

Installation and Operation Instructions

Version 4/21

Wind and Rain Control WRS 2 b



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Please read these instructions carefully.

Work at the Control may be performed only by qualified personnel!

Symbols used:

① = operation

☼ = wind

☁ = rain

☀ = fair weather

△ = button / travel
command OPEN

▽ = button / travel
command CLOSE

OK = rain sensor OK

⚠ = malfunction
sensor

1 Concept

- In case of wind / rain, a closing command is sent to SHEVS Control Centres or ventilation controls. Four separate potential-free changeover contacts (output contacts) deliver the required signal. The contacts remain active as long as a sensor responds, however for a minimum of 6 minutes
- The connection of a wind sensor **WM** and/or rain sensor **RS** is required
- Sensitivity to wind and rain adjustable
- Selectable functions:
 - “Reduced sensitivity to wind” (for closing, an equally strong wind must last longer)
 - “Continuous heating” (the rain sensor is heated continuously)
 - “Contact programming” (contacts 3 and 4 can be switched optionally for wind and/or rain)
 - “Output deactivated” (deactivating all output contacts for service / maintenance purposes)
 - “Reduced closing time” (the minimum closing time is reduced from 6 to 3 minutes)
 - “Malfunction contact” (contact 2 switches in case of malfunction of the rain sensor)
 - “Test” (mode for testing the function of sensors and actuators)
- Indicators for operation ①, wind ☼ and rain ☁
- Plastic enclosure, light grey (RAL 7035)

1.1 Options / Accessories

- **WM 1:** Wind sensor for detecting wind speed
- **RS 3:** Heated rain sensor
- **SK:** Pedestal (40 cm high) for installation of the components **WM** and **RS** on a flat roof
- **MB:** Shackle for pole mounting the components **WM** and **RS** (for pipes up to Ø 60 mm)
- **KE:** Extension of the wind and rain control by additional potential-free contacts
- **SG:** Enclosure additionally with transparent door, opening to the left, protection rating IP54

2 Putting into service / Putting out of service

Work at the Control may be performed only by qualified personnel!

Before starting any work it is mandatory to deflect static charge!

We do not assume any guarantee or liability for defects caused by faulty connection.


2.1 Installation / Putting into service

⚠ The wind sensor should be mounted as free-standing as possible and well above roof level, e.g. on a mast, in order to detect undisturbed wind. The surface of the rain sensor must be mounted at an angle of 40 to 50° from the horizontal, with the cable outlet facing down. The axle of the wind sensor must be vertical. Observe regulations relating to lightning protection and installation (EN 62305, EN 60728-11)!

⚠ Perform work at the Control only in de-energised condition!




- Remove front panel and terminal cover. Fasten the enclosure securely using suitable mounting material. Pass the connection cables through the holes provided and wire the Control according to the connection diagrams.
- Carry out the function settings (see 4).
- Turn on line voltage. The indicators ☼ and ☁ light up briefly, the indicator ① lights up. The Control is ready for operation. When a sensor is active, the indicators ☼ or ☁ remain lit.
 - ⓘ If an indicator blinks / flashes, follow the instructions in Section 3.
- While putting into service, check all functions and indicators of the Control and its components. The individual functions are described in the Sections 3 and 4.


2.2 Putting out of service

- To put out of service, switch off the line voltage.
 *In the event of mains failure, the Control sends a closing command to all the components connected.*

3 Features, Controls and Maintenance

Before touching the control elements in the Control it is mandatory to deflect static charge!


 *The potentiometer  /  and the DIP switches for setting functions can be reached by removing the front panel. Front panel and Control are connected by a pluggable flat ribbon cable.*

- **Indicator  (operation)**

- is lit: Normal operation.
- blinks: The function “output deactivated” is activated (see 4).
- flickers: The function “Test” is activated (see 4).



- **Indicator  (wind)**

- is lit: The set threshold value was exceeded for a few seconds and the output contacts activated.
- blinks: Individual gusts of wind already exceed the threshold value, but the output contacts are not yet activated.



 *For the output contacts to be activated, the threshold value must be exceeded for approx. 4 s in the case of highest sensitivity and for approx. 7 s in lowest sensitivity. See also “Setting the sensitivity” (below) and the function “Reduced sensitivity to wind” (Section 4).*

- **Indicator  (rain)**

- is lit: The set threshold value was exceeded and the output contacts activated.
- blinks: Short-circuit of the heating due to defect or faulty connection.
- flashes: Wire-break of sensor cable


 *If the indicator  is lit, the rain sensor is heated. The sensor surface dries faster after rain and it can be ventilated again.*

- **Setting the sensitivity for wind  / rain .**

The sensitivity of the sensors can be set on the potentiometers  and  in the Control using a screwdriver (for this, remove the front panel):

- Rotating in the clockwise direction increases the sensitivity.
- Rotating in the counterclockwise direction reduces the sensitivity.

Factory setting: highest sensitivity for both sensors.

 *Too low sensitivity setting can cause damage by wind and rain!*

- **Maintenance:**

Carry out the following tests / work once in a year:

- Cleaning the rain sensor with a damp cloth, possibly with a mild detergent.
Do not scour the sensor surface!
- Check the wind sensor for smooth-running
- Functional testing of the sensors
- Check whether all SHV or ventilation devices are properly closed

4 Selectable functions

- **“Reduced sensitivity to wind” DIP switch 1:**

In the ON position, the Control is less sensitive to gusts of wind. The closing takes place only after the threshold value is exceeded for the increased response duration (approx. 8 to 13 s).

Factory setting: OFF (normal sensitivity).

