**6P6C**

[](https://en.wikipedia.org/wiki/File:Conector_RJ11.jpg)

6P4C crimp-on style connector.

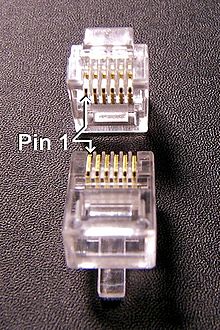
Modular plugs are described as containing a number of potential [contact](https://en.wikipedia.org/wiki/Electrical_connector) "positions" and the actual number of contacts installed within these positions. RJ11, RJ14, and RJ25 all use the same six-position modular connector, thus are physically identical except for the different number of contacts (two, four and six respectively).

The **6P2C**, **6P4C**, and **6P6C** modular connectors are probably best known for their use as [RJ11](https://en.wikipedia.org/wiki/RJ11), [RJ14](https://en.wikipedia.org/wiki/RJ14), and [RJ25](https://en.wikipedia.org/wiki/RJ25) registered jacks respectively.

**RJ11** is a physical interface often used for terminating telephone wires. It is probably the most familiar of the registered jacks, being used for single line [POTS](https://en.wikipedia.org/wiki/Plain_old_telephone_service) telephone jacks in most homes across the world.

**RJ14** is similar, but for two lines, and **RJ25** is for three lines. [RJ61](https://en.wikipedia.org/wiki/RJ61) is a similar registered jack for four lines. The telephone line cord and its plug are more often a true RJ11 with only two contacts.

**RJ11 wiring**

[](https://en.wikipedia.org/wiki/File:Rj25_connector.jpg)

6P6C connector showing the location of pin 1.

Cables sold as RJ11 often actually use 6P4C RJ14 connectors (six position, four contacts), with four wires running to a central [junction box](https://en.wikipedia.org/wiki/Junction_box). Two of its six possible contact positions connect [tip and ring](https://en.wikipedia.org/wiki/Tip_and_ring), and the other two contact positions are then unused. 6P2C and 6P6C can also be found in stores.

The contacts other than the two central tip and ring contacts are in practice used for various things such as a [ground](https://en.wikipedia.org/wiki/Ground_(electricity)) for [selective ringers](https://en.wikipedia.org/wiki/Party_line_(telephony)), low voltage power for a [dial](https://en.wikipedia.org/wiki/Rotary_dial) light, or for 'anti-tinkle' circuitry to prevent [pulse dialing](https://en.wikipedia.org/wiki/Pulse_dialing) phones from ringing the bell on other extensions. With [tone dialing](https://en.wikipedia.org/wiki/Tone_dialing), anti-tinkle measures are not required.

**Pinout**

The pins of the 6P6C connector are numbered 1 to 6, counting left to right when holding the connector tab side down with the opening for the cable facing the viewer.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Position** | **Pair** | [**T/R**](https://en.wikipedia.org/wiki/Tip_and_ring) | **±** | **RJ11** | **RJ14** | **RJ25** | [**Twisted pair**](https://en.wikipedia.org/wiki/Twisted_pair) **colors** | [**25-pair**](https://en.wikipedia.org/wiki/25-pair_color_code) **colors** | **Old colors**[**[a]**](https://en.wikipedia.org/wiki/Modular_connector#endnote_Old_colors) | **German colors**[**[b]**](https://en.wikipedia.org/wiki/Modular_connector#endnote_German_colors) | **Australian colors** |
| 1 | 3 | T | + |  |  | T3 | [Pair 3 Wire 1 Cat 5e/6](https://en.wikipedia.org/wiki/File:Wire_white_green_stripe.svg) white/green | [Pair 4 Wire 1](https://en.wikipedia.org/wiki/File:Wire_white_green_stripe.svg) white/green | [Pair 3 wire 1](https://en.wikipedia.org/wiki/File:Wire_white.svg) white | [Pair 3 wire 1](https://en.wikipedia.org/wiki/File:Wire_violet.svg) pink | [Pair 3 wire 1](https://en.wikipedia.org/wiki/File:Wire_orange.svg) orange |
| 2 | 2 | T | + |  | T2 | T2 | [Pair 2 Wire 1 Cat 5e/6](https://en.wikipedia.org/wiki/File:Wire_white_orange_stripe.svg) white/orange | [Pair 2 Wire 1](https://en.wikipedia.org/wiki/File:Wire_white_orange_stripe.svg) white/orange | [Pair 2 Wire 1 Old](https://en.wikipedia.org/wiki/File:Wire_black.svg) black | [Pair 2 ext. bell](https://en.wikipedia.org/wiki/File:Wire_green.svg) green | [Pair 2 ext. bell](https://en.wikipedia.org/wiki/File:Wire_red.svg) red |
| 3 | 1 | R | − | R1 | R1 | R1 | [Pair 3 Wire 2 Cat 5e/6](https://en.wikipedia.org/wiki/File:Wire_blue.svg) blue | [Pair 1 Wire 2](https://en.wikipedia.org/wiki/File:Wire_blue_white_stripe.svg) blue/white | [Pair 1 Wire 2 Old](https://en.wikipedia.org/wiki/File:Wire_red.svg) red | [Pair 1 wire A](https://en.wikipedia.org/wiki/File:Wire_white.svg) white | [Pair 1 wire B](https://en.wikipedia.org/wiki/File:Wire_blue.svg) blue |
| 4 | 1 | T | + | T1 | T1 | T1 | [Pair 1 Wire 1 Cat 5e/6](https://en.wikipedia.org/wiki/File:Wire_white_blue_stripe.svg) white/blue | [Pair 1 Wire 1](https://en.wikipedia.org/wiki/File:Wire_white_blue_stripe.svg) white/blue | [Pair 1 Wire 1 Old](https://en.wikipedia.org/wiki/File:Wire_green.svg) green | [Pair 1 wire B](https://en.wikipedia.org/wiki/File:Wire_brown.svg) brown | [Pair 1 wire A](https://en.wikipedia.org/wiki/File:Wire_white.svg) white |
| 5 | 2 | R | − |  | R2 | R2 | [Pair 3 Wire 1 Cat 5e](https://en.wikipedia.org/wiki/File:Wire_orange.svg) orange | [Pair 2 Wire 2](https://en.wikipedia.org/wiki/File:Wire_orange_white_stripe.svg) orange/white | [Pair 2 Wire 2 Old](https://en.wikipedia.org/wiki/File:Wire_yellow.svg) yellow | [Pair 2 ground](https://en.wikipedia.org/wiki/File:Wire_yellow.svg) yellow | [Pair 2 ground](https://en.wikipedia.org/wiki/File:Wire_black.svg) black |
| 6 | 3 | R | − |  |  | R3 | [Pair 1 Wire 1 Cat 5e](https://en.wikipedia.org/wiki/File:Wire_green.svg) green | [Pair 3 Wire 2](https://en.wikipedia.org/wiki/File:Wire_green_white_stripe.svg) green/white | [Pair 3 Wire 2](https://en.wikipedia.org/wiki/File:Wire_blue.svg) blue | [Pair 3 wire 2](https://en.wikipedia.org/wiki/File:Wire_gray.svg) gray | [Pair 1 Wire 1 Old](https://en.wikipedia.org/wiki/File:Wire_green.svg) green |

