

MULTISPORTS



ARGES

User's Manual

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Version 1.2

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Caution and safety precautions

- Never use any other charger than the supplied or a type approved by Swiss Timing. This could destroy the battery, cause damage to unit, and possibly cause personal injury due to fire or/and electrical shock.
- Never bypass a power cord ground lead by breaking off the ground pin, or by using inappropriate extension cords or adapters.
- Never plug a power cord into the AC power source until you have made sure that all installation, cabling and power levels, are proper, and that the applicable procedures in this manual have been followed.
- Protect the equipment against splashing, rain and excessive sun rays.
- Never use the device if it is damaged or insecure.
- Verify the selection of the power distribution.
- Verify that the voltage quoted on the rating plate is the same as your voltage. Connect the appliance only to power sockets with protective earth. The use of incorrect connection voids warranty.
- This program may be modified at any time without prior notification.
- Do not open the case; there is nothing that needs servicing inside it. Nevertheless, if the case must be opened, you must call for some qualified personnel. The power supply cable must be disconnected before opening the case.
- During the transport of all Swiss Timing equipment delivered with a reusable carry case, the said case should be used at all times. This is imperative to limit the damage, such as shocks or vibration that can be caused to the units during transport.
- The same cases should also be used when returning equipment to Swiss Timing for repair. Swiss Timing reserves the right to refuse all guarantees if this condition is not fulfilled.
- If the installation includes a horn, be sure to maintain a sufficient security distance from the public.

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Environment



This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources.

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1 INTRODUCTION

1.1 Concept

The ARGES Reflex Photocell consists of a transmitter and a reflector unit.

The transmitter produces an infrared beam that is reflected on the photocell reflector, which serves as a mirror when correctly aligned opposite.

Anything or anyone that crosses the field of the beam creates an interruption which is instantly reported to a timing device accordingly to meet the International Sport Federations standards.

The ARGES Reflex Photocell allows a simple and constant monitoring of the cell alignment.

It features an internal and accessible battery lodging and can also be connected to an external battery or a DC power supply.

The two outputs contacts allow to connect the ARGES to two different timing devices simultaneously (main & back-up for example).

The new ARGES Reflex Photocell also features a completely accessible DIL switch panel on the side of the photocell allowing users to choose from the many operating modes and options.

The ARGES Reflex Photocell is a highly precise and reliable timing device even in extreme meteorological conditions and temperatures.

1.2 ARGES front and rear panel

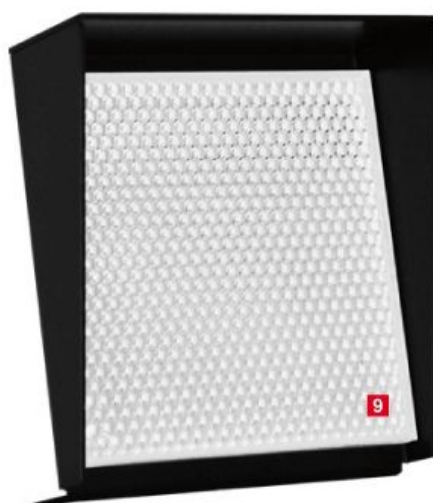


Figure 1- Front and rear panel's view

<i>Rear panel</i>	<i>Description</i>
1	ON / OFF switch
2	Rotary push / switch button
3	4 LEDs indicator (battery level & reception power signal signal)
4	Output contact 1
5	Output contact 2, external power input & alignment level

<i>Front panel</i>	<i>Description</i>
6	Receiver photodetector
7	Transmitter photodetector
8	LED indicator (reception power signal)

1.3 ARGES Reflector



9	Optical reflector
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2 INSTALLATION

2.1 Batteries installation

Press on the bottom of the photocell unit and drag it completely out of aluminum housing



Don't press on the optical lens to avoid any damages on the photocell system



Figure 2 – ARGES opening

The batteries box is located on the bottom of the unit and you need 3x AA or UM-3 1.5 volts batteries.



Figure 3 – Batteries location

Batteries capacity (hours of utilization) is very much reduced below 0°C and depends on their quality. It is highly recommended to use Lithium batteries when temperature is below 0°C.

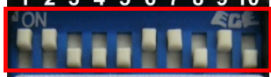
2.2 ARGES settings

The settings of the ARGES can be configured using the dip switches located on the side.



