

# ExCam<sup>®</sup> IPM2036

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## User Manual



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## History of revisions

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# 1 Introduction

The ExCam IPM2036 is a powerful mega-pixel day-/night IP camera (4MP resolution) with advanced analysis (object classification). It is certified by ATEX, IECEx and EAC-Ex. The camera has a high-definition television resolution (2668x1512) and is equipped with integrated IR-illumination. Besides this it has a Deep Learning Processor Unit for artificial intelligence with deep learning.

The ExCam series is certified both in accordance with the European (ATEX) and international directive (IECEx). The explosion-protected housing is approved for ATEX group II for zones 1, 2, 21 and 22 including the explosion groups IIC / IIIC. To see other approvals, please visit our website at [www.samcon.eu/en](http://www.samcon.eu/en)




When designing the ExCam IPM2036, we attached a very high importance to safety, mechanical precision and high quality of stainless steel.

## 2 Technical data

### 2.1 Explosion protection

Identification marks

acc. to Directive 2014/34/EU:

 II 2G (zone 1 and 2)  
 II 2D (zone 21 and 22)  
 I M2 <sup>1</sup>

Explosion protection (gas):

Ex db IIC T5 Gb

Explosion protection (dust):

Ex tb IIIC T95°C Db

Explosion protection (mining):

Ex db I Mb

Protection class:

IP 66/68 (IEC /EN 60529)

Transport/storage temperature:

-40°C...+65°C (non-condensing)

Ambient temperature (EX):

-60°C...+60°C (Type...LL.H...)

-50°C...+120°C (Type...LL.HH) <sup>2</sup>

Named testing laboratory:

TÜV Rheinland (number 0035)

EU type approval certificate:

TÜV 18 ATEX 8218X (2018)

IECEx Certificate of Conformity:

TUR 18.0023X (2018)

EAC-Ex TUR Report:

TC RU C-DE.HA65.B.01652/22

Other certificates see:

<https://www.samcon.eu/en/products/network/excam-ipm2036/>

<sup>1</sup> Certification for mining only for models with armoured cable and plug termination.

<sup>2</sup> This model requires the SAMCON cool.Jacket. The temperature class must be reduced to T3.



**Attention!**  
**The instructions stated on the type plates have to be observed!**

## 2.2 Illustration of the model key

Ex product-name	Model variants					Options
1)	2) Type	3) Housing-combination	4) Temp.-range	5) Cable length [m]	6) Cable termin.	7) Lens
ExCam IPM2036	T08-	VA2.0.K1.BOR-	LL.H-	005.N-	P-	085/056/041
	T08-	VA2.0.K1.BOR-	LL.H-	005.N-	T-	085/056/041
	T08-	VA2.0.K1.BOR-	LL.H-	005.A-	P-	085/056/041
	T08-	VA2.0.K1.BOR-	LL.H-	005.A-	T-	085/056/041
	T08-	VA2.0.K1.BOR-	LL.HH-	010.N-	T-	085/056/041

Table 2-1 Model key

### Explanations:

- 1) **ExCam IPM2036** = Functional camera description of the ExCam Series (technical data/ specification of the individual camera module)
- 2) **T08** = SAMCON Production- Type 08
- 3) **VA2.0.K1.BOR** = T07 ex d housing (stainless steel 1.4404) with large diameter ( $\varnothing_{VA2}=113\text{mm}$ )  
**VA2.0.K1.BOR** = T07 VA2.0 housing with short body length ( $L_R = 161\text{mm}$ )  
**VA2.0.K1.BOR** = K1 cable gland flange  
**VA2.0.K1.BOR** = Borosilicate sight glass DIN7080 (standard, for video cameras within visible spectral range:  $\lambda = 350\dots2000$  [nm] and photografical infrared range (NIR), not suitable for thermographic applications (MIR/ FIR))
- 4) **LL.H**= High temperature battery installed ( $T_{amb} < +60^\circ\text{C}$ )  
**LL.H**= PTC heater integrated ( $T_{amb} > -60^\circ\text{C}$ )  
**LL.HH**= Active cooling with cool.Jacket for extreme high temperatures ( $T_{amb} < +120^\circ\text{C}$ )
- 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-568B
- T** = Terminal Box termination (optional)  
 4 x PoE Mode A connection (camera PoE)  
 (see chapter electrical connection)

## 7) Lens options

Model	Lens	Iris	Horizontal AoV@16/9
T08-VA2.0.K1.BOR-X.X-XXX.X-X-085 (wide (standard))	Megapixel lens 3.6mm	F1.8 IR	85°
T08-VA2.0.K1.BOR-X.X-XXX.X-X-056 (normal)	Megapixel lens 6.0mm	F1.9 IR	56°
T08-VA2.0.K1.BOR-X.X-XXX.X-X-041 (tele)	Megapixel lens 8.0mm	F1.8 IR	41°

## 2.3 Electrical parameters of the camera

### Power supply of the camera via Ethernet (PoE):

Voltage supply:	PoE, IEEE 802.3af/802.3at type 1 class 3
Reference voltage:	+48 V DC (44...54 V DC)
Maximum power consumption:	12.95 W
Typical power consumption:	5.0 W

## 2.4 Connection cable Ex-d - Ex-e

Description:	Data transfer and power supply of the camera module (compliant with DIN EN 60079-14)
Jacket colour:	Green (GN), similar to RAL3001

### 2.4.1 Connection cable for models without cooling (SKD02-T/ASKD02-T)

#### System cable SKD02-T:

Outside diameter:	8.9 ± 0.3 mm
Bending radius:	8 x D <sub>a</sub> when installed and 4 x D <sub>a</sub> 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](https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/SKD02-T_Datasheet.pdf)

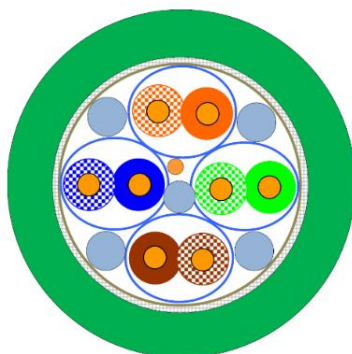


Figure 2-1 Sectional view of SKD02-T

**System cable ASKD02-T:**

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

**Quicklink:**

[https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/ASKD02-T\\_Datasheet.pdf](https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/ASKD02-T_Datasheet.pdf)

