

Compatible Windows Software

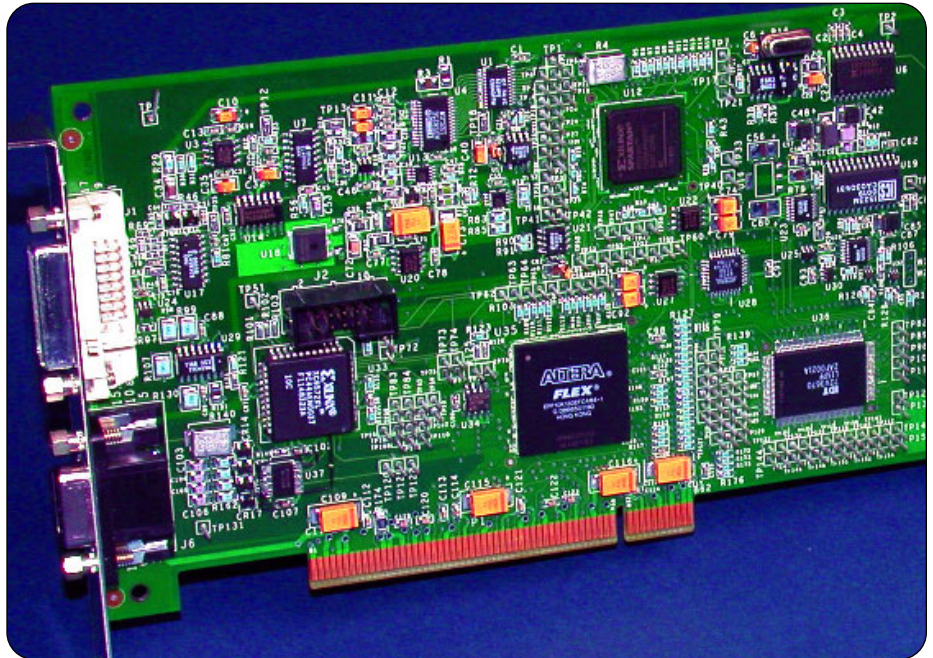
- GLOBAL LAB Image/2
- DT Vision Foundry

DT3162

Variable-Scan Monochrome Frame Grabber for the PCI Bus

Key Features

- High-speed acquisition – up to 40 MHz pixel acquire rate allows higher frame rates.
- 2K x 2K spatial resolution...high resolution image, 10-bit accuracy.
- Acquire 60 fps for standard video, 30 fps for 1024 x 1024.
- Variable-scan capability.
- High-resolution data sampling for high precision.
- Asynchronous reset...gives deterministic repeatability for machine vision.
- Custom high-performance, high-bandwidth PCI architecture provides zero wait state, scatter gather transfers directly to host memory.
- Multiple camera inputs support multi-axis applications.
- Flexible input timing and spatial resolution allows use with a wide range of cameras.
- Interrupt on change for mission critical timing needs.
- VSYNC, HSYNC, and pixel clock signals for complete camera/DT3162 control.
- Eight digital control lines to monitor and control peripherals.
- External trigger and strobe.
- Three muxed inputs let you connect up to three separate sources.
- Non-destructive overlays can be placed on top of live video.
- Auto calibrate lets you calibrate the board using an on-board video signal and validate the proper operation of the board.
- Analog front-end design gives you the clearest and most noise-free image of any analog frame grabber on the market.
- Programmable ROI on board.
- Ships with valuable software bundle featuring WDM drivers, software evaluations, a powerful ActiveX control, and DT-Acquire2 ready-to-run application.
- Change the value of an incoming pixel with two look-up tables (LUTs).



The DT3162 is an all-purpose, variable-scan frame grabber, ideal for almost any imaging and machine vision application.

