Tektronix®
COMMITTED TO EXCELLENCE

Instructions
C1002
VIDEO CAMERA

INTRODUCTION

The Tektronix C1002 is a solid-state black and white TV camera which uses a Charge-Coupled Device (CCD) as its photoelectric transfer element. The CCD makes possible a light, monochromatic camera with high sensitivity, high image quality, and low distortion and afterimage. The image received by the CCD is converted to a video signal.

The C1002 can be used as a direct replacement for the C1001 digitizing camera.

OPTIONS

Your instrument may be equipped with one or more options. A brief description of each option is given below. For further information, see your Tektronix Catalog or contact your Tektronix Field Office. For information regarding custom options, contact your Tektronix Field Office.

OPTION 1A - C1002 Digitizing Camera with Camera Mounting Adapter for Tektronix 5000, 7000, 11300, and 7000-Series oscilloscopes. (Adapter is also available separately. Refer to the Optional Accessories List.)

OPTION 2A - C1002 Digitizing Camera with Camera Mounting Adapter for Tektronix 400-Series (with 1-cm graticules), 2200-Series, and 2400-Series portable oscilloscopes. (Adapter is also available separately. Refer to the Optional Accessories List.)

OPTION 04 - C1002 Digitizing Camera with Power Supply for using as stand alone without the Frame Store Board. When ordering the C1002 with Option 04, please select one of the A0 through A5 power plug options.

CONNECTOR PIN-OUT

The connector on the C1002 has the following pin-out (see Figure 1):

Pin 1	+12 V dc.
Pin 3	Supply ground.
Pin 4	Video ground.
Pin 5	Video signal.

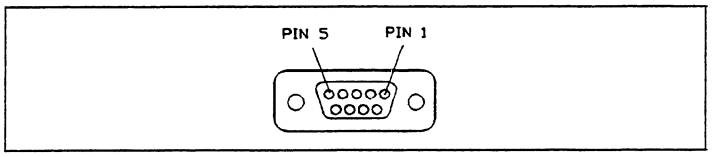

Figure 1. Connector Pin-outs.

PHYSICAL DIMENSIONS

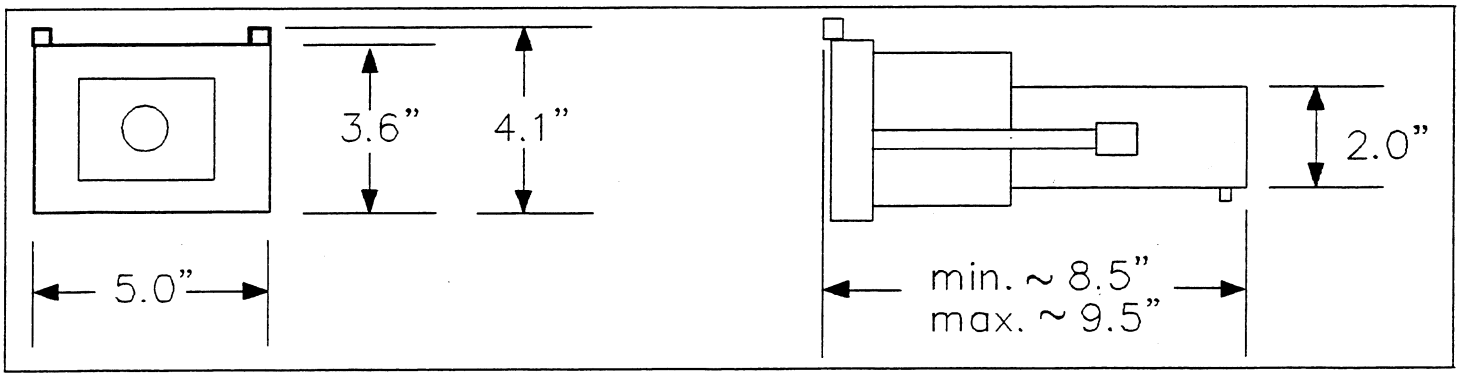

Figure 2. C1002 Dimensions.

