

Operating Manual

SG-Cam

Surge protection unit
for video cameras

Version 1



Grounding of the switch is obligatory.



It is recommended to check the integrity of lightning protection device at the beginning and the end of the storm season and immediately after the storm.

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1. Purpose

TFortis SG-Cam is a lightning protection device designed to protect cameras through the Ethernet port from strong interferences induced by powerful lightning discharges.

It is recommended to use TFortis SG-Cam in conjunction with a lightning protection device for TFortis SG-Switches .

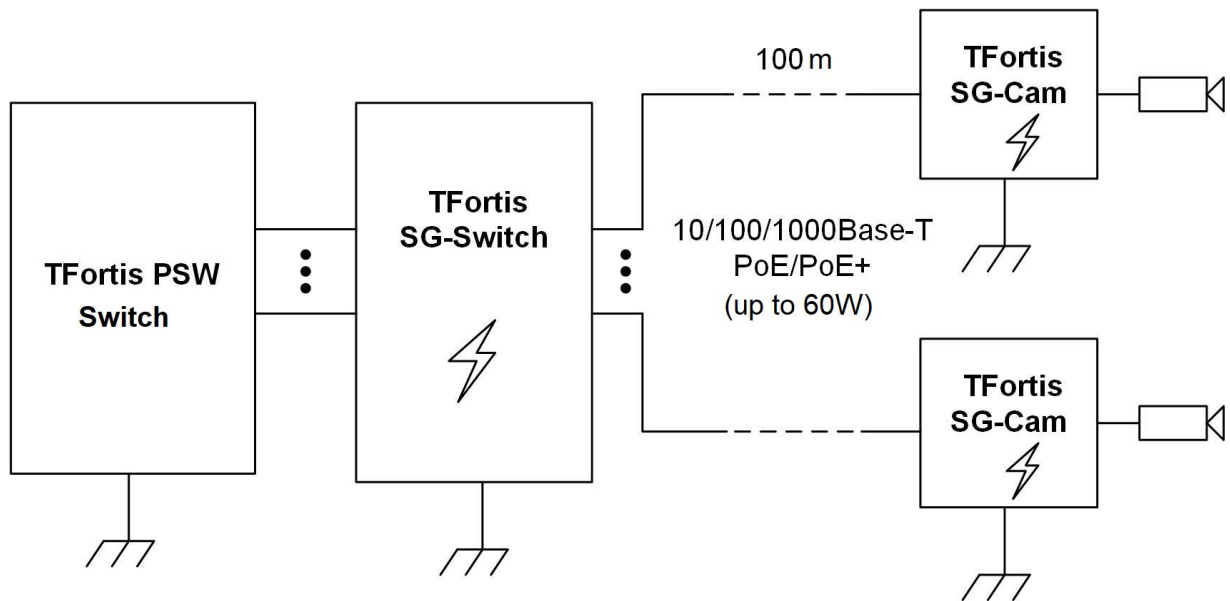


Figure 1. Typical application scheme

Features

- High level of protection against lightning interferences
- All-weather performance (IP67 housing)
- Operation in a wide range of temperatures (from -55°C to 80°C).
- The camera cable is located inside the lightning protection housing
- A bracket for mounting on the pole or on the wall
- Supports Fast/Gigabit Ethernet
- Supports PoE/PoE+ (IEEE802.3af/at), including PoE 60W.
- Convenient visual control of the integrity of components

