

Level monitoring

The OLC series consists of a screw-in prism unit and an optical level detection device. The prism is installed in the compressor or the vessel and is not included with the OLC. The level detection device can be replaced without opening to the compressor or the vessel. Detection of the level is via infrared light. There is a built-in monitoring system for correct installation.

Oil level monitoring in compressors

The OLC series are used for contactless oil level monitoring in compressors in order to safeguard sufficient lubrication of the internal mechanics.

Fluctuation of the oil level in the compressor is common in refrigeration systems for different reasons and therefore oil levels need to be monitored.

The OLC-K1 starts oil monitoring 90 seconds after compressor start is applied to the violet wire and opens the relay in case of low oil level.

The OLC-D1 relay opens in case of low oil level and closes when the oil level is reached. There is always a minimum 5 seconds delay.

Level monitoring in vessels

The OLC-D1 is meant for level monitoring in vessels and does not have the operation recognition input, D1.

The OLC-D1 opens the relay if the level is too low and closes the relay if the level is valid. There is always a minimum 5 seconds delay.

Red LED status light

When the oil level is too low, the LED will turn on and after approx. 5 seconds the relay will open to signal failure.

When the oil level is reached (only OLC-D1), the LED will turn off. After approx. 5 seconds, the LED will turn on for 1 second and then the relay is closed.

LED Off:	Oil level good, no failures
LED On:	Oil level low
LED flashing:	OLC not correctly mounted, or Supply voltage too low, or Internal failure

Lock-out state

The OLC-K1 will lock-out in case of failure.

The OLC-D1 will automatically reset and not lock-out.

Reset of lock-out state

Interrupt power supply for 5 seconds.



3. Definitions

Definitions	
B01	Compressor protection device
B02	Discharge gas / oil temperature sensor
B03 .. 08	Temperature sensors in motor windings
B10	High pressure switch
B11	Low pressure switch
B25	LI control thermostat
B26	Control thermostat for additional oil injection, CSV.: for oil cooling
B30	Oil level switch
B53	ECO switch-on
B60	Overload protective device
B61	Overload protective device for second part winding
E01	Oil heater
E02	Terminal box cover heater
F01	Main fuse
F02	Compressor fuse
F03	Control circuit fuse
F05	Fuse of oil heater
F07	Fuse of terminal box cover heater
K01	Superior controller
K01T	Time relay for part winding start or for star- delta start
K02T	Time relay for minimum shut-off period of compressor
K04	Auxiliary relay for oil monitoring
K04T	Time relay for oil level switch
K05T	Time relay for oil supply monitoring

M01	Compressor motor
M05	SV for liquid injection with LI, RI or CIC injection valve
M06	SV for economiser (ECO)
M11	SV for capacity regulator 1, CR1, CR+, CR11-2 or start unloading
M12	SV for capacity regulator 2, CR2, CR- or CR11-1
M13	SV for capacity regulator 3, CR3 or CR11-3
M14	SV for capacity regulator CR4
M20	SV for liquid line
M42	SV for additional oil injection
M43	SV for oil cooler line
P04	Light: oil supply fault
P05	Light: compressor fault
Q01	Main switch
Q02	Contactors for first part winding (PW) or main contactor (Y/Δ) or compressor contactor (DOL)
Q03	Contactors for second part winding (PW) or delta contactor (Y/Δ)
Q04	Star contactor (Y/Δ)
Q05	Control transformer fuse
R06	Interference suppressor (if required, e. g. from Murr Elektronik)
S01	Control switch (on-off)
S02	Reset of compressor safety chain
S04	Reset of oil monitoring
T01	Control transformer (example for 230 V, required according to EN60204-1)

4. Technical specifications

Technical specifications	
Supply	OLC-D1 115 VAC; ±10%, 50/60 Hz, 3VA OLC-D1 230 VAC; ±10%, 50/60 Hz, 3VA OLC-D1 24 VAC/VDC, ±10%, 50/60 Hz, 3VA OLC-K1 115 VAC; ±10%, 50/60 Hz, 3VA OLC-K1 230 VAC; ±10%, 50/60 Hz, 3VA
Relay	240VAC, 2.5A, C300 - resistive load >24VAC/DC, >20mA
Permitted ambient temperature	Operation: -30°C .. +60°C Storage: -30°C .. +80°C
Max temperature of media	OLC-K1: +100°C OLC-D1: +120°C
Relative humidity	Max. 95% RH non-condensing
Wire length	OLC-D1: 950 / 2050 mm ±50 mm OLC-K1: 950 mm / 1100 mm ±50 mm
Fuse required	Europe: 250 VAC, max 4 A fast-acting UL: 250 VAC, max 4 A fast-acting, Type JDDZ
Enclosure class	Housing IP54; cable outlet pointing downwards
Mounting of the detection circuit	Screw mounted, M24 Max. tightening torque: 10Nm by hand only
UL file number	E348183

View Colour	Function
Brown	L; Phase
Blue	N; Neutral
Grey	C; Common signal
Orange	NO; Normal open
Pink	NC; Normal closed
Violet (only OLC-K1)	D1; Compressor running

5. Schematic wiring diagram - part winding

