RoughCam® IPM1137-LE

User Manual

SAMCON
Prozessleittechnik GmbH

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History of revisions

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1 Introduction

The RoughCam IPM1137-LE is a built-in device combination within the T10 RoughCam® IPM1137-LE device protection system with the T11-VA2.2.K1.BOR base housing for integrating the Axis M1137 MkII i-CS camera module and another enclosure (T21-VA0.1) with integrated high-performance LED luminaire to support the illumination of the camera (liteServer Rough.micro). Both devices are immobile and firmly connected to one another in a defined position by means of a solid stainless steel adapter.
In addition to **5 MP resolution (2592 x 1944)**, the camera offers a **powerful remote zoom vario focus lens** and a **Machine Learning Processing Unit (MLPU)**.

The light: the liteServer Rough.micro is the perfect addition to the camera in areas with poor light. It has a built-in, energy-efficient, long-life LED. This is either cold white or infrared. IR lighting (wavelength 855nm) enables unobtrusive surveillance even in total darkness.
For more information check our product page https://www.samcon.eu
During the development of the RoughCam IPM1137-LE, great value was placed on safety, mechanical precision and high-quality stainless steel.

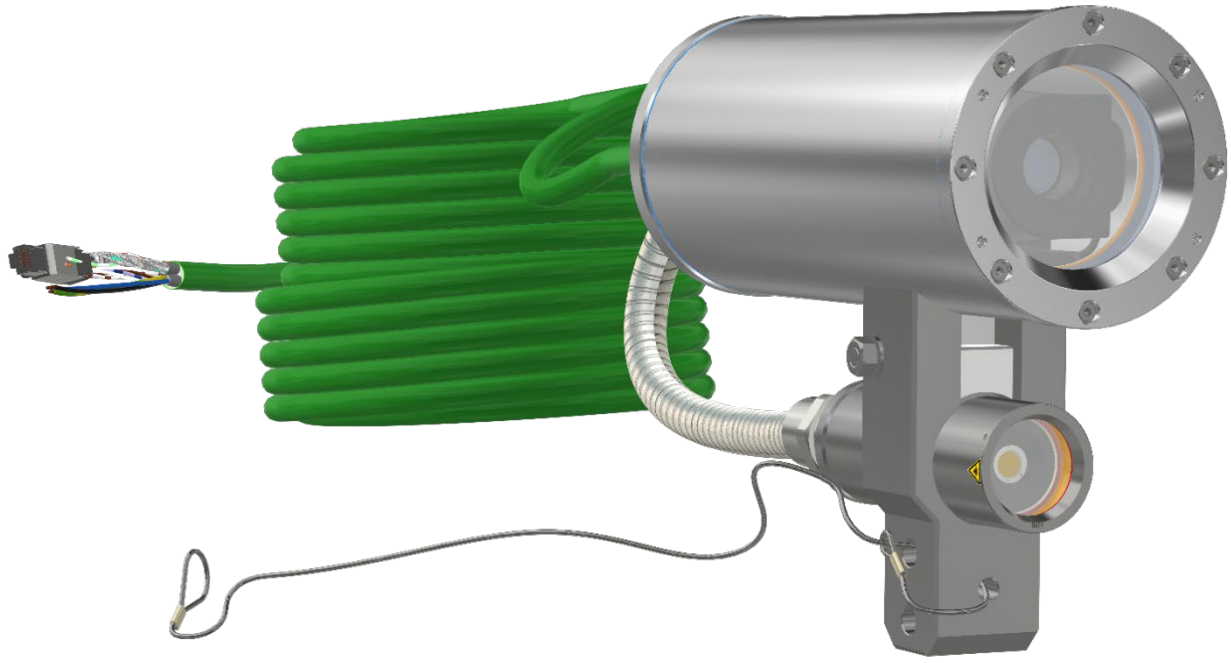


Figure 1-1 Combination camera and luminaire

2 Technical data

2.1 Illustration of the model key

Product-name		Model variants				
1)		2) Type	3) Housing-combination	4) Temp.-range	5) Cable length [m]	6) Cable termin.
RoughCam IPM1137-LE	-WL	T08-	VA2.2.K1.BOR-	L.H-	005.N-	P
	-WL	T08-	VA2.2.K1.BOR-	L.H-	005.N-	T
	-IR	T08-	VA2.2.K1.BOR-	L.H-	005.N-	P
	-IR	T08-	VA2.2.K1.BOR-	L.H-	005.N-	T
(MINING)	-WL	T08-	VA2.2.K1.BOR-	L.H-	005.A-	P
	-IR	T08-	VA2.2.K1.BOR-	L.H-	005.A-	P

Table 2-1 Model key

Explanations:

1) RoughCam IP**M1137-LE-**X **=** Functional camera description of the RoughCam Series (technical data/specification of the individual camera module)
RoughCam IPM1137-LE**-WL =** Functional description of the liteServer Rough.micro neutral white LED
RoughCam IPM1137-LE**-IR =** Functional description of the liteServer Rough.micro IR LED

2) T**10** = SAMCON Production- Type 10

3) **VA2**.2.K1.BOR = T11 housing (stainless steel 1.4404) with large diameter $Ø_{VA2}$=113mm)
VA2.**2**.K1.BOR = T11 VA2.2 housing with medium body length (L_R = 260mm)
VA2.2.**K1**.BOR = K1 cable gland flange
VA2.2.K1.**BOR** = Borosilicate sight glass DIN7080 (standard, for video cameras within visible spectral range: λ = 350…2000 [nm] and photografical infrared range (NIR), not suitable for thermographic applications (MIR/ FIR)

4) L.**H**= High temperature (T_{amb} < +50°C)
L.H= Low temperatures (T_{amb} > -30°C)

5) **005.**N = Length of the connection line in meter at delivery; 5m is the standard cable length, max. cable length is: 005…100 [m]
005.**N** = Non armoured cable
005.**A** = Armoured cable

6) **P** = Plug- termination (*standard*)
CAT6, RJ-45 network plug (heavy duty), AWG 26-22,
contact assignment acc. To specification EIA/TIA-568**B**
T = Terminal Box termination (*optional*)
4 x PoE Mode A connection (camera PoE)
(see chapter electrical connection)

2.2 Electrical parameters of the camera

Power supply of the camera & luminaire:

Voltage supply:	PoE+, IEEE 802.3af/802.3at type 2 class 4
Reference voltage:	+48 V DC
Maximum power consumption:	25.5 W@PoE+
Typical power consumption:	19.5 W

2.3 Cables and glands

2.3.1 Connection cable

System cable SKD02-T:

Outside diameter:	8.9 ± 0.3 mm
Bending radius:	8 x D_a when installed and 4 x D_a after relocation
Data line:	4 x 2 x AWG23/1 CAT.6
Properties:	PUR halogen-free, flame-retardant, UV-resistant, chemical resistance, shielded

Quick link:
https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/SKD02-T_Datasheet.pdf

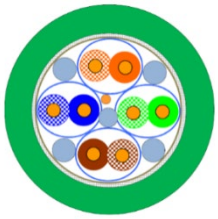


Figure 2-1 Sectional view of SKD02-T

System cable ASKD02-T:

Outside diameter:	12.0 ± 0.4 mm
Bending radius:	20 x D_a when installed and 10 x D_a after relocation
Data line:	4 x 2 x AWG23/1 CAT.6
Properties:	PUR halogen-free, flame-retardant, UV-resistant, chemical resistance, shielded (see www.samcon.eu)

Quicklink:
https://www.samcon.eu/fileadmin/documents/en/60- Assembling%26mounting/ASKD02-T_Datasheet.pdf

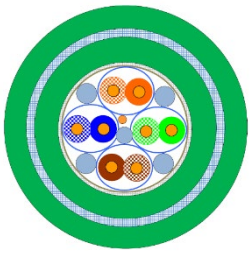


Figure 2-2 Sectional view of ASKD02-T

2.3.2 Cable glands PoE and protection hose

System cable SKD02-T → gland Capri ADE1F2 M20x1.5 Cap No.5 (7-12mm)
System cable ASKD02-T → gland Capri ADE4F Cap No.6
Documentation ADE4F, Declaration of Conformity, Instruction Manual, Datasheet

2.3.3 Cable liteServer

Ölflex HEAT 125MC

https://www.samcon.eu/fileadmin/documents/de/60-Montage&Installation/OELFLEX-HEAT-125MC_Datenblatt.pdf

2.3.4 Cable glands and protection hose liteServer

Ölflex heat 125 ML 3G → Ex-d gland ANACONDA Sealite for steel armoured type SU, nickel plated brass for 5/8“
Protective hose
ANACONDA multiflex protective hose, stainless steel armouring
ANACONDA Documentation

2.4 Video-technical characteristics

We use the AXIS M1137 MkII Box Camera in a pressure-resistant enclosure. For details, please refer to the Product Documentation, video-technical data of AXIS®:
https://www.axis.com/products/axis-m1137-mk-ii

2.5 Other technical data

	Camera	Luminaire
Permissible ambient temperature	-30°C … +60°C	-30°C … +50°C
Protection class as per EN 60529/IEC 529	IP66/68 (Test conditions: 24h/3m water column 5°C)	IP66/68
Housing material	stainless steel, mat. no. 1.4404	stainless steel, mat. no. 1.4404
Weight	about 7 kg	about 1.4 kg
Dimensions	D113mm x 260mm	D48mm x 127mm

Table 2-2 Other technical data

2.6 Technical specification of the illuminant / LED illumination

2.6.1 White light (WL) LED

A neutral white high-power COB LED with a **nominal power of 12.5 W** is used in this device as a radiation source for visible light.

The COB LED is characterized by the following technical properties:

LED Type:	COB-LED (InGaN), single phosphor dot, non-matrix arranged, divergent, non-focusing
Power consumption:	12.5W
Max. power consumption:	12.9W@24VDC
Color rendering:	440nm to 690nm
Color temperature:	5000K
Luminous flux:	1930lm
Beam angle:	90°
Dimensions (ØxH):	28 x 2.4 mm

2.6.2 IR-LED

A SMD IR-LED with a radiance of **4120 mW** is used in this device as a radiation source for visible light..

