

## ❖ AM-1600 GE / AB-1600 GE

Progressive Scan IT CCD

 **Camera Suite**  
Unlimited  
Digital  
Switchability



- Member of C3 Advanced series
- 4872 (h) x 3248 (v) 7.4  $\mu\text{m}$  square pixels
- 43.3 mm progressive scan IT CCD – Monochrome and Bayer mosaic color versions
- 3 frames/second with full resolution in continuous operation
- Increased frame rate with binning (AM-1600 GE) and partial scan
- Edge-Pre-Select, Pulse Width and Frame Delay trigger modes
- Sequence trigger mode for on-the-fly change of gain, exposure and ROI
- Electronic shutter with programmable operation to 296  $\mu\text{s}$
- Several pre-processing functions for offloading host PC such as:
  - LUT for Gamma/Knee function
  - Pixel blemish compensation (AM-1600GE only)
  - Shading compensation (AM-1600GE only)
  - Test pattern generator function
- Analog video output for auto-iris lens control
- GigE Vision interface with 12, 10 or 8-bit output
- Comprehensive software tools and SDK for Windows XP/Vista

  
VISION



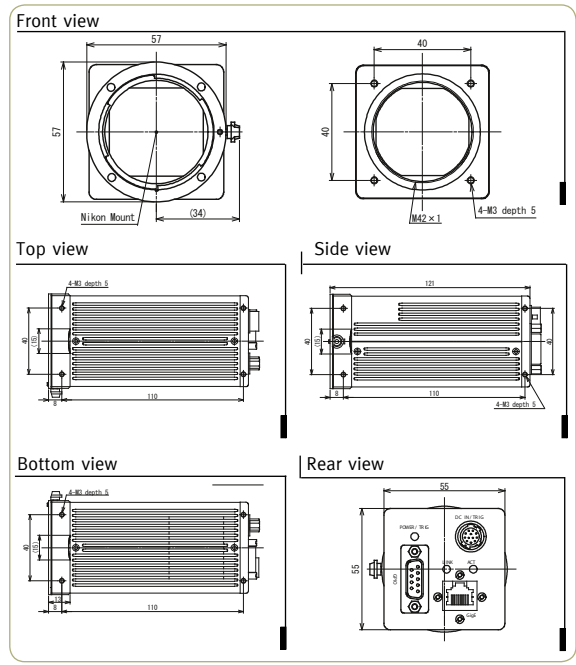
# Specifications for AM-1600 GE / AB-1600 GE

| Specifications                                 | AM-1600 GE   | AB-1600 GE  |
|--|--|---|
| Sensor   | 43.3mm Monochrome<br>KAI-16000-AXA   | 43.3mm Bayer Color<br>KAI-16000-CXA                                 |
| Pixel clock                                    | 30 MHz   |   |
| Frame rate full frame                          | 3.04 frames/sec. (dual tap)  |   |
| Active area                                    | 36.1 mm (h) x 24.0 mm (v)  |   |
| Cell size                                      | 7.4 μm x 7.4 μm  |   |
| Active pixels                                  | 4872 (h) x 3248 (v)  |   |
| Read-out modes                                 | Full scan 4872 (h) x 3248 (v) 3.04 fps<br>1/2 partial scan 4872 (h) x 1372 (v) 5.51 fps<br>1/4 partial scan 4872 (h) x 1028 (v) 9.25 fps<br>Variable partial scan<br>Start line from 1 to 2448 by 1 line unit for AM-1600 GE,<br>2 line units for AB-1600 GE,<br>height (lines) from 800 to 3248 |   |
| Vertical binning mode                          | 2x (5.63 fps)  | n/a   |
| Sensitivity                                    | 0.02 lux (Max. gain,<br>Shutter OFF, 50% video)  | 0.35 lux (Max. gain,<br>Shutter OFF, 50% Green,<br>w/IR cut filter) |
| S/N ratio                                      | > 56 dB (0 dB gain)  | > 56 dB (Green, 0 dB gain)  |
| Video output                                   | GigE Vision Compliant<br>8-bit, 10-bit, 10-bit packed, 12-bit,<br>12-bit packed  | GigE Vision Compliant<br>Raw Bayer 8-bit, 10-bit or 12-bit          |
| White balance                                  | n/a  | Manual/One push auto/<br>Preset (3200K, 4600K, 5600K)               |
| Gain   | Manual/Automatic -3 to +12 dB  |   |
| Gamma/Knee                                     | Fixed 1.0, 0.45 or 256 point LUT   |   |
| Synchronization                                | Internal X-tal   |   |
| GPIO Module                                    | Input/output switch Configurable 16-in / 12-out switch<br>Clock generators (One) 12-bit counter based on Pixel clock<br>Pulse generators (Two) 19-bit counter programmable for length, start point, stop point, repeat   |   |
| Hardware trigger modes                         | Edge Pre-Select, Pulse Width Control, Frame Delay and Sequence   |   |
| Electronic Shutter                             | Programmable exposure 3 (296μs) to 3327 L (328ms) in 1L steps<br>Exposure Time (Abs) μsec - user definable. Same range as PE<br>Exposure auto continuous 100L to 3327L (1/101.35 sec to 1/3 sec)<br>GPIO plus Pulse Width max. 2 sec (Can be set by 100μs unit or Pixel Clock unit)              |   |
| Pre-processing functions                       | Blemish compensation and shading compensation (AM-1600 GE only),<br>Channel balance, programmable LUT, test pattern generator  |   |
| Control interface                              | Register based. GigE Vision / GenICam compliant  |   |
| Functions controlled via GigE Vision interface | Shutter, Gain, Black Level, Trigger mode, Read out mode, GPIO setup,<br>ROI (GenICam mandatory functions)  |   |
| GigE Vision Streaming Control                  | Packet size, Delayed (Frame) read-out, inter-packet delay<br>Jumbo Frame max. 16020 bytes. Default packet size 1476 bytes.   |   |
| Indicators on rear panel                       | Power/Hardware trigger, GigE Link, GigE activity   |   |
| Operating temperature                          | -5°C to +45°C  |   |
| Humidity                                       | 20 – 80% non-condensing  |   |
| Storage temp/humidity                          | -25°C to +60°C / 20% to 80% non-condensing   |   |
| Vibration                                      | 10G (20Hz to 200Hz, XYZ)   |   |
| Shock  | 70G  |   |
| Regulatory                                     | CE (RN61000-6-2 and EN61000-6-3), FCC part 15 class B, RoHS, WEEE  |   |
| Power  | 12V DC ± 10% 7.5 w (typical in continuous mode)  |   |
| Lens mount                                     | Universal P mount or Nikon F mount   |   |
| Dimensions (W x H x D)                         | 55 x 55 x 120 mm (excluding surface projection)  |   |
| Weight   | 430 g  |   |

