# L36
# Time-of-Flight Adjustable Laser Photocell
APE-171/3030

AB Tecno Srl -Via Cicogna 95
40068 San Lazzaro di Savena (BO)
Tel: +39 051 6259580 fax: +39 051 6259600
info@abtecno.com
**www.abtecno.com**

## 1. General description
L36 is a photocell that operates without a receiver or reflector on the opposite side, using Time of Flight laser technology to measure the distance from obstacles.

The 180° rotating head facilitates orientation and allows it to be easily installed in any setting.

The three operating modes allow it, to be used as a safety device and as an opening sensor for presence detection.



## 2. General installation and safety warnings
The product must only be used for its intended purpose; any other use is dangerous.

Not following these instructions may result an incorrect installation, with possible damage to the equipment and risks to the user's safety.
AB Tecno Srl is not liable for accidents caused by improper use, incorrect installation or unprofessional use of the equipment.
Before any intervention, disconnect the main power supply. Installation and testing must be executed exclusively by qualified operators and specialised personnel (installer or technician).
Cable preparation, assembly and electrical connections must be done properly and in conformity with current regulations.

For repairs, adjustments or extraordinary maintenance,
contact an installer; periodic checks and regular maintenance are necessary to ensure correct operation.
The end user is not authorised to operate on the device except for the activities expressly indicated in this manual.

Packaging materials, as well as any component of the equipment, must not be left within the reach of children as they constitute a serious danger;
packaging must be disposed of in accordance with the regulations of your country.

## 3. Technical specifications

| Name | Value |
|---|---|
| Power supply | |
| Transmission/reception angle | +/- 25° |
| Head rotation angle | 180° |
| Maximum range | Mode A: 9m<br>Mode B, C: 6m |
| Maximum output charge | 30Vdc, 0,5A |
| Operating temperature | From -10°C to +60°C |
| Protection class | IP54 |
| Dimensions | 36x123x33mm |
| Peso | 69g |

## 4. Information for the User
**The user must:**
- Use the equipment only for its intended purpose.
- Avoid looking directly at the laser beam
- Check the correct device operation.
- Report any malfunctions to the installer.
- Clean the photocell housing with a damp cloth and dry thoroughly; operate only from the outside, with the power disconnected, without detergents, without a pressure washer and without direct water sprays.
- Read, observe and keep the instructions for use.

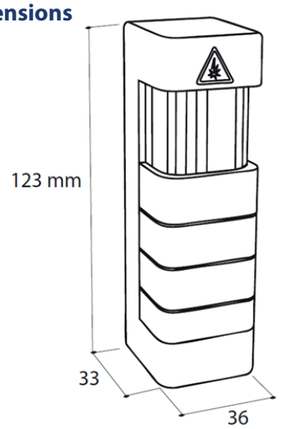
**Prohibitions for the user:**
- Open, modify or disassemble the device.
- Repair or replace parts.
- Use the device if it is visibly damaged.
- Cover or restrict the photocell's visibility.

## 5. Notes for the installer
- Connect the photocell to the appropriate inputs on the electronic control units that manage it.
- Insert the device inside the machine in accordance with current regulations.
- Do not install the photocell where it will be exposed to direct rain, snow or excessive sunlight.
- Avoid installation in areas with high humidity or dust, where reflections may occur.
- Avoid looking directly at the laser beam.
- For outdoor installations, ensure that the housing is properly sealed.
- Make electrical connections conform to applicable regulations.
- After installation, test the unit in accordance with EN 2445.
- Mount the photocell on a stable and permanent surface.
- Check that no reflection sources (mirrors, shiny metals) or light-absorbing elements (black or porous surfaces) are present in the installation location.
- Determine the installation height based on the obstacles that the photocell must detect.
- Before performing any operation, disconnect
- the main power supply.
- Operations involving the risk of electrical contact must only be executed by appropriately trained technical personnel.

## 6. Warranty and Certification
The warranty covers the device for 24 months from the date of purchase. If, within this period, malfunctions attributable to manufacturing occur, the device will be repaired or replaced, at the discretion of the warranty manager, at no cost to the customer.

The warranty does not cover mechanical damage, damage caused by heat or flooding, faults resulting from user intervention, malfunctions caused by atmospheric events and components subject to normal wear and tear.
Recognition of a defect under warranty does not provide any right to compensation or reimbursement for loss of earnings or periods of inactivity.

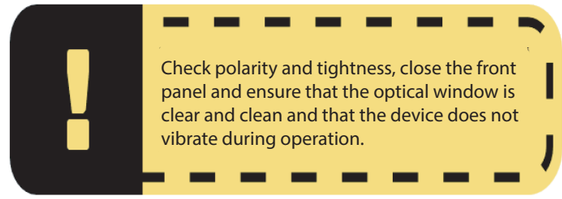
AB Tecno Srl declares that the device complies with Directive 2014/53/EU.

## 7. Dimensions



## 8. Installation and connections
Secure the photocell to the chosen surface using the fixing holes/slots and the screws provided, ensuring that the support is flat and stable.
Suitable plugs or self-tapping screws can be used, depending on the type of support, ensuring adequate fixing without compromising the seal of the housing.

