

all the settings and set up the iMETOS (e.g. data transfer interval, SMS warning, etc.). With Key 2 the user is not allowed to change the station parameters, but can access all the data.

THE iMETOS CropVIEW®: STATION DATA AND SETTINGS

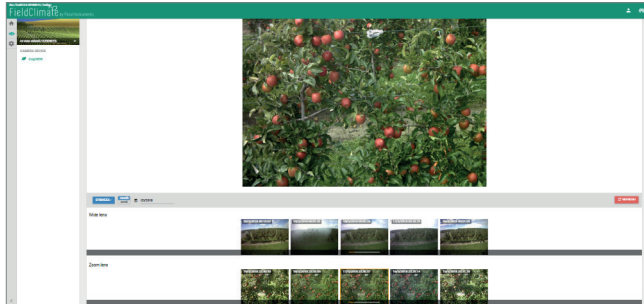
You can browse through all stations by clicking the icon **Station List** in top right corner.

Click on the station name to select it.

Access the iMETOS CropVIEW® page, by clicking the **Eye icon** on the left side of the bar.

Hovering over picture with a mouse and use the **mouse wheel to zoom in and out**.

To choose which picture you want to see in full-size, use the date selection tool at the bottom of the page. You can also choose between the two cameras – wide angle lens and zoom lens (see picture below).

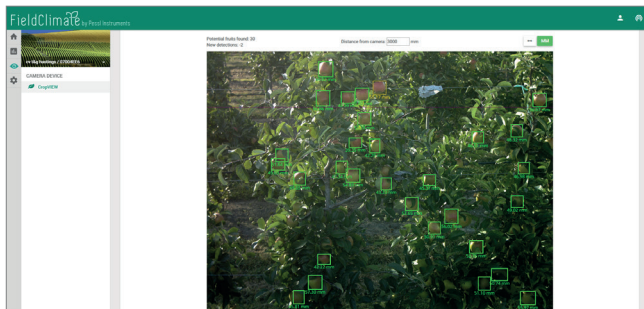


THE iMETOS CropVIEW®: Slideshow

You can create a time-lapse from pictures taken by iMETOS CropVIEW® device to see how your crop was growing and developing from seeding to harvesting. For more details see help in slideshow section on ng.fieldclimate.com.

FRUIT DIAMETER MEASURING TOOL

Use your mouse to draw rectangles on the image and add user detections of apple fruits. Click on the image where your target apple fruit is and draw a rectangle around it. If you want to edit the drawn rectangle, you can click (drag and drop) on the edges of the rectangle to change its



size or click (drag and drop) on the center of the rectangle and move the rectangle around. You can click on the rectangle and delete it by pressing DELETE or BACKSPACE on your keyboard.

On **STATION SETTINGS** page you can set up your iMETOS device.

Station settings > Configuration: ensure that Time zone and location are properly set (you need to set it up manually, otherwise the station will not take and send photos at the time in your time zone). Under **transfer settings**, you can define how your iMETOS device sends data. Please note that the settings for logging interval and transmission times will work with the default values – photo taken at 7am Austrian time - as long it is not changed.

Setup how your iMETOS CropVIEW® sends the data. Note that taking and sending pictures consumes a lot of data and energy which is why a limitation of three pictures per day is set.

Under **Camera**, you can setup camera settings. Note that wrong settings can result in corrupted images. Change these settings only if you are an expert.

For further inquiries visit metos.at/fieldclimate-manual.

MAINTAINING THE iMETOS CropVIEW®

Keep the lenses clean.

When the solar panel of the iMETOS is exposed to the sun and gets enough sunlight it should constantly recharge the battery of the system. The lifespan of the battery is expected to be 5 to 6 years with sufficient recharging from the solar panel. Deep discharge shortens its lifetime. The iMETOS will prevent this to happen and protect the battery by limiting the data transfer to the safe level of charge. In doing so, data is not lost and battery recovers faster. Please make sure to clean the solar panel if it is dirty or covered with snow or some other material.

Note: When the season is over, remove the device from the field, disconnect the solar panel and the battery to avoid discharge and store it indoors until the next season.

