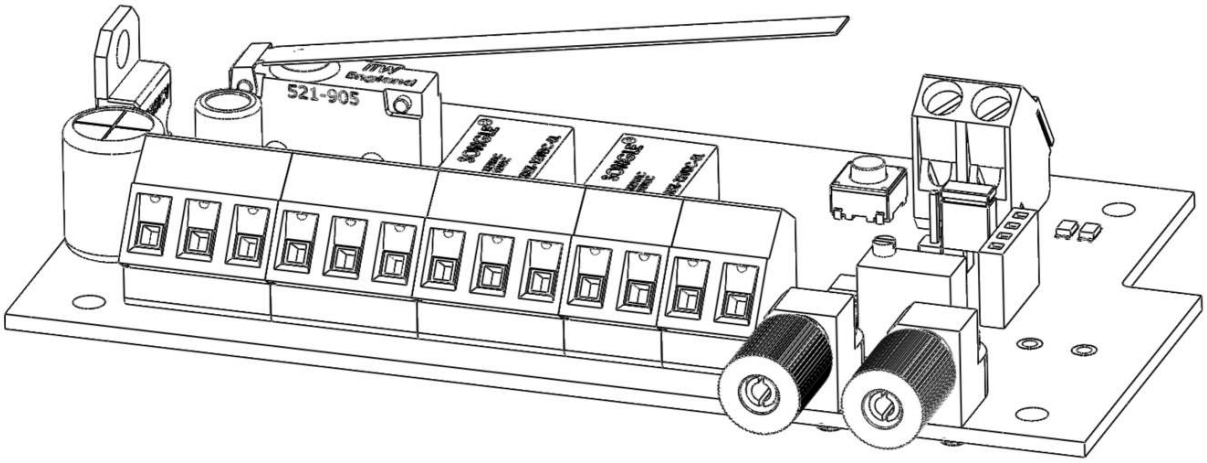
ALM-816
INSTALLATION AND PROGRAMMING



Solar Defender ® System

This manual contains the essential specific installation and configuration of the device ALM-816.

Important: Nestor Company NV reserves the right to change the manual without prior notice, or any part thereof, in order to improve the quality and performance of the product and the installation of the system itself.

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SAFETY WARNINGS

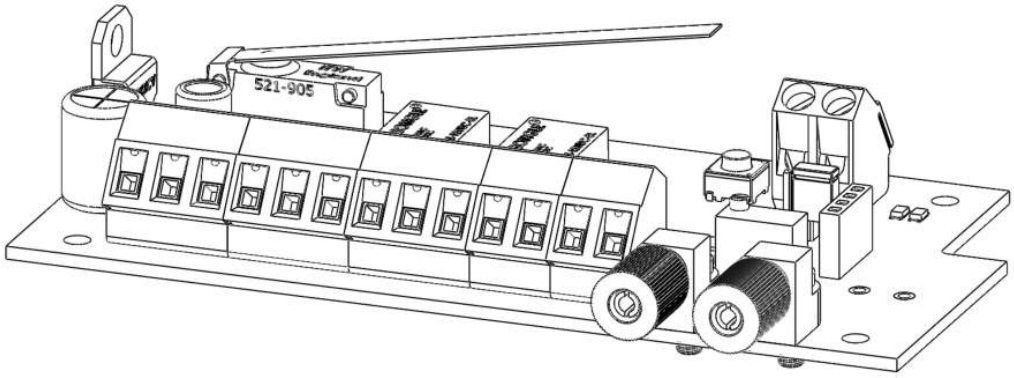
The installation of the product must be performed by qualified personnel in accordance with local laws and regulations on safety.
In agreement with the European Directive 2004/108/EC (EMC), the product must be installed using equipment, cables and accessories that allow it to meet the requirements of the Directive for fixed installations.
The product should be operated according to the instructions in this manual.
Keep physically separated extra low voltage wires, including the battery voltage from the wires.

IMPORTANT:

Only trained and authorized personnel can service the product, with the aim of making the connections described in this manual. In case of failure do not attempt to repair the product or the warranty will no longer be valid.

