



## WARNING

This manual describes important points of caution for safe use of this product in potentially explosive atmosphere. Please read this manual carefully before installing and operating the product.

# DOL 46R

## Capacitive Sensors

EN

TECHNICAL USER'S GUIDE  
ATEX zone 20, 21 and 22, dust  
CE0539

 II 1D Ex ta IIIC T<sub>200</sub> 85 °C Da



The DOL 46R capacitive relay sensor series is designed for general detection of feed, grain and solids. Certified according to ATEX directive 2014/34/EU and IECEx for operation in potential explosive dust atmospheres. Classified as equipment for use in atmospheres with continuous presence of explosive dust with an ignition temperature above 85 °C.

Robust design with plastic housing with 7 joule shock/impact test. Available with trimmer interface with adjustable sensing distance, time delay and MaxRunTimer.



For **other language variants** of this document we refer to [www.dol-sensors.com](http://www.dol-sensors.com) or your local dealer.

## TECHNICAL USER GUIDE

### PRODUCT DESCRIPTION:

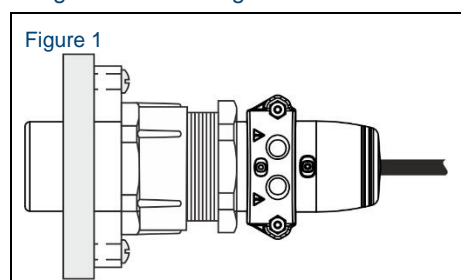
DOL 46R is a capacitive relay sensor for detection of feed, grain and solids. The sensors have relay output including switch function. Certified according to ATEX directive 2014/34/EU and IECEx for operation in potential explosive dust atmospheres. Classified as high-level equipment for use in atmospheres with continuous presence of explosive dust with an ignition temperature above 85 °C.

### Fields of application:

- Level control in silos and containers
- Controlling the filling and emptying process.

### MOUNTING GUIDE (FIG. 1):

DOL 46R is made in a ø30 mm smooth design mounted in a gland.



### INSTALLATION GUIDE (FIG. 2):

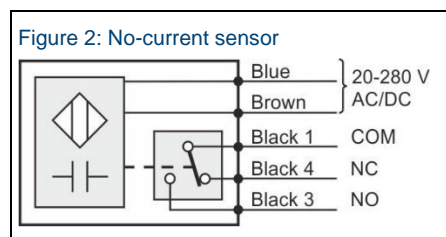
Supply voltage is connected to the blue and brown wire.

The load is connected in series with the relay contact of the sensor.

**STOP** by activating the sensor: Use the black wires 1 and 3.

**START** by activating the sensor: Use the black wires 1 and 4.

**NOTE!** The internal relay is in position NC when the supply voltage is connected and the sensor is activated - wire 1 and 4 are connected.

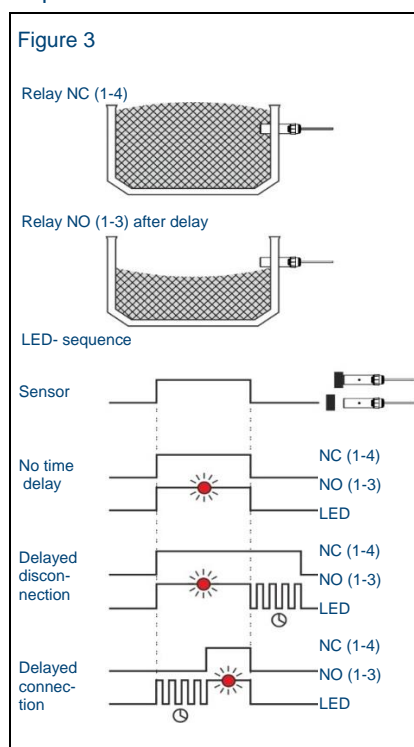


### USER'S GUIDE:

- Easy trimmer adjustment on a single turn 240° trimmer with linear or non-linear scale.
- Functions which can be made available for adjustment on trimmers:
  - ON and/or OFF delay
  - MaxRunTimer
  - Sensitivity

DOL 46R has a red LED, indicating sensor status and a green LED indicating power on.

Fig. 3 shows examples of LED sequences.