UPDATING YOUR iMETOS CropVIEW®

Every time the iMETOS CropVIEW® connects to *FieldClimate*, it checks for the latest firmware version. If it finds a newer version, it automatically downloads it and updates itself. iMETOS CropVIEW® can also be updated manually via the USB connection.



For full user manual please visit:
metos.at/imetos-cropview-series



iMETOS CropVIEW

USER MANUAL

Version 1.0, 05-2018



Thank you for choosing Pessl Instruments GmbH iMETOS CropVIEW® for Remote Crop Image Monitoring. iMETOS CropVIEW® has been designed to periodically take high-resolution photos of the farmland. Photos are automatically uploaded to the FieldClimate platform without the need of any user intervention, thus allowing a continuous crop quality and yield control.

The high-resolution pictures enable checking seeds for germination, monitoring the effect of fertilizers or pesticides on crop development, and help decide whether a disease or pest already threatens profitability. iMETOS CropVIEW® is the result of the combination of years of experience and “state of the art” technology.

iMETOS CropVIEW® features:

- 10 Megapixel resolution images.
- Embedded GPS location.
- Easy installation.
- Firmware upgrade “over the air”.
- Cloud Data Storage.
- Time series of pictures stored for further analysis.
- Personalized web interface.



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YOUR iMETOS CropVIEW®

The iMETOS CropVIEW® device consists of two parts: main unit and control unit.

Main unit:

- Stainless steel holder with pitch angle selector (0°, 11°, 22°, 33°, 44°)
- Plastic waterproof housing with the motherboard (PCB) containing the processor, modem, SIM card holder, USB port and cameras with its optics
- UMTS/GPS antenna mounted on the holder
- Eyehole pointer

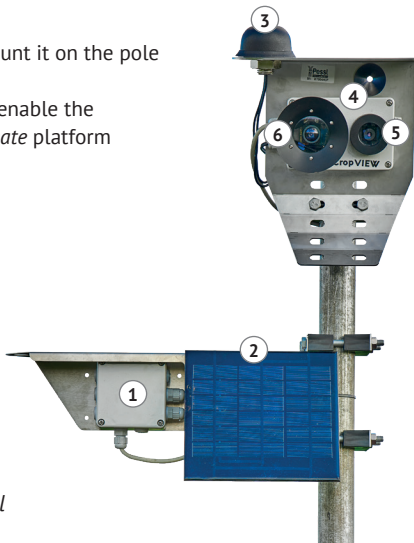
Device can be equipped with up to two 10-megapixel cameras (one for wide angle pictures and another one for narrow-zoom angle).

Control unit:

- Stainless steel holder
- Plastic waterproof box with the motherboard (PCB) which controls the main unit (start/stop)
- Power supply (battery and solar panel) is mounted and connected to the control unit

Other parts:

- A pair of clamps to mount it on the pole
- Unique serial number
- Sticker with keys that enable the access to the *FieldClimate* platform



On picture:

iMETOS CropVIEW® Dual

1. Control unit; 2. Power supply (solar panel and battery); 3. Dual antenna (GPS/communication); 4. Logger and modem; 5. Zoom lens; 6. Wide angle lens.

iMETOS CropVIEW Variations

- **iMETOS CropVIEW® Panorama:** One 10 MP Wide Angle Lens.
- **iMETOS CropVIEW® Zoom:** One 10 MP Zoom Lens.
- **iMETOS CropVIEW® Dual:** Two 10 MP Lenses – Wide Angle and Zoom.

START-UP THE iMETOS CropVIEW®

iMETOS CropVIEW® is operational in all areas covered at least by **UMTS (3G)** network (it will not work on 2G/GPRS services).

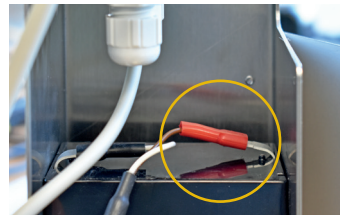
In GPRS, UMTS and LTE networks a SIM card from a provider is needed. In CDMA network, you do not need a SIM card.

To insert a SIM card:



1. Slide the metal part of the SIM card holder to unlock it.
2. Place the SIM card into the holder so the gold contacts on the SIM face down on the board.
3. Lock the holder by sliding the metal lock.

