cooling technologies

FEEDWAY™

OIL LEVEL CONTROL

FP-ERL4. Oil level regulator.

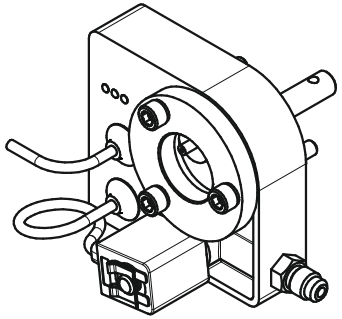


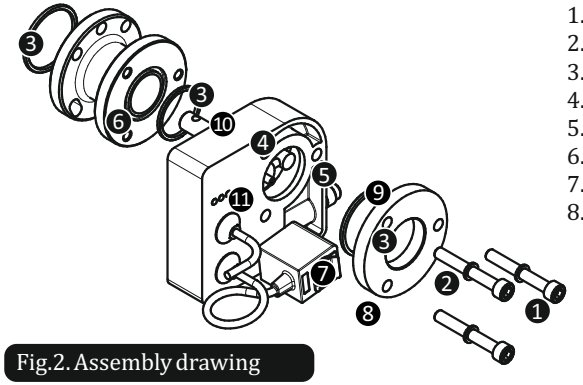
Fig.1. General view

Application

Oil level regulator FP-ERL (fig.1) is designed for installation in oil circuit of compressor stations in order to control, maintain oil level in the crankcase of compressor, emergency alarming and turning off compressor in case of low oil pressure in crankcase. Device belongs to active methods of oil level controlling and designed to work with full pressure drops.

Safety instructions

- ⚠ Carefully read this instruction. Ignoring these rules may lead to malfunctioning of this devise, staff injuries and malfunctioning of compressor.
- ⚠ Installation and service must be done by qualified staff with appropriate level of knowledge and skills as well as access to electrical works of relevant class.
- ⚠ Follow the instruction in part of air temperature, do not exceed maximum allowed working pressure, control working voltage range, mentioned in the technical characteristics of device.
- ⚠ Follow the electrical connection sketch of oil level regulator.
- ⚠ Electromagnetic waves may have a negative effect on device operation, shield it if necessary.

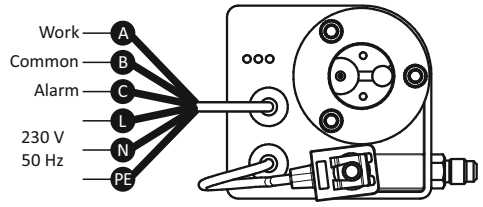


1. Screw M6
2. Sight glass
3. O-ring
4. Case
5. Float
6. Adapter
7. Coil
8. Valve
9. Oil line fitting
10. Feeding tube
11. Indicators

Fig.2. Assembly drawing

Installation instruction

- Prior to installation make sure that pressure in the system is equal to surrounding's and dismantle the sight glass of compressor.
- Connect adapter to compressor firmly using gaskets supplied together with device. In order to avoid damage to the sealing rings during adapter installation, pre-lubrication of the rings is strictly required.
- Connect oil level regulator FP-ERL to compressor as shown in fig.2. If necessary use the original compressor's screws. Keep the sight glass screws strain level on 9Nm.
- Put the body of oil level regulator strictly horizontal. Maximum allowed deviation is ±1.
- Perform electrical connections as shown in Fig.3.
- The power supply system of the equipment must be protected against overvoltage.
- Protect the contacts of the output relay with an automatic switch or fuse with a rated operating current of not more than 3A, otherwise there is a high probability of failure of the contacts of the output relay.
- During operation it is recommended to keep regulator switched on even when compressor is disconnected from power.
- During servicing related to disassembling the regulator and adapter, when they are reinstalled, it is necessary to replace all sealing rings with new ones using a repair set of seals. A seal repair kit is not included with the regulator and is shipped separately.



