

## PowerPole® ASSEMBLY INSTRUCTIONS

### Revision History

03 Aug 2021	First issued
16 Aug 2021	Broken Link fixed
21 Jan 2022	Typos fixed
23 Aug 2022	Photo added
24 June 2024	45Amp instructions added

### General information

We sell several types of PowerPole contact, which have different current ratings based on the size of wire they are designed to accept.

The PowerPole ends are identical for all the connectors we sell, so they can be connected together even if they have a different current rating. Ensure you do not exceed the current rating of the smaller connector.

If crimping PowerPole contacts, the correct size contacts should be used. Otherwise, if contacts designed for thicker wire are used, there is a risk of the wire pulling out of the contact when tension is applied (such as when pulling on the cable to disconnect it from something).

If soldering wire to the contacts, the contact current rating is less critical. It is fine to use contacts that are larger than necessary, as the extra space can be filled with solder. Please note the 45A connector is an open barrel connector and will need the barrel closing up using pliers /crimper before soldering to allow the contact to be correctly inserted into the shell.

15A: wire size 20 to 16 AWG, 0.52 to 1.3 mm<sup>2</sup> CSA

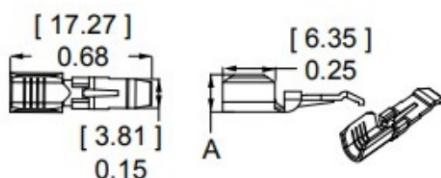
•30A: wire size 16 to 12 AWG, 1.3 to 3.3 mm<sup>2</sup> CSA

•45A: wire size 14 to 10 AWG, 2.1 to 5.3 mm<sup>2</sup> CSA

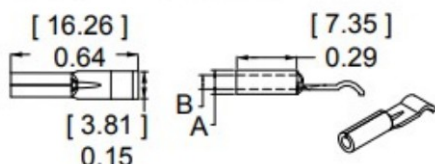
("CSA" wire sizes are the "cross-sectional area" of the wire.)

Please note the 15A and 30A contacts are **Closed Barrel**. The 45A are **Open Barrel**

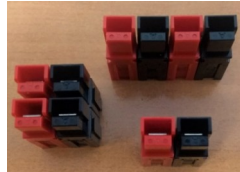
#### Open Barrel Contact



#### Closed Barrel Contact



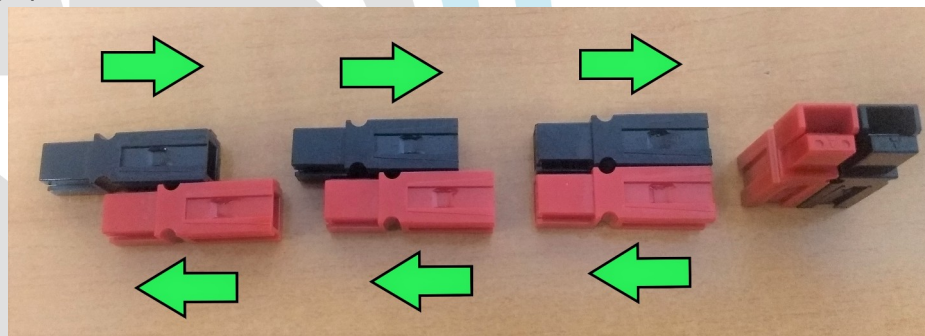
PowerPole® shells can be linked together in different configurations.



The standard configuration for Amateur Radio is shown below.

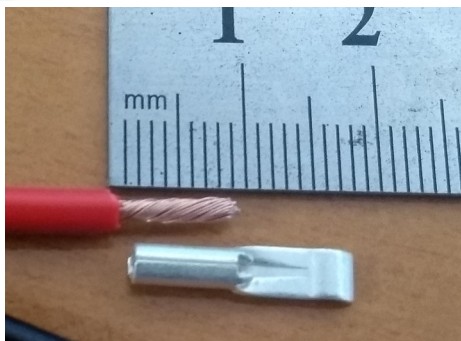


The shells are linked by dovetail joints. Always slide the joints together, they will slide in one direction!! This should be obvious by looking at them carefully. The shells may be damaged by trying to snap them together or pulling apart.

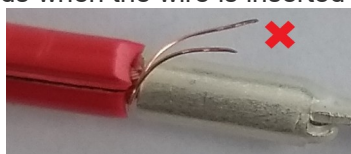


## Stripping and connector instructions

Strip the wire with suitable wire strippers. Length 8mm min, 9mm max



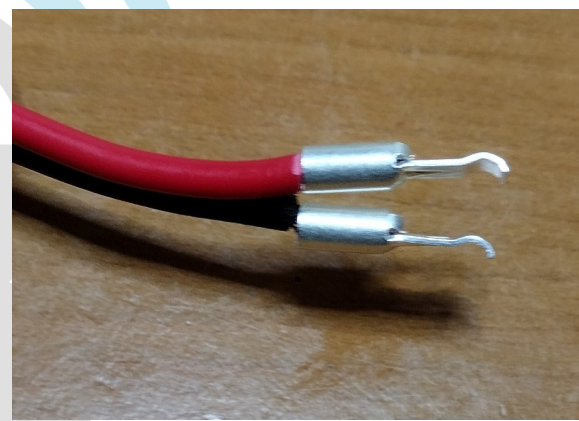
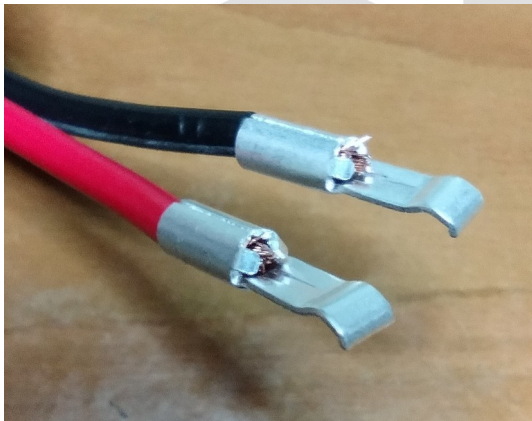
Twist the strands slightly to ensure there are no loose strands when the wire is inserted into the contacts.