Set the device, orient the head in the desired direction and tighten the screws without overdoing it, so the alignment can be adjusted.
Route the cables into the housing and connect them to the terminal block according to the diagram in Fig. 1: 12–24 V AC/DC power supply and signal output to the control unit input.

Check polarity and tightness, close the front panel and ensure that the optical window is clear and clean and that the device does not vibrate during operation.



## 9. Key Elements

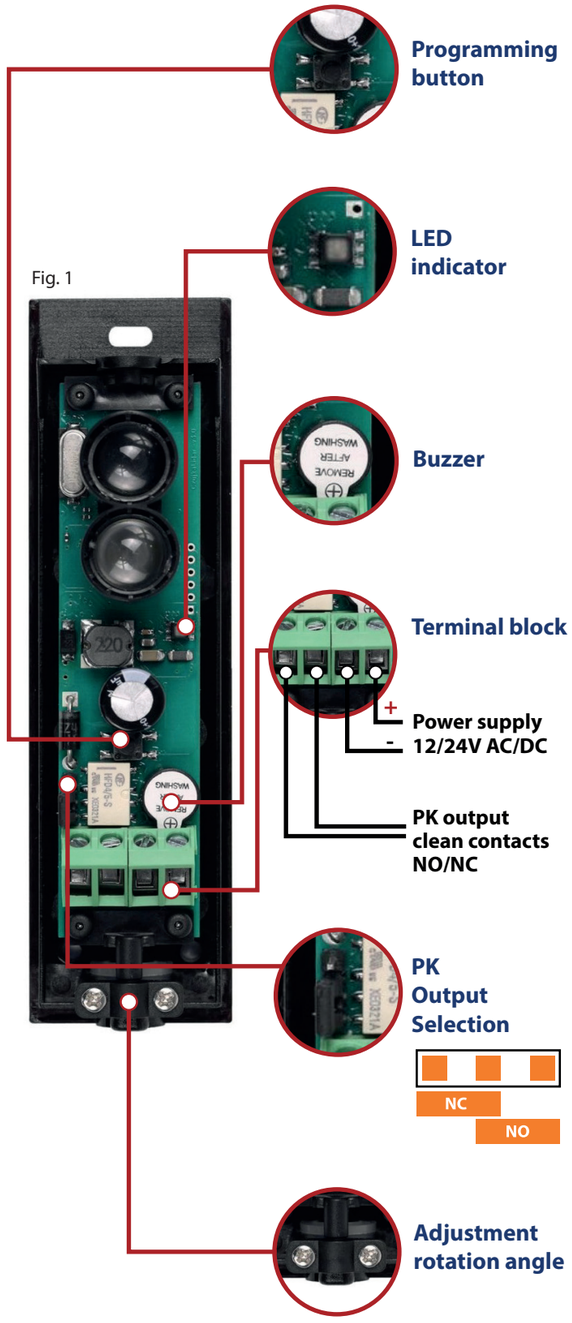



Fig. 1

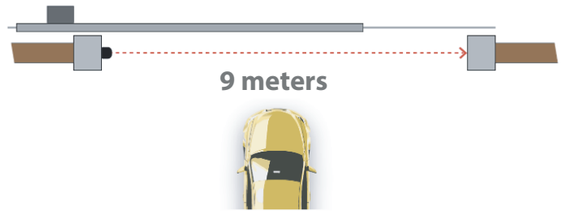
## 10. Operating Mode

L36 emits infrared light in a conical beam of approximately 2°, which at a distance of 7 metres generates a 40 cm circular footprint.

- **Mode A**

**Operation as a photocell**

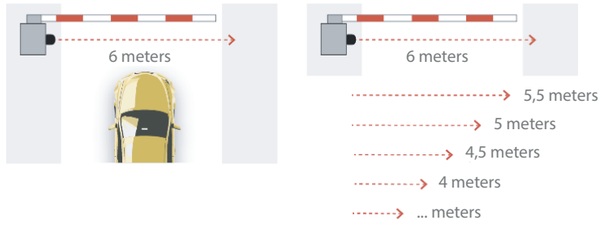
This mode requires a fixed physical match on the other side of the laser rangefinder. Maximum detection distance 9 m. The photocell detects passages perpendicular to the beam at a distance less than the distance memorised during the learning phase.




- **Mode B**

**Operation as a sensor in approach perpendicular to the laser beam**

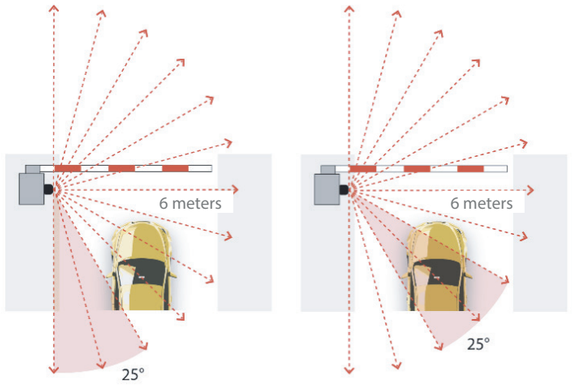
Maximum reading distance 6 m, optimised for detecting movements perpendicular to the beam.
The reading distance is programmable and can vary by 0.5 m during programming.




