

Art.265-10: Radio Receiver for FS Scoreboards

Installation and service manual

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1. INTRODUCTION

This manual covers all aspects of installation and maintenance of the Radio Receiver for electronic FS series scoreboards; for the Radio Receiver to function properly, it is important that it is installed correctly: please read the manual carefully before attempting to install the Radio Receiver. The Command Console of the scoreboards must be equipped with a Radio Transmitter.

2. ELECTRICAL POWER SUPPLY SYSTEM

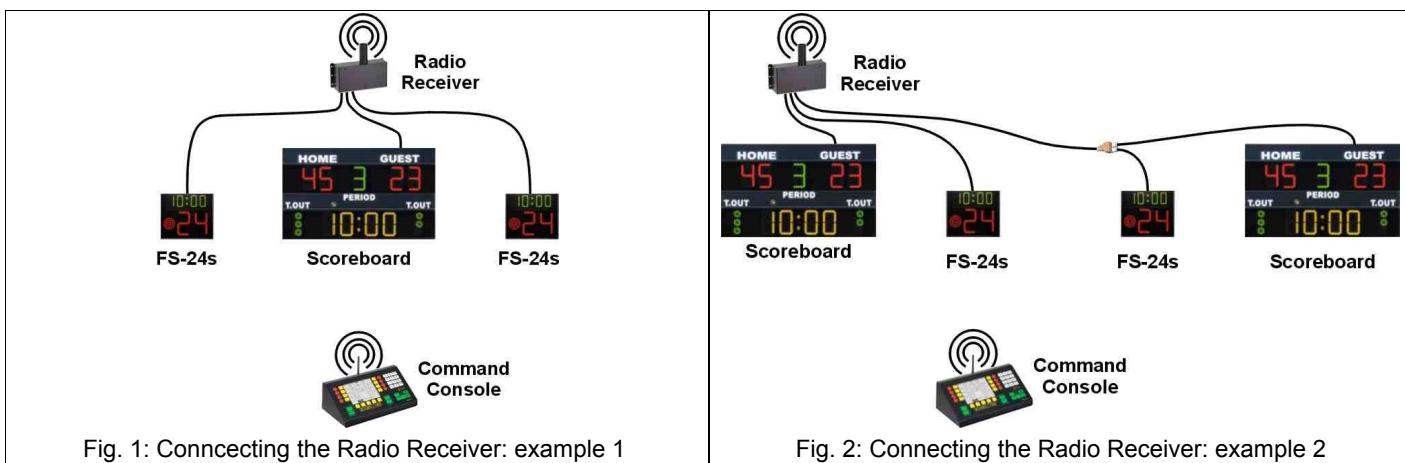
Since every Radio Receiver is provided with a power supply cable and plug, we suggest that a power cord socket controlled by an easily accessible switch be placed nearby. It is convenient to use the one provided with the various scoreboards.