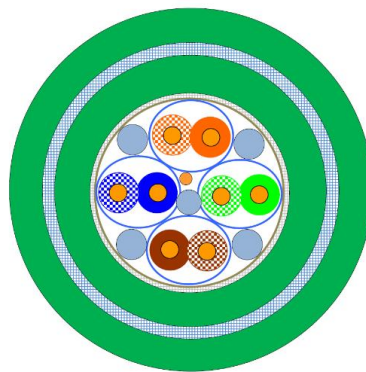


Figure 2-2 Sectional view of ASKD02-T

**2.4.2 Connection cable for model with cool.Jacket (SKD05-HT)**

Description:	Data transfer and power supply of the camera module (compliant with DIN EN 60079-14)
Jacket colour:	Grey (GY)

**Systemcable SKD05-HT:**

Outside diameter:	6.60 ± 0.2 mm
Bending radius:	8 x D <sub>a</sub> when installed and 4 x D <sub>a</sub> after relocation
Data line:	4 x 2 x AWG26/7 CAT.6
Properties:	FEP, flame-retardant, UV-resistant, chemical resistance, for extreme hot temperatures

**Quick link:**

[https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/SKD05-HT\\_Datasheet.pdf](https://www.samcon.eu/fileadmin/documents/en/60-Assembling%26mounting/SKD05-HT_Datasheet.pdf)

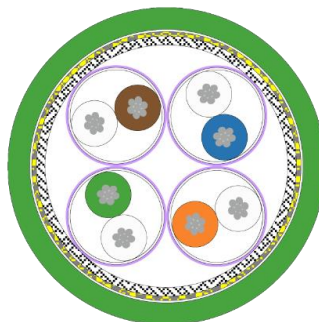


Figure 2-3 Sectional view of SKD05-HT

## 2.5 Video-technical characteristics

We use the AXIS M2036-LE Network 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-m2036-le>



## 2.6 Other technical data

	Camera (Ex-d)	Terminal box (Ex-e)
Permissible ambient temperature	-60°C ... +60°C (PoE+ model LL.H)	-60°C ... +55°C
Protection class as per EN 60529/IEC 529	IP66/68 (Test conditions: 24h/3m water column 5°C)	IP66
Housing material	stainless steel, mat. no. 1.4404	polyester resin
Weight	about 5 kg	about 1 kg
Dimensions	D113mm x 161mm	145mm x 145mm x 71mm

Table 2-2 Other technical data

## 2.7 IR-LED illumination

When switching to night mode, the camera uses both visible and near-infrared light to deliver bright and detailed black and white images instead of color images.

### 2x high efficiency LEDs<sup>3</sup>

IR-LEDs with optimized infrared spectral component ( $\lambda_{\text{centroid}} = 850 \text{ [nm]}$ ), enable high-contrast black and white camera images in the dark and under difficult lighting conditions (max. distance in complete darkness 2m, otherwise typical range depends on lighting conditions (residual light) and Scene). See test protocol for illumination.



### **Attention!**

**Infrared radiation may emanate from this product. Do not look directly at the operating lamp.**

<sup>3</sup> In the case of IR LED illumination, the viewing angle may be minimally restricted or a shadow/reflection may be visible, depending on the lens, the adjustment of the illumination angle and the residual light. Image disturbances possible due to multiple LED light reflections on the borosilicate sight glass of the stainless steel housing.






Figure 2-4 IR LEDs

### 2.7.1 Settings for automatic switching to night mode

1. Set the **IR-cut filter** to **Auto**: go to **Video > Image > Day-night mode**
2. Determination of the light level from which the camera should switch to night mode: move the **Threshold** slider towards **Bright** or **Dark**.
3. To use the built-in IR light of the camera, when the camera is in night mode: Activate **Allow IR illumination** and **Synchronize IR illumination**.
4. Tip:  
Set the switch to night mode when it is brighter → Image remains sharper, as there is less low-light noise.  
Set the switch to night mode when it is darker → colors are maintained for longer, but there is more image blur due to low-light noise.

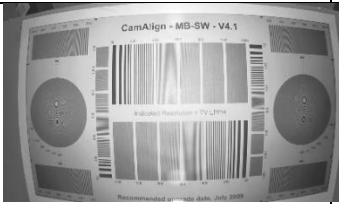

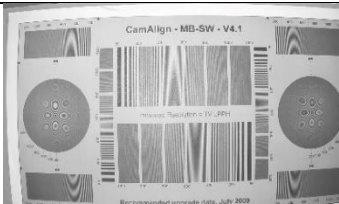




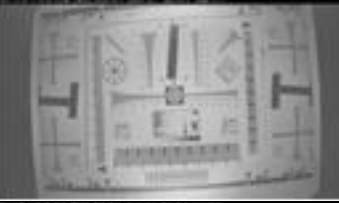
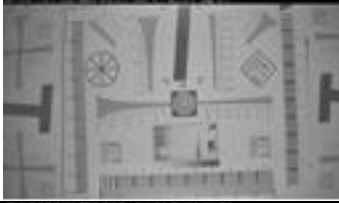



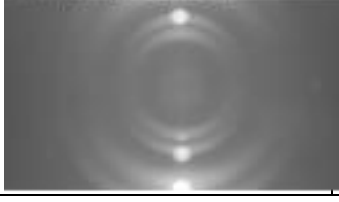


### 2.7.2 Optimize IR illumination

Depending on the positioning and conditions around the camera, such as external light sources in the scene, IR illumination can sometimes be improved by manually adjusting the intensity of the LEDs.

1. Go to **Video > Image > Day-night mode**.
2. Activate **Allow illumination**.
3. Go to  and select **Manual**.
4. Adjust the intensity.

### 2.7.3 Illumination tests

#### Tests with IR illumination ON

	85°	56°	41°
With low light Object distance 0.5m			
Dark-ness Object distance 0.5m			
Dark-ness Object distance 1m			
Dark-ness Object distance 2m			
Dark-ness Object distance 5m			

In absolute darkness, the internal infrared illumination can only be used up to a maximum object distance of 2.0 m. In addition, the quality of the image is strongly influenced by the resulting reflections and the object to be observed is no longer visible.

The image quality increases as soon as an external infrared light source is used.

When illuminated by external infrared light, the distance to be observed is more than 30.0m and the image has no noticeable loss of quality due to the illumination.

In absolute darkness, it is advisable to use an external infrared light source.

### 3 Safety Instructions

Please absolutely observe the installation instruction's safety directions of the T08 ExCam series!



