



Technical Bulletin (TB-0006)

Version 2 August 2011

Optical Oil Sensor - Oil Level Monitoring Using OLC-K1



Overview

BITZER's OLC-K1 is an electronic oil sensor that monitors the oil supply in a compressor by means of an infrared light.

It consists of two parts, a prism unit to focus the light beam and an electrical unit to produce it. The prism is screwed directly into the outer cover of the oil supply area for the bearings, and the electrical unit is then screwed into the prism unit.

This setup allows for oil monitoring without an external control module.

BITZER is now offering the OLC-K1 oil level sensor for all C3 & C4 compressors with centrifugal lubrication. This includes all compressors from 4C0770S to 4C2397S.

BITZER Part Numbers

Part Number	Voltage	Thread
347318-06	230V	M20
347318-07	115V	M20
347318-07-NPT	115V	1/2" NPT**
347318-06-NPT	230V	1/2" NPT**

** - US versions prior to October 2008

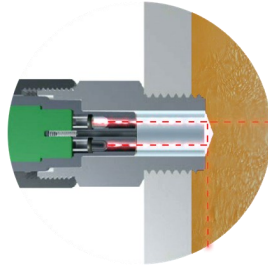
BITZER U.S.:
770-503-9226
BITZER Canada:
514-697-3363
BITZER Mexico:
+52 (81)1522 4500

Web:
www.bitzerus.com
www.bitzer.ca
www.bitzermexico.com

Email:
sales@bitzerus.com
sales@bitzer.ca
ventas@bitzermexico.com

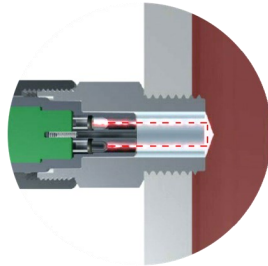
Additional BITZER U.S. Contact Info:
techsupport@bitzerus.com
customerservice@bitzerus.com
24 Hour Quickship Hotline: (888) 462-4893

Optical Measuring Principal



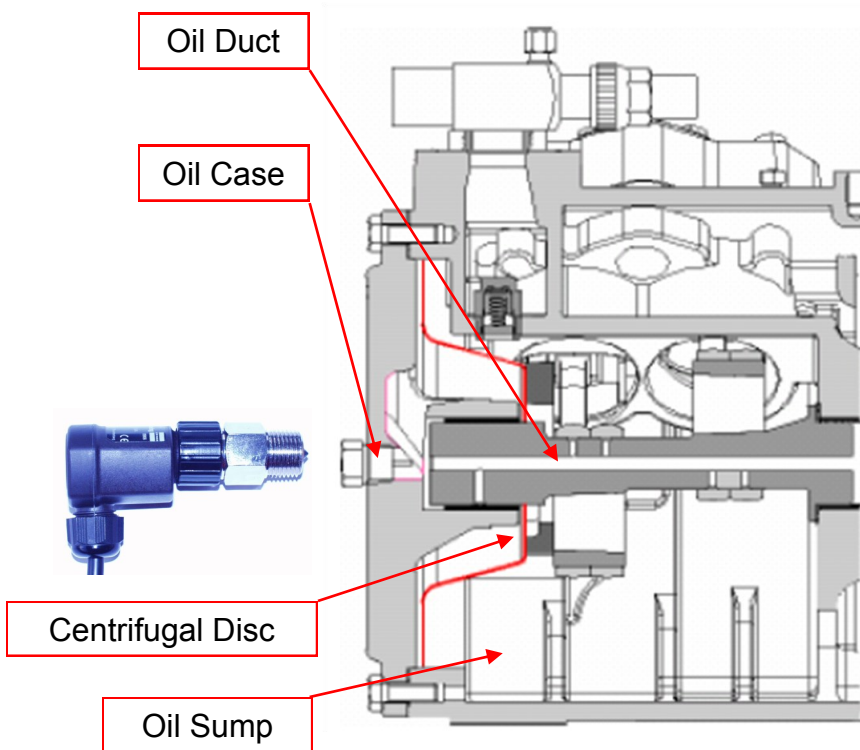
Signal path when oil is present

- Test signal (infrared light) is absorbed by oil in the compressor
- Red LED light remains off
- Status - Good - Oil is present



Signal path when oil is not present

- Test signal (infrared light) is reflected back to the LED unit
- Red LED light activates on unit
- Status - Compressor shuts off



LED indications:

- LED is off: Sufficient oil supply
- LED is on (red): Insufficient oil supply (presently)
- LED is flashing (red): Fault (Voltage or installation)

Manual Reset

Interrupt power supply for at least 5 seconds.

