

857/ 891 SPRINT / ESCORT 6+6 ASSEMBLY AND USE

Portable Zero LLC
26045 Birch Bluff Road
Shorewood, MN 55331
www.portablezero.com
info@portablezero.com

Includes: 2 escort side frames, battery case, front and back cover, 2 rubber feet (installed) for battery case, 2 battery case side mounts , foam padding for battery, 8 self-adhesive rubber pads, 4 m4 X12 mm screws for escort. 4 m4 X 14 mm screws for mounting complete system, 8 m3 x 6 mm screws to mount battery case to side mounts and instructions.

These instructions are fairly detailed for the benefit of those that want as much information as possible. I know that some of you will skip reading and just get to installation. It would be beneficial to read the entire instruction sheet including CAUTIONS at the bottom of this page before assembling or using your 857 or 891 sprint / escort 6+6.

A suitable battery will be required before you can use the this system. The battery case is designed to hold a pair of custom LiFePO4 batteries supplied by Bioenno Power www.bioennopower.com battery part # [12V, 6Ah LFP Battery \(PVC, BLF-1206CUSTOM\)](#) A typical purchase would be 1 battery including charger and the second battery alone without charger. For faster charging you could purchase a charger with each battery. The batteries should NOT be connected together when charging. Use batteries in a *Parallel* circuit only when they both have an equal charge. Never connect your batteries in a *series (24 volt)* for use with a 12V Amateur radio.

Purchase Correct Battery. Batteries and chargers are available Bioenno Power (links are provided on page 2 and at www.portablezero.com) The [12V, 6Ah LFP Battery \(PVC, BLF-1206CUSTOM\)](#) is not shown on the Bioenno Power website unless you use the direct link or put the battery description in their search box.

Please read the section about battery use on page 2.

Although Bioenno Power has designed a battery for use with this sprint 6+6 system, you can choose any suitable battery that meets the voltage requirement of your radio and will fit into the battery case. Battery case inner dimensions are 9.30" (236.22 mm) deep X 5.65" (143.51) wide X 1.71" (43.43 MM) tall.

Cautions: Correct length (metric M4) mounting screws(included) must be used to mount the *sprint* and *escort* side panels to the radio or damage to the radio circuit board can result. When using the Escort side rails only , use the shorter M4 X 12MM for Yaesu Ft-857D and FT-891 The sprint battery case combined with escort side frames uses the longer M4 X 14mm. Do not over tighten the mounting screws or the threads in the radio can become stripped. Adjust your transmit power settings to operate within the current rating of your batteries. (check your operator's manual for power setting adjustments. It is advisable but not mandatory that fuses (not included) be installed on both the positive and negative power lead. The fuses can be located inside or outside the battery case. Care should be taken to make sure any internal battery case wire connections are secure and insulated properly. Anderson Power Poles® are the recommended connection technique. Make sure that you use a screwdriver that fits the 16 small battery case mounting and cover screws properly. Don't over tighten the screws once they have seated.

Note: Your kit includes foam padding for the batteries. Use the thin pads for the top or bottom and the thicker foam for the battery sides.

Ordering your Battery and Charger: links provided below and at <https://portablezerostore.ecwid.com/>

Recommended Battery and charger is available here> <https://www.bioennopower.com/products/12v-6ah-lfp-battery-pvc-blf-1206custom>. is not shown on the Bioenno Power website unless you use the direct link or put the battery description in their search box.

Battery Use: The following information is provided as starting guidelines only and is not intended as an in-depth guide for battery use. Please do proper research to fully understand your battery/radio characteristics and the battery that you will be using.

Operating your radio from batteries is much different than using a regulated 13.8V 25 amp power supply. Battery voltages must be monitored during use however the batteries supplied by Bioenno Power have a Protection Circuit Module (PCM) to monitor over charge and under voltage.

Battery voltage drops from the fully charged state to the lowest acceptable discharge state during use. Radio operation should be discontinued and the battery recharged when this occurs. The Yaesu FT-857D and FT-891 radios are designed for an operating voltage of about 13.8 +/- about 15%. The recommended LiFePO4 battery from Bioenno Power has a full charge voltage of 14.6 volts. During discharge the voltage will drop. The lowest recommended voltage is 11.5 volts. We have operated the radios without issues down to about 11.5V however your individual results may vary and we recommend that the battery voltage and radio behavior be carefully monitored during use. The *recommended* battery is rated at 6000 MAH (6.0 AH). In simple terms, that means you can draw approximately 1 amp for 6 hours or 6 amps for 1 hour. In actual use it is slightly less than that. It has a maximum continuous discharge of 12 amps. Some menu settings can be changed to reduce battery drain such as display brightness or display auto off/on etc. Please refer to your operator's manual for proper menu settings. The Sprint series system is designed for casual or short term emergency operations with an emphasis on compact size and is not intended to supply power for extended periods of time. It is important that you adjust you radio power setting when using the sprint battery system. Different modes may require a lower power setting.

Note: The Yaesu FT-857D has a voltage reading on the display so battery voltage can be constantly monitored. The FT-891 only shows voltage momentarily on power-up. You can also use an external inline voltage monitor with Anderson connectors installed. It shows valuable power data including voltage, wattage etc. They are available on Amazon and other locations.

