

MBR

Membrane/Bag Break Relay - MBR



The Membrane/Bag Break Relay - MBR is a device capable of detecting the rupture of the rubber membrane or bag used in oil preservation systems on power transformers and reactors.

The MBR is comprised of an optical sensor that must be mounted on the membrane or inside the rubber bag (on the air side), and a control unit located in the transformer control panel.

The sensor is provided with a polysulfone capsule containing an emitting LED and a trigger circuit. The

control unit has a reversible contact and two LED's, one to signal the membrane or bag rupture, and another to signal the on/off status.

The MBR operation is based on the principle of light reflection. When there is no oil present, the light produced by the emitting-LED is completely reflected internally by the capsule dome and captured by the optical receiver. If the oil covers the capsule, the reflection effect on the dome limits change. The rupture causes part of the emitted light to disperse in the oil, and the amount of light that reaches the optical receiver is reduced. This change in light reflection causes the unbalancing of the coupling circuits and the actuation of the signal contact.

The output contact is reversible, and its operation mode (operate or return to rest mode in case of membrane failure) is selected by means of an external jumper.

The auxiliary supply voltage to the MBR can be in the range 85 to 265 Vdc/Vac 50/60Hz, covering all auxiliary voltages commonly found in power plants. Electrical insulation is provided between input, output and auxiliary supply circuits



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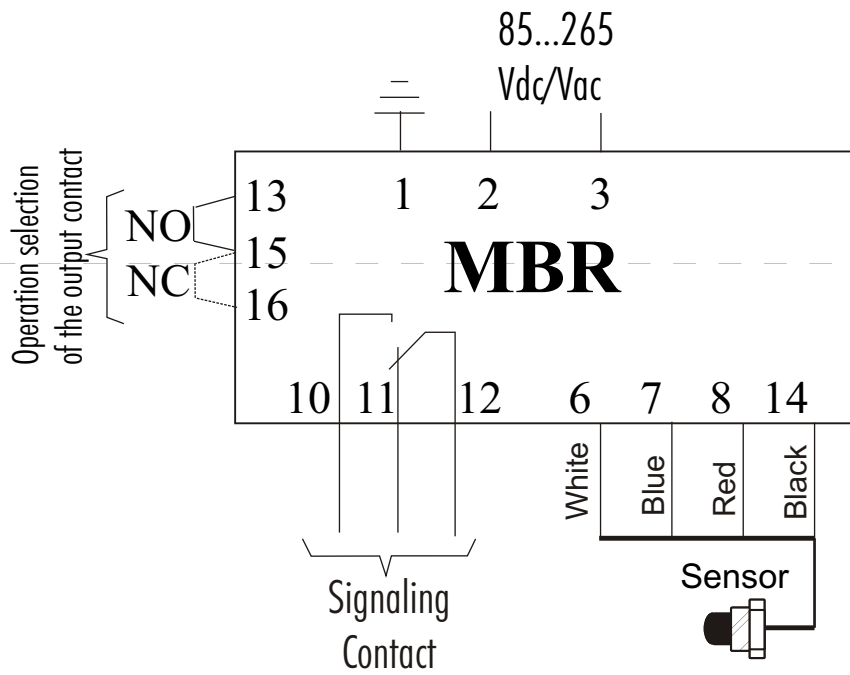
Technical Characteristics

Power Supply:	85 to 265 Vdc/Vac, 50/60 Hz
Consumption:	< 3 W
Relay Operation Temperature:	-10 to 70 °C
Sensor Operation Temperature:	-20 to 100 °C
Input:	1 Optic Sensor (supplied with the relay)
Output:	
• 1 Reversible Contact:	
Maximum Switching Power:	60 W / 62.5 VA
Maximum Switching Voltage:	220 Vdc/250 Vac
Maximum Conduction Current:	2.0 A
• LED's:	
Green:	ON
Red:	Membrane/bag break
Enclosure:	16 pins type terminals (2x2,5 mm ²), ABS
Protection Class of Relay:	IP 40
Protection Class of Sensor:	IP 67
Mounting:	Rail U 35mm
Cable:	4 x 0,75 mm ²



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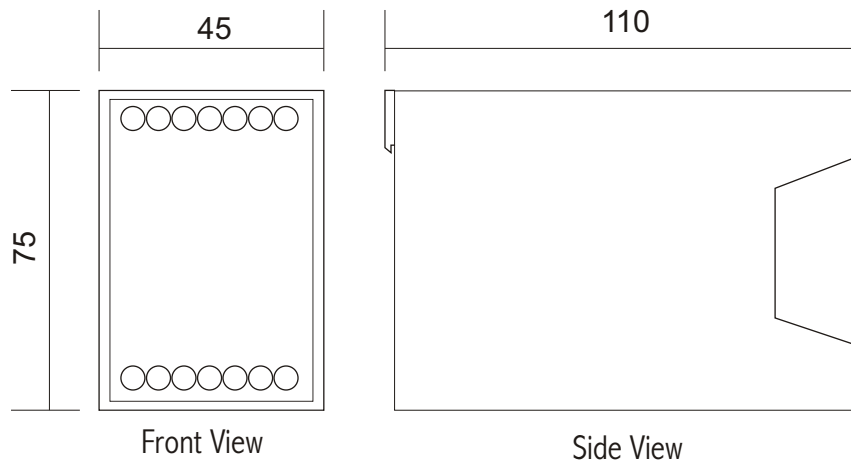
Connection Diagram



