Boutronic

Motor Control 1V

Manual

Version 1.0a

20-8-2024

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Introduction

Congratulations with your purchase of the Motor Control 1V. The Motor Control 1V is a simply tubular motor control with intelligence.

By using the Motor Control 1V, the lifetime of your tubular motor is maintained. The Motor Control 1V prevents your motor from being driven for too long and switches with a switch delay.

Liability and warranty

Every Motor Control 1V is checked before shipping for correct operation.
Therefor Boutronic has a warranty period of 1 year.

The warranty expires if:

- The defect is caused by gross negligence or by improper installation;
- Repairs and/or modification to the SNI have been made without permission from Boutronic.

Boutronic is in no way liable for damage caused as a direct or indirect consequence by the use of the Motor Control 1V.

Manual Motor Control 1V®
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www.boutronic.nl

General operations

The Motor Control 1V is specially designed to drive a tubular motor. The control for the motor is done completely electrical. This way there won't be any problems like burned-in or sticky relay contacts and the tubular motor will keep functioning optimally.

Maximum drivetime protection

While controlling this type of motor it is essential that the motor is not driven longer than absolutely necessary. Therefor it is possible to program the drivetime of the motor (factory setting is 240 seconds).

Switching protection

Another important thing, is that the motor can't be instantly switched from open to closed. Therefor a protection has been added. This protection makes sure that a switching delay has been added for both during automatic control and manual control.

Start delay

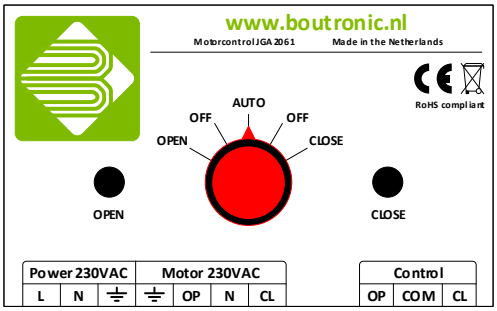
If the facade screen is linked to the top screen, it is desirable that the facade screen does not move if a crack is pulled in the top screen. To achieve this, it is possible to program a start delay for the default control.

Delay

During the switching to the desired position, the rotation switch has to be in the desired position for at least 0,5 seconds before the motor is being driven. This ensures that the motor is not driven while the rotation switch is being changed. This delay is also present for the OPEN and CLOSE inputs.

Controls

The Motor Control 1V can be controlled using the rotation switch.



The rotation switch has the following positions:

Auto

In this position the motor can be controlled by the inputs OPEN and CLOSE.

Off

In this position all controls are turned off. The motor is completely off.

Open

In this position the motor will be driven for the duration of the programmed maximum drivetime open.

Close

In this position the motor will be driven for the duration of the programmed maximum drivetime close.

Control type

The behaviour of the Motor Control 1V can be set by choosing the type of control.
There are 2 types of control:

- Default control
- Door control

Only when the rotation switch of the Motor Control 1V is in the AUTO position will the chosen control type be used. In all other positions the Motor Control will execute the state of that position.

Default

With this type of control, the Motor Control 1V can be controlled using external signals. These signals specify whether the motor has to be driven open or closed.
When the Motor Control 1V receives a signal, it will drive the motor until the signal is gone or until the maximum drivetime has been reached.
The Motor Control 1V is secured for the situation where both the OPEN and CLOSE signal are received at the same time. In this situation the motor will not be driven (cross protection).
It's also possible to set a start delay for each signal. When a start delay has been set, the motor will be driven after the start delay has passed.

Note: The signal has to remain active during the start delay.

Door

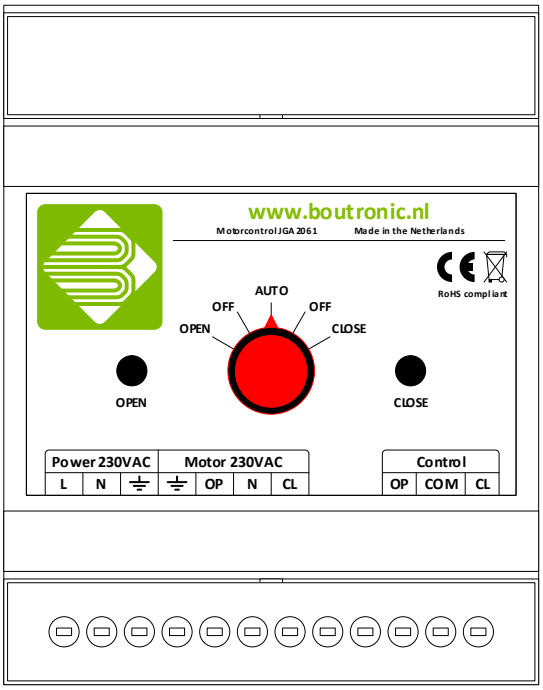
With this type of control, the Motor Control 1V can be controlled using an activate signal (pull switch) and an extension signal (optocoupler). When the activate signal is given, the Motor Control 1V will drive the motor open for the 'maximum drivetime open'. After this time has passed the Motor Control 1V will drive the motor close for the 'maximum drivetime close'.