FEATURES OF THE DEVICE

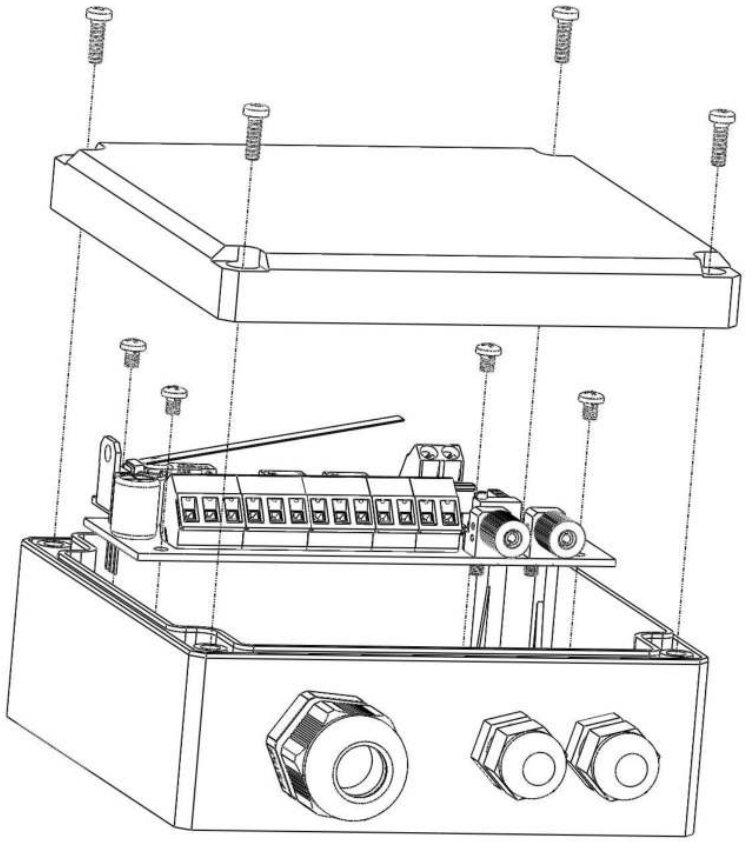
In this part of the manual lists the major hardware features and functions of the device ALM-816.



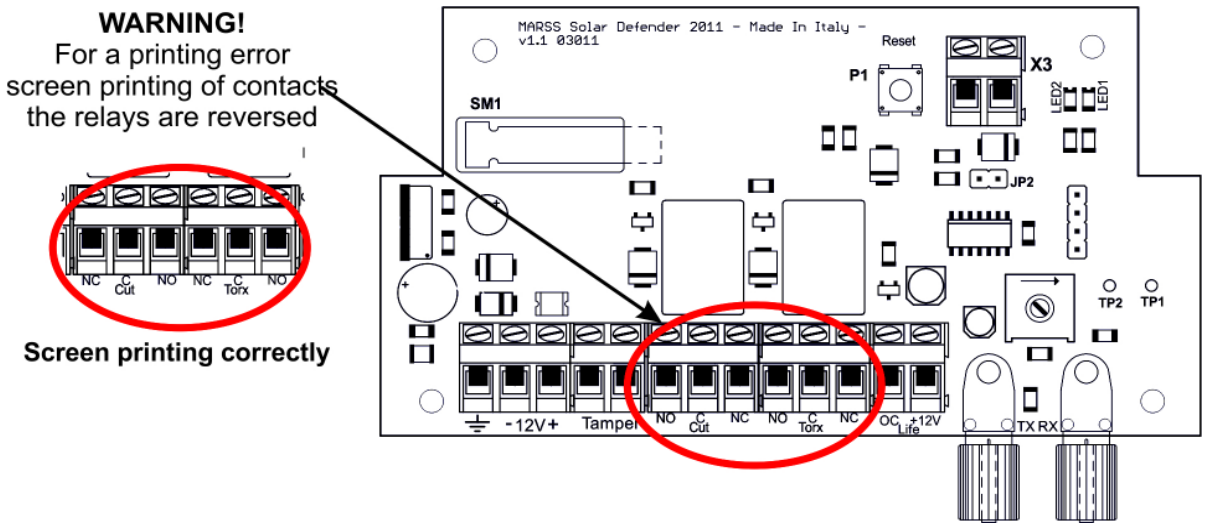
ALM-816 has the following characteristics:

1. 200 m fiber loop with management cutting and torsion
2. Torsion system calibration trimmer
3. Two relay outputs alarm signal cutting or torsion of the fiber
4. Open Collector output signal blocking operation of the device
5. Reset button after the alarm concentrator cutting or torsion with terminal block for connecting an external reset device