Overview

The DT3162 is a 40 MHz variable-scan monochrome frame grabber for the PCI bus. Its high speed and programmable front-end flexibility allows the DT3162 to be compatible with standard as well as non-standard video sources, and is an ideal frame grabber for demanding scientific imaging, machine vision, and other high-end imaging applications.

Programmable Input

Software programmable input timing and spatial resolution allows the DT3162 to be used with a wide variety of video sources, including standard RS-170/CCIR, slow-scan, large format, and progressive-scan cameras. A wide selection of camera set-up files are included for easy camera interfacing - simply select the file for

set-up files are included for easy camera interfacing - simply select the file for your particular camera and the specific frame grabber input parameters are set up automatically.

High-Accuracy Data Sampling

The DT3162 provides precise control of input signals for optimal image capture. Offset and gain controls allow you to precisely match the input range to your video source to maximize the effectiveness of the DT3162's A/D converter. Low-noise, low-jitter circuitry ensures high integrity of image data.

Ideal Applications

Machine Vision

Medical Imaging/Diagnostics

Scientific Imaging

High-Bandwidth PCI Architecture

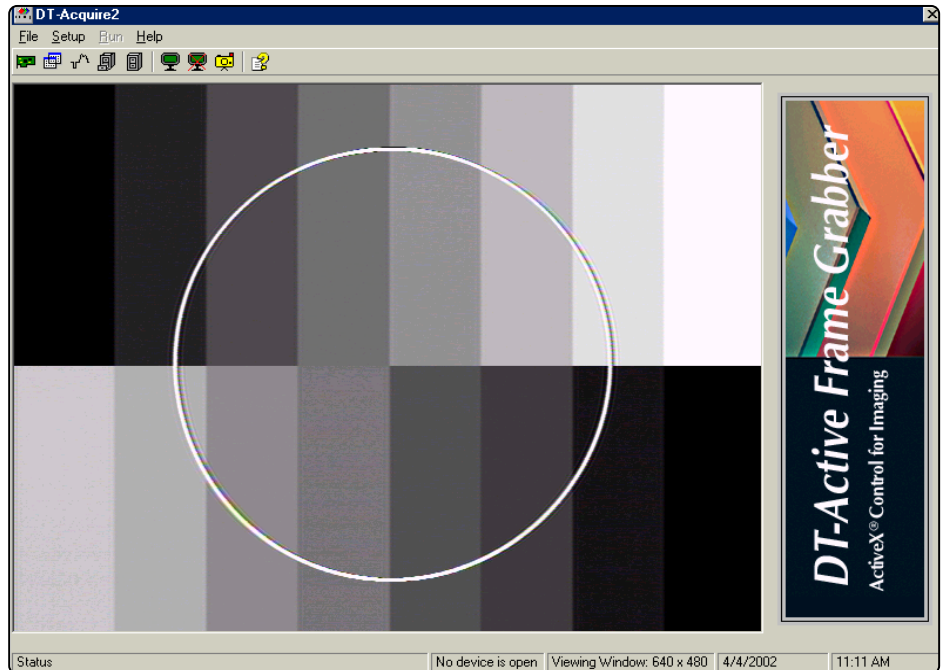
32-Bit 33 MHz PCI Bus support provides the ultimate in data transfer. Because of its high-bandwidth, intelligent Scatter/Gather memory management architecture and Bus Master design, the DT3162 can handle large amounts of image data – 120 Mbytes/sec typical– quickly and effectively, and with no CPU intervention. This leaves the host CPU free to do other tasks such as image processing, data manipulation, or other processor-intensive operations.

Extensive Software Support

The Imaging Omni CD that is shipped with the DT3162 provides the tools you need to set up your Data Translation frame grabber and develop imaging applications.

