

USER & INSTALLATION MANUAL



SMOKECATCHER

P/N: 8000001

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Araani SmokeCatcher

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1. INTRODUCTION

1.1. GENERAL

SMOKECATCHER P/N: 8000001 consists of following subparts with corresponding version number:

Camera	Axis P1365 MKII
Camera lens	IR corrected, CS-mount lens, P-Iris Varifocal 2.8–8 mm, F1.3 Horizontal field of view: 84°–39° Vertical field of view: 46°–21°
Camera Housing	Axis T93F10 Outdoor Housing
Camera firmware	FW 8.40.3
SmokeCatcher version	SmokeCatcher V2.01
Interface board	P/N 1000002

All following described functionality, guidelines, certifications and all other specifications described in this document only apply to the exact combination of subparts in previous column. Any deviation may violate the described product approvals.

ABOUT THIS MANUAL

This user and installation manual describes the functionality, capabilities and mounting instructions of Araani SmokeCatcher Certified.

Complete installation, fine-tuning and final commissioning of a system is **only authorized by Araani Certified Engineers who attended the Araani Certified Partner Training**. Check sales@araani.com for more information on our partner program.

This manual only describes SmokeCatcher as a Certified Fire Safety solution, connected to a CIE acc. to local regulations. SmokeCatcher can also be integrated in a VMS-surveillance system, but documentation on this subject is out of the scope of this document. Check info@araani.com for more information.

LIABILITY

Every care has been taken in the preparation of this document. Please inform Araani NV of any inaccuracies or omissions. Araani NV cannot be held responsible for any technical or typographical errors and reserves the right to make changes to the product and manuals without prior notice. Araani NV makes no warranty of any kind regarding the material contained within this document, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. Araani NV shall not be liable nor responsible for incidental or consequential damages in connection with the furnishing, performance or use of this material. This product is

PRODUCT CERTIFICATIONS

SMOKECATCHER® has been certified according to following international standards:

- **CNPP – SPECIFICATION TECHNIQUE – ST LPMES – DEC.18.005 – 22/05/2018**
 INCENDIE – Système de détection de fumées et/ou de flammes par analyse d'image
 Type: Détecteur de Fumée

More information can be found in [APPENDIX B - CNPP Certification](#).

Please read and follow the guidelines in Appendix B before installing SmokeCatcher according to this product certification.

- **BOSEC: Certificate nr: B - 9348 - FD - K 1039 - version a**

Based on the conformity with:

- BOSEC Mark Rules
- NTN 177-C:2018
- **NTN 177-L:2019 - Video Smoke Detectors – Part L: Additional requirements to ISO/TS 7240-29 – Prescriptions and laboratory tests.**
- **ISO/TS 7240-29:2017 – Fire detection and alarm systems – Part 29: Video fire detectors Type A – Smoke Detector**

Based upon the test report of the laboratories ANPI:

- **BFS/REDI/589 - 2019.06.17.**

More information can be found in [APPENDIX A - BOSEC Certification B - 9348 - FD - K 1039 - version a.](#)

Read and follow the guidelines in Appendix A before installing SmokeCatcher according to this certification.

EQUIPMENT MODIFICATIONS

This equipment must be installed and used in strict accordance with the instructions given in this manual. Unauthorized equipment changes or modifications will invalidate all applicable regulatory certifications and approvals.

SOFTWARE VERSION AND SOFTWARE SETTINGS MODIFICATIONS

This equipment comes with the correct pre-installed software versions and software settings according to the wanted product certifications. Unauthorized changes of software version or unauthorized modifications to the software settings will invalidate all applicable regulatory certifications and approvals.

OTHER REGULATORY INFORMATION:

CE: Europe This product complies with the applicable CE marking directives and harmonized standards:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU.
- Low Voltage (LVD) Directive 2014/35/EU.
- Restrictions of Hazardous Substances (RoHS) Directive 2011/65/EU.

Europe:

This digital equipment fulfills the requirements for RF emission according to the Class B limit of EN 55022. The product shall be connected using a shielded network cable (STP) that is properly grounded.

This product fulfills the requirements for immunity according to EN 61000-6-1 residential, commercial and light-industrial environments.

This product fulfills the requirements for immunity according to EN 61000-6-2 industrial environments.

This product fulfills the requirements for immunity according to EN 55024 office and commercial environments.

DISPOSAL AND RECYCLING

When this product has reached the end of its useful life, dispose of it according to local laws and regulations. For information about your nearest designated collection point, contact your local authority responsible for waste disposal. In accordance with local legislation, penalties may be applicable for incorrect disposal of this waste.

Europe

The product shall not be disposed of together with household or commercial waste. Directive 2012/19/EU on waste electrical and electronic equipment (WEEE) is applicable in the European Union member states. To prevent potential harm to human health and the environment, the product must be disposed of in an approved and environmentally safe recycling process. For information about your nearest designated collection point, contact your local authority responsible for waste disposal. Businesses should contact the product supplier for information about how to dispose of this product correctly. This product complies with the requirements of Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

CONTACT INFORMATION

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SUPPORT

Should you require any technical assistance, please contact your Araani reseller. If your questions cannot be answered immediately, your reseller will forward your queries through the appropriate channels to ensure a rapid response.

If you are a reseller, please contact your direct contact person, or contact our Support staff via support@araani.com

1.2. OVERVIEW OF FUNCTIONALITY

1.2.1. SMOKECATCHER® SOFTWARE

Overview of the functional capabilities:

Type	Smoke Detector <ul style="list-style-type: none"> • Detects smoke clouds. • Detects dispersed smoke. • Initial source of smoke does not need to be in the field of view. • Performance independent on smoke color: any type of color (white/black/grey/...) will be detected
Event types:	SmokeCatcher® can generate following mutual exclusive events: <ul style="list-style-type: none"> • PRE ALARM • ALARM • FAULT SIGNAL
Immunity to unwanted alarms	SmokeCatcher® is designed to be immune to following unwanted alarms: <ul style="list-style-type: none"> • Frequent movement of people and vehicles in the field of view during normal site activity. • Direct incident sunlight in the field of view (but not direct incident sunlight into the lens) <p>SmokeCatcher® has passed following tests (still in process)</p> <p>ISO/TS 7240-29:2017 – 5.11 Light Source immunity:</p> <ul style="list-style-type: none"> • 5.11.3 Fluorescent light • 5.11.4 Metal halide light • 5.11.5 Halogen light • 5.11.6 LED Beacon • 5.11.7 Rotating beacon <p>ISO/TS 7240-29:2017 – 5.12 Arc Welding</p>
Reliability check	SmokeCatcher has extensive built-in self-monitoring functionality and will generate a FAULT SIGNAL in following cases: <ul style="list-style-type: none"> • Tampering of the camera window • Blocking of the Field of View • Abrupt Camera motion • Image quality degradation to a point where detection is at danger • Too dark • Insufficient BG-detail • Power failure • Software failure
Easy set of parameters	SmokeCatcher performance can be adjusted to any environment with a limited set of straightforward settings . However, only Araani Certified Engineers have the authorization to adapt the parameters.
Two access levels	SmokeCatcher foresees two types of users with different access levels: <ul style="list-style-type: none"> • Viewer: can only browse to the camera and view the live stream • Administrator: Has full access, can change the camera settings and SmokeCatcher settings. An administrator level is reserved for Araani Field Engineers and Araani Certified Engineers.

