

# Configuración parámetros EasySetup (motores rediseño 118739RE)

22/05/2019

# DC Motor Setup

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DC Motor Setup

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Guideline assistant

Step 1. Select your motor from a database. If your motor does not exist in any database, proceed through all the next steps in order to define your motor and sensors data. In either case, use the tests from the next steps to verify/detect the motor and sensors parameters and operation.

Database

Motor

Save to User Database

Delete

Drive Setup

Cancel

Help

Motor data

Nominal current

0.0603

A

Peak current

0.144

A

Torque constant

0.0839

Nm/A

Phase resistance (motor + drive)

334

Ohms

Phase inductance (motor + drive)

12.1

mH

Motor inertia

2.1

kgm<sup>2</sup> E-7

☒ Motor inertia is unknown

Motor and load sensors

☒ Incremental encoder on motor

No. of lines/rev

512

lines

☐ Tacho on motor

Tacho gain

0.048

V/rad/s

☐ Incremental encoder on load and tacho on motor

☐ Filter encoder inputs to

1/3

of maximum bandwidth

☐ Temperature

Sensor type

☒ NTC

☐ PTC

☒ Reverse encoder counting

Test Connections

Motor brake

☐ Motor brake on output line :

OUT0

Motor brake is applied when NPN (sink) output is connected to GND.

Drive not active

Drive active

Brake applied

Brake released

Brake release delay :

0

ms

Brake apply delay :

0

ms

Transmission to load

Transmission type:

☒ Rotary to rotary

☐ Rotary to linear

Motor displacement of

24

rot

corresponds on load to

1

rot

# Drive Setup

Drive Setup

Guideline assistant

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Step 1. In the <<Control mode>> group box, select what do you want to control: position, speed or torque.

CANbus

☒ Baud rate 1 Mbps

CANopen settings...

Drive operation parameters

Power supply 44.2457 V

Current limit 0.0299 A

Detect

Current controller

Kp 163.84

Ki 60.402

Tune & Test

Speed controller

Kp 3.0154

Ki 0.30156

Integral limit 45 %

Tune & Test

Position controller

Kp 0.19998

Ki 0.0099792

Kd 0

Kd filter 0.1

Integral limit 41 %

Feedforward 0 (Speed)

0 (Acceleration)

Load speed limit 15.6 rad/s

Tune & Test

Control mode

☒ Position

☐ Speed

☐ Torque

Advanced

External reference

☒ No

☐ Yes

Setup

☐ Analogue

☒ Pulse & Direction

☐ Automatically activated after Power On

Axis ID selection

☒ Set / change axisID 31

Protections

☐ Over current

Motor current > 0.144 A for more than 0.01 s

☐ Control error

Position error > 0.0203 rot for more than 32.77 s

☐ Control error

Speed error > 8.54 rpm for more than 32.77 s

☐ Motor over temperature

☐ I2t

Over current 0.06654 A for 30 s

External brake resistor

☐ Connected

Activate if power supply > 50 V

Inputs polarity

	Enable	Limit switch+	Limit switch-	Type
Active high (Open/No connection)	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/> Sink (PNP)
Active low (Connected to GND)	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/> Source(NPN)

Software limit switches

☐ Restrict movement between:

Negative Limit -43690.6678 rot

Positive Limit 43690.6678 rot

OK

Cancel

Help

Motor Setup

# Current controller tuning test - parameters

Current Controller Tuning Test

Test ParametersTest

Test purpose

Checks current controller step input response.

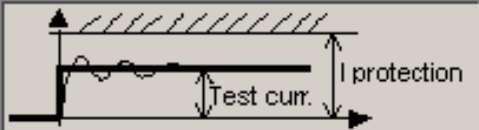
Test procedure

1. Check/setup the test parameters below
2. Go to the "Test" tab and press the "Tune" button
3. In the "Test" tab, press the "Start" button
4. Wait until the test ends and displays the results
5. If needed, change the controller parameters and repeat steps 3 and 4 until you get satisfactory results

Test parameters

Test current0.0299A

Over current protection0.144A



OK

Cancel

Help

# Current controller tuning test

**Current Controller Tuning Test**

Test Parameters    Test

Current Controller Parameters

Kp: 163.84

Ki: 60.402

Tuning

Passband: 4000 rad/s

☒ Use filter on the current controller

Filter bandwidth: 5000 rad/s

☐ Compensate for gravitational load

OK

Cancel

Help

Save Plots

Acquisition time [ms]

Current\_Reference [A]

Motor\_Current [A]

Result

Status

Start

# Speed controller tuning test - parameters

Speed Controller Tuning Test

Test ParametersTest

Test purpose

Checks speed controller response.

