Fire protection systems

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Weather Monitoring Unit
mcr P054

Operation And Maintenance Manual
User Instruction Manual

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1 USER INFORMATION

Thank you for selecting the mcr P054 weather monitoring unit. Please, read these instructions carefully and follow the guidelines. This will ensure smooth and reliable operation of the device.

Mercor Light&Vent sp. z o.o. reserves the right to modify the product or the documentation without notice.

We wish to ensure your full satisfaction with our products, and we will be glad to provide professional service and assistance to you, if necessary.

Mercor Light&Vent sp. z o.o.

Please keep this Instruction Manual, so that the information is always available when required.

2 INTRUDUCTION

1. The mcr P054 weather monitoring unit is used to control the operation of actuators in the mcr PROLIGHT, mcr S-THERM, mcr THERMOLIGHT, mcr ULTRA THERM vents or in mcr OSO THERM ventilation windows which should be closed in wind or rain.
2. To the weather monitoring unit smoke exhaust control units, ventilation control units or electromechanical actuators powered by 230 V AC or 24 V DC voltage.
3. The closing signal is generated on the basis of readings from a WM1 wind sensor and the RS1/RS2 rain sensor or the GWD1 sensor.
4. Output: the device has four switches which are activated in the event of wind/rain or when mains voltage is lost. The switch remains activated for a pre-set time after the rain/wind has ceased.
5. The value of rain intensity which activates the alarm can be adjusted by the user (drizzle – heavy rain).
6. The value of wind force which activates the alarm can be adjusted by the user - from a gentle breeze (about 5 m/s) to a gale (about 15 m/s).
7. Additional input for a vent position sensor (the circuit is closed when the vents are open) makes it possible to optically control the vent status.
8. The device is equipped with the optical signals to indicate the following status:
    - 230 V AC power supply - green LED
    - “Wind” alarm - red LED
    - “Rain” alarm - red LED
    - “Vent open” signal - yellow LED
9. The device is equipped with the wind speed indicator – a line indicator consisting of 7 yellow LEDs and one red LED (for wind speeds over 15 m/s).
10. Wall-mounted plastic housing, H x W X D: 180 x 180 x 75 mm; protection class IP 54, colour: light grey (~RAL 7035), leads outlets either on top or at the rear of the housing.
11. It is possible to connect the weather monitoring unit to a remote control module which contains optical indicators and potentiometers for setting the desired sensitivity of the wind/rain sensors.

3 ABOUT THE mcr P054 WEATHER MONITORING UNIT

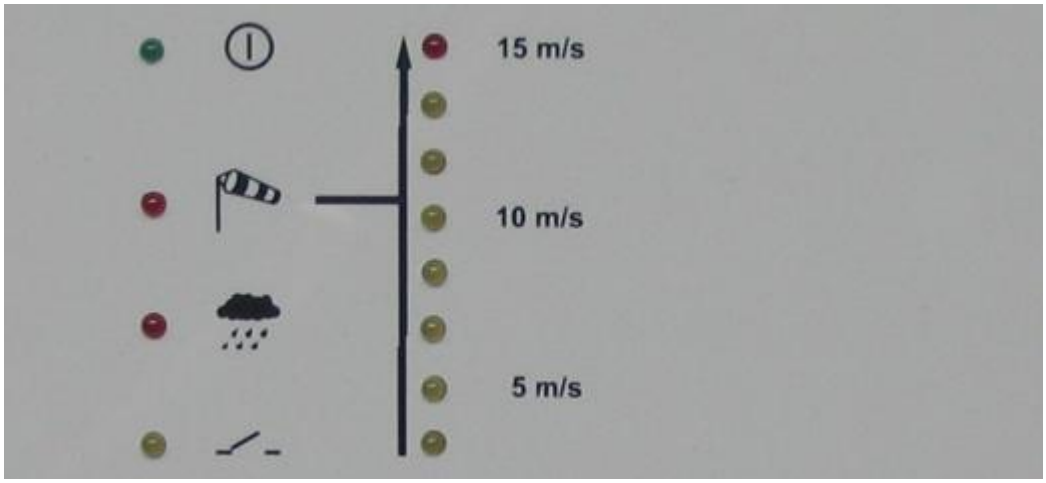


Fig. 1 Monitoring unit's front panel.

