OBSERWANDO

Manual

EQTrace OPT+

17.01.2025

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1. Functionality

The EQTrace OPT+ is a GPS monitoring device that provides the following functions:

- Usage data acquisition on analog input (4 digital inputs can be booked)
- Determination of the current position
- Anti-theft function
- World wide usable
- Daily status report
- Battery status including deep discharge monitoring
- 1 output (optional)

Due to the simple installation and the minimal power consumption in sleep mode, it can be used in many areas. Some usage examples: motor vehicles, construction machinery, truck, boats, mobile homes, antique car, ...

The data is transmitted via mobile Internet (LTE) to the Obserwando server www.obserwando.de. All data can be called up in the Obserwando portal with the respective vehicle name. All data are also available on the Android smartphone or the iPhone via the Obserwando Mobile app.

The SIM card is part of the annual flat rate. It is factory fitted and activated upon delivery.

2. Installation

The EQTrace OPT+ should be installed as horizontally as possible and with the flange side down at the greatest possible distance from shielding metal parts in order to ensure maximum GPS reception. If the device is installed under metal, an external GPS antenna (optional) should be connected.

The housing can be painted in the vehicle color. If metallic paint is used, an external GPS antenna should be connected.

The EQTrace OPT+ can be installed in vehicles and machines with an operating voltage of up to 60VDC. Installation in cars, trucks, construction machinery, aerial work platforms or forklifts is therefore possible without any problems.
For higher operating voltages, appropriate voltage converters (e.g. TR 40-150 or TR-230VAC) are required.

In order to ensure anti-theft protection even when the vehicle is switched off, the device must be connected to a permanent voltage of 10...60VDC.

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2.1. LED - conditions

After the operating voltage has been applied, the following states are displayed via the built-in LEDs:

red LED

1. LED flashes briefly every 2 seconds: The device is switched on.
2. LED flashes briefly every 5 seconds: The device is in power-saving mode.
3. LED flashes twice briefly every 5 seconds: The device is in power-saving mode while it is awake.

green LED

1. LED is off: The device is not logged into the LTE network, no GPS reception yet.
2. LED flashes briefly every second: The device is logged into the LTE network, bu no GPS reception yet.
3. LED flashes long every second: The device has an internet connection and is connected to the server, but no GPS reception yet.
4. LED flashes long and twice briefly every second: The device has an Internet connection and is connected to the server, GPS reception is available.

The LEDs are visible on the underside of the device. When installed, they are covered (protection against manipulation and theft). The assignment can be seen on the nameplate.

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2.2. Connection table:

white	VPP (PLUS,MAX)
brown	Dimensions
green	Additional mass
yellow	Input 1 (ignition)
grey	Input 2
pink	Input 3
red	Input 4
blue	Output 1 (max 500 mA, switches to minus)
black	Output 2
violet	analog input

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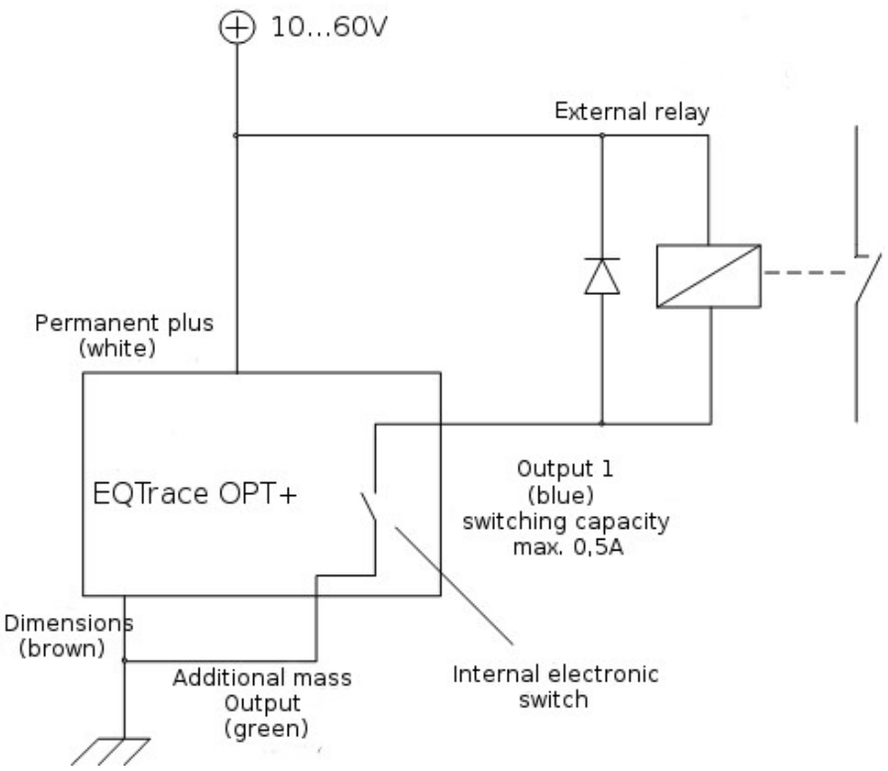
2.3. Wiring of the relay

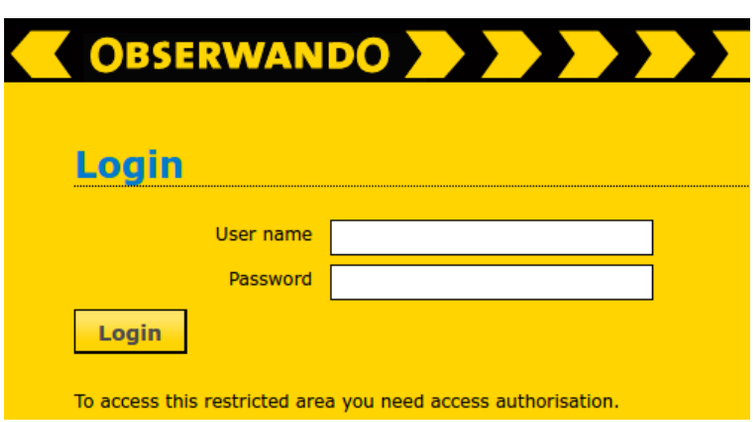
With the EQTrace OPT+, an output for blocking a function on the vehicle used can be booked (Is not included in the basic package). In vehicles, for example, the starter can be blocked, in work platforms, lifting, etc.



Attention:
A freewheeling diode must be used when switching inductive loads (e.g. power relays).

3. Login to the portal

You log in to the portal with your user name and password. If you are new to Obserwando, please enter the supplied user ID as the user name and password.