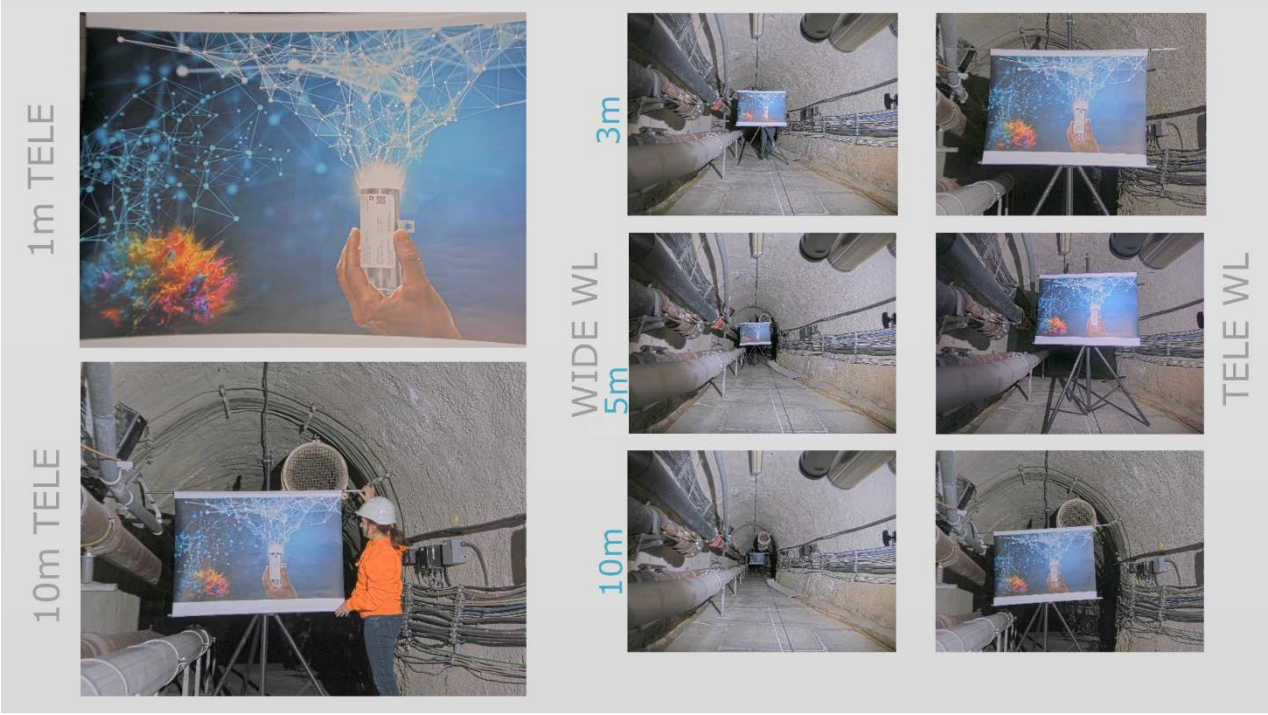
The IR LED is characterized by the following technical properties:

LED Type:	High Power 12W IR SMD-LED
Max. power consumption:	13.7W
Infrared centroid wavelength:	850nm
Radiation intensity (IR850):	4120mW
Beam angle:	90°
Operating hours:	50000h

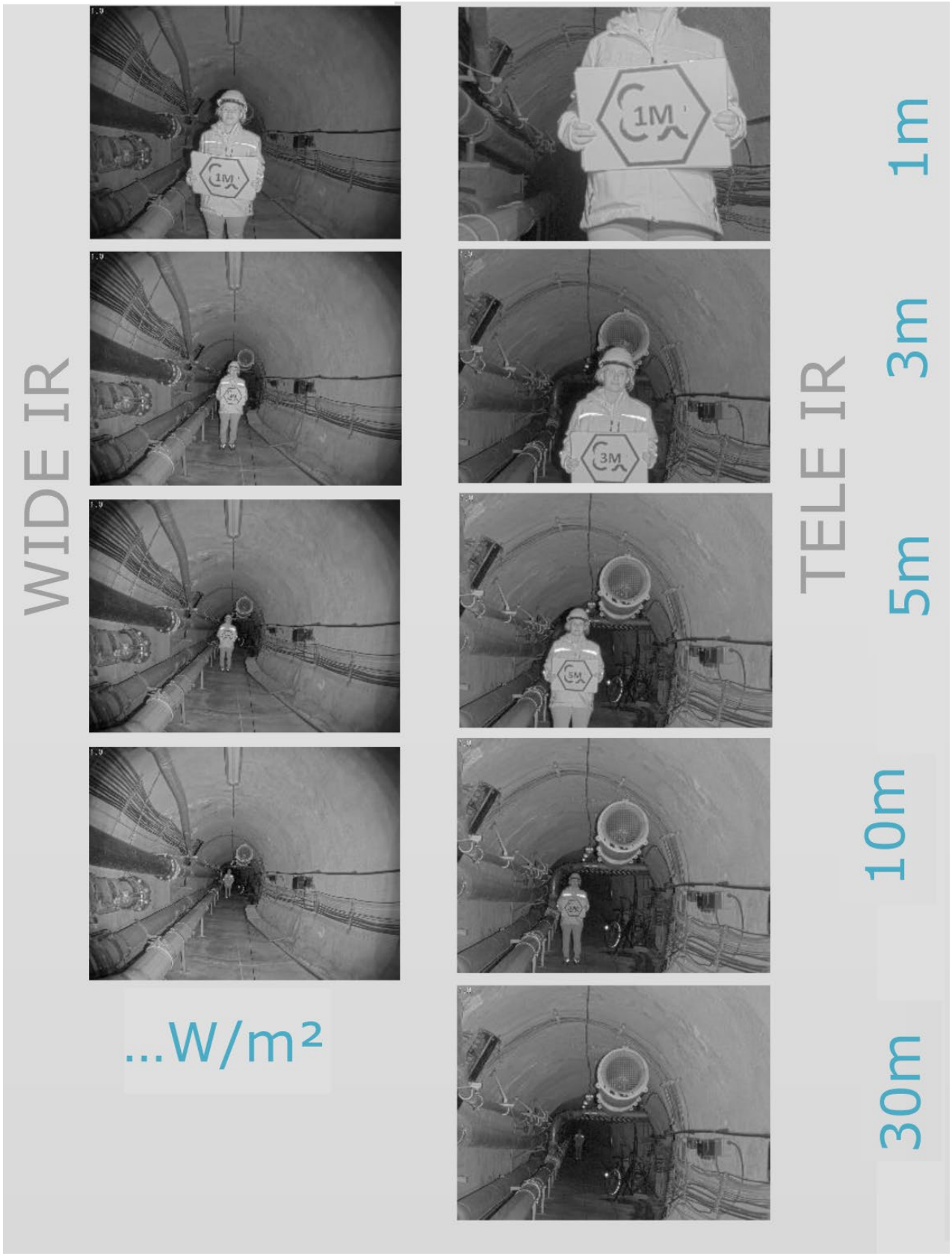
Attention!
Infrared radiation emanates from this product. Do not look directly at the operating lamp.

2.6.3 Illumination tests

The external illumination in combination with the RoughCam IPM1137 ensures that a good image is obtained up to an object distance of 30.0 m. Even at a distance of 60m, the light intensity is sufficient to be able to recognize an object in the field of vision
The complete documentation of the illumination tests you can find in the document „ExCam IPM1137-LE Illumination tests Eleonore adit Asslar“.



1m
3m
5m
10m
30m
WIDE WL
330 lx
55 lx
22 lx
6 lx
0.7 lx
TELE WL


WIDE IR
TELE IR
1m
3m
5m
10m
30m
...W/m²

3 Safety Instructions

It is absolutely mandatory to adhere to the national safety regulations and regulations for prevention of accidents, as well as to the safety instructions given below in this User Manual!

Attention!
Repairs may only be carried out by using original parts from the manufacturer.

Attention!
Prior to installation, take external sources of heat or cold into account! The temperature ranges prescribed for storage, transport and operating must be adhered to!

Attention!
The sight glass must not be directly covered by foreign objects. The light must be able to leave the optics of the protective housing unhindered. Regular cleaning intervals of the sight glass should be observed in order to avoid adhesion and dust deposits.

Risk of burns from hot surfaces (≤80°C)!

Do not stare into the direct beam. Danger of impairment of vision due to high exposure to light!

The cable bridge from RoughCam to liteServer is preinstalled and must not be changed!

The pre-installed RJ45 plug may only be connected in a safe area!

The safety rope to protect heavy objects from falling must be attached according to the installation instructions!

Prior to the first use, you should test the camera and the luminaire corresponding to the instructions given in the chapter Commissioning.

4 Installation

For commissioning and operating the camera, the relevant national regulations, as well as the generally accepted rules of technology shall prevail. Before mounting the camera, thoroughly check it for any transport damage, especially on the housing and cable. Installation, electrical connection and the first start must only be carried out by qualified specialists.

Work preparation:

Attention!
Prepare your work carefully and in accordance with the relevant regulations.

To ensure the best image quality delivered by the network camera, plan the installation site carefully (consider light conditions, object distance or size, angle and minimum object distance to the focus).

- Use appropriate tools and aids.
- When working, ensure a safe stand.
- Make sure that any static charge is avoided.

The RoughCam® IPM1137-LE consists of a camera housing and a luminaire housing. Both units are connected via a 0.6 m cable. Mount the camera according to the desired field of view. Install the terminal box so that a good accessibility is provided, in order to facilitate electrical connection.

Attention!
Please pay attention to the national and local regulations for mounting heavy loads. In case of doubt, take appropriate security measures.

