

Operating Instructions Manual

VIEW

Vision-based Intelligent Electronic Warnings

SG004



May 14, 2024

Disclaimer

Thank you for choosing VIEW. Before operating the equipment, please carefully read and understand the following disclaimer. Your safety and the proper use of this equipment are our utmost priorities.

Safety Precautions

- This operator's manual serves as a guide for the safe and proper operation of VIEW. Failure to adhere to the instructions provided in this manual may result in injury or property damage.
- Always follow all safety guidelines and regulations outlined in your tractor's manual.
- Ensure that VIEW is installed, maintained, and used according to the manufacturer's recommendations.
- Exercise caution when operating the tractor, especially in hazardous or challenging terrain.
- Do not modify or alter VIEW in any way that may compromise its safety or functionality.
- Additionally, always follow national traffic regulations when operating VIEW.

Limited Warranty

- This manual does not constitute a warranty of any kind, express or implied. All warranties, including but not limited to the implied warranties of merchantability and fitness for a particular purpose, are disclaimed.
- The manufacturer shall not be liable for any direct, indirect, incidental, special, or consequential damages arising from the use or inability to use VIEW, including but not limited to loss of profits, loss of data, or interruption of business.
- Any modifications or alterations made to VIEW not authorized by the manufacturer may void the warranty.

Proper Use and Maintenance:

- Operate VIEW only as intended and described in this manual. Using the equipment for purposes other than those outlined may result in damage or malfunction.
- Regularly inspect VIEW for signs of wear, damage, or malfunction. Promptly address any issues to ensure safe and reliable operation.
- Use only genuine replacement parts and accessories recommended by the manufacturer.



Limitation of Liability:

In no event shall the manufacturer be liable for any direct, indirect, incidental, special, or consequential damages arising out of or in any way connected with the use of VIEW, whether based on contract, tort, strict liability, or any other legal theory.

Usage Acknowledgement:

By using VIEW, you acknowledge that you have read and understood this disclaimer and agree to be bound by its terms. If you do not agree with any part of this disclaimer, please refrain from using VIEW. This disclaimer may be updated periodically without notice.

For more information, visit <https://access.agcocorp.com/en/products/view.html> or scan the QR code. This QR code can also be found for your convenience at the bottom of every page in this document.



Figure 1: QR Code to access all information about the product

Version Control

| Version | Date | Description |
|---------|--------------|-----------------|
| 1.0 | May 14, 2024 | Initial release |

Table 1: Version Control for Operating Instructions Manual



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1 Introduction

Welcome to VIEW, your companion for enhanced safety on the farm! VIEW is a smart camera system designed specifically for agricultural vehicles to provide you with an extra layer of safety during your operations.

Imagine you're navigating through various terrains – on the road, in the fields, or around your farm – VIEW has got your back. Equipped with advanced computer monitor and cameras, VIEW can detect traffic from any direction, ensuring you're aware of potential hazards, even those sneaky individuals hiding around your vehicle.

Safety is of greatest importance when operating heavy machinery like agricultural vehicles, and that's where VIEW truly excels. With its intelligent technology, VIEW seamlessly switches between different cameras using ISOBUS signals, and utilizes artificial intelligence to identify potential dangers in real-time. Whether it's a beep or a bounding box around the detected object on its 11.6" screen, VIEW promptly alerts you to any coming risks.

Developed collaboratively with tractor drivers like yourself, VIEW is tailored to address the specific challenges you encounter daily. From navigating tricky blind spots to enduring long hours, VIEW is here to support you every step of the way.

And here's the best part – VIEW isn't limited to just your agricultural vehicle. You can easily expand its coverage by adding extra cameras to trailers, ensuring comprehensive safety no matter what you're hauling.

As you familiarize yourself with this manual, always prioritize safety.



Figure 2: Example of hazard prevention using VIEW



2 Operating Instructions

This section provides guidance on the operation of VIEW. From powering on the system to responding to warnings and utilizing advanced features, these instructions offer step-by-step procedures to ensure safe and effective usage. Whether navigating through fields or maneuvering on roads, operators will find detailed information to enhance visibility, mitigate hazards, and maximize the benefits of using VIEW.

2.1 Power On and Initialization

1. Start the vehicle's engine as per the manufacturer's guidelines.
2. Ensure the SMAG Terminal Power and ISOBUS Cable is plugged into the SMAG Terminal and the power socket on the vehicle.
3. VIEW, will then start up automatically after receiving power.
4. Wait for the system to initialize. This process may take up to 30 seconds as the cameras and software boot up.

2.2 User Interface

The user interface consist mainly on two elements: the **Camera/s View** and the **Settings Menu**.

2.2.1 Camera/s View

Right after boot up, the user will be presented with the Camera/s View. There are 3 available configurations:

1. All Cameras View Mode

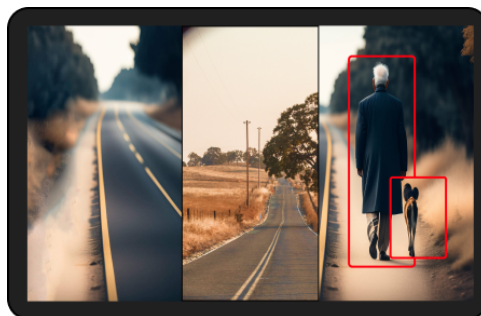


Figure 3: Triple Camera View Mode Example



In this configuration, the Left Front Camera view will occupy the left side of the screen, the Rearview Camera view will be positioned in the middle, and the Right Front Camera view will be displayed on the right side. Each camera view will be evenly distributed horizontally and extend vertically to fill the entire screen.