Distance to fire	<ul style="list-style-type: none"> ISO/TS 7240-29:2017: See Appendix A: 22m CNPP: See Appendix B: No maximum distance specified.
Lens characteristics	SmokeCatcher comes default with a varifocal lens 2.8-8mm. To do: + add horizontal and vertical angles Once installed the focus should be fixed.

Requirements:

SmokeCatcher is a very performing and reliable product, provided that following requirements are met:

Minimum contrast in the field of view	SmokeCatcher is a contrast-based smoke detection algorithm and requires “enough” basic contrast in the background scene. In realistic situations, this constraint is usually fulfilled. In case there is a lack of contrast, SmokeCatcher will release a Fault Signal after reaching the quiescent condition.
Illumination Ratio / Dynamic range in non-uniform illumination conditions	Illumination Ratio = Ratio between brightest and darkest light spot in the total field of view of a camera, defined in Lux. Maximum Illumination Ratio = 500. SmokeCatcher® has passed following tests ISO/TS 7240-29:2017 – 5.10 Non-Uniform illumination
Minimum ambient light level	Minimum 5 lux overall illumination combined with constraint Maximum illumination ratio.
Maximum ambient light level	Outdoor – Maximum 120 000 lux if Maximum Illumination Ratio in FOV is respected.

Typical values for different outdoor light conditions:

Condition	Illuminance (lux)
Brightest direct sunlight	100 000 – 120 000
Direct sunlight	32 000 – 100 000
Shadow part in Brightest direct sunlight	20 000
Overcast day - midday	1000 – 2000
Very dark overcast day	100
Extreme of thickest storm clouds, midday	< 200 lux
Moonlight, clear night sky	< 1 lux
Full moon, clear night sky	0.25 lux
Moonless night sky	< 0.002

Start-up behavior:

At startup, SmokeCatcher needs to learn its background. This takes maximum 5 minutes. During this period, SmokeCatcher is not fully operational yet.

The default start-up state is quiescent condition. Within a maximum of **5 minutes**, SmokeCatcher will either remain in quiescent condition, or go to FAULT condition. Two major reasons for this can be:

- Not enough background contrast
- Too dark: Light level < Minimum light level

For connection and communication to CIE, see section [IO-interface](#).

1.2.2. ANCILLARY FUNCTIONALITY (VMS, OTHER)

SmokeCatcher can also be integrated in a surveillance network and communicate with a VMS or other third-party software. However, description of these functionalities lies out of the scope of this document. For information on other integration capabilities, please contact sales@araani.com

1.2.3. TECHNICAL SPECIFICATIONS**1.2.3.1. OPERATING CONDITIONS**

Temperature*	-40°C to +70°C (ISO 7240-29 Outdoor 1 and 2) *For CNPP-certification: Test Range -25°C to 70°C See APPENDIX B - CNPP Certification
IP-rating	IP66* APPENDIX B - CNPP Certification IP65* APPENDIX A - ISO/TS 7240-29:2017 Certification

1.2.3.2. POWER

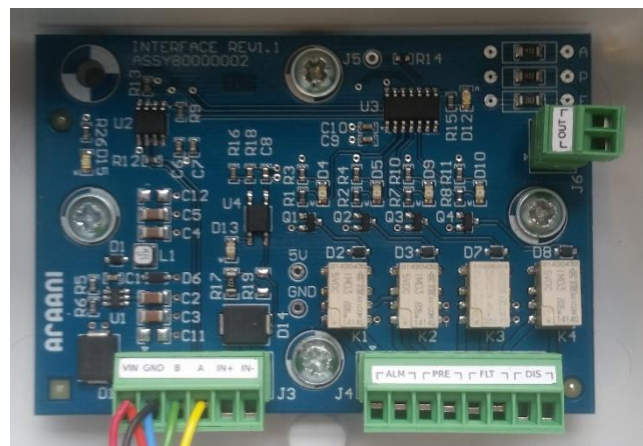


The solution should be powered using the POWER-IN terminal with a dedicated power supply. The POWER-IN terminal is rated for 12-28VDC operation and is polarity free.

The maximum power consumption is 15W.

Remark: Do not use an IEEE 802.3af/at (POE/POE+) capable switch when connecting the camera to the network.

1.2.3.3. IO



The IO connections are located on the dedicated Araani Interface board and are provided for interconnection with third party equipment.

The OUPUTs are implemented using relay contacts rated for 1A @ 30V AC/DC.

- ALM
Alarm output.
- PRE
Pre-alarm output.

- **FLT**
Fault output; provides **failsafe** operation.

Situation	ALM	PRE	FLT
quiescent condition	OPEN	OPEN	CLOSED
alarm condition	CLOSED	OPEN	CLOSED
pre-alarm condition	OPEN	CLOSED	CLOSED
fault condition	OPEN	OPEN	OPEN
improper software operation (ACAP not installed, ACAP not running; ACAP deadlock...)	OPEN	OPEN	OPEN
improper hardware operation	OPEN	OPEN	OPEN

- **DIS**
(Not available at this moment)

The interface provides one **opto-isolated** digital input (for input low apply 0-3VDC; for input high apply 9-30VDC)

- **IN**

The solution can be configured in a latching output mode. (see parameter "Output latch timeout"). This implies that the outputs ALM, PRE and FLT are latched. The latch can only be released when the IN input is triggered.

The interface board provides a dedicated resistor network often used for Fire-Safety equipment interconnection.

- **OUT**

Remark: Please contact Araani for more information.

1.2.3.4. RECOMMENDED CABLE

It is practically impossible to recommend one specific cable for interconnecting our solution (POWER/IO).

Select a cable according to following criteria:

- Requirements specific to the installation. (distance; current; UV-resistance...)
- Local regulations.
- Local availability.

2. INSTALLATION

2.1. INSTALLATION INSTRUCTIONS

2.1.1. GENERAL REQUIREMENTS

SmokeCatcher is a premium high-end early smoke detecting system. Installation and commissioning can only be performed by Araani Certified Engineers.

Following basic guidelines should be considered with each installation:

- Minimum 5 lux 24/7 over the whole field of view. The light does not need to be uniform; the camera can handle non-uniform light distribution via its performant WDR-functionality.
- Enough detail
- **Do not include windows in the field of view** and avoid spots of direct incoming sunlight through windows.
- **Avoid sources of dust, damp or smoke** in the field of view during normal operation.

2.1.2. SITE DESIGN

Make a risk assessment of the risks to be monitored by SmokeCatcher in the area you will install it.

1. Define the hot spots:

What is the type of risk? Can the fire start at any location in the field of view, or is the risk related to a machinery or a critical part of an installation?

2. Estimate the smoke:

Once you have defined the hot spots, estimate where the smoke will flow in the case of an incident. Dependent on this estimation, define a camera position that will visualize the smoke in the fastest and largest way. Do not focus on the location of the risk itself, focus on where the smoke will be seen. Will it go up to the ceiling, or will there be stratification? Will the smoke be dispersed over the whole area by rotating turbines?

