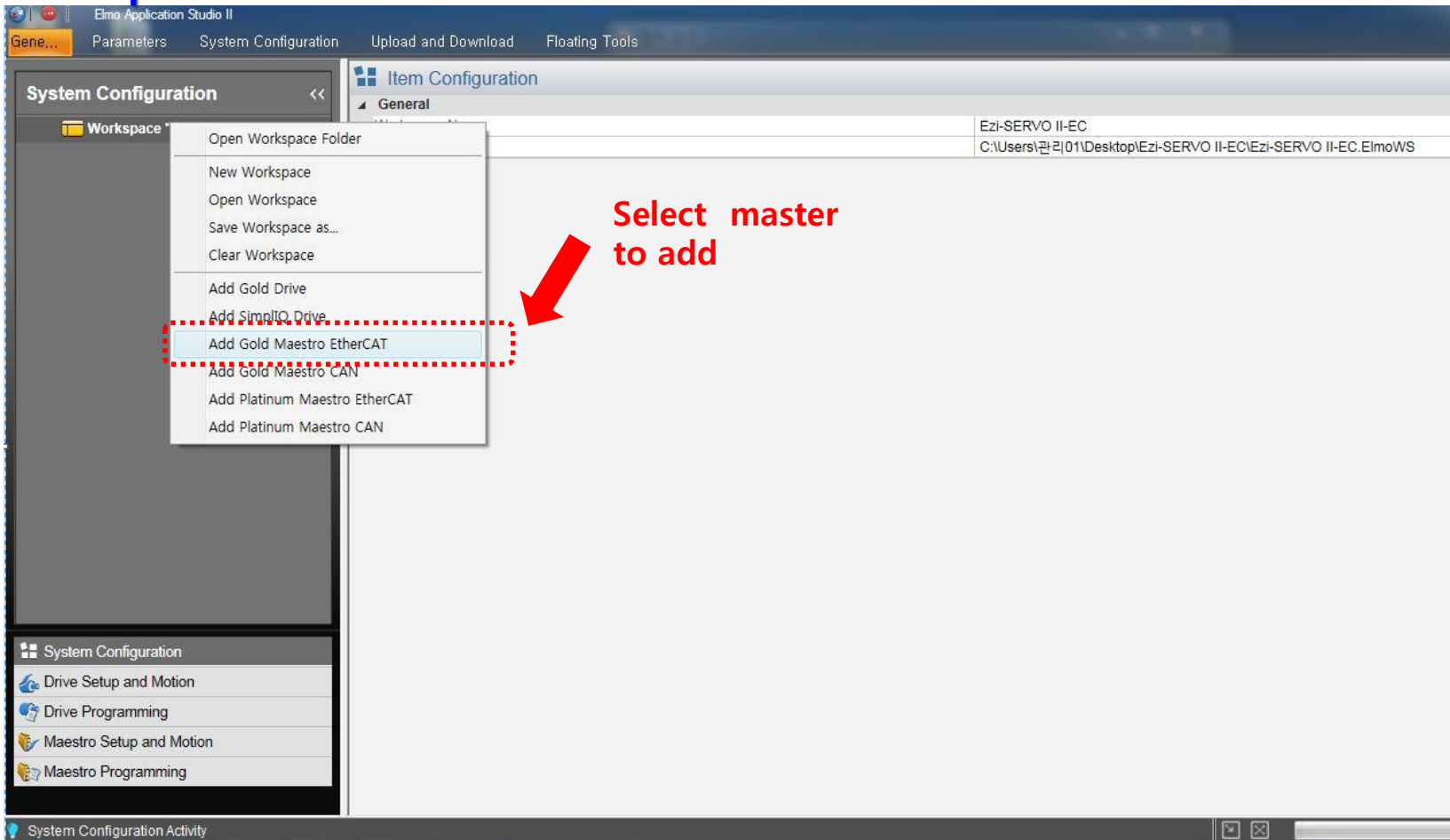
Execute to
administration authority

- Release the Window Firewall before execution
- Implement all functions in it's GUI without making seperate Init File.