On the front panel, there are **LEDs** which indicate the status of the control center:

#	Description	Color	Function
1	POWER SUPPLY	green	indicates presence of power supply
2	WIND	red	wind alarm
3	RAIN	red	rain alarm
4	VENT OPEN	yellow	indicates that smoke vents (windows) are open
5	WIND SPEED	7 x yellow 1 x red	wind speed – LED line indicator; scale from about 0 m/s to about 15 m/s

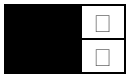
The interior of the weather monitoring unit is shown in Fig. 2.

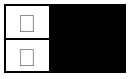
At the bottom left section of the unit's PCB, there are two potentiometers (1,2).

Potentiometer 1 is used to set the sensitivity of the rain sensor: from a drizzle (far left) to a heavy rain (far right).

Potentiometer 2 is used to set the sensitivity of the wind sensor: from 5 m/s (far left) to 15 m/s (far right).

Above the potentiometers there are two jumpers: **H2** (3) and **H3** (4). They are used to switch the weather monitoring unit into the remote control mode:

 - remote control mode

 - local control mode (factory settings)

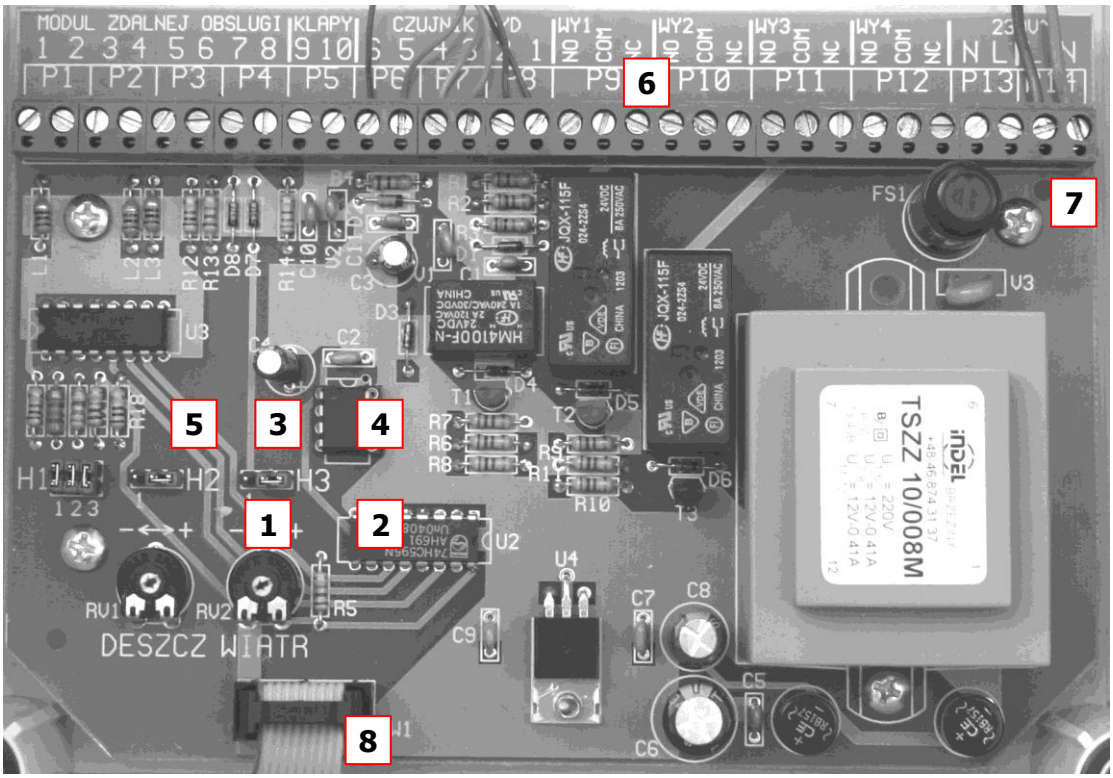
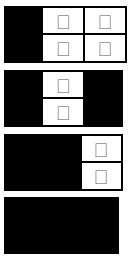


Fig. 2 View of the unit's interior.

