



TAG Heuer

PROFESSIONAL TIMING

PHOTOCELLULE HL 2-32

USER'S MANUAL

Version 07-2007

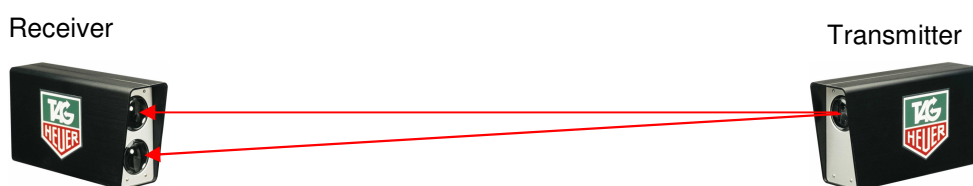
DESCRIPTION

The infra-red photocell HL 2-32 is composed of one transmitter (HL 2-32E) and one receiver (HL 2-32R) with internal or external power supply and adjustment of duration of output impulse. This photocell offers exceptional quality for the price, satisfying the most exacting requirements of sports timing

Two functions modes **Switch (2)**

- IMPULSE **(2)** mode with adjustment of duration of the output impulse (standard mode).
- DIRECT **(2)** 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

PRINCIPE



The above photocell works perfectly with a distance between transmitter and receiver of up to 40 m. (130 ft.) in "LOW" position and up to 80 m (260 ft) in "HIGH" position.

OPERATION INSTRUCTIONS

Switch on the transmitter with (10) in LOW or HIGH mode.
Switch on the receiver with (10).

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

A) Battery Check

When you switch on the photocell, the LED (3) "BATT" illuminates briefly and goes out.

I **New Batteries** (3) does not illuminate

II **Used batteries** (3) flashes slowly (once every 2 sec.).

III **Flat batteries** The batteries insure at least 30 hours of functioning at 20° C.
(3) 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 utilisation) is very much reduced under 0° C and depends on their quality. We strongly recommend using new batteries as soon as LED (3) flashes

B) Lining up the photocell

- When you switch on the receiver, the LED "SIGNAL" (4) illuminates as long as the transmitter is not lined up with the transmitter.
- First set up the transmitter on the receiver by using the sighting groove (1).
- Then aim the receiver by using the sighting groove (1). You are in alignment when LED (4) "SIGNAL" is switched off and stays so even if you move slightly the photocell.
- A luminous indicator placed under the receiving lens allows you to align accurately the transmitter on the receiver.
- Transmitter and receiver must be steadily fixed on supports ref. HL4-3 or on tripods.
- When you cut the beam between the transmitter and receiver, the LED "SIGNAL" (4) comes on. The impulse is given at the output connections (7).

C) Adjusting length of impulse (6)

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) Output jacks (7)

Open collector outlet - working contact (short circuit between black and green terminals)

Green terminal:	Impulse
Black terminal:	Grounds

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 1.5 volt batteries (LR3 Energizer E-93 e.g.).
- Put the electronic unit back in the case and do up the screw carefully.

IMPORTANT

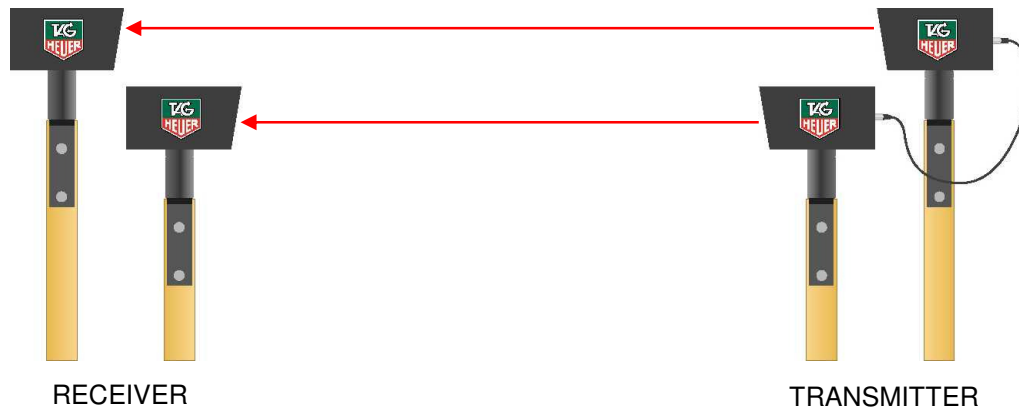
If timing is interrupted for a long period or when it is finished:

Turn button (2) and (10) TO **OFF** position

USE OF TWO PHOTOCELLS IN PARALLEL

The use of tow photocells HL 2-32 is strongly recommended for all professional timing applications where tow independent systems must be installed (primary and Back-up).