- **Mode C**

**Operates as a sensor in approach to the photocell from any direction**

Maximum reading distance 6 m, optimised for detecting movements approaching the photocell from any direction.
The reading distance is programmable and can be adjusted by 0.5 m during programming.




## 11. Device Configuration

Configuration is performed using a button, LED and buzzer. When the button is held down, the green LED lights up and flashes repeatedly as long as the button remains pressed: one flash and pause, two flashes and pause, three flashes and pause, four flashes and pause, five flashes and pause.
Release the button when the corresponding function has to be programmed, as indicated in the following table; the buzzer reproduces the same signals as the LED to provide clearer feedback.
N.B. The photocell is preset in mode B for obstacle detection up to 6 metres away.

## 12. Programming Schedule

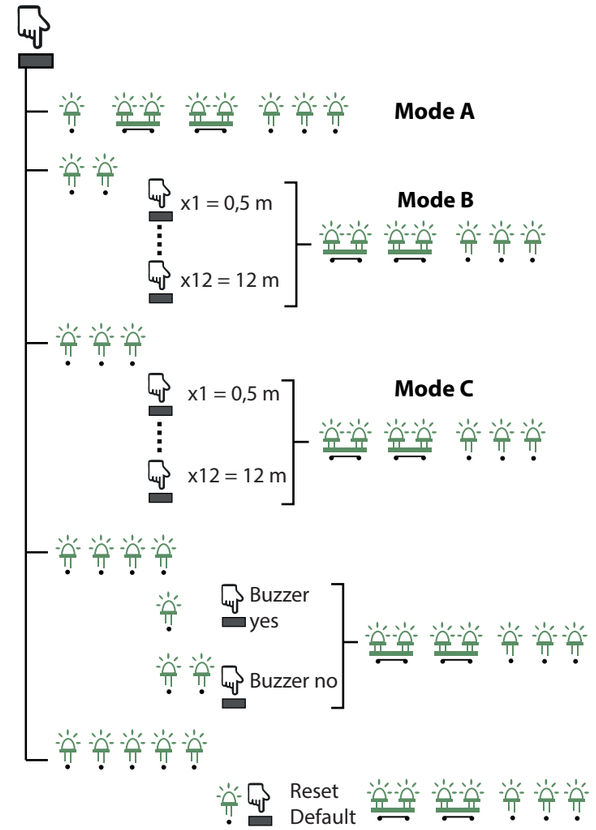
| | | |
|---|---|---|
| 1 flash | Mode A | Once mode A has been set, point the laser beam towards a mullion or a fixed permanent obstacle and allow the device to proceed with self-learning: at the end of the measurement time, the distance is registered automatically. The blue LED indicates the distance detected during acquisition, while the saving confirmation comes with 2 long + 3 short beeps and the green LED flashing. |
| 2 flashes | Mode B | Once in mode B, three seconds are available to start setting the distance by pressing the programming button. Each press adds approximately 0.5 m, up to a maximum of 12 presses (6 m). During adjustment, the blue LED and buzzer indicate the set value. When you stop pressing, after 3 seconds the memory is confirmed by a sequence of 2 long beeps + 3 short beeps. |
| 3 flashes | Mode C | In mode C, the distance is also set manually: within 3 seconds from entry, press the button as many times as necessary, with increments of 0.5 m per press and a limit of 12 presses (6 m). The blue LED, with the buzzer, gradually displays the selected distance; when you release the button, after 3 seconds the setting is saved and confirmed by the usual 2 long + 3 short beeps. |

**Advanced Programming**

By holding down the programming button beyond the selection of operating modes, the advanced programming menu can be accessed.

| | | |
|---|---|---|
| 4 flashes | Activation/ deactivation buzzer | Once in this mode, press and release the button at the first beep followed by a green flashing LED: the buzzer is activated. When pressed and released at the second beep with two green flashing LEDs, the buzzer is deactivated. |
| 5 flashes | Reset default | Once in this mode, press and release the button at the first flash with a beep: the photocell returns to its default settings and operation. |

## Programming Process




**Legend:**

- Green LED flash - short
- Green LED flash - long
- Beep - short
- Beep - long
- Press the button

## 13. Distance Test Method

The photocell indicates the obstacle detection distance. To activate this mode from normal operating mode, briefly press the button: two acoustic signals and two flashes of the blue LED confirm that the test mode has been entered.
The reading is made by groups of flashes: the first group indicates metres, the second decimetres; a long flash closes the sequence.

Example: four flashes, pause, five flashes, then one long flash correspond to 4.5 m.
A distance of less than 0.5 m is indicated as 0.5 m with a red LED; a distance more than 9 m is indicated as 9 m with a red LED.
To exit the test, press the button again.

## 14. Normal Operation

During normal operation, the LED indicates the detection status:

- Green LED: no obstacle detected;
- Red LED: obstacle detected at a distance less than the limit set in the configuration.