At the left edge of the board, there's a set of time coding jumpers **H1** (5) used to code the desired time during which the alarm will remain on after the cause of the alarm (i.e. wind or rain) has ceased:



Minimum alarm duration:

- 4 minutes
- 6 minutes
- 8 minutes
- 10 minutes (factory settings)

Along the top edge of the module's PCB there are terminal strips (6) which are used to connect the elements of the system:

Description	Function
P1 … P4	input for remote control module
P5	input for vent opening sensor
P6 … P7	input for wind/rain sensor
P9	output 1 from the unit (switch)
P10	output 2 from the unit (switch)
P11	output 3 from the unit (switch)
P12	output 4 from the unit (switch)
P13	auxiliary output 230 V AC, 50 Hz, max 5 A
P14	power supply input 230 V AC, 50 Hz

On the board there is an circuit breaker FS1 (7) - 125 mA quick.
PW1 contact (8) is used to connect the indicator board mounted in the unit's cover.

4 OPERATION

4.1 Normal operation

Description of optical LED indicators on the front panel (Fig. 1):

POWER SUPPLY	WIND	RAIN	VENT OPEN	UNIT STATUS
+			+	VENT OPEN
+	+			ALARM - WIND
+		+		ALARM - RAIN
+	-	-		NO ALARM
-	-	-		NO POWER SUPPLY

□ ANY STATUS
+ ON
- OFF

mcr P054 is a maintenance-free device. It requires uninterrupted 230 V AC mains power supply. Should there be power outage caused by mains failure, the unit will generate the vent closing signal on output terminals.

4.2 Alarm

The wind/rain sensor will automatically close smoke vents (or prevent the vents from being opened by using the ventilation pushbutton) if the wind or atmospheric precipitation is too strong/heavy.

When the weather monitoring unit is in the alarm mode, the red LED will light up on its door, and the alarm signal will be generated on output terminals.

In the alarm mode, the NO contact is open and NC contact is closed with the COM contact.

The alarm will switch off automatically when the factor which released the alarm ceases, after a period of time set by adjusting the H1 (5) jumpers.

5 ASSEMBLY AND START UP

Connection diagrams are show on pages 8-**Błąd! Nie zdefiniowano zakładki.**.

1. **Wind/rain sensor** - 4 leads (YTKSY or YDY) from P6 … P8 terminals.
2. **Vent opening sensor** - 2 leads from P5 terminals. The contact is closed when the vents are open (optional feature).
3. **Remote control module** - 8 leads from P1… P4 terminals (optional feature).
4. **Power supply (220… 230 V AC, 50/60 Hz)** should be connected to the P14 terminal strip. The power supply line for the unit should be protected by means of a properly marked overload circuit breaker in the switching station. The recommended circuit breaker: max. 6.3 A.
5. **Start-up.** Before switching on the power supply, check if the leads are connected properly.

Note: the leads should be placed and connected in accordance with relevant standards and basic rules for wiring. In order to connect the unit you should use leads which satisfy the requirements of current regulations.

6 TECHNICAL SPECIFICATIONS

Item	Value
Power supply voltage	220...230 V AC $^{+10\%}_{-15\%}$ 50/60 Hz
Rated power	10 VA
Load for relay outputs	max. 5 A, 230 V AC
Number of control groups (number of output terminals)	4 pcs.
Load on auxiliary output terminal (P13)	max. 5 A
Working temperature range	-5°C ÷ +50°C
Climatic grade in accordance with WBO/11/11/CNBOP/2002	I
Protection level for housing	IP 54
Dimensions (H x W x D)	180 x 180 x 75 mm
Compatible sensors	RS1-WM1, RS2-WM1, GWD1

