ONE COMFORT

Installation guide

DEiMiC

smart home for everyone

CONTENS

WARNINGS

This instruction is a part of the product and shall be kept for future reference. Before installation you should read product documentation, which contains important information on the device settings and operation.

The module is comply with EU directives, including EMC 2004/108/EC, LVD2006/95/EC. Declaration of Conformity is available on www.deimic.one.

The producer takes no responsibility for damages caused by inappropriate usage of the device, inappropriate assembly or not obeying assembly instructions.

The installation must be performed in accordance with every safety standards for electrical installations and electrical regulations .

The device should be installed by qualified electrician.

Every installation work should be done with power off.

Every repairs must be performed be authorized service only. Device modifications or repairs done by anyone who is not authorized by the producer are forbidden and means lose of the warranty.

To avoid risk of electrical shock never open the device and do not touch any inside components of the device with your hands.

For safety reasons it's necessary to obey all the instructions in this document. Failure to follow these instructions may result in death or serious injury.

DEiMiC company products are not intended for use in medicine, avionics and industry.

DEiMiC company devices should be installed inside rooms, in places available for a fitter and conservator.

Remember to ensure proper ventilation for the device and do not expose it to the effects of weather conditions.

Because of continuing products development, the producer reserves the right to change and modify the device and its documentation without notice.

WARNINGS (continued)

Utilization of waste electrical and electronic equipment is regulated by the EU directive 2002/96/EC. The Directive prohibits disposal of waste electrical and electronic equipment with other garbage under penalty of a fine.
According to the law, worn out devices must be separately collected and sorted. Customers should contact their local authorities or the seller to get information about disposal of a waste electrical and electronic equipment.

RoHS

CE

1. *DEiMiC ONE COMFORT* DEVICE SPECIFICATION

1.1. DESCRIPTION

Figure 1. *DEMiC ONE COMFORT* device

DEiMiC ONE COMFORT module extends a smart home system capabilities by adding temperature control functionality and increasing number of the system inputs and outputs. The module includes 22 relay outputs, 8 dimmable LED outputs, 2 relays dedicated to LEDs power suppliers switching, 32 discrete inputs and 10-channel temperature controller, which contains a output for a recuperator control and a relay for central heating furnace switching. Each temperature controller channel includes an analog input for a temperature sensor connection and a relay output for a heater control.

1.2. TECHNICAL DATA

Tab. 1. DEiMiC ONE COMFORT device parameters

Parameter	Value
Number of high-current relay outputs	22
Number of dimmable LED outputs (12 V or 24 V)	8
Number of discrete inputs	32
Number of analog inputs for temperature sensors connection	10
Number of outputs for heating zones control	10
Number of outputs for furnaces control	1
Number of outputs for recuperators control	1
Number of outputs for LED power suppliers switching	2
Number of extensions headers	2
Power supply	12 V DC, min. 30 W
Dimensions (length/width/height)	321x109x54 mm
Used space in electric switchgear	18 modules
Installation place	Electrical switchgear

Tab. 2. Relay outputs absolute maximum ratings

Ratings	Max.	Unit
Maximum switching voltage AC	250	V
Maximum switching current	12	A
Maximum switching load resistive load fluorescent tube inductive load	 2000 500 200	W

1.3. THE DEVICE PINOUT DESCRIPTION

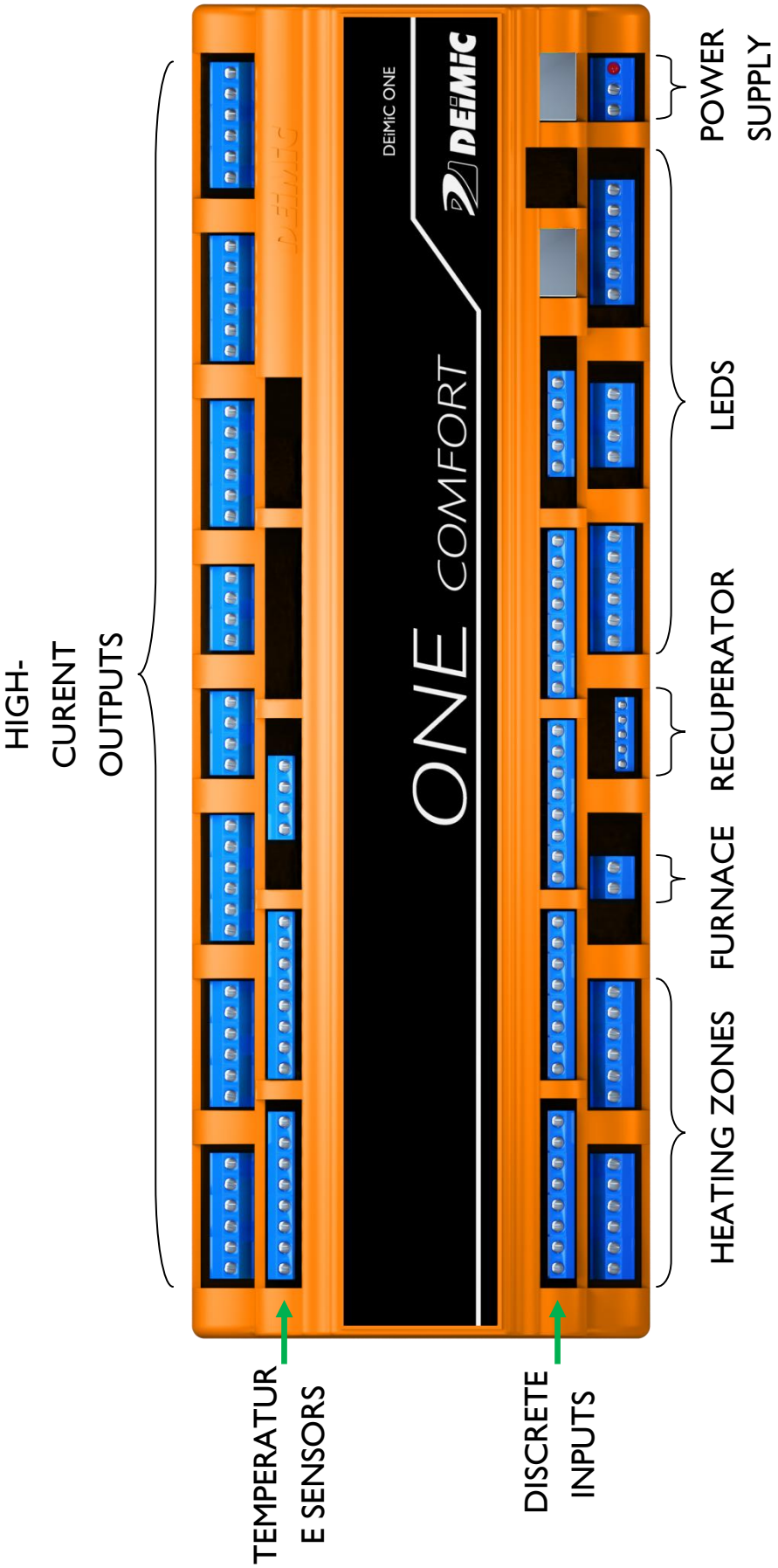


Figure 2. *DEiMiC ONE COMFORT* pinout description

1.4. APPLICATIONS

DEiMiC smart home system provides control of all electrical devices inside a building such as lights, shutters, car gates and garage gates, heating devices, alarms, irrigation devices, ventilation and sound systems. The system is cooperating with motion sensors, temperature sensors and switches. Thanks to LAN network connection, the ***DEiMiC*** system can be controlled via tablet or smartphone, providing the user all information about the system state from almost every place in the world.