- **“Continuous heating” DIP switch 2:**

In the ON position, the rain sensor is heated continuously at reduced power. For example, this prevents morning dew and incidental activation of the sensor caused thereby. If the sensor is activated by rain, the heater operates at full power once again up to drying.

Factory setting: OFF (heating is active only in rain).

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- **“Contact programming”** DIP switches **3** and **4**:

For the output contacts 3 and 4 the switching behaviour can be set (* = factory setting):



Contact 3:



Contact 4:



- **“Output deactivated”** DIP switch **5**:

In the ON position, all output contacts are deactivated (they do not switch in wind / rain), in order to enable putting into service / maintenance work to be carried out in bad weather (see also the function “Test”). When function is activated, the indicator ① blinks.

Factory setting: OFF (outputs are active)

🔔 *Deactivate the function again after putting into service / maintenance (DIP 5: OFF).*

- **“Reduced closing time”** DIP switch **6**:

In the ON position, the output contacts are activated in wind / rain for at least 3 minutes.

Factory setting: OFF (activate for at least 6 minutes).

🔔 *When the function is activated, it must be ensured that SHV and/or ventilation devices are completely closed within 3 minutes.*

- **“Contact 2 = Malfunction”** DIP switch **7**:

In the ON position, the output contact 2 is activated on malfunction of the rain sensor (short-circuit / wire-break).

Factory setting: OFF (contact switches during wind /rain).

- **“Test”** DIP switch **8**:

In the ON position, the test function for putting into service / maintenance work is activated and the indicator ① flickers. All output contacts are activated and can be deactivated using the DIP switch 5. When a sensor responds, the corresponding indicator 🌬️ / 🌧️ is saved (to be able to check it later in the Control).

Factory setting: OFF (Test function deactivated).

🔔 *Deactivate the function again after putting into service / maintenance (DIP 8: OFF).*

5 Technical data

General

Type	WRS 2b
Part number	8161 2200 0000
Part number with SG option	8161 2200 0002
Line voltage supply	230 V~ / 50 - 60 Hz
Current input	0.09 A
Dimensions in mm (W x H x D)	165 x 155 x 75 200 x 155 x 95 (option SG)
Cable entry through membrane grommets (from below)	4 x M16
Ambient temperature	-5 °C to +40 °C
Relative humidity	20 % to 80 %, non-condensing
Enclosure protection rating	IP40 (option SG : IP54)

For installation dimensions, see diagram “Sensors, line voltage, mounting”.

Not suitable for use outdoors. Protect from direct sunlight, humidity and excessive formation of dust! Preferably, the installation should be carried out in dry, heated rooms.

The requirements of Directives 2014/35/EU and 2014/30/EU are met.



Suitable for operation in residential, business and commercial areas.

Inputs / outputs, fuses

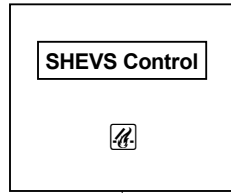
Wind sensor WM , heated rain sensor RS	1 piece each
Adjustment range of sensitivity to wind	approx. 5 - 15 m/s (20 - 60 km/h, approx. wind force 3 - 7)
Adjustment range of sensitivity to rain	light to heavy rain
4 changeover contacts, load rating	5 A / 30 V $\overline{=}$ / 230 V~
Output contacts (miniature fuse 5 x 20 mm)	F1 - F4: F 5 A
Mains primary (miniature fuse 5 x 20 mm)	F5: T 125 mA

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System diagram (please consider local conditions / components)

24 V- system (SHEVS Control Centre or Ventilation Control)

Up to 4 SHEVS Control Centres or Ventilation Controls are directly connectable.
Further expansion is possible by using a contact extension unit KE.
For each 24 V system, a separate changeover contact is required!

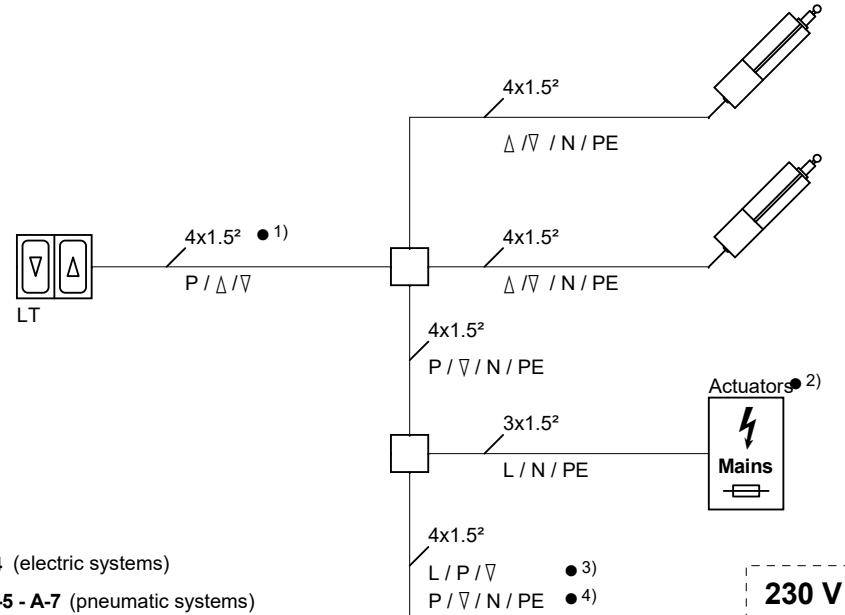


3x0,8 (max. 400 m)

24 V

230 V~ system (ventilation group)

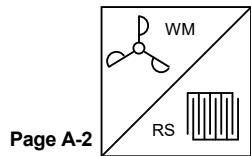
Up to 4 ventilation groups 230 V~ are directly connectable.
Further expansion is possible by using a contact extension unit KE.
For each 230 V~ ventilation group, a separate changeover contact is required!