1. Master Set up [Add to new Master]

Confidential

❑ Click to right button of mouse to add new master from the new Workspace



1. Master Set up [Add to new Master]

Confidential

Basic setting of created Master (G01)

The screenshot shows the 'Item Configuration' window for target G01. The configuration is as follows:

| Property | Value |
|--------------------------|--------------------------|
| Target Name | G01 |
| Target Version | Unknown |
| Target Type | Gold Maestro EtherCAT |
| Cycle Time | 1000 |
| Mailbox Cycle Time | 5000 |
| Background Cycle Time | 100 |
| Receive f.b. status | <input type="checkbox"/> |
| Target Connection | |
| Connection Type | Maestro TCP/IP |
| IP Address | 192.168.1.3 |
| Maestro Network | |
| Network Type | ETHERCAT |
| Gateway | |
| Auto Connect Gateways | <input type="checkbox"/> |
| Auto Disconnect Gateways | <input type="checkbox"/> |
| Host Interface | |
| Host IP Address | 192.168.1.2 |

The 'IP Address' field in the 'Target Connection' section is highlighted in blue. A red dashed box encloses the 'Target Connection', 'Maestro Network', and 'Host Interface' sections. A red arrow points to the 'Target Connection' section. The text 'Target Connection' Setting as below pic.' is written in red next to the arrow.

Host IP Address is IP Address of PC

1. Master Set up [Add to new Master]

Confidential

❑ Searching connected EtherCAT Slave after setting

Elmo Application Studio II

System Configuration

Workspace "Ezi-SERVO II-EC"

G01

Item Configuration

G01:192.168.1.3

General

| | |
|--------------------------|--------------------------|
| Target Name | G01 |
| Target Version | Unknown |
| Response Time | 1000 |
| Cycle Time | 5000 |
| Cycle Tolerance | 100 |
| Auto Disconnect Gateways | <input type="checkbox"/> |
| Auto Disconnect Gateways | <input type="checkbox"/> |

Connection

| | |
|------------|----------------|
| Type | Maestro TCP/IP |
| IP Address | 192.168.1.3 |
| Network | ETHERCAT |

Host Interface

| | |
|-----------------|-------------|
| Host IP Address | 192.168.1.2 |
|-----------------|-------------|

System Configuration

- Drive Setup and Motion
- Drive Programming
- Maestro Setup and Motion
- Maestro Programming

System Configuration Activity

After right button of mouse on G01 ,
Click to 'New EtherCAT Configuration'

1. Master Set up [Add to new Master]

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The screenshot displays the Elmo Application Studio II interface. The main window is titled "Item Configuration" and shows the configuration for a target named "G01". The configuration is organized into sections: "General" and "Target Connection".

| General | |
|-----------------------|--------------------------|
| Target Name | G01 |
| Target Version | Unknown |
| Target Type | Gold Maestro EtherCAT |
| Cycle Time | 1000 |
| Mailbox Cycle Time | 5000 |
| Background Cycle Time | 100 |
| Receive f.b. status | <input type="checkbox"/> |

The "Target Connection" section is partially visible below the "General" section.

An "EtherCAT Configuration" dialog box is overlaid on the main window. It contains a question mark icon and the text: "Do you want to create a new EtherCAT configuration for Maestro G01?". Below the text are two buttons: "Yes" and "No". A red arrow points from the text "Click to 'Yes'" to the "Yes" button.

2. Slave Setting [Ezi-SERVO II-EC connection]

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- ❑ The connected drivers are recognized to a Physical Layer (ex> 3 Axes connected)

The screenshot shows the Elmo Application Studio II interface. On the left, the 'System Configuration' tree shows 'Ezi-SERVO II-EC' expanded to 'G01', which contains three axes: 'g01 (Ezi-SERVO2 EtherCAT)', 'g02 (Ezi-SERVO2 EtherCAT)', and 'g03 (Ezi-SERVO2 EtherCAT)'. The main window is the 'Maestro EtherCAT Configurator' with tabs for 'Master', 'Quick Settings', 'Process Image', 'Cyclic', and 'Distributed Clocks'. The 'Master' tab is active, showing configuration sections: '1. Connection Settings for the Master Server' (Host IP Address: 192.168.1.3, Port Number: 5000), '2. EoE IP Parameters' (Create Gateway: checked, Set EoE IP Start Address: Automatically, EoE IP Start Address: 192.168.1.4), and '3. Master Parameters' (Initial Master State: OPERATIONAL, Default Cycle Time: 1000 µsec). A dialog box titled 'EtherCAT Configuration' is overlaid, asking 'The Main Cycle time of Maestro will be 1000 µsec. Do you want to continue?' with 'Yes' and 'No' buttons. A red arrow points to the 'Yes' button, with a red text annotation: 'Click to 'Yes' when Cycle time is '1ms''. The bottom status bar shows 'Current Toolset EtherCATConfigurationToolsetModel' and a message log with the entry '2016-03-30 오후 2:24:30 Download Configuration Start'.

