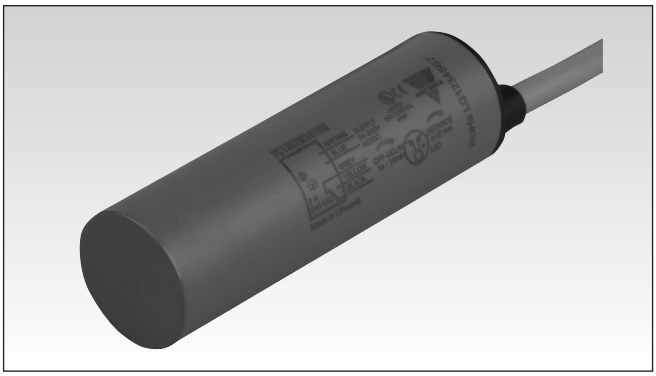
# Proximity Sensors Capacitive Thermoplastic Polyester Types VC11RTM24, VC12RTM24, VC12RNM24



- **Level sensor for solid, fluid or granulated substances**
- **Adjustable sensing distance: 4-12 mm**
- **Multi voltage supply: 20.4 to 255 VAC/DC**
- **SPDT relay output**
- **Time delay on operate or release**
- **Time delay options up to 10 minutes**
- **VC11/12RTM24: With adjustable time delay**
- **VC12RNM24: Without time delay**
- **Cable versions**

## Product Description

Capacitive sensor in thermoplastic polyester for mounting in a PG 36 screw gland. Available with adjustable sensing distance and with/without built-in time delay (ON or OFF delay). The relay output ensures that the load can be driven directly. Excellent for use in the agricultural area (detection of grains, fluids etc.).

## Ordering Key

**VC11RTM2410M**

- **Type**
- **Time delay options**
- **Voltage**
- **Time delay**

## Type Selection

| Supply voltage | Ordering no. With ON delay | Ordering no. With OFF delay | Ordering no. Without time delay |
|---|---|---|---|
| 24- 230 V AC/DC | **VC11RTM2410M** | **VC12RTM2410M** | **VC12RNM24** |

## Specifications

| | |
|---|---|
| **Rated operating distance** ($S_n$) | Up to 12 mm, reference target 30 x 30 mm ST37.1 mm thick, grounded |
| **Sensing distance** | 4-12 mm, adjustable Factory set at 7 mm |
| **Sensing distance adjustment** | Multiturn, 15 turns adjustment steps |
| **Temperature drift** | 0.8 x $S_r \le S_u \le$ 1.2 x $S_r$ |
| **Hysteresis** (H) | 3 to 20% |
| **Rated operational volt.** ($U_B$) (ripple included) | 20.4 to 255 VAC/DC |
| **Rated supply frequency** | 47 to 63 Hz |
| **Rated operational power** | 0.5 to 2.5 VA |
| **Output** | 2 A Relay SPDT@240 VAC |
| AC12 2 A | |
| AC140 2 A | |
| DC12 2 A | |
| DC13 2 A | |
| Mechanical life typically | 15x10$^6$ operations |
| Electrical lifetime | 1x10$^5$ operations @ 2A/240VAC |
| **Minimum operational current** ($I_m$) | 10 mA@12 VDC (i.e. Minimum relay current) |
| **Protection** | Reverse polarity and transients |

