SRT# Command Specification

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SRT# Command Structure

All SRT# commands starts with two obligatory fields: the command header (#C) followed by command number (cn) and the character "*" followed by a two-digit sequence number.
After these two mandatory fields, there is an optional field used to define a receiver of the response message before the parameter context begins. This field consists of the character ":" followed by a number, 0-9, or the character "N". If this field does not exist, the receiver of the response is the sender of the command unless otherwise specified by the command itself.
Lastly comes the parameter list, if any, which normally consists of pairs of parameter names (pname) and parameter values (pvalue), e.g. the pair ONT000 have parameter name ONT and value 000. If there is more than one pair with the same pname in a single command, it is the last valid occurrence that will be accepted, unless otherwise specified.

Parameters do not have to be specified in any specific order and not all parameters need to be included in a command, unless otherwise stated.
If the structure of a command is correct, but values are used that are outside the permitted range, an ERROR response will be sent to the sender of the command, and no changes are accepted.
The length of a single command is limited by the maximum number of characters in a single SMS, 160 characters.

Command: #C<cn>*<nn>[:r][[<pname1><pvalue1>][<pname2><pvalue2>][<pnameN><pvalueN>]]
Ex: #C0*00:0 Version information request, response to sender of the command.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>cn</td><td>Command number, one or two digits.</td></tr>
<tr><td>nn</td><td>Sequence number, two digits that will be included in the response.</td></tr>
<tr><td>r</td><td>If specified, the response (unless it is an ERROR response) will be sent to:
<table>
<tr><th>Receiver</th><th>Number that response will be sent to</th></tr>
<tr><td>0</td><td>Sender of the command</td></tr>
<tr><td>1</td><td>Report/Alarm number 1</td></tr>
<tr><td>2</td><td>Report/Alarm number 2</td></tr>
<tr><td>3</td><td>Report/Alarm number 3</td></tr>
<tr><td>4</td><td>Master number</td></tr>
<tr><td>5</td><td>Low Battery alarm number</td></tr>
<tr><td>6</td><td>SIM card change alarm number</td></tr>
<tr><td>7</td><td>Access Number 1</td></tr>
<tr><td>8</td><td>Access Number 2</td></tr>
<tr><td>9</td><td>Access Number 3</td></tr>
<tr><td>N</td><td>None – No response required</td></tr>
</table>
If receiver 1-9 is chosen and no number is specified for the corresponding receiver, the response will be sent to the sender of the command.</td></tr>
<tr><td>pname1</td><td>Parameter name for the first parameter to be changed</td></tr>
<tr><td>pvalue1</td><td>Parameter value for the first parameter to be changed</td></tr>
<tr><td>pnameN</td><td>Parameter name for the Nth parameter to be changed</td></tr>
<tr><td>pvalueN</td><td>Parameter value for the Nth parameter to be changed</td></tr>
</table>

SRT# Response Structure

Responses for SRT# commands, excluding report requests like #C5 or #C7, and Action Commands have a structure similar to the commands.
A regular response starts with the unit identifier, if defined, followed by the response header (#P), the command number (cn), the sequence number (nn) and any response text.
If a response is too long, it will be split over several SMS, but each SMS will contain the same header.

Normal response: [u…u]#P<cn>*<nn><response text>
Error response: [u…u]#P<cn>*<nn>ERROR

Parameter	***Description***
u…u	The unit identifier that has been set with #C6.
cn	Command number, one or two digits.
nn	Sequence number, two digits. 00 if response to action command.
Response text	Normally contains a list of all parameter name and value pairs supported by the command, with the currently defined values. See the Command List for responses to commands.

Telephone Number Representation

Alarm and Report Numbers

These numbers should be defined as international numbers including country and area code so that the reports and alarm messages are sent correctly independent of the country that the unit is currently located in.
For instance, a mobile number of 0709123456 in Sweden should be specified as +46709123456.

Permitted characters are 0-9, A-D, #, *, +.

Voice Call Numbers

These numbers should be defined as international numbers including country and area code so that the calls are made correctly independent of the country that the unit is currently located in.
For instance, a landline number of 08123456 in Sweden should be specified as +468123456.
If it is important that the receiver must see the calling number, specify a prefix such as *31# before the telephone number. If the SIM in the unit has a hidden number normally, this will ensure that the receiver can see the calling number.

Permitted characters are 0-9, A-D, #, *, +.

SMS Access Numbers

Because these numbers can also be used as receivers of responses to commands sent to the unit, they should be defined as international numbers including country and area code.
For instance, a mobile number of 0709123456 in Sweden should be specified as +46709123456.

Permitted characters are 0-9, A-D, #, *, +.

Voice Access Numbers

The incoming number information about calling party may vary depending on the country the unit is currently located or the network the caller is attached to. It is therefore recommended that Voice Access Numbers are defined without country code and without leading zeros of the area code.
For instance, a mobile number of 0709123456 in Sweden should be specified as 709123456. If this is the case, the unit will correctly match this number to the incoming number information even if this information is presented as +46709123456 or 0709123456 or 0046709123456.

Permitted characters are 0-9, A-D, #, *, +.

SRT# Command Compatibility Notes

This manual is intended to provide the SRT #C commands supported by all SRT products currently in use hence the content is not limited to a set of commands that are relevant to a particular SRT product. While the product models within the scope of this document largely share the command structure and parameters, there are few features which are offered in one or some of the models and not in the others. Depending on the product of concern, the parameters related to the inapplicable functions become ineffective.

The following list presents the inapplicable functions regarding each product individually:

- **SRT 299:** Tamper alarm, ISM module, Wi-Fi module, Bluetooth, relay output and external alarm input related functions.
- **SRT 306:** Infrared motion sensor, ISM module, Wi-Fi module, Bluetooth, temperature sensor, tamper alarm, relay output and external alarm input related functions.
- **SRT 306i:** Tamper alarm, relay output and external alarm input related functions.
- **SRT 332:** Call/timer button, infrared motion sensor, push button, speaker, microphone, vibration sensor, relay output, external alarm input related functions.
- **SRT 346:** External alarm inputs 5-6-7. Rest of the external alarm inputs (1-4) and tamper are mapped to onboard function buttons 1-5.
- **SRT 347:** External alarm inputs 3 to 7, tamper alarm, ISM module, Bluetooth, Wi-Fi, vibrator, ManDown alarm, Timer (Passivity) alarm, Push button, call button, speaker, microphone related functions.
- **SRT 356:** Infrared motion sensor, vibration sensor, ISM module, Bluetooth and vibrator related functions.
- **SRT 390:** Call button, speaker, tamper alarm, relay output, ISM module, Bluetooth and external alarm input related functions.
- **SRT 400:** Push button, call button, speaker, tamper alarm, temperature sensor, vibrator, ISM module, Bluetooth related functions, external alarm 4-5-6-7 and charging. Mapping for the alarms are stated below.
  NC Alarm = External Alarm 1; NO Alarm = External Alarm 2; PS Alarm = External Alarm 3
  Out: HIGH = Relay On , LOW = Relay Off

Some functions that have existed in releases prior to SRT 299 hardware have been removed, but commands and parameters related to these functions have been retained for compatibility concerns.

Below is the list of legacy functions which are not available any longer and so the related parameters are not effective:

- Sound detection,
- Digital input (#C18),
- All digital outputs (#C19).

Command List

#C0 – Version information request

Command (request): #C0*nn:r

Response: u…u#P0*nn <product> HW:x.x GSW:y.y PSW:z.z IMEI:e…e IMSI: s…s EXT:t HWEQ: h…h

Response (SRT278): u…u#P0*nn <product> HW:x.x GSW:y.y.y PSW:z.z IMEI:e…e IMSI: s…s FID:k...k

Error: u…u#P0*nnERROR

This command can be used to query the unit for version information and capabilities.

Parameter	***Description***
<product>	Product Name: - SRT278 (Fleet) - SRT299 - SRT306 - SRT332 - SRT346 - SRT347 - SRT356 - SRT390 - SRT400
HW:*x.x*	Hardware version number
GSW:*y.y*	GSM software version *Note: Composed of 3 digits (y.y.y) if GSW 4.0.0+ or SRT278*
PSW:*z.z*	PIC software version
IMEI:*e…e*	IMEI (International Mobile Equipment Identity) number
IMSI:*s…s*	IMSI (International Mobile Subscriber Identity) number
FID:*k...k* (SRT278 only)	Fleet ID, 6 digits. For GSW 8.1.3+ and GSW 9.1.3+, FID is the same as the last six digits of the IMEI number (excluding check digit). For GSW 10.0.0+ FID is the Serial Number. Earlier versions do not include this field.
EXT:*t*	1: The unit can be equipped with GNSS hardware 2: The unit have GPRS functionality 4: Reserved. These are added together to give the following values: 3: Same as 1+2, 5: Same as 1+4, 6: Same as 2+4, 7: Same as 1+2+4 If the unit does not have GNSS receiver or GPRS this value will be 0 or 4.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>HWEQ:h…h</td><td>Hardware configuration, a number represented by eight hexadecimal characters.
<table>
<tr><th>Bit/Value</th><th>Equipment</th></tr>
<tr><td>00000001</td><td>IR motion detector</td></tr>
<tr><td>00000002</td><td>Vibration detector</td></tr>
<tr><td>00000004</td><td>Call Button</td></tr>
<tr><td>00000008</td><td>Temperature detector</td></tr>
<tr><td>00000010</td><td>Pushbutton</td></tr>
<tr><td>00000020</td><td>GNSS receiver</td></tr>
<tr><td>00000040</td><td>Relay</td></tr>
<tr><td>00000080</td><td>External Alarm Inputs</td></tr>
<tr><td>00000100</td><td>ISM Module</td></tr>
<tr><td>00000200</td><td>Wi-Fi Module</td></tr>
<tr><td>00000400</td><td>Bluetooth Module</td></tr>
<tr><td>00000800</td><td>Man Down</td></tr>
<tr><td>10000000</td><td>Speaker</td></tr>
<tr><td>20000000</td><td>Vibrator/Buzzer</td></tr>
<tr><td>40000000</td><td>Microphone</td></tr>
<tr><td>80000000</td><td>On/Off switch</td></tr>
</table>
If the number is reported as 6000000A, it means that the hardware is equipped with a microphone, a vibrator, a temperature sensor and a vibration detector.
40000000+20000000+00000008+00000002=6000000A
For SRT 299, this mask defines all hardware components which can be built in. For older hardware (HW: 1.0-4.x) this mask represented the hardware configuration.</td></tr>
</table>

#C1 – General parameters

Command (change): #C1*nn:r
STMaSPMbONTcccOFTdddRTTeeePERfffAITgggADThCTFiCTTjjj
AMFkNCTlCTOmmVBRnSPKoMICpOFUqI1NcGPSrRMCstuCTGt
GRIuuuMAMvLCLxxCHGyGPMzACEa

Command (query): #C1*nn:r?

Response: u…u#P1*nn
STMaSPMbONTcccOFTdddRTTeeePERfffAITgggADThCTFiCTTjjj
AMFkNCTlCTOmmVBRnSPKoMICpOFUqI1N0GPSrRMCstuCTGt
GRIuuuMAMvLCLxxCHGyGPMzACEa

Error: u…u#P1*nnERROR

With this command many common parameters can be set.

Parameter	***Description***
STM*a*	Transmission of start messages 0: Start message disabled 1: Start message send each time the GSM unit is turned on *Default: 0*
SPM*b*	Transmission of stop messages 0: Stop message disabled 1: Stop message sent before the GSM unit turns off 2: Stop message sent only if turned off with on/off switch *Default: 0*
ONT*ccc*	GSM Ontime A 3-digit decimal number between 000 and 999, which specifies the session duration (GSM on time in GSM normally-off and GSM on-off modes) in minutes. A value of 000 configures the unit for always-on mode. *Default: 000 (always-on)*
OFT*ddd*	GSM Offtime A 3-digit decimal number between 000 and 999, which specifies the wake-up time (GSM off time in GSM on-off mode) in minutes or hours (defined by parameter OFU) in on-off mode. A value of 000 configures the unit for normally off mode. Note: In GSW 4.0 and later for SRT 299, the effective value is Offtime minus Ontime, and as such, the Offtime should always be higher than the Ontime. This means that the example of 5 min Ontime and 120min Offtime results in the unit being on 5 minutes in a 2 hour period. *Default: 000*
RTT*eee*	Retry Time A 3-digit decimal number between 000 and 999 which specifies the wait time before a new GSM registration trial after an unsuccessful one, in minutes. *Default: 015*

Parameter	***Description***
PER*fff*	Periodic Reporting A 3-digit decimal number between 000 and 999, which specifies the periodic report interval, in minutes, for reports that are sent with SMS. A value of 000 disables periodic reporting. Note: This parameter can also be set in #C24 and #C25. *Default: 000*
AIT*ggg*	Pushbutton alarm idle time A 3-digit decimal number between 000 and 999, which specifies the idle time after a pushbutton alarm, in minutes. If this value is greater than 000, the alarm detection will be disabled for the time period specified after an alarm is detected. If this value is 000, the alarm detection is enabled again as soon as the current alarm has been processed. Note: This parameter can also be set in #C10. *Default: 000*
ADT*h*	Pushbutton Alarm Detection Time A 1-digit decimal number between 0 and 9, which specifies the minimum detection time for a pushbutton alarm in seconds minus one second. If this value is 0, the alarm detection is disabled. If this value is greater than 0, the minimum detection time for an alarm event is the value minus one second. Example: A value of 4 corresponds to a minimum detection time of 3 seconds. Note: This parameter can also be set in #C10. *Default: 1 (immediate detection)*
CTF*i*	Cell Tracking - Function A 1-digit decimal number between 0 and 6 used to configure the cell tracking function. 0: Cell tracking disabled 1: Main cell tracking (alarm message if mismatch, i.e. outside permitted cell) 2: Cell environment tracking (alarm message if mismatch, i.e. outside permitted area) 3: Main cell tracking (alarm message if match, i.e. inside forbidden cell) 4: Cell environment tracking (alarm message if match, i.e. inside forbidden area) 5: Tracking of selected cells (alarm message if mismatch, i.e. outside permitted cells) 6: Tracking of selected cells (alarm message if match, i.e. inside forbidden cells) *Default: 0*
CTT*jjj*	Cell Tracking – Acquisition Time A 3-digit decimal number between 001 and 999 which specifies the time in minutes before the cell tracking function is activated after setting CTF to 3, 4 or 6. *Default: 003*
AMF*k*	Alarm Message Format This parameter defines the type of report to be sent if SRT# (NMR/GPS) format is selected for a number to which the message will be sent. 0-2: Standard NMR 3-5: Alternative NMR 6: GPS 7: Extended (GPRS reports only) Note: If the GNSS receiver is turned off or not installed in the unit while this parameter is set to 6, the unit will act as if this parameter is set to 0. Note: This parameter can also be set in #C16. *Default: 0*

Parameter	*Description*
NCT*l*	Number of Call Trials A 1-digit decimal number between 0 and 9 that specifies how many times each number defined for alarm calls will be called before the unit gives up. A value of 0 disables alarm calls (this means it also overrides the alarm call settings in #C11). *Default: 0*
CTO*mm*	Call Timeout A 2-digit decimal number between 15 and 99, which specifies the timeout period the unit will wait for an alarm call to be answered by the remote side in seconds. This parameter is used also to define the time period in which the remote part has to enter the required DTMF sequence after the call is answered and before the unit disconnects the call if DTMF recognition feature is enabled for alarm calls. Note: If the unit gets a busy signal, it will not wait this time and instead try next number. *Default: 30*
VBR*n*	Vibrator mode for incoming events 0: No vibrations for incoming events. 1: Vibrator is activated once (0.3 seconds on) after each received valid SMS. 2: Vibrator is activated four times (0.3 seconds on , 0.3 seconds off, 0.3 seconds on, 0.3 seconds off, 0.3 seconds on, 0.3 seconds off, 0.3 seconds on) each time an incoming call is accepted and set up. 3: As both 1 and 2. *Default: 0*
MIC*p*	Microphone mode 0: Microphone is always off. 1: Microphone is on while connected after an incoming call. 2: Microphone is on while connected after an alarm call. 3: As both 1 and 2. 4: Microphone is on while connected after an outgoing call (not alarm call). 5: As both 1 and 4. 6: As both 2 and 4. 7: As 1, 2 and 4 combined. *Default: 7*
SPK*o*	Speaker mode 0: Speaker is always off. 1: Speaker is on while connected after an incoming call. 2: Speaker is on while connected after an alarm call. 3: As both 1 and 2. 4: Speaker is on while connected after an outgoing call (not alarm call). 5: As both 1 and 4. 6: As both 2 and 4. 7: As 1, 2 and 4 combined. *Default: 7*
OFU*q*	GSM Off-time Units 0: minutes 1: hours *Default: 0*
I1N*c*	Input signal mode: 0: Input is pollable general purpose input 1: Input acts as alarm on/off toggle Note: This parameter is only included for backwards compatibility. *Default: 0*

Parameter	*Description*
GPS*r*	GNSS receiver Mode 0: Always off 1: On when GSM is on 2: Always on (even if GSM is off) *Default: 1*
RMC*stu*	Reporting Mode Configuration For each of the numbers defined in #C2, if there is a corresponding IP defined in #C20, the unit can be configured to send over TCP or UDP instead of SMS. Possible modes for each receiver: 0: Reports will be sent by SMS only (default if no IP configured for a specific number). 1: Reports will be sent by TCP or UDP only, no fallback to SMS in case of failure. 2: Reports will be sent by both SMS and over TCP or UDP. If periodic reporting is enabled, only the PER value is considered for this mode. 3: Reports will be sent primarily over TCP or UDP, with SMS as fallback if there is a transmission failure. The value put in place of s correspond to the first report number in #C2/#C20. The value put in place of t correspond to the second report number in #C2/#C20. The value put in place of u correspond to the third report number in #C2/#C20. Note: This parameter can also be set in #C24. Note: This parameter must be configured after #C20, as the unit enforces a value of 0 for any number that don't have a corresponding IP defined. *Default: 000*
CTG*t*	Extended Cell Tracking Alarm Configuration If the unit is configured so that the GNSS receiver is normally disabled, this setting allows the unit to be configured such that the GNSS receiver is enabled for up to 3 minutes after a cell tracking alarm have been generated. If the unit can get a position fix in that time, an additional report is sent including the GNSS position (depending on report format settings). No additional report will be sent in case no position fix can be acquired. 0: disabled 1: enabled *Default: 0*
GRI*uuu*	GPRS Report Interval A 3-digit decimal number between 000 and 999, which specifies the number of reports that will be sent over UDP/TCP for each period as defined by PER, but no more than one report every 10 seconds. A value of 000 configures the unit to send reports according to the PER time. If a transmission failure is detected and the unit is configured to fall back on SMS, it will transmit the current message by SMS and switch over to transmit messages in SMS mode, once for each PER tick. At the same time it will continuously try to switch over back to TCP/UDP reporting. Note: If PER is set to 000, no periodic reports will be sent. Note: This parameter can also be set in #C24 and #C25. *Default: 000*
MAM*v*	Master Alarm Mode Master alarm on/off. If set to 0, all alarms are sent as configured, if set to 1, all hardware alarm detection, except low battery voltage and charge-off alarms, are disabled, regardless of the specific alarm configurations. *Default: 0*

Parameter	***Description***
LCL*xx*	Larm Clear period, range from 00 to 60, in seconds. If set to 00, all alarms will be sent as usual without waiting for a LARMCLEAR message from the first number in the list after transmitting the current message to this number. *Default: 00*
CHG*y*	Charger Mode 0: Disabled 1: Charger On Mode, GSM will stay on as long as the charger is connected. 2: Charger Retry Mode, in case of a GSM registration failure, the unit will try again endlessly without paying attention to the RTT parameter. 3: As both 1 and 2. 4: Charger Alarm Enable. Charger connection and disconnection are reported as distinct alarm events. 5: As both 1 and 4. 6: As both 2 and 4. 7: As 1, 2 and 4 combined. *Default: 0*
GPM*z*	GNSS receiver Sleep Mode 0: Disabled 1: Mode 1 enabled 2: Mode 2 enabled Note: This parameter can also be set in #C30 and #C32. *Default: 0*
ACE*a*	Automatic Clear Enable 0: Disabled 1: Enabled, pushbutton alarm will be cleared if unable to send for 15 minutes

#C2 – Report/Alarm number configuration

BTCommand (change): #C2*nn:rTaax…xTbby…yTccz…z

Command (clear all): #C2*nn:r

Command (query): #C2*nn:r?

