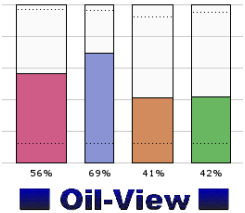
Messages, Commands and Parameters

for e-litro gsm, LX-(Q)-GSM, GSM-Messenger

Connected to OilView ?

If the device is connected to the www.oilview.de system the following **manual device parametrization via SMS commands can be omitted**.

In this case the device parameters can be set up comfortably at the OilView browser pages and will then be transmitted to the device. Likewise the device will send its messages constantly to the OilView servers. After a LOGIN to OilView the graphically arranged data can be viewed.



SMS Messages when to whom ?

The devices cyclically (adjustable, e.g. 1 x per day) send a system status to an adjustable mobile phone number. In the following this number is labelled as the main destination.
The #T command sets the main destination number for the device.
The device sends any messages, except for alarms, to the main destination.

Exception 1: In case of an additional request (#R or #M) the device always responds to the mobile phone number the request was sent from.

Exception 2: In case of an alarm event the device sends the alarm message to the alarm destinations that were saved under #TA1 to #TAx.
If no #TAx numbers have been saved the alarm message will be sent to the main destination number.

Message at Limit-Value and Refueling :

If the filling level of a tank is below the reserve level (parameterized limit value) it is no alarm event.
As a result this limit value message and its repetitions will be sent to the main destination number (#T).
When refueling the tank the device will send the new filling level to the #T number after 1 h.

Alarm Chain, Acknowledgment, Alarm Cancellation :

An alarm message is sent when an incident at input A1 / A2 resp. A3 for „GSM-Messenger A3“
a temperature alarm for the measured liquid or a power failure (for device type „GSM-Messenger A+“) occurs.
For the alarm messages multiple alarm destination numbers can be stored. For the LX-(Q)-GSM and the e-litro gsm there are 3 alarm destinations (#TA1 to #TA3). For the GSM-Messenger there are 6 alarm destinations (#TA1 to # TA6).
An alarm signal has to last at least 3 minutes until an alarm message is sent to #TA1.
If no #TA1 is saved the alarm will be sent to the main destination number #T.
After 20 minutes (adjustable) a second message is sent to #TA2.
This alarm chain continues until either the last or an *unused* alarm destination number is reached.

Alarms can be acknowledged with the command #Q. As a consequence the sending to the following alarm destination numbers is stopped. The command #Q+ also acknowledges the upcoming alarm cancellation messages.

The device sends an alarm cancellation message (approval message) if the prior alarm has been cancelled.
For this message a 3 minute delay is implemented. Every alarm destination that received an alarm message will then get a respective approval message.

Counter Functions for the GSM-Messenger :

The GSM-Messenger device supports different counter functions via inputs A1 and A2.
Therefore the desired counter-mode can be parameterized per extended #A1 and #A2 commands.
Available modes are (see page 7):

- Pulse contact counter (e.g. Reed output of a water meter)
- Event counting
- Operating hours counter

Commands and Parameters

Commanding rules:

- All device commands are sent to the device via SMS, either per mobile phone or per OilView system.
- Every command begins with the **character #**. **No blank characters** between the SMS commands!
- It is possible to send either one or multiple commands chained in one SMS.
- The SMS message must not be longer than 160 characters.
- Umlauts and other special characters are only supported by version V4.00 or higher.
- For command chaining the query commands #R or #M or #C or #A have to be at the end of the command chaining.

Standard Programming in one Row :

Example: **`#T=0170123456789#H=site 4 at 72 Baker Str.#P=10,03,15,01#G=9#M`**

Short explanation: destination number +site name +messaging scheme +SMS counter

Meaning of #P values above: Report every 10% or after 03 days. When below the 15% limit value report every 01 days.