7 WIRING DIAGRAMS

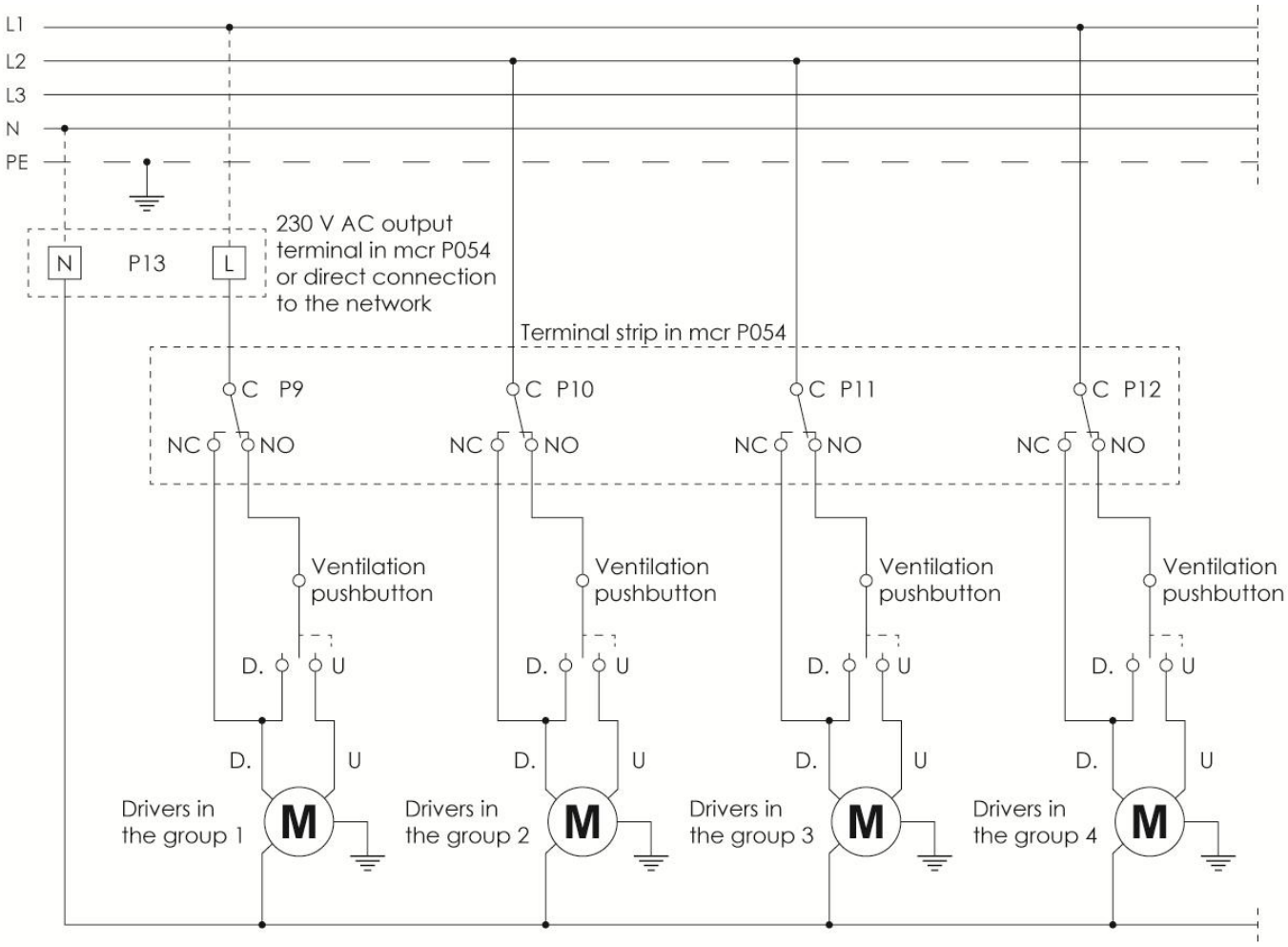


Fig. 3 Diagram for connection of 230 V AC ventilation actuators to the mcr P054 weather monitoring unit.