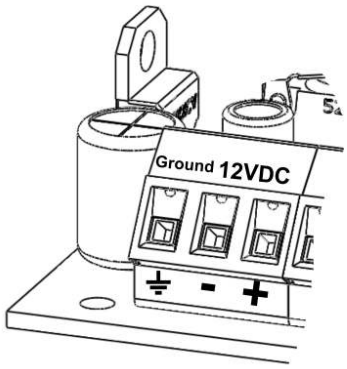
EXPLODED VIEW OF THE DEVICE ALM-816



Description of the device

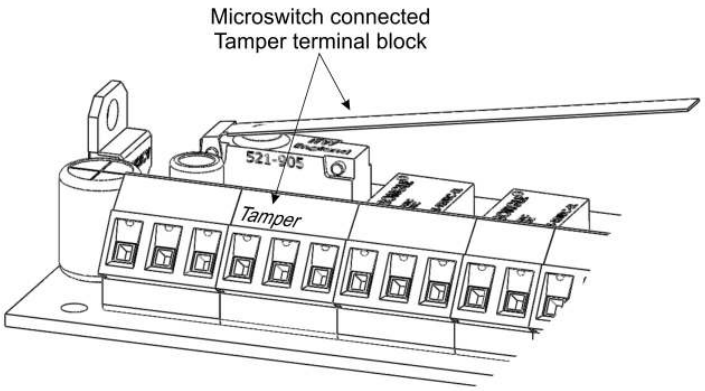


Power supply terminal block



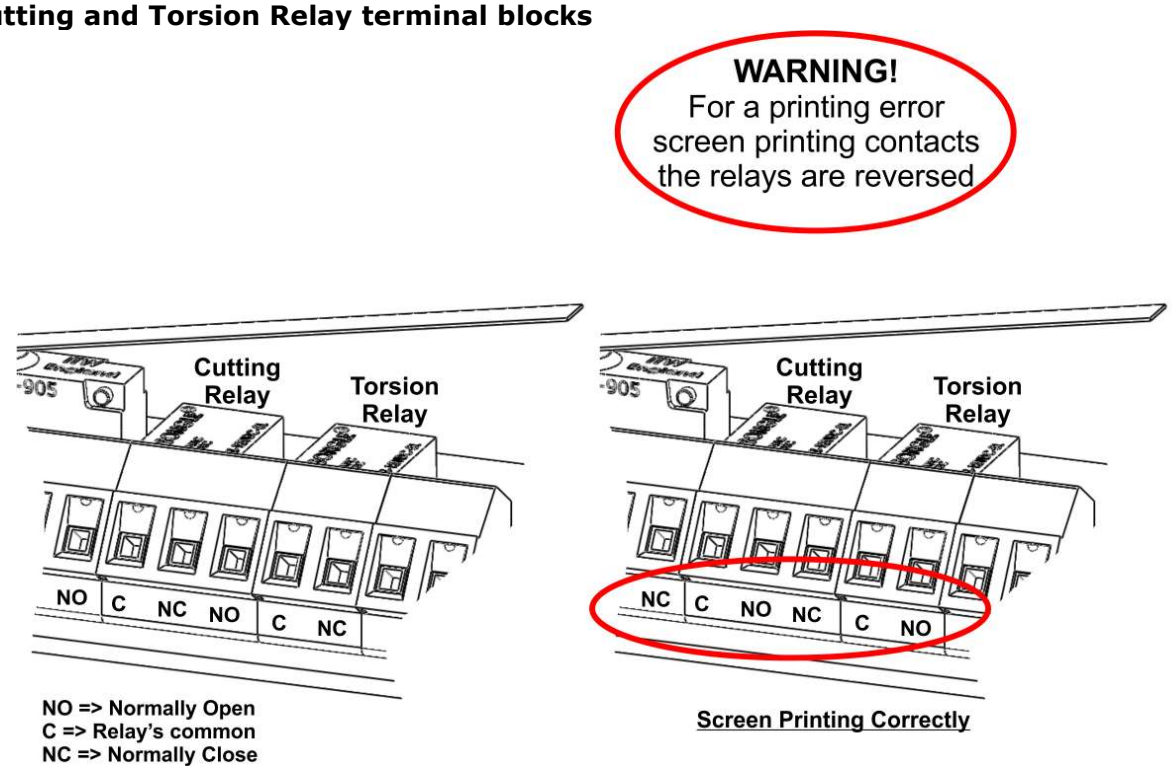
The device ALM-816 operates at 12VDC and has a power consumption of **10mA in standby** (not alarm) and **65mA maximum with both relays activated**. The circuit has a self-resetting circuit protection microfuse to 750mA. The relay contacts are protected against lightning. These protections need to be connected to the ground to operate.

