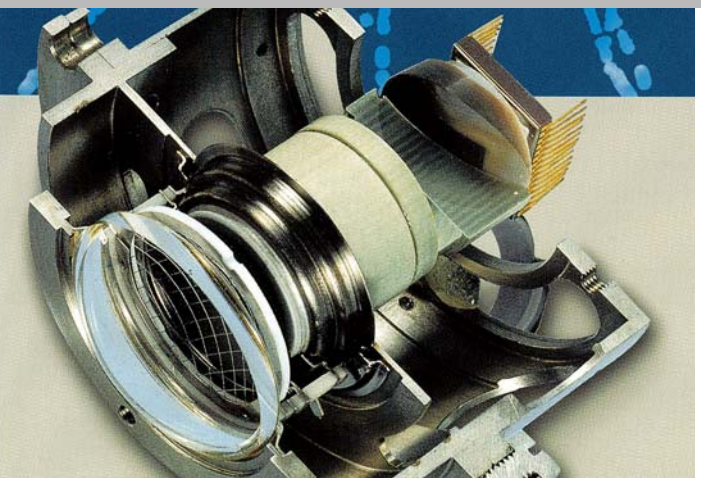
Product Specifications

The Thermo Scientific camera I3710D-XD4 is a high gain, gated intensified CID based camera consisting of a model 3710D solid state RS-170 version camera with 12 x 13.7 micron (4:3 aspect ratio) pixels, fiberoptically coupled to a high performance XD-4 image intensifier tube from DEP.

Thermo Scientific I3710D-XD4

Intensified Solid State Camera



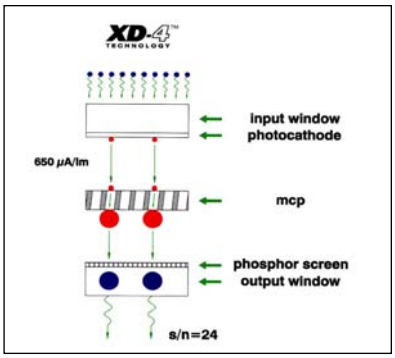


Designed for Ultra low light

The I3710D-XD4 is a gated intensified CID based camera consisting of the 3710D RS-170 version camera with 12 x 13.7 micron pixels, fiberoptically coupled to a high performance 18mm XD-4 Image intensifier tube.
The standard XD-4 tube has an S-25 photocathode with P43 phosphor and is equipped with an integrated power supply for high speed gating allowing for shutter intervals ‹50ns and exhibits low noise / high gain performance with typical light gain of 30,000X.

Maximum Flexibility

Intensifier gating may be controlled automatically, or manually via control knob or with external TTL input.
Intensifier gain is manually controlled via the Gain control knob, or by the AutoGain feature. The MCP uses a low noise photocathode sensitive from 400nm to at least 800nm.
Internal adjustments allow for control of black level setup, edge enhancement and 2X video gain boost.
Options include digital control, optical coupling, Autogate/Autogain only, Progressive Scan, and CCIR format.
The I3710D-XD4 camera features a 2:1 interlace scan 776(H) x 512(V) CID array with 12 x 13.7 micron pixels in a compact remote head connected to the camera control unit via flexible 2 meter cable.



Features:

- CID (Charge Injection Device) High resolution, High MTF
- High speed gating to 50ns minimum
- Excellent image at 7 x 10(5) rads/hr
- 18mm DEP XD-4 image intensifier
- Sensitivity 5 x 10^{-4} fc at faceplate
- Typical 30,000X light gain
- Precise edge detection
- Auto Gate/Gain with manual control
- RS-170, 2:1 Interlace scanning format
- 12 x 13.7 micron contiguous pixel

Applications:

- Extremely low light level inspection and measurement
- Remote gaging, metrology
- Florescence microscopy
- X-Ray Imaging
- Machine vision
- Spectroscopy

Product Specifications

Thermo Scientific I3710D-XD4 Intensified Solid State Camera

The I3710D-XD4 intensified solid state camera is part of a proven line of intensified cameras and sensors whose applications span a full spectrum of industries and applications. Thermo Scientific CIDTEC Cameras & Imagers have been in business for over 25 years with imaging products in scientific, machine vision, aerospace, medical, and radiation hardened markets.

Imager

Image Format	776H x 512V
Total Pixels	768H x 475V
Pixel Size	12 x 13.7 micron
Full Well Capacity	›250,000 electrons
Active Area	11 mm diagonal
Optical Format	1”

Electrical

Scanning Format	RS-170,30FPS,Interlace
Resolution	›400 TVL (horizontal)
S/N Ratio	›30db at 10^{-4} lux typical tube SNR of 20
Sensitivity	5 x 10^{-6} fc (Faceplate)
(typical 800nm)	50mA/W sensitivity 0db Gain, (T=2850K)
Composite Video	1V p-p, terminiated into 75 ohms
Black Level	+50mV (Auto Clamp)
White Level	+700mV
Sync Level	-300mV
Geometric Distortion	0%
Input Power	15 Watts (max.)
Input Voltage	
Camera	+15VDC Nominal
Line Adapter	115 or 220 VAC +/- 10%, 50/60 Hz
Input Current	(@15V) 1.1A avg.
Spectral Response	See Response Curve
Gain	X2, X4 (internal SW)

Interface Signals

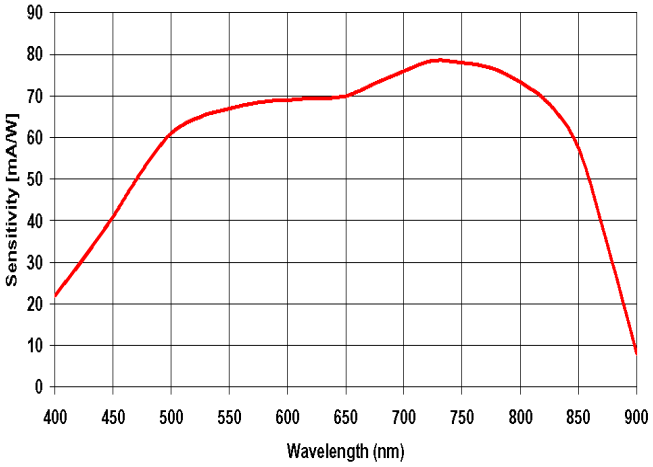
Outputs	J1 Video, End of frame, End of Line, H&V Drive, Composite sync. J2 Video, ALC, 14.318 ERC Clock BNC Composite Video
Inputs	J1 +15VDC, Sync J2 V Drive, I/I, F. R.

Mechanical

Weight	CCU 0.96 kg. (33 oz) Head 0.48 kg. (17 oz)
Cable Length	2 Meters
Lens Mount	Standard “C” Mount (1.0” - 32 Thread)
Camera Mount	1/4” - 20 Thread
Connectors	J1 25 Pin D (male) J2 25 Pin D (female) BNC standard
Dimensions	
Gain Control Unit	7.5”(L) x 7.5”(W) x 1.025”(H)
Camera Control	7.5”(L) x 7.5”(W) x 1.025”(H)

Environmental

Temperature Range	
Operating	0C to 30C case
Storage	-25C to 85C





Typical Photocathode Responsivity (mA/W):

400nm: 14.3 mA/W QE=4.4%	**480nm:** 43.9 mA/W QE=11.4%	**520nm:** 57.1mA/W QE=13.1%
560nm: 59.7 mA/W QE=13.3%	**700nm:** 58.3 mA/W QE=10.46%	**800nm:** 60.7mA/W QE=9.4%

*note: export restrictions may apply

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