Note: Check that the PIN request for the SIM is disabled and that you have data transfer service enabled.



4. Connect the red cable to the positive battery terminal.

Every picture file has 10±2MB (depending in the complexity of the image) so the data plan in your SIM should be calculated according the following formula:

Monthly data plan = 12 (MB per picture) * number of cameras * shootings per day * 30 (days per month) = 12*2*2*30 = 1,5 GB/month

Your device is now up and running. In case you need further support, please visit metos.at/iMETOS-cropview-series/ or contact support@metos.at.

INSTALLING YOUR iMETOS CropVIEW®

The iMETOS CropVIEW® has to be mounted on the pole. Make sure that the pole is as vertical as possible. The main and control unit are positioned as depicted in the iMETOS CropVIEW® figure on the previous page.

Camera location: Look for the scene you want to take pictures of. Identify the best location for the camera – take into consideration the sun position. We recommend the use of a sun position application for your mobile phone (Sun Surveyor or similar), to be sure that your iMETOS CropVIEW® unit will not face the sunlight at the time that photos are taken.

Control unit location: Control unit with battery and solar panel should be installed in order to receive sufficient sunlight to charge the battery. Do not install it into the canopy, it should always be mounted above the canopy, so the solar panel will receive sufficient sunlight to charge the battery.

Focusing the cameras: Cameras are already focused at 2.5 m distance. To focus cameras at a different distance, onsite manual focus is needed. You should focus the cameras in the field, but you can also focus them in the office, if you know the exact distance between the iME-

TOS CropVIEW® and the object of interest. The quality of the images captured by the camera depends on the precision of focus. Use the application PI CropVIEW Focus and follow the process described below:

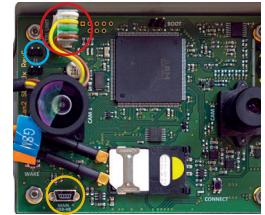
1. Install Pessi Instruments *CropVIEW Focus application* (download it here: metos.at/firmware-download).

2. Connect iMETOS CropVIEW® to the PC: unplug the control unit connector (red circle), connect iMETOS CropVIEW® to your PC with USB cable (yellow circle) and place the jumper in position J1 (blue circle).

3. Run and configure CropVIEW Focus application.

4. Use Focus tab in CropVIEW Focus application to focus the cameras to your object.

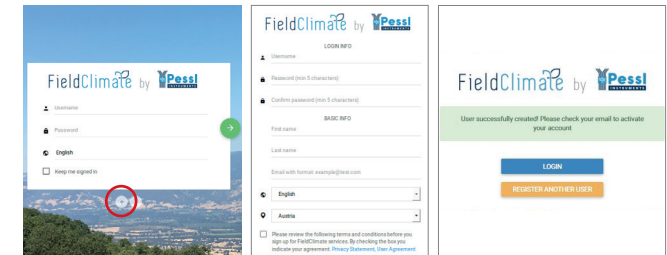
Detailed description on how to focus cameras can be found on metos.at/iMETOS-cropview-series/#focusing-cameras.



USE YOUR iMETOS

First you need to register on the *FieldClimate* platform, which gives you access to the photos taken by the cameras. *FieldClimate* also provides a powerful decision support system for growing your crops (plant protection, irrigation, sowing, harvesting, fertilizing).

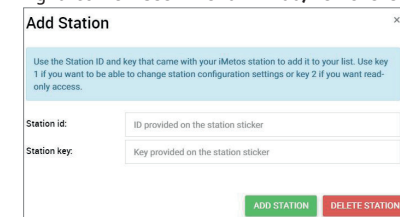
REGISTER AS A NEW USER ON ng.FieldClimate.com



1. Go to ng.fieldclimate.com/ 2. Insert your personal login and click the button data & e-mail. 3. Check your e-mail and click on the link to activate the user account you created.

ADD YOUR iMETOS DEVICE TO YOUR ACCOUNT

Now you can login to ng.FieldClimate.com. To add your iMETOS device, click on the icon in the top right corner **User Menu > Add/Remove station**.



It will ask you for the Station Serial number (SN) and the station key. Now the silver sticker (in the figure) which came with your iMETOS has to be used. Key 1 gives you full (admin) access and enables you to change

