



Trackers FEiNA S.L.  
Fàbrica "El Molinet", s/n  
08250 Sant martí de Torruella (Barcelona)  
Tel: 93 8361827 / 93 8751001  
[feina@tracker.cat](mailto:feina@tracker.cat)  
[www.tracker.cat](http://www.tracker.cat)

---

## SYSTEM FOR CONNECTING SF4 TRACKERS IN A NETWORK

### Electrical power connection

To power the trackers, 12-volt, 12A lead-gel batteries can be used. One battery for every 8 trackers. So, if, for example there are 120 trackers there will be 15 batteries.

The batteries must then all be connected in parallel and all the trackers connected.

The cable running from each tracker to the nearest battery must have a certain resistance so that when the motor is jammed there is a slight drop in voltage and the motor is not forced. The minimum advisable resistance between battery and tracker would be 0.4 ohms. Using copper cable, you can use the formula:  $R = (2 * L * 0.017 / S)$ .

L is the distance in metres from the battery to the tracker, S is the section of the cable in  $\text{mm}^2$  and R is the resistance, which must be greater than 0.4 ohms. For example, if the section is  $0.5 \text{ mm}^2$  and the length of the cable is 10 metres, R will be 0.68 ohms.

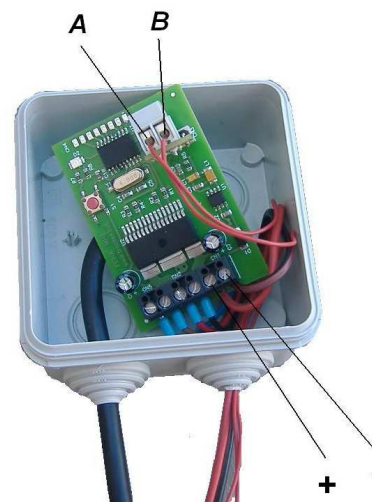
There are two options for keeping the batteries charged. One is to have a small charger for each battery charging them 24 hours a day. They must be charged with less than 0.25 amps so they are not damaged.

The other system is a more powerful central regulator for the whole battery system. The regulator has to be able to supply at least 0.2 amps multiplied by the number of batteries. The cabling between batteries must be calculated properly so that the charging current reaches everywhere properly.

### Connecting the network

It is essential that the electronic control panel is connected to the same 12-volt supply as the trackers, so as to have a common negative. Then, the network wire must be connected to the terminal at the right-hand end of the panel. It can be  $0.2 \text{ mm}^2$  section wire or thicker. The wire must connect to all trackers with the terminal strip in each panel. On one side (A) you must connect the cable that comes from the the control unit or the previous tracker, and on the other side (B), the cable that goes towards the following tracker. Now everything is connected.

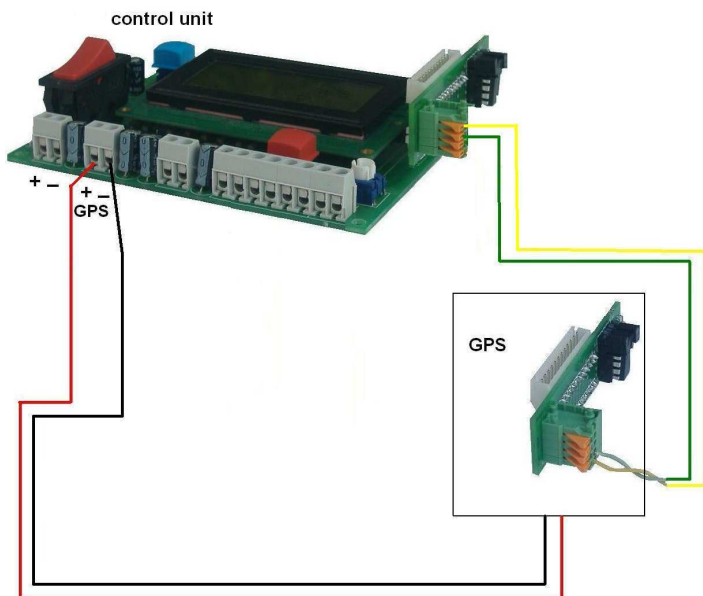
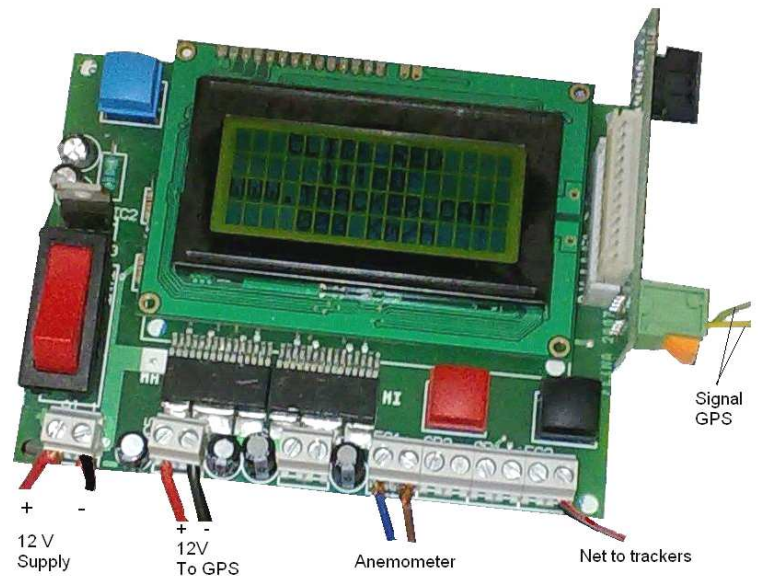
The image of the connections can be seen on the side. The 12 V electrical feed for the control panel can be seen on the left.