The Imaging Omni CD includes:

- DT-Active Monochrome Frame Grabber Control – Use this ActiveX control if you want to develop your own application software for the DT3162 using Microsoft Visual Basic or Visual C++ in Windows 2000 or Windows XP.
- DT-Acquire2 – Use this ready-to-run software application to verify the operation of your DT3162 board during startup, and to capture, display and save images.
- DT3162 Device Driver – You must install this device driver to use a DT3162 board with any of the supported software packages or utilities. The device driver is for use with Windows 2000/XP.
- DT Vision Foundry Evaluation – DT Vision Foundry is a versatile and extensible machine vision software package that integrates powerful vision tools with multiple programming environments to provide a robust, flexible, easy-to-use visual inspection package. DT Vision Foundry is supported under Windows 2000/XP. The Imaging Omni CD lets you evaluate the great



DT-Acquire2, included with the DT3162, is a ready-to-run application for capturing, displaying and saving images.

- new features of DT Vision Foundry for 14 days.
- GLOBAL LAB Image/2 Evaluation – GLI/2 is a complete image analysis software package, ideal for scientific and general-purpose applications that require measuring, classification, counting, and other analysis. GLI/2 is supported under Windows 2000/XP. The Imaging Omni CD lets you evaluate the great new features of GLI/2 for 14 days.
- Documentation – User and Getting Started Manuals for the DT3162 in PDF format.

Flexible Camera Control

The DT3162 provides a programmable exposure control output, as well as VSYNC, HSYNC, and Pixel Clock signals for flexible camera control.

External Trigger Inputs, Strobes and Digital Outputs

The DT3162 accepts an external trigger signal that is software selectable for rising or falling edge to synchronize image capture with external events. Nine digital control lines are provided on a separate 15-pin D-SUB connector – four inputs,

four outputs and one strobe output line to provide flexible control of external peripherals and external events.

Real-Time Display, Non-Destructive Overlays

Ideal for applications where display video and processing occur simultaneously, the DT3162 gives you the ability to display non-destructive overlays of any size, shape, or color on top of real-time, live video.

Technical Support

As you develop your application, technical support is available when you need it. Extensive information is available 24/7 on our website at www.data-translation.com, including drivers, example code, connector pin-outs, a searchable KnowledgeBase and more. Support is also available from your point of purchase. Complimentary telephone support is available for the first 90 days; you can also request complimentary support via e-mail or fax anytime.

EP332
Direct connect cable provides nine BNC terminated input connections to video, trigger and sync signals.

Camera or video device
All major brands

STP15
Provides access to the nine digital control lines of the DT3162. (EP337 cable included)

DT3162
High performance frame grabber.

Optional DT3162 accessories to choose from – select what works for your application needs.

Camera Interface Module (CIM), EP340
Connect cameras, triggering devices and external clock signals to the DT3162 with the Camera Interface Module. (EP321 cable included)

Camera or video device
All major brands

STP15
Provides access to the nine digital control lines of the DT3162. (EP337 cable included)

DT3162
High performance frame grabber.

Camera Connection Accessories

All of the following optional accessories are sold separately. There are two ways to connect the DT3162 to cameras – the Camera Interface Module (CIM) or the EP332 cable.

Camera Interface Module (EP340)

The Camera Interface Module (CIM), sold separately, lets the user connect cameras, triggering devices, and external clock signals to the DT3162 frame grabber via a DIN-rail mountable enclosure. The CIM

provides control signals and video inputs via Hirose and BNC connectors (camera power supply not included).