Note: Always try to diagnose the issue in the event of an oil trip instead of repeatedly resetting it. (Tip: View the red LED indicator to see if oil is intermittently dropping out)

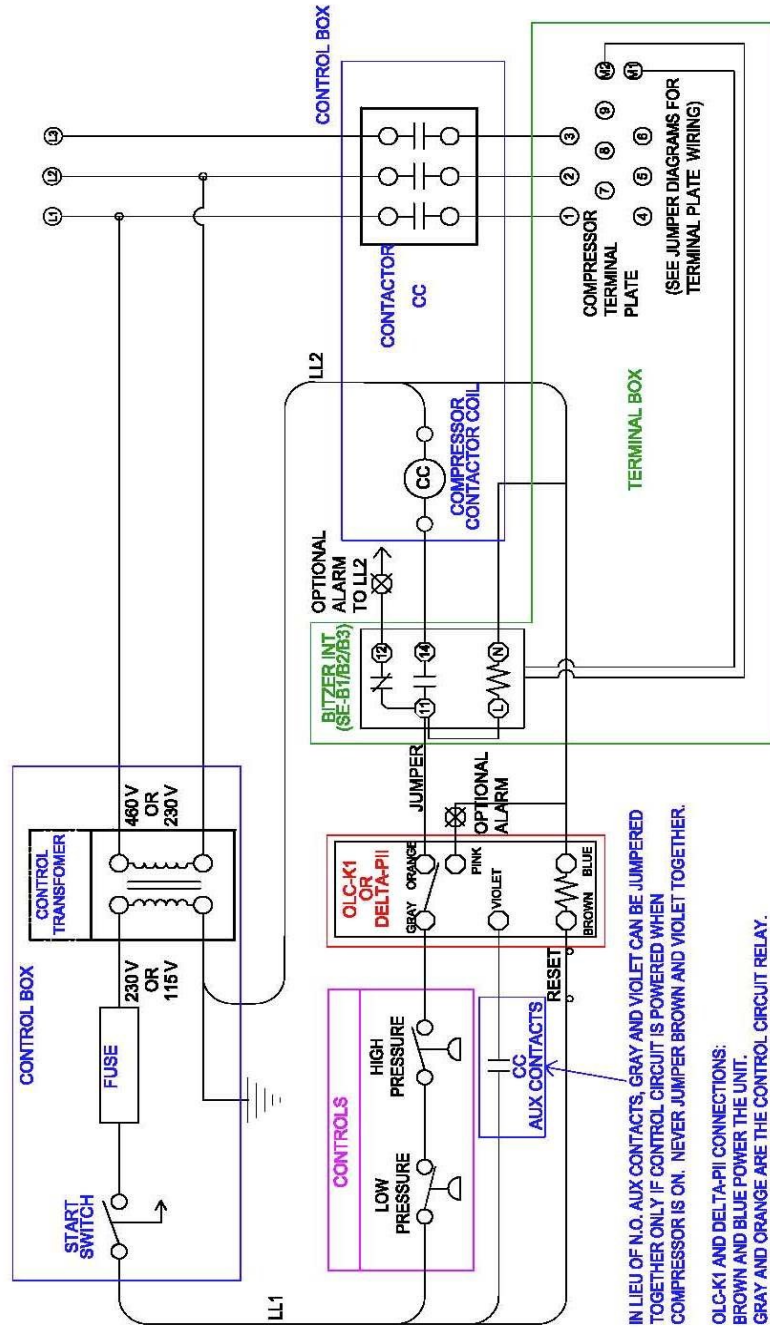
Delay Times	OLC-K1
After Compressor Starts	90s
In Operation	5s

For additional technical information and mounting instructions, please visit ww.bitzerus.com to download BITZER bulletin KT-180-2. Our Application Engineering Department can be contacted at techsupport@bitzerus.com for more information.

- Brown and Blue are the main power and used for resetting.
- Gray and Orange are the relay (should be in series with the control circuit). They will close when there is power to the unit and the oil supply remain sufficient (see chart for trip delays)
- Pink is the alarm part of the relay. Gray and Pink will close during an oil trip or when there is no power to the unit.
- Violet is a run proof to start timing sequences. This must have power only when the compressor is on (typically uses the N.O. auxiliary contacts of compressor contactor).