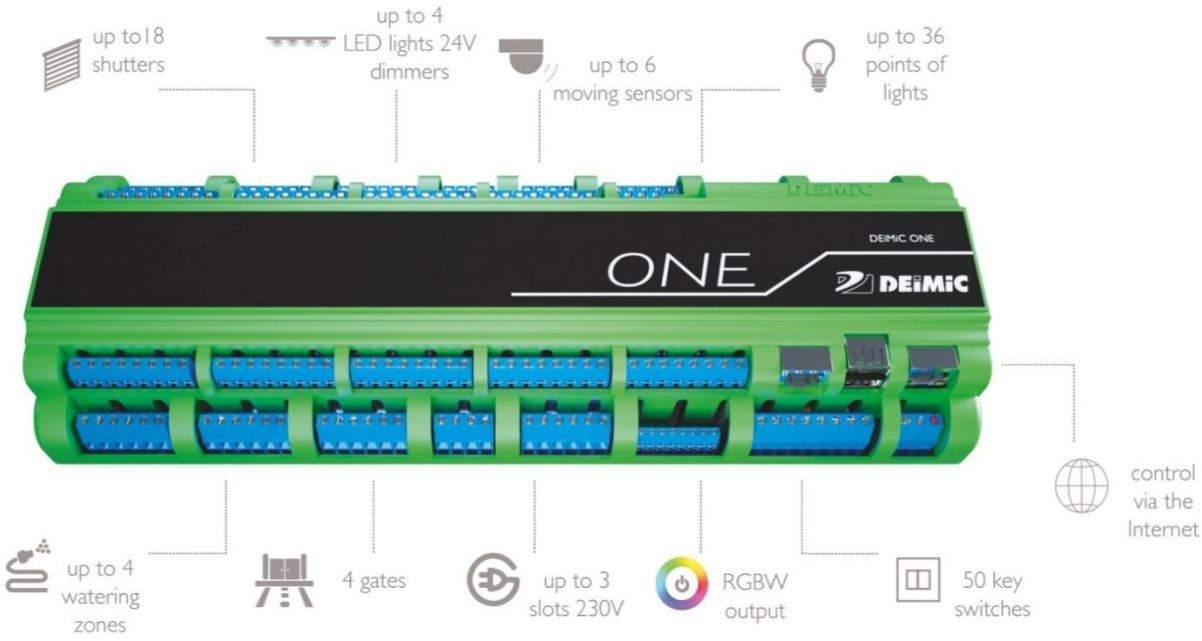


Figure 3. Smart home system with *DEiMiC*

2. ASSEMBLY

EVERY INSTALLATION WORK SHOLUD BE DONE WITH POWER OFF

BEFORE ASSEMBLY, IT IS NECESSARY TO READ THE INSTRUCTION, ESPECIALLY THE WARNINGS ON PAGE 1

2.1. PREPARATION TO ASSEMBLY

During assembly the following tools may be useful:

- phillips screwdriver,
- slotted screwdriver,
- precision pliers,
- flat pliers,
- driller,
- drill-driver,
- nippers for cable cutting,
- digital multimeter,
- connectors crimper,
- cable stripper, soldering
- tool.

Before assembly it is recommended to prepare a object plane. Preparation of the object plane and putting there all system devices, switches and sensors will make easier future work.

2.2. GUIDELINES

2.2.1. WIRES

During wires installation it is recommended to ensure appropriate space between low-voltage wires and mains electricity wires. It is recommended to avoid situations where signals wires are placed parallel to the mains electricity wires.

1. All standard light sections should be routed from an electrical switchgear with a **3x1,5mm^2** wire or other according to the lamp producer recommendations.

2. Every roller blinder, marquise, shutter should be routed directly to an electrical switchgear with 4x1mm2 wire or other according to the driver producer recommendations.

3. Gate driver should be routed from an electrical switchgear according to producer specification + **UTP cat. 5** cable to the controller.

4. Every **motion sensor** should be connected with another **UTP cat. 5** cable directly from an electrical switchgear.

5. One **UTP cat. 5** cable should be placed **between Ethernet router and an electrical switchgear.**

You should use good quality cables only. Choose **UTP cat. 5** cables which are made from copper.

6. A **1 mm²** multi-conductor cable should be lead to **heating distributors** (number of the cable conductors = quantity of valves + 2).

7. A **UTP cat. 5** cable should be placed in the all switch boxes directly from an electrical switchgear (if any localization have more than 6 buttons, it necessary to add one more **UTP cat. 5**).

8. A **UTP cat. 5** cable should be lead to the **temperature sensors** directly from an electrical switchgear.

Do not use shielded cables to the switches, especially high-class cables.

9. Chosen switchable electric socket should be connected directly do an electrical switchgear**.**

10. LED and RGB lighting circuits – Power suppliers should placed in an electrical switchgear; connection: 2 or 4 multi-conductor cable with cable cross-section adjusted to cables length and lighting power.

11. Gelled wires only should be placed **inside ground and outside the object.**

12. A **2x1** mm² wire form an electrical switchgear should be lead to a **gate electro connector**.

Every wire connection which differs from above rules

must be consulted with the system installer.

2.2.2. ELECTRICAL SWITCHGEAR

The control cabinet should be protected against unauthorized access.

1. **Dimensions of an electrical switchgear** should be adjusted to quantity of installation modules and protections. One DEiMiC module uses space of 18 modules.

2. **Electrical equipment, protective and residual-current devices** should be chosen and installed by a electrician only.

3. One protection should be done for **every 6 lighting circuits**.

4. One protection should be done for **every 6 shutters**.

5. ***DEiMiC* system** needs one B6 circuit breaker.

6. **Whole electrical switchgear must be described in details and sent to a investor.**

2.2.3. CONNECTIONS INSIDE ELECTRICAL SWITCHGEAR

1. **Every building outgoing wire,** which are not controlled by the *DEiMiC* system (electric sockets, furnace, alarm, fridge power supplies etc.) should be connected to circuits breakers like in traditional installations.

2. **Circuits controlled by *DEiMiC* system should be connected according to following rules:**

a) Neutral wires connected on terminal strips comply with residual-current devices.

b) Ground wires connected to grounded strips.

c) Lighting hot wires led out at single terminal.

d) Shutters hot wires led out at two single terminal, where first one sets the direction up (apply the same rule for roof windows and other mechanisms where direction is controlled by wire connection sequence), second one – the direction down.

e) Switchable electric sockets hot wires led out at single terminal.

f) Switches UTP cables led to an electrical switchgear with description and enough free space to allow access for every place in the switchgear.

g) Sensors UTP cables led to an electrical switchgear with description and enough free space to allow access for every place in the switchgear.

h) Temperature sensors cables led to an electrical switchgear with description and enough free space to allow access for every place in the switchgear.