Drawings for drill hole patterns and further information can be viewed on our product page:

Quick link:
https://www.samcon.eu/en/products/roughcam/roughcam-ipm1137-le/

Optional mounting accessories

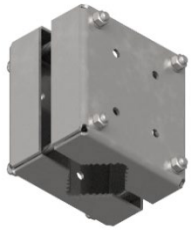
Wall bracket WMB-...		**WALL MOUNT BRACKET WMB-VA2.3** Wall bracket for devices of T10-VA2.3 series Suitable for hanging the camera on walls. Material: stainless steel 1.4404 Load bearing: 45 kg Dimensions: 445 x 140 x 185 mm
Weather protection roof WPR-…		**WEATHER PROTECTION ROOF WPR-VA2.2** Weathershield for cameras of the T10-VA2.2-Series
Pole adapter PMB-…		**WALL MOUNT BRACKET PMB-VA2.0** Pole adapter for VA wall mount Material: stainless steel 1.4404 Suitable for pole diameters between 50 and 100 mm Load-bearing capacity: 50 kg Dimensions:120 x 180 (x 130 bei Mast Ø 60 mm)

Table 4-1 Mounting accessories

5 Electrical connection

Attention!
The electrical connection of the equipment may only be carried out by qualified and skilled personnel!

Attention!
It is absolutely necessary to ground the RoughCam® series' housing via the PA connection.

Attention!
If possible, carry out initial commissioning when the outside temperature is positive to prevent condensation in the housing.

The delivered RoughCam® IPM1137-LE is equipped with an electrical connection cable of the type (A)SKD02-T. The maximum transmission range from camera to the next active network interface is 100 meters and can be individually specified by the client. The user is NOT authorised to do electrical connection procedures inside the enclosure.

5.1 Potential equalization

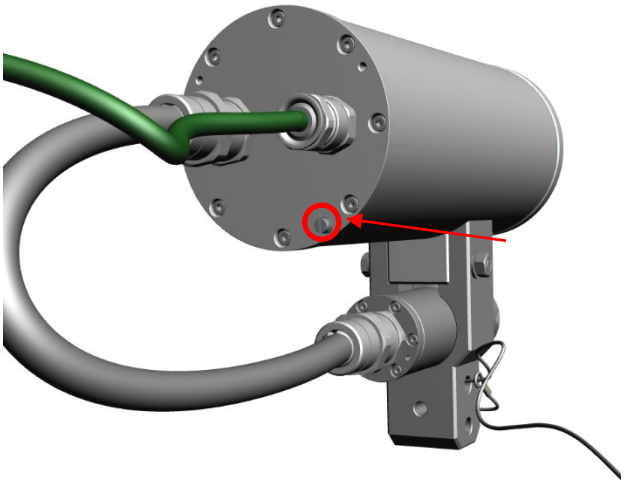


Figure 5-1 RoughCam IPM1137-LE Potential equalization

Potential equalization/grounding of the camera housing is absolutely necessary, in order to avoid static charges and thus the formation of sparks. For this purpose, a screw terminal is provided at the rear side, at the bottom (right) (see Figure 5-1). The cross-section of the potential equalization should comply with the National Ground Rules (at least 4mm^2).

Wiring table:

Potential	Colour (IEC 60757)	Cross-section	Comment
PA	GN/YE	4 mm^2 (rigid)	Terminal: Slotted screw M4x0.7 (DIN 84) with washer Ø9mm (DIN 125A), Keep 3 Nm tightening torque!

Table 5-1 Potential equalization

5.2 Connection work at the device (terminal box) and fuses

Power supply for the camera (PoE)

Voltage supply:	PoE+, IEEE 802.3at type 2 class 4
Reference voltage:	+48 V DC
Maximum power consumption:	25.5 W@PoE+
Typical power consumption camera:	19.5 W
Power consumption luminaire:	12.9 W@24 VDC (WL); 13.7 W@24VDC (IR)

The figures 5.2 and 5.3 illustrate the potential cable terminations of the RoughCam IPM1137-LE. Possible terminations are: terminal box or plug.

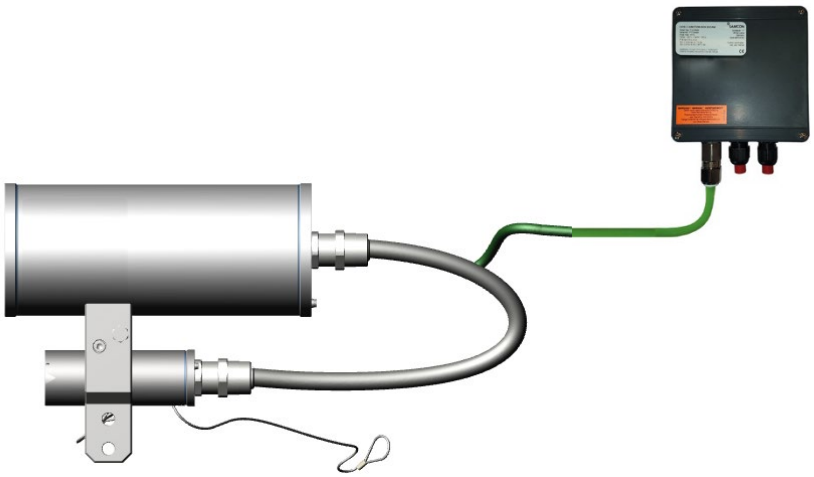


Figure 5-2 RoughCam IPM1137-LE-WL T10-VA2.2.K1.BOR-L.H-xxx.N-**T**

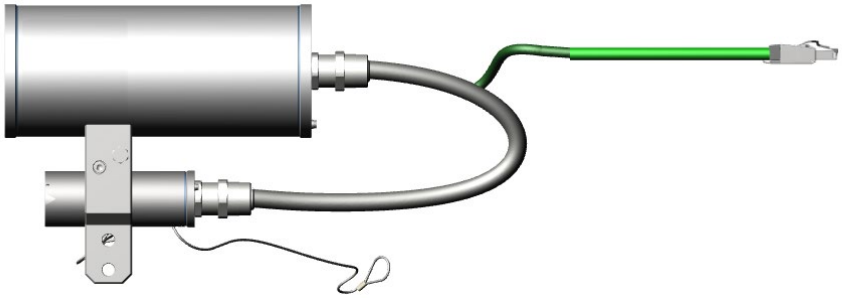


Figure 5-3 RoughCam IPM1137-LE-WL T10-VA2.2.K1.BOR-L.H-xxx.N-**P**

Video Tutorial:

Observe our video tutorial:

“SAMCON 01 Wiring the cable SKDP03-T to the junction box ExTB-3”
https://go.samcon.eu/v01

Figure 5-4 Video Tutorial ExTB-3

The pin assignment of the SKD02-T is executed in accordance with the standard EIA/TIA-568B as follows:

Camera (T568B)	**Colour SKD02-T** (IEC60757)	**Terminal ExTB-2**	**Cross-sectional surface**	**Comment**
Tx+	WH / OG	1	0.26 mm²	Solid conductor
Tx-	OG	2	0.26 mm²	Solid conductor
Rx+	WH / GN	3	0.26 mm²	Solid conductor
Rx-	GN	4	0.26 mm²	Solid conductor
(PoE +48 VDC)	WH / BU	5	0.26 mm²	Solid conductor
(PoE +48 VDC)	BU	6	0.26 mm²	Solid conductor
(PoE GND)	WH / BN	7	0.26 mm²	Solid conductor
(PoE GND)	BN	8	0.26 mm²	Solid conductor
GND/SHD	YE / GN	PE	2.5 mm²	Flex

Table 5-2. Wire assignment of terminal box ExTB-2

The pin assignment of the ASKD02-T is executed in accordance with the standard EIA/TIA-568B as follows:

Camera (T568B)	**Colour ASKD02-T** (IEC60757)	**Terminal ExTB-2/3**	**Cross-sectional surface**	**Comment**
Reinforcement	YE / GN	PE	2.5 mm²	Flex
Tx+	WH / OG	1	0.26 mm²	Solid conductor
Tx-	OG	2	0.26 mm²	Solid conductor
Rx+	WH / GN	3	0.26 mm²	Solid conductor
Rx-	GN	4	0.26 mm²	Solid conductor
(PoE +48 VDC)	WH / BU	5	0.26 mm²	Solid conductor
(PoE +48 VDC)	BU	6	0.26 mm²	Solid conductor
(PoE GND)	WH / BN	7	0.26 mm²	Solid conductor
(PoE GND)	BN	8	0.26 mm²	Solid conductor
GND/SHD	YE / GN	PE	2.5 mm²	Flex

Table 5-3 Wire assignment of terminal box ExTB-2/3 (ASKD02-T)

