molex® MicroCross™ DVI (Digital Visual Interface) Connector System

Supports Digital and/or Analog Video Functions in One Connector System

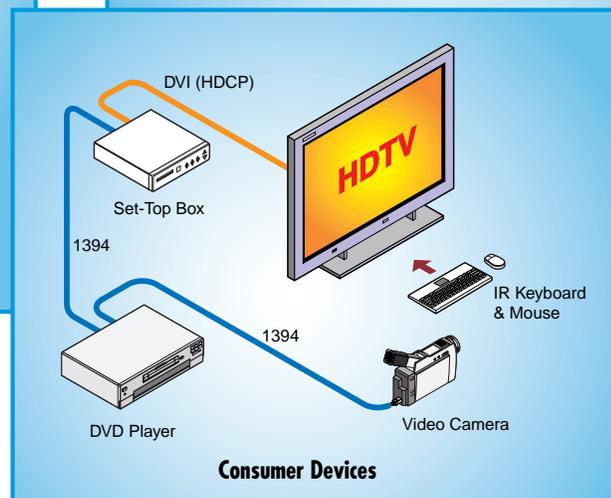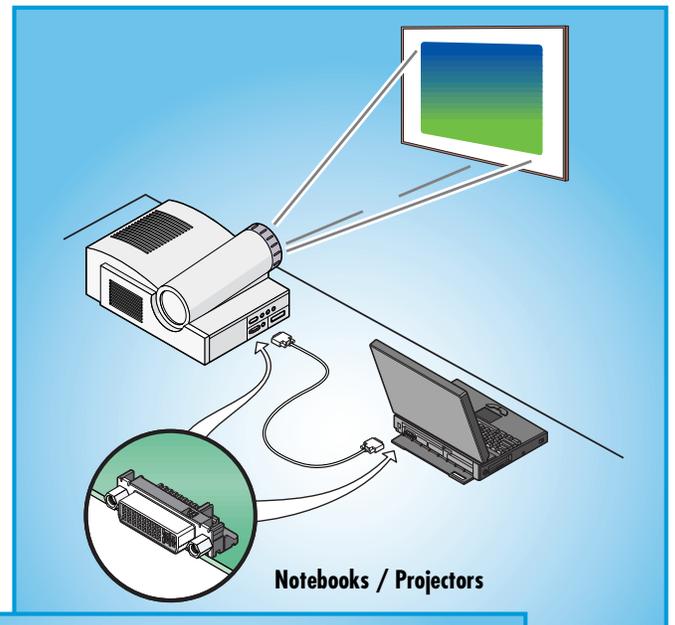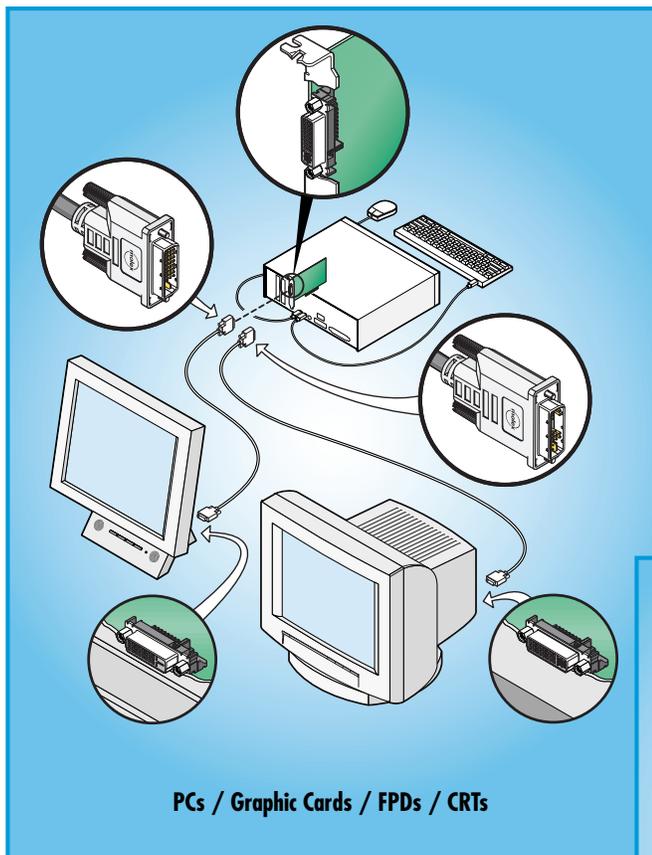## MicroCross DVI System Offers Improved Performance and Design Flexibility