If a GPS is connected, it will receive power from the following terminal strip. The signal wires that come from the GPS must be connected to the board on the right as is indicated (of the 4 contacts there are, they have to connect to the two upper contacts).

If an anemometer is connected, it must be plugged in where the image indicates.

The network wire must be connected to the terminal strip on the right edge; this wire goes, one after another, to all trackers.



## Programming

The trackers can be programmed one by one, as indicated in the manual, but they can also be programmed from the central control unit. To do this:

- A) Connect all the trackers without pressing any buttons.
- B) Turn on the control unit with the switch.
- C) Press the red button until "enter time and restart" appears on the screen.
- D) Press the black button.
- E) Tell it it is tracker 252 (by pressing the red button).
- F) Set the hour and minute in solar time. Red button to change the value, black button to move to the next value. Finally, press the black one again and "transmit" appears on the screen.

Nothing else needs to be done. After a few seconds the trackers will move to the start and then the appropriate position for the time that has been entered.

## **Various network controls**

### Identify trackers

In order to operate more flexibly from the central control unit, it can be a good idea to give each tracker or group of trackers an identifying number so that an order can be given only to the trackers you want.

To do this, proceed as follows:

To give the no. x to a tracker or group of trackers you need to connect only these trackers. The others must remain disconnected (the power or the cable).

Then, press the red button of the network control unit until you reach the "assign tracker no." screen.

Press the black one.

Put in the no. you want to use to identify the tracker or trackers.

Then all you need to do is to repeat the operation for the other trackers.

### Enter time

Press the red button until you reach the "Enter time" screen.

Press the black one.

Enter the no. of the tracker or group of trackers for which you want to update the time. If you want to update the whole plant, put in the "wild card" no., which is 252.

Enter the hour and minute with the red and black buttons and press the black one again.

After "transmit", the time will have been updated.

### Enter time and restart

Press the red button until you reach the "Enter time and restart" screen

The rest of the process is as in "Enter time".

With this, after putting in the time the trackers involved will be restarted and positioned in their places based on the time entered.

### Restart

Press the red button until you reach the "Restart" screen

Press the black one.

Enter the no. of the tracker or group of trackers you want to restart.

The trackers involved will be restarted and positioned based on the time they are set to.

### Move west

Press the red button until you reach the "Move west" screen.

Press the black one.

Enter the no. of the tracker or group of trackers whose position you want to change. If you want to update the whole plant, put in the "wild card" no., which is 252.

Then enter the number of impulses you want them to move. After "transmit", the trackers will move the number of impulses that have been entered.

It must be borne in mind that this movement is not taken into account in each tracker's program. So, when it is time, the tracker will move based on the new position. This may mean that at the end of its route it will hit the stop.

## Move east

As above but in the other direction.

## Wind

This is to position the trackers in a position of little wind resistance, that is, little tilt in relation to horizontal.

When the "wind" screen is seen press the black button. If no button is pressed, it will return to its position after 3.5 hours.

Before 3.5 hours have passed, if you wish that they return to their position, just press the black button again.

If you wish that they remain in this position until the contrary is ordered, you just need to switch off the control unit. When you wish to put them back in their place, start it again and execute an order to the trackers.

Likewise, if an anemometer has been connected to the board, when the speed of the anemometer programming is surpassed, it will apply the "wind" operation.

If the anemometer is connected, the instantaneous wind speed in km/hr will appear on the screen.

If you press the red button, the following appears:

```
WIND SP. 000 Km/h
```

With the red button you put the speed you want the trackers to be horizontal.

If you press the blue button, the following will appear:

```
0 to 5 :00,00%
5 to 10:00,00%
10 to 15:00,00%
15 to 20:00,00%
```

This the percentage of time there has been wind in each one of the speeds from the last time you put the data to 0, expressed in km/h.

If you press the blue button again, the following screen appears with the speeds 20 to 40 km/h, then 40 to 60 km/h, after that 60 to 80 km/h, then 80 to 100 km/h and finally 100 to > 115.

The last screen will be:

```
Max sp.:000 Km/h
TOTAL 00000 HOURS
```

```
R&B==> 0
```

This screen informs you of the wind's maximum speed from the last time that it was put to 0, and the total number of hours that have passed from it being at 0.

It also informs you that if you press the red and black buttons simultaneously all wind values will be put to 0.

To program this speed, press the blue button. The speed can be changed with the red or black buttons.

## GPS

If connected to a GPS, the network control unit will receive the data in the following way:  
If it is switched off and started again, after exactly 3 minutes, it will take the data for the latitude and longitude of the place and the year, day, hour, minute and seconds. This data will be saved in the memory.

Every night, at 23:03, it will automatically take the hour of the GPS and it will send it to all trackers.

(A05 version)

