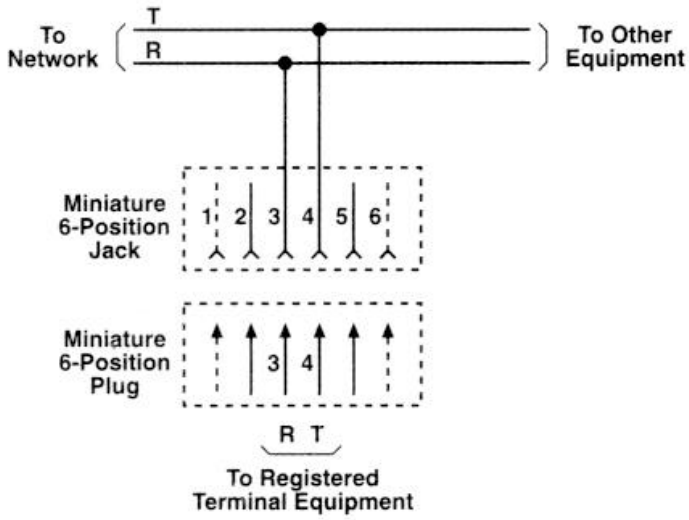
RJ Jack Glossary

Here's a description of all RJ jacks from RJ11 to RJ48

RJ-11C and RJ-11W: Are normally associated with single-line ancillary devices, telephone sets, or -9 dBm (permissive) modems and provide bridged connections to the tip and ring of a telephone line. RJ-1 1 C is surface or flush-mounted for use with desk telephone sets, while RJ-1 1 W is used for wall mounted telephone sets.



RJ-17C: Provides a single-line bridged connection of tip and ring to special telephone sets or ancillary equipment (e.g., ECG machines) in hospital critical-care areas. Only registered equipment conforming to Article 517 of the 1978 National Electrical Code is permitted to connect to this jack arrangement. This jack differs from the RJ-11C in that tip and ring appear on pins 1 & 6 rather than 3 & 4.

RJ-12C and RJ-12W: Are normally associated with one line of a key telephone system, they provide a bridged connection to the tip and ring of the telephone line and to key system A and Al leads. The tip and ring conductors in the jack are connected ahead of the key telephone-system line circuit. The RJ-12C is surface- or flush mounted for use with desk telephone sets while the RJ-12W is for wall mounted telephone sets. Typically, these arrangements are used when registered ancillary equipment must respond to central office or PBX ringing.

RJ-13C and RJ-13W: Are normally associated with one line of a key telephone system. They provide a bridged connection electrically behind the key-system line circuit to the tip, ring conductors, and to the A and Al leads. The RJ-13C is surface- or flush mounted for use with desk telephone sets while RJ-13W is for wall mounted telephone sets. These arrangements are generally used when the registered ancillary equipment does not require central office or PBX ringing to function properly.

RJ-14C and RJ-14W: Provide for bridged connections to the tip and ring conductors of two separate telephone lines. The RJ-14C is surface- or flush mounted for use with desk telephone sets while the RJ-14W is for wall mounted telephone sets.

RJ-16X: Provides a single-line bridged tip and ring and is associated with -9 dBm (permissive) data arrangements that require mode indication for use with exclusion key telephone sets. The exclusion key telephone set requires a series jack, RJ-36X (described under 8-position jacks) as its normal means of connection.

RJ-18C: Provides a bridged connection of single-line tip and ring with make-busy leads M13 and MB1. When the registered equipment provides a contact closure between the MB and MB1 leads, a make-busy indication is transmitted

to the network equipment busying out the line from further incoming calls. It's recommended that the busy indication (contact closure) be provided while the line is in the idle state in order to reduce the possibility of interfering with a call that is in the ringing or talking state. The RJ-18 EIC is surface or flush mounted for use with desk telephone sets.

RJ-19C: Is normally associated with one line of a key telephone system. It provides a bridged connection of single-line tip and ring behind a key-system line circuit, with A and Al lead control, and a direct connection for MB/MB1 make- busy leads. When the modem provides a contact closure between the M13 and MB1 leads, a make-busy indication is transmitted to the network equipment busying out the line from further incoming calls. It's recommended that the busy indication (contact closure) be provided while the line is in the idle state in order to reduce the possibility of interfering with a call that is in the ringing or talking state. The RJ-19C is surface- or flush mounted for use with desk telephone sets.

RJ-25C: Provides for bridged connection to the tip and ring conductors of three separate telephone lines. The telephone company will wire the lines to the jack in the sequence designated by the customer. The RJ-25C is surface- or flush mounted for use with the desk telephone sets and ancillary devices.

RJ-15C: Is a weatherproof jack arranged to provide single-line bridged connection to tip and ring. Jack RJ-15C can be arranged for surface- or flush mounting depending upon customer needs.