2. Front Cameras View Mode



Figure 4: Front Cameras View Mode Example

In this mode, the Left Front Camera will be positioned on the left side of the screen, while the Right Front Camera will appear on the right side. Both camera views will occupy an equal amount of horizontal space and extend vertically to fill the entire screen.

3. Rearview or Trailer Camera Mode

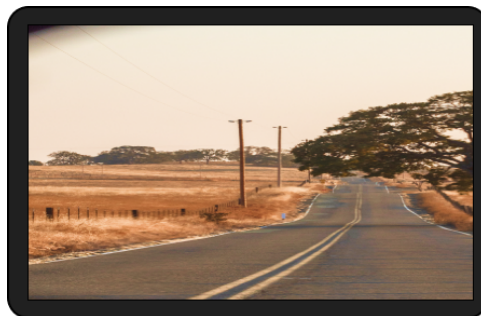


Figure 5: Rearview Camera View Mode Example

In this mode, the entire screen will display the Rearview Camera feed. If a trailer camera is connected, this screen will display the Trailer Camera feed instead.



How can I alternate between the different view configurations?

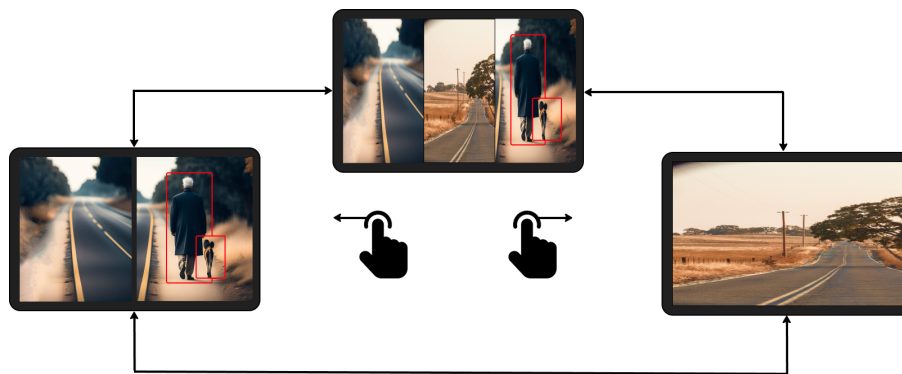


Figure 6: Diagram showing how to alternate between the different view configurations

To switch between the different camera views, users can slide their finger on the screen either from left to right or right to left. This gesture allows for alternating between the following modes: **1. All Cameras View Mode**, **2. Front Cameras View Mode**, and **3. Rearview or Trailer Camera Mode**.

2.2.2 Settings Menu

In the settings menu, all the settings to customize VIEW can be found.

How can I access the Settings Menu?



Figure 7: Diagram showing how to access the settings menu

To access the Settings Menu, simply swipe downward from the top to the bottom of the screen. For a visual representation, please refer to the diagram above.

Settings Menu: Widget Overview

In the image below, an overview of the settings interface is shown. The settings menu is organized in a widget structure.



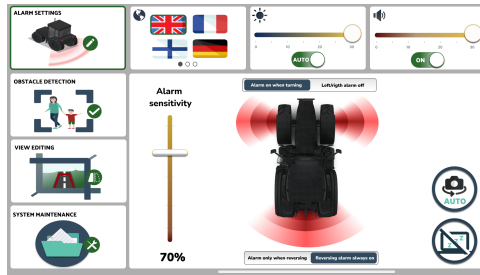


Figure 8: Overview of the Settings Menu

In the coming sections, a detailed descriptions of each widget will be provided, clarifying their purpose, functionality, location within the interface, and instructions on their utilization.

1. Volume Widget

For a detailed description of the Volume Widget refer to the table below.

| Volume Widget | |
|------------------------|---|
| Section | Description |
| Widget Overview | As part of the hazard alert system, when objects are detected, "VIEW" alerts the user with a visual and audible alarm. Within this menu, users can adjust the volume of the audible alarm by moving the slider or completely disabling sound by pressing on the switch. |
| Instructions | To adjust the volume of the audible alarm, users can move the slider to their desired level. Alternatively, to completely disable the sound, they can toggle the switch to the off position. |

Table 2: Description of the Volume Widget

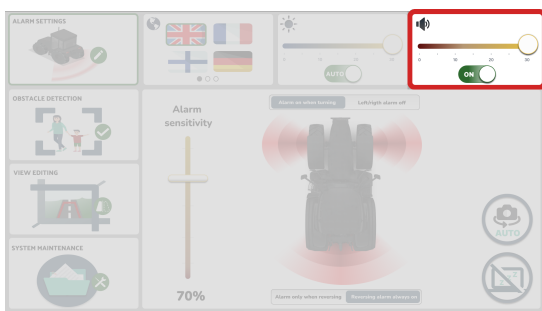


Figure 9: Location on the Settings Menu

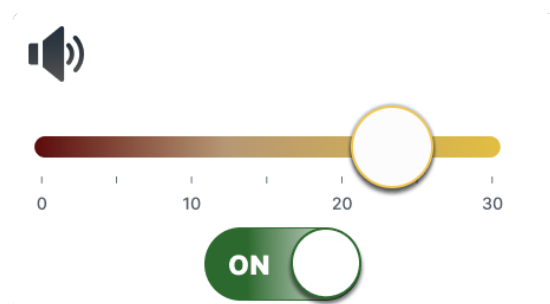


Figure 10: Zoomed in

Figure 11: Volume Widget Overview



2. Screen Brightness Widget

For a detailed description of the Screen Brightness Widget refer to the table below.

