



# Switchgear Camera Analog SGC-Analog

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.

If a camera will be directly connected to a monitor without a network solution, we provide "Switchgear Cameras Analog" (SGC-Analog) for fixed and mobile use. The fixed camera installations are available with either a "Portable Video Unit" (PVU) with built-in battery and monitor, or an installed monitor affixed to your equipment. For this purpose, we provide a PVU that includes up to three cameras and corresponding adapter/s for your application. The SGC-Analog 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. The lens options and camera's LEDs are specifically chosen and arranged to obtain a sufficient field of view with minimum reflection at the viewport glass. The camera transmits a FBAS video (720x576 pixel) with a frame rate of 25 fps to the monitor.

## Sensor

CMOS sensor	1/4", color CMOS NTSC/PAL SOC (Aptina MT9V137)
Pixel size (H x V)	5.6 $\mu\text{m}$ x 5.6 $\mu\text{m}$
Spectral sensitivity	380 nm – 750 nm
Shutter	Rolling Shutter

## Image Processing

Gain	Automatic gain control
Exposure time	Automatic exposure time control
Color processing	Color correction
Image enhancement	Edge sharpening
Gamma correction	sRGB $\sim$ 0.45
Image overlay	none
Frozen image indicator	None, non frozen image is guaranteed by design

## Interface

Type	Video (FBAS)
Connector type	XLR
Power supply	Via Mobile Operating Unit
Power consumption	<3 W
Video signal format	720x576i, 50fps

## General Data

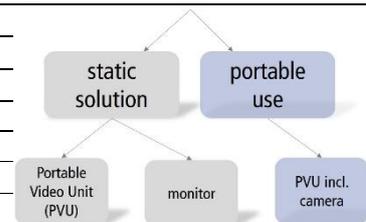
LEDs	2 Nichia NSPW 300BS white LEDs, always on
Horizontal field of view	52°, 74°, 87° FoV
Dimensions/ Weight	Diameter 50 $\pm$ 0.5 mm, length 70 $\pm$ 2 mm/ approx. 165 g
Housing thread	Customized adapter

## Environmental Specifications

Operating temperature Camera	-40 to 70°C
Protection rating	IP65, NEMA 4X
Humidity	10% - 98%
IEEE	IEEE Std C37.20.9-2019, seismic design IEEE693

## Regulatory Approvals

ESD   Fast transient/ burst   Damped oscillatory waves	EN 61000-4-2; EN 61000-4-3; EN 61000-4-4; EN 61000-4-5; EN 61000-4-6; EN 61000-4-8; EN 61000-4-16; EN 61000-4-17; EN 61000-4-18; EN 61000-29
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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!

## Headquarters

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