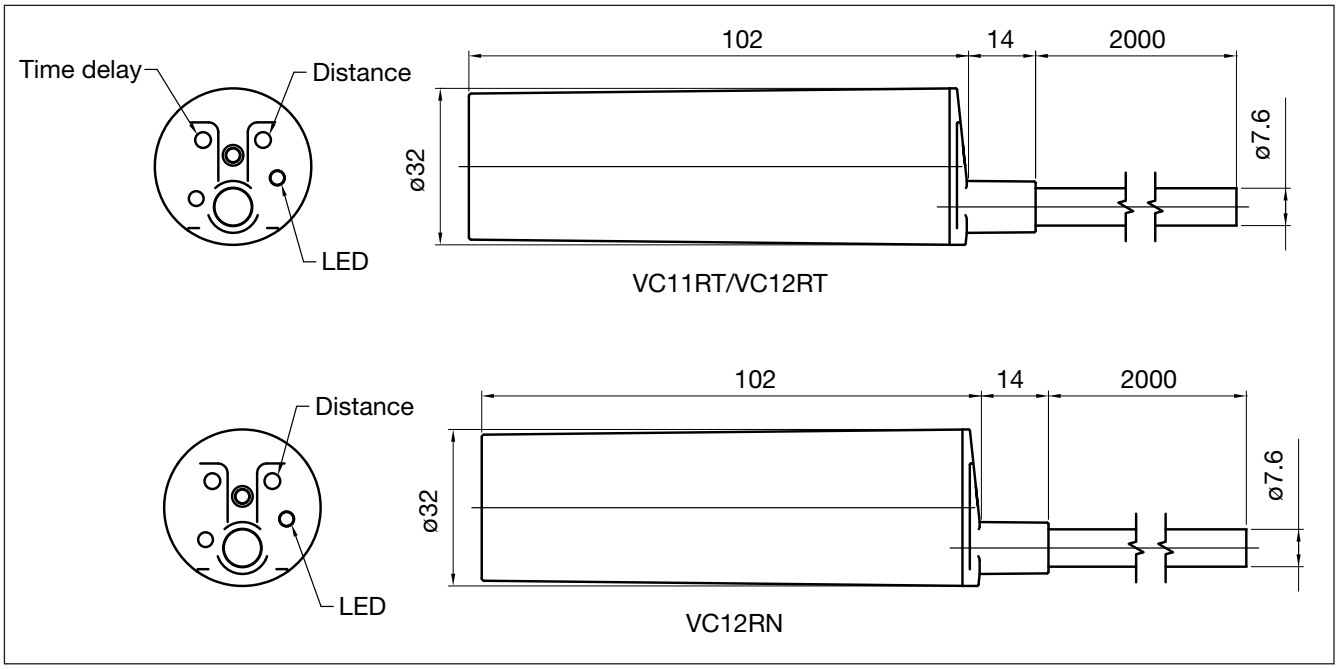
| | |
|---|---|
| **Operating frequency** (f) | ≤ 1 Hz |
| **Response time** | |
| OFF-ON ($t_{ON}$) | ≤ 500 ms |
| ON-OFF ($t_{OFF}$) | ≤ 500 ms |
| **Power ON delay** ($t_v$) | ≤ 200 ms |
| **Output function** | SPDT relay |
| **Output switching function** | N.O. and N.C. |
| **Indication** | |
| Output ON | Red LED |
| Time Delay | LED flashing depends on time delay |
| **Output Time delay** | Factory settings 0 sec. |
| Delay on operate, adjustment VC11TRM2410M | 1 sec. - 10 min. |
| Delay on release, adjustment VC12RTM2410M | 1 sec. - 10 min. |
| No time delay VC12RNM24 | no delay |
| **Time delay adjustment** | Multiturn, 15 turns |
| **Environment** | |
| Installation category | III (IEC 60664/60664A; 60947-1) |
| Pollution degree | 3 (IEC 60664/60664A; 60947-1) |
| Degree of protection | IP 67 (IEC 60529; 60947-1) NEMA (1, 2, 5) |

