

PULNiX

TM-6300



NEW PRODUCT SUMMARY

- High speed 1/3" progressive scanning interline transfer CCD imager 659(H) x 494(V)
- Single channel output VGA progressive scan (60 fps and 30 fps with single channel output)
- Full frame shutter ...1/120 to 1/20,000 sec. at 60 fps
- Asynchronous reset
- Async shutter with pulse width control
- Full frame integration
- Small, lightweight, rugged design
- Replaces strobe lights with electronic shutter

GENERAL DESCRIPTION

The PULNiX TM-6300 is a monochrome full-frame shutter camera which offers twice the frame speed of conventional "TV format" cameras. Since the single channel analog output is double speed (60 frame / sec), the image can be displayed on a standard VGA monitor. This camera also offers normal frame rate scanning of 30 frame / sec. PULNiX PVM multi-sync monitors display all TM-6300 functions.

This high resolution square pixel camera has a VGA format interline transfer CCD imager. The signal output is single channel double speed analog progressive scanning (525 lines) at 30 Hz or 60 Hz. Asynchronous reset, asynchronous shutter control with pulse width control are standard features.

This camera is excellent in applications such as bar code reading, high speed on-line inspection, gauging, character reading, high definition graphics, and motion analysis.

Single Channel VGA Output

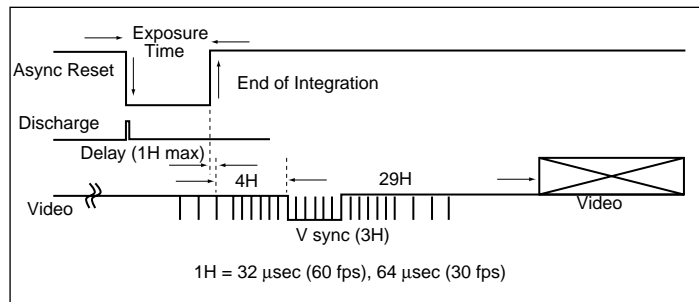
While there are a number of CCD cameras called "VGA," they are, in general only referring to the CCD pixel format and the output speed is not 60 frame / sec. The TM-6300 is true VGA format for both input device (CCD) and output frame rate with single channel output. In addition, it has 30 frame / sec. normal speed scan mode as well.

Asynchronous Reset

The TM-6300's asynchronous reset is flexible and takes external horizontal drive (HD) for phase locking. When VINIT pulse is applied, it resets the camera's scanning and purges the CCD. There are two modes to control the asynchronous reset and shutter speed:

1. External VINIT with pulse width control

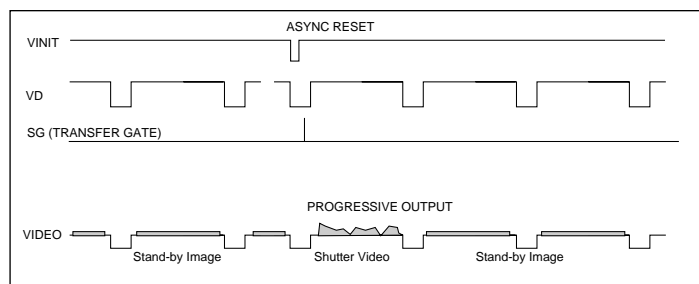
The duration between pulse edges controls the shutter speed (Integration time). When external trigger (VINIT) is applied to pin 11, it discharges the photodiode charges and immediately starts accumulating (integrating) charges for the duration of active low. When the pulse goes to high, it transfers the charges to the vertical shift register. The video output commences immediately after the rising edge.



The variable shutter speed is from 50 μsec (100 μsec for 30 fps) to 8.3 msec (16.7 msec for 30 fps). The maximum async trigger repetition is 18 msec (60 fps) and 36 msec (30 fps).

2. Asynchronous reset at 0 shutter.

This resets the camera without shutter function. This is useful for conventional strobe applications.