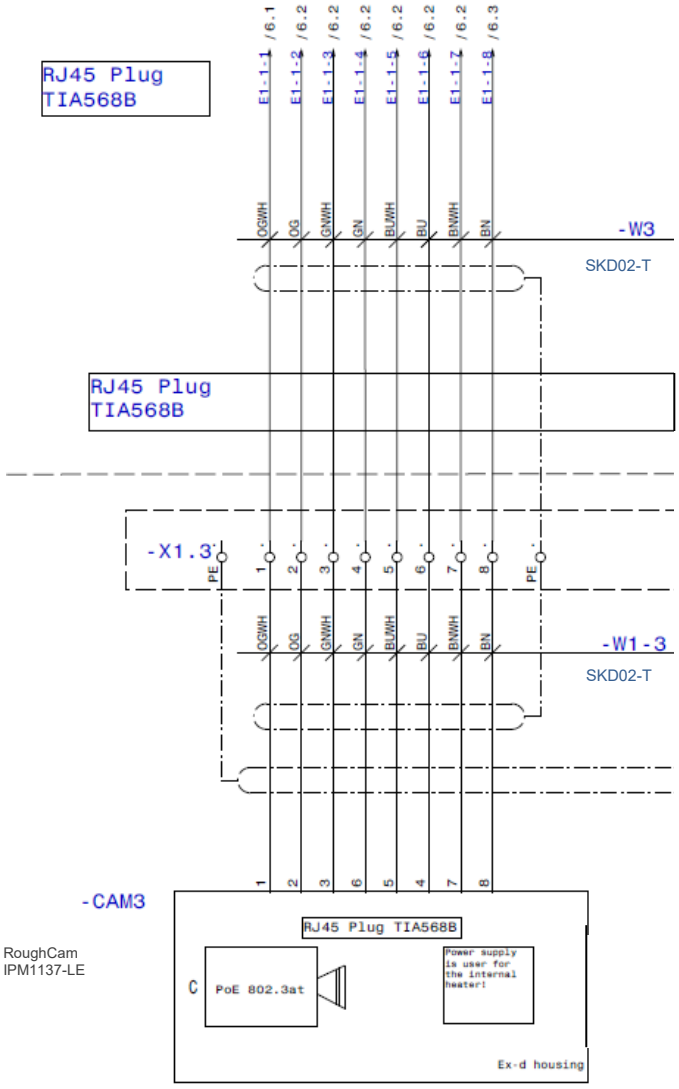


Figure 5-5 Sample circuit of terminal box ExTB-2

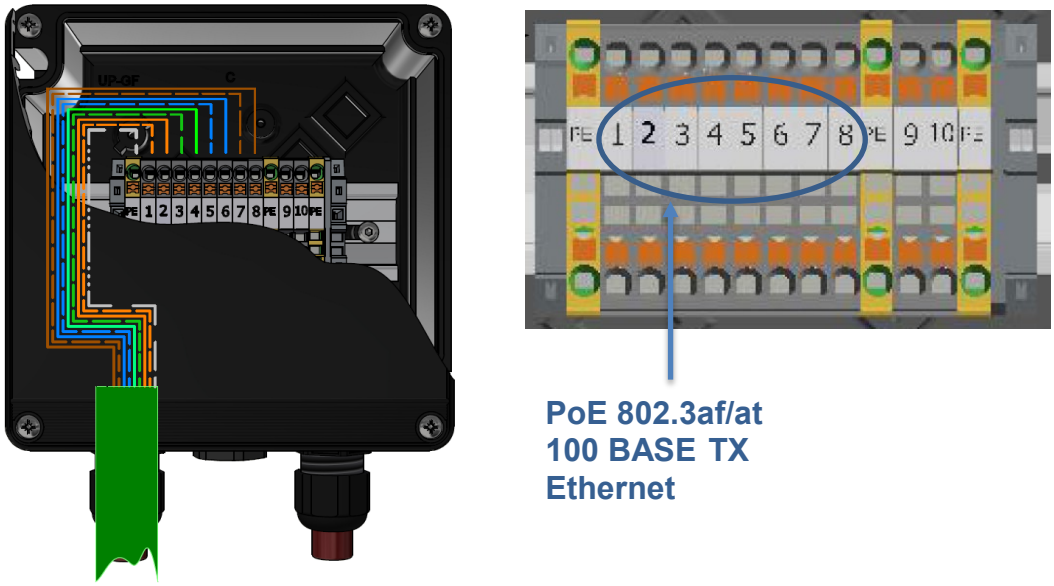


Figure 5-6 Connection to the terminal box

Attention!
Introduce the foiling up to about 15 mm close to the terminals, in order to prevent alien crosstalk. Make sure that the foiling cannot cause any short circuit of the data pairs!

Attention!
Bring the twisted pair composite up to about 10 mm close to the terminals, in order to ensure interference immunity.

Attention!
Use only terminals approved by SAMCON.

Attention!
Finally, check your network installation with a Class-D Link Test.

5.2.1 Fusing

PoE power supply requires no fuses.

The power supply fusing depends on the cable cross-section and length.

Attention!
Please pay attention to the national and international regulations regarding selectivity and line protection.

5.2.2 Plug assignments (RJ45)

The data transfer of the RoughCam IPM1137-LE uses a 100 Mbit/s Ethernet connection (100BASE-TX). If the cable termination uses a plug, the latter should be plugged into the RJ45 PoE slot of the network device (PSE). Prior to connecting it to the camera, the network device (PSE) can already be supplied with power, hence there is no „power ON“ priority which has to be observed.

Attention!
Use appropriate RJ45 plugs! Check the cable shielding, cross-section and the outside diameter!

Attention!
It is imperative to ensure a correct routing of the individual wires according to the EIA/TIA-568B"

Attention!
Finally, check your network installation with a Class-D Link Test.

Detailed instructions on how to connect a RJ45 plug are available in our video tutorial: “SAMCON 03 Mounting and installing the RJ45 jack to SAMCON cables” https://go.samcon.eu/v03

Figure 5-7 Plug assignment, RJ45

5.2.3 Tests prior to switching on voltage

Attention!
Prior to starting the device, perform all tests as indicated by the national regulations. Furthermore, check the correct function and installation of the device in accordance with this User Manual and other applicable regulations.

Attention!
Incorrect installation or operation of the camera may lead to a loss of warranty!

Attention!
Do not switch on the camera at temperatures below 0°C!

6 Working inside the housings

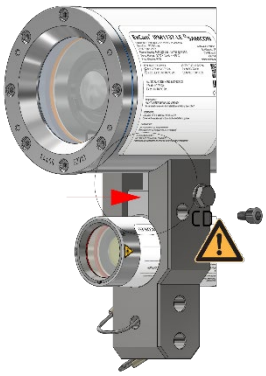
The customer may open the camera housing only if it is absolutely necessary. Only exchanging the SD memory card or a hardware reset are reasons for this.
The customer may open the luminaire housing only to exchange the LED-block.

6.1 Preparation for work:

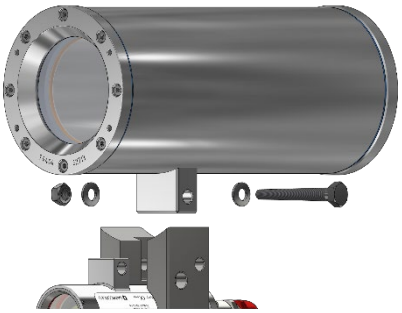
Attention!
Prepare your work carefully and in accordance with the relevant regulations.

6.2 Dismantling the liteServer and the cam adapter

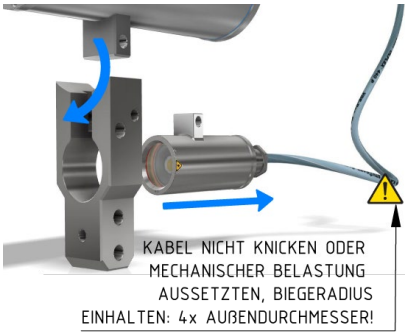
In order to open one of the two housings, the camera and light must first be separated from each other. To do this, proceed as follows:



Loosen the M6 cylinder head screw and pull the liteServer forward slightly.



Remove M8 hexagon screw (wrench size 13). Attention: Do not lose the washer.



Remove cam adapter; Pull the liteServer backwards out of the adapter opening.

Figure 6-1 Disassembly of liteServer and cam adapter

6.3 Opening the housings

If the RoughCam IPM1137-LE is equipped with a weather protection roof this has to be removed prior to starting your work! To do so, loosen the 4x12mm button head screws M4*0.7 at the front and rear sides of the bracket holders (Figure 6-1).

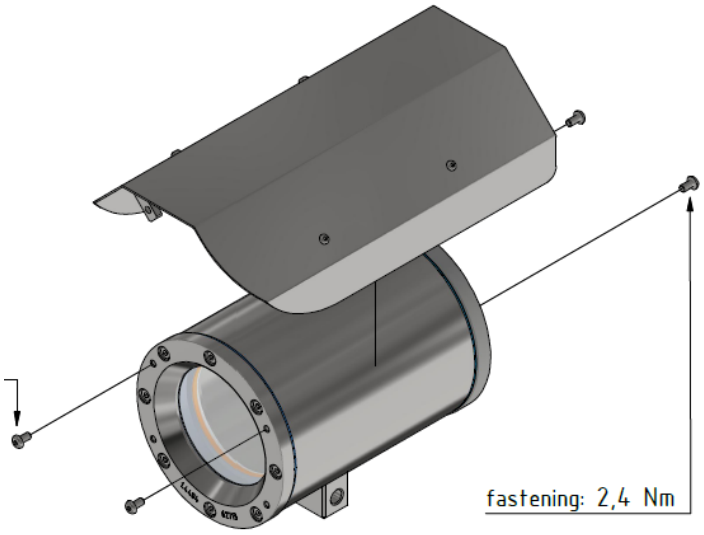


Figure 6-2 Removing the weather protection roof

To open the stainless-steel housing (T11 VA2.2.x.x) of RoughCam IPM1137-LE, loosen the eight cylinder-head hexagon screws (DIN 912/ ISO 4762) together with their spring rings (DIN 127A) on the rear side of the cable and power supply flange (see Figure 6-3). Caution: do not touch the screw threads with your skin or clothes! On the threads, there is LOCTITE® 243™ (chemical basis is dimethacrylate ester) applied to prevent the bolted connection from unintentional loosening because of impacts and vibrations and to seal them tightly. It is not permitted for the customer to open the front-side sight glass flange! There is no need of such an action.

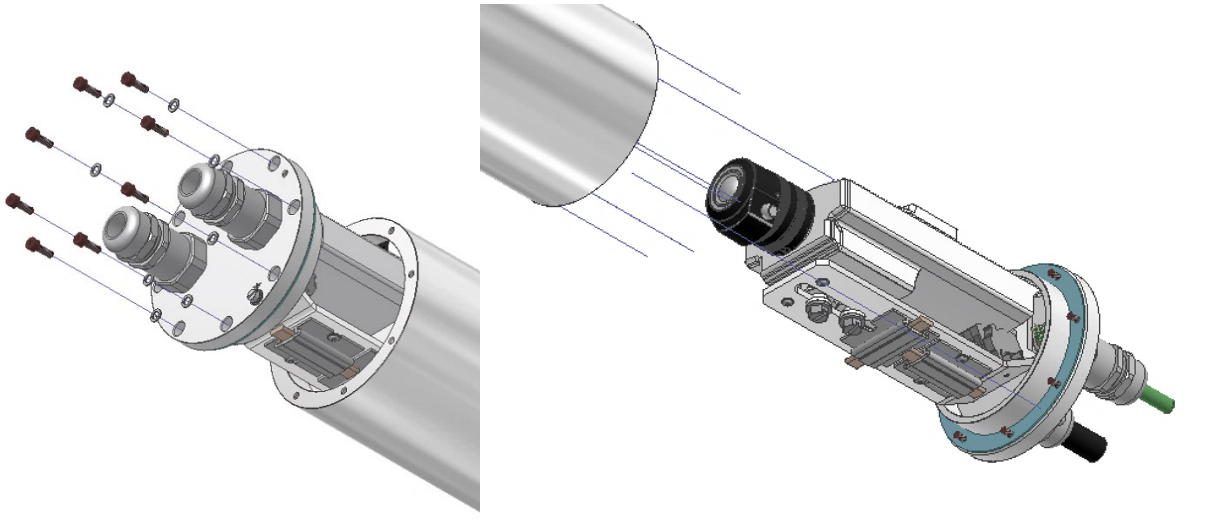


Figure 6-3 Opening the RoughCam IPM1137-LE (similar illustration)

Carefully pull out the cable and supply flange to the rear, as straight as possible.

