Installation diagram

Mounting plate

Adapting sleeve

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Technical data

<table>
<thead>
<tr>
<th>Model</th>
<th>Technical data</th>
</tr>
</thead>
<tbody>
<tr>
<td>MT-STR160(TT)</td>
<td>Housing (standard)</td>
</tr>
<tr>
<td></td>
<td>Galvanized sheet steel, powder coating RAL 7038 similar to ANSI 70 light grey</td>
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<tr>
<td></td>
<td>Mounting plate</td>
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<tr>
<td></td>
<td>Aluminum, painted RAL 7038</td>
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<td></td>
<td>Viewing glass</td>
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<tr>
<td></td>
<td>Laminated safety glass with UV protection</td>
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<tr>
<td></td>
<td>Temperature sensor</td>
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<tr>
<td></td>
<td>Brass, bright</td>
</tr>
<tr>
<td></td>
<td>Capillary tube</td>
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<tr>
<td></td>
<td>Copper capillary tube with sheath</td>
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<tr>
<td></td>
<td>Measuring range</td>
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<tr>
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<td>0...160°C</td>
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<tr>
<td></td>
<td>Tolerance</td>
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<tr>
<td></td>
<td>± 3°C according to EN 13190 class 1 and DIN 16196</td>
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<tr>
<td></td>
<td>Ambient temperature</td>
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<td>50° to 80°C</td>
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<tr>
<td></td>
<td>Degree of protection</td>
</tr>
<tr>
<td></td>
<td>IP55 (according to IEC 60529), similar to NEMA 4X</td>
</tr>
</tbody>
</table>

These instruments are ventilated to avoid formation of condensation water

Location

Indoor and outdoor, also in harsh climate conditions

Ventilation

Ventilation unit, no condensation up to 80% humidity

Maximum pointer resetable

Analog output (optional)

Sensor

Thin film load cell

Electrical connection

1/2 – 14 NPT conduit

Supply voltage

DC 10–30 V unregulated

Output signal

4...20 mA, two wire system protected against reverse polarity

Maximum load

750 Ω at Ub = 24 VDC

Repeat accuracy

± 0.1 % at the maximum value

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Compact Universal Retrofit Kit

Easy Temperature Gauge Replacement

There are over 120,000 power transformers throughout the USA and Canada. These units come with a wide variety of temperature gauges. Why temperature gauges aren’t out is that one fills a replacement unit that is simple and easy to install?

The Messko Universal Compact Series – Retrofit Kit

Messko’s Universal Retrofit Kit is designed to be a “direct” replace for almost any existing oil temperature or winding temperature gauges used in North America. Simply remove the worn-out gauge and bolt the Messko unit into the same mounting holes. Since the Messko retrofit kit is available with either ANSI or Westinghouse electrical connections it is easy to “wire” them into your system. Nothing can be easier.

Messko temperature gauges have been the world-wide standard. Today you will find Messko gauges as “standard” equipment on many new North American transformers. Since your Reinhausen will purchase come standard with a fixed temperature gauge, maintenance-free deturgidating breathers, pressure relief devices and oil level gauges it is likely that you have been using them for years. Messko temperature gauges are called the “Compact Sensor”. They withstand the harshest environments and don’t require re-calibration. That is what you call reliable and maintenance-free.

You can count on that:

- A standard “chrome” mounting bracket that installs simply and easily.
- Four thermal well sleeves insure the probe fits exactly into your well.
- A locking nut secures the probe tightly in place.
- A set of probe sleeves (Fig. 5).
- Two different terminal covers allow you to simply indicate if the gauge is for oil or winding temperature.
- The probe tube can easily be bent to customize its length for your installation.
- Three or four switches can be ordered to comply with your preferred control philosophy.
- The sensor tube is encapsulated in a rugged stainless steel sheathing that allows you to wrap it around corners without worry.
- An analog output (4-20 mA) is a standard option.
- Never re-calibrate or re-adjust these temperature gauges for their lifetime.

Product Specifications

Temperature gauges are used to show oil or winding temperature on power transformers, reactors or similar equipment.

The Universal Retrofit Kit consists of:

- A temperature sensor (probe) connected to the measuring gauge by a liquid filled capillary tube (Fig. 1).
- A set of probe sleeves (Fig. 5).
- A locking nut secures the probe tightly in place.
- The probe tube can easily be bent to customize its length for your installation.
- Three or four switches can be ordered to comply with your preferred control philosophy.
- A multifunctional mounting plate (Fig. 5) can be used in different ways, also in combination with the measuring kit (Fig. 1).

