

# 3M™ Mini D Ribbon (MDR) Cable Assembly

.050" Right-Angle High-Flex Digital Camera Cable – 26 position

14H26-SZ3X-XXX-04C



- Flexible cable enables moving head applications.
- For machine vision camera to frame grabber communications in applications where full CameraLink™ configuration is not necessary
- Mates to popular 3M MDR 26 position receptacle
- 3 shielded quads with drains and 5 unshielded twisted pairs
- Entire cable bundle shielded with foil and braid for additional signal protection
- Rugged MDR ribbon type contact for reliable, repeatable connectivity
- Rugged thumbscrew retention
- EMI shielded junction shell
- See Regulatory Information Appendix (RIA) for chemical compliance information

Date Modified: January 20, 2008

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## Physical

### Connector Contact Plating:

Wiping Area: 30 μ" [0.76 μm] Min. Gold (RIA E1 & C1 apply)

### Overmolded Shell:

Color: Black

Material: Polyvinyl Chloride (PVC)

### Shell:

Color: Black

Material: Polyester Elastomer

### Cable:

Color: Black

Jacket Material: Polyvinyl Chloride (PVC)

Flammability: AWM VW-1

Flex Cycles: > 2 x 10<sup>6</sup> cycles (100 mm bend radius, 100 mm stroke, 30 strokes/minute)

## Electrical

**Voltage Rating:** 30V

**Current Rating:** 1 A

**Insulation Resistance:** > 1 x 10<sup>8</sup> Ω at 100 V<sub>DC</sub>

**Withstanding Voltage:** 350 V<sub>RMS</sub> for 1 minute

### Shielded Twisted Pairs:

**Characteristic Impedance:** 100 ± 10 Ω

**Conductor Size:** 28 AWG Stranded

**Skew (within pair):** 50 ps/meter maximum

**Skew (Channel skew per chipset):** 100 ps/meter maximum

## Environmental

**Temperature Rating:** -20 °C to +75 °C

UL File No.: E86982

**3M**

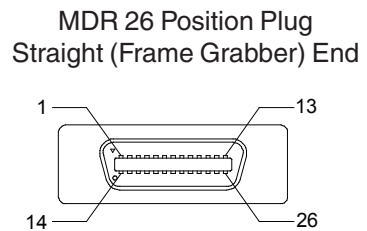
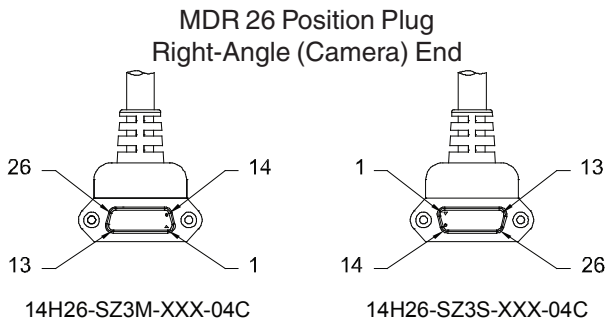
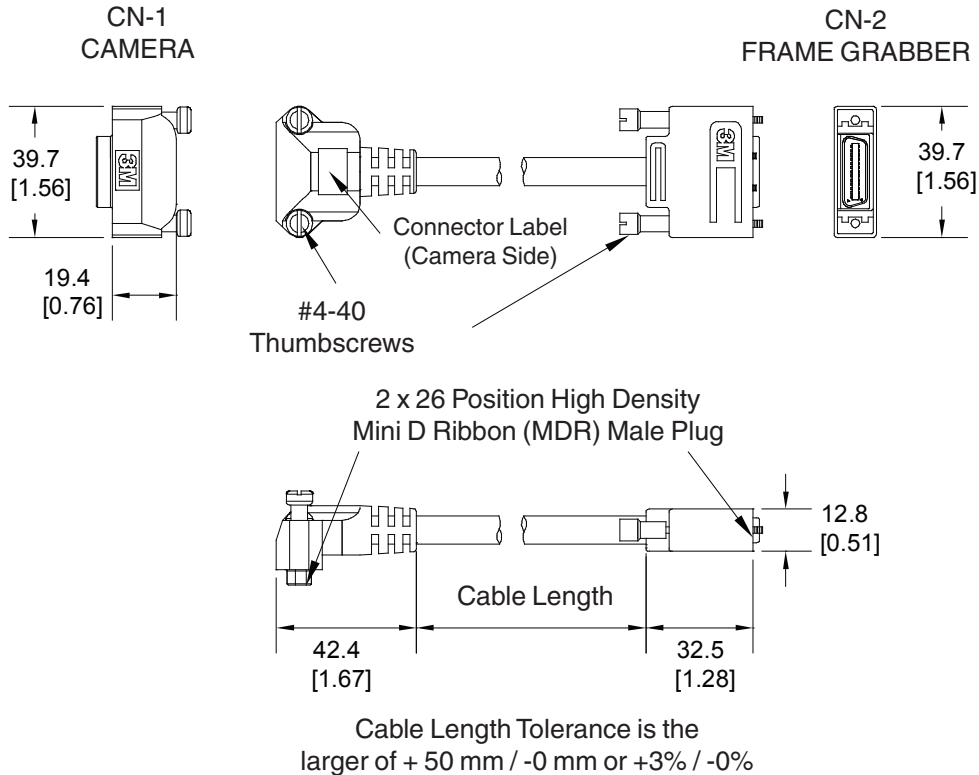
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| mm [inch]                         |          |
|-----------------------------------|----------|
| Tolerance Unless Noted            |          |
|                                   | .0 .00   |
| mm                                | ±.1 ±.10 |
| [ ] Dimensions for Reference Only |          |