OLC-K1 Wiring

Using the OLC/K1 or Delta-PII Oil Control



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BITZER U.S.:
BITZER Canada:
BITZER Mexico:

Main Phone:
770-503-9226
514-697-3363
+52 (81)1522 4500

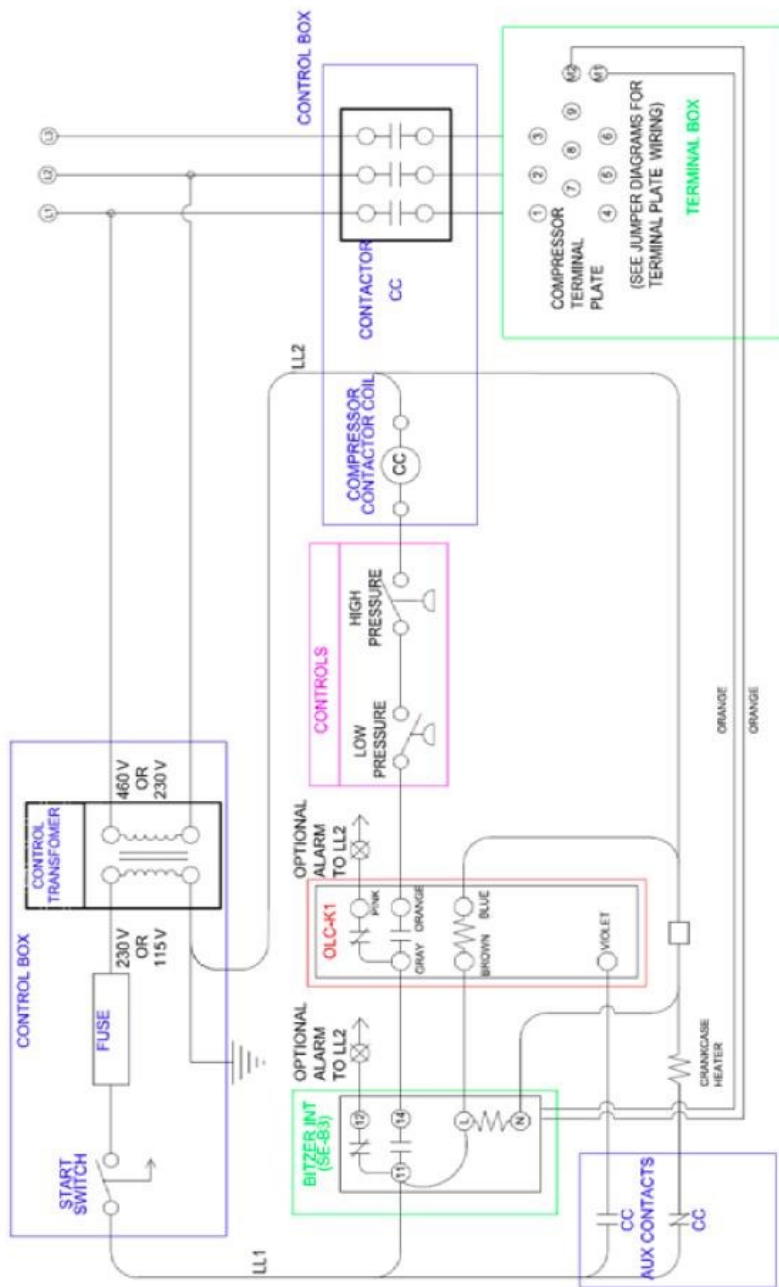
Web:
www.bitzerus.com
www.bitzer.ca
www.bitzermexico.com

Email:
sales@bitzerus.com
sales@bitzer.ca
ventas@bitzermexico.com

Additional BITZER U.S. Contact Info:
techsupport@bitzerus.com
customerservice@bitzerus.com
24 Hour Quickship Hotline: (888) 462-4893

