

## ❖ AM-1600 GE / AB-1600 GE

Progressive Scan IT CCD



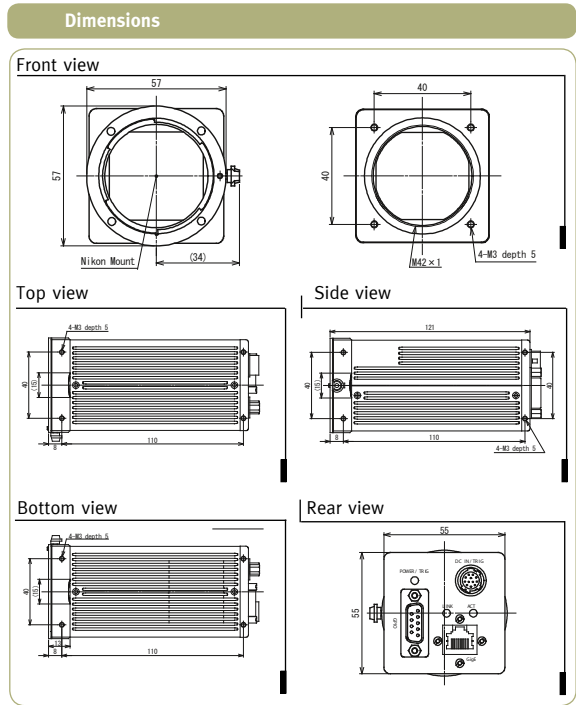
- Member of C3 Advanced series
- 4872 (h) x 3248 (v) 7.4  $\mu\text{m}$  square pixels
- 43.3 mm progressive scan IT CCD – Monochrome and Bayer mosaic color versions
- 3 frames/second with full resolution in continuous operation
- Increased frame rate with binning (AM-1600 GE) and partial scan
- Edge-Pre-Select, 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

**GigE**<sup>™</sup>  
VISION



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

Specifications	AM-1600 GE	AB-1600 GE
Sensor	43.3mm Monochrome KAI-16000-AXA	43.3mm Bayer Color 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 1/2 partial scan 4872 (h) x 1372 (v) 5.51 fps 1/4 partial scan 4872 (h) x 1028 (v) 9.25 fps Variable partial scan Start line from 1 to 2448 by 1 line unit for AM-1600 GE, 2 line units for AB-1600 GE, height (lines) from 800 to 3248	
Vertical binning mode	2x (5.63 fps)	n/a
Sensitivity	0.02 lux (Max. gain, Shutter OFF, 50% video)	0.35 lux (Max. gain, Shutter OFF, 50% Green, w/IR cut filter)
S/N ratio	> 56 dB (0 dB gain)	> 56 dB (Green, 0 dB gain)
Video output	GigE Vision Compliant 8-bit, 10-bit, 10-bit packed, 12-bit, 12-bit packed	GigE Vision Compliant Raw Bayer 8-bit, 10-bit or 12-bit
White balance	n/a	Manual/One push auto/ 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	Configurable 16-in / 12-out switch 12-bit counter based on Pixel clock 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	3 (296μs) to 3327 L (328ms) in 1L steps μsec - user definable. Same range as PE 100L to 3327L (1/101.35 sec to 1/3 sec) 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), 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, ROI (GenICam mandatory functions)	
GigE Vision Streaming Control	Packet size, Delayed (Frame) read-out, inter-packet delay 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	



## 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

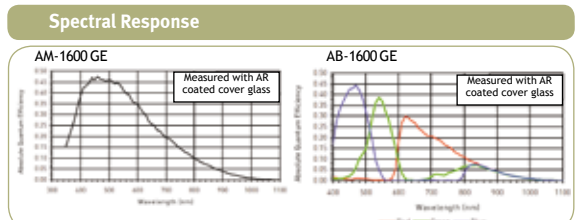
**D-Sub 9-pin connector for GPIO (Auxiliary)**

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-)



## Ordering Information

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

## 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



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