Page A-4 (electric systems)

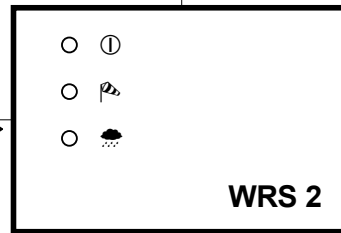
Pages A-5 - A-7 (pneumatic systems)

Page A-3

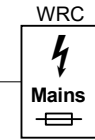


Page A-2

4x0.8 (max. 400 m)



WRS 2



Page A-2

3x1.5²
L / N / PE

- 1) PE not used
- 2) External power supply for the actuators (optional). Not applicable when using the mains output terminals of the control.
- 3) In case of external power supply.
- 4) In case of internal power supply via the mains output terminals. Load rating max. 5 A!

When using separate contacts the Wind and Rain Control (WRC) can be used also for simultaneous actuation of 24 V- and 230 V~ systems.

General: length of cable max. 200 m, if not specified otherwise.

Cable types (examples):
Signal lines: J-Y(St)Y 2x2x0,8
Mains: NYM-J 3x1,5 mm²
Actuators / LT: NYM-J 5x1,5 mm²

WRS2bA21.sch

WRS2bA42.sch

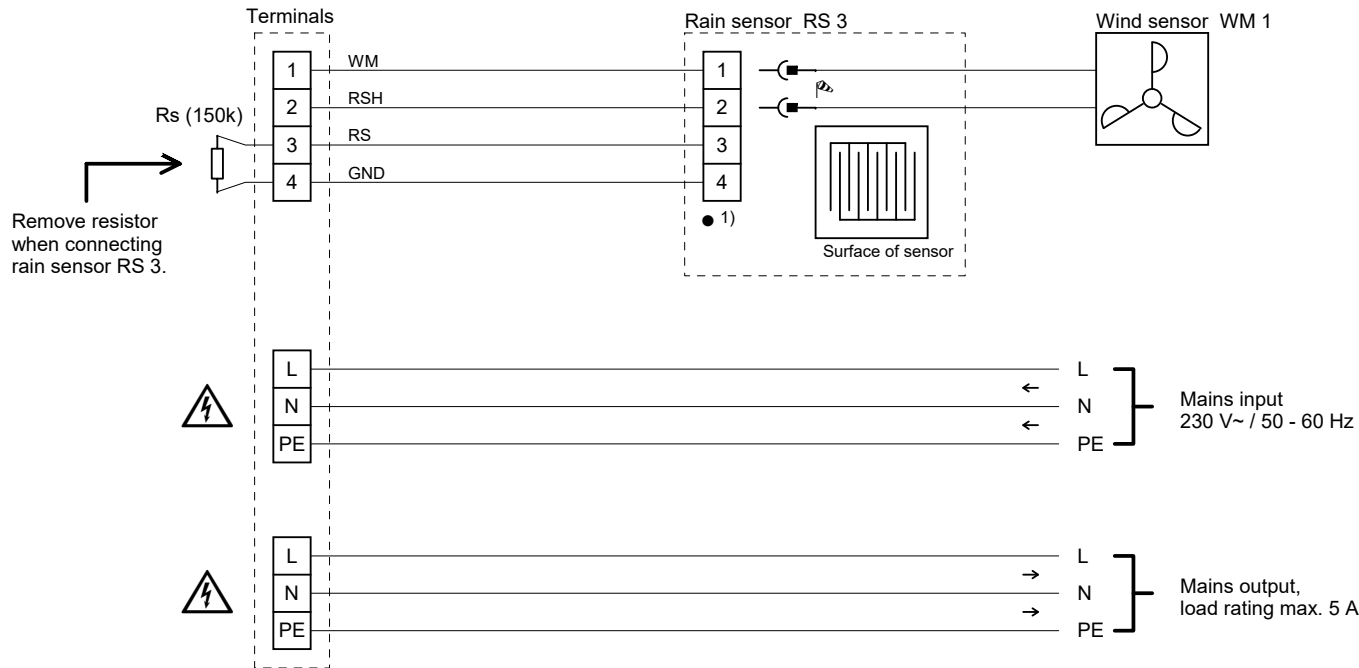
Ver. 2/18 Mo 18 Jun. 2018

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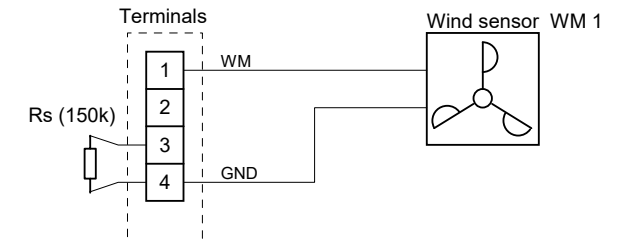
Wind and Rain Control WRS 2b

