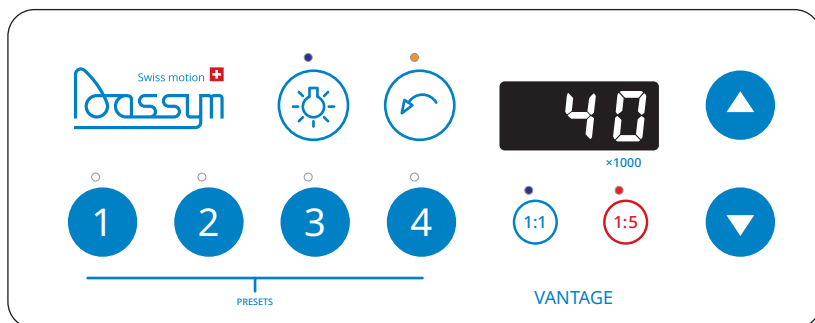


Instruction For Use

DM-60-13 Motor Controller



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1 Introduction

The DM-60-13 Motor Controller is an integrated solution intended to verify good function of the Dassym motors (MO-93 & MO-94).


Being based on the MB-60 board, the CP-13 control panel and a speed reference slider, the device mimics the real behaviour of a final system.

2 Functionality

2.1 Display


When not in **Selection modes** mode or **Errors** mode, the DM-60-13 displays a **Speed**, either actual tool speed or the boundary speed. When in selection mode, the current mode value is displayed.



2.1.1 Standby





<i>Display</i>	<i>Description</i>
	This situation occurs when no motor is connected, for example when the motor is on its holder.

2.1.2 Speed

The speed boundary, or maximum speed the tool is allowed to run at, is displayed whenever:

- The speed boundary is being modified by the  buttons.
- During 1.5 second after the last modification to the speed boundary.
- During 1.5 second after a memory has been recalled.
- The motor is stopped.







In all other cases, the actual tool speed is displayed. The displayed speed depends on the hand piece multiplication factor, either  or .

<i>Minimum</i>	<i>Maximum</i>	<i>Name</i>	<i>Description</i>
		Speed [krpm]	Actual motor speed is displayed when the motor is running.
		Boundary [krpm]	When the motor is stopped, the boundary is displayed.

2.2 Keypad



2.2.1 Primary and alternate functions



The primary functions are accessed by directly pressing the corresponding button. Some buttons have an alternate function when they are pressed for a longer time.

Button	Function	Description
	Multiply	Selects one to five hand piece. The displayed tool speed is five times the motor speed.
	Straight	Selects one to one hand piece. The displayed tool speed is the actual motor speed.
		Decreases or increases the displayed value. A long pressure quickly modifies the displayed value.
	Light	A short pressure toggles the light color, when applicable. A long pressure toggles light activation.
	Reverse	A short pressure toggles the motor direction. A long pressure cancels an eventual error.
	Memory	A short pressure recalls the memory. A long pressure stores the current setup into memory.

2.2.2 Maximum and minimum





The maximum and minimum for displayed value are set by holding the  and then pressing  buttons.



Button	Description
	When holding  logo button, sets the displayed value to its minimum, respectively to its maximum.
















2.2.3 Selection modes



The selection modes are accessed by holding the  logo and then pressing another button.

When in selection mode, values can be adjusted with , just as in other modes.

The selection modes are exited automatically after 5 seconds. They also can be exited by pressing any button other than  or .

Button	Minimum	Maximum	Function	Description
			Intensity [mA]	Light intensity selection. Higher is brighter.
			Torque [Ncm]	Torque limit selection. Higher is stronger.
			Delay [s]	Light off delay selection. Higher is longer.
			Dimmer [mA]	Display dim selection. Higher is brighter.
			Accel [krpm/s]	Acceleration selection. Higher is harsher.

2.2.4 Reset



When in **Errors** mode, pressing the  logo will reset the system, which will return to normal operation if the error condition has disappeared.

3 Unexpected conditions

Unexpected conditions are reported by a special hexadecimal number, blinking for warning and errors, steady with all buttons lit for failures.

If the number is not reported in this list, please read the relevant documentation or call support.

Display

Description & Corrective action

3.1 Warnings



Motor stopped under torque limitation.
Depress foot pedal to cancel the warning.



Speed reference not null upon startup.
Depress foot pedal to cancel the warning.

3.2 Errors



Light driver overload. Try to **Reset**.
If the error doesn't recover or frequently triggers, call support.



Wrong motor type. Check motor type and try to **Reset**.
If the error doesn't recover with right motor type, call support.

3.3 Failures



Power supply voltage failure.
Check power supply, try to **Reset**, otherwise call support.



General controller board failure.
Check connection, try to **Reset**, otherwise call support.



3.4 Communication






Communication between panel and motor controller broken.
Check connection and try to **Reset**, otherwise call support.

4 Examples





4.1 Set the speed boundary to its maximum

<i>Sequence</i>	<i>Description</i>
 + 	Sets the speed boundary to its maximum. The speed boundary is displayed.

4.2 Set the torque limit to a given value

<i>Sequence</i>	<i>Description</i>
 + 	Enters the torque limit selection mode. The reverse LED blinks and the torque limit is displayed.
	Sets the torque limit the desired value. The current torque limit is displayed.

4.3 Set the light intensity to its minimum

<i>Sequence</i>	<i>Description</i>
 + 	Enters the light intensity selection mode. The light LED blinks and the light intensity is displayed.
 + 	Sets the light intensity to its minimum. The minimum light intensity is displayed.

5 Precautions

5.1 Intended use

This device is for motor testing only. It is not intended for medical use.

5.2 Disposal

Electrical and electronic equipment may contain dangerous substances which constitute health and environmental hazards. The user must return the device to its dealer or establish direct contact with an approved body for treatment and recovery of this type of equipment (European Directive 2012/19/EU).



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