2. Slave Setting [Ezi-SERVO II-EC connection]

Confidential

□ PDO Mapping & Drive setting

- To Stop the Master for drive setting

The screenshot displays the Maestro EtherCAT Configurator software interface. On the left, the 'System Configuration' tree shows a project named 'Ezi-SERVO II-EC' containing a group 'G01' with three slave drives: 'g01 (Ezi-SERVO2 EtherCAT)', 'g02 (Ezi-SERVO2 EtherCAT)', and 'g03 (Ezi-SERVO2 EtherCAT)'. A red dashed box highlights this tree, and a context menu is open over it with 'Stop Master' selected. A red arrow points from the text 'Click to right button of mouse and click to 'Stop Master'' to the 'Stop Master' option. The main window shows configuration details for the Master Server, including connection settings (IP: 192.168.1.3, Port: 5000) and various parameters such as Master State (OPERATIONAL), Cycle Time (1000 µs), and Ethernet Type (a488). The bottom status bar shows a log of events, including 'Master Started' and 'New EtherCAT Configuration Done'.

| Section | Parameter | Value |
|--|---|-------------------------------------|
| 1. Connection Settings for the Master Server | Address | 192.168.1.3 |
| | Port | 5000 |
| Parameters | Create Gateway | <input checked="" type="checkbox"/> |
| | Set EoE IP Start Address | Automatically |
| 3. Master Parameters | Initial Master State | OPERATIONAL |
| | Default Cycle Time | |
| | Cycle Time (µs) | 1000 |
| | Mailbox Cycle Time (µs) | 3000 |
| | Auto Recovery Timeout (µs) | 100 |
| | EtherCAT Datagram DATA Max Size (Bytes) | 1486 |
| | Watchdog | Enable |
| 4. Frame Parameters | Destination MAC | FFFFFFFFFFFF |
| | Source MAC | 000000000000 |
| | Ethernet Type | a488 |

2. Slave Setting [Ezi-SERVO II-EC setting]

Confidential

□ PDO Mapping & Drive setting (Slave)

- To set the Device Profile as 'Motion Device DS402'

The screenshot shows the Maestro EtherCAT Configurator interface. The 'Slave Parameters' tab is active, displaying a list of parameters for slave 'g01'. A red arrow labeled 'Click' points to the 'Slave Parameters' tab. Another red arrow labeled 'Setting' points to the 'Device Profile' dropdown menu, which is currently set to 'Motion Device DS402'. The 'Device Profile' dropdown is highlighted with a red dashed box. The 'Watchdog' parameter is set to 'Disable'. The bottom status bar shows the current toolset as 'EtherCATConfigurationToolsetModel'.

| Parameter | Value |
|-----------------------|---|
| Name | g01 |
| Vendor ID | 0x0FA00000 (262144000) |
| Vendor Name | FASTECH |
| Device Name | Ezi-SERVO2 EtherCAT |
| Device Type | Ezi-SERVO2 EtherCAT |
| Product Code | 0x00001002 (4098) |
| Revision Number | 0x00000001 (1) |
| Physical Address | 1001 |
| Auto Inc Address | 0(0x0000) |
| Process Data Handling | 0 |
| Watchdog | Disable |
| Device Profile | General Device Motion Device DS402 General Device |

2. Slave Setting [Ezi-SERVO II-EC setting]

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□ PDO Mapping & Drive setting (Slave)

