

## 5603, 5600 and 5605 Vision System Specifications

**Table 3-3: 5603, 5600 and 5605 Vision System Specifications**

Specification	5603/5613	5600/5610	5605/5615
Minimum Firmware Requirement	In-Sight version 4.4.3		In-Sight version 4.4.1
Job/Program Memory	128MB non-volatile flash memory; unlimited storage via remote network device.		
Image Processing Memory	256MB		
Sensor Type	1/1.8-inch CCD	1/3-inch CCD	2/3-inch CCD
Sensor Properties	8.8mm diagonal, 4.4 x 4.4µm sq. pixels	5.92mm diagonal, 7.4 x 7.4µm sq. pixels	11.01mm diagonal, 3.45 x 3.45µm sq. pixels
Resolution (pixels)	1600 x 1200	640 x 480	2448 x 2048
Electronic Shutter Speed	27µs to 1000ms	16µs to 1000ms	28.8µs to 1000ms
Acquisition	Rapid reset, progressive scan, full-frame integration.		
Bit Depth	256 grey levels (8 bits/pixel)		
Image Gain/Offset	Controlled by software.		
Frames Per Second <sup>1</sup>	14 full frames per second.	60 full frames per second.	16 full frames per second.
Lens Type	C-mount		
CCD Alignment Variability <sup>2</sup>	±0.127mm (0.005in), (both x and y) from lens C-mount axis to center of imager.		
Trigger	1 opto-isolated, acquisition trigger input. Remote software commands via Ethernet and RS-232C.		
Discrete Inputs	None built-in. Additional inputs available using a compatible I/O module (see Table 1-3 on page 2). Unlimited inputs when using an Ethernet I/O system.		
Discrete Outputs	2 built-in, high-speed outputs. Additional outputs available using a compatible I/O module (see Table 1-3 on page 2). Unlimited outputs when using an Ethernet I/O system.		
Status LEDs	Power, Network Status, Network Traffic, 2 user configurable.		
Network Communication	1 Ethernet port, 10/100/1000 <sup>3</sup> BaseT with auto MDIX. IEEE 802.3 TCP/IP protocol. Supports DHCP (factory default), static and link-local IP address configuration.		
1588 Support <sup>4</sup>	Timestamp Resolution: 8ns Synchronization Accuracy Through Transparent Clock: 5µs		
Serial Communication	RS-232C when connected to a compatible I/O module (see Table 1-3 on page 2).		
Power Consumption	24VDC ±10%, 600mA maximum.		

<sup>1</sup> Maximum frames per second is job-dependent and based on the minimum exposure for a full image frame capture.

<sup>2</sup> Expected variability in the physical position of the CCD, from vision system-to-vision system. This equates to ~±17 pixels on a 640 x 480 resolution CCD, ~±29 pixels on a 1600 x 1200 resolution CCD and ~±37 pixels on a 2448 x 2048 resolution CCD.

<sup>3</sup> To ensure reliable communication using 1000 BaseT operation, the Ethernet cable must not exceed 75 meters (from the vision system to the endpoint).

<sup>4</sup> 1588 is only supported on vision systems running firmware version 4.5.0 and higher.

Specification	5603/5613	5600/5610	5605/5615
Material	Die-cast aluminum housing.		
Finish	Painted/Powder coat (back plate).		
Mounting	Eight M4 threaded mounting holes (four front and four back).		
Dimensions	99.9mm (3.93in) x 124.2mm (4.89in) x 61.4mm (2.42in) with lens cover installed. 60.1mm (2.37in) x 124.2mm (4.89in) x 61.4mm (2.42in) without lens cover installed.		134.4mm (5.29in) x 124.1mm (4.88in) x 61.4mm (2.42in) with lens cover installed. 53.2mm (2.09in) x 124.1mm (4.88in) x 61.4mm (2.42in) without lens cover installed.
Weight	463 g (16.3 oz.) Lens cover installed, without lens.	409 g (14.4 oz.) Lens cover installed, without lens.	538 g (19.0 oz.) Lens cover installed, without lens.
Operating Temperature (non-circulating air)	0°C to 45°C (32°F to 113°F) <sup>1</sup>		
Operating Temperature (circulating air)	0°C to 50°C (32°F to 122°F) <sup>2</sup>	0°C to 50°C (32°F to 122°F) <sup>3</sup>	0°C to 50°C (32°F to 122°F) <sup>4</sup>
Storage Temperature	-30°C to 80°C (22°F to 176°F)		
Humidity	95%, non-condensing (Operating and Storage)		
Protection	IP67 (with appropriate lens cover properly installed).		
Shock	80 G Shock with 150 gram lens attached per IEC 68-2-27.		
Vibration	10 G from 10-500 Hz with 150 gram lens per IEC 68-2-6.		
Regulatory Compliance	CE, FCC, KCC, TÜV SÜD NRTL, RoHS		

<sup>1</sup> The vision system should be mounted with sufficient clearance on all sides to allow air circulation around and through the cooling posts on the black heat sink. If the vision system is not mounted with sufficient clearance, a fan is recommended.

<sup>2</sup> Additional cooling from a fan is recommended for operation above 40°C. For operation up to 50°C, there must be ≥16 CFM of air moving through the cooling posts on the black heat sink.

<sup>3</sup> Additional cooling from a fan is recommended for operation above 40°C. For operation up to 50°C, there must be ≥4 CFM of air moving through the cooling posts on the black heat sink.

<sup>4</sup> Additional cooling from a fan is recommended for operation above 40°C. For operation up to 50°C, there must be ≥16 CFM of air moving through the cooling posts on the black heat sink.