

# 3M™ Mini Serial Attached SCSI (miniSAS) Cable Assembly

Internal, Signal, Straight Termination

8N36 Series



- 3 Gbps per channel data rate
- 36 Conductor signal assembly
- Multiple lengths available
- Metal latch designed to ensure retention
- Two levels of EMLB for hot plugging
- 30 AWG Twin Axial Cable
- Universal key
- Tested to SAS Specification, SAS-1.1
- See Regulatory Information Appendix (RIA) for chemical compliance information

Date Modified: July 3, 2007

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## Physical

### Backshell

Material: High Temperature Thermoplastic  
Flammability: UL 94V-0  
Color: Black

### Paddle-card

FR4  
Flammability: UL 94V-0

### Plating

Underplating: 50  $\mu$ " min. [ 1.27  $\mu$ m ] Nickel  
Wiping Area: 30  $\mu$ " min. [ 0.76  $\mu$ m ] Gold

### Cable

Wire Size  
Conductor: 30 AWG Solid Tin Plated Solid Conductor  
Drain Wire: 30 AWG Solid Tin Plated Solid Conductor  
Dielectric: Foam Polyethylene  
Shield: Mylar 100% Coverage  
Jacket: Non-PVC

### Jacket Braiding

Material: Nylon Braid

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## Electrical

**Current Rating:** Per Contact: 0.5 A  
**Insulation Resistance:** 10<sup>3</sup> M $\Omega$  min.  
**Withstanding Voltage:** 300 V<sub>DC</sub> min. for 1 minute

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## Environmental

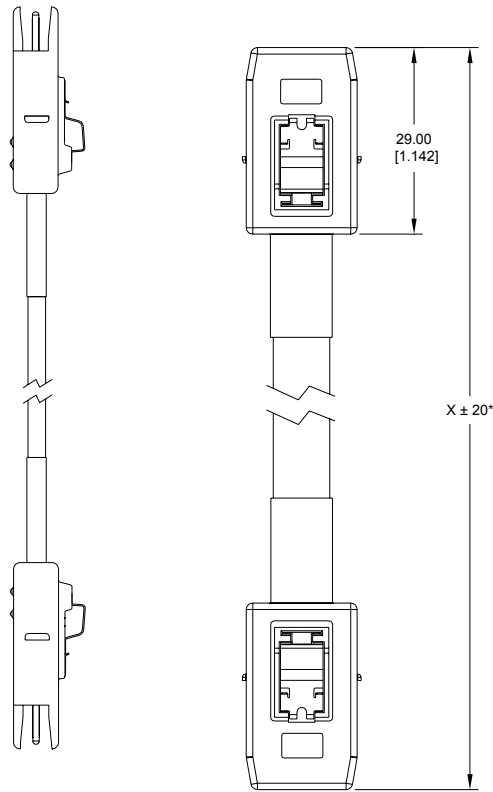
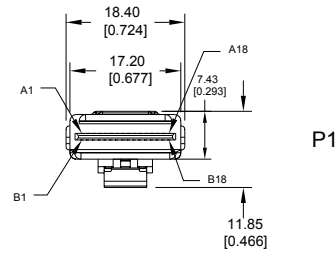
**Operating Temperature:** -20°C to +80°C

UL File No.: E86982

# 3M™ Mini Serial Attached SCSI (miniSAS) Cable Assembly

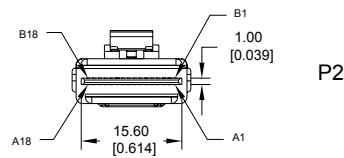
Internal, Signal, Straight Termination

8N36 Series



|                        | mm     |      |      |
|------------------------|--------|------|------|
|                        | [inch] |      |      |
| Tolerance Unless Noted |        |      |      |
|                        | 0      | 0.0  | 0.00 |
| mm                     | ±.25   | ±.15 | ±.05 |

[ ] Dimensions for Reference Only



\*Note: See ordering information for available lengths.

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# 3M™ Mini Serial Attached SCSI (miniSAS) Cable Assembly

Internal, Signal, Straight Termination

8N36 Series

| P1  |            | P2  |            |
|-----|------------|-----|------------|
| A1  | GND        | B1  | GND        |
| A2  | Rx 0+      | B2  | Tx 0+      |
| A3  | Rx 0-      | B3  | Tx 0-      |
| A4  | GND        | B4  | GND        |
| A5  | Rx 1+      | B5  | Tx 1+      |
| A6  | Rx 1-      | B6  | Tx 1-      |
| A7  | GND        | B7  | GND        |
| A8  | SIDEBAND 7 | B8  | SIDEBAND 7 |
| A9  | SIDEBAND 3 | B9  | SIDEBAND 3 |
| A10 | SIDEBAND 4 | B10 | SIDEBAND 4 |
| A11 | SIDEBAND 5 | B11 | SIDEBAND 5 |
| A12 | GND        | B12 | GND        |
| A13 | Rx 2+      | B13 | Tx 2+      |
| A14 | Rx 2-      | B14 | Tx 2-      |
| A15 | GND        | B15 | GND        |
| A16 | Rx 3+      | B16 | Tx 3+      |
| A17 | Rx 3-      | B17 | Tx 3-      |
| A18 | GND        | B18 | GND        |

