

Servo Drives

## Quick Start Guide

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PANATERM  
Trial Run



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# 1 Introduction

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## 1.1 Before you start

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Before operating this product, read the safety instructions in the related *Operating Instructions*.

This product is for industrial use only.

Electrical connections must be made by qualified electrical personnel.

## 1.2 About this document

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This *Quick Start Guide* is intended to help you set up a MINAS servo drive system. It is based on information from the MINAS series manuals and the practical experience of our engineers.

Step-by-step instructions will guide you through configuring a trial run for a MINAS servo driver in the PC configuration software PANATERM.

## 1.3 Related documents

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Please refer to the original servo drive manuals for detailed information. Click on the following links to download the documents from our Panasonic Download Center.

- Information on wiring, position control, and parameters:  
[Operating Instructions \(Overall\) AC Servo Motors & Driver MINAS A5 series](#)  
[Operating Instructions \(Overall\) AC Servo Motors & Driver MINAS A6 series](#)
- Information on using the PANATERM configuration software:  
[Operation Manual: Set up support software PANATERM Ver. 6.0](#)
- Information on how to reduce electromagnetic interference (EMI):  
[Recommendations for EMC-compliant wiring of servo drivers and motors](#)
- Other Quick Start Guides:  
[QS2000, Position control by pulse and direction signals \(MINAS A5/A5E/A6SG/A6SF\)](#)  
[QS2001, Position control by block operation using input signals \(MINAS A6SG/A6SF\)](#)  
[QS2002, Position control by block operation using Modbus commands \(MINAS A6\)](#)  
[QS2003, Position control in EtherCAT networks MINAS A5B/A6B](#)  
[QS2004, Position control using RTEX \(MINAS A5N/A6N\)](#)  
[QS3000, Velocity control \(MINAS A5/A6F\)](#)

[\*QS4000, Torque control \(MINAS A5/A6\)\*](#)

[\*QS5001, PANATERM - Auto-tuning\*](#)

[\*QS5002, PANATERM - Fit gain tuning\*](#)

## **1.4 Available software**

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The following software is available free of charge in our Panasonic Download Center. Click on the link to start the download.

- [PC configuration software PANATERM](#)

## 2 Functional overview

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With the PANATERM configuration software, you can manually move the servo motor without connecting an external control unit (PLC, CNC, encoder, etc.). This trial run function helps you to make mechanical adjustments to the machine and to perform test runs for your application.

### CAUTION



Conduct trial operation on the servo motor only with the motor shaft disconnected from the machine to avoid any unexpected accidents.

### **3 General procedure for trial operation**

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In this example, we will configure a repetitive, continuous movement.

The general procedure includes the following steps:

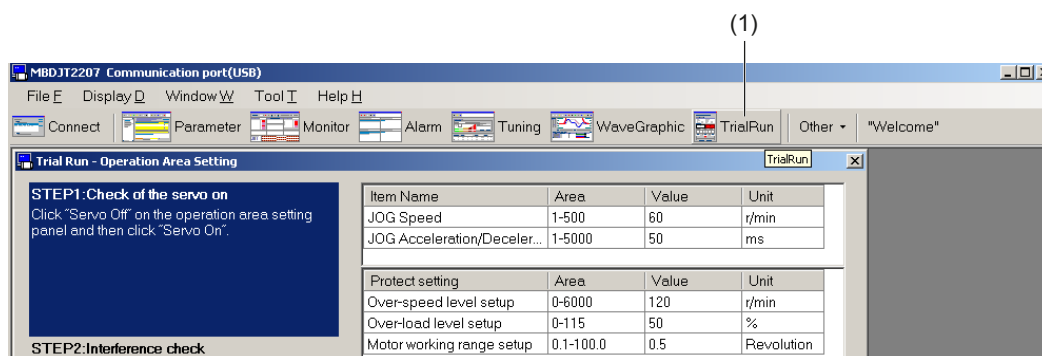
1. Open the “TrialRun” tab in PANATERM.
2. Enable the servo function of the motor.
3. Make movement settings.
4. Make protective settings.
5. Start trial operation.