2.2.3. CONNECTIONS INSIDE ELECTRICAL SWITCHGEAR (continued)

i) **Heating distributors outgoing wires** should be connected with valves, inside hermetic boxes, led out with terminal form an electrical switchgear side and described according to documentation delivered by central heating installer (room names assigned to the valves).

j) **All terminals leading out to devices which are power supplied by voltage lower than 230 V should be marked and different terminal colors should be used.**

2.2.4. MARKING

1. All wires should be permanently marked at both sides with a proper distance, which ensure description visibility after removing wire isolation.

2. Terminals and fuses should be numerated (marked).

3. Marks must not be duplicated.

4. Descriptions of terminals should be placed inside electrical switchgear.

5. If possible, please use marks from previous projects and figures which were done to a building needs.

2.2.5. GOOD ADVICES

1. Dimensions of an **electrical switchgear** should be properly chosen due to possibility of a need more number of devices than expected (more space also makes installation work more comfortable).

2. A twisted-pair cable and a coaxial cable should be routed from an **electrical box to a control cabinet (it will make easier future phone/network/TV connection).**

We recommend separate electrical sockets circuits with separate protections in electrical switchgear for every room.

To make installation easy and painless we strongly requests for perform installation in accordance with following rules:

1. After finishing wiring please check quantity of circuits in terms of included figures.

2. A readable description should be prepared in electronic version.

3. All doubtful situations should be consulted with the installer.

4. All changes introduced by a investor should be immediately reported.

5. During start-up **all lighting circuits** should be ended by a bulb and a holder.

6. All circuits led out by terminals should be power supplied before installation end in purpose of elimination of possible short circuit (damaged wire).