Tamper terminal block



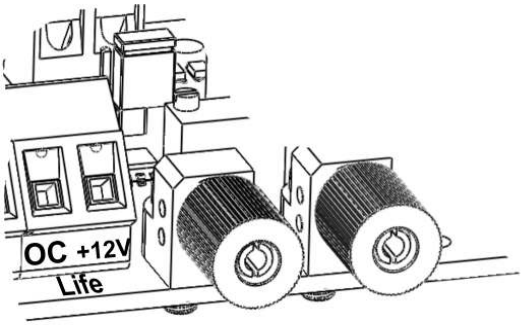
The device has an internal microswitch long lever for tamper protection of the container. You can use the terminal block for connection to any alarm system or signaling device (device gsm, radio monitoring, etc. ..).

Cutting and Torsion Relay terminal blocks



The dispopsitivo has two relay alarm signal.
Cut: Cut Loop Alarm
Torx: Torsion loop alarm
The relays are activated in case of breakage, cutting or torsion of the fiber. The cutting and torsion signaling activates the relay for alarm only if the two events occur at different times.
If the fiber is cut it will activate its alarm relay cut.
If torsion occurs before and after cutting both relays are activated.
The relay contacts support currents up to 1A at 220VAC and 24VDC.

OC Life Open Collector Output



Open Collector
OC Life

Open collector output with a negative closing. It 'always on. Shuts down in case of blocking the operation of the device or lack of power. The working scheme of this output is as follows:

When the transistor is in standby, on the collector there is no tension. When activated through the resistance base, the transistor enters in conduction, giving a negative voltage output. To test the output, just connect a multimeter between the positive and the collector (on the divice is present a positive voltage of +12 V). When the open collector output is active between the collector and the positive supply voltage of 12V will be measured.

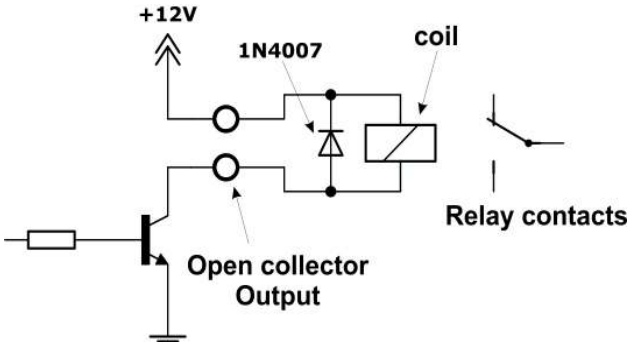
Using Open Collector Output OC Life

The output OC Life (Life Open Collector) is a security check of operation of the concentrator. It's always active until the device is in operation. In case of power failure, or microprocessor failure, on the output OC Life there will be no voltage. It 'very important to use this output.

Important Note: Use OCL output is necessary for the signalling of the failure of the device.

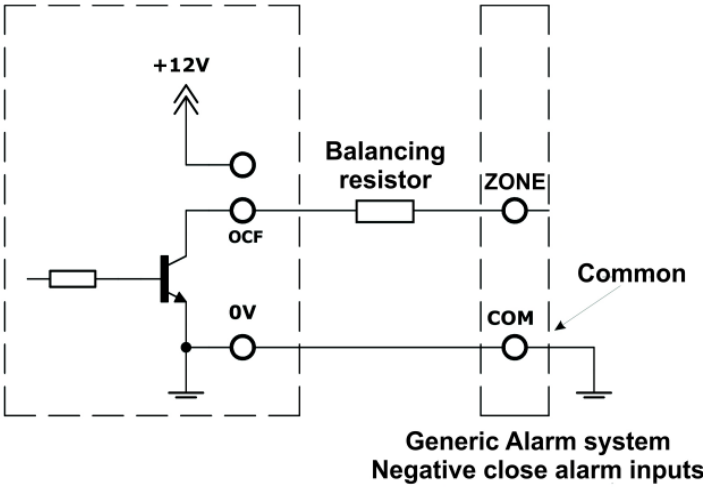
It describes three ways to use this output. These rules also apply for any open collector output of any system, with close to negative.