2. Description

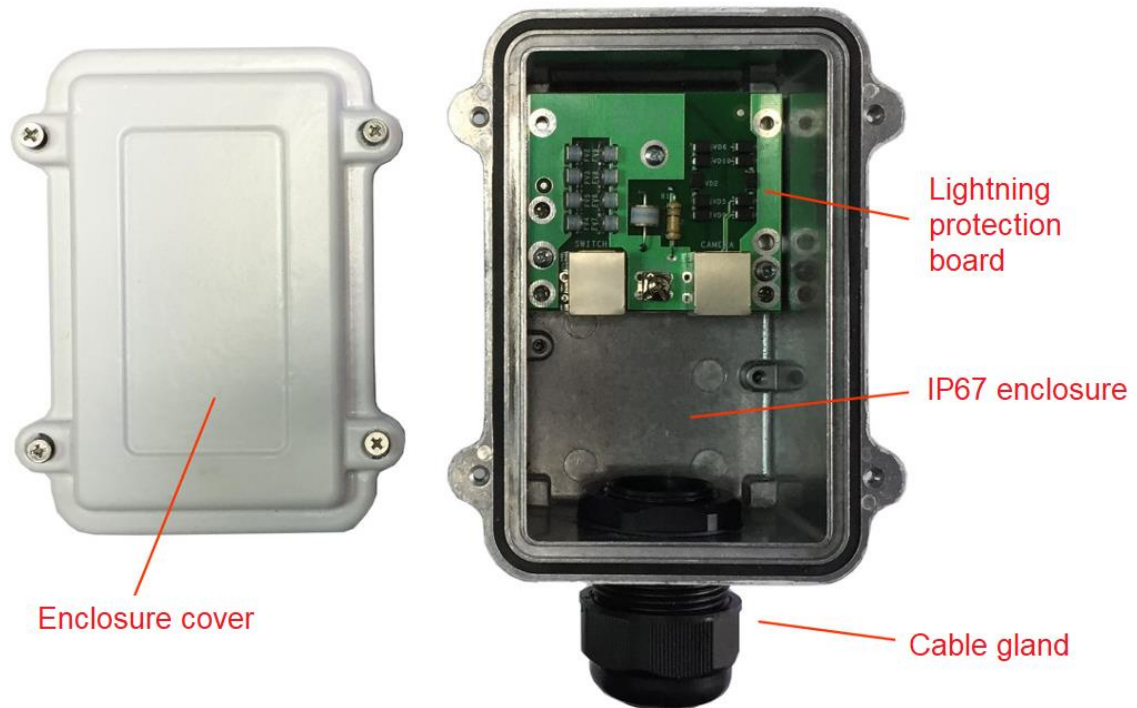


Figure 2-1. Appearance of TFortis SG-Cam

SG-Cam device has a metal enclosure protected from dust and moisture according to IP67 . The device has a cable gland with a rubber sleeve for three cables:

- Ethernet cable from the switch,
- Ethernet cable of the video camera
- grounding cable.

There is enough space inside SG-Cam to accommodate the excess cable coming from the video camera (Figure 2-2).

Application of a single large cable gland with a dedicated rubber sleeve allows the RJ45 socket of the camera to be inserted into the lightning protection device without cutting off the camera socket, thus retaining the warranty of the camera manufacturer. Instruction for connection is available in the Installation section of this document.



Figure 2-2. Device interior



Figure 2-3. Example of connection

3. Technical parameters

General features			
Power supply		IEEE802.3af/at (up to 60W)	
Data transfer type		10/100/1000Base-T	
Degree of protection from dust and moisture		IP67	
Operating temperature, °C		- 55...+80	
Dimensions, mm		220x120x90	
Weight, kg		<2	
Characteristics according to GOST IEC 61643-21 - 2014			
Protected pairs		(1-2), (3-6), (4-5), (7-8)	(1,2-3,6), (4,5-7,8)
Nominal operating voltage, DC	Uo	6V	48V
Maximum continuous operating voltage, DC	Uc	9V	57V
Nominal current (direct)	IL		600mA+600mA
line-ground			
C2 Nominal discharge current (8/20)	In	1 kA	
(C2 – 2 kV/1 kA) Protection voltage level at In	Up	<450 V	
C3 Protection voltage level at 1 kV/μs	Up	< 600 V	
Actuation time	tA	< 100 ns	
Stray capacitance	C	< 1 pF	
line-line			
		(1-2), (3-6), (4-5), (7-8)	(1,2-3,6), (4,5-7,8)
C2 Nominal discharge current (8/20)	In	200 A	200 A
(B2 - 1 kV/25 A) Protection voltage level at In	Up	< 15 V	< 75 V
C3 Protection voltage level at 1 kV/μs	Up	< 20 V	< 85 V
Actuation time	tA	<1 ns	<1 ns
Stray capacitance	C	< 25 pF	< 25 pF
Bandwidth		250 MHz	
Input losses		< 3 dB (up to 250 MHz)	
Crosstalk at the transmitting end		< 35 dB (up to 250 MHz)	