The MicroCross DVI I/O Connectors from Molex are leading the way in support of the DDWG (Digital Display Working Group) DVI interface standard. MicroCross DVI has been chosen by the DDWG as the standard digital interface for connecting a host device and display device to support high-resolution video applications. Supporting one or two digital links driven by TMDS* (Transition Minimized Differential Signaling) and/or a high bandwidth analog interface, the MicroCross was chosen by the DDWG for its size, performance and cost. No other interface in the industry compares. The innovative crossing ground blade design and LFH™ (Low Force Helix) contact interface design provides the industry with a video interface design that will support over 1.65 Gbps per differential pair (for a total 9.9 Gbps over a dual link implementation) and 2.5GHz support for the analog interface. These features provide the industry the performance head room it needs for future growth and development of video products.

*TMDS is a trademark of Silicon Image, Inc.

The innovative MicroCross design addresses the problem of an industry in transition. By providing a single high performance interface, precious board I/O space is saved and lower system costs are achieved. The interface provides added benefits of a high cycle life interface for mobile applications and the improved EMI/RFI performance needed for high speed links. The EMI performance is achieved through the 360° shielding of the MicroCross DVI cable and connector design. The MicroCross DVI connector system and the DVI standard are moving the graphics industry to the next level by providing unmatched electrical and mechanical performance while allowing for low cost implementation.

The MicroCross DVI is backed by the DDWG Promoters Group (Intel, IBM, Compaq, HP, NEC, Fujitsu, and Silicon Image) for meeting the total system's needs for future Video I/O. The MicroCross DVI complements Molex's MicroCross P&D system, supported by the VESA's P&D and Home Theater standards. For further information or support on MicroCross products contact Molex or visit http://www.molex.com/product/io/dviintro.html.

PCs / Graphic Cards / FPDs / CRTs

Notebooks / Projectors

DVI (HDCP)

Set-Top Box

1394

HDTV

IR Keyboard & Mouse

1394

DVD Player

Video Camera

Consumer Devices

dvi
digital visual interface

SIGNAL INTERFACE

MicroCross High Speed Pins:

C1: Analog Red Video Out
C2: Analog Green Video Out
C3: Analog Blue Video Out
C4: Analog Horizontal Sync
C5: Analog Common Ground Return (Red, Green, Blue Video Out)
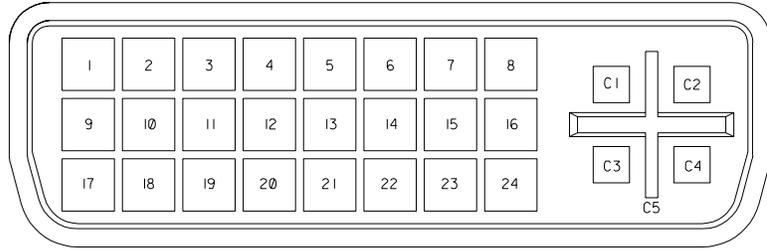
DVI-I Receptacle Connector Front View

Main Pin Field:

1	TMDS Data 2-	9	TMDS Data 1-	17	TMDS Data 0-
2	TMDS Data 2+	10	TMDS Data 1+	18	TMDS Data 0+
3	TMDS Data 2/4 Shield	11	TMDS Data 1/3 Shield	19	TMDS Data 0/5 Shield
4	TMDS Data 4-	12	TMDS Data 3-	20	TMDS Data 5-
5	TMDS Data 4+	13	TMDS Data 3+	21	TMDS Data 5+
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (+5, Analog H/V Sync)	23	TMDS Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	TMDS Clock-

