

# Oil Level Regulator TK3@46bar – 230Vac Cable Glands Version - 1m 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 maintenance of the coil of the valve and of the Electro-Optic sensor that can be easily replaced without emptying or depressurizing the plant.
- No need to use external pressure reduction devices
- Maximum compatibility with particular media due 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:
  \*2004-108-CE \*CEI EN 60204-1:2006

## **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 Good (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.

Oil 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 timings 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.

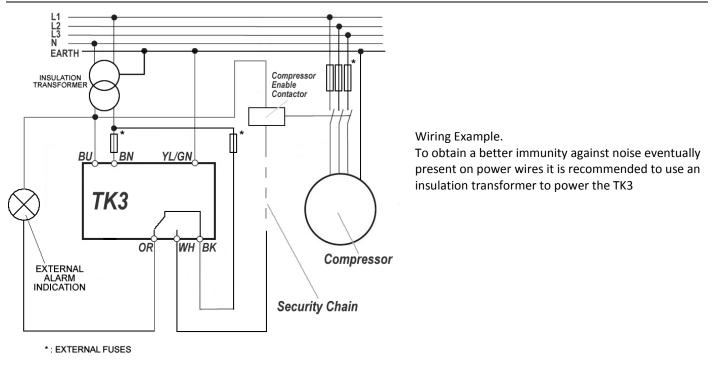




#### **Technical Data**

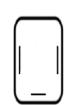
Supply voltage	230 VAC ± 10% @ 50 Hz	
Supply Power	Each TK3 require 20VA.	
Electrical connection	Cable wiring and dedicated Connector for solenoid valve.	
Output signal	Contact free relay output NO and NC	
Relay outputs	Up to 230VAC @2A The Normally Open (NO) alarm contact (white wire) is closed when power is applied to the TK3	
Housing material	Nickel plated steel	
Enclosure protection class	IP 65	
Media Temperature	-40°C+85°C	
Ambient temperature	-40°C+60°C	
Max working pressure	46 bar (higher values upon request)	
MOPD	26 bar (higher values upon request)	
Oil Return Line	7/16 – 20 UNEF male	
Cable Type	PVC cable CEI 20-22. Working temp.: -20 ÷ +70 °C (fixed laying)	

## **Electrical Connections**



#### 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

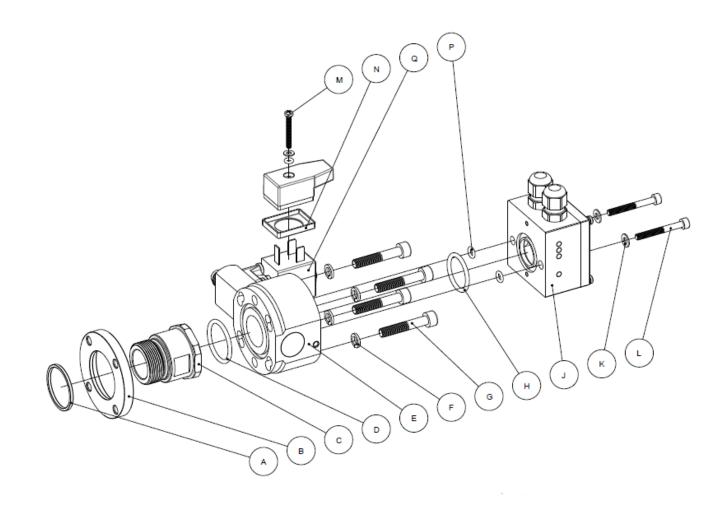
The coil is connected between pins 1 and 2 and it is directly driven by the electronics of the TK3.



### **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

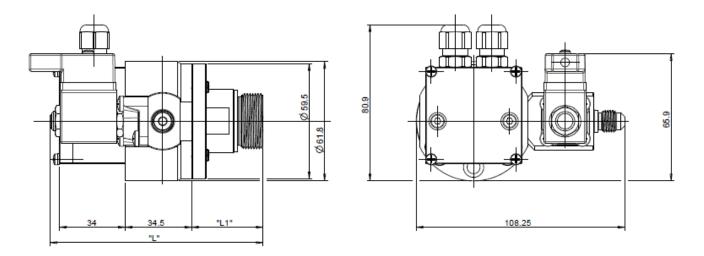


- Ensure that both the glass surfaces of the Electronic Box and of the TK3 for the electronic are dry and clean.
- Mount the TK3 body on the compressor with 3 or 4 supplied bolts and washers using proper o-ring for the flange.
- Mount the electro-optic sensor on the TK3 body using the 2 supplied bolts 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.



# **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)

	230Vac Cable glands version – 1 m cable
Oil Level regulator TK3	TK3-20F6V00016000450
1" 1/8 – 18 UNEF Adapter	TK3-A00100000000000
¾" NPT Adapter	TK3-A00200000000000
3/4/6 bolts flange Adapter	TK3-A00300000000000

### **Recommendations**

Teklab recommends the use of a 10-micron filter in the oil line in order to protect the sensor from contamination.

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