| Screen Brightness Widget | |
|--------------------------|--|
| Section | Description |
| Widget Overview | The screen brightness widget provides users with the capability to adjust the brightness level of the display. Additionally, users can opt for automatic brightness adjustment by utilizing a screen built-in light sensor. |
| Instructions | To adjust the screen brightness manually, users can slide the slider to their desired level. Alternatively, to enable automatic brightness adjustment, they can toggle the switch to the "AUTO" position for utilizing the light sensor thereby adjusting the screen brightness automatically depending on the lighting conditions in the cab. |

Table 3: Description of the Screen Brightness Widget

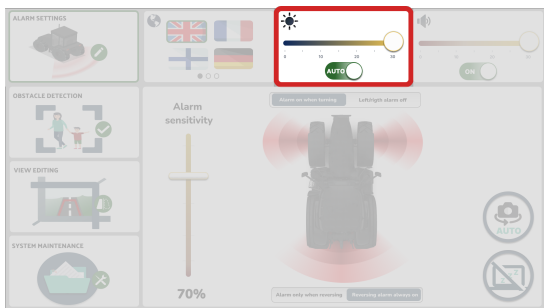


Figure 12: Location on the Settings Menu

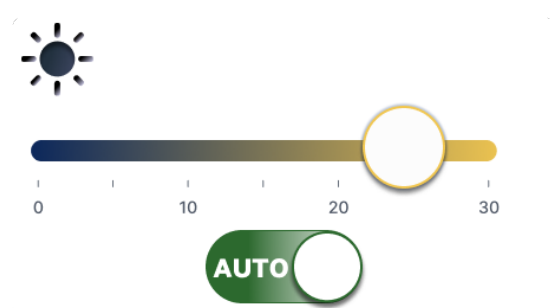


Figure 13: Zoomed in

Figure 14: Screen Brightness Widget Overview



3. Languages Widget

For a detailed description of the Languages Widget refer to the table below.

| Languages Widget | |
|------------------|---|
| Section | Description |
| Widget Overview | The languages widget allows users to choose their preferred in-app language by selecting the corresponding country flag. |
| Instructions | To select a language, simply tap on the flag of the respective country where the language is spoken. Note that only four languages are visible at a time, but users can swipe left or right to access additional options. Currently supported languages in VIEW include: English, Spanish, French, Finnish, German, Danish, Swedish, and Norwegian. |

Table 4: Description of the Languages Widget

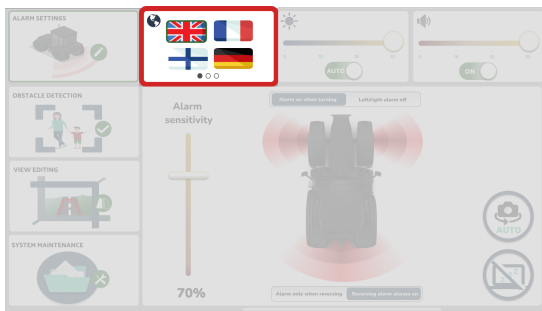


Figure 15: Location on the Settings Menu



Figure 16: Zoomed in

Figure 17: Languages Widget Overview



4. Alarm Settings Widget

For a detailed description of the Alarm Settings Widget refer to the table and content below.

| Alarm Settings Widget | |
|-----------------------|--|
| Section | Description |
| Widget Overview | VIEW notifies the operator of hazards using audible and visual alarms. The alarm settings widget is designed to customize how and when does the user want to be alerted when a hazard has been detected. |

Table 5: Description of the Alarm Settings Widget

In the image below, an overview of the Alarm Settings Widget and its location in the Settings Menu can be seen.

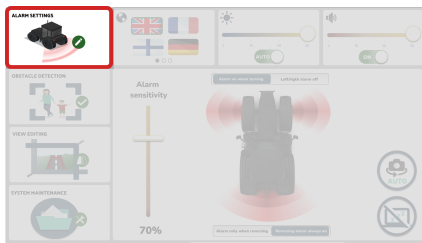


Figure 18: Location on the Settings Menu

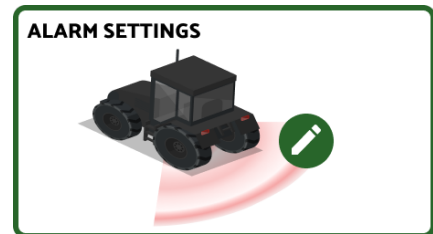


Figure 19: Zoomed in

Figure 20: Alarm Settings Widget Overview

Instructions

When pressing on the alarm settings widget, its contents will open up on the big widget in the bottom right corner.



