

REI2

REI2-Net



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REI2-Net

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1 Introduction:

REI2-Net is a combination of hardware devices and software which makes it possible to connect up to eight REI2s together, delegating to each the taking and management of particular types of event (Start, Stop, intermediate ...).

Main characteristics

The main characteristics of the REI2-Net system are:

- Sharing of data, see chapter 1.1 Data sharing on page 4
- Transparency of functioning, see chapter 1.2 Transparency of functioning on page 4
- Resizing and stability, see chapter 1.3 Resizing on page 4
- Safety of stored data, see chapter 1.4 Safety on page 5
- Ease of configuration, see chapter 3 Use on page 8

1.1 Data sharing

All the events taken are shared between the various components of the network without distinctions of role, so the stopwatch specialized in the management of starts will store the finish and intermediate events as well as the start events. It will also store all the modifications made to events stored by other stopwatches and distribute its own modifications.

This makes it possible to fully exploit all the typical software function features used on a particular occasion.

For example, it is possible to connect displayboards to the stopwatch assigned to management of the start to display the net time of competitors who reach the finish or to connect the displayboards to the machine for the management of intermediate events so they can be displayed.

1.2 Transparency of functioning

The programs normally used for the management of races are not modified by the activation of REI2-Net unless otherwise decided by making the appropriate configuration choices.

Every decision to 'limit' the operational capacities of a stopwatch is reversible at any moment without any problem (see chapter 3.3.3 External events reception menu on page 9).

1.3 Resizing

REI2-Net is specially designed to make it possible to add more stopwatches, also while an event is taking place, and to assign special tasks to them. As soon as it is configured the machine is immediately operational and, shortly afterwards, perfectly aligned with the other components of the network.

In the same way it is possible to remove a stopwatch from the network, even the chief one, without jeopardizing the data stored.

1.4 Safety

In the unfortunate case of a component of the network malfunctioning or breaking down, it can be replaced. The events already shared with the other components of the network have already been safely stored away!

2 Hardware installation

2.1 Connection

First connect the various expansion units to the REI2-Net port on the back of REI2 (see Figure 1).

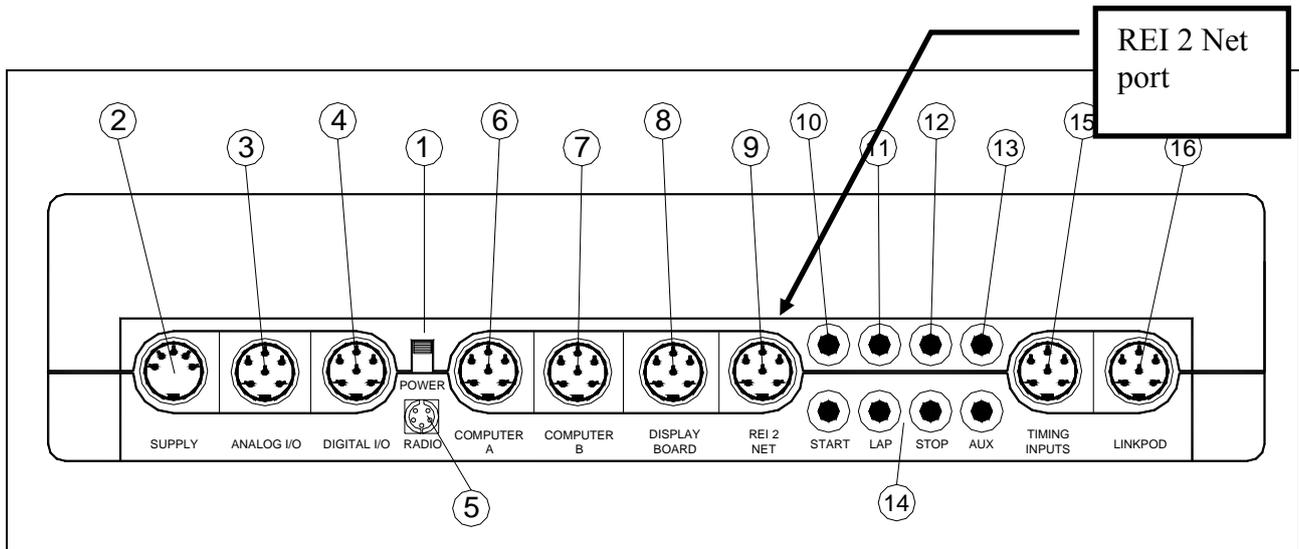


Figure 1 – Back of REI2 stopwatch (user manual)