3. Selection of camera location:

After this analysis, select a camera mounting location that visualizes the expected smoke in a maximum way. While selecting this mounting position, keep the general rules described in section 2.1.1. in mind.

4. Define the sensitivity:

The larger the smoke plume in the field of view of the camera, the faster it will detect. A general rule of thumb is the 5-5-rule: SmokeCatcher will react when 5% of the field of view is covered during consecutive 5 seconds on the same location in the field of view. This means: the smaller the field of view, the higher the sensitivity. And of course vice versa.

Define on what size of smoke plume you want to detect, and make sure to select a position so the smoke covers more than 5% of the field of view at the furthest point you want to detect.

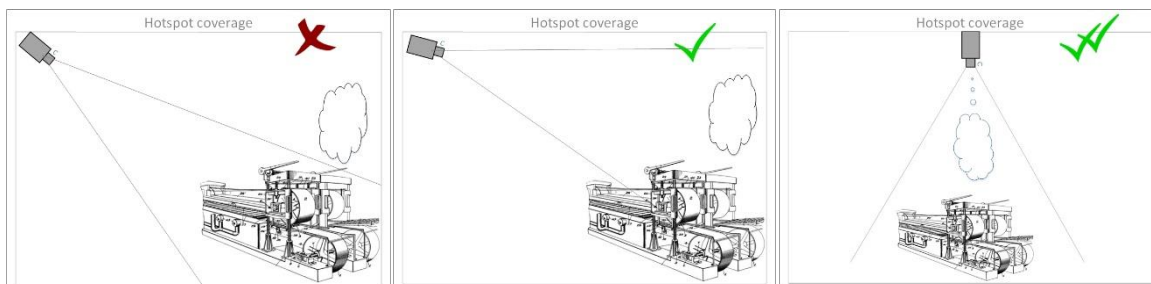
As a rule of thumb, the maximum coverage at the furthest distance should be 200m². This is defined by a commissioning test based on a beechwood test.

5. Redundancy:

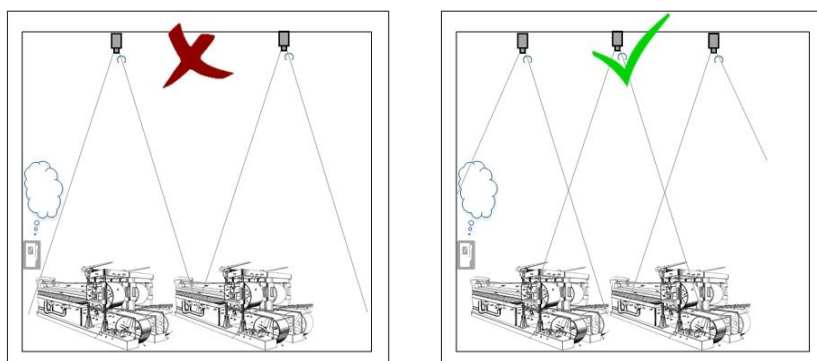
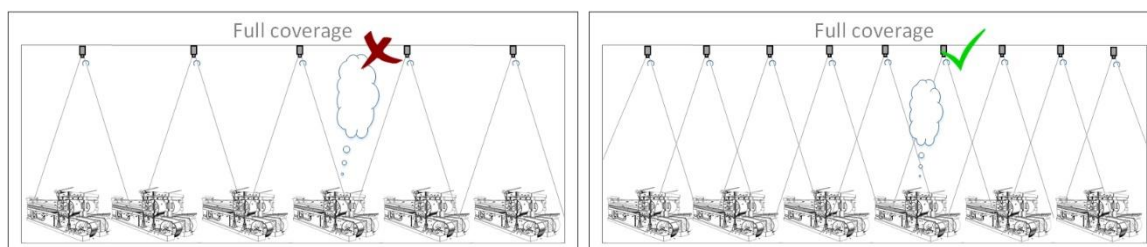
To guarantee full coverage on very large areas, multiple cameras will be needed. To avoid blind spots, make sure the field of views of the cameras overlap with a minimum of 20%.

Following sketches illustrate the above reasoning:

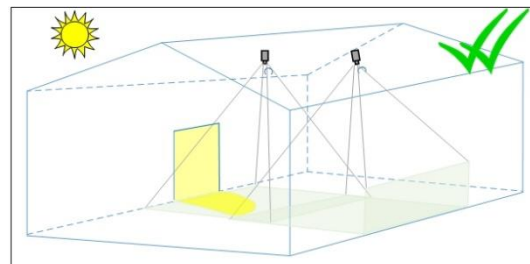
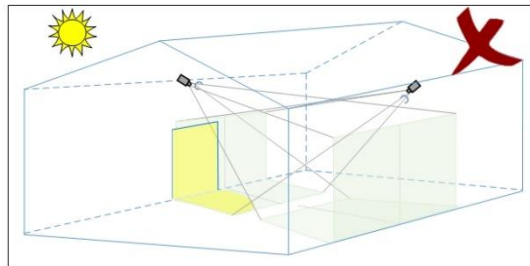
Cameras should always be positioned to **see potential incident smoke in hotspot coverage**.



Redundancy: Make sure the FOV's of the cameras have enough overlap.



Avoid direct incoming sunlight in the field of view and in the lens



Use this checklist as a guideline:

	Criterium	OK
1	Define the hot spots and critical infrastructure	
2	Estimate where smoke will appear	
3	Choose a camera position that maximally visualizes the smoke that will be generated at an incident	
4	Define sensitivity: at which amount of smoke do you want to detect.	
5	Based on 1-4: choose FOV < 200m ² and < 20m distance to camera and check following points:	
6	Enough detail	
7	No windows or horizon in FOV	
8	Avoid spots of direct incident sunlight or reflection of the sun	
9	Avoid the presence of direct light sources in the field of view. Mask if they can't be avoided	
10	Avoid possible causes of false alarms during normal site activity in the FOV (Sources of dust, damp, smoke normal to the process...)	
11	Minimum illumination over whole field of view. Use a light meter to measure the intensities, especially at the furthest and darkest spots.	
12	Redundant coverage	

2.2. CONFIGURING THE PRODUCT

2.2.1. FIRST TIME CONNECTION

The camera can be found on the network via DHCP:
Credentials for first time connection are:

Administrator login:	root
Administrator password:	root

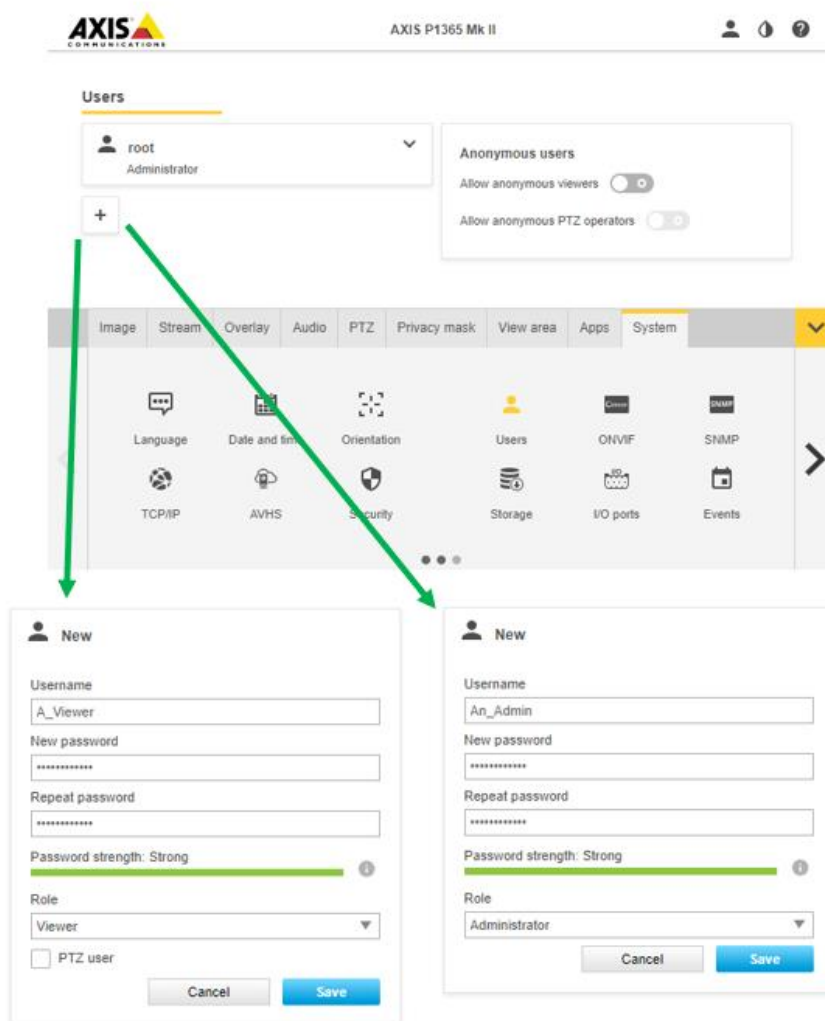
The administrator should immediately create separate access levels for viewer and administrator.

Only Araani Certified Engineers are in title of receiving administrator rights.

Note: Described functionality in section 2.2.2 - 2.3 is only available to Certified Araani Engineers or Araani Field Engineers.

2.2.2. CREATING USERS AND DEFINE ACCESS LEVELS

Creating new users with different access levels can be done in Section **System > Users**



2.2.3. ASSIGNING AN IP-ADDRESS

A new IP-address can be assigned in the following way: **System > TCP/IP**

Don't forget to press the save-button before changes are activated.

2.2.4. ADJUSTING TIME AND DATE

Choose the option on how you want to synchronize the camera time.

To guarantee correct behavior it is **required to synchronize** time and date!

2.2.5. CAMERA SET-UP

Your product is delivered with the optimal camera settings already PRE-configured in the camera.

Do not change these settings!

Any change in these settings violate the conditions for CNPP-certification!

In the exceptional case the device must be reinstalled after a Reset to default, adjust the Camera settings to the required settings for SmokeCatcher. These settings can be found in [Appendix C: Required camera settings](#)

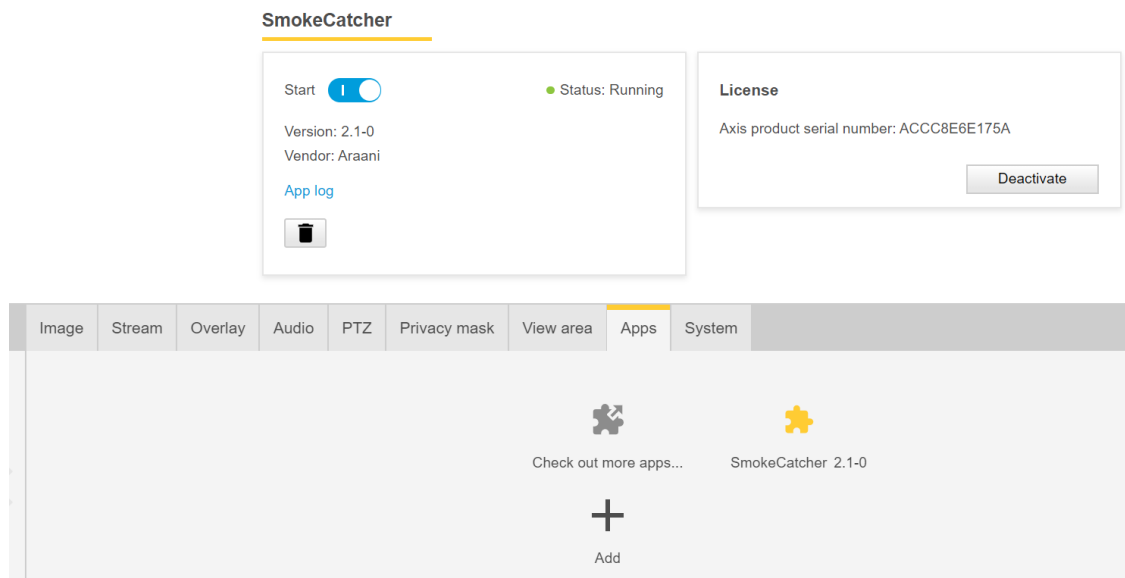
Following the guidelines for the camera settings is crucial for correct behavior of SmokeCatcher!

Without correct settings, correct behavior of detection cannot be guaranteed, and certification is violated!

2.2.6. STARTING THE SOFTWARE

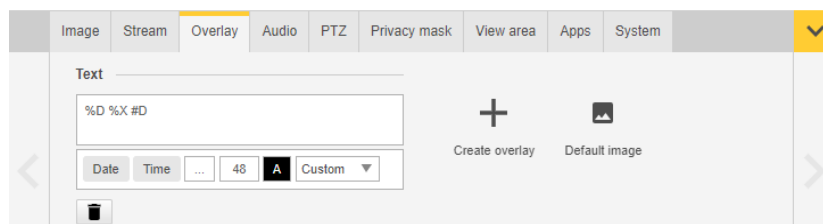
Visit the Applications overview window to start SmokeCatcher. Select the SmokeCatcher application.

Click the “Start” Button.



2.2.7. SHOWING DATE, HOUR AND STATE OF SMOKECATCHER®

Go to tab “Overlay” and create a new overlay text. Type **%D %X #D** in the text field.