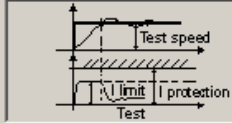
Test procedure

1. Check/setup the test current limits and speed profile below
2. Go to the "Test" tab and press the "Tune" button
3. In the "Test" tab, press the "Start" button
4. Wait until the test begins and displays the results
5. If needed, change the controller parameters during the test, until you get satisfactory results

Current limits

Over current protection0.144A

Drive current limit0.029915A



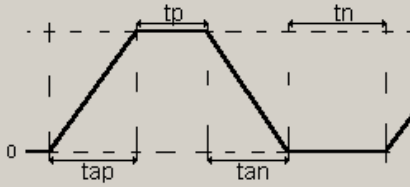
Test speed profile

Final speed

2.04531rad/s

tp10stn1s

☒ Multiple Cycle Movement



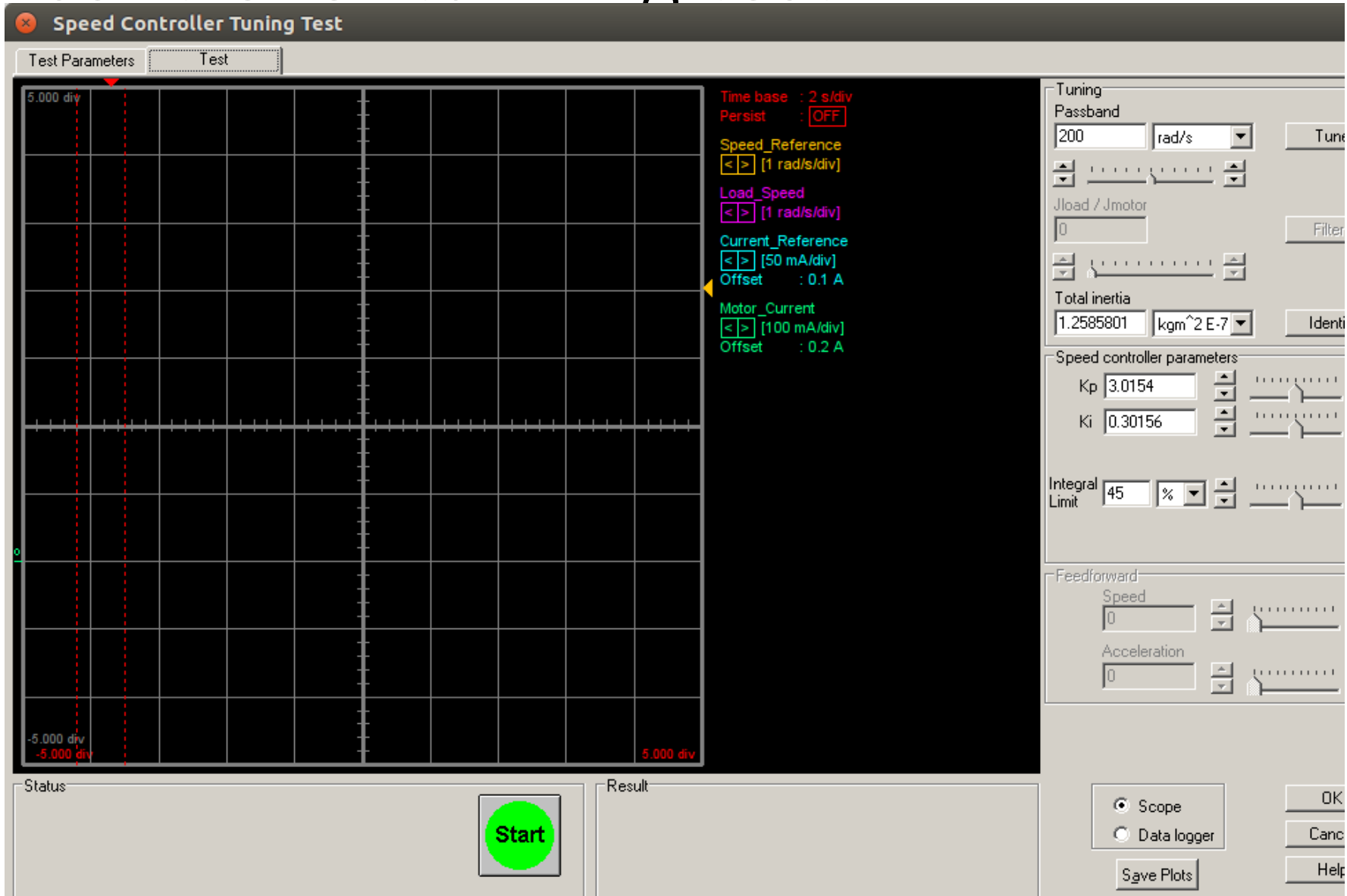
tap2stan2s

OK

Cancel

Help

# Speed controller tuning test



# Position controller tuning test - parameters

Position Controller Tuning Test

Test ParametersTest

Test purpose

Checks position controller response.

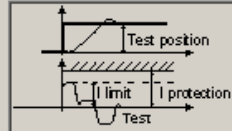
Test procedure

1. Check/setup the test current limits and position profile below
2. Go to the "Test" tab and press the "Tune" button
3. In the "Test" tab, press the "Start" button
4. Wait until the test begins and displays the results
5. If needed, change the controller parameters during the test, until you get satisfactory results

Current limits

Over current protection0.144A

Drive current limit0.029915A



Speed limit

Load speed limit15.6rad/s

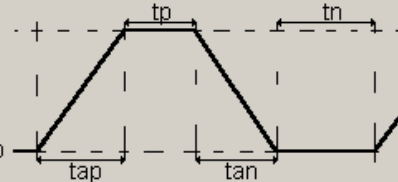
Test position profile

Final position3.14172rad

tp2s

tn2s

☒ Multiple Cycle Movement



tap1s

tan1s

OK

Canc

Help



# Speed controller tuning test