Figure 21: Alarm Settings Widget Content Overview (divided into 3 parts: Alarm sensitivity slider, Alarms Toggle, and Quick Action Buttons)



This widget is divided into 3 sections:

A) Alarm Sensitivity

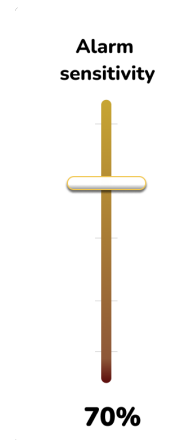


Figure 22: Alarm Sensitivity Slider

On the left side, there's a vertical slider labeled "Alarm Sensitivity". This slider helps control how many objects VIEW detects. A lower sensitivity means fewer false detections but a higher chance of missing real objects, and vice versa. As the slider is moved, the red areas next to the front wheels and rear of the tractor illustration will fade. The lower the slider, the more faded these areas become, indicating a higher chance of missing detections.

B) Alarm Toggles



Figure 23: Audible Alarm Configuration



In the middle section, there are two toggle buttons. At the top, there are options for "Alarm on when turning" and "Left/right alarm off". Choosing "Alarm on when turning" means VIEW will only sound the alarm when the turn signal lever is used to turn left or right (assuming VIEW is connected to ISOBUS). If "Left/right alarm off" is selected, this feature will be disabled.

Moving to the bottom section, the options are "Alarm only when reversing" and "Reversing alarm always on". Selecting "Alarm only when reversing" means VIEW will only sound the alarm when in reverse gear (assuming VIEW is connected to ISOBUS). If "Reversing alarm always on" is chosen, VIEW will sound the alarm regardless of the gear engaged.

C) Quick Action Buttons



Figure 24: Quick Action Buttons

On the right side, there are two quick action buttons. If the top one is labeled "AUTO", VIEW automatically switches the camera view to 2. **Front Cameras View Mode** when the turn signal lever is used and to 3. **Rearview or Trailer Camera Mode** when reverse gear is engaged. This feature will only work if VIEW is connected to ISOBUS. Alternatively, if set to "MAN", VIEW will not change camera views using ISOBUS signals, and manual adjustment will be required by the operator.

The bottom quick action button dims the screen completely, putting VIEW into a "Sleep Mode" with a black screen. To brighten the screen again, simply tap anywhere on it.



5. Obstacle Detection Widget

For a detailed description of the Obstacle Detection Widget refer to the table and content below.

| Obstacle Detection Widget | |
|---------------------------|--|
| Section | Description |
| Widget Overview | This widget allows users to customize their visual alert preferences, controlling when and how alerts are displayed over camera views. It highlights detected objects by VIEW with bounding boxes. |

Table 6: Description of the Obstacle Detection Widget

In the image below, an overview of the Obstacle Detection Widget and its location in the Settings Menu can be seen.

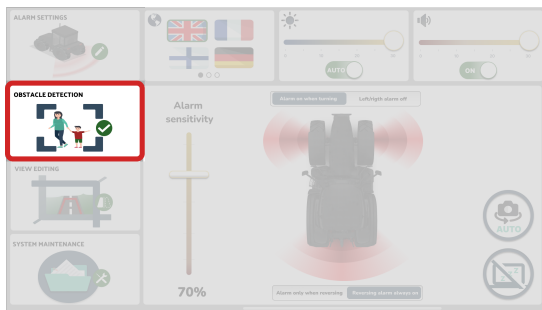


Figure 25: Location on the Settings Menu

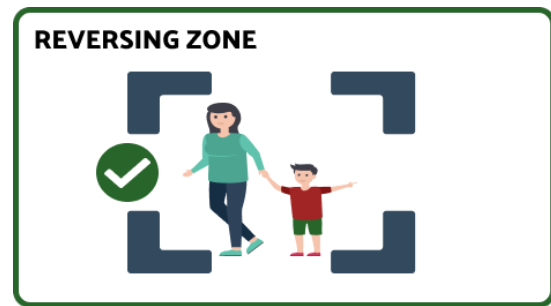


Figure 26: Zoomed in

Figure 27: Obstacle Detection Widget Overview

Instructions

When pressing on the Obstacle Detection widget, its contents will open up on the big widget in the bottom right corner.

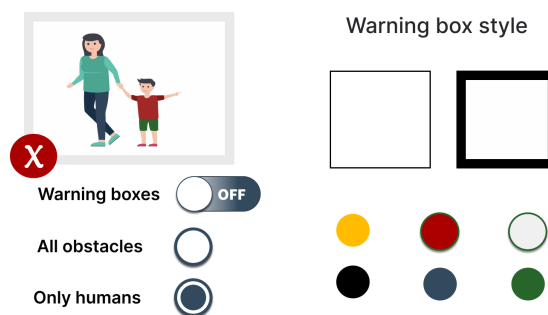


Figure 28: Obstacle Detection Widget Content Overview



This widget can be divided into 4 sections:

A) Obstacle Detection Current Configuration Illustration

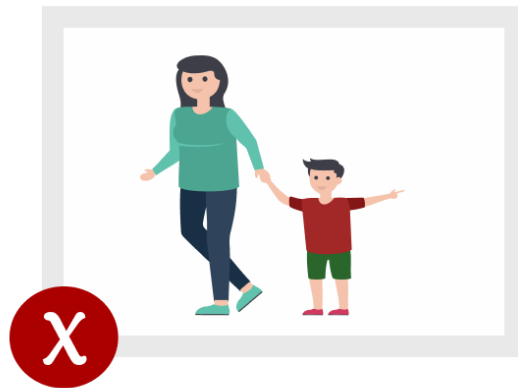


Figure 29: Obstacle Detection Current Configuration Illustration

This section provides a graphical representation of the current obstacle detection settings. Whenever the user modifies any setting in this widget, the resulting changes will be visually reflected in this illustration.