Sensors, line voltage, mounting

Sensors, line voltage

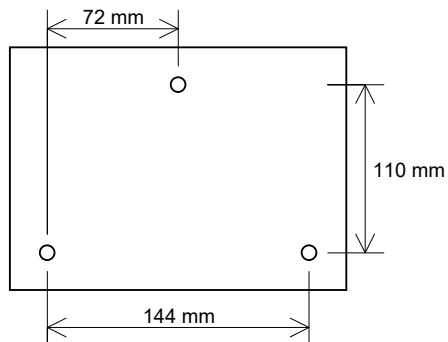


Connection of wind sensor without rain sensor

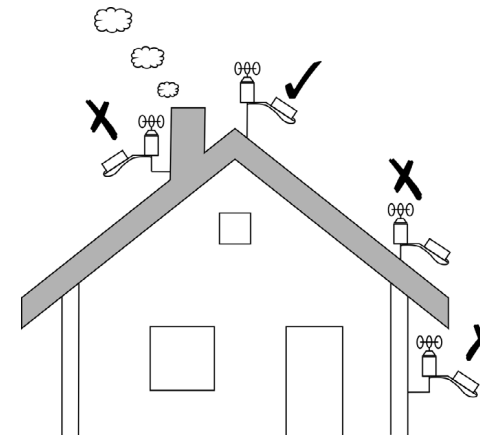


- 1) Rigid cable:
Max. diameter 0.8 mm / cross-section 0.5 mm²
- Flexible cable:
Max. diameter 1.0 mm / cross-section 0.75 mm²
- ⚠ Tightening torque for the screws max. 0.4 Nm

Mounting the control



Mounting the sensors



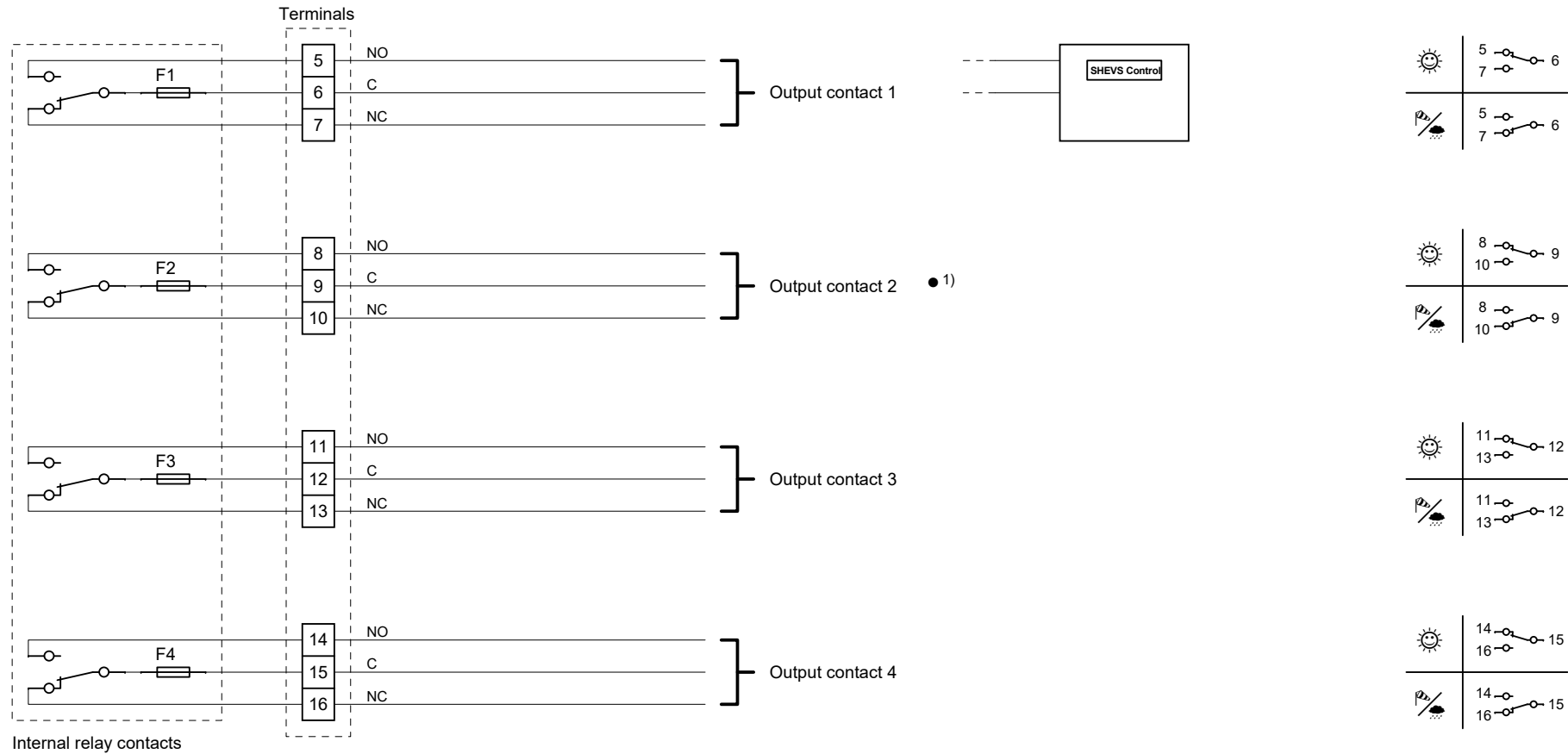
The wind sensor should be mounted as free-standing as possible and well above roof level, e.g. on a mast, in order to detect undisturbed wind.