Response: u…u#P2*nnTaax…xTbby…yTccz…z

Error: u...u#P2*nnERROR

The change command is accepted if up to three numbers are specified and the correct format is used for the numbers. The numbers specified correspond to the first, second and third number that alarms or reports will be sent to.
If no numbers are supplied and it is not a query command, all three numbers will be deleted from the unit. If only one or two numbers are specified in the change command, the remaining number slots will be cleared.
Parameter RMC in #C1/#C24 determines whether Reports or Alarms should be sent by SMS or by UDP/TCP over GPRS.
The TCP Command Channel overrides this selection when enabled and connected.

Parameter	***Description***
T*aax…x* **T***bby…y* **T***ccz…z*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C3 – Access number for incoming call

Command (change): #C3*nn:rMaax…xMbby…yMccz…zMddk…kMeel…lMffm…m

Command (clear all): #C3*nn:r

Command (query): #C3*nn:r?

Response: u…u#P3*nnMaax…xMbby…yMccz…zMddk…kMeel…lMffm…m

Error: u…u#P3*nnERROR

The change command is accepted if up to six numbers are specified and the correct format is used for the numbers. The numbers specified correspond to the numbers that have access to make a voice call to the unit. If no numbers are stored in the unit, any number can be used to make a voice call to the unit.
If no numbers are supplied and it is not a query command, all six numbers will be deleted from the unit. If multiple numbers are specified in the change command, the remaining number slots will be cleared.

Parameter	***Description***	
M*aax…x* M*bby…y* M*ccz…z* M*ddk…k* M*eel…l* M*ffm…m*	M	Prefix letter to specify the method to validate incoming call number: If “R”, supplied number must be identical to the incoming number. If “T”, supplied number must be identical to incoming number’s last digit sequence for the length of supplied number.
	aa bb cc dd ee ff	A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains.
	x...x y...y z...z k...k l...l m...m	The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C4 – Access number for configuration

Command (change): #C4*nn:rTaax…xTbby…yTccz…z

Command (clear all): #C4*nn:r

Command (query): #C4*nn:r?

Response: u…u#P4*nnTaax…xTbby…yTccz…z

Error: u…u#P4*nnERROR

The change command is accepted if up to three numbers are specified and the correct format is used for the numbers. The numbers specified correspond to the first, second, and third number that have access to change the configuration of the unit, request reports, or request that the unit makes a voice call. If no numbers are stored in the unit, any number can be used for these purposes.
If no numbers are supplied and it is not a query command, all three numbers will be deleted from the unit. If only one or two numbers are specified in the change command, the remaining number slots will be cleared.

Parameter	***Description***
T*aax…x* **T***bby…y* **T***ccz…z*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C5 – Request a report

Command (request): #C5*nn:r

Error: u…u#P5*nnERROR

This command requests a report from the unit.
The report format used for the report is selected by the parameter ORN in #C16.
This command does not take any parameters, and an ERROR response will be sent if any extraneous characters are detected.

#C6 – Unit identifier configuration

Command (set): #C6*nn:rPu…u

Response: u…u#P6*nn

Error: u…u#P6*nnERROR

With this command, a user defined unit identifier can be set. The unit identifier is used by some report formats, if defined.
The unit identifier is also added to responses to #C-commands.

Parameter	***Description***
P*u…u*	Programmable unit identifier. As default there is no unit identifier. The unit identifier string can be up to 19 characters long.

#C7 – Request a report with response to number

Command (request): #C7*nn:rTaax…x

Error: u…u#P7*nnERROR

This command requests a report from the unit, like command #C5, but sends the report to the number supplied.
The report format used for the report is selected by the parameter ORN in #C16.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C8 – Request an outgoing voice call

Command (request): #C8*nn:rTaax…x

Error: u…u#P8*nnERROR

This command requests a voice call from the unit to the number supplied.
The call will be treated as an outgoing call by the Microphone and Speaker modes.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C9 – Alarm voice call number

Command (change): #C9*nn:rTaax…xTbby…yTccz…z

Command (clear all): #C9*nn:r

Command (query): #C9*nn:r?

Response: u…u#P9*nnTaax…xTbby…yTccz…z

Error: u...u#P9*nnERROR

The change command is accepted if up to three numbers are specified and the correct format is used for the numbers. The numbers specified correspond to the first, second and third number that the unit will attempt to call, in that order, if an alarm call is to be made after an alarm.
If no numbers are supplied and it is not a query command, all three numbers will be deleted from the unit. If only one or two numbers are specified in the change command, the remaining number slots will be cleared.
Parameters CPB, CIR, CVS, CLB, CTS and CCT in #C11 determines whether an alarm call should be set up in connection to Push Button, Motion Detector, Vibration Sensor, Low Battery, Temperature Sensor or Cell Tracking alarms.
For any call attempt to be made, parameter NCT in #C1 must be set to 1 or higher, while parameter CTO in #C1 controls for how long the unit should wait, in case of no answer, before trying the next number in the list.
If a busy signal is received or the unit otherwise detects that a call can't be set up, the next number will be tried right away. When all numbers in this list has been tried, it will start from the first number again if the number of call attempts (NCT) is higher than 1.

Parameter	***Description***
T*aax…x* **T***bby…y* **T***ccz…z*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C10 – Sensor configuration

Command (change): #C10*nn:rIAMaIAIbbbIADcVAMdVAIeeeSAMfSAIgggSDShhO1ViO2VjO3VkO4VlO5VmO6VnT1AoT1Vp…pT2AqT2Vr…rAITsssADTtVADuuLBSvACEaOOTbLBEcTSTd

Command (query): #C10*nn:r?

Response: u…u#P10*nnIAMaIAIbbbIADcVAMdVAIeeeSAMfSAIgggSDShhO1ViO2VjO3VkO4VlO5VmO6VnT1AoT1Vp…pT2AqT2Vr…rAITsssADTtVADuuLBSvACEaOOTbLBEcTSTd

Error: u…u#P10*nnERROR

This command configures the sensors of SRT 299 and SRT 306.

Parameter	***Description***
IAM*a*	Enable/Disable motion detector alarm. 0: Motion detector alarm disabled. 1: Motion detector alarm enabled. The alarm is generated when motion is detected. 2: Motion detector alarm enabled. The alarm is generated when no motion is detected. *Default: 0*
IAI*bbb*	A 3-digit decimal number between 000 and 999 that specifies a time period in minutes. This time period is used as the idle time after a motion detector alarm is generated if the alarm is a result of motion detection in IAM1 mode. In this case, if this value is greater than 000, the alarm detection will be disabled for the time period specified after an alarm is detected. If this value is 000, the alarm detector is enabled again as soon as the current alarm has been processed. If IAM2 mode applies, i.e. if alarm generation as a result of no motion detection is selected, this value defines the duration of time period during which no motion is detected to generate an alarm. In this case, if a value of 000 is specified, there will be no alarm generation. *Default: 003*
IAD*c*	A 1-digit decimal number between 0 and 9 that specifies the minimum detection time for a motion detector alarm in seconds. A value of 0 leads to no detection time, i.e. even the shortest possible activation on motion detector alarm input will be accepted as a valid motion detector alarm. When IR motion detector is used, this value should be set to 0. *Default: 0*
VAM*d*	Enable/Disable vibration sensor alarm. 0: Vibration sensor alarm disabled 1: Vibration sensor alarm enabled. The alarm is generated when vibration is detected. 2: Vibration sensor alarm enabled. The alarm is generated when no vibration is detected. 3: Vibration sensor alarm enabled. The alarm is generated when vibration is detected and the vibration sensor is used to control the GSM unit, i.e. the GSM unit will stay on as long as vibrations are detected. 4: Vibration sensor controls GSM unit. This mode works exactly like mode 3, with the difference that no alarm is sent. Note: When vibration sensor alarm is enabled (mode 1-3), the vibrator is disabled for all kind of use. (VBR in #C1 and VPB, VIR, VLB, VTS and VCT in #C11 are set to 0) *Default: 0*

Parameter	*Description*
VAI*eee*	A 3-digit decimal number between 000 and 999 that specifies a time period in minutes. This time period is used as the idle time after a vibration sensor alarm is generated if the alarm is a result of vibration detection in VAM1 mode. In this case, if this value is greater than 000, the alarm detection will be disabled for the time period specified after an alarm is detected. If this value is 000, the alarm detection is enabled again as soon as the current alarm has been processed. If VAM2 mode applies, i.e. if alarm generation as a result of no vibration detection is selected, this value defines the duration of time period during which no vibration is detected to generate an alarm. In this case, if a value of 000 is specified, there will be no alarm generation. In VAM3 mode, this time period is used to control GSM unit. The first time a vibration is detected, an alarm message will be generated. After this, the vibration sensor stays active and a timer is started using this value. Each time a new vibration is detected, the timer restarts and the GSM unit stay active without generating new alarm message. This continues as long as new vibrations are detected within a time period given by this parameter. VAM4 mode is the same as VAM3 mode except no alarm message is generated. *Default: 003*
SAM*f*	Sound detector Alarm Mode 0: Sound detector alarm disabled. 1: Sound detector alarm enabled. The alarm is generated when sound is detected. 2: Sound detector alarm enabled. The alarm is generated when no sound is detected. Note: When sound detector alarm is enabled, the vibrator is disabled for all kind of use. (VBR in #C1 and VPB, VIR, VLB, VTS and VCT in #C11 are all set to 0) Note: This parameter is only included for backwards compatibility. *Default: 0*
SAI*ggg*	A 3-digit decimal number between 000 and 999 that specifies a time period in minutes. This time period is used as the idle time after a sound detector alarm is generated if the alarm is a result of sound detection in SAM1 mode. In this case, if this value is greater than 000, the alarm detection will be disabled for the time period specified after an alarm is detected. If this value is 000, the alarm detection is enabled again as soon as the current alarm is processed. If SAM2 mode applies, i.e. if alarm generation as a result of no sound detection is selected, this value defines the duration of time period during which no sound is detected to generate an alarm. In this case, if a value of 000 is specified, there will be no alarm generation. Note: This parameter is only included for backwards compatibility. *Default: 003*
SDS*hh*	Sound Detector Sensitivity A 2-digit decimal number between 01 and 11 which specifies the sound detector sensitivity. A value of 01 means the lowest sensitivity and a value of 11 means the highest sensitivity. Note: This parameter is only included for backwards compatibility. *Default: 08*
O1V*i*	Default value for output1 0: Low 1: High *Default: 0*

Parameter	*Description*
O2V*j*	Default value for output2 0: Low 1: High *Default: 0*
O3V*k*	Default value for output3 0: Low 1: High *Default: 0*
O4V*l*	Default value for output4 0: Low 1: High Note: This parameter is only included for backwards compatibility. *Default: 0*
O5V*m*	Default value for output5 0: Low 1: High Note: This parameter is only included for backwards compatibility. *Default: 0*
O6V*n*	Default value for output6 0: Low 1: High Note: This parameter is only included for backwards compatibility. *Default: 0*
T1A*o*	A 1-digit decimal number between 0 and 3 to configure temperature sensor alarm 1. 0: Temperature sensor alarm 1 disabled 1: Temperature sensor alarm 1 condition occurs when the temperature rises above the threshold value defined by T1V. 2: Temperature sensor alarm 1 condition occurs when the temperature drops below the threshold value defined by T1V. 3: As both mode 1 and 2. *Default: 0*
T1V*p…p*	A string consisting of decimal numbers and + (plus), – (minus) or . (point) characters which specify the threshold value for temperature sensor alarm 1. If the string includes a + or – character, it must be the first character in the string. The rest of the string may be an integer decimal number only, or a number with both integer and decimal parts which are separated by a . character. The maximum number of digits for integer part is 3, and for decimal part 4. Hence the string may include 9 characters at most. The value specified must lie between +125.0C and -55.0C
T2A*q*	A 1-digit decimal number between 0 and 3 to configure temperature sensor alarm 2. 0: Temperature sensor alarm 2 disabled 1: Temperature sensor alarm 2 condition occurs when the temperature rises above the threshold value defined by T2V. 2: Temperature sensor alarm 1 condition occurs when the temperature drops below the threshold value defined by T2V. 3: As both mode 1 and 2. *Default: 0*

Parameter	*Description*
T2V*r…r*	A string consisting of decimal numbers and + (plus), – (minus) or . (point) characters which specify the threshold value for temperature sensor alarm 2. If the string includes a + or – character, it must be the first character in the string. The rest of the string may be an integer decimal number only, or a number with both integer and decimal parts which are separated by a . character. The maximum number of digits for integer part is 3, and for decimal part 4. Hence the string may include 9 characters at most. The value specified must lie between +125.0C and -55.0C
AIT*sss*	Alias: See #C1 – General parameters
ADT*t*	Alias: See #C1 – General parameters
VAD*uu*	Vibration Alarm Detection time If parameter VAM is set to 1, 3 or 4, this parameter controls how vibrations are detected. If this parameter is set to 00, all vibrations trigger the corresponding functionality selected by VAM. Otherwise vibrations only trigger the corresponding functionality after two requirements are fulfilled: 1) From the first detected vibration, more vibrations are required to be detected before 10 seconds has passed since the last. This must continue until at least *20+uu* seconds have passed. 2) One of these vibrations must occur in the interval *20+uu* seconds to *30+uu* seconds. If, during the first requirement, 10 seconds or more pass without any vibration, vibration detection will reset. *Default: 00*
LBS*v*	Low Battery Sound activation. When the unit detects that the battery is low, the unit will play a short tone for 0.5 seconds. The tone plays at 1700Hz. *Default: 0* *0: Disabled* *1: Single tone on low battery* *2: Periodic tone on low battery*
ACE*a*	Automatic Clear Enable 0: Disabled 1: Enabled, pushbutton alarm will be cleared if unable to send for 15 minutes
OOT*b*	On-Off Button/switch Enable 0: Disabled 1: Enabled Note: On-Off button/switch will function as normal when unit is in 'OFF' state even if this parameter set as disabled. *Default: 1*
LBE*c*	Low Battery Alarm Enable 0: Disabled 1: Enabled *Default: 1*

Parameter	***Description***
TST*d*	Test Alarm Method selection 0: Alarm button to detect test alarm and enabled 1: Alarm button to detect test alarm and disabled 2: PB swapped for status check (#C90) detection and enabled; Call button to detect test alarm if call button mode set to 0 3: PB swapped for status check (#C90) detection and disabled; Call button to detect test alarm if call button mode set to 0 *Default: 1*

#C11 – Vibration and Voice call configuration

Command (change): #C11*nn:rVPBaVIRbVLBcVTSdVCTeEAIrCPBfCIRgCVShCSDi CLBjCTSkCCTlVPSmCPSnSEMoACTpppCTLqDICrTINs

Command (query): #C11*nn:r?

Response: u…u#P11*nnVPBaVIRbVLBcVTSdVCTeEAIrCPBfCIRgCVShCSDi CLBjCTSkCCTlVPSmCPSnSEMoACTpppCTLqDICrTINs

Error: u…u#P11*nnERROR

With this command, vibration activation can be enabled for pushbutton alarm, motion detector alarm, low battery alarm, temperature sensor alarm and cell tracking alarm, as well as enable alarm calls for pushbutton alarm, motion detector alarm, vibration sensor alarm, low battery alarm, temperature sensor alarm and cell tracking alarm.

Vibration activation can be configured as any combination of vibration after alarm message sent (over SMS or GPRS), vibration after successful alarm call and vibration after the alarm call has been connected.
If alarm call is not enabled for a particular alarm, or no number is defined for alarm calls, an incoming acknowledge SMS triggers vibration as if an alarm call carried out successfully.
It is important to note that while alarm calls can be enabled for certain alarms, the parameter NCT in #C1 must be set to a value of 1 or higher for an alarm call to be attempted.

If SMS acknowledge mode enabled, a valid acknowledge SMS triggers vibration if vibrator is set to be activated when an alarm message transmitted successfully (mode 1) for the alarm type in question.

