GSM Gateway
252236
User Manual

Content of delivery

- GSM Gateway, art no. 202236
- Antenna SMA, magnet foot, art no. 112322
- GSM Gateway Manual (this document), art no. 162236M
- Power adapter 230VAC/12 VDC, art no. 132010
- Modular cable, art no. 122033
- Terminal connector

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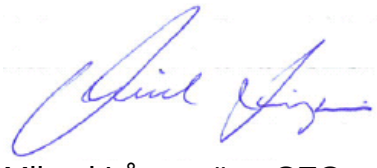
Declaration of Conformity

We, Fält Communications AB, Vasagatan 23, SE-903 29 Umeå, Sweden. Hereby declare that this product, FältCom GSM Gateway 202236, conforms with the following directives: R&TTE 1999/5/EC, EMC 2004/108/EC, LVD 2006/95/EC, RoHS 2002/95/EG and WEEE 2002/96/EG. The product complies with the following standards/norms: EN 55022(2006) and A1(2007), EN 55024(1998) and A1(2001) and A2(2003), EN 60950(2006) and ETSI EN-301 511

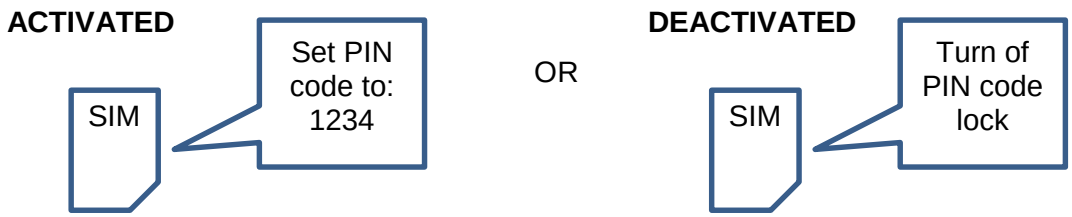
Umeå, Sweden, January 2013



Mikael Långström, CEO
Fält Communications AB

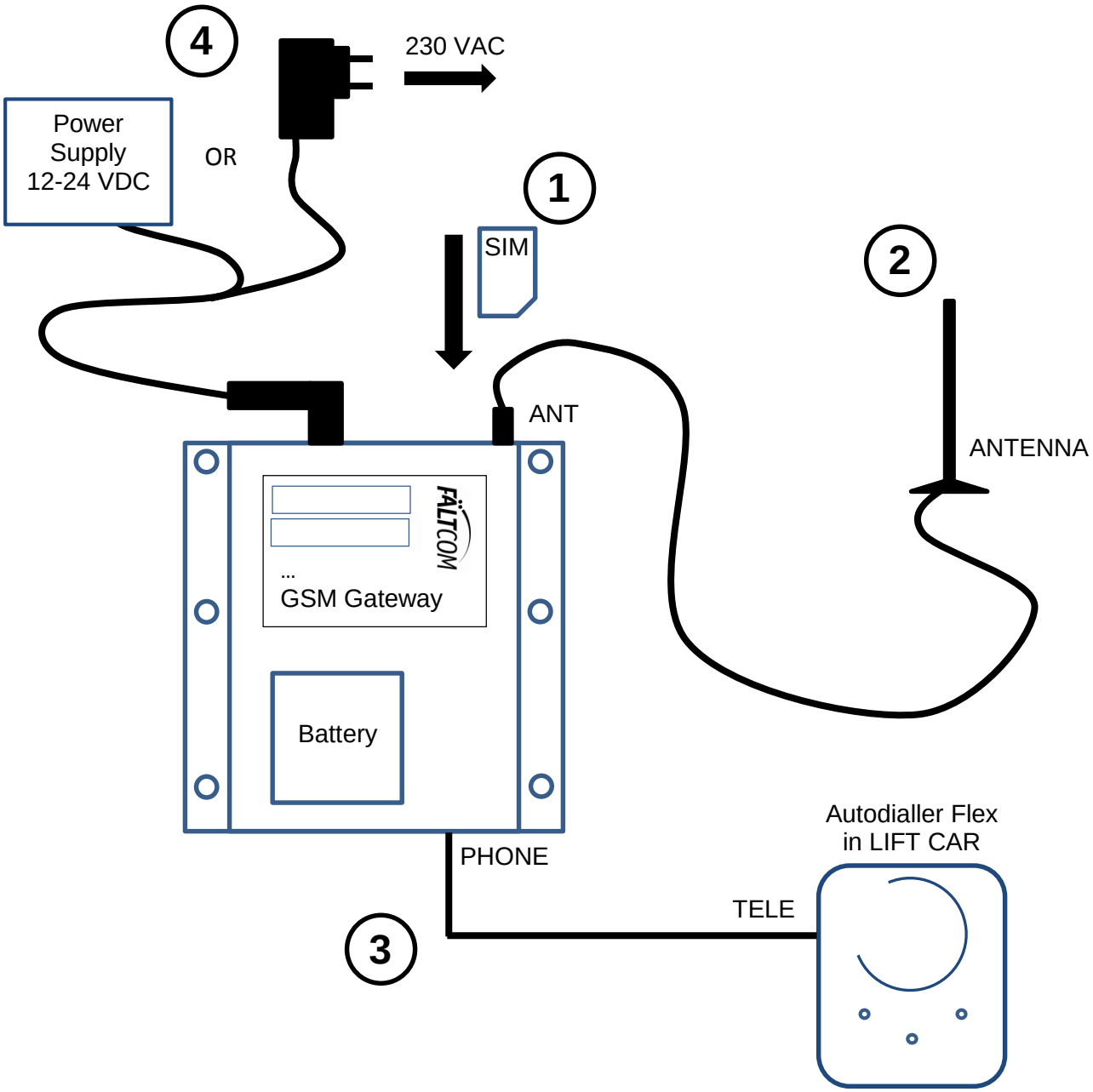
SIM PIN code

Activated or deactivated PIN code



CONNECTIONS

Insert the SIM card, connect the antenna, autodialler ECII™ Flex and Power



1. Installation

Find a suitable place where to mount the GSM gateway following these guide lines:

- Make sure the GSM coverage is good before the GSM gateway is mounted.
  Place the Gateway near a window if possible.
- Make sure the LEDs on both sides are visible.
- Make sure there is a power source, 230 VAC or 12-24 VDC reachable.
- Connect the antenna. Place the antenna as far away from the Gateway as possible.
  The antenna can be placed on any magnetic metal surface.
- Connect the FältCom ECII™ Flex to the Phone input.
  Use the 122033 Modular cable and the terminal connector if required.

1.1 PIN code

Note: The GSM gateway must always be turned off before inserting or removing the SIM card. Please see section "Turn off the GSM Gateway" before removing a SIM card.

