

MSW-2

®

Operating Instructions



In certain applications with RESISTRON or CIRUS temperature controllers, it is necessary to detect short-circuits between the heatsealing band and ground or the housing. In this case, the control system must be immediately switched off. The MSW-2 monitoring current transformer can be used for this purpose.

If a frame current I_{GND} occurs between the heatsealing band and ground or the housing, it is detected by the current sensor of the MSW-2 and transmitted to the controller via the current measuring wire I_R . The controller then reports an alarm (if present).

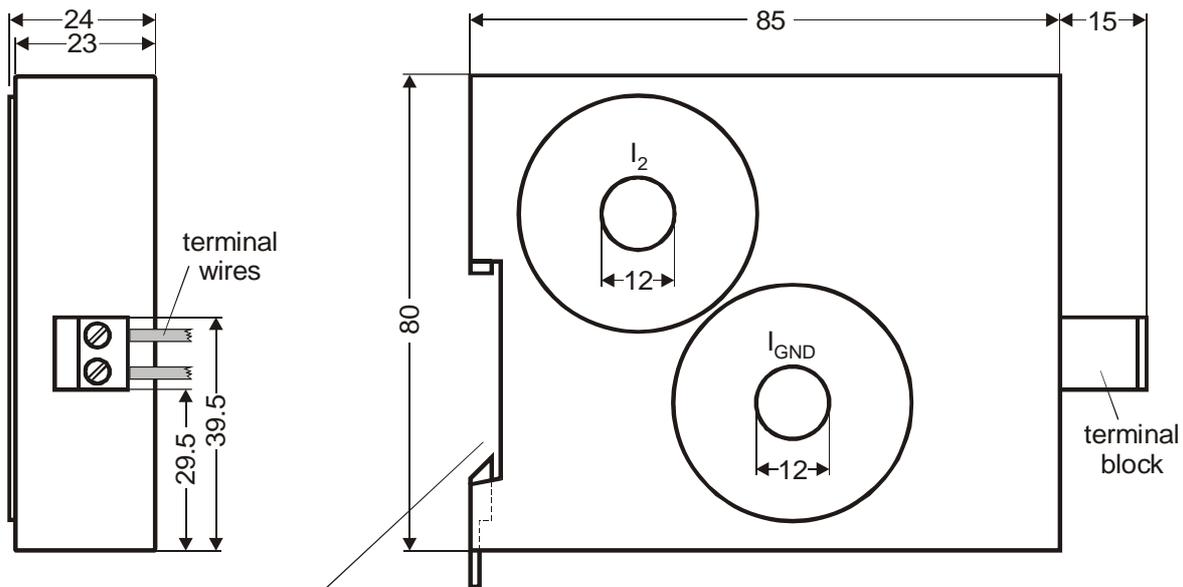
Although the MSW-2 contains active components, no additional power supply is required.

The MSW-2 monitoring current transformer is only allowed to be operated if it is correctly connected to the temperature controller (refer to the "Startup" and "Power supply" sections in the controller documentation).

! Only the original ROPEX MSW-2 current transformer is allowed to be used. Other transformers may cause the equipment to malfunction.

! To prevent dangerous situations, refer to the information provided in the ROPEX Application Report and the risk analysis for the machine or plant.

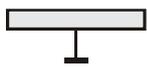
Dimensions



Snap-on for DIN-rail 35 x 7,5mm or 35 x 15mm (DIN EN 50022)

Using the monitoring unit MSW-2

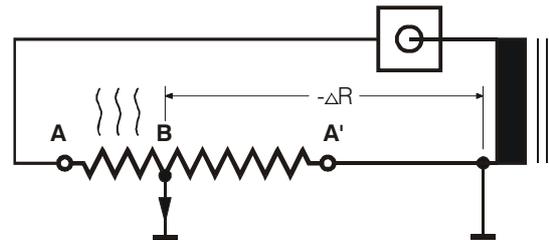
Symbols used

	Sealing bar (Heatsealing band carrier)
	Sealing bar electrically grounded. The ground connection must not be made via moving parts such as guides, piston rods, cams, levers, etc.
	Heatsealing band
	Film

high secondary voltage.

- Static charge on the film which could damage or destroy the controller or other equipment.

In this constellation, contact between **one** point on the heatsealing band and ground is sufficient to cause overheating.

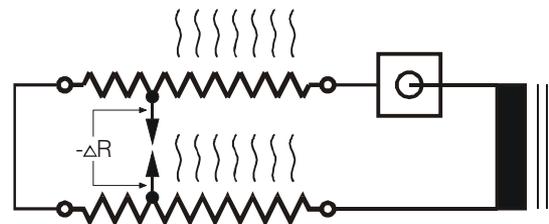


Contact between two opposite heatsealing bands wired in series

If both sides of the film need to be heated, the heatsealing bands should preferably be wired in parallel; there is no danger if contact occurs between them because they have the same potential at the contact point.