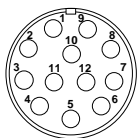
TM-6300

TM-6300 Progressive Scan Analog Camera

SPECIFICATIONS

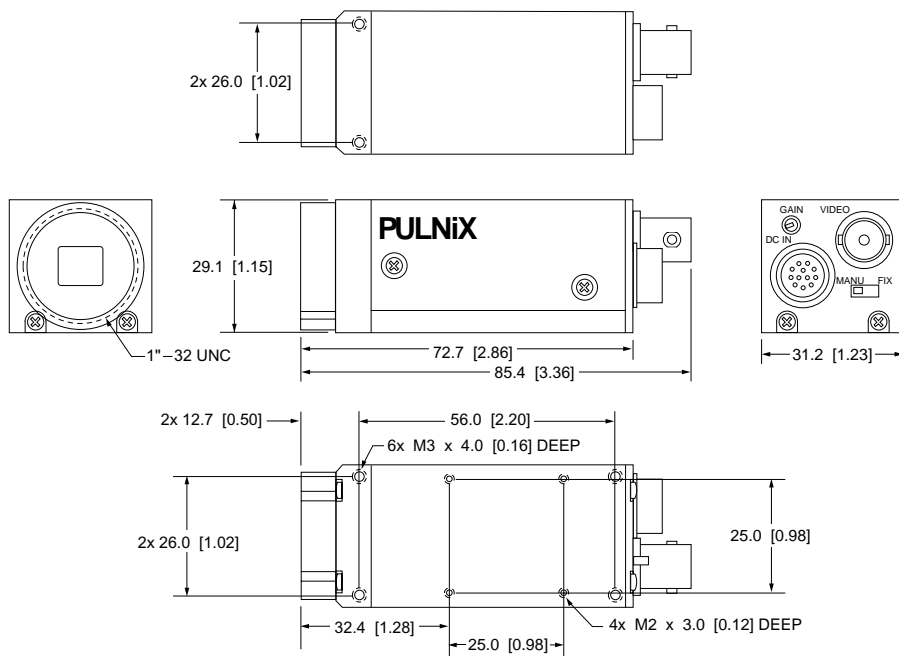
Imager	1/3" progressive scanning interline transfer CCD	Electronic Shutter	Asynchronous electronic shutter (60 fps or 30 fps) Mode A: 1/20,000 or 1/10,000 Max (manual speed) Mode B: Async pulse width control (500/100 µsec to 8.3/16.7 µsec) Full frame resolution per shutter
Pixel	659 (H) x 494 (V)	Lens mount	C-mount
Cell size	7.4 µm x 7.4 µm square pixels	Power req.	12V DC 210 mA
Scanning	30 or 60 frames/sec with single channel output (VGA output)	Operating temp	-10°C to 50°C
Sync	Internal/external auto switch HD=31.468KHz (15.734KHz) ±5% Vertical async reset or VD=60 or 30 Hz (non-interlace)	Vibration	7 Grms 10-2000 Hz
Asynchronous Reset	Ext Vinit (Trigger) for async reset	Shock	70G
Pixel clock	25.5454 or 12.2727 MHz	Size (W x H x L)	31.0mm x 29.0mm x 73.0mm (1.22" x 1.14" x 2.87")
Resolution	500 (H) x 494 (V)	Weight	85 grams
S/N ratio	56dB min (at 30 fps)	Auto Iris Connector	None
Min. illumination	1 lux at 30 fps, 2 lux at 60 fps F=1.4	Functional options	
Video output	1.0 Vp-p composite video, 75Ω non-interlace	I/O accessories	
AGC	Manual/Factory preset/AGC switchable	Power cable	12P-02S
Gamma	0.45 or 1.0 (standard)	Power supply	K25-12S or PD-12UUP

Pin Configuration — 12-pin connector



Pin No.	Internal Sync Mode			Pin No.	External Sync Mode		
	Sync Mode	HD/VD	HD/VINIT		Sync Mode	HD/VD	HD/VINIT
1	GND	GND	GND	7	VD out	VD in	NC
2	+12V	+12V	+12V	8	N/C	N/C	GND
3	GND	GND	GND	9	N/C	N/C	N/C
4	Video out	Video out	Video out	10	GND	GND	GND
5	GND	GND	GND	11	N/C	N/C	VINIT
6	HD out	HD in	HD in	12	GND	GND	GND

DIMENSIONS



Mode Selection

DIP switch	Mode
1 On	Progressive
1 Off	Interlace
2 On	Normal reset (HD.VD)
2 Off	Async reset
3 On	30 fps
3 Off	60 fps
4 On	Manual / Factory set
4 Off	AGC
10 Off	Pulse width control

Manual Shutter Control

DIP Switch	60 fps	30 fps
5 6 7 8 9		
Off Off - - -	no shutter	
On Off Off Off Off	1/120,	1/60
On Off On Off Off	1/250,	1/125
On Off Off On Off	1/500,	1/250
On Off On On Off	1/1,000,	1/500
On Off Off Off On	1/2,000,	1/1,000
On Off On Off On	1/4,000,	1/2,000
On Off Off On On	1/8,000,	1/4,000
On Off On On On	1/20,000,	1/10,000

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Japan
PULNiX America, Inc.
1-11-14 Hongo Bunkyo-ku,
Tokyo 113-0033
Tel: 81-3-5805-2455
Fax: 81-3-5805-8082
www.pulnix.co.jp

Australia
PULNiX America, Inc.
16 / 35 Garden Road
Clayton, VIC 3168
Tel: 61-(0)3-9546-0222
Fax: 61-(0)3-9562-4892
Email:
pulnix@ozemail.com.au

United Kingdom
PULNiX Europe, Ltd.
PULNiX House,
Aviary Court, Wade Road
Basingstoke, Hampshire
RG24 8PE
Tel: 44(0)1256-475555
Fax: 44(0)1256-466268
www.pulnix.eu.com

Germany
PULNiX Deutschland, GmbH.
Siemensstrasse 12
D-63755 Alzenau
Tel: 49(0)6023-9625-0
Fax: 49(0)6023-9625-11
www.pulnix.de



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PULNiX America, Inc. Tel: 408-747-0300
1330 Orleans Drive Tel: 800-445-5444
Sunnyvale, CA 94089 Fax: 408-747-0660