Choose whether the PIN code should be activated or deactivated.

1.1.1 PIN code deactivated

Use a mobile phone or other equipment to deactivate the PIN code on the SIM card.

1.1.2 PIN code activated

The PIN code must be set to "1234". Use a mobile phone or other equipment to set the PIN code to "1234".

At startup the GSM Gateway will automatically change the PIN code to a random 4-digit code to prevent misusage of the SIM card. If the SIM card is to be used later; use the PUK code to unlock the SIM.

1.2 Startup

Start the GSM Gateway:

- Gently insert the SIM-card into the GSM unit as shown in the pictures above.
  Make sure the cut corner of the SIM is on the left side and the connector pads facing down.
- Connect the power cable.
  The startup might take up to 30 seconds before the GSM Gateway has established a connection with the GSM network. For information on how to understand the LED indications, please see section 2 and section 3 below.

1.3 Turn off the GSM Gateway

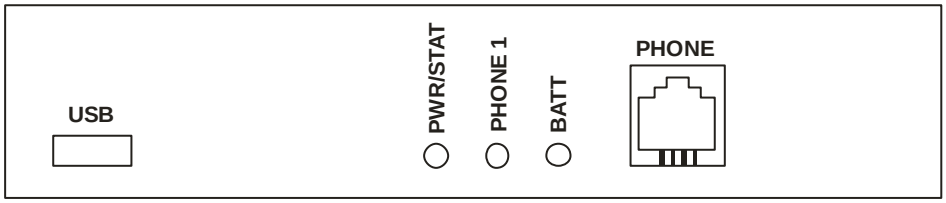
1. Remove the DC power connector from the GSM Gateway.
2. Push the RESET button with a short push to turn the unit off.

1.4 Change SIM card

If the SIM-card needs to be changed; the new SIM-card must have "1234" as PIN-codes or have the PIN-code deactivated.

1. Turn off the GSM Gateway; remove the DC power connector from the GSM Gateway.
2. Push the RESET button with a short push to turn the unit off.
3. Remove the old SIM and insert the new SIM as shown in the pictures above.
4. Connect the power cable.

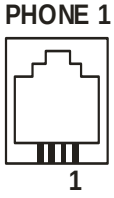
2. Front panel connectors and indications



USB USB 2.0 Mini connector to be used for connection with a PC. The USB can be used for updating the software of the GSM Gateway and also for adjusting parameters, such as battery tripping limits. For more information please see section 6 “Upgrade Tool”.