## Specifications (cont.)

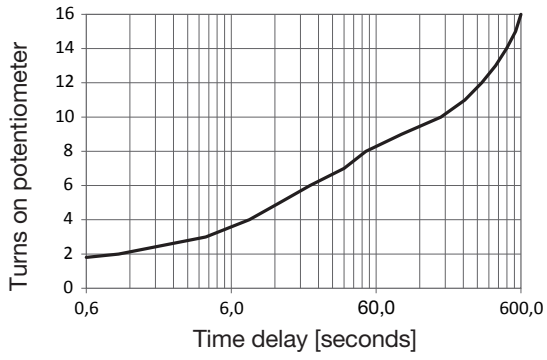
| | |
|---|---|
| **Ambient temperature** | |
| Operating temperature | -20° to +70°C<br>(-4° to +158°F) |
| Storage temperature | -40° to +85°C<br>(-40° to +185°F) |
| **Vibration** | 10 to 150 Hz, 1.0 mm/15 G<br>(IEC 60068-2-6) |
| **Shock** | 30 g / 11ms, 3 pos, 3 neg per axis<br>(IEC 60068-2-6, 60068-2-32) |
| **Rated insulation voltage** | ≥ 250 VAC (rms) |

| | |
|---|---|
| **Housing material** | |
| Body | PBT, Polyester |
| Backpart | Arnitel |
| Trimmer | LCP Vectra |
| **Connection** | |
| Cable | PVC, gray, 2 m<br>5 x 0.75 mm², Ø = 7.6 mm |
| **Weight** | ≤ 320 g |
| **Approvals** | **c**ULus (UL508+CSA) |
| **CE-marking** | Yes |

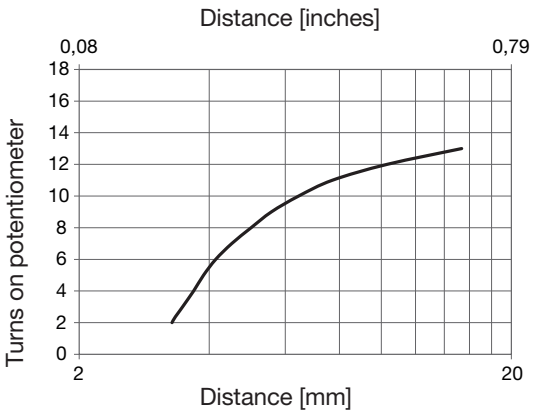
## Dimensions




## Trimmer VS Delaytime




## Trimmer VS Distance



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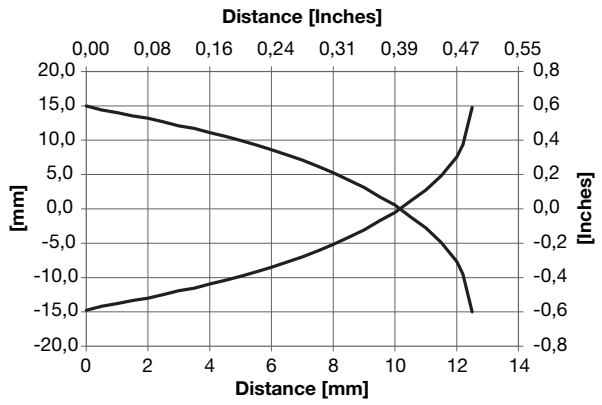
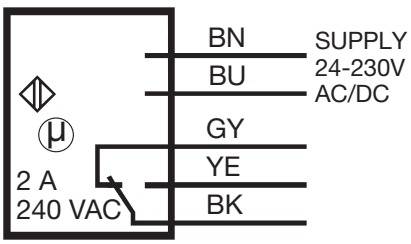
## Detection Diagram




## Wiring Diagram



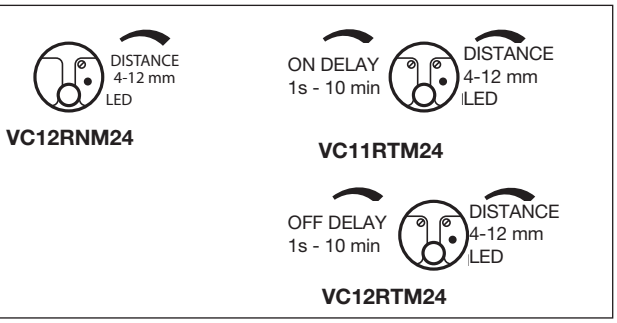

## Mode of Operation

***VC11RTM24*** (See operation diagram). Power supply is applied to the sensor (BN and BU wires). When the target is not present, the relay operates (connection between BK and YE wires) and LED lights. When the target is detected the time measurement starts and LED flashes. After expiration of the set time (0-10 min.), the relay releases (connection between BK and GY wires) and LED turns off. The relay remains released as long as the target is detected.