RJ-AlX / RJ-A3X: Are adapters used to adapt 4 and 12 position jacks, respectively, to a 6-position miniature bridged jack. They provide bridged connections to the tip and ring of the telephone line. If A and Al leads are already terminated in the 4- or 12-pin jack, they will appear in positions 2 and 5 in the adapter. If A and Al leads are not involved, positions 2 and 5 are reserved for telephone company use.

RJ-A2X: Is an adapter that converts a single miniature jack to two miniature jacks. It provides a bridged connection to the tip and ring conductors of the telephone line. If A and Al leads are already terminated in an existing miniature bridged jack, they will appear in positions 2 and 5 in both miniature bridged jacks in the adapters. If A and Al leads are not provided, positions 2 and 5 are reserved for telephone company use.

RJ-21X: Provides bridged connections to tip and ring conductors of up to 25 telephone lines. The RJ-21 X is typically used with Traffic-Data Recording Equipment and Multiple-Line Communications Systems. The user must specify the connection sequence for each title appearing in the jack.

RJ-22X: Can be associated with a telephone company provided key telephone system when connection to several lines is required. It provides bridged connections of up to 12 telephone lines and their associated A and Al leads. The tip and ring conductors in the jack are wired ahead of the line circuit in the key telephone system. This arrangement is used when the modem must respond to central office or PBX ringing.

RJ-23X: Is normally associated with a telephone company provided key telephone system when connection is required to several lines. It's wired to provide bridged connections of up to 12 key-system line circuits and associated A and Al leads. It differs from and is preferred over the RJ-22X, in that tip and ring conductors in the jack are wired behind the key- system line circuits. This arrangement is typically used when the modem doesn't require central office or PBX ringing to function properly.

RJ-24X: Is normally associated with a telephone company provided key telephone system. It's typically used with registered ancillary devices such as conferencing devices, music on hold, etc., and is wired to provide the same tip, ring, A, and Al appearances as a standard five-line key telephone set.

RJ-26X: Is a multiple-line universal data jack for up to 8 lines in a 50-position miniature ribbon connector and accommodates either fixed-loss loop (FLIL) or programmed (P) types of data equipment. A switch, accessible to the customer, is provided on each line to select FILL or P type of operation. FLL equipment transmits at -4 + I dB with respect to one milliwatt and a pad is included in the data jack so that pad loss plus loop loss is nominally 8 dB. Programmed-type data equipment adjusts its output power in accordance with a programming resistor in the data jack. By these means, signals from either FILL or P types of registered data equipment will arrive at the local telephone company central office at a nominal -12 dB with respect to one milliwatt for optimum data transmission.

RJ-27X: Is a multiple-line programmable data jack for up to 8 lines in a 50-position miniature ribbon connector and accommodates programmed data equipment only.

RJ-71C: Provides a multiple series arrangement of tip and ring. It's typically used with registered series devices such as toll restrictors, etc. Jack RJ-71 C can accommodate up to 12 circuits per jack (i.e., one tip and ring "in" and one tip and ring "out," 4 leads per circuit). This arrangement does not currently provide restoration upon disconnection of registered equipment. Thus, a manual bridging plug is provided in order to maintain circuit continuity upon withdrawal of a registered plug.

RJ-31X: Provides a series connection to the tip and ring conductors of a telephone line. It's wired ahead of all station equipment electrically and is typically used with registered alarm-reporting devices. When there's an alarm condition, the registered device functions to cut off all station equipment wired behind it, via this jack.

RJ-32X: Provides a series connection to the tip and ring conductors of a telephone line. It differs from RJ-31X in that it's wired ahead of a particular telephone set rather than ahead of all the station equipment. It's typically used with registered automatic dialers.

RJ-33X: Is normally associated with a key telephone system. It provides a series connection to the tip and ring conductors of the telephone line and the key-system line circuit A and Al leads. The tip and ring conductors are wired ahead of the key-system line circuit. This arrangement is typically used when the modem requires central office or PBX ringing.

RJ-34X: Is normally associated with a key telephone system. It's wired to provide a series connection to the key-system line circuit tip and ring conductors and its A and Al leads. It differs from RJ-33X in that all conductors are wired behind the key- system line circuit. This arrangement is typically used when the modem is not critical as to type of ringing signal or doesn't require central office or PBX ringing.

RJ-35X: Is normally associated with a key telephone set. It's wired to provide a series connection to the tip and ring conductors of the telephone line and a bridged connection to the A and Al leads. It differs from RJ-33X and RJ-34X in that the tip and ring leads are connected to the common wiring behind the pickup keys of the station set but ahead of the switch hook. The jack is wired to the key telephone set so that the modem functions on the line selected on the key telephone set.