2.2.5. GOOD ADVICES (continued)

7. Check shutters and other drives connections in terms of properly work and terminals direction sequence.

8. Temporary installation, used by workers, should be connected to the switchgear **after finishing a connection**.

3. EXAMPLES OF WIRING DIAGRAMS

3.1. OUTPUTS CONNECTION - LIGHTS

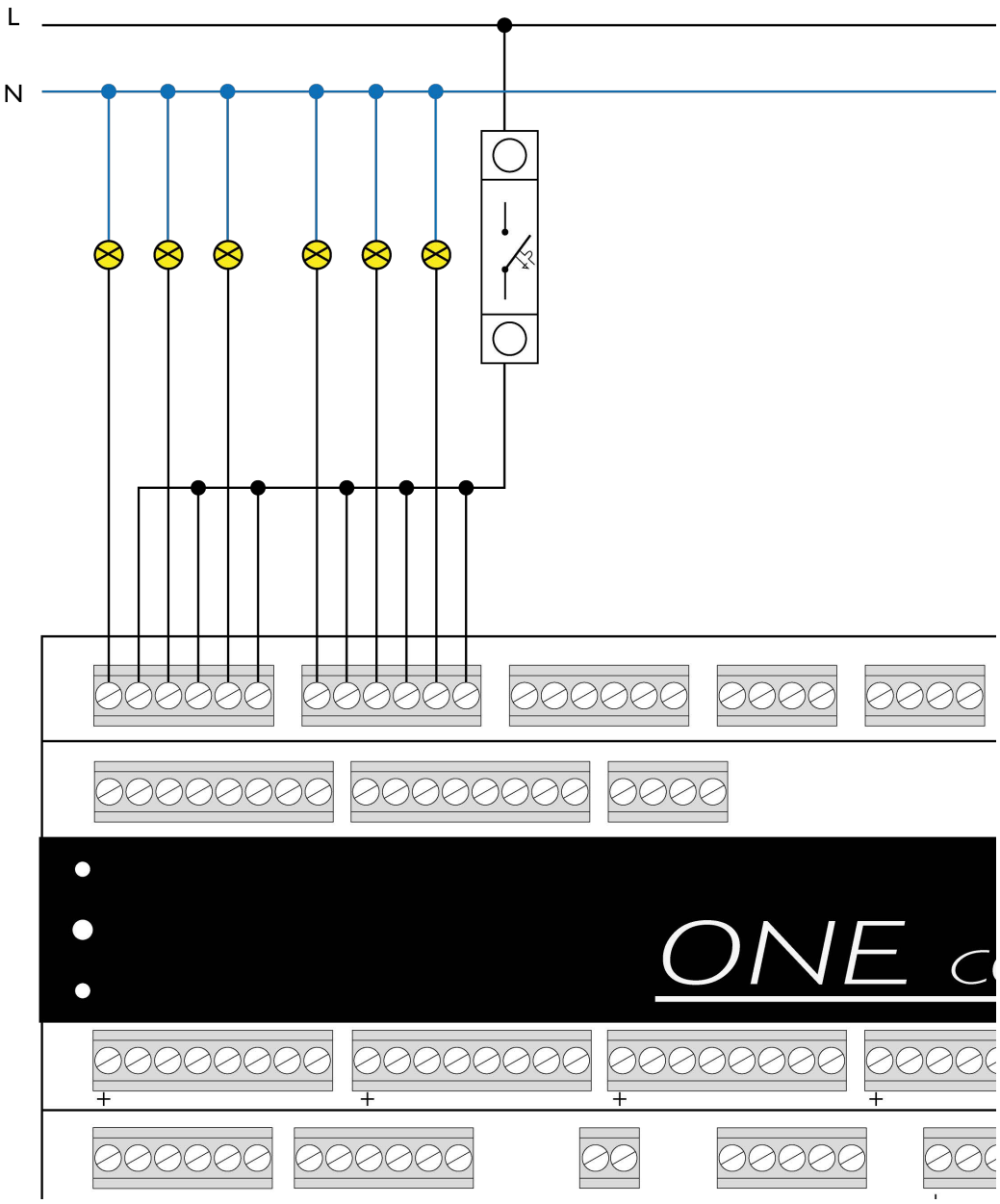