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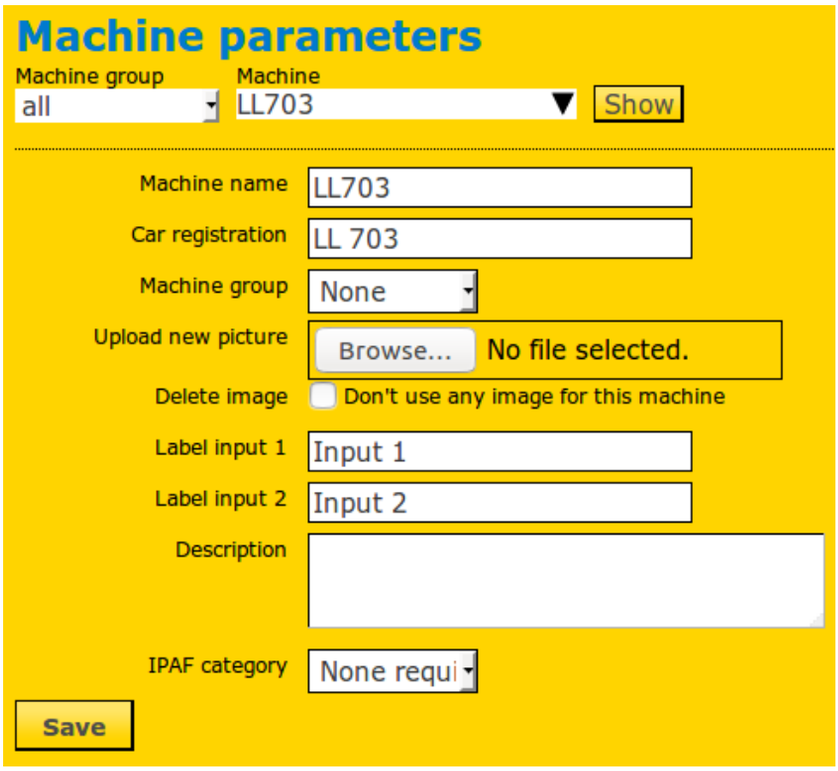
3.1. Machine parameters

You can start setting up the machine in the following mask.



The following fields are available:

Machine name: When the device is delivered, the serial number is here. You are free to choose the device name. It will then appear in all machine selections.

Car registration: For a vehicle, you can enter the license plate number here.

Machine group: Once you have set up machine groups (e.g. rental, service vehicles, etc.), you can assign the device to the desired machine group.

Upload new picture: You can upload a picture of the machine in JPG format. The image size must not exceed 1MB.

Label input 1/2: Enter the channel texts for the inputs here.

Description: Memo field for any text entry.

IPAF category: Currently irrelevant.

Once you have made the desired entries, the entries are saved with „Save“.

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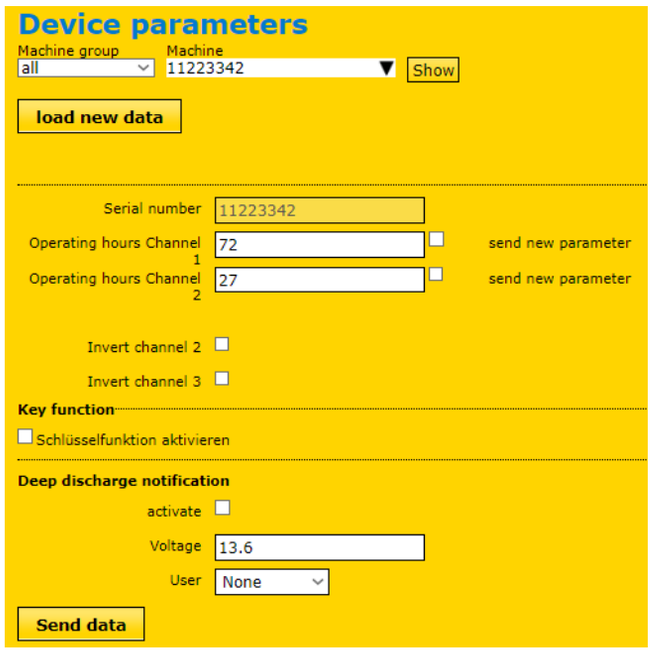
3.2. Device parameters

After selecting this menu item, the following mask appears:



With the EQTrace OPT+ devices, various operating states can be automatically detected.

However, since this method does not work reliably with every machine, the necessary settings can also be made manually.

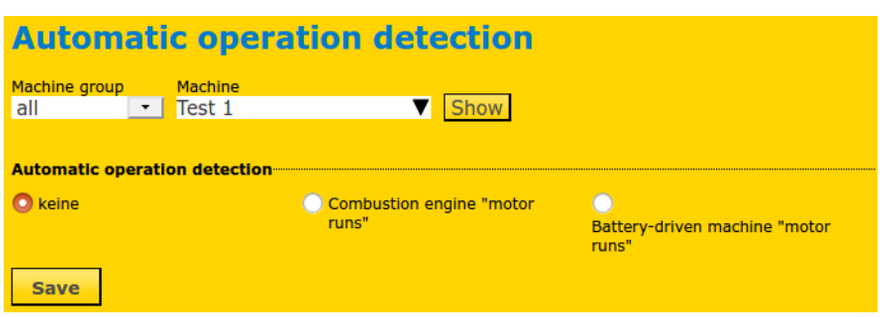
Important note: The channels record “to the minute”.

3.3. Automatic operation detection switched off

To do this, select „Automatic operation detection: none“

If the machine has an operating hours counter, the current value n can be accepted for channel 1 (engine running) or channel 2 (ignition).

With a battery machine, the channels can be freely selected.
You have to „switch on“ the charging channel by defining one of the channels as a charging channel. Another channel can record the times of use, e.g. over the pump running time.
To activate the settings, the „Save“ button must be clicked.



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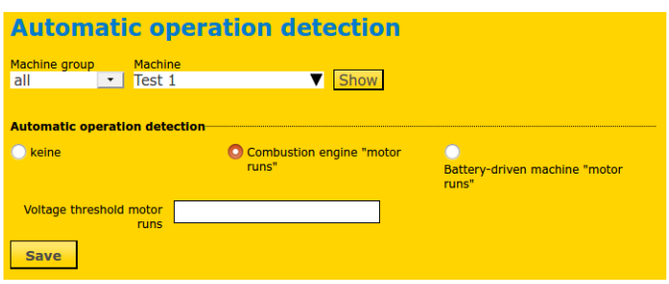
3.4. Automatic operation detection switched on: Diesel engine

If you want to use the automatic operation detection for a diesel machine, select „Automatic operation detection: Combustion engine „motor runs““.

To record the operating times via the supply voltage, this is measured at intervals of 100ms. A voltage threshold can be entered in the Obserwando portal under „Set up machine“ -> „Automatic operating detection“. If this value is exceeded or not reached, the operating times are detected and saved. The operating times are recorded via the supply voltage via channel 1.

To activate the settings, the „Save“ button must be clicked.



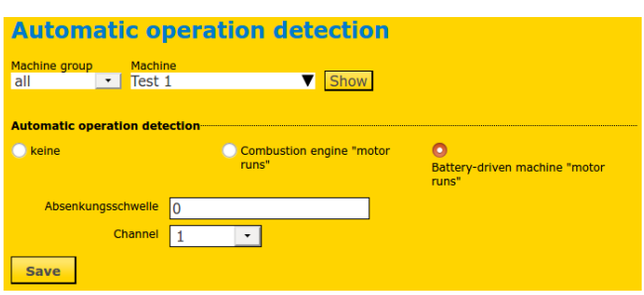
3.5. Automatic operation detection switched on: battery machine

If you want to use the automatic operation detection for a battery machine, select „Automatic operation detection: Batterydriven machine „motor runs““.

