

Compatible Windows Software

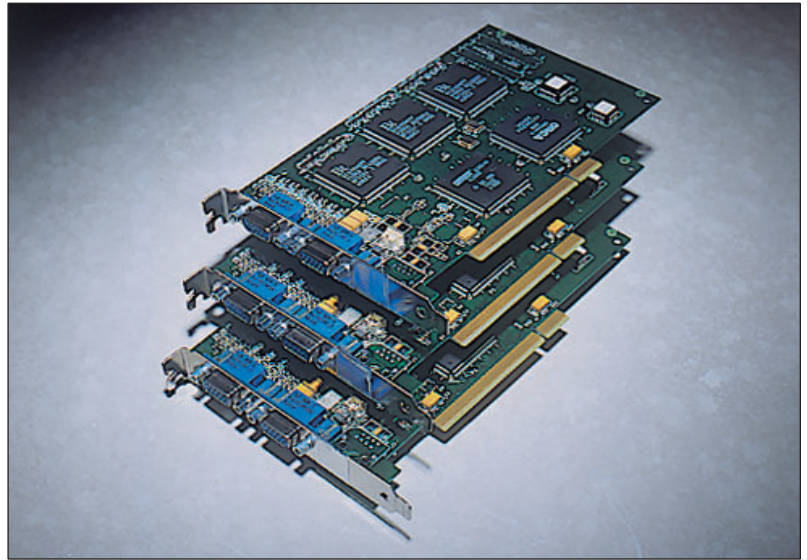
- DT Vision Foundry
- GLOBAL LAB Image/2

DT3130 Series for Machine Vision

Simultaneous Input Frame Grabber Boards for the PCI Bus

Key Features

- Contains the functionality of up to three frame grabbers on one PCI short card, enabling multiple image acquisition at a low cost.
- Handles monochrome, composite color, and S-video input sources.
- Available option adds isolation from the hazards of an industrial environment.
- Programmable strobe outputs for precise camera control.
- 12 volt camera power connection.
- PCI Bus Master and Scatter/Gather architecture for intelligent image data management; enables acquisition and transfer to host memory at 30 fps (RS-170/NTSC), 25 fps (CCIR/PAL).
- Ships with valuable software bundle featuring WDM drivers, software evaluations, a Frame Grabber SDK, and DT-Acquire ready-to-run application.



The DT3131, DT3132, & DT3133 offer one, two, or three frame grabbers on a single half-

Overview

Ideal for applications requiring simultaneous image acquisition from multiple sources, low-cost DT3130 Series frame grabbers contain the functionality of up to three individual frame grabbers, all on one half-size PCI board.

An option adds isolation from the hazards of an industrial environment, letting you add the features your application requires without paying for unneeded extras.

Extensive Input Flexibility

The DT3130 Series has three different configurations:

- The DT3131 features one active input and three muxed, for up to three NTSC/PAL color cameras, or one S-video and two 170/CCIR, NTSC/PAL, cameras.

Ideal Applications

Visual Inspection

Machine Vision

Automated Medical Imaging

Surveillance

- The DT3132 includes two active inputs or six muxed, for up to six NTSC/PAL color cameras, or two S-video and four RS-170/CCIR, NTSC/PAL cameras.
- The DT3133 includes three active inputs or nine muxed, for input of up to nine RS-170/CCIR monochrome, NTSC/PAL color cameras, or three S-video and six RS-170/CCIR, NTSC/PAL cameras.

Features Summary

Board	Camera Inputs		External Trigger Inputs	Strobe Outputs
	Active	Muxed		
DT3131	1	3	1	1
DT3132	2	6	2	2
DT3133	3	9	3	3

Flexible Operation

The DT3130 Series is designed for complete operational flexibility. The on-board frame grabbers are completely independent, with independent trigger inputs and output strobes, and can be operated individually or simultaneously. This allows you to tailor the board configuration to meet your specific application requirements—whether they are for scientific image analysis of individual images or for multiple simultaneous image acquisition for machine vision applications.

Industrial Options to Meet Your Needs

Designed for use in industrial installations, the DT3130 Series frame grabbers can be equipped with isolated trigger inputs and isolated strobe outputs via an isolation option (DT3131-ISO, DT3132-ISO, DT3133-ISO).