3. SERIAL DATA CABLE SYSTEM

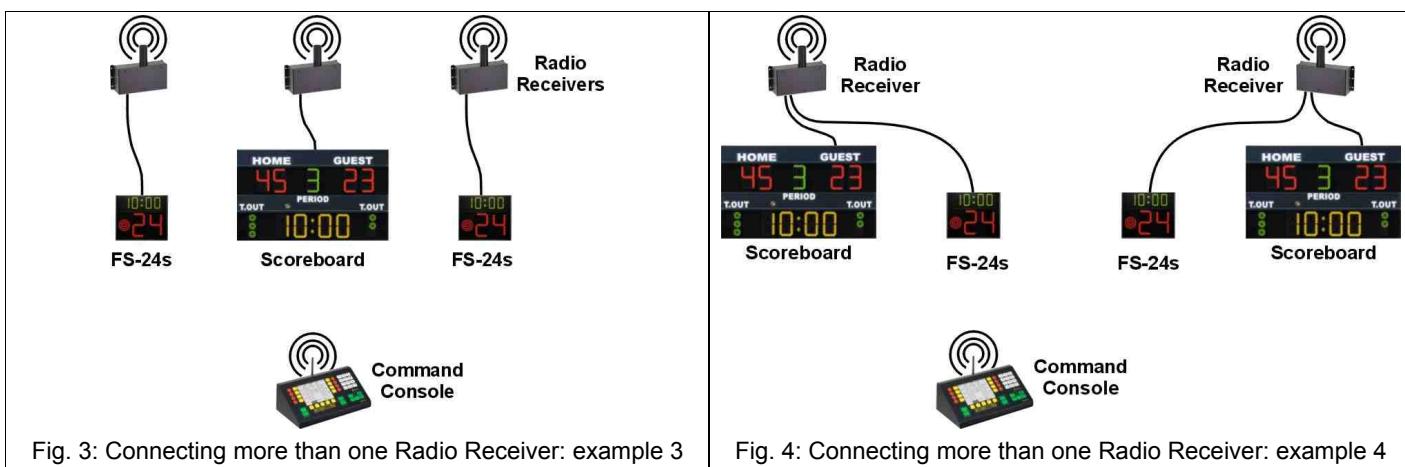
The Radio Receiver has three identical serial data output ports (Fig. 8) to which the various electronic scoreboards can be connected; to install the cables follow the directions below:

- do not pass the cable through the same ducts used for the electrical cables; this is to ensure safety, as well as to prevent receiving electrical interference from motors, air-conditioners, uninterruptible power supplies, etc.;
- avoid placing the cable where it may be exposed to high temperatures, mechanical damage, or vandalism.

Seeing there is only one Radio Receiver, it is best to place it close to the cables connecting the various boards; examples of configurations are shown in Fig. 1 and Fig. 2 below.



Seeing that there are more than one Radio Receivers, the best position for each Receiver is that which allows the least amount of cable to be used (see Fig. 3 and Fig. 4).



4. INSTALLING THE RECEIVER



Before installing the Radio Receiver on the wall, we suggest first running a preliminary test by temporarily connecting the Receiver to the scoreboards and to the mains power supply (see chapter 5.1).

4.1 SELECTING THE CORRECT POSITION

Even though the type of radio transmission used is very reliable, since the radio channel is selected automatically in order to avoid interference from other transmitters, and the communication distance outdoors is 500m, it is advised that for indoor environments, and in the presence of metal structures, the receiver is installed in a position that meets the following requirements:

- there are no visible obstacles between the Radio Receiver and the Command Console (Fig. 5);
- there are not a lot of metal walls nearby;
- the Radio Receiver is easily accessible.

4.2 INSTALLING ON WALL

1. Make two holes with a diameter of 6mm each in the wall (Fig. 6).
2. After inserting the dowels, align the Receiver and attach it to the wall by inserting and tightening the screws. Note that the protection tube of the antenna must be in a vertical position.

4.3 INSTALLING ON THE 24 SECONDS SHOT CLOCK SCOREBOARD

The various FS-24s scoreboard models displaying 24 second shot clocks require that the Radio Receiver be installed directly on the scoreboard's rear panel (Fig. 7) by using the screws provided.