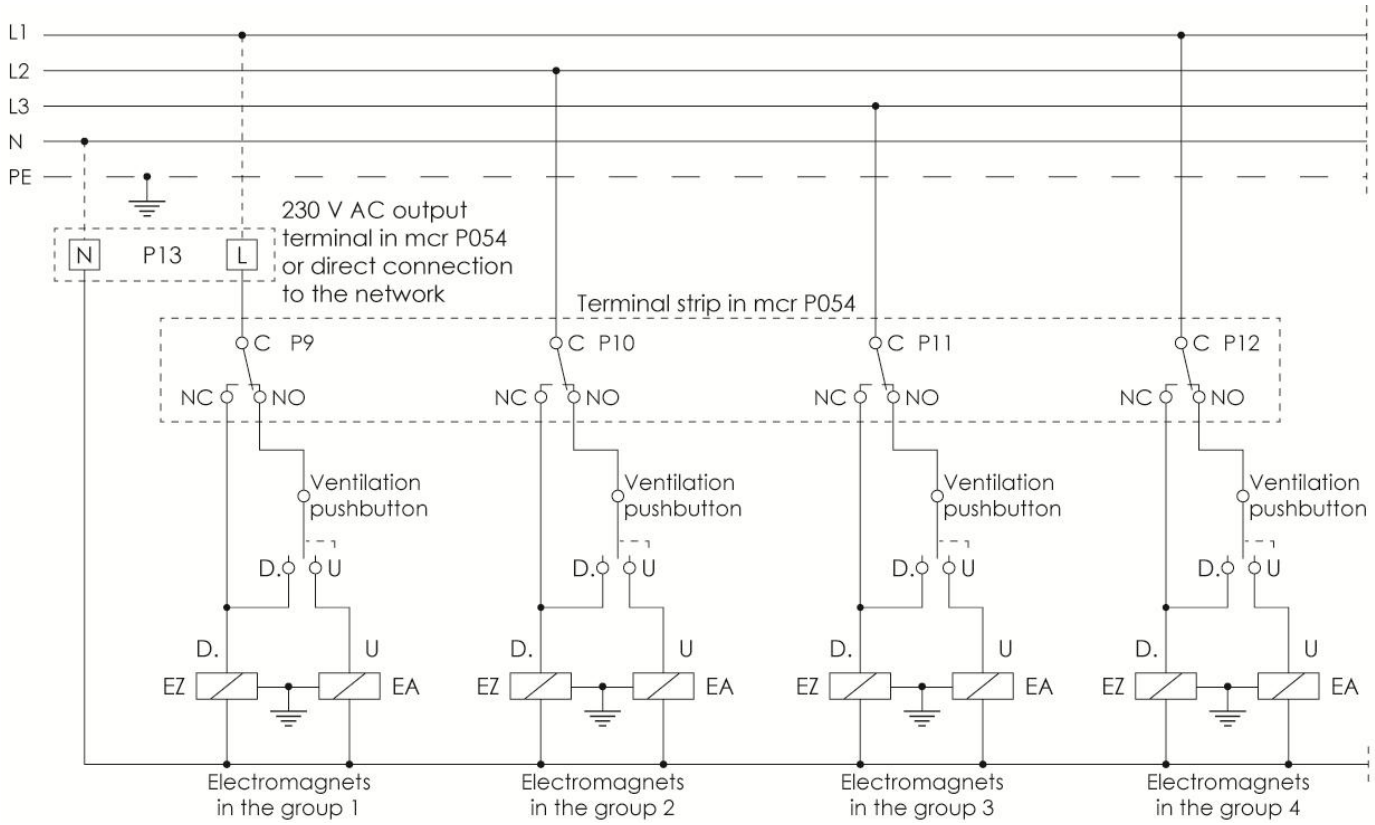


Fig. 4 Diagram for connection of pneumatic ventilation boxes (LUK) with the EA/EZ (230 V AC) option to the mcr P054 weather monitoring unit.