* [**^[a]**](https://en.wikipedia.org/wiki/Modular_connector#ref_Old_colors) While the old solid color code was well established for pair 1 and usually pair 2, there are several conflicting conventions for pair 3 (and sometimes even pair 2). The colors shown above were taken from a vendor of "silver satin" flat 8-conductor phone cable that claims to be standard. 6-pair solid (old) bellwire cables previously used by the [Bell System](https://en.wikipedia.org/wiki/Bell_System) use white for pair 3 tip but some vendors' cable may substitute orange for white. At least one other vendor of flat 8-conductor cable uses the sequence blue, orange, black, red, green, yellow, brown and white/slate.
* [**^[b]**](https://en.wikipedia.org/wiki/Modular_connector#ref_German_colors) This color scheme originates in the (withdrawn) national standard [DIN 47100](https://en.wikipedia.org/wiki/DIN_47100). The scheme shown here is the correct color code for interfacing with the RJ connector standards.

However, with German domestic telephone equipment (and that in some neighbouring countries), [6P4C](https://en.wikipedia.org/wiki/6P4C) plugs and sockets are typically only used to connect the telephone cable to the phone base unit, whereas the mechanically different [TAE plug](https://en.wikipedia.org/wiki/TAE_connector) is used at the other end of the cable. Older base units may accommodate the additional connectors of TAE (E, W, a2, b2) and may feature non-RJ standard sockets that can be connected "straight" to TAE plugs. Further, flat DIN 47100 cables typically place the wires in ascending order. When used directly with 6P4C plugs, the colors will be scrambled.

**Powered version of RJ11**

In the powered version, Pins 2 and 5 (black and yellow) may carry low voltage AC or DC power. While the phone line itself (tip and ring) supplies enough power for most telephone terminals, old telephone terminals with incandescent lights in them (such as the classic Western Electric [Princess](https://en.wikipedia.org/wiki/Princess_telephone) and [Trimline telephones](https://en.wikipedia.org/wiki/Trimline_telephone)) need more power than the phone line can supply. Typically, the power on Pins 2 and 5 comes from a [transformer](https://en.wikipedia.org/wiki/Transformer) plugged into a wall near one jack, supplying power to all of the jacks in the house. Trimline and Princess phone dial lights are rated at 6.3 volts and the transformer output is typically around 5 volts, providing a long service life for the [incandescent lamps](https://en.wikipedia.org/wiki/Incandescent_lamp).

**Compatibility with structured cabling**

With the rise of Ethernet [local area networks](https://en.wikipedia.org/wiki/Local_area_network) operating over [Cat5e](https://en.wikipedia.org/wiki/Category_5_cable) and [Cat6](https://en.wikipedia.org/wiki/Category_6_cable) unshielded [twisted pair](https://en.wikipedia.org/wiki/Twisted_pair) cable, [structured cabling](https://en.wikipedia.org/wiki/Structured_cabling) networks adhering to [TIA/EIA-568-B](https://en.wikipedia.org/wiki/TIA/EIA-568-B), [ISO/IEC 11801](https://en.wikipedia.org/wiki/ISO/IEC_11801) or ISO/IEC 15018 (home networks) are widely used for both computer networking and analog telephony, but these standards specify the T568-A or T568-B pin-outs compatible with [Ethernet](https://en.wikipedia.org/wiki/Ethernet). The 8P8C ("RJ45") jack used by structured cabling physically accepts the 6-position connector used by RJ11, RJ14 and RJ25, but only RJ11 and RJ14 have full electrical compatibility. Ethernet compatible pin-outs "split" the third pair of RJ25 across two separate cable pairs, rendering that pair unusable by an analog phone. This was necessary to preserve the electrical properties of those pairs for Ethernet, which operates at much higher frequencies than analog telephony.

Both the third and fourth pairs of RJ61 are similarly split. Because of this incompatibility, and because they were never very common to begin with, the [TIA/EIA-568-B](https://en.wikipedia.org/wiki/TIA/EIA-568#T568A_and_T568B_termination) conventions are displacing RJ25 and RJ61 for telephones with more than two lines.