



OLC-D1, OLC-K1

Lodam Optical Level Controlling Devices

Datasheet

Version 9.0

Product description

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.

As the refrigerant can be absorbed by oil, fluctuation of the oil level in the compressor is common in refrigeration systems and thereby oil levels need to be monitored.

OLC-K1 is for piston compressor use and opens the relay after 90 seconds whereas the OLC-D1 is for screw compressors and opens the relay after 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 releases the relay if the level is too low and activates the relay if the level is valid. There is a 5 seconds time delay between switching the relay.

Red LED status light

At startup, the OLC will flash shortly with the LED. After approx. 3 seconds the relay will be activated. For OLC-D1 the level monitoring starts immediately, for the OLC-K1 monitoring starts when the D1 signal is applied and after the 90 seconds delay time the level is evaluated.

If the oil level is too low or there is a failure, the relay will be opened and the LED will signal the failure.

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-D1 and OLC-K1 will lock-out in case of failure. The OLC-K1 will further lock-out in case of low oil level.

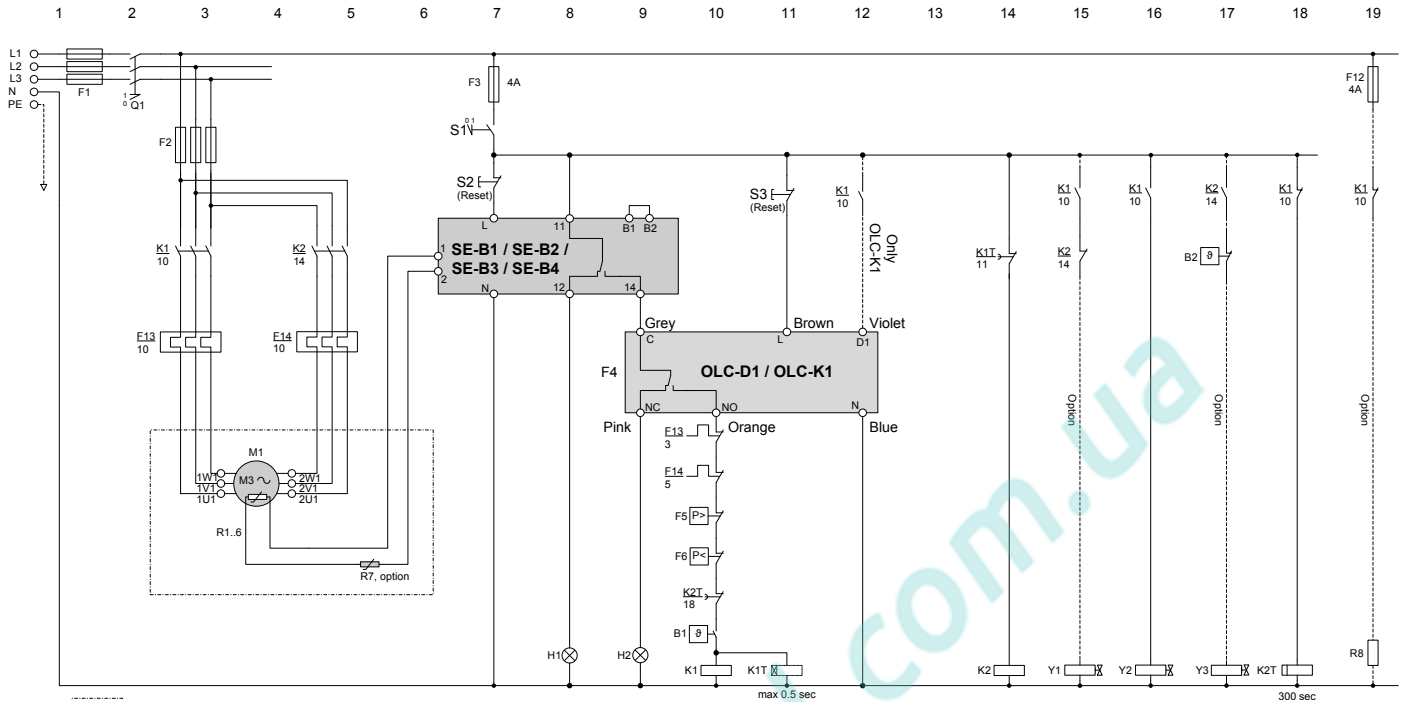
Reset of lock-out state

Interrupt power supply for 5 seconds.

Technical data

Description	OLC-D1	OLC-K1
Supply voltage	115 VAC; ±10%, 50/60 Hz, 3VA / 230 VAC; ±10%, 50/60 Hz, 3VA / 24 VAC/VDC, ±10%, 50/60 Hz, 3VA	115 VAC; ±10%, 50/60 Hz, 3VA / 230 VAC; ±10%, 50/60 Hz, 3VA
Max media temperature	+120°C	+100°C
Lock-out	Failure	Failure Low oil level
Wires in cable	5	6
Compressor-start signal input	No	Yes; violet wire
Permitted ambient temperature	Operation: -30°C – +60°C Storage: -30°C – +80°C	
Relative humidity	Max. 95%RH non-condensing. Circuit board is coated	
Relay	Switch voltage 240 VAC, min 24 VAC Continuous current max 2.5A, min 20mA Switching capacity 300 VA, C300 (pilot type use according to UL508)	
Fuse required	Max 4A, fast-blow	
Enclosure class	Housing IP54; cable outlet pointing downwards	
Mounting of the detection circuit	Screw mounted, M24 Max. tightening torque: 10 Nm by hand only	
Reset of lock-out state	Interrupt supply power for min. 5 seconds	
Cable length	2050 ±50 mm	950 ±50 mm
Weight	252 g	152 g
Dimensions	55.5 mm (w) x 87.0 mm (d) x 57.5 mm (h)	
UL file number	E348183	

Schematic Wiring Diagram - Part-winding



Legend	
B1	Control unit
B2	Control unit of capacity regulation (option)
F1	Main fuse
F2	Compressor fuse
F3	Control circuit fuse
F4	Oil level switch
F5	High pressure cut-out
F6	Low pressure cut-out
F12	Fuse of crank case heater
F13/F14	Thermal overload motor PW1 / PW2
H1	Signal light "Compressor over temperature fault"
H2	Signal light "Oil supply fault"
K1/K2	Motor contactors PW1 / PW2
K1T/K2T	Time relays "part winding" / pause time
M1	Compressor
Q1	Main switch
R1..3/R1..R6	PTC sensors in motor windings
R7	PTC sensor in cylinder head/discharge gas temperature sensor (option)
R8	Crank case heater (option)
S1/S2/S3	Control switch
Y1	Solenoid valve "start unloading" (option)
Y2	Solenoid valve "liquid line"
Y3	Solenoid valve "capacity regulation" (option)

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

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When it comes to climate control Lodam is one of the most experienced you can turn to. For more than four decades we have developed, produced and implemented electronic solutions dedicated to optimising applications like:

- Compressors
- Condensing units
- Heat pumps
- Air conditioning
- Refrigerated truck and trailer
- Reefer containers

We know the importance of reliable, energy-efficient operation – and constantly push technological boundaries to bring you the most innovative and forward-thinking solutions.

As part of the BITZER Group we are backed by one of the world's leading players in the refrigeration and air conditioning industry. This alliance provides us with extensive network and application knowhow and allows us to stay at the forefront of climate control innovation. And to help ensure comfortable surroundings for humans and reliable protection of valuable goods anywhere in the world.

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