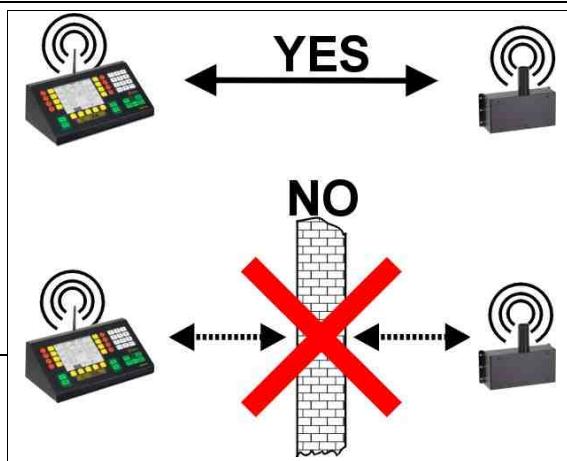


Fig. 5: Position of the Radio Receiver

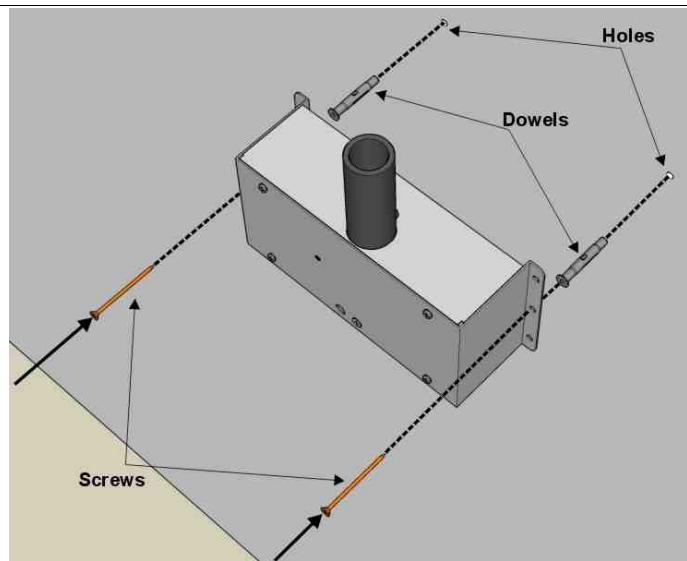


Fig. 6: Detail of installation on wall

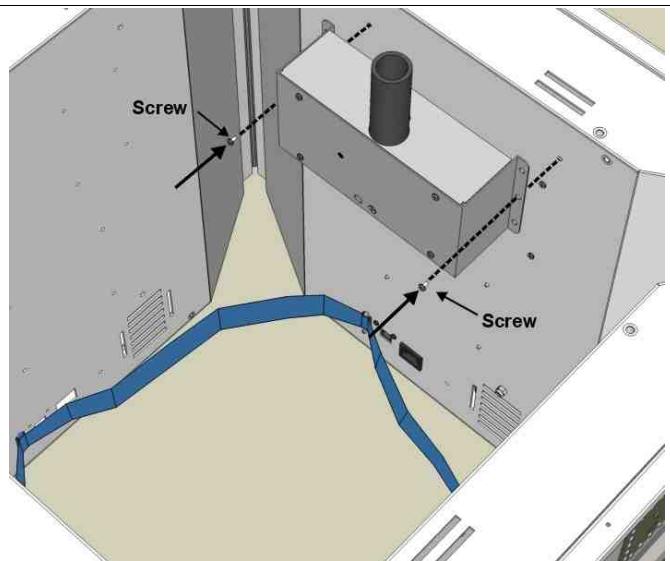


Fig. 7: Installation on FS-24s scoreboard

5. CONNECTING AND TESTING THE SCOREBOARD

Once the Radio Receiver has been installed, you can proceed with connecting the electrical power supply and the serial data cables.

5.1 CONNECTING THE RADIO RECEIVER

1. Make sure you have disconnected the power supply by turning off the power switch.
2. Insert the power cord plug (Fig. 8) into the wall socket (chapter 2).
3. Connect the electronic scoreboards to the Radio Receiver via the serial data cables.

5.2 PROCEDURE OF ASSOCIATING THE RADIO RECEIVERS

At this point the Radio Receiver should be associated with the designated Command Console, so that it only receives data from this console and no other.

4. Switch on the Command Console and only the Radio Receiver(s) which are associated with it, making sure that no other Consoles are switched on.
5. If there are other Radio Receivers in the same location or vicinity associated with other Consoles, it is advised to check that they are switched off, in order for them to not be involved in the associating procedure.
6. From the Command Console press the buttons **Setup Menu** → **SYSTEM**; select “Yes” from the parameter “Connect new scoreboards” and wait circa 1 minute until the value “No” returns automatically.