The charging voltage must also be selected. The voltage threshold for the connected charger is specified, but can be individually adjusted for each machine. If this value is exceeded or not reached, the operating times are detected and saved.
The channel for recording the operating times via the supply voltage for battery-powered machines can be set.

To record the operating times of the supply voltage, this is measured at intervals of 100 ms.

To activate the settings, the „Save“ button must be clicked.



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3.6. Deep discharge notification

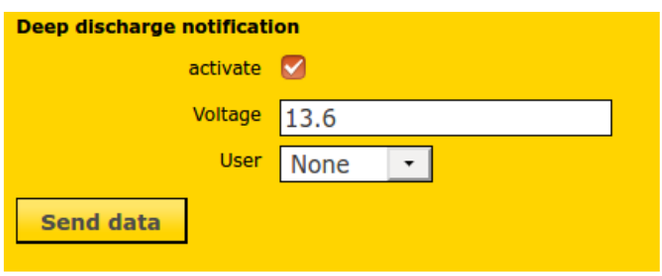
If the battery voltage of the machine falls below the preset value, the Obserwando portal can send a corresponding message via e-mail. For this, the „Activate“ check box must be clicked under the „Device parameters“ menu item in the „Deep discharge message“ section.

To monitore a deep dischange the minimum permissible battery volatge must be specified. You can also select a user who should be informed of the deep discharge.

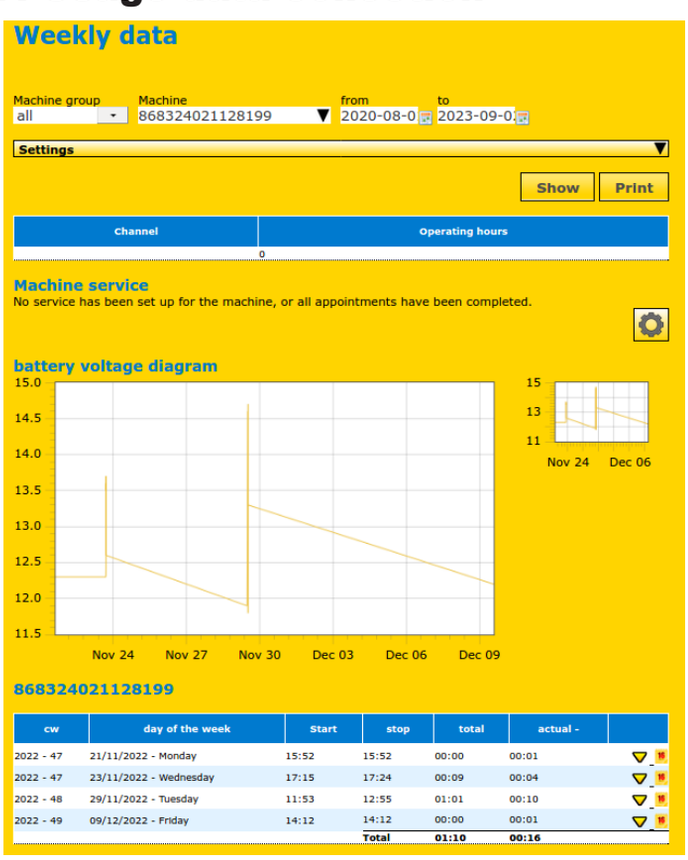
Caution: Only users for whom a valid e-mail address was stored in the user administration appear in the selection menu.

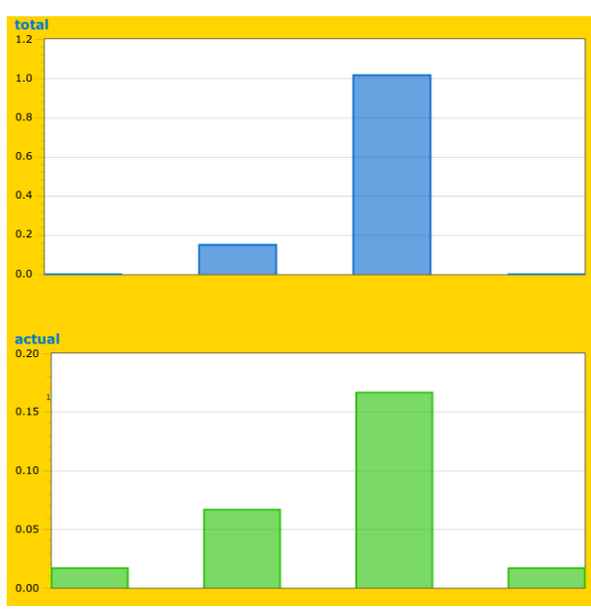
The duration of the deep discharge can be seen from the battery diagram in the operating data.

To activate the settings, the „Save“ button must be clicked.



3.7. Usage data collection





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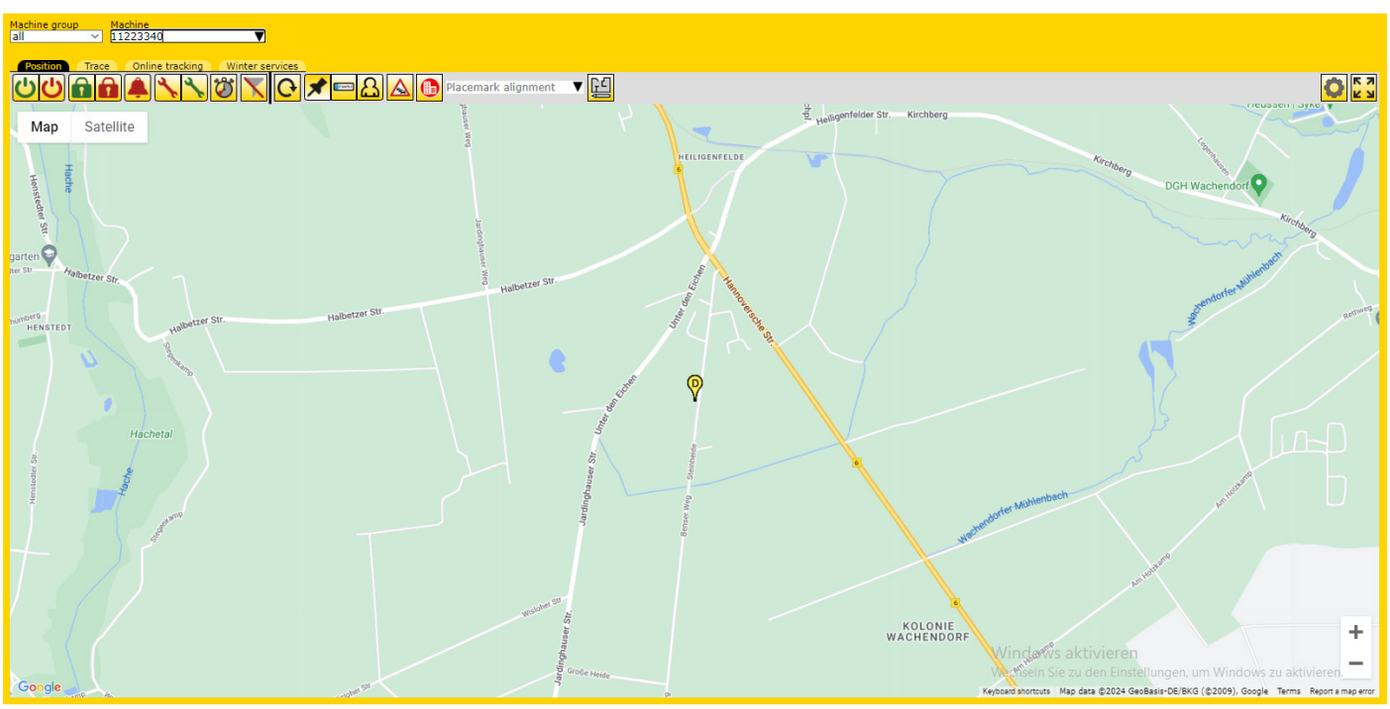
Usage data (e.g. motor) can be recorded on one channel in the basic device.
If this is not sufficient, additional channels can be booked as an option.
The input voltage range of the inputs is between min. 10V and max. 60V.
The operating data is automatically transmitted from the device to the server.
You can view the recorded operating data in Obserwando under „Machine data“ -> „Operating data“. All days of the week on which the machine worked will appear in this view. Days of the week without work are hidden in the default settings, but can be shown under „Settings“. The „Start“ column shows the time when the machine started for the first time. In the „Stop“ column you will find the time when the machine last switched off. The difference between the two times forms the „Total“ value. If you are interested in the effective running time, e.g. motor, you can define the corresponding input channel in the settings for the effective value calculation. You will find the effective total of the running times in the „Effective“ column.

