Pro-finder Telemetry Module for Fleet Monitoring and Control Instruction Manual

Pro-finder

Telemetry Module for Fleet Monitoring and Control
Instruction Manual
Operating and installation instructions

Contents

Telemetry Module for Fleet Monitoring and Control

Disclaimer:
As with any other alarm system, Pro-finder can only report a break-in or attempted break-in, but it cannot prevent it. Consequently appropriate caution is required and you must adequately protect the vehicle from unauthorised use.
Thitronik does not accept any liability for stolen valuables and / or vehicles due to a break-in, or for damage that occurs due to vehicle break-in or improper handling of the device.

Pro-finder Manual

Please read the following instructions carefully to avoid faulty operation.
1.1 Scope of delivery

1. Pro-finder
2. Antenna
3. Cable assembly
4. Fuse holder
5. Blade-type fuse 3 A
6. Mounting screws
7. Connection cable WiPro III / “all in one”

1.2 Selecting the installation location

Choose an installation location that is sufficiently secured against unauthorized access and yet is accessible for service tasks, such as replacing the card.

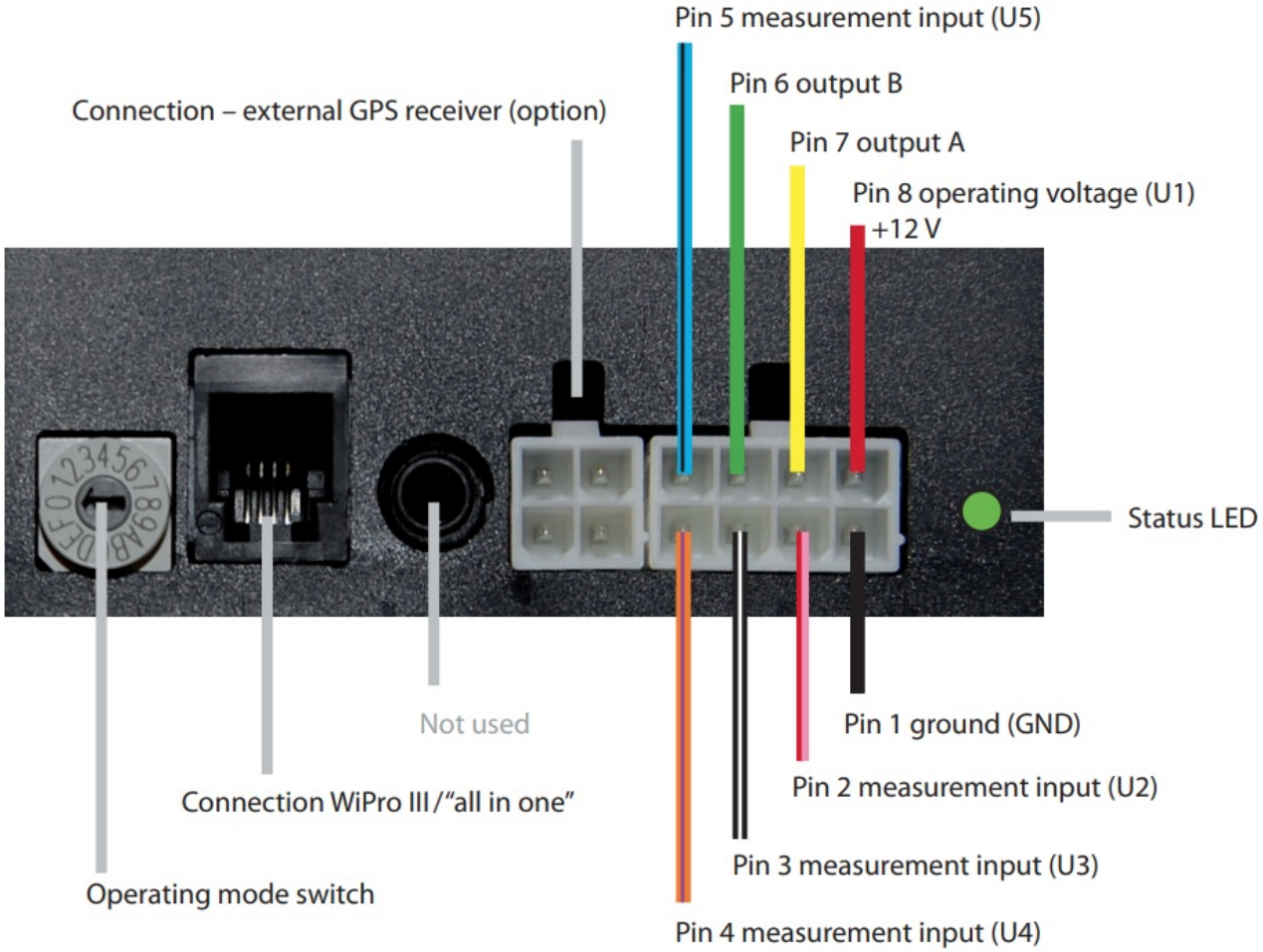
The installation location must be inside the vehicle. Never install the device in the engine compartment. Because Pro-finder has an integrated GPS receiver, the top side of the device must be pointing up and a “clear view” to the satellite must be ensured.