EP332 Cable

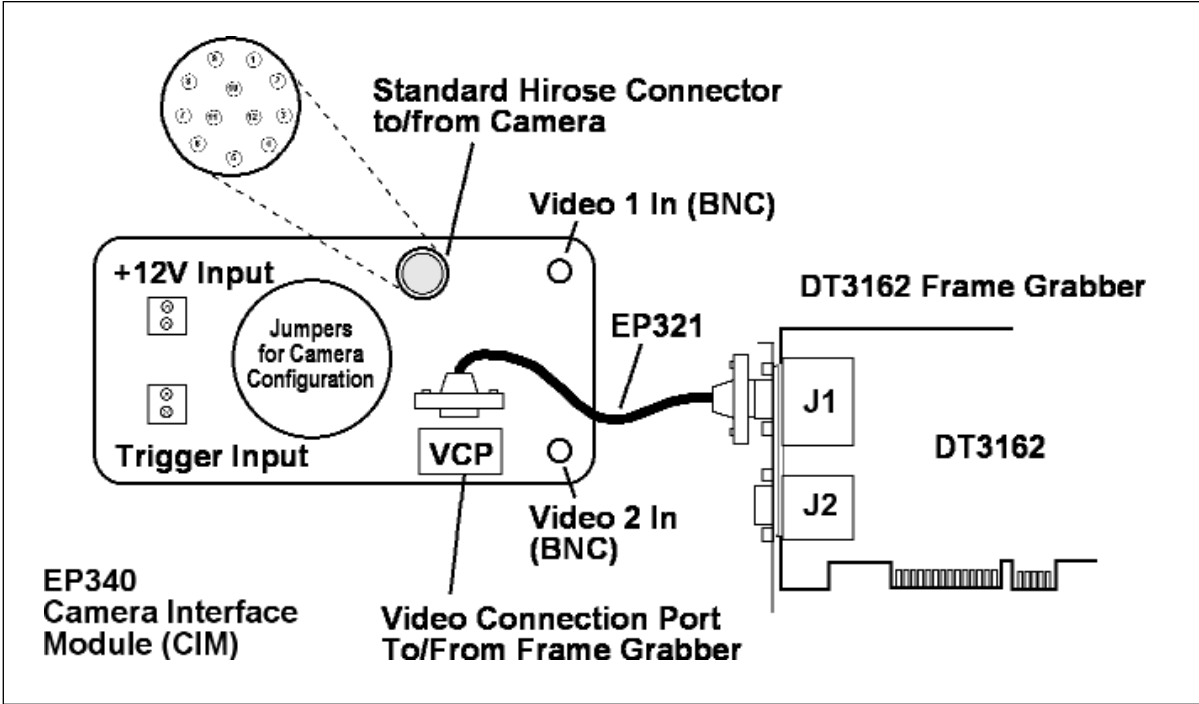
The EP332 is a direct connect cable that provides nine BNC terminated input connections to video, trigger and sync signals. There are three video inputs, expose, strobe, external horizontal sync, external vertical sync, external trigger, and external clock.

EP261 Cable

For longer cabling needs, use the EP261, a cable with BNC to BNC connectors that can be used to connect the camera to the CIM or the EP332 cable.

STP15

The STP15 and included EP337 cable provide access to the nine digital control lines of the DT3162.

