

# Quick guide

## EQTrace T/T-Key



13 June 2018

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## Functionality

The EQTrace T (with connection for key module: T-Key) is a GPS monitoring device which provides the following functions:

- collection of operating data on 1 input
- detection of the current position
- theft protection function
- logbook function (for vehicles)
- worldwide use
- activation via electronic key (optional, T-Key)
- switching off of the machine or function, 1 output

Due to the simple installation and the minimal power consumption during sleep mode it can be used in many areas. A few examples: motor vehicles, construction machines, trucks, boats, electric bicycles, motorcycles, etc.

All data will be transmitted to the Obserwando-Server [www.obserwando.de](http://www.obserwando.de) via mobile internet (GPRS). It can be accessed via the Obserwando-Portal with the corresponding vehicle name. The vehicle position can also be accessed from Android, Windows 10, iPhone or smartphones.

The SIM card is part of the yearly flat rate. When delivered it will already be installed and activated.

## Installation

The EQTrace T/T-Key should be installed horizontal, with the flange side at the bottom and distant of shielding metal pieces to provide the best GPS reception. The device can be installed under plastic covers but under no circumstances under metal.

The case can be painted in the same color as the vehicle. However, no metallic paint is allowed.

EQTrace T/T-Key can be used in vehicles and machines with operating voltage of up to 60VDC. Thus, it can be installed in cars, trucks, construction machines, lifting platforms or forklifts. In case of higher operating voltage a voltage transformer (e.g. TR20-150 or TR-230VAC) is required.

To ensure theft protection when the vehicle is turned off the device needs to be connected to a continuous voltage of 10...60VDC.

## LED - states

The installed LED's can display the following states when operating voltage is supplied:

### Red LED

1. LED flashes every 2 seconds: The device is on.
2. LED flashes every 5 seconds: The device is in energy saving mode.
3. LED flashes two times every 5 seconds: The device is awake, i.e. sending data, in energy saving mode.

### Green LED

1. LED is off: The device is not connected to the GSM network and has no GPS signal.
2. LED flashes shortly every second: The device is connected to the GSM network, but has no GPS signal.
3. LED flashes long every second: The device is connected to the internet and server, but has no GPS signal.
4. LED flashes long and two times shortly every second: The device is connected to the internet and the server, and has GPS signal.

The LED's are at the bottom of the device. When installed they are covered (manipulation and theft protection). The allocation can be obtained from the type plate.

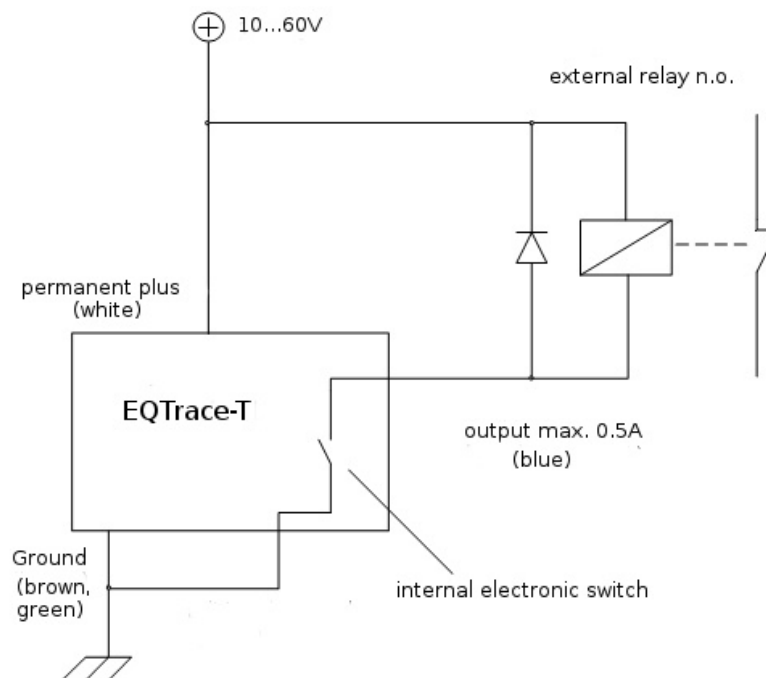
## Wiring table:

white	VPP (plus, max)
brown, green	GND (minus)
yellow	Input 1 (ignition)
blue	Output (max 500 mA, switched against minus)

# EQTrace T/T-Key

## Wiring of the relay (EQTrace T-Key)

One output of the EQTrace T/T-Key is available to block one function of the used vehicle. (e.g. the starter for vehicles, lifting for platforms, etc.)



### Warning:

When switching inductive load (e.g. power relays) a free-wheeling diode needs to be used.