### TECHNICAL DATA:

#### Supply voltage:

Voltage: 20 - 280 V AC/DC  
Frequency: 47 - 63 Hz

#### Relay:

Max. resistive load, 250 VAC: 4 A  
Max. inductive load, 250 VAC: 2 A  
Min. relay current, 12 VDC: 100 mA

#### Temperature:

Temp. operation: - 30 °C - + 50 °C  
- 22 °F - + 122 °F  
Temp. storage: - 40 °C - + 80 °C  
- 40 °F - + 176 °F

#### Degree of protection:

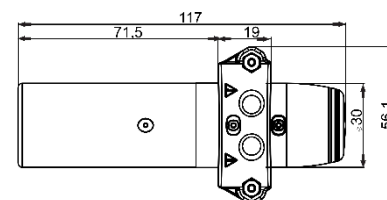
IP: 69K  
NEMA: 1, 3, 4, 6, 12, 13

#### Cable:

Length: 2 m, 5 m or 10 m  
6.6, 16.5 or 33 feet

Conductor dimensions: 5 x 0.5 mm<sup>2</sup>  
5 x AWG20

#### Dimensions:



#### Approvals:

ATEX zone 20, 21 and 22, dust  
EN/IEC conforms to the Harmonized standards

CE<sub>0539</sub>

Ex II 1D Exta IIIC T<sub>200</sub> 85 °C Da

**SPECIFIC CONDITIONS OF USE****INSTALLATION / SET-UP**

The units must be installed, connected and set up by qualified staff. The qualified staff must have knowledge of protection classes, regulations and provisions for apparatus in hazardous areas.

Check whether the classification (see "Marking" above and marking on the unit) is suitable for the application.

**INSTALLATION REMARKS / INSTALLATION**


Make sure only qualified personnel performs the installation/maintenance/service.

Before removing the sensor, or before connecting or disconnecting the wiring, turn off the power supply. Do not disconnect, unless the area is non-explosive.

Verify that the environmental temperature is within the temperature class required for the area.

- Ambient temperature range is -30 °C to +50 °C.
- Never remove the trimmer cover protector unless the area is non-explosive.
- Adhere to the relevant national regulations and provisions.
- The relevant installation regulations must be adhered to. In particular, take into account the requirements relating to the temperature limitation as regards the expected dust deposits.
- Avoid electrostatic charging on housings and cables
- In case of cleaning the sensor, this must be done with a damp cloth, in order to prevent build-up of electrostatic charges.
- If fast moving particles are present a physical barrier shall protect the sensor.
- Cable shall be protected from pulling or twisting.
- The sensor may only be connected/supplied from a circuit having a prospective short circuit current of not greater than 10kA.
- The sensor must be protected against exposure to direct sunlight and other ultraviolet light sources.
- The sensor is manufactured with a permanently mounted cable gland and permanently connected cable that is non-replaceable and shall be terminated in a safe area or in a suitable certified termination box.
- If the user reduces the sensitivity to almost minimum, the sensor will not be able to detect objects in front of it. In this fail situation, the internal relay will always be ON but the temperature class 85 °C will never be exceeded.

**FUNCTIONS AND FEATURES**

- Use in hazardous areas according to the classification (group II, category IIIC, apparatus for dust atmosphere). Complies with the requirements of the standards EN/IEC 60079-0 and EN/IEC 60079-31.
- **Label information**  
 **II 1 D Ex ta IIIC T<sub>200</sub> 85 °C Da**  
II: The sensor is classified for explosion group II, which concerns all remaining risk areas but mines  
1: Category 1. The sensor can be used in zone:
  - 20: Flammable material present continuously or long periods.
  - 21: Flammable material present occasionally.
  - 22: Flammable material present in abnormal conditions for short periods.D: For use in hazardous areas, in which explosive dust are present.  
Ex: Conforms to the Harmonized Standards.  
ta: Protection by enclosure, highest level  
IIIC: Conductive dust.  
T<sub>200</sub> 85 °C: The max. surface temperature of the sensor, 85 °C.  
Da: EPL Da. See Category 1 D above.
- Permissible operating temperature of the application (proper usage):  
**Ta: -30°C...+50°C**

**MAINTENANCE / REPAIR**

The unit must not be modified nor can it be repaired. In case of a fault please contact the manufacturer.