

Technical reference Console for AC Servo Motor & Driver



- Thank you very much for your purchase of Panasonic Console for AC Servo Motor & Driver.
- Before use, refer this technical reference and safety instructions to ensure proper use. Keep this technical reference and read when necessary.
- Make sure to forward this technical reference for safety to the final user.

If you are the first user of this product, please be sure to purchase and read the optional Engineering Material of AC Servo Motor & Driver (DV0P4490), or downloaded Instruction Manual from our Web Site.

[Web address of Panasonic Industry Co., Ltd.]
industrial.panasonic.com/ac/e/


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Safety Precautions

Observe the following precautions in order to avoid damages on the machinery and injuries to the operators and other personnel during the operation.

- In this document, the following symbols are used to indicate the level of damages or injuries which might be incurred by the misoperation ignoring the precautions.

 **DANGER** Indicates a potentially hazardous situation which, if not avoided, will result in death or serious injury.

 **CAUTION** Indicates a potentially hazardous situation which, if not avoided, will result in minor injury or property damage.

- The following symbols represent "MUST NOT" or "MUST" operations which you have to observe. (Note that there are other symbols as well.)



Represents "MUST NOT" operation which is inhibited.



Represents "MUST" operation which has to be executed.

 **DANGER**

Do not subject the Product to water, corrosive or flammable gases, and combustibles.



Failure to observe this instruction could result in fire.

Do not subject the cables to excessive force, heavy object, or pinching force, nor damage the cables.



Failure to observe this instruction could result in electrical shocks, damages and breakdowns.

Do not place the console close to a heating unit such



Failure to observe this instruction could result in fire and breakdowns.

Install an emergency stop circuit externally so that you can stop the operation and shut off the power



Failure to observe this instruction could result in injuries, electrical shocks, fire, breakdowns and damages.

Mount the motor, driver, console and regenerative resistor on incombustible material such as metal.



Failure to observe this instruction could result in fire.

Check and confirm the safety of the operation after the earthquake.



Failure to observe this instruction could result in electrical shocks, injuries and fire.

Install an overcurrent protection, earth leakage breaker, over-temperature protection and emergency stop apparatus without fail.



Failure to observe this instruction could result in electrical shocks, injuries and fire.

Install and mount the Product and machinery securely to prevent any possible fire or accidents incurred by earthquake.



Failure to observe this instruction could result in electrical shocks, injuries and fire.

 **CAUTION**

Do not modify, disassemble nor repair the Product.



Failure to observe this instruction could result in fire, electrical shocks and injuries.

Do not pull the cables with excessive force.



Failure to observe this instruction could result in breakdowns.

Safety Precautions

Do not step on the Product nor place the heavy object



Failure to observe this instruction could result in electrical shocks, injuries, breakdowns and

Do not approach to the machine since it may suddenly restart after the power resumption.



Failure to observe this instruction could result in injuries.

This Product shall be treated as Industrial Waste when you dispose.

Do not give strong impact shock to the Product.



Failure to observe this instruction could result in breakdowns.

Be sure to turn off the power to the driver if not used for a long time.



Otherwise, an injury may occur resulting from a malfunction etc.

Make a wiring correctly and securely.



Failure to observe this instruction could result in fire and electrical

Keep the ambient temperature below the permissible temperature for the motor and driver.



Failure to observe this instruction could result in breakdowns.

Execute the trial run without connecting the motor to the machine system and fix the motor. After checking the operation, connect to the machine system again.



Failure to observe this instruction could result in injuries.

When any error occurs, remove the cause and release the error after securing the safety, then restart.



Failure to observe this instruction could result in injuries.

1. Introduction

On Opening the Product Package

- Make sure that the model is what you have ordered.
- Check if the product is damaged or not during transportation.

Contact to a dealer if you find any failures.

Outline of Console

With the Console, you can execute the followings.

- (1) Monitoring of servo motor rotational speed, torque, and positional deviation; input and output; pulse input; and load factor
- (2) Display of the present alarm and reference of the error history.
- (3) Setup and Storage of parameters.
- (4) Writing to the memory (EEPROM).
- (5) Auto gain tuning of driver
- (6) Motor test run and alarm clear
- (7) Parameter copy
- (8) Teaching of target positions (only for A4P series)

Application

This console can be used for the following servo drivers.

- | | |
|--------------------|---------------------|
| • MINAS A4 Series | • MINAS A4T Series |
| • MINAS A4P Series | • MINAS AIII Series |
| • MINAS A4N Series | • MINAS E Series |
| • MINAS A4A Series | • MINAS S Series |

Check of the Console Model

Panasonic

Model No. DV0P4420

Serial No. □05010001□

Panasonic Industry Co., Ltd.

Affixed to the reverse side of the console body.

Model number

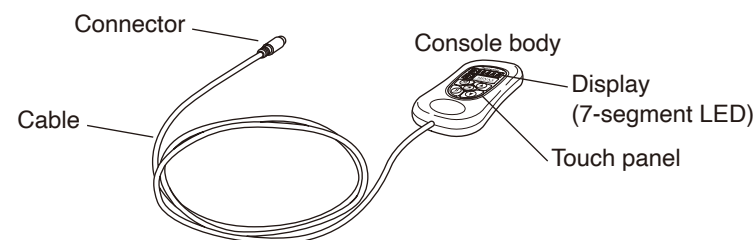
Serial Number

e.g.) : □05110001□

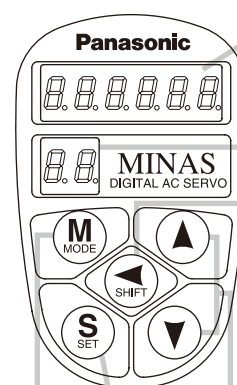
- Our management use code 2
- Lot number
- Month of production
- Year of production (Lower 2 digits of AD year)
- Our management use code 1

Parts Description

Console



Display/Touch panel



Display LED (6-digit)

All of LED will flash when error occurs, and switch to error display screen.

Display LED (in 2 digits)

Parameter No. is displayed at parameter setup mode. Point No. is displayed at teaching mode.

* "1" is always displayed as an ID number for A4P, A4N, and A4A series irrespective of the setting of the node address (MSD/LSD) rotary switch located at the front panel of the driver.

SHIFT Button

Press this to shift the digit for data change.

▲▼ Button

Press these to change data or execute selected action of parameter.

Numerical value increases by pressing, ▲, decreases by pressing ▼.

SET Button

Press this to shift each mode which is selected by mode switching button to EXECUTION display.

Mode Switching Button Press this to switch 7 kinds of mode.

- | | |
|--|---|
| 1) Monitor mode | 5) Auto-gain tuning mode |
| 2) Teaching mode | 6) Auxiliary function mode |
| • Target position settings established by teaching | • Trial run (JOG mode) |
| • Test operation | • Alarm clear |
| 3) Parameter setup mode | 7) Copy mode |
| 4) EEPROM write mode | • Copying of parameters from the driver to the console. |
| | • Copying of parameters from the console to the driver. |

2. Installation

Installation Place

- 1) Indoors, where the products are not subjected to rain or direct sun beam. The products are not waterproof.
- 2) Where the products are not subjected to corrosive atmospheres such as hydrogen sulfide, sulfurous acid, chlorine, ammonia, chloric gas, sulfuric gas, acid, alkaline and salt and so on, and are free from splash of inflammable gas, grinding oil, oil mist, iron powder or chips and etc.
- 3) Well-ventilated and low humidity and dust-free place.
- 4) Easy-to-access place for inspection and cleaning.

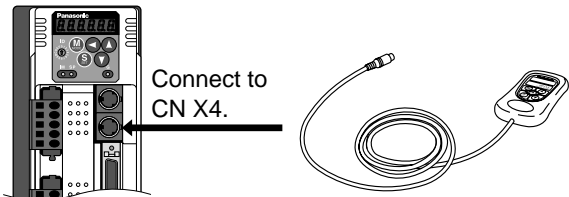
Environmental Conditions

Item	Condition
Ambient temperature	0°C to 55°C (free from freezing)
Ambient humidity	Less than 90% RH (free from condensation)
Storage temperature	-20°C to 80°C (free from freezing)
Storage humidity	Less than 90% RH (free from condensation)
Vibration	Lower than 5.9m/s ² (0.6G), 10 to 60Hz
Impact	Conform to JISC0044 (Free fall test, 1m for 2 directions, 2 cycles)
Altitude	Lower than 1000m

<Cautions>

- Do not give strong impact to the products.
- Do not drop the products.
- Do not pull the cables with excess force.
- Avoid the place near to the heat source such as a heater or a large winding resistor.

How to Connect



* The positions to be connected to are different from series to series.
Refer to the table to the right for correct connections.

Series	Connector Symbol
MINAS A4	CN X4
MINAS A4P	CN X4
MINAS A4N	CN X4
MINAS A4A	CN X4
MINAS A4T	CN X4
MINAS AIII	CN X6
MINAS E	CN X6
MINAS S	CN SER

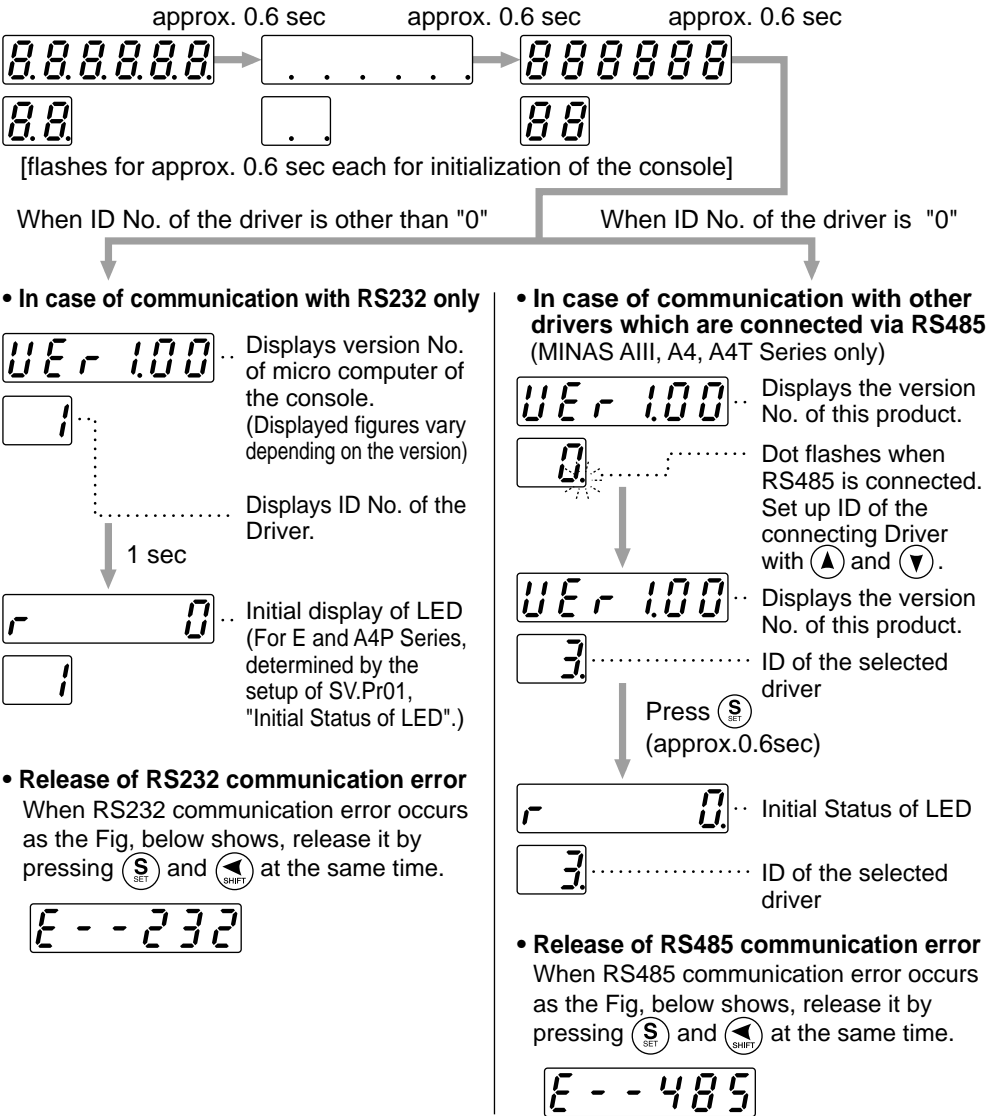
<Remarks>

- Connect the console connector securely to CN X4 connector of the driver
- Never pull the cable to plug in or plug out.