## Connecting the key module

The 5 pole plug will be inserted into the jack of the EQTrace T-Key-Module. When the function is activated on the Obserwando server and the user is authorised to operate the vehicle, keys will be automatically detected.

# EQTrace T/T-Key



## Login into the portal

To login into the portal you need your username and password. If you are new to Obserwando, please enter the supplied user ID as your username and password.

The login form is set against a yellow background. At the top, a black banner with yellow chevron patterns contains the word 'OBSERWANDO' in yellow. Below this, the word 'Login' is written in blue. The form includes two input fields: 'User name' and 'Password', each with a white text box. A yellow 'Login' button is positioned below the password field. At the bottom, a line of text reads: 'To access this restricted area you need access authorisation.'

# EQTrace T/T-Key



## Machine parameters

You can start with the configuration of your machine in the following mask.

A screenshot of the 'Machine parameters' configuration form. The form has a yellow background and a sidebar on the left with navigation links: 'MACHINE DATA', 'SET UP MACHINE', '» Machine parameters' (highlighted), 'Device parameters', 'Service settings', 'Service log book', 'KEY FUNCTIONS', 'THEFT AND ALARM', 'TOUR', 'OBSERVANDO MEANS ...', and 'ORDER ONLINE'. The main form area contains fields for 'Machine group' (dropdown with 'all'), 'Machine' (dropdown with 'LL703'), 'Machine name' (text input with 'LL703'), 'Car registration' (text input), 'Machine group' (dropdown with 'None'), 'Upload new picture' (button with 'Browse...' and 'No file selected.'), 'Delete image' (checkbox with 'Don't use any image for this machine'), 'Label input 1' (text input with 'Input 1'), 'Label input 2' (text input), 'Description' (text area), and 'IPAF category' (dropdown with 'None requi'). A 'Save' button is at the bottom.

The following fields are available:

**Machine name:** When the device is delivered the IMEI-Nr. will be in this field. You can freely choose a machine name which will then be shown in all machine selections.

**Car registration:** You can provide the car registration for a vehicle.

**Machine group:** When you have created machine groups (e.g. rental, service vehicles, etc.) you can assign the device to one of the groups.

**Upload new picture:** You can upload a picture of the machine in JPG format. The maximal size is 1MB.

**Label input 1:** Channel text for input 1.

**Description:** Memo field for arbitrary text.

**IPAF category:** At the moment of no meaning.

To save your changes click on "Save".



# EQTrace T/T-Key



## Device parameters

After selecting this menu the following mask will appear.

The screenshot shows a web-based configuration interface for the EQTrace T/T-Key. On the left is a dark sidebar with a menu. The main content area has a yellow background. At the top of the main area is the title 'Device parameters' in blue. Below the title are two dropdown menus: 'Machine group' (set to 'all') and 'Machine' (set to 'LL703'), followed by a 'Show' button. The interface is divided into several sections. The 'Automatic operation detection' section contains three radio buttons: 'keine' (selected), 'Combustion engine "motor runs"', and 'Battery-driven machine "charger channel 1"'. Below this is a 'Starter battery' section with two radio buttons: '12 V' and '24 V' (selected). The 'Voltage threshold motor runs' section has a text input field with the value '25.6'. The 'IMEI' section has a text input field with the value '356308043889317'. The 'Operating hours' section has three rows: 'Eingang 1' with value '2042', 'Eingang 2' with value '0', and 'Ladezyklen' with value '0'. Each row has a 'send new parameter' button. The 'Recharge channel' section has a dropdown menu set to 'No charging'. The 'Deep discharge notification' section has an 'activate' checkbox (unchecked), a 'Voltage' text input field with value '13.6', and a 'User' dropdown menu set to 'keine'. At the bottom left of the main area is a 'Save' button.

Please ignore the red box and don't consider the text inside.

The EQTrace T/T-Key devices can automatically detect several operating states.

Yet, since this does not work reliably for every machine the necessary settings can also be configured manually.

**Important note:** The channels record on a per second basis. The channel state is queried 1 \* per second.

### Automatic operation detection switched off

Please select "Automatic operation detection: none" to switch it off.

Is an operating hour counter available in the machine the current value n can be used for channel 1 (motor runs).



