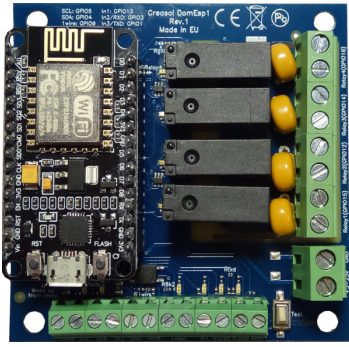


Creasol DomESP1
Input/output/supply board for ESP8266



ESP8266 is a very powerful and cheap MCU equipped with WiFi transceiver, very useful to expand inputs/outputs of a Raspberry/Domoticz controller, and available on the market in preassembled modules with 30 pins headers.

Creasol DomESP1 board is designed for ESP8266 module NodeMCU V3 with 900 mils headers pitch (optionally with 1100mils pitch or WeMos modules), and integrates the whole circuitry to manage digital inputs, one analog input, 4 relay outputs, 1 low voltage SSR output, I²C bus, 1wire bus and 2 mosfet outputs (10A 30V max).

The LEDs on every input, output and bus, permit to check the status of the board and found any problem on wire connections or firmware configuration: to save power, LEDs are enabled only by pressing the button Test .

The LEDs enable feature and the switching mode power supply lead to a full control of inputs/outputs status with an optimized power consumption.

Instructions to program ESPEasy firmware is available at <https://www.creasol.it/domesp1conf> : with this firmware it's possible to match I/O and sensors in this board with a Domoticz controller.

Features and specifications

- 4 relay outputs (250V 5A switch capability with non-inductive load. In case of inductive load, switch current is lower)
- 1 low voltage output (60V 100mA capability)
- 1 analog input, 18V max. In ESPEasy the conversion formula is %value%*0.01828
- I²C bus to connect a wide range of sensors and devices: these 2 I/O can be used as GPIO as well, and they can drive the 10A 30V mosfets by shorting the PCB jumpers MOS1 enable and/or MOS2 enable. Mosfet can be also configured as DIMMER to drive 12/24V LED stripes.
- 1wire bus for temperature sensors (DS18B20) and other 1wire devices. This can be used as a normal GPIO, if needed.
- switching mode power supply, to reduce power consumption/dissipation; **8-25Vdc input voltage** with 4.5Vdc and 3.3Vdc outputs
- current consumption in standby: typically 60mA @7.5Vdc, 40mA @12Vdc, 20mA @24Vdc

Layout

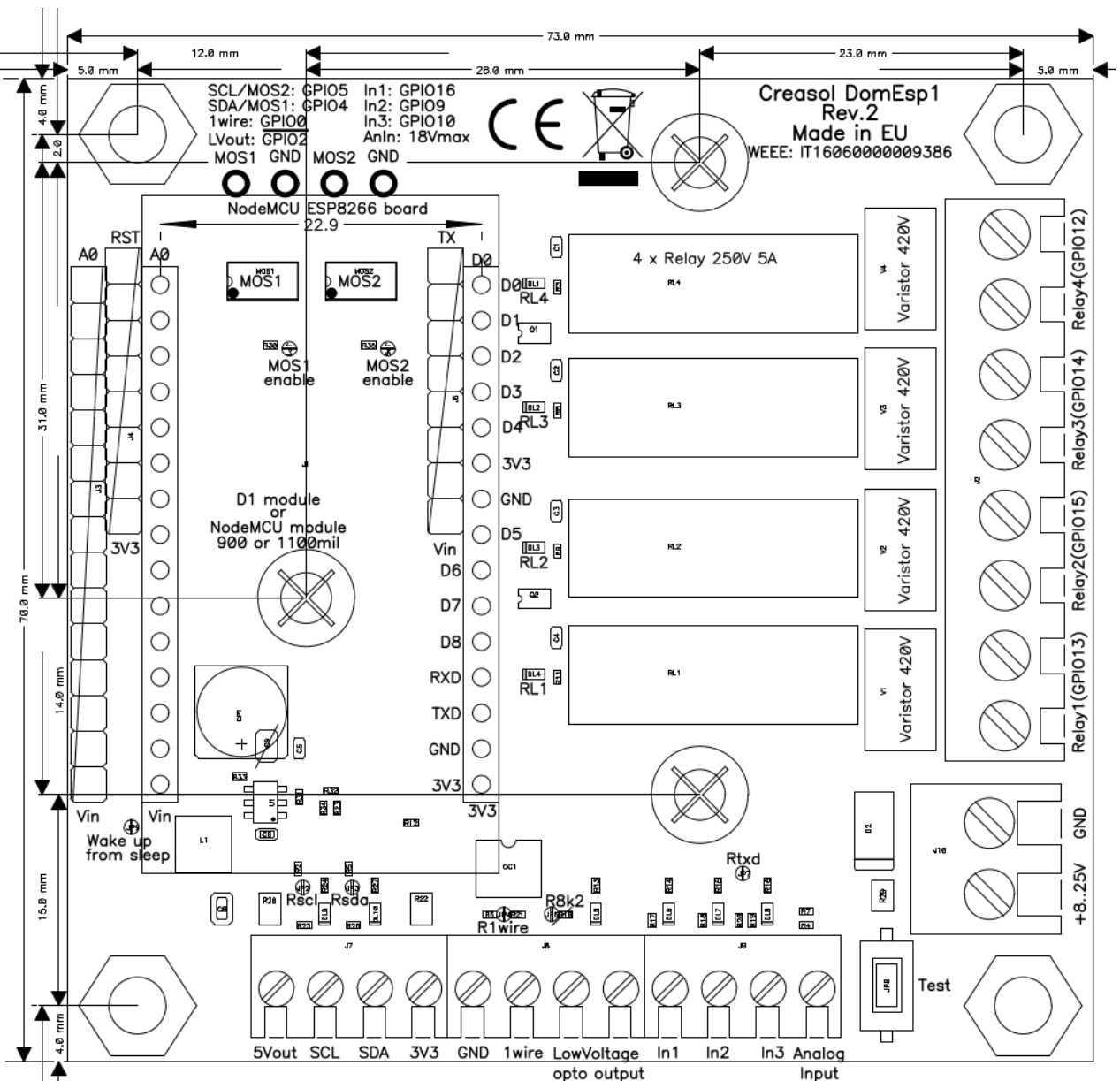
SDA (GPIO4) and SCL (GPIO5) terminal blocks are shared with mosfet outputs: if needed, one or both mosfets can be enabled by shorting the PCB jumper MOS1 and/or MOS2 enable by a tin ball with solder iron.