When the activate signal (pull switch) is given while the motor is already being driven, the motor will be driven open again for the duration of 'maximum drivetime open'.

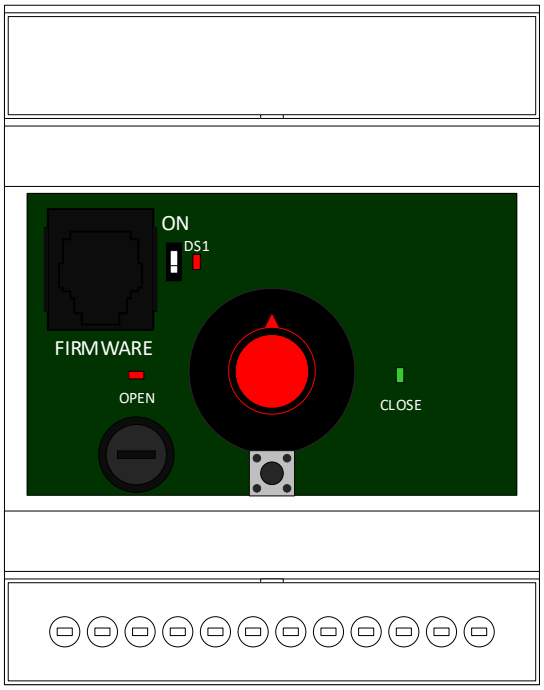
In case that the extension signal (optocoupler) is given, the Motor Control 1V will restart the drive of the motor for the 'maximum drivetime open'. The extension signal will be ignored if the motor is already completely closed (after the 'maximum drivetime close' has passed).

Connections

With front



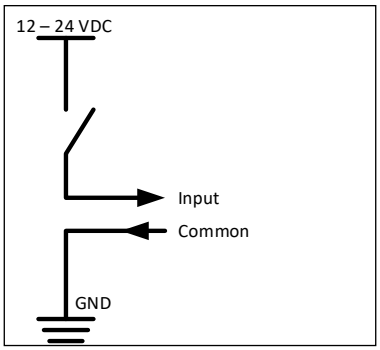
Without front



Nr.	Connection	Description
1.	POWER 230 VAC L	230 V AC phase connection
2.	POWER 230 VAC N	230 V AC zero connection
3.	POWER 230 VAC Ground	230 V AC ground connection
4.	Motor 230 VAC Ground	Motor ground connection
5.	Motor 230 VAC OP	Motor open connection
6.	Motor 230 VAC N	Motor zero connection
7.	Motor 230 VAC CL	Motor close connection
8.	Control OP	Module open control connection
9.	Control COM	Module common connection
10.	Control CL	Module close control connection

Module inputs

With the module inputs you can control the Motor Control 1V.



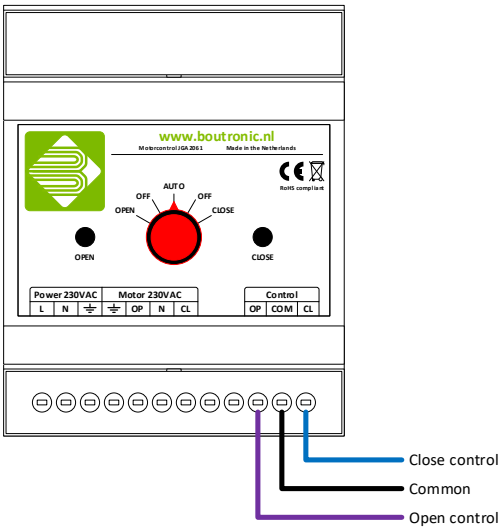
Connecting

The module inputs are voltage driven inputs. The input can be driven by applying a voltage to the input (with respect to the common).

