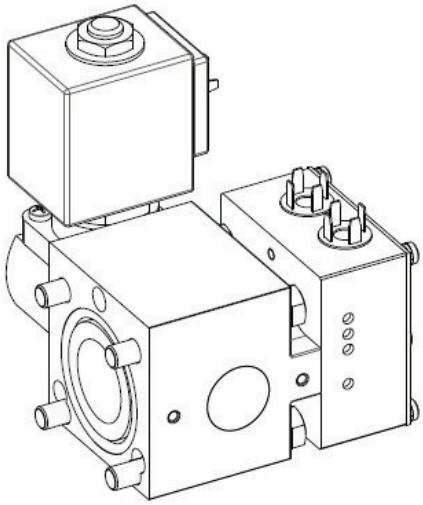
Oil Level Control Electro-Optical Unit TK3



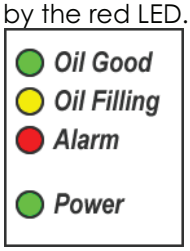
Sight glass on left side (TK3 bottom view).
TK3 is designed also for right side mounting.

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 bolts compressors**
- **Easy maintenance of the coil** of the valve **and of the Electronic box** that can be easily replaced **without empting or depressurizing the plant.**
- **No need to use external pressure reduction devices**
- Possibility of mounting of different/custom valves to get **maximum compatibility with particular media**
- 230 VAC /2A alarm relay output suitable for **direct connection in the security chain** of the system
- Adapters suitable for various types of compressors

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 optoelectronic sensor and comprises a solenoid valve for oil filling and a relay output contact to give alarm or directly stop the compressor (trough 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 gives 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 (also 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.
In each phase if the correct oil level is restored the oil feeding is stopped and the alarm is deactivated.
For the standard model the timings are the following:

- 10 sec of continuous oil absence before start filling phase (green led start blinking).
- 5 sec of oil injection
- 55 sec of checking up on the oil level before start oil injection again or the return to normal conditions.
- 10 filling cycles (10 minutes) before giving the alarm in case of unsuccessful oil level restore

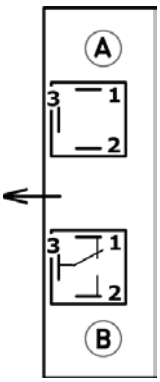
Functioning and alarm delay times can be customized in order to follow customer needing.

Technical Data

Supply voltage	24 VAC ± 10% @ 50 / 60Hz
Supply Current	0,6A (depending on the solenoid valve)
Electrical connection	9.4mm Industry Standard Connectors / EN175301-803A Connector
Output signal	Contact free relay output NO and NC
Relay outputs	Up to 230VAC @2A The alarm contact (NO) is closed when power is applied
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	45 bar (up to 90 bar upon request)
MOPD	45 bar (up to 60 bar upon request)
Oil Return Line	7/16" – 20 UNF male (1/4" SAE)

Electrical Connections

Electronic Sensor Connections (Industry Std. 9.4mm).



Top View. The arrow indicates the glass side where the sensor is mounted on TK3 body. The 90° female flying part exit on the other side.

A – Power Supply (cable with 2 wires and valve derivation)
2: Brown (24VAC)
3: Blue (24VAC)

B – Relay (cable with 3 wires)
1: Brown (close in alarm)
2: Blue or Gray (open in alarm)
3: Black (common)

Solenoid Valve Connection EN 175301-803 (EX DIN 43650 size A)

The coil is connected between pins 1 and 2 and in the supplied harness is properly wired to the A connector of the Electronic Sensor.