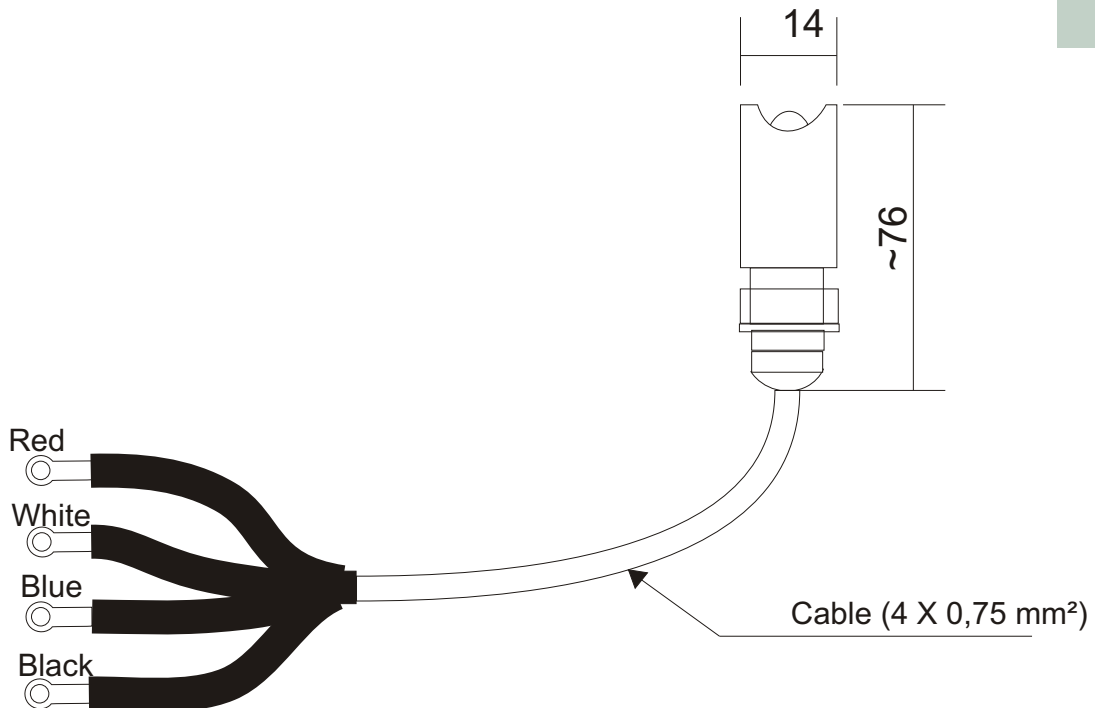
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Dimensions

Control Unit



Sensor



All dimensions in millimeters

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Accomplished Tests



Surges and Transients (IEC255-6)

Value of peak 1o cycle:

2.5 kV

Frequency:

1.1 MHz

Time:

2 s

Repetition rate:

400 (cycles/s)

Decreasing the 50%: 3 the 6 cycles

3 to 6 cycles

Impulse (IEC 255-5)

Wave Form:

1.2/50 μ s

Amplitude:

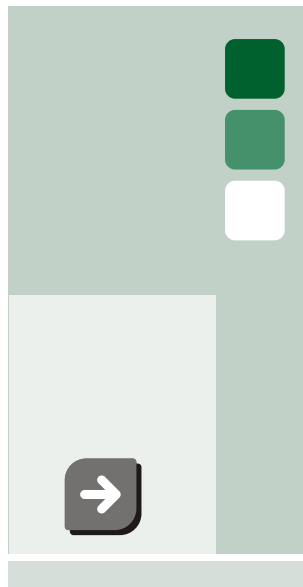
5 kV

Number of pulses:

3 negative and 3 positive with interval of 5 seconds between pulses.

Insulation Voltage (IEC 255-5):

2.0 kVRMS, 60 Hz, during 1 minute between circuits and mounting panel.

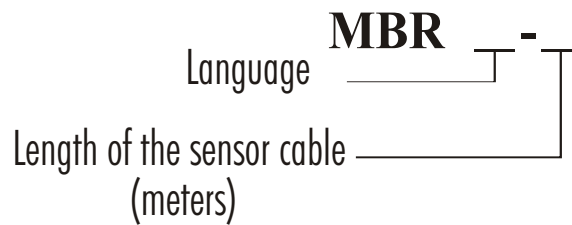


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Ordering Information



<i>Language</i>	
1 - Portuguese	Example: MBR-2-4 Membrane/Bag Relay in English Sensor with cable of 4 meters in length.
2 - English	
3 - Spanish	
4 - Other	





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