

POLIFEMO LIGHT

USER MANUAL

Release 2.0

MICRO  GATE

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2. INTRODUCTION

The new Microgate reflection photocell Polifemo is outstanding for its attractive design, conceived to meet the requirements of accident-prevention safety norms. Its unique optical design guarantees a high range and greater accuracy of measurement. In addition, special optical and electronic features guarantee maximum reliability also in poor external light conditions.

Internal power supply is provided by rechargeable batteries (the 'intelligent' recharge circuit is built into the photocell) which can be replaced with two normal AA size batteries and which allow 18 hours of autonomous functioning Polifemo-light is designed for those users who need a photocell which is simple to use but also extremely reliable and accurate



The Microgate Photocell Polifemo-Light

3. POLIFEMO-LIGHT

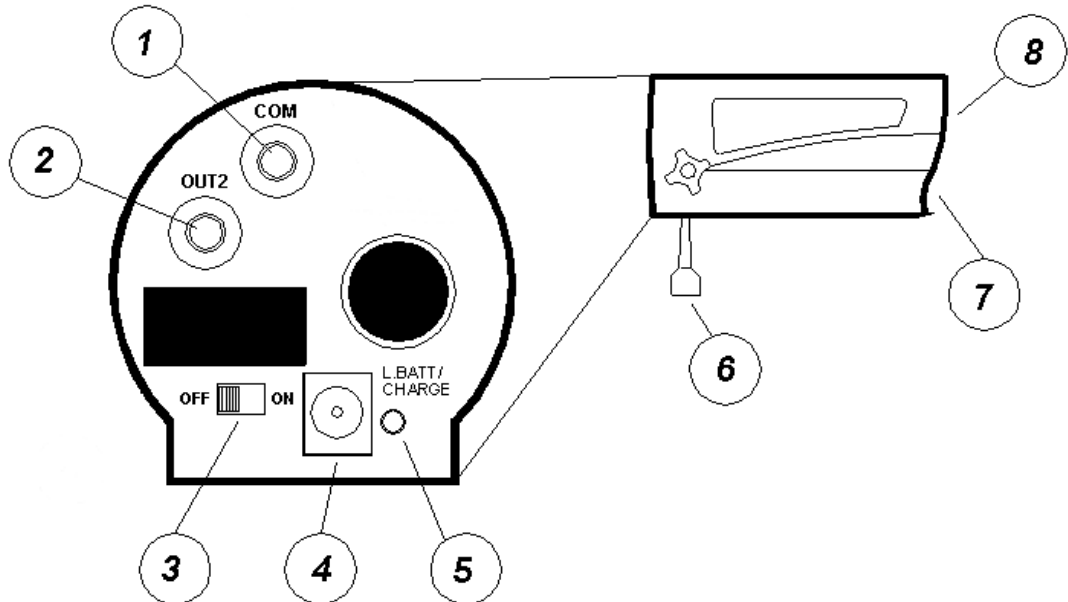


Figure 1

1. **COM: Black banana socket**
2. **OUT2: Green banana socket**
3. **ON/OFF SWITCH**
4. **RECHARGE SOCKET**
5. **SIGNAL LED**
6. **BALL-JOINT**
7. **BATTERY COMPARTMENT**
8. **LENSES**

4. OPERATING MODES

The Polifemo-Radio-Light photocell works by reflection: the maximum operating distance between the photocell and the reflector is 15 metres.