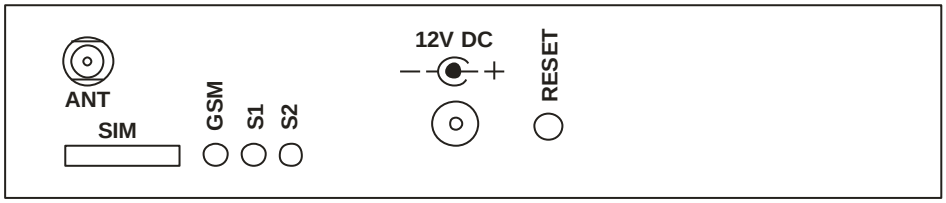
LED Indicators		
LED	**Status**	**Indicates**
PWR/STAT	1000 ms ON / 1000 ms OFF	Normal status
	100 ms ON / 1500 ms OFF	Backup power in use
PHONE (Red LED)	OFF	Phone device is On-hook (Normal status)
	Flashing	Ringing signal on line
	ON	Phone device is Off-hook
BATT (Red LED)	Flashing	Battery problem. The battery is not connected or the battery has not passed a battery test. See also section 4 nedan.
	OFF	Battery state is normal

PHONE Connection to standard telephone device



No	**PHONE (RJ11)**
1	
2	La
3	Lb
4	

3. Back panel connectors and indications



ANT SMA connector for the antenna

SIM Input of the SIM card

GSM Status for the GSM connection when the GSM Gateway is up and running (Green LED):

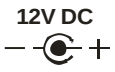
GSM	Indicates
OFF	Faulty GSM unit
800 ms ON / 800 ms OFF	No service, No connection with GSM network or SIM-card missing.
100 ms ON / 1500 s OFF	Connection with the GSM network OK, Backup power in use
ON	Normal status. Connection with the GSM network OK, AC-powered.

S1 and S2 Indications for GSM signal strength (Green LED):

S1	S2	Signal strength
OFF	OFF	Bad
ON	OFF	Good (default 15 = -83 dBm)
ON	ON	Very good (default 25 = -63 dBm)
Flash	OFF	Good, Backup power in use.
Flash	Flash	Very good, Backup power in use.

LED levels are programmable in 2 dB steps from -113 dBm to -51 dBm via USB (FältCom Manager)

12V DC



No	PWR
+	+ 9-28 V DC
-	GND

RESET

Type of RESET activation	Power supply	Result
Short push	External	Reboot of GSM Gateway
Short push	Battery	GSM Gateway is switched off
Hold button for >20 s	External	All settings are reset to factory settings. This is indicated by the LED´s **PHONE** and **BATT**

Note: Factory reset also changes the PIN-code back to the default "1234" if PIN –code is in use, this may cause the SIM-card to be locked if a SIM-card is mounted inside the GSM Gateway.

4. Battery

The battery is supervised in two different ways. The first “low battery voltage indication” is activated when the battery voltage is too low for any reason. The second is a “battery fault alarm” activated when the battery capacity is too low and it is time to replace the battery.

In case there is a battery alarm/low battery voltage indication, the GSM Gateway will change the dial tone; see section Technical Data for information on Dial tone battery alarm specifications. The emergency alarm will detect the new dial tone and send a battery alarm to the receiver. See section 5 SMS functionality or 6.2 Setup for information on how to turn the Dial tone battery alarm off.

4.1 Low battery voltage indication

A “low battery voltage indication” is activated if the battery voltage drops below 4.6 VDC when the unit is powered by the battery.

The indication is sent by SMS. Please view SMS functionality for information on settings or how to use the USB connector and FältCom Manager Software.

If the unit is powered by the battery and the battery voltage drops below 4.0 VDC the GSM Gateway will shut off to prevent permanent damage of the battery. These voltage levels are not programmable.

4.2 Battery fault alarm

A “battery fault alarm” is shown by a red LED, see section 2 above, and by a change of the normal dial tone, see section 5.2 below.

The first battery test is made after 48 hours and the following every 24 hour. During a battery test a load is connected to the battery and the battery voltage measured. A battery test lasts for 5 (1) minutes and if the voltage drops below 4.4 (2) VDC during this time a “battery fault alarm” is activated.

A battery test will not be performed when the GSM Gateway is powered by the battery. An active “battery fault alarm” is automatically reset after a passed battery test.

Normally the battery will last 2-4 years but this is very much depending on the surrounding temperature and how much the battery is used. When the battery is failing, simply replace the battery with an equivalent type, replacement batteries are available from FältCom sales. Other types of battery might damage the GSM Gateway.

A polyswitch fuse is integrated in the battery package to prevent it from damage in case of high temperatures. The fuse is automatically reset when the temperature is normal again.

(1) 5 minutes is the default setting. The time is programmable via USB (FältCom Manager).

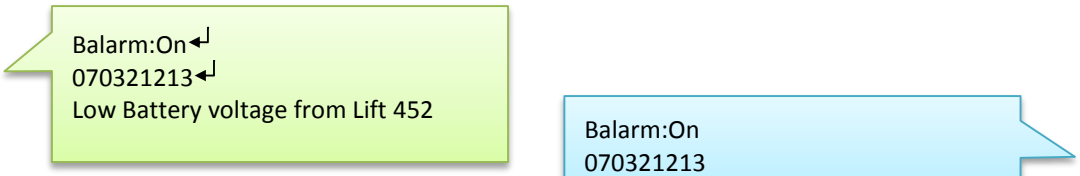
(2) 4.4 V is the default setting. The levels for the “battery fault alarm” is programmable via USB (FältCom Manager) or via SMS by the distributor.

5. SMS functionality

Note: The symbol ↵ means new line.

5.1 Low battery voltage indication

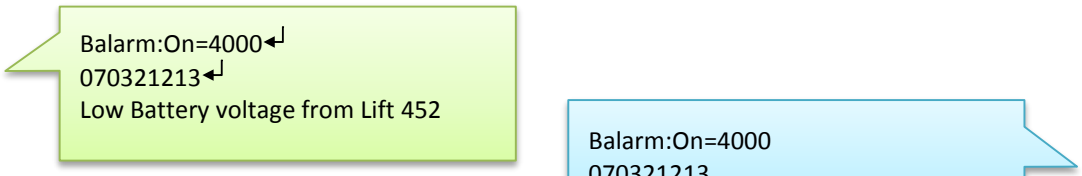
It is possible to generate an SMS when a Low battery voltage indication occurs; the functionality is activated by sending an SMS to the GSM Gateway. The SMS must include the telephone number and an alarm text. The SMS is not case sensitive. See picture below for an example. In the example below the battery alarm level is not changed.



SMS to GSM Gateway *SMS from GSM Gateway*

The GSM will acknowledge a correct programming by returning a SMS as above.

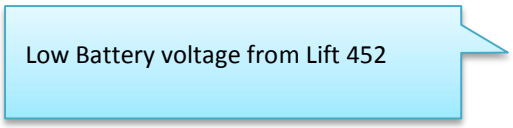
In the example below the battery alarm level is changed to 4.0 V (4000 mV).



SMS to GSM Gateway *SMS from GSM Gateway*

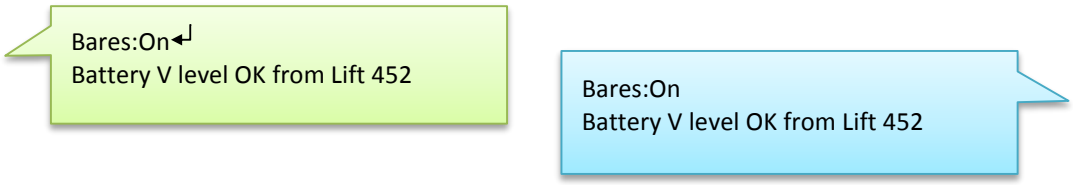
The GSM will acknowledge a correct programming by returning a SMS as above.

In this example a Low battery voltage indication will generate the following SMS from the GSM Gateway:



SMS from GSM Gateway

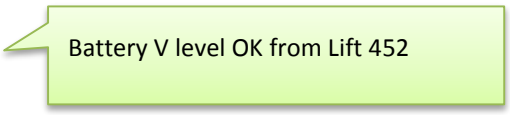
It is possible to generate an SMS (Bares) when the battery voltage gets above the set voltage level. This function is activated by sending an SMS to the GSM Gateway. The SMS must include an appropriate text. The SMS is not case sensitive. See picture below for an example. Bares SMS is always sent to the same number as Balarm.



SMS to GSM Gateway *SMS from GSM Gateway*

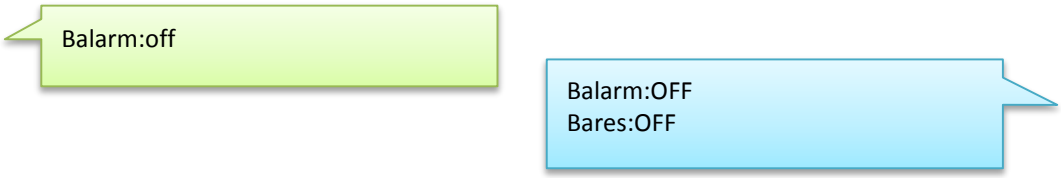
The GSM Gateway will acknowledge a correct programming by returning a SMS as above.

In this example when the power to the Gateway is reestablished and the battery voltage is above the set voltage level the following SMS from the GSM Gateway:



SMS from GSM Gateway

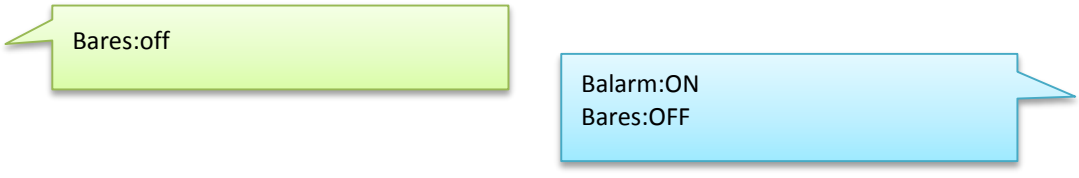
Both functions described above are switched off by sending the following SMS to the GSM Gateway:



SMS to GSM Gateway *SMS from GSM Gateway*

The SMS is acknowledged with a SMS from the GSM Gateway.

The Battery replaced SMS (Bares) function described above can be switched off separately by sending the following SMS to the GSM Gateway:



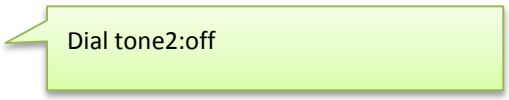
SMS to GSM Gateway *SMS from GSM Gateway*

The SMS is acknowledged with an SMS from the GSM Gateway.

5.2 Dial tone battery alarm - Dial tone 2

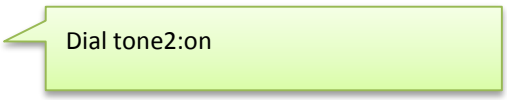
The Dial tone battery alarm indicating a battery fault alarm, to the lift phone is default activated but can be turned off. In case the function is deactivated the GSM Gateway will always use normal dial tone when the line is taken off-hook.

To deactivate the Dial tone battery alarm (dial tone 2); send the left side SMS to the GSM Gateway. The Gateway will return the answer on the right side.



SMS to GSM Gateway *SMS from GSM Gateway*

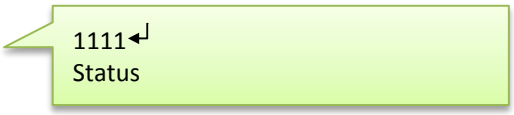
To reactivate the dial tone 2 (battery alarm/low battery voltage indication, dial tone); send the left side SMS to the GSM Gateway. The Gateway will return the answer on the right side.

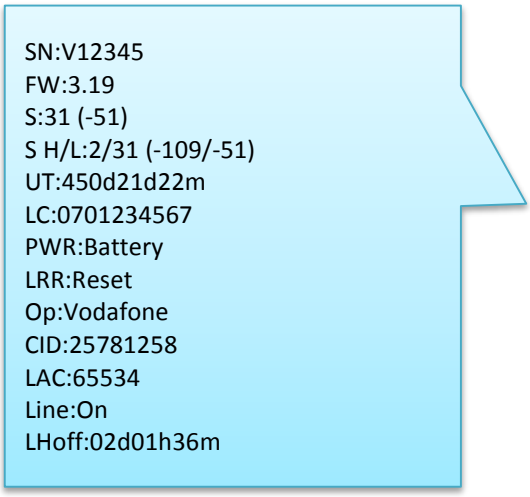


SMS to GSM Gateway *SMS from GSM Gateway*

5.3 Status

Get current status of the GW by sending a “Status” SMS. The SMS must contain the SMS Access code followed by a new line and the word Status. The default Access code is 1111 and can be changed using the FältCom Manager SW. If the access code or the request command (Status) is incorrect the GSM Gateway will not answer the SMS.





SMS to GSM Gateway *Example SMS from GSM Gateway*

Description table of the status SMS:

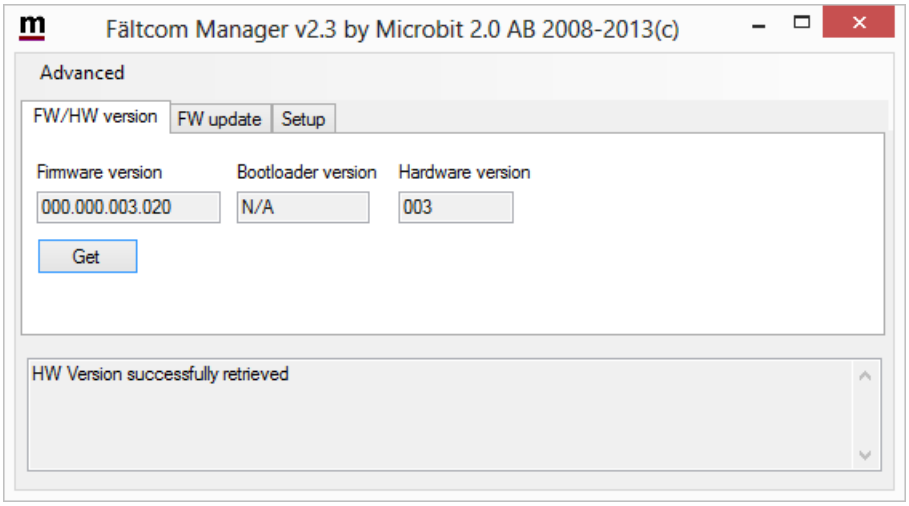
Parameter	Description
SN	Serial number of the Gateway
FW	Firmware version of the Gateway
S	Current signal strength (signal strength in dBm)
S H/L	Highest signal during last 24h/lowest signal during last 24h since last restart
UT	Uptime counter, presented in days, hours and minutes.
LC	Last called number, not saved in case of restart.
PWR	Current power source – Mains or Battery

