

HL 2-31

PHOTOCELL WITH REFLECTOR



- ▷ Infrared reflector-type photocell with an exceptional quality/price ratio.
- ▷ For timing line widths of up to 20 meters.
- ▷ Internal battery power as well as a plug for external power input of 6-12 V DC. If the external power fails, the batteries assure proper operation of the photocell.
- ▷ Impulse output length adjustment.
- ▷ Two indicator lamps (LED) provide information on battery condition and photocell signal alignment.
- ▷ Installation of standard photographic tripods (1/4" mount) or on HL 4 mounting brackets.

Recommended use

- This photocell satisfies the highest standards of timing accuracy for the majority of sports applications.
- In all cases, photocells that use reflector technology for timing sensing should not be employed whenever a risk of reflection from the object being timed exists.

TAG Heuer's extensive experience in the development of infrared photocells has led to the production of highly reliable and precise instruments that are very stable in adverse conditions



HL 2-35

PHOTOCELL WITH SEPARATED TRANSMITTER AND RECEIVER

- ▷ For use at timing lines with widths exceeding 40 meters in "LOW" power position and over 80 meters in "HIGH" power position.
- ▷ An indicator lamp visible through a separate lens in the receiver element allows one person to easily adjust the alignment from the opposite side of the timing line.

Recommended use

- For professional timekeeping applications where timing line width exceeds 20 meters.



PHOTOCELLS

HL 2-31/32/34/35



- ▷ **General**
 - Infrared type photocell using a coded modulated frequency of 50 kHz. Triggering detection by frequency discrimination
- ▷ **Operating type and Distance limits**
 - HL 2-31 Reflector type, up to 20 meters
 - HL 2-32 Double Photocell, Transmitter/Receiver Type, up to 80 Meters
 - HL 2-34 Double Photocell, Reflector Type, up to 12 Meters
 - HL 2-35 Transmitter/Receiver Type, up to 80 Meters
- ▷ **Output Trigger**
 - Optocoupled normally open working contact. Adjustable Impulse of 0,01 to 2 seconds
 - On the HL 2-34, impulse duration is a function of how long the two infrared elements are simultaneously obscured
- ▷ **Reaction Time**
 - Less than 0,5 ms
- ▷ **Precision**
 - +/- 0,02 ms for repetitive impulses
- ▷ **Internal Power**
 - 3 alkaline batteries type UM3 or AA
- ▷ **External Power**
 - For the HL 2-31 and HL 2-35, 6-12V DC via 4-pole bayonet type jack
- ▷ **Autonomy at 20° C**
 - HL 2-31 and HL 2-34, about 100 hours
 - HL 2-35 and HL 2-32, about 100 hours on "LOW" and 50 hours on "HIGH" position
- ▷ **Operating Temperature**
 - -20° C to +70° C
- ▷ **Indicators**
 - HL 2-31 and HL 2-34
Alignment LED
Battery condition LED
 - HL 2-35 and HL 2-32
Alignment LED and Lens Indicator.
Battery condition LED
- ▷ **Mounting**
 - Fitted for standard photographic 1/4" tripod or TAG Heuer mounting brackets HL 4/HL 4-3

- ▷ **Dimensions**
 - Hot-lacquered black aluminum case 150 x 80 x 40 mm
 - (HL 2-34, 150 x 280 x 40 mm)
- ▷ **Weight**
 - HL 2-31, 500 gr. with reflector
 - HL 2-32, 1'700 gr. complete set
 - HL 2-35, 800 gr. complete set
 - HL 2-34, 1'300 gr. with reflector
- ▷ ALL PHOTOCELL SETS ARE DELIVERED IN THEIR OWN TRANSPORT SHIPPING CASE

HL 620 RADIO TRANSMISSION SYSTEMS



- ▷ **Mean Operating Frequencies**
 - 433,800 MHz (Europe)
 - 469,500 MHz (USA)
- ▷ **Radiated Power Output**
 - 0,5 W
- ▷ **Range**
 - 30 km under optimal conditions (direct view)
- ▷ **Precision**
 - Fixed delay of 100 ms +/- better than 1/100'000th/sec.
- ▷ **Power Supply**
 - Internal: 6 V rechargeable (NI-MH) batteries
 - External: 12-18 V DC
- ▷ **Autonomy**
 - 24 hours with 1 trigger or message transmission every second. More than 12 hours at -20° C
- ▷ **Transmitter**
 - 12 switch selectable transmit codes
 - 1 banana plug input (normally open working contact)
 - 9 pin jack for DATA (RS 232) transmission
 - 1 switch: IMPULSE/OFF/RS 232 (DATA)
 - 1 red LED for battery condition

- 1 audible signal for each triggered impulse
- 1 POWER jack to recharge the batteries or for external power
- 1 BNC antenna jack
- ▷ **Receiver**
 - 12 switch selectable receive codes
 - 6 different opto-isolated outputs, thus 2 outputs with banana connectors (for use with up to 6 different transmitters)
 - 1 RS 232 output for DATA (9 pin jack)
 - 1 ON/OFF switch
 - 1 LED red for battery condition
 - 1 LED green indicator for signal reception strength (NORMAL)
 - 1 LED red indicator for minimal signal reception strength LOW
 - 1 audible signal for each triggered impulse
 - 1 POWER jack to recharge the batteries or for external power
 - 1 BNC antenna jack
- ▷ **Operating Temperature**
 - -20° C to +60° C
- ▷ **Weight**
 - Transmitter: 800 gr.
 - Receiver: 800 gr.
- ▷ **Dimensions**
 - Transmitter: 90 x 62 x 191 mm. Receiver: same
- ▷ **Complete Set Includes**
 - 1 Transmitter
 - 1 Receiver
 - 1 Charger
 - 2 Antennas
 - Plastic Carry Case
- ▷ **Options**
 - Additional transmitters
 - Additional chargers
 - 50 Ohm Coaxial antenna extension cable (2 or 3 m)
- ▷ **Antenna**
 - 1/2 Flexible wave