List of Commands and Parameter Transfer:

Command	Values/Description	Command Effects and Parameters	Example / Prefix
#T=	Mobile phone number for the standard messages	Main destination number (recipient, administrator, headquarters): The SMS messages will automatically be sent from the device to this mobile phone number.	0049123456789
#H=	Site name (max. 40 characters)	Header text that is shown at the beginning of every SMS message sent from this device. Caution: Using version V4.00 or older umlauts and special characters can lead to messaging errors. Recommendation for header: Site name, location, client	Please overwrite the preset text „tank monitoring“
#P=	Reporting points and intervals 10,03,15,24h[,0,5,1]	Digit 1= Messaging increment in percent, e.g. report every 10% of filling level (00 if no fuel gauge on site) Digit 2= Messaging period in days, e.g. 03 means report after 3 days at most. This can also be stated in hours, e.g. 12h. Digit 3= Reserve level (limit value) in percent, recommendation e.g. 15 [%]. (00 if no fuel gauge on site) Digit 4= Time interval for repeat. limit value message: e.g. every 1 days (or xxh hours).	e.g. 10 [%], range: 01 .. 99 03 [d], range: 00 .. 99 or 00h .. 24h 15 [%], range 00 .. 99 24h, range 01 .. 31 [d] or 01h .. 24h
	Since V4.00: 5.Value: 0 oder 1 (since V7.00: 0 to 3) 6.Value: Refuel detection 7.Value	**Optional Parameters for young firmware versions::** Digit 5= **0** causes limit value message when one of the tanks has reached its **reserve** level. **1** causes limit value message only when all tanks have reached their **reserve** level. **2** causes limit value message when one of the tanks reaches its **maximum** level. **3** causes limit value message only when all tanks have reached their **maximum** level. Digit 6= Percent value for increase of content that leads to a refueling message, e.g. 5% Digit 7= 1 or 0. When refueling, 1 causes a message with the initial value.	Since V4.00: 0 ist default. Since V4.0: Values 0 or 1 Since V7.0: Values 0 to 3 5 - 10 is recommended. 1 => Info tank-1 n liters
#Pn=	#P to modify para-meters individually	The parameters #P above can also be set individually: e.g. #P6=8 or #P2=36h	0 ist default.

#Ai=é : **#A1=** **#A2=** **(#A3=)**	Configuration of alarm inputs A1 to A3 A2 only f. GSM-Msgr A3 only for GSM-Messenger A+	Command syntax: `#Ai=x,alarmtext` i = number of input: x=0 => NOC , x=1 => NCC Presets: For alarm1: #A1=0,site malfunct. (norm. open contact) For alarm2: #A2=1,contact loop (norm. closed contact) For alarm3: #A3=0,alarm 3 (norm. open contact) For alarm3: #A3=5,power failure! (autom. recognition) For counter setting parameters see pages 7.	Length of ‚alarm text' is max. 15 characters. Alarm signal/Cancellation needs to last at least 3 minutes. For ‚GSM-Messenger A+' text = ‚power failure'
#TA1= identical to **#TA=**	Alarm number 1. (First mobile number for alarm messages)	Alarm destination number (breakdown phone 1). Alarm messages will be sent to this number (3 min. delay). If no number is registered here, the message will alternatively be sent to the #T number.	0049 111111111 **With OilView connection this number is unused!**
#TA2=	Alarm number 2. (Second mobile number for alarm messages)	Alarm destination number (breakdown phone 2). Alarm messages will be sent to this number secondly (delay: see command #Q=nnn). If this alarm destination number is unused the alarm chain ends and no further messages will be sent regarding this alarm.	0049 222222222 Also see query #TA
#TA3= **...** **#TA6=**	Further alarm messages	As stated above. Devices LX-(Q)-GSM and e-litro gsm support 3 alarm destination numbers, GSM-Messenger supports 6.	0049 333333333 ... 0049 666666666
#TMPn=	Temperature limit, n = tank number	Temperature limit value (set degree value) e.g.: #TMP1=18#TMP2=5#TMP3=-10#TMP4=-99 If the temperature falls below the limit a temperature alarm message is sent to the alarm chain #TA1é #TAn.	Value -99 = deactivation. Temperature below limit causes an alarm.
#N i= **(Not with GSM-Msgr)**	Set name for tank **i**: Set density for tank **i**:	#N1=Name tank1 (the tank name can include up to 16 charact.) #N**i**=845[,Name tank **i**] Set density [and name opt.]	#N1=... to #N4=... **Density** (+ Name optionally)
#LG=	Sprache/Language	#LG=0 sets the language to ‚German' #LG=1 to ‚English' #LG=2 to ‚French' #LG=3 to ‚Spanisch'	#LG values: 0, 1 ,2 ,3
#G=	Mobile phone credit or SMS sending counter	Activating credit messages or counter: 9 = Counter for SMS sent (for contract cards) 0 = OFF, no messages resp. credit or counter. 1 = ON for prepaid card D1 (*100#) 2 = ON for older prepaid card D2 (**100#) 106 = ON for newer prepaid card D2 (**106#) 101 = ON for prepaid card O2 (*101#) Credit or counter value is at the end of the SMS text.	Value 9 is preset. #G=9 #G=0 #G=1 #G=2 #G=106 #G=101
#I1 **#I2** **#I3,#I4** **#I98**	Removing a tank number Remote reset	Tank removal: The tank with this number gets removed from the tank registration. Higher tank numbers move up one spot. (The command `#I` removes all tanks). Reset/Restart of the device and the internal GSM modem can be used as possible problem solving.	e.g. `#I2` removes tank 2

Remote Control

#S= **(only for devices with relay)**	Determines the relay switching function	- Switch relay to OFF state (opening). - Switch relay to ON state closing). - Relay DEACTIVE. The relay is without function. - Rel. active, switches dep. on measured value. No SMS. - Rel. active, switches dep. on meas. value. SMS report!	. OFF #S=0 . ON #S=1 . Deactive #S=3 . Active #S=2 . Act.+SMS #S=21

Query Commands

The following commands serve as a manual query of the device status and parameter values.
These commands can be sent individually to the device via SMS; e.g. **#M**
They can also be added at the end of a parameter SMS mentioned above (see page 2 + 3); e.g. #P5=1#p2=12h#C

Com-mand	Description	Command Effects and Parameters	Comment
#M	Manual query	Site query / status query, with resetting of the reference value for the next cyclical message. #M is the standard command in case the tank monitoring is only to be used manually.	also see #R
#R	Manual query	Site/Status query, additionally to the cyclical messages. The daily counter for the standard info SMS will continue unaffected. #R is the standard command for additional query or when the query is proceeded from a different mobile number than the main destination number.	also see #M
#Z	Triggers the device to send a status message.	#Z provokes the device to send a status message to the destination number which has been set up in the device via #T=é ..	Only since V7.0 . See also #R and #M.
#A	Alarm texts/bits query PLEASE NOTE: An alarm signal has to last at least 3 minutes.	Review of alarm parameters: - Query of the saved #Ax parameters for the available inputs A1 to A3 if existing. - Readout of the alarm bit string: e.g. 1-0 or 010-0000-0000 (value 1 = alarm flag). - Readout of the GSM modem version. Format: Header; **Alarm-Para**; A1:0,text alarm1; bitstring; (+); (PS) 05.02.604 (modem identifier)	Stored alarm texts, and current bitstring: (010) Inputs A1 - A3 (0000) Device alarm 1 - 4 (0000) Temp. alarm 1 ï 4. Value 1 0 alarm bit
#TA	Alarm number and message delay query	Review of alarm numbers: Readout of the saved alarm destination numbers #TAn and the alarm chain. Additionally the parameterized delay between two alarm messages is reviewed. Format: Header; **Alarm-Tel**; ; 004917619808000; 0049123456789; ....; 20min	Stored destination numbers of the alarm chain and the time for acknowledgments (#Q) e.g. 20 min (standard)

Alarm Acknowledgments (version 4.7 or higher)

#Q	Acknowledge alarm	#Q **Acknowledges** an alarm. Following messages to other dest. numbers in the alarm chain are ceased.	
#Q+	Acknowledge alarm a. approval message	#Q+ **Acknowledges** an alarm and the following appr. messages in case of an alarm cancellation.	
#Q=n	Alarm message delay	#Q=n defines **waiting period** (min) until next alarm message is sent to the next no. in the alarm chain.	n=1...255 e.g. #Q=20 Preset is 20 [min.]

Format of the SMS Device Messages:

The SMS format has the following pattern:
Header; message reason; tank inventory in l / %; alarm text or remaining alarm status; credit or SMS count
Separator between two declarations in an SMS: semicolon+blank

Typical message: site name; **message reason**; 25%=5000l; no alarm ;100

Message reasons could be:
- info / manual inquiry / limit of tank n /
- alarm n (alarm in the alarm chain; also see #Q)
- temperature alarm (temperature below limit)
- change of relays switching status
- fueling (after performed fueling)
- check credit (prepaid)

Content and Structure of the Device Message:

Header	The header text will be shown at the beginning of every report SMS. This should be set to e.g. customer ID and property or similar. Example: `Cst.024 HEL Fa.Meyer, Kiel Goethe-21,` Individually adjustable text. Up to V3.99 umlauts are invalid! From version 4.0x umlauts are valid.	
Message reason Segment 2 in the SMS	Declaration	Description
	Manual inquiry	Manual inquiry via SMS command #R or #M
	Info	Cyclical reports after ***n*** days. ***n*** is adjustable.
	Alarm The condition of the alarm inputs A1 / A2 (/ A3) will be reported as shown: *- no alarm;* *- alarm 1 site failure;* *- alarm 2 contact loop;* *- alarm n OK;* *- alarm tank n;* *- alarm tank n OK;* *- temp-alarm n;* *- temp-alarm n OK;*	Meaning: => Text *site failure* is adjustable (command #A1) => Text *contact loop* is adjustable (command #A2) => Approval message, i.e. alarm n is abrogated => Displaying device n reports failure or alarm. => Approval message, i.e. abrogation of failure / alarm. => Tank n fell below the adjusted temperature limit. => Approval message, i.e. abrogation of the temperature alarm of tank n
	Relay on ***Relay off***	(Only for device type LX-GSM and e-litro gsm:) This report occurs when the relay has switched over. Requirement: #S=21 or Menu 6. Rel.1 = Active+SMS is set.
	Limit tank n	Limiting report tank n (n = 1..4)
	Tank filling n	Fueling of tank n. New liter inventories will be reported about 1 h after fueling has started. In case of a connection to the öOilViewósystem the low level inventory at the start of the fueling is also reported. (Report text: ôInfo Tank nô). Likewise for parameter #P7=1.
	Check credit	The Sim card credit (prepaid) has dropped below 1ú. Please recharge the credit!

	Parameter	Inquiry of the device configuration via SMS command #C.
	Alarm-Para.	Readout of the alarm parameters via SMS command #A.
	Alarm-Tel.	Readout of the alarm chains destination numbers via SMS command #TA.
Tank inventory	Inventory of tank 1 ï 4 if connected. The percentage and the current liter value will be stated for every tank. If a decimal point is shown in the display, no unit is stated. The number value is typically referred to the unit m^3 then. If the gauge also measures the temperature it will be shown as T=xx [°C]. Example: 100%=9999L, 50%=15.00 T=18, 100%=30.00 -> Meaning: Tank 1: full; Tank 2: half full with 15 m^3 and 18ºC; Tank 3: full with 30.000L If **ñ????ñ** is shown for any tank this gauge no longer provides any data.	
Alarm / Temp-Alarm / Alarm OK	The state of alarm inputs A1 / A2 (and possibly A3 as well as temperature alarms) will be reported in cleartext. Nevertheless only **one** alarm will be shown. e.g.: - ***No alarm*** - *Site failure* - *Contact loop* - *Alarm tank n* - Temp-alarm *n*	Meaning: => Text *site failure* is adjustable (command #A1) => Text *contact loop* is adjustable (command #A2) => Displaying device n reports failure or alarm. => Tank n fell below the adjusted temperature limit.
Credit *or* ***SMS count***	Current prepaid credit is shown unless the service provider does not support this function. (USSD) Always possible for D1. Possible for D2 since version V3.xx. Possible for O2 since version V3.4x. Not recommended for contract cards (postpaid). Instead an SMS count should be activated. (#G=9)	
Error / Faulty command	Command error: The device received a faulty instruction and reports the failed processing.	

Receiving SMS: `Cst.024 HEL Fa.Meyer,Koeln Goethe-21 ; Fueling Tank 2; 33%=1600L, 40%=20.00, 100%=99.99; no Alarm; 14.81 EUR`

Receiving SMS messages as an email

The device always sends its messages in the form of an SMS.
To receive the SMS contents in the form of an email an **SMS-to-email** service was previously useable.

Unfortunately, by almost all cell phone providers this service has now been discontinued.

Instead ...

TECSON offers such a service function indirectly via the www.oilview.de system, with additional options.
In this case, contact TECSON to set up the function. Ask for the service fees for this function.

GSM-Messenger :
Configuration Counter-Inputs A1 and A2 and Special Functions A3

The respective event inputs can be set to the favored functioning mode per configuration SMS

GSM-Messenger and LX-GSM and e-litro gsm :

- **Mode 0** : Alarm input closer (no counter mode)
- **Mode 1** : Alarm input opener (no counter mode)

GSM-Messenger Input A1 and A2 : * = not for the A3 input

- **Mode 2** : Impulse counter * (Quantity counter Reed contact; water meter etc.) - signal width > 15 ms
- **Mode 3** : Event counter * (Counter for specific events) - signal duration > 5 s
- **Mode 4** : Operating hours counter * (Time summation for the state of a closed contact maker)
- **Mode 5** : Power blackout alarm (Only for GSM-Messenger A+ at the A3 input: Immediate alarm in case of blackout)
- **Mode 6** : Deactive (Deactivation of the blackout alarm. Preset value for non A+ devices)

- In addition to the number values the SMS messages also state the respective unit e.g. kW, cbm, liters, h, min, sec,. The units are individually parameterisable to a max. of 5 characters.
- The counters have a value range from 0 to 65535 (integer).
  During a power blackout the counter stops and does not increment.
  In case of an overrun the value is set back to 0 and starts counting from 0 on.
- The GSM-Messenger records the current counter values and states once every hour and saves them in a nonvolatile memory, preventing a power blackout.

a) Configuration of Alarm Inputs

General form: **`Ai=Mode,Alarmtext`**

#A = Identification for the programming of a counter/alarm input.
i = Number of input (A1 to A3).
Mode = Mode 0 (alarm input closer) or Mode 1 (alarm input opener)
Alarm text = Individually adjustable alarm text for the alarm SMS (max. 15 characters)

Examples: #A1=0,device failure // Input A1, alarm if the contact closes (value 0,..).
#A2=1,leaking tank! // Eing. A2, Alarmmeldung wenn Kontakt öffnet (Wert 1,..).
#A3=5,power blackout! // Only for Messenger A+: Input A3 with blackout detection (value 5,..)

b) Configuration of Counter Inputs A1 and A2

General form: **`#An=Mode,Counter,Denominator,Start value,Unit`**

#Ai = Identification for the programming of a counter/alarm input.
i = Number of input #A1 or #A2 .
(Counter mode is not available for GSM-Messenger input A3.)
Mode = Mode 2 to mode 4 (see above) for this input.
Counter = Counter value for the counter ratio of the input pulses (usually 1).
Designator = Designator value for the counter ratio of the input pulses (e.g. 3600 for h)
Start value = Starting counter value between 0 and 65534.
Unit = Up to 5 individually adjustable characters that are stated behind the number value.

Examples: #A1=2,1,1000,0,cbm
meaning: input A1, impulse counter, 1000 impulses add up to 1 counter-cbm,
starting counter value 0, displayed unit ¾cbm¾

#A2=4,1,3600,1234,h
meaning: input A2, operating hours counter, 1 / 3600 => conversion s in h counting,
starting counter value 1234, displayed unit ¾h¾

c) Power Blackout Alarm for GSM-Messenger A+

The device version "GSM-Messenger A+" contains an internal voltage buffer that sends an alarm SMS in case of a power blackout. This way a breakdown of the 230V power supply is automatically detected via input A3.

In this case the alarm SMS "Power blackout!" is immediately sent to the #TA1 number.
When the 230V power supply returns the device will send an alarm cancellation SMS to the #TA1 number.

Preset programming (function active due to mode 5): `#A3=5,Power blackout`

Deactivation of the power blackout alarm through mode 6: `#A3=6`

d) A3 Additional Input (Special Version)

The device version "GSM-Messenger A3" contains an additional input A3 (alarm input).
This A3 input does not support the counter function modes 2, 3 and 4.
Only the alarm modes 0 and 1 (alarm input closer/opener) are available.

GSM Error Messages

for GSM-Messenger **LED-3 (RED)** O O Ś O n times	A flashing red LED (LED 3) indicates an error condition: 1 x = Internal modem does not operate or is defective. 2 x = SIM card cannot be detected in the modem. 3 x = Invalid PIN. PUK entry is necessary! Therefor insert SIM card into the cellphone. 4 x = Credit is empty. 5 x = Bad/No mobile phone reception (Check SIM card in the phone! External antenna?). 6 x = SIM card is not activated or registered. 7 x = Other modem error. Recognition was not successful, try to reset. 8 x = **Sending interlock active ! ?** In case of too many failed dial-up tries, after 7 days only one dial-up is tried per day. This mode l for 255 days. Pressing the OK button commands a new dial-up try. Check the prepaid ! If the dial-up was successful the interlock is removed. 9 x = No mobile destination number is programmed. Command #T or the OilView connection is not set yet.
Yellow flashing indicates OK :	LED 1 (yellow): Fuel gauge data. LED 2 (yellow): 1x flashing = dial-up. 2x flashing = SMS reception. 3x flashing = sending LED 4 (yellow): Reception strength (1 = too low, 3 = good, 5 = very good)

For e-litro gsm / LX-(Q)-GSM	
Error M0	GSM modem is not active. Note: Menu item 15. Modem 'Active = YES' ! With older firmware, the modem may be disabled by PIN set to 0000 ?
Error M1	Internal communication error. The device automatically executes an internal reset and retries communication with the internal modem again.
Error M2	SIM card is not inserted or is not readable or is defective. Please check the SIM card in a mobile phone.
Error M3	PUK code must be entered. Wrong PIN has been entered three times locking the SIM card. Insert that SIM card in a mobile phone and enter the PUK code to unlock it.
Error M4	Prepaid credit is empty. Please recharge.
Error M5	No mobile network available for the SIM card. (An external antenna could help.)
Error M6	Disturbance or network error when sending SMS.
Error M7	Mobile network dial-up failed or has been rejected.
Error M8	Interlock is active! In case of lots of failed network dial-up trials the device will retry the dial-up only once a day. This mode operates for 255 days. By pushing the [Enter] button or via menu item 15 "Do send SMS" the device does one SMS sending trail again. In case of successfully sended the SMS the interlock is removed.
Error M9	No destination mobile number has been set up. #T command has not been sent or OilView connection has not yet been linked.