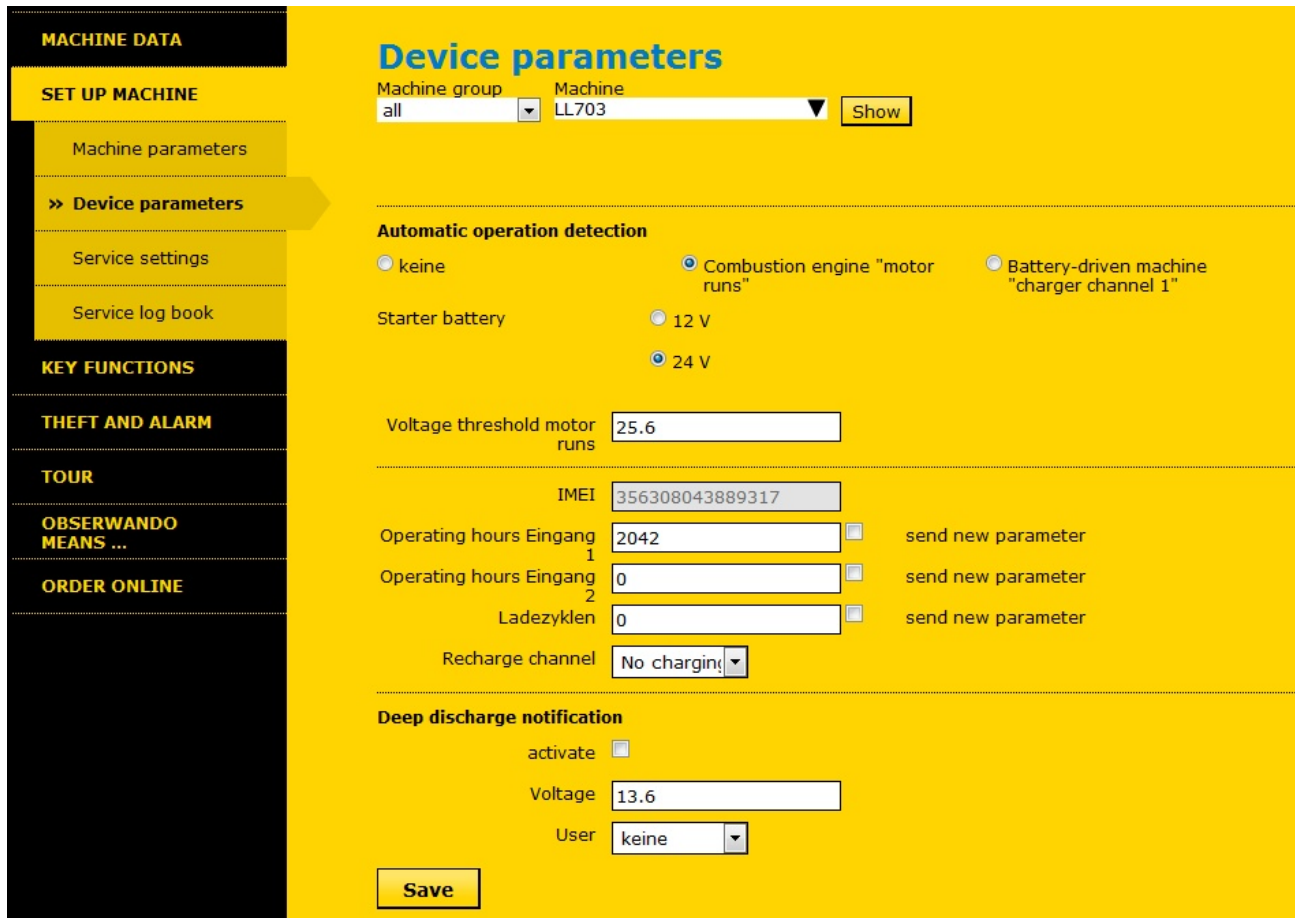
## Automatic operation detection activated: diesel machine

To activate the automatic operation detection for a diesel machine select „Automatic operation detection: combustion machine runs“.

Additionally, the operating voltage of the battery needs to be selected. Possible options are „12V“ and „24V“.

The voltage threshold is predefined but can also be changed individually for the machine. The operating hours are automatically collected on channel 1.

To activate the settings click on "Save".



## Deep discharge notification


When the operating voltage falls under a predefined threshold a corresponding notification can be sent from the Obserwando portal via email. To do this the checkbox "activate" needs to be selected in the menu "Deep discharge notification".

The threshold value of the operating voltage needs to be provided. In the options menu "user" an user can be selected who will receive the notification.

**Warning:** Only users will appear who have provided a valid email address.

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

Please click on "Save" to activate the changes.

A screenshot of a web form titled 'Deep discharge notification' on a yellow background. The form contains three fields: a checkbox labeled 'activate' which is checked, a text input field labeled 'Voltage' containing the value '13.6', and a dropdown menu labeled 'User' with 'keine' selected. A yellow 'Save' button is located at the bottom left of the form area.

**Deep discharge notification**

activate ☒

Voltage

User

**Save**

# EQTrace T/T-Key



## Service settings

Service intervals and yearly examinations such as TÜV or UVV can be defined in the service settings. When a reporting deadline is reached it will be shown in the operating data. The notification of an user via email is also possible. The user must be selected in the field "user".