Colour code for resistors: 150k = brown/green/black/orange

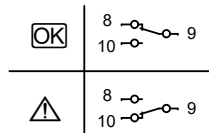
Wind and Rain Control WRS 2b

24 V- system: SHEVS Control Centre or Ventilation Control

24 V- system



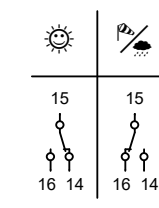
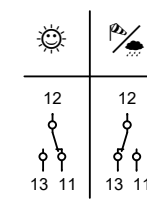
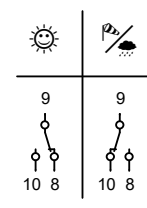
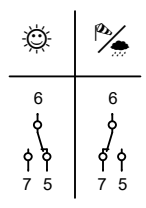
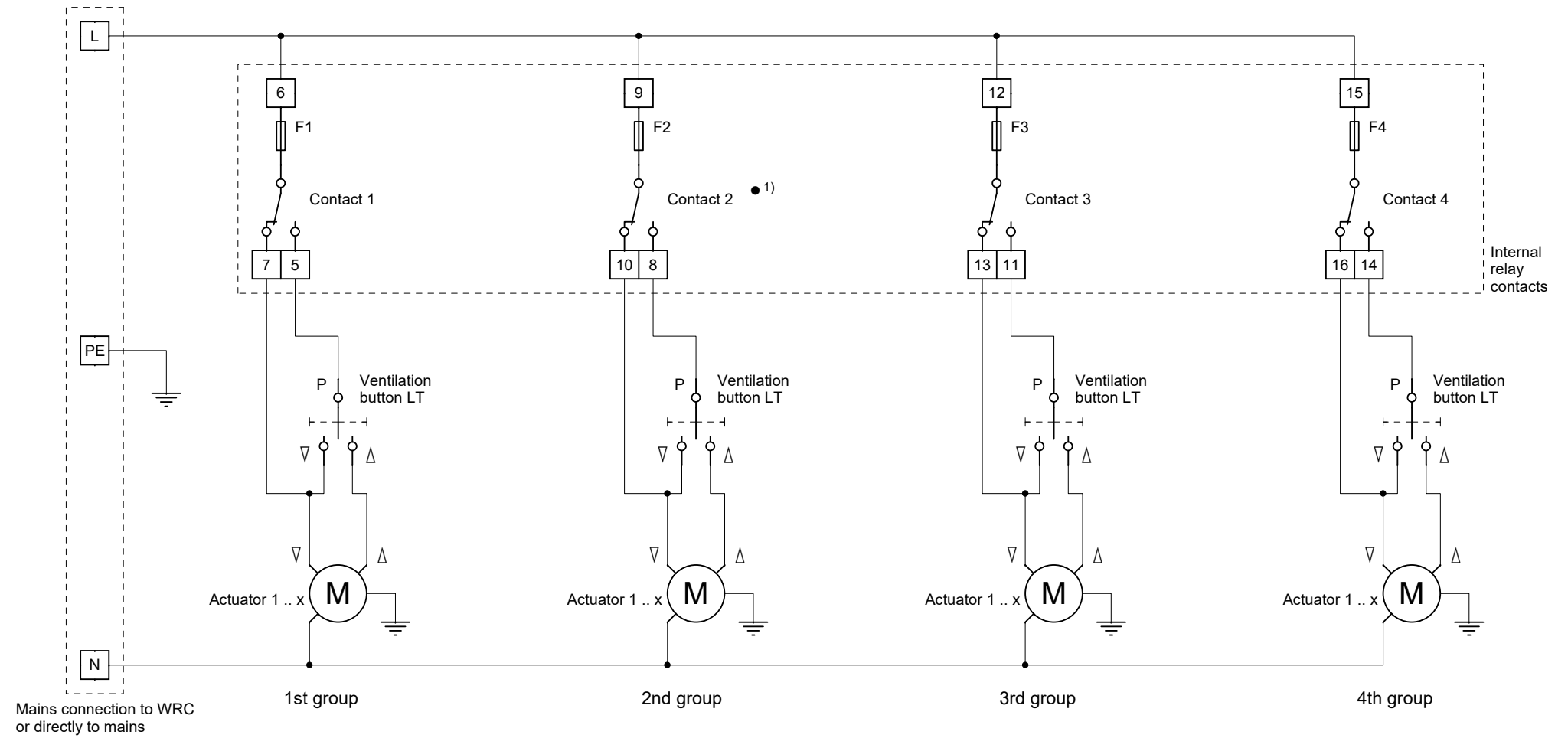
● 1) When "malfunction contact" function is activated (see section 4):



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230 V~ system: ventilation groups with electric actuators