The Radio Receiver should now be associated with the Command Console and will begin sending data to the various connected scoreboards; after this initial set up, you do not have to repeat the procedure when switching on the Console again; connection to the Console will occur automatically: the procedure will need to be repeated only if you wish to connect the Receiver to another Command Console.



Note that all Radio Receivers which are switched on and functioning will be permanently associated with the Console, provided that they are not already in communication with other Consoles.

5.3 TESTING THE RADIO RECEIVER

Once the Radio Receiver has been installed and associated with the Command Console:

1. Through the proper hole, make sure that the red LED inside the Receiver is illuminated and flashing (Fig. 8); if it is not illuminated, substitute the power supply (chapter 6.4). If it is illuminated but not flashing, check the radio connection (chapter 6.1.3).
2. Make sure that the scoreboards display all the information present on the Console's screen; otherwise, see chapters 6.1.1, 6.1.2, 6.1.3.

6. MAINTENANCE

This chapter contains information on how to quickly resolve the main problems that may occur with the Radio Receiver over time. For problems with scoreboards, consult the relative installation manuals. If you have further problems that cannot be solved herein, please contact us.

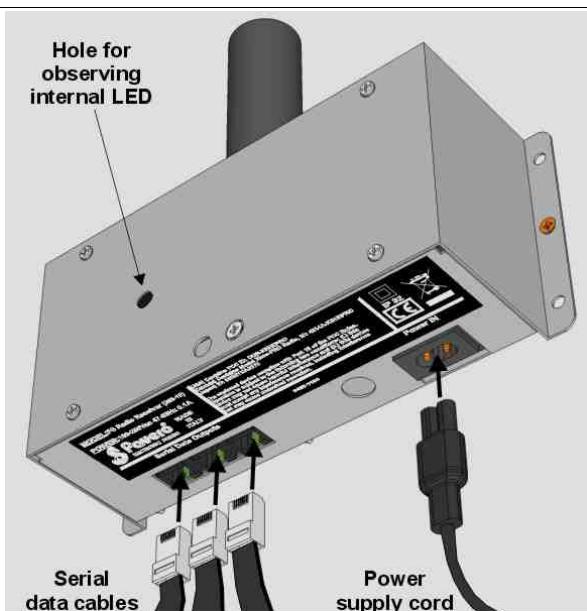


Fig. 8: Connecting the scoreboards

For all malfunctions, the following is a list of operations, ranked according to priority, that should be carried out to re-establish the Radio Receiver's proper functioning.

6.1 MALFUNCTIONS

→ 6.1.1 The Radio Receiver - controlled scoreboard lights up for 1 second but then switches off completely.

1. Repeat the procedure of associating the Receiver to the Console (chapter 5.2, points 4-6).
2. If you have another radio Console, try using it (effectuating the associating procedure).
3. Check that there is power supply at the socket for the Radio Receiver.
4. By looking through the proper hole (Fig. 8), check the red LED of the Radio Receiver:
 - a) When the red LED is turned off, measure the electrical voltage coming out of the internal power supply (chapter 6.4); if it measures +12Vdc, then change the control board (chapter 6.2), otherwise substitute the power supply until (chapter 6.4).
 - b) When the red LED is illuminated but not flashing there is power voltage but the data is not being received from the Console; increase the quality of radio communication by bringing the Console and the Radio Receiver nearer together, and by eliminating any obstacles between the two. If no improvement occurs, substitute the control board (chapter 6.2).
 - c) When the red LED is flashing the Radio Receiver is correctly receiving data from the Console, but the data is not being sent to the Scoreboard.
5. Try using another serial data output port of the Radio Receiver (Fig. 8).
6. Check that the serial data cable is properly connected to the scoreboard and to the Radio Receiver and that there are no signs of abrasions, cuts or damage.
7. Temporarily disconnect the serial data cable from the Radio Receiver and connect it directly to one of the "DATA SERIAL OUTPUTS" ports of the Console; if the scoreboard functions properly then substitute the control board of the Radio Receiver (chapter 6.2), otherwise substitute the serial data cable.