Use first mode
12Vcc relay connection to open collector output



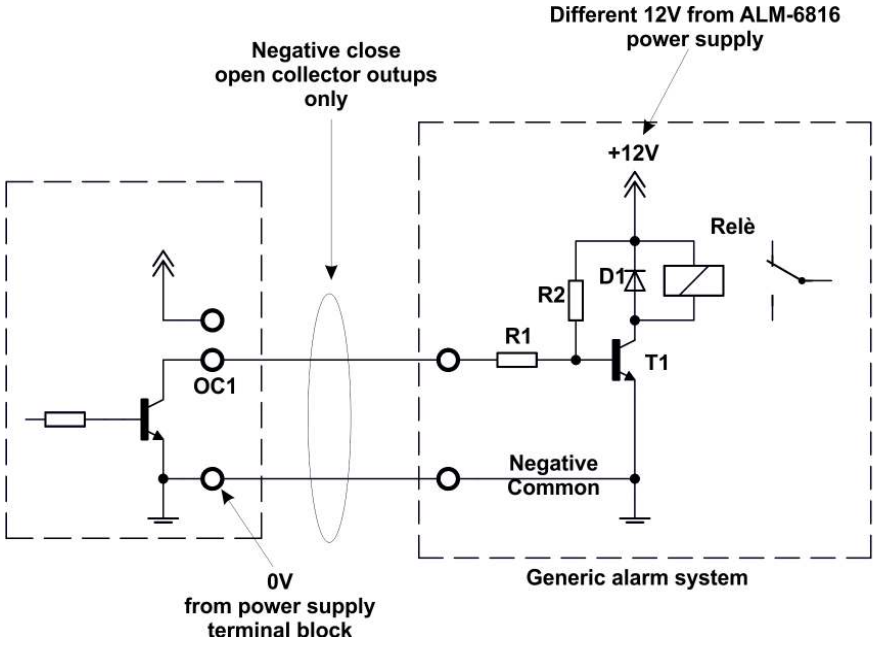
This is the simplest way to connect an open collector output that closes to negative. On ALM-6816 the transistor is always on. The open collector output is turned off by the total lack of power supply or locking the device. This affects the absorption of the device of about 20mA (the absorption varies depending on the type of relay used).

Use second mode
Direct connection of the open collector output on a generic alarm system input



You can connect the open collector output OC Life directly to an input of any alarm or burglar alarm dialer that has the inputs working with close to negative. To test this, just check on the central telephone dialer, or expansion inputs, the continuity between the common alarm inputs and the negative supply. If there is continuity, then you can connect the output OC Life as the pattern in the second mode of use described above. 0V is any negative power of the ALM-816 (for convenience use the negative power supply terminal). Otherwise don't use this mode of connection.

Use third mode
Open collector output connection to a separate relay from the ALM-816.

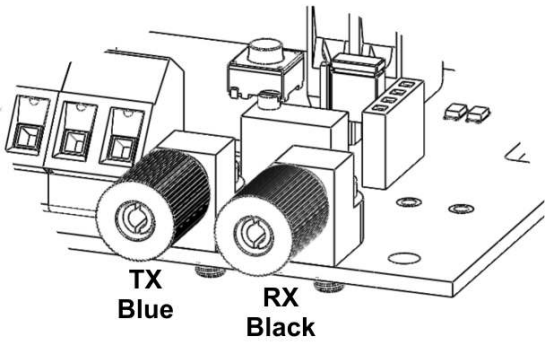


The main problem of the first connection mode described above, is that the relay is always active, increasing the absorption, per device, of about 20mA (depending on the type of relay connected). To resolve this problem just use, in addition to the relay, some components easy to find and use.

