



TAG Heuer

PROFESSIONAL TIMING

HL2-31 PHOTOCELL Version 11/2013

USER MANUAL

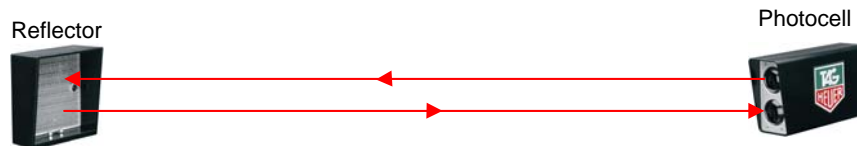
DESCRIPTION

Infra-red photocell with internal or external power supply and 2 functions modes:

- IMPULSE mode with adjustment of duration of the output impulse (standard mode).
- DIRECT mode with timing impulse which correspond to the breaking of the Infra-Red beam.
This mode makes possible the control of the good functioning and alignment of the photocells

This mode exists since up to 7000 serial number.

Principle



The above photocell works perfectly with a distance between cell and reflector of up to 18m (58 ft.).

OPERATING INSTRUCTIONS

Switch on the photocell (2) with in IMPULSE mode (standard use) DIRECT mode

A) Battery Check

When you switch on the photocell, the LED (4) "BATT" illuminates briefly and goes out

I New Batteries (4) does not illuminate

II Used Batteries (4) flashes slowly (once every 2 sec.).
The batteries insure at least 30 hours of functioning at 20°C.

III Flat Batteries (4) flashes rapidly (once every sec.).
The batteries must be replaced. If this arises during the timekeeping the batteries will insure at least 6 hours of functioning at 20° C.

WARNING

Battery (hours of utilization) is very much reduced under 0° C and depends on their quality. We strongly recommend using new batteries as soon as LED (4) flashes.

B) Lining up the Photocell

When you switch on the photocell, the LED signal (5) illuminates and stays so as long as the photocell is **not** lined up with the reflector.

- First set up the reflector, perpendicular in relation to the cell.
- Then aim the cell at the reflector by using the sighting groove (1). You are in alignment when LED (5) is switched off and stays so even if you move slightly the photocell.
- Photocell and reflector must be steadily fixed on supports ref. HL 4 or on tripods.

When you cut the beam between the photocell and reflector, the LED (5) comes on. The output impulse is given at the output connections (7).

C) Adjusting length of impulse (6) – IMPULSE Mode

Depending on the sport to be timed, it may be necessary to have a period of time in which the apparatus is blocked between the impulses in order to eliminate interference caused by the moving body.

Min. adjustment: Duration of impulse 1/100 sec.
Max. adjustment: Duration of impulse 2 sec.

D) Impulse Outlet (7)

Open collector outlet - working contact

Green terminal: Impulse
Black terminal: Ground

E) Changing the Batteries

Remove the screw underneath the case. Slide the electronic unit out of the case. Change the 3 batteries observing the polarities marked on the bottom. Be sure to use good quality Alkaline type AA 1.5 volt batteries (Energizer LR6 E93). Put the electronic unit back in the case and replace the screw carefully.

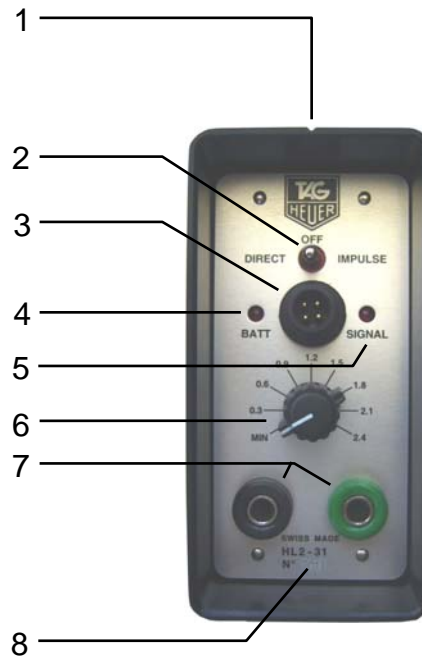
IMPORTANT

If timing is interrupted for a long period or when it is finished:

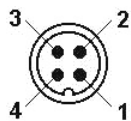
TURN BUTTON (2) TO OFF POSITION

Configuration HL2-31

- 1 **Sighting groove**
- 2 **Mode Switch / OFF**
- 3 **External power supply**
- 4 **Battery check**
- 5 **Alignment check**
- 6 **Impulse length adjustment**
- 7 **Output jacks**
- 8 **Serial number**



Power Connection Scheme



- 1 **Ground**
- 2 **Impulsion -**
- 3 **6 – 12V External Power**
- 4 **Impulsion +**

Cable to use: Ø of the sheath 3,5 to 4,5 mm (0,14 to 0,175 inch)

TECHNICAL SPECIFICATIONS

Photocell ref. HL2-31

Principle	High frequency infra-red (32 KHz) Piloting by quartz Detection of signal by frequency comparison
Distance for use	20 Meters at 20° C 15 Meters at -20° C
Min. distance between moving body and photocell	30 cm
Output impulse	By optocouplers and working contact. Impulse adjustable from 1/100 sec. to 2 seconds
Working temperature	- 20°C to + 50°C
Internal power	3 batteries 1.5 V "Alkaline", Type – AA LR6
External power	6 – 12V DC, Max. current 100 mA
Internal power reserve	100 hours at 20°C
LED Checks	- State of batteries - Alignment
Precision of repetitive impulsions	+/- 0.02 ms
Dimensions	150 x 80 x 40 mm (6 x 3,1 x 1,5 inches)
Weight (incl. batteries and reflector)	500 gr (18 ounces)
Mounting	with supports ref. HL 4-3 or tripods (1/4 " camera thread)

Maintenance *Although this photocell is built to work in hard conditions, we advise you to open sometimes the aluminum cover and to let it dry when the photocell has been exposed to humidity.*

Special Note *In case you use an external power supply, we advise you to place, in any case, 3 internal batteries. These will insure the functioning of the photocell in case of current cut off or falling voltage.*

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