Figure 4. Lights connection diagram

3.2. OUTPUS CONNECTIONS – LED LIGHTS

OPTION 1 - THE DEVICE SWITCHES LEDS POWER SUPPLIER

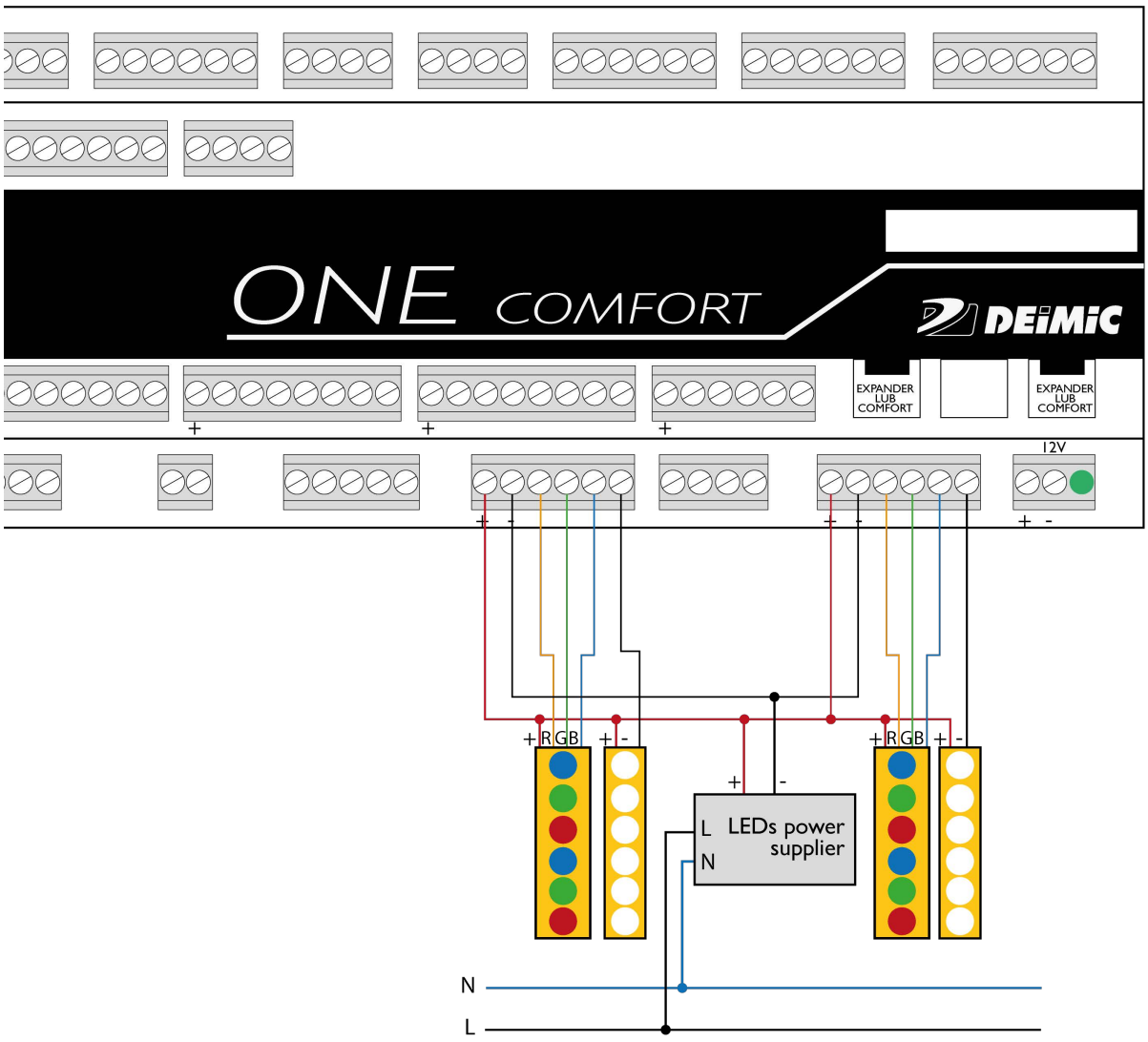


Figure 5. LEDs connection diagram – option 1

OPTION 2 - LEDS POWER SUPPLIERS EXTERNALLY CONECTED TO MAINS ELECTRICITY

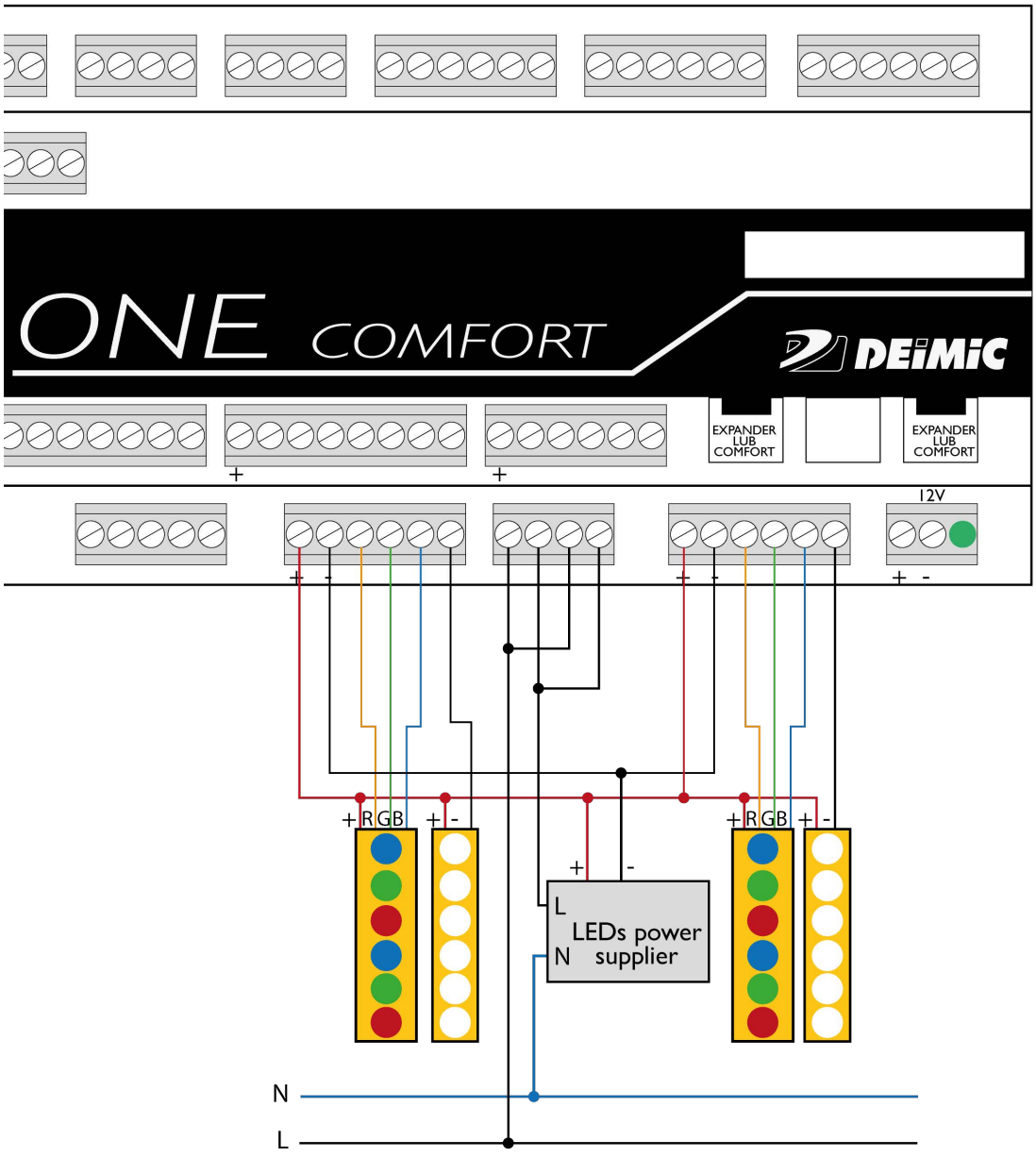