Precise Camera Control

Each frame grabber on the DT3130 Series boards includes flexible HSYNC and VSYNC count capabilities, as well as a programmable output strobe. Each frame grabber's strobe output can be based on the HSYNC or VSYNC count, and can be run in one-shot, continuous, or software controlled strobe modes. The strobe outputs have both polarity and pulse-width programmability. This feature allows for precise synchronization and control of cameras and light sources for demanding applications. In addition this feature makes the DT3130 Series suitable for a variety of other applications that require the control of external events based on video sync timing.

Extensive Software Support

The included Imaging Omni CD provides the tools you need to set up your Data Translation PCI frame grabber and develop imaging applications.

The Imaging Omni CD includes:

- DT-Acquire – Use this ready-to-run software application to verify the operation of your Data Translation frame grabber

Real-Time Display, Non-Destructive Overlays

The DT3130 Series employs Microsoft's DirectDraw (DDI) standard, allowing you to display real-time, live video with non-destructive overlays without adding costly display hardware (i.e. VGA circuitry) to the frame grabber. This approach offers many advantages over traditional frame grabber display and overlay methods, including:

Minimal CPU Bandwidth: The DirectDraw display technique requires minimal CPU bandwidth, leaving the CPU free to perform image processing or other tasks. Ideal for applications where display video and processing occur simultaneously, DDI allows for stagger-free images and smooth flowing, real-time video with overlays.