Limit Switches

Number: 4 adjustable limit switches (form A)

- Rated current: 5A at 250VAC, 60 Hz (50 Hz optional) 0.4A at 250VDC
- Switch position: (See Fig. 5)
- Switching distance: 6% of measuring range
- Switching hysteresis: approx. 5°C (at decreasing temperatures)
- Contact materials: Silver-Cadmium-Oxide
- Rated insulation voltage: AC: 2500V / 1min

Connecting the limit switches

The device contains 4 limit switches (form A) that switch when the set temperature is exceeded. The switches are factory wired directly to the gauge’s ANSI or Westinghouse electrical connection. Simply plug in Messko’s Optional cable into the gauge and wire it into your control panel. Nothing can be easier. (Optionally there are also 2 switch sets (form B) available.)
Compact Universal Retrofit Kit

Easy Temperature Gauge Replacement

There are over 120,000 power transformers throughout the USA and Canada. These units come with a wide variety of temperature gauges. Most temperature gauges aren't that difficult to find a replacement, and it's a simple and easy job to replace them. The Messko's Universal Retrofit Series - Retrofit Kit

Messko's Universal Retrofit kit is designed to be a "direct" replacement for almost any existing oil or winding temperature gauges used in North America. Simply remove the worn-out gauge and bolt the Messko unit into the same mounting holes. Since the Messko retrofit kit is available with either ANSI or Westinghouse electrical connections it is easy to "wire" them into your system. Nothing can be easier.

You can count on that

- A standard "Universal" mounting bracket that installs simply and easily.
- Four thermal well sleeves insure the probe fits exactly into your well.
- A locking nut secures the probe tightly in place.
- Two different terminal covers allows you to simply indicate if the gauge is for oil or winding temperature.
- The probe tube can easily be bent to customize its length for your installation.
- 3 or 4 switches can be ordered to comply with your preferred control philosophy.
- The bourdon tube is encapsulated in a rugged stainless steel sheathing that allows you to wrap it around corners without worry.
- An analog output (4-20 mA) is a standard option.
- Never re-calibrate or re-adjust these temperature gauges for their lifetime.

Product Specifications

- Temperature gauges are used to show oil or winding temperatures on power transformers, reactors or similar equipment.
- The Universal Retrofit-Kit consists of:
  - A temperature sensor (probe) connected to the measuring gauge by a liquid filled capillary tube (Fig. 1).
  - A set of probe sleeves (Fig. 8).
- The Universal Retrofit Kit (Fig. 2) is used to replace malfunctioning temperature gauges on transformers, reactors or similar devices.
- The Retrofit-Kit consists of a gauge with a mechanical pointer that clearly shows the oil or winding temperature. A maximum temperature indicator is standard. Optionally, the Retrofit Kit can be equipped with an analog output device that gives you the best of both worlds - a highly reliable mechanical gauge with a remote analog output.
- The gauge is connected to the thermal well via a capillary tube that is encased in a flexible stainless steel protection tube.
- The measuring device is equipped with a pointer which indicates by rotary movement the temperature value on a scale. The measuring system, consisting of a sensor, capillary tube and measuring device is filled with a liquid. The length of the sensor is adjustable and the sensor diameter can be varied with different sleeves (Fig. 8).
- The multifunctional mounting plate (Fig. 5) can be equipped in different ways, also in combination with the mounting kit (Fig. 7).

Connecting the Limit Switches

The device contains 4 limit switches (form A) that switch over when the set temperature is exceeded. The unit is factory wired directly to the gauge ANSI or Westinghouse wiring terminal connection. Simply plug in Messko's optional cable into the gauge and into your control panel, nothing can be easier. Optionally there are also 2 limit switches (form C) available.
Compact Universal Retrofit Kit

Easy Temperature Gauge Replacement

There are over 120,000 power transformers throughout the USA and Canada. These units come with a wide variety of temperature gauges. With temperature gauges worn out, it is often hard to find a replacement unit that is simple and easy to install. The answer: "Messko Universal Compact Series - Retrofit Kit".

Messko’s Universal Retrofit kit is designed to be a "direct" replace for almost any existing oil temperature or winding temperature gauges used in North America. Simply remove the worn-out gauge and bolt the Messko unit into the same mounting holes. Since the Messko retrofit kit is available with either ANSI or Westinghouse electrical connections it is easy to "wire" them into your system. Nothing can be easier.