Figure 6. LEDs connection diagram – option 2

3.3. OUTPUTS CONNECTION – RECUPERATOR

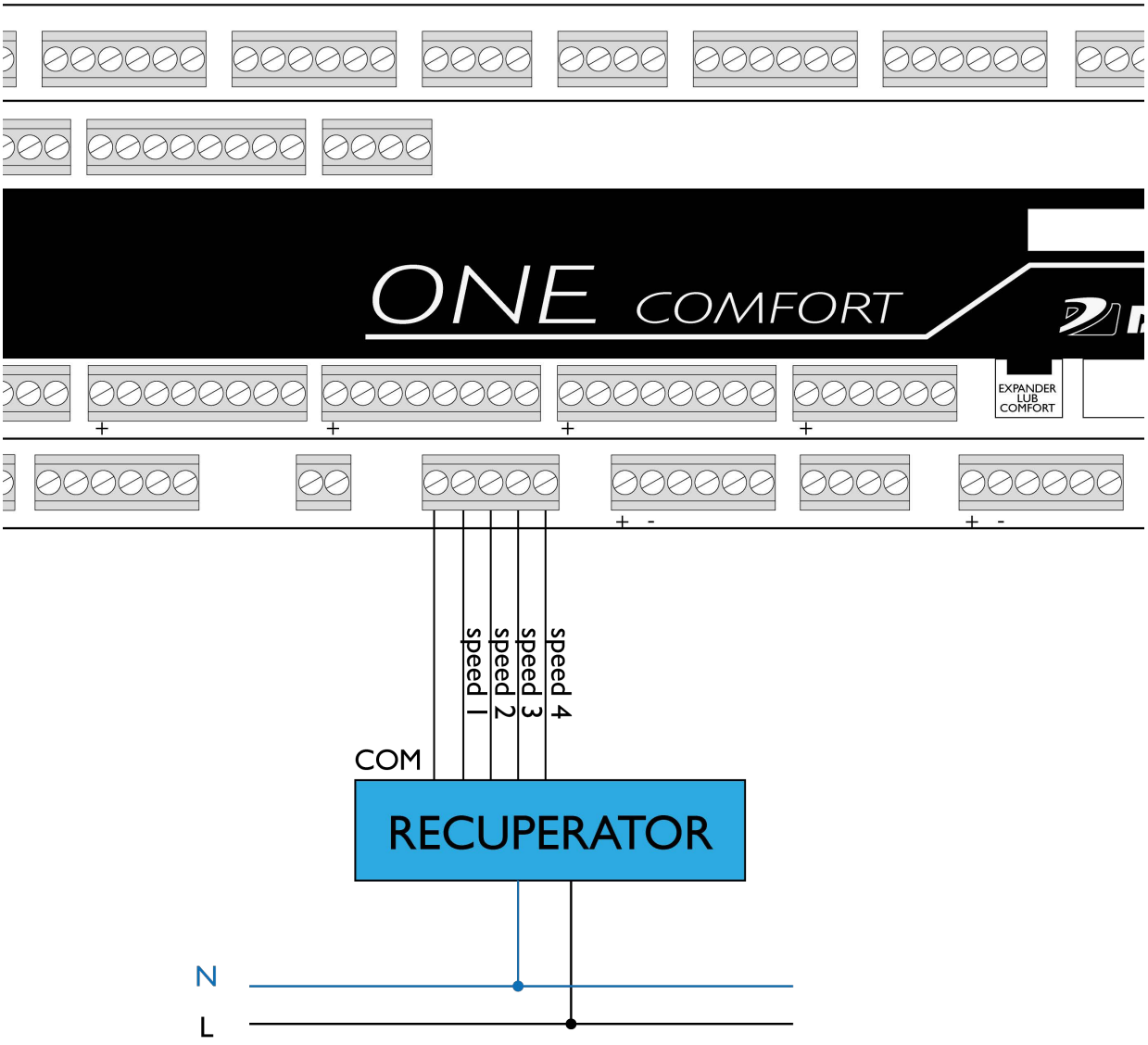


Figure 7. Recuperator connection diagram

3.4. OUTPUTS CONNECTION – FURNACE

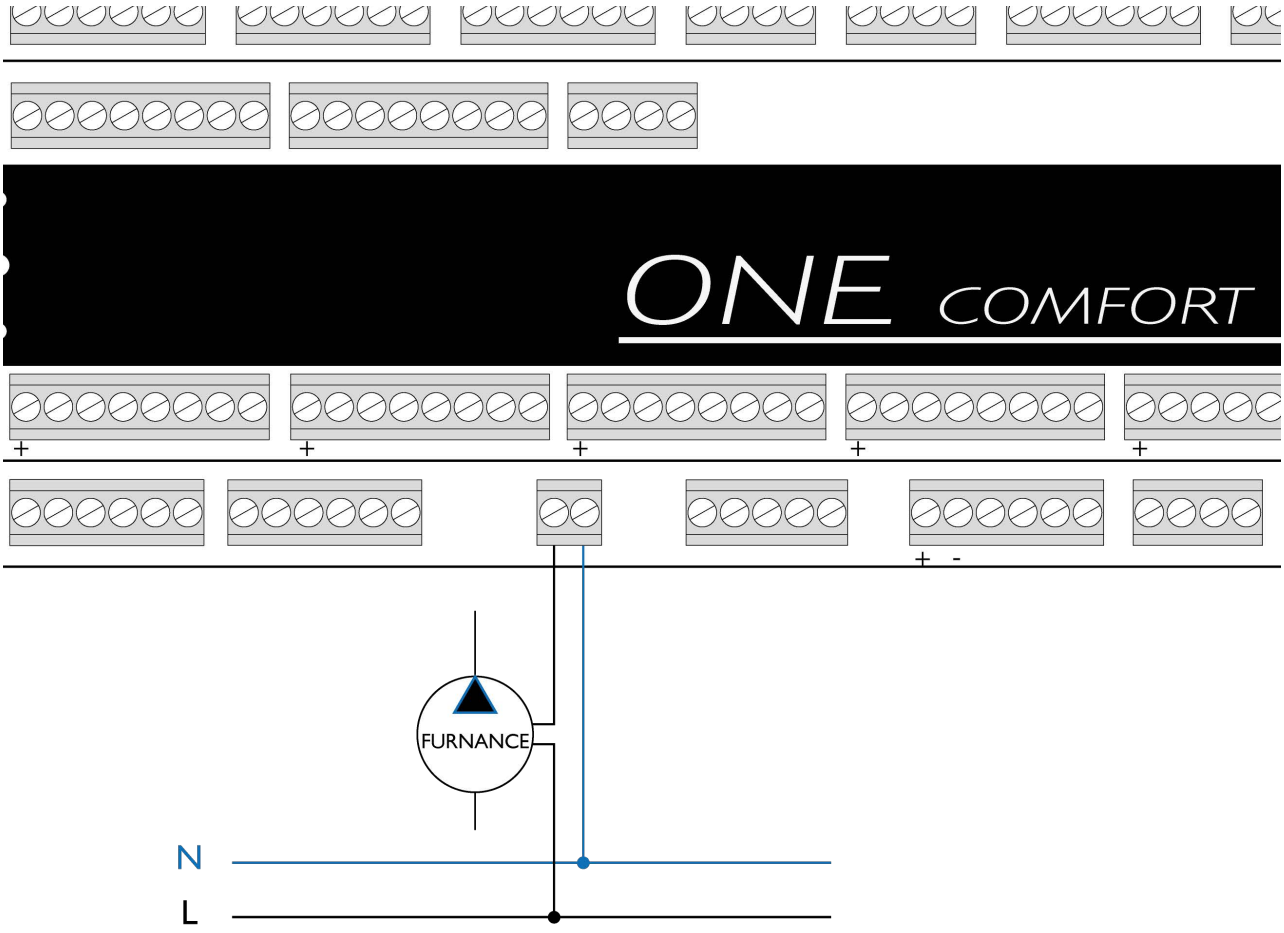


Figure 8. Furnace connection diagram

3.5. OUTPUTS CONNECTION – HEATING ZONES