Then connect the various expansion units using a bipolar cable. The output of each unit should be connected to the input of the next one so that all the units are on the same line.

If only two stopwatches are to be used in network and the distance between the two is less than a metre, it is possible to connect them with the dedicated \$CAB097 connection cable.



The connection topology is a bus one. Lateral off-shoots are not allowed. If remote units are connected at an intermediate point on the bus, a 4-pole connection is necessary.¹



Check that the switch on the units at the ends of the line are in **terminal** position.

2.2 Connection of peripherals

The various peripherals, start gates, photocells and sensors should be connected to the stopwatch which manages the events they are used for.

¹ There is no reason why you should not install the REI2 assigned to the management of these events in the same room where the other REI2s are located and use only the remote control handsets for control at a distance, arranging for the presence of an 'observer' on the spot to dictate the sequence of bib numbers to be associated to the events. Of course it is not possible to command displayboards on the site unless the LinkGate system with modem is used.

For example, the start gate should be connected to the START lines of the REI2 assigned to the management of starts and the finish photocells to the STOP line of the stopwatch assigned to the management of finishes.

2.2.1 LinkGate

If a LinkGate system is used for wireless transmission of events, it is necessary to check that the channel set is correct: the channels set on the EncRadios (or Encoders) must be the same as the one set on the REI2 which manages the event.



Particular attention should be paid to the channels set, above all if there are two or more REI2s managing the wireless impulses.

2.3 *Physical limits*

The type of connection is a bus one. The length between the first and last unit should not be greater than 100 metres. The maximum resistance of the line between the first and last unit must be less than 25 ohm

3 Use

This chapter describes how to configure the stopwatches that are part of REI2-Net. As previously mentioned, functioning of the REI2 programs is not modified by activation of the network.

Configuration of the single REI2s can also be changed during the timing session. The only thing to pay particular attention to at the outset is to configure first the stopwatch which takes on the functions of chief stopwatch.

Numbering of the network nodes is progressive and starts from one. Node one is assigned to the chief stopwatch.



The software version which manages REI2-Net must be the same on all the networked stopwatches.

3.1 Network synchronization

The network can be synchronized in two different ways. In the 'standard' mode, only one of the networked REI2s needs to be synchronized. The whole network will automatically synchronize itself. If synchronization has been successful, the text 'synchro net ok' will appear on the display. If it has not, the text 'synchro net error' will appear and will also be printed out on paper.

To synchronize the network in the second way, you simply go to the network configuration menu and select 'synchronize stopwatches in network' (see chapter 3.3.2 Synchro net). Also in this case the text communications will appear on the display.

3.2 REI2-Net

This function has three purposes:

- to indicate the number of REI2s in the network and the number assigned to each of them
- to activate the network
- to deactivate the network

3.2.1 Setting number of nodes

When you have accessed the function, the following screen display appears

<pre> 1,8 h:mm:ss.d REI2NET Machine N:1(1..8) Tot machine:8 ESC=quit net quit </pre>	<p>Summary of the configuration set (machine/machines)</p> <p>Number of the machine.</p> <p>Number of connected machines.</p>
--	---

The machine number can vary from 1 to 8, the Tot Machine from 2 to 8.

The stopwatch which takes the number 1 is the chief stopwatch, the others are collaborators.



The speed of the network depends directly on the number of nodes declared in this phase. You should set the actual number of nodes present. If necessary the number can be increased by reaccessing this function.