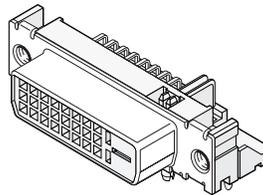Pin 14 is recessed in the plug connector so as to provide for proper power/ground sequencing
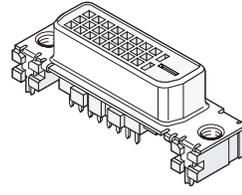
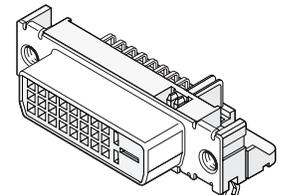## RECEPTACLES
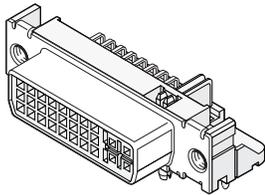
Right Angle DVI-I Receptacle with Peg
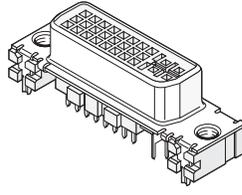
Vertical DVI-I Receptacle with Peg

Right Angle DVI-D Receptacle with Peg

**Vertical DVI-D Receptacle with Peg**

Right Angle DVI-D ATX Receptacle with Forklock

Right Angle DVI-I Receptacle with Forklock

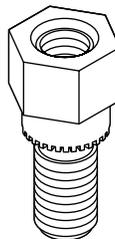| Description	Order No.	
	Gold Flash	30µ" Gold
DVI-I Right Angle Digital/Analog Receptacle	74320-1004	74320-1000
DVI-A Right Angle Analog Receptacle	74320-1009	74320-1008
DVI-I Vertical Digital/Analog Receptacle	74320-3004	74320-3000
DVI-A Vertical Analog Receptacle	74320-3009	74320-3008
DVI-D Right Angle Digital Receptacle	74320-4004	74320-4000
DVI-D Vertical Digital Receptacle	74320-5004	74320-5000
DVI-D Right Angle Digital ATX Receptacle with Forklocks	74320-9004	74320-9000
DVI-I Right Angle Digital/Analog Receptacle with Forklocks	74320-9014	74320-9010
DVI-D Right Angle Digital Extended Height Receptacle	74320-2010	74320-2011
DVI-I Right Angle Digital/Analog Extended Height Receptacle	74320-2020	74320-2021
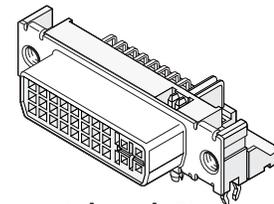
4-40 MOUNTING HARDWARE
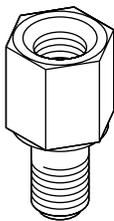
Clear Chromate Jackpost Screw

Zinc/Yellow Chromate Jackpost Screw

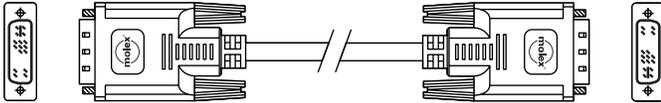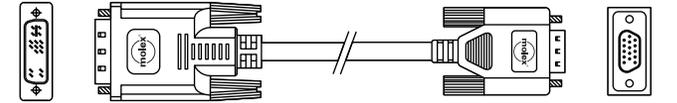| Description	Order No.	Plating
Standard Panel Mount Hardware	71781-0001	Clear Chromate
Self-Clinching Panel Mount Hardware	71781-0002	Zinc/Yellow Chromate