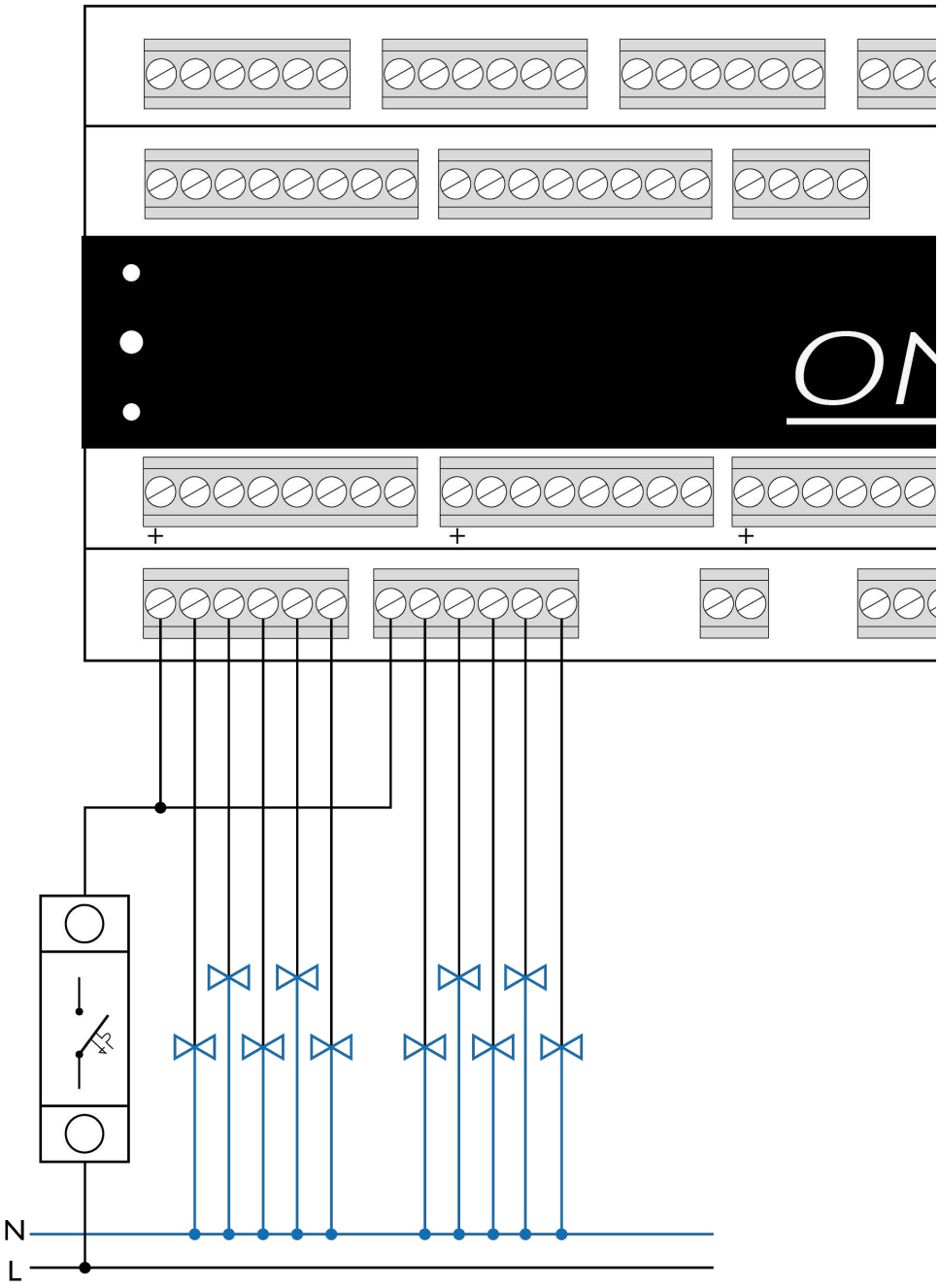


Figure 9. Heating zones connection diagram

3.6. INPUTS CONNECTION – TEMPERATURE SENSORS

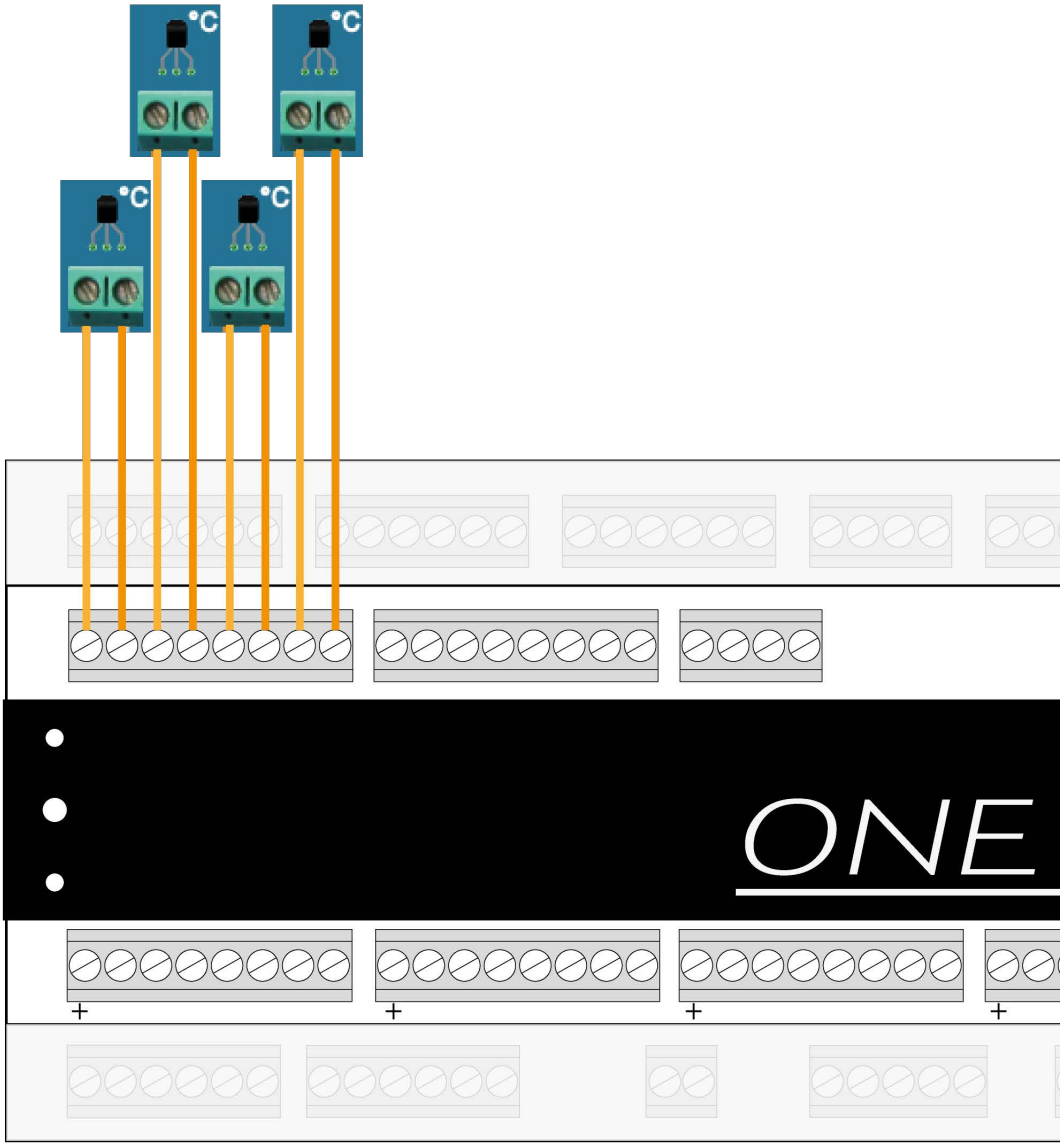


Figure 10. Temperature sensors connection diagram

3.7. INPUTS CONNECTION – SWITCHES AND BUTTONS

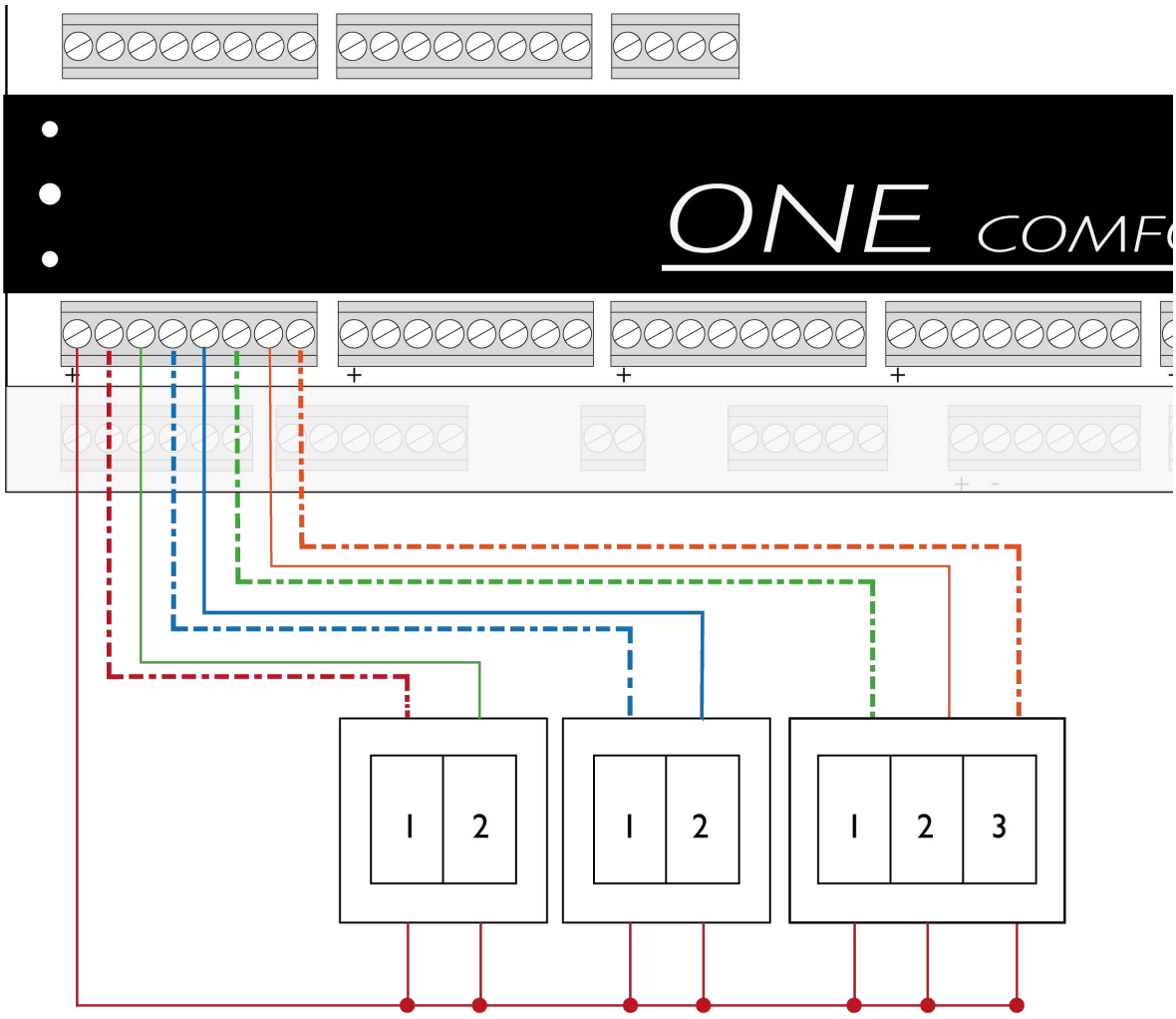
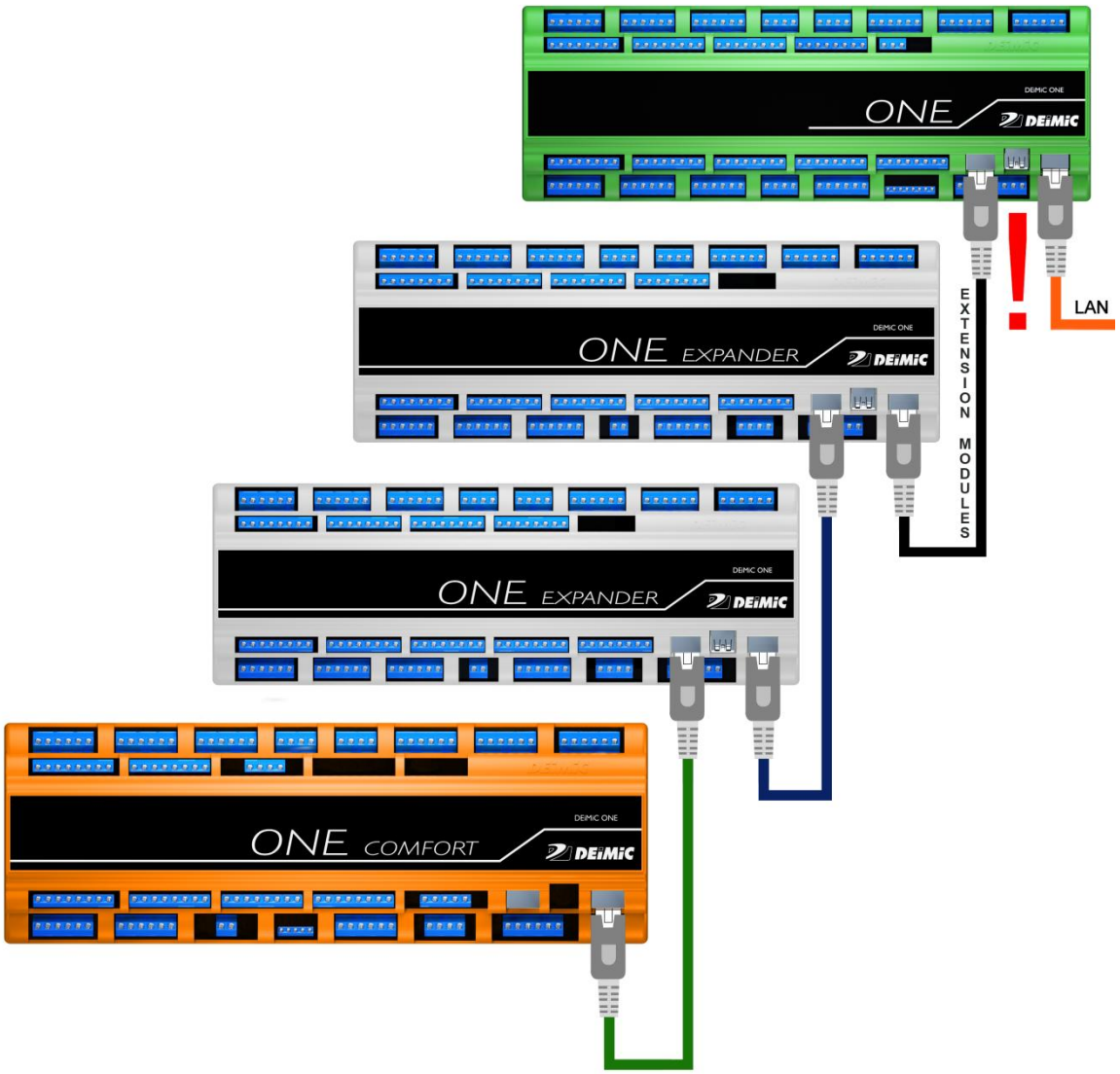