As they are penetrated by the GPS signal, plastics, glass and wood will not obstruct the “clear view” to the satellite.

If an external GPS receiver will be installed, because the installation location of the device does not have GPS reception, note that the cable length between the GSM module and the GPS receiver must not exceed 2 m and that the GPS receiver needs a “clear view” to the satellites.

However, the GPS receiver can be installed under plastic coverings on the dashboard (e.g. cover of the instrument cluster).

1.3 Connections, displays and control elements



1.4 Selecting the operating mode

In all modes the outputs can be switched as described under 2.7. The following functions can be activated by setting the operating mode switch (see 1.3):

Call triggers status report:

If you call the phone number of the SIM card inserted in Pro-finder, Pro-finder automatically ends the call and sends a status report (see 2.1, Fig. 1) to the caller (authorised numbers only) (see 2.1).

Automatic status reports:

Pro-finder sends status reports to the saved destination phone numbers at the intervals listed below.

Status report contains U1, U2, U3, U4, U5:

The status report contains additional information on the operating voltage (U1) and the voltages on the measurement inputs U2-U5. The voltages displayed vary with the position of the switch.

Geofencing switchable via pin 3:

If the voltages cited in the table are applied on pin 3, geofencing can be switched on and off controlled by event. For example, by switching on the ignition or activating the interior light, etc.

1.4 Selecting the operating mode

Call arms / disarms WiPro and triggers status report:

If you call the phone number of the SIM card inserted in Pro-finder, Pro-finder automatically ends the call, arms or disarms WiPro and, after successful switching, sends a status report to the caller (authorised numbers only).

WiPro will be switched from disarmed to armed and vice versa.

Help SMS with voltage on pin 3:

If voltage is applied on pin 3, a help SMS will be sent. For example, this can occur via a button.

Information:

The modes 7 through D are intended for use without WiPro. A connection with Wipro is not possible with this. From Pro-finder SN 0686-010 a WiPro can also be connected in these modes.

Table – operating modes

Operating mode	Call triggers status report	Call arms / disarms WiPro	Interval of the automatic status reports	Status report contains the following voltages					Geofencing switchable via pin 3	Help SMS with voltage on pin 3
				U1	U2	U3	U4	U5		
0	yes	–	–	–		–	–			–
1	yes	–	–	yes	yes	–	–			–
2	–	yes	–	–		–	–			–
3	–	yes	–	yes	yes	–	–			–
4	yes	–	15 minutes	yes	yes	yes	yes	yes	–	–
5	yes	–	60 minutes	yes	yes	yes	yes	yes	–	–
6	yes	–	6 hours	yes	yes	yes	yes	yes		–
7	yes	–	24 hours	yes	yes	yes	yes	yes		–
8	yes	–	–	–		–	–		>6 Von/<5 Voff	–
9	yes	–	–	–		–	–			–
A	yes	–	–	–	–	–	–			yes
B	yes	–	–	–		–	–		>6 V off/<5 V on	–
C	yes	–	90 seconds (as soon as voltage is applied and Pro-finder is logged in)							
D	yes	–	8 seconds (as soon as voltage is applied and Pro-finder is logged in)							
E	Deleting the destination phone numbers (see 1.9)									
F	GPS diagnosis (see 1.7)									

1.5 Connecting the module

Connect pin 1 (black) and pin 8 (red) with the correct polarity (see 1.3) to a suitable power supply (12 VDC). Protect the plus cable with the provided fuse.

Pins 2 – 5 are measurement inputs that can be used to check voltages (0-30 V).

Depending on the mode, geofencing can also be activated via pin 3.

If necessary, connect WiPro III or WiPro “all in one” and Pro-finder using the included connecting cable.

!!! WiPro “all in one” and Pro-finder must be connected to the same battery !!!

