

# TraceME

USER MANUAL

V2.1



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# Warnings and restrictions

## General

- Do not extend any of TraceMEs wiring, as this may cause unlawful interference or malfunctioning of TraceME.
- Do not connect a battery to TraceME.
- Use only the supplied GSM antenna.

## GSM/GPRS

- The device should be turned off in vicinity of petrol pumps, chemical, flammable or hazardous environments where ignition of flammable atmospheres is possible.
- The GSM unit and antenna shall be operated at a distance greater than 20 cm from the human body.
- The device is to be operated in accordance with the user instructions or manufactured recommendations.
- We certify that Kolff Computer Supplies BV, Dordrecht, The Netherlands does not make any hardware or IMEI modifications to the Telit GM862 GSM /GPRS devices as used in the TraceME track&trace device. All software modifications are restricted to official firmware upgrades as provided by Telit Communications PLC.

# Preparing TraceME

## SIM card settings

The TraceME unit you received requires the use of a GPRS enabled SIM card, that is able to connect to the internet. WAP cannot be used with TraceME. The PIN code on this card must be **disabled**, or set to **'0000'**.

## Inserting the SIM card

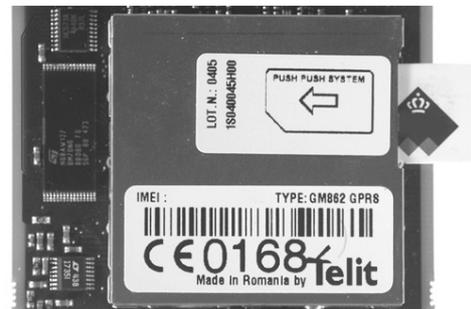
The TraceME unit can be opened by loosening the two screws located at the front of the unit [picture 1]. Make sure that there are no cables connected to the main unit. The front with circuit board can now be easily removed from the rest of the unit. Locate the SIM area with the text "PUSH PUSH SYSTEM" and gently push the SIM card into its place [picture 2]. If you'd want to remove the SIM card at a later time, just push it again.

Close the unit with the screws that were removed earlier.

**CAUTION:** there's only one way to fit the printed circuit board into the housing. Don't use excessive force!



Picture 1 - TraceME front side



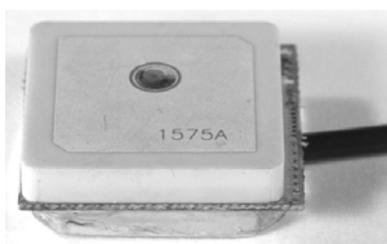
Picture 2 - SIM card location

## Antenna connection

Connect the GSM antenna [picture 3] to the GSM connector. The other connector is for the GPS antenna. We supplied three GPS antennas [picture 4 & 5], one for e.g. embedding in your product and the other ones for car roof mounting. Choose one for your application. The black GPS antennas are of two different types: a passive and an active (pre amplified) antenna. The active antenna is often able to provide a GPS fix in situations where the passive antenna might not be sufficient. This active antenna can be identified by the text at the bottom of the antenna: '**ANT-555**'.



Picture 3 - GSM antenna



Picture 4 - GPS patch antenna



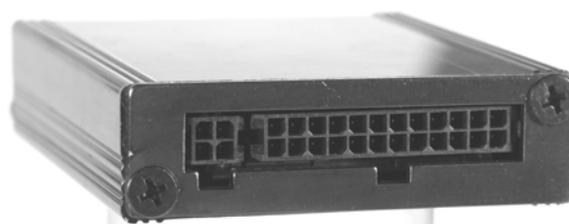
Picture 5 - GPS magnet antenna  
(passive and active)

## Camera connection

The camera [picture 6] can be connected at the back of the TraceME unit [picture 7]. Connect/disconnect cables **ONLY** when TraceME is powered off!



Picture 6 - Camera & cable



Picture 7 - TraceME back

## Power connection

If the SIM card is inserted, the main unit is closed and secured with screws and the antennas are connected, you can connect the power connector that is attached to the power supply (wall adapter). Pick the right international plug for your country and connect it to the mains.

You can also use the cable that fits your car cigarette lighter socket, so you can perform a mobile test. Caution: the power and I/O connector used on TraceME should be handled with care. Stress to the cable might damage the connector. Secure the cables with a tie-wrap or tape, etc.