3. How to Use the Console

Initial Status of the Console Display (7 Segment LED)

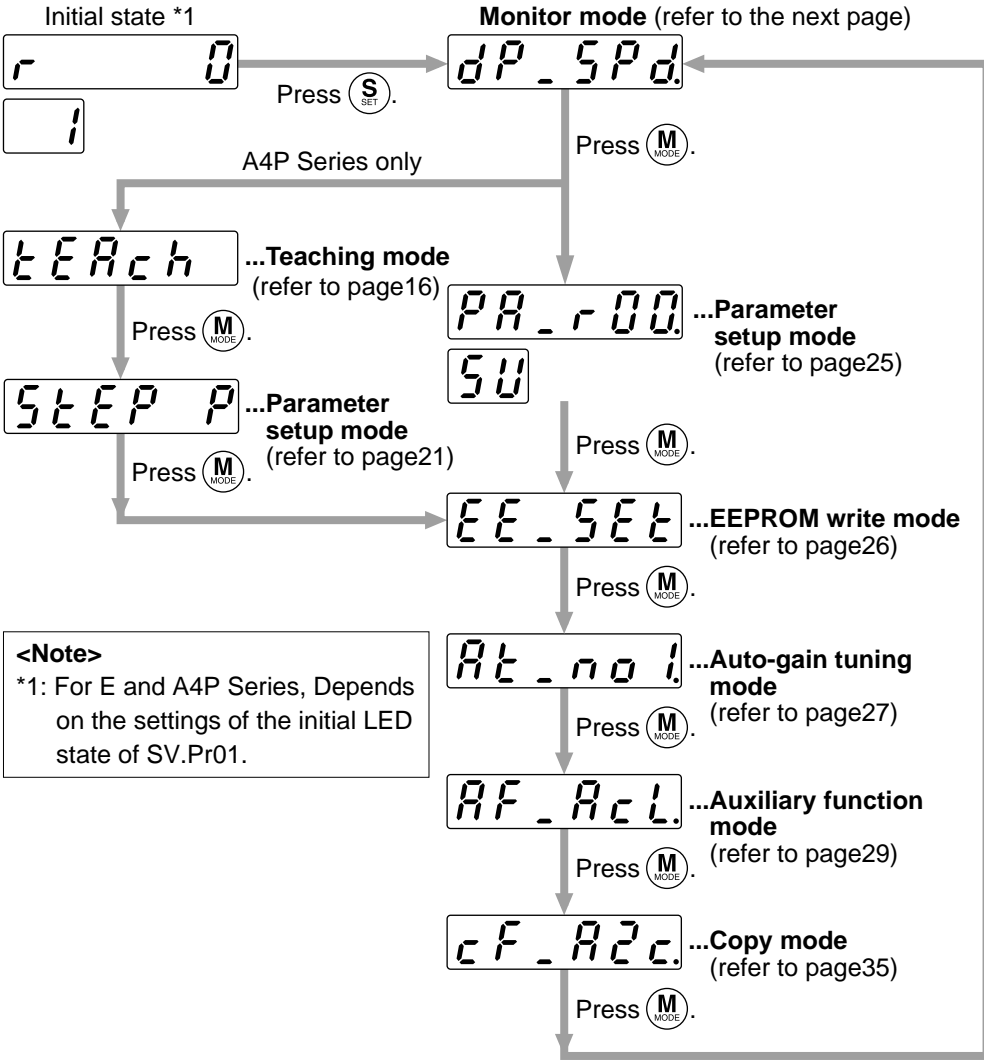
Turn on the power of the driver while inserting the console connector to the driver main body, or inserting the console connector to CN X4 connector.



3. How to Use the Console

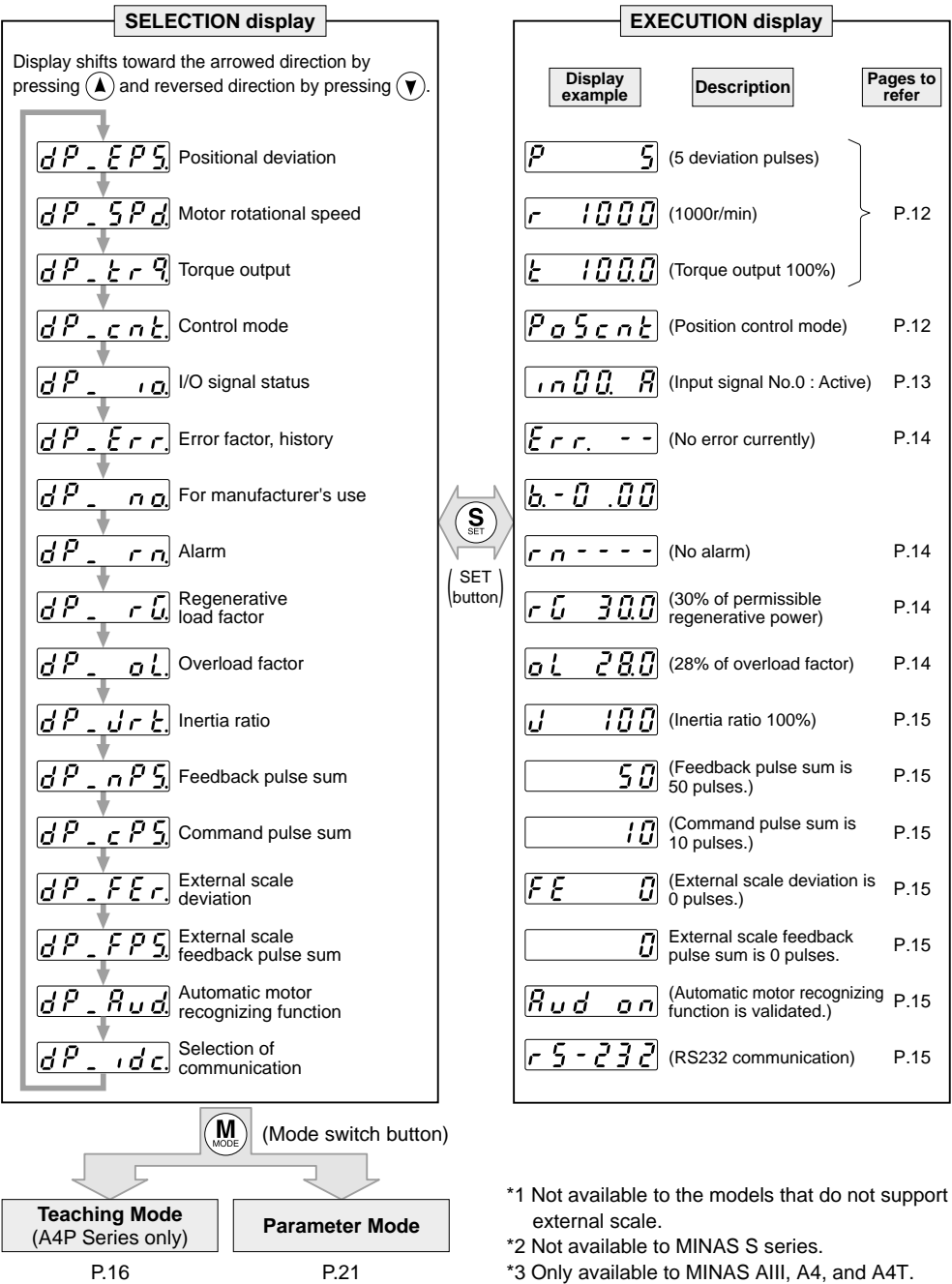
Mode Change

The modes below are available in this console. To switch a mode, press (S) once in the initial state to enter the **SELECTION display** screen and press (M).



Show a target mode to be executed, select it by the (▲) (▼) button and press (S) to enter the **EXECUTION display** screen.

4. Monitor Mode



*1 Not available to the models that do not support external scale.
*2 Not available to MINAS S series.
*3 Only available to MINAS AIII, A4, and A4T.

4. Monitor Mode

Display of Position Deviation, Motor Rotational Speed and Torque Output

P 0 0 0 0 0 0

↑ Data

P ...Positional deviation (cumulative pulse counts of deviation counter)
• – display : generates rotational torque of CW direction (viewed from shaft end)
• no display : generates rotational torque of CCW direction (viewed from shaft end)

r ...Rotational speed of the motor unit [r/min]
• – display : CW rotation, no display : CCW rotation

t ...Torque command unit [%] (100 for rated torque)
• – display : CW rotation, no display : CCW rotation

<Note>
“ + ” is not displayed on LED, but only “ – ” appears.

Display of Control Mode

The control mode that can be specified varies depending on the servo driver used. For more information, refer to the technical reference or the specifications of each driver.

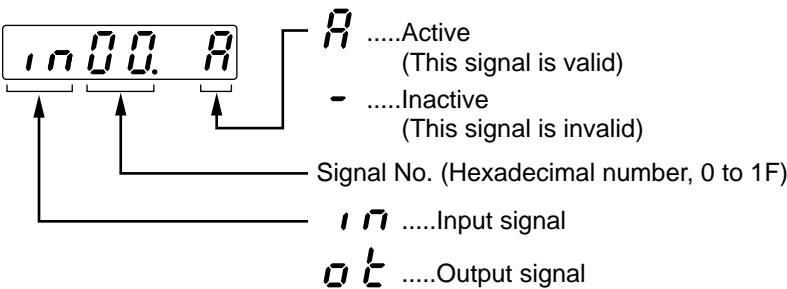
PoScnt	...Position control mode	PrScLs	...Full-closed of pressure control mode
SPdcnt	...Speed control mode	EEncnt	...External encoder control mode
tr9cnt	...Torque control mode	H1Posc	...Position control (for high stiffness)
hybcnt	...Hybrid control mode	LoPosc	...Position control (for low stiffness)
Fclcnt	...Full-closed control mode	LoSPdc	...Speed control (for low stiffness)
PrSoPn	...Pressure open control mode	unFclc	...Integrated full-closed control mode

* In the case of MINAS AIII series, **Fclcnt** is displayed also for "Semi-closed control mode".

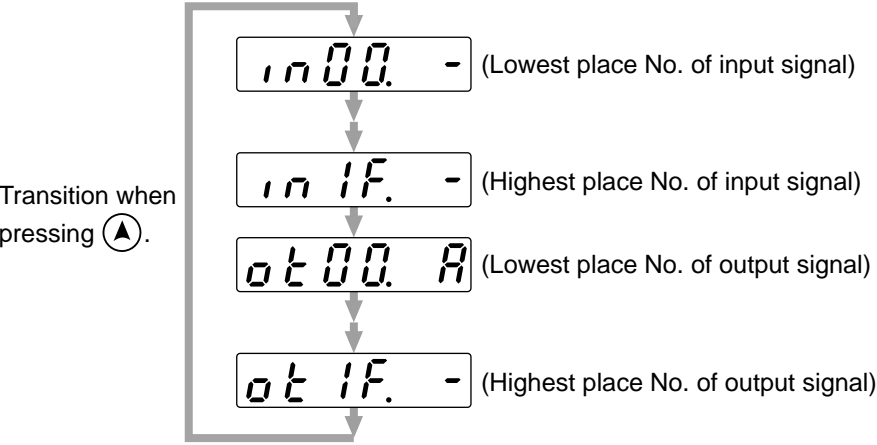
<Note>
PoScnt is displayed for both the fast response position control and the high performance position control. To check the control mode, refer to the set value of the parameter No. 02 control mode.

Display of I/O Signal Status

Displays the control input and output signal to be connected to CN X5 connector. For more information on the signal numbers, refer to I/O signal status table (for each series) at the end of this manual (pages 39-45).



Select the signal No. to be monitored by pressing ▲ ▼.