- 'PDO Mapping' on FMMU/SM

Click

| Name | Index | Type | Bit Size | Bit Offset | Value | Var Offset | Alias |
|------------------------------|----------|-------|----------|------------|-------|------------|----------|
| Input | | | | | | | |
| 0x1A00 | | | | | | | |
| Status Word | 0x6041.0 | UINT | 16 | 0 | 4632 | 0 | 0x6041.0 |
| Position actual value | 0x6064.0 | DINT | 32 | 16 | 0 | 1 | 0x6064.0 |
| Velocity actual value | 0x606C.0 | DINT | 32 | 48 | 0 | 2 | 0x606C.0 |
| Digital inputs | 0x60FD.0 | UDINT | 32 | 80 | 0 | 3 | 0x60FD.0 |
| Error code | 0x603F.0 | UINT | 16 | 112 | 29952 | 4 | 0x603F.0 |
| Touch probe status | 0x60B9.0 | UINT | 16 | 128 | 0 | 5 | 0x60B9.0 |
| Touch probe 1 positive value | 0x60BA.0 | DINT | 32 | 144 | 0 | 6 | 0x60BA.0 |
| Touch probe 2 positive value | 0x60BC.0 | DINT | 32 | 176 | 0 | 7 | 0x60BC.0 |
| Output | | | | | | | |
| 0x1600 | | | | | | | |

| L. start | Length | L. start bit | L. end bit | P. start | Flags | Mapped SM |
|----------|--------|--------------|------------|----------|-------|-------------|
| 0x12018 | 12 | 0 | 7 | 0x1800 | WE | SM2:Outputs |
| 0x11034 | 26 | 0 | 7 | 0x1C00 | RE | SM3:Inputs |

Errors | Warnings | (6)Messages

2016-03-30 오후 2:24:30 Download Configuration Start
2016-03-30 오후 2:25:05 Download Configuration File Done
2016-03-30 오후 2:25:05 Download Configuration Done
2016-03-30 오후 2:25:06 Master Started
2016-03-30 오후 2:25:06 New EtherCAT Configuration Done
2016-03-30 오후 2:27:06 Master Stopped

Display for selected PDO item information

2. Slave Setting [Ezi-SERVO II-EC setting]

Confidential

□ PDO Mapping & Drive setting (Slave)

- To click to 의 'Start and Download in the 'EtherCAT Configuration' menu for save the setting content

The screenshot displays the Elmo Application Studio interface. The 'EtherCAT Configuration' menu is open, and the 'Start and Download' option is highlighted with a red arrow and the word 'Click'. The main window shows the configuration parameters for the EtherCAT system, including EoE IP Parameters, Master Parameters, and Frame Parameters. The status bar at the bottom indicates the current toolset is 'EtherCATConfigurationToolsetModel'.

| Parameter | Value |
|---|-------------------------------------|
| Port Number | 5000 |
| 2. EoE IP Parameters | |
| Create Gateway | <input checked="" type="checkbox"/> |
| Set EoE IP Start Address | Automatically |
| EoE IP Start Address | 192.168.1.4 |
| 3. Master Parameters | |
| Initial Master State | OPERATIONAL |
| Default Cycle Time | <input checked="" type="checkbox"/> |
| Cycle Time (µs) | 1000 |
| Mailbox Cycle Time (µs) | 3000 |
| Auto Recovery Timeout (µs) | 100 |
| EtherCAT Datagram DATA Max Size (Bytes) | 1486 |
| Watchdog | Enable |
| 4. Frame Parameters | |
| Destination MAC | FFFFFFFFFFFF |
| Source MAC | 000000000000 |
| Ethernet Type | a488 |

Errors | Warnings | (6)Messages

- 2016-03-30 오후 2:24:30 Download Configuration Start
- 2016-03-30 오후 2:25:05 Download Configuration File Done
- 2016-03-30 오후 2:25:05 Download Configuration Done
- 2016-03-30 오후 2:25:06 Master Started
- 2016-03-30 오후 2:25:06 New EtherCAT Configuration Done
- 2016-03-30 오후 2:27:06 Master Stopped

2. Slave Setting [Ezi-SERVO II-EC setting]

Confidential

□ PDO Mapping & Drive setting (Slave)

- Click to 'To System Configuration'

The screenshot shows the Elmo Application Studio II software interface. The 'EtherCAT Configuration' tab is active. In the 'File' menu, the 'To System Configuration' button is highlighted with a red dashed box and a red arrow. The main configuration area is divided into several sections:

- 2. EoE IP Parameters**
 - Create Gateway:
 - Set EoE IP Start Address: Automatically
 - EoE IP Start Address: 192.168.1.4
- 3. Master Parameters**
 - Initial Master State: OPERATIONAL
 - Default Cycle Time:
 - Cycle Time (µs): 1000
 - Mailbox Cycle Time (µs): 3000
 - Auto Recovery Timeout (µs): 100
 - EtherCAT Datagram DATA Max Size (Bytes): 1486
 - Watchdog: Enable
- 4. Frame Parameters**
 - Destination MAC: FFFFFFFFFF
 - Source MAC: 000000000000
 - Ethernet Type: a488

The bottom status bar shows the current toolset as 'EtherCATConfigurationToolsModel' and a log of messages including 'Download Configuration Start', 'Download Configuration File Done', 'Download Configuration Done', 'Master Started', and 'Start Master Scan and Download Done'.

2. Slave Setting [Ezi-SERVO II-EC setting]

Confidential

□ PDO Mapping & Drive setting (Slave)

- It will take dozens of seconds to save & apply for setting content

Maestro EtherCAT Configurator

Master | Diagnostics | System Information | Process Image | Cyclic | Distributed Clocks

1. Connection Settings for the Master Server

| | |
|-----------------|-------------|
| Host IP Address | 192.168.1.3 |
| Port Number | 5000 |

2. EoE IP Parameters

| | |
|--------------------------|-------------------------------------|
| Create Gateway | <input checked="" type="checkbox"/> |
| Set EoE IP Start Address | Automatically |
| EoE IP Start Address | 192.168.1.4 |

3. Master Parameters

| | |
|----------------------|-------------------------------------|
| Initial Master State | OPERATIONAL |
| Default Cycle Time | <input checked="" type="checkbox"/> |
| Cycle Time (µs) | |
| Mailbox Cycle Time | |
| Auto Recover Time | |
| EtherCAT Datagra | |
| Watchdog | |

4. Frame Parameters

| | |
|-----------------|------|
| Destination MAC | |
| Source MAC | |
| Ethernet Type | a488 |

Please wait ...

Please wait... The Maestro is modifying its working mode.
A new configuration file has been created for this Maestro.
Please add axes and 'Groups' if necessary.

Errors | Warnings | (6)Messages

2016-03-30 오후 2:34:31 Download Configuration Start
2016-03-30 오후 2:34:34 Download Configuration File Done
2016-03-30 오후 2:34:35 Download Configuration Done
2016-03-30 오후 2:34:35 Master Started
2016-03-30 오후 2:34:36 Start Master Scan and Download Done
2016-03-30 오후 2:35:49 Master Stopped

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

□ GUI motor driving (Turn on the GUI)

- Click to **1) Maestro Setup and Motion** bottom left when click to **2) Motion – Maestro Axes**, display as like below pic.

The screenshot displays the Elmo Application Studio II interface. On the left, a sidebar contains a tree view of the workspace. The 'Maestro Setup and Motion' option is highlighted with a red dashed box and labeled '1'. Below it, the 'Motion - Maestro Axes' option is also highlighted with a red dashed box and labeled '2'. The main window shows the 'Maestro Multi Axes Motion' configuration for three axes: g01, g02, and g03. The configuration includes fields for OP Mode (Cyclic Position), Actual Position (0 cnt), Actual Velocity (0 cnt/sec), and Active Current (0 Amp). There are also sections for Limits (RLS, FLS), Axis Status (Disabled), Motion Status (No Motion), PTP Absolute, PTP Relative, Jogging (Run Held), and Velocity Command (0 cnt/sec). Two empty charts, Chart #1 and Chart #2, are visible on the right side of the interface.

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

□ GUI motor driving (Motor parameter setting)

- Click to **1) Parameters...** below

input the various values such as **2) Position, Velocity**

3) 'OK' : Apply to current Axis only / **' Apply to all axes'** : Apply to all Axes

The screenshot displays the Maestro Multi Axes Motion software interface. On the left, the 'Maestro Setup and Motion' sidebar is visible, with the 'Parameters Explorer' option selected. The main window shows the 'Maestro Multi Axes Motion' configuration for axis 'g01'. A red dashed box labeled '1' highlights the 'Parameters...' button at the bottom of the main window. A 'Motion Parameters' dialog box is open, showing a table of motion parameters for 'g01'. A red dashed box labeled '2' highlights the 'Motion Parameters' dialog content.

| Parameter | Unit | Value |
|-------------------|-------------|-----------------------|
| Position 1 | [cnt] | 0 |
| Position 2 | [cnt] | 10000 |
| Relative Position | [cnt] | 0 |
| Velocity | [cnt/sec] | 50000 |
| Acceleration | [cnt/sec^2] | 500000 |
| Deceleration | [cnt/sec^2] | 500000 |
| Stop Deceleration | [cnt/sec^2] | 1E+9 |
| Jerk | [cnt/sec^3] | 2E+6 |
| Dwell Time | [msec] | 250 |
| Direction | | MC_POSITIVE_DIRECTION |
| Buffered Mode | | MC_BUFFERED_MODE |

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

GUI motor driving (SERVO ON/OFF)



- 1) SERVO ON/OFF by use of Enable / Disable buttons
- 2) Motion command key enable / Disable when SERVO ON/OFF

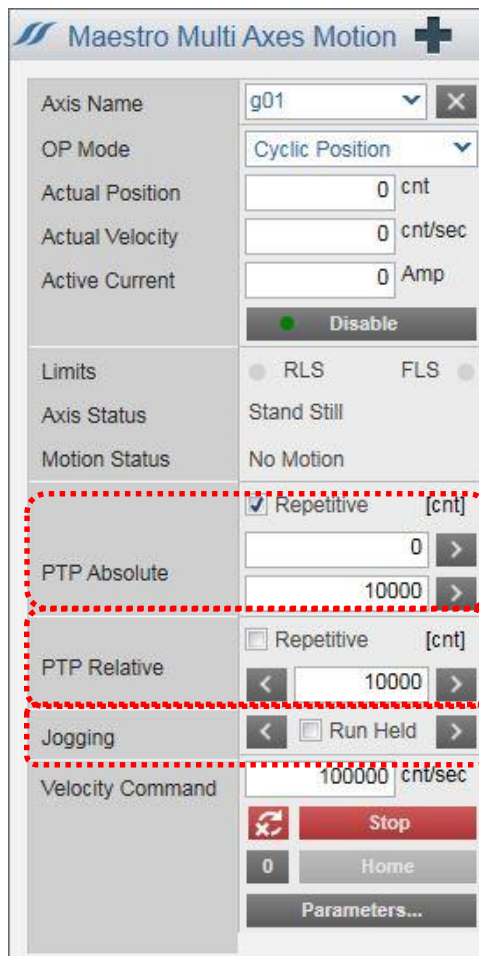
The screenshot displays the Maestro Multi Axes Motion GUI. The central panel is divided into three columns for axes g01, g02, and g03. The 'Active Current' row shows 'Disable' for g01 and 'Enable' for g02 and g03, highlighted by a red dashed box labeled '1'. The 'PTP Absolute' row shows 'Repetitive' checkboxes for all axes, highlighted by a red dashed box labeled '2'. Below these are 'Run Held' buttons for each axis. The right side of the GUI features two empty coordinate charts, Chart #1 and Chart #2, both with a Y-axis from -40 to 40 and an X-axis (Time) from 0 to 9 seconds.

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

□ GUI motor driving (Position Move)

- 1) **Absolute Position Move(Replicable) :** Click to  button to move
- 2) **Relative Position Move(Replicable) :** Click to  button to move
- 3) **JOG Move :** Move till limit when clear for click on 'Run Held'



The screenshot shows the Maestro Multi Axes Motion GUI. The interface includes a header with the product name and a plus sign. Below the header, there are several sections for motor control:

- Axis Name:** g01
- OP Mode:** Cyclic Position
- Actual Position:** 0 cnt
- Actual Velocity:** 0 cnt/sec
- Active Current:** 0 Amp
- Disable:** A button with a green indicator light.
- Limits:** RLS and FLS radio buttons.
- Axis Status:** Stand Still
- Motion Status:** No Motion
- PTP Absolute:** A section with a checked 'Repetitive' checkbox and a value of 0. It includes a right arrow button.
- PTP Relative:** A section with an unchecked 'Repetitive' checkbox and a value of 10000. It includes left and right arrow buttons.
- Jogging:** A section with an unchecked 'Run Held' checkbox and a value of 100000. It includes left and right arrow buttons.
- Velocity Command:** 100000 cnt/sec
- Control Buttons:** Stop, Home, and Parameters... buttons.

Red dashed boxes and numbers 1, 2, and 3 are overlaid on the PTP Absolute, PTP Relative, and Jogging sections respectively, corresponding to the instructions in the text above.