Parameter	***Description***
VPB*a*	Vibrator mode for pushbutton alarm 0: Vibrator is not used for pushbutton alarm (other than the initial vibration to indicate that pushbutton alarm has been detected). 1: Vibrator is activated when an alarm message transmitted successfully in connection with a pushbutton alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a pushbutton alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected (GSW 6.1+). 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*

Parameter	*Description*
VIR*b*	Vibrator mode for motion detector alarm 0: Vibrator is not used for motion detector alarm. 1: Vibrator is activated when an alarm message transmitted successfully in connection with a motion detector alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a motion detector alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected (GSW 6.1+). 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*
VLB*c*	Vibrator mode for low battery alarm 0: Vibrator is not used for low battery alarm. 1: Vibrator is activated when an alarm message transmitted successfully in connection with a low battery alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a low battery alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected (GSW 6.1+). 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*
VTS*d*	Vibrator mode for temp sensor alarm 0: Vibrator is not used for temp sensor alarm. 1: Vibrator is activated when an alarm message transmitted successful in connection with a temp sensor alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a temp sensor alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected (GSW 6.1+). 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*
VCT*e*	Vibrator mode for Cell tracking alarm 0: Vibrator is not used for Cell tracking alarm. 1: Vibrator is activated when an alarm message transmitted successfully in connection with a cell tracking alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a cell tracking alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected (GSW 6.1+). 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*

Parameter	*Description*
VPS*m*	Vibrator mode for passivity alarm and/or man-down alarm 0: Vibrator is not used for passivity alarm and/or man-down alarm. 1: Vibrator is activated when an alarm message transmitted successfully in connection with a passivity alarm and/or man-down alarm. 2: Vibrator is activated when an alarm call carried out successfully in connection with a passivity alarm and/or man-down alarm. 3: As both mode 1 and 2. 4: Vibrator is activated when an alarm call is connected. 5: As both mode 1 and 4. 6: As both mode 2 and 4. 7: As mode 1, 2 and 4. *Default: 0*
EAI*r*	Acknowledge indication control for various events 0:Disable 1: Enable LED indication for tamper and external alarms (SRT356-only) 2: When any type of alarm received from a TX mode device indicate briefly with tone and vibration (Tone warnings if SPK in #C1 set to greater than 0) 3: When any type of alarm received from a TX mode device indicate with tone and vibration until a any type of hardware alarm detected in RX device (Tone warnings if SPK in #C1 set to greater than 0) *Default: 0*
CPB*f*	Enable/Disable alarm calls for pushbutton alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0* Note: When this parameter is set for waiting incoming alarm calls (Mode 2), #C8 command becomes ineffective.
CIR*g*	Enable/Disable alarm calls for motion detector alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*
CVS*h*	Enable/Disable alarm calls for vibration sensor alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*
CSD*i*	Enable/Disable alarm calls for sound detector alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 Note: This parameter is only included for backwards compatibility. *Default: 0*
CLB*j*	Enable/Disable alarm calls for low battery alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*

Parameter	*Description*
CTS*k*	Enable/Disable alarm calls for Temp sensor alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*
CCT*l*	Enable/Disable alarm calls for cell tracking alarm 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*
CPS*n*	Enable/Disable alarm calls for passivity and/or man-down 0: Disable 1: Enable outgoing alarm calls 2: Enable incoming alarm calls for the duration defined by ACT in #C11 *Default: 0*
SEM*o*	Speaker Enable Mode 0: Speaker is enabled during call setup 1: Speaker is enabled only after the call has successfully been set up Note: The parameter is effective for all available outgoing calls. *Default: 0*
ACT*ppp*	A 3-digit decimal number between 000 and 999, which specifies a time in minutes. Within this time all approved incoming calls are perceived as an alarm call and answered immediately even if unit is configured to alert incoming calls by the parameter CAT in #C40. Note: During this time any active GPRS connection is kept closed i.e. reporting is not available over GPRS. “ACT000” command is used to terminate this time manually before expiration; not to disable this feature permanently. Access number list for incoming calls in #C3 still applies. *Default: 005*
CTL*q*	Enable/Disable alarm calls for status check 0: Disable 1: Enable outgoing alarm calls 2: N/A 3: Enable outgoing alarm calls to ‘Call Button Number’ (#C41) *Default: 0* *Note: Only used when TLN in #C91 is set to 0*
DIC*r*	Deny Incoming Call 0: Disable 1: Enable *Note: Not effective when incoming alarm cal is in progress.*
TIN*s*	ISM Alarm Received indication 0: Both speaker and vibrator 1: Speaker only 2: Vibrator only 3: Disabled *Default: 0*

#C12 – Request current temperature

Command (request): #C12*nn:r

Response: u…u#P12*nnTEMP:siii.dddd

Response (no sensor): u…u#P12*nnTEMP:TS is not present!

Error: u…u#P12*nnERROR

This command requests from the unit what the detected temperature level is.
This command does not take any parameters, and an ERROR response will be sent if any extraneous characters are detected.

Parameter	*Description*
TEMP:*siii.dddd*	The current temperature value between +125C and -55C. S is the sign character (+ or -), iii is the integer part and dddd is the decimal part of the temperature value.

#C13 – DTMF detection and pulse generation

Command (change): #C13*nn:rACKaaaO1PbbO2Pcc
#C13*nn:rACKaaaO1Pbbb

Command (query): #C13*nn:r?

Response: u…u#P13*nn
u…u#P13*nnACKaO1PbbO2Pcc
u…u#P13*nnACKaaO1PbbO2Pcc
u…u#P13*nnACKaaaO1PbbO2Pcc

Error: u…u#P13*nnERROR

Parameter	*Description*
ACK*a* **ACK***aa* **ACK***aaa*	The DTMF sequence to be recognized during alarm calls. The sequence must be at least 1 digit long and at most 3 digits long. Allowed digits are 0-9, A-D, # and *. To disable DTMF detection, unset any digits.
O1P*bb*	The pulse duration for output 1 in seconds. If the DTMF sequence recognition is successful, the value defined by the O1V parameter (see #C10) will be inverted for this time period. Note: This parameter is only included for backwards compatibility.
O2P*cc*	The pulse duration for output 2 in seconds. If the DTMF sequence recognition is successful, the value defined by the O2V parameter (see #C10) will be inverted for this time period. Note: This parameter is only included for backwards compatibility.

#C14 – Request configuration

Command (query): #C14*nn:r

Error: u…u#P14*nnERROR

If the command is correct, the unit will send the following list of response messages:
#P1, #P2, #P3, #P4, #P9, #P10, #P11, #P13, #P15, #P16, #P20, #P21, #P22, #P23, #P24, #P25, #P26, #P27, #P30, #P31, #P32, #P33, #P34, #P40, #P41, #P42, #P60, #P61, #P80, #P83, #P84, #P86, #P87, #P88, #P90, #P91, #P93, #P94, #P97 and #P98.
To get #P17, #P35, #P43, #P44 and #P96, refer to respective commands for how to query those responses.

#C15 – Enable alarm time

Command (change): #C15*nn:rLTEaSTTbbccSPTddeeCDTyymmddhhmmssWASff

Command (query): #C15*nn:r?

Response: u…u#P15*nnLTEaSTTbbccSPTddeeCDTyymmddhhmmssWASff

Error: u…u#P15*nnERROR

With this command, device's real time clock can be customized, motion detector and vibration sensor can be configured to only be enabled during certain times.

Parameter	***Description***
LTE*a*	Larm Timer Enable 0: Disable, all configured alarms are always enabled 1: Enable, motion detector and vibration sensor alarms are enabled only between the times set in STT and SPT. *Default: 0*
STT*bbcc*	The start time for activation of the motion detector and vibration sensor alarms, if enabled. The first two digits give the hour and the second two digits gives the minutes. Allowed range is 0000-2359. *Default: 0000*
SPT*ddee*	The stop time for deactivation of the motion detector and vibration sensor alarms, if enabled. The first two digits give the hour and the second two digits gives the minutes. Allowed range is 0000-2359. *Default: 0000*
CDT *yymmdd hhmmss*	The current date and time. The following fields must be specified: The year as two digits (yy, 00-99), the month as two digits (mm, 01-12), the day as two digits (dd, 01-31), the hour as two digits (hh, 00-23), the minutes as two digits (mm, 00-59), and the seconds as two digits (ss, 00-59). If this parameter is not specified, the real time clock will always be synchronized with respect to 'Universal Time Coordinated' (UTC) by default. Once it is customized, it will remain so until a new date and time set. Note: Customized date and time values are preserved against unexpected shutdowns, power failures etc.
CDTUTC	Synchronizes the real time clock with respect to 'Universal Time Coordinated' (UTC).
CDTCTZ	Synchronizes the real time clock with respect to 'Current Time Zone'. Note: If change command does not effect immediately, it will as soon as "time zone" information obtained from network.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>WASff</td><td>Weekly activation scheduler for motion detector and vibration sensor alarms.
Parameter accepts a two digit hexadecimal value whose bits map to respective days of a week.

<table>
<tr><th>Bit 7</th><th>Bit 6</th><th>Bit 5</th><th>Bit 4</th><th>Bit 3</th><th>Bit 2</th><th>Bit 1</th><th>Bit 0</th></tr>
<tr><td>Sunday</td><td>Saturday</td><td>Friday</td><td>Thursday</td><td>Wednesday</td><td>Tuesday</td><td>Monday</td><td>Unused</td></tr>
</table>

Bit value ‘0’ disables the sensors for the respective day.
Bit value ‘1’ enables the sensors during the period given by STT and SPT parameters for the respective day.
Default: 00</td></tr>
</table>

#C16 – Message format selection

Command (change): #C16*nn:rAN1aAN2bAN3cLBNdSCNeCCNfORNgORAoAMFhPBFabc ACMiPRNjUWUkTLAmTLBnSFSpAE1rAE2sAE3t

Command (query): #C16*nn:r?

Response: u…u#P16*nnAN1aAN2bAN3cLBNdSCNeCCNfORNgORAoAMFhPBFabc ACMiPRNjUWUkTLAmTLBnSFSpAE1rAE2sAE3t

Error: u…u#P16*nnERROR

Parameter values for AN1, AN2, AN3, AE1, AE2, AE3, LBN, SCN, CCN, PRN, TLA and TLB:
0: SRT# NMR/GPS (NMR or GPS is selected with parameter AMF)
1: OVLS – Regular
2: OVLS – B&M
3: User Defined (See #C17)
4: OVLS – Extended (Same as OVLS – B&M with additional information)
5: Reserved
6: Reserved
7: OVLS – SRT

Parameter values for ORN or ORA:
0: SRT# NMR/GPS (NMR or GPS is selected with parameter AMF)
1: OVLS – Regular
2: OVLS – B&M
3: User Defined (See #C17)
4: OVLS – Regular, but with response being the same as generated from distance reports.
5: OVLS – B&M, but with response being the same as generated from distance reports.
6: OVLS – Extended (Same as OVLS – B&M with additional information)
7: OVLS – SRT

Parameter	***Description***
AN1*a*	Message Format for Alarm/Report number 1. *Default: 4*
AN2*b*	Message Format for Alarm/Report number 2. *Default: 4*
AN3*c*	Message Format for Alarm/Report number 3. *Default: 4*
LBN*d*	Message Format for Low Battery Number. *Default: 4*
SCN*e*	Message Format for SIM Change Number. *Default: 4*
CCN*f*	Message Format for Configuration Change Number. *Default: 4*
ORN*g*	Message Format for reports requested by #C5 or #C7. *Default: 6*
ORA*o*	Message Format for reports requested by #C85. *Default: 6*
AMF*h*	Alias: See #C1 – General parameters

Parameter	*Description*
PBF*abc*	Enable/Disable Message Format override for Push Button alarms. a: Corresponds to Alarm Number 1 b: Corresponds to Alarm Number 2 c: Corresponds to Alarm Number 3 0: No override. 1: Pushbutton alarms will have MPTP message !EMG *Default: 000*
ACM*i*	Alarm Call Message 0: Disable sending of Alarm Call Answered By message. 1: Enable sending of Alarm Call Answered By message. Note: Alarm Call Not Answered messages will still be sent if applicable. *Default: 1*
PRN*j*	Message Format for Call Button Number when used for Passivity Alarm Buy Time Report *Default: 0*
UWU*k*	Append custom text to User Defined messages 0: Disabled 1: Append the text defined as message #21 in #C17 – User Defined Messages
TLA*m*	Message Format for Status check number 1 *Default: 4*
TLB*n*	Message Format for Status check number 2 *Default: 4*
SFS*p*	“Status” field format select for “OVLS - Extended” report type 0: Status *(status)* 1: Status Alternative *(status alt)* Note: See “Report Type OVLS” section for details. *Default: 0*
AE1*r*	Message Format for Extra Alarm/Report number 1. *Default: 4*
AE2*s*	Message Format for Extra Alarm/Report number 2. *Default: 4*
AE3*t*	Message Format for Extra Alarm/Report number 3. *Default: 4*

#C17 – User defined messages

Command (change): #C17*nn:rMaabbx…x

Command (query): #C17*nn:r?

Response: u…u#P17*nn
u…u#P17*nnMaabbx…x

Error: u…u#P17*nnERROR

With this command, user defined messages can be configured. Several messages can be set with a single command as long as the length of the command does not exceed 160 characters. Input characters are restricted to GSM 7-bit default alphabet. Extension set is not supported.

Parameter	***Description***	
M*aabb x…x*	aa	A 2-digit decimal number between 00 and 52 specifying the message type for which the following message will be used when it is needed. Corresponding message types are: 00: Start message 01: Stop message 02: Response message to command #C5 and #C7 03: Periodic message 04: Pushbutton alarm message 05: Low battery voltage message 06: Cell tracking alarm message 07: SIM card change alarm message 08: Alarm call result message 09: Motion detector alarm message 10: Vibration sensor alarm message 11: Sound detector alarm message 12: Temperature alarm message 13: Configuration change alarm message 14: Distance report message 15: Charge-off alarm message 16: GeoFence alarm message 17: GNSS Fix message 18: GNSS NoFix message 19: Passivity Alarm message 20: Passivity buy time message 21: Custom appended text (see below) 23: Test message (Pushbutton duplicate) 25: Response message to command #C85 28: Conditional Periodic Reporting (CPR) Timerstop 29: CPR Periodic Tick Expired (Mode B only) 30: GeoFence Exit message 31: Tamper Alarm / Function Button 1 On 32: External Alarm 1 / Function Button 2 On 33: External Alarm 2 / Function Button 3 On 34: External Alarm 3 / Function Button 4 On 35: External Alarm 4 / Function Button 5 On 36: External Alarm 5 On 37: External Alarm 6 On

Parameter	Description	
		38: External Alarm 7 On 39: Status Check Alarm 40: CPR manual stop by SMS command 41: Heartbeat message 42: Man Down alarm 43: Pair in range alarm message 44: Pair out of range alarm message 45: Country Change Alarm 46: RF Tag (334) Detected (#C36 only) 47: RF Tag (334) Detection Lost (#C36 only) 48: RF Tag (334) Tamper Alarm 49: Charge-on alarm message 50: RF Tag (SRT334) In Range Report 51: RF Tag (SRT334) Handoff Report 52: RF Tag (SRT334) Out of Range Report 53: Tamper Alarm / Function Button 1 Off 54: External Alarm 1 / Function Button 2 Off 55: External Alarm 2 / Function Button 3 Off 56: External Alarm 3 / Function Button 4 Off 57: External Alarm 4 / Function Button 5 Off 58: External Alarm 5 Off 59: External Alarm 6 Off 60: External Alarm 7 Off 62: Humidity Alarm Message
	bb	A 2-digit decimal number between 00 and 99 specifying the number of characters the following message contains.
	x…x	The message. Permitted characters are those with an ASCII value between 32 and 126.

Message number 21 is reserved to customize the appended text at the end of user defined messages (UWU1 in #C16). Input template can be made up of to 100 characters and make use of special expressions which are to be replaced by respective real-time values when template text is printed as part of a report. Below is the list of available expressions:

Expression	Description
$<lon>	Longitude expressed in decimal degrees
$<lat>	Latitude expressed in decimal degrees
$<pyy>	Position date, year
$<pmo>	Position date, month
$<pdd>	Position date, day
$<phh>	Position time in UTC, hour
$<pmi>	Position time in UTC, minute
$<pss>	Position time in UTC, second
$<ryy>	Current date, year
$<rmo>	Current date, month
$<rdd>	Current date, day
$<rhh>	Current time in UTC, hour
$<rmi>	Current time in UTC, minute
$<rss>	Current time in UTC, second
$<rec>	Alarm report cause number, as listed in the table above

Default: http://maps.google.com/maps?q=$<lat>,$<lon>&z=16

#C18 – Request input signal value

Command (query): #C18*nn:r

Response: u…u#P18*nnIN1:a

Error: u…u#P18*nnERROR

This command is only relevant for units with GSW 1.0-1.3, and is retained for backwards compatibility.

Parameter	*Description*
IN1:*a*	Status of digital input 0: Low 1: High Note: This value is always 0 for units that does not have a digital input.

#C19 – Output signal toggle

Command: #C19*nn:rO1TxxO2Tyy

Response: u…u#P19*nnO1TxxO2Tyy

Error: u…u#P19*nnERROR

This command is only relevant for units with GSW 1.0-2.x as well as SRT Avant 299, and is retained for backwards compatibility.

Parameter	*Description*
O1T*xx* **O2T***yy*	Time during which the toggle is active in seconds. While allowed values are 00 to 99, O1T and O2T may not both be set to 00.

#C20 – TCP/UDP receiver

Command (change): #C20*nn:rIa.b.c.d:portIa.b.c.d:portIa.b.c.d:port

Command (query): #C20*nn:r?

Response: u…u#P20*nnIa.b.c.d:portIa.b.c.d:portIa.b.c.d:port

Error: u…u#P20*nnERROR

This command stores up to three IP numbers, to which reports or alarm messages may be sent using UDP or TCP over GPRS. Exceptions are alarms that are not normally sent to the numbers defined in #C2.
If less than three IP numbers are defined, the remaining positions will be cleared. If no IP number is defined, all positions will be cleared.
Each IP number defined with this command, correspond to one telephone number defined with #C2. (The first IP number corresponds to the first telephone number, etc.)

Parameter	***Description***
I*a.b.c.d:port*	IP-number that represents each receiver, and port to connect to. The RMC parameter, which can be set with command #C1 or #C24 (recommended) determines if reports/alarms are sent over SMS or over TCP/UDP. The TCP parameter in #C24 determines if TCP or UDP should be used when sending reports/alarms to these receivers.

Ex: #C20*00I192.168.1.1:54321 sets the IP 192.168.1.1 and port-number 54321 as receiver of the alarm messages.

GPRS APN (Access Point Name) Settings

These commands are used to set the Access Point information so that the unit can use GPRS for report sending.

#C21 – Access Point Name

Command (change): #C21*nn:rS<AP name>

Command (query): #C21*nn:r?

Response: u…u#P21*nnS<AP name>

Error: u…u#P21*nnERROR

Parameter	*Description*
S*<AP name>*	The GPRS APN name string. Required for GPRS functionality. The maximum number of characters in this string is 95.

#C22 – User Name

Command (change): #C22*nn:rU<user name>

Command (query): #C22*nn:r?

Response: u…u#P22*nnU<user name>

Error: u…u#P22*nnERROR

Parameter	*Description*
U*<user name>*	User name for the GPRS APN. May be required depending on operator. The maximum number of characters in this string is 63.

#C23 – Password

Command (change): #C23*nn:rP<password>

Command (query): #C23*nn:r?

Response: u…u#P23*nnP<password>

Error: u…u#P23*nnERROR

Parameter	*Description*
P*<password>*	Password for the GPRS APN. May be required depending on operator. The maximum number of characters in this string is 63.

#C24 – TCP/UDP report settings

Command (change): #C24*nn:rP1GaaP2GbbP3GccRAKdefTCPgRMChijPERkkkGRImmmGSTnn SSAoHBTppHBUr

Command (query): #C24*nn:r?

Response: u…u#P24*nnP1GaaP2GbbP3GccRAKdefTCPgRMChijPERkkkGRImmmGSTnn SSAoHBTppHBUr

Error: u…u#P24*nnERROR

This command controls parameters that are used for sending reports using TCP or UDP over GPRS.