Figure 4 – Settings location

Default settings

1	2	3	4	5	6	7	8	9	10
									
ARGES settings OFF ON									
1	NO	Contact	NC						
2	Contact Mode								
	PULSE	BEAM							
3	Pulse [ms]								
	100	1							
4	Photocell Mode								
	REFLEX	TX / RX							
5	TX / RX								
	TX	RX							
6	Distance [m]								
	>25	<25							
DIN 5P output Contact Synchro									
7	ON	OFF							
8	OFF	ON							
9	ON	OFF							
10	OFF	ON							

1	The output contact used in Normally Open or Closed	
2	The reaction of the output contact used in PULSE or BEAM mode	
3	The reaction time set at 100 ms or 1 ms in contact mode PULSE	
4	The photocell configured in mode REFLEX or TX /RX	
5	The mode TX / RX configured in TX or RX mode	
6	The functional distance configured at > 25 m or < 25 m	
7	ON	The DIN output is configured in mode Contact
	OFF	The DIN output is configured in mode synchro
8	ON	The DIN output is configured in mode synchro
	OFF	The DIN output is configured in mode Contact
9	ON	The DIN output is configured in mode Contact
	OFF	The DIN output is configured in mode synchro
10	ON	The DIN output is configured in mode synchro
	OFF	The DIN output is configured in mode Contact



Make sure that the side switches are correctly set before turning on the system

2.2.1 Contact Output

The output contact of the DIN connector can be configured to *normally open* or *normally closed*

2.2.2 Contact Mode

The contact can be configured in mode *PULSE* (connection to a timer) or *BEAM* (for an automatic recording with photo finish)

2.2.3 Pulse (in mode PULSE or BEAM)

The minimum pulse duration can be configured to *100 ms* or *1 ms*



The maximum pulse duration is fixed at *500 ms* in mode *Pulse* and *No max* in mode *Beam*.

2.2.4 Photocell mode

The mode of the photocell can be configured in mode *REFLEX* (reflector needed) or *TX / RX* (2 photocells ARGES needed)



Figure 5 – Mode Reflex and TX / RX

2.2.5 Mode TX / RX (in mode RX / TX)

The photocell can be configured in mode *TX* (transmitter) or *RX* (receiver).

2.2.6 Distance

The functional distance can be configured at *> 25 m* or *< 25 m* (mode *REFLEX*).



For the mode *TX / RX*, the switch *< 25 m* correspond to *< 100 m*



The life of batteries decreases with the mode *> 25 m*

2.2.7 DIN 5P output

The DIN connector output can be configured in mode *Contact* or *Synchro*.

2.3 Connecting the installation

Connections have to be made at the rear of the ARGES photocell. Some connections are mandatory and some depends of the use.

2.3.1 Connections overview

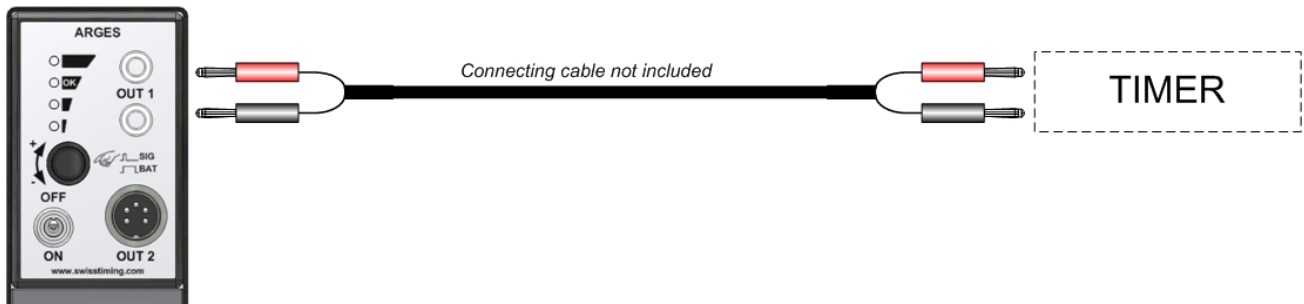


Figure 6 – Connecting the installation



Connecting cable (s) not included

2.3.2 Mounting instruction

The transmitter and the receiver can be mounted on a ball and socket joint tripod. A deluxe optional independent two-axis support can hold the transmitter and the receiver.

The deluxe support can be mounted on a photo tripod (UNC 1/4") or fixed on any vertical support with two M5 screws.

3 GETTING STARTED

3.1 Battery level : Startup sequence

Turn on the unit by pressing the switch to ON.

The 3 LEDs below switch on together showing the full battery level.

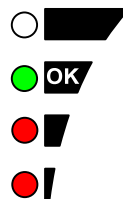


Figure 7 – Battery full

When batteries are very low the last red led start to blink.

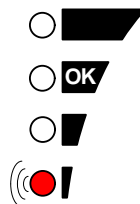


Figure 8 – Battery low

3.2 Alignment of the photocell

3.3 Reflex mode (reflector needed)



In optimal weather conditions, the < 25 m mode is enough for the whole working distance range. When there is a bad weather and/or distance is more than 25 meters try > 25 m mode if signal power is not good.

Align the photocell with the reflector by looking along the casing.

Wait that the startup sequence is over and move the photocell to get the upper red LED lit, try to find better alignment in both directions (horizontal and vertical).

Turn the rotary button to increase the power until the LED is blinking (maximum).



Figure 9 – Maximum power signal

Turn the rotary button to decrease the power until the LED is green (optimal).



Figure 10 – Optimal power signal



The LEDs switch off after one minute of inactivity

3.3.1 TX / RX (2 ARGES photocells needed)

Configure the side switches according to chapter 2.2, each photocells has its own mode.

According to the distance, move the side switch to $< 25\text{ m}$ or $> 25\text{ m}$ mode.

In this mode, the switch $< 25\text{ m}$ means $< 100\text{ m}$ and $> 25\text{ m}$ means $> 100\text{ m}$.

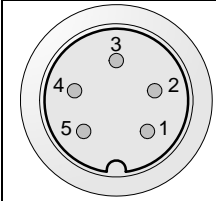
For the alignment, use the same procedure than the chapter 3.2.1 but with two photocells.

When aligning the Tx photocell you can see the frontal red led blinking when signal is lost, you can use this to find the middle point. Of course if you are 2 persons it is easier and more accurate.

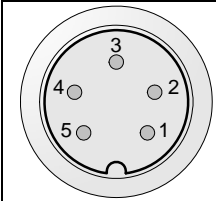
4 ELECTRICAL PROPERTIES

4.1 Connectors pinning

4.1.1 Reflex and Receiver mode

<i>OUT 2</i>	<i>Pin</i>	<i>Description</i>
	1	Output contact 2A
	2	Output contact 2B
	3	External instrument +
	4	DC IN + (+12 VDC)
	5	DC IN – (GND)

4.1.2 Transmitter mode

<i>OUT 2</i>	<i>Pin</i>	<i>Description</i>
	1	SYNC IN
	2	SYNC OUT
	3	-
	4	DC IN + (+12 VDC)
	5	DC IN – (GND)

5 PROPERTIES

Description	Reflex & Tx	Rx
Battery	3 x AA or UM-3 Alkaline or Lithium	
Typical consumption / Autonomy	85mA Alk. 20 h @ 20°C Lith. 30h @ 20°C Lith. 25h @ -20°C	80mA 20h @ 20°C 30h @ 20°C 25h @ -20°C
Maximal consumption / Autonomy	190mA > 4 h @ 20°C	85mA 20h @ 20°C
DC input	5 – 15 VDC	
Weight (with battery)	915g	
Dimensions (without fixation and support)	188 x 57 x 95mm	
Fixing	UNC 1/4"	
Protection class	IP54	
Operating temperature	-30°C to 70°C	
Storage temperature range	-30°C to 85°C	
Distance between transmitter & receiver	Up to 30 m (<i>in reflex mode</i>) Up to 200m (<i>in Rx/Tx mode</i>)	
Output pulse	<ul style="list-style-type: none"> - not polarized - minimum duration: 1ms or 100ms (DIP switch selection) - Contact type: NO or NC (DIP switch selection) - Beam mode - Pulse mode 	
Indicators	<ul style="list-style-type: none"> - battery level - signal level (<i>Reflex & Rx mode</i>) - signal power level (<i>Tx mode</i>) 	
Propagation time	<ul style="list-style-type: none"> - <1ms 	

6 APPENDIX

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6.2 Version history

Version	Date	Modifications since last version
1.0	30/03/11	Initial version
1.1	02/05/11	Added some details, descriptions.
1.2	26/08/11	Added some details

NOTES