## Using TraceME

For good GPS coverage, choose a GPS antenna and place it where it has a clear view at the sky, preferably outdoors. Make sure the top of the antenna (as shown in picture 4 & 5) is aimed at the sky. TraceME should now begin searching for GPS satellites.

It will then start transmitting data:

	I N T E R V A L	
	SUPPLY < 13V	SUPPLY >= 13 V
<b>POSITION DATA</b>	<i>10 min.</i>	<i>1 min.</i>
<b>CAMERA PICTURES</b>	-	-

**These settings are fixed for sample units only.**

**The power supply included in the evaluation kit, produces approx. 15V. This means that TraceME will go into 'moving' mode, with an interval of 1 minute.**

Open the provided URL with your webbrowser and watch the incoming data and pictures!

For taking pictures, please change TraceME's configuration, by using the TraceME Settings application available on our website.

If you programmed TraceME to take pictures at a particular interval, you can still force TraceME to stop sending pictures. Just disconnect the camera (switch off power first!). When starting up again, TraceME will not detect a camera and will not use it.

Keep in mind that sending pictures can generate a lot of data.

# TraceME LEDs

LED	FLASHING	CONTINUOUS
<b>RED</b>	<ul style="list-style-type: none"> <li>* 1 flash per second: PIN code ok</li> <li>* 2 flashes per second: PIN problem or no SIM present</li> <li>* 1 flash per 2 seconds: IP problem (e.g. not GPRS enabled)</li> </ul>	Connected to server
<b>YELLOW</b>	<ul style="list-style-type: none"> <li>* 1 flash per second: No sats found</li> <li>* 2 flashes per second: at least 1 sat found, no fix</li> <li>* 5 flashes per second: fix achieved, but trying to get a better fix</li> </ul>	GPS fix successful
<b>GREEN</b>	N/A	N/A

## Settings cable

The settings cable [picture 8] is used for transferring a parameter setting (configuration) to TraceME. This is also possible remotely by GPRS, but for testing purposes this is a quick and easy way to configure your unit. Please check our website for the latest TraceME Settings Program.



Picture 8 – Settings cable

## I/O cable

With the I/O cable [picture 9], you can discover the input/output possibilities of TraceME.

Just connect it to the connector at the back of TraceME (remove the camera first if you've connected it earlier).

With the Settings Program (available for download on the TraceME website), various settings can be configured. Refer to the Settings documentation for details.



Picture 9 – I/O cable

## LCD

The (optional) LCD [picture 10] has to be connected with the supplied cables and enabled in the dialog 'Module settings for: Input/Output ports'.

In the TraceME Settings program, select 'Disable mode setting for all ports', then set port 2 mode to 'LCD+Keyboard' and write the settings to TraceME.



Picture 10 – LCD

## Troubleshooting

### **GPRS problems:**

- Check if:
- the GSM antenna is connected to the correct connector [picture 1]
  - the SIM card is inserted
  - the PIN code is disabled or set to '0000'
  - the SIM card is GPRS enabled and is allowed to connect to the internet(not WAP)

### **GPS problems:**

- Make sure the GPS antenna is connected to the correct connector [picture 1]
- Start by placing the GPS antenna at a location where it has an unobstructed view at the sky, preferably outdoors
- Observe the yellow LED: when it flashes once or two times per second, TraceME is scanning for satellites

## Specifications

### Specifications KCS TraceME STE4-GPS

#### Datacommunication

GPRS/GSM Modem	QUAD band (STE4-GPS)	
Frequency	850 / 900 / 1800 /1900 MHz	
RF Power	Class 4 (2W) @ 850 / 900 MHz Class 1 (1W) @ 1800 /1900 MHz	
Sensitivity	850/900 MHz	-107 dBm (typical)
	1800/1900 MHz	-106 dBm (typical)
Data	GPRS	Class 10
	Coding schemes	CS1 to CS4
SMS	Point-to-Point mobile originated & mobile terminated	
	Cell Broadcast	