A — green (open in alarm)
B — white (common)
C — red (close in alarm

L — brown (line)
N — blue (neutral)
PE — yellow-green (protective earth)

Fig.3. Electrical Connection

How it works

There are three levels of oil control (40%–60% – working oil level, 25%-40% – risky oil level, 0%–25% – emergency oil level, fig.1) When switched off the indicators are not lightning, alarm contact relay is closed. In nominal mode oil level is more than 40%, green indicator “High oil level” is on. When oil level goes lower than 40% but not less than 25%, after 10 seconds delay the yellow indicator starts to light and oil starts to run into compressor crankcase. Oil runs into compressor until oil level goes higher than 60%. When oil level goes lower than 25% yellow indicator starts to light and oil starts to run into compressor immediately, if oil level do not rise higher than 25% during next 120 seconds the red indicator “Emergency oil level” goes on and emergency contact relay is closed. When increasing the level above 40%, the alarm relay goes back to the "Operation" state.

Tab.1.Oil level control

Oil level	Range	Indication	State
Normal oil level. Oil level 40%-100%. Valve is closed. Contact «Work» is closed.	100% 60% 40%	green	
Critical oil level. Oil level 25%-40% Valve is opened. Contact «Work» is closed.	10 sec 40% 25%	yellow	
Alarm oil level. Oil level 0%-25% Valve is opened. Contact «Alarm» is closed.	120 sec 25% 0 %	yellow red	

Storage

●Storage controller in closed ventilated warehouse, in dry, clean and chemically not aggressive environment. If this is not possible, it is necessary to protect the regulator from the negative effects of the environment.

Dismantling and utilization

Dismantle valve in the following sequence:

- Prior to dismantling valve make sure that pressure in the refrigeration circuit equals the surrounding's.
- Utilization of regulator is done separately from the printed circuit board, in accordance with national regulations.

Tab.2.Technical data

Parameters	Value
Model	ERL4
Max. operating pressure PS	4.5 МПа
Max. testing pressure PT	5.0 MPa
Burst pressure	20.0 MPa
Power supply	230 V, 50/60 Hz, 0.04 A
Consumed power	15 VA
MOPD	2.4 MPa
Ambient air/storage temperature	-20…+50 °C
Operating environment temperature (oil)	-40…+80 °C
Ingress protect ion rating	IP67
Delay oil supply	10 sec
Delay alarm relay	120 sec
Oil level range maintance	40...60% of the heigh t of the sight glass
Alarm relay	max. 3 A, 230 V, 50/60 Hz
Case material	Silumin
Electrical connection	Cable PVC 6×0,34 (AWG22)
Power supply cable length	3 m
Orientation	Having flat horizontal, ± 1 °
Oil line adapter	Thread 7/16"-20UNF

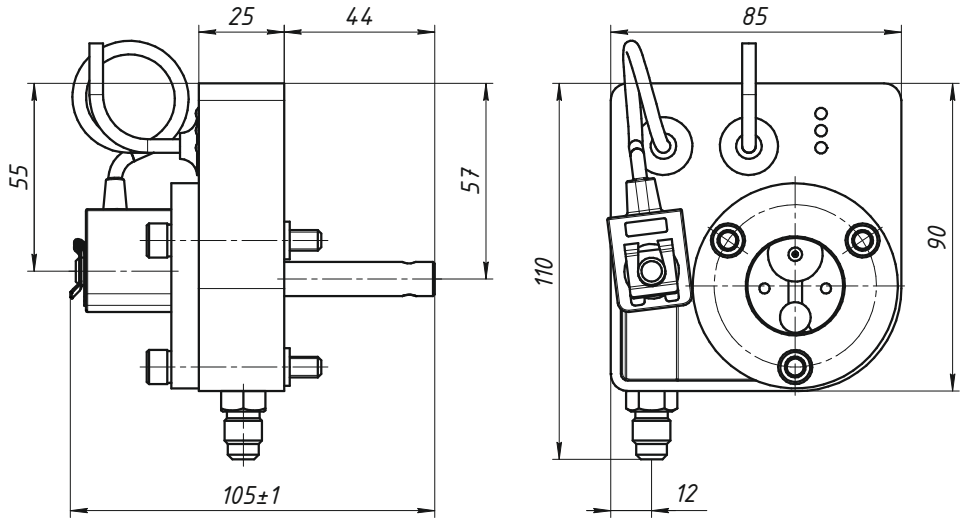


Fig.4. Dimensions