Upgradable Compatibility: With DDI, your DT3130 Series frame grabber will work with any DirectDraw-compatible graphics card. And since DirectDraw is enabled through the graphics card driver,

during startup, and to capture, display and save images.

- Frame Grabber SDK – This allows Microsoft C programmers to develop your own application software in Windows 2000/XP.
- Device Driver – You must install this device driver to use your Data Translation frame grabber 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 new features of DT Vision Foundry for 14 days.
- GLOBAL LAB Image/2 Evaluation –

you can upgrade an existing graphics card to DDI by simply loading a new driver.

Flexible Graphics Card Selection:

Because the graphics card is not built onto the frame grabber, you are not “locked in” to the performance of the frame grabber's display circuitry. This allows you to choose the frame grabber that suits your needs and the graphics card that meets your performance requirements and budget.

Additional Features: Since DDI is the same overlay technique used by video game manufacturers, this capability gives you the ability to have non-destructive overlays of any size, shape, or color on top of live video. In addition, overlays can be translucent (semi clear), rotated, animated, or even placed over scaled images.

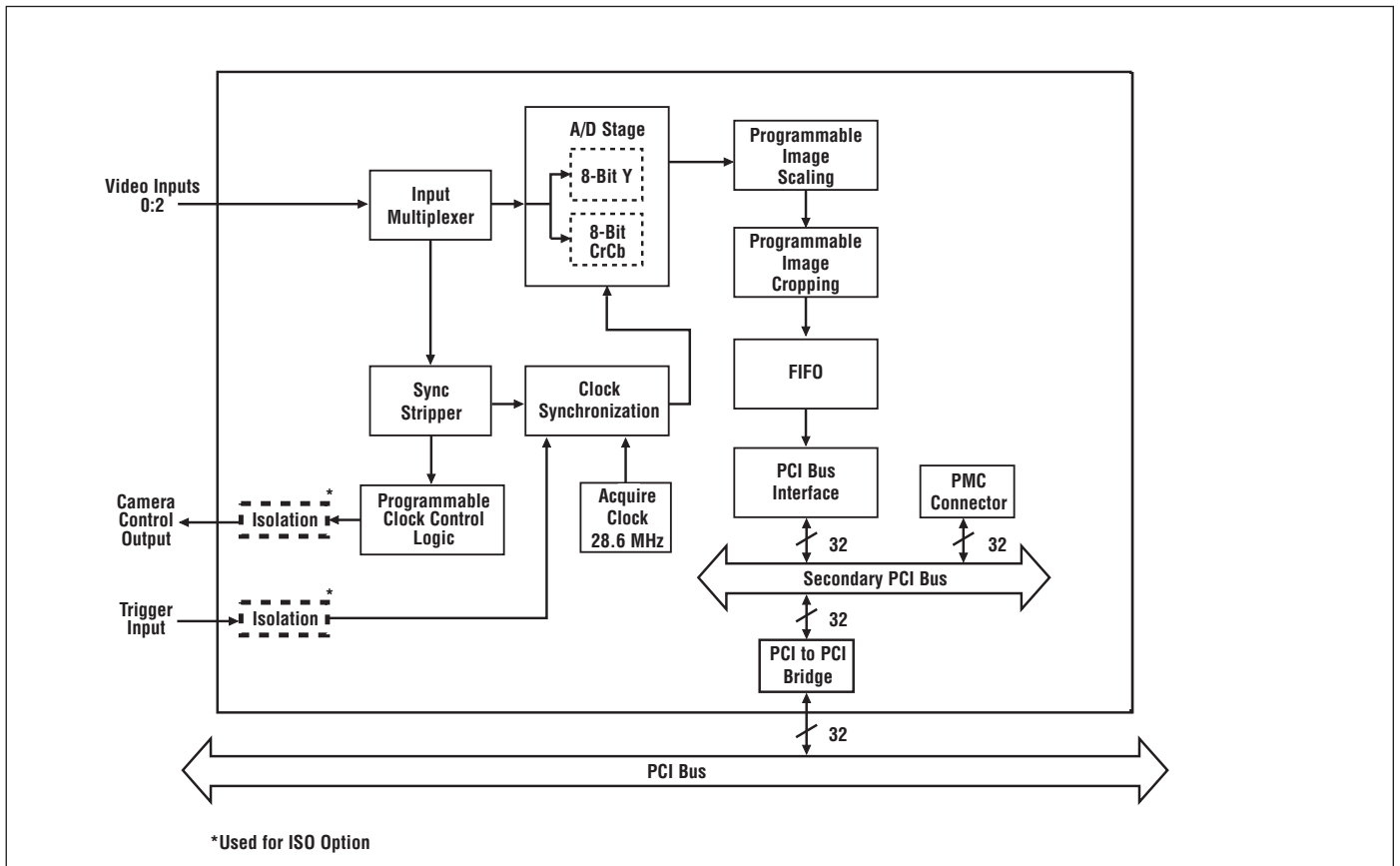
GLI/2 is a complete image analysis software package, ideal for scientific and general-purpose applications that require measuring, classification, counting, and other analysis. GLI/2 is supported under Windows 2000/XP. The Imaging Omni CD lets you evaluate the great new features of GLI/2 for 14 days.