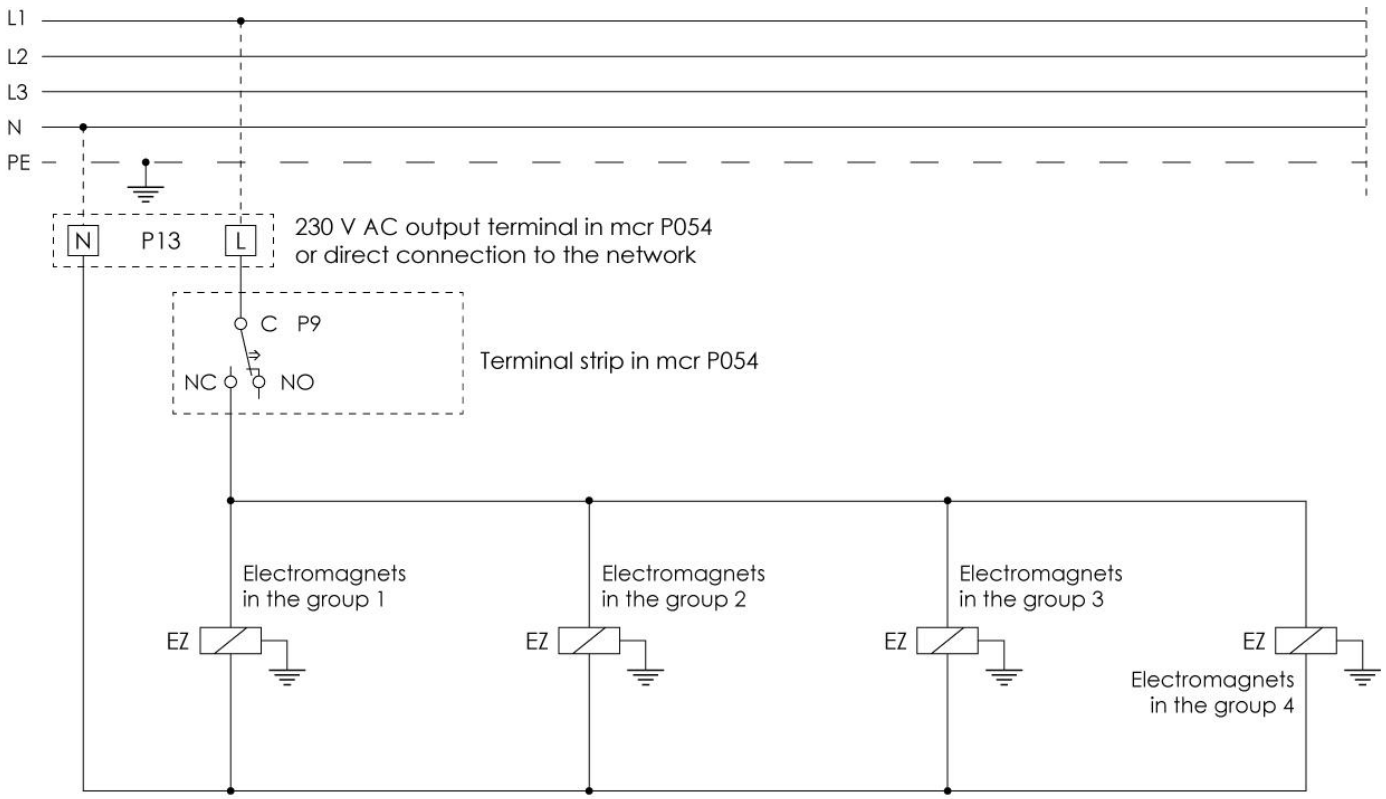


Fig. 5 Diagram for connection of pneumatic ventilation boxes (LUK) with the EZ (230 V AC) option to the mcr P054 weather monitoring unit.

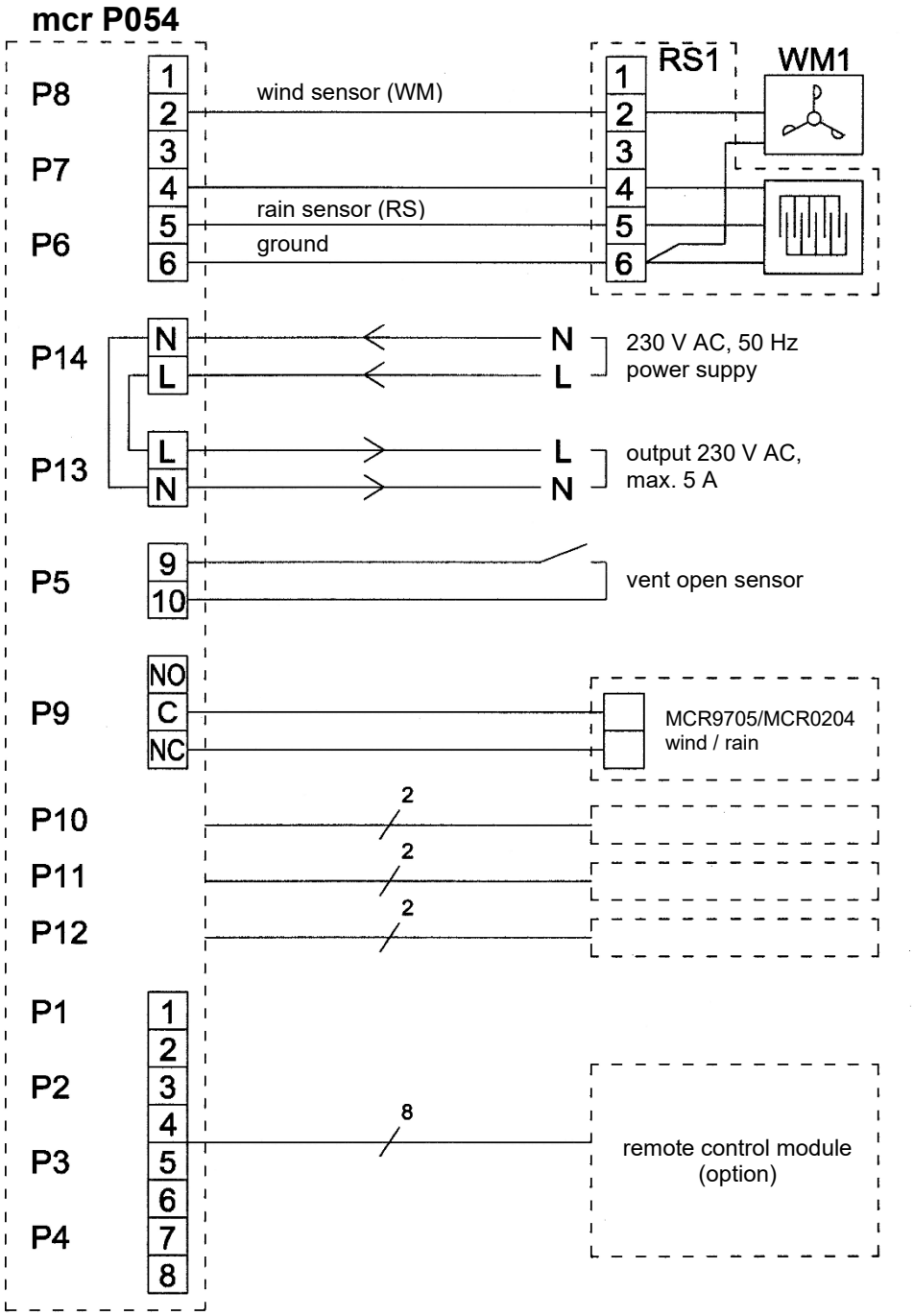


Fig. 6 Conceptual diagram of the weather control system with the mcr P054 weather monitoring unit and a RS1-WM1 sensor.

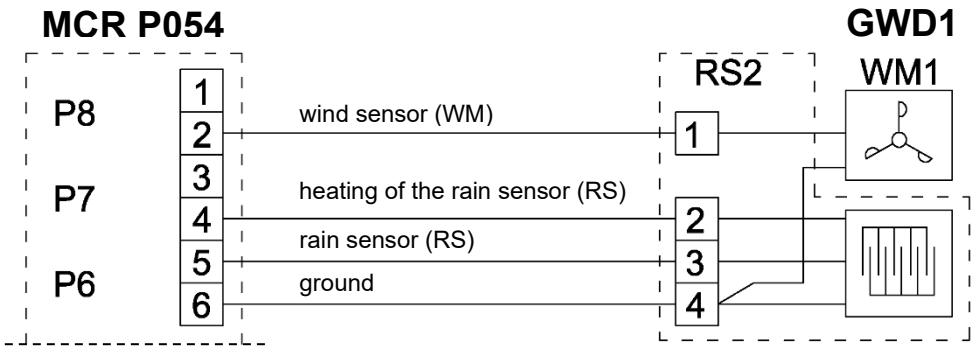


Fig. 7 Connection for the mcr P054 weather monitoring unit with a RS2-WM1 sensor and GWD-1.

