

Fermilab CD/DCI Tech Note

Cable, UUP-TN-001.03

The following are construction requirements for Fermilab Computing Division Data Communication unshielded-untwisted pair (UUP) patch/drop cords used for voice and serial data applications. Users should always purchase cords from recommended vendors to ensure compliance with tech notes. Call Fermi CD/Data Comm. for a list of qualified vendors or visit our web page at <http://computing.fnal.gov/dci/Document-pdf-Files/Cable-Assy-Houses.pdf>. Use the Fermi part number on Purchase Requests when ordering cables, unless directed otherwise. *Red sidebar indicates most recent change to this Tech Note. Orange sidebar indicates previous change.*



1. Four-conductor UUP cords must be made from Belden RI-47849 or equivalent.
2. "RJ11" 6P4C flat/round cable-wire plugs must be AMP 5-641335-3.
3. In a "strait-thru" (straight-through) RJ11-RJ11 cord, pins 2, 3, 4 and 5 on one end must connect to pins 2, 3, 4 and 5 on the other end respectively.
4. In a "null" (cross-over) RJ11-RJ11 cord, pins 2, 3, 4 and 5 on one end must connect to pins 5, 4, 3 and 2 on the other end respectively.
5. RJ11 cords must have proper strain relief such that tugging forces are not exerted directly on the individual conductors.
6. Six-conductor UUP cords must be made from Belden RI-47851 or equivalent.
7. "RJ12" 6P6C flat/round cable-wire plugs must be AMP 5-641337-2.
8. In a "strait-thru" (straight-through) RJ12-RJ12 cord, pins 1, 2, 3, 4, 5 and 6 on one end must connect to pins 1, 2, 3, 4, 5 and 6 on the other end respectively.
9. In a "null" (cross-over) RJ12-RJ12 cord, pins 1, 2, 3, 4, 5 and 6 on one end must connect to pins 6, 5, 4, 3, 2 and 1 on the other end respectively.
10. RJ12 cords must have proper strain relief such that tugging forces are not exerted directly on the individual conductors.
11. Null cables must have red shrink tubing on each end (center for 1') of the cable.
12. Eight-conductor UUP cords must be made from Belden RI-47853 or equivalent.
13. "RJ45" 8P8C flat/round cable-wire plugs must be [AMP 5-554169-3](#) .
14. In a "strait-thru" (straight-through) RJ45-RJ45 cord, pins 1, 2, 3, 4, 5, 6, 7 and 8 on one end must connect to pins 1, 2, 3, 4, 5, 6, 7 and 8 on the other end respectively.
15. In a "null" (cross-over) RJ45-RJ45 cord, pins 1, 2, 3, 4, 5, 6, 7 and 8 on one end must connect to pins 8, 7, 6, 5, 4, 3, 2 and 1 on the other end respectively.



Fermilab CD/DCI Tech Note

Cable, UUP-TN-001.03

16. RJ45 cords must have proper strain relief such that tugging forces are not exerted directly on the individual conductors.
17. Null cables must have red shrink tubing on each end (center for 1') of the cable.
18. In a "custom APC-PDU" RJ11-RJ11 cord, side-A must have pins 2(black), 3(red) and 5(yellow) connected to pins 4, 2, and 3 on side-B respectively. Side-A pin 4(green) is not used and must be cut at side-B.
19. Custom PAC-PDU RJ11 cords must have white shrink tubing on side-A only.

LABELING

=====

- a.) Cables must be labeled flag-style, three inches from the plugs on both ends.
- b.) All cable labels must contain the following information: the vendor name, the vendor part number and a unique serial number. Serial numbers must be in one of the following formats:

1.) Purchase Orders

The serial number shall be derived from the Purchase Order number and be in the following format: XXX-YYYYYY, where XXX is a number that begins from 001 and increments by 1 up to the total number of cables being made by that vendor for that Purchase Order (regardless of whether the Purchase Order includes other assembled cables which are not UUP) and YYYYYY is the Purchase Order number.

2.) Procard Orders - Computing Division

The serial number shall be derived from the ProCard number and be in the following format: SN: XXX-PRNZZZZZ, where XXX is a number that begins from 001 and increments by 1 up to the total number of cables being made by that vendor for that ProCard Order (regardless of whether the ProCard Order includes other assembled cables which are not UUP cords); ZZZZZ is the PRN number of the ProCard order.