## 4 Trial run configuration

### 4.1 Open the “TrialRun” tab in PANATERM

The “TrialRun” tab is only available when a servo driver is connected to your PC.

1. Connect your PC to the X1 connector and turn on the servo driver.
2. Start the PANATERM configuration software.  
The software automatically detects the type of servo driver connected.
3. Select “OK” and confirm the connected series by selecting your type of servo driver.
4. Select the “TrialRun” tab.  
The “Operation Area Setting” dialog opens.

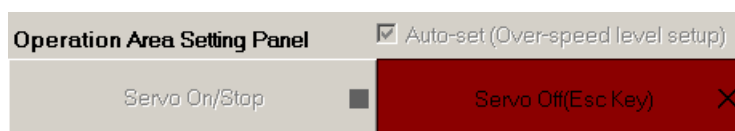


(1) “TrialRun” tab

### 4.2 Enable the servo function of the motor

To set the servo driver parameters and to perform position control, the servo function of the motor must be enabled in PANATERM. Use the red and the grey servo buttons on the “TrialRun” tab to simulate the SRV\_ON signal.

1. Select the red “Servo Off(Esc Key)” button to enable the servo on/off function.



*Servo on/off function is disabled*

2. Select the grey “Servo On/Stop” button to turn on the servo function.



*Servo on/off function is enabled*



When the servo function is turned on, you will hear a clicking sound from an internal relay. The parameters of the servo driver can now be adjusted and the axis is ready to perform position control.

MINAS LIQI: When the “Servo On/Stop” button has been selected, the LEDs on the servo drive change from “-.” to “P. c.” to indicate that the servo driver parameters can be adjusted via PC.



*Change of LED display on MINAS LIQI*

If an error occurs at this step, open the “Alarm” tab and eliminate the cause of the error. Clear the alarm and re-start from step 1.

## 4.3 Make movement settings

Make the movement settings in the parameter list on the “TrialRun” tab.

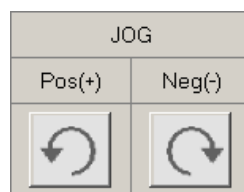
Item Name	Area	Value	Unit
JOG Speed	1-500	60	r/min
JOG Acceleration/Deceler...	1-5000	50	ms

Protect setting	Area	Value	Unit
Over-speed level setup	0-6000	120	r/min
Over-load level setup	0-115	50	%
Motor working range setup	0.1-100.0	0.5	Revolution

### *Movement parameters*

- “JOG speed”: Motor speed in rev/min for the movement started by the “JOG” buttons



*“JOG” buttons for positive and negative rotation direction*

- “JOG acceleration/deceleration”: Acceleration and deceleration time in ms

## 4.4 Make protective settings

The protective settings in the bottom part of the “TrialRun” tab are directly linked to the servo driver parameters Pr5.12, Pr5.13, and Pr5.14. If you change a value on this tab, it will automatically be set in the driver.

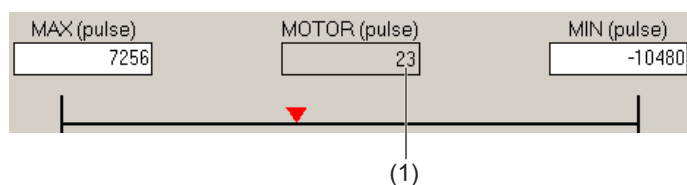
Item Name	Area	Value	Unit
JOG Speed	1-500	60	r/min
JOG Acceleration/Deceler...	1-5000	50	ms

Protect setting	Area	Value	Unit
Over-speed level setup	0-6000	120	r/min
Over-load level setup	0-115	50	%
Motor working range setup	0.1-100.0	0.5	Revolution