Quick link:

<https://www.samcon.eu/fileadmin/documents/en/22-Ex-Network-Cameras/ExCam-Series-T08-EX-Installation-Manual-2020.pdf>

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!**

Cameras of type T08 ExCam are not suitable for use in zones 0 and 20. The ambient temperature, temperature class and explosion group written on the enclosure nameplate must be absolutely adhered to! The customer is not allowed to make any alterations of the camera! The camera must be operated in a proper and sound condition and only in the way intended.



**Attention!**

Repairs may only be carried out by using original parts from the manufacturer. Repairs which affect the explosion protection may only be carried out in accordance with the nationally applied regulations and exclusively by 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!**

Adhere to the warnings given on the nameplate:

**“WARNING – DO NOT OPEN IN HAZARD AREAS“**



Using the camera in explosion-protected areas with regard to temperature and dust layers is defined in the respective national regulations.



When installing the ExCam, adhere to the requirements of the EN/IEC 60079-14.

## 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.**



**Attention!**

**Depending on classification of hazard areas, it is imperative to obtain a work approval first!**

**When you open the pressure-resistant enclosure under voltage, it is absolutely necessary to prevent potentially explosive atmosphere!**

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.



**Attention!**

**Please observe the national security, installation and accident prevention regulations (e.g. DIN EN 60079-14) and the safety instructions in this User Manual, as well as the ones in the Installation Guidelines!**



**Attention!**

**Adhere to the provisions of the IECEx, ATEX and EX installation instructions for mounting and starting up!**

The ExCam® IPM2036 consists of a flame-proof camera housing (Ex-d) and, optionally (models with a terminal box ...-T), a terminal box of a high degree of safety (Ex-e). Both units are connected via a 5 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/network/excam-ipm2036/>



### Optional mounting accessories

Wall bracket WMB-...		<b>WALL MOUNT WMB-VA2.0</b> Wall bracket for cameras of the T08-VA2.0-Series Suitable for hanging the cameras on walls. Material: Stainless steel 1.4404 Load bearing: 25 kg Dimensions: 80 x 100 x 275 mm
Weather protec- tion roof WPR-...		<b>WEATHER PROTECTION ROOF WPR-VA2.0</b> Weathershield for cameras of the T08-VA2.0-Series
Pole adapter PMB-...		<b>WALL MOUNT BRACKET PMB-VA2.0</b> 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 ExCam® series' housing via the PA connection.



### Attention!

Please observe the national security, installation and accident prevention regulations (e.g. DIN EN 60079-14) and the safety instructions in this User Manual, as well as the ones in the Installation Guidelines!

The delivered ExCam® IPM2036 is equipped with an electrical connection cable of the type (A)SKD02-T (models without cooling) or type SKD05-HT (models with cool.Jacket). The maximum transmission range from the camera to the next active network interface is 100 meters (without cool.Jacket) or 60 meters (models L.HH) and can be individually specified by the client. The user is NOT authorised to do electrical connection procedures inside the pressure-resistant enclosure.

### 5.1 Potential equalization

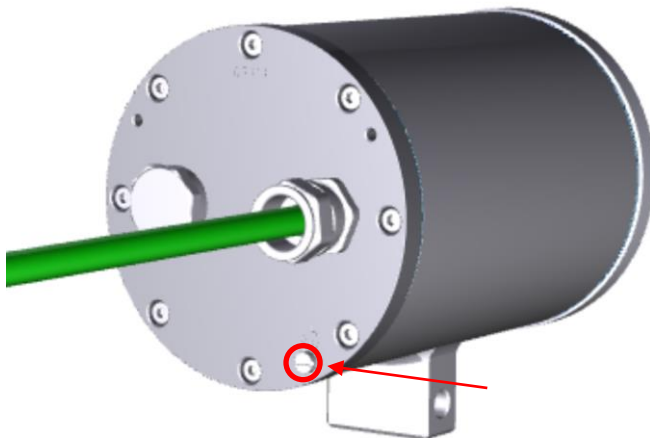


Figure 5-1 ExCam IPM2036 Potential equalization

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<sup>2</sup>).

Wiring table:

Potential	Colour (IEC 60757)	Cross-section	Comment
PA	GN/YE	4 mm <sup>2</sup> (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 802.3af/802.3at type 1 class 3
Reference voltage:	+48 V DC (44...54 V DC)
Maximum power consumption:	12.95 W
Typical power consumption:	5.0 W

The figures 5.2 and 5.3 illustrate the potential cable terminations of the ExCam IPM2036. Possible terminations are: terminal box or plug.

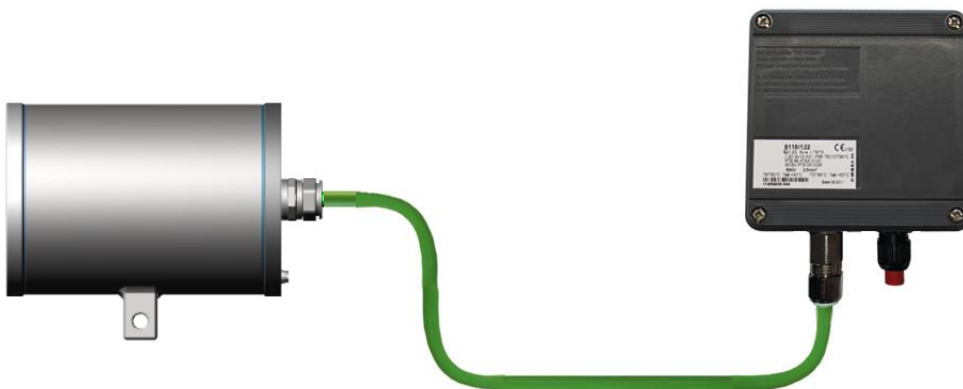


Figure 5-2 ExCam IPM2036 T08-VA2.0.K1.BOR-LL.H-xxx.N-I

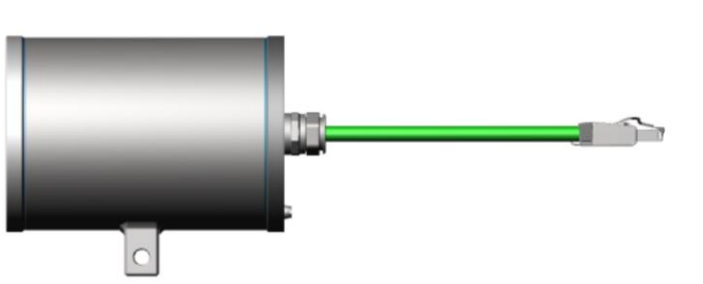


Figure 5-3 ExCam IPM2036 T08-VA2.0.K1.BOR-LL.H-xxx.N-P

Figure 5.4 shows ExCam IPM2036 with active cooling cool.Jacket.