Fermilab CD/DCI Tech Note

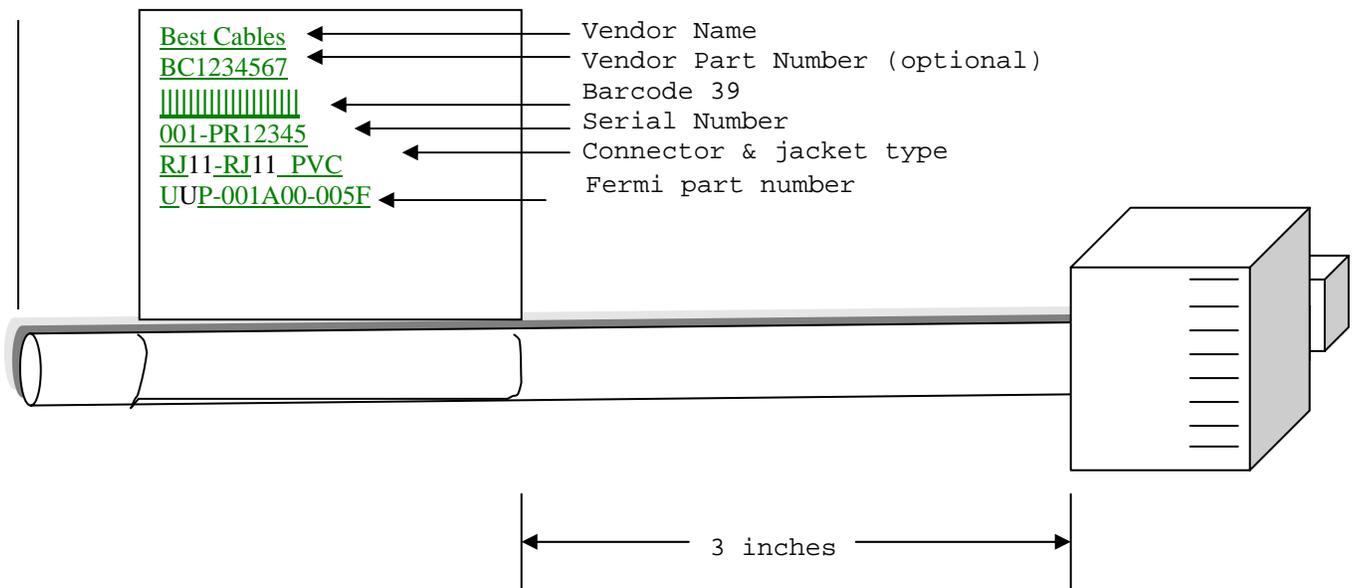
Cable, UUP-TN-001.03

3.) Procard Orders - Non-Computing Division

The serial number shall be derived from the ProCard number and be in the following format: XXX-ZZZZ-MMDDYY, where XXX is a number that begins from 001 and increments by 1 up to the total number of cables being made by that vendor for that ProCard Order (regardless of whether the ProCard Order includes other assembled cables which are not UUP); ZZZZ are the last four digits of the ProCard number and MMDDYY is the month, day and year of the ProCard order.

- c.) Vendors shall keep track of order numbers so that they do not get reused in future serial numbers, thereby preventing any two cables from having the same serial number.
- d.) The labels shall also include the cables' end-end type (ie RJ11-RJ11), its jacket type (PVC or PLN), the appropriate Fermi part number and the length in feet (F) or meters (M) for that cable.

The following is an example of the label:



- e.) The labels must be Kroy 2556701, Panduit LS5-10 or equivalent.
- f.) The labels must be laminated such that the information on the labels does not smear, fade or become unreadable under normal handling and installation conditions.
- g.) The font size **must** be 8-point or greater. Tiny, blotchy, smeared or otherwise unreadable characters will not be accepted.

Fermilab CD/DCI Tech Note

Cable, UUP-TN-001.03

FERMI PART NUMBERS

=====

The following is a list of Fermilab cable part numbers:

<u>Fermi #</u>	<u>Description</u>
UUP-001A00	Cable, UUP, RJ11-RJ11, USOC "strait-thru", Stran, PVC (AMP plugs, Belden RI-47849/equivalent cable)
UUP-001A01	Cable, UUP, RJ11-RJ11, USOC "null", Stran, PVC (AMP plugs, Belden RI-47849/equivalent cable)
UUP-001A02	Cable, UUP, RJ12-RJ12, USOC "strait-thru", Stran, PVC (AMP plugs, Belden RI-47851/equivalent cable)
UUP-001A03	Cable, UUP, RJ12-RJ12, USOC "null", Stran, PVC (AMP plugs, Belden RI-47851/equivalent cable)
UUP-001A04	Cable, UUP, RJ45-RJ45, USOC "strait-thru", Stran, PVC (AMP plugs, Belden RI-47853/equivalent cable)
UUP-001A05	Cable, UUP, RJ45-RJ45, USOC "null", Stran, PVC (AMP plugs, Belden RI-47853/equivalent cable)
UUP-001A06	Cable, UUP, RJ11-RJ11, Custom APC-PDU, Stran, PVC (AMP plugs, Belden RI-47849/equivalent cable)
UUP-001A07	Cable, UUP, RJ11-RJ11, XXXXXXXX, Stran, PVC (AMP plugs, Belden RI-47849/equivalent cable)