Parameter	*Description*
P1G*aa* **P2G***bb* **P3G***cc*	The response delay time in seconds. With a value of 00, the unit does not wait for a response from the receiver to a message transmitted using TCP or UDP, and considers that the alarm/report sent is received by the remote part successfully. Values of 01-30 specifies the max time in seconds that the unit waits for an ACK from the receiver. If no ACK is received within that time, the unit will treat this as a failure to transmit the report/alarm, and will fall back according to the RMC parameter of command #C1 (can also be set in this command). aa: The time to wait for the first receiver to send ACK. bb: The time to wait for the second receiver to send ACK. cc: The time to wait for the third receiver to send ACK. *Default: 01 (for all three)*
RAK*def*	Control which receivers need to send ACK, and for what messages. d: Recipient 1 e: Recipient 2 f: Recipient 3 0: Neither alarms nor reports need to be acknowledged. 1: Only alarms need to be acknowledged. 2: Only reports (those not counted as alarms) need to be acknowledged. 3: Both alarms and reports need to be acknowledged. *Default: 000* Note: If reports sent over UDP are configured to be acknowledged from the receiver, then the receiver must reply from its receiving port to the unit's sending source port.
TCP*g*	TCP/UDP selection 0: UDP will be used for reports/alarms. 1: TCP will be used for reports/alarms. *Default: 0*

Parameter	***Description***
RMC*hij*	Reporting Mode Configuration For each of the numbers defined in #C2, if there is a corresponding IP defined in #C20, the unit can be configured to send over TCP or UDP instead of SMS. Possible modes for each receiver: 0: Reports will be sent by SMS only (default if no IP configured for a specific number). 1: Reports will be sent by TCP or UDP only, no fallback to SMS in case of failure. 2: Reports will be sent by both SMS and over TCP or UDP. If periodic reporting is enabled, only the PER value is considered for this mode. 3: Reports will be sent primarily over TCP or UDP, with SMS as fallback if there is a transmission failure. The value put in place of h correspond to the first report number in #C2/#C20. The value put in place of i correspond to the second report number in #C2/#C20. The value put in place of j correspond to the third report number in #C2/#C20. Note: This parameter must be configured after #C20, as the unit enforces a value of 0 for any number that don't have a corresponding IP defined. *Default: 000*
PER*kkk*	Alias: See #C1 – General parameters
GRI*mmm*	Alias: See #C1 – General parameters
GST*nn*	GPRS Scan Time Specifies a time in minutes during which TCP/UDP receiver(s) that has been recently failed to be reached, are not reattempted if time or distance periodic reports are to be sent. Minimum allowed value is 1 minute. *Default: 05*
SSA*o*	Switch reporting order: 0: Normal 1: First report to all receivers defined for IP transmission then fall back to SMS given that other reporting method conditions are met (e.g. RMC in #C24, masks in #C88) *Default: 0*
HBT*pp*	A 2-digit decimal number between 00 and 99 to specify heartbeat report period in units specified by HBU. Non-zero value enables reporting. *Default:00*
HBU*r*	Specifies unit for Heartbeat interval: 0: Minutes 1: Hours

#C25 – TCP Command Channel configuration

Command (change): #C25*nn:rTCEaTCAbTCBcTSSdPEReeeGRIfff

Command (query): #C25*nn:r?

Response: u…u#P25*nnTCEaTCAbTCBcTSSdPEReeeGRIfff

Error: u…u#P25*nnERROR

With this command, the TCP Command Channel can be enabled. When enabled and connected, all regular alarms and reports will be sent to the server defined in #C26.
If any error occurs, or the server can't be reached, the unit will fall back to the regular methods of sending reports and alarms. If the TCP Command Channel Buffer is enabled, the reports and alarms will be stored in flash until the unit can connect again. The number of reports that can be buffered is currently 600. If the buffer is full, new reports that need to be buffered will overwrite the oldest stored.

Parameter	***Description***
TCE*a*	TCP Command Channel 0: Disable 1: Enable *Default: 0*
TCA*b*	TCP Command Channel Ack 0: Neither alarms nor reports need to be acknowledged. 1: Only alarms need to be acknowledged. 2: Only reports (those that are not counted as alarms) need to be acknowledged. 3: Both alarms and reports need to be acknowledged. *Default: 3*
TCB*c*	TCP Command Channel Buffer 0: Don't buffer reports or alarms. 1: Buffer alarms only. 2: Buffer reports only. 3: Buffer both alarms and reports. *Default: 0*
TSS*d*	Send reports also over SMS to Report/Alarm numbers (#C2) only if successfully sent via TCP Command Channel. If the parameter is enabled, individually configurable SMS numbers for particular report types (e.g. Low Battery Number) are also effective. Unit will still fall back to the regular methods of sending reports and alarms if command channel fails. 0: Disable 1: Send to first SMS receiver. 2: Send to first and second SMS receivers. 3: Send to first, second and third SMS receivers. Note: This function does not apply when buffered reports are delivered. The parameter is automatically replaced by the maximum possible value if it is set greater than the number of SMS numbers defined in #C2. *Default: 0*
PER*eee*	Alias: See #C1 – General parameters
GRI*fff*	Alias: See #C1 – General parameters

#C26 – TCP Command Channel server

Command (change): #C26*nn:rIa.b.c.d:port

Command (query): #C26*nn:r?

Response: u…u#P26*nnIa.b.c.d:port

Error: u…u#P26*nnERROR

This command sets the IP and port for the server that the unit connects to if TCP Command Channel is enabled. If no IP and port is defined, the unit will fall back on the regular reporting methods automatically.

Parameter	***Description***
I*a.b.c.d:port*	IP-number that represents the server, and port to connect to.

Ex: #C26*00I192.168.1.1:54321 sets the IP 192.168.1.1 and port-number 54321 as server for the TCP Command Channel.

#C27 – UDP Source Port Configuration

Command (change): #C27*nn:rNabcde

Command (query): #C27*nn:r?

Response: u…u#P27*nnNabcde

Error: u…u#P27*nnERROR

This command allows setting of the source port between 1024 and 65535. If the port is set between 0-1023, the old behavior with increasing port numbers is used; otherwise source port stays fixed at configured port number.

Parameter	***Description***
N*abcde*	Source port of unit through which unit transmits data over UDP.

#C30 – Distance based periodic reporting

Command (change): #C30*nn:rDREaDRIbbbDRRcDRMdddDRUeGPSfGPMgDRLhhh

Command (query): #C30*nn:r?

Response: u…u#P30*nnDREaDRIbbbDRR0DRMdddDRUeGPSfGPMgDRLhhh

Error: u…u#P30*nnERROR

When this function is enabled, it will periodically check GNSS position to see how far the unit has moved since the function was enabled. When the unit detects that the accumulated movement since last report is equal to, or greater than, the distance defined by DRI and DRU.
If both distance based and time based periodic reporting are enabled, whenever any report is generated by either function, the other function will behave as if it had sent a report.
I.e. if time based periodic reporting is set to 20 minutes and distance reporting to 10 km, the unit will send reports with an interval of 20 minutes or 10 km, whichever comes first counting from the report last sent.

Note: Due to the inherent inaccuracy of GNSS, the distance travelled may accumulate even when the unit has not moved.

Parameter	***Description***
DRE*a*	Distance Report 0: Disable 1: Enable *Default: 0*
DRI*bbb*	Distance Report Interval 000-999: report interval in 1000m or 100m units. *Default: 000*
DRR*c*	Distance Report counter Reset 0: In command, do nothing. In response, always 0. 1: Reset the current distance travelled value.
DRM*ddd*	000-999: number of distance reports to send over GPRS before sending one over SMS (provided any number is configured to receive SMS). *Default: 000*
DRU*e*	Distance Report Unit 0: DRI is in 1000m units 1: DRI is in 100m units *Default: 0*
GPS*f*	Alias: See #C1 – General parameters
GPM*g*	Alias: See #C1 – General parameters
DRL*hhh*	3-digit decimal number that defines the minimum distance between two recorded points before the distance is added to the distance travelled. Each time the unit wakes up for any reason, the first fix position will be used as a reference for the next position that is hhh meters away. Once a position has been recorded that is at least hhh meters away from the reference, a new reference point will be set. It is possible, though not recommended, to set this value to 000, which means that all movements accumulate the distance travelled. *Default: 050 (50 meters)*

Parameter	***Description***
CRE*i*	Heading Change Report 0: Disable 1: Enable Note: Heading change reporting is effective only if distance reports are enabled (“DRE” set to 1). *Default: 0*
CRT*jjj*	Heading Change Threshold Angle Minimum angle in degrees which is needed to be swept in order to trigger a heading change report. Maximum value allowed is 180 degrees. *Default: 030 (30 degrees)*
CRS*kkk*	Heading Change Minimum Speed Minimum amount of speed in units of km/h during which heading changes are reported if above the threshold angle. If set to 000, automatically reset to 001, the minimum value allowed. *Default: 003 (3 km/h - Average walking speed)*

#C31 – Geo Fence

Command (change 1): #C31*nn:rGFMaGFRbbbGFDcccGFIdddGFUeGFPSETPDEfPDAgTTAh

Command (change 2): #C31*nn:rGFMaGFRbbbGFDcccGFIdddGFUe
GFP<ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
PDEfPDAgTTAh

Command (query): #C31*nn:r?

Response: u…u#P31*nnGFMaGFRbbbGFDcccGFIdddGFUe
GFP<ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
PDEfPDAgTTAh

Error: u…u#P31*nnERROR

This command controls the parameters used for Geo Fence alarm and Pair Detection alarm.
The reference position can be set either by providing the latitude and longitude values or by using *SET* as parameter value for GFP.
GFD and GFI can be used if temporary drifts outside the circle are to be allowed.

There are three geo fence alarm modes:

Mode A utilizes the parameters GFR, GFU and GFP which all together define a single circular area. The alarm goes off when obtained GNSS fixes are from outside of the zone for the amount of time specified by GFD. PDA may be set to activate alerting the user locally when the outside the geo-fence circle.

Mode B utilizes the commands #C34, #C35 and #C36 which are used to define and control up to 20 polygonal areas and/or ISM monitored zones. The alarm goes off when unit detected inside of the zone(s) for the amount of time specified by “GFD”. Another report is sent when detected outside of the zone for the amount of time specified by “GFI” in order to indicate monitoring zone exit.

Mode C also utilizes the polygonal areas and/or ISM monitored zones defined by the commands #C34, #C35 and #C36. The alarm goes off when detected outside of the zone(s) for the amount of time specified by “GFD”. Another report is sent when detected inside of the zone for the amount of time specified by “GFI” in order to indicate monitoring zone enter.

Pair Detection alarm utilizes the parameters GFR, GFU and GNSS coordinates received in SRT# report format which all together define a single circular area. The alarm goes off when received GNSS fixes from another SRT product are within the range of the circular area whose centre is the last valid GNSS position for the amount of time specified by GFD. Another alarm generated when detected pair leaves the area covered by the circular region. PDA may be set to activate alerting the user locally when there is another unit detected in range.

Parameter	***Description***
GFM*a*	Geo Fence Alarm Mode 0: Disable Geo Fence alarm 1: Enable alarm mode A 2: Enable alarm mode B 3: Enable alarm mode C *Default: 0*

Parameter	***Description***
GFR*bbb*	Geo Fence Radius A 3-digit decimal number between 001 and 999 that together with GFU determines the radius of the Geo Fence. A number of 000 is accepted, but will enforce minimum 10m radius. *Default: 010*
GFD*ccc*	Time in seconds outside of the circle before alarm trigger. *Default: 000*
GFI*ddd*	Time in seconds inside the circle after alarm sent to clear the previous alarm, and allow a new alarm to be sent upon going outside the circle again. *Default: 000*
GFU*e*	Geo Fence Radius Units 0: GFR is in 1m units 1: GFR is in 10m units 2: GFR is in 100m units *Default: 2*
GFP*SET*	Sets the last known position as the centre for the Geo Fence
GFP*<…>*	Position as defined in report type SRT# Standard GPS
PDE*f*	Pair Detection Enable: 0: Disable 1: Enable Note: Enabling “Geo Fence Alarm Mode A” disables “Pair Detection”. Only one of them can be enabled at a time. *Default: 0*
PDA*g*	Warning alert type either when pair detected or alarm detected in “Geo Fence Alarm Mode A”: 0: None 1: Vibrate two times (each for a duration of 0.3 seconds) every 30 seconds 2: Play a single tone every 30 seconds 3: Both *Default: 0*
TTA*h*	Report RF Tag (SRT334) status events which may occur due to following events: - Tamper (Vibration sensor detection) - Mains power out - Low battery Note: Event that causes the report is identified by respective argument found in RF tag feed message appended to selected report protocol. 0: Disabled 1: Report RF tag status events 2: Report first time registration and deregistration in RF tag network 3: As both 1 and 2 4: Report RF tag handoff 5: As both 1 and 4 6: As both 2 and 4 7: As 1, 2 and 4 combined. *Default: 0*

#C32 – GNSS Receiver Sleep Mode

Command (change): #C32*nn:rGPMaGPAbGPHcccGPWdddGPDeeGPTfffGPPgggGPXhhh GPYiiiGPNjGPZkkkGPVlllGPUmGCHnGSEo

Command (query): #C32*nn:r?

Response: u…u#P32*nnGPMaGPAbGPHcccGPWdddGPDeeGPTfffGPPgggGPXhhh GPYiiiGPNjGPZkkkGPVlllGPUmGCHnGSEo

Error: u…u#P32*nnERROR

This command controls the parameters used for GNSS receiver sleep mode.
When set to mode 1, the sleep mode is controlled by the parameters GPT, GPX, GPY, GPN, GPZ and GPV.
When set to mode 2, the sleep mode is controlled by the parameters GPA, GPH and GPW.
Parameters GPD and GPP control GNSS operations in all modes where GNSS receiver is enabled.

Parameter	***Description***
GPM*a*	GNSS receiver sleep mode 0: Disabled 1: Sleep Mode 1 2: Sleep Mode 2 *Default: 0*
GPA*b*	Wakeup on alarm 0: Disabled 1: Wake up GNSS receiver on alarm This parameter is only used for Sleep Mode 2. In Sleep Mode 1, GNSS receiver will always be forced awake in case of an alarm. *Default: 0*
GPH*ccc*	GNSS receiver Sleep Time A 3-digit decimal number between 001 and 999, which specifies how long the GNSS receiver should sleep in Sleep Mode 2. A value of 000 is accepted but is converted to 001. *Default: 003*
GPW*ddd*	GNSS receiver Wake Time A 3-digit decimal number between 001 and 999, which specifies how long the GNSS receiver should be awake in Sleep Mode 2. A value of 000 is accepted but is converted to 001. *Default: 003*
GPD*ee*	Delay Time A 2-digit decimal number between 00 and 99, which specifies in seconds how long the unit should wait for new GNSS data before sending an alarm. If GNSS receiver is turned off, this value is ignored. *Default: 00*
GPT*fff*	A 3-digit decimal number between 000 and 999, which specifies in seconds how long the GNSS receiver should be awake before an estimated periodic or distance report is to be sent. This value is only used in Sleep Mode 1. *Default: 060*
GPP*ggg*	A 3-digit decimal number between 000 and 999, which specifies in seconds how long the GNSS receiver should be prevented from entering sleep mode after an alarm. This value can be used in all modes where GNSS receiver is on. *Default: 000*

Parameter	*Description*
GPX*hhh*	A 3-digit decimal number between 000 and 999, which specifies the minimum number of fixes the GNSS receiver should have in a row before putting the module in sleep mode. This value is used in Sleep Mode 1. *Default: 005*
GPY*iii*	A 3-digit decimal number between 000 and 999, which specifies the maximum number of fixes the GNSS receiver should have in a row before putting the module in sleep mode. This value is used in Sleep Mode 1. *Default: 010*
GPN*j*	Number of satellites required before putting GNSS receiver in sleep mode if at least GPX fixes have been recorded. If GPY fixes are recorded and the number of satellites is not at least this value, the GNSS receiver will be allowed to enter sleep mode anyway. *Default: 5*
GPZ*kkk*	A 3-digit decimal number between 000 and 999, which specifies the time in seconds that the GNSS receiver should sleep under normal circumstances in Sleep Mode 1. *Default: 020*
GPV*lll*	A 3-digit decimal number between 000 and 999, which specifies a speed in km/h which if exceeded, will prevent the GNSS receiver from entering sleep mode in Sleep Mode 1. *Default: 060*
GPU*m*	GNSS receiver Sleep Mode 2 time unit 0: Second 1: Minute *Default: 1*
GCH*n*	GNSS receiver sleep mode is effective when charger connected 0: Disabled 1: Enabled *Default: 0*
GSE*o*	GSM module switches to sleep state after first valid GNSS fix received. Note that if vibration sensor controls GSM sleep (VAM3 or VAM4 modes in #C10) the function is not effective. 0: Disabled 1: Enabled *Default: 0*

#C33 – GNSS Receiver General Configuration

Command (change): #C33*nn:rGPSaGPFbbbGPCcGHEdGHSeGHPfGSSg

Command (query): #C33*nn:r?

Response: u…u#P33*nnGPSaGPFbbbGPCcGHEdGHSeGHPfGSSg

Error: u…u#P33*nnERROR

This command contains options to configure GNSS receiver and related report settings.

Parameter	***Description***
GPS*a*	Alias: See #C1 – General parameters
GPF*bbb*	GNSS Fix Report A 3-digit decimal number between 000 and 999, which specifies a time in seconds. If an alarm was sent that didn't have an up to date position, if a new updated position is acquired within this time, send a GNSS Fix Report. If this value is 000, the GNSS Fix Report is disabled. *Default: 000*
GPC*c*	GNSS NoFix Report 0: Disabled 1: Enabled This parameter is used together with GPF and if enabled allows the unit to send a GNSS NoFix report in case no updated position was acquired within the time specified. *Default: 0*
GHE*d*	GNSS module cleans accumulated tracking data when HDOP value exceeds GHP and number of fix satellites drops below GHS 0: Enabled 1: Disabled *Default: 0*
GHS*e*	Threshold value for the number of fix satellites (see GHE) *Default: 5*
GHP*f*	Threshold value for horizontal dilution of precision indicator (HDOP) (see GHE) *Default: 1*
GSS*g*	Specify geolocation satellite system for GNSS receiver: 0: Reserved 1: GALILEO 2: GLONASS 3: GALILEO & GLONASS 4: GPS 5: GALILEO & GPS 6: GLONASS & GPS 7: GALILEO & GLONASS & GPS 8: Reserved 9: Same as '1' with low power mode enabled A: Same as '2' with low power mode enabled B: Same as '3' with low power mode enabled C: Same as '4' with low power mode enabled D: Same as '5' with low power mode enabled E: Same as '6' with low power mode enabled F: Same as '7' with low power mode enabled *Default: 6*

#C34 – Manage Monitoring Zones

Command (action): #C34*nn:rG<*zone1*>bG<*zone2*>b....G<*zone20*>b

Command (query): #C34*nn:r?

Response: u…u#P34*nn
u…u#P34*nnG<*zone1*>cG<*zone2*>c....G<*zone20*>c

Error: u…u#P34*nnERROR

An exclusion or inclusion zone can be monitored by means of either geo-fence or electronic tag detection. GNSS receiver and ISM radio assisted monitoring can be set up via respective commands #C35 and #C36.

Geo-fence polygons are defined by using longitude and latitude coordinates (#C35) and therefore geo-fence detection solely relies on continuation of valid GNSS fixes. ISM zones on the other hand are recognized and monitored by equipped radio hardware and a pairing electronic tag (ISM node) (e.g. SRT334) placed in an area to be monitored. Consequently ISM node monitoring is likely to provide better results when GNSS signals are not strong enough to estimate a location such as indoor places.

Each of the zone indices mentioned in commands #C34, #C35 and #C36 all refer to a respective single monitoring zone that can be:

a) configured by #C34,
b) introduced to a geo-fence polygon by #C35
c) introduced to an ISM node by #C36

This command is used to manage introduced zone definitions via command #C35 and/or #C36. Note that each command can be composed of actions for multiple zones of selection but different types of actions cannot be combined in a single command e.g. coordinate query for one polygon and erase for another cannot be requested in the same command.

