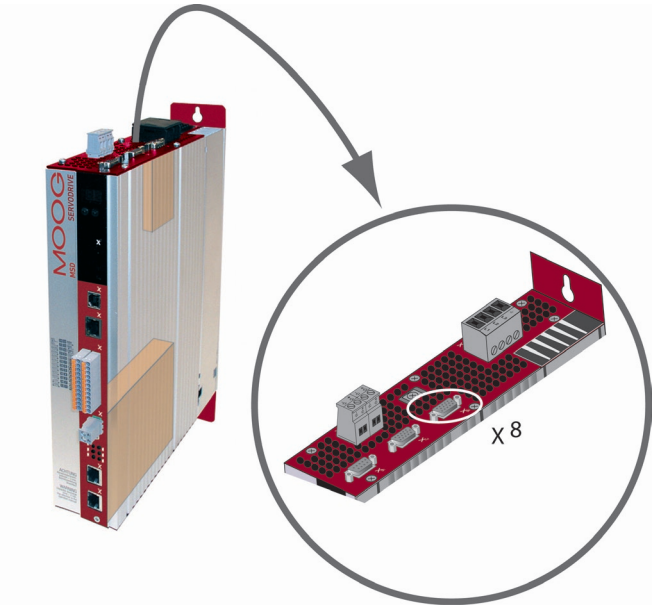
MSD Servo Drive

Specification



Option 2 - Technology

TWINsync option

Specification Option 2 - Technology

TWINsync option

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Date: 03/2023

This documentation is applicable to:

Series	Model	Hardware version	Firmware version
MSD Servo Drive Single-Axis System	G392-xxxxx4xxxxx G395-xxx-x4xxxxx	up to ...3.xxxx.0 up to ...3.xxxx.0	up to V2.15 / V201.07 / V230.00
MSD Servo Drive Multi-Axis System	G393-xxx-x4xxxxx G397-xxx-x4xxxxx	up to ...3.xxxx.0	
MSD Servo Drive Compact	G394-xxx-x4xxxxx	up to ...3.xxxx.0	

NOTE

This document is not a substitute for the MSD Servo Drive Operation Manual. Please be certain to observe the information about “Measures for Your Safety”, “Intended Use” and “Responsibilities” which can be found in the operation manual. Information about installation, connections, commissioning and promised technical specifications for the MSD Servo Drive series can be found in the additional documents (Operation Manual, Device Help, etc.).

Legal information

Subject to technical change without notice.

This Specification has been prepared based on DIN EN 82079-1. The content was compiled with the greatest care and attention and reflects the latest information available to us.

We should nevertheless point out that this document cannot always be updated in line with ongoing technical developments in our products.

Information and specifications may be subject to change at any time. For information on the latest version please visit https://www.moogsoftwaredownload.com/msd.html.

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6 TWINsync operation modes

6.1 Virtual encoder

In the operation modes "TWin Drive profile TWD V1" (speed) and "Virtual Encoder VE" (torque), additional raw data from the encoder of the master (SingleTurn without offset and correction) are sent to the slave. This makes it possible to activate a so-called “virtual encoder” on the slave. To do so, the following encoder parameters must be entered:

For "TWin Drive profile TWD V1" (speed):
(P2580) MPRO_TWIN_Setting = (1) + (2)

ID	Parameters	Setting in the master	Setting in the slave
P0520	Encoder for commutation	---	CH3(3)
P0521	Encoder for speed control	---	CH3(3)
P0507	Selector for encoder channel 3	---	TWINSYNC(6)

Table 6.1: TWin Drive profile TWD V1 (speed)

For "virtual encoder VE" (torque):
(P2580) MPRO_TWIN_Setting = (12) + (13)

ID	Parameters	Setting in the master	Setting in the slave
P0520	Encoder for commutation	---	CH3(3)
P0507	Selector for encoder channel 3	---	TWINSYNC(6)

Table 6.2: Virtual encoder VE (torque)

6.2 Selection via parameter (**P2580**) MPRO_TWIN_Setting

Different pre-set TWINsync operation modes can be selected via the parameter (**P2580**) MPRO_TWIN_Setting. The process data configuration is carried out automatically in dependence on the operating mode selected. The operation modes which can be selected are listed below.

ID	SUB	Name	UNIT	Description	Type
P2580		MPRO_TWIN_ Setting	wet	Function selector for automatic master/slave mapping: 0 = USER user-specific mapping	UInt8
P2580		MPRO_TWIN_ Setting	wet	TWin Drive profile "TWD" 1 = TWD_MASTER_V1, Twin drive master profile V1 2 = TWD_SLAVE_V1, Twin drive slave profile V1 3 = TWD_MASTER_V2, Twin drive master profile V2 4 = TWD_SLAVE_V2, Twin drive slave profile V2	UInt8
P2580		MPRO_TWIN_ Setting	wet	5 = SCON_MASTER, master speed control 6 = SCON_SLAVE, slave speed control 7 = PCON_MASTER, master position control 8 = PCON_SLAVE, slave position control	UInt8
P2580		MPRO_TWIN_ Setting	wet	Double Inverter "DI" 9 = DI_MASTER, master double inverter	UInt8
P2580		MPRO_TWIN_ Setting	wet	Rack-and-Pinion Drive Control "RPDC" 10 = RPDC_MASTER, master rack-and-pinion control 11 = RPDC_SLAVE, slave rack-and-pinion control	UInt8
P2580		MPRO_TWIN_ Setting	wet	Virtual Encoder "VE" 12 = VE_TCON_MASTER, master virtual encoder, torque/power control 13 = VE_TCON_SLAVE, slave virtual encoder, torque/power control	UInt8

*Table 6.3: Overview of the TWINsync operation modes using parameter (**P2580**) MPRO_TWIN_Setting*

6 Monitoring functions / Error messages

The data transfer of the master/slave link is monitored continuously. Errors can occur either if there is faulty parametrization or when the communication channel is malfunctioning. Errors are only reported when the MSD Servo Drive is in the “Control” state (display shows State 5). The master/slave link has the primary error group “40” (ErrorID). A list of the possible errors can be found in the following tables.

Error ID		Cause of error	Remedy for error
40	00	Faulty data transfer. This can occur if the channel malfunctions for longer than the time which can be set in P2613. The error is also reported if the slave has lost synchronization.	Check plug-in connection Check cable Check MSD Servo Drive
40	01	Master and slave have differently parametrized switching frequencies.	Correct parametrization
40	02	The axes are either both parametrized as the master or as the slave.	Correct parametrization
40	04	Master and slave have different DriveCom states (the states through state 5 are monitored. The monitoring is inactive for a quick stop or an error reaction.)	Restart the control, acknowledge the error

Table 6.1: Group “40” error messages in master/slave operation

Error ID		Cause of error	Remedy for error
39	00	Speed difference between master and slave is too great	Check encoder
39	01	Torque difference between master and slave is too great	Correct parametrization
39	02	Error detected on the other axis (master or slave)	Restart master/slave

Table 6.2: Group “39” error messages in master/slave operation

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The contents of our documentation have been compiled with greatest care and in compliance with our present status of information.

Nevertheless we would like to point out that this document cannot always be updated parallel to the technical further development of our products.

Information and specifications may be changed at any time. For information on the latest version please refer to drives-support@moog.com.

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