LRR	Last restart reason xxx1 Power on xx1x External reset x1xx Watch-dog reset 1xxx Low voltage reset
Op	Current operator in use, in text format
CID	Cell ID of the base station
LAC	Location area code of network cell
Line	POTS line On-hook or Off-hook
LHoff	Time since last hook-off, presented in days, hours and minutes

6. Upgrade Tool

The USB interface is used to configure user specific parameters and to upgrade the GSM Gateway firmware. The upgrade requires the Windows program “FältCom Manager” and is available from FältCom or your local distributor. Use a standard USB – mini USB cable to connect the GSM Gateway to the PC.

- Install the “FältCom Manager” tool on your PC.
- Connect the GSM Gateway to the PC using a standard USB – mini-B USB cable.
- Start the “FältCom Manager” by clicking  the icon

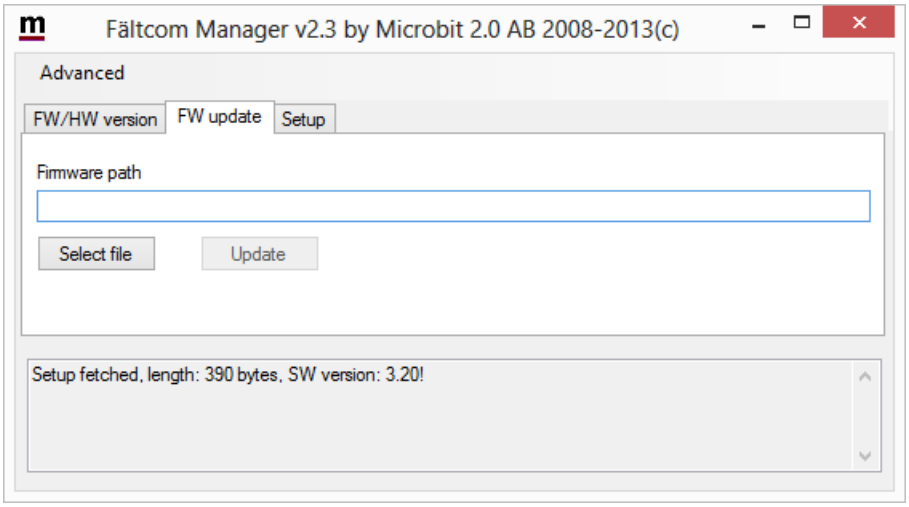


When the GSM Gateway is connected to the Manager tool the status bar at the bottom will show “1258 connected”

Push “Get” to see the GSM Gateway Firmware and Hardware versions. In this example FW 3.20 and HW 003.

6.1 Firmware upgrade

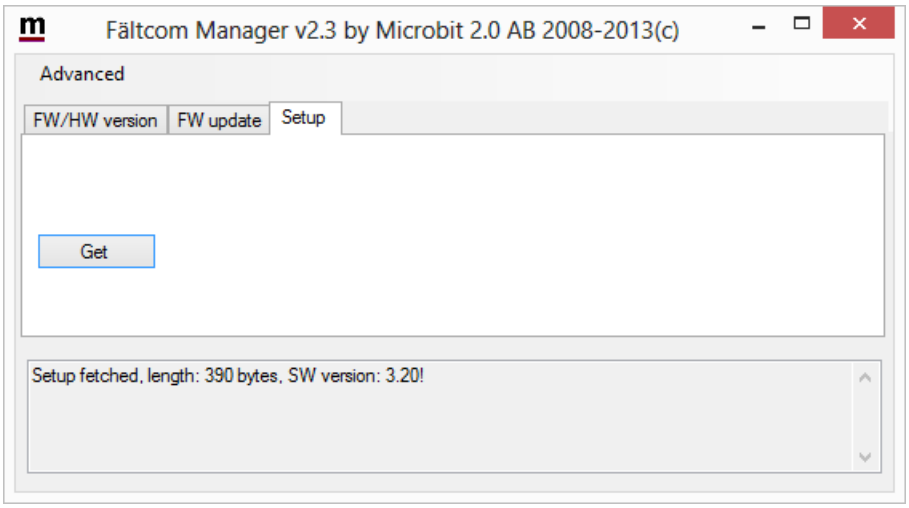
To upgrade the GSM Gateway Firmware select the “FW update” tab.



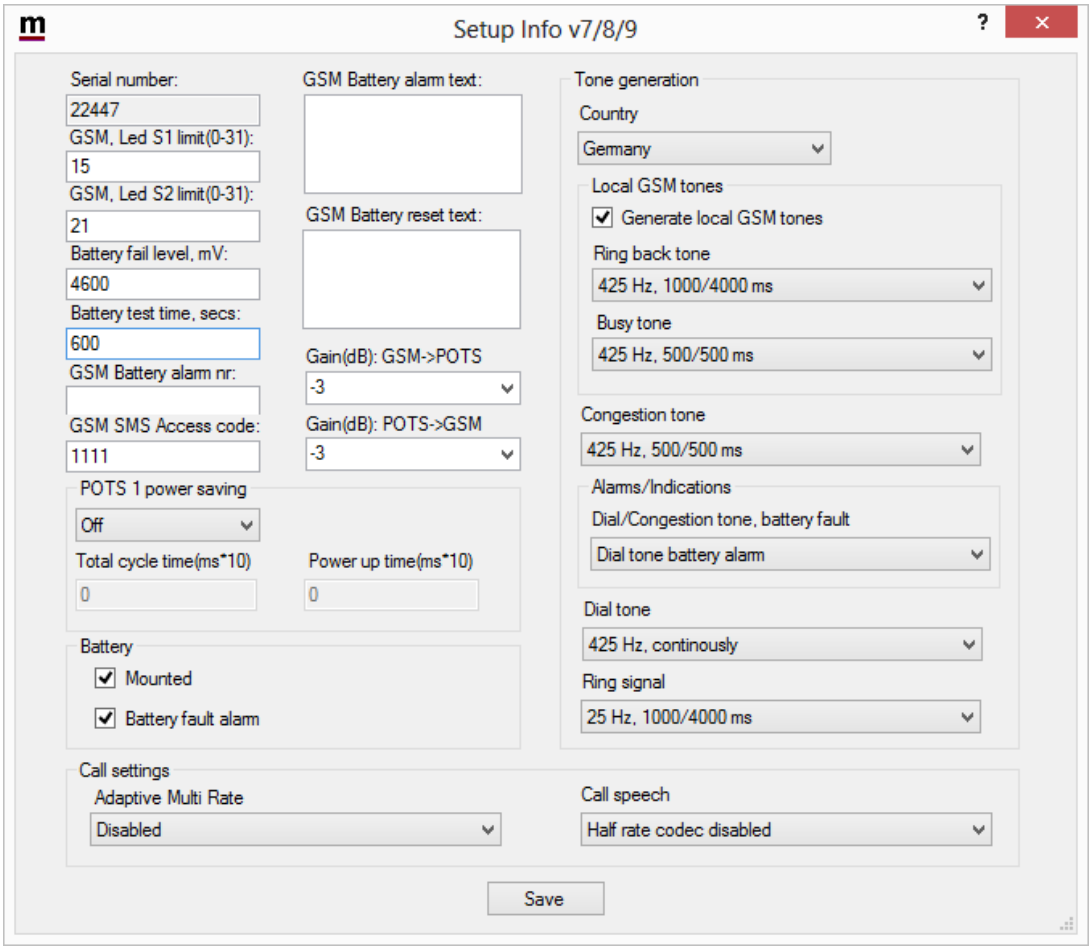
- Click on “Select file”
- Brows to find and select the new FW file supplied by FältCom or your local distributor.
  Note: The FW file always has the file extension bin (e.g. gatewayFW.**bin**).
- Click on “Update”. During the update you can follow the progress in the status bar.
  Note: Be careful not to disconnect the power during FW upgrade.

6.2 Setup

For configuration of user specific settings use the “Setup” tab and click on “Get setup”



A new window will appear showing all configurable settings.



6.2.1 LED control on signal strength

There are two LED's showing the strength of the GSM signal; S1 and S2. You can set the limits when to light these LED's.

6.2.2 Battery control

The GSM Gateway can be used with or without battery backup. The default setting is battery Mounted and Battery fault alarm enabled.

The Battery fault alarm can be disabled by unchecking the Battery fault alarm box. This setting will disable the Battery fault alarm but still charge the battery.

If the lift has a battery backup system the battery in the Gateway can be removed, uncheck the Mounted battery box to disable all battery charge, test and alarm.

6.2.3 Battery SMS

For information on the battery SMS please see the section 4 Battery.

- Fill out the "GSM Battery alarm nr"; where to receive battery alarm SMS.
- Fill out the "GSM Battery alarm text"; SMS text from the Gateway in case of battery alarm. E.g. Low voltage on battery from lift 4435.
- Fill out the "GSM Battery reset text"; SMS text from the Gateway when the battery is replaced. E.g. Low voltage battery reset from lift 4435.

6.2.4 GSM SMS Access code

Change the SMS Access code. The SMS Access code is used an authorisation code to allow the Gateway to send SMS to the user. If the Access code in the SMS sent to the Gateway is incorrect the Gateway will not answer the SMS.

6.2.5 Gain control

Gain control is used to amplify or attenuate the signals between the GSM network and the PHONE line from the Gateway to the emergency alarm. The signal gain can be set on both GSM to POTS and POTS to GSM. Please note that POTS is the analogue line PHONE generated by the GSM Gateway.

Changing the GSM to POTS (PHONE) to positive values will amplify the signal received on the GSM transmitted to the PHONE. Changing to negative values will attenuate the signals to the PHONE.

Changing the POTS (PHONE) to GSM to positive values will amplify the signal received from the PHONE transmitted to the GSM network. Changing to negative values will attenuate the signals to the GSM network.

The signal gain and quality of the GSM system differs between countries and you may therefore be required to change the signal gain to adjust for these differences. If the emergency alarm has trouble receiving and deciphers DTMF sent by the receiver; try adjusting the GSM to POTS (PHONE). Start by trying negative values, if the result does not improve; try positive values.

If the receiver has trouble receiving and deciphers DTMF sent by the emergency alarm; try adjusting the POTS (PHONE) to GSM.

6.2.6 POTS1 power saving

Note: Do not use this feature for any emergency alarm systems. This feature can be used when connecting the Gateway to a regular phone.

The power save will disconnect the PHONE line power during a pre-defined time. Operating modes are “Off”, “Always on” and “Battery only”.

Battery only mode will enable the function only during battery operation to increase the battery operation time.

After selecting operating mode; set:

Total cycle time – Cycle time for power save operation. E.g. select cycle time to 1 second; set the Total cycle time (ms*10/steps) to 100 (=1000ms).

Power up time – Time of operation during the cycle time. E.g. if the cycle time is set to 1 second and you want the Gateway to power the PHONE during 50% of the time; set the Power up time (ms*10/steps) to 50 (=500ms).

6.2.7 Tone generation

The GSM Gateway can generate line tones on the PHONE line according to different country specific preferences. There are a few pre-programmed countries:

France, Germany, Great Britain, Italy and Spain.

Germany and Italy are the same setting and this is also the EU recommendation for PSTN line tones.

When using the GSM Gateway with an emergency phone; please use German, Italian or Spanish settings even if installed in other countries.

6.2.8 Battery failure signal – Dial tone battery alarm

The Gateway can signal a battery failure by signalling on the PHONE analogue line.

Setting the GSM Gateway to generate the Dial tone battery alarm, indicating a battery failure. When a battery failure occurs the Gateway will send a congested tone instead of the normal continuous dial

tone. The Dial tone battery alarm is 1000ms ON / 250ms OFF / 250ms ON / 250ms OFF. To configure this setting set:

“Dial/Congestion tone, battery fault” to “Dial tone battery alarm”.

This setting is default active.

The emergency alarm must be programmed accordingly in order to detect the battery fault alarm signal from the Gateway; please see the manual for the emergency alarm if that setting is available.

7. Technical Data

Parameter:	**Data:**
Size (L x B x H):	165 x 140 x 25 mm
Weight:	558 g, with battery and antenna included
Protection class:	IP 20
External power:	10-28 VDC
Power consumption	At rest: 12V < 180mA, 24V < 95mA Ongoing call: 12V < 330mA, 24V < 160mA
Battery type:	NiMH 4,8V 1250mAh
Battery power consumption:	At rest: < 120 mA. Ongoing call: < 300 mA I.E. 2h including 3 x 3 minute calls.
GSM module:	Siemens M55i-W (Quad-Band 850/900/1800/1900 MHz)
Antenna:	50 Ohm, 2dBi gain, SMA-connector, 880–960 MHz/1710–1990 MHz
Line voltage on hook:	42 V DC
Polarity reversal:	Yes
Operating temperature:	-10 °C to +40 °C
Air humidity:	30 % to 90 % RH

Tone indications

Dial tone:	425 Hz -10 dBm. Continuous
Dial tone battery alarm:	425 Hz -10dBm. 1000ms ON / 250ms OFF / 250ms ON / 250ms OFF, continuous
Congestion tone:	425 Hz -10dBm. 200ms ON / 200ms off / 200ms ON / 200ms OFF / 200ms ON / 600ms OFF, continuous
Ringing signal:	25 Hz 40 VRms into 3REN. 1000 ms ON / 4000 ms OFF
Ring back tone:	425Hz, 1000 ms ON / 4000 ms OFF
Busy tone:	425Hz, 500 ms ON / 500 ms OFF

Connections

Telephone:	RJ-11
Antenna connector:	SMA
DC power supply input	DC Plug 2.1mm/5.5mm
USB:	USB 2.0 Mini

8. Contact Information

Support:
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E-mail: support.liftphones@faltcom.se

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