Copper strands should be seen in the hole. This indicates the correct amount of wire is in the connector.



Ensure the insulation is flush with the connector. Ensure the connectors are orientated as shown below. This will make sure the connector is aligned correctly without twisting the wire when fitting the shells.



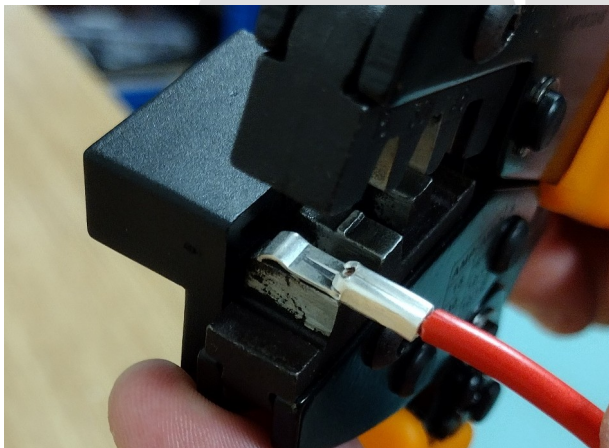
## Crimping Instructions

You will need a crimping tool with the correct die such as the

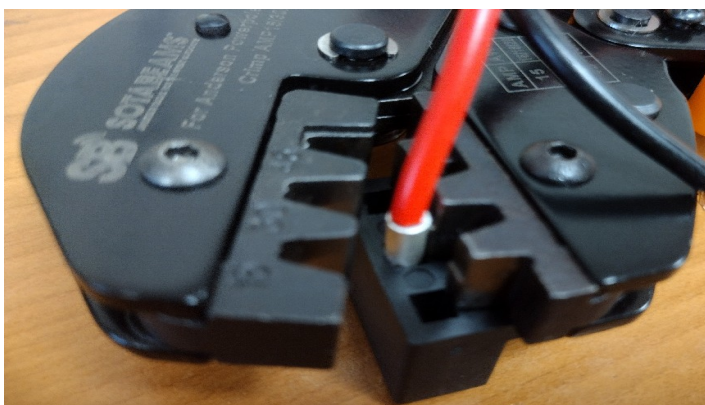
[SOTABEAMS PowerPole Crimping tool](#)



Insert the wire and contact into the crimping tool. Ensure the crimp is not upside down



Ensure the shoulder of the contact is flush with the back plate of the tool.



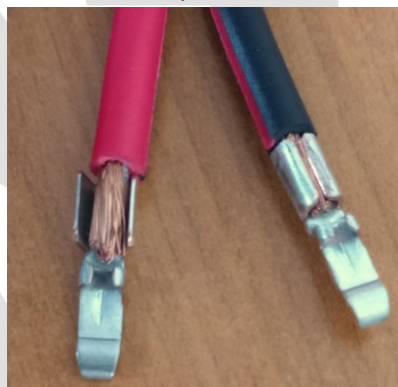


Gently squeeze the handles of the crimp tool until the ratchet releases.



#### 45 Amp connectors

The 45 Amp connectors are open barrel design. The stripped cable goes into the larger open wings. The small wings are the cable stop, wire should not go beyond the stop.



For crimping it is easier to put the connector into the crimper first. Note the wings may need to be closed up slightly using pliers to ensure the connector fits into the tool. Partly close the tool to hold the connector in place.



Insert the wire into the connector and crimp.

## **Soldering Instructions**

If you do not have a crimping tool, then you can solder the PowerPoles. When soldering the connector pins, be careful not to use too much solder. Keep the solder inside where the wire goes. If a blob of solder gets on the outside of the connector body you may have trouble putting the contact into the housing. If you get solder on the contact surface area you will not make a good contact. Tin the cable first then solder the connector to the wire.

For 45A connectors .Tin the cable first, solder the wire in place (do not use too much solder as the barrel may not close enough). Crimp or use pliers to close the barrel additional solder may be added from the end or between the wings.



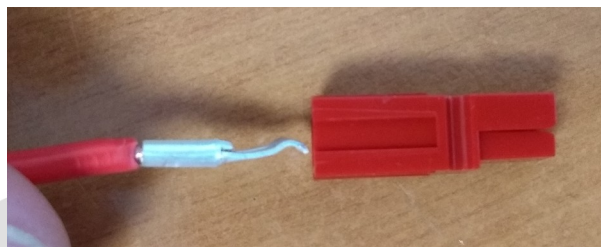
## Fitting the shells

It is often easier to fit the shells before joining the shells together.

The contacts go in the shells in only one way. Insert the contacts with their sharp edge down against the flat spring that is in the shell.



Ensure the contact and shell are lined up correctly.



They should slide in and click, a gentle firm push is required. If you do not hear a click or they are not fully seated, retry clicking them in. When they are inserted fully, you should notice that the contact and its wire "float" slightly inside the housing. When looking in from the front of the housing, the contact tip should slide over the top of the internal housing spring. This is the clicking sound that you hear.

## Useful additional information

YouTube <https://www.youtube.com/watch?v=QzLvdR6X81k>

[G0HWC discusses PowerPole\(R\) connectors](#)

[General Installation Tips](#)

Please let us know if you need help! Email [support@sotabeams.co.uk](mailto:support@sotabeams.co.uk)