Principle of data acquisition
„Start time“, „Stop time“ and „Minutes per hour“ are recorded as usage times.
This type of data acquisition has proven particularly useful for aerial platforms and other construction machinery. You will see the timeline for the effective channel for a day by clicking on the yellow arrow in the last column. If you are interested in the data of all input channels, switch to the day view by clicking on the calendar symbol in the last column.

Times marked in red in the „Total“ and „Effective“ columns indicate usage times over 8 hours or at weekends.

3.8. Position determination Map view

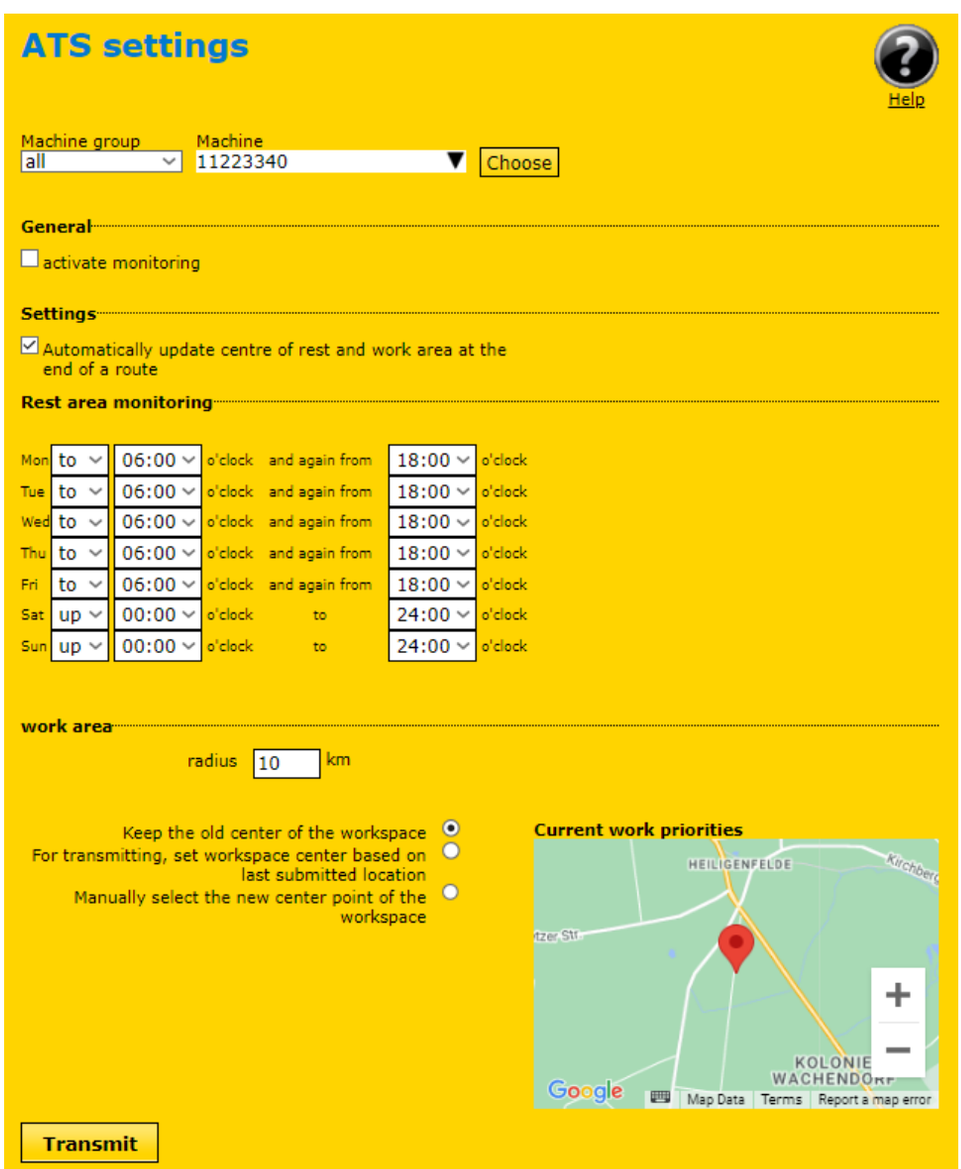


If the vehicle is idle, the last reported position is always displayed. If the vehicle is parked for more than 10 minutes, the EQTrace OPT+ switches to sleep mode. This is interrupted every 24 hours in order to submit a control report to Obserwando. If a new position is available, the position is also updated. When driving, the current position is checked every 60 seconds. If the mobile network is not available, the coordinates are saved in the device. As soon as the mobile network is available again, the stored data is transmitted to the server.

During the first start-up, the current position is transmitted to Obserwando as soon as it has been determined after the supply voltage has been connected.
However, the vehicle must be outside!
If no new position can be determined, the last saved position will be displayed.

3.9. Theft monitoring ATS

Theft surveillance in Obserwando is divided into rest area and work area surveillance.



