

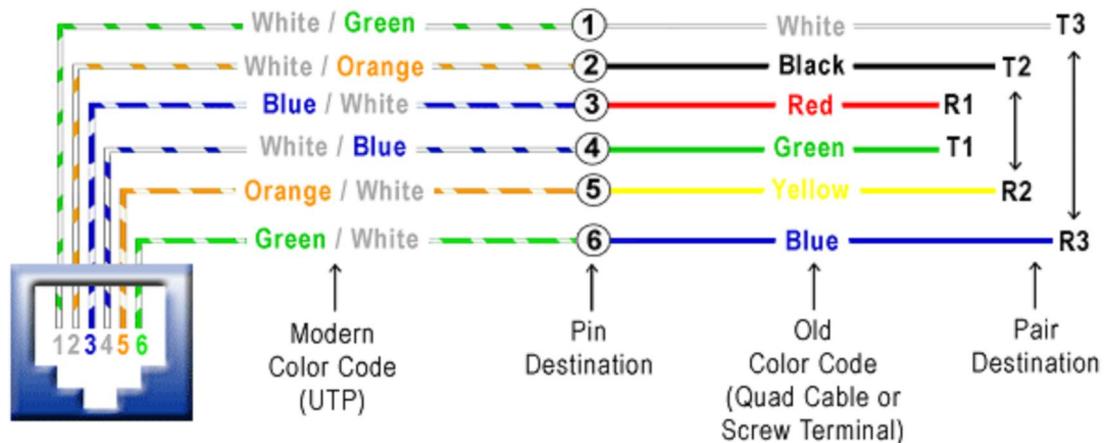
How to Wire a Phone Jack (Voice or Telephone RJ-11 thru RJ-14)

(USOC Wiring Diagram)

Telephone wiring for a phone outlet is typically either 1, 2 or 3 pairs (2, 4, or 6 conductor). Most cable nowadays is UTP (unshielded twisted pair). There may be instances where you may need to connect to or transpose from the old "quad" cable. The diagram below provides the transposition between these standards.

Pair 1 (T1 & R1)

Usually the primary dial tone or talk circuit is wired to the center two pins (pins 3 & 4) and is the white/blue and blue/white pair (AKA: T1 & R1 - tip 1 and ring 1). A standard single line phone draws dial tone from these center pins.



NOTE: The type of wiring shown here is known as USOC (pronounced U-sock). See background below.

Pair 2 (T2 & R2)

The secondary circuit is wired to the two pins (pins 2 & 5) directly to the side of the center pins and is the white/orange and orange/white pair (AKA: T2 & R2 - tip 2 and ring 2). Depending on the application, the secondary circuit can either be the 2nd dial tone line on a two line phone, or the data/control circuit for an electronic key phone.

Pair 3 (T3 & R3)

The third circuit is wired to the two pins (pins 1 & 6) on the outside and is the white/green and green/white pair (AKA: T3 & R3 - tip 3 and ring 3). Depending on the application, the third circuit can either be the 3rd dial tone line on a three line

phone or an accessory circuit for an electronic key phone.

BACKGROUND

Tip & Ring

In telephony the terms that represent the conductors that comprise a circuit are known as "tip and ring". These terms stem from the early days of telephony when operators made telephone connections using 1/4" phono plugs similar to those used today for stereo headphones. The old systems also carried a third wire which was a ground. The "Tip" was the tip of the plug and was the positive (+) side of the circuit. The "Ring" was a conductive ring right behind the tip of the plug and was the negative (-) side of the circuit. Right behind the ring was the "Sleeve" which was the ground connection.



The ground (sleeve) is no longer used today for individual pairs.

USOC (Universal Service Ordering Codes)

In the old days of telephony, USOC (pronounced U-sock) standards were used to simplify and standardize the various different wiring schemes for modular jacks.

RJ (RJ-11, RJ-45 Etc.)

The USOC standards consisted of many different Registered Jack Configurations which were abbreviated as "RJ" and had designations like RJ-11, RJ-12, etc. Today we still refer to modular jacks in the RJ designations but rarely use them to refer to a wiring standard that they were originally intended for. Even though it is technically incorrect, popular terminology today for the terms RJ-11, 12 or 14 refer to a 6 pin jack and RJ-45 refers to an 8 pin jack.