8 WARRANTY TERMS AND CONDITIONS

1. Mercor Light&Vent grants a 12-month quality guarantee for equipment, starting from the date of purchase, unless the agreement provides otherwise.
2. Each defect under guarantee should be reported to a local representative of Mercor Light&Vent immediately, i.e. within 7 days of its discovery.
3. Applications can be made by phone at +48/ 58 341 42 45, by email to claim@mercor.com.pl or by sending a letter to: Mercor Light&Vent, Grzegorza z Sanoka 2, 80-408 Gdańsk, Poland.
4. If during the term of guarantee any physical defects of the equipment become evident, Mercor Light&Vent shall remove them as soon as possible, subject to paragraph 5.
5. Mercor Light&Vent reserves the right to lengthen the repair time in the event of complicated repairs or those that require non-standard sub-assemblies [elements] or spare parts to be purchased.
6. Liability under the Guarantee covers only defects resulting from causes inherent in the equipment sold.
7. In the event of defects resulting from inappropriate operation of the equipment or due to other reasons stated in par. 6, the Buyer/ Guarantee Holder shall bear the costs of their removal.
8. In accordance with the generally accepted practice, the guarantee does not cover:
   - damages and breakdowns of the equipment due to inappropriate operation, user's interference, lack of maintenance or periodic servicing;
   - equipment damages resulting from causes other than those that Mercor is responsible for, in particular: acts of God such as torrential rainfall, flood, hurricane, flooding, stroke of thunder, overvoltage in the mains, explosion, hail, fall of aircraft, fire, avalanche, landslide and secondary damages due to the above-listed causes. Torrential rain is defined as rain with an efficiency index of at least 4 (or 5 in Chomicz scale or torrential rain grade IV (A_4)). Should it be impossible to determine the index mentioned in the previous sentence, the actual condition and the degree of damage at the place of its origin proving that it is the consequence of torrential rain will be considered. Hurricane is defined as wind blowing at the speed of at least 17,5 m/s (damages are deemed to have been caused by hurricane if the effects of hurricane have been found in the immediate neighborhood);
   - damages due to failure to immediately report the defect discovered;
   - worsened quality of coating due to the natural ageing process (fading, oxidation);
   - defects due to using abrasive or aggressive cleaning products;
   - damages due to aggressive external factors, especially chemical and biological ones.
   - parts liable to natural wear and tear during operation (e.g. seals) unless a manufacturing fault has occurred;
   - damages due to improper transport, unloading and storage of the device;
   - damages due to installation inconsistent with the OMM and the rules of good construction practice;
   - ingress of dust, particles or solids with the effective grain size below 50 µm into the polycarbonate sheet chambers;
   - condensation in the polycarbonate sheet chambers.
9. Guarantee and warranty is void in the following cases:
   - The Buyer/Guarantee Holder makes design modifications on his own without consulting Mercor Light&Vent,
   - Maintenance or periodic servicing are not done in due time or are performed by unauthorized persons or a service center not authorized by Mercor Light&Vent, or the equipment is operated in the wrong way,
   - Any interference of unauthorized persons – except activities connected with normal operation of the equipment.

The Buyer/Guarantee Holder is responsible for proper operation and maintenance of the equipment and for regular (min. twice a year) servicing according to service and maintenance instructions included in OMM.

Other conditions:

1. As regards matters not regulated by these "Warranty terms and conditions", the law applicable is Polish law.
2. Any disputes that may arise in connection with the "Warranty terms and conditions" shall be settled through negotiations between the Parties. This provision is not an arbitration clause.
3. If the Parties fail to reach an agreement by negotiation, any disputes arising from or related to the contract shall be settled by the Polish court competent for the seat of the Seller.

9 SERVICING INSPECTIONS:

1. Devices should be subject to periodical servicing inspections every 6 months during the entire period of their operation.
2. The servicing inspections should be performed by companies having adequate authorization of Mercor Light&Vent.
3. On issues related to service please contact a local representative of Mercor Light&Vent.