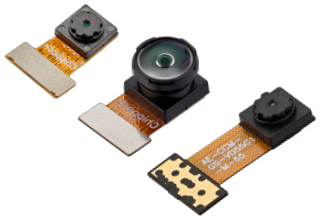
CAM-55G1

Data brief

VD55G1 promodules:
Camera module evaluation samples for instant integration of VD55G1 sensor



Order code	Description
CAM-5G1-080NIR	VD55G1 promodule with 80° FoV lens, NIR bandpass filter
CAM-5G1-081CLR	VD55G1 promodule with 81° FoV lens, clear filter
CAM-5G1-160CLR	VD55G1 promodule with 160° FoV lens, clear filter
CAM-5G1-179CLR	VD55G1 promodule with 179° FoV lens, clear filter

Features

- "Promodules": turnkey camera modules for evaluation:
  - Including VD55G1 image sensor, lens holder, lens, and plug-and-play flex connection.
  - Lens focused, glued, and tested in a cleanroom environment using specialized equipment.
  - Small footprint down to 5.0 mm square, with smaller dimension achievable as a customized solution from partner camera module integrators.
- High lens flexibility:
  - Fisheye lens for maximum scene coverage (179° DFOV)
  - Ultra-wide angle lens for wide scene capture (160° DFOV).
  - Highly compact lens enabling tiny module (81° DFOV, clear filter)
  - NIR-optimized lens for accurate NIR image sensing (80° DFOV, 940 nm bandpass filter)
- Plug-and-play connector to change promodules at any time:
  - FPC-to-board 30-pin connector.
  - Same connector for all ST promodules.
- Ready for evaluation and integration:
  - On a computer with a USB output using the EVK Main hardware tool and the Evaluation GUI free software.
  - On embedded processing platforms with a MIPI CSI-2 output using the P-Board hardware tool and free Linux software tools.

Description

The CAM-55G1 promodules are a full range of sample camera modules made for a seamless evaluation and integration of the VD55G1 0.56-megapixel monochrome image sensor. These ready-to-use vision extensions integrate VD55G1 image sensor, lens holder, lens, and plug-and-play flex connection in a tiny format down to 5.0 mm square.

The CAM-55G1 line leverages the complete toolbox of on-chip features of the VD55G1 image sensor embedded, such as autoexposure, auto-wake up, background removal, or event-like mode. Multiple GPIOs enable users to synchronize the modules with triggers and illumination. Featuring a single lane MIPI CSI-2 output and very low operating power, the promodules are perfectly suited for embedded low-power setups.

Multiple promodule references are available, featuring various lenses to best match the needs of every application in terms of optical setup and mechanical constraints. All camera modules are equipped with the same FPC-to-board connector and pinout. This plug-and-play architecture allows users to change promodule instantly, and reuse the same setup with different lenses, color options and even different image sensors in the ST BrightSense portfolio.

CAM-55G1 promodules can be tested and integrated on computers or embedded processing boards using hardware and software tools from STMicroelectronics. The compatible EVK Main and P-Board hardware kits enable straight connection to PC and embedded processing platforms respectively. Evaluation GUI software and Linux drivers are available for download from the Imaging Software section of the website.

Figure 1. Common connector to all ST promodules

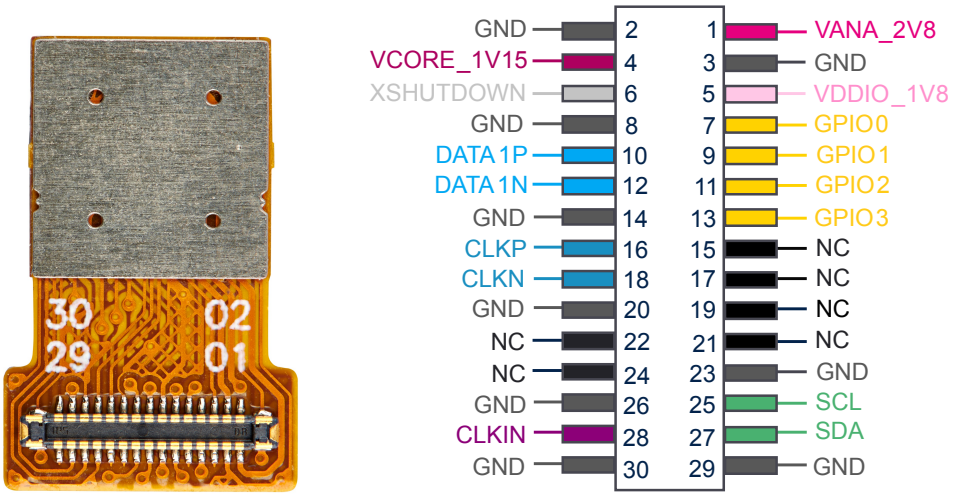
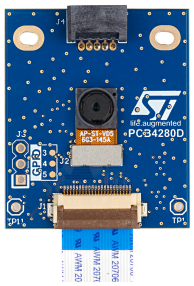