molex® **MicroCross™ DVI Connector System**
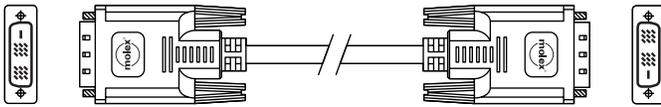
DVI-Digital to DVI-Digital Single Link
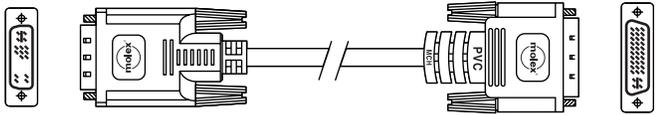**88741-80XX**
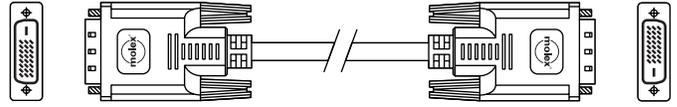
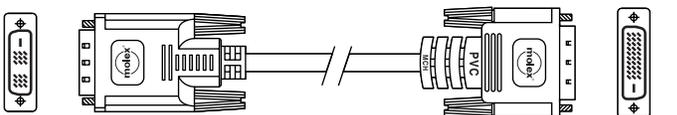**DVI-Digital to DVI-Digital Dual Link**
88741-81XX

DVI-Analog to DVI-Analog
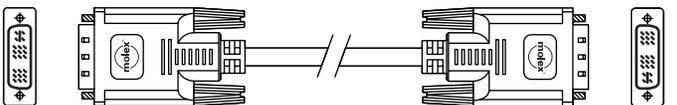**88741-82XX**

DVI-Analog to VGA Analog
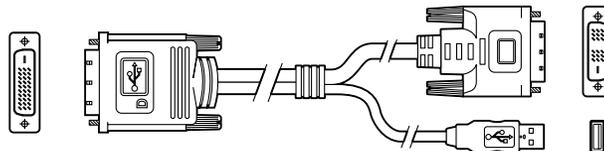**88741-83XX**

DVI-Analog to P&D-Analog
88741-84XX

DVI-Digital to P&D-Digital
88741-85XX

DVI-Digital to DFP Digital
88741-86XX

DVI-Digital/Analog to DVI-Digital/Analog Single Link
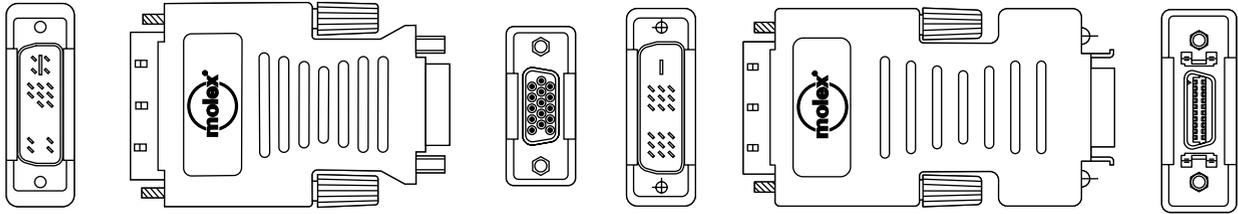**88741-90XX**

M1-D Digital to DVI-Digital Single Link and USB Breakout
88745-2200 (2m Length)