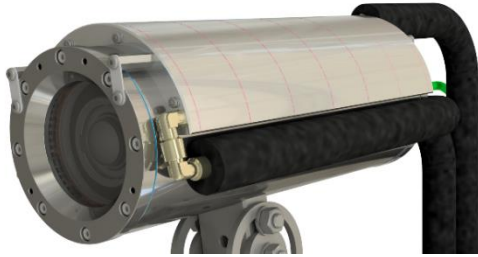


Figure 5-4 ExCam IPM2036 T08-VA2.0.K1.BOR-LL.HH-010.N-I



**Attention!**  
Never open the Ex-e terminal box under voltage!



**Attention!**  
Adhere to the international installation regulations for connection chambers with increased safety (Ex-e).



**Attention!**  
Adhere to attached separate User Manual for the Ex-e terminal box.

#### 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 5-5 Video Tutorial ExTB-3



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

Camera (Ex-d) (T568B)	Colour SKD02-T (IEC60757)	Terminal ExTB-2	Cross-sectional surface	Comment
Tx+	WH / OG	1	0.26 mm <sup>2</sup>	Solid conductor
Tx-	OG	2	0.26 mm <sup>2</sup>	Solid conductor
Rx+	WH / GN	3	0.26 mm <sup>2</sup>	Solid conductor
Rx-	GN	4	0.26 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	WH / BU	5	0.26 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	BU	6	0.26 mm <sup>2</sup>	Solid conductor
(PoE GND)	WH / BN	7	0.26 mm <sup>2</sup>	Solid conductor
(PoE GND)	BN	8	0.26 mm <sup>2</sup>	Solid conductor
GND/SHD	YE / GN	PE	2.5 mm <sup>2</sup>	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 (Ex-d) (T568B)	Colour ASKD02-T (IEC60757)	Terminal ExTB-2/3	Cross-sectional surface	Comment
<b>Reinforcement</b>	YE / GN	PE	2.5 mm <sup>2</sup>	Flex
Tx+	WH / OG	1	0.26 mm <sup>2</sup>	Solid conductor
Tx-	OG	2	0.26 mm <sup>2</sup>	Solid conductor
Rx+	WH / GN	3	0.26 mm <sup>2</sup>	Solid conductor
Rx-	GN	4	0.26 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	WH / BU	5	0.26 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	BU	6	0.26 mm <sup>2</sup>	Solid conductor
(PoE GND)	WH / BN	7	0.26 mm <sup>2</sup>	Solid conductor
(PoE GND)	BN	8	0.26 mm <sup>2</sup>	Solid conductor
GND/SHD	YE / GN	PE	2.5 mm <sup>2</sup>	Flex

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

The pin assignment of the SKD05-HT is executed in accordance with the standard EIA/TIA-568B as follows:

Camera (Ex-d) (T568B)	Colour SKD05-HT (IEC60757)	Terminal ExTB-2	Cross-sectional surface	Comment
Tx+	WH / OG	1	0.14 mm <sup>2</sup>	Solid conductor
Tx-	OG	2	0.14 mm <sup>2</sup>	Solid conductor
Rx+	WH / GN	3	0.14 mm <sup>2</sup>	Solid conductor
Rx-	GN	4	0.14 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	WH / BU	5	0.14 mm <sup>2</sup>	Solid conductor
(PoE +48 VDC)	BU	6	0.14 mm <sup>2</sup>	Solid conductor
(PoE GND)	WH / BN	7	0.14 mm <sup>2</sup>	Solid conductor
(PoE GND)	BN	8	0.14 mm <sup>2</sup>	Solid conductor
GND/SHD	YE / GN	PE	2.5 mm <sup>2</sup>	Flex

Table 5-4 Wire assignment of terminal box ExTB-2 (SKD05-HT)