4. Operating conditions

TFortis SG-Cam is designed for 24/7 outdoor operation at the ambient temperatures from minus 55°C to plus 80°C.

It is recommended to check the integrity of lightning protection device at the end of the storm season and immediately after the storm.

5. Installation

5.1. Installation on the wall or pole

Use M5 bolts from the supply kit to screw the brackets to the device housing (Figure 5-1).

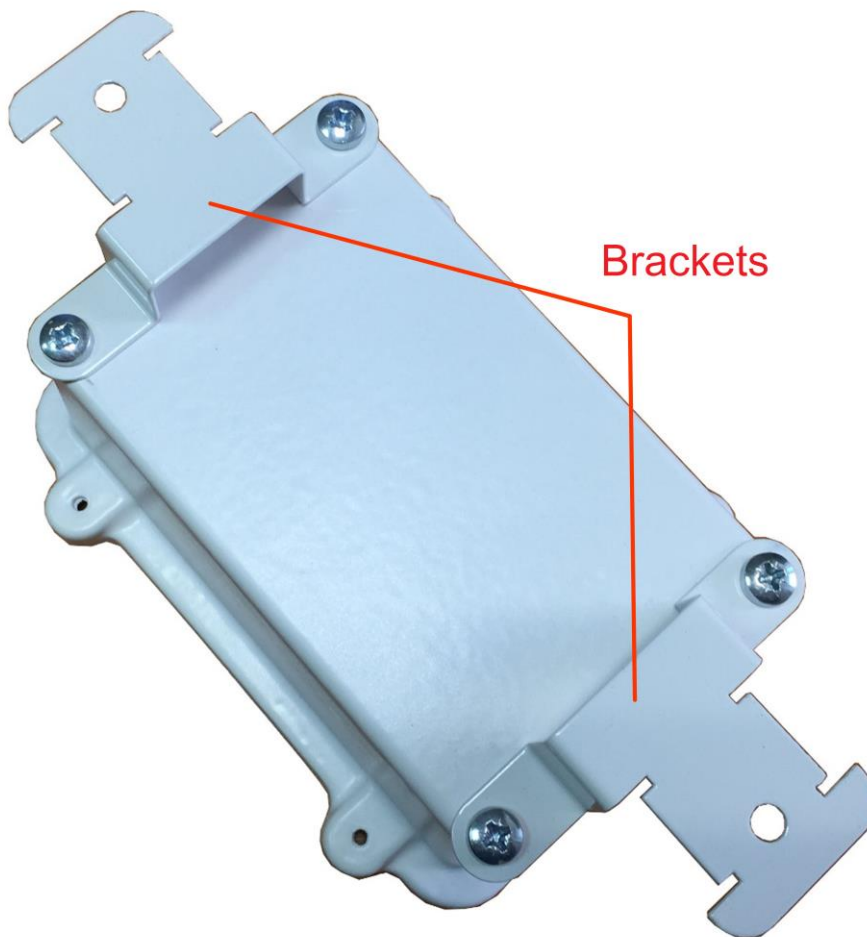


Figure 5-1. Brackets

Install the device at the minimum possible distance from the video camera. Use bandage tape to fix the device on the pole. For wall mounting, use a special fastener (not included in the scope of supply).

