



Switchgear Camera Digital SGC-Digital

Viewing System for GIS, Hybrid Switchgear, GCB and Generators



Kappa is your most experienced partner for switchgear camera systems for power grids. Our rugged cameras for safe monitoring provide visual assurance of switch positions and thus contribute to minimizing risks to personnel. These field-proven camera systems fit all substation viewports, on medium- and high-voltage, gas- and air-insulated switchgear, hybrid switchgear, GCB, and generators.

The Switchgear Camera Digital (SGC-Digital) can be networked to provide views from multiple switches or breakers in a substation so that an observer at a central location can select any view. SGC-Digital can be mounted to a wide variety of viewports or to an individual switch using a corresponding adapter in order to fully visualize the disconnecter and earthing switch positions. SGC Digital is available as fixed installation of the camera or as a quick 'plug and play' camera for on-demand viewing. Fixed camera installations of 2 to 400+ cameras are available in user-programmable configurations, from stand-alone, to 24-port or 8-port switch applications. The lens and LEDs are specifically chosen and arranged to obtain a sufficient field of view with minimum reflection and beam shaping at the viewport glass. SGC digital transmits a HD live stream with a frame rate of 30 fps. The image resolution is 1920x1080. Due to its primary purpose, safety, the camera processor analyzes whether the image coming from the sensor is live. In case of a frozen image, an overlaid rectangle in the image turns red.

Sensor

CMOS sensor	1/2.7", color
Pixel size (H x V)	3.0 µm x 3.0 µm
Spectral sensitivity	380 nm – 750 nm
Shutter	Rolling Shutter
Full HD	HDR up to 96 dB

Image Processing

Gain	Automatic gain control
Exposure time	Automatic exposure time control
Color processing	Color correction, white balance (adjusted to LED light)
Image enhancement	Edge sharpening
Correction	Gamma, color
Image overlay	Time, date, camera serial number, user defined name (optional)
Frozen image indicator	Frozen image/ live image, integrated in image overlay

Interface

Type	Ethernet, 100 Mbit/s, 100Base-TX
Connector type	RJ45
Power supply	PoE 48 V, IEEE 802.3af
Power consumption	4.5 W with LEDs on, 3.0 W with LEDs off
HDTV signal format	1920x1080 pixel
Fps	30 fps
Video compression format	Uncompressed, H.264 (profile intra-only 10-60 Mb/s)
Streaming protocol	GigE Vision 2.0

General Data

LEDs	8x LEDs for beam shaping
Horizontal field of view	55,7°, 87° FoV, others upon request
Dimensions/ weight	Diameter 50 ± 0.5 mm, length 76 mm/ approx. 170 g
Housing thread	Customized adapter

Environmental Specifications

Operating temperature	-40 to 70°C
Protection rating	IP65, IP67 with shrink tubing accessory
IEEE	IEEE Std C37.20.9-2019, seismic design IEEE693

Regulatory Approvals

ESD fast transient/ burst damped oscillatory waves	IEC 61000-4-2; IEC 61000-4-3; IEC 61000-4-4; IEC 61000-4-5; IEC 61000-4-6; IEC 61000-4-8; IEC 61000-4-16; IEC 61000-4-18
EMV vibration shock ...	IEC 62271-1, IEC 60068-2-1, IEC 60068-2-2, IEC 61000-4-18, DIN 50021, DIN 50017, DIN 50018

Software Compatibility

Stand-alone application	Compatible with "SGC Viewer Application" and "Switchgear Monitoring Application"
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We are constantly checking the accuracy of the technical data. We are prepared to provide more detailed information on request. Technical data are subject to change without notice!

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