

Operating instructions TB810.00097.1

INT280® Oil level regulator



INT280 in the two mounting positions

Safety instructions



- The unit must be connected by trained electrical personnel. The valid European and national standards for connecting electrical equipment and refrigeration plants have to be observed.
- Do not exceed the max. test pressure!
- Maintain temperatures within the specified limits.
- Maintain the operating voltage specified on the INT280 type plate.
- Read the operating instructions thoroughly. Non-adherence can cause the device to fail or be destructed and can lead to injuries.
- Prior to installation, ensure that the pressure in the refrigeration circuit is and stays equal to the atmospheric pressure.
- The voltage supply to the INT280 has to be switched off prior to installation/connection and the subsequent tasks.

Application

The INT280 monitors and controls the oil level in the refrigerant compressors. In particular, the problem of bad oil distribution in multi-compressor packs is solved, thanks to active oil supply from a shared oil reservoir. The oil level regulator keeps the oil level at half the height of the sight glass.

Functional description

After the INT280 is switched on, the alarm relay picks up after 3s, if no malfunction is present (closed-circuit principle). Regardless of the oil level, a 20s pause is activated, to allow the oil to settle. If, thereafter, a too low oil level is detected, the solenoid valve switches to oil injection, in a specified cycle:

1st cycle: fill 5s / wait 5s,

2nd cycle: fill 10s / wait 10s,

3rd cycle: fill 20s / wait 20s...

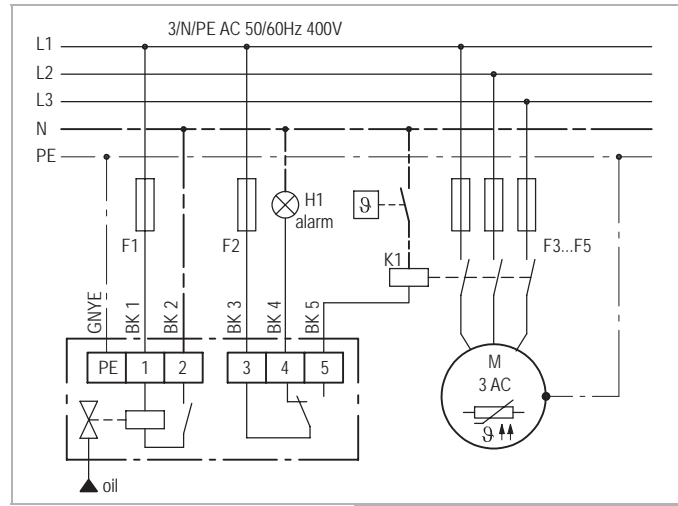
If, after 135s, an adequate oil level has not been reached, the alarm relay drops out. The last filling cycle that has been reached (fill approx. 30s and wait approx. 30s) stays active. If an adequate oil level has been reached, the alarm relay picks up again after a waiting time, the filling cycle is reset.

If there is a device malfunction (e.g. low supply voltage), the alarm relay drops out and is locked, regardless of the oil level, after approx. 5s. No filling procedure is performed. The lock can be released by interrupting the voltage supply for at least 5s. An LED positioned next to the sight glass visually signals the respective operating status.

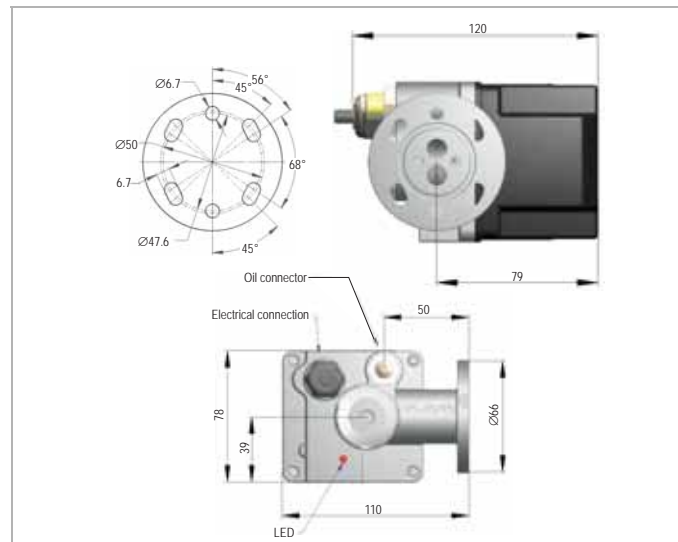
Installation instructions

- Prior to installation, ensure that the O-ring at the connecting flange is seated properly.
- There must be no foreign objects in the oil infeed or outfeed area of the INT280.
- The device has to be mounted to the compressor horizontally. It can be rotated by 180°.
- Use matching washers for the flange fastening screws. Tightening torque (M6, 8.8 steel, dry) 9 Nm
- The electrical connection needs to be carried out according to the wiring diagram (example: 230V)
- For the 115V and 24V versions, ensure that the correct supply voltage is used.

- For use at low temperatures, an oil sump heater has to be installed, to ensure trouble-free operation of the device.
- An oil filter has to be installed in the oil infeed line of the INT280, to prevent the solenoid valve seat from getting dirty.
- Before the INT280 is switched on for the first time, the oil level should already be at ¼ of the sight glass, to prevent the alarm relay from being deactivated.
- Before the refrigerating system is filled with refrigerant, the system and the connections of the INT280 have to be checked for leaks.



Wiring diagram (suggestion)



Dimensions in mm

Technical specifications

Supply voltages (see type plate)	AC 24V 50/60Hz ±10%, 15VA AC 115V 50/60Hz ±10%, 15VA AC 230V 50/60Hz ±10%, 15VA
Permitted ambient temperature	-30...+60°C
Permitted rel. humidity	10...95% r.h., without condensation
Medium temperature	-30...+100°C
Operating pressure	-1...4.6bar
Test pressure	69bar
Differential pressure	1...25bar (across valve)
Relay	AC 240V, 2.5A, C300
Mechanical service life	Approx. 10 ⁶ switching cycles
Protection class acc. to EN 60529	IP65
Connecting cable	6xAWG18 (0.75mm ²), length 1m, numbered 1 to 5, GNYE
Housing material	Aluminium PA66/PA6, glass-fibre-reinforced
Flange connection	3- /4- hole flange
Oil connection	7/16"-20 UNF
Flow rate through valve at 1bar differential pressure	1 l/min. (water 20°C)
Permitted oils	Standard mineral and ester oil, without additives
Permitted refrigerants	All non-corrosive standard refrigerants
Mounting position	Horizontal (rotatable by 180°), ± 2°
Dimensions	Refer to dimensions
Weight	Approx. 950g

Delays

Relay picks up after supply voltage has been connected	3s ± 1s
Oil level monitoring after supply voltage has been connected	20s ± 2s
Alarm relay drops out after oil deficiency	135s ± 5s
Alarm relay drops out after malfunction	5s ± 2s (blocked)
Alarm relay picks up after oil level correction	5s + remaining waiting time
Alarm relay picks up after malfunction	Network reset > 5s
Switching cycle: Oil injection after oil deficiency	5s / 10s / 20s / 30s
Switching cycle: Wait after oil deficiency	5s / 10s / 20s / 30s
Switching cycle: Oil injection after alarm relay dropped out	30s
Switching cycle: Wait/pause after alarm relay dropped out	30s

LED status display

Level OK	Green is continuously lit
Filling	Green flashes
Oil level too low	Red is continuously lit
Internal error	Red flashes

Scope of supply

- INT280 Oil Level Regulator
- O-ring for flange

Order data

AC 24V	31 S 381
AC 115V	41 S 381
AC 230V	52 S 381