- Documentation – User and Getting Started Manuals in PDF format.

Technical Support

As you develop your application, technical support is available when you need it. Extensive information is available 24 hours a day on our web site at www.datatranslation.com, including drivers, example code, pinouts, a searchable KnowledgeBase, and much more.

Support is also available from your point of purchase. Telephone support is free for the first 90 days; you can also request complimentary support via e-mail or fax at any time.



DT3131 Block Diagram

3131 User Connections

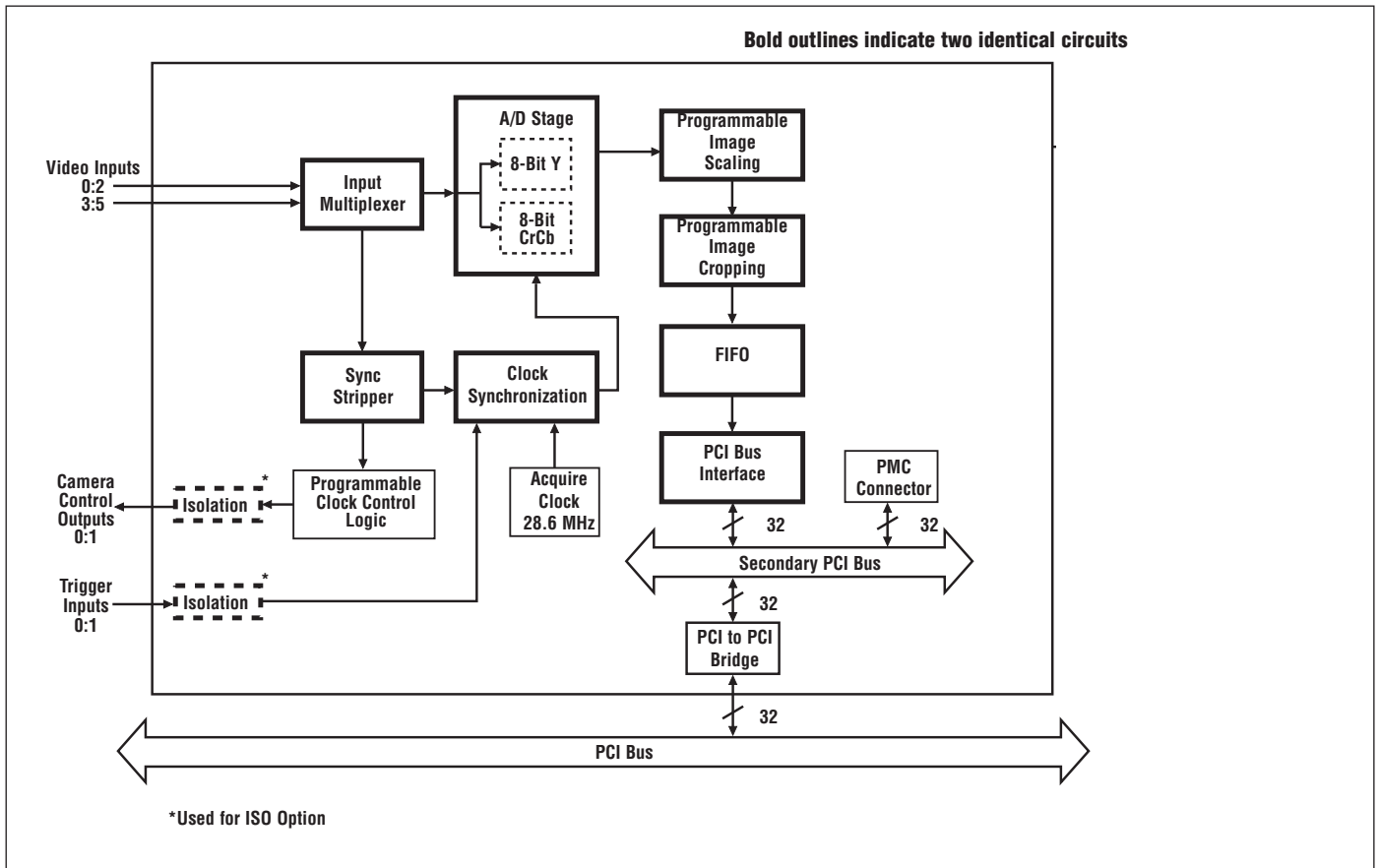
Description	Pin	Pin	Description
N/C	8	15	12V Ground
N/C	7	14	+12V
N/C	6	13	N/C
Strobe Out +	5	12	N/C
N/C	4	11	N/C
N/C	3	10	Strobe Out -
Trigger in -	2	9	N/C
Trigger in +	1		

Connector J1

Description	Pin	Pin	Description
N/C	8	15	Analog Ground
N/C	7	14	N/C
N/C	6	13	N/C
GND	5	12	N/C
CO	4	11	N/C
VID2 or Y0	3	10	Ground
VID1	2	9	N/C
VID0	1		