230 V~ system

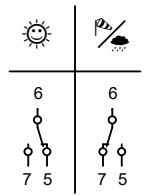
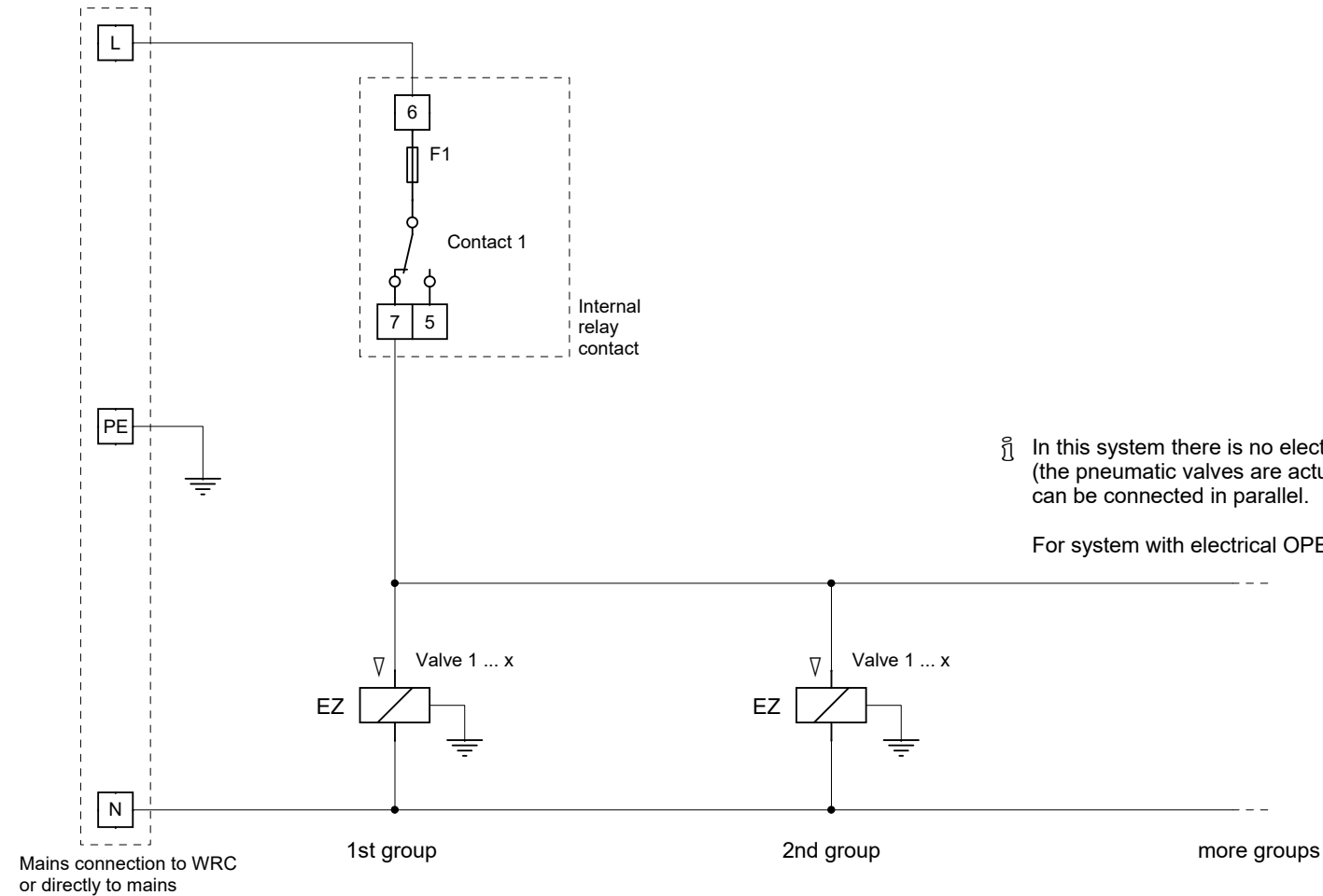


• 1) For "malfunction contact" function, see page A-3 and Section 4.

Wind and Rain Control WRS 2b

230 V~ system

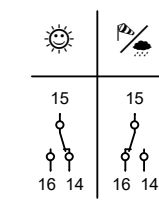
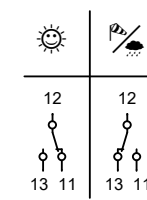
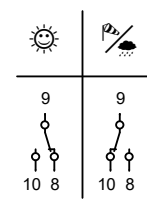
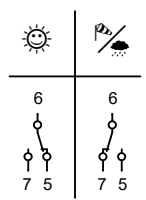
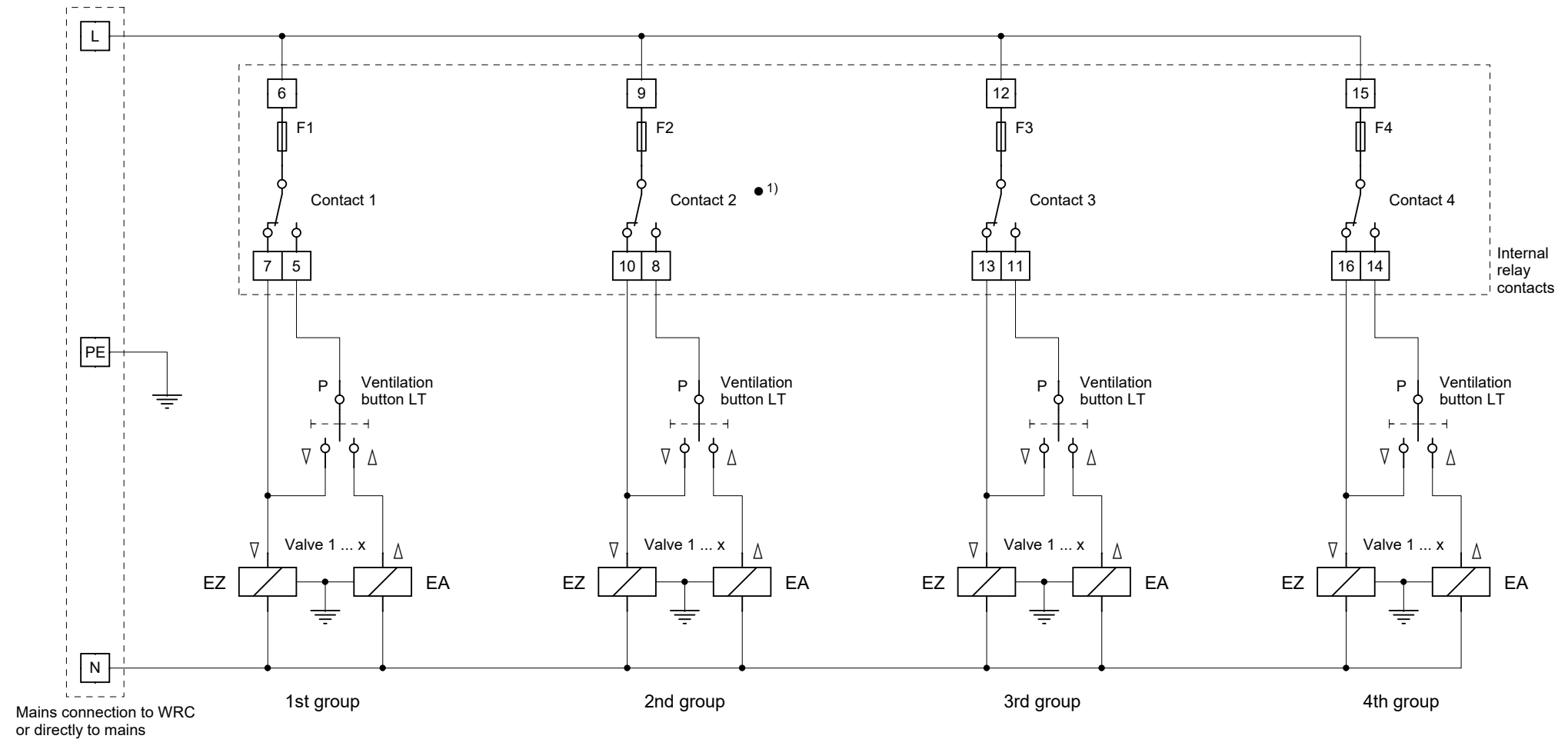
230 V~ system: ventilation groups with electric add-on components EZ (only CLOSE) for pneumatic valves



Wind and Rain Control WRS 2b

230 V~ system

230 V~ system: ventilation groups with electric add-on components EA / EZ (OPEN / CLOSE) for pneumatic valves

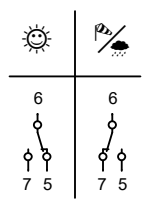
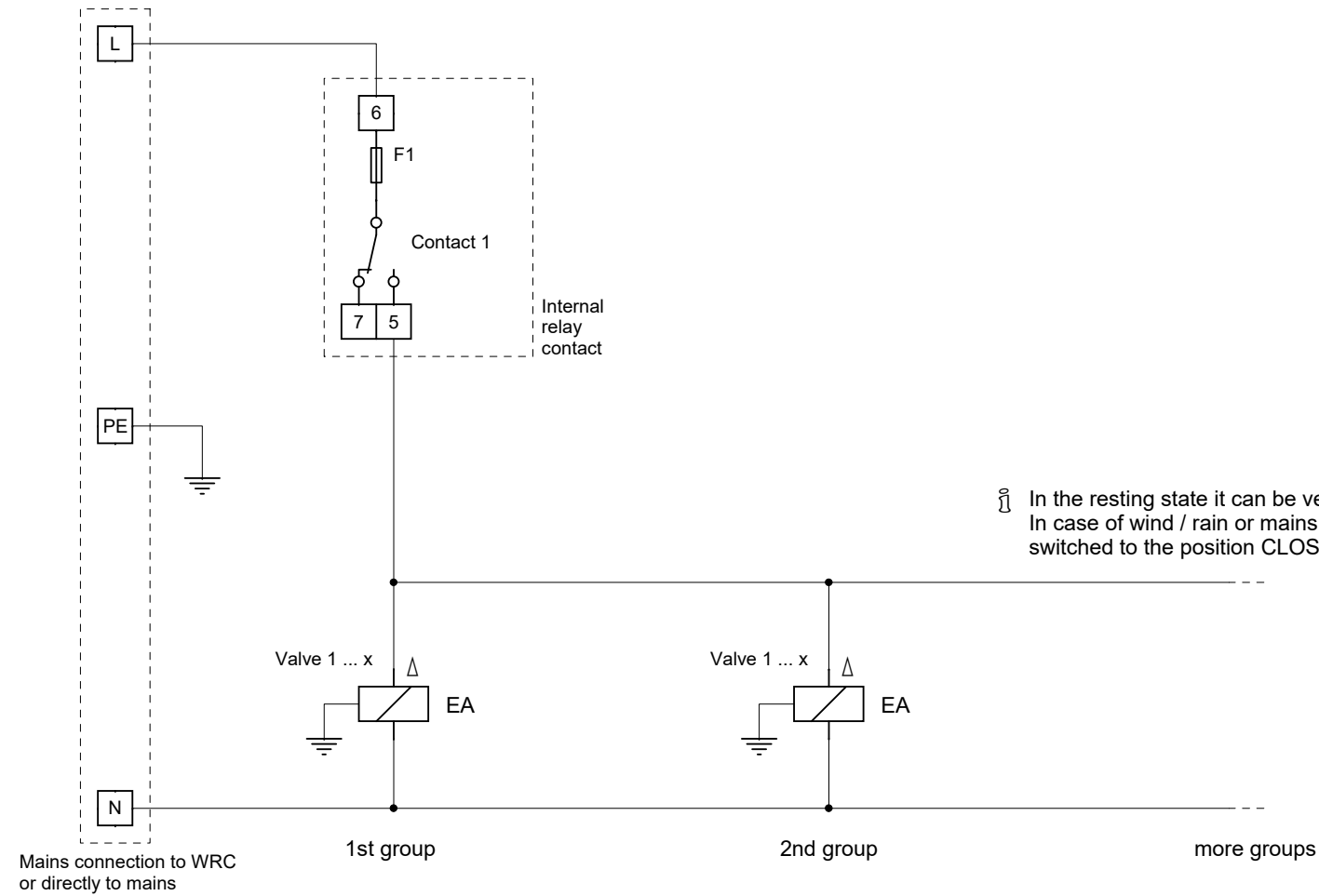