The meanings of the fields are:

**Name:** Name of the event.

**Hour limit:** Notification when hour limit is reached.

**Km limit:** Notification when km limit is reached.  
(determined via GPS tracking)

**Current km state:** Entry of the km state obtained from the machine.  
When selecting "update" the value will be saved.

**Date:** Notification when date is reached.

Under "notifications" an user with a valid email address can be selected who will be informed via email when an event is reached.

To activate the settings click on "Save".

The screenshot shows a web application interface with a dark sidebar on the left and a main yellow content area. The sidebar has a 'MACHINE DATA' header and a 'SET UP MACHINE' section containing 'Machine parameters', 'Device parameters', '» Service settings' (highlighted with a yellow arrow), and 'Service log book'. Below this is a 'KEY FUNCTIONS' section with buttons for 'THEFT AND ALARM', 'TOUR', 'OBSERVANDO MEANS ...', and 'ORDER ONLINE'. The main content area is titled 'Service settings' and features a 'Machine group' dropdown set to 'all' and a 'Machine' dropdown set to 'LL703', with a 'Show' button. The settings are organized into five service sections: 'Service 1: Eingang 1', 'Service 2: Eingang 2', 'Service 3', 'Service 4', and 'Service 5'. Each section contains input fields for 'Name', 'Next service (hours)', 'Km-Limit', 'Current km status' (with a value of 197287.1), and 'Date'. There is an 'aktualisieren' checkbox next to the 'Current km status' field. At the bottom, there is a 'Notification' section with a 'User' dropdown set to 'keine'. A 'Save' button is located at the bottom right of the main content area.

# EQTrace T/T-Key



## Service log book

In the service log book the logs of a machine, e.g. notes about service intervals or damages, photos or circuit diagrams, can be deposited.

To create a new log click on "New log".

This screenshot shows the 'Service log book' interface. On the left is a sidebar with a 'MACHINE DATA' header and a 'SET UP MACHINE' section containing links for 'Machine parameters', 'Device parameters', 'Service settings', and '» Service log book'. The main area has a yellow background with the title 'Service log book'. It includes a 'Machine group' dropdown set to 'all' and a 'Machine' dropdown set to 'LL703', with a 'Show' button. A 'New log' button is located to the right. Below the dropdowns, a message states: 'There are no entries for the selected machine.'

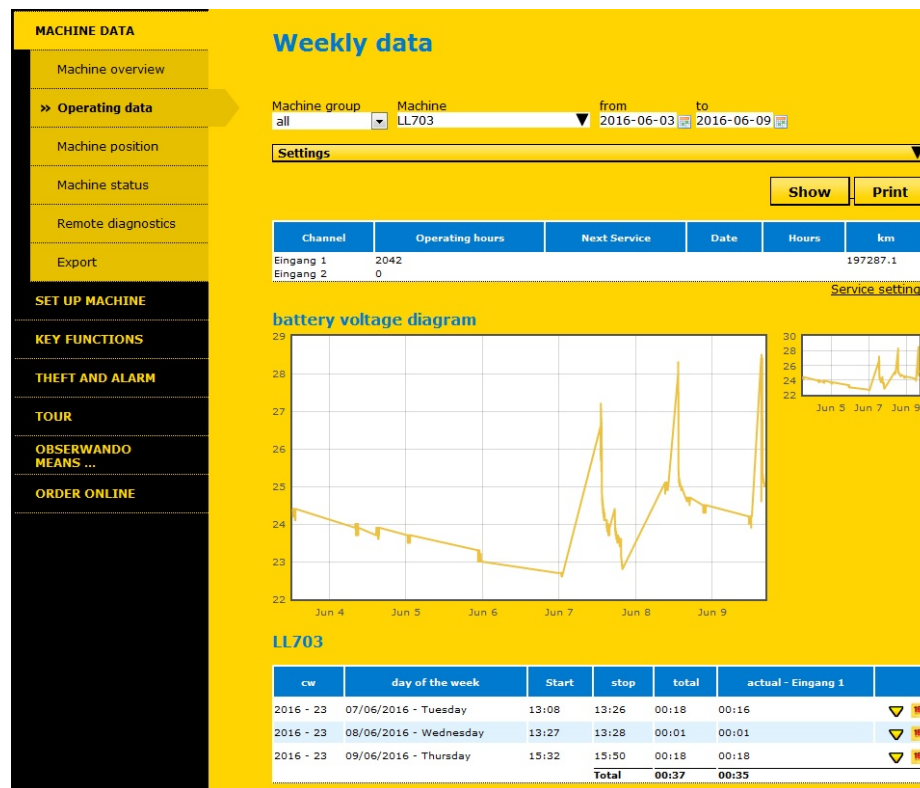
Following an example of attaching a text. In this case the attachment consists of a pdf manual. It is also possible to add multiple attachments to a log.