Note: 1. Plug contacts will be partially loaded depending on the signal set
         2. a) Replace XX with 00 for 2m, 10 for 3m, and 20 for 5m black cable assemblies
            b) Replace XX with 01 for 2m, 11 for 3m, and 21 for 5m white cable assemblies
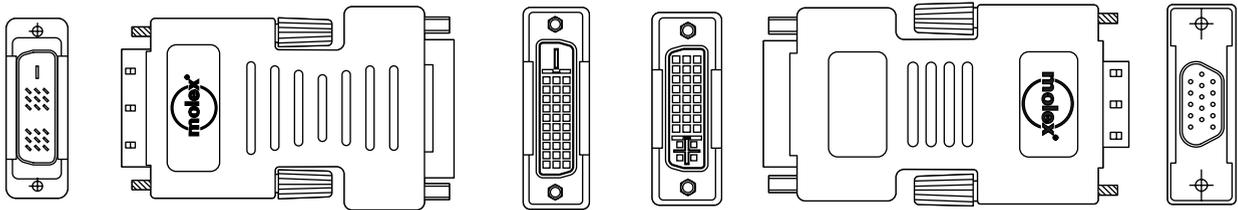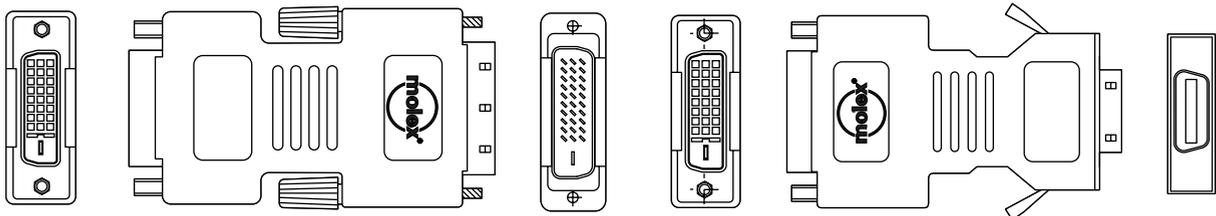
**DVI-Analog Plug to VGA Receptacle
88741-8700
Analog to Analog**

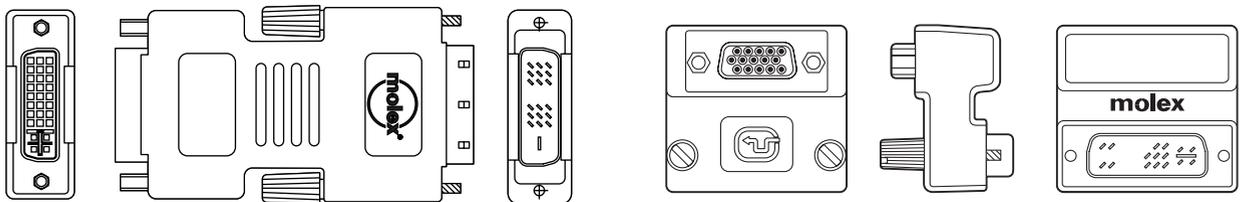**DVI-Digital Plug to DFP Receptacle
88741-8800
Digital to Digital**

**DVI-Digital Plug to P&D-Digital Receptacle
88741-8900
Digital to Digital**

**DVI-Analog Receptacle to VGA Plug
88741-9100
Analog to Analog**

**DVI-Digital Receptacle to P&D-Digital Plug
88741-9200
Digital to Digital**

**DVI-Digital Receptacle to DFP Plug
88741-9300
Digital to Digital**

**DVI-Digital Receptacle to DVI-Digital Plug
88741-9400
Digital to Digital**

**DVI-Analog Plug to VGA Receptacle Z Design
88741-8701
Analog to Analog**

Note: 1) Plug contacts will be partially loaded depending on the signal set.