An example on how you can connect the input is shown in the figure on the right:

Default control

When the Motor Control 1V is used in Standard mode, the inputs will have to following functions:



Input	Function
OPEN	Drive the motor open
CLOSE	Drive the motor closed

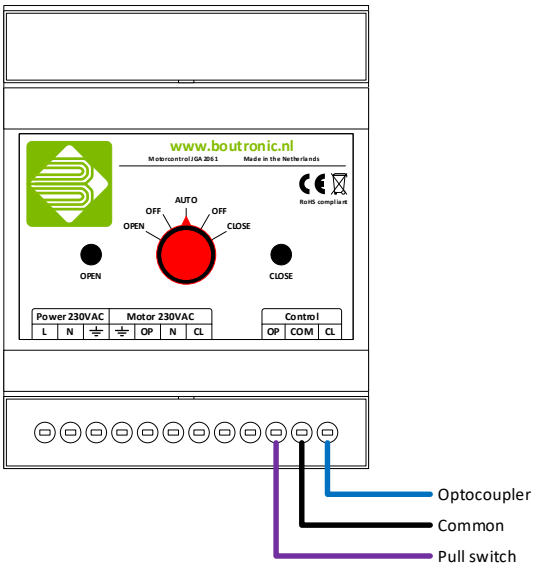
Truth table:

OPEN	CLOSE	Default control
0	0	Motor is not driven
0	1	Motor is driven closed
1	0	Motor is driven open
1	1	Motor is not driven

0 = Inactive, 1 = Active

Door control

When the Motor Control 1V is used in Door mode, the inputs will have the following functions:



Input	Function
OPEN	Pull switch, drives the door open
CLOSE	Licht barrier, drives the motor open, unless its already completely closed

Truth table:

OPEN	CLOSE	Default control
0	0	Motor is not driven
0	1	Motor is driven open, unless its already completely closed
1	0	Motor is driven open
1	1	Motor is not driven

0 = Inactive, 1 = Active

Front removal

To control the Motor Control 1V via the push button or Boutronic USB-dongle, the front has to be removed.

The front can be removed by following the steps below:

1. Turn the rotation switch to the AUTO position;
2. Remove the red cap from the rotation switch;
   This can be done by pushing a flathead screwdriver between the red cap and the black rotation switch.
3. Remove the rotation switch by unscrewing the now visible screw;
4. Remove the front;
   This can be done by lifting the sides of the front with a flathead screwdriver.
5. Put the rotation switch back on with the arrow pointing to the AUTO position;
6. Fasten the screw, the rotation switch has to click when the switch is rotated;
7. You can now continue where you have left off.

Settings

The following settings can be changed for the Motor Control 1V:

Name	Description	Min	Max	Standard Standardcontrol	Standard Door control
Maximum drivetime open	This is the maximum time that the motor is sent open	5 sec	6000 sec	240 sec	20 sec
Maximum drivetime close	This is the maximum time that the motor is sent close	5 sec	6000 sec	240 sec	20 sec
Start delay OPEN input	This is the start delay for the OPEN input[1]	0 sec	6000 sec	0 sec	0 sec
Start delay CLOSE input	This is the start delay for the CLOSE input[1]	0 sec	6000 sec	0 sec	0 sec
Control type	The type of control	Options: - Default - Door		Default	

1. These settings are only used during the standard control type

The settings can be set by using the rotation switch, push button or via the Boutronic Studio (version v3.0c or higher).

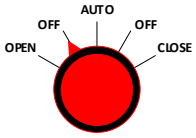
Settings with the button

In order to change the settings of the Motor Control 1V with the button, you need to first remove the front. See chapter 'Front removal' on how to remove the front of the Motor Control 1V.

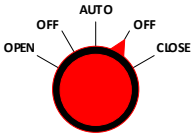
Setting the maximum drivetime

To change the maximum drivetime, you need to follow the following steps:

1. Turn the rotation switch to the OFF position;



or



2. Press the PROG button and hold it (5 sec), until the red OPEN led starts blinking;
3. Turn the rotation switch to OPEN for the maximum drivetime open or CLOSE for the maximum drivetime close;
4. Now press and hold the PROG button. The leds OPEN and CLOSE start blinking alternately, the motor will be driven and the time measuring starts;
5. After the PROG button has been released, the leds OPEN en CLOSE will be on at the same time. The motor stops and the measured time is saved (the minimal drive time is 5 seconds);
6. After several seconds the CLOSE led turns off and the OPEN led starts blinking. It is now possible to program a new drive time by turning the rotation switch to OPEN or CLOSE and repeating the steps.

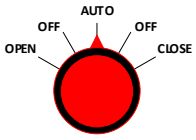
Leaving the maximum drivetime menu.

1. Turn the rotation switch to the OFF position;
2. Press and hold the PROG button (5 seconds) until the red OPEN led turns off.

Setting the start delay

To change the start delay, you need to follow the following steps:

1. Turn the rotation switch to the AUTO position;



2. Press and hold the PROG button (5 seconds) until the red OPEN led starts blinking;
3. Turn the rotation switch to OPEN for start delay open or to CLOSE for start delay close;
4. Now press and hold the PROG button. The leds OPEN and CLOSE start blinking alternately and the time measuring starts;
5. After the PROG button is released, the leds OPEN en CLOSE will both be on and the measured time is saved;
6. Several seconds later, the CLOSE led turns off and the OPEN led starts blinking. It is now possible to program a new start delay by putting the rotation switch to OPEN or CLOSE and repeating the steps.