OLC-K1 Wiring

Using the OLC/K1 and SE-B3



***THERMOSTAT CONTROL, LIQUID LINE SOLENOIDS, JNLOADERS AND OTHER POSSIBLE COMPONENTS ARE NOT SHOWN.

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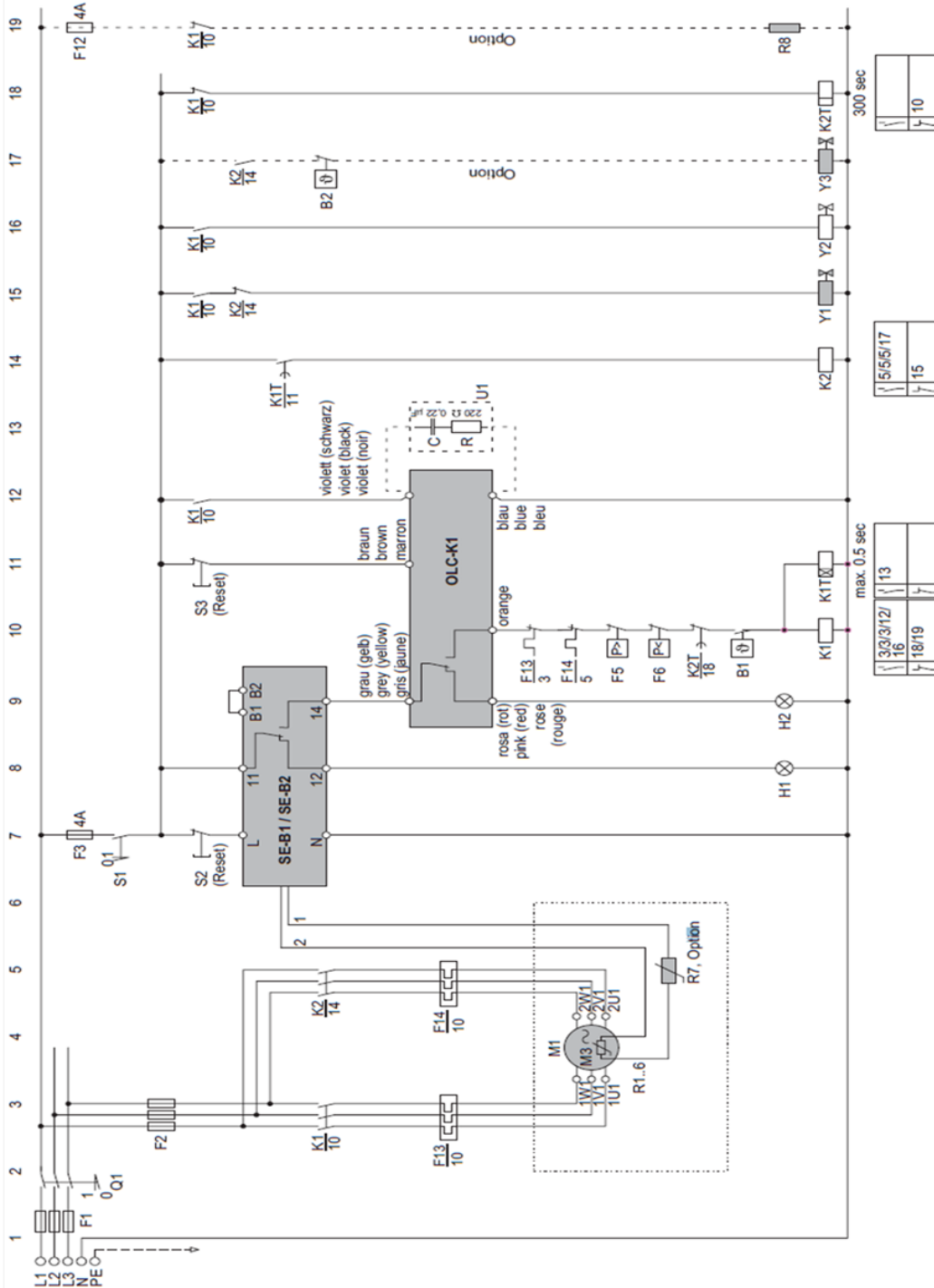
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www.bitzermexico.com

Email:
sales@bitzerus.com
sales@bitzer.ca
ventas@bitzermexico.com

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customerservice@bitzerus.com
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OLC-K1 Wiring



- B1Control unit
- B2Control unit of capacity regulator (option)
- F1Main fuse
- F2Compressor fuse
- F3Control circuit fuse
- F5High pressure cut out
- F6Low pressure cut out
- F12Fuse of crankcase heater
- F13Thermal overload "motor" PW1 (recommended)
- F14Thermal overload "motor" PW2 (recommended)
- H1Signal lamp "over temperature (motor and discharge gas)" and "oil supply fault"
- H2Signal lamp "oil supply fault"
- K1Contactor "first PW"
- K2Contactor "second PW"
- K1TTime relay "part winding"
- K2TTime relay "pause time" 300 s
- M1Compressor
- Q1Main switch
- R1-6PTC sensors in motor windings
- R7Discharge gas temperature sensor (option)
- R8Crankcase heater (option)
- S1Control switch
- S2Fault reset "over temperature (motor / discharge gas)"
- S3Fault reset "lack of oil"
- U1EMC screening unit (if required)
- Y1Solenoid valve "start unloading" (option)
- Y2Solenoid valve "liquid line"
- Y3Solenoid valve "capacity control" (option)

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