Table 1. Evaluation & development setup with CAM-55G1 promodules

	
Setup for embedded platforms with MIPI CSI-2 output	**Setup for computer with USB output**
CAM-55G1 promodule + P-Board	CAM-55G1 promodule + EVK Main

1 Technical specifications

Table 2. Technical specifications

Category	Parameter	Common specifications			
Image characteristics	Sensor featured	VD55G1			
	Resolution	0.56 MP – 804 x 704			
	Aspect ratio	Close to 1 : 1			
	Shutter type	Global shutter			
	Color option	Monochrome			
Electrical characteristics	Connector type	FPC-to-board			
	Connector reference	Hirose BM28 B0.6-30DP/2-0.35V			
	Pinout	30 pins			
	Output interface	MIPI CSI-2 | 1 lane			
	Control interface	I²C			
	Output format	RAW8, RAW10			
	Supply voltages	2.8 V – 1.2 V, or 2.8 V – 1.8 V – 1.15 V			
	External clock frequency	6 to 27 MHz			
Embedded features	Image quality optimization	• Autoexposure • Automatic dark calibration • Noise reduction • Gamma correction • Defective pixel correction • Analog and digital gains			
	Power and data optimization	• Auto wake-up • Background removal • Event-like mode • Cropping • Binning • Subsampling • Context management with up to 4 contexts			
	Others	• Mirror/Flip • Test pattern generation • Temperature sensor • GPIOs x4			
Category	**Parameter**	**CAM-5G1-080NIR**	**CAM-5G1-081CLR**	**CAM-5G1-160CLR**	**CAM-5G1-179CLR**
Optical characteristics	Aperture – f/#	F/2.0	F/2.0	F/2.0	F/2.0
	Field of view – D | H | V	65° | 58° | 80°	65° | 58° | 80°	105° | 120° | 160°	135° | 110° | 179°
	Depth of field	13.4 cm → INF	16 cm → INF	6.4 cm → INF	49 cm → INF
	EFL	1.32 mm	1.32 mm	0.825 mm	0.71 mm
	Distortion (TV)	< 1%	< 1%	< 12%	< 23.79%
	Filter	NIR bandpass (940 nm)	Clear	Clear	Clear
Mechanical characteristics	Head dimension – L x W	5.0 x 5.0 mm	5.0 x 5.0 mm	6.5 x 6.5 mm	6.5 x 6.5 mm
	Lens diameter - L, W	4.0 mm	4.0 mm	7.0 mm	8.0 mm
	Total height - H	2.55 mm	3.30 mm	5.72 mm	6.04 mm
	Distance from connector to optical center - L	7.45 mm	10.45 mm	7.45 mm	7.45 mm
	Total outer dimension - L x W x H	11.65 x 8.0 x 2.55 mm	14.65 x 8.0 x 3.30 mm	12.40 x 8.0 x 5.72 mm	12.40 x 8.0 x 6.04 mm

Revision history

Table 3. **Document revision history**

Date	Version	Changes
17-May-2024	1	Initial release
05-Jun-2025	2	Added new order codes and updated cover image. Features and Description: Modified the size from 6.5 mm to 5.0 mm square. Features: Added more information regarding lens. Table 1. Evaluation & development setup with CAM-55G1 promodules: Updated images. Table 2. Technical specifications: Updated depth of field and distortion for CAM-5G1-160CLR. Added information for CAM-5G1-081CLR and CAM-5G1-080NIR.
19-Dec-2025	3	Added **CAM-5G1-179CLR** on cover page order code and in Table 2. Technical specifications. Features: Added information regarding fisheye lens. Table 2. Technical specifications: Updated the optical and mechanicals characteristics.

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