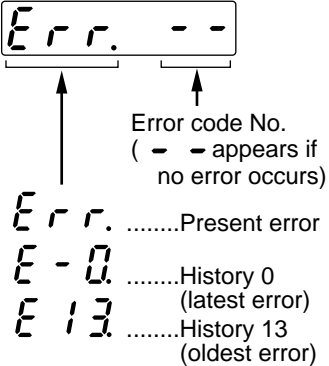


<Note>
• Shift the flashing decimal point with **SHIFT**.
in 00 A (Right side of decimal point : Signal selection mode)
in 00 A (Left side of decimal point : Input/Output selection mode)

• The other way to change signal No. at I/O selection mode Signal selection mode.
in 00 A
ot 00 -

4. Monitor Mode

Reference of Error Factor and History

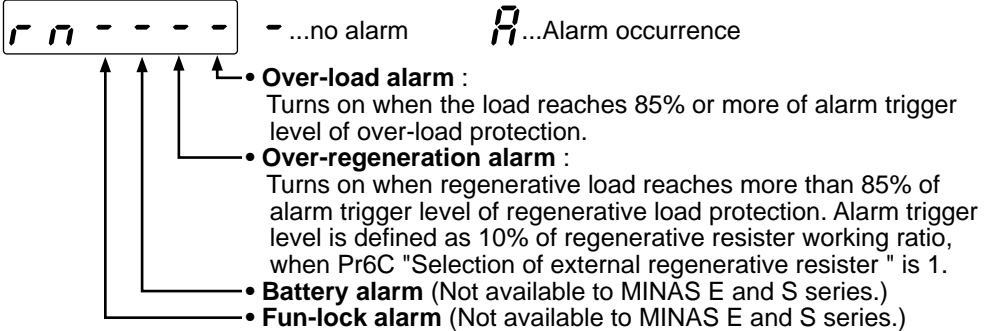


- <Note>
- Following errors are not included in the history.
 - 11: Control power supply under-voltage protection
 - 13: Main power supply under-voltage protection
 - 36: EEPROM parameter error protection
 - 37: EEPROM check code error protection
 - 39: Emergency stop input error protection
 - 93: External scale auto recognition error protection
 - 95: Motor auto recognition error protection
 - When one of the errors which are listed in error history occurs, this error and history o shows the same error No.
 - When error occurs, the display flashes.

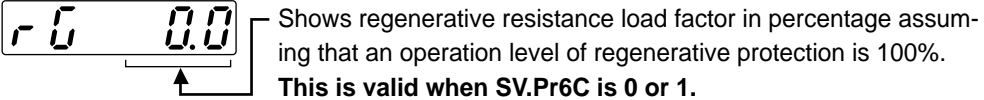
• You can refer the last 14 error factors (including present one). Press to select the factor to be referred.

<Notice>
For the relation between an error code number and an error, refer to “Protective Function” in Technical reference or Manual of various driver.

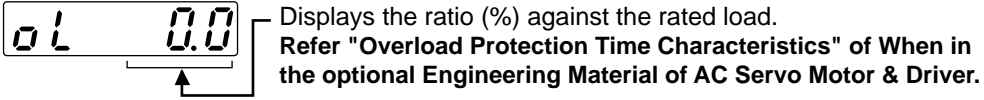
Alarm Display



Display of Regenerative Load Factor



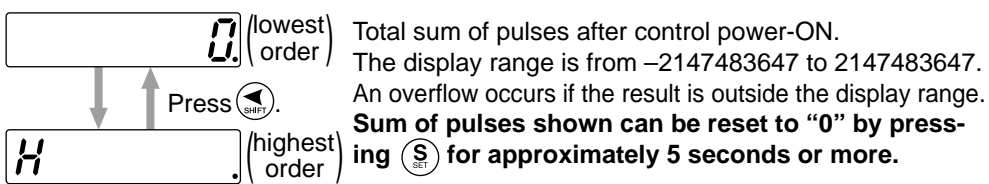
Display of Over-load Factor



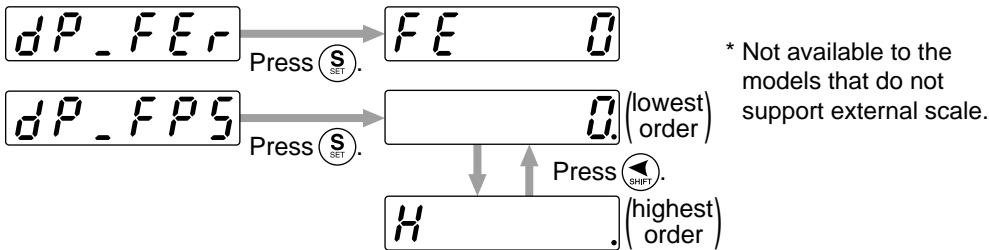
Display of Inertia Ratio



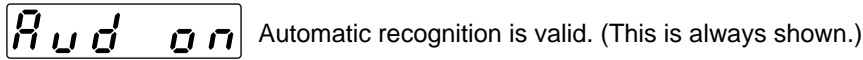
Display of Feedback Pulse Sum, Command Pulse Sum



Display of External Scale Deviation, External Scale Feedback Pulse Sum

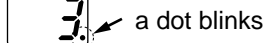
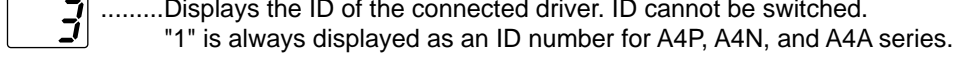


Automatic Motor Recognizing Function



Communication Selection

If RS485 is used for communication, change the ID of the servo driver with which communication is made.



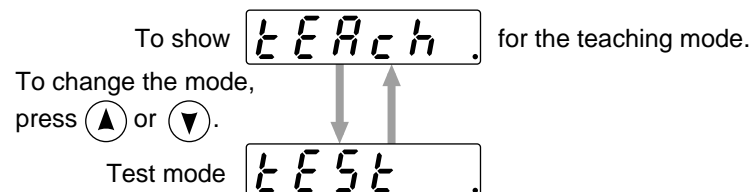
Select the ID of the driver to be operated by pressing .

5. Teaching Mode (Applicable only to MINAS A4P series)

Overview of Teaching Mode

In the teaching mode, you can operate the motor actually using this console, set a target position and execute a test operation, e.g., step operation, jog operation, etc.

Operation at **SELECTION display**



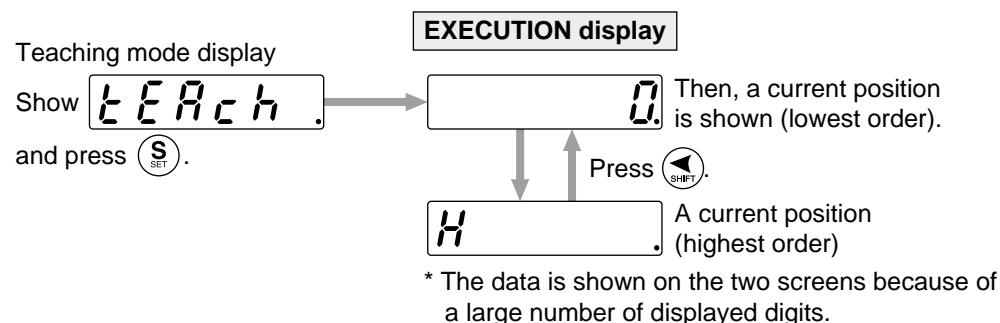
<Note>

- When operating the motor, check the safety, e.g., whether the wiring is correct, whether the servo motor is fixed, etc.
- When a trouble, e.g., cable breakage, has occurred during a motor operation, the servo driver overruns a maximum of approximately 1s. Check the safety fully.

Teaching Mode Setup

Operate the motor and set a target position.

Operation at **EXECUTION display**



* If "Error" is shown, it may be caused by any of the factors below.

- Homing is not completed.
- The servo turns off.
- Operation by I/O etc.
- 16.Pr51 (wrap around permission) is set to "1".

When you press **▲**, the motor rotates by specified travel in a positive direction.

When you press **▼**, the motor rotates by specified travel in a negative direction.

The travel can be set by 16.Pr48 (teaching travel setting).

The rotation speed can be set by 16.Pr40 (jog speed [low]).

When you press **M_{MODE}** during movement, the motor decelerates and stops.

When you keep on pressing **▲**, the motor rotates continuously in a positive direction while pressing it.

When you keep on pressing **▼**, the motor rotates continuously in a negative direction while pressing it.

The rotation speed can be set by 16.Pr40 (jog speed [low]).

When you press **M_{MODE}** during rotation, the rotation speed changes to a jog speed (high speed).

When you keep on pressing **▲** + **M_{MODE}**, the motor rotates continuously in a positive direction while pressing it.

When you keep on pressing **▼** + **M_{MODE}**, the motor rotates continuously in a negative direction while pressing it.

The rotation speed can be set by 16.Pr41 (jog speed [high]).

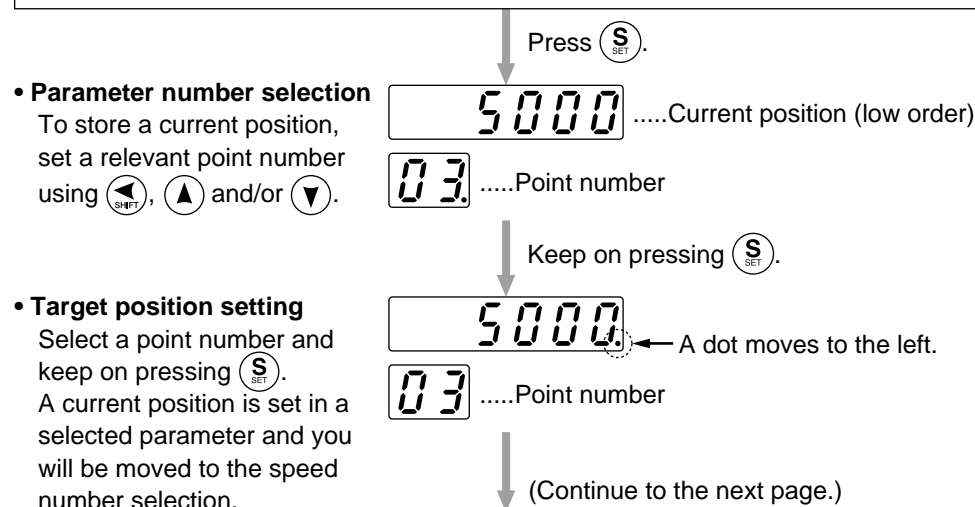
When you press **M_{MODE}** during rotation, the rotation speed changes to a jog speed (low speed).

Definition of positive or negative direction of rotation depends on the setting of 16.Pr50 (operating direction setting).

"Error" is shown when execution is made during an operation by I/O etc.

When you press **S_{SET}**, teaching is completed and you will be moved to the parameter number selection.

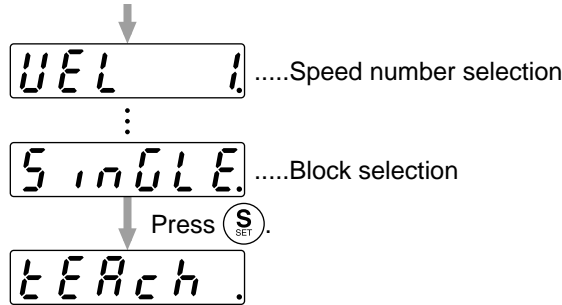
If you do not want to store a current position in a parameter, press **M_{MODE}** after finishing teaching.



5. Teaching Mode (Applicable only to MINAS A4P series)

• Step parameter setting

For the setting of the speed number selection – block selection, refer to "Step parameter" on page 22.