To save the log and the attachment click on "Save".

This screenshot shows the 'Service log book' interface with a log entry for machine 'LL703'. The sidebar is the same as in the previous screenshot. The main area has a yellow background and the title 'Service log book'. Below the title is the text 'Service log for LL703'. There are two input fields: 'Summary' with the text 'This is an example' and 'Text' with the text 'This is an example log'. Below these are two attachment slots, each labeled 'Attachment (max. 1 MB)'. The first slot has a 'Browse...' button and the filename 'D140115-1 EQTrace TD.pdf' with a small '[x]' icon. The second slot has a 'Browse...' button and the text 'No file selected.' with a small '[x]' icon. Below the attachment slots is a label 'File to be attached'. A 'Save' button is located at the bottom right of the main area.

# EQTrace T/T-Key

## Operating data collection



The collection of operating data (e.g. motor is running) can be done using the input. The input voltage can range between 10V and 30V. All collected operating data will be automatically transmitted to the server and can be accessed in Obserwando under "machine → data" → "operating data". In this view all weekdays on which the machine was operated will be displayed. Weekdays on which the machine was not operated will be hidden, unless changed under "settings". In the column „Start“ the time at which the machine was switched on the first time will be shown. In the column "Stop" the last time when the machine was switched off will be shown. The difference of both times is shown as "Total". If you are interested in the effective runtime e.g. of the motor, you can define the corresponding input channel in the settings. The effective sum of the runtimes can then be found in the column "effective".

### Principle of data collection

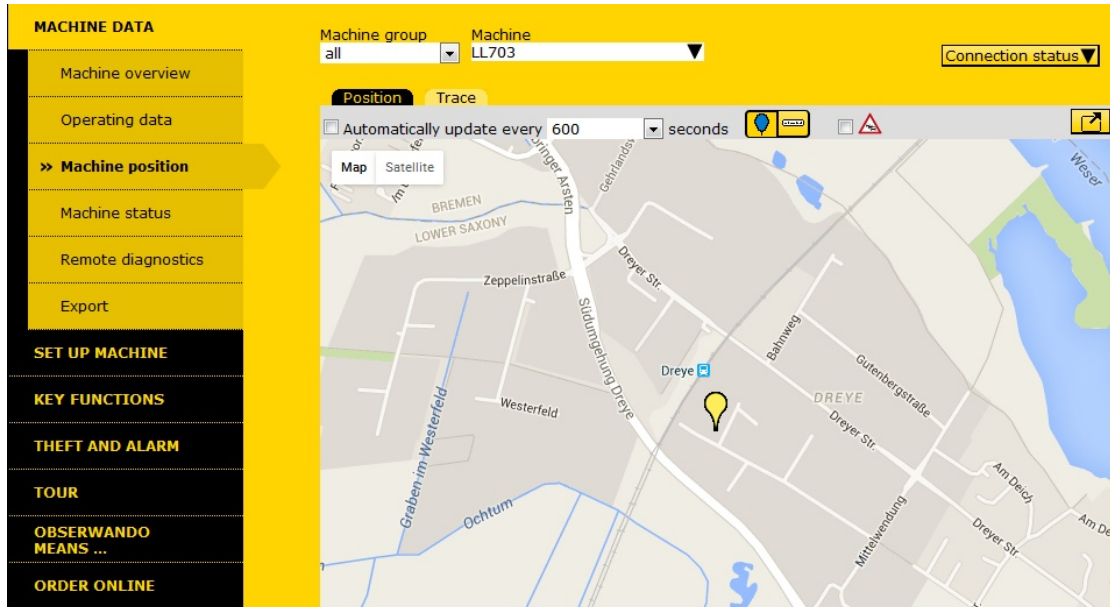
The "start time", "stop time" and "minutes per hour" will be recorded as operating times. This has been proven useful, especially for platforms and other construction machines. The timeline for the effective channel can be made visible by clicking on the yellow arrow ▼ in the last column. If you are interested in the data of all input channels you can change to the daily view by clicking on the calendar symbol 📅 in the last column.

Times in the columns "total" and "effective" which are marked in red show operating times longer than 8 hours or at the weekend.

# EQTrace T/T-Key



## Position determination - map view



When the vehicle is in sleep mode the last transmitted position will be shown. The EQTrace T/T-Key will automatically switch into sleep mode when a vehicle is parked for more than 10 minutes. Sleep mode will be interrupted every 24 hours to send a control message to Obserwando. If a new position is available it will also be updated. In drive mode the current position will be updated every 60 seconds. If the mobile network is not available the coordinates will be saved in the device. As soon as GPRS is available again the saved data will be transmitted to the server.