Figure 11. Inputs connection diagram

3.8. CONNECTION OF EXTENSION MODULES TO THE DEiMiC SYSTEM

Incorrect connection (!) it may damage the devices.



Straight Cable must be used rather than Crossover Cable.

Figure 12. DEiMiC extension modules connection diagram

4. FIRST START

4.1. TEST BUTTON

DEiMiC ONE COMFORT has been equipment with a test button. All odd numbered outputs will be turned on after the button pressed. 2rd press of the button deactivates odd numbered outputs and activates even numbered outputs. When the button is pressed again, all odd and even numbered outputs will be turned off.

4.2. *DEiMiC ONE* MOBILE APPLICATION

DEiMiC smart home control panel is easy to operate, clean look and multitask. The ***DEiMiC*** system can be controlled via tablet or smartphone, providing the user all information about the system state from almost every place in the world.

DEiMiC company introduced possibility of control of all installations and every single part of the system using easy-operated control panel, switches placed in chosen rooms, and mobile application available for mobile phones and tablets.

The software download links for iOS, Windows, Android and Linux are available at our webpage:

http://www.deimic.one

4.3. FIRST START OF *DEiMiC ONE* APPLICATION

During first application start, enter the server address and the code, placed on the ***DEiMiC ONE*** device.

For further information and detailed DEiMiC system configuration tutorial please visit our channel:

https://vimeo.com/deimic

5. GUIDELINES

5.1. ROLLER BLINDS, SHUTTERS AND MARQUISE

Following text includes information about requirements which have to be met to ensure the system control capability of roller blinds and shutters.

Drives are controlled by the DEiMiC system via relay system which can be open, closed or impulse controlled, depending on a needs and specification of the given drive.

Maximum contact load up to 16 A / 230 V AC.

We recommend to use motors controlled by a phase, with limit switches.

Be sure to use good quality products, which limit switches are working properly.

To ensure proper assembly process, please follow the rules below:

1. If a drive is not phase controlled, contact the technical support before product ordering and assembly to get information about compatibility of the given drive with the *DEiMiC* system.

2. If bridging a roller blind is necessary, make sure that it is allowed by the drive technical datasheet and mark this action (with information which roller blinds have been bridged) on the work protocol.

3. Inform an electrician to route obligatory a **4x1mm^2** wire to every single drive (L1 – up; L2 – down, neutral, ground)

If a motor needs another connection, it is necessary to inform the system installer about that fact immediately.

5.1. ROLLER BLINDS, SHUTTERS AND MARQUISE (continued)

4. If you are planning to connect the drives with additional sensors (e.g. wind sensor, dusk sensor), it is necessary to inform the system installer about this fact. In marquise case, they have to be equipped with an independent wind sensor, which will automatically close the marquise in case of a strong wind, which may damage it.

5. After mounting drives they must operate in full open/close range (limit switches should be regulated)

During building commissioning, the system installer will connect all roller blinds in purpose of ensure roller blinds control capability and security the construction site.

The drive producer take responsibility for possible damages caused by missing proper regulation.

6. If there are important reasons, which prevents activation of the devices comply with paragraph 5, it is necessary to inform the installer immediately.

5.2. GATE DRIVES

Following text includes information about requirements which have to be met to ensure the system control capability of car gates.

Drives are controlled by the DEiMiC system via relay system which can be open, closed or impulse controlled depending on a needs and specification of the given drive.

Maximum contact load up to 5 A / 230 V AC.

We recommend to use drives with separate contacts, which short circuits will make the contacts open (stopped) and a gate closed (stopped).

5.3. CENTRAL HEATING

Following text includes information about requirements which have to be met to ensure the system control capability of heating and DHW circulation pump.

Heating are controlled by the DEiMiC system via closing heat supply valves. The temperature sensors should be installed in the chosen rooms. Their measurements will be the base of zoning heating control, thereby there is no need to mount additional controllers inside rooms.

The heating system can be based on any heat supply and we not interfere in the furnace automation system, which only task is to maintain the given temperature setpoint.

In rooms with regulated temperature, heat supply should be limited with NO 230 V actuator (normally open).

To ensure proper assembly process, please follow the rules below:

1. Heat distributors location should be shown to an electrician, which should be informed about number of heating zones per single distributor, so he will be able to prepare wiring.

2. Installer must deliver and mount actuators in every place, where it is needed (the distributors, radiators and other necessary places).

3. An electrician should be informed about a need to route **2x1mm^2** wire to every actuator (hot and neutral wires).

If actuator needs another connection, the installer and the investor should be informed immediately.

5.3. CENTRAL HEATING (continued)

4. If DHW circulation pump should be controlled by *DEiMiC* system, the pump must have auto start function (after power on pump should start working). An electrician should be informed about a need to route **3x1,5mm^2** wire to a DHW circulation pump (hot, neutral and ground wire). If the pump needs another connection, the installer should be informed immediately.

5. The installer of central heating is obligated to deliver a documentation, which readably describes actuators and assigns heating zones (rooms) to them. Every single valve must have individual, permanent number.

6. Temperature of the central heating heat supply should be the same for all floor facings. If heat supply will be mixed (underfloor heating, radiators), a mixer in the front of the distributors is needed. The mixer must set maximum safe floor temperature.

7. If there are important reasons, which prevents the activation of the heating system in way described above, the installer and the investor should be informed immediately.

We will be grateful for every information, which may affect the proper operation of the system.

We will be glad to help,
DEiMiC team

6. REVISION HISTORY

Tab. 3. Document revision history

Date	Version	Changes
07.2014	1.0	initial release
03.08.2014	1.3	changed the device (change of functional capabilities)
	1.4	added new wiring diagrams
	1.5	added industry guidelines
02.09.2014	2.0	changed the device and wiring diagrams (change of input and temperature sections)
01.2015	2.1	changed information, descriptions, photos and wiring diagrams