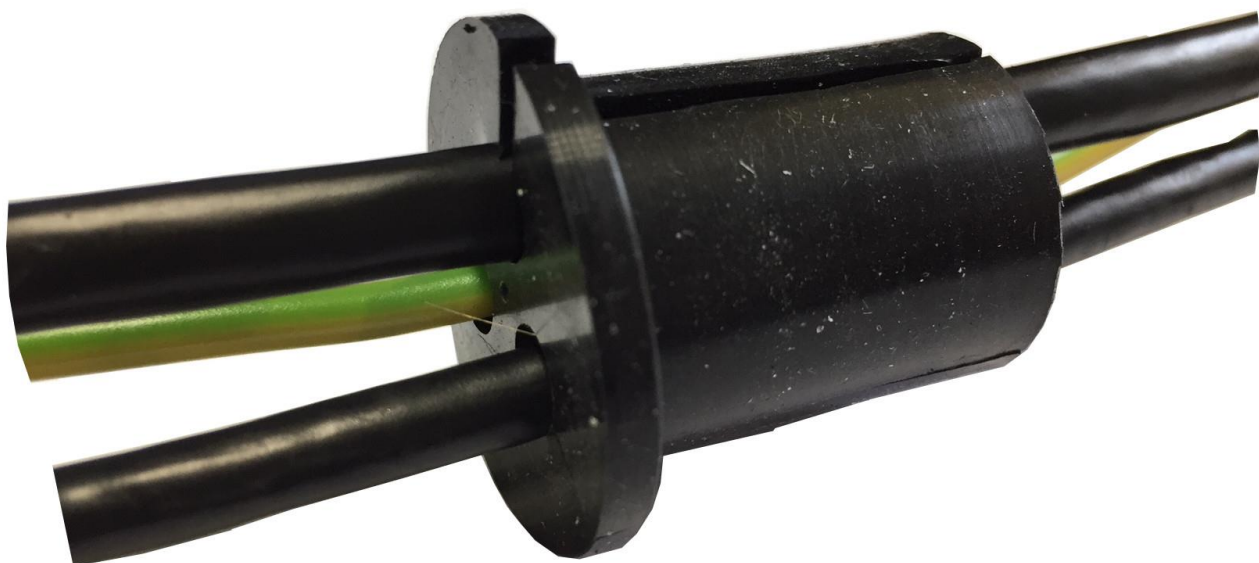
WARNING! Drilling of the housing will lead to loss of device integrity and, as a result, loss of product warranty.

5.2. Pulling cables through the cable gland

Cut the hole in the rubber sleeve



Pull the cables through the cut



Assemble the cable gland according to the Figure below



Tighten the cable gland



5.3. Cable connection

Connect the cable coming from the switch to RJ45 «SWITCH» port.

Connect the cable coming from the video camera to RJ45 «CAMERA» switch. If the cable from the video camera ends with a plug, make an Ethernet cable of a minimum length and use it to connect the video camera.

Connect the grounding cable to «GROUND» terminal. For proper operation of the lightning protection, grounding should not exceed 4 Ohm.