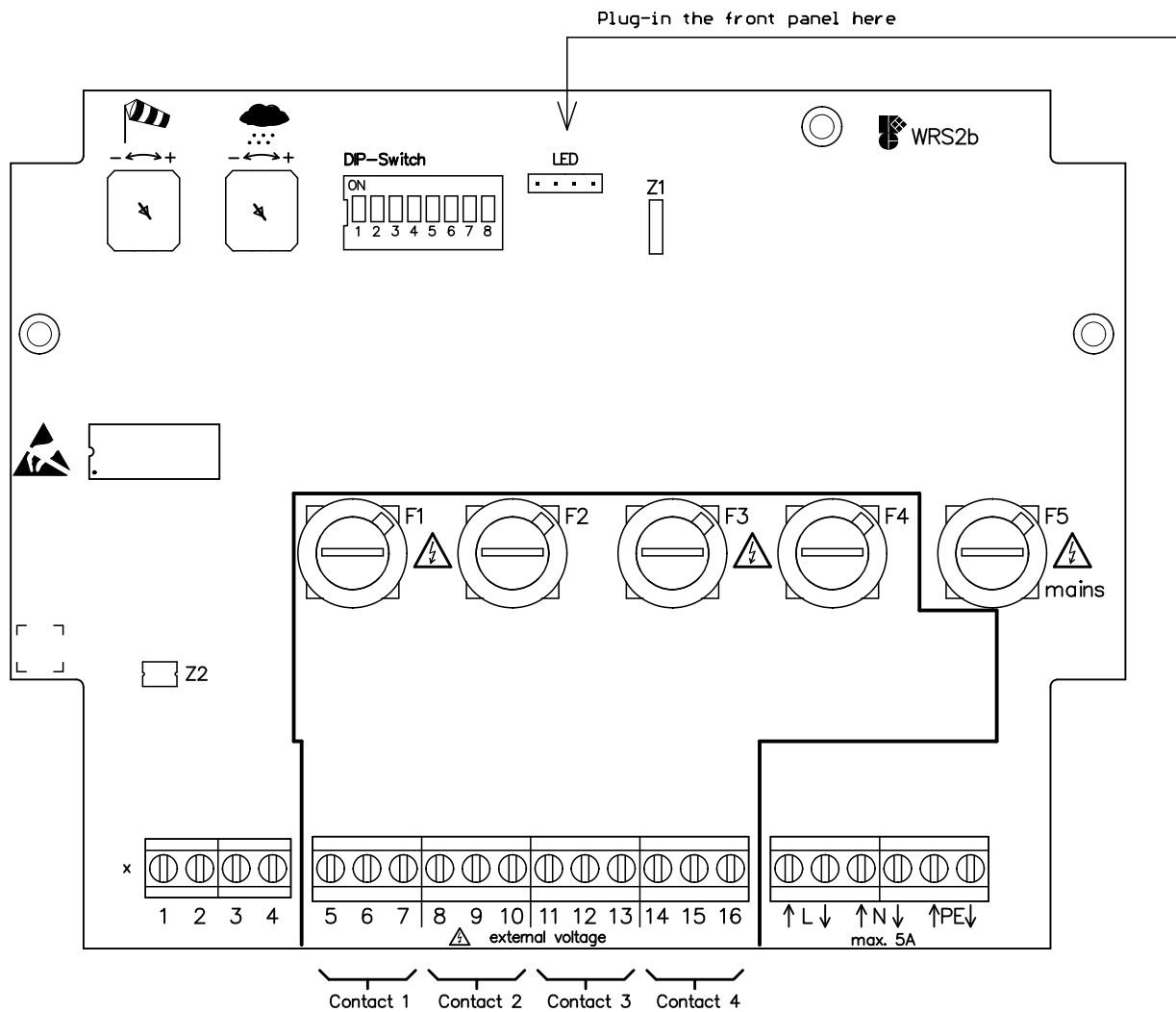
• 1) For "malfunction contact" function, see page A-3 and Section 4.

Wind and Rain Control WRS 2b

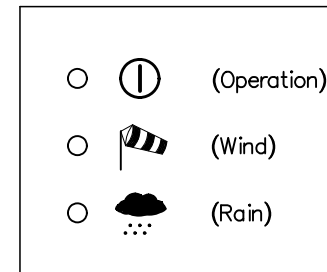
230 V~ system

230 V~ system: ventilation groups with add-on component combination EA and LFZ (e.g. HH5/2-EA-LFZ)





Front panel



Fuses

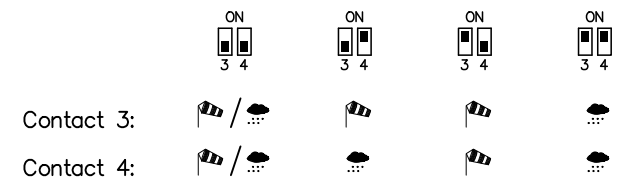
F1–F4: F 5A, output contacts

F5: T 125mA, mains primary

DIP-Switch

- 1: Reduced sensitivity to wind
- 2: Continuous heating
- 3 + 4: Contact programming
- 5: Output deactivated
- 6: Reduced closing time
- 7: Malfunction contact (contact 2)
- 8: Test

Programming of the contacts 3 and 4:



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Layout diagram	
WRS2bA21.PCB	Ver. 2/19 Mo 14 Nov. 2019