

# MM9A Irrigation controller for MM8D

## Technical manual

Hardware version: v220111  
Technical manual version: v1.0  
Issue date: 2022.04.15.  
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	Technical manual				
Name:	Pozsár Zsolt			Date:	2022.04.15.

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## I. Hardware

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## 1. Technical data

Supply voltage:	230 V AC 50-60 Hz
Auxiliary voltage:	24V DC
Isolation class:	Class I.
Mechanical size:	230 x 190 x 90 mm
IP protection:	IP 56
Mass of cover:	termoplast (ABS)

## 2. General description

The device is used to switch the valves and pumps of the irrigation system on and off in cooperation with the MM8D.

The device has three control inputs, three 24V DC valve outputs, one 230V AC pump output and two pressure fault NC relay contact outputs. To activate the inputs, the auxiliary voltage must be connected to them. When any input is activated, the pump output also turns on. If the water pressure exceeds the set value (eg clogging), the pump output is switched off and the >Pmax output is switched on. If the water pressure falls below the set value during operation (eg lack of water), the pump output is switched off and the <Pmin output is switched on.

## 3. Schematic drawing

The wiring diagrams of the device is shown in Annex 1. You can download it as part of the complete documentation or in separate PDF format from the developer/manufacturer's website.

## 4. Terms of use

Hardware documentation can be modified and/or redistributed under the Creative Commons 4.0 Attribution Non-Commercial (CC-BY-NC-4.0) License. You can read the full text of the license online. (Refer to Chapter III for references.)

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## 5. Internal structure of the device

1. Fuse (F1)
2. Transformer (Tr1)
3. Fuse (F2)
4. Diodes (D1-4)
5. Relays of valve outputs (K1-3)
6. Relay of water pump output (K4)
7. Relay of  $>P_{max}$  error output (K5)
8. Relays of  $<P_{min}$  error output (K6-7)
9. Connectors (P1-21 - from top to bottom)
10. Mounting holes