Attention: The mounting adapter with the camera module and optics, as well as the temperature control, and (if applicable) auxiliary relays and terminal block are fixed on the cable and supply flange. Dealing with these components, too, you have to work very carefully and precisely in order to avoid canting and damage to the in-built components! Caution: do not touch the cylindrical fit surface with your skin or clothes! On the surface, there is oil lubricating paste to protect the surface against fretting corrosion and mechanical stresses.

When you open the housing, pay attention that you do not damage the GYLON® flat seal (blue, RAL5012) and do not make it dirty! The flat gasket is loosely attached to the cable and power supply flange. It is fixed only by the bolted connections!

6.3.1 Opening the luminaire housing

For opening the liteServer®'s stainless steel housing T21 VA0.1.K1.BOR loosen the six M3 cylinder-head hexagon screws (DIN 912/ ISO 4762) together with their spring rings (DIN 127A) on the rear side of the cable and power supply flange. Caution: do not touch the screw threads with your skin or clothes! On the threads, there is LOCTITE® 243™ (chemical basis is dimethacrylate ester) applied to prevent the bolted connection from unintentional loosening because of impacts and vibrations.
Carefully pull out the cable and supply flange to the rear, as straight as possible. Because of negative pressure, it may be difficult to remove the flange.

Caution: do not touch the cylindrical fit surface with your skin or clothes! On the surface, there is oil lubricating paste to protect the surface against fretting corrosion and mechanical stresses.
When you open the housing, pay attention that you do not damage the GYLON® flat seal (blue, RAL5012) and do not make it dirty! The flat gasket is loosely attached to the cable and power supply flange. It is fixed only by the bolted connections!
Pull out the luminaire carefully and pay attention not to clamp the cables.

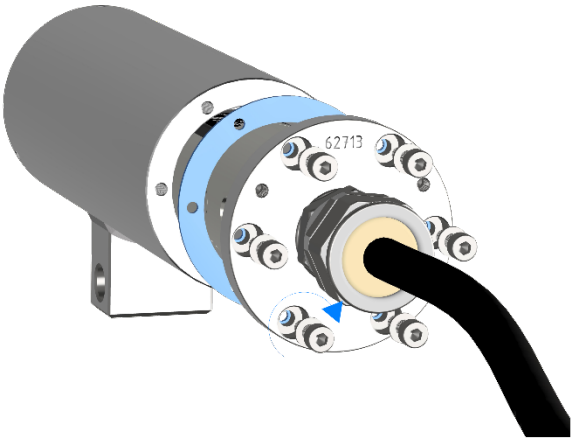


Figure 6-4 Opening the liteServer® Rough.micro

6.4 Removing / inserting a SD memory card

Note:
The RoughCam IPM1137-LE has a slot for a micro SDHC memory card (card not included). Saved video files can be played and deleted via the web interface. They are also available in a download list. Moreover, the videos available in the memory card can also be accessed via FTP server in the network.
If the memory card has to be replaced by the user, it should be, as far as possible, empty and pre-formatted with an ext4 or vFAT file system.

When touching electrical components, observe potential equalization (grounding of the body): carry electrostatic-discharge clothes, a PE wristband etc.!

6.5 Hardware Reset

To set all the parameters of the RoughCam IPM1137-LE (including the IP address) to default values, you should run a hardware reset.
The parameters can be reset via the web interface or manually. If the camera placed in the network can no longer be reached or its state is uncontrollable, the reset should be performed manually. To do so, proceed as follows:

1. Disconnect the camera installation module (Axis M1137 MKII) from the power supply.
2. Press and hold the control button (see the illustration below) and, at the same time, connect the system to the voltage supply (PoE).
3. Hold the control button pressed for about 30 seconds.
4. Release the control button. After about a minute, the AXIS M1137 MKII will return to factory defaults. If there is a DHCP server in the network, the IP address will be the following: 192.168.0.90 (subnet masking 255.255.255.0).

5. IP address and password can be redefined. If the hardware reset is not satisfactory or the network camera shows serious conflicts or does not work as usual (errors in the browser visualisation, frozen images, control commands no longer processed, slowing down of the system, etc.), it may be necessary to re-install the current firmware, or to install an update (see Chapter 7).

6.6 Exchanging the illuminant / LED-block

The illuminant should only be exchanged if it is defect. It must be replaced by an original spare part of the same model.

Perhaps our video will help you: "Replacing the illuminant of liteServer Ex.micro"
http://go.samcon.eu/change-led-micro

Figure 6.5 – Replacing the illuminant

To replace the LED-block the 2 grub screws on the side must be carefully loosened. The LED block is plugged in and can easily be removed after loosening the grub screws. Seperate it at the plug contacts.

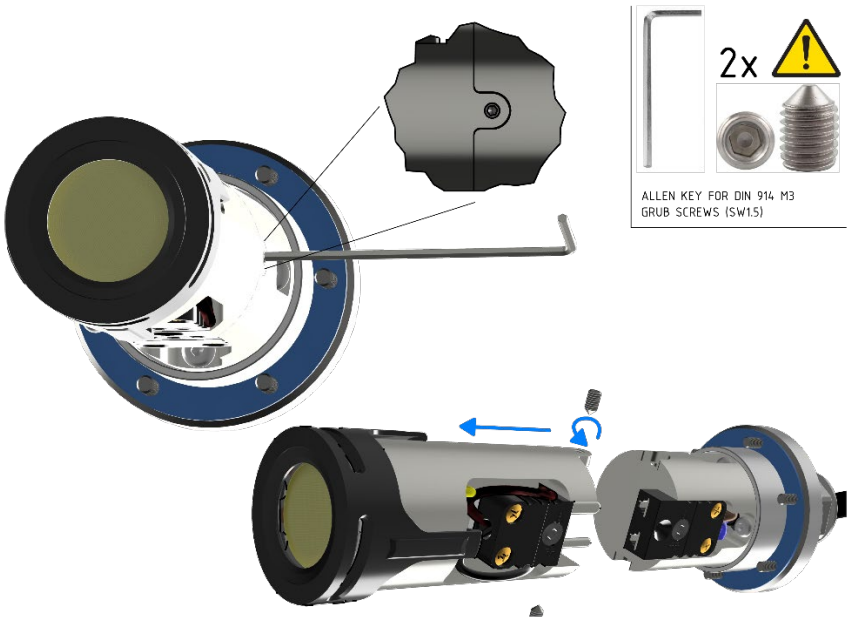


Figure 6.6 – Removal of the LED block

Insert the plug of the new LED replacement block into the connection socket oft he housing flange. Make sure that the plug contacts and contact surface of the aluminium heat sink are clean and undamaged. After successfully replacing the LED block, the grub screws must be tightened again. Only use new, original grub screws. Tightening torque is 1.0 Nm! Loctite 243 may be used for screw locking.

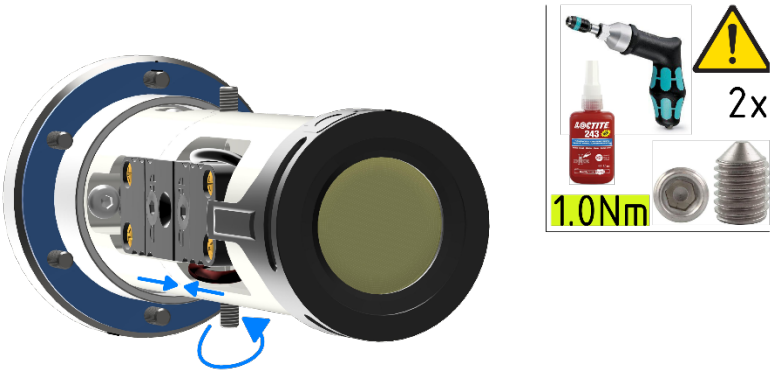


Figure 6.7 – Installation of the new LED block

When touching electrical components, potential equalization (grounding of the body) has to be observed (ESD clothing, PE wristband etc.)!

When closing the housing, the cable routing has to be observed! In order to avoid collisions and mechanical strain within the closed housing as well as to observe the necessary bending radius, the cable has to be looped.

6.7 Closing of the housing

For closing the housing, proceed in reverse order as when opening. Use exclusively original screws included in the supply.
Before closing, it is also absolutely imperative to check the gap (circular cylindrical fit).

Attention!
Do not lock-in any foreign objects in the housing.

Dismantled screw locks (spring washers DIN 127A) must be used again.
The GYLON® gasket must be used in undamaged condition, according to the flange hole pattern, and placed between the flange and the hull. The lateral position of the flat surface / contact surface is arbitrary. If, when closing the housing, you see that the surface of the fitting gap is dirty or insufficiently lubricated, clean it with a clean cloth and de-grease it with a suitable cleaning agent. Then re-grease it with lubricant suitable for this specific application (e.g., Molykote® P-40 gel for standard applications or special grease OKS 403 in the event of heavy seawater influence).

6.7.1 Closing of the camera housing

The screwed connections of flange and body components must always be tightened *crosswise* to a torque of **3 Nm**! Do not tighten the screw too strongly! It can cause rupture of the cylinder head or over-stretching the threads, and thus to impairment of the pressure resistance or ignition protection class.

Cylinder-head bolts for connection of the camera body with the flange component must always be tightened at a 3 Nm torque - crosswise and evenly! Use Loctite.