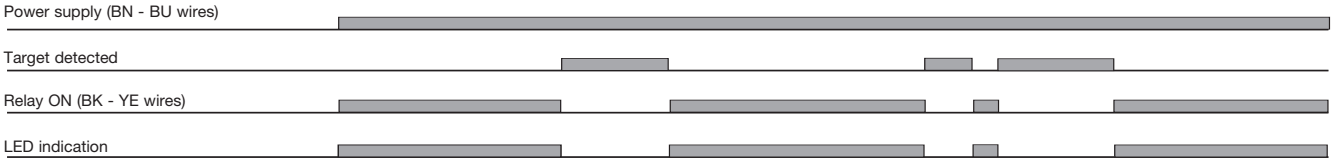
***VC12RTM24*** (See operation diagram). Power supply is applied to the sensor BN and BU wires) and time measurement starts. When the set time has expired (0-10 min.) the relay operates (connection between BK and YE wires) and remains connected until the target is detected. After activation of the sensor the relay releases (connection between BK and GY wires). As soon as the target is not present again the time measurements of the set time starts.

***VC12RNM24*** (See operation diagram). Power supply is applied to the sensor (BN and BU wires). The relay operates (connection between BK and YE wires) and remains ON until the target is detected. After activation of the sensor the relay releases (connection between BK and GY wires.)

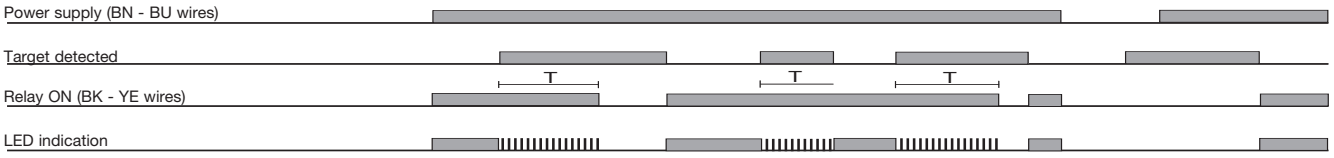
## Adjustment



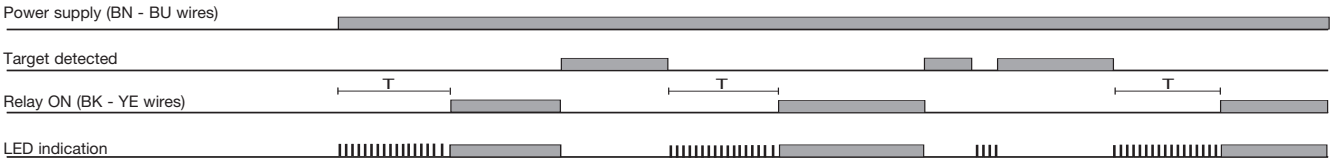
## Operation Diagrams




**VC12RNM24**

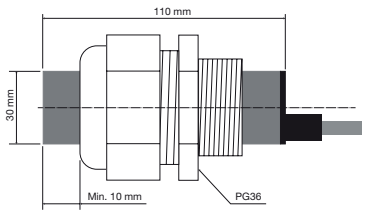



**VC11RTM24**




**VC12RTM24**

## Installation Hint




For mounting VC 11/12 through wall of tank

## Delivery Contents

- Capacitive switch: VC11/12
- Installation instruction
- Screwdriver
- **Packaging:** Plastic bag

# Mouser Electronics

Authorized Distributor

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VC11RTM2410M