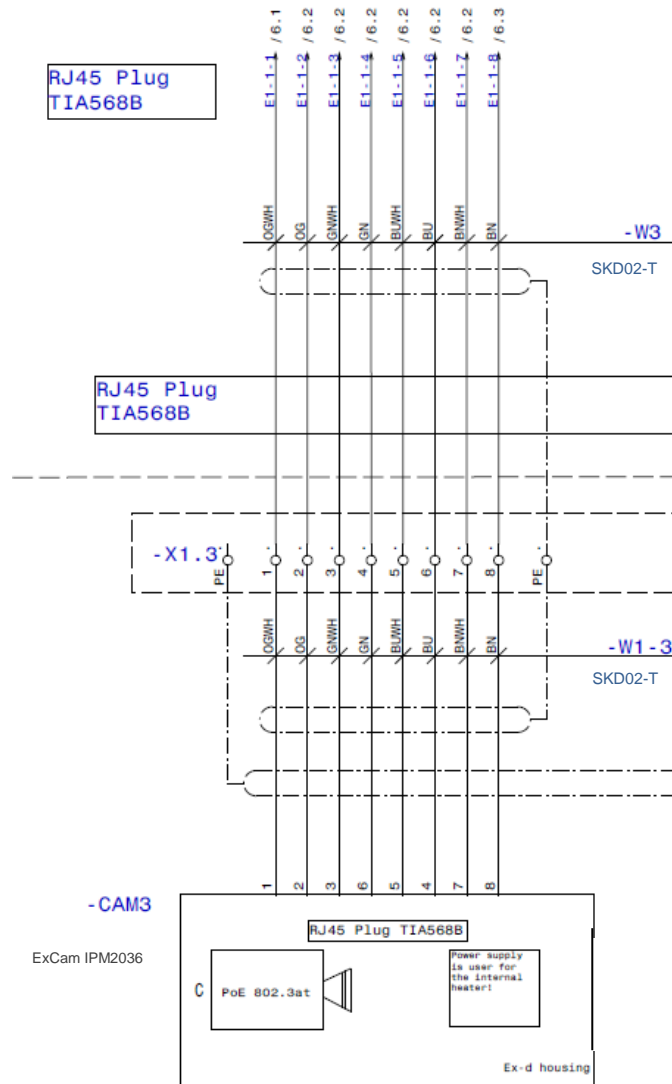


Figure 5-6 Sample circuit of terminal box ExTB-2

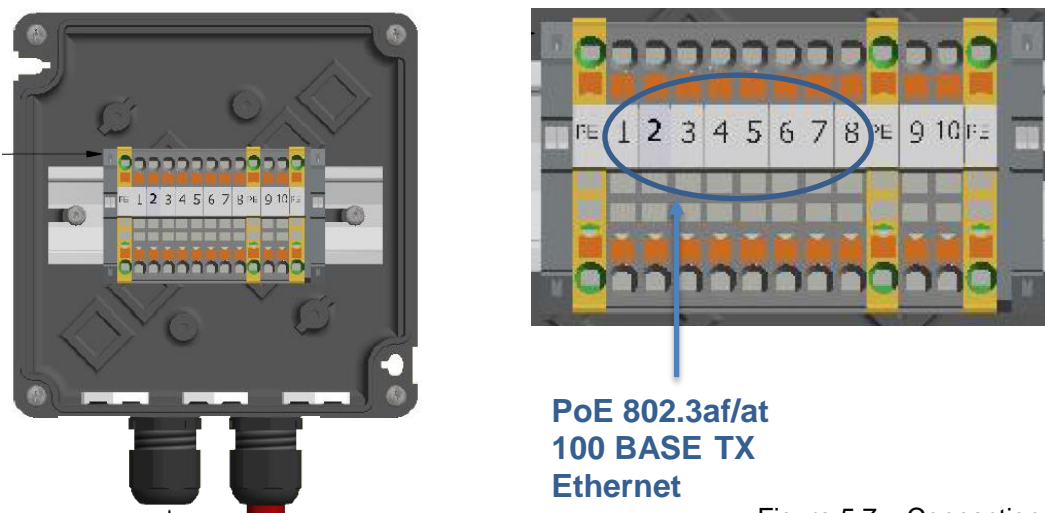


Figure 5.7 – Connection to the terminal box



**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.

### 5.3 External connection and protection

There are several options of routing the ExTB-2/3 terminal box to a safe area:

#### 5.3.1 Direct routing from the ExTB-3 into the safe area

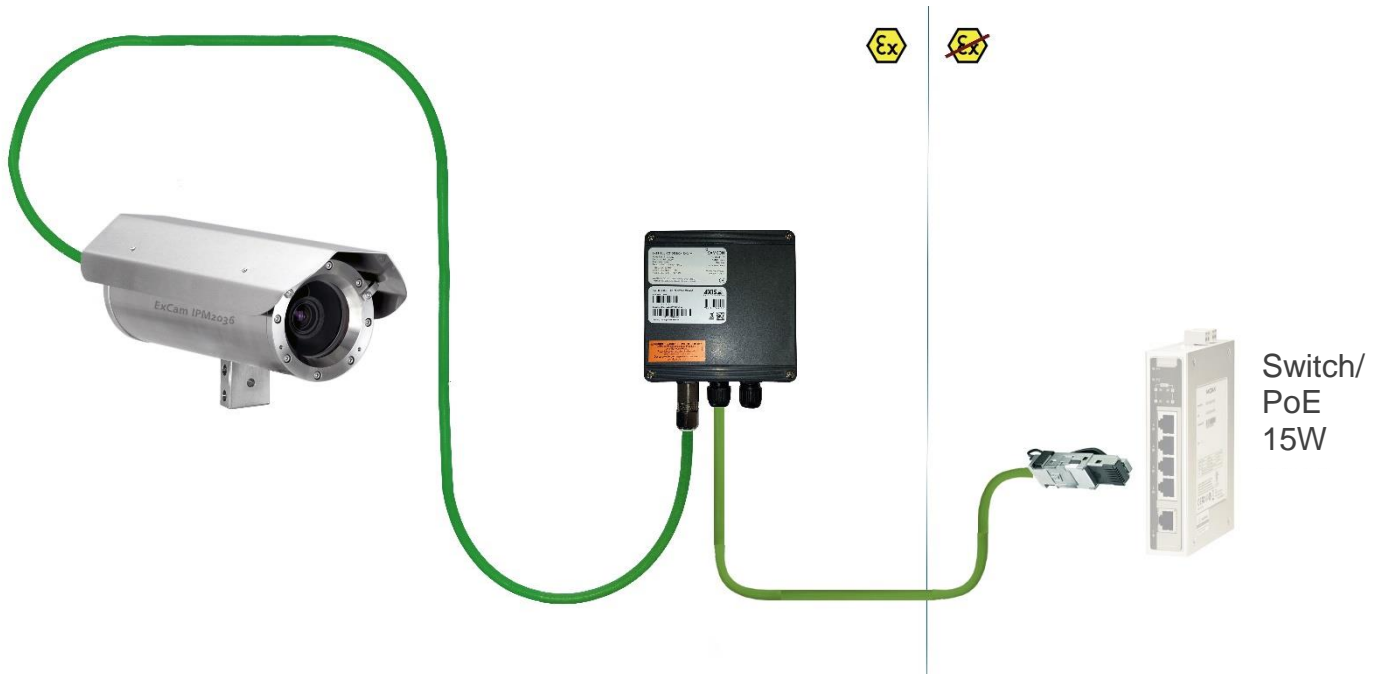


Figure 5-8 ExTB-3 -> Safe area

In the case of direct routing from ExTB-2/3 to the safe area, the voltage signal is led from the safe area to the terminal box. Please observe the terminal box assignment, as described above.



**Attention!**  
Cables and wires must comply with the requirements of the IEC 60079-0/1/7 & 14.



**Attention!**  
The supply line must have a sufficient cross-section. The cable protection must comply with national and international regulations.