B) "Warning boxes" Switch

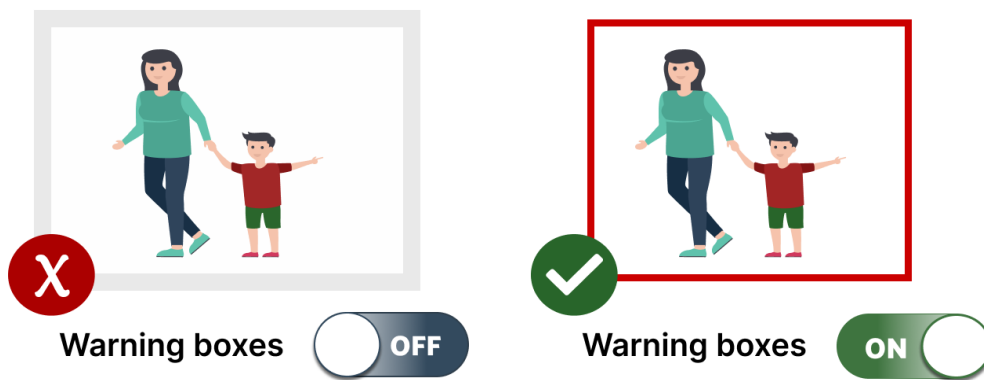


Figure 30: Warning Boxes Switch

Directly below the Obstacle Detection Current Configuration Illustration, users will encounter the "Warning boxes" switch. When toggled to "OFF", no visual warnings will overlay the camera feeds. Conversely, when set to "ON", a bounding box will enclose each detected obstacle.



C) "All obstacles" vs "Only humans"



Figure 31: All obstacles vs Only humans

Moving down, users can choose between detecting "All obstacles" or "Only humans". Opting for "All obstacles" enables VIEW to detect a variety of objects including: humans, bicycles, cars, buses, trucks, motorbikes, cats, dogs, cows and horses. Conversely, selecting "Only humans" restricts detection solely to people, disregarding other object classes.

D) "Warning box style"

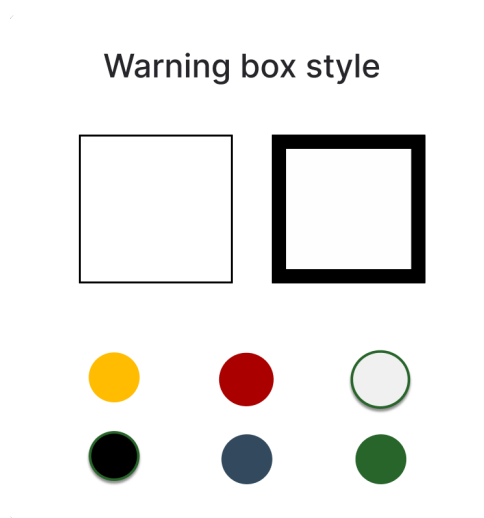


Figure 32: Warning box style

On the right side of the widget, users can customize the thickness and color of the bounding boxes surrounding detected obstacles. Thickness options include "thin", illustrated with a thin square, and "thick", illustrated with a thicker square. For color, six options are available, each represented by a colored circle. The selected color is highlighted with a ring around it.



6. Camera View Editing Widget

For a detailed description of the Camera View Editing Widget refer to the table and content below.

| Camera View Editing Widget | |
|----------------------------|---|
| Section | Description |
| Widget Overview | This widget allows users to customize their camera view preferences individually for each of the cameras. This includes flipping the camera view vertically and horizontally, adjusting the camera angle, cropping the camera view to a specific region, and only on the rear camera, create and adjust a warning zone. |

Table 7: Description of the Camera View Editing Widget

In the image below, an overview of the Camera View Editing Widget and its location in the Settings Menu can be seen.



Figure 33: Location on the Settings Menu

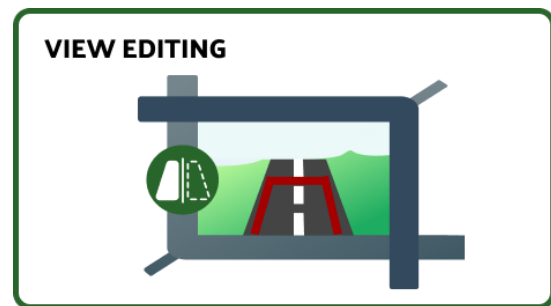


Figure 34: Zoomed in

Figure 35: Camera View Editing Widget Overview

Instructions

When pressing on the Camera View Editing widget, its contents will open up on the big widget in the bottom right corner.