In this case, 2 or 4 wires should be soldered on the MOS1/GND and/or MOS2/GND pads, to connect the load as shown in the diagram below. Mosfet can be driven as ON/OFF switch or with DIMMER function.

If SDA and SCL are used as I2C or GPIO, it's possible to enable 4k7 pullups on SDA and/or SCL by shorting the PCB jumpers R_{sda} and/or R_{scl}.

1wire output can be used to connect 1wire devices (e.g. DS18B20 temp. sensors) or as normal GPIO. Shorting R_{1wire} PCB jumper, a 4k7 pullup resistor will be enabled on 1wire I/O. LVO_{out} is a SSR output with 100mA and 60V_{max} capability: it can be used to drive an electronic board input, such as a boiler thermostat input or a gate start/stop input. It's like a low voltage relay, with only 5mW power consumption. In1, In2 and In3 terminal blocks are almost useless, it depends by module and firmware configuration.

The 4 relays have 5A 250V switch capacity: in case of inductive load (e.g. motors) the switch current capacity is lower. Relay contacts are protected by varistors, to prevent contact arcing. Relay coil consumption is about 200mW. If several relays are used in the domotic/electric system, it's recommended to use Creasol DomBus31 (6x 5A SPST relay outputs + 2 10A SPDT relay outputs), a smart device that needs less than 50mW power per relay.



Safety information

The appliance must be disconnected from the power supply before carrying out any installation work. Electricity must be removed even for the external devices connected to the board (e.g. lights, pumps, electronic boards,... connected to the relay outputs).

Installation and maintenance must be carried out by a qualified technician, in compliance with the manufacturer's instructions and local safety regulations.

The electronic board must be installed into a well protected plastic enclosure, well protected by accidental contact with other metal objects.

Power supply must be protected by a fuse, as indicated in the application schema. External devices can be connected to the board only if they meet the specifications indicated in the *Features and specifications* section.

The manufacture do not respond for improper use or connection of this device.

Disposal

The packing material is 100% recyclable and should be disposed in the appropriate recycle bins. The electronic board cannot be disposed as household waste, but must be disposed of correctly or returned to the seller when purchasing a new equivalent product. Heavy fines can be imposed by local laws for illegal disposal. By ensuring this product is disposed of correctly, you will help avoid potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling of this product.

Warranty

The warranty complies with statutory requirements, and covers only defect in material, workmanship or lack of conformity. Your local stockist should be contacted in connecting with any warranty-related matters.

CE Declaration of Conformity

This equipment meets the essential requirements of the European Directive 2014/30/EU. The complete Declaration of conformity can be obtained from the supplier.