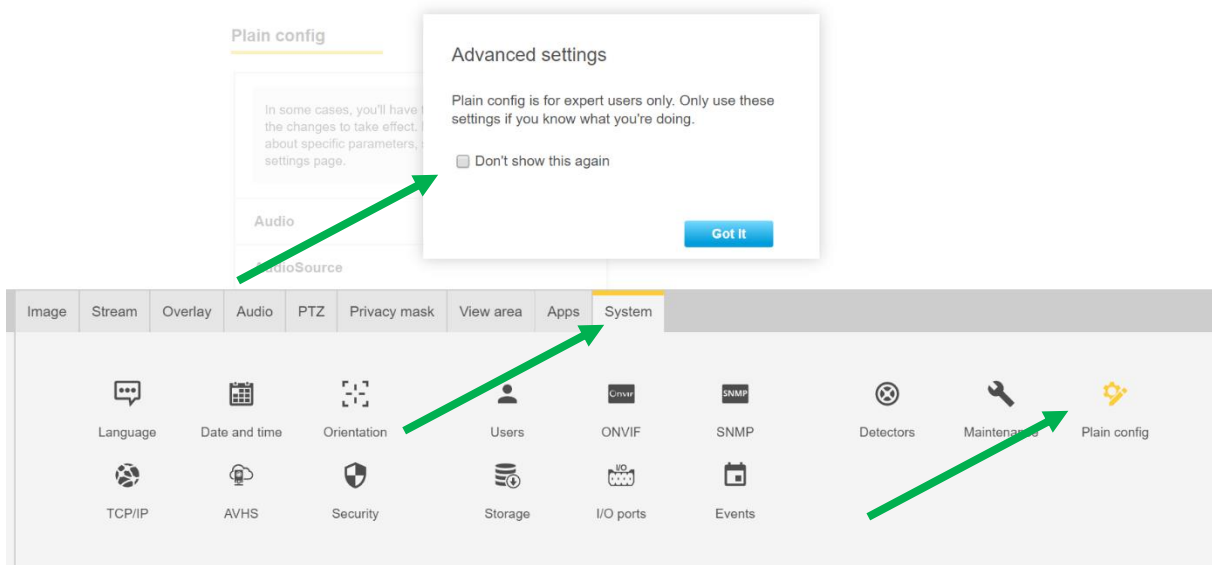
2.3. CONFIGURING SMOKECATCHER®

SmokeCatcher is pre-configured with default settings.

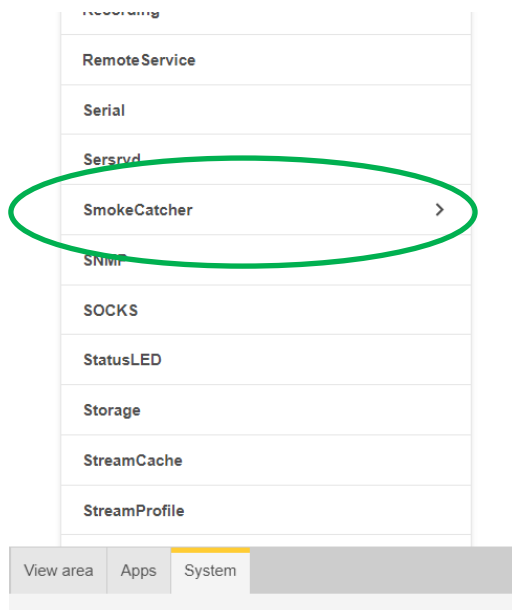
Only Araani Certified Engineers may have access to these settings and adjust them according to site specific needs.

Go to page **System > Plain Config**.

When you connect for the first time, a window “Advanced Settings” will appear. Click “Don’t show this again” and continue.



A list with all camera settings will appear. Scroll down until “SmokeCatcher” appears in the menu and open it with all parameters in this tab.



Scroll back up to view the SmokeCatcher settings.

SmokeCatcher

Light change percentage
 [20..50]

Minimum scene detail
 [50..70]

Min motion size
 [3..5]

Motion threshold
 [90..110]

Output latch timeout
 [0..120]

Pre smoke alarm delay
 [2..10]

Pre smoke alarm min coverage
 [2..6]

Pre smoke alarm sensor sensitivity
 [50..70]

Smoke alarm delay
 [2..10]

Smoke alarm min coverage
 [2..4]

Smoke alarm sensor sensitivity
 [50..85]

Cancel

Save

Don't forget to press the save button after changing a setting.

Note: Changes to SmokeCatcher settings have only effect when SmokeCatcher is running!

The settings are divided in 4 blocks:

- Block 1 reflects the general scene and nature of the site SmokeCatcher will have to operate in
- Block 2 reflects the integration to the CIE
- Block 3 reflects the Pre-Alarm settings
- Block 4 reflects the Alarm settings

Short explanation of each settings is given here:

Parameter	Explanation
Light change percentage [%]	<p>The minimum part of the field of view that needs to be affected by abrupt light change before light change compensation is activated.</p> <p>Min: 20% Default: 40% Max: 50%</p> <p>A lower value makes the detector more robust to unwanted alarms on light changes but might make it a little less sensitive.</p>
Minimum scene detail [%]	<p>Minimum percentage of the background that needs enough contrast to allow proper functioning of the analytics.</p> <p>Min: 50% Default: 60% Max: 70%</p> <p>It is recommended to leave this parameter at default setting. The only exception to lower it is in case masking zones are applied in the field of view.</p>
Min motion size [%]	<p>Minimum size of a moving object (bulldozer / truck / ...) (expressed in % of the field of view) to be detected.</p> <p>Min: 3% Default: 3% Max: 5%</p> <p>It is recommended to leave this parameter at default setting.</p>
Motion threshold	<p>Amount of disturbance caused by moving objects.</p> <p>Min: 90% Default: 100% Max: 110%</p> <p>It is recommended to leave this parameter at default setting.</p>
Output latch timeout	<p>Output latch timeout used by the interface. (see § 1.2.3.3)</p> <p>0s: The interface OUTPUTs operate in latched mode.</p> <p>1...120s: The interface OUTPUTs operate in a non-latching mode.</p> <p>With output latch timeout you can control the MINIMUM time the OUTPUTs are activated.</p> <p>Example: Output latch timeout is set to 100s.</p> <p>If SmokeCatcher generates a SMOKE event for 20s then the actual SMOKE OUTPUT with triggered for 100s.</p>
Pre smoke alarm delay [s]	<p>If the Pre-Alarm condition is continuously present during this time, a Pre-Alarm is generated</p> <p>Min: 2s Default: 5s Max: 10s</p>
Pre smoke alarm min coverage [%]	<p>Percentage of the scene that needs to meet the requirements for Pre-Alarm (see next setting) before a Pre-Alarm is reported.</p> <p>Min: 2% Default: 3% Max: 6%</p>

	The higher the value, the less sensitive detection. Can be set to minimum in extremely controlled environments for extreme sensitive detection, can be increased in waste recycling plants to eliminate unwanted alarms on dust.
Pre smoke alarm sensor sensitivity [%]	Sensitivity of the sensor to Pre-Alarm Min: 50% Default: 60% Max: 70% The higher the value, the more sensitive detection, but more risk on unwanted alarms. Can be set to maximum in extreme controlled environments, can be set to minimum in waste recycling plants.
Smoke alarm delay [s]	If the Alarm condition is continuously present during this time, an Alarm is generated Min: 2s Default: 5s Max: 10s
Smoke alarm min coverage [%]	Percentage of the scene that needs to meet the requirements for Alarm (see next setting) before an Alarm is reported. Min: 2% Default: 2% Max: 4% The higher the value, the less sensitive detection.
Smoke alarm sensor sensitivity [%]	Sensitivity of the sensor to Alarm Min: 50% Default: 85% Max: 85% The higher the value, the more sensitive detection, but more risk on unwanted alarms. Can be set to minimum in waste recycling plants.

