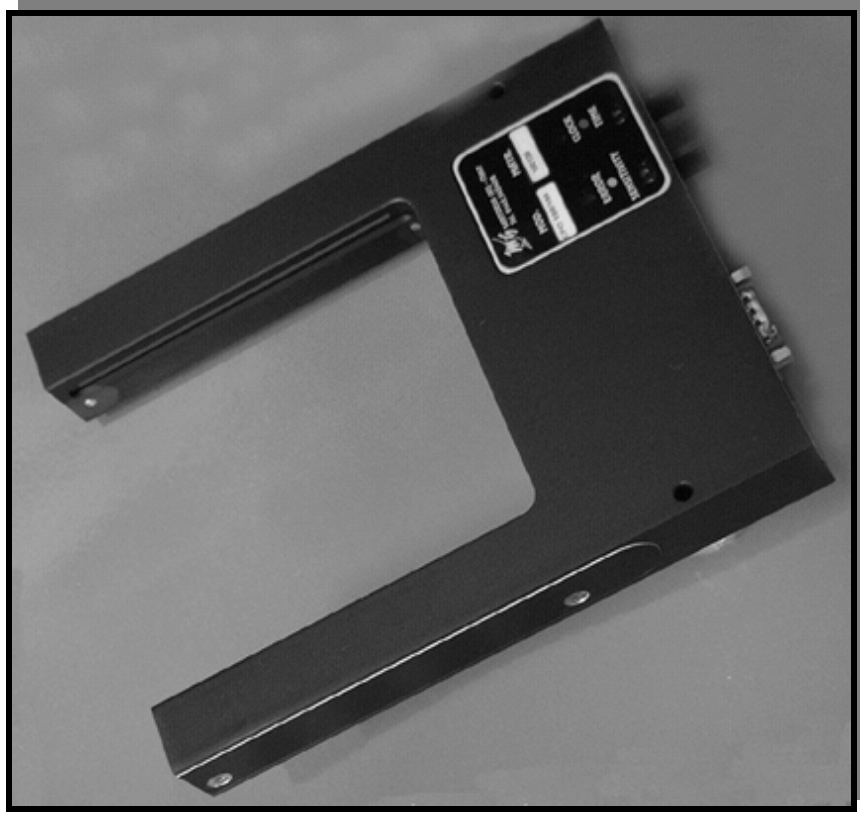


CPO NEW



M.G. SNC di Munari Galdino & C.
Via Casa Celeste,14
36014 Santorso (Vicenza) ITALIA
Telefono +39 0445 540408
Telefax +39 0445 540344
E-mail: mg@mgonline.it



INSTRUCTION MANUAL

NOTES

IMPORTANT NOTE: When using the device, carefully follow the instructions given in this manual and take the general precautions described as follows:

- *- Do not install the equipment in the immediate vicinity of high power installations, relays, motors etc.
- *- The equipment does NOT have an ON/OFF switch, so it comes on as soon as it is connected to the power supply.
The power supply should have an adequate safeguard against short circuits or faults in the equipment.
Make the connections using cable types with sections that are suited to the current and voltage limits specified in the manual
- *- Make sure the system has a good ground connection .
- *- Check and verify the operating parameter settings before use to prevent the possibility of damage to persons or objects .
- *- Make sure the power supply voltage is compatible with the one given in the manual .
- *- Do not use the equipment in environments with a hazardous (flammable or explosive) atmosphere.
- *- Clean the equipment windows regularly using ONLY WATER .

NOTES

-1- INTRODUCTION

The CPO NEW optical piece counter is a counting device that, with its features of strength and versatility in use, is the solution to any problem involving counting parts of any material or shape, either in free or forced fall.

It also allows the possibility of discarding, and hence not counting, smaller sized objects such as scraps from processing, which may accidentally cross the reading area.

The CPO NEW series is able to cover sizes ranging from a minimum of 100 mm x 100 mm to a maximum of 200 mm x 200 mm (see the reference table on the following page).

-2- ASSEMBLY

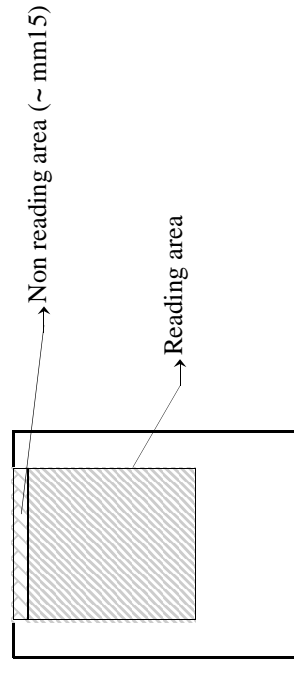
Fasten the equipment to a solid base using the two holes \varnothing 4.25 mm.