Example: For all races regulated by the international Ski Federation (FIS)



This photocell system uses two physically separate but electronically synchronized photocell transmitters (linked by a small cable) and two independent receivers that are placed on opposite sides of the timing line to provide maximum timing safety.

If necessary, each pair (transmitter/receiver) can be used separately in different timing locations.

RECOMMENDED USE

- The photocells must be placed within close vertical proximity to each other when used at the same timing line in order to avoid large differences in triggering times.
- For added timing system dependability, use these photocells with our HL 553 impulse distributor and optocoupling
- When the photocells are mounted, connect both transmitters with the dedicated cable on the SYNCHRO (3 pins plug).
- To line up correctly these double photocells, line up first the upper transmitter with the upper receiver. The bottom photocells are OFF.
- When the alignment is correct, turns OFF the upper photocells and ON the bottom one and line up them correctly.
- Then, switch ON again the upper photocells and test them masking one of the transmitter and after the other one.
- If the transmitters and receivers are close of each other (2 - 3 cm), each transmitter can be lined up on both receivers. In this situation, the double photocell is very reliable for the main and back up system.

1) Sighting groove

2) Switch mode

3) Battery check

4) Alignment check

5) * SYNCHRO

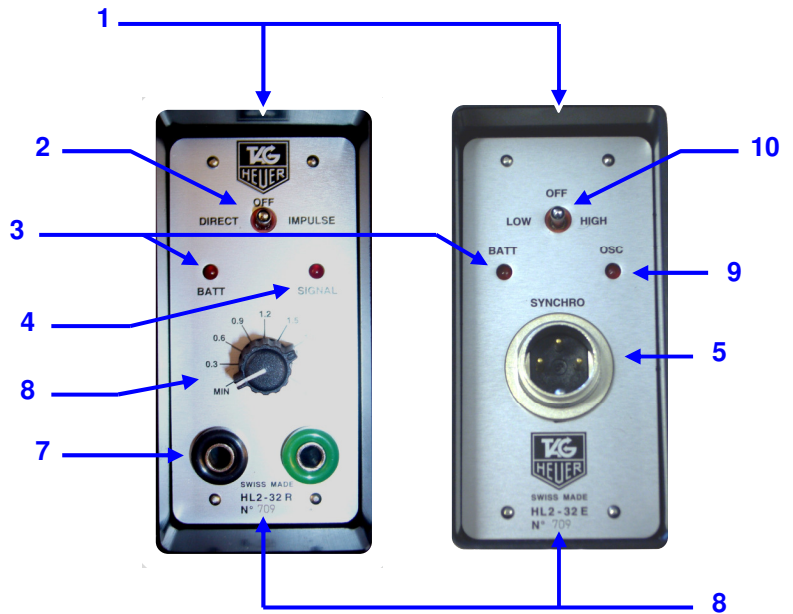
6) Impulse length adjustment

7) Output jacks

8) Serial number

9) Oscillator

10) Switch Low / OFF / High



NOTE

Timing line width (separation of the transmitters from the receivers) can be better than 40 meters at LOW power settings, and better than 80 meters at the HIGH power settings.

* The "SYNCHRO" plug allows for using 2 photocells in parallel.

TECHNICAL SPECIFICATIONS

Principle	High frequency infra-red (50 KHz) Detection of signal by frequency discrimination
Distance for use	40 Meters in "LOW" position 80 Meters in "HIGH" position
Output impulse adjustable	By optocouplers and working contact. Impulse from 1/100 sec. to 2 seconds
Working temperature	- 20°C to + 50°C
External power supply	6 – 12V DC, max. current 100 mA
Internal power	2 x 3 batteries 1.5 V "Alcaline" Type AA Energizer LR6
Power reserve in "LOW" pos.	100 hours at 20°C 50 hours at -20°C
Power reserve in "HIGH" pos.	50 hours at 20°C 20 hours at -20°C
LED Checks	- State of batteries - Alignment
Precision of repetitive impulsions	+/- 0.02 ms
Dimensions	2 cases of 150 x 80 x 40 mm (6x3,1x1,5 inches)
Weight (incl. batteries)	800 gr (29 ounces) transmitter + receiver
Mounting	with supports ref. HL4-3 or tripods (1/4 " camera thread)

Maintenance

Although this photocell is built to work in hard conditions, we advise you to open sometimes the aluminium 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.

Note



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