Connector J2

M-5899



DT3132 Block Diagram

3132 User Connections

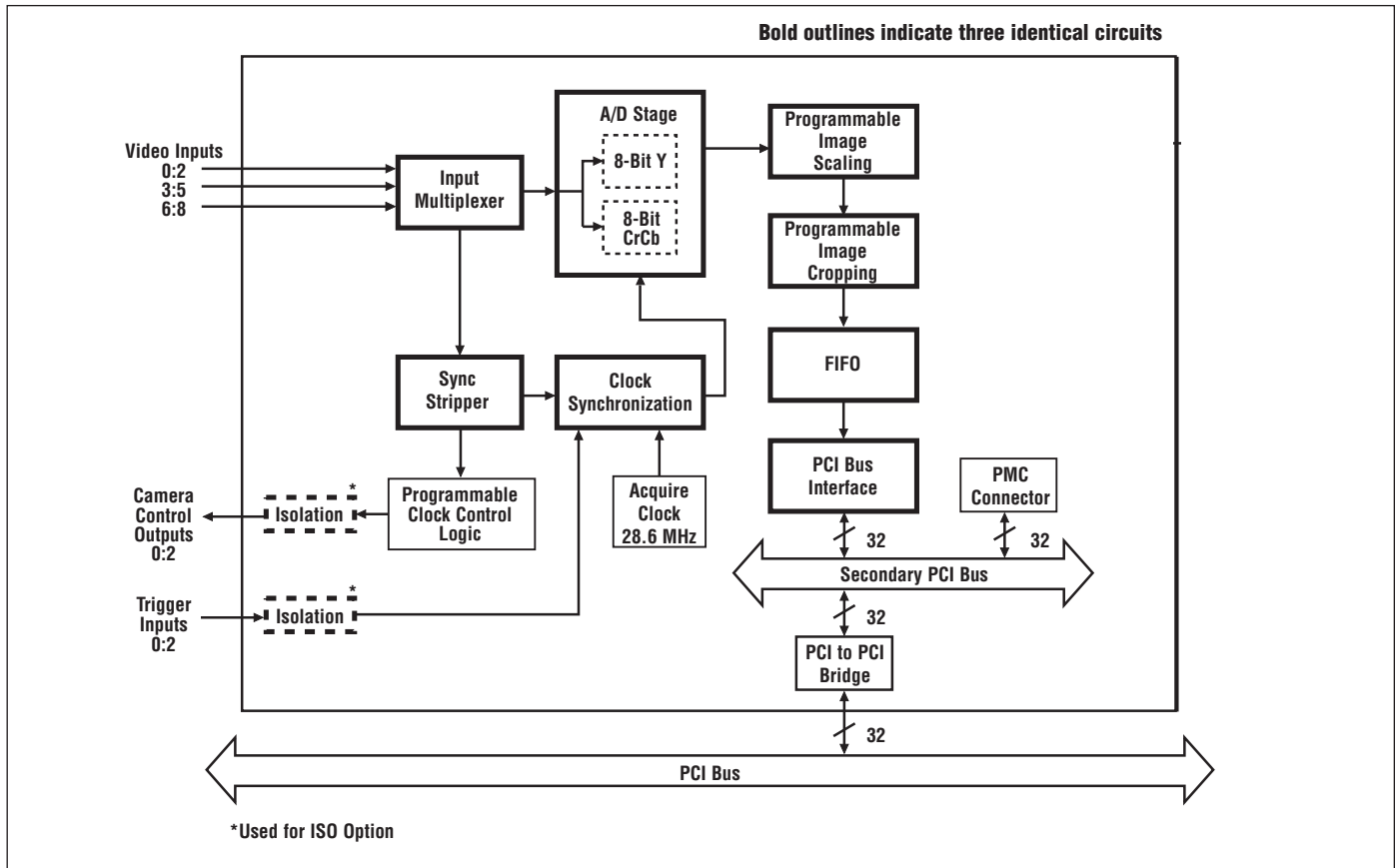
Description	Pin	Pin	Description
Strobe Out 1+	8	15	12V Ground
N/C	7	14	+12V
N/C	6	13	N/C
Strobe Out 0+	5	12	N/C
Trigger in 1-	4	11	N/C
Trigger in 1+	3	10	Strobe Out -
Trigger in 0-	2	9	Strobe Out 1-
Trigger in 0+	1		

Connector J1

Description	Pin	Pin	Description
VID5 or Y1	8	15	Analog Ground
VID4	7	14	N/C
VID3	6	13	N/C
GND	5	12	N/C
C0	4	11	N/C
VID2 or Y0	3	10	Ground
VID1	2	9	C1
VID0	1		

Connector J2

M-5899



DT3133 Block Diagram

3133 User Connections

Description	Pin	Pin	Description
Strobe Out 1+	8	15	12V Ground
Trigger in 2-	7	14	+12V
Trigger in 2+	6	13	N/C
Strobe Out 0+	5	12	Strobe Out 2-
Trigger in 1-	4	11	Strobe Out 2+
Trigger in 1+	3	10	Strobe Out 0-
Trigger in 0-	2	9	Strobe Out 1-
Trigger in 0+	1		

Connector J1

Description	Pin	Pin	Description
VID5 or Y1	8	15	Analog Ground
VID4	7	14	C2
VID3	6	13	VID8 or Y2
GND	5	12	VID7
C0	4	11	VID6
VID2 or Y0	3	10	Ground
VID1	2	9	C1
VID0	1		

Connector J2

M-5899

DT3130 Series Specifications



Video Input

Video Format: Composite video and S-video (Y/C) formats; RS-170, RS-330, and NTSC (60 Hz) or CCIR and PAL (50 Hz); interlaced; software selectable

Timing Format: Standard 60 Hz and 50 Hz timing formats are supported; software selectable

Inputs:

DT3131: 1 active input at any one time; 1 active composite out of 3 multiplexed composite, or 1 S-video and 2 composite; all inputs ac coupled

DT3132: 2 simultaneously active inputs at any one time; 2 active composite out of 6 multiplexed composite, or 2 S-video and 4 composite; all inputs ac coupled

DT3133: 3 simultaneously active inputs at any one time; 3 active composite out of 9 multiplexed composite, or 3 S-video and 6 composite; all inputs ac coupled

Video Signal: 1 volt peak to peak, 75 ohms

Spatial Resolution: 640 x 480 (60 Hz); 768 x 576 (50 Hz)

Acquisition

Digitization: Twin 8-bit A/Ds, one for monochrome, and one for chroma; data derived to YCrCb format.