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

Object Value checking (PDO)

- 1) Click to 'Maestro Setup and Motion'
- 2) It can be checked on Process Image tab of 'EtherCAT Diagnostics'
- 3) 'Digital Inputs' checking is possible

The screenshot shows the Ezi-SERVO II-EC software interface. The left sidebar contains a tree view of the project structure. The 'Maestro Setup and Motion' folder is highlighted with a red dashed box and a '1' next to it. The main window displays the 'EtherCAT Diagnostics' window, which is divided into 'Master', 'Diagnostic', and 'Process Image' tabs. The 'Process Image' tab is active, showing a table of variables for three axes (g01, g02, g03). The 'Digital inputs' row for g01 is highlighted with a red dashed box and a '2' next to it.

| Name | Type | Bit Size | PI Offset | Value | Var Offset | Alias |
|------------------------------|-------|----------|-----------|-------|------------|-----------|
| Input variables | | | | | | |
| g01 | | | | | | |
| Status Word | UINT | 16 | 0 | 4663 | 0 | I0x6041.0 |
| Position actual value | DINT | 32 | 16 | 0 | 1 | I0x6064.0 |
| Velocity actual value | DINT | 32 | 48 | 0 | 2 | I0x606C.0 |
| Digital inputs | UDINT | 32 | 80 | 0 | 3 | I0x60FD.0 |
| Error code | UINT | 16 | 112 | 0 | 4 | I0x603F.0 |
| Touch probe status | UINT | 16 | 128 | 0 | 5 | I0x60B9.0 |
| Touch probe 1 positive value | DINT | 32 | 144 | 0 | 6 | I0x60BA.0 |
| Touch probe 2 positive value | DINT | 32 | 176 | 0 | 7 | I0x60BC.0 |
| g02 | | | | | | |
| Status Word | UINT | 16 | 208 | 4657 | 0 | I0x6041.0 |
| Position actual value | DINT | 32 | 224 | 4 | 1 | I0x6064.0 |
| Velocity actual value | DINT | 32 | 256 | 0 | 2 | I0x606C.0 |
| Digital inputs | UDINT | 32 | 288 | 0 | 3 | I0x60FD.0 |
| Error code | UINT | 16 | 320 | 0 | 4 | I0x603F.0 |
| Touch probe status | UINT | 16 | 336 | 0 | 5 | I0x60B9.0 |
| Touch probe 1 positive value | DINT | 32 | 352 | 0 | 6 | I0x60BA.0 |
| Touch probe 2 positive value | DINT | 32 | 384 | 0 | 7 | I0x60BC.0 |
| g03 | | | | | | |
| Status Word | UINT | 16 | 416 | 4657 | 0 | I0x6041.0 |
| Position actual value | DINT | 32 | 432 | 0 | 1 | I0x6064.0 |
| Velocity actual value | DINT | 32 | 464 | 0 | 2 | I0x606C.0 |
| Digital inputs | UDINT | 32 | 496 | 0 | 3 | I0x60FD.0 |
| Error code | UINT | 16 | 528 | 0 | 4 | I0x603F.0 |
| Touch probe status | UINT | 16 | 544 | 0 | 5 | I0x60B9.0 |
| Touch probe 1 positive value | DINT | 32 | 560 | 0 | 6 | I0x60BA.0 |
| Touch probe 2 positive value | DINT | 32 | 592 | 0 | 7 | I0x60BC.0 |
| Output variables | | | | | | |
| g01 | | | | | | |

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

□ use of Maestro Script Manager (1. Star Loop creating)

- 1) Script can be made for demo running
- 2) 'Motion driving' & 'Set Digital Outputs', 'Send SDO' are possible

The screenshot displays the Elmo Application Studio II interface. The top menu bar includes 'Gene...', 'Parameters', 'Maestro Script Manager', 'Views', 'Floating Tools', 'Recording', and 'View Design'. The 'Recorder' tab is active, showing 'Start Axis' set to 1 and 'Number of Axes' set to 2. A toolbar contains icons for 'Run', 'Debug', 'Switch Location', 'Set', 'Reset Order', and 'Reset Errors Device'. A red box highlights the 'Run' icon with the text 'Click to execute'. The 'Maestro Script Manager' window shows a tree view on the left with 'Maestro Script Manager' selected. A red box highlights this selection with the text 'Click to execute, save, import'. The main area shows a script for 'Device: g01' with a 'Loop 1' section. A red box highlights the 'Loop 1' section with the text 'Repeat count'. The 'Loop 1' section includes 'Start Loop 1', 'g01.Set Digital Outputs', 'g01.Send SDO', 'g01.Wait State', 'g01.Move Relative', 'g01.Wait State', and 'End Loop 1'. The 'Number of Loop' is set to 1. Two empty charts, 'Chart #1' and 'Chart #2', are visible on the right side of the interface.

