



TECHNICAL REQUIREMENTS

ELECTRICAL

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ELECTRICAL HEATING FOR INSTRUMENTS

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1. SCOPE

The present document is intended to define the technical requirements of the electrical heating for instruments.

2. REFERENCES

The following standards, acts of law and other documents are referenced in the standards:

Specialiųjų patalpų ir technologinių procesų elektros įrenginių įrengimo taisyklės

OL-TR-GR-000 *General Requirements*

OL-TR-ER-000 *Electrical. General*

3. TERMS AND DEFINITIONS

3.1 HOA: Hand-Off-Auto.

3.2 RCD: Residual Current Circuit Breaker.

3.3 DCS: Distributed Control System of Process.

For general terms and definitions see:

OL-TR-ER-000 *Electrical. General*

4. GENERAL

4.1 Electrical heating systems for instrument designed to protect from freezing and to maintain the process temperature of instrument circuits and will cover the control panel of electrical heating, temperature sensors, temperature regulators, starters, circuit breakers, enclosures, power cables and all necessary equipment and controls.

4.2 Seeking to minimize the length of heating circuits, the control panels will be installed in close substation where they are used. This panel shall be used for powering of instrument heating only.

4.3 The control panels will be suitable to use in the zone of that class where they are installed. In general the panels will be installed where possible in non-hazardous zones.

4.4 Instrument electrical heating equipment, including materials, fittings, devices, equipment and similar items will be ATEX certified.

4.5 Control Panels of Instrument Heating

4.5.1 Each control panel of electrical instrument heating will be mounted on the rack with enclosure and it will contain the devices as follows:

- a) Primary circuit breakers (the 2 incomings is preferred to use);
- b) Starter for heating circuit (main/group contactor, RCD circuit breaker);
- c) Temperature controllers (ambient temperature for antifreeze, local for instrument);
- d) Switch "HAND-OFF-AUTO";

- e) Indicating light "POWER ON" (green);
- f) General light checking circuit;
- g) Panel heater for outside panels;
- h) Fault signal circuits for DCS.

- 4.6** Instrument antifreeze circuits will be controlled by the panel of electrical instrument heating and single thermostat of ambient temperature shall be used.
- 4.7** Instrument antifreeze circuits will be equipped with switch HOA to select the circuit control mode (hand, off, automatic).
- 4.8** Each heating circuit will be provided with line end indication – outside installed signaling lights - for visual indication that the electrical installation of the heater operates along the whole length.
- 4.9** In general the circuit breakers of all branches will be 6-16A, bipolar, single phase, thermomagnetic with RCD 30 mA (maximal).
- 4.10** Equipment and materials will be suitable to use in the explosive atmosphere where they are installed. The established certifying agency of third party will certify the supplied equipment systems and will attach its tags stating that the equipment and materials could be used according to the specified operation conditions and in the specified class zone. Provided there is no such certification it will be asked the manufacturer to prepare the documentation stating that the units meet the required operation conditions. All equipment shall have ATEX certification and certifying tags.
- 4.11** The units of equipment system that require power supply will be prescribed to operate in 230 V single phase 50 Hz systems, where it is possible.
- 4.12** Provided the outdoor equipment requires the protection (heated enclosure) against freezing, O'Brien Heatpak or equivalent equipment boxes with heating will be used.
- 4.13** Provided the equipment branching lines of process pulses, samples, etc. shall be protected against freezing, the pipe bundles insulated in advance in the factory, manufactured at the same time with electrical heater of automatic regulation, will be used.
- 4.14** The equipment cables usually will be laid above the ground in the cable trays. Equipment terminal boxes, cable collars and other devices will be selected to meet the requirements of Ex zone and cable installation systems.