## Ordering Information

AM-1600 GE — 43.3 mm Monochrome Progressive Scan Camera  
 AB-1600 GE — 43.3 mm Bayer Mosaic Color Progressive Scan Camera

## Dimensions



## Connector pin-out

### DC In/Trigger/GPIO/Iris Video

HIROSE HR10A-10R-12PB-01

| Pin No | Signal                              | Pin No | Signal             |
|--------|-------------------------------------|--------|--------------------|
| 1      | GND                                 | 7      | Opt OUT 1 (-) (*2) |
| 2      | +12V DC input                       | 8      | Opt OUT 1 (+) (*2) |
| 3      | Opt IN 2 (-)/GND (*1, 2)            | 9      | Opt OUT 2 (-) (*2) |
| 4      | Opt IN 2 (+)/Iris Video out (*1, 2) | 10     | Opt OUT 2 (+) (*2) |
| 5      | Opt IN 1 (-) (*2)                   | 11     | + 12V DC input     |
| 6      | Opt IN 1 (+) (*2)                   | 12     | GND                |

\*1: Iris Video output function can be set by the internal DIP switch (SW601).  
 \*2: GPIO IN/OUT

### D-Sub 9-pin connector for GPIO (Auxiliary)

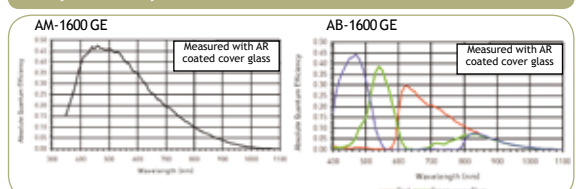
| No | I/O | Name      | Note              |
|----|-----|-----------|-------------------|
| 1  | I   | LVDS in1- |                   |
| 2  | I   | LVDS in1+ |                   |
| 3  | I   | TTL In 1  | 75Ω Terminator *1 |
| 4  | O   | TTL Out 1 |                   |
| 5  |     | GND       |                   |
| 6  |     | NC        |                   |
| 7  |     | NC        |                   |
| 8  | O   | TTL Out 2 |                   |
| 9  |     | GND       |                   |

\*1: Can be changed by DIP switch (SW600)

### GigE Vision interface (Accepts RJ-45 w/thumb screws)

| Pin No | In/Out | Name       | Pin No | In/Out | Name       |
|--------|--------|------------|--------|--------|------------|
| 1      | In/Out | MX1+ (DA+) | 5      | In/Out | MX3- (DC-) |
| 2      | In/Out | MX1- (DA-) | 6      | In/Out | MX2- (DB-) |
| 3      | In/Out | MX2+ (DB+) | 7      | In/Out | MX4+ (DD+) |
| 4      | In/Out | MX3+ (DC+) | 8      | In/Out | MX4- (DD-) |

## Spectral Response



## C3 Camera Suite Unlimited Digital Switchability

Europe, Middle East & Africa Phone +45 4457 8888 Fax +45 4491 3252  
 Asia Pacific Phone +81 45 440 0154 Fax +81 45 440 0166  
 Americas Phone (Toll-Free) 1 800 445 5444 Phone +1 408 383 0300

Visit our web site on [www.jai.com](http://www.jai.com)



See the possibilities

Company and product names mentioned in this datasheet are trademarks or registered trademarks of their respective owners. JAI AS cannot be held responsible for any technical or typographical errors and reserves the right to make changes to products and documentation without prior notification.