Use 3M™ Jacksocket 3341-31 for mounting receptacle to panel.



## Ordering Information

### 14H26-SZ3X-XXX-04C

Right Angle Orientation

M = Position 1 opposite cable

S = Position 1 on cable side

#### Cable Length

|              |              |               |
|--------------|--------------|---------------|
| 050 = 50 cm  | 300 = 300 cm | 600 = 600 cm  |
| 100 = 100 cm | 350 = 350 cm | 700 = 700 cm  |
| 150 = 150 cm | 400 = 400 cm | 800 = 800 cm  |
| 200 = 200 cm | 450 = 450 cm | 900 = 900 cm  |
| 250 = 250 cm | 500 = 500 cm | A00 = 1000 cm |

For lengths greater than 1000 cm refer to Table 2

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# 3M™ Mini D Ribbon (MDR) Cable Assembly

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**Table 1**

| Wiring Chart       |              |                |              |                    |
|--------------------|--------------|----------------|--------------|--------------------|
| CN-1               | Cable        |                |              | CN-2               |
| Connector Position |              |                |              | Connector Position |
| 14                 | X0 X1 GND    | QUAD 1         | X0 X1 GND    | 13                 |
| 2                  | X0-          |                | X0-          | 25                 |
| 15                 | X0+          |                | X0+          | 12                 |
| 3                  | X1-          |                | X1-          | 24                 |
| 16                 | X1+          |                | X1+          | 11                 |
| 1                  | X2 XC GND    | QUAD 2         | X2 XC GND    | 26                 |
| 4                  | X2-          |                | X2-          | 23                 |
| 17                 | X2+          |                | X2+          | 10                 |
| 5                  | Xclk-        |                | Xclk-        | 22                 |
| 18                 | Xclk+        |                | Xclk+        | 9                  |
| 6                  | X3-          | QUAD 3         | X3-          | 21                 |
| 19                 | X3+          |                | X3+          | 8                  |
| 7                  | SerTC+       |                | SerTC+       | 20                 |
| 20                 | SerTC-       |                | SerTC-       | 7                  |
| 13                 | X3 SerTC GND |                | X3 SerTC GND | 14                 |
| 8                  | SerTFG-      | Twisted Pair 1 | SerTFG-      | 19                 |
| 21                 | SerTFG+      |                | SerTFG+      | 6                  |
| 9                  | CC1-         | Twisted Pair 2 | CC1-         | 18                 |
| 22                 | CC1+         |                | CC1+         | 5                  |
| 10                 | CC2+         | Twisted Pair 3 | CC2+         | 17                 |
| 23                 | CC2-         |                | CC2-         | 4                  |
| 11                 | CC3-         | Twisted Pair 4 | CC3-         | 16                 |
| 24                 | CC3+         |                | CC3+         | 3                  |
| 12                 | CC4+         | Twisted Pair 5 | CC4+         | 15                 |
| 25                 | CC4-         |                | CC4-         | 2                  |
| 26                 | NC           | OPEN           | NC           | 1                  |

**Table 2**  
**Length Codes**

| First 2 Digits | Alpha Code | First 2 Digits | Alpha Code | First 2 Digits | Alpha Code |
|----------------|------------|----------------|------------|----------------|------------|
| 10             | A          | 17             | H          | 24             | R          |
| 11             | B          | 18             | J          | 25             | S          |
| 12             | C          | 19             | K          | 26             | T          |
| 13             | D          | 20             | L          | 27             | V          |
| 14             | E          | 21             | M          | 28             | W          |
| 15             | F          | 22             | N          | 29             | Y          |
| 16             | G          | 23             | P          | 30             | Z          |

For lengths in excess of 1000 cm substitute the corresponding alpha code for the first 2 digits. Example: the code for 1160 cm is B60.

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# 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.**

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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 2005/717/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 E5: European Union RoHS

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

**This product contains lead in excess of the maximum concentration value allowed but is compliant by exemption under Item 6 of the Annex to the Directive.**

“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.

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### 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.)<br>×: 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.) |  |       |       |             |           |             |

# Appendix C3: 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.

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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) |
| 合金(Metal alloy)  | ×  | ○     | ○     | ○           | ○         | ○           |
| <p>○：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.)</p> <p>×：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.)</p> |  |       |       |             |           |             |

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### 3M Electronics Solutions Division

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