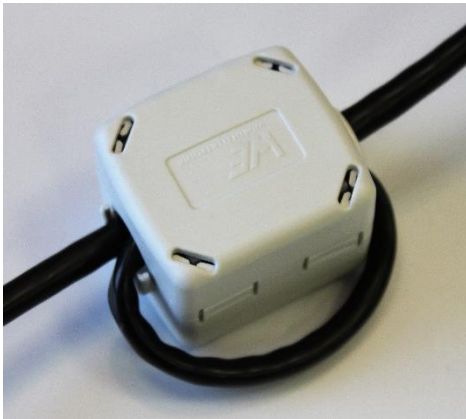
Important note: For the product to be compliant to ISO/TS 7240-29:2017 or CNPP-certification, the values of the parameters should be within the ranges stated above.

2.4. MOUNTING INSTRUCTIONS

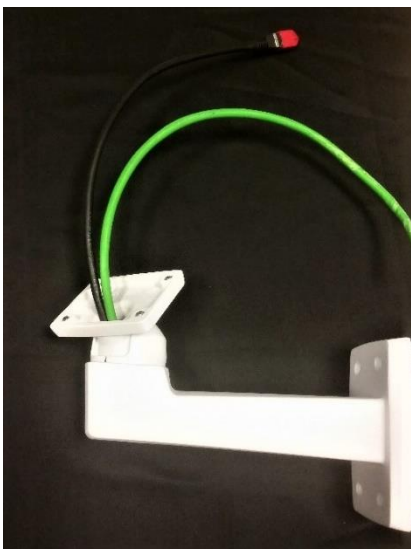
2.4.1. MOUNT THE FERRITE CLAMP

- Attach the provided ferrite core on the network cable as shown in the image.
Notice that the network cable makes 2 turns.

Slide cable with ferrite clamp into the internal sleeve of the bracket up to the end.



2.4.2. INSTALL THE BRACKET



- Install the UTP/STP cable through the bracket. (NETWORK)
- Install the ALARM cable through the bracket. (POWER & IO)
- Mount the bracket on the wall.
- Mount the camera roughly in parallel with the bracket
- Do not mount the camera under a 90° angle compared to the bracket.



- For UTP/STP cable with the RJ45 connector already attached mount the connector guard. The connector guard is there to protect the cable gasket from tearing.

2.4.3. ATTACH THE HOUSING TO THE BRACKET



- Push the UTP/STP cable through the cable gasket. Make sure that there is enough cable for the final connection.
- Push the ALARM cable through the cable gasket. Make sure that there is enough cable for the final connection.
- Mount the bottom cover on the bracket.

2.4.4. CONNECT THE CABLES

- Plug in the UTP/STP cable.
- Connect the POWER (see § 1.2.3.2 for more information)
- Connect the IO (see § 1.2.3.3 for more information)

2.4.5. ADJUSTING FIELD OF VIEW AND FOCUS

Open a browser and connect to the camera. Select the wanted field of view by adjusting the camera direction, the zoom and the focus.

Browse to Basic Settings > Focus > Advanced Focus

Follow the instructions step by step in the Advanced Focus window.

Don't forget to:

- perform last step in the Advanced focus procedure: Reset Original Iris Position
- tighten the focus and zoom screws on the lens to ensure they stay fixate

2.4.6. POSITIONING THE CAMERA IN THE HOUSING

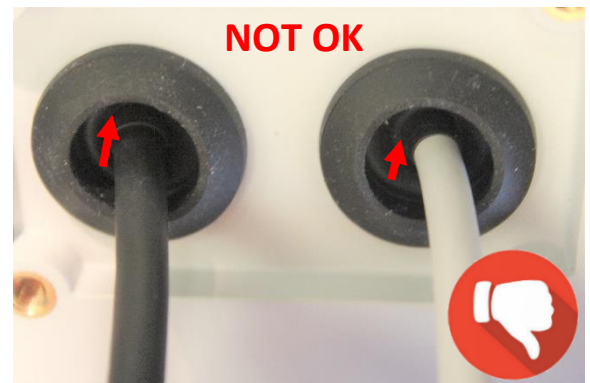
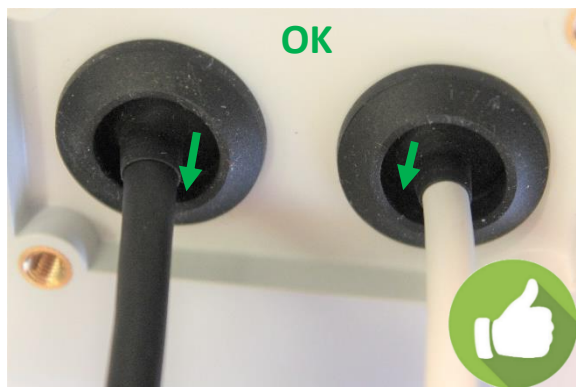
Position the camera in the housing with the lens as close as possible to the window, just without touching the window.

2.4.7. CLOSE THE HOUSING



- Push the UTP/STP cable and ALARM cable down so that the cable gasket adjust itself on the cable. Make sure the gaskets are fitted properly.

Note: not pulling the cable back could cause water to seep in.



- Place the top cover on the bottom cover; making sure no cables are pinched when closing.
- Fasten the screws a few turns at a time until fully closed. The bottom cover gasket should be compressed evenly.

2.4.8. FINAL FOCUS

Browse again to Basic Settings > Focus and perform a regular Focus procedure to compensate for the last changes.

2.5. INSTALLATION REPORT

After finalizing an installation onsite, all relevant information of this site should be documented. After each installation a short test (Factory Acceptance Test) should be performed to validate performance of SmokeCatcher.

A good installation report should consist of (but not limited to) all the items required in the Installation Report Template which can be found in [APPENDIX D](#).

After the Factory Acceptance Test the document should be signed off by the installer and the customer.

2.6. FIELD INTERVENTION REPORT

Throughout fine-tuning and perhaps adaptations to the installation it's best to log all these changes and findings. Each intervention should have a report. The latest report should always contain a copy of the previous actions. This makes it easy to follow-up the changes in time without the need to open several documents.

Template FIR can be found in [Appendix E](#).

3. COMMISSIONING

3.1. SMALL-SCALE FIRE TEST / RECOMMENDED COMMISSIONING TEST

The recommended small-scale fire test is the following:

NBN S21-100-1:2015 A.3 Typehaard met beukenhouten stokjes (brand die heldere rook produceert)

Apply adjusting correction factors a1 and a2 for surface, height and air velocity according to section NBN S21-100-1:2015 9.2.7.

In some environments, performing a live smoke test is not possible. (Impact on a production process, health inspection, poor ventilation, high risk area ...)

As a solution for this, we offer a performance test based on filters. These test filters are transparent foils which are held in front of the camera lens. For good performance SmokeCatcher needs to detect smoke within the delay configured in the SmokeCatcher parameters. Please contact support@araani.com for more information.

3.2. COMMISSIONING INSTRUCTIONS

Commissioning instructions are dependent on local regulations. Check the commissioning and initial control instructions applicable in the country of the installation.

Belgium: NBN S 21-100-1 Branddetectie- en brandmeldsystemen – Deel 1

France: NF S61-970 - Règles d'installation des Systèmes de Détection Incendie (SDI)

3.3. COMMISSIONING REPORT

A Commissioning Report is a document containing all the relevant site information available and includes the Site Acceptance Test. This test validates good operation for the customer. After validation this document should be signed off by the customer and finalizes the installation.

A template can be found in [Appendix F](#).