### Protective parameters

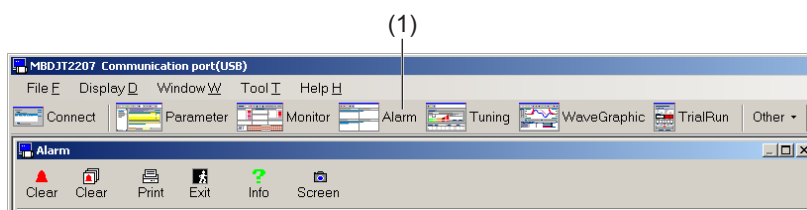
- “Over-load level setup”: Max. torque limit value in percent.
- “Over-speed level setup”: Max. speed limit value in rev/min. Select Auto-set (“Over-speed level setup”) to set a value twice the JOG speed.
- “Motor working range setup”: Working range of the motor per revolution. The value is calculated based on the two previous values.
- “MAX (pulse)”, “MIN (pulse)”: Use the “JOG” buttons to set limit values for the movement in positive and negative direction.



(1) Current value

### Maximum values for the movement in positive and in negative direction

If an error occurs, open the “Alarm” tab. You can find instructions on how to solve the issue on the right side of the tab under “Treatment”. In most cases, increasing the maximum value on the “TrialRun” tab or in the parameter list should solve the problem.



### “Alarm” tab

## 5 Start trial operation

After the servo function has been activated and all parameters have been set, you can start the trial run.

1. On the "TrialRun" tab, select "Go Trial Run".  
The "Test Operation" dialog opens.
2. Make the following settings:
  - a. "Distance": The movement amount in pulses must be within the movement amount set by "MAX (pulse)" and "MIN (pulse)".
  - b. "Waiting time": Waiting between forward and reverse movements in ms for repetitive ("JOG Cont") or continuous mode ("STEP Cont").
  - c. "Speed": Maximum speed in rev/min
  - d. "Acceleration/Deceleration": Acceleration and deceleration time for trapezoidal movement in ms
3. Select "ZERO" to move the motor to the 0 position.
4. Select "STEP Cont".  
This sets the continuous mode. This mode is the easiest way to implement a repetitive operation pattern.
5. Select one of the "JOG" buttons for movement in positive or negative direction.

**STEP1: Check of the servo on**  
Click "Servo Off" on the operation area setting panel and then click "Servo On".

**STEP2: Interference check**  
Configure the parameter on the Parameter area. Then operate the motor by the JOG operation button on the operation area setting panel with confirming the motor operation. Configure the Max / Min of motor operation area.

After completion of motor operation area, click the "Go Trial Run" button to proceed to the test operation window.

**STEP3: Test operation**  
Operate the motor using the buttons on the test operation panel.

Item Name	Jog	STEP	ZERO	Unit
Distance		10000		Comman...
Waiting time		2000		ms
Speed	500	1000	500	r/min
Acceleration/Deceleratio...	250	500	250	ms

Protect setting	Area	Value	Unit
Over-speed level setup	0-6000	0	r/min
Over-load level setup	0-115	0	%
Motor working range setup	0.1-100.0	1.0	Revolution

**Test Operation Panel**

Servo On/Stop ☐ Servo Off(Esc Key) ☒

JOG Cont ☐ PAUSE ☐ ZERO ☐ STEP Cont ☒

Pos(+)  Neg(-)  PAUSE  ZERO  Pos(+)  Neg(-)

MAX (pulse) 1073741823 MOTOR (pulse) 0 MIN (pulse) -1073741824

Back Close

"Test Operation" dialog of the "TrialRun" tab

6. If want to change any of the settings in this dialog, select "PAUSE".

## 6 Help us improve

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Please feel free to contact us if you have any questions, or if you have any suggestions for improvement. In that case, we ask you to include the Quick Start Guide number in the email subject line. You can find the number starting with "QS" on the cover page.

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## **7 Record of changes**

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QS5000\_V1.0\_EN, 2019.07

First edition



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