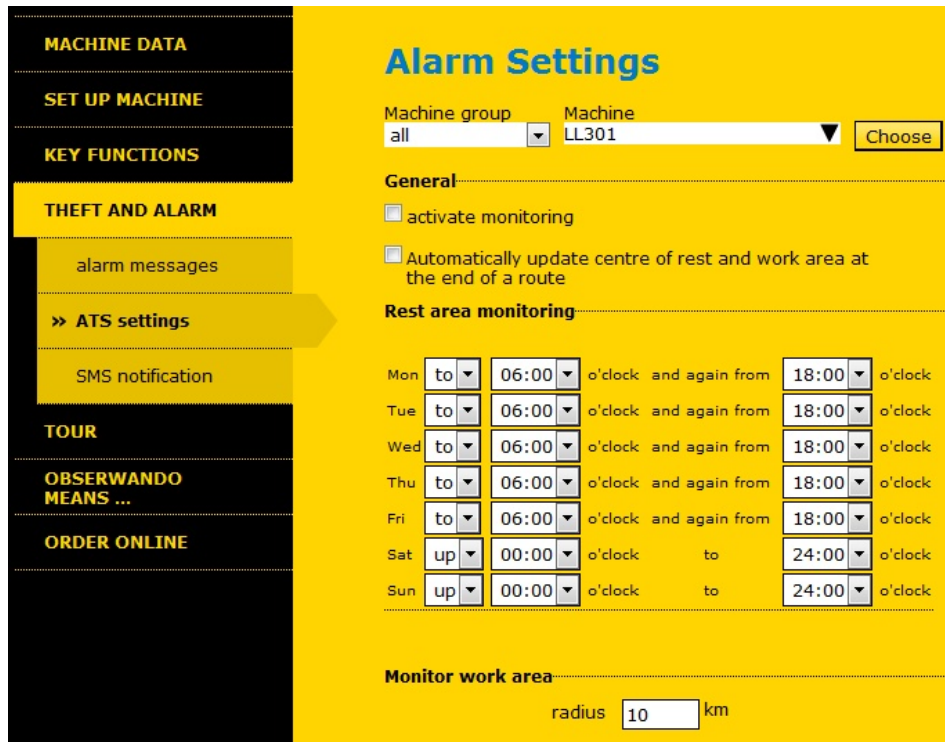
After first commissioning, the current position will be transmitted to Obserwando as soon as it was determined after connecting the supply voltage. For that the vehicle needs to be in the open!

If no new position can be determined the last saved will be displayed.



## Theft protection (Flat rate ATS)

Theft protection in Obserwando can be separated into monitoring of rest and work area.

The screenshot shows a web interface for 'Alarm Settings'. On the left is a dark sidebar with a menu containing: 'MACHINE DATA', 'SET UP MACHINE', 'KEY FUNCTIONS', 'THEFT AND ALARM' (highlighted), 'alarm messages', '>> ATS settings' (highlighted with a yellow arrow), 'SMS notification', 'TOUR', 'OBSERWANDO MEANS ...', and 'ORDER ONLINE'. The main content area has a yellow background and is titled 'Alarm Settings'. It includes a 'Machine group' dropdown set to 'all' and a 'Machine' dropdown set to 'LL301', with a 'Choose' button. Under the 'General' section, there are two checkboxes: 'activate monitoring' (unchecked) and 'Automatically update centre of rest and work area at the end of a route' (unchecked). The 'Rest area monitoring' section contains a table for configuring rest periods for each day of the week. The 'Monitor work area' section at the bottom has a 'radius' input field set to '10' km.

Day	Start	End
Mon	to 06:00 o'clock	and again from 18:00 o'clock
Tue	to 06:00 o'clock	and again from 18:00 o'clock
Wed	to 06:00 o'clock	and again from 18:00 o'clock
Thu	to 06:00 o'clock	and again from 18:00 o'clock
Fri	to 06:00 o'clock	and again from 18:00 o'clock
Sat	up 00:00 o'clock	to 24:00 o'clock
Sun	up 00:00 o'clock	to 24:00 o'clock

The rest period can be configured for each weekday individually. During the rest period an alarm will be raised if the rest area of 200 m is left. During working hours the configured work area (radius in km) will be monitored. The centre of the rest and work area is either the last transmitted position (i.e. the current position when the area is defined) or the last used position (of a previous sessions).