4. MAINTENANCE PROCEDURE

For consistent performance of the SmokeCatcher, periodic maintenance of the camera is necessary.

4.1. FAULT SIGNAL – TROUBLE SHOOT

A fault signal may have several causes. Follow the checklist to make a diagnosis and solve it according to the proposed solution.

Possible cause	Check	Solution
Power supply	Is the device powered up?	Provide appropriate power supply.
All other cases:	Browse to IP-address and check video:	
Camera	If the camera is unresponsive, check for defect.	Replace camera.
Lens out of focus	Lens is out of focus	Refocus + try to find out what was the cause.
Too dark	Dark image. Ambient light level < 5 lx.	Increase ambient light level.
Non-uniform illumination	Strong incident light combined with dark parts in FOV. ($I_{ratio} > 500$)	Increase ambient light level in the dark parts (permanently or temporary) until SmokeCatcher® reaches Operational state.
Camera blocking	Large parts in the FOV without contrast. Or: camera is facing wall or floor without contrast.	Remove the blocking and/or reposition the camera. Stop and Start SmokeCatcher.
Camera motion	The camera has been displaced from its original position.	Reposition the camera to match the original reference FOV. Stop en Start SmokeCatcher.
Dirt on camera window	Browse to the camera. Compare with reference image. Check if there is degradation of the image quality.	Clean the camera according tot he procedure described in section 4.4. Stop and start SmokeCatcher.
None of the causes above		Contact support@araani.com

4.2. MAINTENANCE PROCEDURE

Following maintenance procedure should be performed at least once a year.

Step	Action	Check
1.	Deactivate the Alarm Panel so alarms are avoided	
2.	Stop SmokeCatcher	
3.	Clean camera window (Clean the rest of the camera if necessary)	
4.	Re-focus lens	
5.	Update Firmware if available and if approved by Araani. (Check camera settings consistency after upgrade)	
6.	Update SmokeCatcher software if available	
7.	Start SmokeCatcher software	
8.	check if the Operational Signal remains for over 30 seconds	
9.	Activate Alarm Panel when all previous checks are successful	

4.3. AFTER INCIDENT MAINTENANCE / CURATIVE MAINTENANCE

Complete a full maintenance and system checkup after every fire incident at a site to ensure the system is not compromised with incidental damage or pollution of the camera window.

Therefor perform steps 1-9 from 6.2. except step 5 and 6.

4.4. HOW TO CLEAN THE CAMERA WINDOW

Be careful not to scratch or damage the camera window, especially directly in front of the lens!

Never use harsh detergents, gasoline, benzene or acetone, etc. and avoid cleaning in direct sunlight or at elevated temperatures!

Based on the state of the window, perform following steps at maintenance:

State of the window	Cleaning Steps
Window still looks clean, no degradation or blurriness of video image	Do not clean the window since excessive cleaning can damage the surface
Slight uniform layer of small dust particles	Use a soft microfiber cloth, special for optics. Rinse well with clean lukewarm water. Dry with another soft microfiber cloth to prevent water spotting
Thick dirt layer, or spots with abrasive large dust particles	<p>First remove the large dust particles from the window using a soft brush. Wiping the window with dust still on it could lead to scratches. Be sure to use a brush with soft bristles.</p> <p>Then rinse the window with a soft microfiber cloth as described in previous step.</p>

APPENDIX A - BOSEC CERTIFICATE NR: B - 9348 - FD - K 1039 - VERSION A

SmokeCatcher® P/N 8000001 has been BOSEC Certified

BOSEC: Certificate nr: B - 9348 - FD - K 1039 - version a

Based on the conformity with:

- BOSEC Mark Rules
- NTN 177-C:2018
- **NTN 177-L:2019 - Video Smoke Detectors – Part L: Additional requirements** to ISO/TS 7240-29 – Prescriptions and laboratory tests.
- **ISO/TS 7240-29:2017 – Fire detection and alarm systems – Part 29: Video fire detectors Type A – Smoke Detector**

Based upon the test report of the laboratories ANPI:

- **BFS/REDI/589 - 2019.06.17.**

The product has been certified with the following sub-configuration:

Camera	Axis P1365 MKII
Camera Housing	Axis T93F10 Outdoor Housing
Lens	IR corrected, CS-mount lens, P-Iris Varifocal 2.8–8 mm, F1.3 Horizontal field of view: 84°–39° Vertical field of view: 46°–21°
Camera firmware	FW 6.50.1.2
Camera settings	Araani required camera settings: See Appendix C
SmokeCatcher	V2.01
SmokeCatcher settings	Default settings described in section 2.4 Configuring SmokeCatcher®

The product has been certified according to following manufacturer options:

Detector type	Type A – Smoke
Detector range	Maximum distance camera to fire: 22m
IP-rating	Outdoor - IP65
Ambient light operating level	5 – 10 000 lx
Operating temperature	Outdoor 1: -25°C to 70°C Outdoor 2: -40°C to 55°C
Small scale test fire	As defined in section 4.1. Small Scale Test Fire

Including following optional tests:

5.11.7 Rotating Beacon - Optional	Light source immunity test with a red and amber colored beacon.
5.12 Arc Welding - Optional	Immunity of the detector to arc welding
5.15 Dry heat (Operational) - Optional	To demonstrate the ability of the detector with a declared maximum operating temperature of 70 °C to function correctly at high ambient temperatures which can occur for short periods in outdoor service environments.
5.17 Cold (Operational) - Optional	To demonstrate the ability of the detector with a declared minimum operating temperature of -40 °C to function correctly at low ambient temperatures which can occur for short periods in outdoor service environments.

Other requirements for a Bsec-conform installation:

- The camera settings need to be set exactly as described in [APPENDIX C](#).
- SmokeCatcher® settings need to be within the range described in section [2.4 Configuration de SmokeCatcher®](#).
- The cameras need to be powered by an EN54-4 conform alimentation.
- All other user and installation requirements described in this manual need to be respected.

In case one of these requirements is not respected, Araani NV cannot guarantee conformity to this standard.

APPENDIX B - CERTIFICATION CNPP

SmokeCatcher® P/N 8000001 a été testé par CNPP France selon la certification du produit suivante :

CNPP - SPÉCIFICATION TECHNIQUE - ST LPMES - DÉC.18.005

INCENDIE - Système de détection de fumées et/ou de flammes par analyse d'image

Type : Détecteur de Fumée

Le produit a été certifié avec la sous-configuration suivante :

Caméra	Axis P1365 MKII
Objectif	2.8-8 mm à focale variable
Micrologiciel de la caméra	FW 6.50.1.2
Paramètres de la caméra	Paramètres de la caméra requis par Araani : Voir Annexe B
SmokeCatcher	V2.01
Paramètres de SmokeCatcher	Paramètres par défaut décrits dans la section 2.4 Configuration de SmokeCatcher®

Le produit a été certifié en fonction des options suivantes du fabricant :