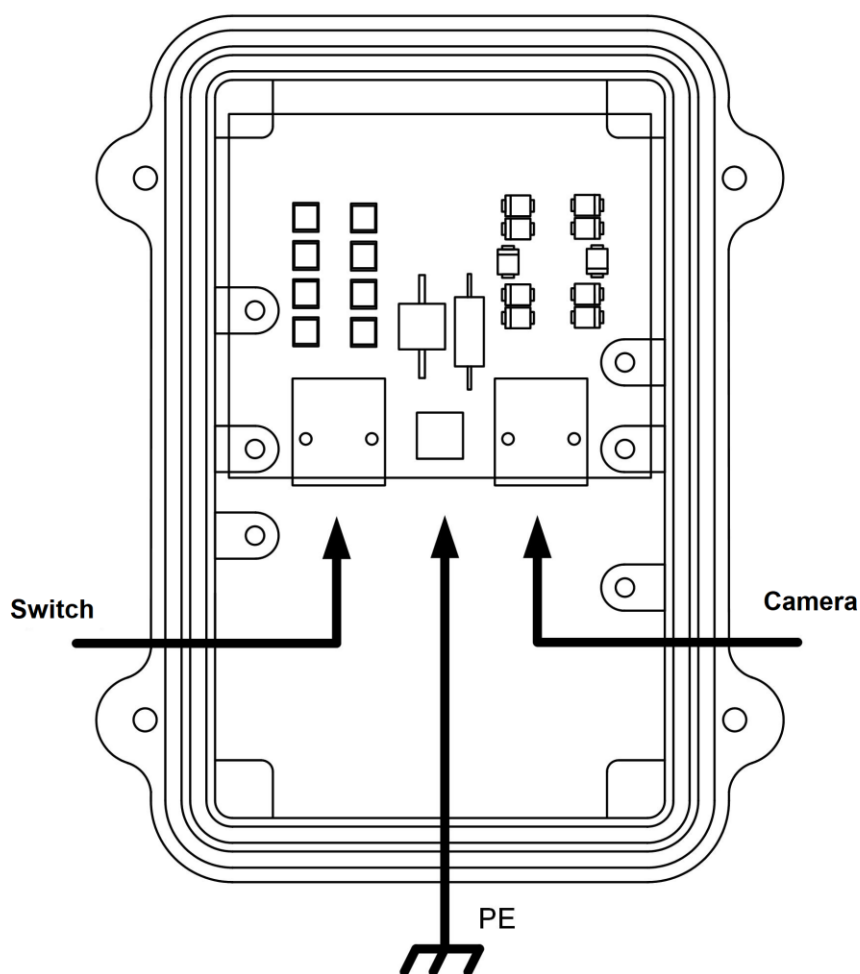


Figure 5.3-1. Connection scheme

It is recommended to use a 4-pair twisted pair, at least category 5.

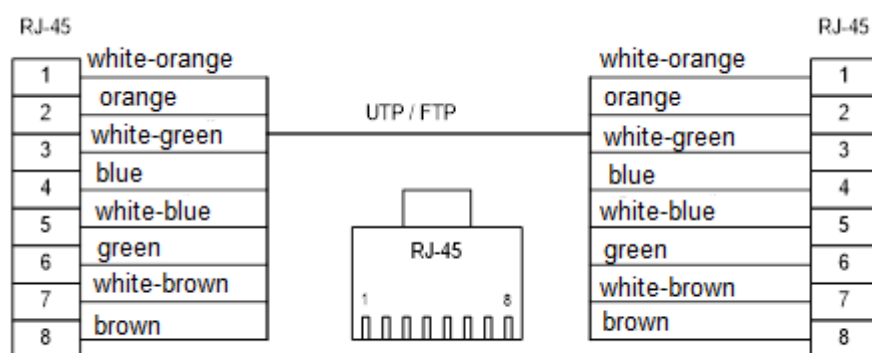


Figure 5.3-2. Separation of the Ethernet cable.

6. Supply scope

	Name	Qty	Note
1	TFortis SG-Cam	1	
2	Bracket	2	
3	M5 screw	4	
4	Cable gland MG32	1	
5	Rubber sleeve	1	
6	Product certificate	1	
7	Packaging	1	

7. Manufacturer's warranty

The warranty period for the switch is 36 months from the date of sale. Only a complete switch is accepted for servicing and repair.

Warranty shall not apply in the following cases:

- if the warranty period has expired;
- if manufacturer's marking with the serial number on the housing is missing or if the serial number has been changed, removed or is illegible;
- if there are internal or external mechanical damages (chipping, cracking, deformation, damaged power supply wires, cracking or splitting of the terminals), signs of treatment with aggressive chemicals or fluids, severe contamination, insects presence or signs of insects presence;
- in case of improper connection and operation of the switch or if power supply parameters do not meet the requirements specified in the operating manual;
- if the switch was damaged as a result of force majeure, due to the actions of third parties or other reasons beyond manufacturer's control.