Messko temperature gauges have become the world-wide standard. Today you will find Messko gauges as "standard" equipment on many new North American transformers. Since your Reinhausen will pay charges come standard with a thermostat temperature gauge, maintenance free detaching bushings, pressure relief devices and oil level gauges it is likely you have been using them for years. Messko temperature gauges are called the "Compact Sensor". They withstand the harshest environments and don’t require recalibration. That is what you call reliable and maintenance free.

You can count on that:
- A standard "Compact" mounting bracket that installs simply and easily.
- Your thermal well sleeves mate the probe fits exactly into your well.
- A locking nut secures the probe tightly in place.
- Two different terminal covers allow you to simply indicate if the gauge is for oil or winding temperature.
- The probe tube can easily be bent to customize its length for your installation.
- 3 or 4 switches can be ordered to comply with your preferred control philosophy.
- The inner tube is encased in a rugged stainless steel sheathing that prevents a single wire from direct contact with the thermal well.
- An analog output (4-20 mA) is a standard option.
- Never recalculate or re-adjust these temperature gauges for their lifetime.

Product Specifications

Temperature gauges are used to show oil or winding temperatures on power transformers, reactors or similar equipment.

The universal Retrofit Kit consists of:
- A temperature sensor (probe) connected to the measuring gauge by a liquid filled capillary tube (Fig. 1).
- A set of probe sleeves (Fig. 6).

The Universal Retrofit Kit (Fig. 2) is used to replace malfunctioning temperature gauges on transformers, reactors or similar devices. The Retrofit Kit consists of a gauge with a mechanical pointer that clearly shows the oil or winding temperature. A thermostat maximum temperature indicator is standard. Optionally, the Retrofit Kit can be equipped with an analog output device that gives you the best of both worlds: a highly reliable mechanical gauge with a remote analog output.

The gauge is connected to the thermal well via a capillary tube that is encased in a flexible stainless steel protection tube.

The measuring device is equipped with a pointer which indicates by rotary movement the temperature value on a scale. The measuring system, consisting of a sensor capillary tube and measuring device is filled with a liquid. The length of the thermometer and the sensor diameter can be varied with different sleeves (Fig. 8). The multifunctional mounting plate (Fig. 5) can be secured in different ways, also in combination with the mounting kit (Fig. 7).
Installation diagram

Mounting plate

Adapting sleeve

Installation diagram

Mounting kit for mounting plate (optional)

Technical data

- **Housing (standard):** Galvanized sheet steel, powder coating finish, RAL 7035 light grey
- **Mounting plate:** Aluminum, painted finish, RAL 7035
- **Viewing glass:** Laminated safety glass with UV protection
- **Temperature sensor:** Brass, bright
- **Capillary tube:** Copper capillary tube with sheath
- **Measuring range:** 0° to 160°C
- **Resolution:** ± 3°C according to EN 13190 class 1 and DIN 16196
- **Ambient temperature:** –50° to +80°C
- **Degree of protection:** IP55 (according to IEC 60529), similar to NEMA 4X
- **Ventilation:** Indoor and outdoor, also in harsh climate conditions
- **Maximum pointer:** resettable

**Analog output options**

- **Sensor:** Thin film heat coil
- **Electrical connection:** 1/2 – 14 NPT conduit
- **Supply voltage:** 12–30 V DC, ±5% unregulated
- **Output signal:** 4…20 mA, two wire system
- **Input protection:** Against reversed polarity
- **Minimum load:** 750 Ω at 24 V DC
- **Repeat accuracy:** ± 0.1 % at the maximum value

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Compact Series – Universal Retrofit Kit
Oil and Winding Temperature Gauge for Power Transformers

Technical data

- Housing (standard): Galvanized sheet steel, powder coating RAL 7035 similar to ANSI 70 light grey
- Mounting plate: Aluminum, painted RAL 7035
- Viewing glass: Laminated safety glass with UV protection
- Temperature sensor: Brass, bright
- Capillary tube: Copper capillary tube with sheath
- Measuring range: 0...160°C
- Tolerance: ± 3°C according to EN 13190 class 1 and DIN 16196
- Ambient temperature: 5°C to 80°C
- Degree of protection: IP65 according to IEC 60529, similar to NEMA 4X
- These instruments are not designed to display formation of condensation water
- Location: Indoor and outdoor, also in harsh climatic conditions
- Maximum pointer: resettable
- Analog output (optional): 0-10 V

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