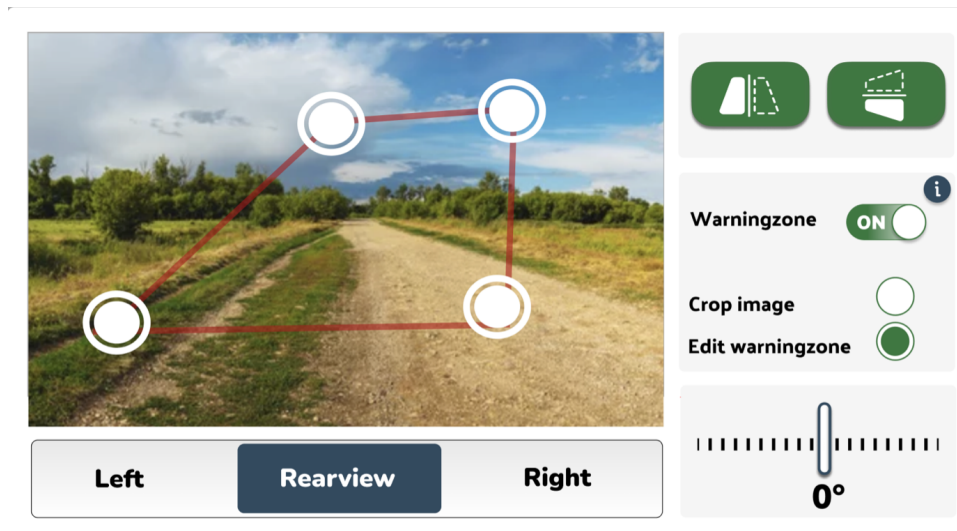


Figure 36: Camera View Editing Widget Content Overview

This widget comprises five main sections:

A) Camera Viewer and Camera Selector Triple Toggle Switch

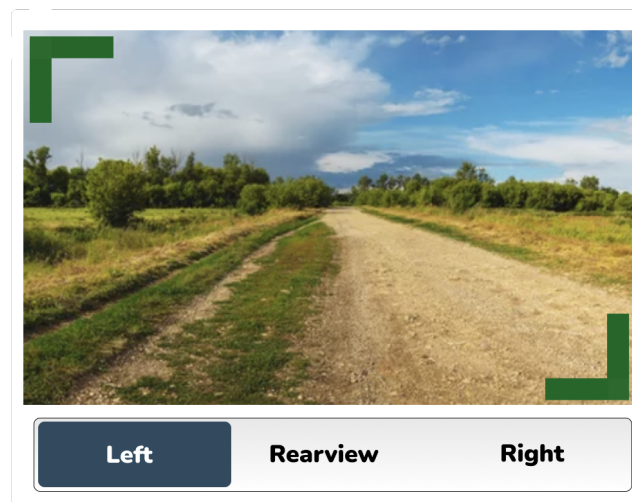


Figure 37: Camera Viewer and Camera Selector Triple Toggle Switch

The camera viewer and camera selector triple toggle switch are positioned on the left side of the widget. Within the camera viewer, users can observe a live feed from the selected camera, toggled via the triple switch among "Left", "Rearview", or "Right" views.



B) Cropping the Camera View

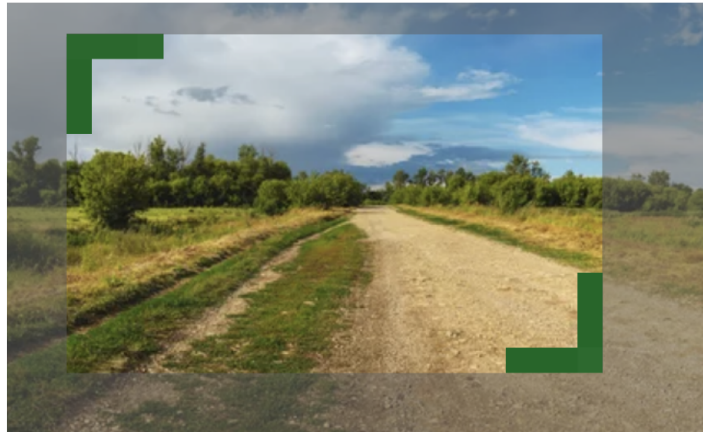


Figure 38: Cropping the camera view

Located at the top left and bottom right corners of the camera viewer are two green 90-degree corner shapes. These shapes enable users to crop the image, selecting a specific region within the camera's field of view. To crop, simply drag these corner shapes to the desired location. The cropped area will appear grayed out, while the resulting image remains unaffected. For multiple camera views, repeat the process by selecting a new camera and adjusting the region accordingly, with the cropped view saving automatically.

C) Flipping the Camera View

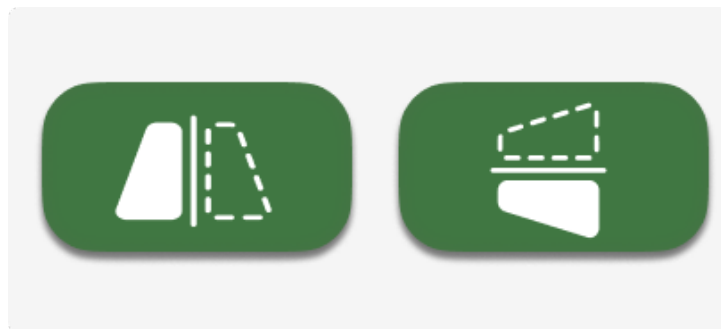


Figure 39: Flipping the camera view buttons

Situated in the top right area of the widget are two buttons for vertical and horizontal flipping of the camera view. Pressing the leftmost button vertically flips the image, while the rightmost button horizontally flips it. Results are saved instantly. For multiple camera views, repeat the process by selecting a new camera and applying the desired flip.