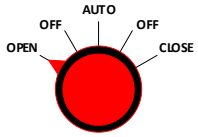
Leaving the start delay menu.

1. Turn the rotation switch to the AUTO position;
2. Press and hold the PROG button (5 seconds) until the red OPEN led turns off.

Setting the modules control type

TO change the module control type, you need to follow the following steps:

1. Turn the rotation switch to the OPEN position. (Note: the motor will be driven)



2. Press and hold the PROB button (5 seconds) until the red OPEN and green CLOSE led turn on;
3. Turn the rotation switch to the OFF position. One of the leds will start blinking, the meaning of the led can be found in the table below;
4. Press the PROG button to swap between the type of control;
5. Press and hold the PROG button (5 seconds) until both leds are on. The setting has been saved;
6. After several seconds one of the leds will start blinking and the other will stay off (depending on the control setting). If desired it is again possible to change the type of control with the PROG button.

Led	Module control type
Groen (OPEN)	Default control
Rood (CLOSE)	Door control

Leaving the module control type menu.

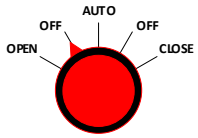
1. Turn the rotation switch to the OPEN position;
2. Press and hold the PROG button (5 seconds) until the red OPEN led is on continuously.

Note: Immediately after changing the control type, all standard settings will be reloaded.

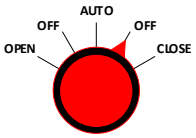
Factory setting recovery

To put back all the factory settings into the Motor Control 1V, follow the following steps:

1. Turn the rotation switch to the OFF position;



or



2. Remove the power from the Motor Control;
   (For example by removing the fuse.)
3. Press and hold the PROG button;
4. Reconnect the power to the Motor control. after a couple of seconds, both leds (OPEN and CLOSE) will start blinking at the same time;
5. Wait until the leds (OPEN and CLOSE) are on continuously;
6. Let go of the PROG button.
   The factory settings have been recovered and are saved;
7. The OPEN and CLOSE leds will turn off again.

Control via the Boutronic Studio

You can connect the Motor Control 1V to your PC through the Boutronic USB-dongle
In order to use the Boutronic USB-dongle you will have to remove the front. See chapter ‘Front removal’ for more information.

The settings of the Motor Control 1V can be controlled with the dongle from software version v3.0c and higher.

For information on how to use the Boutronic Studio to change settings, one can download the manual.

Technical specifications

General

Description	Value	Unit	Remarks
Measurements	90 x 71 x 58	mm	L x B x H
Amount of standard modules[1]	4		
Montage	DIN-rail (Top hat rail)		IEC/EN 60715
Material	Plastic ABS		
Weight	220	gram	

1. Based on the size of a standard installation module.

Temperature

Description	Min	Typ.	Max	Unit	Remarks
Storage temperature	0	-	70	°C	
Operate temperature	0	-	70	°C	

Power supply

Description	Min	Typ.	Max	Unit	Remarks
Power supply	207	230	253	VAC	
	-	2	-	A	
Fuse		6,3		A	

Inputs

Description	Min	Typ.	Max	Unit	Remarks
Input voltage	12	24	30	VDC	
	12	24	27	VAC	
Active current		15		mA	

Properties:

- At 0 V voltage, the Input is seen as OFF;
- At a voltage of 12 V of higher, the input is seen as ON.

Outputs

Description	Min	Typ.	Max	Unit	Remarks
Output voltage		230		VAC	Equal to the power supply
Output current			2	A	

Properties:

- Solid state with zero cross detection;
- Switched through relay in zero current state.

Appendix A: Problem solutions

Problem	Possible cause and solution
The motor control does not respond well with the 24V AC drive signal.	The input current requested by the motor control is low. The product controlled by the motor control will see a lack of load and therefor stop. Solution: Control a relay and use this to control the motor control.

Appendix B: Enclosure

It is possible to buy the Motor Control 1V within an enclosure. In this case the Motor Control 1V will be placed inside a standard Schneider enclosure.
These enclosures have an IP protection grade of IP65.

Amount of Motor Control 1V	Enclosure	Product code
1	Schneider Kaedra 13976	BMTR-DIN-1V-IK
2	Schneider Kaedra 13978	BMTR-DIN-2V-IK

Contact your supplier for the actual costs.

It is possible to use a standard DIN-rail enclosure, because the Motor Control 1V has a standard size equal to 4 installation modules.