→ 6.1.2 The scoreboard displays data that does not correspond to the data of the Console.

When the scoreboard displays data which is not congruent with the data sent from the Command Console, it means that the Radio Receiver has been connected to another Console by mistake; this happens when the Receiver is left on during a phase of association made by the Console.

1. Repeat the procedure of associating the Receiver to the Command Console (chapter 5.2, points 4-6).

→ 6.1.3 While operating, the scoreboard does not update data or it switches on and off.

If the scoreboard does not immediately update the data from the Console, or if it switches on or off irregularly, it means that there has been a deterioration in the radio connection between the Console and the Receiver.

1. Make sure that the Console's antenna is in a vertical position.
2. Eliminate any obstacles that may be present (metal structures, people, equipment, etc.) between the Console and the Receiver (Fig. 5).
3. Disconnect the power supply from both the Command Console and the Radio Receiver for a few seconds, so that when turned on again, they automatically reconnect through a new radio channel with less interference.
4. Try placing the Command Console closer to the Radio Receiver.

6.2 REPLACING THE CONTROL BOARD



1. Disconnect the power supply cord and the serial data cables of the Radio Receiver (Fig. 8).

2. Detach the Radio Receiver from the wall (Fig. 6) and then unscrew the 4 front screws (Fig. 9) in order to remove the top casing.

