

PULNiX

TM-6760



The TM-6760 is a miniature, VGA monochrome progressive scan CCD camera. Based on a high-quality Kodak 1/2" progressive scan image sensor, this camera's most outstanding feature is its ability to capture 60 frames per second at full resolution, offering an excellent price/performance ratio. Applications for the TM-6760 include machine vision, medical imaging, intelligent transportation systems, robotics, gauging, character recognition, and surveillance.

- High-speed 1/2" progressive scan 648(H) x 484(V) IT CCD imager
- Color version (RGB Bayer CFA) is available as TMC-6760‡
- **Camera Link** versions order TM-6760CL and TMC-6760CL*
- Miniature 44x44x64 mm housing with high-rel connector
- Digital RS-644 (LVDS) output and analog output
- 60/30 frames per second selectable
- Full frame integration, two-row binning (648x242 pixels) at 120 fps
- Partial scan (200 lines, 120 fps)
- Full-frame shutter to 1/32,000 sec.
- Asynchronous reset, no-delay shutter
- Maximum dynamic range control with built-in look-up table
- Read-out-inhibit control for multiple-camera applications
- RS-232 external control

* For more information see the Camera Link data sheet

‡ For more information see the Color AccuPIXEL data sheet

TM-6760 Specifications

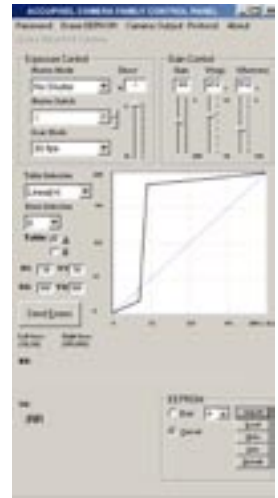
Imager	1/2" progressive scan interline transfer CCD
Active Area	5.83 mm x 4.36 mm
Active Pixel	648 (H) x 484 (V)
Cell Size	9.0 μm x 9.0 μm
Display Modes (Active Pixels)	648 (H) x 484 (V) @ 60/30 Hz (VGA output) 648 (H) x 200 (V) @ 120 Hz (partial scan) 648 (H) x 242 (V) @ 120 Hz (two-row binning)
Sync	Internal/external auto switch HD/VD, 4.0 Vp-p impedance 4.7K Ω VD=60/30 Hz \pm 2%, non-interlace HD=31.48/15.74 kHz \pm 2%
Data Clock Output	25.00/12.5 MHz
Resolution	Digital: 648 (H) x 484 (V) Analog: over 500 TV lines (H) x 484 TV lines (V)
S/N Ratio	48 dB min. (AGC off)
Min. Illumination	1.0 lux, f=1.4 without IR cut filter (no shutter) Sensitivity: 11.5 $\mu\text{V}/\text{e}^-$
Video Output	Analog: 714mV, 75 Ω (900 mV white clip) TM-6760 Digital output: 8-bit RS-644 TM-6760CL Camera Link: (see Camera Link data sheet)
Gamma	Programmable LUT (1.0 std)
Lens Mount	C-mount (use >1/2" format lenses)
Power Req.	12V DC \pm 10%, 380 mA (current measured at 25 $^{\circ}$)
Operating Temp.	-10 $^{\circ}$ C to 45 $^{\circ}$ C
Vibration	7 Grms (10 Hz to 2000 Hz) Random
Shock	70G
Size (W x H x L)	44 mm x 44 mm x 64 mm (1.73" x 1.73" x 2.51")
Weight	133 grams, 4.7 oz (without tripod)

MUST BE ORDERED SEPARATELY

Opt. Functions	10-bit output
Opt. Accessories	
I/O	CL 26CL-02-26
CL	30DG-02 digital output cable
RS-644	CS-232E serial communications kit
Power Cable	12P-02S
Power Supply	PD-12UUP series (includes power connector)

Graphical User Interface

A user-friendly graphical user interface (GUI) is provided in the CS-232E kit. This interface allows users to control the following functions of the TM-1325 camera:



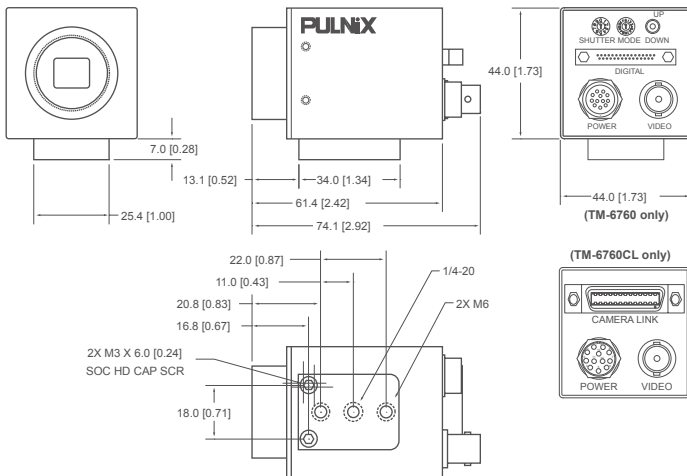
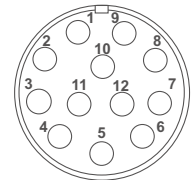
- Shutter control for manual async. and pulse width
- Gain control
- A/D reference voltages control for Vtop and Vbottom
- Save settings
- Load settings
- Report settings
- LUT setting and graphic display
- Scanning mode selection and Option selections

Mode Switch	Up/Down Switch	Functions
0 Switch Disabled	Switch Disabled	None
1 Set Gain	Up / Down	Change gain
2 Set Vtop (A/D)	Up / Down	Change A/D ref. top
3 Set Vbottom (A/D)	Up / Down	Change A/D ref bottom
4 Gain Selection #1	Up: 9dB, Down: 12dB	Lower gain selection
5 Gain Selection #2	Up: 18dB, Down: 22dB	Higher gain selection
6 Linear LUT	Up	Back to linear table
7 Knee Selection	Up / Down (Scroll)	Scroll 8 different LUTs
8 Async Reset Mode	Up: Normal, Dwn: Async	Async and normal shutter
9 Factory Default Recall	Up / Down: Recall	Factory setting
A Power up Setting	Up: Recall, Dwn: Save	Power up page setting
B User Page Storage#1	Up: Recall, Dwn: Save	User page storage setting
C User Page Storage#2	Up: Recall, Dwn: Save	User page storage setting
D Direct Shutter Control	Up / Down	Increment by 1H
E Scan Format2	Up: PS200L, Dwn: Binning	Scan mode
F Scan Format1	Up: 60 fps, Dwn: 30 fps	Scan mode

12-Pin Connector

1 GND (power)	7 VD in
2 +12V	8 GND
3 GND (analog)	9 HD in
4 Video out	10 RXD(RS232)*
5 GND (digital)	11 INTEG/ROI*
6 VINIT in*	12 TXD(RS232)*

* TM-6760 only; for CL models the Camera Link connector should be used



Shutter Speed

	Manual	Async
0	no shutter (1/60)	no shutter (1/60)
1	1/125	1/32,000
2	1/250	1/16,000
3	1/500	1/8,000
4	1/1,000	1/4,000
5	1/2,000	1/2,000
6	1/4,000	1/1,000
7	1/8,000	1/500
8	1/16,000	1/250
9	1/32,000	Ext. pulse width control

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