Determine your choice of top or bottom mounting of battery case. You can mount the battery case under your radio and use the stand from your 857D/ 891 under the battery case as shown in **figure 1** or you can mount it above as in **figure 2**. Please note that the side mount holes are off set and need to be correctly positioned as well as having the stand holes aiming down and in the front if you are mounting the case under your radio. When mounting above radio, the case must be off set to the rear (figure 2) as to allow access to the control buttons on top of the radio. The front cover can be installed with 857/891 emblem facing outward or facing inward if you want the cover to be blank. Both sides of the cover are painted.

You will use the 8 small m3 x 6mm screws to attach the side mounts to the battery case. Install all 4 screws on each side before tightening them. The rubber pads (pre-installed) on the side mounts will face inward towards the radio. Do not over tighten the mounting screws. Just snug them up.

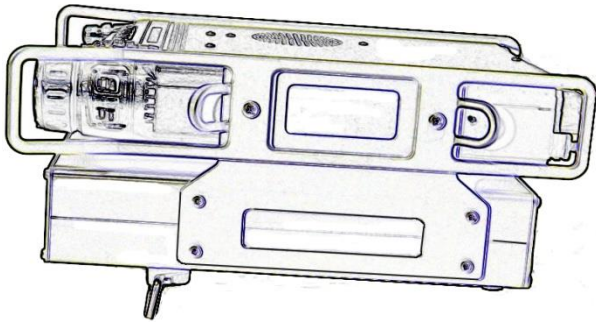


Figure 1

Shown with battery case under radio and stand removed from radio and installed on battery case using the original screws that came with your stand. Mount is off set towards the rear of the battery case and stand holes are at the front of the case.

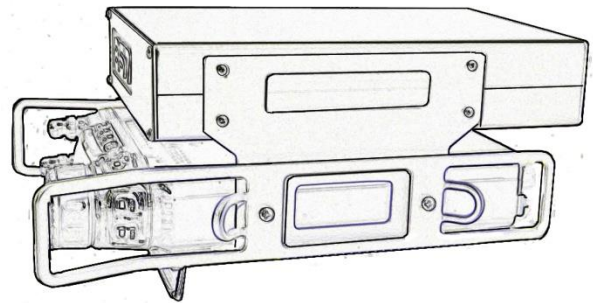


Figure 2

Shown with battery case mounted above radio. Mount is off set towards the front of the battery case. The 2 back rubber feet will be facing down towards the radio and be located at the front of the case.

Battery installation and wire feed through: Don't screw on the case back until you have the wires properly fed through the rubber grommets. See next page for best methods. After you purchase your battery or pair of batteries you will need to insert the batteries in the case and feed the charge and power wires through the case back. Note: According to Bioenno Power, You can charge the battery through the charge cable or through the power leads. The battery charger supplied with your battery is wired for the charge plug. It is acceptable to charge the battery while drawing power from the power cable. This allows you to use the radio while charging or to connect a solar panel with suitable LiFePO4 charge controller while operating portable.

Place a piece of the included foam pad at the front and sides of each battery for padding. The power and charge leads will be at the back of the case. You will notice that the wires protrude from the battery at one corner. Take note of the position of the Grommets on the case back and align the batteries so that the wires correspond with the pass through holes in the case back. Continued on next page

On the Yaesu 857D, It is very convenient if the main power lead is converted to Anderson Powerpoles however a short power lead with a matching Molex connector can also be used. For the Ft-891, An HF 4 pin connector will be required (not Included). Many hams cut the connector off the Yaesu supplied power lead and make a shortened power lead for portable use. By putting Anderson connectors on the end of the shortened lead, it can also be used at your base station power supply if Anderson connectors are used for your shack DC power lead.

It is also advisable but not mandatory that fuses be installed on both the negative and positive leads. Use care while sliding the battery in and out of the battery case and be careful never to drop the batteries on the ground.

Wires/Grommets: There are 2 possible methods to feed the wire through the grommets/case back. Method 1 (the easy method) is to cut open one side of the rubber grommet and simply slide it over the wires once you have pulled them through the holes in case back. Carefully insert the rubber grommet into the case back making sure that it is seated properly in the slot. The second preferred method (without cutting the grommet open) is to slide the plastic sleeve off of the Anderson connector and push it back part way up the wire. Then slide the grommet over Anderson connector. Now squeeze the plastic sleeve slightly together and push it through the grommet and back onto the Anderson connector. Now push the charge cable through the grommet and install the grommet into the case back.

Once you have your batteries installed, You can slide the radio down into the mounting position. It may be necessary to loosen the case screws on one side if it is difficult to slide the radio into position. Lay the radio together with the battery case on its side on a soft surface. Align the side mounts with the mounting holes in the radio. Set the escort side panel in place and use the longer 14MM screws to secure the battery case assembly to the radio with the escort side attached. **Caution: Do not over tighten the mounting screws. Just moderate tightening is required. The tapped holes in the radio can be stripped if over tightened.**

You are all set to enjoy some portable operations after you connect your antenna. **Remember to set proper transmit power level. Refer to your manual for correct menu item..**