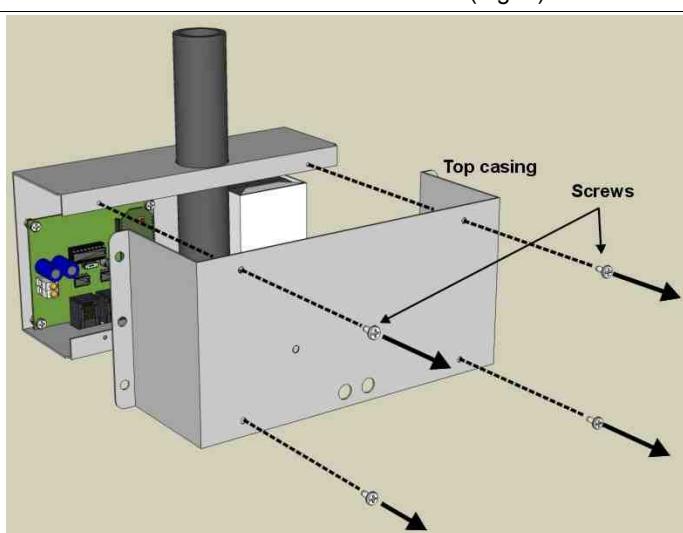


Fig. 9: Lock nuts on the control board

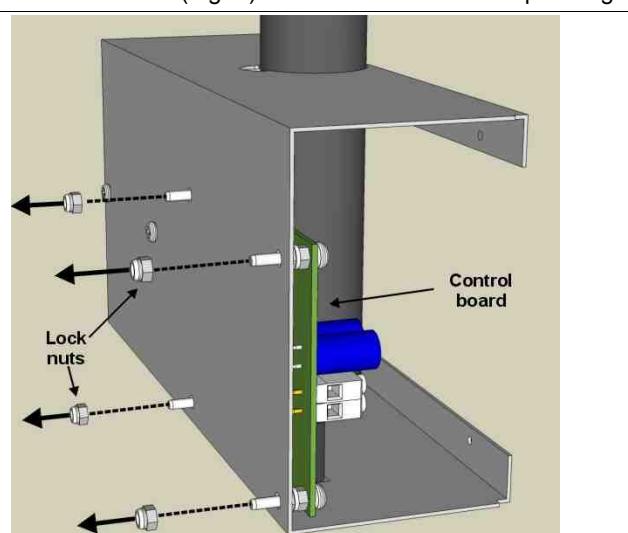
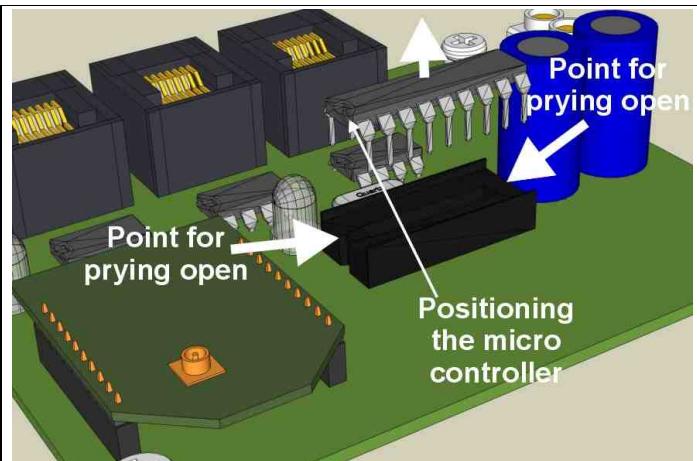
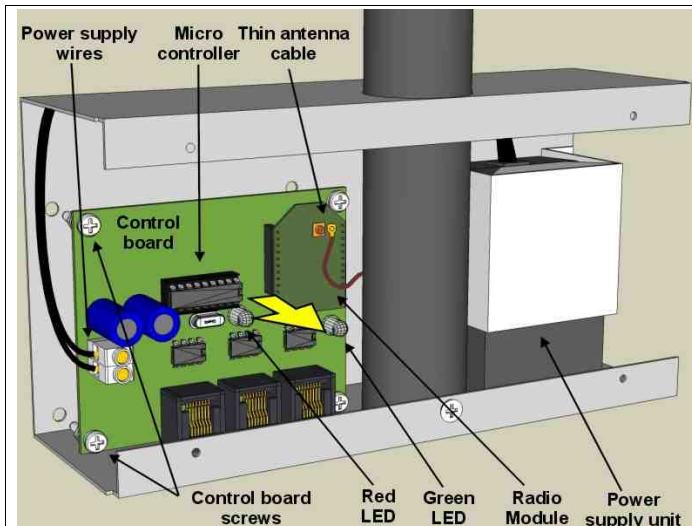


Fig. 10: Opening the top casing

3. On the radio module, extract the thin antenna cable from the connector; then with a screwdriver remove the power supply

- wires from the terminals (Fig. 11).
4. Remove the lock nuts from the back of the device (Fig. 10) and remove the control board from its casing (Fig. 11).
 5. Position and fasten the new board; then reconnect the power supply wires into the terminals and reconnect the thin antenna cable.
 6. Replace the top casing on the Receiver and install on the wall. Then connect the cables.



6.3 REPLACING THE MICRO CONTROLLER

1. Open the top casing of the Receiver as indicated in points 1-2 of chapter 6.2.
2. Find the micro controller (Fig. 11) and extract it from its base by alternately prying each of the shortest edges with a small screwdriver (Fig. 12).
3. Insert the new micro controller making sure it faces the correct direction; then close the Receiver with the top casing and install on the wall. Connect the cables.

6.4 REPLACING THE POWER SUPPLY

1. Open the top casing of the Receiver as indicated in point 1-2 of chapter 6.2.
2. Disconnect the power supply wires from the terminals of the control board (Fig. 11).
3. With a 7 mm wrench, unscrew the nuts in order to remove the metal lock plate of the power supply (Fig. 13).
4. Insert and fasten the new power supply unit, then connect the power supply wires to the control board. Close the Receiver by replacing the top casing. Install on the wall and connect the cables.