If a stopwatch with the same REI2 node is detected on the network, it will immediately leave the network.

3.2.2 Network activation

To activate the network quit the function by pressing key <ENT>

The chief stopwatch, the one with the number 1, activates the network and places itself at the disposal of its collaborators for checking the connection.

When connection has been requested by pressing <ENT>, the collaborating stopwatches, those with numbers 2 to 8, check that the chief stopwatch is present. During checking the text “**Wait for net connection – ESC = Break connection**” appears on the display. To quit this phase, press <ESC>.

3.2.3 Network disactivation

To disactivate the network, quit this function with the key <ESC>. The machine on which this operation is performed is immediately excluded from the network without modifying the functioning of the other connected machines.

3.3 REI2-Net configuration

This chapter illustrates how to set some configuration parameters of the REI2-Net network.

3.3.1 Print Time of Day from net

With this function it is possible to activate/disactivate printing of the time events received from the various components of the network.

Printing can be activated on two or more stopwatches (and if required, on all).

3.3.2 Synchro net

Sends the internal synchronization to all the networked stopwatches.

3.3.3 External events reception menu

This function makes it possible to specify which events can be managed and/or modified by the machine.

Whether the event on the line can be managed or not is shown by the rectangle, full for enabled event or empty for event not enabled. A blinking black rectangle shows the position of the cursor.

The enabled function keys are:

- <F1> ←: allows you to move the cursor to the right on the various logical channels
- <F2> →: allows you to move the cursor to the left

- <F3> **modify** each time pressed, this enables or disables the management of the event for the line on which the cursor is positioned
- <F4> **N.lap** allows you to set the lap number of the last rectangle on the right
- <ALT>+<F1> **All Sel.** enables management of all the events
- <ALT>+<F3> **No Sel.** disables management of all the events
- <F5> **quit** to return to the configuration menu.

The setup can be changed as required while the sports event is taking place.

3.3.4 Send all DB(ins. new REI2)

This function feature is used when inserting a new REI2 in the network as the replacement of a previously connected stopwatch. The network immediately recognizes the new connection and resends the proprietary data. For greater safety it is better to activate this function on only one of the stopwatches in the network.

3.3.5 Event uniqueness check

Choosing this function activates checking of the uniqueness of events. If by mistake two networked stopwatches have acquired the same event, REI2 will choose the one acquired first. However, REI2 prints the annulled time event on the printed strip, giving the reason for annulment.

3.3.6 Autom. deleting simultaneous ev.

This function can be used to improve display on TV if a number of competitors finish. For example, imagine that a group consisting of the bib numbers 3, 6 and 1, in this order, arrive at the finish. One stopwatch must deal with all the competitors' finishes to provide the database with the competitors for the rankings while the other, connected to the television, can immediately acquire and send only number 6 belonging to the athlete who is favourite to win.

4 Display

Activation of the REI2-Net is shown on the display. At the top left the address of the machine appears followed by the number of stopwatches in the network. Symbols appear on the right. The following table summarises the meaning of the different symbols:

Symbol	Meaning
●	The node is active
○	The node is no longer active
R	The node has become active again and is realigning itself
V	The node is active and the uniqueness of events is being checked