| P1  |            | P2  |            |
|-----|------------|-----|------------|
| B1  | GND        | A1  | GND        |
| B2  | Tx 0+      | A2  | Rx 0+      |
| B3  | Tx 0-      | A3  | Rx 0-      |
| B4  | GND        | A4  | GND        |
| B5  | Tx 1+      | A5  | Rx 1+      |
| B6  | Tx 1-      | A6  | Rx 1-      |
| B7  | GND        | A7  | GND        |
| B8  | SIDEBAND 0 | A8  | SIDEBAND 0 |
| B9  | SIDEBAND 1 | A9  | SIDEBAND 1 |
| B10 | SIDEBAND 2 | A10 | SIDEBAND 2 |
| B11 | SIDEBAND 6 | A11 | SIDEBAND 6 |
| B12 | GND        | A12 | GND        |
| B13 | Tx 2+      | A13 | Rx 2+      |
| B14 | Tx 2-      | A14 | Rx 2-      |
| B15 | GND        | A15 | GND        |
| B16 | Tx 3+      | A16 | Rx 3+      |
| B17 | Tx 3-      | A17 | Rx 3-      |
| B18 | GND        | A18 | GND        |

## Pinout 1

### Backplane-to-Controller

| P1  |            | P2  |            |
|-----|------------|-----|------------|
| A1  | GND        | B1  | GND        |
| A2  | Rx 0+      | B2  | Tx 0+      |
| A3  | Rx 0-      | B3  | Tx 0-      |
| A4  | GND        | B4  | GND        |
| A5  | Rx 1+      | B5  | Tx 1+      |
| A6  | Rx 1-      | B6  | Tx 1-      |
| A7  | GND        | B7  | GND        |
| A8  | SIDEBAND 7 | B11 | SIDEBAND 5 |
| A9  | SIDEBAND 3 | B10 | SIDEBAND 4 |
| A10 | SIDEBAND 4 | B9  | SIDEBAND 3 |
| A11 | SIDEBAND 5 | B8  | SIDEBAND 7 |
| A12 | GND        | B12 | GND        |
| A13 | Rx 2+      | B13 | Tx 2+      |
| A14 | Rx 2-      | B14 | Tx 2-      |
| A15 | GND        | B15 | GND        |
| A16 | Rx 3+      | B16 | Tx 3+      |
| A17 | Rx 3-      | B17 | Tx 3-      |
| A18 | GND        | B18 | GND        |

| P1  |            | P2  |            |
|-----|------------|-----|------------|
| B1  | GND        | A1  | GND        |
| B2  | Tx 0+      | A2  | Rx 0+      |
| B3  | Tx 0-      | A3  | Rx 0-      |
| B4  | GND        | A4  | GND        |
| B5  | Tx 1+      | A5  | Rx 1+      |
| B6  | Tx 1-      | A6  | Rx 1-      |
| B7  | GND        | A7  | GND        |
| B8  | SIDEBAND 0 | A11 | SIDEBAND 6 |
| B9  | SIDEBAND 1 | A10 | SIDEBAND 2 |
| B10 | SIDEBAND 2 | A9  | SIDEBAND 1 |
| B11 | SIDEBAND 6 | A8  | SIDEBAND 0 |
| B12 | GND        | A12 | GND        |
| B13 | Tx 2+      | A13 | Rx 2+      |
| B14 | Tx 2-      | A14 | Rx 2-      |
| B15 | GND        | A15 | GND        |
| B16 | Tx 3+      | A16 | Rx 3+      |
| B17 | Tx 3-      | A17 | Rx 3-      |
| B18 | GND        | A18 | GND        |

## Pinout 2

### Controller-to-Controller

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| P1  |       | P2  |       |
|-----|-------|-----|-------|
| A1  | GND   | B1  | GND   |
| A2  | Rx 0+ | B2  | Tx 0+ |
| A3  | Rx 0- | B3  | Tx 0- |
| A4  | GND   | B4  | GND   |
| A5  | Rx 1+ | B5  | Tx 1+ |
| A6  | Rx 1- | B6  | Tx 1- |
| A7  | GND   | B7  | GND   |
| A12 | GND   | B12 | GND   |
| A13 | Rx 2+ | B13 | Tx 2+ |
| A14 | Rx 2- | B14 | Tx 2- |
| A15 | GND   | B15 | GND   |
| A16 | Rx 3+ | B16 | Tx 3+ |
| A17 | Rx 3- | B17 | Tx 3- |
| A18 | GND   | B18 | GND   |

| P1  |       | P2  |       |
|-----|-------|-----|-------|
| B1  | GND   | A1  | GND   |
| B2  | Tx 0+ | A2  | Rx 0+ |
| B3  | Tx 0- | A3  | Rx 0- |
| B4  | GND   | A4  | GND   |
| B5  | Tx 1+ | A5  | Rx 1+ |
| B6  | Tx 1- | A6  | Rx 1- |
| B7  | GND   | A7  | GND   |
| B12 | GND   | A12 | GND   |
| B13 | Tx 2+ | A13 | Rx 2+ |
| B14 | Tx 2- | A14 | Rx 2- |
| B15 | GND   | A15 | GND   |
| B16 | Tx 3+ | A16 | Rx 3+ |
| B17 | Tx 3- | A17 | Rx 3- |
| B18 | GND   | A18 | GND   |