Wiring the bands in series is easier in some applications. The power cables are shorter and closer together, and the connection and arrangement of the U_R measuring wire are more straightforward.

However, the risk of overheating due to mutual contact is relatively high, as the Teflon insulation is subject to wear.



Basic monitoring principle

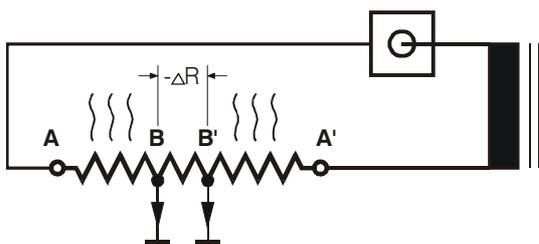
There are two situations which necessitate the use of the MSW-2 monitoring unit:

Ground fault in the heatsealing band

1. Secondary circuit not grounded

Contact between one point on the heatsealing band and ground does not cause a dangerous state.

Only when a ground fault occurs at **two** points B - B' does this lead to overheating of the sections A - B and A' - B'.



2. Secondary circuit grounded

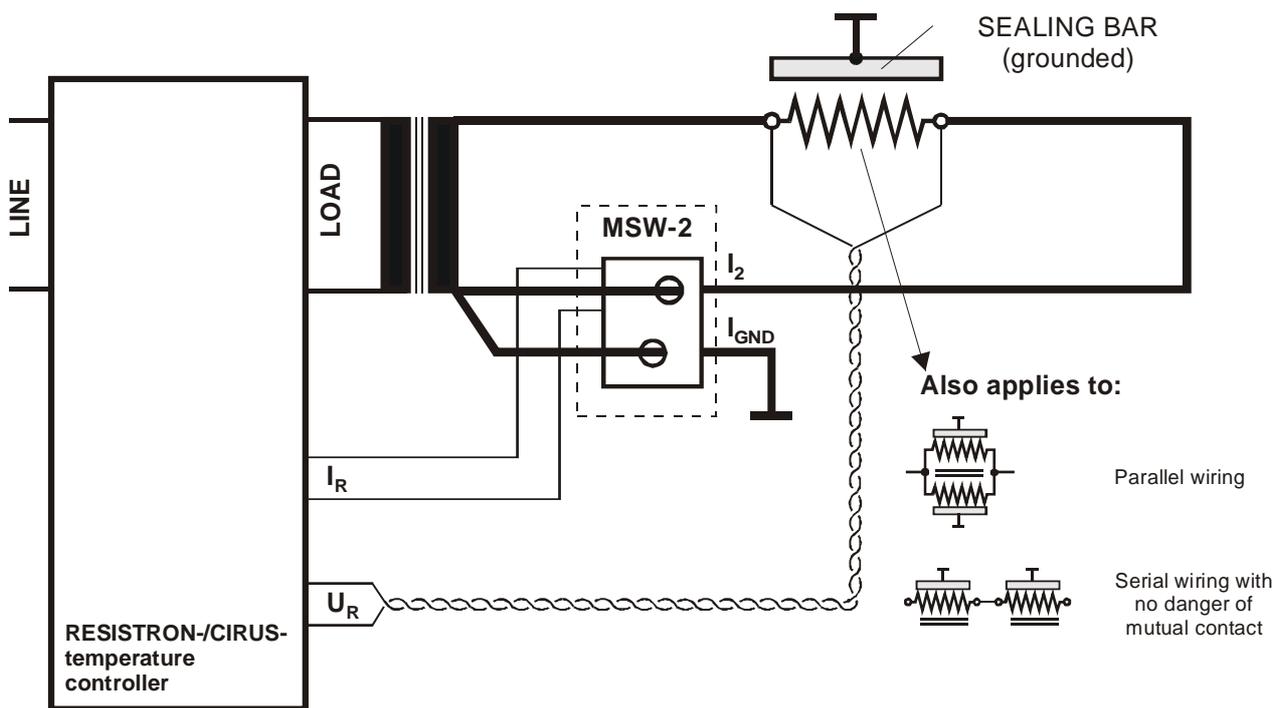
This measure may also be necessary for reasons other than those considered here, e.g.:

- Safety reasons: the impulse transformer could be shorted between the primary and secondary sides.
- Secondary neutral grounding owing to the use of

⚠ Each of these three faults occurs as a result of an insulation fault above or below the heatsealing band. These situations can be detected by grounding the secondary circuit and measuring the frame current I_{GND} with the MSW-2 monitoring unit.

Monitoring when there is no danger of mutual contact between the heatsealing bands

The MSW-2 detects a frame current on the heatsealing band or at any point in the secondary circuit.
 The secondary side must be grounded directly at the impulse transformer.
 The heatsealing band carrier (e.g. the sealing bar) must be grounded.

