

Oil Level Regulator TK3⁺@46bar – 230Vac Cable Glands Version - 3m cable



Main Features

- **High reliability**ensured by absence of mechanical moving parts.
- Sight glass and electronic LEDs can be checked on the same side where is more comfortable to do inspections.
- Well consolidated steel with fused glass technology and the absence of seals ensures no leakage and good chemical compatibility.
- Direct mounting onto 3/4/6 bolts compressors
- Left/Right mounting possibilities with the same TK3⁺
- Easy maintenanceof the coil of the valve and of the Electro-Opticsensorthat can be easily replaced without emptying or depressurizing the plant.
- No need to use external pressure reduction devices
- Maximumcompatibility with particular mediadue to the possibility of mounting of different/custom valves
- 230 VAC /2A alarm relay output suitable for **direct connection in the security chain** of the system
- Adapters suitable for various types of compressors
- Unit conform to directives:

Application Description

The TK3⁺ is designed to control the oil level in the compressor crankcase in order to avoid the compressor to run without oil and so improve its lifetime.TK3⁺ monitors the oil level with the embedded electro-optic sensor and comprises a solenoid valve for oil filling and a relay output contact to give an alarm or directly stop the compressor (through a separate power relay).

The output contact (normally open) is closed when the oil level is enough and open if after a determined number of filling cycles the oil level is not restored. Alarm state is represented by the red LED.

The LEDs on the Electronic box give immediately info on the status of the system and act as follows: Power Light (green colour): always on when power is applied.

Oil OK (green colour): steady on while oil level is good, blinking for a first period of oil missing (even due to turbulence, undulations, etc.) before start filling and is off when filling.

Filling (yellow colour): Off while oil level is good, steady on while injecting oil, blinking while (after filling) TK3⁺ check if the oil level is restored.

Alarm (red colour): Off while oil level is enough, steady on if after a determined number of filling cycles the oil level is not restored.

Filling cycles continue also in alarm condition and in each phase if the correct oil level is restored the oil feeding is stopped and the alarm is deactivated (auto restore from alarm).

In this model the functioning sequence is the following:

- 10 sec of continuative absence of oil before starting the filling phase
- 6 sec of oil injection for the first cycle up to a maximum of 32 sec
- Variable timing from 25 sec to 50 sec of oil monitoring after each injection, before filling again or returning to normal condition
- 7,5 minutes before giving alarm in case of oil lack.

Functioning and alarm delay times can be customized in order to follow customer needing.

Oil Good

Oil Filling

🛑 Alarm

Power



Technical Data

Supply voltage	230 VAC ± 10% @ 50Hz
Supply Power	Each TK3 ⁺ require 20VA.

Electrical connection Cable wiring and dedicated Connector for solenoid valve.

Output signal Contact free relay output NO and NC

Up to 230VAC @2A

Relay outputs The Normally Open (NO) alarm contact (white wire) is closed when

power is applied to the TK3⁺

Housing material Nickel plated steel + fused glass / PA glass fibre reinforced

Enclosure protection class IP 65

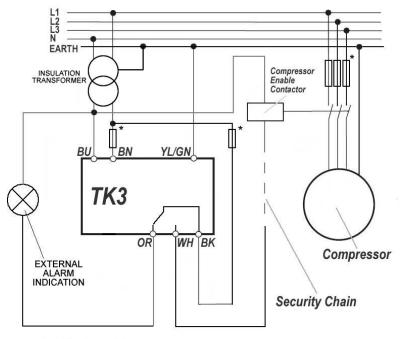
Media Temperature -40°C..+85°C
Ambient temperature -40°C..+60°C

Max working pressure46bar (higher values upon request)MOPD26 bar (higher values upon request)

Oil Return Line 7/16 – 20 UNF male

CableType PVC cable CEI 20-22. Working temp.: -20 ÷ +70 °C (fixed laying)

Electrical Connections



Wiring Example.