Any command containing action(s) to act upon empty monitoring zone indices returns error.

Parameter	***Description***	
G<*zone*>*b*	<zone>	A 2-digit decimal number between 01 and 20 specifying the zone index on which selected action is applied.
	b	Type of actions: 0: Disable monitoring of selected zone. 1: Enable monitoring of selected zone. 2: Erase all coordinates defined for selected geo-fence polygon. 3: Query coordinates defined for selected geo-fence polygon. Coordinates are returned on behalf of #C35 command response.
	c	Current active status of defined monitoring zones: 0: Disabled 1: Enabled

#C35 – Define Geo-fence Polygons

Command (change): #C35*nn:r
GFN<*ind*>V<*ver1*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
V<*ver2*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
.
.
V<*ver5*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>

Command (query): #C34*nn:rG<*ind1*>3 G<*ind2*>3.... G<*ind20*>3

Response: u…u#P35*nn
GFN<*ind1*>V<*ver1*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
V<*ver2*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
.
.
V<*ver20*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
.
.
GFN<*ind20*>V<*ver1*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
V<*ver2*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>
.
.
V<*ver20*> <ddmm.mmmm>,<N/S>,<dddmm.mmmm>,<E/W>

Error: u…u#P35*nnERROR

This command is used to define or modify the coordinates of a selected geo-fence polygon. Each geo-fence polygon can be made up of up to 20 nodes.

The command parameters must start with the "GFN" parameter in order to specify the index of the geo-fence polygon that needs to be modified or created. In case there is no coordinate defined for the selected polygon, the command to start a new zone must define at least three nodes at once in order to make up a polygon.
Each command can be composed of so many coordinates as long as the total length of the issued command does not exceed 160 characters. Coordinates must be given in "degrees, decimal minutes". Nodes for a particular zone can be modified or extended after creation by issuing another command starting with the index number of the geo-fence polygon in question.

Response command does not contain definitions for empty zone indices if any.

Parameter	***Description***	
GFN	*<ind>*	A 2-digit decimal number between 01 and 20 specifying the zone index for which the following geo-fence is defined.
V	*<ver>*	A 2-digit decimal number between 01 and 20 specifying the node index for which the following coordinate is defined.
	<ddmm.mmmm>,<N/S>, <dddmm.mmmm>,<E/W>	Coordinate as defined in report type SRT# Standard GPS

#C36 – Define ISM Nodes

Command (change): #C36*nn:rN*<ind1><UID1>* N*<ind2><UID2>....* N*<ind20><UID20>*

Command (query): #C36*nn:r?

Command (erase): #C36*nn:rN*<ind1>*00000000N*<ind2>*00000000.... N*<ind20>*00000000

Response: u…u##C36*nnN*<ind1><UID1>* N*<ind2><UID2>....* N*<ind20><UID20>*

Error: u…u#P36*nnERROR

This command is used to add ISM node monitoring support along with above described geo-fence area monitoring.

Up to 20 ISM nodes can be defined at a time which in return can optionally pair with geo-fence polygon at a specified zone index if any defined. If both geo-fence and ISM node are defined for a certain zone index one will take effect depending on whichever positioning method is available at the moment of monitoring. In case only one is defined, zone monitoring procedure for that zone index will only be dependent on selected method.

Response command does not contain definitions for empty zone indices if any.

Multiple nodes can be defined or erased together in a single command as well as separately.

Parameter	***Description***
N*<ind>*	A 2-digit decimal number between 01 and 20 specifying the zone index for which the following ISM node is defined.
<UID>	A 8-digit hexadecimal number between 00000001 and FFFFFFFE specifying device “Unique ID” of ISM tag to be monitored.

#C40 – Call Button & Timer Button Configuration

Command (change): #C40*nn:rCBMaCRMbTRMcCBDdCMIeCSPfCATgPSDhPSIiiPSAjPSZk MDElMDAmMDDnnMDIooPSUpMAOrPAOsLSMt

Command (query): #C40*nn:r?

Response: u…u#P40*nnCBMaCRMbTRMcCBDdCMIeCSPfCATgPSDhPSIiiPSAjPSZk MDElMDAmMDDnnMDIooPSUpMAOrPAOsLSMt

Error: u…u#P40*nnERROR

With this command, the operation of the Call Button can be specified.
If no number is specified in #C41, no call will be set up upon pressing the Call Button.
This button is different from other sensors in that no alarm is sent together with the voice call that is being set up.

If unit does not have a Dedicated Timer Button available, the Call Button can also be configured for Passivity Alarm (**CBM***a*). Otherwise passivity alarm and call button functionalities can be configured separately and used simultaneously (**CRM***b,* **TRM***c*).

To activate or de-activate Passivity and/or Man-Down Alarm normally, press the Call Button (or Dedicated Timer Button if available) for five seconds longer than the Call Button Detection time specifies. The GSM LED will flash to indicate that the function has been activated or de-activated and GNSS led flashes red throughout the time function stays activated. Whether passivity alarm, man-down alarm or both is to be activated is ultimately determined by configuration parameters “CBM”, “TRM” and “MDE”.

The function will also be de-activated when the unit is turned off, the unit enters low battery mode, if Master Alarm Mode (see #C1) is set to 1 and upon connection of a charger in Mode 1B and Mode 2B.

Mode 1A – Charger connection does not de-activate Passivity Alarm and no report is sent.
Mode 1B – Charger connection de-activates Passivity Alarm and no report is sent.

Mode 2A – Same as 1A but a report will be sent to the Call Button Number when the user buys time.
Mode 2B – Same as 1B but a report will be sent to the Call Button Number when the user buys time.

Parameter	***Description***
CBM*a*	Call Button Mode 0: Disabled 1: Enabled – Set up a voice call to predefined number, only the remote part can hang up the call. 2: Enabled – Same as 1, but the call can be hung up by pressing the Call Button again. 3: Passivity Alarm Mode 1A 4: Passivity Alarm Mode 1B 5: Passivity Alarm Mode 2A 6: Passivity Alarm Mode 2B *Default: 0* Note: This parameter cannot be set at the same time with CRM or TRM. It overwrites CRM and TRM when set. This parameter should not be preferred on SRT306 models with dedicated timer and call buttons. CRM and TRM configurations should be used instead.

Parameter	*Description*
CRM*b*	Dedicated Call Button Mode Only affects voice call functionalities. 0: Disabled (As in CBM:0) 1: Enabled – Set up a voice call to predefined number, only the remote part can hang up the call. (As in CBM:1) 2: Enabled – Same as 1, but the call can be hung up by pressing the Call Button again. (As in CBM:2) *Default: 0* Note: This parameter and 'CBM' cannot be set at the same time. It overwrites CBM when set. This parameter is only effective on SRT306 models with dedicated timer and call buttons.
TRM*c*	Dedicated Timer Button Mode 0: Disabled (same as in CBM:0) 1: Passivity Alarm Mode 1A (same as in CBM:3) 2: Passivity Alarm Mode 1B (same as in CBM:4) 3: Passivity Alarm Mode 2A (same as in CBM:5) 4: Passivity Alarm Mode 2B (same as in CBM:6) *Default: 0* Note: This parameter and 'CBM' cannot be set at the same time. This parameter is only effective on SRT306 models with dedicated timer and call buttons.
CBD*d*	Call Button Detection time When either Dedicated Call Button Mode or Call Button Mode is set to 1 or 2, this is the time that the Call Button has to be pressed, in seconds, in order to set up a Call Button Call. The value range is 0-9. When Call Button Mode is set to 3, 4, 5 or 6, or Dedicated Timer Button Mode is set to 1, 2, 3 or 4, this time is used for two actions; 1) To buy time when Passivity Alarm is active Press and hold the Call Button for this time, in seconds, and release when the unit vibrates to acknowledge that time has been bought. 2) To activate or deactivate Passivity Alarm Press and hold the Call Button for this time, in seconds, plus five seconds to activate or deactivate Passivity Alarm. The GSM led will flash to indicate that the function is activated or deactivated. *Default: 0*
CMI*e*	Call Button Microphone Setting 0: Disable microphone during call 1: Enable microphone during call *Default: 1*
CSP*f*	Call Button Speaker Setting 0: Disable speaker during call 1: Enable speaker during call *Default: 1*

Parameter	*Description*
CAT*g*	Incoming Call Alert Type Only when Call Button Mode is set to 1 or 2, if this parameter is not disabled unit alerts by selected alert type when an incoming call is received. Call Button has to be pressed for the duration of Call Button Detection time in order to answer incoming call. If Call Button Mode is set to 2, pressing Call Button once again also hangs-up the answered incoming call. 0: Disabled 1: Alert by sound 2: Alert by vibrations 3: Both Note: If speaker is off when an incoming call is connected (SPK in #C1) and if unit is configured to alert with sound only (i.e. CAT1), all incoming calls are automatically answered regardless of this parameter. Access number list for incoming calls in #C3 still applies *Default: 0*
PSD*h*	Passivity Alarm – Delay Time When Passivity Alarm is active the delay time is the time, in minutes, that the function will stay in “alert” mode before changing to “alarm” mode unless the user cancels “alert” mode by buying time with the Call Button. During this time, the unit will beep or vibrate to alert the user that he/she needs to buy time.
PSI*ii*	Passivity Alarm – Idle Time When Passivity Alarm is active the idle time is the time, in minutes, that the function will stay in “normal” mode before changing to “alert” mode unless the user buys time with the Call Button before “alert” mode is entered. This value is treated as decimal or hexadecimal depending on PSU parameter.
PSA*j*	Passivity Alarm – Alert Generator 0: Alert with vibrations 1: Alert with beeping
PSZ*k*	Passivity Alarm – Disable after alarm 0: Do not disable passivity alarm after alarm 1: Disable passivity alarm after alarm *Default: 0*
MDE*l*	Man-Down Alarm Mode: 0: Disabled 1: Enabled, charger connection does not de-activate Man-Down Alarm. 2: Enabled, charger connection de-activates Man-Down Alarm. *Default: 0*
MDA*m*	A single-digit decimal between 0 and 7 to specify Man-Down Alarm threshold angle level (upright position is assumed to be 0 degrees): 0: 75 degrees 1: 72 degrees 2: 70 degrees 3: 65 degrees 4: 60 degrees 5: 55 degrees 6: 52 degrees 7: 48 degrees *Default: 4*

Parameter	***Description***
MDD*nn*	Man-Down Alarm – Delay Time When Man-Down Alarm is active the delay time is the time, in seconds, that the function will stay in “alert” mode before changing to “alarm” mode unless the user cancels “alert” mode by placing the unit back in a position in which threshold angle requirement is satisfied. During this time, the unit will beep or vibrate to alert the user that Man-Down alarm is about to go off. The amount of time required to detect that the position is restored is fixed to 3 seconds. *Default: 25*
MDI*oo*	Man-Down Alarm – Detection Time When Man-Down Alarm is active the detection time is the time, in seconds, that the function will stay in “normal” mode before changing to “alert” mode unless the user places the unit back in a position in which threshold angle requirement is satisfied. The amount of time required to detect that the position is restored is fixed to 3 seconds. *Default: 25*
PSU*p*	Passivity alarm idle time (PSI) parameter numeral system: 0: Input value treated as decimal. 1: Input value treated as hexadecimal. *Default: 0*
MAO*r*	Man-Down alarm activation: 0: Disable 1: Enable *Default: 0*
PAO*s*	Passivity alarm activation: 0: Disable 1: Enable *Default: 0*
LSMt	LED hibernation mode: 0: Disabled. 1: Enabled. All indication LEDs are put in hibernation indefinitely. Pressing the on/off button temporarily activates the LEDs for a period of one minute. *Default:0*

#C41 – Call Button Number

Command (change): #C41*nn:rTaax…x

Command (clear): #C41*nn:r

Command (query): #C41*nn:r?

Response: u…u#P41*nnTaax…x

Error: u...u#P41*nnERROR

A single telephone number may be specified here, that will be called when the Call-button is pressed.

This number is used as a report number when Passivity Alarm Mode 1B or Mode 2B is active.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C42 – Report Buffer Configuration

Command (change): #C42*nn:rSALaSWRbSMXcccASTdHCPeeeHCUf

Command (query): #C42*nn:r?

Response: u…u#P42*nn:rSALaSWRbSMXcccASTdHCPeeeHCUf

Error: u…u#P42*nnERROR

Every alarm and report type except *Test Alarm* and response messages can be logged in memory and polled manually afterwards or sent when the respective reporting method is restored.

Up to 1000 alarm reports and 1000 periodic/non-alarm reports can be stored in the memory. When the storage capacity is full, new log entries overwrite the oldest in respective buffers.

Parameter	***Description***
SAL*a*	0: Only buffer reports that fail to be sent. 1: Buffer all reports. *Default: 0*
SWR*b*	Automatically send the failed reports logged in the buffers when respective reporting method is restored. Only sent to the default/first receiver even if more than one is defined. 0: Disabled 1: Enabled *Default: 0*
SMX*ccc*	A 3-digit decimal number between 000 and 999 to limit the number of reports to be sent automatically after connection restore. If set to 0, no limit will apply. *Default: 000*
AST*d*	Append sequence number and/or timestamp at the end of report text, preceded by a comma (,) 0: No append 1: Append sequence number (number of characters may vary) 2: Append timestamp (yymmddhhmmss) 3: Append both sequence number and timestamp (Sequence number comes first and separated by comma (,)) *Default: 0*
HCP*eee*	Set up log history cleaner A 3-digit decimal number between 000 and 999 to specify a time in the unit determined by HCU. Logs that have been stored in the memory older than this amount of time is automatically erased. *Default: 000*
HCU*f*	The unit of log history clean threshold: 0: Hours 1: Days *Default: 0*

#C43 – User Defined OVLS Report Codes

Command (change): #C43*nn:rMccytRccyt

Command (query): #C43*nn:r?

Response: u…u#P43*nn
u…u#P43*nnMccytRccyt

Error: u…u#P43*nnERROR

The command is used to customize alarm type and priority fields for OVLS reports.

If the value is input using 'M' as new message type identifier, given code is used for only when report content does not contain valid RF tag information.

If the value is input using 'R' as new message type identifier, given code is used for only when report content contains valid RF tag information.

See "Report Type OVLS" section for OVLS field descriptions and OVLS alarm type and priority default list.
OVLS alarm priority and type codes for several report types can be overwritten with a single command as long as the length of the command does not exceed 160 characters.

Parameter	***Description***	
M*ccyt* **R***ccyt*	cc	A 2-digit decimal number between 00 and 52 specifying the message type for which the following report code will be used when it is needed. Corresponding message types are: 00: Start message 01: Stop message 02: Response message to command #C5 and #C7 03: Periodic message 04: Pushbutton alarm message 05: Low battery voltage message 06: Cell tracking alarm message 07: SIM card change alarm message 08: Alarm call result message 09: Motion detector alarm message 10: Vibration sensor alarm message 11: Sound detector alarm message 12: Temperature alarm message 13: Configuration change alarm message 14: Distance report message 15: Charge-off alarm message 16: GeoFence alarm message 17: GNSS Fix message 18: GNSS NoFix message 19: Passivity Alarm message 20: Passivity buy time message 23: Test message (Pushbutton duplicate) 25: Response message to command #C85 28: Conditional Periodic Reporting (CPR) Timerstop

Parameter	***Description***	
		29: CPR Periodic Tick Expired (Mode B only) 30: GeoFence Exit message 31: Tamper Alarm / Function Button 1 On 32: External Alarm 1 / Function Button 2 On 33: External Alarm 2 / Function Button 3 On 34: External Alarm 3 / Function Button 4 On 35: External Alarm 4 / Function Button 5 On 36: External Alarm 5 On 37: External Alarm 6 On 38: External Alarm 7 On 39: Status Check Alarm 40: CPR manual stop by SMS command 41: Heartbeat message 42: Man Down alarm 43: Pair in range alarm message 44: Pair out of range alarm message 45: Country Change Alarm 46: RF Tag (334) Detected (#C36 only) 47: RF Tag (334) Detection Lost (#C36 only) 48: RF Tag (334) Tamper Alarm 49: Charge-on alarm message 50: RF Tag (SRT334) In Range Report 51: RF Tag (SRT334) Handoff Report 52: RF Tag (SRT334) Out of Range Report 53: Tamper Alarm / Function Button 1 Off 54: External Alarm 1 / Function Button 2 Off 55: External Alarm 2 / Function Button 3 Off 56: External Alarm 3 / Function Button 4 Off 57: External Alarm 4 / Function Button 5 Off 58: External Alarm 5 Off 59: External Alarm 6 Off 60: External Alarm 7 Off 61: Alcohol Breath Test Result Report 62: Humidity Alarm Message
	y	Alarm Priority
	t	Alarm Type

#C44 – User Defined OVLS Report Text

Command (change): #C44*nn:rMaabbx...x

Command (query): #C44*nn:r?

Response: u…u#P44*nn
u…u#P44*nnMaabbx…x

Error: u…u#P44*nnERROR

The command is used to change default OVLS report text. See "Report Type OVLS" section for OVLS field descriptions and OVLS report text default list.
OVLS report text field for several report types can be overwritten with a single command as long as the length of the input text does not exceed 22 characters.

Parameter	***Description***	
M*aabb x…x*	aa	A 2-digit decimal number between 00 and 52 specifying the message type for which the following message will be used when it is needed. Corresponding message types are: 00: Start message 01: Stop message 02: Response message to command #C5 and #C7 03: Periodic message 04: Pushbutton alarm message 05: Low battery voltage message 06: Cell tracking alarm message 07: SIM card change alarm message 08: Alarm call result message 09: Motion detector alarm message 10: Vibration sensor alarm message 11: Sound detector alarm message 12: Temperature alarm message 13: Configuration change alarm message 14: Distance report message 15: Charge-off alarm message 16: GeoFence alarm message 17: GNSS Fix message 18: GNSS NoFix message 19: Passivity Alarm message 20: Passivity buy time message 23: Test message (Pushbutton duplicate) 25: Response message to command #C85 28: Conditional Periodic Reporting (CPR) Timerstop 29: CPR Periodic Tick Expired (Mode B only) 30: GeoFence Exit message 31: Tamper Alarm / Function Button 1 On 32: External Alarm 1 / Function Button 2 On 33: External Alarm 2 / Function Button 3 On 34: External Alarm 3 / Function Button 4 On 35: External Alarm 4 / Function Button 5 On 36: External Alarm 5 On 37: External Alarm 6 On

Parameter	***Description***	
		38: External Alarm 7 On 39: Status Check Alarm 40: CPR manual stop by SMS command 41: Heartbeat message 42: Man Down alarm 43: Pair in range alarm message 44: Pair out of range alarm message 45: Country Change Alarm 46: RF Tag (334) Detected (#C36 only) 47: RF Tag (334) Detection Lost (#C36 only) 48: RF Tag (334) Tamper Alarm 49: Charge-on alarm message 50: RF Tag (SRT334) In Range Report 51: RF Tag (SRT334) Handoff Report 52: RF Tag (SRT334) Out of Range Report 53: Tamper Alarm / Function Button 1 Off 54: External Alarm 1 / Function Button 2 Off 55: External Alarm 2 / Function Button 3 Off 56: External Alarm 3 / Function Button 4 Off 57: External Alarm 4 / Function Button 5 Off 58: External Alarm 5 Toggle Off 59: External Alarm 6 Toggle Off 60: External Alarm 7 Toggle Off 61: Alcohol Breath Test Result Report 62: Humidity Alarm Message
	bb	A 2-digit decimal number between 00 and 22 specifying the number of characters the following message contains.
	x…x	The message. Permitted characters are those with an ASCII value between 32 and 126.