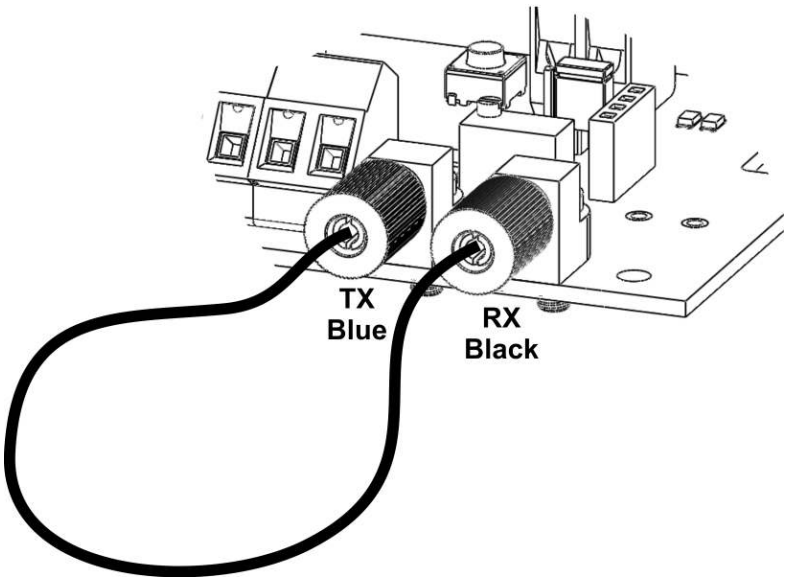
R1:	Resistor 470ohm 1/4W 5%
R2:	Resistor 15Kohm 1/4W 5%
T1:	Transistor NPN as BC337B
D1:	Diode as 1N4007
Relè:	Relay with 12V DC coil

With this mode of connection, the relay will be activated only in case of power off or locking of device operation.

TX and RX Fiber Optic connectors

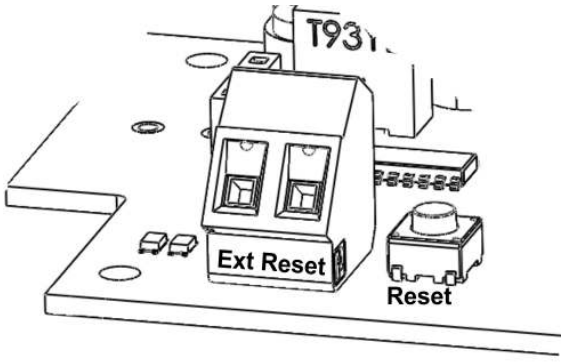


The concentrator is equipped with 2 connectors fiber. 1 for the TX and RX 1 for that (no need to make any lapping prior to connection of the fiber).



TX and RX fiber are calibrated to the use of plastic optical fiber to a maximum length of 200 meters. When there is an interruption or a torsion of the fiber, the optical receiver detects the change in transmitted light. The microprocessor identifies the type of alarm, cut or torsion, and activates the relay. Alarms cutting or torsion are identified by two different relays.

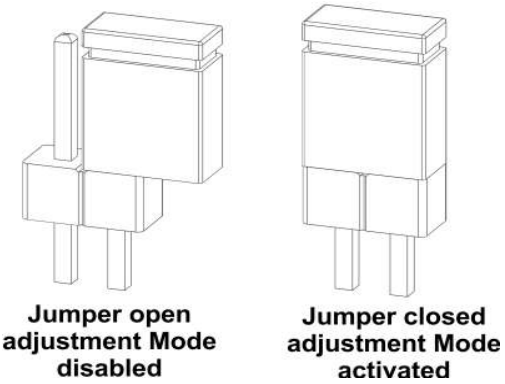
Reset and External Reset



P1 button is used to reset the device after an alarm signalling. It 'can also be reset by external device (telephone dialer, ... etc.) terminal using the "External Reset." The command is normally open and activate the reset of the device simply close contact for a few seconds.

Jumper JP2

Jumper JP2 is used to activate the calibration of the torsion system. To activate the adjustment to close the jumper with the jumper on board, as shown:



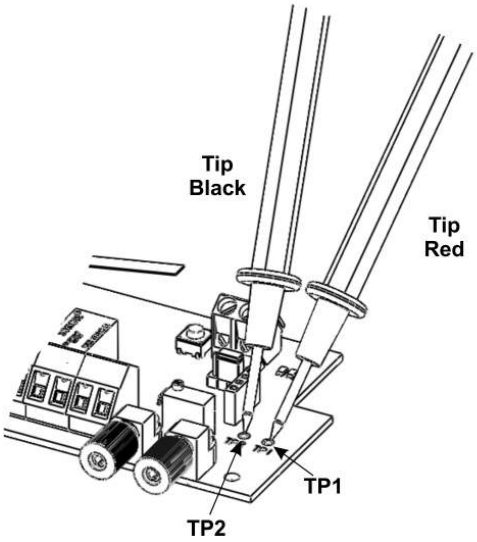
After the calibration return the jumper to its original position.