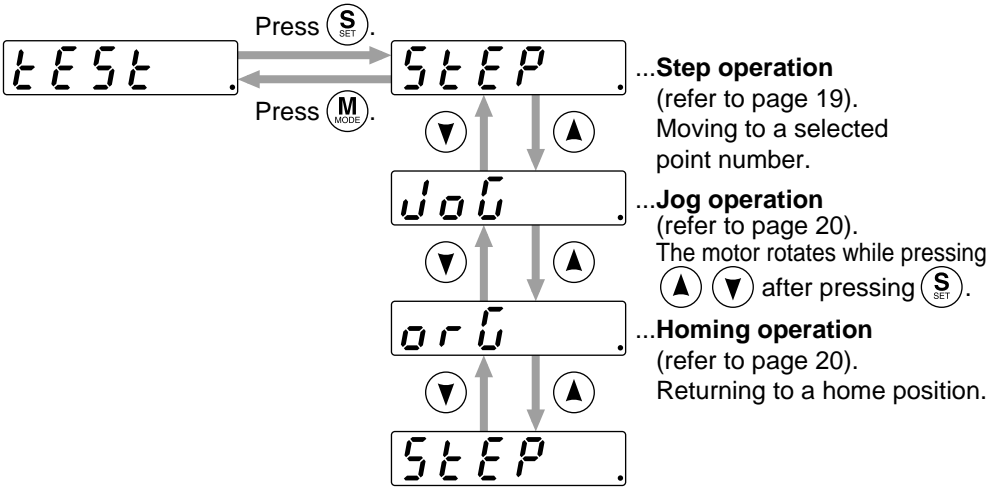


- * When you press M_MODE during parameter setting, any parameter in process is not changed and is tEAcH shown again.
- * When you set a target position by teaching, an operation mode fixed to the absolute value mode.
- * If you set a target position manually when the servo turns off or main power supply turns off, set SV.Pr67 and SV.Pr69 to "Deviation counter clear".
- * When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

Test Mode

Test operation is ready.

Press S_SET once and M_MODE once and ▲ once in the initial LED state to show tEst for the teaching mode.

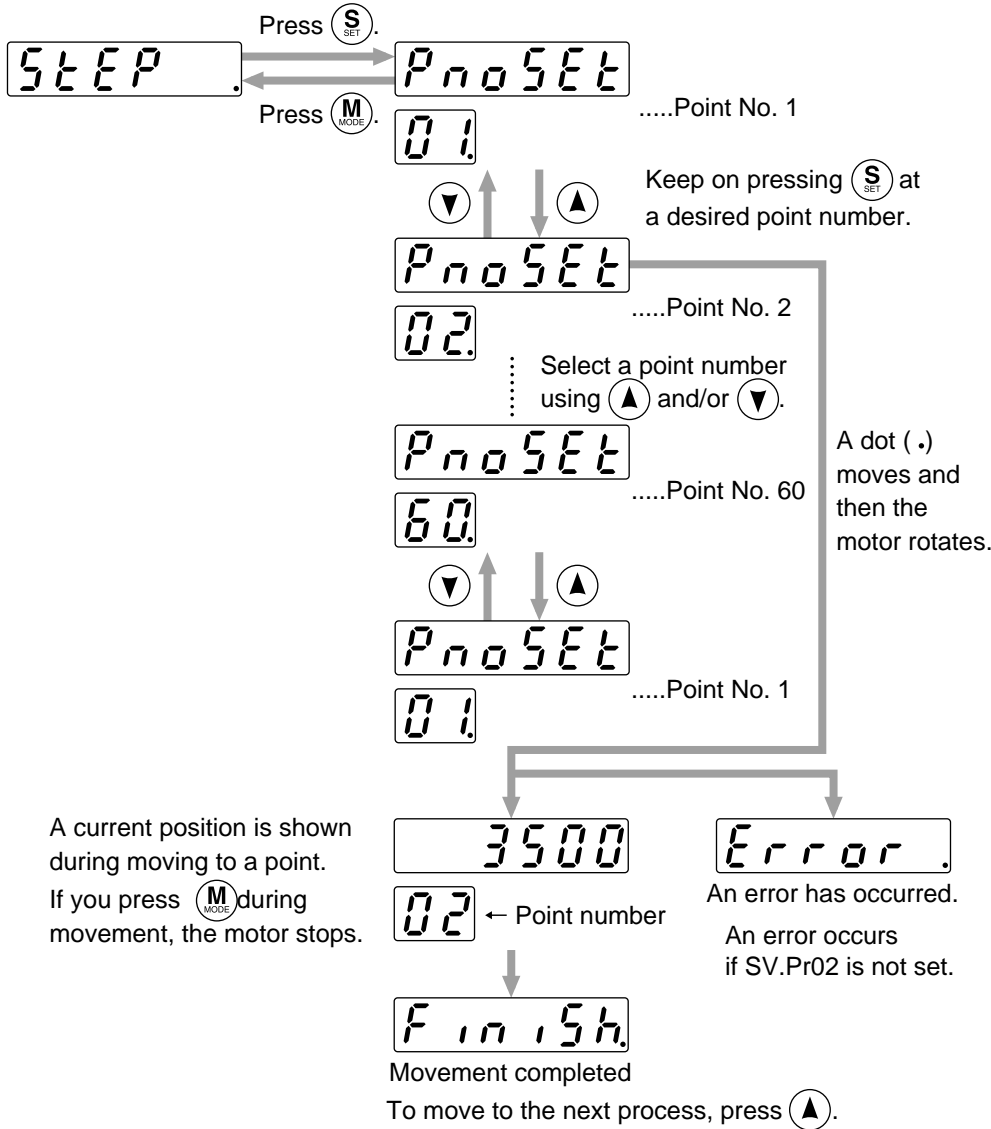


Step operation

An operation is performed at a position of a selected point number.

* Execute homing completely before performing a step operation.

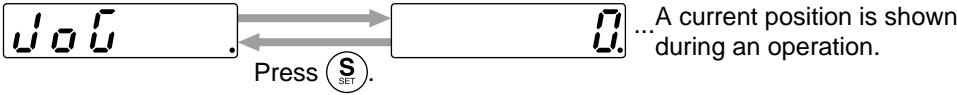
An example of an operation to move to the point No. 2 is shown below.



5. Teaching Mode (Applicable only to MINAS A4P series)

Jog operation

The motor can be operated by the jog operation.



- When you keep on pressing \blacktriangle , the motor rotates continuously in a positive direction while pressing it.

When you keep on pressing \blacktriangledown , the motor rotates continuously in a negative direction while pressing it.

The rotation speed can be set by 16.Pr40 (jog speed [low]).

When you press M_{MODE} during rotation, the rotation speed changes to a jog speed (low).
-
- When you keep on pressing $\blacktriangle + \text{M}_{\text{MODE}}$, the motor rotates continuously in a positive direction while pressing it.

When you keep on pressing $\blacktriangledown + \text{M}_{\text{MODE}}$, the motor rotates continuously in a negative direction while pressing it.

The rotation speed can be set by 16.Pr41 (jog speed [high]).

When you press M_{MODE} during rotation, the rotation speed changes to a jog speed (high).

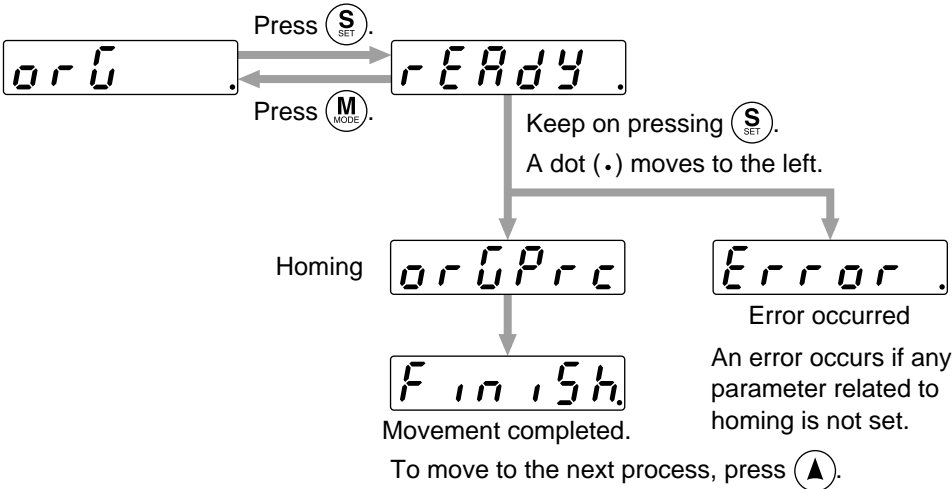
* Definition of positive or negative direction of rotation depends on the setting of 16.Pr50 (operating direction setting).

* If "Error" is shown, it may be caused by any of the factors below.

- The servo turns off.
- Operation by I/O etc.

Homing

Homing is performed as follows.



6. Parameter Setup Mode

Set the servo driver parameters.

The parameters are classified as follows:

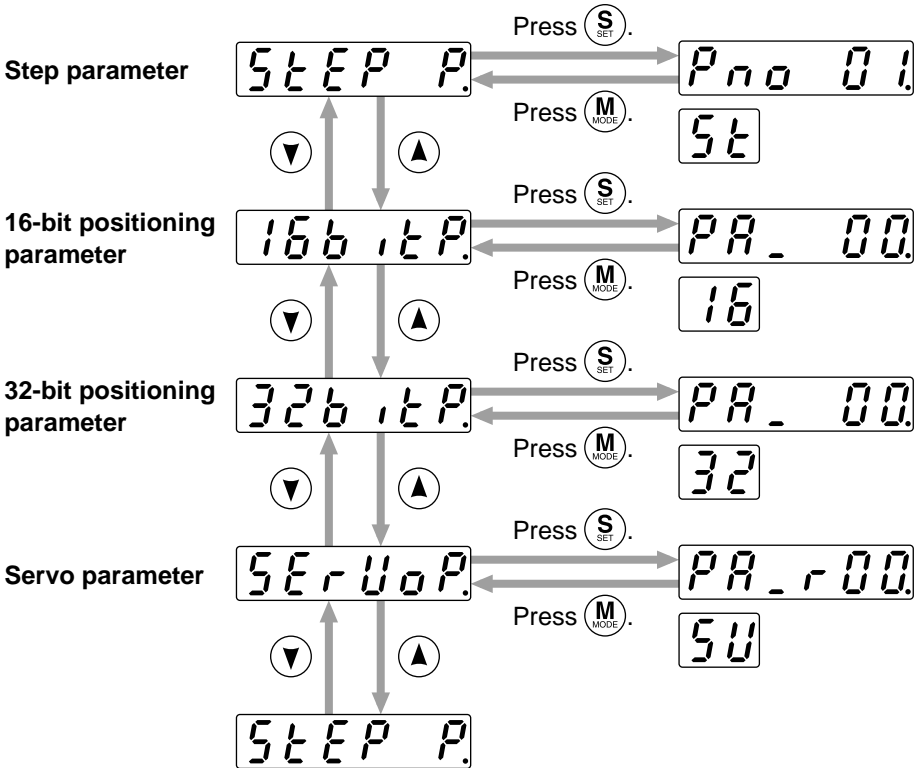
- **Step parameter** (A4P Series only)P.22
- **16-bit positioning parameter** (A4P Series only)P.23
- **32-bit positioning parameter** (A4P Series only)P.24
- **Servo parameter** (All Series)P.25

The parameters that can be set vary depending on the servo driver used.

Structure of Parameter Setup Mode (for A4P Series)

When you press M_{MODE} once and S_{SET} twice in the initial LED state,

the step parameter display shows **STEP P.**
Select a target parameter using \blacktriangledown and/or \blacktriangle .

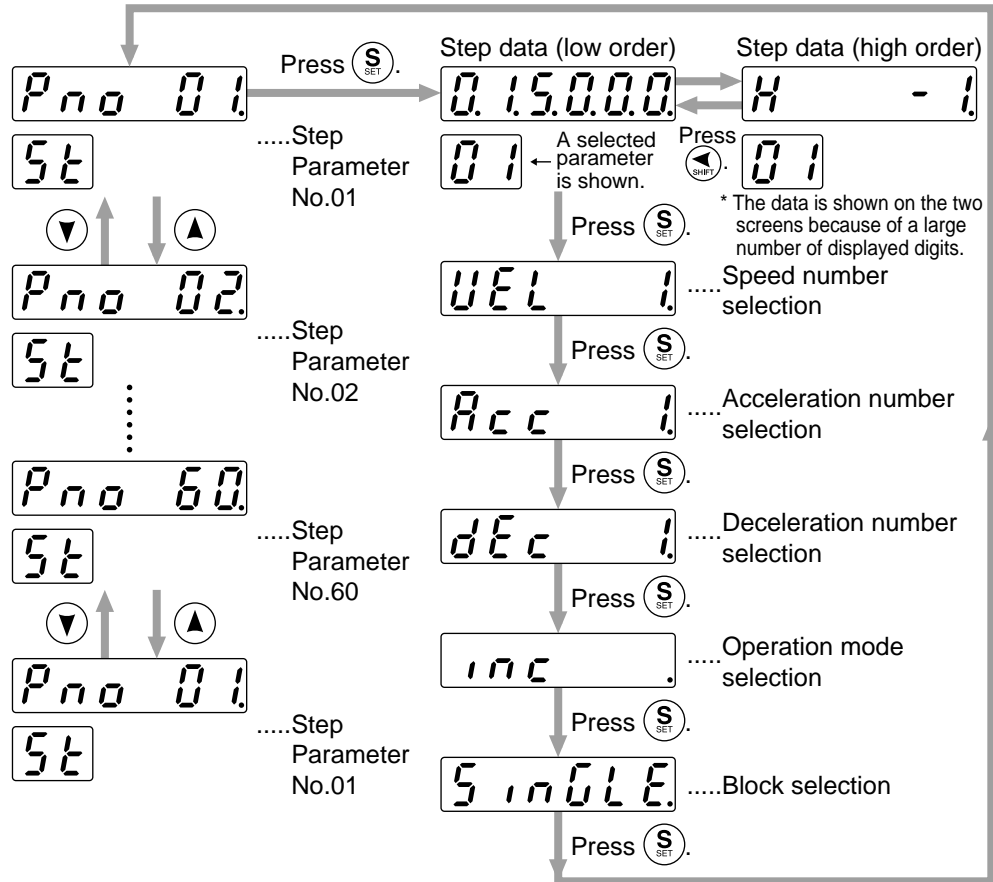


6. Parameter Setup Mode

Step Parameter (A4P Series only)

Step parameter can be set.

* An example to set in ST.Pr1 is shown below.



<Notice>

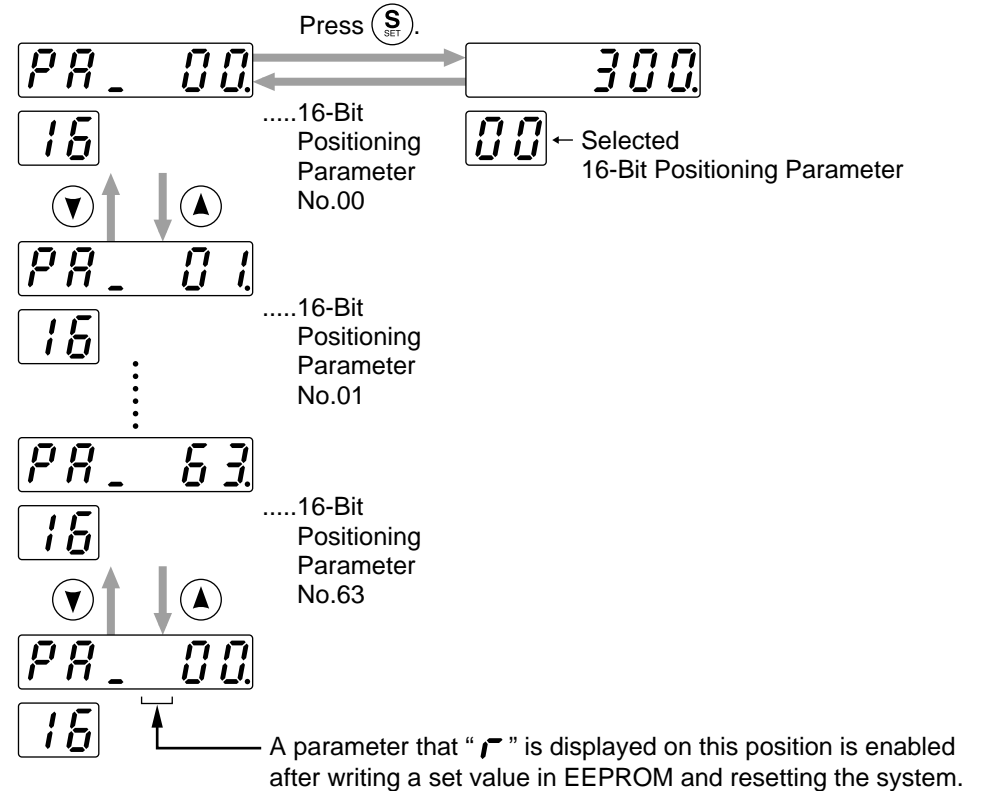
Select an input digit (a dot blinks) by the [SHIFT] key and a parameter by the [UP]/[DOWN] key. The step data is shown on the two screens because of a large number of displayed digits. If the parameter is a negative value, a dot lights. When you press the [SET] key, the parameter is modified.

* When you press **[M]** during parameter setting, any parameter in process is not changed and "No." display is shown again.

* When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

16-Bit Positioning Parameter (A4P Series only)

16-bit positioning parameter can be set.



<Notice>

Select an input digit (a dot blinks) by the [SHIFT] key and a parameter by the [UP]/[DOWN] key.

When you press the [SET] key, the parameter is modified.

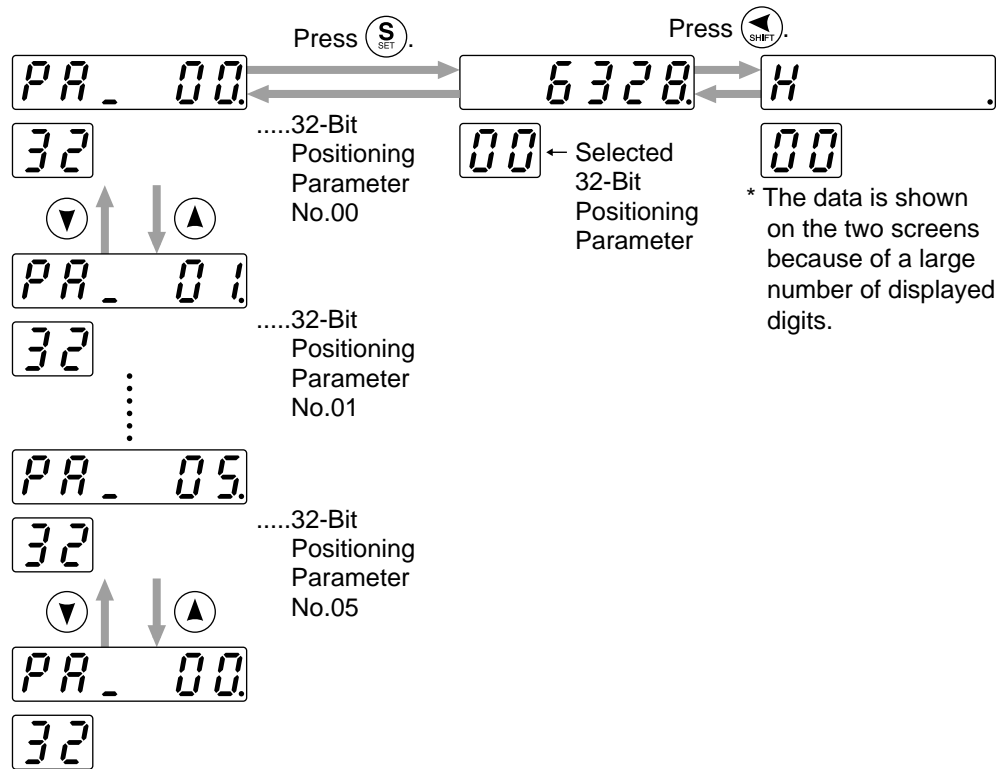
* When you press **[M]** during parameter setting, any parameter in process is not changed and "No." display is shown again.

* When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

6. Parameter Setup Mode

32-Bit Positioning Parameter (A4P Series only)

32-bit positioning parameter can be set.



<Notice>

Select an input digit (a dot blinks) by the [SHIFT] key and a parameter by the [UP]/[DOWN] key.

The 32-bit positioning parameter is shown on the two screens because of a large number of displayed digits.

If the parameter is a negative value, a dot lights.

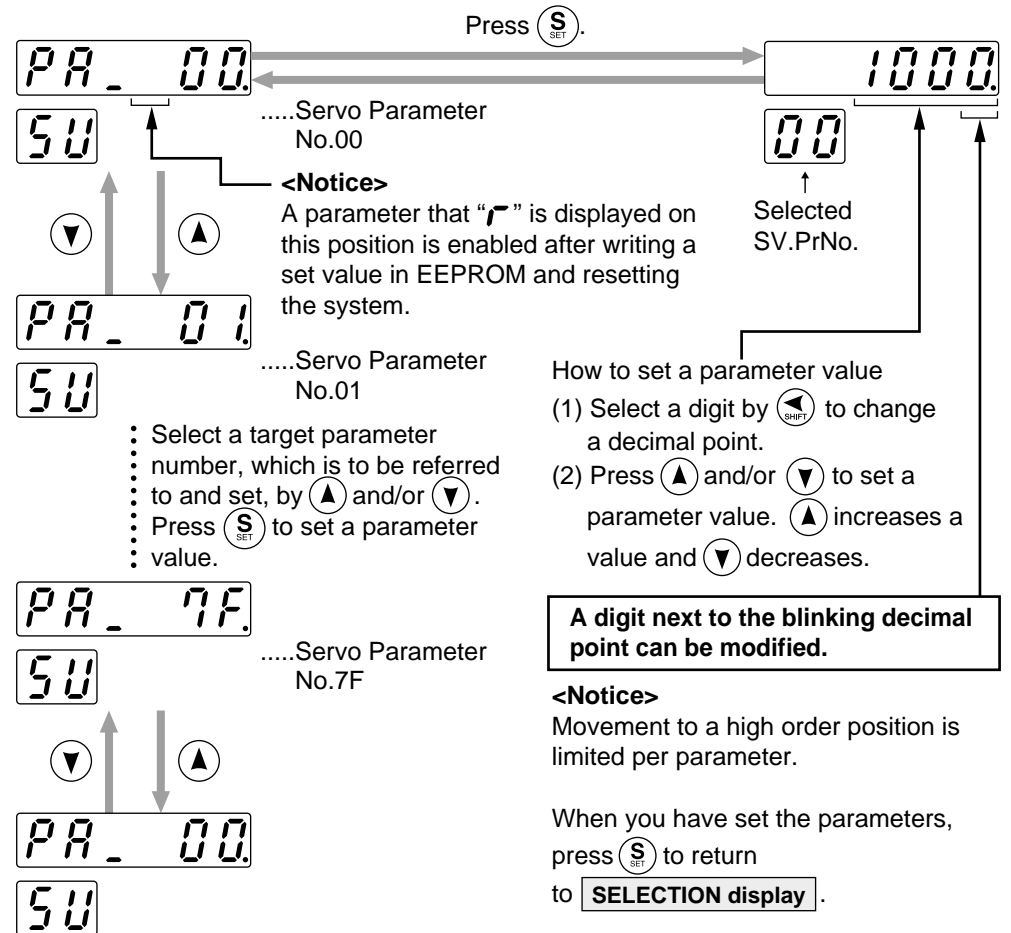
When you press the [SET] key, the parameter is modified.

* When you press **[M]** during parameter setting, any parameter in process is not changed and "No." display is shown again.

* When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

Servo Parameter

Servo parameter can be set.



<Remarks>

When you change a parameter value and press **[S]**, the change is reflected in the control. Modify gradually a value of parameter (especially, velocity loop gain, position loop gain, etc.) which exerts an influence on the motor operation, not changing it extremely at a time.

* When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

7. EEPROM Write Mode

Operation at SELECTION display

Starting from the initial LED status, press (S_{SET}) two times (A4P series is three times) after pressing (M_{MODE}), then brings the display of EEPROM Writing Mode,

EE . SEt.

Operation at EXECUTION display

Press (S_{SET}) to make EXECUTION DISPLAY to EEP -. Keep pressing (▲) until the display changes to StArT when you execute writing.

"-" increases while keep pressing (▲) (for approx. 5sec) as the right fig. shows.

EEP -.

EEP - -.

- - - - -.

Starts writing.

StArT

Finishes writing

Finishes writing

Writing completes To move to the next process, press (▲).

Writing error occurs

• When you change the parameters which contents become valid after resetting, rESEt. will be displayed after finishing wiring. Turn off the control power once to reset.

Note 1) When writing error occurs, make writing again. If the writing error repeats many times, this might be a failure.

Note 2) Don't turn off the power during EEPROM writing. Incorrect data might be written. If this happens, set up all of parameters again, and re-write after checking the data.

Note 3) Between StArT and FiniSh, take care not to pull out a console from a servo driver main unit. If the connector is pulled out accidentally, insert the connector again and retry from the beginning.

<Notice>

When you have set the parameters, write the parameters into EEPROM. If you turn the power supply off before writing the parameters into EEPROM, those parameters are cleared.

8. Auto-Gain Tuning Mode

<Remarks>

- For details of auto-gain tuning, refer to the optional Engineering Material of AC Servo Motor & Driver. Pay a special attention to applicable range and cautions.
- The motor will be driven in a preset pattern by the driver in auto-gain tuning mode. You can change this pattern with SV.Pr25 (Normal auto tuning motion setup), however, shift the load to where the operation in this pattern may not cause any trouble, then execute this tuning.
- Turn to Servo-ON before the execution.

Operation at SELECTION display

Starting from the initial LED status, press (M_{MODE}) three times (A4P series is four times) after pressing (S_{SET}), then brings the display of auto-gain tuning, At_nO!. then press (▲) (▼) to select the machine stiffness No.

machine stiffness No.

<Note>

For machine stiffness No., refer to the optional Engineering Material of AC Servo Motor & Driver.

Operation at EXECUTION display

Press (S_{SET}) to make EXECUTION DISPLAY to At_u -.

After inhibiting command input, and during Servo-On status, keep pressing (▲) until Console (LED) display changes to StArT.

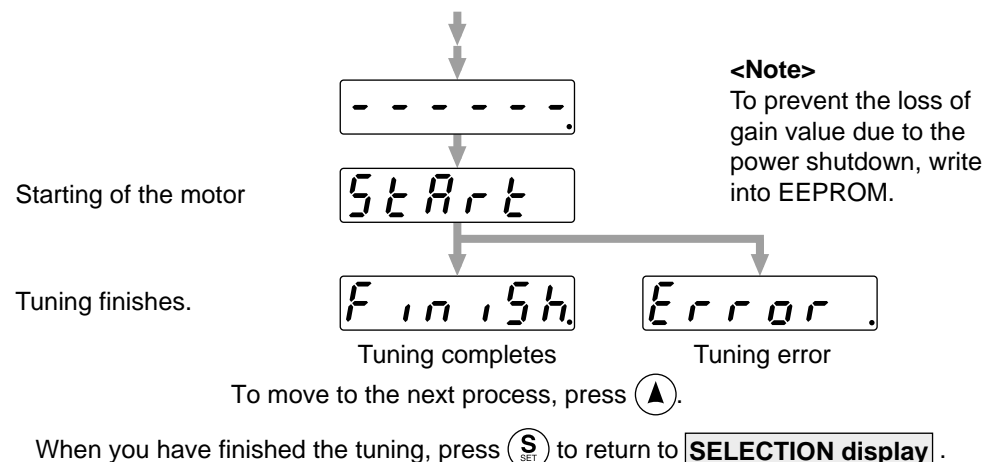
At_u -.

"-" increases by pressing (▲) (approx. 5sec) as the left fig. shows.

At_u - -.

(Continue to the next page.)

8. Auto-Gain Tuning Mode



<Remarks>

Don't disconnect the console from the driver between and . Should the connector is pulled out, insert it again and repeat the procedures from the beginning.

<Note> If the following status occurs during the tuning action, the tuning error occurs.

- (1) During the tuning action,
 - 1) when an error occurs
 - 2) when turned to Servo-OFF
 - 3) even the deviation counter is cleared
 - 4) when the tuning is actuated close to the limit switch
- (2) When the output torque is saturated because the inertia or load is too large.
- (3) When the tuning can not be executed well causing oscillation.

If the tuning error occurs, value of each gain returns to the previous value before the tuning. The driver does not trip except error occurrence. Depending on the load, the driver might oscillate without becoming tuning error. (not showing) Extra attention should be paid to secure the safety.

9. Auxiliary Function Mode

The console has three auxiliary functions.

(1) Alarm Clear

A protection function works and a motor stop (motor trip) can be canceled.

(2) Trial Run (JOG Run)

You can make a trial run (JOG run) without connecting the Connector, CN X5 to the host controller such as PLC.

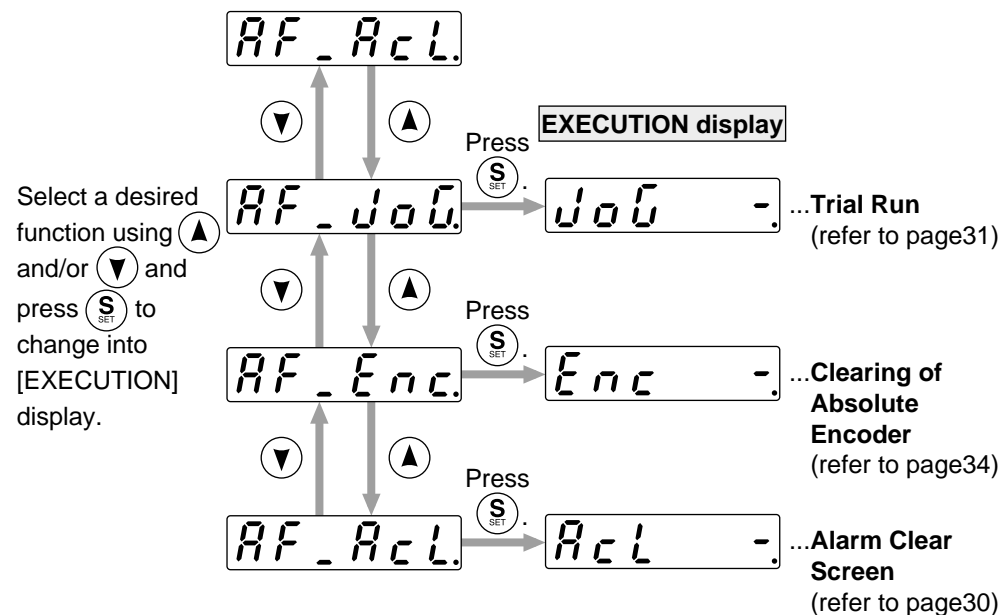
(3) Absolute encoder clear

A value of absolute encoder is cleared.

Structure of Auxiliary Function Mode

Operation at **SELECTION display**

Starting from the initial LED status, Press four times (A4P series is five times.) after pressing , then brings the display of Auxiliary Function Mode,



9. Auxiliary Function Mode

Alarm Clear Screen

Protective function will be activated and release the motor stall status (error status).

Operation at **SELECTION display**

Starting from the initial LED status, press **(M_{MODE})** four times (A4P series is five times) after pressing **(S_{SET})**, then press **(▲)** **(▼)** to make a display to **AF - Acl.**

Operation at **EXECUTION display**

Press **(S_{SET})** to call for EXECUTION display of **Acl -**.

Keep pressing **(▲)** until the console (LED) changes to **StArt**.

Acl - → **Acl --** → **- - - -** → **StArt**
 “-” increases by pressing **(▲)** (approx. 5sec) as the right fig. shows.

Alarm clear starts.

Clearing finishes.

Finish

Alarm clear completes

Error

Clear is not finished.

Release the error by resetting the power.

To move to the next process, press **(▲)**.

When you have set the alarm clear, press **(S_{SET})** to return to **SELECTION display**.

<Remarks>

Don't disconnect the console from the driver between **StArt** and **Finish**. Should the connector is pulled out, insert it again and repeat the procedures from the beginning.

Trial Run (JOG Run)

You can make a trial run (JOG run) without connecting the Connector, CN X5 to the host controller such as PLC.

<Remarks>

- Separate the motor from the load, detach the Connector, CN X5 before the trial run.
- Bring the user parameter setups to defaults, to avoid oscillation or other failure.
- Refer to page 18 for the jog operation of MINAS A4P series.
- Not available to MINAS AIII and S series.

Inspection Before Trial Run

(1) Inspection on wiring

- Miswiring ?
(Especially power input and motor output)
- Short or grounded ?
- Loose connection ?

(2) Confirmation of power supply and voltage

- Rated voltage ?

(3) Fixing of the servo motor

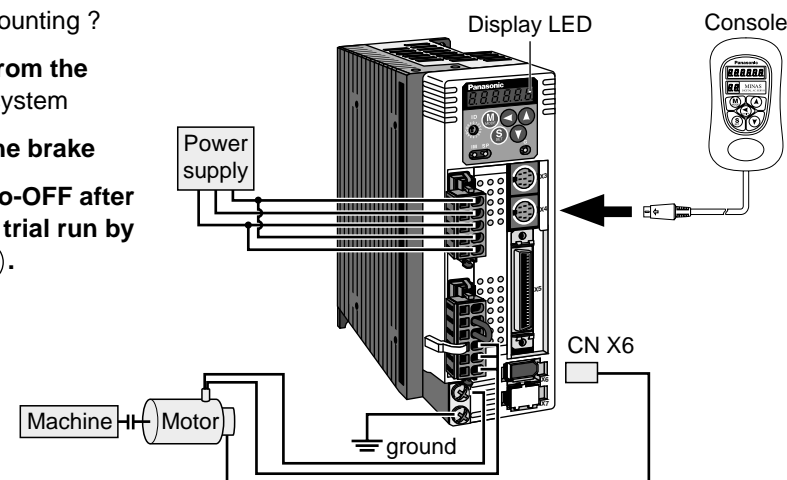
- Unstable mounting ?

(4) Separation from the mechanical system

(5) Release of the brake

(6) Turn to Servo-OFF after finishing the trial run by pressing **(S_{SET})**.

[Example of MINAS A4 Series]



9. Auxiliary Function Mode

Procedure for Trial Run

When you use the console, insert the console connector to CN X6 of the driver securely and turn on the driver power.

Motor rotational speed
(Initial LED status)

Operation at SELECTION display

Press four times after pressing , to setup auxiliary function mode, then with , make a display to

Operation at EXECUTION display

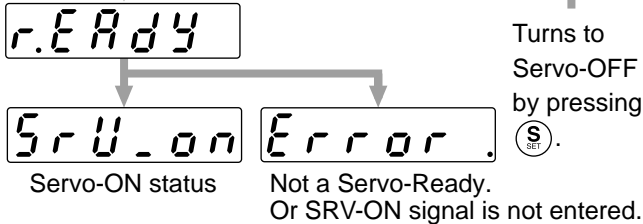
Press to call for EXECUTION DISPLAY of

Then keep pressing until the display of Console (LED) changes to . " - " increases by pressing (approx. 5sec) as the left fig. shows.

Preparation step 1 for trial run

Then keep pressing until the display of LED changes to . Keep pressing (approx. 3 sec) to shift the decimal point toward left as the left fig. shows.

Preparation step 2 for trial run



After the Servo-ON of preparation step 2 for trial run, the motor runs at the preset speed with SV.Pr57(JOG speed) to CCW direction by pressing CW by pressing .

The motor stops by release pressing .

When you have finished the trial run, press to return to **SELECTION display**.

<Caution>

If such trouble as disconnection of cable or connector occurs during trial run, the motor makes over-run for maximum 1 sec in MINAS A4 series and for maximum 100ms in MINAS E series. Pay an extra attention for securing safety.