2) Adapters are passive not active. Digital to analog conversions of the
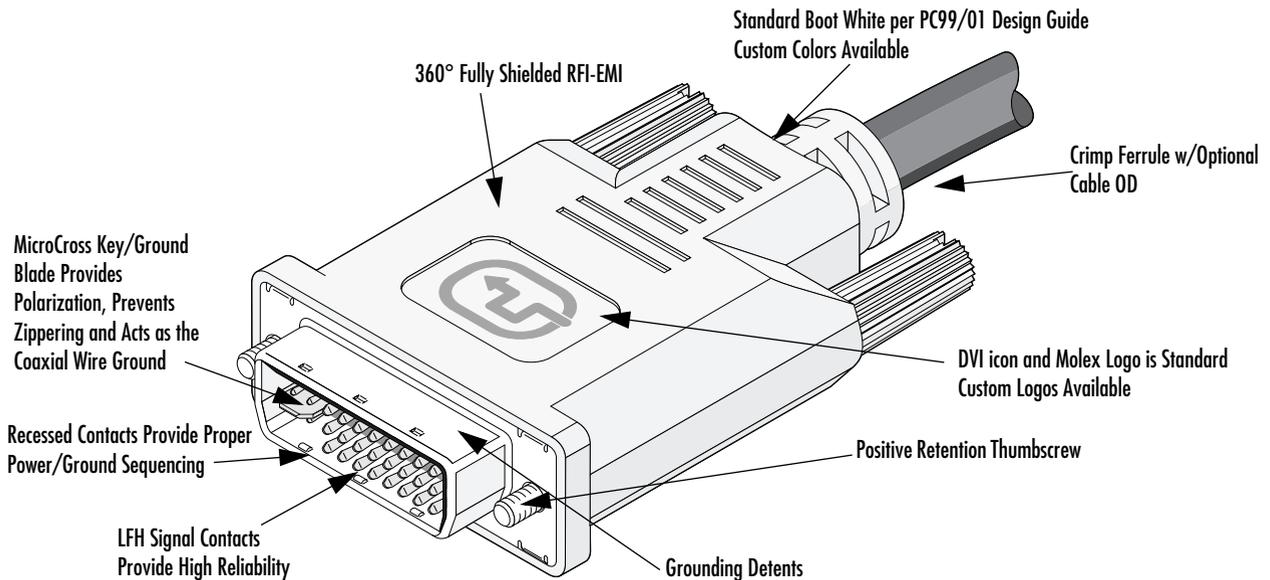video signal are not supported.

MicroCross™ DVI (Digital Visual Interface) Plug Components

Molex offers cable plug components for customers who choose to build their own MicroCross DVI cable assemblies.

Features and Benefits

- The mating interface features Molex's patented LFH™ (Low Force Helix) contact system, which provides high mechanical reliability and optimal signal integrity
- Compliant with the DVI standard specification 1.0
- Boots are compliant with PC99/01 white color and DVI icon requirements
- Fully shielded for RFI/EMI considerations
- Plugs contain staggered tails for easy solder termination

- Impedance controlled coaxial termination through a compact common ground blade termination that is simple and fast
- First break/last make for proper power and ground sequencing to support hot plugging
- Accommodates wire sizes from 32 to 22 AWG for most wire constructions
- Optional shield cans and crimp ferrules are available to accommodate custom cable diameters
- Application tooling available
- Pre-loaded contacts provide an easy assembly solution and eliminate unnecessary manufacturing steps

360° Fully Shielded RFI-EMI

Standard Boot White per PC99/01 Design Guide
Custom Colors Available

Crimp Ferrule w/Optional Cable OD

MicroCross Key/Ground Blade Provides Polarization, Prevents Zippering and Acts as the Coaxial Wire Ground

DVI icon and Molex Logo is Standard Custom Logos Available

Recessed Contacts Provide Proper Power/Ground Sequencing

Positive Retention Thumbscrew

LFH Signal Contacts Provide High Reliability

Grounding Detents

CABLE PLUG COMPONENTS

Following are recommended bills of material required to build a MicroCross DVI cable assembly.

DVI Digital Single Link Components

Description	Order No.	Quantity
Single Link Plug	74323-2001	1
EMI Can Kit	88789-9332	1
Boot	88743-2202	1
Crimp Ferrule	*73772-000X	1
Thumbscrew	88780-6006	2

DVI Digital Dual Link Components

Description	Order No.	Quantity
Dual Link Plug	74323-2003	1
EMI Can Kit	88789-9332	1
Boot	88743-2202	1
Crimp Ferrule	*73772-000X	1
Thumbscrew	88780-6006	2

DVI Integrated Analog and Digital Single Link Components

Description	Order No.	Quantity
Integrated Single Link Plug	74323-2031	1
EMI Can Kit	88789-9333	1
Boot	88743-2302	1
Crimp Ferrule	*73772-000X	1
Thumbscrew	88780-6005	2