Pin 6 and pin 7 are transistor outputs that supply 12 V and can withstand a load of 500 mA. If consumers requiring more than 500 mA must be connected, a relay must be used. Use a high-quality automotive relay with a recovery diode.

Overloads will void the warranty.

The outputs can be controlled as follows:

– Output switched on until the command is cancelled

– Output pulse (switched on for 1 second)

– Output switched on for freely specified time

Chapter 2.7 describes how to control the outputs via SMS

1.6 Installing the GPS receiver (optional)

The optional GPS receiver can be mounted at a location inside the vehicle that is protected against sabotage, using the already attached self-adhesive pad. The side with the self-adhesive pad must face upward (receiving side). The mounting location must be clean, dry and free of grease. If the temperature is below 15 °C the contact

surface should be warmed first. The receiving side must be aligned as horizontally as possible.

1.7 Connection of the GPS receiver

To connect the optional GPS receiver, Pro-finder must be de-energised. Disconnect the main cable assembly and then plug the GPS plug into the 4-pin connector for the GPS receiver. Now you can re-connect the main cable assembly.

To enable the GPS receiver to receive and save current satellite data, the operating voltage must be greater than 13.5 V for at least 5 minutes after the installation. To achieve this, start the vehicle. If the data is not saved, exact determination of the position is not ensured. GPS reception must be ensured (leave any halls or roofed areas).

1.7 Connection of the GPS receiver

To check whether GPS data is being received, switch the operating mode switch to position F (GPS diagnosis).

The status LED now indicates the operating state of the GPS.

LED is illuminated red:	**GPS not connected**
LED flashes yellow:	Repeat the connection procedure with the power supply disconnected. If this is not successful, the GPS receiver may be defective. GPS data is being received, however without a valid position.
LED is illuminated green:	GPS position OK. Switch the operating mode switch back to the initial position. If the LED is now illuminated red, a SIM card has not been inserted. Additional LED states are described in chapter 1.10.

In halls or buildings and under roofed areas, reflections of the GPS signal can occur.
This can have a significant effect on the accuracy of the positioning, and theft alerts can be triggered although the vehicle has not been moved.
To prevent such alerts we recommend disarming the geofence function if the vehicle is parked in a building or under a roof.

To do this, send an SMS with “fence off” to the number of the GSM module.

1.8 Programming the destination phone numbers

Before you can start programming, a valid SIM card (Micro-SIM) from a mobile phone provider must be inserted in the module

The PIN for the card that is used must be changed to 0000 before it is inserted.

The PIN query function must be activated.

All call forwarding functions and the mailbox must be deactivated.

The convenience functions of the card must be deactivated.
(Callback if busy, reminders per SMS, etc.)

When the card is inserted Profinder must be de-energised.

The card must be valid for roaming if it will also be used in foreign countries.

SIM card used:

In order to use the Pro-finder, you need a SIM card of a mobile phone supplier. We recommend using a card from T-mobile or Vodafone. However, cards from other suppliers are also generally suitable. Since pre-paid cards do

not result in monthly charges, these cards are ideal for the purpose. The current credit on the card is transferred with each SMS. When choosing a pre-paid card, ensure that it does not need to be removed from the device in order to top up the credit, but that it can be topped up from another mobile phone, for example from an ATM.

Saving the number of the Pro-finder:
In order to assign the number quickly when there is an alarm message, you should assign it to a name, as with every other entry in the address book of your telephone. Since you may also need to access the number quickly, ideally you should label name it ALARM, then it will be stored at the beginning of your address book. If you write alarm as shown below, it will always be at the top of the list: Alarm. The number must always be stored with the country code (e.g. +44 for the UK) in order to access it from abroad.