9. Auxiliary Function Mode

Clearing of Absolute Encoder

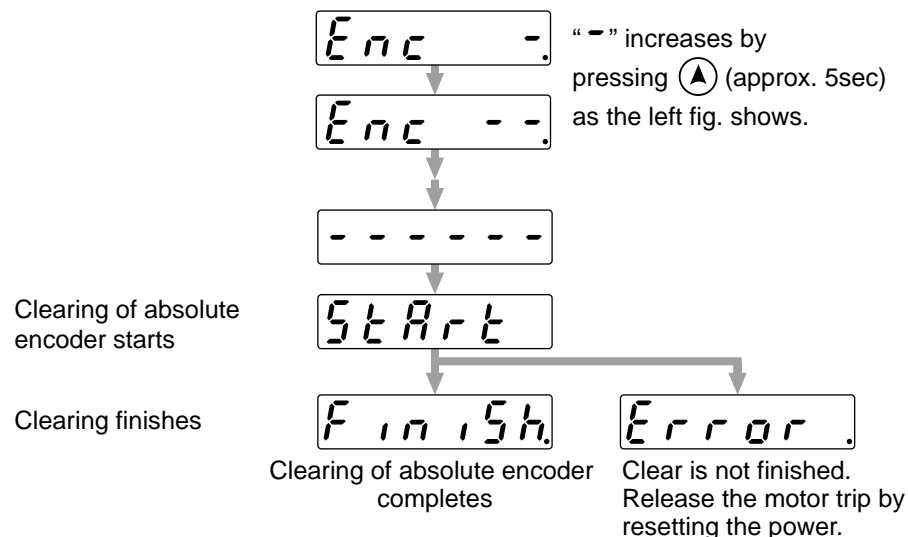
Only applicable to the system which uses absolute encoder. You can clear the alarm and multi-turn data of the absolute encoder.

Operation at **SELECTION display**

Press **(M)** four times (A4P series is five times.) after pressing **(S)**, to setup auxiliary function mode, then with **(▲)** **(▼)**, make a display to **AF - Enc**

Operation at **EXECUTION display**

Press **(S)** to call for EXECUTION DISPLAY of **Enc -**. Then keep pressing **(▲)** until the display of Console (LED) changes to **Start**.



To move to the next process, press **(▲)**.

When you have cleared the absolute encoder, press **(S)** to return to **SELECTION display**.

<Remarks>

Don't disconnect the console from the driver between **Start to **Finish**.** Should the connector is pulled out, insert it again and repeat the procedures from the beginning.

10. Copying Function Mode

Copying of Parameters from the Driver to the Console

Operation at **SELECTION display**

Starting from initial LED status, Press **(M)** five times (A4P is six times) after pressing **(S)**, then press **(▲)** **(▼)**, to make a display to **CF - A2c**.

Operation at **EXECUTION display**

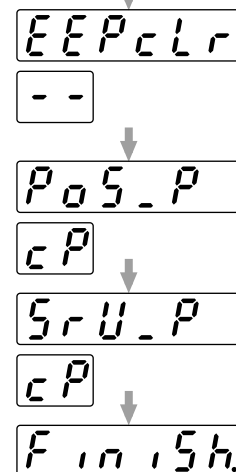
Press **(S)** to call for EXECUTION DISPLAY of **A2c -**.

Keep pressing **(▲)** until the console display (LED) changes to **EEPCLR**. “-” increases by pressing **(▲)** (approx. 3sec) as the left fig. shows.

Initialization of EEPROM of the console starts.

The positioning parameter is copied from the servo driver into the console and the positioning parameter is written into EEPROM (console). (Applicable only to MINAS A4P series.)

The servo parameter and driver type code are copied from the servo driver into the console and the driver type code of the servo parameter is written into EEPROM (console).



Copying completes normally.

To move to the next process, press **(▲)**.

When you have finished the copy, press **(S)** to return to **SELECTION display**.

<Remarks>

Don't disconnect the console from the driver between **EEPCLR to **Srv.P**.** Should the connector is pulled out, insert it again and repeat the procedures from the beginning.

<Note>

If the error display repeats frequently, check the broken cable, disconnection of the connector, misoperation due to noise or failure of console.

Error

Error display

<Remarks>

If error is displayed, repeat the procedures from the beginning. Press **(S)** for releasing error.

10. Copying Function Mode

Copying of Parameters from the Console to the Driver

Operation at SELECTION display

Starting from initial LED status, Press **(M)** five times (A4P is six times) after pressing **(S)**, then press **(▲)** **(▼)** to make a display to **CF - c2A**.

Operation at EXECUTION display

Press **(S)** to call for EXECUTION DISPLAY of **c2A -**.

Keep pressing **(▲)** until the console display (LED) change.
c2A - - " - " increases by pressing **(▲)** (approx. 3sec) as the left fig. shows.
- - - - -

If a type code stored in EEPROM (console) and another type code of servo driver are corresponding to each other.

If a type code stored in EEPROM (console) and another type code of servo driver are different from each other.

Press **(M)**.

differ

When you keep on pressing **(◀)**, a dot (.) moves to the left.

Check whether or not to transfer the read parameter to the servo driver.

EEP.ch

- -

The positioning parameter is copied from the console into the servo driver.
 (Applicable only to MINAS A4P series.)

Pos.P

cP

The servo parameter is copied from the console into the servo driver and the driver type code of the servo parameter is written into EEPROM (console).

SrU.P

cP

Finish

Copying completes normally.

To move to the next process, press **(▲)**.

When you have finished the copy, press **(S)** to return to **SELECTION display**.

<Remarks>

Don't disconnect the console from the driver between **EEP.ch** to **SrU.P**. Should the connector is pulled out, insert it again and repeat the procedures from the beginning.

<Note>

If the error display repeats frequently, check the broken cable, disconnection of the connector, misoperation due to noise or failure of console.

Error

Error display

<Remarks>

If error is displayed, repeat the procedures from the beginning.

11. Supplement

Function comparison table

Function		Series name							
Mode	Details	A4	A4P	A4N	A4A	A4T	AIII	E	S
Monitor	Positional deviation	○	○	○	○	○	○	○	○
	Motor rotational speed	○	○	○	○	○	○	○	○
	Torque output	○	○	○	○	○	○	○	○
	Control mode	○	○	○	○	○	○	○	○
	I/O signal status	○	○	○	○	○	○	○	○
	Error factor, history	○	○	○	○	○	○	○	○
	Soft version	○	○	○	○	○	○	○	○
	Alarm	○	○	○	○	○	○	○	○
	Regenerative load factor	○	○	○	○	○	○	○	○
	Overload factor	○	○	○	○	○	○	○	○
	Inertia ratio	○	○	○	○	○	○	○	○
	Feedback pulse sum	○	○	○	○	○	○	○	○
	Command pulse sum	○	○	○	○	○	○	○	○
	External scale deviation*1	○	○	○	○	—	○	—	—
	External scale feedback pulse sum*1	○	○	○	○	—	○	—	—
	Automatic motor recognizing function	○	○	○	○	○	○	○	—
	Selection of communication	○	○	○	○	○	○	—	—
Teaching	Teaching	—	○	—	—	—	—	—	—
	Test	—	○	—	—	—	—	—	—
Parameter setup	Servo Parameter	○	○	○	○	○	○	○	○
	Step Parameter	—	○	—	—	—	—	—	—
	16-Bit Positioning Parameter	—	○	—	—	—	—	—	—
	32-Bit Positioning Parameter	—	○	—	—	—	—	—	—
EEPROM Write		○	○	○	○	○	○	○	○
Auto-Gain Tuning		○	○	○	○	○	○	○	○
Auxiliary Function	Alarm Clear	○	○	○	○	○	○	○	○
	Trial Run (JOG Run)	○	—*3	○	○	○	—	○	—
	Absolute encoder clear*2	○	○	○	○	○	○	—	—
Copying Function	Servo Parameter	○	○	○	○	○	○	○	○
	Step Parameter	—	○	—	—	—	—	—	—
	16-Bit Positioning Parameter	—	○	—	—	—	—	—	—
	32-Bit Positioning Parameter	—	○	—	—	—	—	—	—

*1) Not available to the models that do not support external scale.

*2) Applicable only to the systems using absolute encoders.

*3) A test run for the A4P series can be performed through the test jog operation in the teaching mode.

I/O signal status table

A4 Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	Servo-Ready	S-RDY
01	Alarm clear	A-CLR	Servo alarm output	ALM
02	CW over-travel inhibit	CWL	Positioning complete (In-position)	COIN
03	CCW over-travel inhibit	CCWL	Brake release output	BRK-OFF
04	Control mode switching	C-MODE	Zero-speed detection	ZSP
05	Speed zero clamp	ZEROSPD	Torque in-limit	TCL
06	Switching of electronic gear	DIV	In-speed(Speed coincidence)	AT-SPEED
07	For manufacturer's use		For manufacturer's use	
08	Command pulse input inhibition	INH	For manufacturer's use	
09	Gain switching	GAIN	At-speed(Speed arrival)	COIN
0A	Deviation counter clear	CL	Full-closed positioning complete	EX-COIN
0B	For manufacturer's use		For manufacturer's use	
0C	Selection 1 of Internal command speed	INTSPD1	For manufacturer's use	
0D	Selection 2 of Internal command speed	INTSPD2	For manufacturer's use	
0E	For manufacturer's use		For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	Damping control switching input	VS-SEL	For manufacturer's use	
14	Selection 3 of internal command speed	INTSPD3	For manufacturer's use	
15	Torque limit switching input	TL-SEL	For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	For manufacturer's use		For manufacturer's use	
1A	For manufacturer's use		For manufacturer's use	
1B	For manufacturer's use		For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

11. Supplement

A4P Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	For manufacturer's use		Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	Positioning completion output /Output during deceleration	COIN /DCLON
03	CCW over-travel inhibit input	CCWL	Brake release output	BRK-OFF
04	For manufacturer's use		For manufacturer's use	
05	For manufacturer's use		For manufacturer's use	
06	For manufacturer's use		For manufacturer's use	
07	Multi-function input 1	EX-IN1	Motor operation condition output	BUSY
08	Multi-function input 2	EX-IN2	For manufacturer's use	
09	For manufacturer's use		For manufacturer's use	
0A	For manufacturer's use		For manufacturer's use	
0B	Home sensor input	Z-LS	For manufacturer's use	
0C	For manufacturer's use		For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	Emergency stop input	EMG-STP	For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		Present position output	P1OUT
11	For manufacturer's use		Present position output	P2OUT
12	For manufacturer's use		Present position output	P4OUT
13	For manufacturer's use		Present position output	P8OUT
14	For manufacturer's use		Present position output	P16OUT
15	For manufacturer's use		Present position output	P32OUT
16	Point specifying input	P1IN	For manufacturer's use	
17	Point specifying input	P2IN	For manufacturer's use	
18	Point specifying input	P4IN	For manufacturer's use	
19	Point specifying input	P8IN	For manufacturer's use	
1A	Point specifying input	P16IN	For manufacturer's use	
1B	Point specifying input	P32IN	For manufacturer's use	
1C	Strobe signal input	STB-IN	For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

• Point Number Conversion Table

The console shows the point numbers in the specified point input (No. 16 to 1B) and the current position output (No. 10 to 15) for the of I/O signal state. The point number is expressed in a six-digit binary number. Convert the point number from the I/O signal state referring to the table below.

The console shows [A] or [-] below when Servo Parameter No.58 is "1". If Servo Parameter No.58 is "0", interchange [A] and [-] with each other.