### 5.3.2 Routing via ExConnection Rail (optional accessories)

### 5.3.3

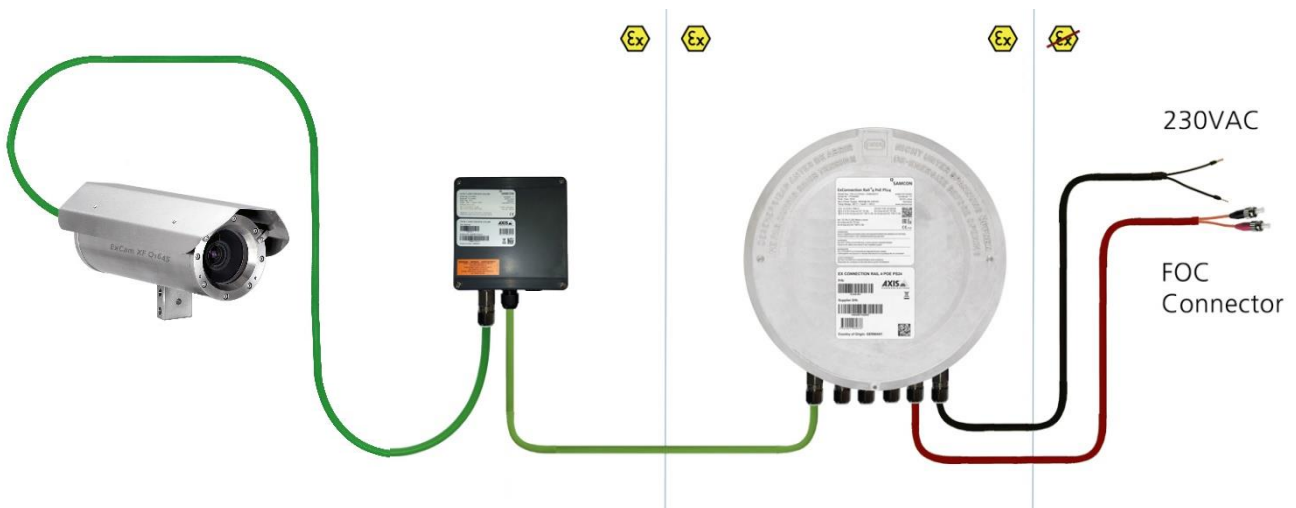


Figure 5-9 ExTB-2 -> ExConnection Rail

In the case of routing the ExTB-2/3 into an ExConnection Rail, larger installation distances can be managed.

**Note:**

*In hazardous areas, the ExConnection Rail (optional accessories) acts as a PoE+ switch, a media converter from copper to fibre-optic cable, as well as a power supply for the cameras.*

### 5.3.4 Appropriate cables & cable entries

An integral part of the device safety is the correct selection of the cables, wires and cable entries.



**Attention!**  
**Cables and wires must comply with the requirements of the IEC 60079-0/1/7 & 14.**



**Attention!**  
**The supply line must have a sufficient cross-section. The cable protection must comply with national and international regulations.**

For non-binding configuration and planning guidelines, please visit our website:



Perhaps our video will help you: "Cables for flameproof devices in potentially explosive atmospheres"

<http://go.samcon.eu/video-cable-ex>



Figure 5-10 Ex-d cable selection

Particularly for installations requiring a suitable barrier gland, make sure that you handle them correctly and observe the rules and notes given in the respective mounting and assembly instructions.

We show the essential procedures in the following video tutorial:

**Video Tutorial:**

Please note our video tutorial:



“SAMCON 02 Mounting and installing Ex-d barrier glands to ExConnection Rails”  
<https://go.samcon.eu/v02>



Figure 5-11 Barrier gland

### 5.3.5 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.**

### 5.3.6 Plug assignments (RJ45)

The data transfer of the ExCam IPM2036 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 5-12 Plug assignment, RJ45



### 5.3.7 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 camera housing (Ex-d)

The customer may open the housing only if it is absolutely necessary. Only exchanging the SD memory card or a hardware reset are reasons for this.

### 6.1 Preparation for work:



**Attention!**

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



**Attention!**

**Depending on classification of hazard areas, it is imperative to obtain a work approval first!**

**If you adjust the camera yourself or open the pressure-resistant enclosure (Ex-d) under voltage, it is absolutely imperative to prevent potentially explosive atmosphere!**

### 6.2 Opening the pressure-resistant housing



**WARNING – MAY NOT BE OPENED IN HAZARD AREAS**

**Note: Depending on classification of hazard areas, it is imperative to obtain a work approval first!**

**Even after switching on the power supply, it is absolutely imperative to avoid potentially explosive atmosphere when opening the camera housing. Opening the housing requires disassembly and working in a safe (i.e. non-explosive!) area.**



**Attention!**

**Pay attention not to damage the thread surface of the flame-proof gap.**



**Attention!**

**Pay attention not to damage the housing seals. Keep them clean!**

If the ExCam IPM2036 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).

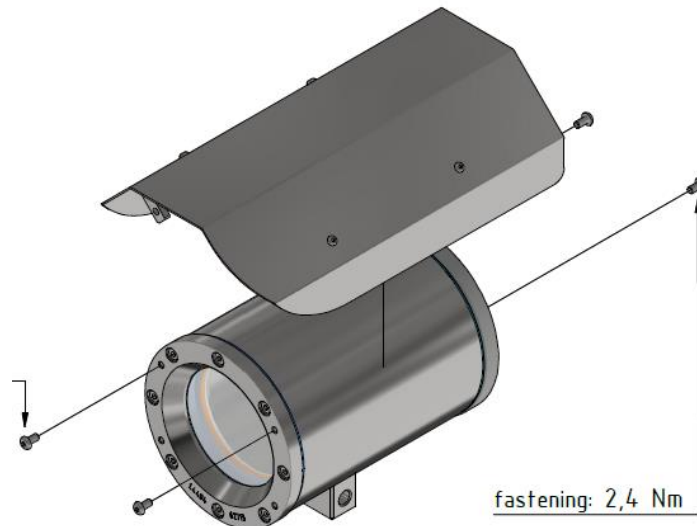


Figure 6-1 Removing the weather protection roof

To open the stainless-steel housing (T07 VA2.0.x.x) of ExCam IPM2036, 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 6-2). 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.