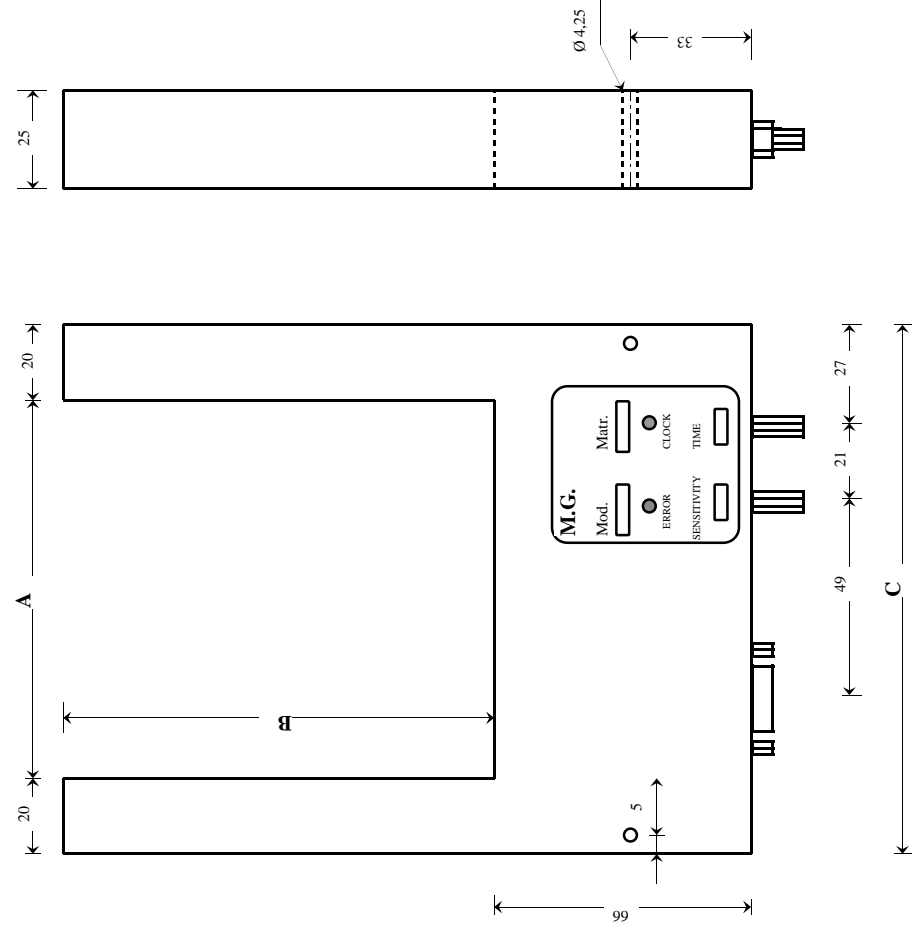
The CPO NEW is also able to operate in the presence of small vibrations produced by surrounding appliances; it should always be borne in mind that these vibrations should be of an intensity that is normally tolerated by electronic controls. In the presence of large-scale vibrations we recommend the use of special absorbing supports.

The piece counter is able to operate in any position; however, non-horizontal assembly will encourage dust formation on the reading windows, thus impairing counting efficiency.

Do not position the equipment facing very strong light sources (direct sunlight or very strong lighting), even though the device is able to adjust automatically to changes in the surrounding light (day-night).

Bear in mind that the sensitivity around the edges of the reading area cannot be considered uniform; we therefore recommend always using the centre of the area, especially when counting small parts.





-5-TECHNICAL SPECIFICATIONS

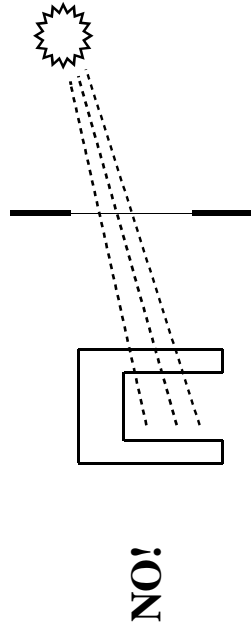
Power supply: 18 ÷ 24 Vac or 24 Vdc.
 Frequency: 50 / 60 Hz.
 Absorbed current: 100mA at 24 Vac and 60 mA at 24 Vdc.
 Counting rate: 25 pieces per second.
 Minimum sensitivity: sphere with 2 mm diameter
 Minimum time Clock outlet activated: 10 milliseconds.
 Clock activation time after detection of an object in the reading area: < 1 millisecond.
 Connector for connecting cable: D-SUB male 9-position connector

REFERENCE TABLE FOR NEW OPTICAL PIECE COUNTER SIZES

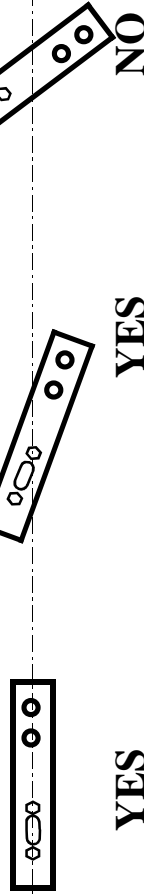
	A	B	C
CPO 100X100	100	100	140
CPO 150X100	150	100	190
CPO 150X150	150	150	190
CPO 200X200	200	200	240

To prevent faulty operation of the equipment we recommend taking the following precautions:

- Do not expose the piece counter to direct light sources; in particular, do not allow light to shine directly onto the two reading windows.