#C45 – Request Buffered Reports

Command (query): #C45*nn:rBUFaREF<hdl1> END<hdl2>PRE<num>SUC<num>EXTbFORc

Response (summary): u…u #C45*nnTARGET:<buf>,TOTAL FOUND:<fnd>,SEQNO RANGE: <seqFirst>-<seqLast>,TIME RANGE:<tsFirst>-<tsLast>, TOTAL SEARCHED:<tot>

Error: u…u#P45*nnERROR

Reports logged in buffers can be queried manually if another buffer reporting is not in progress (ERROR response returned otherwise).

There is not a maximum for the amount of reports to be sent in return of a query; however transmission time may vary depending on the selected transfer protocol and number of reports to be returned. Monitoring and detection of on-going events continue as usual while buffer reporting is in progress.

Reporting method (RMC in #C1) and report format configurations (if not specified in the query command) of the selected receiver apply to report(s) returned in response. Reports cannot be returned in “SRT# - NMR” format.

The parameters “BUF” and “REF” must be supplied together in the respective order for the command to be accepted. Rest of the parameters are optional.

Only one of the three parameters “END”, “PRE” or “SUC” must be supplied following the parameter “REF” when defining a query interval.

<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td>r</td><td>If specified, the response (unless it is an ERROR response) will be sent to:
<table>
<tr><th>r</th><th>Receiver that response will be sent to</th></tr>
<tr><td>1</td><td>Report/Alarm receiver 1 (IP/SMS)</td></tr>
<tr><td>2</td><td>Report/Alarm receiver 2 (IP/SMS)</td></tr>
<tr><td>3</td><td>Report/Alarm receiver 3 (IP/SMS)</td></tr>
<tr><td>4</td><td>Master number (SMS)</td></tr>
<tr><td>5</td><td>Low Battery alarm number (SMS)</td></tr>
<tr><td>6</td><td>SIM card change alarm number (SMS)</td></tr>
<tr><td>7</td><td>Access Number 1 (SMS)</td></tr>
<tr><td>8</td><td>Access Number 2 (SMS)</td></tr>
<tr><td>9</td><td>Access Number 3 (SMS)</td></tr>
<tr><td>I</td><td>TCP command channel server (IP)</td></tr>
</table>
If not specified or one of the SMS receivers is chosen and a number is not defined for the receiver, the response will be sent to the sender of the command.
Note: Once TCP command channel is enabled, response(s) cannot be returned to other IP receivers (1, 2 or 3). In such a case, buffered reports will be automatically sent to the SMS number of the selected receiver. Likewise if TCP command channel is not enabled, response(s) cannot be returned over TCP command channel.</td></tr>
<tr><td>BUFa</td><td>Select the buffer to be searched:
0: Periodic (non-alarm) report buffer
1: Alarm buffer</td></tr>
</table>

<table>
<tr><td>REF<hdl1></td><td>The handle that is used to refer to report entry in question from the selected buffer. It can be specified as a sequence number, a timestamp or a macro word:
- A number between 1 and 65535 denotes sequence number.
- A digit sequence in the format of yymmddhhmmss denotes a timestamp. (yy: year, mm:month, dd:day, hh:hour, mm:minute, ss:second)
- Handles can also be set implicitly by using following macro words:
“FIRST” always points to the oldest report stored in the selected buffer.
“LAST” always points to the latest report stored in the selected buffer.</td></tr>
<tr><td>END<hdl2></td><td>Second handle can be specified if multiple buffered reports need to be queried. It can be specified as a sequence number, a timestamp or a macro word:
- A number between 1 and 65535 denotes sequence number.
- A digit sequence in the format of yymmddhhmmss denotes a timestamp. (yy: year, mm: month, dd: day, hh: hour, mm: minute, ss: second)
- Handles can also be set implicitly by using following macro words:
“LAST” always points to the latest report stored in the selected buffer.
Note: First and second handles together form respectively the lower and upper boundaries of a query interval. After command is executed all reports within this interval are returned.</td></tr>
<tr><td>SUC<num></td><td>A number to specify an amount of reports that need to be acquired from the selected buffer, including and succeeding the report entry pointed by REF<hdl1> parameter.
Note: Not accepted if the amount is more than respective buffer’s capacity.</td></tr>
<tr><td>PRE<num></td><td>A number to specify an amount of reports that need to be acquired from the selected buffer, including and preceding the report entry pointed by REF<hdl1> parameter.
Note: Not accepted if the amount is more than respective buffer’s capacity.</td></tr>
<tr><td>EXTb</td><td>Select additional options:
1: Request buffer’s content summary (see above - Response (summary)). Only a text message is returned including the following information:
<table>
<tr><th>Parameter</th><th>Description</th></tr>
<tr><td><buf>
<fnd>
<seqFirst>
<seqLast>
<tsFirst>

<tsLast>

<tot></td><td>Name of the queried buffer.
Amount of log entries found within the queried interval
Sequence number of the first report found in the query interval.
Sequence number of the last report found in the query interval.
Timestamp of the first report found in the query interval in the format of yy/mm/dd,hh:mm:ss
(yy: year, mm: month, dd: day, hh: hour, mm: minute, ss: second)
Timestamp of the last report found in the query interval in the format of yy/mm/dd,hh:mm:ss
(yy: year, mm: month, dd: day, hh: hour, mm: minute, ss: second)
Amount of log entries currently stored in the queried buffer</td></tr>
</table>
Note: Accepted only if an interval specified in the query command.
2: Append relevant report success code (see section “Report Success Code”) to the end of response reports.
3: Delete selected report log entries.</td></tr>
<tr><td>FORc</td><td>Specify report format of response(s):
0: SRT# GPS
1: OVLS – Regular
2: OVLS – SRT
3: User Defined (See #C17)
4: OVLS – Extended (Same as OVLS – B&M with additional information)</td></tr>
</table>

#C60 – Extra Report/Alarm Number Configuration

Command (change): #C60*nn:rTaax…xTbby…yTccz…z

Command (clear all): #C60*nn:r

Command (query): #C60*nn:r?

Response: u…u#P60*nnTaax…xTbby…yTccz…z

Error: u...u#P60*nnERROR

The change command is accepted if up to three numbers are specified and the correct format is used for the numbers. The numbers specified correspond to the first, second and third number that alarms or reports will be sent to.
If no numbers are supplied and it is not a query command, all three numbers will be deleted from the unit. If only one or two numbers are specified in the change command, the remaining number slots will be cleared.
SMS delivery success to these numbers is considered mandatory before proceeding to other report receivers defined in #C2, #C20 and #C26.
Parameters EM1, EM2 and EM3 in #C61 determine if and which reports or alarms shall be sent to numbers defined here respectively.
Enabling TCP Command Channel does not affect reporting to these receivers and reporting takes place prior to sending through TCP channel.

Parameter	***Description***
T*aax…x* **T***bby…y* **T***ccz…z*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C61 – Mask Report Types for Extra Report/Alarm Numbers

Command (change): #C61*nn:rEM1x…xEM2y…yEM3z…z

Command (query): #C61*nn:r?

Response: u…u#P61*nn rEM1x…xEM2y…yEM3z…z

Error: u...u#P61*nnERROR

The command is used to select the report types that are to be reported to respective SMS numbers which are defined in command #C60.

Parameter	***Description***
EM1*x…x* **EM2***y…y* **EM3**z...z	x…x: Up to 16 digit hexadecimal whose bits are mapped to available report types. None of the report types is allowed to be reported to #C60 numbers by default. *Default: 0*

#C62 – Schedule Zone Monitoring Task

Command (change):

#C62*nn:rTSK<*task*>STTyymmddhhmmSTPyymmddhhmm[ENDyymmddhhmm]

ROPbbROUc[PROd]ZAMeeeeeZDTf

Command (query): #C63*nn:rT<*task1*>3G<*task2*>3....T<*task20*>3

Response: u…u#P62*nnTSK<*task*>STTyymmddhhmmSTPyymmddhhmm [ENDyymmddhhmm]ROPbbROUc[PROd]ZAMeeeeeZDTf

Error: u...u#P62*nnERROR

Configuration command contains a variety of parameters to create, schedule, edit and re-schedule time dependent tasks which are primarily used to organize zone monitoring assignments. Up to 20 tasks can be scheduled at a time with each task providing unlimited recurrence option.

Parameter	***Description***
TSK<*task*>	A two-digit decimal number between 00 and 19 specifying a task index to which following properties apply.
STT*yymmddhhmm*	Date and time information presented as yy: year mm: month dd: day hh: hour mm: minute, which specifies next start time for scheduled task . Note: Timestamp is checked against the effective time run by real time clock (RTC) (see CDT in #C15)
STP*yymmddhhmm*	Date and time information presented as yy: year mm: month dd: day hh: hour mm: minute, which specifies next end time for scheduled task. Note: Timestamp is checked against the effective time run by real time clock (RTC) (see CDT in #C15)
END*yymmddhhmm*	Date and time information presented as yy: year mm: month dd: day hh: hour mm: minute, which is used to set end time of range of recurrence i.e. specifies when recurrence (if any set) of scheduled task ends by. Note that limiting recurrence (if any set) is optional and the parameter does not appear in the command response if not set. Note: Timestamp is checked against the effective time run by Real Time clock (RTC)(see CDT in #C15)
ROP*bb*	Recurrence Period A two-digit decimal number between 00 and 99 which specifies after how many time units determined by parameter ROU, scheduled task recurs. If set to 00 recurrence is disabled. *Default: 00*
ROU*c*	The unit of recurrence period: 0: Hours 1: Days 2: Weeks 3: Months *Default: 0*
PRO*d*	A single digit decimal between 0 and 4 which indicates index of a unit profile to switch when scheduled task is due. 'N' indicates that existing profile will apply. *Default: N*

Parameter	*Description*
ZAM*eeeee*	A five-digit hexadecimal number in order to introduce a bit-mask that selects which of 20 monitoring zones are required to be monitored when scheduled task is due. Note: Scheduled task settings has priority over general zone monitoring behaviour regulated by configurations present in #C31 and #C34 hence scheduled task actions overwrite existing zone monitoring behaviour when task is due and restores when it is over. *Default: 0*
ZDT*f*	Zone Detection Method: 0: Alarm when position detected inside of the zone. 1: Alarm when position detected outside of the zone. Note: Scheduled task settings has priority over general zone monitoring behaviour regulated by configurations present in #C31 and #C34 hence scheduled task actions overwrite existing zone monitoring behaviour when task is due and restores when it is over. *Default: 0*

#C63 – Manage Zone Monitoring Tasks

Command (action): #C63*nn:rT<*task1*>bG<*task2*>b....T<*task20*>b

Command (query): #C63*nn:r?

Response: u…u#P63*nn
u…u#P63*nnT<*task1*>cT<*task2*>c....T<*task20*>c

Error: u…u#P63*nnERROR

This command is used to manage scheduled tasks via command #C62. Note that each command can be composed of actions for multiple tasks of selection but different types of actions cannot be combined in a single command e.g. query for one task and erase for another cannot be requested in the same command.

Any command containing action(s) to act upon unscheduled task indices returns error.

Parameter	*Description*	
T<*task*>*b*	<task>	A 2-digit decimal number between 00 and 19 specifying a task index to which selected action is applied.
	b	Type of actions: 0: Disable selected task. 1: Enable selected task. 2: Erase definition and all properties of selected task. 3: Query selected task properties. Task details are returned on behalf of #C62 command response.
	c	Current active status of scheduled tasks: 0: Disabled 1: Enabled

#C70 – Bluetooth General Configuration

Command (change): #C70*nn:r BTEaBTNbb<*BTName*>BDTc

Command (query): #C70*nn:r?

Response: u…u#P70*nnBTEaBTNbb<*BTName*>BDTc

Error: u…u#P70*nnERROR

The configuration command contains parameters to set-up embedded Bluetooth device for supported products. Due to implementation restrictions Bluetooth pairing request can only be made to pre-approved Bluetooth accessories. Bluetooth pairing request can be carried out by sending SMS action command "BTPAIR". Please refer to the related section for more information.

Parameter	***Description***
BTE*a*	Bluetooth activation 0: Disabled 1: Enabled *Default: 0*
BTN*bb<BTName>*	Bluetooth Device Name Parameter sets Bluetooth device name displayed in scan results if discoverable by other Bluetooth devices.*bb* indicates the number of characters that make up name text. Name length can be 19 characters maximum. Default name varies depending on type of product e.g. *SRT346*, *SRT332* etc.
BDT*c*	Represents index of target Bluetooth device type to be paired with. Below is the list of official Bluetooth accessories supported by SRT products: 0: None 1: Dignita AL5 Alcometer 2 – 9: Reserved. *Default: 0*

#C80 – External Alarm Input / Function Button Configuration

Command (change): #C80*nn:rELCabcdefghlA1AmA1VnnA2AoA2Vpp

Command (query): #C80*nn:r?

Response: u…u#P80*nnELCabcdefghlA1AmA1VnnA2AoA2Vpp

Error: u…u#P80*nnERROR

With this command, tamper and external alarm inputs or function buttons can be individually configured for listed modes. Depending on type of product, either first digit (a) stands for tamper alarm mode and subsequent seven digits (b-h) for external alarms 1-7 respectively or first 5 digits (a-e) sets operation mode for function buttons. Last digit (l) is a hexadecimal value (0-F) which represents off-to-on (or on-to-off) detection time in seconds. Detection time is common for all alarm inputs and automatically increased by 1 so that the minimum detection time is 1 second.

Parameter	***Description***
ELC*abcdefghl*	Alarm detection mode, first 8 digits (a-h) can be set to one of the following values: 0: Disabled 1: Disabled 2: Disabled 3: Disabled 4: Alarm detected if alarm loop is open or function button is released for duration of detection time and relay is not activated after alarm detection. 5: Alarm detected if alarm loop is open or function button is released for duration of detection time and relay is activated after alarm detection. 6: Alarm detected if alarm loop is closed or function button is pressed for duration of detection and the relay is not activated. 7: Alarm detected if alarm loop is closed or function button is pressed for duration of detection time and relay is activated. 8: Disabled 9: Disabled A: Disabled B: Disabled C: Same as 4 with toggle mode enabled. D: Same as 5 with toggle mode enabled. E: Same as 6 with toggle mode enabled. F: Same as 7 with toggle mode enabled. Last digit (l) is hexadecimal value (0-F) which states alarm detection time in seconds. *Default: 000000000*
A1A*m*	A 1-digit decimal number between 0 and 3 to configure the alarm conditions for analogue input threshold 1 (A1V). 0: Analog In alarm 1 disabled 1: Analog In alarm 1 condition occurs when the measured input voltage rises above the threshold value defined by A1V. 2: Analog In alarm 1 condition occurs when the measured input voltage drops below the threshold value defined by A1V. 3: As both mode 1 and 2. *Default: 0*

Parameter	***Description***
A1V*nn*	The parameter takes a two-digit hexadecimal value between 00 and FF and is used to set a threshold for the voltage read from the analogue input. The voltage span is quantized into 256 levels where each step equals to 10,9375V. Accordingly (0xee)*4*2800/1024 gives the value in (mV). *Default: 00*
A2A*o*	A 1-digit decimal number between 0 and 3 to configure the alarm conditions for analogue input threshold 2 (A2V). 0: Analog In alarm 2 disabled 1: Analog In alarm 2 condition occurs when the measured input voltage rises above the threshold value defined by A2V. 2: Analog In alarm 2 condition occurs when the measured input voltage drops below the threshold value defined by A2V. 3: As both mode 1 and 2. *Default: 0*
A2V*pp*	The parameter takes a two-digit hexadecimal value between 00 and FF and is used to set a second threshold for analogue input voltage. *Default: 00*

#C81 – Request External Alarm Input / Function Button Status

Command (request): #C81*nn:r

Response: u…u#P81*nnELSabcdefghlm

Error: u…u#P81*nnERROR

This is a query command and returns effective detection and alarm status of external alarm inputs or hardware function buttons depending on device hardware configuration. First eight digits (a-h) represent external alarms 7-1 and tamper respectively or Function Buttons 5-1. Last two digits represent relay output and battery heater activity status.

Parameter	***Description***
ELS*abcdefghlm*	External Alarm Status 7-1 and tamper (characters 'a' to 'h' respectively) or Function Button status 5-1 (characters 'd' to 'h' respectively) 0: Corresponding alarm loop is closed or function button is pressed, respective configuration conditions are not met and alarm is not in progress. 1: Corresponding alarm loop is open or function button is released, respective configuration conditions are not met and alarm is not in progress. 2: Corresponding alarm loop is closed or function button is pressed, respective configuration conditions are met but alarm is not in progress. (toggle-mode only) 3: Corresponding alarm loop is open or function button is released, respective configuration conditions are met but alarm is not in progress. (toggle-mode only) 4: Corresponding alarm loop is closed or function button is pressed, respective configuration conditions are not met but alarm is in progress. (toggle-mode only) 5: Corresponding alarm loop is open or function button is released, respective configuration conditions are not met but alarm is in progress. (toggle-mode only) 6: Corresponding alarm loop is closed or function button is pressed, respective configuration conditions are met and alarm is in progress. 7: Corresponding alarm loop is open or function button is released, respective configuration conditions are met and alarm is in progress. Relay Output and Heater Activity Status (in position of characters 'l' and ' m' respectively) 0: Not activated 1: Activated

#C82 – Relay Activation

Command: #C82*nn:rRLYaRTPbbb

Response: u…u#P82*nnRLYaRTPbbb

Error: u…u#P82*nnERROR

This command controls used to set relay operation mode.

Parameter	***Description***
RLY*a*	0: Deactivate 1: Activate 2: Activation controlled by ELC (in #C80) parameter *Default: 2*
RTP*bbb*	Relay toggle period. A 3-digit decimal from 000 to 999 which is used to set the amount of time in minutes to toggle relay status when expired. Note that the parameter is optional and only applies when relay mode (RLY) is configured as 0 or 1 i.e. is not effective if relay activation is controlled by ELC (in #C80) parameter. If parameter is omitted, relay status remains until next command.

#C83 – Indoor Positioning Configuration

Command (change): #C83*nn:rRFEaWFEbRFPcRFSddRNMeeRCTffRFLggRPPhhhRVPiiiUIDjjjjjjjj

Command (query): #C83*nn:r?

Response: u…u#P83*nnRFEaWFEbRFPcRFSddRNMeeRCTffRFLggRPPhhh RVPiiiUIDjjjjjjjj

Error: u…u#P83*nnERROR

The command includes configuration parameters to set up ISM and Wi-Fi module and communication properties.

Parameter	***Description***
RFE*a*	ISM transceiver operation mode: 0: Disabled 1: Enabled only when GNSS fixes are not valid 2: Always enabled *Default: 0*
WFE*b*	Wi-Fi transceiver enable: 0: Disabled 1: Enabled *Default: 0*
RFP*c*	A single digit decimal number between 1 and 5 which selects RF power: 1: -10 dBm 2: 0 dBm 3: 5 dBm 4: 10 dBm 5: 17 dBm *Default: 5*
RFS*dd*	A two digit decimal in seconds to specify amount of time to assume RF tag as disconnected if no packet received from the RF tag locator. *Default: 05*
RNM*ee*	A two digit decimal to specify number of consecutive messages from a single RF tag with better RSSI level in order to determine as the closest RF tag. *Default: 05*
RCT*ff*	RF connection timeout A two digit decimal between 0 and 15 in seconds to specify amount of time to restart the RF module after last RF packet reception. *Default: 10*
RFL*gg*	RF Led indicator timeout A two digit decimal between 0 and 15 in seconds to specify amount of time to turn off flashing RF led after last RF packet reception. *Default: 10*
RPP*hhh*	A three-digit decimal number between 000 and 255 which specifies position poll request time interval in seconds. If set to 000 position polling is disabled. *Default: 000*

Parameter	***Description***
RVP*iii*	A three-digit decimal number between 000 and 255 which specifies validity period of obtained position in seconds. If set to 000, RF Tag connection is never considered lost. *Default: 010*
RCL*j*	The parameter allows to specify alternative syntax orders for RF tag information printed in OVLS report protocol: 0: No change, as described in OVLS protocol specification. 1: OVLS report text field is restored to default OVLS message of respective report cause as soon as RF tag contact is considered lost. 2: Numeric network data is omitted; only broadcast text message is printed. 3: As both 1 and 2 4: Broadcast text message is printed before numeric network data 5: As both 1 and 4 *Default: 0*
UID*jjjjjjjj*	Eight -digit hexadecimal number between 0000001 and FFFFFFFE to read ISM network unique ID. This is a read-only parameter.
RRC*k*	A single digit hexadecimal to state the amount of time before activating GPS if IPS network is not to be found after activating ISM module for positioning. Value given is automatically increased by one and each unit represents a 4 second interval. *Default: 7* ((7+1) x 4=32 seconds)

#C84 – Conditional Periodic Reporting

Command (change): #C84*nn:rCPRaCPTbbbMSTx...xMSPy...y

Command (query): #C84*nn:r?

Response: u…u#P84*nnCPRaCPTbbbMSTx...xMSPy...y

Error: u…u#P84*nnERROR

The command includes configuration parameters to set up the conditions for periodic reporting.

There are two operation modes available for conditional periodic reporting:

Mode A allows time and distance based periodic reporting only after defined report type(s) takes place to start until stopped by SMS command "CPRSTOP", timer expiration, or another event defined to stop the reporting sequence.

Mode B allows periodic reporting under the same conditions stated for Mode A but only distance based periodic reports are generated in compliance with the configuration parameters in Distance Based Periodic Reporting command #C30. Time based periodic reporting parameter PER (in #C1 and #C24) is used to define a separate time period during which a distance report must be generated or else the reporting sequence is stopped.

Ongoing periodic reporting sequence is automatically stopped and "GSM Stop" message is generated regardless of SPM parameter in #C1 if unit shuts down due to either on-off switch or low battery.

Parameter	***Description***
CPR*a*	Periodic Reporting Mode: 0: Disabled 1: Mode A 2: Mode B *Default: 0*
CPT*bbb*	A 3-digit decimal number between 000 and 999 that specifies a time period in minutes. This time period is used as the definitive timer to end ongoing conditional periodic reporting sequence when expires. Timer is not effective when the parameter is set to zero (000). *Default:000*
MST*x…x*	x…x: Up to 16 digit hexadecimal whose bits are mapped to available report types. None of the report types is set to start periodic reporting by default. *Default: 0*
MSP*y…y*	y…y: Up to 16 digit hexadecimal whose bits are mapped to available report types. None of the report types is set to stop periodic reporting by default. *Default: 0*

#C85 – Request Multiple Reports

Command (request): #C85*nn:rNORaaRISbbb

Error: u…u#P85*nnERROR

This command requests a given number of reports from the unit. Each report is sent per a specified period of time.

Both parameters must be provided at the same time, an ERROR response is returned otherwise.
If supplied with no parameter, only one report is sent.

The report format used for the report is selected by the parameter ORA in #C16.

Parameter	***Description***
NOR*aa*	A 2-digit decimal number between 01 and 99 which specifies the number of reports requested.
RIS*bbb*	A 3-digit decimal number between 005 and 999 which specifies a time interval in seconds according to which the requested reports are sent.

#C86 – Encryption settings

Command (change): #C86*nn:rENEaCRYbPADcINVd...d

Command (query): #C86*nn:r?

Response: u…u#P86*nnENEaCRYbPADcINVd...d

Error: u…u#P86*nnERROR

The command is used to set up general message encryption features.

When enabled, the Advanced Encryption Standard (AES) algorithm (Rijndael) is used to encrypt and decrypt outgoing and incoming messages.

Due to compression and expansion methods used before and after text encryption and decryption, the output of a decrypted text has to be all in capital letters regardless of the original case in plaintext.

Maximum length allowed for a plaintext to be encrypted is 144 characters due to message length limitations. The result of encryption becomes an empty string if longer than maximum allowed.

Maximum length allowed for a ciphertext to be decrypted is 152 characters due to message length limitations. The result of encryption becomes an empty string if longer than maximum allowed.

Encryption and decryption are not effective for outgoing or incoming messages over TCP channel (#C26) and reports sent to “Extra SMS numbers” (#C60).

Parameter	***Description***
ENE*a*	0: Encryption/decryption disabled 1: Encrypt outgoing message 2: Decrypt incoming message 3: Both 1 and 2 *Default: 0*
CRY*b*	Encryption Mode. Reserved. 0: Electronic codebook (ECB) *Default: 0*
PAD*c*	Padding Mode. Reserved. 0: None *Default: 0*
INV*d...d*	A 32-digit hexadecimal to specify an initialization vector required for cipher-block chaining (CBC) encryption mode. The parameter is reserved, as CBC encryption mode is not supported. *Default: All zeroes*

#C87 – Encryption Key Configuration

Command (change): #C87*nn:rTaax…x

Command (query): #C87*nn:r?

Response: u…u#P87*nnTaax…x

Error: u...u#P87*nnERROR

Encryption key is used to convert the plaintext, into the final output, the ciphertext. The key size specifies the number of repetitions of transformation rounds that convert the input.

The change command is accepted if the specified key size is one of valid lengths (32, 48 or 64) and if it matches the length of the supplied key. The key string must be composed of only hexadecimal characters.

Parameter	***Description***	
T*aax…x*	aa	A 2-digit decimal number which can be 32, 48 or 64 specifying the number of characters the following encryption key contains.
	x...x	The encryption key. Only hexadecimal characters are allowed. *Default: All zeroes*

#C88 – Reporting Masks Configuration

Command (change): #C88*nn:rRM1x…xRM2y…yRM3z…zIM1x…xIM2y…yIM3z…zPMMx..x

Command (query): #C88*nn:r?

Response: u…u#P88*nnRM1x…xRM2y…yRM3z…zIM1x…xIM2y…yIM3z…zPMMx..x

Error: u...u#P88*nnERROR

The command is used to set reporting masks for respective SMS/IP receivers defined by commands #C2 and #C20.

Mask configurations are to be combined with other report settings in order to extend the versatility of available reporting methods. Generating accurate values for the mask parameters requires an inclusive understanding of the device's operational principles. Note that faulty configuration may produce costly consequences.

Parameter	***Description***
RM1*x…x* RM2*y…y* RM3z...z	x…x: Up to 16 digit hexadecimal whose bits are mapped to available report types. All report types are allowed over SMS by default. *Default: FFFFFFFFFFFFFFFF*
IM1*x…x* IM2*y…y* IM3z...z	x…x: Up to 16 digit hexadecimal whose bits are mapped to available report types. All report types are allowed over IP by default. *Default: FFFFFFFFFFFFFFFF*
PMM*x...x*	x..x: Mask value up to 16 hexadecimal digits were each bit position is mapped to position of the report type as listed in Report Causes list. GPS privacy mode is enabled for each bit set for respective report type. GPS privacy mode is disabled for all types by default. Default: 0

#C89 – Alarm RX/TX Mode Configuration

Command (change): #C89*nn:rTFEaTFCbbTFPcTFDdTFJeeTRPfffTSIgggggggUIDhhhhhhhh TRM<Rxheader>TTM<Txheader> THBii

Command (query): #C89*nn:r?

Response: u…u#P89*nnTFEaTFCbbTFPcTFDdTFJeeTRPfffTSIgggggggUIDhhhhhhhh TRM<Rxheader>TTM<Txheader>THBii

Error: u…u#P89*nnERROR

The command includes configuration parameters to set up alarm RX/TX mode preferences.

RX/TX mode relays data through an enclosed ISM network in order to transmit alarm reports to a gateway registered to GSM network. There must exist at least one gateway device (RX mode) in order to from a network and receive reports from router nodes (TX mode).
Below is a list of supported report types:

- Pushbutton alarm message
- Low battery voltage message
- Motion detector alarm message
- Vibration sensor alarm message
- Temperature alarm message
- Passivity Alarm message
- Test message (Pushbutton duplicate)
- Tamper Alarm
- External Alarm 1
- External Alarm 2
- External Alarm 3
- External Alarm 4
- External Alarm 5
- External Alarm 6
- External Alarm 7
- Man Down alarm

Parameter	***Description***
TFE*a*	Select RX/TX mode: 0: RX/TX mode disabled. 1: TX Mode (Router) 2: RX Mode (Gateway) Note: If RX mode selected, network parameters in #C83 apply. *Default: 1*
TFC*bb*	A two-digit decimal between 01 and 83 to specify RF channel frequency. *Default: 48*
TFP*c*	A single digit decimal number between 1 and 5 to select RF power: 1: -10 dBm 2: 0 dBm 3: 5 dBm 4: 10 dBm 5: 17 dBm *Default: 5*

Parameter	*Description*
TFD*d*	A single digit decimal between 1-6 to specify RF data rate: 1: 1,2 kbit/s 2: 4,8 kbit/s 3: 19,2 kbit/s 4: 32,768 kbit/s 5: 76,8 kbit/s 6: 100 kbit/s *Default: 4*
TFJ*ee*	Decimal value between 01 and 99 to specify highest allowable network jump level. *Default: 49*
TRP*fff*	A three-digit decimal number between 24 and 255 where one unit counts for 7,5 seconds. This is a period to specify the amount of time to wait before switching back to TX mode from indoor positioning network if network connection has not been established for 75 seconds. *Default: 08 (1 minute)*
TSI*ggggggg*	Eight -digit hexadecimal number between 0000001 and FFFFFFFE to read and set ISM network system ID. *Default: 31000000*
UID*hhhhhhhh*	Eight -digit hexadecimal number between 0000001 and FFFFFFFE to read ISM network unique ID. This is an alias of UID parameter in #C83. This is a read-only parameter.
TRM*<Rxheader>*	Reserved. *Default: SRT306*
TTM*<Txheader>*	Reserved. *Default: SRT306*
TEI*i*	Transmission medium priority: 0: Prioritize GSM transmission over ISM 1: Prioritize ISM transmission over GSM (if “TX mode” enabled) *Default: 0*
TRC*j*	A single digit hexadecimal to specify ISM connection timeout in TX mode. The value given is incremented by 1 and represents 4-second intervals. *Default: 1* ((1+1) x 4 = 8 seconds)
TMF*k*	Valid GPS fix is ignored if a valid IPS position received before switching to transmit via ISM medium. 0: Disabled 1: Enabled *Default: 0*
TFL*l*	Two digits decimal between 0 and 15 to state the amount of time in seconds RF LED blinks after RF network lost. *Defaut: 10*
TCT*m*	Two digits decimal between 0 and 15 to state the amount of time in seconds before falling back to GSM medium after RF network is considered to be lost. *Default: 10*
THB*ii*	Hexadecimal value specifies ISM heart beat interval in hours. Transmission medium must be prioritized for ISM (TEI) in order to activate heartbeat signals. A value of zero (00) disables heartbeat transmission. *Default: 00*

#C90 – Status Check Alarm Number

Command (change): #C90*nn:rTaax…xTbby…y

Command (clear): #C90*nn:r

Command (query): #C90*nn:r?

Response: u…u#P90*nnTaax…xTbby…y

Error: u...u#P90*nnERROR

Upon generation of a status check alarm, the unit will send an SMS to each of the numbers specified. One of the numbers should be to the unit itself, and the other to the user of the unit. The default is for the first number to be to the unit itself and the second to the user. It is possible to only set one number here, and if TLN in #C91 is set to 2 (default), the number will be treated as if it's the number to the unit. If TLN is set to 1, the single number will be to the user.
The messages sent to the unit itself and to the user are different, and when the unit receives the SMS sent to itself, it will beep for 3 seconds to indicate success.

Parameter	***Description***
T*aax…x* **T***bby…y*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C91 – Extended GSM Configuration

Command (change): #C91*nn:rMBSaTLNbTLRcWSEdSSSeSARxyzSATgggLMEhTFDiiiTFWllTFAoMDSjMDCkTRSmTRCnGlTooGWTpp

Command (query): #C91*nn:r?

Response: u…u#P91*nnMBSaTLNbTLRcWSEdSSSeSARxyzSATgggLMEhTFDiiiTFWllTFAoMDSjMDCkTRSmTRCnGlTooGWTpp

Error: u…u#P91*nnERROR

The parameter MBS is reserved. TLN specifies to which of the numbers defined in #C90 a status check alarm SMS will be sent, that is not to the unit itself. WSE parameter enables or disables audio warning if an SIM card error is detected.

Parameter	***Description***
MBS*a*	Reserved. 0: Reserved. 1: Reserved. *Default: 0*
TLN*b*	0: Report format to both numbers is decided by TLA and TLB in #C16. 1: First number in #C90 is to remote user. Fixed internal report format. 2: Second number in #C90 is to remote user. Fixed internal report format. *Default: 2*
TLR*c*	Status Check Alarm reporting method configuration 0: Only sent over SMS to Status Check Alarm number(s) 1: Only sent over GPRS to TCP channel receiver if TCP channel enabled and at least a number defined in #C90. If transmission fails over GPRS, report is sent by SMS to Status Check Alarm number(s) as fallback. TLA determines the format for report over TCP channel. 2: First sent over GPRS to TCP channel receiver if TCP channel enabled, then sent by SMS to Status Check Alarm number(s) provided at least one defined in #C90. TLA determines the format for report over TCP channel. *Default: 0*
WSE*d*	Warn on SIM Error 0: Disabled 1: Enabled
SSS*e*	Stop sending reports to remaining receiver(s) after first success. 0: Disabled 1: Enabled *Default: 0*

Parameter	*Description*
SAR*xyz*	SMS Acknowledge Mode Control which receivers need to send ACK, and for what messages. (see 'Report Causes' table) x: Recipient 1 y: Recipient 2 z: Recipient 3 SMS acknowledge requirements only apply to recipients defined in #C2. 0: Neither alarms nor reports need to be acknowledged. 1: Only alarms need to be acknowledged. 2: Only reports (those not counted as alarms) need to be acknowledged. 3: Both alarms and reports need to be acknowledged. *Default: 000*
SAT*ggg*	A 3-digit decimal number between 005 and 999, which specifies a time in seconds to wait for SMS acknowledge. *Default: 005*
LME*h*	Continue buffering reports regardless of GSM registration status. If unit cannot register to GSM, no communication attempt is made until a GSM registration takes place. Normal operation will be restored automatically as soon as a GSM network becomes available. 0:Disabled 1:Enabled *Default: 0*
TFD*iii*	A 3-digit decimal number between 000 and 999 which specifies a time in minutes. This time specifies how long the user text received via "TEXT:" command is displayed in OVLS reports. *Default: 060*
TFW*ll*	A 2-digit decimal number between 00 and 99, which specifies a time in minutes. Unit will start warning by vibration and/or sound when this amount of time left for the time specified by "TFD" to expire. *Default: 05*
TFA*o*	Alert type used to warn before the end of user text display in OVLS reports 0: Disabled 1: Play warning tone once when the time specified by "TFW" left to end 2: Vibrate once when the time specified by "TFW" left to end 3: Both 1 and 2 4: Disabled 5: Play waning tone periodically each minute starting when the time specified by "TFW" left until text display ends 6: Vibrate periodically each minute starting when the time specified by "TFW" left until text display ends 7: Both 5 and 6 *Default: 3*
MDS*j*	Motion Detection Sensitivity (only for SRT400) Higher value decreases sensitivity 0-F *Default: 1*
MDC*k*	Motion Detection Count (only for SRT400) Higher value means longer detection time 0-F *Default: 3*

Parameter	***Description***
TRS*m*	Transient motion Detection Sensitivity (only for SRT400) Higher value decreases sensitivity 0-F *Default: 3*
TRC*n*	Transient motion Detection Count (only for SRT400) Higher value means longer detection time 0-F *Default: 2*
GIT*oo*	Two-digit decimal number representing the period of time in minutes during which GSM device remains in normal power mode. When the period is elapsed power mode is changed to low power. If set to zero, low power mode activations is disabled.
GWT*pp*	Two-digit decimal number stating the period of time in minutes during which GSM device remains in low power mode. When the period is elapsed power mode is restored to normal. GSM network activity is monitored as usual and low power operation is suspended for as long as necessary if incoming SMS or voice call requests are pending. Note that following features are not available during low power mode: - Cell Tracking - Distance-based periodic reporting - Geo fence monitoring - Task scheduling - Alarm Timer (#C15) - Conditional Periodic reporting (#C85) - Heartbeat periodic reporting (#C42)

#C92 – Alert Activation Request

Command: #C92*nn:rVIBaVPCbVATc

Command (query): #C93*nn:r?

Response (query): u…u#P92*nnVPCbVATc

Response (action): u…u#P92*nnVIBaVPCbVATc

Error: u…u#P92*nnERROR

When this command is received, the unit will alert the number of times specified by a for the duration of b multiplied by a. Alert type is optional via c.

Parameter	***Description***
VIB*a*	A 1-digit decimal number between 1 and 9, which specifies the number of rounds the unit should alert. Note: Unit starts alerting when a command received including this parameter which effectively serves as an action command. Number of rounds must to be specified each time for the alert sequence to begin.
VPC*b*	A 1-digit hexadecimal number between 0 and F, which specifies the number of times the unit should vibrate per round specified by VIB. Input value is automatically incremented by 1 so that the minimum pulse per round is 1. *Note: This is a configuration parameter which remains in memory once set.* Default: 0
VAT*c*	Alert Type 0: Vibration (Each vibration is 0.3s long with 0.3s pause after) 1: Tone play (Tone play duration is equal to vibration alerts) 2: Both *Note: This is a configuration parameter which remains in memory once set.* Default: 0

#C93 – Extended GPRS Configuration

Command (change): #C93*nn:rEGCaIDS<string>

Command (query): #C93*nn:r?

