

■ 2064 x 1544

■ 38 fps

Apex Series 

❖ AP-3200T-USB-LS

3.2 megapixel CMOS prism area scan

USBTM
VISION



- **High resolution prism-based 3-CMOS camera**
- **Full spatial resolution and true RGB color values with no interpolation**
- **Individual analog gain and exposure control for R, G, and B channels**
- **Available with or without IR-cut filter for applications needing extended red/NIR response**
- **Color and edge enhancement functions**
- **On-board RGB to HSI, XYZ, sRGB and Adobe RGB color space conversions**
- **Single and multi-ROI's**
- **RGB video output with 8, 10, or 12-bits per channel***
- **Compact size and white housing designed for clinical/laboratory environments**
- **Excellent shock and vibration resistance**
- **USB3 Vision interface**
- **C-mount lens mount**

* Some video processing functions not available with 12-bit output

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Specifications for AP-3200T-USB

Apex Series

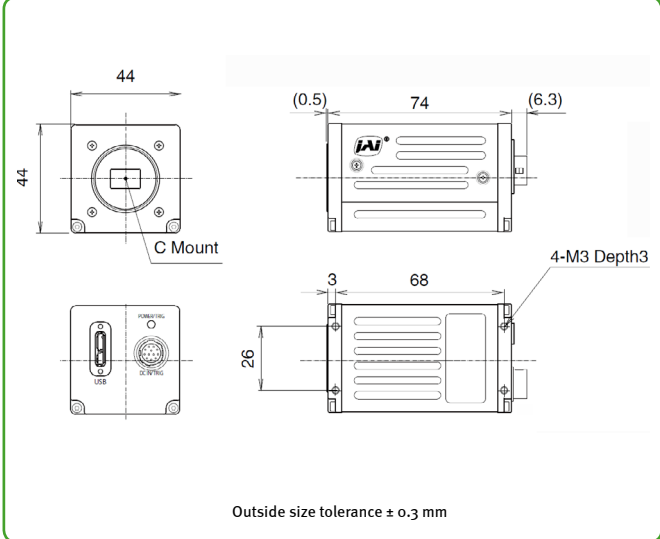
| Specifications | AP-3200T-USB |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Sensor | 1/1.8" 3-CMOS global shutter (IMX265) |
| Active pixels | 2064 (h) x 1544 (v) x 3 (R,G,B) |
| Frame rate, full frame | 38.3 frames/sec. @ 8-bit |
| Active area | 7.12 mm (h) x 5.33 mm (v) - 8.89 mm diagonal |
| Pixel size | 3.45 μm x 3.45 μm |
| System clock | 74.25 MHz (for pulse generator) |
| Read-out modes | Full ROI (single) 2064 (h) x 1544 (v) up to 38.3 fps H: 16 to 2064 pixels in 16 pixel steps V: 2 to 1544 lines in 2 line steps ROI (multi) Binning Up to 5 overlapping scanning areas can be defined. 1x2, 2x1, 2x2 |
| EMVA 1288 Parameters | 12-bit output format |
| Absolute sensitivity | 3.77 p (λ = 525 nm) |
| Maximum SNR | 40.39 dB |
| Traditional SNR* | >60 dB (0 dB gain, 10-bit) |
| Video signal output | 8/10/12-bits per channel [†] (24/30/36-bit RGB) |
| Video modes | Normal, Single ROI, Multi ROI, Sequencer |
| Gain | Manual control - master mode or individual R/G/B channels Auto gain control - off, continuous, one-push |
| White balance | Off, 4 presets (3200K, 5000K, 6500K, 7500K), or one-push/continuous AWB using gain or exposure time (3000K to 9000K) |
| Gamma/LUT | 0.45 to 1.0 (9 steps) or 257-point programmable LUT |
| Shading correction | Flat shading, color shading |
| Trigger input | Opto In (2), Pulse Generators (4), Software, NAND Out (2), User Output (4) |
| Exposure modes | Timed/EPS, Trigger Width, Auto |
| Electronic shutter | (can be set independently for R/G/B channels) 30.73 μs to 8 sec. in 1 μs steps (8-bit) 34.73 μs to 8 sec. in 1 μs steps (10-bit) |
| Auto Level Control (ALC) | Shutter range from 100 μs to 13.427 ms, gain range from 0 dB to +12 dB. Tracking speeds and max. values adjustable. |
| Pre-processing functions | Color enhancer, edge enhancer, color space conversion (RGB to HSI, XYZ, sRGB, Adobe RGB), blemish compensation (200 px/channel) |
| Operating temp. (ambient) | -5°C to +45°C (20 to 80% non-condensing) |
| Storage temp. (ambient) | -25°C to +60°C (20 to 80% non condensing) |
| Vibration | 3G (20 Hz to 200 Hz, XYZ directions) |
| Shock | 50G |
| Regulations | CE (EN61000-6-2, EN61000-6-3) FCC Part 15 Class B, RoHS/WEEE |
| Power | 12-pin USB 3.0 +12V to +24V DC ± 10%. 5.3 W typical @ +12 V Bus power: not supported |
| Lens mount | C-mount |
| Dimensions (H x W x L) | 44 mm x 44 mm x 74 mm (excl. connectors) |
| Weight | 170 g |

