

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 μ m] 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: $> 2 \times 10^6$ cycles (100 mm bend radius, 100 mm stroke, 30 strokes/minute)

Electrical

Voltage Rating: 30V

Current Rating: 1A

Insulation Resistance: $> 1 \times 10^8 \Omega$ at 100 V_{DC}

Withstanding Voltage: 350 V_{RMS} for 1 minute

Shielded Twisted Pairs:

Characteristic Impedance: $100 \pm 10 \Omega$

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

Electronic Solutions Division
Interconnect Solutions

<http://www.3M.com/interconnects/>

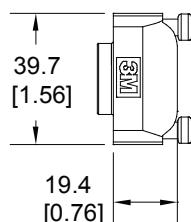
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3M™ Mini D Ribbon (MDR) Cable Assembly

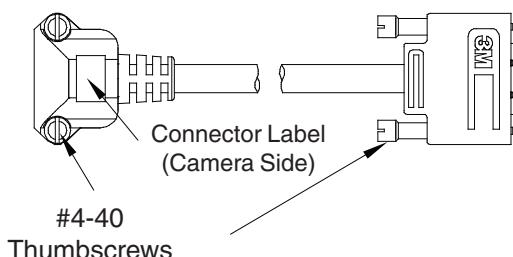
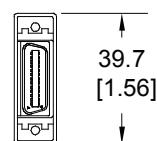
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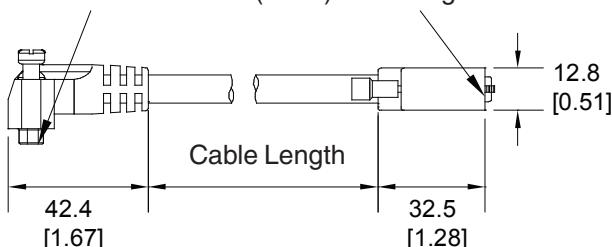
CN-1
CAMERA



CN-2
FRAME GRABBER

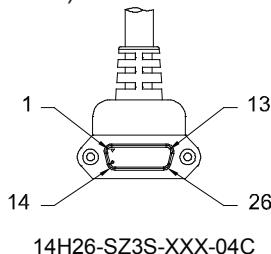
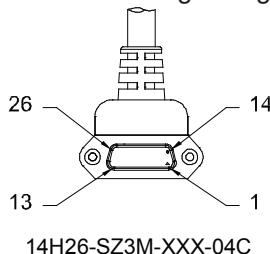


2 x 26 Position High Density
Mini D Ribbon (MDR) Male Plug

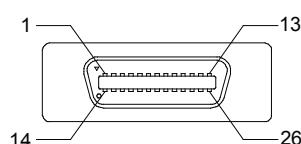


Cable Length Tolerance is the
larger of + 50 mm / -0 mm or +3% / -0%

MDR 26 Position Plug
Right-Angle (Camera) End



MDR 26 Position Plug
Straight (Frame Grabber) End



Tolerance Unless Noted	
mm	[inch]
.0	.00
mm	±.1

[] 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

050 = 50 cm

100 = 100 cm

150 = 150 cm

200 = 200 cm

250 = 250 cm

300 = 300 cm

350 = 350 cm

400 = 400 cm

450 = 450 cm

500 = 500 cm

600 = 600 cm

700 = 700 cm

800 = 800 cm

900 = 900 cm

A00 = 1000 cm

For lengths greater than 1000 cm refer to Table 2

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Table 1

CN-1		Wiring Chart			CN-2	
Connector Position	Cable			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-		CC3-	16		
24	CC3+	Twisted Pair 4	CC3+	3		
12	CC4+		CC4+	15		
25	CC4-	Twisted Pair 5	CC4-	2		
26	NC		OPEN	NC		

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.

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 2005/717/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.

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 (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.)

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 (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)	×	○	○	○	○	○

○: 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

All statements, technical information, and recommendations related to 3M's products are based on information believed to be reliable, but the accuracy or completeness is not guaranteed. Before using this product, you must evaluate it and determine if it is suitable for your intended application. You assume all risks and liability associated with such use. Any statements related to the product which are not contained in 3M's current publications, or any contrary statements contained on your purchase order shall have no force or effect unless expressly agreed upon, in writing, by an authorized officer of 3M.

Warranty; Limited Remedy; Limited Liability.

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 Solutions Division

6801 River Place Blvd.
Austin, TX 78726-9000
U.S.A.
1-800-225-5373
www.3m.com/interconnects

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