#### Navigation

GPS Receiver	12 channel parallel	
Frequency	L1 1574.42 MHz	
Acquisition Time	TTFF	< 6 sec (valid almanac, position, time and ephemeris)
		< 30 sec (valid almanac, position, time)
		< 40 sec (no valid data)
Position Accuracy	5 meter (50% probable)	
	10 meter (95% probable)	
Acquisition	-142 dBm	
Tracking Sensitivity	-146 dBm	
Antenna	Passive or active	

#### Electrical

Operating Voltage	+6...+31VDC +12V battery (internal charge-controller for solar panel)	
Power Consumption	<50 mW average Approx. 14 W peak during data transmission Consumption depends on amount of GPRS traffic and navigation parameters	
External Connections	Serial Communication	3x RS232 in (full level RS232)
		5x RS232 out (full level RS232)
	IO	One-Wire®
		4x user configurable Digital I/O (3V) or AD-converter (2,56V 10 bits)
4x digital in (3 kV AC RMS optically isolated)		
Power supply	4x digital out (3 kV AC RMS optically isolated)	
	Open collector 500 mA max.	

#### Physical

Outside Dimensions	Size	80.0 x 67 (3.15 x 2.64 inch) (without connectors)
	Height	20.0 mm (0.79 inch)
	Weight	145 gr. (0.32 lbs) (without SIM card)
Connections	GPRS/GSM	SMA
	GPS	SMA
	Power/IO	Molex 43045-2412 , 43045-0412

# Specifications KCS TraceME (continued)

## Environmental

Enclosure	Aluminum with black anodised finish
Operating Temperature	-20 °C to +70 °C (-4 °F to +158 °F) non-condensing
Storage Temperature	-40 °C to +85 °C (-40 °F to +185 °F) non-condensing

## External hardware

LCD	Blue dot matrix 2 lines, 16 characters each 1 iButton touch contact 6 keys 1 LED (iButton confirmation)	
Solar Panel	Thin film solar cells	
	Nom. Voltage	16.8V
	Power	2.1 W
	Size	144.0 x 293.0 mm (5.67 x 11.54 inch)
	Weight	600 gr (1.32 lbs)
Solar Battery	Maintenance free	
	Nom. Voltage	12V
	Capacity	2000 mAh
	Size	150.0 x 20.0 mm (5.91 x 0.79 inch)
	Height	90.0 mm (3.54 inch)
	Weight	680 gr (1.5 lbs)
Camera	Sensor	OmniVision
	Resolution	Up to 640 x 480
	Format	JPEG
	Colour Depth	16 bits
	Lens	f4.0 mm / F 2.2

## Configuration

	Unit	Description	Parameter Example
User Definable Parameters	Time	Interval (every x sec)	300 (every 5 min)
		Predefined time(s)	Every day at 08:00
	Distance	Interval (every x meter)	Every 5000 meter
	Location	Entering predefined area (square shaped)	Lat1, lon1, lat2, lon2
		Leaving predefined area (square shaped)	Lat1, lon1, lat2, lon2
		While in/outside area	Lat1, lon1, lat2, lon2
	Speed	Speed lower/higher than x km/h	140 km/h
	I/O	Input is/becomes low/high	Low/high
		String received via RS232 port(s)	"OIL_LEVEL_LOW"
		String received via One-Wire®	"342874982734432"
		Change of analogue input (above/below level)	Value > 512
		Change of analogue input (outside predefined range)	100 < value < 700
	Power	Change of battery/power supply (above/below level)	Value < 11V

*These are configuration examples ,see TraceME Settings documentation available on our TraceME website.*



## Declaration of conformity

Dordrecht, 2006 April, 18

Manufacturer

KCS BV  
Kuipershaven 22  
3311 AL Dordrecht  
The Netherlands

Hereby certifies on its sole responsibility that the following product:

### **TraceME STE4-GPS**

Which is explicitly referred to by this Declaration meets the following directives and standard(s):

95/54/EEC, Annex VII, Annex VIII, Annex IX  
EN 301 489-1 v1.4.1  
EN 301 489-3 v1.4.1

Documentation evidencing conformity with the requirements of the Directives is kept available for inspection at the above Manufacturer's.

A handwritten signature in black ink, appearing to be 'Bram Vorster', written over a faint circular grid or stamp.

Bram Vorster



## **Disclaimer**

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