To obtain a better immunity against noise eventually present on power wires it is recommended to use an insulation transformer to power the TK3⁺

*: EXTERNAL FUSES

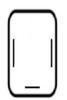
Cable wiring

Power section:
Brown (BN): Line
Blue (BU): Neutral

Yellow/Green (YL/GN): Potential Earth

Relay output section: Black (BK): Common

White (WH): NO Contact (open in alarm)
Orange (OR): NC Contact (closed in alarm)



Valve Connection EN 175301-803 size B IND

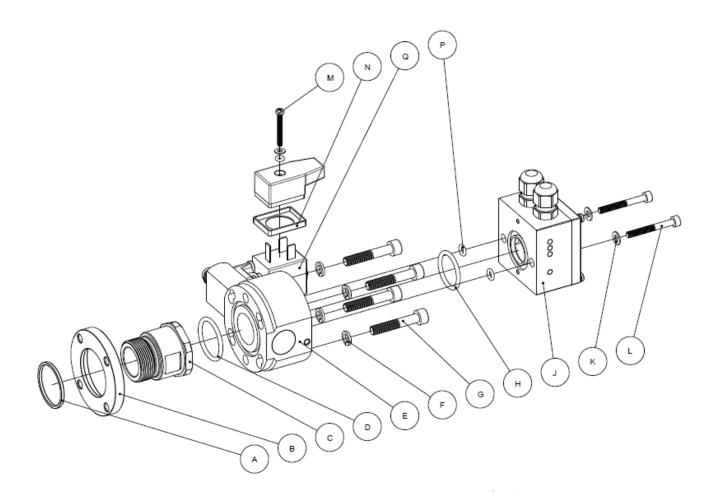
The coil is connected between pins 1 and 2 and it is directly driven by the electronics of the $TK3^{+}$.



Installation notes

- Only qualified personnel should carry out installation/maintenance
- Protect hands and face from contacting the oil, which may contain harmful acid.
- Depressurize the system before attempting any work
- Switch off power supply and isolate compressor
- If fitting to an existing installation, drain the compressor crankcase to just under the oil level sight glass.
- Mount the TK3⁺ body on the compressor (see below).
- The correct oil level in the compressor crankcase must be reached before restarting the system.

Installation instructions



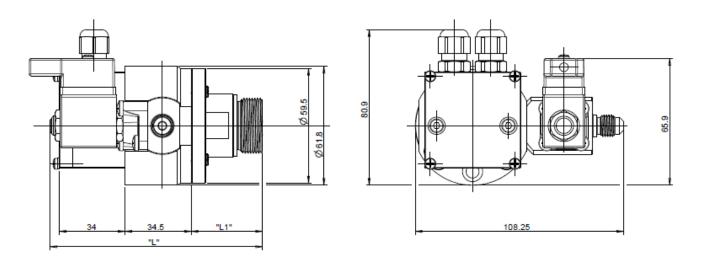
- Ensure that both the glass surfaces of the Electronic Box and of the TK3⁺ for the electronic are dry and clean.
- Mount the TK3⁺ body on the compressor with 3 or 4 supplied bolts and washers using proper o-ring for the flange.
- Mount the electro-optic sensor on the TK3⁺ body using the 2 supplied bolts and plastic washers using supplied o-ring for electronic.
- Plug the Valve connector to the coil of the valve using supplied gasket and screw.
- Plug the Alarm and the Power connectors to the electro-optic sensor using supplied gaskets and screws.

Note. If the TK3⁺ need an adapter to be mounted onto the compressor, first mount the adapter onto the compressor then assemble the TK3⁺ with the adapter.

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Mechanical Dimensions



Note. - Quotes in mm -. L and L1 can vary depending on the adapter (see TK3⁺ Adapter Addendum)

Ordering Code Examples with mentioned timings (Other possibilities and timings available on request)

Oil Level regulator - 230V AC Cable glands version – 3 m cable	
TK3 ⁺ Oil Level regulator with integrated filtering element	TK3P-A20BB13-01
TK3 ⁺ Oil Level regulator with no filtering element	TK3P-A50BB13-01
1" 1/8 – 18 UNEF Adapter	TKX-A001
¾" NPT Adapter	TKX-A002
3/4/6 bolts flange Adapter	TKX-A003