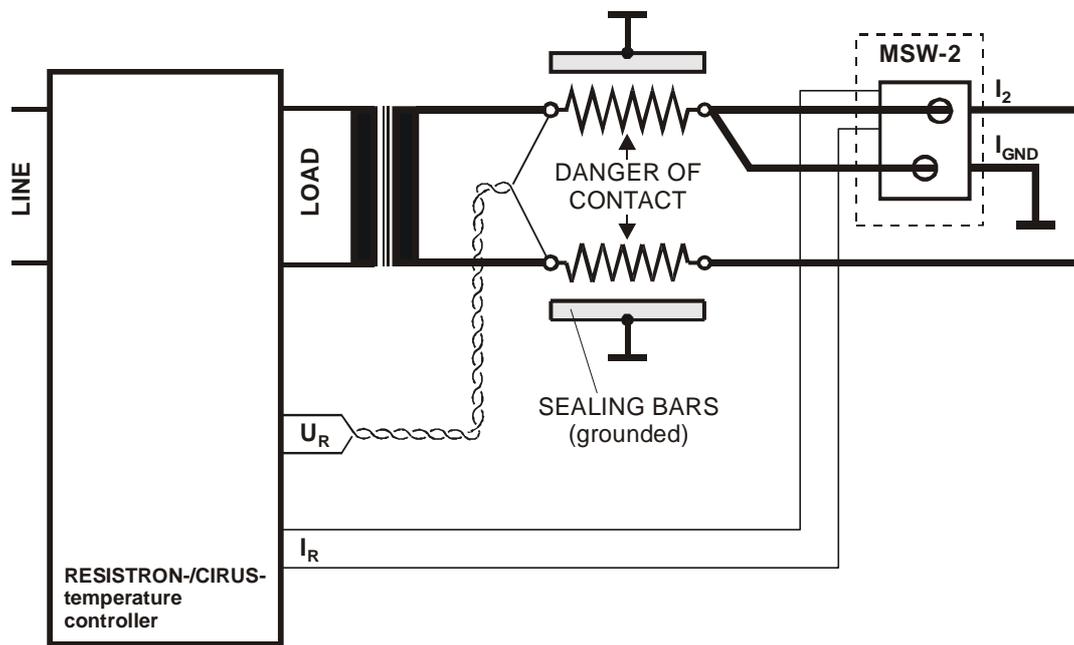


Monitoring with series wiring when there is a danger of mutual contact between the heatsealing bands

The MSW-2 detects all frame currents as well as mutual contact between the heatsealing bands.

If the unit is wired in this way, the measuring transformer I_2 must be fed into the connecting cables of both heatsealing bands.

The frame connection through the current transformer I_{GND} must also be connected to the heatsealing band cables.



Wiring instructions

! Installation and startup may only be performed by technically trained, skilled persons who are familiar with the associated risks and warranty provisions.

! To prevent dangerous situations, refer to the information provided in the ROPEX Application Report and the risk analysis for the machine or plant.

1. The same cross-section is required to ground the secondary circuit (through the current detector I_{GND}) and the power cable (I_2).

2. The same applies to grounding the sealing bar. This connection must not be made via moving parts such as guides, piston rods, cams, levers etc.
3. The cables can be fed through the current transformer in either direction (for I_{GND} and I_2).
4. Refer also to the documentation for the RESISTRON / CIRUS temperature controller.
5. Make sure the wiring conforms to all relevant national and international installation regulations.

Alarm evaluation in the RESISTRON or CIRUS temperature controller

If only the MSW-2 monitoring unit is used (i.e. without an RESM-4 or -5), no external circuitry is required. If a fault is detected by the MSW-2, an alarm is triggered in the RESISTRON or CIRUS temperature controller (error code 101: "No current signal"). In this case the temperature controller no longer energizes the impulse transformer and thus prevents the heatsealing band from overheating.

RESISTRON controllers in the "200" series without an alarm function are switched to sampling mode as long as the fault detected by the MSW-2 is still present. Only sampling impulses are fed to the heatsealing band. Again, overheating is prevented.

RESISTRON temperature controllers in the "400" and "5000" series as well as CIRUS temperature controllers in the "600" and "6000" series do not generate any more sampling impulses if an alarm is indicated.

Basic functional test: MSW-2

! To prevent dangerous situations, refer to the information provided in the ROPEX Application Report and the risk analysis for the machine or plant.

1. Connect the temperature controller and the MSW-2 in accordance with the wiring diagram.
2. Start up the temperature controller (refer to the controller documentation).
3. Switch on the temperature controller and heat the heatsealing band. Using a small piece of cable, provoke a ground fault in the heatsealing band. The band must not overheat, and the controller must indicate an alarm.

Repeat this test at various points on the heatsealing band and in the secondary circuit.

If two heatsealing bands are wired in series, they should also be jumpered.

How to order

	<p>Monitoring current transformer MSW-2 Art. No. 885212</p>
--	---