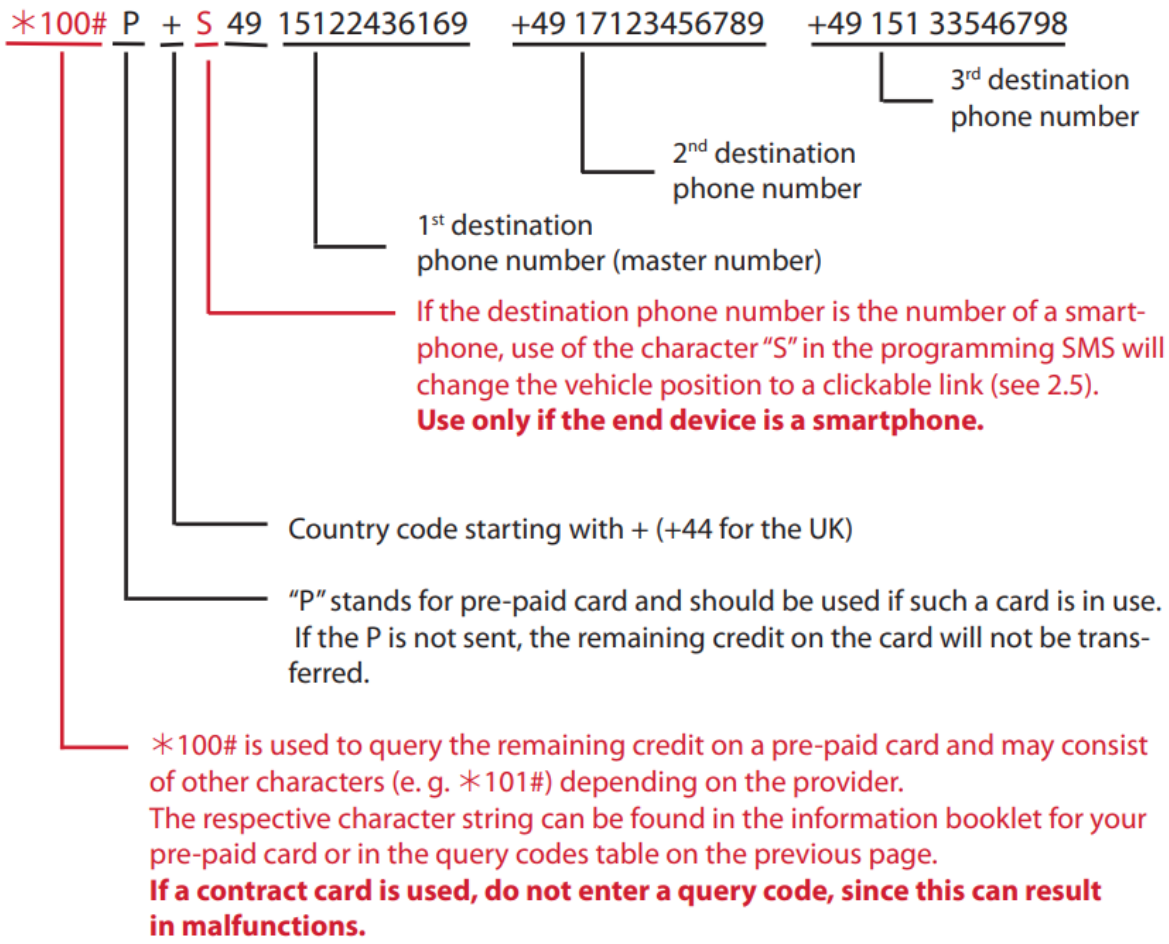
Controlling by SMS or phone call:
Each SMS sent by Pro-finder results in costs that will depend on your network operator. If you control the system by SMS or phone call, this always produces a status SMS.

1.8 Programming the destination phone numbers
Once the SIM card has been inserted and locked in place the power supply can be connected. The status LED will now flash red briefly and then will flash yellow / green. Now the programming SMS described below can be sent to the number of the Profinder. If the SMS was received and the numbers were saved, the status LED flashes green and a status SMS is sent to the sender of the programming SMS. Pro-finder is now ready for operation.
Destination phone numbers are the phone numbers that will be alerted in case of an alarm. Up to 10 numbers can be saved. There are different types of destination phone numbers:

Master number:	Is the phone number at the top of the list when the destination phone numbers are saved. This number can program new destination phone numbers at any time, without access to the operating mode switch.
Authorised numbers:	These are destination phone numbers that have authorisation to control the outputs of Pro-finder via SMS and to request status reports.
Non-authorised numbers:	These destination phone numbers have no access to the system functions. They only receive status messages.
Smartphone numbers:	These can be master numbers, authorised numbers or non-authorised numbers that were provided with an “s” during programming and can receive the vehicle position as a link that can be displayed as a map with any standard smartphone.

The query codes used for pre-paid cards can be found in the documents supplied with the Sim Card or ask your peovider.
The most common codes can also be found by using the link below:
http://www.thitronik-automotive.de/support/faqs/faq-pro-finder.html

1.8 Programming the destination phone numbers
Sample structure of a programming SMS where all the target phone numbers are “authorised numbers” (up to 10 destination phone numbers are possible).
The spaces are provided for presentation purposes only. Do not use any spaces in the SMS.