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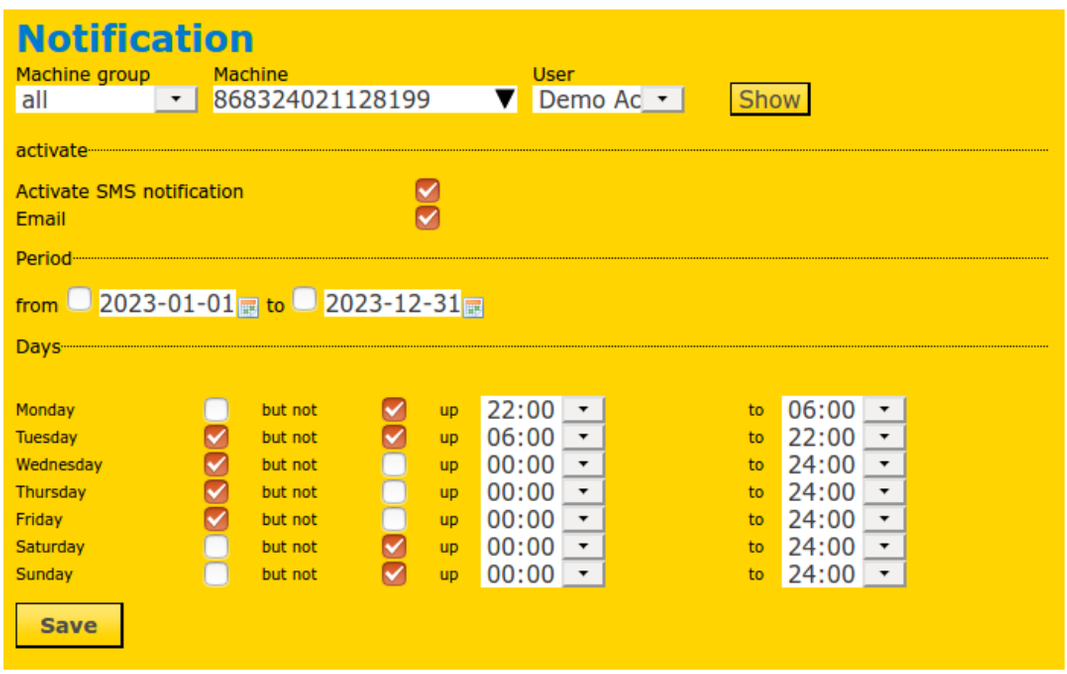
The idle time can be set individually for each day of the week. During the quiet time, an alarm message is given as soon as the quiet area radius of 200 m is left.
The adjustable working range (radius in km) is monitored during working hours.
The center of the rest or work area is either the last transmitted (i.e. the current position of the machine when defining the area) or the last used position (set as the current position in a previous session).

3.10. Notification



The alarm messages will be sent from the server to all users activated for the device via SMS and/or e-mail. It is important that a valid mobile telephone number and/or e-mail address is entered for the respective user in the master data. After sending an alarm message, monitoring for the device will be disabled to prevent repeated SMS/e-mails.

Warning: To get a new alarm message, monitoring must be reactivated (see alarm settings).

3.11. Function monitoring

After installation of an EQTrace OPT+ device on a machine, the GPS tracker reports to the Obserwando server every minute with the current data. If the machine is not used (weekend, hibernation), the EQTrace OPT+ reports to the Obserwando server every 24 hours.
These status reports from all GPS trackers can be viewed in the machine overview.

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4. Additional functions that can be booked as an option

4.1. Service settings (only available as an option, not included automatically)

Service intervals and annual inspections such as TÜV or UVV can be specified in the service settings. When a reporting date is reached, it will be displayed in the operating data. It is also possible to notify a user via e-mail. This must be selected in the „User“ field.

The fields mean in detail:

Name: Event name.

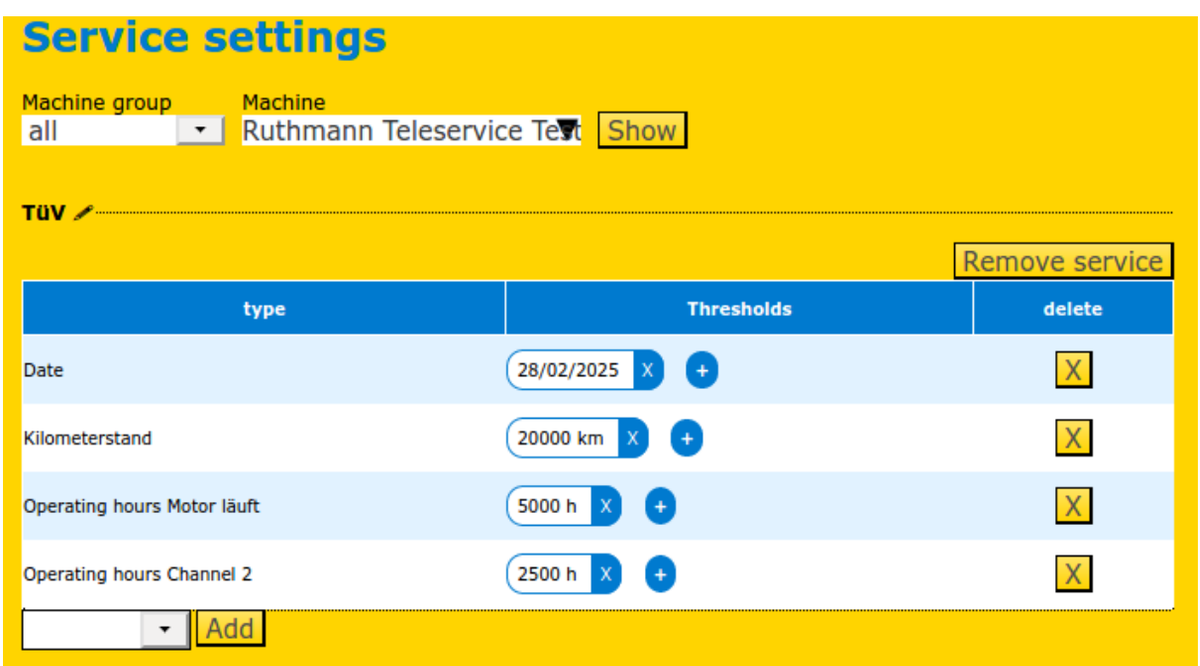
Hour limit: Message when the stored number of operating hours has been reached.

Km limit: Message when the stored number of kilometers (deter mined via GPS tracking) has been reached.

Current mileage: Entry of the mileage read from the speedometer. This is accepted by selecting „update“.

Date: A message is issued when the entered date is reached.

Under „Notification“ a user with a valid email address must be selected who will be informed by e-mail when an event is reached. To activate the settings, the „Save“ button must be clicked.



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4.2. Service log book (only available as an option, not included automatically)

Entries about the machine, e.g. comments on service intervals or damage, but also photos or circuit diagrams can be stored in the machine file.

To create a new entry, the corresponding button must be selected.

You can use the „Search criterion“ field to search for a specific entry in the machine file of the selected machine. For example, if you enter the term „damage“ in the „Search criteria“ field, all existing entries containing the term „damage“ will be displayed.

If you click on the „New entry“ button, the following page opens:

You can add a summary, a text and one or more attachments in one entry in the machine file. Finally, click on the „Save“ button.

4.3. Winter service (only available as an option, not included automatically)

You can use the „Winter Service“ function to document spreading and clearing distances.
The usage times with the route driven can be recorded at 15s intervals.
Via Obserwando.de you can see exactly which route was taken at what time and which function was used (clearing or spreading). Hardware channels 1 and 2 are required to use this function.

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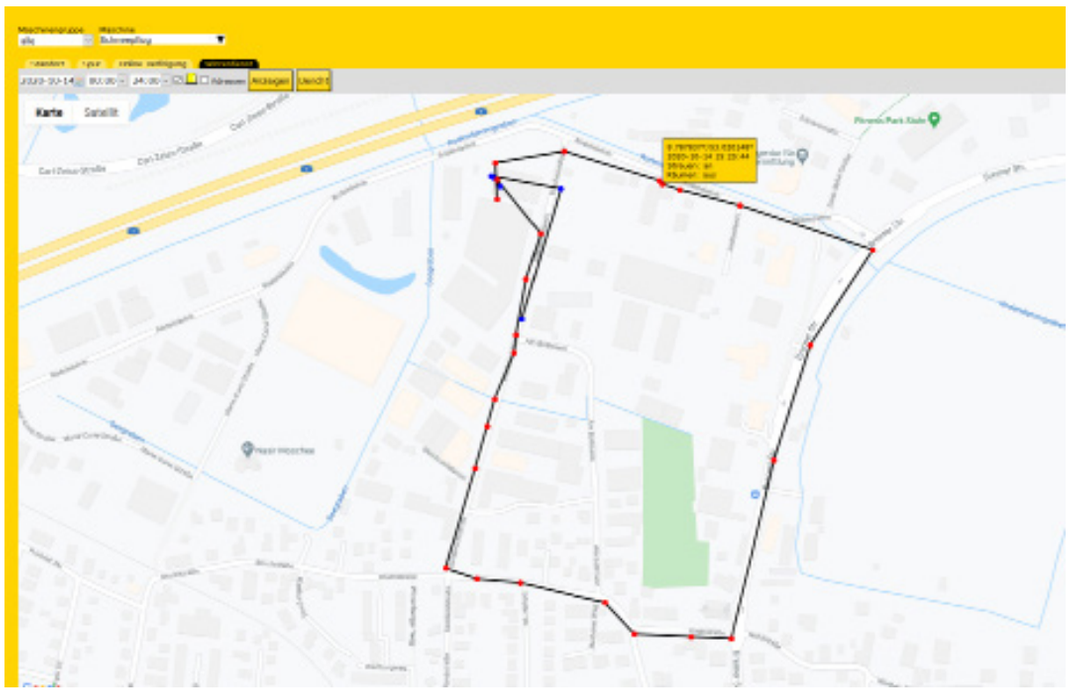
Fahrstrecken-Report

Maschine Schneepflug
Datum von 14.10.20 00:00 bis 14.10.20 23:59
Erstellt am 03.11.2020
Fahrer
Kunde
Straße
PLZ/Ort
Auftrags-Nr.
Weiter

Schneepflug

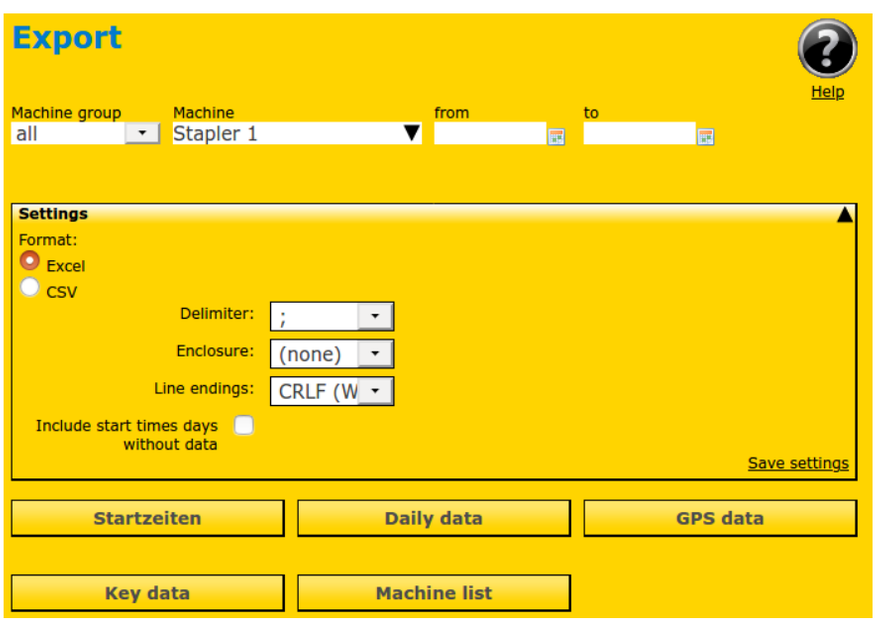
Zeit	Streuen	Räumen	Ort	Straße
15:02			Start 14.10.20	
15:02	an	aus	28816 Stuhr	Rodendamm 19
15:19	an	aus	28816 Stuhr	Betsbruchdamm 30
15:19	an	aus	28816 Stuhr	Betsbruchdamm 27
15:20	an	aus	28816 Stuhr	Betsbruchdamm 20
15:21	an	aus	28816 Stuhr	Betsbruchdamm 20
15:21	an	aus	28816 Stuhr	Betsbruchdamm 16
15:21	an	aus	28816 Stuhr	Betsbruchdamm 14
15:21	an	aus	28816 Stuhr	Betsbruchdamm 12
15:22	an	aus	28816 Stuhr	Bruchstraße 16
15:22	an	aus	28816 Stuhr	Bruchstraße 16
15:22	an	aus	28816 Stuhr	Bruchstraße 12
15:22	an	aus	28816 Stuhr	Bruchstraße 2
15:23	an	aus	28816 Stuhr	Vorsteher-Kirchhoff-Straße 9
15:23	an	aus	28816 Stuhr	Kirchstraße 1
15:23	an	aus	28816 Stuhr	Kirchstraße 1
15:24	an	aus	28816 Stuhr	Bremer Straße 54
15:24	an	aus	28816 Stuhr	Bremer Straße 63
15:24	an	aus	28816 Stuhr	Ernst-Abbe-Straße 1
15:24	an	aus	28816 Stuhr	Rodendamm 2
15:25	an	aus	28816 Stuhr	Rodendamm 9
15:25	an	aus	28816 Stuhr	Rodendamm 11
15:26	an	aus	28816 Stuhr	Rodendamm 11
15:26	an	aus	28816 Stuhr	Betsbruchdamm 30
15:29	an	aus	28816 Stuhr	Rodendamm 19
15:52	an	aus	28816 Stuhr	Rodendamm 19
15:52			Stopp 14.10.20	
16:01			Start 14.10.20	
16:01	aus	an	28816 Stuhr	Betsbruchdamm 20
16:02	aus	an	28816 Stuhr	Betsbruchdamm 30
16:02	aus	an	28816 Stuhr	Rodendamm 19
16:04	aus	an	28816 Stuhr	Rodendamm 19
16:50	aus	an	28816 Stuhr	Rodendamm 19
16:50			Stopp 14.10.20	

Effektive Fahrzeit 01:38
Gesamtzeit 01:47
Gefahrene Strecke 2.07



4.4. Export function (only available as an option, not included automatically)

The export function enables you to export the recorded data in order to be able to evaluate them externally.