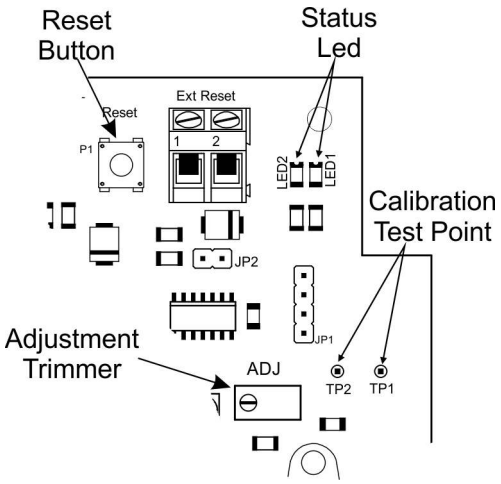
Calibration of the torsion system

Calibration of the torsion system requires a slotted screwdriver 2mm x 0.5 mm or 3 mm x 0.5 mm and a digital multimeter.

For calibration, proceed as follows:

1. Close the jumper JP2
2. Set the multimeter to read voltage continues, with scale 2V
3. Place the tip of the meter as the image below





4. Using the slotted screwdriver, turn the trimmer ADJ to read on the display of the multimeter 1.4 V approx. It is not necessary to obtain an accurate reading of 1.4 V. Just get a setting as close to this value.
5. After calibration, remove the jumper from JP2 and press the Reset button. The two status LEDs, LED1 and LED2 will flash for about 10 seconds to allow time to close this container.

Container closure procedure

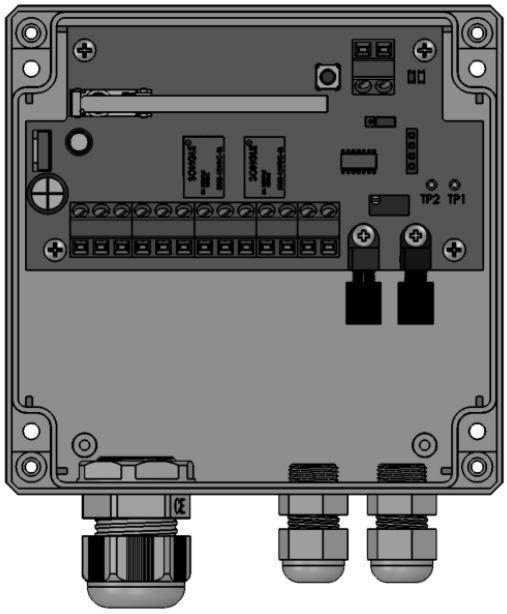
Follow this procedure for closing the container:

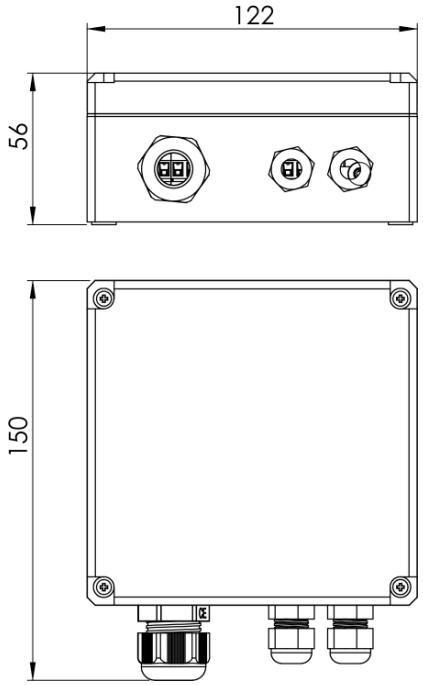
1. Make sure all connections are made correctly
2. Press the reset button
3. Close the box within 10 seconds

In this way the 'fiber RX will adjust without any influence of external light.

Now the system is calibrated and ready for operation 24H.

DEVICE FEATURES





- No. Loop on board: 1
- Manageable fiber optic loop: Max 200 (mt)
- Manageable type optical fiber: Fiber optic plastic model FCX-60008 / X
- Loop Alarm outputs: 2 (Cut, Torsion)
- Auxiliary Outputs: 1 (Open Collector Life Tamper Terminal)
- Power supply: 12Vdc
- Consumption in stand-by (not in alarm): 8mA max
- Alarm current cut and torsion: 65mA max
- Housing Dimensions (mm) (WxHxD): 120x122x56
- Container size conduit (mm) (WxHxD): 156x122x56

Note:

Note: