CARLO GAVAZZI CB32-ATEX Capacitive Level Sensor Instruction Manual

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CARLO GAVAZZI CB32-ATEX Capacitive Level Sensor

Product Information

The CB32-series is a capacitive level sensor designed for solid, fluid, or granulated substances, mainly used for level control in silos or tanks. The sensor has a relay output with adjustable time delay and sensitivity. It is classified for explosion group II and can be used in hazardous areas where explosive dust is present. The sensor conforms to the Harmonized European Standards and is protected by enclosure, the highest level.

Safety Instructions

- Read the manual carefully before installing and operating the product.
- The sensor should only be used within its design specifications.
- If the sensor shows signs of malfunction or leakage, stop the process immediately and remove it for repair or replacement.
- Establish an effective ground connection between the sensor housing and the installation equipment in which the sensor is mounted.
- If a longer cable is required, an equipotential bonding of the cable longer than 2000mm (standard for the CB32 series) has to be made, e.g. by drawing the cable in a grounded metal pipe.

Operating Instructions

CB32 with no delay output: The relay operates (the connection between black and yellow wires) and remains ON until the sensor is activated. After activation of the sensor, the relay releases and the LED goes ON.
CB32 with ON-delay output: When the sensor is not activated, the relay operates (the connection between black and yellow wires) and the LED is OFF. When the sensor is activated, the time measurement starts, and the LED flashes. After the expiration of the set time, the relay releases and the LED goes ON. The relay remains released until the sensor is deactivated.

CB32 with OFF-delay output: The time
measurement starts and the LED flashes when the power supply is applied to the sensor. When the set time has expired, the relay operates (the connection between black and yellow wires) and the LED goes OFF. When the

sensor is activated, the relay releases and the LED goes ON. As soon as the sensor is deactivated, the measurement of the set time starts.

Mounting Instructions

The CB32 sensor family has to be non-flush mounted (approx. 10 mm). Keep the grey front of the sensor free. Establish an effective ground connection between the sensor housing and the installation equipment in which the sensor is mounted. Refer to the installation diagram for hazardous and non-hazardous locations.

Installation Diagram

Hazardous location: BN BU WH YE BK
Non-hazardous location: + Power supply – Relay output

Introduction

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. The CB32-serie is a capacitive level sensor for solid, fluid or granulated substances and mainly for level control in silos or tanks. The sensor has a relay output with adjustable time delay and sensitivity.

Safety Instructions

In general

The sensor should only be used within its design specifications. Incorrect use may result in personal injury or damage to other equipment. If the sensor shows signs of malfunction or leakage, stop the process immediately and remove it for repair or replacement.

Label information: EX II 1 D Ex ta IIIC T85ºC 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 European Standards.
- **ta:** Protection by enclosure, highest level.
- **IIIC:** Conductive dust.
- **T85oC:** The max. surface temperature of the sensor.
- **Da:** EPL Da. See Category 1 D above.

The production lot number is printed on the cable or on a self-adhesive sticker placed around the cable.

Operating instructions

CB32 with no delay output: The relay operates (connection between black and yellow wires) and remains ON until the sensor is activated. After activation of the sensor, the relay releases and the LED goes ON.
CB32 with ON-delay output: When the sensor is not activated, the relay operates (connection between black

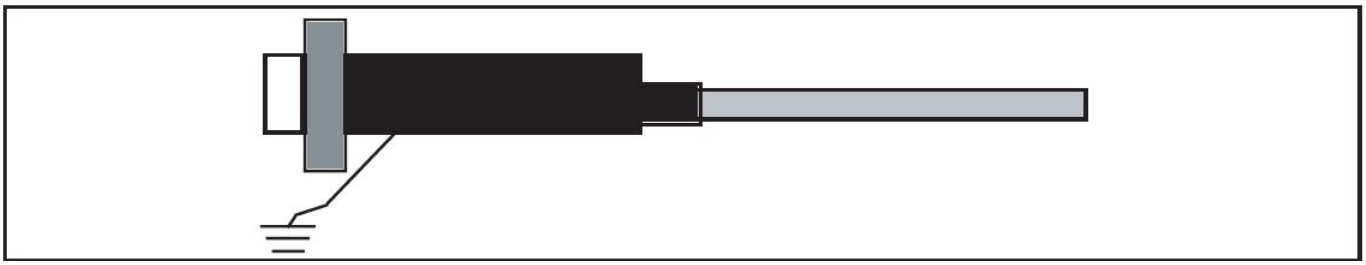
and yellow wires) and the LED is OFF. When the sensor is activated, the time measurement starts and the LED flashes. After expiration of the set time, the relay releases and the LED goes ON. The relay remains released until the sensor is deactivated.

CB32 with OFF-delay output:

The time measurement starts and the LED flashes when power supply is applied to the sensor. When the set time has expired, the relay operates (connection between black and yellow wires) and the LED goes OFF. When the sensor is activated, the relay releases and the LED goes ON. As soon as the sensor is deactivated, the measurement of the set time starts.

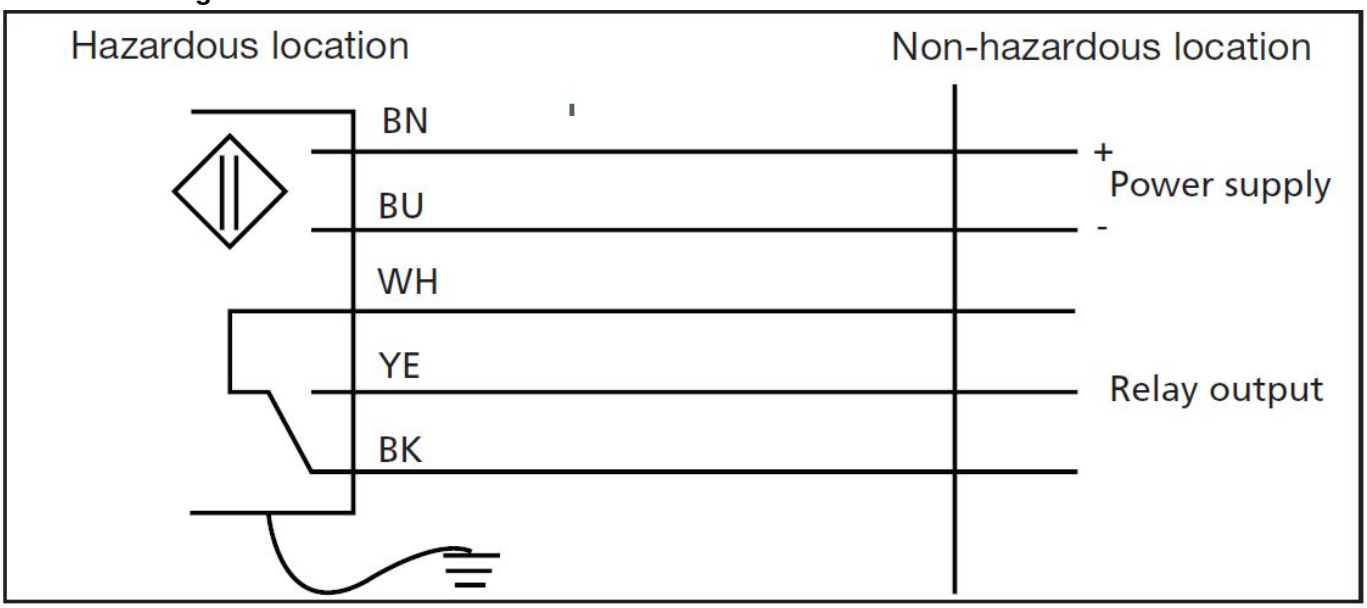
Mounting Instructions

The CB32 sensor family has to be non-flush mounted (approx. 10 mm). Keep the grey front of the sensor free.



Installation

Installation Diagram



- **NB:** The relay will be activated when the sensor is not activated. Establish an effective ground connection between the sensor housing and the installation equipment in which the sensor is mounted. If a longer cable is required, an equipotential bonding of the cable longer than 2000mm (standard for the CB32 series) has to be made, e.g. by drawing the cable in a grounded metal pipe.

Maintenance/service

Warning: 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.

Technical data

ATEX approved sensors

- CB32CLN20QUAX 24V AC/DC, ON-delay
- CB32CLN20SUAX 120V AC, ON-delay
- CB32CLN20RUAX 230V AC, ON-delay
- CB32CLN20QVAX 24V AC/DC, OFF-delay
- CB32CLN20SVAX 120V AC, OFF-delay
- CB32CLN20RVAX 230V AC, OFF-delay
- CB32CLN20QTAX 24V AC/DC
- CB32CLN20STAX 120V AC
- CB32CLN20RTAX 230V AC

Electrical specification Supply Voltage

24VAC/DC	20-28VAC/DC, 0-63Hz
115VAC	100-135VAC, 57-63Hz
230VAC	195-255VAC, 47-53Hz
Operating temperature	-20oC – +40oC
Relay output	SPDT
@24VAC/DC	DC1: 5 ADCAVG
@115VAC	AC1: 5 AACrms
@230VAC	AC15: 2 AACrms
Degree of protection	IP67
Max time-delay	10 min

EU Declaration of Conformity

We manufacturer

CARLO GAVAZZI INDUSTRI A/S,
Over Hadstenvej 40, DK-8370 Hadsten, Denmark. Tel. +45 89606100

declare that the product(s)

CB32CLxxxxxAX
(followed by suffixes)

is(are) in conformity with the applicable essential requirements of the following Directives:

Low Voltage Directive 2014/35/EU

EN 60947-5-2: 2007 + A1: 2012	Low-voltage switchgear and controlgear. Part 5-2: Control circuit devices and switching elements - Proximity switches

EMC Directive 2014/30/EU

EN 60947-5-2: 2007 + A1: 2012	Low-voltage switchgear and controlgear. Part 5-2: Control circuit devices and switching elements - Proximity switches

ATEX Directive 2014/34/EU

EN 60079-0: 2018	Explosive atmospheres. Part 0: Equipment – General requirements
EN 60079-31: 2014	Explosive atmospheres. Part 31: Equipment dust ignition protection by enclosure "t"

RoHS Directive 2011/65/EU & Delegated Directive (EU) 2015/863

EN 63000: 2018	Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

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CE 2804	CE marking: design and manufacturing follow the provisions of the European Directives above mentioned
Ex II 1D Ex ta IIIC T85°C Da	ATEX marking: certificate no. TÜV CY 16 ATEX 0205762 X, NB2261

Manufacturer

Place/date	Hadsten, February 22nd, 2022
Signature	
Name	René Østergaard (R&D Manager)

Notes:
This Manufacturer's Declaration of Conformity is only valid under the condition that:
- the above-mentioned products are protected against accidental touch and are installed as prescribed in the installation documentation.
- we are correctly informed about RoHS compliance of all components and raw material by the relevant suppliers.

Technical file made up at Carlo Gavazzi Industri A/S, Over Hadstenvej 40, DK-8370 Hadsten, Denmark

Manufacturer's point of contact: UAB Carlo Gavazzi Industri Kaunas, Raudondvario Pl.101 Kaunas, LT-47184 Lithuania

ISO 9001 / ISO 14001: www.mscertification.net.

- Certified in accordance with ISO 9001
- www.gavazziautomation.com.

Documents / Resources

	CARLO GAVAZZI CB32-ATEX Capacitive Level Sensor [pdf] Instruction Manual CB32-ATEX Capacitive Level Sensor, CB32-ATEX, Capacitive Level Sensor, Level Sensor, Sensor

References

- Carlo Gavazzi Automation Components
- MS Certification