## SMS notification

MACHINE DATA  
SET UP MACHINE  
KEY FUNCTIONS  
THEFT AND ALARM  
alarm messages  
ATS settings  
**>> SMS notification**  
TOUR  
OBSERWANDO MEANS ...  
ORDER ONLINE

### SMS notification

Machine group  Machine  User

activate ☐

Activate SMS notification ☐

Period

vom  bis

Tage

Monday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Tuesday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Wednesday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Thursday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Friday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Saturday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>
Sunday	<input checked="" type="checkbox"/>	aber nicht	<input type="checkbox"/>	up	<input type="text" value="00:00"/>	to	<input type="text" value="24:00"/>

The alarm messages will be sent from the server to all users which are activated for the device via SMS. Important is that every user has a valid mobile number in the master data. After sending the alarm message the monitoring of the device will be deactivated to prevent repeated SMS.

**Warning:** Monitoring must be reactivated before a new alarm message can be sent (see alarm settings).

# EQTrace T/T-Key



## Key module functions ( T-Key)

When the EQTrace T-Key is connected to the key module and the read in of keys was activated on the Obserwando server, the output (and thereby the machine) can be activated with an electronic key.

The user who has registered for the key will be logged. The user will be logged off when the vehicles was turned off for at least 30 seconds.

Users who are trying to register while the vehicle is on are not logged.

## Use of the key module function

To use these functions please do the following:

Assign a key to every user. All available keys can be found under the corresponding menu.

The screenshot shows the 'User keys' interface. On the left is a sidebar with a black header and yellow buttons: 'MACHINE DATA', 'SET UP MACHINE', 'KEY FUNCTIONS', 'Evaluation by user', 'Evaluation by machine', '» User keys' (highlighted), and 'Key access'. The main area has a yellow background. At the top, it says 'User keys' in blue. Below that is a search bar with 'Gast, Gast' and a 'Show' button. Then, 'Keys handed out to Gast, Gast' is displayed above a 'Benutzer bearbeiten' button. A table follows with two columns: 'Key number' and 'Assignment'. It contains one row with the key number '4567456745674567' and the assignment 'IFM Brinkum'. At the bottom are links for 'Add new user' and 'Add new key'.

Under "Key access" you can define for each user individually which machines the user can access. You just need to click on "Assign" for the desired machine. The key will then be marked for the assignment and will be transferred to the machine. If a device is not reachable it will be postponed until the server can establish a connection.

The screenshot shows the 'Key access' interface. The sidebar is identical to the previous screenshot, with '» Key access' highlighted. The main area has a yellow background. At the top, it says 'Key access' in blue. Below that is a search bar with 'Gast, Gast' and a 'Show' button. To the right of the search bar is a 'Group' dropdown menu set to 'all'. Below the search bar is a table with three columns: 'Machine', 'Status', and an action button. The first row shows 'IFM Brinkum' in the Machine column, 'Marked for assignment' in the Status column, and a 'Lock' button. The second row shows 'LL301' in the Machine column, 'Locked' in the Status column, and an 'Assign' button.

## Evaluation of the key data

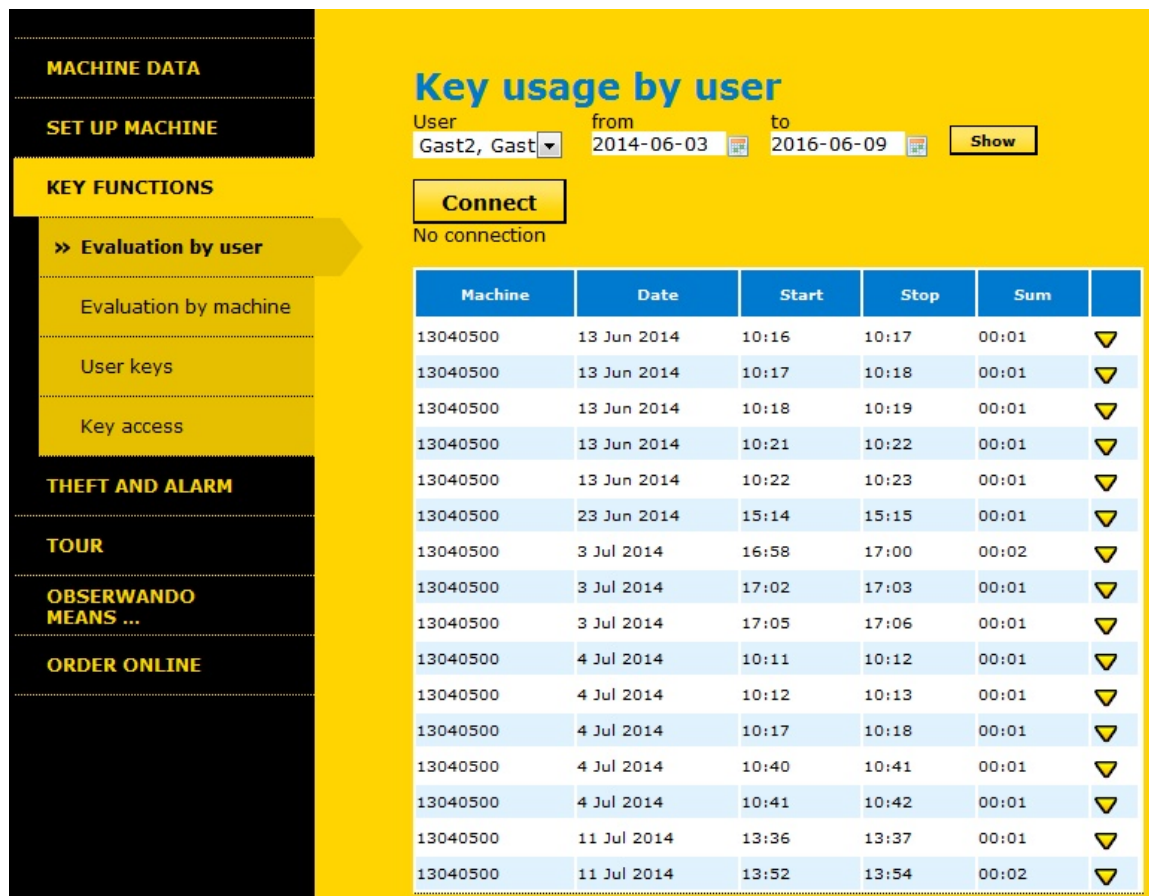
The evaluation of the periods of use can be done using different viewpoints:

Evaluation by machine shows when and for how long a user has operated the machine.



The screenshot shows the 'Key usage by machine' evaluation screen. On the left, a sidebar contains navigation options: 'MACHINE DATA', 'SET UP MACHINE', 'KEY FUNCTIONS', 'Evaluation by user', '» Evaluation by machine' (highlighted), 'User keys', and 'Key access'. The main area has a title 'Key usage by machine' and search filters: 'Machine group' (all), 'Machine' (LL301), 'from' (2016-06-03), and 'to' (2016-06-09). A 'Show' button is present. Below the filters, a message states: 'There's no data available for the selected time range.'

Evaluation by user shows all machines which a user has operated in the selected period of time.



The screenshot shows the 'Key usage by user' evaluation screen. On the left, a sidebar contains navigation options: 'MACHINE DATA', 'SET UP MACHINE', 'KEY FUNCTIONS', '» Evaluation by user' (highlighted), 'Evaluation by machine', 'User keys', 'Key access', 'THEFT AND ALARM', 'TOUR', 'OBSERWANDO MEANS ...', and 'ORDER ONLINE'. The main area has a title 'Key usage by user' and search filters: 'User' (Gast2, Gast), 'from' (2014-06-03), and 'to' (2016-06-09). A 'Show' button is present. Below the filters, a 'Connect' button is shown with the text 'No connection' below it. A table displays the key usage data for the selected user.

Machine	Date	Start	Stop	Sum	
13040500	13 Jun 2014	10:16	10:17	00:01	▼
13040500	13 Jun 2014	10:17	10:18	00:01	▼
13040500	13 Jun 2014	10:18	10:19	00:01	▼
13040500	13 Jun 2014	10:21	10:22	00:01	▼
13040500	13 Jun 2014	10:22	10:23	00:01	▼
13040500	23 Jun 2014	15:14	15:15	00:01	▼
13040500	3 Jul 2014	16:58	17:00	00:02	▼
13040500	3 Jul 2014	17:02	17:03	00:01	▼
13040500	3 Jul 2014	17:05	17:06	00:01	▼
13040500	4 Jul 2014	10:11	10:12	00:01	▼
13040500	4 Jul 2014	10:12	10:13	00:01	▼
13040500	4 Jul 2014	10:17	10:18	00:01	▼
13040500	4 Jul 2014	10:40	10:41	00:01	▼
13040500	4 Jul 2014	10:41	10:42	00:01	▼
13040500	11 Jul 2014	13:36	13:37	00:01	▼
13040500	11 Jul 2014	13:52	13:54	00:02	▼

# EQTrace T/T-Key



## Technical Details

Dimensions: 105 x 73 x 35 mm

Operating voltage: 10 – 60 VDC

Operating temperature: -35° C to +65° C

Power consumption:		<b>12V</b>	<b>24V</b>	<b>48V</b>
	Idle mode:	25mA	20mA	25mA
	Transmit mode:	120mA	70mA	40mA
	Sleep mode:	8,9mA	7,7mA	7,3mA
Internal battery:		capacity 1050mAh		
		- Power consumption increases while charging the internal battery.		

Inputs: 1 input

Outputs: 1 shortcircuit proofed output (up to 0.5A); output wired to GND

## Box content

1. EQTrace T/T-Key inclusive connection cable 2m