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Product Group 58

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SPECIFICATIONS

Camera Characteristics

Characteristic	Performance Requirement
Focal Length	10.746 mm (at 5200 A).
F Number at Infinity	F/1.3.
Spectral Range	400 to 600 nm within 3 dB.
Angular Coverage (Half Angle)	23.45 Degrees.
Distortion	Within 0.3% (at image plane).
Lens Resolution	Center: 100 lines/mm. Edge: 20 lines/mm.
Temperature Operating Nonoperating	 0 C to +50 C (+32 F to +122 F). -20 C to +60 C (-4 F to +1400 F).
Humidity, Maintaining Performance	To 70% rh, non-condensing.
Mechanical Shock	7 G.
Altitude Operating Nonoperating	 To 4,600 meters (15,000 ft). To 15,00 meters (50,000 ft).
Power Requirements Voltage Current	 12 V dc ~ 20 V dc, Ripple ≤ 1 V p-p. 0.30 A @ 12 V dc.
Imaging Device	Solid State, Inter-Line CCD.
Pixels	493 Vertical by 728 Horizontal.
Resolution	Vertical: 350 TV Lines. Horizontal: 540 TV Lines.
S/N Ratio	Typical: 52 dB. Minimum: 50 dB. Gamma = 1.
Sensitivity	2 Lux (F1.4).
Video Ouput	1 V p-p. Composite Video, 75 ohms.
Television System	525 Lines, 60 Fields.
Scanning	2:1 Interlaced.
Weight (with adapter)	3.0 lb. (1.4 Kg.)

CONTROLS AND CONNECTORS

The following is a brief description of the controls and connectors found on the CCD Camera. (Refer to Figure 3.)

1) APERTURE (f-Stop) - This control provides for adjustment of the size of the lens opening. It is continuously variable from f/8 to f/1.3, with f/8 being the smallest aperture and f/1.3 being the largest. As the aperture size increases, the light sensitivity increases and the depth of field decreases.

2) FOCUS - This control adjusts the lens position to focus the image on the CCD array.

3) LOCK - This control locks and unlocks the MAG control. The Unlocked position is away from the oscilloscope.

4) MAG - This control allows the user to vary the object-to-image ratio. When used with the optional HC01 Video Hardcopy Unit, the ratio is variable from approximately 1:1 to 1:1.32. When used with the optional HC02, the ratio is variable from approximately 1:2 to 1:2.64. This control will also affect light sensitivity; the smaller the image, the greater the amount of light that will fall on a particular sensor in the CCD. Changing the Mag ratio will also affect the camera's focus.

5) VIDEO OUT/POWER IN (Camera) - This connector provides the video signal from the CCD camera. The supplied cable should be used to connect the Camera Video Out to the DX02 Power Supply/Interface or to the DX01 Frame Store Board if it is being used.

6) CALIBRATOR - These connectors (BNC and test points) provide a calibration signal to be used in conjuction with the DX01 Frame Store Board.

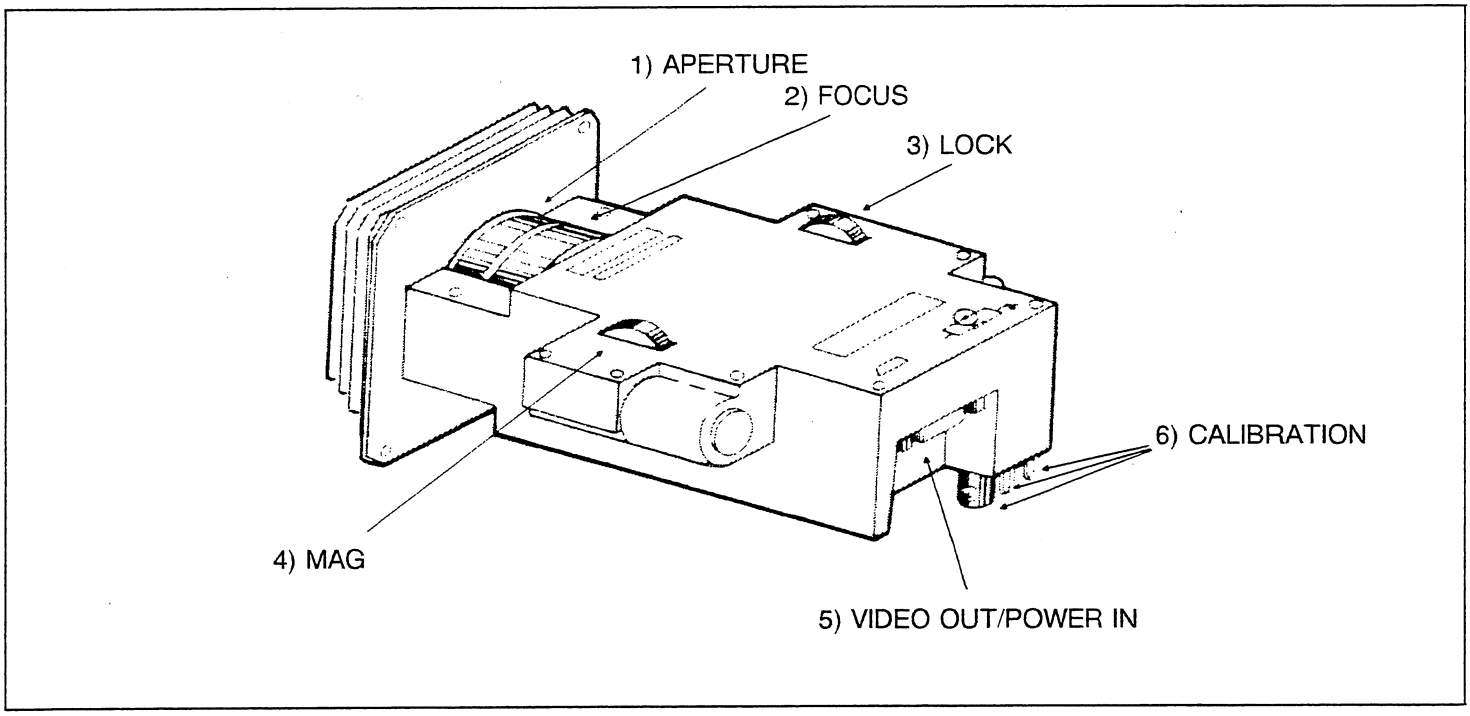

Figure 3. C1002 Controls and Connectors.

CLEANING

To obtain optimum results from your camera, always keep the external len's surface clean. When required, remove loose dust with a soft camel-hair brush. Fingerprints and other smudges can be removed with clean, high-quality lens tissue. Avoid scratching the lenses while cleaning.

SERVICE

Customer service is not recommended on the C1002. There are no replaceable or adjustable parts inside. Any customer service may void the warranty.

OPTIONS AND REPLACEABLE PARTS

Standard Accessories

174-0449-00	Cable - 2-meter Camera-to-Power-Supply (or Frame Store Board)
070-7481-00	Instruction Sheet

Optional Accessories

174-1368-00	Cable - 4-meter Camera-to-Power-Supply (or Frame Store Board)
174-1369-00	Cable - 6-meter Camera-to-Power-Supply (or Frame Store Board)

Camera Mounting Adapters

016-0248-01	5000, 7000, and 11300 Series (included with Option 1A)
016-0269-03	2200, 2400 and other 8 x 10 cm scopes (included with Option 2A)
016-0306-01	485 and other 7 x 9 cm scopes

See the Tek catalog for additional adapter/scope compatibility. (The C1002 uses Tek C-30 Camera Adapters.)

Related Tek Products

DX05	9 in. black and white video monitor
HC01	4 in. x 5 in. video copier
HC02	8 in. x 10 in. video copier
DX02	C1002 camera power supply (supports 2 cameras). (Included in Option 04.)
DX01	Frame Store Board Option 01, DCS software. (Converts C1002 into a complete digitizing camera system.)