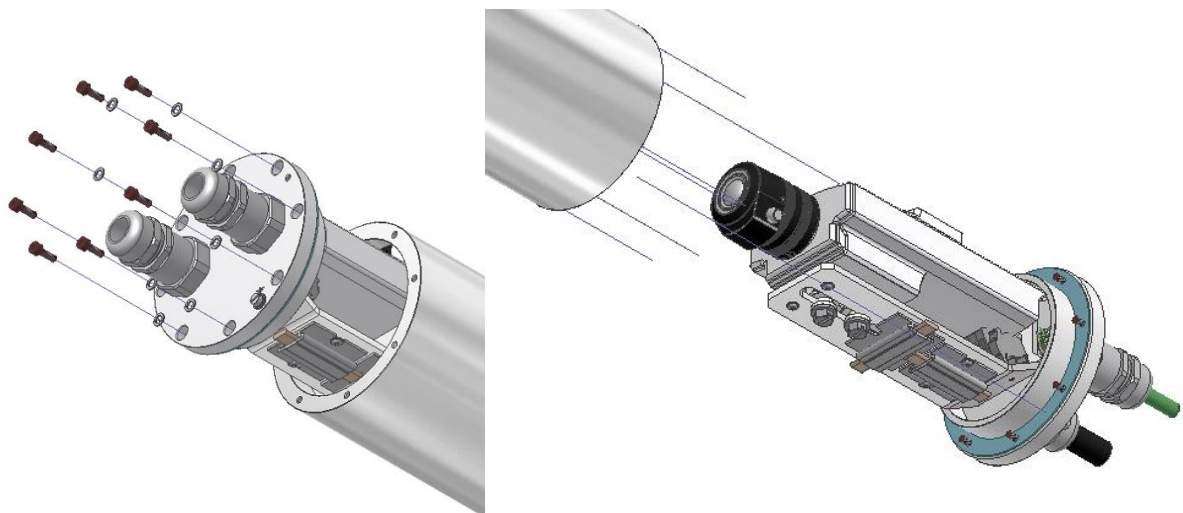


Figure 6-2 Opening the ExCam IPM2036 (similar illustration)

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. The cylindrical clearance fit (H8f7 - DIN ISO 286) of the camera body and flange may not be tilted! Risk of damage to the flame-proof gap (DIN EN 60079-1:2012)!

Attention: The mounting adapter with the housing's PTC heater, 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!



**Attention!**  
 Pay attention not to damage the surface of the drill hole and the shaft (fitting) of the flame-proof gap.



**Attention!**  
 Pay attention not to damage the housing seals. Keep them clean!

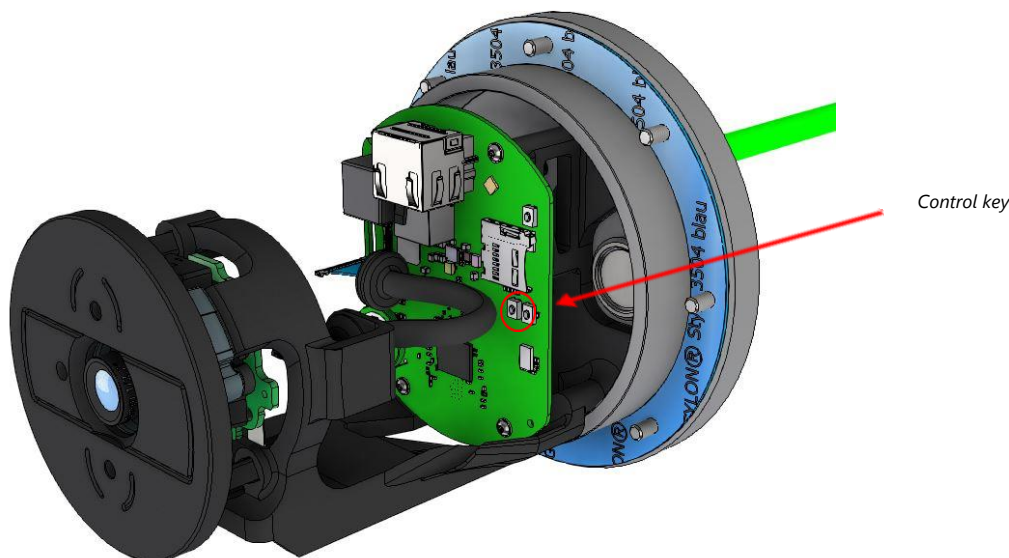


Figure 6-3 Structure of the camera

### 6.3 Removing / inserting a SD memory card

Note:

The ExCam IPM2036 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.!**

### 6.4 Hardware Reset

To set all the parameters of the ExCam IPM2036 (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 M2036-LE) 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 M2036-LE 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).

## 6.5 Closing of the pressure-resistant housing

For closing the housing, proceed in reverse order as when opening. Use exclusively original screws included in the supply.

The cable and power-supply flange (K1) is fixed by 8 cylinder-head screws M4\*0.7 (ISO metric right-turning) with 12 mm thread length (DIN 912/ ISO 4762, grade 6g). Materials of bolted connections are identical to the pressure-resistant stainless steel housing (standard material no. 1.4404 AISI316L). Check whether the threaded holes are undamaged and clean. Before closing, it is also absolutely imperative to check the flame-proof gap (circular cylindrical fit).



### Attention!

**If any mechanical damages occurred to the fitting gap, it is no longer allowed to use the housing!**



### 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).

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 explosion-proof connection of the camera body with the flange component must always be tightened at a 3 Nm torque - crosswise and evenly! Use Loctite.**

## 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-m2036-le>  
[https://help.axis.com/api/download/um\\_m20\\_bullet\\_camera\\_series\\_t10175189\\_de\\_2204.pdf](https://help.axis.com/api/download/um_m20_bullet_camera_series_t10175189_de_2204.pdf)

The delivered ExCam IPM2036 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 ExCam IPM2036 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.

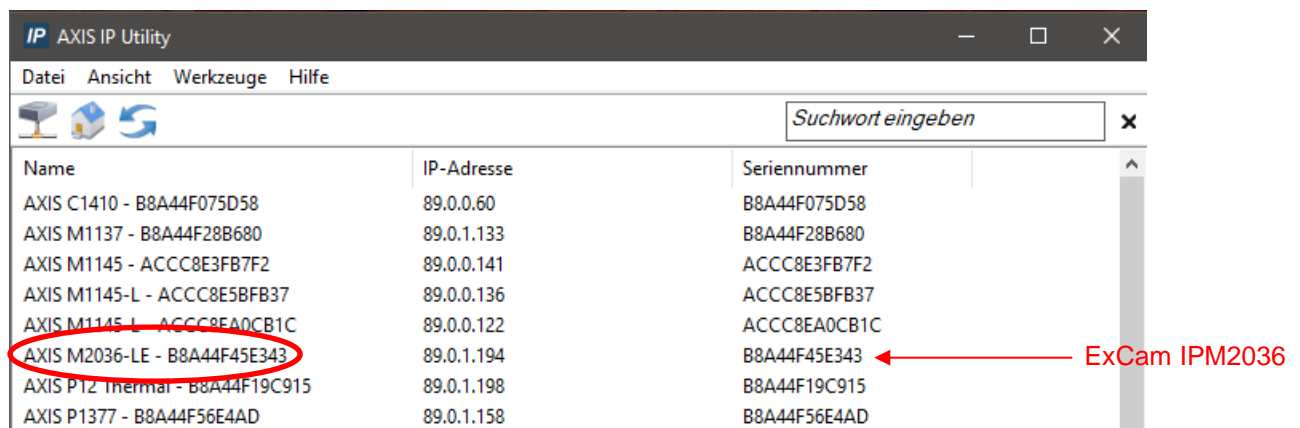
If there is no DHCP server available in the network, the IP default address of ExCam IPM2036 is **“192.168.0.90” (subnet masking 255.255.255.0)**. With the “AXIS IP Utility”, it is possible to determine the IP address under Windows; the included USB stick contains this application.