D) Warning Zone Settings (only available in "Rearview" camera)

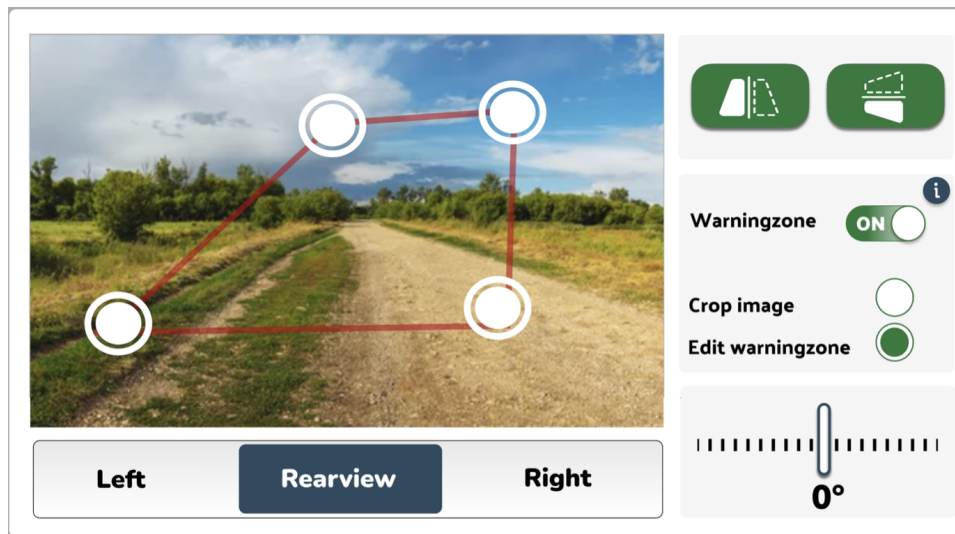


Figure 40: Warning Zone Settings

Further down, users can access warning zone settings, active exclusively in the "Rearview" camera mode. Users can enable or disable the warning zone via the toggle switch and choose between "Crop image" (default) or "Edit warning zone" modes. To edit the warning zone, select "Edit warning zone" and manipulate the white circles to define the zone's boundaries. Results save instantly. Additional in-app guidance is available by tapping the information button adjacent to the toggle switch.

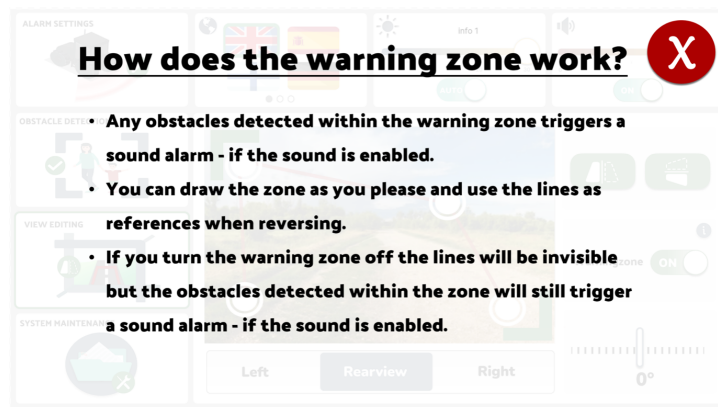


Figure 41: Warning Zone Info Pop Up After Pressing on "Info" icon

E) Changing Angle of Camera View

Located in the bottom right corner is a horizontal slider defaulted to 0. Moving the slider adjusts the image rotation clockwise or counterclockwise. Results save automatically. For multiple camera views, repeat the process by selecting a new camera and adjusting the rotation as needed.



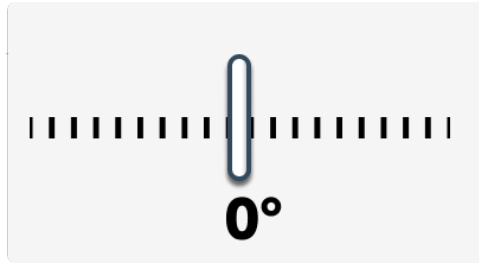


Figure 42: Changing Angle of Camera View Slider

7. System Maintenance Widget

For a detailed description of the System Maintenance Widget refer to the table and content below.

| System Maintenance Widget | |
|---------------------------|--|
| Section | Description |
| Widget Overview | This widget contains information about the current status of each camera, the overall status of the VIEW, the license and terms, basic instructions on how to do software updates and a button to restart the application. |

Table 8: Description of the System Maintenance Widget

In the image below, an overview of the System Maintenance Widget and it's location in the Settings Menu can be seen.

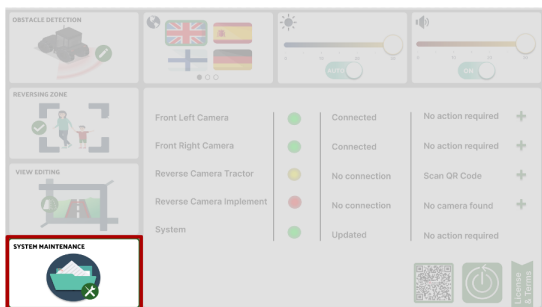


Figure 43: Location on the Settings Menu



Figure 44: Zoomed in

Figure 45: System Maintenance Widget Overview

Instructions

When pressing on the System Maintenance widget, its contents will open up on the big widget in the bottom right corner.



| | | | |
|--------------------------|--|---------------|--------------------|
| Front Left Camera | | Connected | No action required |
| Front Right Camera | | Connected | No action required |
| Reverse Camera Tractor | | No connection | Scan QR Code |
| Reverse Camera Implement | | No connection | No camera found |
| System | | Updated | No action required |

Figure 46: System Maintenance Widget Content Overview

This widget is structured into three primary sections:

A) Status Information Table

| | | | | |
|--------------------------|--|---------------|--------------------|--|
| Front Left Camera | | Connected | No action required | |
| Front Right Camera | | Connected | No action required | |
| Reverse Camera Tractor | | No connection | Scan QR Code | |
| Reverse Camera Implement | | No connection | No camera found | |
| System | | Updated | No action required | |

Figure 47: Status Information Table

The dominant portion of the widget is occupied by the Status Information Table. In the initial column, a comprehensive list of all cameras is displayed, with each occupying a separate row. It's worth noting that this includes the reverse camera implementation, which is only relevant if two rear cameras are connected—one on the rear of the tractor and another on the rear of a rear implement such as a trailer. If only three cameras are installed, please disregard this row. The second column features an on-screen indicator light for each camera's status: green signifies no issues detected, yellow indicates a warning, and red signifies malfunctioning. A textual description of the color scheme is included in the third column to enhance the user experience. The fourth column provides troubleshooting information if the system recognizes an error. Lastly, the + icons in the fifth column allows the user to access the Camera Portal Page which is described in detail below.



B) Camera Port Selection

If a camera port on the SMAG Terminal becomes damaged, users can switch the cable to a different port. To do this, they need to navigate to the camera port selection page and select the new port by tapping on the corresponding plus icon, as outlined in the section above. This page displays an overview of the camera ports connected to various cameras, along with an image illustrating the ports on the back of the SMAG Terminal. Additionally, there's a textual guide on how to perform the port switch, as well as two buttons: "Exit" and "Accept".

Unavailable ports, already occupied by other cameras, are highlighted in gray and cannot be selected. Once the user selects a new port, they must confirm their choice by tapping the green "Accept" button in the bottom right corner. This action saves the changes, momentarily darkens the screen, and initializes the selected port. If the user accesses the Camera Port Selection page without intending to make any alterations, they can return to the System Maintenance Widget by tapping the red "Exit" button in the top right corner.

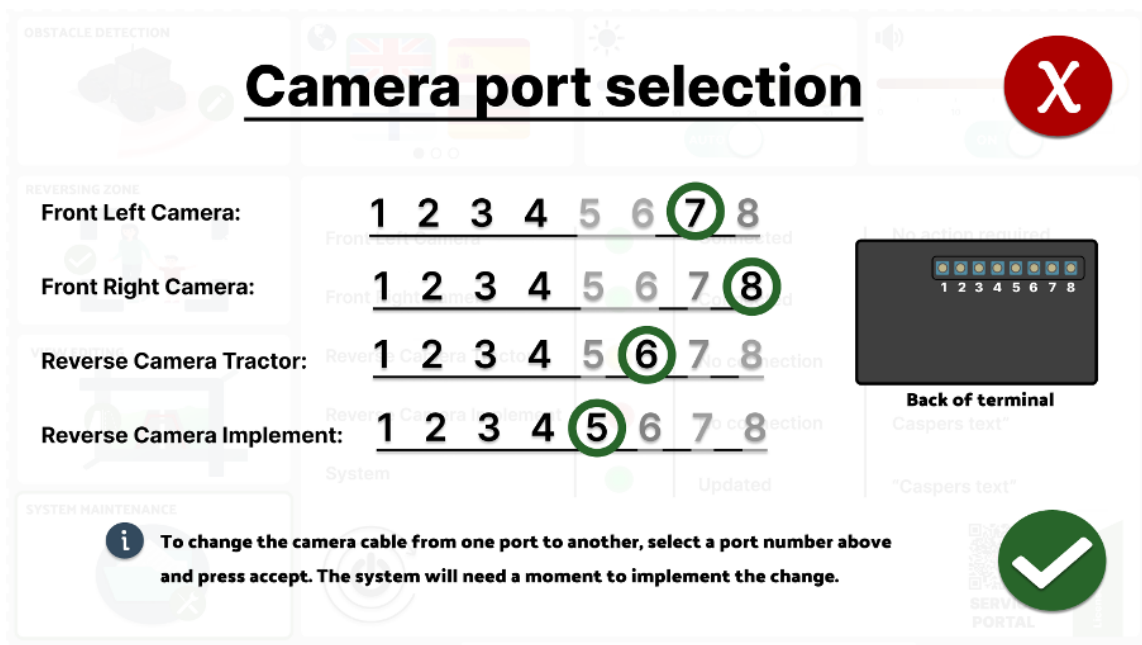


Figure 48: Camera Port Selection Pop Up Configuration Page

C) Restart Application

To restart the VIEW application, users can press the "Restart" button at the bottom of this widget as shown in Figure 49. After clicking on the "Restart" button, VIEW will automatically reboot. **Note:** Beware that the restart process will take about 30 seconds.





Figure 49: In-app Restart Button. Press to restart VIEW application.

D) Service Portal Access



Figure 50: Service Portal QR code

Situated at the bottom right corner of the widget is a QR code. Scanning this QR code will direct the user to a website where they can access a wealth of information, including production details, installation guides, FAQs, video tutorials, the manual itself, and much more.

2.3 Power Off and Shutdown

To power off and shutdown VIEW, follow these instructions:

1. Turn off the vehicle's engine according to the manufacturer's guidelines.
2. If VIEW is still powered up, disconnect the SMAG Terminal Power and ISOBUS Cable from the vehicle's power socket.
3. VIEW will then shut down automatically after power is disconnected.