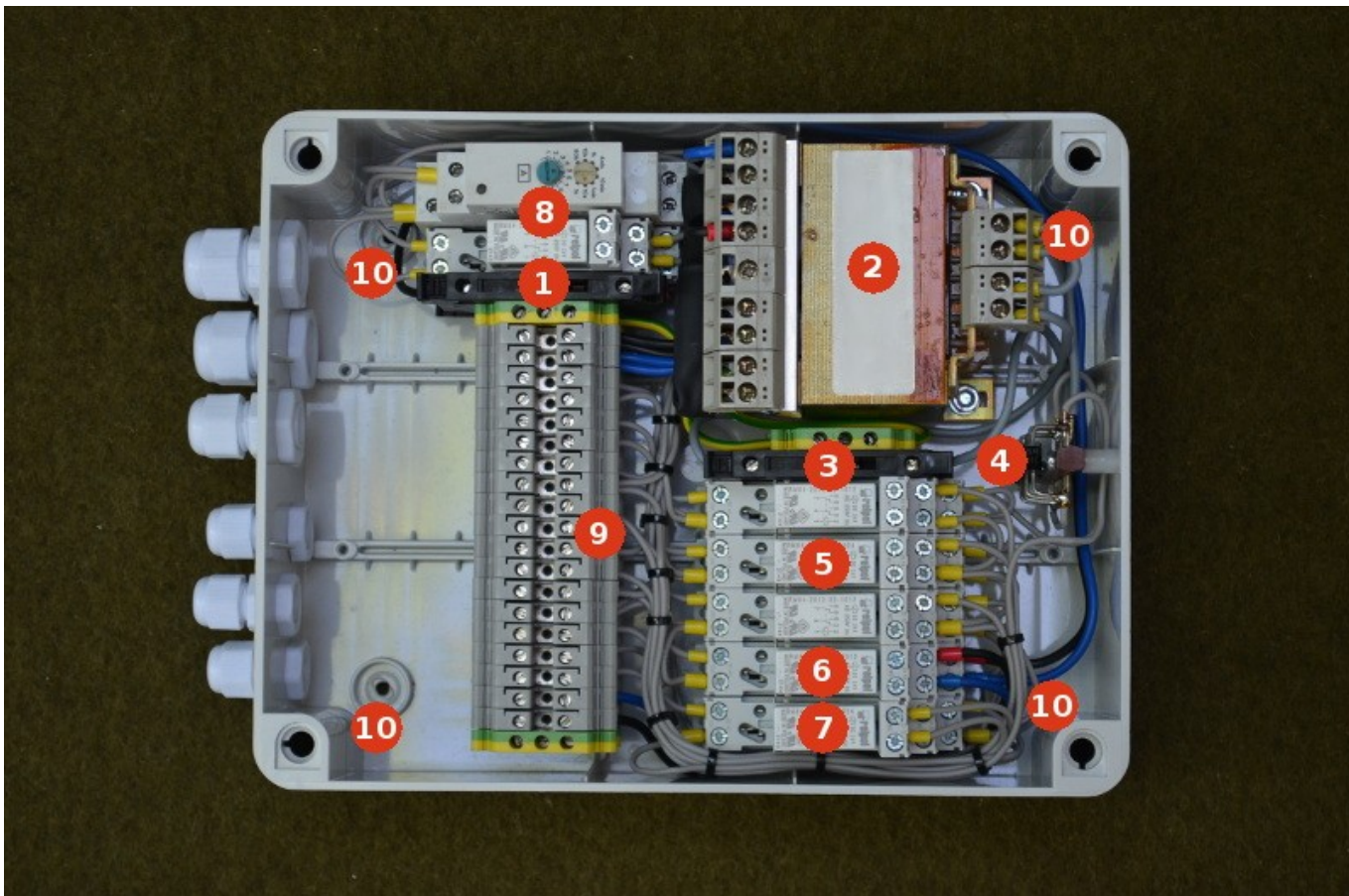


Figure 1: Internal structure

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## Pinout of connectors

[illegible]

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## 6. Downloadable documentation

The complete documentation of the device in the .tar.gz format compressed file can be downloaded from the manufacturer's website or Github. (Refer to Chapter II for references.) Name of package is: *mm9a-220111-1.0.tar.gz*.

Content of package - only important files:

**mm9a**

- cad\_files**
  - mm9a.pro
  - mm9a.sch
- documents**
  - mm9a\_en.pdf
  - sch\_mm9a.pdf
- pictures**
  - mm9a.jpg
  - sch\_mm9a.svg
- LICENCE
- README.md

### KiCAD files

- project file
- schematic drawing

### documentation

- Technical manual
- schematic drawings

### pictures

- look of the unit
- schematic drawings

terms of use

short description

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## II. Related links

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## 1. Hardware

Full package <http://www.szerafingomba.hu/equipments/mm9a/mm9a-220111-1.0.tar.gz>  
Download from Github <https://github.com/pozsarzs/mm9a.git>  
Technical manual <http://www.szerafingomba.hu/equipments/mm9a/technical-manual-220111-1.0-en.pdf>

### Schematic drawing (PDF):

Schematics [http://www.szerafingomba.hu/equipments/mm9a/sch\\_mm9a.pdf](http://www.szerafingomba.hu/equipments/mm9a/sch_mm9a.pdf)

## 2. Terms of use

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EURL v1.2 <https://eupl.eu/1.2/en/>  
GNU GPL v3.0 <https://www.gnu.org/licenses/gpl-3.0.html>

## 3. Developer and manufacturer

Homepage <http://www.szerafingomba.hu>  
E-mail [info@szerafingomba.hu](mailto:info@szerafingomba.hu)