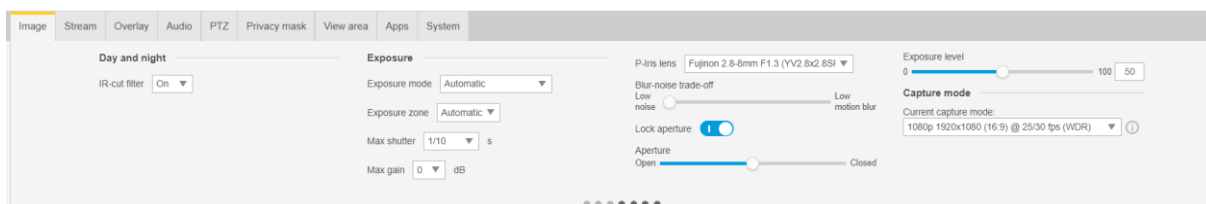
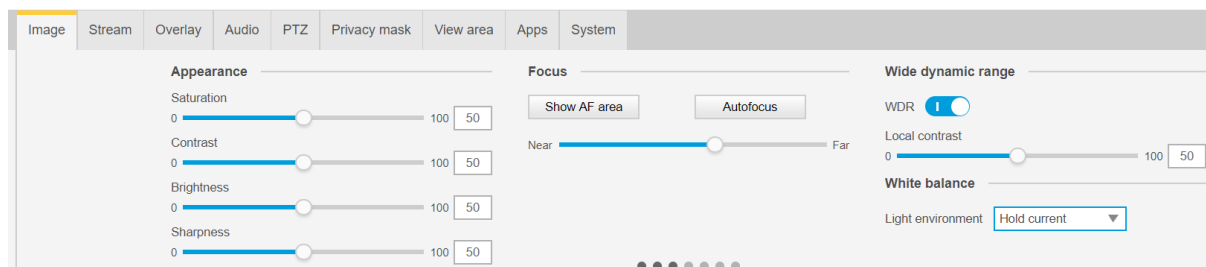
Type de détecteur	Détecteur de Fumée
NF EN 62 262	IP66
NF EN 60 529	IK06
Température	-25 °C à 70 °C

Exigences pour une installation compatible CNPP :

- Les paramètres de la caméra doivent être réglés comme décrit dans l'Annexe B.
- Les paramètres de SmokeCatcher doivent se situer dans la plage des valeurs minimales et maximales décrites dans la section [2.4 Configuration de SmokeCatcher®](#).
- Le système doit être alimenté par une source d'alimentation **conforme à l'EN 54-4**.
- Toutes les autres exigences d'utilisation et d'installation décrites dans ce manuel doivent être respectées.

En cas de non-respect de l'une des exigences ci-dessus, Araani SA ne peut garantir la conformité à la SPECIFICATION TECHNIQUE CNPP - ST LPMES - DEC.18.005

APPENDIX C – REQUIRED CAMERA SETTINGS



APPENDIX D – TEMPLATE INSTALLATION REPORT (FAT)

INSTALLATION REPORT

Location:	<i>Customer Name</i> <i>Location</i>	Present:	
Date:	<i>dd/mm/yyyy</i>		
Author:			

Referenced Documents	Type	Date
<i>Document name</i>	<i>Floorplan / Information from customer / Other</i>	<i>dd/mm/yyyy</i>

Objectives:

1.	Short description of the objectives of this installation.
	<i>Type of risk to detect, ideally insert the risk analysis.</i>
2.	Special site remarks.
	<i>Are there specific deviations or issues to consider?</i> <i>Environmental information?</i> <i>Special activity schedules?</i> <i>Other?</i>
3.	Acceptance criteria
	<i>Wanted behavior + how to test and validate.</i>

Actions on site:

Item	Description
1. Site overview	
Floorplan of the camera positions Connection to CIE Alimentation EN54-4 Overall illumination	<i>Describe how the devices are integrated into the fire safety system – Primary function</i> <i>CIE-schedules</i>
2. SmokeCatcher®	
Version:	
3. Per camera information	
Camera Name: IP-address: Username: Password: SmokeCatcher settings: Screenshot FOV (= Reference):	
... next camera	
4. Network information and ancillary information	
Time Sync: Connection to VMS: Continuous recording: Remote access:	<i>If the cameras are also integrated into a network, describe the set-up.</i> <i>If any, link to storage + credentials</i> <i>Is there remote access to the site and if yes, how?</i>
5. Results Factory Acceptance Test	
Type of smoke test: Position of the smoke test: Time: Result: Screenshot: Link to footage:	

APPENDIX E – TEMPLATE FIELD INTERVENTION REPORT

FIELD INTERVENTION REPORT

Location:	Customer Name Location	Present:	
Date:	dd/mm/yyyy		
Author:			

Referenced Document	Type	Date
Document name	Usually IR / Other	dd/mm/yyyy

1.1	Purpose of intervention		
1.2	Fine-tuning: Results	From: dd/mm/yyyy	To: dd/mm/yyyy
	Camera	Results	Comments and corrective actions
Comments:			
Conclusion:			
1.3	Other actions		

Planned actions:

	Description	Person Responsible	Due Date
1.			
2.			

APPENDIX F – TEMPLATE COMMISSIONING REPORT (SAT)

SITE ACCEPTANCE TEST

Customer Name		Witness	Name	Company	Function
Location:					
Date SAT:	dd/mm/yyyy				
Release date report:	dd/mm/yyyy				
Author:					

Referenced Document	Type	Date
Document name	Floorplan / IR / FIR / Other	dd/mm/yyyy

Summary of latest site parameters:

1.	Short description of the objectives of this installation.		
	Are there any specific deviations or issues to consider? Environmental information? Special activity schedules? Other?		
2.	Special site remarks.		
	Are there specific deviations or issues to consider?		
3.	Summary of fine tuning		
	Start Fine tuning period:	dd/mm/yyyy	
	Duration fine tuning period:		
	Result fine-tuning latest period:	- Unwanted alarms: - Real alarms:	
4.	Acceptance criteria	Check	Comment
	Wanted behavior as agreed in the IR		

Summary of latest installation data:

Item	Description
1. Site overview	
Floorplan of the camera positions Connection to CIE Alimentation EN54-4 Overall illumination	Describe how the devices are integrated into the fire safety system – Primary function CIE-schedules...
2. SmokeCatcher®	
Version:	
3. Per camera check	
Camera Name:	
IP-address:	
Username:	
Password:	
Check if the latest SmokeCatcher settings still match the original ones. In case of a deliberate change, update the new settings.	
Latest settings	
Check if the Screenshot of the latest FOV and the Reference FOV still match. In case of a deliberate change, update the new reference FOV here.	
Screenshot of Reference FOV	
Check minimum illumination	OK / NOK
Check Communication to CIE:	

Simulate Power failure and verify notification on CIE	OK / NOK
Verify Smoke/Pre-smoke/Fault notification to CIE	OK / NOK
Verify SmokeCatcher obtaining operational status	OK / NOK
Next Camera...	
4. Network information and ancillary information	
Time Sync: Connection to VMS: Continuous recording: Remote access:	<i>All still operational?</i>
5. Results Site Acceptance Test – Smoke tests	
Type of smoke test: Position of the smoke test: Time: Result: Screenshot: Link to footage:	

Next actions:

Description	Person Responsible	Due Date
1.		
2.		

Sign off:

Installer	Customer
Place: Date: Name: Function: Signature:	Place: Date: Name: Function: Signature:
Witnesses	Witnesses
Place: Date: Name: Function: Signature:	Place: Date: Name: Function: Signature: