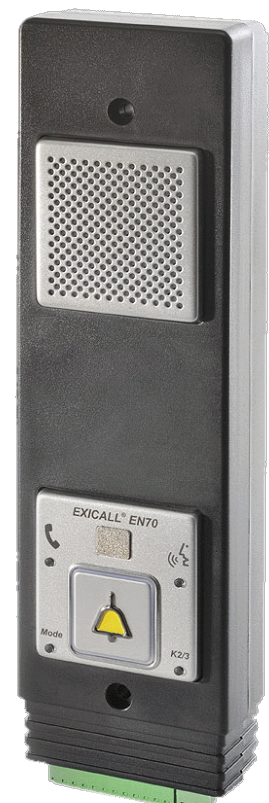
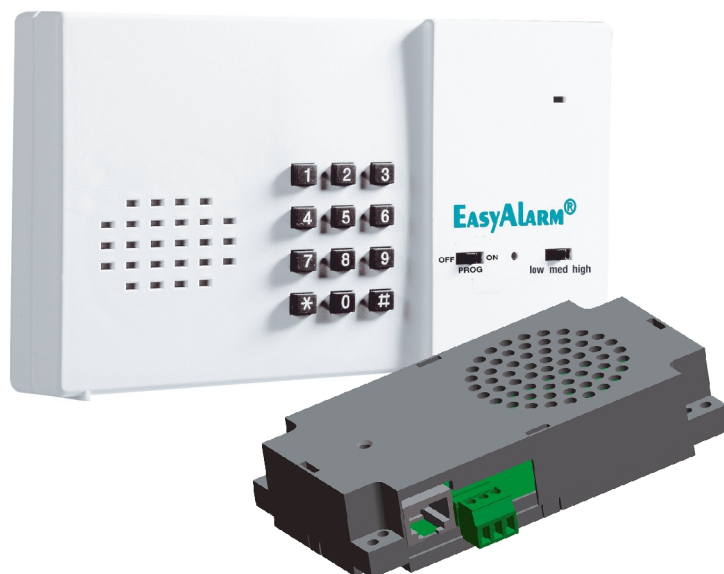
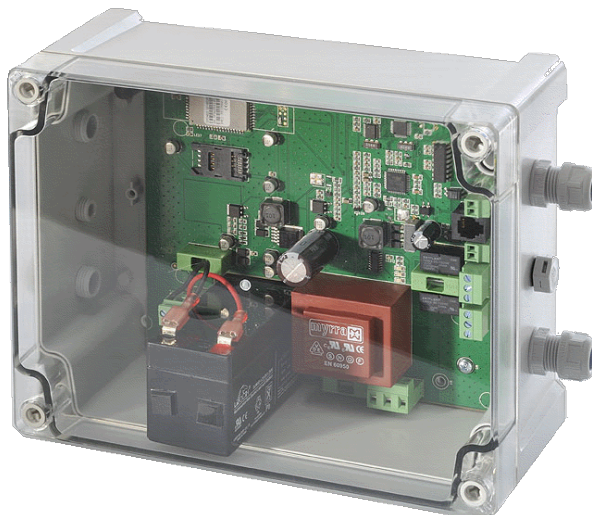


EA-GSM-Interface

GSM-Gateway

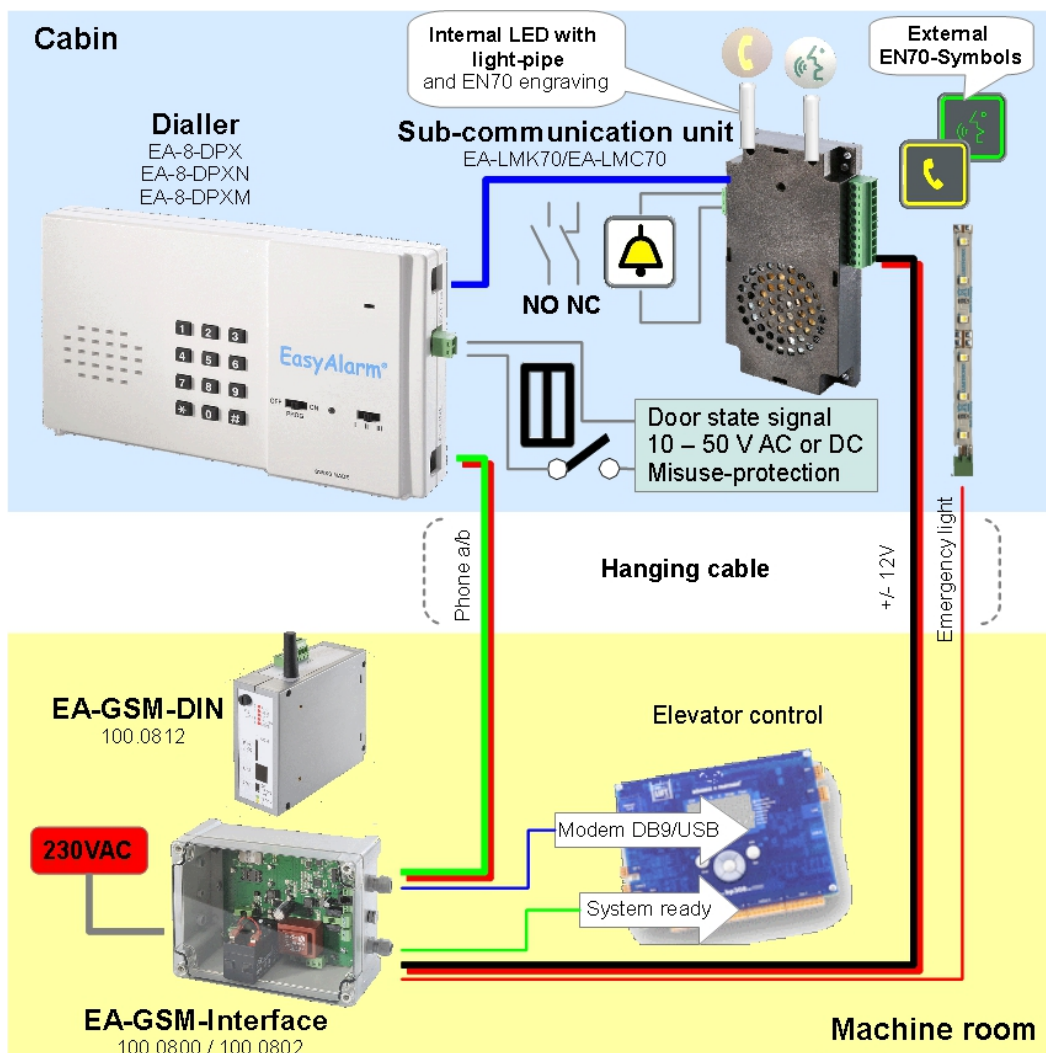




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1 Overview



The universal **EA-GSM-Interface** simulates the analogue telephone line (PSTN) for the alarm dialler (e.g. EasyAlarm or EXICALL) and is fully compatible with the protocols WinMOS®300, Point-ID.

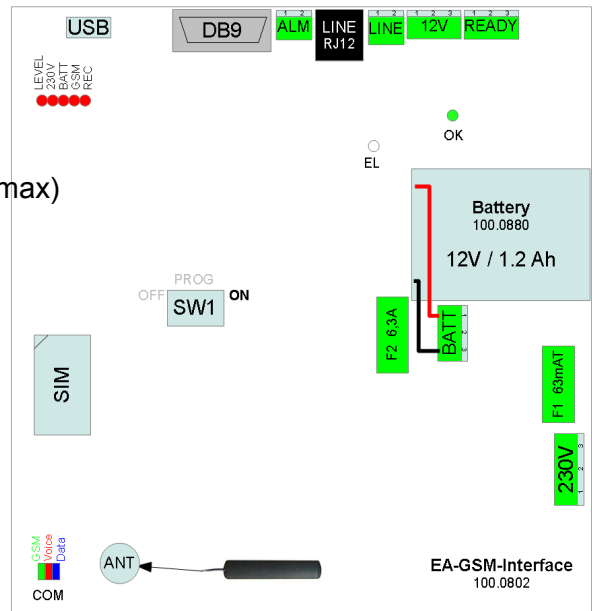
- The emergency call over GSM is a cost effective **alternative to landline installation**.
- No costs for an **analogue landline**.
- You may **change the provider** at any time.
- The elevator can already be used during **construction**.
- 100.0802: including interface to connect to the elevator control (e.g. Böhnke & Partner, Newlift etc) use as **GSM-Modem**.

Safety note

- The location of the GSM-antenna **should be stationary** (e.g. in the machine room) in order that a stable reception is guaranteed.
- In case of an emergency call retro-fit (SNEL, ESBA), where no empty wires in the hanging cable are available, the EA-GSM-Interface can be located on top of the cabin, providing that the **GSM reception is guaranteed for the entire cabin travel** (Simple GSM reception diagnosis by SMS).
- If the GSM reception is **inadequate or fails completely**, the elevator must **automatically be set out of order**: for example, command to the elevator control to move to the ground floor. Therefore the EA-GSM-Interface provides a relay contact (NO or NC).
- **Beware of using prepaid cards**: in case of an emergency there might be no credit left. Better use a subscription or prepaid with topping up via auto reload.
- To ensure that the correct number is dialled even with roaming, the calling numbers of the dialler must be entered including the country code.

2 Specification

Article-No:	100.0800 (Voice) 100.0802 (Voice & Data)
Power supply:	230 VAC / 50 Hz / max. 15 W Standby: 3.5 W + 2 W during connection + load on 12V + 5 W during battery charge (max)
Backup battery:	12 V / 1.2 Ah (100.0880) Typical charging time: 8 h
GSM:	Dual-Band 900/1800 MHz
Dimension (L x W x H):	240 x 191 x 107 mm
Housing:	ABS, IP67
Weight:	1100 g (without battery)



2.1 Connectors

	Comment	
ANT	GSM-Antenne SMA	GSM-Antenna
ALM	Alarm-input	1,2: active if signal 10 .. 50 V AC or DC
BATT	Connector for 12 V / 1.2 Ah battery	1: +BATT (red) 3: -BATT (black)
DB9	Serial interface	For modem use (100.0802 only)
F1	Mains fuse	63 mA slow
F2	Battery fuse	6.3 A slow
LINE	Analogue telephone line	1: -LINE 2: +LINE
READY	Relay: Operation control: „System ready“	1: Normally closed contact (NC) 2: C 3: Normally open contact (NO)
SIM	SIM-card holder	Set SIM-PIN to 0000
SW1	Mode switch	OFF: GSM-Modem use only (transparent) PROG: Programming of EA-GSM-Interface ON: Emergency call and GSM-Modem use
USB	Serial interface	For modem use (100.0802 only)
12V	Emergency power max 300 mA	1: +12V-Emergency light (switched) 2: GND 3: +12V-UPS (Uninterrupted power supply)
230V	Mains power connector	1: Neutral 2: Earth 3: Phase (F1)

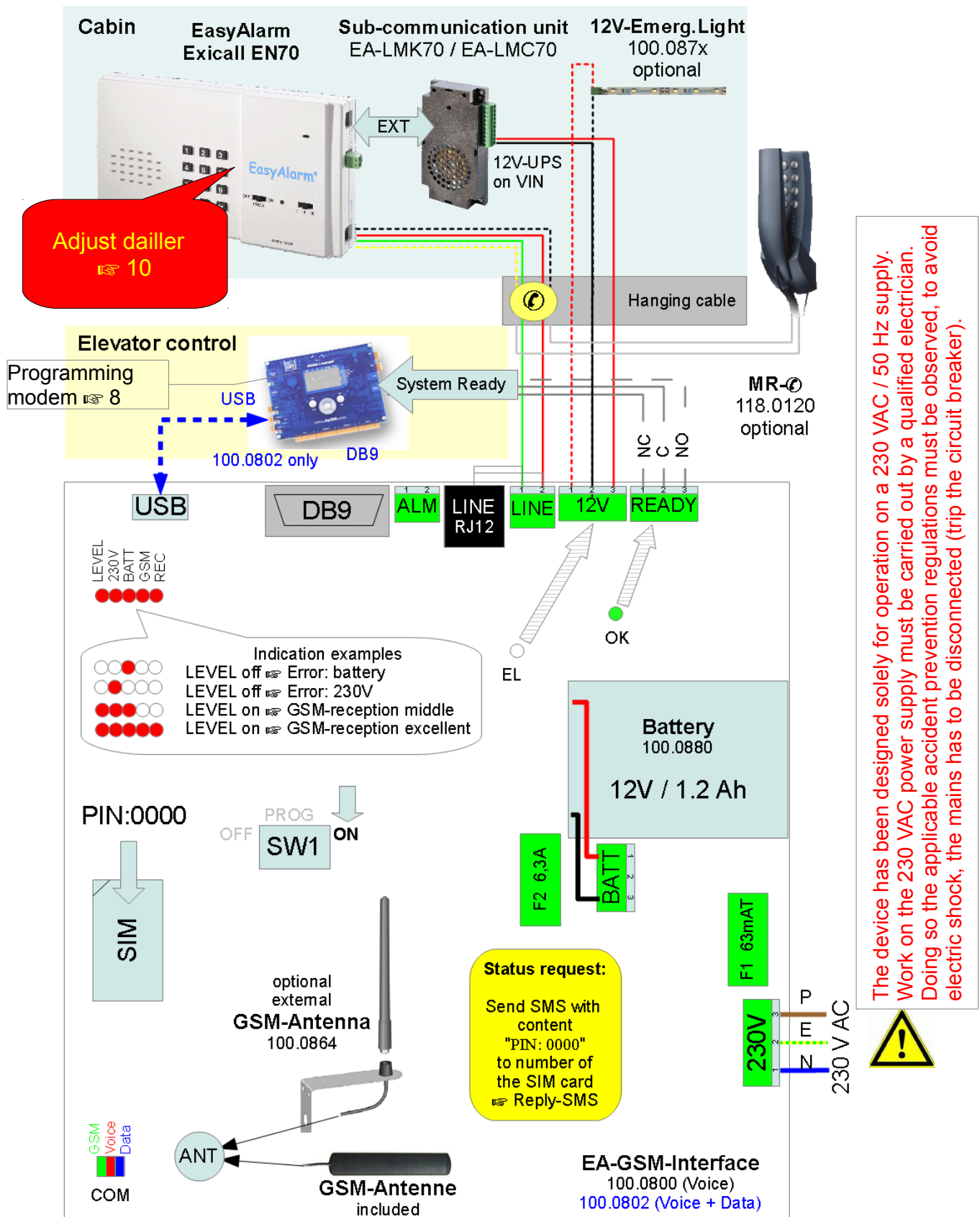
3 Mounting

Find a suitable location for the EA-GSM-Interface according to the reception intensity indicator on the mobile phone.



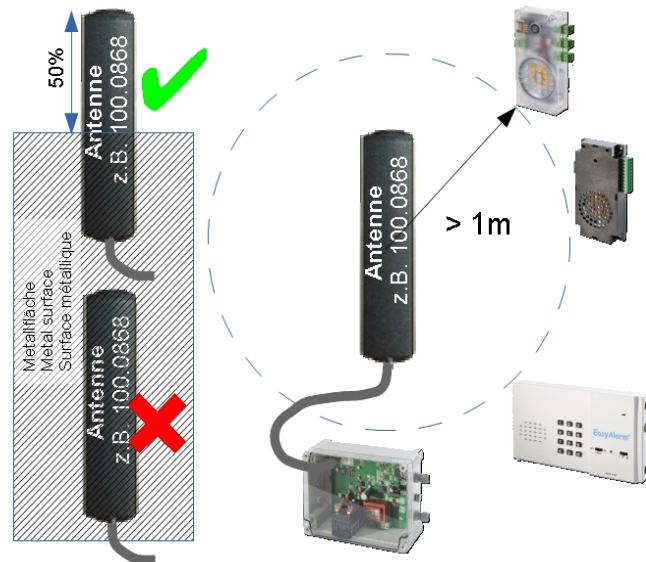
Recommendation: stationary location in the machine room or shaft assembly, not in the vicinity of radio transmitters and interference sources. If there are no free wires in the hanging cable, the EA-GSM-Interface can be mounted on top of the cabin. In any case, the **GSM receive** must be **checked over the entire travel of the cabin** → 9. Check Reception! Note that the **level-indicator may be delayed**.

4 Wiring



5 Initial operation

- Connect **alarm dialler** according to wiring plan.
- Connect **elevator control** according to wiring plan (Relay-contact NO or NC: System ready).
- Connect optional **emergency light according to wiring plan**.
- Connect **antenna**.



- Insert SIM-card with **PIN set to 0000**.
 ☞ To set PIN to 0000 use any mobile phone.
- Connect the **battery** 100.0880.
- Connect **230V** mains.
- After two minutes the LEVEL indicators are showing the GSM reception. LED_COM flashes green every 3 seconds.
 ☞ Stick the antenna where the LEDs LEVEL show maximum reception.
- Start test call on alarm dialler and check quality of voice connection.

5.1 Accessories

Picture	Supply voltage	Art.No.
	Battery 12 V / 1.2 Ah	100.0880
Picture	Antenna material	Art.No.
	Wall-antenna cable 5m SMA	100.0864
	Extension-cable 10m SMA ☞ 100.0864	100.0863
Picture	Emergency light	Art.No.
	Emergency light LED-chain 10cm 12 V / 0.8 W, 16 cd 120°, 52 lm ☞ 100.023x	100.0870
	Emergency light LED-chain 2x10cm 12 V / 1.6 W, 33 cd 120°, 104 lm ☞ 100.023x	100.0873
	Emergency light screw M8 12 V / 0.2 W, 44 cd 20°, 4 lm, cable 25cm	100.0872
	Emergency light LED chain 12 V / 1.2 W, 50 lm, cable 10cm (in a row)	100.0874

6 Indicators

LED_COM	Comment
Green	SIM-error: flashes every 1/2 second During network registration: flashes every second Flashes every 3 seconds if connected to the GSM network
Red	Alarm dialler in connection: Analogue line in use
Blue	Elevator control in connection: over serial interfaces


LED	Normally showing the GSM-reception level	In case of an error the LED shows error code 1_LEVEL is inactive
LEVEL	GSM Level poor	Inactive (LED2..5 showing errors *)
230V	GSM Level low	Problem with supply voltage
BATT	GSM Level medium	Problem with battery/charging
GSM	GSM Level high	Problem with GSM-Network or Roaming or line permanently busy
REC	GSM Level excellent	Problem with GSM-reception (Level Alarm)

*) Error analysis by Status-SMS:

☞ send SMS with content „PIN:0000“ ☞ Reply-SMS ☞ 7.3

LED	Comment
EL	Indicator of emergency-light output
OK (READY)	Ready-indicator for GSM-Interface, if <ul style="list-style-type: none"> • Battery and battery-charging ok • SIM-card inserted with correct SIM-PIN • GSM-reception sufficient Otherwise the elevator may not perform any further trips. Note: OK (READY) can be delayed up to two minutes (GSM-reception)

7 Programming over SMS

Programming is done by **SMS**. An SMS containing PIN:0000 will be evaluated and answered  7.2 to the sender. All **commands** are written in **CAPITAL LETTERS**.

SMS-Commands	Comment	Reply-SMS
PIN:0000	Default-PIN:0000 Note: PIN 4-digits	leitronic.ch GSM V.F.x.y ready
NEW:1234	Change PIN to 1234 and activate SIM-card protection Note: PIN 4-digits	New Pin:1234
ALARM=<Alarm-number>_	Status-SMS number with +country code e.g. +41 <u>completed with a space</u> (max. 24 digits)	Alarm:<Alarm-number>
ALARM=OFF	Disable Status-SMS	Alarm:OFF
RESET	Set to factory defaults	Reset

7.1 Advanced settings

Advanced settings can be read-out or changed as following:

EE_R:<adresse>	Read EEPROM <adresse> is 4-digits	adr:<adresse>:<read out value>
EE_W:<adresse>=<value>	Write EEPROM <adresse> is 4-digits <value> is 3-digits (000..255)	adr:<adresse>:<written value>

<adresse>	Function	<value>	Default
0018	Debounce time: Alarm-input ALM until Status-SMS	000 to 255 * 20ms	050 = 1s

Example:

PIN=0000, **Status-SMS**: +41 79 100 10 10, Debounce time ALM = 2 s

 send SMS with content

PIN:0000 ALARM=+41791001010 EE_W:0018=100

 Reply-SMS

leitronic.ch GSM V.F.x.y ready, Alarm:+41791001010, adr:0018:100,
Batt:96, Ri:18, Charge:255, Power:34, last Call:26, Rssi:12(9-15),
Ber:0(0-2), Errors:----+,-----,--- (limited to 160 characters)

7.2 Reply-SMS

Example of a Reply-SMS:

```
leitronic.ch GSM V.F.x.y xx, (adr:<adresse>:<value>), (New Pin:<new PIN>),
(Alarm:<alarm number>), Batt:xx, Ri:xx, Charge:xx, Power:xx, last Call:xx,
Rssi:xx(xx-xx), Ber:xx(xx-xx), Errors:-----,-----,---
```

Label	Comment	Value xx	Info
GSM	Status	ready	System ready to use
V.F.x.y	Software-Version	not ready	System not ready
Batt:	Battery voltage	0 to 97	Calculate voltage: $0.145 * <value>$ e.g. 97 ↗ 14.05V or 92 ↗ 13.34V
Ri:	Battery-resistance	10 to 70	10 – 23 ↗ battery o.k.
defect!	Battery- or Fuse F2 defect	-	Battery failure or blown fuse F2 6.3AT ↗ check and replace
Charge:	Battery charge value	0 to 255	
Power:	Battery charging voltage	0 to 38	≤ 25 ↗ supply voltage missing ≤ 28 ↗ supply voltage too low to charge battery 34 ↗ supply voltage sufficient
last Call:	Hours since last call	0 to 255	in hours
Roaming	GSM-Roaming		Not home GSM-network => higher costs
Rssi: <mom> (<min>- <max>)	GSM-Level Momentary Min. since last call Max. since last call	0 to 31	Calculate level: $2 * <Value> - 113dB$ e.g. 10 ↗ $2 * 10 - 113 = -93db$ GSM poor ≥ 5 LED1 GSM low ≥ 10 LED2 GSM medium ≥ 15 LED3 GSM high ≥ 20 LED4 GSM excellent ≥ 25 LED5
Ber: <mom> (<min>- <max>)	BitErrorRate Momentary Min. since last call Max. since last call	0 to 7	0: minimum BitErrorRate 7: maximum BitErrorRate
Errors	Error-No. 0 to 12 e.g. ----+,---*,--*	- + * ,	-: inactive *: active ,: separator before error 5/10 +: delayed error not jet active

Example:

Change PIN from 0000 to 1234, set Alarm to +41791234567, set EEPROM 0018 to 100

↗ send SMS with content

PIN:0000 NEW:1234 ALARM=+41791234567 EE_W:0018=100

↗ Reply-SMS

```
leitronic.ch GSM V.F.x.y ready, New Pin:1234, Alarm:+41791234567,
adr:0018:100, Batt:96, Ri:18, Charge:255, Power:34, last Call:26,
Rssi:12(9-15), Ber:0(0-2), Errors:--*+-----,---
```

↗ Error 2 active: GSM bad and Error 4: Supply voltage too low (in delay)

If you **do not get any Reply-SMS**, please check the following points:

- EA-GSM-Interface is **not connected** to the GSM-network ↗ check LED_GSM
- PIN-Code** is incorrect
- SIM number** is incorrect
- No money** left on SIM-card
- Mode switch **SW1 not on ON**

7.3 Automatic Status-SMS

The Status-SMS will be sent to the **defined alarm-number** ALARM= , **completed with a space.**

To disable the **Status-SMS** send SMS with content: PIN:0000 ALARM=OFF

Example:

Signal on input ALM send SMS with content:

leitronic.ch GSM V.F.x.y ready, Alarm X4, Batt:96, Ri:18, Charge:255,
Power:34, last Call:26, Rssi:12(9-15), Ber:0(0-2) Errors:*----,-----,---

Errors	< State / Error>	READY (OK)	Emergency light	Delayed	Send Alarm	SMS content	Error code LED					Test interval	Send Restore	Restore-SMS content
							1	2	3	4	5			
0	Alarm X4 / ALM	●	Off	0	☒	Alarm X4	○	○	○	○	○	(50)* 20ms	-	No Alarm X4
1	Supply voltage missing	●	On	0	-	Power off	○	●	○	○	○		-	Power on
2	GSM poor	●	On	15 s	☒	GSM poor	○	○	○	○	●	2 s	-	GSM ok
3	GSM Roaming	●	On	0	☒	Roaming	○	○	○	●	○	2 s	-	Home
4	Supply voltage too low to charge battery	●	On	15 s	☒	Power poor	○	●	○	○	○		☒	Power not poor
5	No call within routine interval	●	On	0	☒	No routine call	○	○	○	○	○	(74) h	-	Routine call ok
6	Telephone line busy	●	On	0	☒	Line busy	○	○	○	○	○	(4) min	☒	Line ready
7	Battery not charged within 24 h	○	On	0	☒	Charge problem	○	○	●	○	○	24 h	☒	Charge ok
8	No or bad battery or fuse F2 defect or battery test circuit defect (Ri<10)	○	On	0	☒	Battery failure	○	○	●	○	○	1h	☒	Battery ok
9	GSM bad	○	On	15 s	☒	GSM bad	○	○	○	○	●	2 s	☒	GSM ok
10	No GSM network or not registered or mode switch SW1 not on ON	○	On	0	☒	No GSM	○	○	○	●	○		☒	GSM registered
11	Interface defect	○	On	0	☒	Line problem	○	○	○	●	○	1 h	☒	Line OK
12	Battery end	○	Off	0	☒	Battery end	○	○	●	○	○	2 s	☒	Charging

8 Troubleshooting

Faults and errors are displayed by the various indicators (LED) 6

Detailed error information available through a status inquiry via SMS or automatically by **Status-SMS** in case of a new error (if <Send Alarm> is ☒ 6 Table)

send SMS with content

PIN:0000

Reply-SMS 7.3

9 Reception test



1. If the EA-GSM-Interface is mounted on the cabin roof, send the cabin to the location with the **worst** GSM reception (check reception with LED1. .5). Attention: The level-indicator may be delayed.
2. Start test call and check if the connection is established ☞ terminate test call.
3. **Re-start test call** ☞ Connection must be established ☞ Stay in connection and move the cabin over the complete shaft ☞ Check if connection remains stable ☞ Terminate test call ☞ Send SMS to verify GSM-levels: Rssi:<mom> (<min>-<max>)
 - ☞ The minimum value <min> must be higher than 5!
 - ☞ **Report** Rssi-Value with date (see last page)
4. If a problem occurred during test, change or optimize the placement of the EA-GSM-Interface
5. If you cannot find an improved placement use an external antenna ☞ e.g. Article-no 100.0864 and / or extension cord 100.0863.

10 Prepare EasyAlarm/Exicall for use with GSM

To ensure that the correct number is dialled even with roaming, the calling numbers of the dialler must be entered including the country code.

To increase the success rate of data transmission using DTMF tones (WinMOS or other Routine receiver), it is recommended to adjust the tone duration as follows:

Available from software version EasyAlarm / Exicall 8:39!

OFF <input type="checkbox"/> ON PROG	* 9 7 1 3 3 6 # #	..	*	Value	#	OFF <input type="checkbox"/> ON PROG
-----------------------------------------	-------------------	----	---	-------	---	-----------------------------------------

Value	Information
84	Tone duration optimized for the GSM network to 160msec (duration = (value-76) * 20msec)
80	Tone duration for land-line use 80msec (Factory setting)

11 Modem settings (100.0802 only)

11.1 General settings

<adresse>	function	<value>	Default
0004	Auto-Answer ATS0=<n>	<n>	0
0125	Select Baud rate for transparent mode	0=9600 1=19200	1
0126	Quiet-Mode (Modem does not answer or indicate RING)	0=disabled (ATQ0) 1=enabled ATQ1)	0
0128	Result-Code	0=Text (ATV1) 1=Numerical ATV0)	0

If modem should work in transparent-mode, you have to configure by SMS as following:

Example:

PIN is 0000. Modem with 19200 Baud, Auto-Answer after „four cycles“, Quiet-Mode enabled

☞ send SMS with content

PIN:0000 EE_W:0004=004 EE_W:0125=001 EE_W:0126=001

☞ Reply-SMS

leitronic.ch GSM V.F.x.y ready, adr:0004:4, adr:0125:1, adr:0126:0,
Batt:96, Ri:18, Charge:255, Power:34, last Call:26, Rssi:12(9-15),
Ber:0(0-2), Errors:----+,-----,---

11.2 Specific elevator controls

refer to special document: http://www.leitronic.ch/Documents/100.085x_Data-Modules-GB.pdf

12 Maintenance protocol

Location of the installation :

EA-GSM-Interface installed by: ☐ 100.0800 ☐ 100.802

Company:

Mechanic:

Date:

Calling number of SIM-card:

PIN-Code of SIM-card:

12.1 Values of the reception test (📶 9) note within each maintenance

Status query by SMS

📶 send SMS with content PIN:0000

📶 Reply-SMS 📶 .. Rssi:<mom> (<min>-<max>) ..

Write down the three Rssi-values of the Reply-SMS into the table below:

e.g. Rssi:12 (9-18) 📶 momentary=12, minimal=9, maximal=18

The minimum value must be higher than 5!

Date	Tested by	Rssi:		
		<mom>	<min>	<max>
1.1.2010	Mister Sample	15	9 ✓ > 5 !	18