Examples for various programming SMS messages

Programming SMS in ca se of	Data stored on a programming SMS of a contr act card in Pro-finder	Data stored on a programming SMS of a pre-paid card in Pro-finder
One recipient (master nu mber)	+491511142338	*100#P+491511142338
Master number +	+491511142338+491736660456	*100#P+491511142338+4917
one authorised number		36660456
Master number	+5491511142338-491736660456	*100#P+S491511142338-
as smartphone number + one non- uthorised numb er		491736660456

In the case of multiple recipients, enter continuously without blanks. Replace the query codes for pre-paid cards according to the query codes table. Replace the country prefix and the phone numbers according to your data.

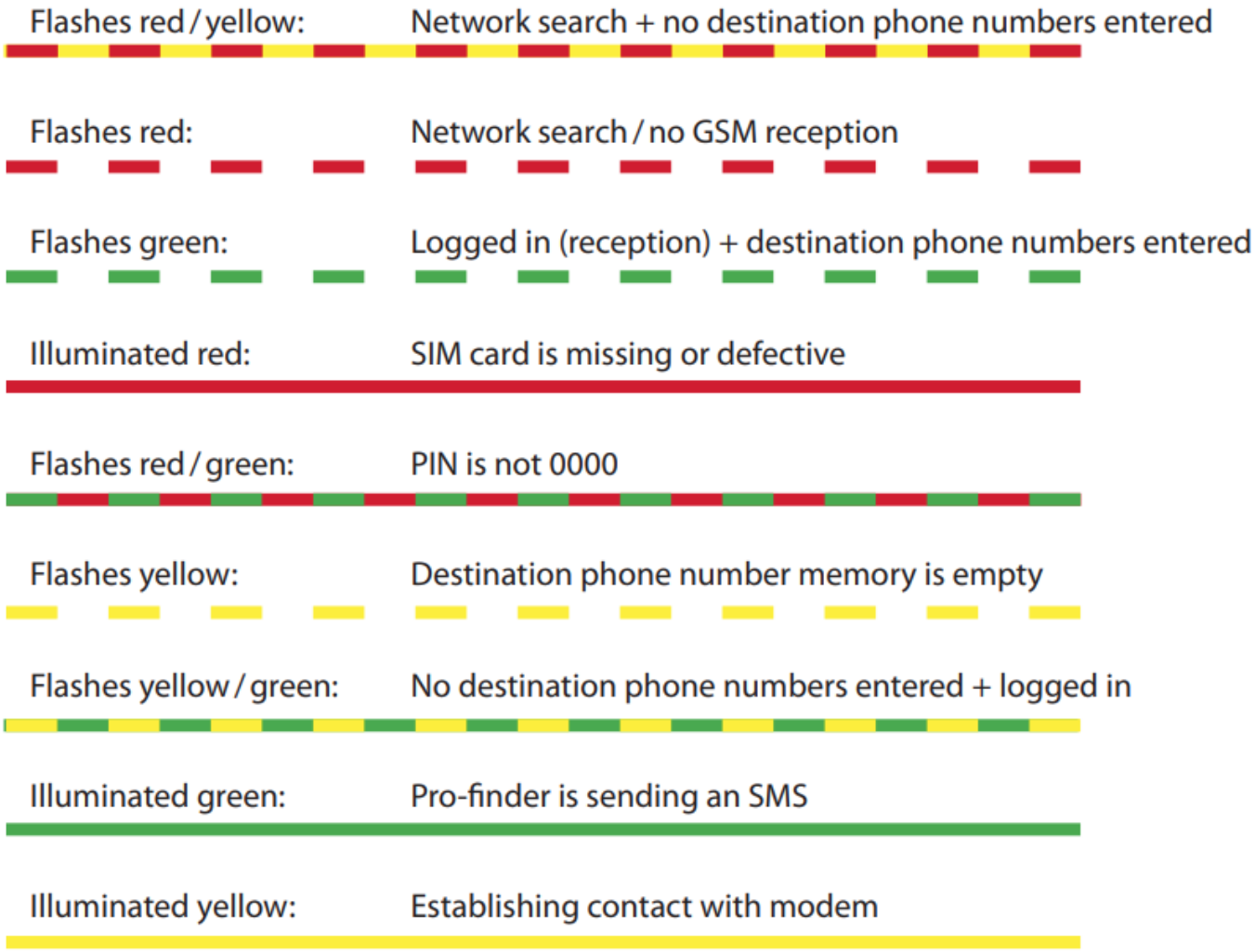
1.9 Deleting the destination phone numbers SIM card must be in the device!!
To delete all destination numbers in memory, proceed as follows:

☞	Disconnect the main cable assembly.
☞	Set the operating mode switch to position E.
☞	Re-connect the main cable assembly (wait until the status LED flashes yellow / green).
☞	Set the operating mode switch back to the initial position.