5 Configuration example

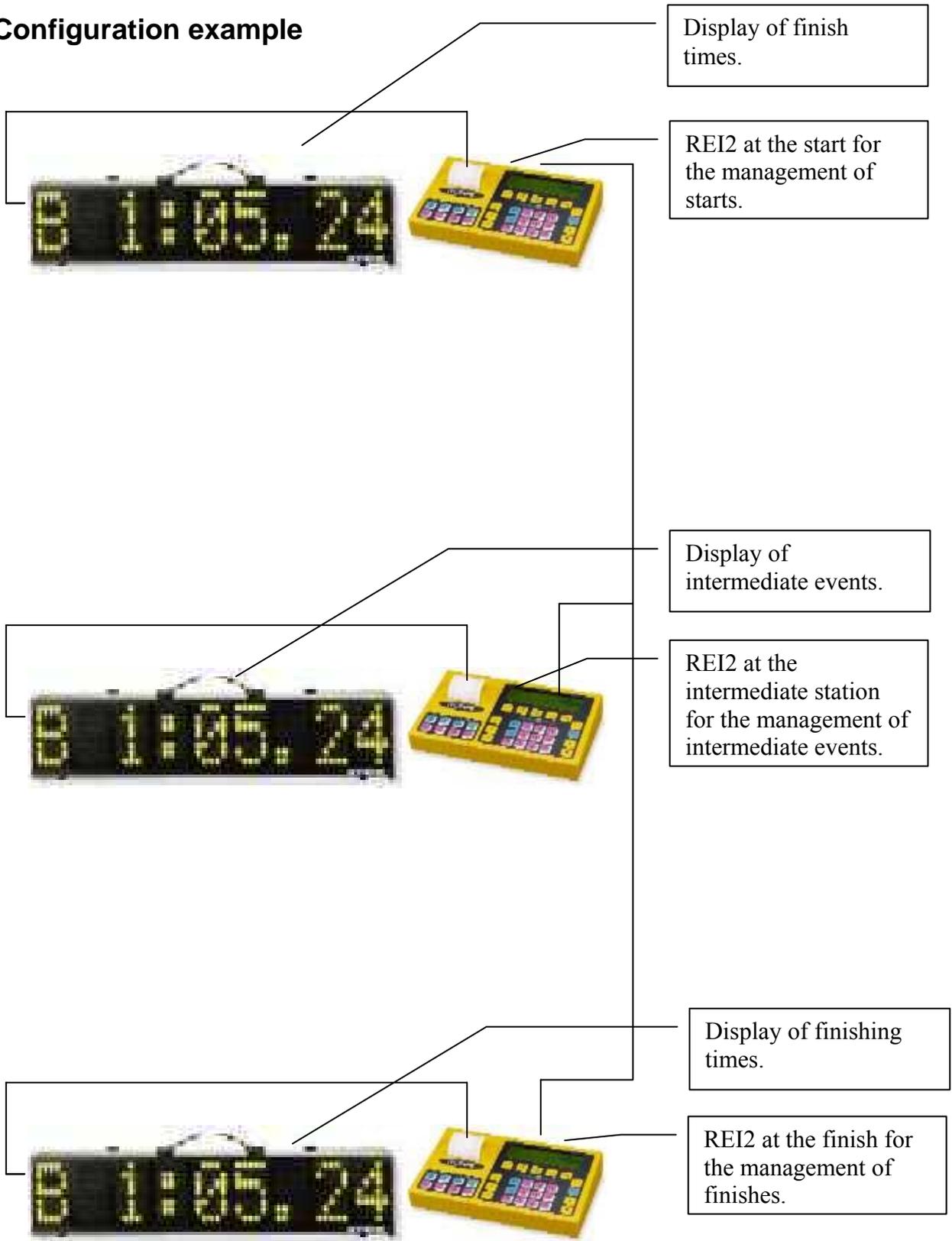


Figure 2 – Delegated start and intermediate management.