Ordering Information

| | |
|--------------------|--------------------------------------------|
| AP-3200T-USB-LS | 3-CMOS prism color camera with USB3 Vision |
| AP-3200T-USB-NF-LS | Same as above with IR-cut filter removed |

*Traditional SNR is based on random noise in a single frame, where EMVA SNR measurements consider more comprehensive noise sources and variance over time.

Dimensions



Connector pin-out

DC In / Trigger

HIROSE HR10A-10R-12PB(71)

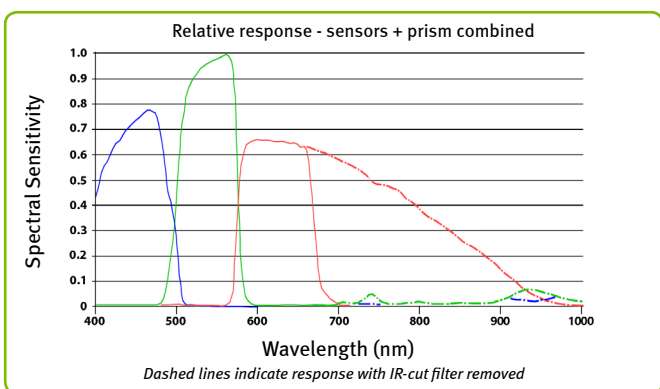
| Pin | Description |
|-----|---------------------|
| 1 | Ground |
| 2 | DC in +12V to +24V |
| 3 | Opto In 2- |
| 4 | Opto In 2+ |
| 5 | Opto In 1- |
| 6 | Opto In 1+ |
| 7 | Opto Out 1- |
| 8 | Opto Out 1 |
| 9 | TTL out 1 |
| 10 | TTL in 1 |
| 11 | DC in +12V to +24 V |
| 12 | Ground |

USB 3.0 Interface

Micro B type - ZX3600-B-10P or equiv.

| No. | I/O | Name | Note |
|-----|-----|-----------|-------------------------------------|
| 1 | I | VBUS IN | Power (VBUS) |
| 2 | I/O | DM | USB2.0 Differential pair (-) |
| 3 | I/O | DP | USB2.0 Differential pair (+) |
| 4 | | OTG ID | USB OTG ID for identifying lines |
| 5 | | GND | GND |
| 6 | O | FX3 SSTXM | USB3.0 Signal Transmission line (-) |
| 7 | O | FX3 SSTXP | USB3.0 Signal Transmission line (+) |
| 8 | | GND | GND |
| 9 | I | FX3 SSRXP | USB3.0 Signal Receiving line (-) |
| 10 | I | FX3 SSRXM | USB3.0 Signal Receiving line (+) |

Spectral response



[†]12-bit output available in video processing bypass mode. See manual for details.

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