The memory is now empty and can be reprogrammed with a new programming SMS.
The memory can also be overwritten by the master number, without setting the operating mode switch.

☞ To do this, you must send a programming SMS to Pro-finder as described in chapter 1.8.

1.10 Display of the operating states (Status LED)



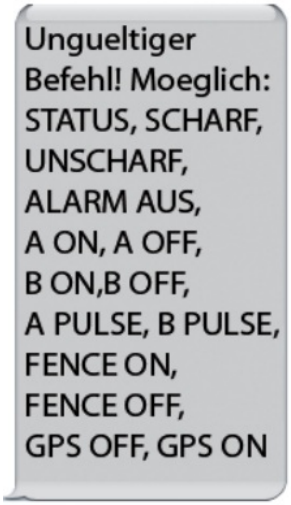
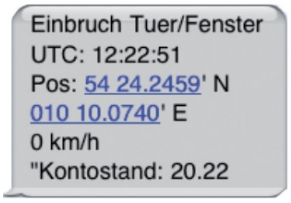
After completion of the installation and programming, the status LED flashes green in normal operation.

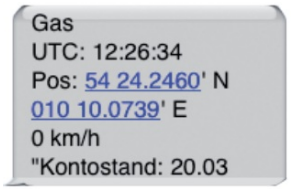
2.1 Explanation of the messages received

Depending on the type of incident and setting of the program select switch, an SMS can contain the following information:

Reception:	The more negative the displayed value, the better the reception.
GPS: Stand by	The GPS receiver is in stand by mode. It will be automatically reactivated if there is an event.
UTC:	Time of the incident (indicated in coordinated universal time)
Pos:	Current position of the vehicle
Speed:	Current speed of the vehicle
Credit balance:	Current credit on the SIM card (only for pre-paid cards) The message length is limited to 160 characters. Depending on the message content the credit may not be included. In this case send a message with the text POS to Pro-finder to receive the remaining credit.

	Status report: You receive this message only on request, as described in chapter 2.3, or at intervals, depending on the selected mode. In addition to position, speed and states of the outputs, depending on the mode, supplemental information on voltages U2 – U5, as well as the temperature in the immediate vicinity of the device, are also included in the status report.
	Theft alert: You receive this message if WiPro is armed and your vehicle is further than approx. 1000 m from the original location. A theft alert is a silent alert. This means that neither the flashers nor the siren are activated. Both of these can be activated via SMS as described in chapter 2.2. ! After sending the SMS, Pro-finder will call the Master number !

	Voltage warning (not in operating mode B): If the power supply permanently drops bel ow 11.2 V, Pro-finder switches to stand by mode to save battery power. In this case a n SMS with the voltage level is sent. When the voltage rises above 12.5 V again the unit switches back to normal operation.
	Emergency SMS: This message is sent if Pro-finder is used in mode A and voltage is applied on pin 3. ! After sending the SMS, Pro-finder will call the Master number !
	Positions SMS for smartphones: You receive this SMS as a response to the position query, as described under 2.4. By clicking the link, smartphone users go directly to th e map view of the current vehicle position. This message type contains the credit if Pro-finder is programmed as described on p age 8 chapter 1.8
	Help SMS: If an SMS with invalid content is received from a destination phone numb er, this message with possible correct commands is sent to facilitate operation for th e user.
	Burglary alert: You receive such a message whenever WiPro reports an alert. ! After sending the SMS, Pro-finder will call the Master number !

	Gas alert: This message is sent when WiPro reports a gas alert. ! After sending the SMS, Pro-finder will call the Master number !
	Manual alert: This message is sent when WiPro is activated by triggering a panic aler t. ! After sending the SMS, Pro-finder will call the Master number !

2.2 Controlling the alarm system via SMS

Pro-finder allows you to switch the alarm system on and off.
To switch WiPro on, send an SMS with the following text to the number of the Pro-finder:

arm

Pro-finder responds to a successful switching process with a status report.

To switch WiPro “all in one” off, send an SMS with the following text to the number of the Pro-finder:

disarm

Pro-finder responds to a successful switching process with a status report.