Input signal No.	1B	1A	19	18	17	16
Output signal No.	15	14	13	12	11	10
Point No.	P32	P16	P8	P4	P2	P1
0	-	-	-	-	-	-
1	-	-	-	-	-	A
2	-	-	-	-	A	-
3	-	-	-	-	A	A
4	-	-	-	A	-	-
5	-	-	-	A	-	A
6	-	-	-	A	A	-
7	-	-	-	A	A	A
8	-	-	A	-	-	-
9	-	-	A	-	-	A
10	-	-	A	-	A	-
11	-	-	A	-	A	A
12	-	-	A	A	-	-
13	-	-	A	A	-	A
14	-	-	A	A	A	-
15	-	-	A	A	A	A
16	-	A	-	-	-	-
17	-	A	-	-	-	A
18	-	A	-	-	A	-
19	-	A	-	-	A	A
20	-	A	-	A	-	-
21	-	A	-	A	-	A
22	-	A	-	A	A	-
23	-	A	-	A	A	A
24	-	A	A	-	-	-
25	-	A	A	-	-	A
26	-	A	A	-	A	-
27	-	A	A	-	A	A
28	-	A	A	A	-	-
29	-	A	A	A	-	A
30	-	A	A	A	A	-
31	-	A	A	A	A	A

Input signal No.	1B	1A	19	18	17	16
Output signal No.	15	14	13	12	11	10
Point No.	P32	P16	P8	P4	P2	P1
32	A	-	-	-	-	-
33	A	-	-	-	-	A
34	A	-	-	-	A	-
35	A	-	-	-	A	A
36	A	-	-	A	-	-
37	A	-	-	A	-	A
38	A	-	-	A	A	-
39	A	-	-	A	A	A
40	A	-	A	-	-	-
41	A	-	A	-	-	A
42	A	-	A	-	A	-
43	A	-	A	-	A	A
44	A	-	A	A	-	-
45	A	-	A	A	-	A
46	A	-	A	A	A	-
47	A	-	A	A	A	A
48	A	A	-	-	-	-
49	A	A	-	-	-	A
50	A	A	-	-	A	-
51	A	A	-	-	A	A
52	A	A	-	A	-	-
53	A	A	-	A	-	A
54	A	A	-	A	A	-
55	A	A	-	A	A	A
56	A	A	A	-	-	-
57	A	A	A	-	-	A
58	A	A	A	-	A	-
59	A	A	A	-	A	A
60	A	A	A	A	-	-
61	A	A	A	A	-	A
62	A	A	A	A	A	-
63	A	A	A	A	A	A

A : Active (The signal is valid.)

- : Inactive (The signal is invalid.)

11. Supplement

A4N Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	External servo-on /multi function input 4	EX-SON /EX-IN4	For manufacturer's use	
01	For manufacturer's use		Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	For manufacturer's use	
03	CCW over-travel inhibit input	CCWL	Brake release output	BRK-OFF
04	Home sensor input	HOME	For manufacturer's use	
05	Multi-function input 1	EX-IN1	For manufacturer's use	
06	Multi-function input 2	EX-IN2	For manufacturer's use	
07	Multi-function input 3	EX-IN3	For manufacturer's use	
08	For manufacturer's use		For manufacturer's use	
09	For manufacturer's use		For manufacturer's use	
0A	For manufacturer's use		For manufacturer's use	
0B	For manufacturer's use		For manufacturer's use	
0C	For manufacturer's use		For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	Emergency stop input	EMG-STP	For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	For manufacturer's use		For manufacturer's use	
1A	For manufacturer's use		For manufacturer's use	
1B	For manufacturer's use		For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

A4A Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	For manufacturer's use		Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	For manufacturer's use	
03	CCW over-travel inhibit input	CCWL	Brake release output	BRK-OFF
04	For manufacturer's use		For manufacturer's use	
05	For manufacturer's use		For manufacturer's use	
06	For manufacturer's use		For manufacturer's use	
07	For manufacturer's use		For manufacturer's use	
08	Command pulse input inhibit	INH	For manufacturer's use	
09	For manufacturer's use		For manufacturer's use	
0A	For manufacturer's use		For manufacturer's use	
0B	Home sensor input	Z-LS	For manufacturer's use	
0C	For manufacturer's use		For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	Emergency stop input	EMG-STP	For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	Deceleration stop signal input	STP	For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	Set up input	SETUP	For manufacturer's use	
1A	Speed select signal input 1	SEL1	For manufacturer's use	
1B	Speed select signal input 2	SEL2	For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

11. Supplement

A4T Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	Alarm clear	A-CLR	Servo alarm output	ALM
02	For manufacturer's use		Positioning completion output	COIN
03	For manufacturer's use		Brake release output	BRK-OFF
04	For manufacturer's use		For manufacturer's use	
05	For manufacturer's use		For manufacturer's use	
06	For manufacturer's use		For manufacturer's use	
07	For manufacturer's use		For manufacturer's use	
08	Command pulse input inhibit	INH	For manufacturer's use	
09	For manufacturer's use		For manufacturer's use	
0A	Deviation counter clear input	CL	For manufacturer's use	
0B	For manufacturer's use		For manufacturer's use	
0C	For manufacturer's use		For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	For manufacturer's use		For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	Status enable input	ST-ENB	For manufacturer's use	
18	Offset cancel input	OFF-CAN	For manufacturer's use	
19	Pressure command strobe input	INTSTB	For manufacturer's use	
1A	Pressure command select 1 input	INTSET1	For manufacturer's use	
1B	Pressure command select 2 input	INTSET2	For manufacturer's use	
1C	Pressure command select 3 input	INTSET3	For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

AIII Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	Alarm clear	A-CLR	Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	For manufacturer's use	
03	CCW over-travel inhibit input	CCWL	For manufacturer's use	
04	Control mode switching	C-MODE	For manufacturer's use	
05	Speed zero clamp	ZEROSPD	Brake release output	BRK-OFF
06	For manufacturer's use		Positioning completion output /At-speed	COIN
07	For manufacturer's use		Torque limit control	TLC
08	Command pulse input inhibit	INH	Zero speed detection	ZSP
09	For manufacturer's use		For manufacturer's use	
0A	Deviation counter clear input	CL	For manufacturer's use	
0B	Gain switching	GAIN	For manufacturer's use	
0C	Command pulse scale switch 1	DIV	For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	For manufacturer's use		For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	For manufacturer's use		For manufacturer's use	
1A	For manufacturer's use		For manufacturer's use	
1B	For manufacturer's use		For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

11. Supplement

E Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	Alarm clear	A-CLR	Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	Positioning completion output	COIN
03	CCW over-travel inhibit input	CCWL	Brake release output	BRK-OFF
04	For manufacturer's use		Zero speed detected	ZSP
05	Zero speed clamp	ZEROSPD	Torque limit control	TCL
06	First command division /multiplication switching	DIV	For manufacturer's use	
07	For manufacturer's use		For manufacturer's use	
08	For manufacturer's use		For manufacturer's use	
09	Gain switching	GAIN	Achieved speed	COIN
0A	Deviation counter clear	CL	For manufacturer's use	
0B	For manufacturer's use		For manufacturer's use	
0C	Internal command speed selection 1	INTSPD1	For manufacturer's use	
0D	Internal command speed selection 2	INTSPD2	For manufacturer's use	
0E	For manufacturer's use		For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	For manufacturer's use		For manufacturer's use	
1A	For manufacturer's use		For manufacturer's use	
1B	For manufacturer's use		For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

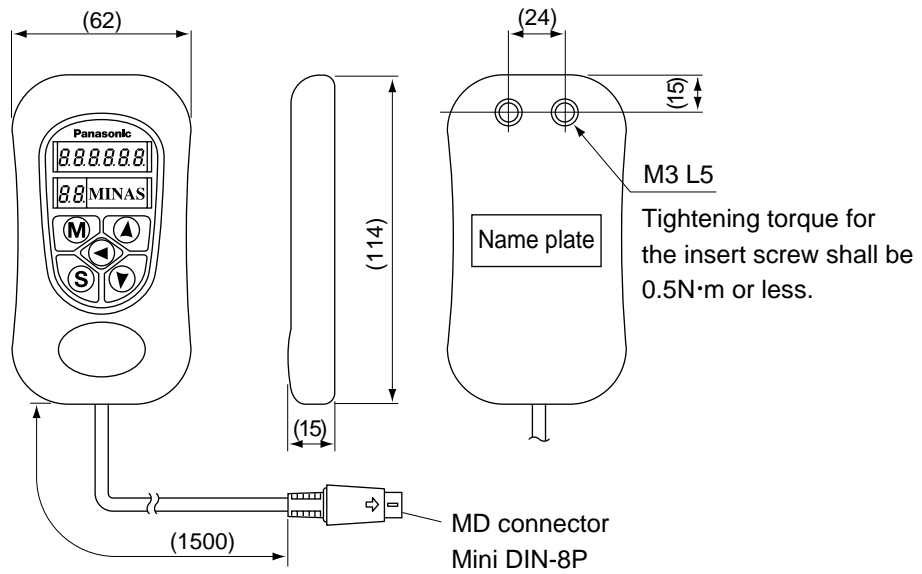
For more information on the signals, refer to the technical reference or the specifications of each driver.

S Series

Signal No.	Input signal		Output signal	
	Title	Symbol	Title	Symbol
00	Servo-ON	SRV-ON	For manufacturer's use	
01	Servo alarm output	A-CLR	Servo alarm output	ALM
02	CW over-travel inhibit input	CWL	Positioning completion output	COIN
03	CCW over-travel inhibit input	CCWL	Brake release output	BRK-OFF
04	For manufacturer's use		For manufacturer's use	
05	Zero speed clamp	ZEROSPD	For manufacturer's use	
06	First command division /multiplication switching	DIV	For manufacturer's use	
07	For manufacturer's use		For manufacturer's use	
08	Gain switching	GAIN	Achieved speed	COIN
09	Deviation counter clear	CL	For manufacturer's use	
0A	For manufacturer's use		For manufacturer's use	
0B	Internal command speed selection 1	INTSPD1	For manufacturer's use	
0C	Internal command speed selection 2	INTSPD2	For manufacturer's use	
0D	For manufacturer's use		For manufacturer's use	
0E	For manufacturer's use		For manufacturer's use	
0F	For manufacturer's use		For manufacturer's use	
10	For manufacturer's use		For manufacturer's use	
11	For manufacturer's use		For manufacturer's use	
12	For manufacturer's use		For manufacturer's use	
13	For manufacturer's use		For manufacturer's use	
14	For manufacturer's use		For manufacturer's use	
15	For manufacturer's use		For manufacturer's use	
16	For manufacturer's use		For manufacturer's use	
17	For manufacturer's use		For manufacturer's use	
18	For manufacturer's use		For manufacturer's use	
19	For manufacturer's use		For manufacturer's use	
1A	For manufacturer's use		For manufacturer's use	
1B	For manufacturer's use		For manufacturer's use	
1C	For manufacturer's use		For manufacturer's use	
1D	For manufacturer's use		For manufacturer's use	
1E	For manufacturer's use		For manufacturer's use	
1F	For manufacturer's use		For manufacturer's use	

For more information on the signals, refer to the technical reference or the specifications of each driver.

Dimensions



MEMO

After-Sale Service (Repair)

MEMO

Repair

Consult to a dealer from whom you have purchased the product for details of repair.
When the product is incorporated to the machine or equipment you have purchased, consult to the manufacture or the dealer of the machine or equipment.

Cautions for Proper Use

- This product is intended to be used with a general industrial product, but not designed or manufactured to be used in a machine or system that may cause personal death when it is failed.
- Install a safety equipments or apparatus in your application, when a serious accident or loss of property is expected due to the failure of this product.
- Consult us if the application of this product is under such special conditions and environments as nuclear energy control, aerospace, transportation, medical equipment, various safety equipments or equipments which require a lesser air contamination.
- We have been making the best effort to ensure the highest quality of the products, however, application of exceptionally larger external noise disturbance and static electricity, or failure in input power, wiring and components may result in unexpected action. It is highly recommended that you make a fail-safe design and secure the safety in the operative range.
- If the motor shaft is not electrically grounded, it may cause an electrolytic corrosion to the bearing, depending on the condition of the machine and its mounting environment, and may result in the bearing noise. Checking and verification by customer is required.
- Failure of this product depending on its content, may generate smoke of about one cigarette. Take this into consideration when the application of the machine is clean room related.
- Please be careful when using in an environment with high concentrations of sulphur or sulphuric gases, as sulphuration can lead to disconnection from the chip resistor or a poor contact connection.
- Take care to avoid inputting a supply voltage which significantly exceeds the rated range to the power supply of this product. Failure to heed this caution may result in damage to the internal parts, causing smoking and/or a fire and other trouble.

Technical information

Technical information of this product (Instruction Manual, CAD data) can be downloaded from the following web site.

industrial.panasonic.com/ac/e/

MEMO (Fill in the blanks for reference in case of inquiry or repair.)

Date of purchase		Model No.	DV0P4420
Dealer			
	Tel : () -		

**Industrial Device Business Division,
Panasonic Industry Co., Ltd.**

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