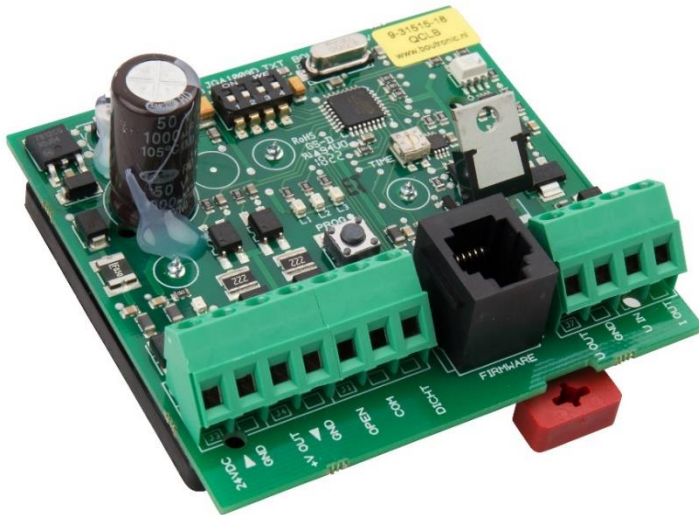


Intro

The CurrentPCB JGA1009 is a universal control print with two digital inputs and two analog outputs:

- Current output (4...20mA)
- Voltage output (0...5V of 0...10V max 100mA).



Liability and warranty

Every JGA1009 is checked before sending for correct operation.
Therefore 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 modifications to the JGA1009 without permission from Boutronic.

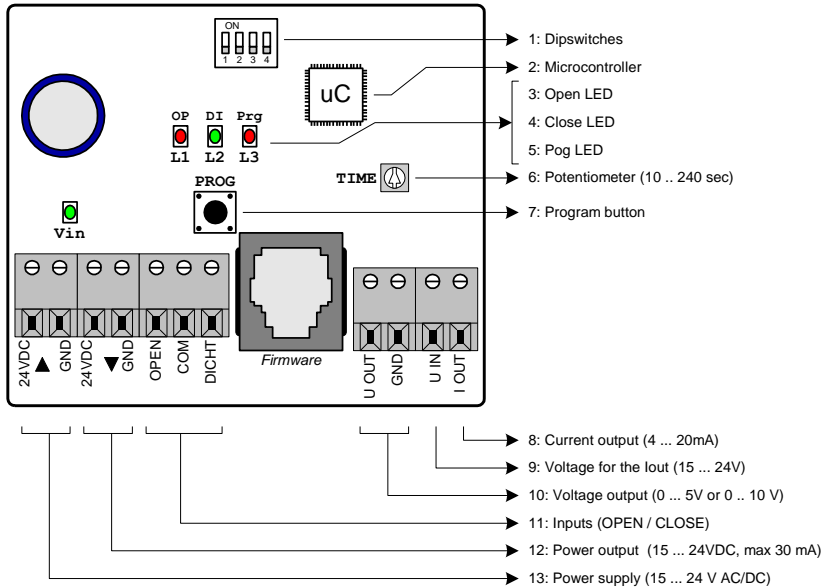
Boutronic is in no way liable for damage caused as a direct or indirect consequence by the use of the JGA1009.

Table of contents

INTRO	1
.....	1
LIABILITY AND WARRANTY	1
TABLE OF CONTENTS	2
CONNECTIONS	3
EXPLANATION	3
OPEN AND CLOSE INPUTS	4
CONNECTION EXAMPLES	4
CHANGE SETTINGS	5
DRIVE TIME	5
DIPSWITCH 1: MAXIMUM OUTPUT VOLTAGE	5
DIPSWITCH 2: STARTUP CURRENT AND VOLTAGE OUTPUT	5
DIPSWITCH 3: FAST TO MINIMUM OUTPUT LEVELS	5
DIPSWITCH 4: MINIMUM AND MAXIMUM CALIBRATE LEVELS	5
WITH THE PROG SWITCH: CALIBRATE OUTPUTS LEVELS	6
SETTING WITH THE SERIAL MENU	7
TECHNICAL SPECIFICATIONS	8

Connections

In the figure below, the JGA1009 is shown schematically:



Explanation

- | | |
|--|---|
| 1. Dipswitches: | With the dipswitches you can en-/disable settings.
(See chapter settings) |
| 2. uC: | Microcontroller |
| 3. Open LED (L1): | When this LED is on, the analog outputs are increased |
| 4. Close LED (L2): | When this LED is on, the analog outputs are decreased. |
| When the JGA1009 is in program mode, the LED reports the menu level: | |
| | - On : Switch is being pressed / settings are being stored. |
| | - 1x blink : Calibrate current output, 4mA. |
| | - 2x blink : Calibrate current output, 20mA. |
| | - 3x blink : Calibrate voltage output min. |
| | - 4x blink : Calibrate voltage output max. |
| 5. Prog LED (L3): | This LED is on when the button is pressed |
| 6. Potentiometer (Time): | With this potentiometer you can set the total drive time for the outputs going from minimum to maximum output level (10 ... 240 sec). |
| 7. Program button: | Programming button |
| 8. Current output: | Current output (4 ... 20 mA) |
| 9. Voltage input for the lout: | Voltage input for the current output (15 ... 24 VDC). |
| 10. Voltage output: | Voltage output (max. 100 mA)*
(0 ... 5V when DIP1 is off)
(0 ... 10V when DIP1 is on) |
| 11. Inputs (OPEN / CLOSE) | Inputs for driving the output signals.(Optically separated)
OPEN: Increase output signal(s)
CLOSE: Decrease output signal(s) |
| 12. Power output (15 ... 24 VDC) | Power output for supplying sensors / lout. (max 30 mA) |
| 13. Power supply | Power supply for the JGA1009 (15 ... 24 V AC/DC) |

* Print version JGA1009B and JGA1009A can provide max. 10 mA.

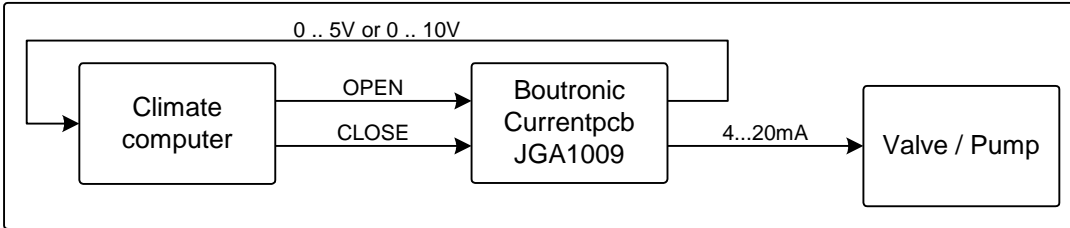
Open and close inputs

The JGA1009 has an open and a close input. When the open input is activated, the value of the analog outputs will increase. When the CLOSE input is activated, the values of the analog outputs will decrease. You can set the drive time from minimum to maximum output level with the potentiometer (from 0% t/m 100%). You can activate the input continuous or with an interval.

The JGA1009 can be used to convert the OPEN and CLOSE control from a climate computer to a 4...20mA signal. For a feedback signal the JGA1009 can send a voltage back to the climate computer (0...5V or 0...10V max 100mA*).

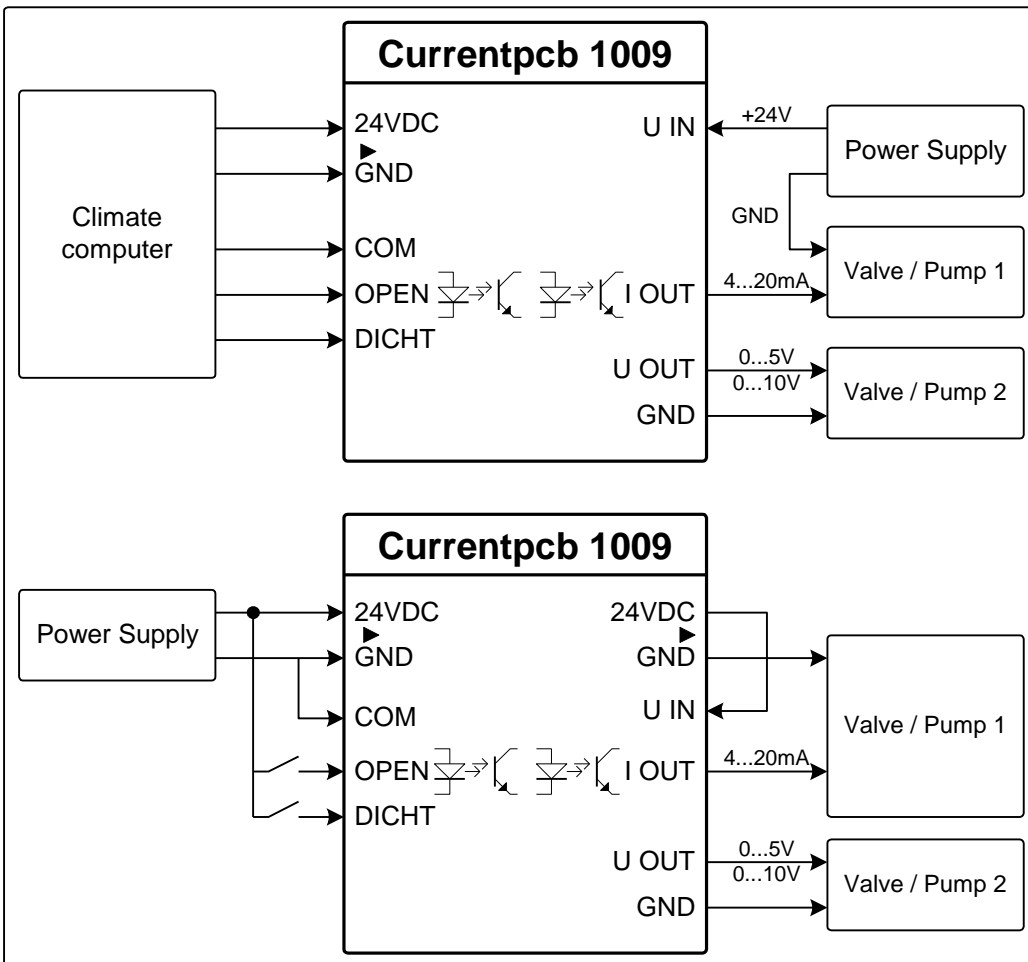
* Print version JGA1009B and JGA1009A can provide max. 10 mA.

This example is shown in the figure below:



Connection examples

Example 1:



Example 2:

Change settings

This chapter describes how you can change the settings.

Drive time

You can set the total drive time of the outputs (0...100%) with the potentiometer. When you turn the potentiometer CCW you set the minimum time (10 sec), when you turn the potentiometer CW you set the maximum time (240 sec).

Dipswitch 1: Maximum output voltage

With DIP-switch 1 you can set the maximum output voltage:

- Set to 0, the maximum output voltage is 5V.
- Set to 1, the maximum output voltage is 10V.

Dipswitch 2: startup current and voltage output

When the JGA1009 starts up the output value is set standard to 4mA and 0V. You can change the standard startup value.

This is how you can change the startup value:

- Set dipswitch 2 ON. (activate memory)
- As soon as the outputs have the desired output levels u must activate the OPEN and CLOSE inputs simultaneous (the Open and Close LED both turn on)*.
- As soon as the LED's Open and Close turn off and on the value is being stored.
- When you start up the current print (with DIP 2 on) the output levels are as stored.

Dipswitch 3: fast to minimum output levels

When Dip 3 switch is on, you can set the output levels within 1 sec from maximum to minimum level.

This is how you can activate this function:

- Set dipswitch 3 to ON and leave it in this position. (activate)
- When you want the output levels to be at minimum U must activate the OPEN and CLOSE inputs simultaneous (the Open and Close LED both turn on)
- As soon as the LED's Open and Close turn off and on, the value is at the minimum level.

*Note: When DIP2 is **also** activated, the saved value is set on startup. (The value of the output cannot be saved anymore)*

Dipswitch 4: Minimum and maximum calibrate levels

When u set Dipswitch 4 to ON you can (by the menu of the RS232 port with a special cable) set the maximum output level for calibrating

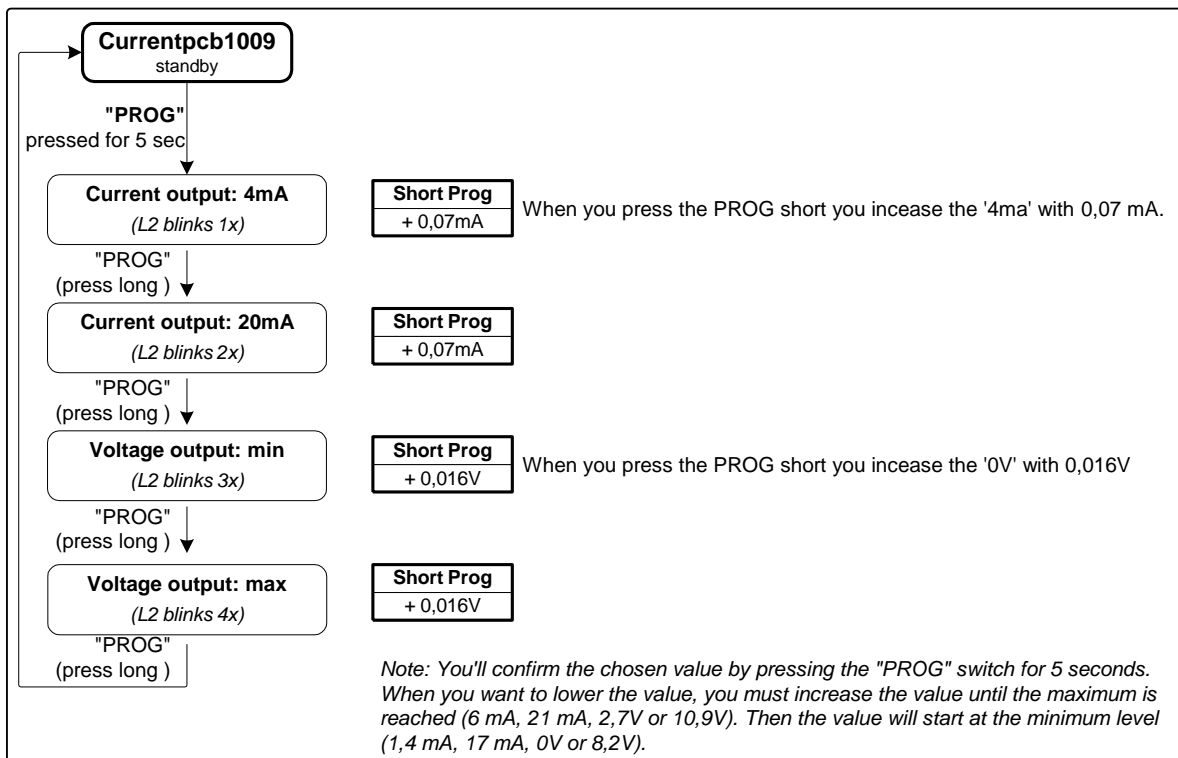
- Current: Normally you can set the calibrate level min (4mA) between 2mA and 6mA and the calibrate level max (20mA) between 18mA en 21mA. When you activate dipswitch 4 you can change both calibrate levels between 1mA en 21mA.
- Voltage: Normally you can set the calibrate level min (0V) between 0V and 1V and the calibrate level max (5/10V) between 4-6 or 9-11V. When you activate dipswitch 4 you can change both calibrate levels between 0 and 5/10V

With the PROG switch: calibrate outputs levels

Press the PROG switch en keep this for 5 seconds until all led's turn on. Then release the switch and L2 will start blinking. The output levels are set to the stored value.

- By pressing shortly the PROG switch you increase the value.
(When the value exceeds the maximum value, the value will be set the the minimum value)
- By pressing the PROG switch long (until all led's turn on) you'll store the current value in the memory.
(This setting will be remembered after power loss).

Note: If you don't press the PROG switch for more than 1 minute, you will leave the menu automatically.

Menu structure

Setting with the serial menu

You can change the settings with the serial port.

1. Connect the JGA1009 to your PC by a Boutronic USB or RS232 dongle.
2. Open the Boutronic Studio 2 with the tab 'Terminal', set the baudrate to 9600 and connect.
3. Left click on the black screen with the mouse.
Press shortly '+++'

The following text is given on the screen:

```
*** CONFIGMENU ***
```

```
- iCFG_4mA
```

The current output will be set to 4 mA.

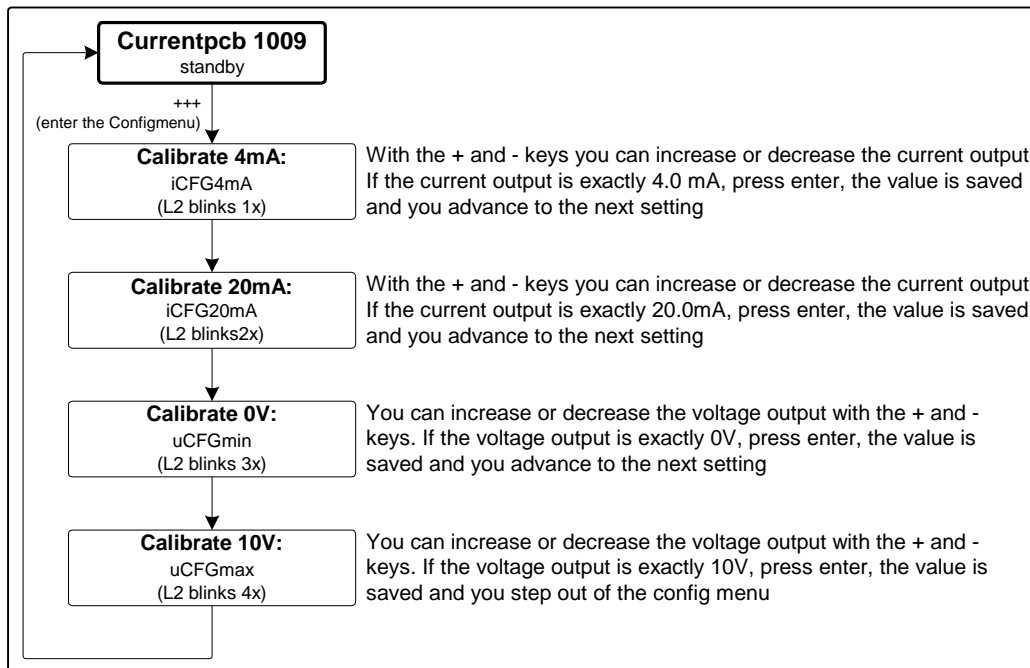
With the '+' switch u increase the output level.

With the '-' switch u decrease the output level.

With the 'enter' switch u confirm the set value and it will be stored.

With the 'esc' switch u will leave the menu.

With the 'F' switch you will set all setting to factory levels..



4. When you press the 'enter' switch u confirm the set value and it will be stored:
_SAVE : 4mA
5. You can change the next setting.....
6. After the last setting you will leave the menu or if you don't press anything for more than 1 minute then you will leave the menu automatically. You'll see:
- RUN

Technical specifications

Power supply	: 15 ... 24V AC/DC 35mA
Power output	: 15 ... 24VDC maximum 30mA
Dimensions	: 95x75x35mm (LxWxH)
Drive time (with potentiometer)	: 10 ... 240 seconds
Inputs open and close	: Optically isolated. - Input voltage 5... 24V AC/DC 8mA
Current output	: Optically isolated. 4 tot 20mA - 0,07mA each step - Resistor: 100... 500ohm
Voltage output	: DIP1 OFF: 0,2V...6,0V max 100mA * DIP1 ON: 0,2V... 10,5V max 100mA* - 0,016V each step

** Please note:*

When using the voltage output to 5V (DIP1 not set), the output voltage can be higher than 5V (when booting or calibrating).

Print version JGA1009B and JGA1009A can provide max. 10 mA.