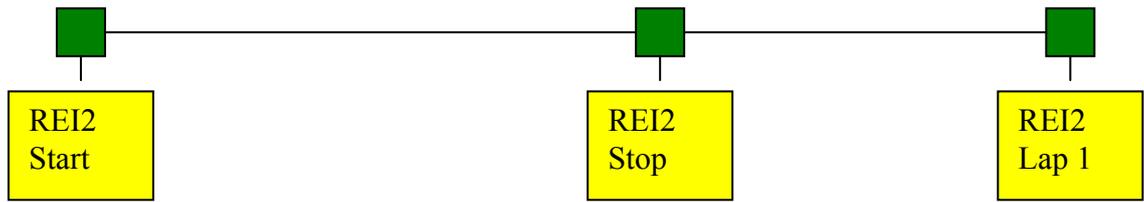


Figure 3 – Example of connection of three REI2s

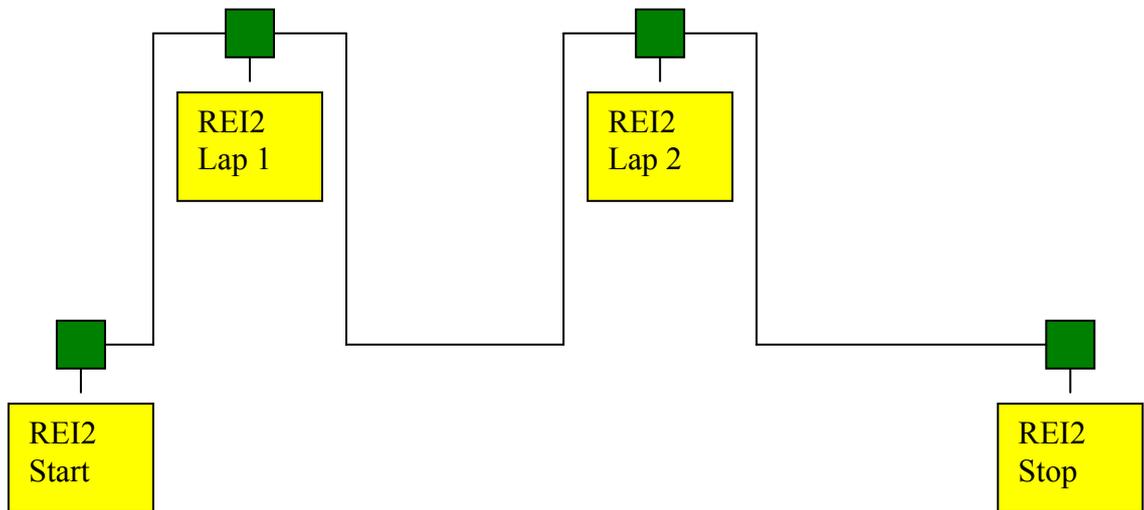


Figure 4 – Example of connection of four REI2s

6 Notes

6.1 Speed

The updating speed of the various stopwatches depends on a number of factors:

- Number of stopwatches declared: The greater the number of REI2s declared to be part of the network, the longer the time required to distribute the information. During configuration it is therefore advisable to set the actual number of nodes.
- Line quality: A bad-quality line makes the stopwatches repeat the same information several times to compensate for bad reception.

6.2 Scope of use

Not only the functions of event acquisition can be delegated, but also the various functions of printing out of rankings, time events and connection to data processing systems.

6.3 Programs with REI2-Net activatable ()

At the present moment REI2-Net can be used in combination with the programs **Single starts**, **Group starts**, **PC-OnLine** and **Dual Timer**. It cannot be used with the other programs.

6.4 Terminology

Node: By node is meant the single REI 2 connected to the REI2-Net.

Bus topology: Bus topology means that the various nodes are connected on a single line, open at the ends and without any lateral off-shoots.

7 REI2-Net Menu

M x.A: REI2-Net	3.2 REI2-Net 8
M x.B: REI2-Net configuration	
M x/2.A: Print Time of Day from net	3.3.1 Print Time of Day from net 9
M x/2.B: Synchro net	3.3.2 Synchro net 9
M x/2.C: External events reception menu	3.3.3 External events reception menu 9
M x/2.D: Send all DB(ins. new REI2)	3.3.4 Send all DB(ins. new REI2) 10
others	
M x/2b.A: Event uniqueness check	3.3.5 Event uniqueness check 10
M x/2b.B: Autom. deleting simultaneous ev..	3.3.6 Autom. deleting simultaneous ev. 10

8 Editing history

The table below summarises the main changes made to this document.

Program version	Chapter	Page	Editing description
1.07.9			First version of this manual
1.08.2			No substantial modification
1.08.5			No substantial modification

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The software and manuals are available in the following languages: Italian, English, German and French.

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