SCSI: Cable Specifications

Revised: 2/10/93
Security: Everyone

SCSI: Cable Specifications

==========

Article Created: 1 May 1990

2/10/93 - REVISED
• To include complete cable specifications

TOPIC ----------

I need SCSI cable specifications, including the wire type, gauge, and required shielding.

DISCUSSION ----------

Here they are:

SCSI Cable

Cable Construction
---
38 conductors (19 twisted pairs) cable together. Each Pair shall consist of 2 single - 26 AWG insulated conductors twisted together with 4-8 twists/foot.

DC Resistance
---
29 ohms per 1000ft. @ 20 degrees C (each conductor).

Voltage Rating
---
30 VRMS

Dielectric Withstanding Voltage Between Shields
---
500 Volts DC for 3 seconds

Capacitance (@ 1 KHz)

- Between conductors of the same pair - 16 pf/ft Max.
- Between 1 conductor and all others tied to shield - 60 pf/ft

Attenuation
---
6 db per 1000 ft Max @ 1.5 MHz

Characteristic Impedance
---
105 ohms at 1.5 MHz

Shielding

Braid - 36 AWG copper with 90% min. coverage with 40-degree braid angle
Foil - Aluminum/Mylar 0.0254/0.00889mm, spirally wrapped with
25% overlap

SCSI Terminator

The following information describes the connections inside the SCSI terminator, Apple part number 590-0348.

Each of the pins listed is connected straight through the connector (for example, 1 to 1, 2 to 2, and so on). In addition, each of the signal pins is connected through a resistor network to terminator power.

Example:

Pin 26 (DB0) is connected to pin 26. It is also connected to pin 1 (DB0 GND, its corresponding ground) through a 330-ohm resistor and to a common line, which terminates in pin 38 (terminator power), through a 220-ohm resistor. Similar connections occur for each signal pin.

Pin 38 (TERMPWR) is connected to the common line proceeding from the 220-ohm resistors. Pin 11 (DIFFSENS) is connected straight through only.

Here are the connections used in the SCSI terminator:

- Connect the following pins straight through to the same pin at the other end of the connector:

  1 through 9, 11, 16, 18 through 34, 38, 41, 43 through 50

- Connect the first pin of each of the following pairs to a 330-ohm resistor, then to the second pin of the pair, then to a 220-ohm resistor, then to the terminator line (TERMPWR) as shown below.

  1 -- 26
  2 -- 27
  3 -- 28
  4 -- 29

```
 5 -- 30           TERMPWR           DB1/ (example)          GROUND
 6 -- 31                            pin 1-9,16,18-25
 7 -- 32             |                    |                    |
 8 -- 33             |                    |                    |
 9 -- 34             |                    |                    |
16 -- 41             |                    |                    |
18 -- 43             |-----/\/\/\/\------|-----/\/\/\/\------|
19 -- 44             |                    |                    |
20 -- 45             |      220-ohm       |      330-ohm       |
21 -- 46             |      resistor      |      resistor      |
22 -- 47             |                    |                    |
23 -- 48             |                    |                    |
24 -- 49
25 -- 50
```

- Connect pin 38 to the common terminator line (TERMPWR).

Copyright 1990, 1992, Apple Computer, Inc.

Tech Info Library Article Number:5475