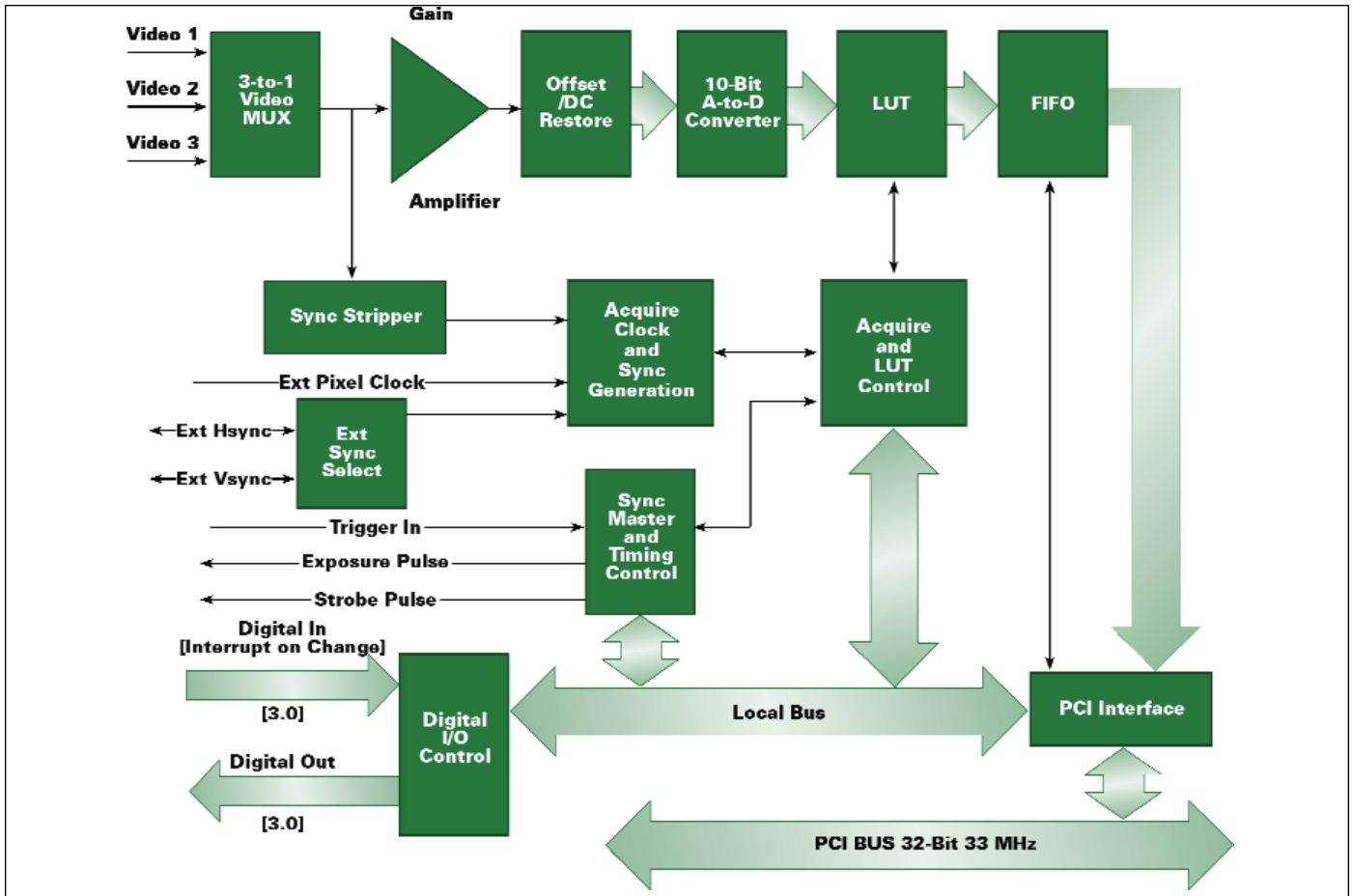


This diagram details the connections of the Camera Interface Module (CIM).