Pixel Jitter: ±6 nsec maximum

Aspect Ratio: 1:1 Square pixels, depending on scaling factors

Frame Grab Speed: 1/30 s (60 Hz), 1/25 s (50 Hz)

Modes: Interlaced (start on next even, next odd, or next field), single frame or continuous operation; all software selectable

On-Board Processing

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

Scaling: Images scaleable to 4 pixels by 4 lines, performed using linear phase interpolation; software selectable

Data Formats

Image data can be output in 32, 24, 16, and 15-bit RGB, 16-bit YUV, or 8-bit monochrome formats

Control Signals

External trigger inputs: DT3131: 1 total; DT3132: 2 total, DT3133: 3 total
TTL levels—one per active video input

Camera strobe outputs: DT3131: 1 total; DT3132: 2 total, DT3133: 3 total—one per

active video input; individually controllable; TTL levels; Programmable HSYNC and VSYNC counts; Strobe output pulse-width programmable from 3.3 to 427 msec with selectable polarity

Control Signal Isolation:

Available via the ISO option.

Video Display

Uses PC's graphics card and monitor for display. Real-time video display and non-destructive, real-time animated overlays performed using DirectDraw (DDI)

Video Transfer Rate

55 MB/s typical, 132 MB/s max. Board operates as a Bus Master using Burst Mode for data transfer to host memory. Intelligent Scatter/Gather architecture used for image data management in host memory.

Power Requirements

+5 V @ 1 A typical

+12 V @ 1.5 A max (for camera power) via CPU power supply harness

Physical and Environmental

Form: Half-size PCI bus board (short card)

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

Weight: 150 g (5.3 ounces)

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

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

Relative Humidity: Up to 90%, non-condensing

Warranty

One year limited parts and labor

ISO Option

Factory-installed option provides isolation for all DT3130 Series control signal inputs and outputs

Trigger Inputs

Number: 3 inputs

Isolation: optical isolation, ≥250 VDC

Logic High input voltage 3.5-32 VDC

Logic Low input voltage <1.0 VDC

Input resistance 3.3 k Ω typical

Strobe Outputs

Number: 3 outputs

Isolation: optical isolation, ≥250 VDC

Maximum Load current 100 mA

Maximum load voltage 40 VDC

Overcurrent protection @300 mA

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 DT3130 frame grabber is shipped with the Imaging Omni CD, a valuable software bundle which includes evaluations of DT Vision Foundry and GLOBAL LAB Image/2, WDM device drivers, EP315 .3m (1 ft.) power cable for camera, complete documentation, a software development kit, and a ready-to-run software application.

- DT3131—Single frame grabber board, 3 inputs (muxed), 1 active (RS-170/NTSC, CCIR/PAL)
- DT3132—Double frame grabber board, 6 inputs (muxed), 2 simultaneously active (RS-170/NTSC, CCIR/PAL)
- DT3133—Triple frame grabber board, 9 inputs (muxed), 3 simultaneously active (RS-170/NTSC, CCIR/PAL)
- DT3131-ISO*—DT3131 with isolation option
- DT3132-ISO*—DT3132 with isolation option
- DT3133-ISO*—DT3133 with isolation option

*This is not a user-installable option and must be factory installed when ordered. Call for information on OEM and volume discounts.

Accessories

- EP311—6 m (2 ft.) 15-pin cable for video connection (up to 3 cameras simultaneous)
- EP312—1.0 m (3 ft.) 15-pin cable for control signal connection (up to three triggers, three strobes, and 12V power)
- EP314—6 m (2 ft.) cable for connection of up to 9 cameras multiplexed
- EP317—2 m (6 ft.) cable for S-video connection (1 camera)
- DT3130 Series User's Manual in hard-copy form

Software

All software packages include a copy of the software on CD-ROM, and 90 days of complimentary telephone support.

- DT Vision Foundry Machine Vision Software
SP1400-CD Development
SP1402-CD Run-Time
- GLOBAL LAB Image/2 Image Analysis Software
SP1500-CD
- DT-Active Open Layers ActiveX Control
SP0974-CD

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