6.7.2 Closing of the luminaire housing

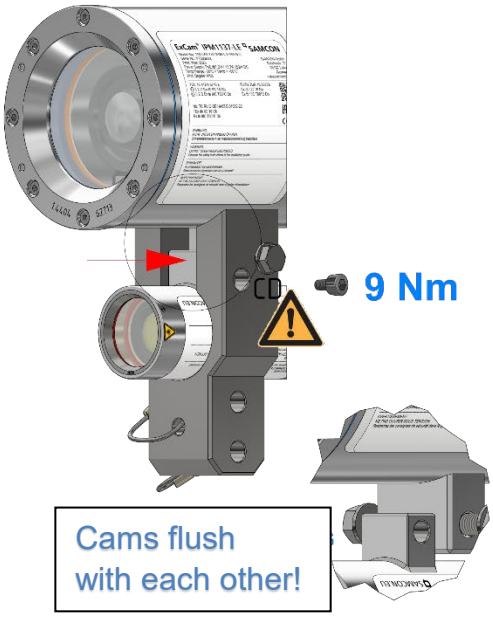
The screwed connections of flange and body components must always be tightened *crosswise* to a torque of **1.2 Nm**! Do not tighten the screw too strongly! It can cause rupture of the cylinder head or over-stretching the threads, and thus to impairment of the pressure resistance or ignition protection class.

Cylinder-head bolts for connection of the camera body with the flange component must always be tightened at a 1.2 Nm torque - crosswise and evenly! Use Loctite.

6.8 Mounting the adapter and the liteServer

Push the Rough.micro through the cam adapter from behind with the optics first. Then push the cam adapter into the VA2 cam. Do not screw the liteServer tight yet!
First tighten the M8 screw with 20Nm.

❶



Push the VA0 cam of the liteServer flush against the VA2 cam of the RoughCam. Then tighten the M6 screw with 9Nm!

❷

Figure 6-8 Remounting the liteServer and the adapter

Use original washer. It is recommended to secure the screw connections with Loctite 243.

7 Network access and visualization

The most important procedures of the first starting up the camera are described below. The configuration menu of the web surface allows an intuitive navigation and offers several configuration possibilities. For detailed documentation and information how to use the web Interface, please see the User Manual for Axis or visit the following website:
https://help.axis.com/axis-m1137-mk-ii
M11 Mk II Series - User manual (axis.com)

The delivered RoughCam IPM1137-LE is set to the applicable net frequency (50Hz or 60Hz). If the camera is used at a location with a differing net frequency, the image might start to flicker, particularly in surroundings with fluorescent tubes. In such a case, the applicable settings have to be carried out inside the menu “System Options>Advanced>Plain Config”.

User: root
Password: root

7.1 Browser Support

A list of the currently supported web browsers, operating systems, required add-ons, etc. can be viewed at:

https://help.axis.com/access-your-device
https://www.axis.com/support

7.2 Assigning the IP address

The RoughCam IPM1137-LE is intended for use in an Ethernet network and requires an IP address to access and control it. In the most today’s networks, a DHCP server is integrated. This server automatically assigns an IP address.

If there is no DHCP server available in the network, the IP default address of RoughCam IPM1137-LE is “**192.168.0.90” (subnet masking 255.255.255.0)**.
With the “AXIS IP Utility”, it is possible to determine the IP address under Windows; the included USB stick contains this application.

https://www.axis.com/support/tools/axis-ip-utility

If it is not possible to assign the IP address, it might be necessary to change the firewall settings!

The “AXIS IP Utility“ tool automatically recognizes all RoughCam devices and visualises them in the device list. It can also be used to manually assign a static IP address. For this purpose, the RoughCam IPM1137-LE network camera has to be installed in the same physical network segment (physical subnet) as the computer on which the AXIS IP Utility is running. The network signature of RoughCam IPM1137-LE is "AXIS M1137 MkII" (see Figure 7-1). MAC address and serial number for clear device identification are also detected and displayed.

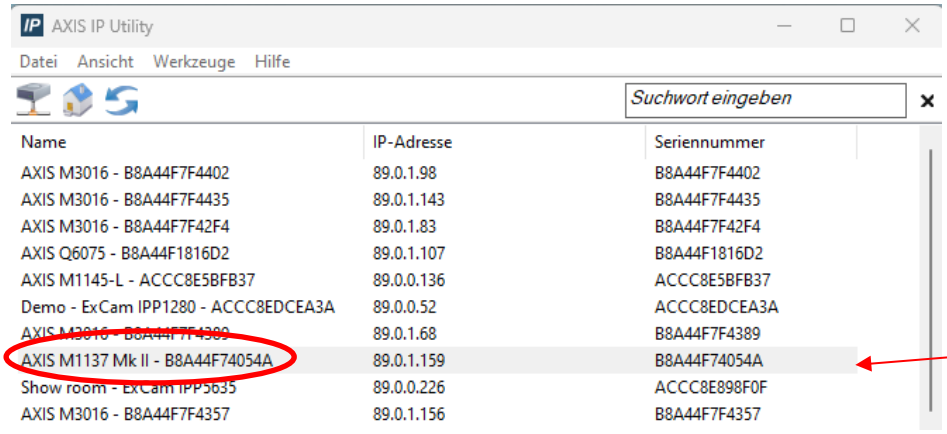


Figure 7-1 Axis IP Utility

7.3 Password/ Identification

The following user name is set at the factory: **root**
The following password is set at the factory: **root**

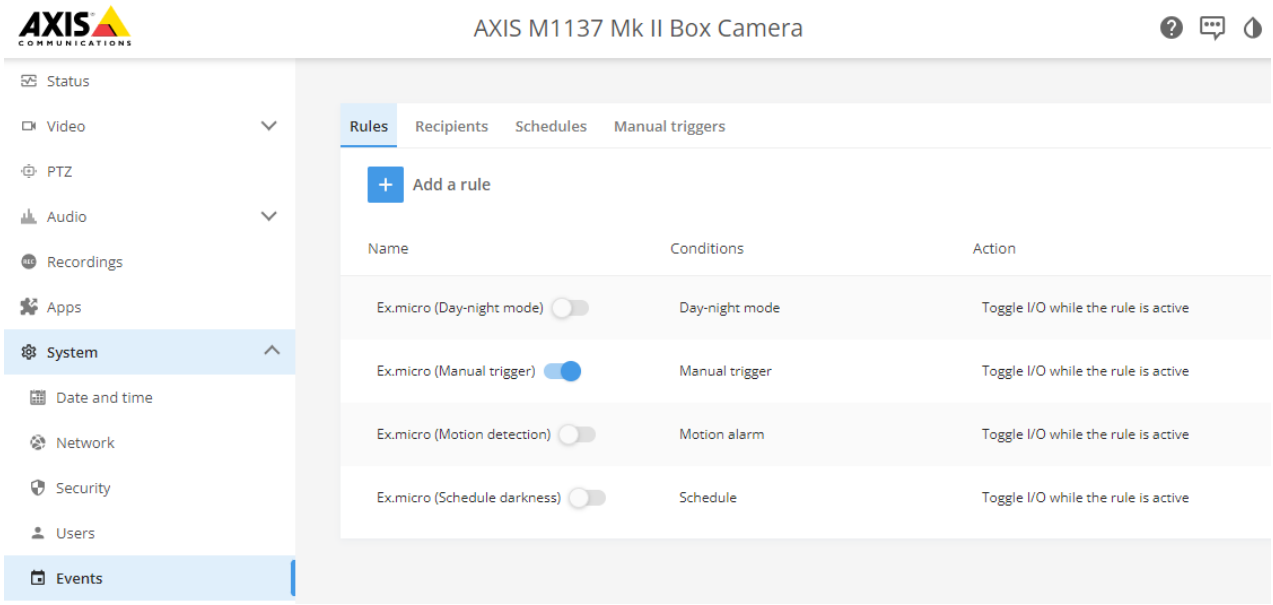
7.4 Manual or automatic control of the light via the camera

The lamp can be switched on and off manually using the I/O ports button.
To do this, configure the Rough.micro switch to “Active/inactive” using the “Edit” button (all figures in 7.4 similar).

Alternatively, the lamp can be switched on using the manual trigger if you configure an event rule for this.

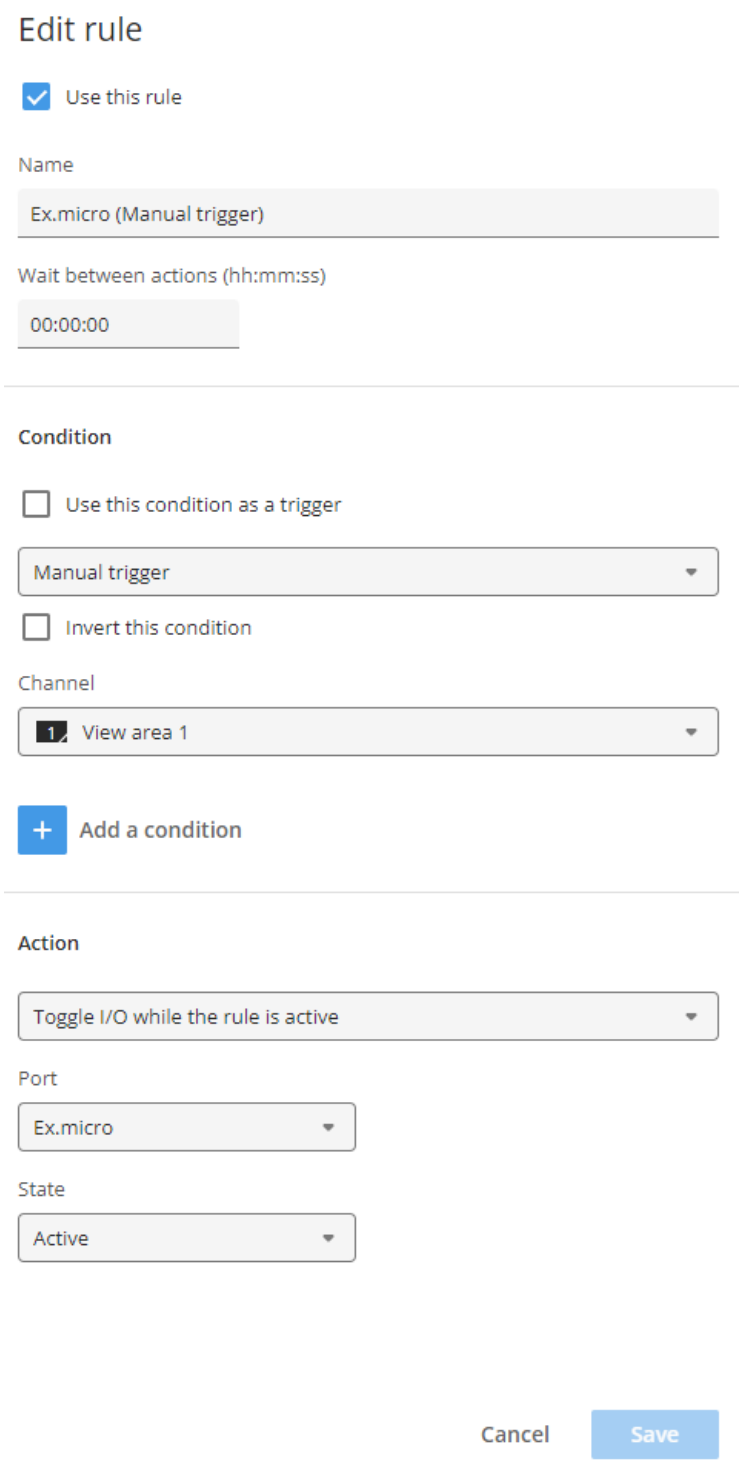
In addition, the following rules can be configured for automatic control of the Rough.micro:

- Motion detection
- Day-night mode
- according to a schedule (darkness)



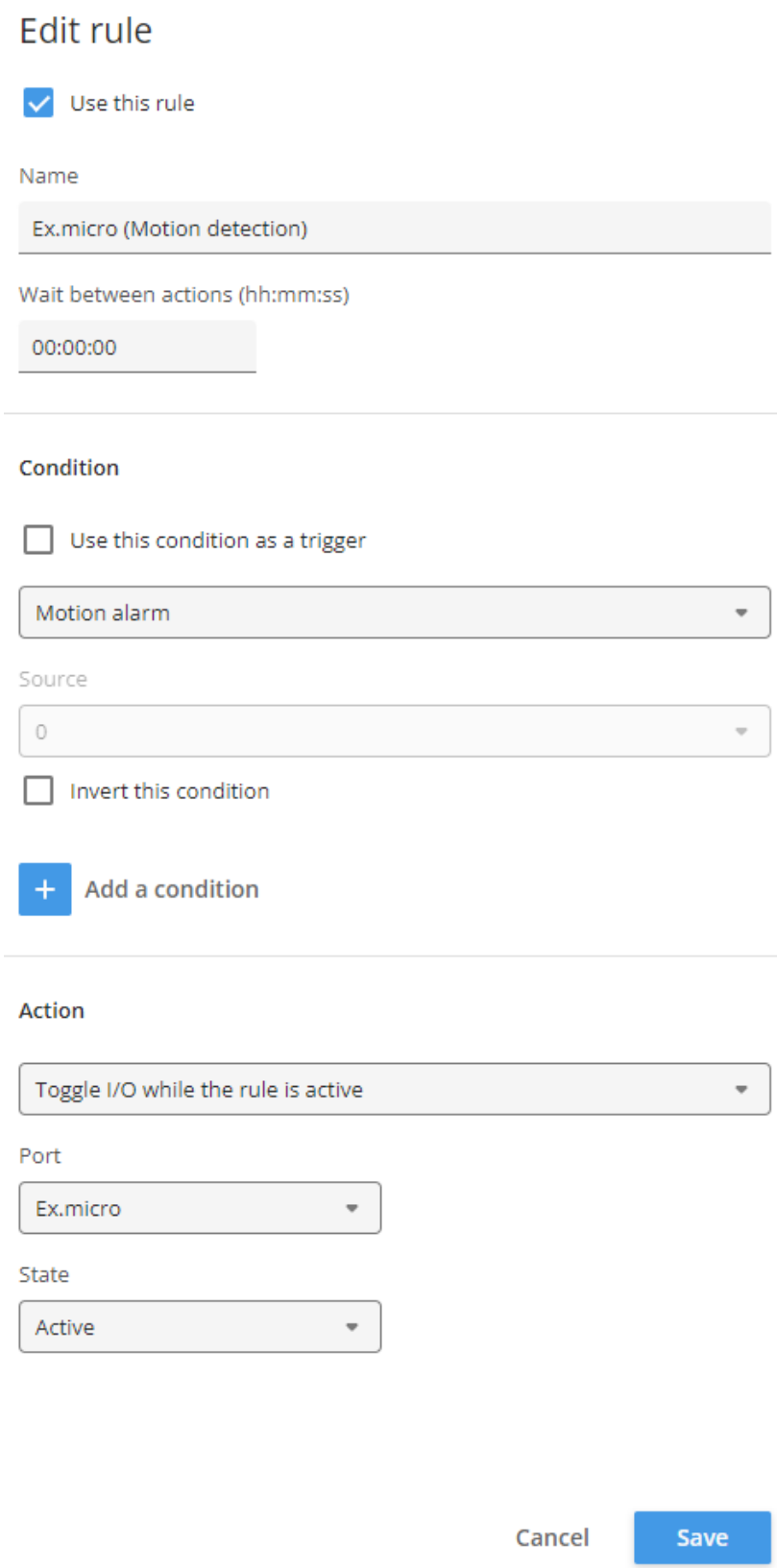
For more information about events and setting up rules for events, see:
AXIS M1137 Mk II User manual - Set up rules for events
AXIS M1137 Mk II User manual - Events

7.4.1 Event rule „Manual trigger“

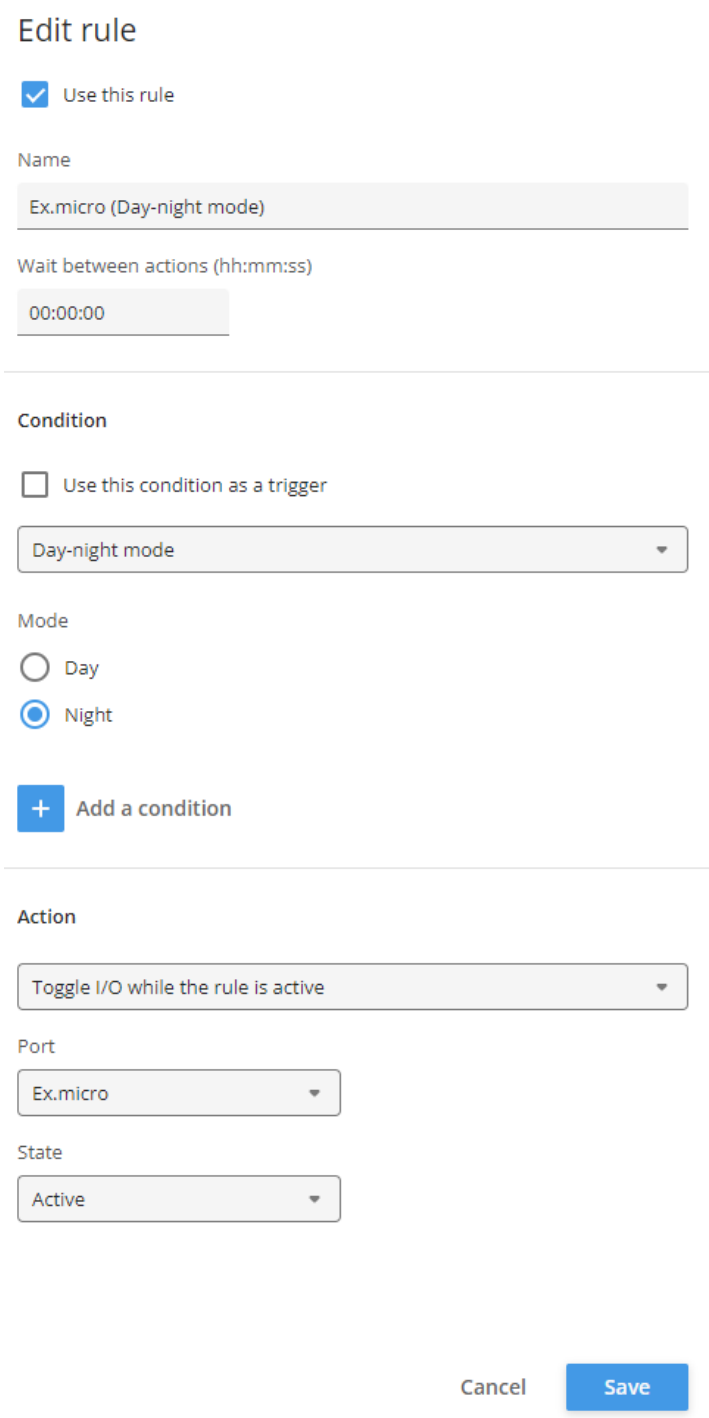


7.4.2 Event rule „Motion detection“

To use the Motion alarm condition, the AXIS Video Motion Detection app must be installed and started.