**Pinout 3**

**Backplane-to-Controller  
(no sidebands)**

**Ordering Information**

**8N36 - AAXX05 - X.XX** (RIA E1 & C1 Apply)

Pin-out: \_\_\_\_\_  
 01 = Backplane-to-Controller  
 02 = Controller-to-Controller  
 03 = Backplane-to-Controller, no sidebands

Length in meters\*  
 0.25 m  
 0.50 m  
 0.75 m  
 1.00 m

\* If other lengths are desired, contact your local 3M sales representative.

\*\* If keying other than Universal is desired, contact your local 3M sales representative.

# Regulatory Information Appendix

## 3M Electronic Solutions Division/Interconnect

### EUROPE

#### Appendix E1: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product is RoHS Compliant 2005/95/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E2: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

**This product contains lead in the compliant pin area in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/747/EC.**

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E3: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment as amended by Commission Decision 2005/618/EC.

**This product contains lead in the solder tail area in excess of the maximum concentration value allowed.**

Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

#### Appendix E4: European Union RoHS

Directive 2002/95/EC, Restriction of the Use of Certain Hazardous Substances in Electrical & Electronic Equipment, as amended by EU Commission Decision 2005/618/EC.

This product contains decaBDE in the insulating material in excess of the maximum concentration value allowed but is compliant by exemption under EU Commission Decision 2005/17/EC.

“RoHS Compliant 2005/95/EC” means that the product or part (“Product”) does not contain any of the substances in excess of the maximum concentration values in EU Directive 2002/95/EC, as amended by Commission Decision 2005/618/EC, unless the substance is in an application that is exempt under EU RoHS. Unless otherwise stated by 3M in writing, this information represents 3M’s best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M’s Regulatory Information Appendix, then 3M’s entire liability and Buyer’s exclusive remedy will be in accordance with the Warranty stated below.

# CHINA

## Appendix C1: China RoHS



Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does not** contain any of the following substances in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the Warranty stated below.

## Appendix C2: China RoHS



Electronic Industry Standard of the People's Republic of China, SJ/T11363-2006, Requirements for Concentration Limits for Certain Hazardous Substances in Electronic Information Products.

This symbol, per Marking for the Control of Pollution Caused by Electronic Information Products, SJ/T11364-2006, means that the product or part **does** contain a substance, as detailed in the chart below, in excess of the following maximum concentration values in any homogeneous material: (a) 0.1% (by weight) for lead, mercury, hexavalent chromium, polybrominated biphenyls or polybrominated diphenyl ethers; or (b) 0.01% (by weight) for cadmium. Unless otherwise stated by 3M in writing, this information represents 3M's best knowledge and belief based upon information provided by third party suppliers to 3M.

The numerical reference in the symbol above should not be construed as a representation regarding the product's life or an extension of a product warranty. The product warranty is stated below. In the event any product is proven not to conform with 3M's Regulatory Information Appendix, then 3M's entire liability and Buyer's exclusive remedy will be in accordance with the product Warranty stated below.

产品中有毒有害物质或元素的名称及含量 Name and Content of Hazardous Substances or Elements

| 部件名称<br>(Part or Component Name)  | 有毒有害物质或元素 (Hazardous Substances or Elements) |       |       |             |           |             |
|---|--|-------|-------|-------------|-----------|-------------|
|   | 铅(Pb)  | 汞(Hg) | 镉(Cd) | 六价铬(Cr(VI)) | 多溴联苯(PBB) | 多溴二苯醚(PBDE) |
| 端子镀层(contact plating)   | ×  | ○     | ○     | ○           | ○         | ○           |
| ○: 表示该有毒有害物质在该部件所有均质材料中的含量均在SJ/T11363-2006 标准规定的限量要求以下。(Indicates that this hazardous substance contained in all of the homogeneous materials for this part is below the limit requirement in SJ/T11363-2006.)                |  |       |       |             |           |             |
| ×: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出SJ/T11363-2006 标准规定的限量要求。(Indicates that this hazardous substance contained in at least one of the homogeneous materials used for this part is above the limit requirement in SJ/T11363-2006.) |  |       |       |             |           |             |

### Important Notice

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This product will be free from defects in material and manufacture for a period of one (1) year from the time of purchase. **3M MAKES NO OTHER WARRANTIES INCLUDING, BUT NOT LIMITED TO, ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.** If this product is defective within the warranty period stated above, your exclusive remedy shall be, at 3M's option, to replace or repair the 3M product or refund the purchase price of the 3M product. **Except where prohibited by law, 3M will not be liable for any indirect, special, incidental or consequential loss or damage arising from this 3M product, regardless of the legal theory asserted.**



### 3M Electronics Interconnect Products

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