RJ-36X: Provides a connection for a registered telephone set equipped with an exclusion key when the telephone line is also to be used with a registered data set or registered protective circuitry. It's wired to provide a series connection to the tip and ring conductors of the telephone line and mode- indication leads MI and MIC. With this jack, the exclusion key can be used to transfer the telephone line between the modem and the telephone set. As a customer option, the exclusion key may be wired so that either the telephone set or the modem controls the line. In the former case, the exclusion key must be operated to transfer the telephone line to the modem. In the latter case, the telephone line is normally associated with the modem. Operation of the exclusion key is required to transfer the line to the telephone set. In either case, a closure on the MI and MIC leads indicates the voice mode.

RJ-37X: Is used for providing two-line service with exclusion. The jack is wired to provide a bridged connection to the tip and ring conductors of two telephone lines with exclusion on line 1.

RJ-38X: Provides a series connection to the tip and ring conductors of a telephone line identical to those described for RJ-31X. However, the jack also provides a continuity circuit which is used as an indication that the plug of the registered equipment is engaged with the jack. The jack is wired ahead of all station equipment electrically and is typically used with registered alarm dialers.

RJ-41 S: Is a single-line universal data jack normally associated with fixed-loss loop (FLL) or programmed (P) modems. A switch, accessible to the user, is provided to select FLL to P type of operation. (FLL equipment transmits at -4 dB with respect to one milliwatt, and a pad is included in the data jack so that pad loss plus loop loss is nominally 8 dB. Programmed modems adjust their output power in accordance with a programming resistor in the data jack. By these means, signals from either FLL or P types of registered modems will arrive at the local telephone company

central office at a nominal -12 dB with respect to one milliwatt for optimum data transmission.) A sliding cover is provided to keep dirt and dust from entering the jack when it's not in use. The FLL /P switch selects the desired method of operation. Two matted surfaces are provided on the housing of the jack for the telephone company installer to write in the loop loss (designated LPQ and the telephone line number (designated TLN).

*** RJ-45S:** Is a single-line data jack normally associated with programmed (P) modems. This jack is the same as the universal data jack RJ-41 S described above, except that the pad for fixed loss loop (FLL) equipment and the switch to select FLL or P type of operation are omitted. Its appearance is the same as RJ-41 S except that RJ-45S does not have the FLL /P switch. Both jacks provide bridged connections to the tip and ring of a telephone line and provide mode-indication leads for use with exclusion key telephone sets when required. The exclusion key telephone set requires a series jack RJ-36X as its normal means of connection.

*** RJ-41 M and RJ-45M:** Provide a multiple-mounting arrangement for mounting a number of RJ-41S or RJ-45S Single-Line Universal or Programmed data jacks. The tele- phone companies will terminate USOCs, RJ-41 M, and RJ-45M with RKM2X (which is the USOC equivalent for a mounting arrangement) and the appropriate number of RJ-41 S or RJ-45S single-line data jacks as required by the user. The mounting arrangement will accommodate up to 16 single-line data jacks. In effect, this arrangement provides the features of a patch panel. The user has complete flexibility in patching the color and plug from any modem to any line. The arrangement can be mounted on a wall or on 19- or 23-inch relay racks.

***RJ-48S:** Normally associated with DDS services from the telephone company this jack is used with DDS CSU/DSUs.

***RJ-48C:** Normally associated with a DSX-1 Interface for a T1 circuit this jack is used with T1 channel banks, T1 CSU/DSUs.

Understanding USOC and what those RJ codes really mean. The Universal Service Ordering Code (USOC) system was developed by the Bell System and introduced by AT&TO in the 1970s to connect customer premises equipment to the public network. These codes, adopted in part by the FCC, Part 68, Subpart F, Section 68.502, are a series of Registered Jack (RJ) wiring configurations for telephone jacks that remain in use today.

Registered Jack numbers end with a letter indicating the wiring or mounting method being used.

"C"—Identifies a surface or flushmounted jack.

"W"—Identifies a wallmounted jack.

If you (the telephone subscriber) want to have a standard jack other than the RJ-11W or RJ-11C installed, you should specify the appropriate USOC when requesting the installation.

"S"—Identifies a single-line jack.

"M"—Identifies a multiple-line jack.

"X"—Identifies a complex multiline or series-type jack.

You'll also often see these terms associated with USOC:

"T/R"—Denotes connections to the tip and ring wires of a telephone communications line, trunk, channel, or facility.

"A/A1"—Signifies connections to the hold functions of key telephone systems. The "A" lead corresponding to a particular telephone line is shorted to the "A1" lead when that line is off-hook in order for that line's "hold" functions to operate correctly.

"Bridged"—Signifies a parallel connection.

"Data"—Data configurations use jacks that incorporate components to limit signal power levels of data equipment.