<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 ExCam devices and visualises them in the device list. It can also be used to manually assign a static IP address. For this purpose, the ExCam IPM2036 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 ExCam IPM2036 is "AXIS M2036-LE" (see Figure 7-1). MAC address and serial number for clear device identification are also detected and displayed.



Name	IP-Adresse	Seriennummer
AXIS C1410 - B8A44F075D58	89.0.0.60	B8A44F075D58
AXIS M1137 - B8A44F28B680	89.0.1.133	B8A44F28B680
AXIS M1145 - ACCC8E3FB7F2	89.0.0.141	ACCC8E3FB7F2
AXIS M1145-L - ACCC8E5BFB37	89.0.0.136	ACCC8E5BFB37
AXIS M1145-L - ACCC8EA0CB1C	89.0.0.122	ACCC8EA0CB1C
<b>AXIS M2036-LE - B8A44F45E343</b>	89.0.1.194	B8A44F45E343
AXIS P12 Inermar - B8A44F19C915	89.0.1.198	B8A44F19C915
AXIS P1377 - B8A44F56E4AD	89.0.1.158	B8A44F56E4AD

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**

## 8 Maintenance / Modification

The applicable regulations for the maintenance and servicing of electrical devices in potentially explosive atmospheres must be adhered to.

The required maintenance intervals are specific to the individual devices. The operating company has to determine these intervals depending on the application parameters. The maintenance tasks especially include examination of parts on which the ignition protection depends (e.g., proper condition of the casing, seals and cable entry points). 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 concerning the explosion protection must only be carried out in accordance with nationally applied regulations by SAMCON Prozessleittechnik GmbH or 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**

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

<https://www.samcon.eu/en/products/network/excam-ipm2036/>



[Analog Ex Cameras \(CVBS\)](#)
[Network Ex Cameras \(TCP/IP\)](#)
[ExCam IPM3016](#)
[ExCam IPP1275](#)
[ExCam IPM114x](#)
[ExCam IPM2036](#)
[coolJacket](#)
[ExCam IPQ1645](#)
[ExCam IPQ1615 \(DPLU\)](#)
[ExCam IPQ1785](#)
[ExCam IPQ1715](#)
[ExCam IPP5655](#)
[ExCam IPQ6075](#)
[ExCam IPQ6075-MKII](#)
[ExCam IPP1280 \(thermal\)](#)
[ExCam XI80 \(thermal\)](#)
[ExCam XI410 \(thermal\)](#)
[Modular Ex Cameras](#)
[Robust Cameras \(non-ex\)](#)
[Your Individual Camera \(BTO\)](#)
[Ex-d Camera Enclosures](#)
[Connection Systems](#)
[Cables for Ex-Areas](#)
[Mounting Systems](#)
[Wash and Wipe Equipment](#)
[Software](#)

#### Downloads:

- [Comparison Chart](#)
- [Datasheet](#)
- [3D-Model](#)
- [Usermanual](#)
- [CAD-files \(DXF\)](#)
- [Ex Installation Manual](#)
- [ATEX Type Examination](#)
- [IECEX Cert.-of-Conformity](#)
- [EAC-Ex-Certification](#)
- [EU Dec. of Conformity](#)

## ExCam<sup>®</sup> IPM2036

### Quad HD day-/night IP camera with integrated IR illumination meets Artificial Intelligence

The ExCam IPM2036 is a powerful day/night network camera, particularly suitable for use in potentially explosive areas. It offers **4MP** resolution (**2668 x 1512**), **integrated IR illumination** and a Deep Learning Processing Unit (**DPLU**). It is approved according to Directive 2014/34/EU (ATEX), IECEx and EAC-Ex. These and other available approvals can be found in the download area.

#### Features.

- Broad Certification Landscape for Hazardous Areas (ATEX, IECEx & EAC-Ex, ...)
- Deep Learning Processing Unit (DPLU) for Artificial Intelligence (AI) Applications
- Day-/Night Functionality
- High Resolution: 4 MP/ QHD 1440p
- Built-in IR LEDs and OptimizedIR
- High Light Sensitivity with 1/2.7" CMOS Sensor
- Arctic-Temperature-Control (-60°C)
- Protection Level of IP66/68 (IEC 60529)
- Lightfinder and WDR Technologies
- Zipstream and videocompression H.265
- Optional Housing Cooling allows use up to +120°C
- [Extensive Accessories](#)

### Excellent recordings no matter what the circumstances

The ExCam IPM2036 produces its own light! It features built-in, energy-efficient, long-life IR LEDs. The integrated IR lighting (wavelength 855 nm) enables unobtrusive surveillance even in the dark. Thanks to the integrated IR LEDs, there is almost no need for additional illumination. In absolute darkness, the maximum distance is 2 m. The range of the illumination depends on the scene, especially on low light (see test report on illumination).

Lightfinder ensures sharp images with more realistic and saturated colors even of moving objects. WDR compensates for differences in brightness in a scene.

### Explosion-proof IP-camera with ATEX-, IECEx- and EAC-Ex-certification

The ExCam series is certified under both the European (ATEX) and the international directive (IECEX). The explosion-proof housing is approved for ATEX group II for zones 1, 2, 21 and 22 including explosion groups IIC / IIIC. Furthermore, it also has the EAC-Ex approval.

During the development of the ExCam IPM2036, great value was placed on safety, mechanical precision and high-quality stainless steel. In addition, a modular structure was at the forefront of the development.

If you wish additional technical information, please contact us at: [support@samcon.eu](mailto:support@samcon.eu)

## 11 Certificates and further documentation

Certificates and further documentation are available in the download area at the product website:

<https://www.samcon.eu/en/products/network/excam-ipm2036>

## 12 Notes





**SAMCON**

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