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

- use of Maestro Script Manager (2. Digital Outputs checking)
 - 1) Script can be made for demo running
 - 2) 'Motion driving ' & 'Set Digital Outputs', 'Send SDO' are possible

The screenshot displays the Ezi-SERVO II-EC software interface. The top menu bar includes 'Gene...', 'Parameters', 'Maestro Script Manager', 'Views', 'Floating Tools', 'Recording', and 'View Design'. The 'Recorder' window is active, showing 'Start Axis' set to 1 and 'Number of Axes' set to 2. A 'STOP' button is visible in the top right corner. The 'Maestro Script Manager' window is the central focus, showing a list of commands on the left and a 'Set Digital Outputs' configuration panel on the right. The 'Set Digital Outputs' panel has 'Axis Name' set to 'g01' and four output checkboxes (Output 1, 2, 3, 4) that are currently unchecked. A red arrow points to the 'g01.Set Digital Outputs' command in the list, and another red arrow points to the checkboxes in the configuration panel. A third red arrow points to a toolbar with icons for execution, save, and import. The 'Recorder' window on the right shows two empty charts, 'Chart #1' and 'Chart #2', with a time axis from 0 to 10 seconds.

Click to execute , save, import

Click to 'On/Off'
(Currently 4Point can be used only)

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

Use of Maestro Script Manager (3. SDO transmission)

- 1) Script can be made for demo running
- 2) 'Motion driving' & 'Set Digital Outputs', 'Send SDO' are possible

The screenshot displays the Ezi-SERVO II-EC software interface. The 'Maestro Script Manager' window is active, showing a list of commands for device 'g01'. The 'Send SDO' command is highlighted, with its properties shown in the 'Command Properties' pane. The 'Recorder' window is also visible, showing two empty charts for data recording.

Maestro Script Manager - Commands List:

| Name | Script | Show Comments | Command Properties |
|------------------------|--------|---------------|--------------------|
| Config Virtual Encoder | | | |
| Dwell | | | |
| Error Correction | | | |
| Halt | | | |
| Insert Notification | | | |
| Link | | | |
| Power Off | | | |
| Power On | | | |
| Send SDO | | | |
| Set Digital Outputs | | | |
| Set Global Parameter | | | |
| Set Parameter | | | |
| Stop | | | |
| Table Handling | | | |
| Unlink | | | |
| Wait Until Condition | | | |

Command Properties for 'Send SDO':

| | |
|-------------|----------|
| Axis Name | g01 |
| Service | Download |
| Index | 0x2007 |
| SubIndex | 0 |
| Data | 15 |
| Data Length | 1 |

Click to execute , save, import

SDO transmission
(ex> Set to Run Current '150%')

3. Use of Ezi-SERVO II-EC [GUI instructions]

Confidential

Use of Maestro Script Manager (4. Save to SDO EEPROM)

- 1) Script can be made for demo running
- 2) 'Motion driving ' & 'Set Digital Outputs', 'Send SDO' are possible

The screenshot displays the Ezi-SERVO II-EC software interface. The **Maestro Script Manager** window is the central focus, showing a list of commands for device **g01**. The **Send SDO** command is highlighted, with its properties shown in the right-hand pane: Axis Name: g01, Service: Download, Index: 0x1010, SubIndex: 1, Data: 1702257011, and Data Length: 4. A red arrow points to the **Send SDO** command in the list, and another red arrow points to the **Index: 0x1010** field in the properties pane. A third red arrow points to the **Execute** button (a green play icon) in the toolbar below the script list. The **Recorder** window on the right shows two empty charts, **Chart #1** and **Chart #2**, with axes for amplitude and time (sec).

Click to execute , save, import

Transmit left data to Index 0x1010 (Save to EEPROM,)

**We are a pioneer changing
the history of step motor !!**



Ezi-SERVO[®]
Closed Loop Stepping System