DVI Integrated Analog and Digital Dual Link Components

Description	Order No.	Quantity
Integrated Dual Link Plug	74323-2033	1
EMI Can Kit	88789-9333	1
Boot	88743-2302	1
Crimp Ferrule	*73772-000X	1
Thumbscrew	88780-6005	2

DVI Analog Components

Description	Order No.	Quantity
Analog Plug	74323-2011	1
EMI Can Kit	88789-9333	1
Boot	88743-2302	1
Crimp Ferrule	*73772-000X	1
Thumbscrew	88780-6005	2

Other plug contact plating options available - Contact Molex.

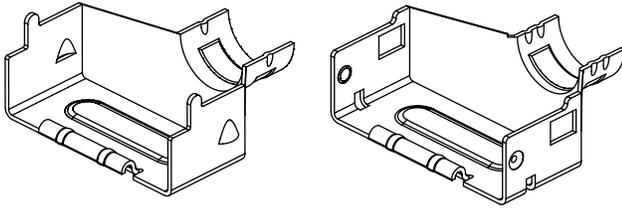**molex®** MicroCross™ DVI
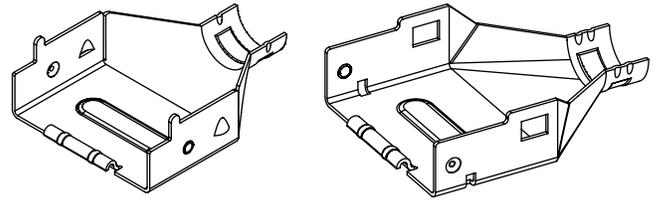Plug Components

Single Link Digital Plug Shown
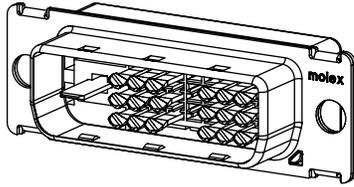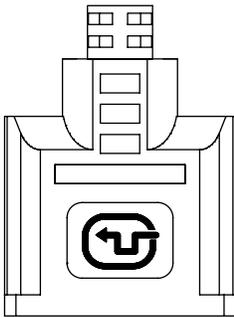
Analog Plug Shown
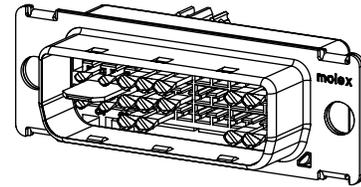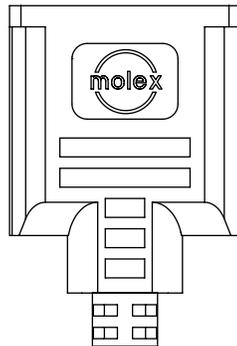
Digital EMI Can Kit
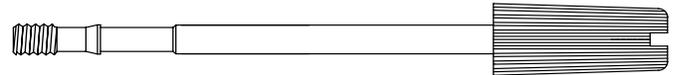
Analog and Integrated EMI Can Kit
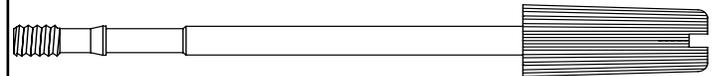
Digital Boot

Analog and Integrated Boot
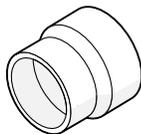
Digital Thumbscrew

Analog and Integrated Thumbscrew

Optional Cable O.D. Boots available. Contact Molex

Crimp Ferrule

Application Tooling is available. Contact Molex

*Ordering Information

Order No.	Cable OD
73772-0001	6.25-8.16mm (.246-.321")
73772-0002	8.17-9.00mm (.322-.354")
73772-0003	9.01-9.84mm (.355-.387")
73772-0004	9.85-10.67mm (.388-.420")

dvi digital visual interface

Visit our Web site at http://www.molex.com/product/io/dviintro.html

Printed in USA/10k/JI/JI/99.11 ©2000, Molex