With the export function, start times, daily data, GPS data, key data and machine list of a machine can be exported.

First select the machine group and the machine.Also, limit the time period. Please don‘t choose a too long period of time, as more than 10,000 data sets will not be exported.

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To open the settings, click on the black arrow on the right. The export settings will open. In the settings choose between Excel and CSV. For CSV, you can also determine which line separator should be used between the data records (line), which field separator should be used in each line between the values, and whether and in what type of quotation marks the individual values should be enclosed.
Click „Save Settings“ to permanently set your selection as the default.

If you want to process the data automatically, CSV is preferable. It contains the data in a simple, tabular format. Excel, on the other hand, focuses on clarity.

Click on one of the five buttons below to start exporting the desired data.
Your browser should offer the choice of either saving the data to disk or opening it in a program.

4.5. Shock detection (only available as an option, not included automatically)

Requirement: The shock detection function has been booked.

Configuration of the shock sensor
The device measures acceleration values in the X, Y and Z directions.
The magnitude of the acceleration vector is used for evaluation.
The maximum adjustable value is 128. Which acceleration values result from this depends on the set measuring range (2G, 4G, 8G or 16G).

Example:
The set measuring range is 2G. Then the smallest adjustable value for the limit values is 2 x 9.81 / 128 = 0.153 m/s².
(set value x acceleration due to gravity / maximum adjustable value)
The value 10 then results in 1.53G.

Acceleration values below the evaluation threshold are completely ignored.
Values above this can generate a crash event as soon as the set value of the peak threshold is exceeded. Ultimately, a detected crash event is saved if the set minimum duration in milliseconds is exceeded. The logged-in driver is also saved with the saved acceleration value. A detected crash event results in the second output being switched. This can be used to control a warning light, for example.
The output is reset by registering a master key on the RFID reader.

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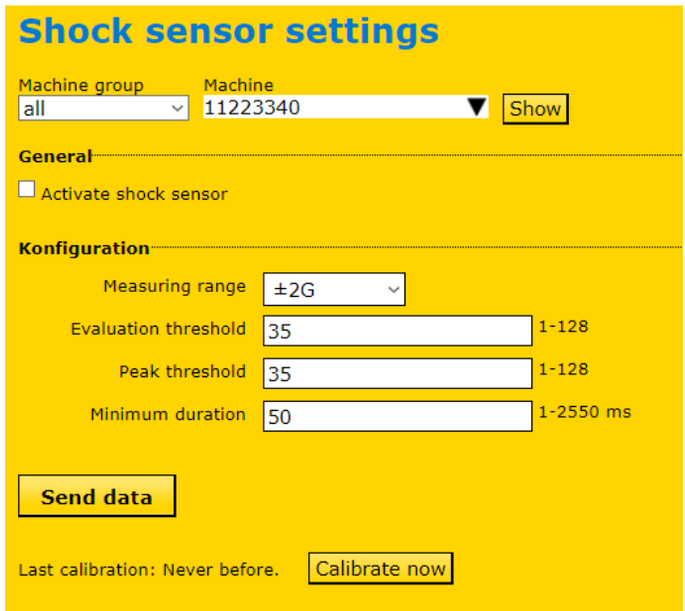
The default settings are:

Measuring range: 2G
Evaluation threshold: 35
Peak threshold: 35
Minimum duration: 50ms



After installing the device, the acceleration sensor should be calibrated.

4.6. Key functions (only available as an option, not included automatically)

If the EQTrace OPT+ is connected to the additionally purchased key module and the reading of keys on the Obserwando server is enabled, the activation of the output (and the machine) can be controlled via an electronic key.
The user logged in with the key is registered. The registration expires if the vehicle has been switched off for at least 30 seconds. Users who want to log in while the vehicle is running will not be registered.

4.6.1. Connection of the key module

The 5-pin connector of the key module is plugged into the socket on the EQTrace OPT+ module. If the function is enabled on the Obserwando server, keys are automatically recognized if they are authorized to operate the vehicle.

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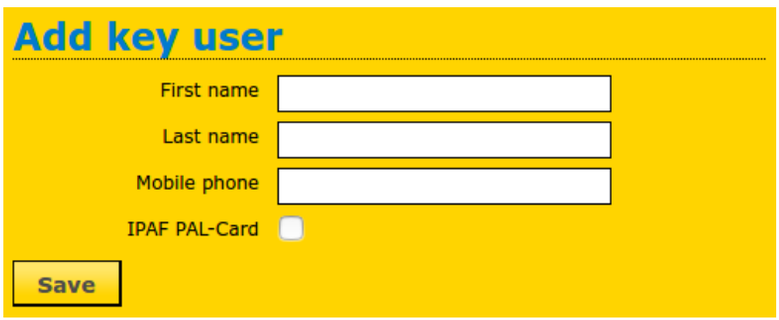
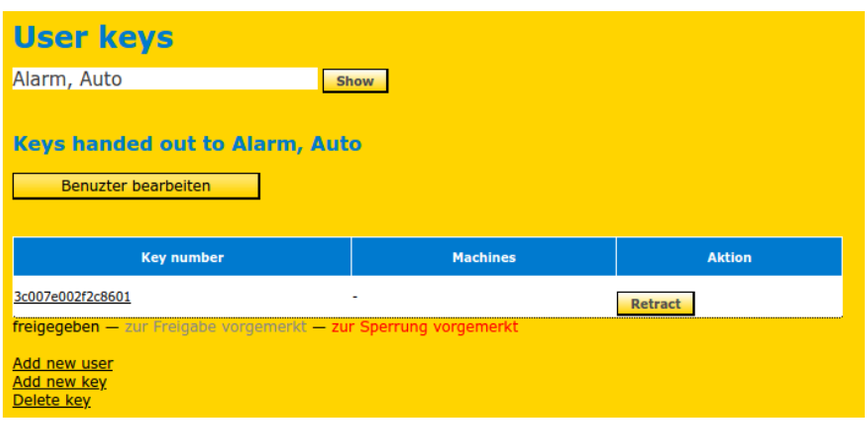
4.6.2. Use of the key function

To be able to use this function, please proceed as follows:

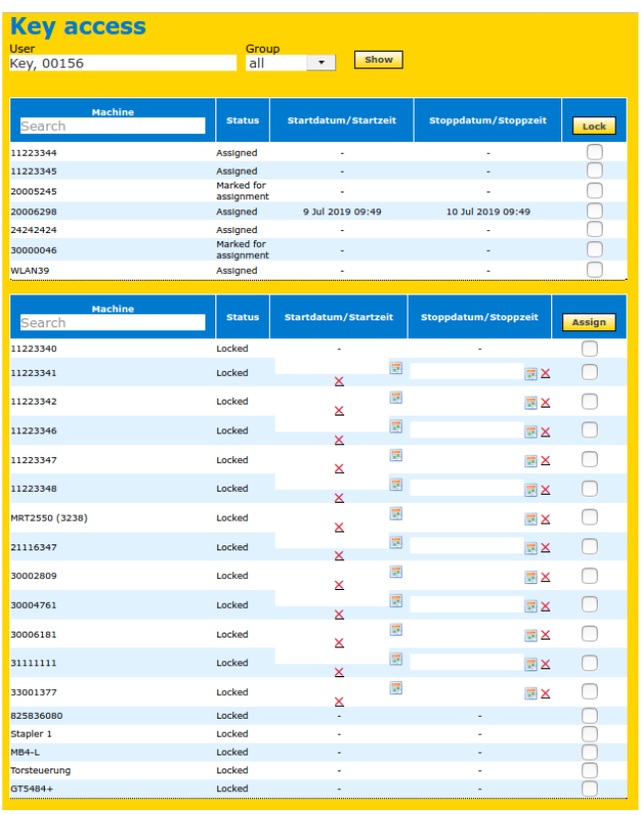
Create the users who are allowed to use keys.
Attention: The user does not have to be an Obserwando user!



Assign a key to each user. All free keys obtained from Rösler can be found under the corresponding menu.



Under „Key access“ you can individually determine which machines are released for each user. To do this, click on „Assign“ for the relevant machines.
The key is then reserved for release.
Once you have completed the selection of the machines, the reserved keys must be transferred to the devices. To do this, click on “Connect”. If a device is not available at this time, the process is set to repeat automatically. As soon as the device is connected to the server again, the data will be transmitted again.



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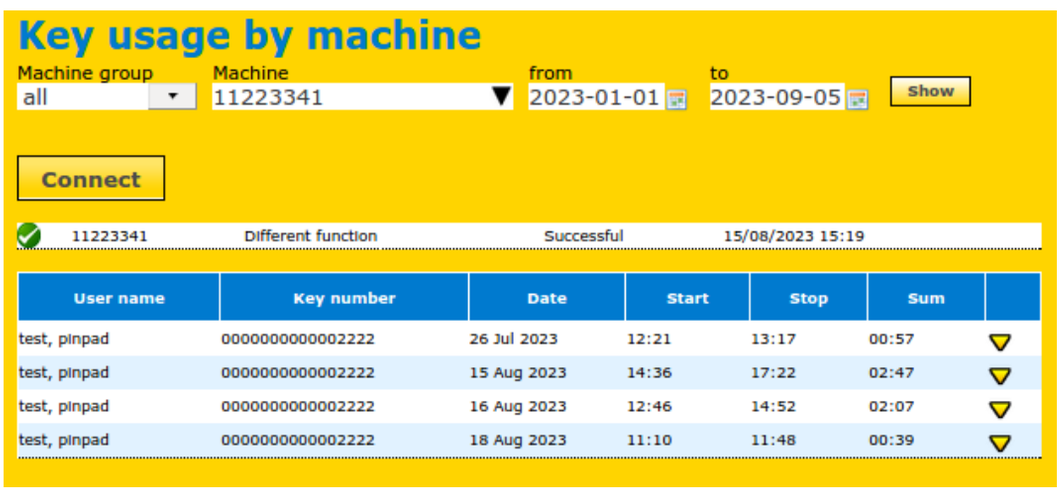
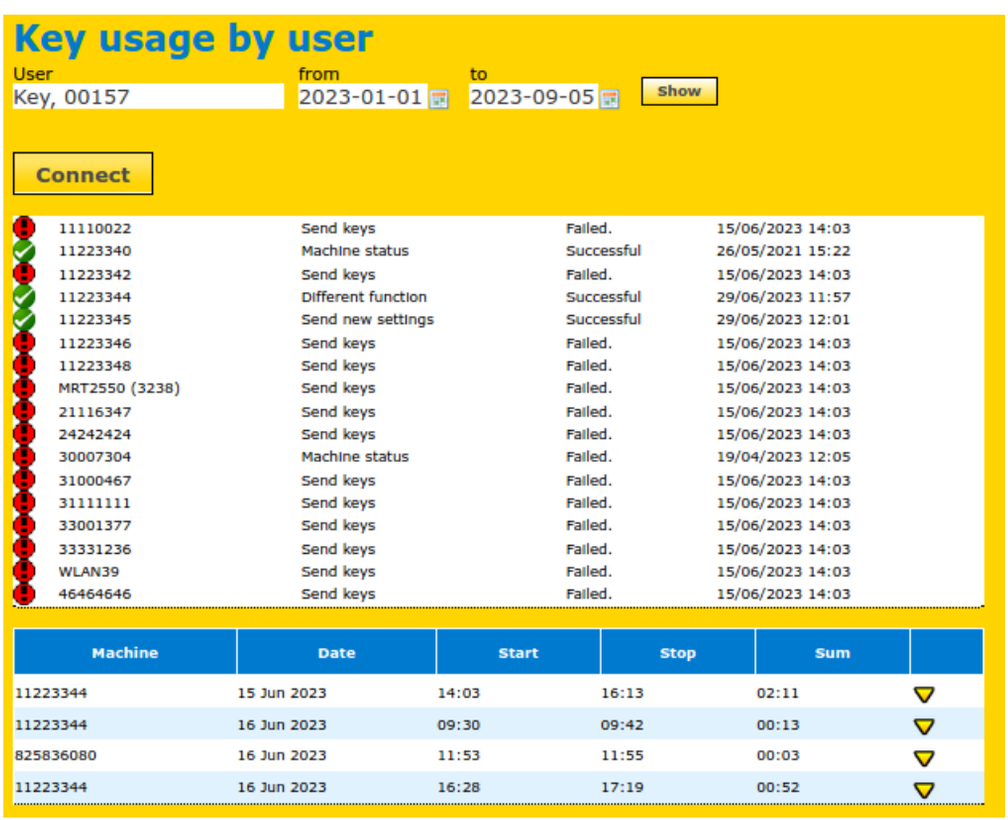
4.6.3. Evaluation of the key data

The evaluation of usage times can be carried out according to various aspects:

When using the key by machine, it is listed which users worked with the machine when and how long.



When using key usage by user, you can see all the machines that the user had worked during the period.



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5. Technical data

	Base	Optional
Operating voltage:	10 - 60 VDC	
Input voltage:	10V - 60VDC	
Input channels:	1 analogue	Up to 4 more digital
Outputs:		1
Vibration sensor:	1	
Shock sensor:		1
RFiD:		1
Operating temperatur:	-35°C - +65°C	
Power consumption:	At 12V: max.120mA, 8,9mA in battery saving mode	
Transmission method:	LTE with national roaming (D1/D2/O2)	

6. Contact and help

Do you need help or have a question?
Then you can reach us at the following contact details:

Rösler Software-Technik Entwicklungs- und Vertriebsgesellschaft mbH

Phone: +49 (0) 421/8022700

E-Mail: info@minidat.de

www.minidat.de

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