If you receive a theft alert in the form of a “silent alert”, you can additionally activate sirens and flashers with the SMS command “alarm”. The alarm can be discontinued ith
the “disarm” command.

2.3 Controlling the alarm system via phone call
In operating modes 2 and 3 WiPro can be switched to the next state respectively by calling.
Dial the Pro-finder for this purpose. The device automatically ends the call before a pay connection is established and, after successful switching, sends a status report to the caller.
Access to Pro-finder is restricted to authorised numbers.

2.4 Geofencing
Geofencing means that a virtual fence is placed around the vehicle. In other words, if the vehicle leaves an area of approx. 1km around its original location, you will receive a theft alert as described under 2.1.
Geofencing can be switched on and off in switch position 8 and B via pin 3.
In all other switch positions, Geofencing can be switched on and off per SMS.

Send an SMS with the following text to the number of the Pro-finder:

Fence on

Geofencing is now activated until Pro-finder receives an SMS with the text, “Fence off”.
To use geofencing at a new location, first deactivate the old location by sending “fence off”.
Once WiPro is armed, Geofencing is enabled automatically and does not require an SMS to be activated.

2.5 Requesting a status report

The status report contains the information stated in chapter 2.1 and can be requested at any time as described here. Chapter 2.6 explains how to find your vehicle with the help of the position information.

Status

Send an SMS with the following text to the number of the Pro-finder:

Another way to request a status report is described below:

Dial the number of the Pro-finder. (except in operating modes 2 and 3)

A status report also includes the GPS status. If Pro-finder receives a valid position, only the position is displayed. If a valid position is not received, “GPS no reception” is shown in the status report, however, the last valid position will be sent. Also, the status of both outputs is displayed, as is the ambient temperature in the immediate vicinity of the device.

2.6 Position query via smartphone

As described below, smartphone users can receive an SMS designed especially for smartphones with a link displaying the exact position of the vehicle. This eliminates the need to enter the coordinates in a map program.
Send an SMS with the following text to the number of the Pro-finder:

Pos

Pro-finder responds to this SMS with a position message containing a clickable link. Click this link to display the position of your vehicle.

2.7 Controlling the outputs via SMS

Pro-finder is equipped with 2 separately controllable outputs.
Connection of the outputs is described in chapter 1.5.

Switching outputs permanently:

To switch on output A until cancelled, send an SMS with the following text to the number of the Pro-finder:

A on

Pro-finder responds to this SMS by switching on output A and sending a status report.

To switch off output A, send an SMS with the following text to the number of the Pro-finder:

A off

Pro-finder responds to this SMS by switching off output A and by sending a status report.

Switch outputs pulsed (on for 1 second):

A pulse


To switch on output A for 1 second, send an SMS with the following text to the number of the Pro-finder:

Switch outputs for a freely specified time:

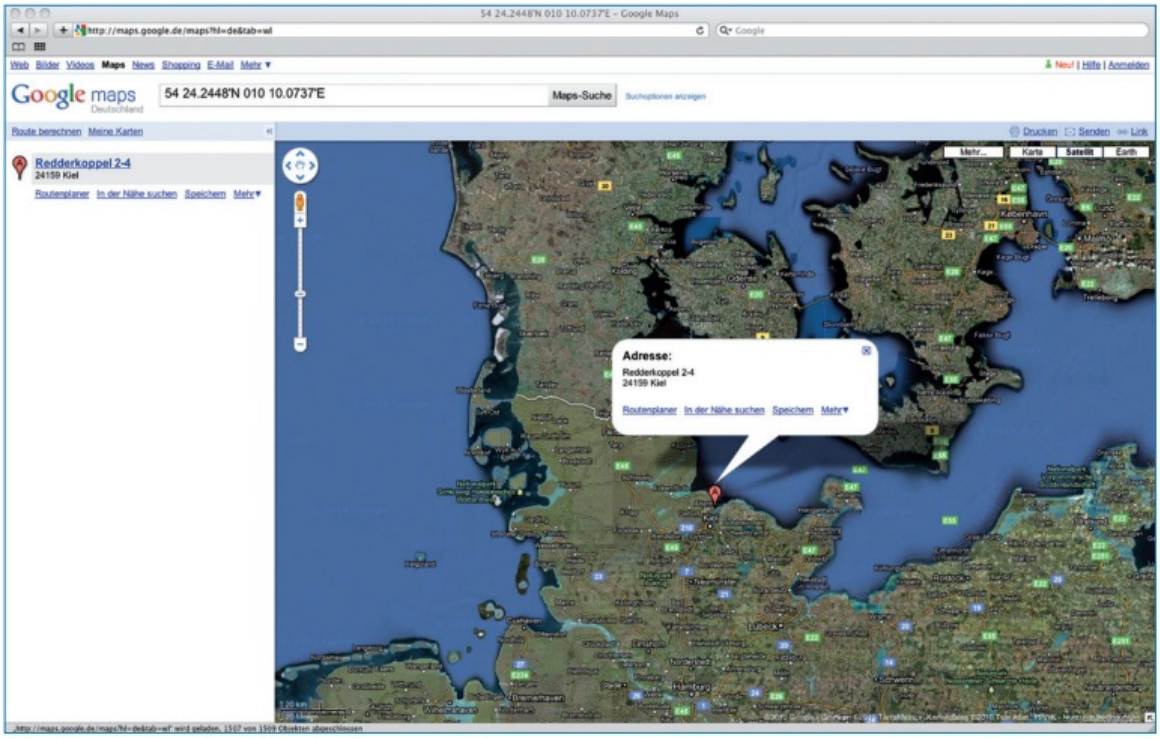
To switch on output A for any length of time between 1 and 120 minutes, send an SMS with the following text to the number of the Pro-finder;
XXX must replaced with the desired number of minutes:

A XXX


Pro-finder responds to this SMS by switching on output A for the specified duration and by sending a status report.
To control output B, replace the letter A in the SMS with the letter B.

2.8 Finding a stolen vehicle

The position information contained in the messages can be entered in map programs and navigation devices that display the current location of the vehicle, often down to the house number, depending on the type of map used. The position information must be entered exactly as it appears on your mobile phone in the search line of a map program such as Google Maps.
Smartphone users can conduct a position query as described in chapter 2.6, which then contains a clickable link for simplified display on a smartphone.



Examples of the position display on a stationary PC ▲ and on a mobile end device (smartphone) ▼

To receive further position information after receiving a theft alert, you can request status reports at any time as described in chapter 2.5.
If the vehicle is inside a building or at another location without GPS reception, Pro-finder will wait 10 minutes for receipt of a valid position. If a position is not received after 10 minutes, the status report with the last received position will be sent.
Since in the case of an alert and an active generator the position is queried constantly, the last received position is the position saved immediately before discontinuation of the GPS reception. The time in UTC stated in the SMS is always the time of the last received position.

3.1 Technical specifications

Power supply:	9 – 30 V
Current consumption network search:	approx. 37 mA
Current consumption during normal operation:	approx. 21 mA
Transmission frequency:	900/1800/850/1900 MHz
Number of destination numbers:	10
Interfaces:	NMEA (input GPS)
Outputs:	2 x 12 V / 500 mA
Temperature range:	– 10 °C to + 80 °C
SIM card type:	micro-SIM

3.2 Conformity / directives

CE Thitronik GmbH hereby declares that this product complies with the requirements and regulations of the directive 1995/5/EG. The full declaration of conformity is available for download: **http://www.thitronik-automotive.de/support.html**

3.3 Disposal instructions

When decommissioning the device, do not dispose of it with household waste. Municipal recycling centres have suitable containers for the disposal of electronic equipment.

Take the packaging materials to the recycling centre.

3.4 Technical support

If you need support during installation or operation, contact your dealer.
If you experience difficulties that cannot be solved with the help of this manual, our website (**www.thitronik-automotive.de**) offers additional useful information.
If you would like to contact our technical support department, you can call the following number Monday through Friday from 9:00 a.m.
to 4:00 p.m.: +49(0)431-66 66 811
So that we can provide the best support possible in case of a problem, please enter the serial number of your alarm here and have it on hand when you call.

Hersteller/Manufacturer
Thitronik GmbH
Finkenweg 11–15
24340 Eckernförde
(Germany)
www.thitronik.de
kontakt@thitronik.de
Tel.: +49 (0)4351 76744-0
Fax: +49 (0)4351 76744-127

CE

Documents / Resources

	**Pro-finder Telemetry Module for Fleet Monitoring and Control** [pdf] Instruction Manual Telemetry Module for Fleet Monitoring and Control, Telemetry Module, Fleet Monitoring and Control, Fleet Monitoring Telemetry Module, Control Telemetry Module, Fleet Monitoring, Telemetry, Module

References

- Startseite | Thitronik GmbH
- Support | Thitronik GmbH
- Pro-finder | Thitronik GmbH
- Startseite | Thitronik GmbH