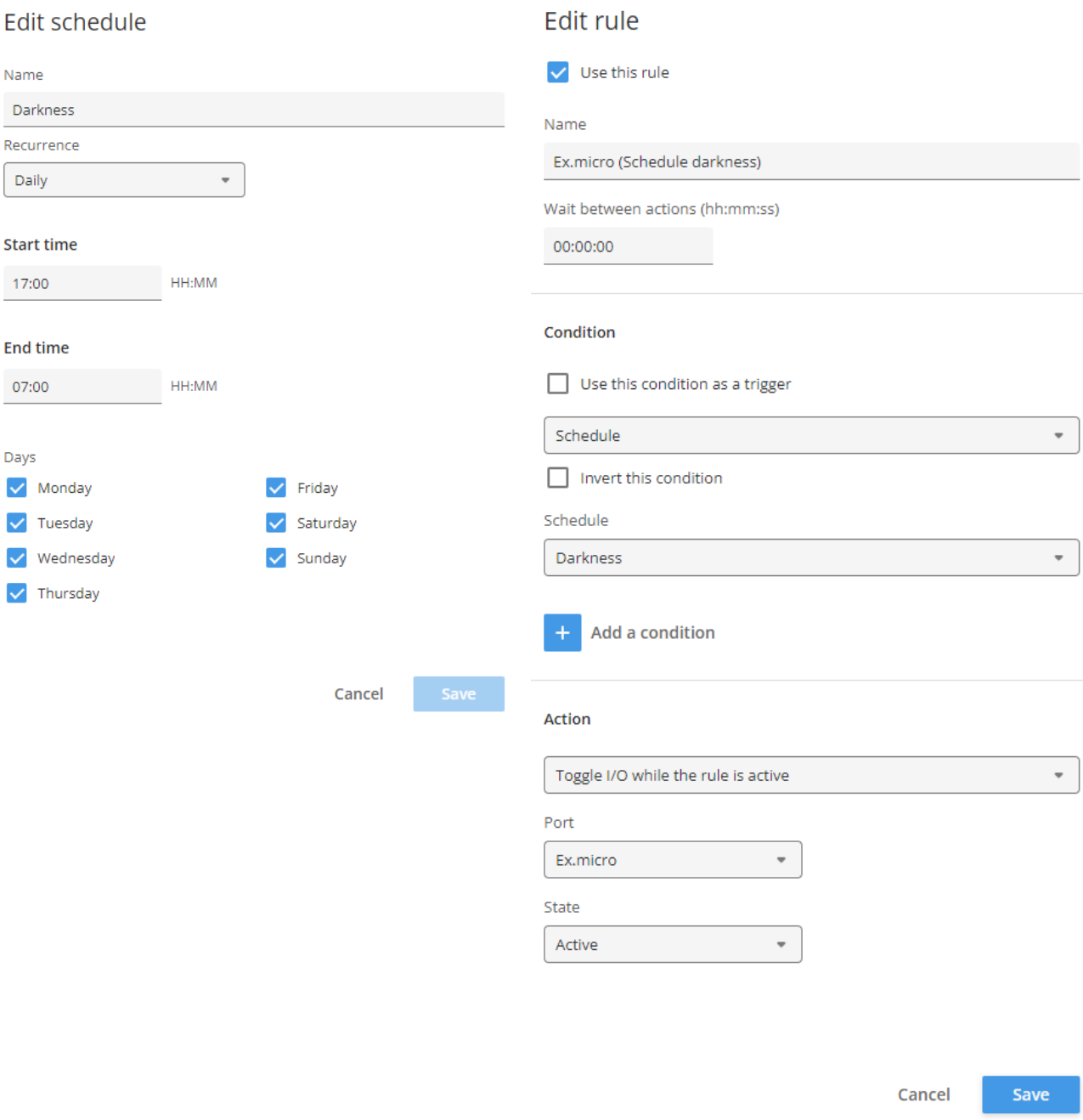
7.4.3 Event rule „Day-night mode“



The setting sensitivity of the day-night mode can be configured under Video > Image > Day-night mode menu by adjusting the bright/dark threshold.
If no suitable setting can be found here and the camera switches back and forth between day and night mode when the light is switched on, we recommend using a predefined schedule as an alternative.

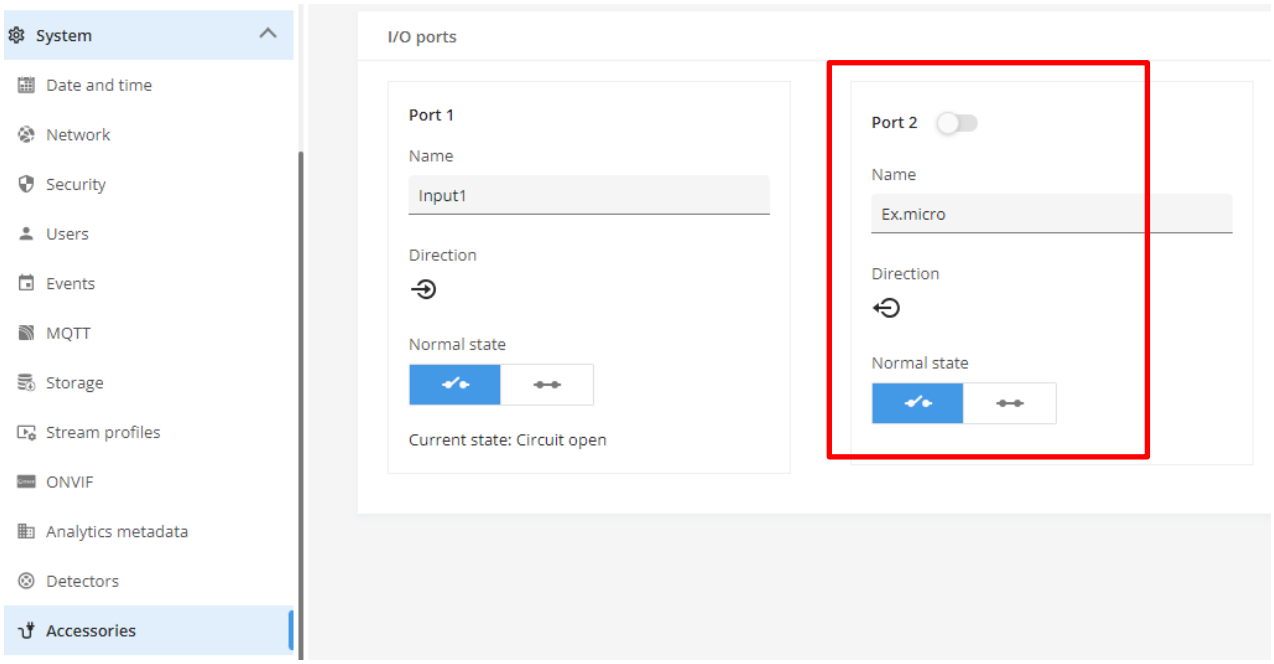
7.4.4 Event rule „Schedule darkness“

In order to use the schedule, it must be configured under the System > Events > Schedules menu.



7.4.5 E/A-Port Rough.micro

The Rough.micro lamp is connected to the camera at port 2 and is preconfigured accordingly under the System > Accessories menu.



8 Maintenance / Modification

The required maintenance intervals are specific to the individual devices. The operating company has to determine these intervals depending on the application parameters. If maintenance measures are necessary they have to be initiated and/or executed.

Repairs may only be carried out with original parts of SAMCON Prozessleittechnik GmbH. Damaged pressure-resistant housings have to be replaced completely. In case of doubt, send the part in question back to SAMCON Prozessleittechnik GmbH.
Reparations must only be carried out by an authorised electrical technician authorised by SAMCON Prozessleittechnik GmbH. Rebuilding of or alterations to the devices are not permitted.

9 Disposal / Recycling

When disposing of the device, nationally applicable regulations must be observed.
This Document is subject to alterations and additions.

10 Drawings, 3D models and further documentation

All drawings, 3D models and other information are available in the download area of the product page on our website:

https://www.samcon.eu/en/products/roughcam/roughcam-ipm1137-le/

Downloads:

- Datasheet
- 3D-Model (pdf)
- 3D-Model (stp)
- Usermanual
- Drawing
- CAD-files (DXF)
- Illumination-Tests
- Dec. of Conformity

Pictures:

RoughCam® IPM1137-LE

The combination solution: Robust high-performance camera and light

The RoughCam IPM1137-LE combines the two devices camera and light in one. It is the ideal solution for low-light areas. A high image quality is of crucial importance in order to clearly capture a process and to be able to clearly identify the persons or objects involved. In order to optimize the performance of the camera in difficult lighting conditions (up to absolute darkness), the lighting and camera of the RoughCam IPM1137-LE are optimally coordinated and the light can be easily switched via the camera.

Features.

- 100% Reflection-Free Camera - Light Combination
- Single-Cable-Solution (PoE)
- Versions with Visible or Infrared Light
- Protection Level of IP66/68 (IEC 60529)
- High Resolution: 2592x1944 (5 MP bei 25/30 fps)
- Powerful Remote Zoom Lens (i-CS)
- Light Control via Camera (Web Server)
- Lightfinder and WDR Technologies
- Object Analytics thanks to Machine Learning Processing Unit (MLPU)
- Extensive Accessories

The camera: 5 MP resolution meets a powerful remote zoom variofocus lens and MLPU

The RoughCam IPM1137 is a cost effective megapixel network camera, particularly suitable for use in demanding areas. Besides 5 MP resolution (2592 x 1944) it offers a powerful remote zoom variofocus lens and a Machine Learning Processing Unit (MLPU) .

The world's smallest LED spotlight for demanding areas: liteServer Rough.micro

The liteServer Rough.micro is the perfect addition to our cameras in dimly lit areas. It has a built-in, energy-efficient, long-life LED. This is optionally white or infrared. IR lighting (wavelength 855nm) enables unobtrusive surveillance even in total darkness.

The RoughCam Series

During the development of the RoughCam IPM1137-LE, great importance was attached to safety, mechanical precision and high-quality stainless steel. In addition, a modular structure was at the forefront of the development. With regard to the technical characteristics, we have gone to the limits of what is feasible: In areas such as media resistance and ambient temperature, we are setting standards with the RoughCam series.

Outstanding images as a basis for reliable analysis

A high image quality is of crucial importance in order to clearly capture a process and to be able to clearly identify the persons or objects involved. The highest image quality is the prerequisite for reliable analysis. Thanks to its resolution of 1944 p at 30 frames per second and thanks to Lightfinder and WDR, the RoughCam IPM1137-LE provides a reliable basis for powerful analysis functions.

Remote zoom & vario focus

The RoughCam IPM1137-LE offers a powerful remote zoom variofocus lens. Thanks to this you can control zoom remote.

Lightfinder and Forensic WDR

Lightfinder and WDR are responsible for good image quality despite weak light. Lightfinder ensures realistic and saturated colors even of moving objects even in low light. Forensic WDR compensates for differences in brightness in a scene, i.e. sharp images despite a high-contrast scene.

Artificial intelligence and camera? Clear!

If you wish additional technical information, please contact us at: support@samcon.eu

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