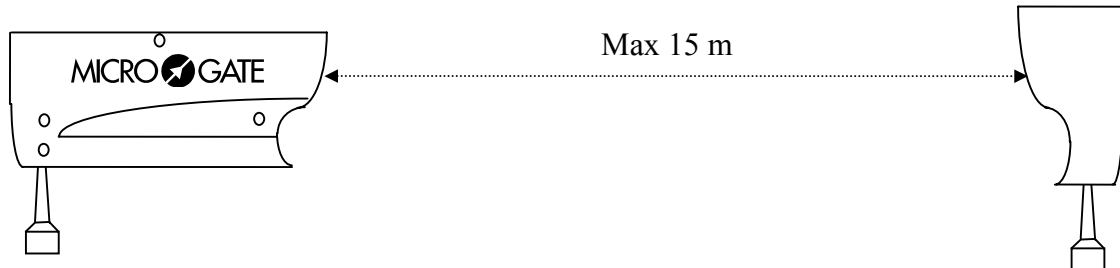


Figure 2

4.1. CENTERING

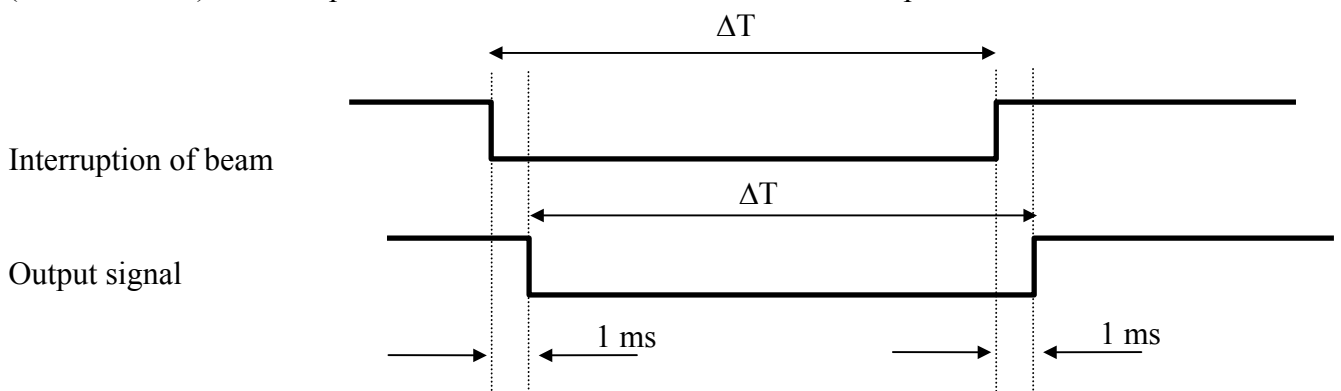
Centering takes place in the following way: as soon as it has been switched on, the photocell emits a continuous BEEP, pointing the photocell on the reflector, the BEEP stops, thus indicating that correct centering has been attained.

5. THE OUTPUTS

The Polifemo photocell emits a signal on the output, normally open, and is brought to the reference level (COM socket – BLACK banana jack) if the infrared beam is interrupted. The signal is presented on the green banana jack (OUT2) and is compatible with every type of timing device.

5.1. OUTPUT SIGNAL

The output signal has a minimum duration of 3 hundredths of a second and has a constant delay relative to the event of a thousandth of a second. Of course the delay does not affect resolution, which for Polifemo is $125\mu\text{s}$ (0.125 milliseconds). The output level passes from high to low (contact closes) and is kept in this situation until the end of the interruption of the infrared beam.



6. POWER SUPPLY

The Polifemo photocell can be powered in 3 different ways:

- with batteries
- from recharge power source

Before continuing, it would be better to make clear what the various terms mean:

- batteries: Size AA batteries, both rechargeable and non-rechargeable types;
rechargeable: both NiCd and NiMH 1.2V
non-rechargeable: Alkaline 1.5V
- recharge power source: power applied to recharge jack (see fig 1 n° 6). Voltage must be between 8V and 13V (we strongly advise you not to use voltages above 13V; for higher voltages a security mechanism - varistor – breaks the supply circuit. The circuit is restored when voltage has returned within the operative range).

Polifemo can manage the two types of power supply contemporaneously. If the photocell is on and powered from a recharge power source, the batteries are protected by using “external” power sources; moreover, if recharge power is sufficient, the batteries are kept charged by a recharge current with an appropriate duty cycle.

6.1. RECHARGE MANAGEMENT

Recharging of Polifemo's batteries can only take place with the photocell switched off, and is managed intelligently by the microprocessor built into the photocell. The standard procedure requires unloading of the batteries and then complete recharging. Recharging begins after plugging in a supply jack with a high enough voltage ($V_{ch} > 8V$) with the photocell switched off.

The steps carried out by the program which manages recharging are as follows:

STEP	ACTIONS	LED	DURATION	POSSIBLE ANOMALIES
1	Checking of presence of rechargeable batteries	Continuous of red	1 minute	Presence of non-rechargeable batteries
2	Battery discharge	Continuous red	variable according to previous state of charge	Batteries removed or reach dangerous voltage levels (faulty batteries)
3	Battery recharge	Blinking green	7 hours	Batteries removed or reach dangerous voltage levels (faulty batteries)
4	End of recharge and maintenance of charge level	Continuous green		

Switching on the photocell or lack of recharge voltage result in interruption of the recharge procedure.

6.1.1. IMMEDIATE RECHARGE

If immediate battery recharge is required without first discharging the batteries, put the switch (Figure 1 n° 5) to ON for an instant and return rapidly to OFF. The recharge management program will not first discharge the batteries (steps 3 and 4)

Only in exceptional circumstances should the batteries be recharged straightaway without being first discharged as this shortens their life.

6.1.2. ANOMALIES

Any anomalies occurring during the recharge procedure are signalled by slow blinking of the red LED and the sound signal BOOP-pause-BOOP. When an anomaly is detected, the recharge cycle is interrupted.

7. TECHNICAL DATA

Weight	
Size	59 x 180 x 104 (1 x p x h)
Minimum resolution	0.125 ms
Delay in relation to event	1 ms
Temperature of use	-25°C/+70°C
Power supply:	
batteries	rechargeable: NiCd, NiMH 1.2V non-rechargeable: alkaline 1.5V
recharge	8V÷13V with overvoltage-protection
Battery recharge	Built-in “intelligent” recharge device
Autonomy	18 hours
Processor	8 bit C-MOS microprocessor
Connections	Connections on optoinsulated banana jack
Optical range	15 m