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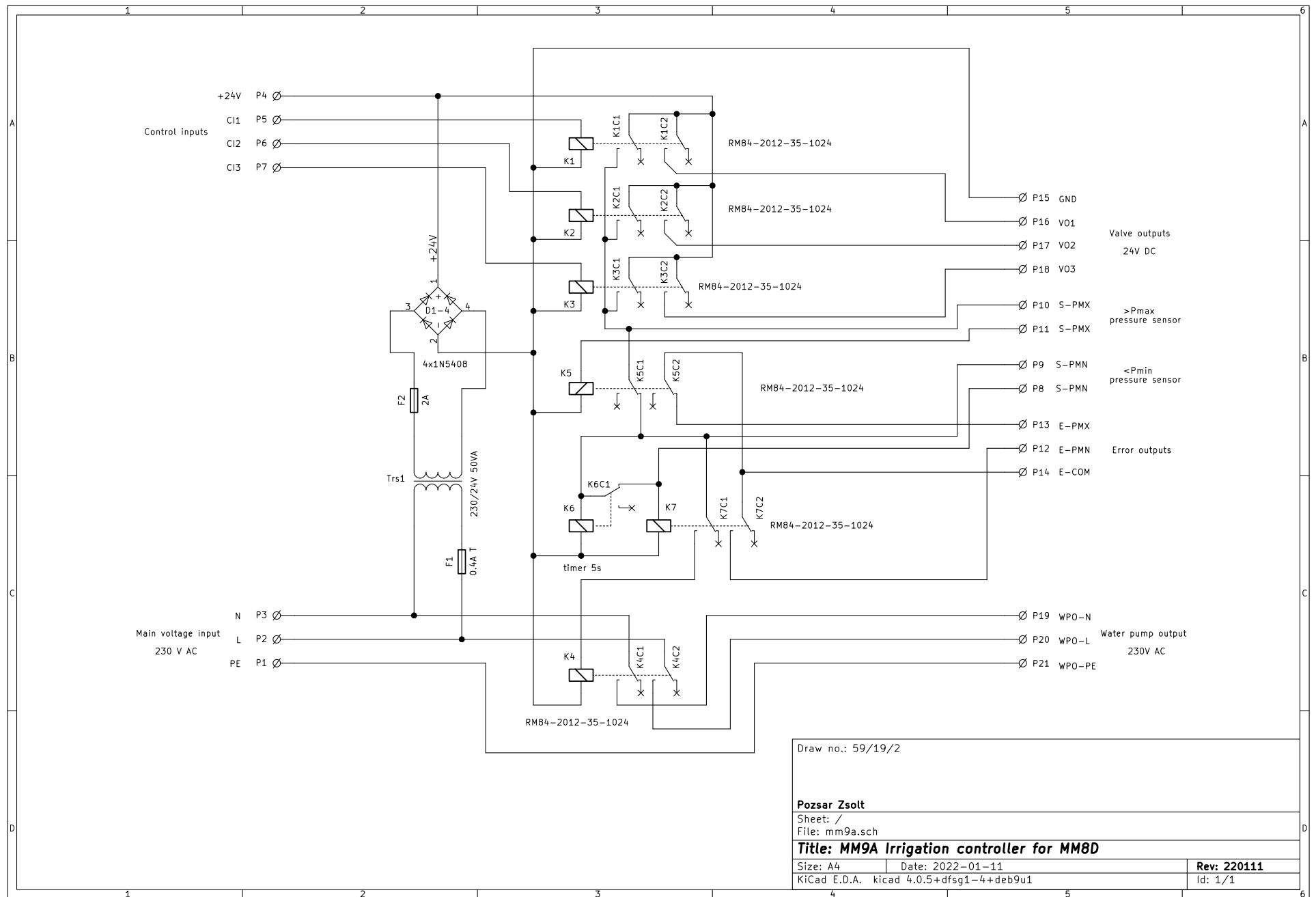
### III. Annexes

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Content

- 1. Schematic drawing

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Annex 1: Schematic drawing