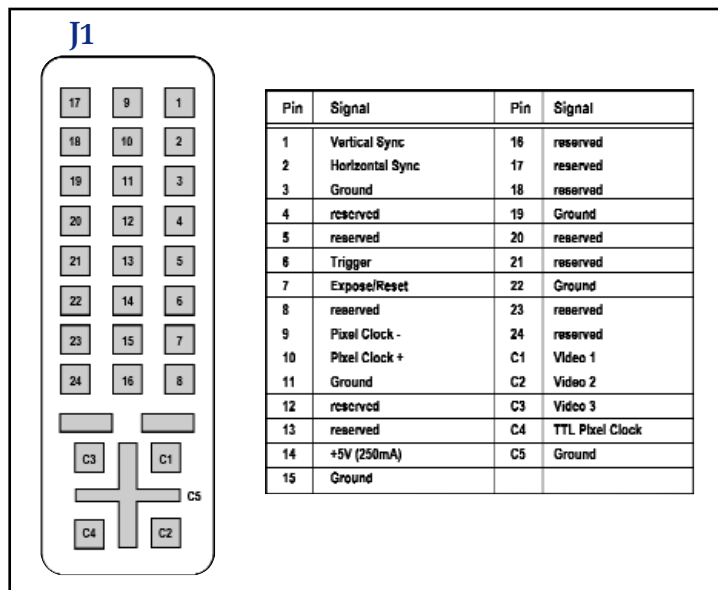
12 Pin Hirose Connector Shell Size 10

Hirose (Camera) Connector Pin Assignments			
Pin	Description	Pin	Description
1	Digital Ground	2	+12 V
3	Video 0 Return	4	Video 0
5	Digital Ground	6	HSync or Expose/ Reset
7	VSync or Expose/Reset	8	Digital Ground
9	HSync, Pixel Clock, or Expose/Reset	10	Digital Ground
11	Pixel Clock, Expose/Reset, or +12 V	12	Digital Ground

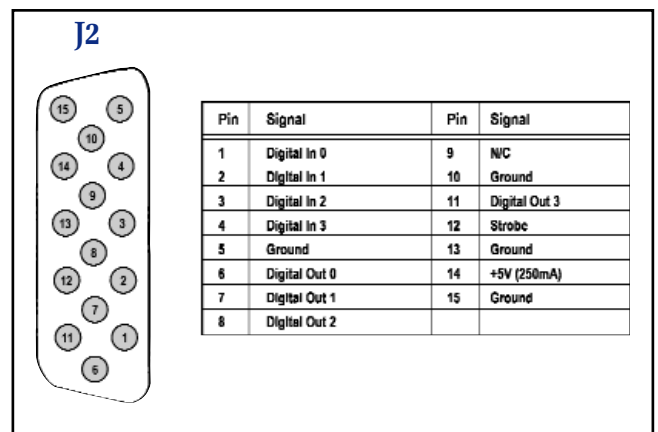
Detailed diagram and pin out of the Hirose connector found on the Camera Interface Module (CIM). The CIM is designed to allow the user to use the Hirose cable specified by the camera manufacturer.



The DT3162 frame grabber has a 10-bit high resolution front-end and provides a direct data path to the PCI bus for superior performance. The board accepts three video sources. Digital I/O control signals allow the frame grabber to be used for process control and automation. Extensive flexible camera control allows you to connect and control a wide variety of cameras.



J1 connector provides access to all video sources, trigger, sync, clock and expose lines.



J2 15-Pin standard D-SUB connector provides nine control lines and one power output.

DT3162 Specifications**Video Input**

Video Format: RS-170, RS-330 (60 Hz) or CCIR (50 Hz); interlaced and/or non-interlaced/progressive-scan, slow-scan; software selectable

Timing Formats: Standard, non-standard (variable-scan), asynchronous or custom timing; software selectable

Inputs: 3 multiplexed monochrome composite inputs (via VCP connector); AC coupled

Video Signal: 1 Volt peak-to-peak, 75 ohms

Spatial Resolution: Programmable, 16 to 2048 active pixels/line by 1 to 2048 lines/frame

Acquisition

Digitization: 10-bits, converted to 8-bits via LUT, 256 gray levels

Jitter: +/- 1.5 nsec typical, +/- 2 nsec max

Pixel Acquire Rate: 100KHz - 40 MHz

On-Board Pixel Clock: Programmable; 100KHz - 40 MHz

Aspect Ratio: Programmable; determined by input format used

Frame Grab Speed: Variable; determined by video format used, 1/60s (60Hz) 640x480, 1/50s (50Hz) for 768x576, for 30 fps for 1024 x 1024 and up to 360 fps or more with partial scan mode (note: maximum allowed line frequency is 3.35 KHz).

Modes: Interlaced or non-interlaced/progressive-scan, (start on even, odd, for interlaced), single frame or continuous operation; all software selectable.