- Do not tilt the piece counter more than necessary, to prevent the formation of large amounts of dust around the reading windows and the consequent lack of precision in reading.



3-ELECTRICAL CONNECTIONS

Important: whether the power supply is alternating or direct, there should be non so-called “voltage holes” that may be generated, for example, by the triggering of solenoid valves, motors, magnetic switch coils etc.; these could affect efficient operation of the CPO module.

To prevent this problem, power the CPO module with a small 220Vac/24Vac 4W transformer.

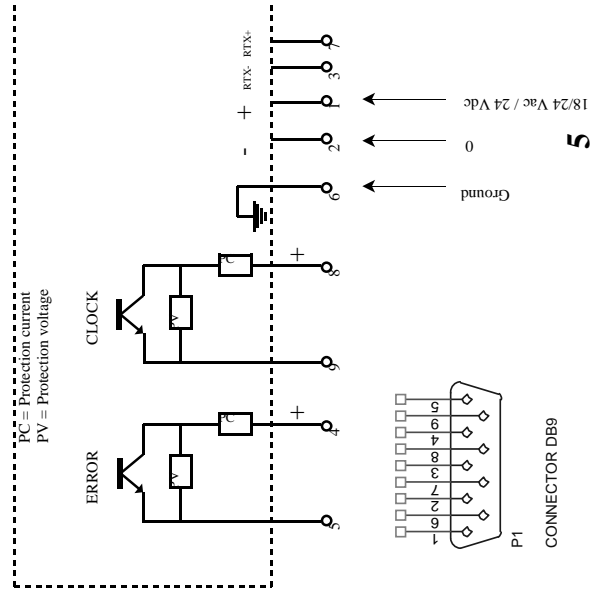
The connections must be made using shielded cable with conductors of a diameter not less than 0.22 sq.mm: the shielding should be grounded.

On pins 1 and 2 of the nine-pin connector, connect the power supply: it should have an alternating voltage of between 18 and 24 Volts (Vac) or a direct voltage of 24 Volts (Vdc). Connect the positive pole to pin 1 and the negative pole to pin 2.

Connect the ground to pin 6: failure to make this connection could cause disturbance in the counting module and possible faults in the internal circuits.

Pins 8 and 9 are used for the Clock counter outlet: as shown in the diagram, this consists of an optoisolator, with the collector connected to pin 8 and the emitter to pin 9. This outlet has both a voltage and current safeguard; nevertheless, do not exceed 100 mA at 24 Vdc. Pins 4 and 5 are used for the Error outlet: the collector is connected to pin 4 and the emitter to pin 5. As for the Clock outlet, this has both a voltage and current safeguard.

Using RS485 serial communication, with the piece counter connected in slave mode, (maxx 30 cpo) it is possible to control calibration externally (using a PLC for example) When the device is first powered, it is necessary to wait 5-10 seconds while the LED's carry out self-calibration.



-4- USE OF CPO

At the top of the Cpo module is the label with adjustment indications for correct calibration for every type of use.

The red LED (Error) if lit, indicates that the piece counter has detected an object inside the reading area for more than 1.5 seconds; if this occurs, remove the object if present or make sure the windows are perfectly clean. After about ten seconds, automatic electronic calibration will cause the red LED to go off and the CPO will return to normal operation: if the LED does not go off this means that the object that caused the error is too large to allow automatic calibration. This feature has been provided so that changes in the surrounding lighting or small quantities of dust on the reading windows will not affect correct operation of the equipment.

The green LED (Clock) if lit, indicates the passing of an object through the reading area; the LED will stay on as long as it takes for piece being counted to cross the reading area.

The adjustment potentiometer SENSITIVITY is used to calibrate the CPO according to the size of the piece being counted. The higher the value set by the potentiometer (from 1 to 9) the higher the module sensitivity, which can hence count smaller pieces.

The time potentiometer TIME can be used to make an extra adjustment to further refine CPO reading. It is able to adjust the "reading area crossing" time of the piece being counted. The higher the setting (from 1 to 9), the lower the crossing time needed for the module to count the piece. The equipment will obviously achieve maximum reading sensitivity when both potentiometers are set to the maximum value i.e. 9.

Adjustment of the two potentiometers will make it possible to achieve a very precise adjustment that will allow the device to distinguish between scraps from processing or other unwanted objects and the piece to be counted.

Example:

Suppose it is necessary to count pens falling vertically; in this case the crossing area is not very large and therefore the potentiometer C can be set to a medium high value. However, it is possible that other objects, with the same crossing area but a shorter length, could fall in the reading area.

Adjusting potentiometer D will therefore adjust the crossing time to a high value (low potentiometer value) so that the module only counts the longest pieces (the pens) that have a longer crossing time.