Input Ranges: Programmable, 250mV to 2.0Vp-p

Gain Ranges: Programmable, continuously variable in 256 steps from 0 to 4

Offset Ranges: Programmable, continuously variable in 256 steps from -0.75 to +1.25V

On-Board Processing

LUT: Two, 1024 x 8-bit each

Region of Interest: Programmable ROI window defines video data to be transferred to memory; pixels outside window are discarded

Data Formats

Image data is output in 8-bit monochrome format

Control Signals

External Trigger Inputs: One, TTL levels, software selectable on rising/falling edge

Sync/Control Inputs: VSYNC and HSYNC, TTL levels; Pixel Clock, LVDS/TTL levels; signals supplied by camera(s) to board

Sync/Control Outputs: VSYNC and HSYNC, TTL levels; signals provided to camera(s), board acts as sync master

Exposure/Reset Outputs: One, TTL levels, programmable pulse widths

Digital Inputs/Outputs: Four general-purpose TTL outputs, fan-out of two TTL loads each; four TTL inputs; interrupt on change; all accessible from 15-pin "D" shell connector.

Strobe Outputs: One, TTL levels, software selectable polarity, programmable pulse widths; accessible from 15-pin "D" shell connector.

Video Display

Uses PC's graphics card and monitor for display. Supports real-time video display and non-destructive, real-time animated overlays

PCI Architecture

32-Bit 33MHz PCI Bus support with intelligent Scatter/Gather memory management architecture. Board operates as a PCI Bus Initiator/Bus Master using Burst Mode for data transfers to host memory

Video Transfer Rate

120 Mbytes/sec typical, 133 Mbytes/sec max.

Faceplate Connections

Primary: One Molex Connector; provides access to video, trigger, HSYNC, VSYNC and Pixel clock inputs, HSYNC and VSYNC outputs. One 15-pin D-shell connector provides access to digital I/O and strobe output.

Power Requirements

+5V @ 0.5A Typical

+3.3v @ 1.5A Typical

+/-12V @ 100mA Typical

Physical/Environmental

Form: Half-size PCI Board

Dimensions: 10.7 cm x 17.5 cm (4.2 in. x 6.875 in.)

Weight: 150 g (5.3 ounces)

Operating Temperature: 0° C to 50° C (32° F to 122° F)

Storage Temperature: -25° C to 70° C (-13° F to 158° F)

Relative Humidity: Up to 90%, non-condensing

Warranty

One year limited parts and labor

System Requirements

- Pentium-III class processor
- 32-bit/33MHz PCI bus and supporting BIOS
- At least one available PCI Bus slot
- Microsoft Windows 2000/XP
- 256 MB of system RAM minimum
- CD-ROM drive (for software installation)
- Graphics controller with DirectX driver

Ordering Summary

All Data Translation hardware products are covered by a 1-year warranty. For pricing information, see a current price list, visit our web site, or call your local reseller.

The DT3162 frame grabber is shipped with the Imaging Omni CD, valuable software bundle which includes evaluations of DT Vision Foundry and GLOBAL LAB Image/2, WDM device drivers, complete documentation, a ready-to-run software application, and an ActiveX control.

- DT3162 Variable-Scan Monochrome Frame Grabber for the PCI bus.

Accessories

- EP340 – Camera Interface Module (CIM) - DIN rail mountable enclosure; supports the three available channels on the DT3162; provides control signals and video inputs (via Hirose and BNC connectors) as well as camera power; user configurable. Includes EP321 cable.
- EP332 – 1.0m (3.25 ft) integrated cable assembly; provides video inputs, trigger input, sync signal input/outputs, exposure/reset control; terminates to BNC connectors.
- EP261 – BNC cable to connect camera for use with CIM on EP332 cable.
- STP15 – Screw terminal panel for digital I/O-includes EP337 cable.

Software

- DT Vision Foundry Machine Vision Software
SP1400-CD Development
SP1402-CD Run-Time
- GLOBAL LAB Image/2 Image Analysis Software
SP1500-CD