Response: u…u#P93*nnEGCaIDS<string>

Error: u…u#P93*nnERROR

With this command, an extra unit identifier string can be configured that will be added to reports sent over GPRS.
Example:
If the IDstring is set to 12345 and EGC is set to 2, a report sent over GPRS will look like;
12345,<The report itself, including the normal unit identifier>
The same report sent over SMS;
<The report itself, including the normal unit identifier>

If EGC is set to 1, a report sent over GPRS will look like;
<IMSI>,<The report itself, including the normal unit identifier>

The same report sent over SMS;
<The report itself, including the normal unit identifier>

Parameter	***Description***
EGC*a*	Extended GPRS Configuration 0: Disabled 1: Use the IMSI of the SIM card as additional ID 2: Use the string defined by the IDS parameter *Default: 0*
IDS*<str>*	Allowed characters are the same as for telephone numbers
LRM*<LarmMask>*	Larm mask is used to control available hardware components which may vary depending on product type. By default Larm Mask value equals to hexadecimal string given by HWEQ in command #C0. HWEQ value is not configurable and merely presents existing hardware configuration whereas Larm Mask value can be changed via this parameter to deactivate existing hardware components together with their respective configuration parameters. Default value varies depending on hardware configuration of product.

#C94 – Configuration Change Alarm

Command (change): #C94*nn:rCCAaSPEbTDEc

Command (query): #C94*nn:r?

Response: u…u#P94*nnCCAaSPE1TDE1

Error: u…u#P94*nnERROR

This change command is only effective when a Master Number is defined and can be used to enable the configuration change alarm. If this feature is enabled, a message will be sent to the Master Number when the configuration has been changed. The parameters SPE and TDE are not used in SRT 299 or SRT 306 but are accepted for backwards compatibility.

Parameter	***Description***
CCA*a*	Configuration Change Alarm 0: Disable 1: Enable *Default: 0*
SPE*b*	1: Enable Note: This parameter is only included for backwards compatibility.
TDE*c*	1: Enable Note: This parameter is only included for backwards compatibility.

#C95 – Profile Selection

Command (change): #C95*nn:rCFGaCFL<N...NN>

Command (query): #C95*nn:r?

Response: u…u#P95*nnCFGaCFL<N...NN>

Error: u…u#P95*nnERROR

Unit can hold up to 5 different sets of values for the commands listed below, that is stored in profiles.
Commands whose parameters are stored in profiles:
#C1, #C2, #C3, #C4, #C6, #C9, #C10, #C11, #C13, #C15, #C16, #C17, #C20, #C21, #C22, #C23, #C24, #C25, #C26, #C30, #C31 except the reference position, #C32, #C33, #C40, #C41, #C42, #C43, #C44, #C60, #C61, #C80, #C84, #C88, #C90, #C91, #C93, #C94, #C95, #C97, #C98 and #C99.
Note: The reference position in #C31, geo fence polygon definitions in #C35, geo fence polygon properties in #C34, encryption settings in #C86, encryption key in #C87 and ISM configuration in #C83 and #C89 are shared by all profiles.

Parameter	***Description***
CFG*a*	Profile Number The profile number selected to be the active profile. Allowed values range from 0 to 4, so there can be up to five different configurations stored in the unit.
CFL*<N...NN>*	Automatic profile switch after report: Every character's index position maps to a respective report type. Index value holds the number of profile to be switched after report is delivered. *Default: <N…NN>*

#C96 – Cell Tracking Reference

Command (change): #C96*nn:r+REF: x,y,z,w, x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w

Command (query): #C96*nn:r?

Response: u…u#P96*nn+REF: x,y,z,w, x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w,x,y,z,w

Error: u...u#P96*nnERROR

The change command can only be used when parameter CTF in #C1 is set to 0, and defines a set of reference cells to be used for CTF modes 5 and 6. For CTF modes 1-4, any stored value for the reference will be overwritten by the current main and neighbouring cells data.
Note 1: Please note that there is a space character between +REF: and x in the above strings.
Note 2: The unit can not verify the validity of the supplied data other than check that it is syntactically correct. Take advantage of the SRT #NMR report type to get cell-data if necessary.

Parameter	***Description***	
+REF: <…>	x	A decimal number specifying mobile country code (MCC)
	y	A decimal number specifying mobile network code (MNC)
	z	A hexadecimal number specifying location area code (LAC)
	w	A hexadecimal number specifying cell identifier (CI)

#C97 – SIM Change Number

Command (change): #C97*nn:rTaax…x

Command (clear): #C97*nn:r

Command (query): #C97*nn:r?

Response: u…u#P97*nnTaax…x

Error: u...u#P97*nnERROR

The change command is accepted if one number is specified and the correct format is used for the number. The number specified is the number to which a SIM Card Change alarm will be sent if the unit detects that the SIM has been switched.
If no number is supplied and it is not a query command, the number stored will be deleted.
The number should be stored as a international number including country and area code, so that the report will be sent correctly independently of the country where the unit is currently located. For instance, a cell phone number of 0709123456 in Sweden should be specified as +46709123456.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C98 – Low Battery Number

Command (change): #C98*nn:rTaax…x

Command (clear): #C98*nn:r

Command (query): #C98*nn:r?

Response: u…u#P98*nnTaax…x

Error: u...u#P98*nnERROR

The change command is accepted if one number is specified and the correct format is used for the number. The number specified is the number to which a Low Battery report will be sent, if the battery level is low and the unit should be charged.
If no number is supplied and it is not a query command, the number stored will be deleted.
The number should be stored as a international number including country and area code, so that the report will be sent correctly independently of the country where the unit is currently located. For instance, a cell phone number of 0709123456 in Sweden should be specified as +46709123456.
Note 1: If there is no number configured here, Low Battery report will be sent to the receivers defined by #C2 and/or #C20. To disable Low Battery reports fully, a number must be set here, the report type for Low Battery in #C16 need to be set to 3 (LBN3) for User Defined, and the corresponding message in #C17 need to be empty.
Note 2: If a number is configured here, SMS acknowledge mode does not apply to Low Battery reports if enabled.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

#C99 – Master Number

Command (change): #C99*nn:rTaax…x

Command (clear): #C99*nn:r

Response: u…u#P99*nnTaax…x

Error: u...u#P99*nnERROR

With this command, a Master Number can be configured that will always be authorized to change parameters or telephone numbers, or to ask the unit to send reports or to ask the unit to make voice calls.
The change command is accepted only under the following conditions:
1) If there is no Master Number already configured, the normal access rules applies. If no access numbers are defined in #C4, any number can set the Master Number.
2) If there is a Master Number configured already, the only number that is authorized to set a new Master Number or clear the Master Number is the current configured number.
The number should be stored as a international number including country and area code. For instance, a cell phone number of 0709123456 in Sweden should be specified as +46709123456.

Parameter	***Description***
T*aax…x*	aa: A 2-digit decimal number between 01 and 19 specifying the number of characters the following telephone number contains. x…x: The telephone number. Permitted characters are ***0-9***, ***A-D***, ***#***, ******* and ***+***.

Action Commands (Aliases)

These Action Commands are aliases that can be used to set specific parameters from command #C1.
Responses to these commands will be the normal #P-responses.
These commands should not be confused with the Clear Text Commands.

Action Command	*Equivalent standard command*
ALARMOFF	#C1*00ADT0
ALARMON	#C1*00ADT1
CELLOFF	#C1*00CTF0
CELLMAININ	#C1*00CTF1
CELLAREAIN	#C1*00CTF2
CELLMAINOUT	#C1*00CTF3
CELLAREAOUT	#C1*00CTF4
VBROFF	#C1*00VBR0
VBRON	#C1*00VBR3
GPSON	#C1*00GPS1
GPSOFF	#C1*00GPS0
GSMON	See note 1
GSMOFF	See note 2
CLEARENABLE	#C1*00LCL30
CLEARDISABLE	#C1*00LCL00
LARMENABLE	#C1*00MAM0
LARMDISABLE	#C1*00MAM1

Note 1: Upon reception of GSMON, if the ONT value in #C1 is different from 000, the current value will be backed up and replaced with 000. If the ONT value is already 000, this command has no effect. If a change is done to ONT through the #C1 command, both the backed up value and the current value will be changed to reflect the new settings.
Note 2: Upon reception of GSMOFF, the previously backed up value of ONT due to GSMON will be restored.
Note 3: The response for all of these action commands is the same as for command #C1.

Other commands

?LOC

Command (query): ?LOC

Response:
!LOC_01/01_norm_**xxx**%_gps_1_**nDD.MM.ss,d_eDDD.MM.ss,d_**
DD.MM.YYYY_HH:MM:SS_zzzkm/h_**yyy**deg

Response if GNSS module not detected or turned off:
!LOC_01/01_norm_xxx%_gps_0_----------_----------_----------_--------_-------_------

Parameter	***Description***
xxx	Battery status
n	North/South
DD	Latitude – Degrees
MM	Latitude – Minutes
ss	Latitude – seconds
d	Latitude – decimal second
DDD	Longitude – Degrees
MM	Longitude – Minutes
ss	Longitude – seconds
d	Longitude – decimal second
DD.MM.YYYY	Date
HH:MM:SS	Time
zzz	Speed
yyy	Direction

?POS

Command (query): ?POS

Response: **yymmdd hhmm S A.BB**V **zzz**km/h **yyy**deg **nn**sats **xx**rx **<UserDefinedText>**

Request a position report from the unit.

Parameter	*Description*
yymmdd	Position date. yy – year mm – month dd – day
hhmm	Position time, in UTC. hh – hour mm – minute
S	Position Status A – Position is Valid V – Position is Invalid
A.BB	Battery voltage
zzz	Speed
yyy	Direction
nn	Number of satellites from which the position is obtained
xx	GSM Receive Level (higher is better) 0: -113dBm 1-30: -113+(2xR)dBm 31: -51dBm 99: Unknown
<UserDefinedText>	Append the text defined as message #21 in #C17 – User Defined Messages

?STATUS

Command (query): ?STATUS

Response (if TS available): R:r B:b T:t G:g

Response (if no TS): R:r B:b G:g

This command can be used to query the unit for receive level, battery level, temperature and GNSS module state. This is further described in the <status> section in Report Type OVLS.

?TEMP

Command (query): ?TEMP

Response (if TS available): TEMP ±xxx.yyyy C

Response (if no TS): TEMP TS is not present!

This command can be used to query the temperature of the unit, if a temperature sensor is available.

GPRSRESET

Command: GPRSRESET

This command can be used to reset the GPRS connection of the unit.
Upon reception of this command, the unit will hang up any outstanding GPRS connections, and if the unit is so configured, the unit will re-establish the GPRS connection again when reports are to be sent.
If the command is received when the unit is in TCP Command Channel mode, the unit will regularly make attempts at reconnecting until the connection is up again.

?PROF

Command (query): ?PROF

Response: PROF=n

This command was added in GSW 6.1 and returns the currently used profile.
It is equivalent to sending a query to command #C95, but with a different response format.

?TIME

Command (query): ?TIME

Response: YYMMDDhhmmss

This command was added in GSW 6.1 and returns the time that the internal real time clock currently stands at.
For this time to have any meaning, the system time needs to be set in #C15 first.

?OVLS

Command (query): ?OVLS

Response: ALARMu…u,A:781<GNSS data><LF><message>;

Response if GNSS module not detected or turned off: ALARMu…u,A:780<message>;

This command is used to request a report in SRT OVLS format. Effectively it works just the same as #C5*00 with ORN in #C16 set to 2 except fixed OVLS code (78).

Refer to Report Type OVLS section for a detailed clarification of the syntax fields.

TEXT:

Command (action): TEXT:<InputText>[TMR: <TimerValue>][CLK: <StopTime>]

Response (if timer set): <Input text> for <TimerValue>

Response (if stop time set): <Input text> until <StopTime>

Response (if N/A): <Input text> until next command

Error: u…u#P129*nnERROR

The action command is used to replace default OVLS report texts by a custom user text supplied by this command either permanently or for a specified amount of time. Supplied text can also be attached at the end of the user-defined message depending on the message format selected in command "#C16 - Message Format Selection".

Parameter	***Description***
<InputText>	Text message replaces the default OVLS message texts. The maximum length cannot exceed 50 characters. The text is allowed to be composed of printable ASCII characters only excluding reserved punctuation marks according to OVLS message format specification (: ; / \ ! ?). Text string must not include Swedish characters (ö Ö ä Ä å Å).
<TimerValue> (*mmmm)*	Up to four-digit decimal number in minutes. The specified period is used to set the expire timer which restores default OVLS message texts when elapsed. The value must be a non-zero value and can be set to a maximum of 23 hours 59 minutes hence allowed values are between 1 and 1439. *Default: TFD in #C91*
<StopTime> (*hh:mm*)	The time specified in the format of "hh:mm" in order to set when to restore default OVLS message texts. The clock set is always considered to be in the next 24-hours starting from the time the command is received and checked against universal time-coordinated (UTC).

If no period specified, "TFD" in command #C91 is assumed to be the default value for the expire timer. In case "TFD" is set to "000", received text remains effective until cancelled manually by sending the command "ABORT" or replaced by another "TEXT:" command.

The command is not checked against the access number list for configuration (#C4). Reception of the response is the only indication of command confirmation.

ABORT

Command (action): ABORT

Response: ABORT OK

During the specified amount of time, received user text replaces the default message inside an OVLS report. (See section "Default messages for OVLS Report Type"). The default message texts can be restored anytime by sending the action command "ABORT".

The command is not checked against the access number list for configuration (#C4).

MASK

Command (action): MASK=<Receiver1_Mask>,< Receiver2_Mask >,< Receiver3_Mask >

Command (query): MASK?

Response: MASK=< Receiver1_Mask>,< Receiver2_Mask >,< Receiver3_Mask >

Error: u…u#P128*nnERROR

The command is an alias for the parameters RM1, RM2 and RM3 in command "#C88 - Report Masks Configuration".

Parameter	***Description***
<Receiver*N*_Mask>	16 digit hexadecimal whose bits are mapped to available report types. N denotes the respective receiver which the mask is set for. All report types are allowed over SMS by default. *Default: FFFFFFFFFFFFFFFF*

CPRSTOP

Command (action): CPRSTOP

Response: CPRSTOP OK

With this command periodic reporting can be stopped manually in both conditional periodic reporting modes.

GPSRESET

Command (action): GPSRESET

Response: GPSRESET OK

If the module is already detected the command carries out a hardware reset and restores default location coordinates (59.0000,N,017.0000,E).

If not detected, the command triggers another attempt to detect GNSS module is put in progress.

BTPAIR

Command (action): BTPAIR

Response:
BOND OK
DEVICE NOT FOUND
BOND FAIL
UNKNOWN PIN CODE
BT DESTINATION NOT SPECIFIED
ERROR UNKNOWN

Action command sets off a pair request to specified Bluetooth device in command #C70. One of the listed responses is reported in return depending on outcome of pairing process.
Command is not ignored if Bluetooth module is disabled (BTE in #C70).

BTUNPAIR

Command (action): BTUNPAIR

Response: BONDTABLE ERASED

Action command clears Bluetooth paired devices list (Bond table). Note that all entries are cleared at once in case multiple devices found in the pairing list.
Command is not ignored if Bluetooth module is disabled (BTE in #C70).

BTSCAN

Command (action): BTSCAN

Response:
<BTName1> <BTAddr1>
<BTName2> <BTAddr2>
.
.
.
<BTNameN> <BTAddrN>

Response if none detected: NO DEVICE FOUND

Action command requests to perform a Bluetooth device scan and in return lists respective name and Bluetooth address of discovered devices if scan is carried out successfully.
Command is not ignored if Bluetooth module is disabled (BTE in #C70).

BTRESET

Command (action): BTRESET

Response: BTRESET OK

Action command requests to perform a full Bluetooth hardware reset. The response is returned when action is completed.
Command is not ignored if Bluetooth module is disabled (BTE in #C70).

Alarm Acknowledge

Command (alt. 1): ALARM,A:0/340;
Command (alt. 2): A:0/340;

Command (alt. 3): ALARM,A:0/990;
Command (alt. 4): A:0/990;

These commands/messages are used to acknowledge an alarm message sent by the unit. The unit does not send any response to these messages. Instead, the vibrator will be activated three times (0.3s on, 0.3s off, 0.3s on, 0.3s off, 0.3s on) if this setting applies (See #C11) when such an acknowledgment is received.
The alarm acknowledgement messages can be used for alarm messages sent over GPRS as well, under the condition that ACK is sent to the same IP and port number from which the alarm was received. See #C24 for alarm ACK over GPRS.

Status Check Alarm Message

When the Status Check Alarm is triggered and there is a number defined for a remote user, the message that will be sent to the remote user is as follows.

Syntax (with GNSS info): <status><space>GPS,<position information >;
Syntax (w/o GNSS info): <status><space>;
where <status> is the same as the <status> field in Report Type OVLS and <position information> is the same as the <position information> field in Report Type SRT# NMR/GPS – SRT# Standard GPS. The <space> field is a normal space character.

Example message (without temperature sensor):
R:4 B:5 G:F GPS,094243.00,A,5922.3229,N,01751.2933,E,0.00,0.0,011208,,,A;

Test Alarm Message

Test alarm is intended to simulate the pushbutton alarm and verify the communication with the receiving alarm central. Reports are sent to alarm numbers defined in command #C2 and/or IP addresses defined in command #C20 depending on reporting mode configuration. Thanks to alarm report cause code, alarm central will be able to distinguish Test Alarm from an actual push button alarm.

There are two ways of triggering a Test Alarm.

In the first case, the unit must be turned off using the on-off switch. Thereafter, while the push button is kept pressed, the unit must be turned on using the on-off switch. The unit will vibrate first to indicate that it has detected off-to-on switching and thereafter once more to indicate that it has detected that push button is pressed, under the condition that the push button is kept pressed all the time for approximately 10 seconds after the first vibration.

Another way of generating a Test Alarm is to press Alarm Button five times in a row for durations less than the detection time for actual push button alarm. The pauses between the pressings must also have durations less than the detection time for actual push button alarm. This way of generating Test Alarm can be used any time while the unit's operation status is ON. Unit will vibrate to indicate that it has detected Test Alarm In this case as well.

Report Success Code

Every report logged acquires its transmission success summary at the end of report sending progress which is stored together with the log entry as an encoded two byte variable. This information basically represents the successful or futile outcomes of the attempted reporting methods for that particular report being processed.

Below table maps 16 bits of the two-byte value to certain indications which forms the scheme used in order to compile a success code variable:

Bit Position	**15**	**14**	**13**	**12**	**11**	**10**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**	**0**
Indication when set	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)	Success (0/1)	Attempt (0/1)
Receiver	Special Numbers [1] (SMS)		TCP Command Channel (TCP/IP)		3rd Receiver (SMS)		3rd Receiver (TCP/IP)		2nd Receiver (SMS)		2nd Receiver (TCP/IP)		1st Receiver (SMS)		1st Receiver (TCP/IP)	

Success conditions on which a transmission attempt is considered to be successful are always dependant on the configurations associated with the selected reporting methods e.g. If reporting is configured to be made over IP to UDP receivers defined in command #C20, realization of a successful transmission will be based on the parameter RAK in #C24, by which ACK requirements for respective report types are defined. In this particular case, if a report does not have to be acknowledged, success will be recognized as soon as the report is sent via the relevant IP channel. Otherwise success will be determined based on the valid acknowledge reception.

It is important to note that the outcome of a transmission success summary does not guarantee that a report which is considered to be sent successfully is actually received by the remote side. Although a report may have a success code indicating a successful transmission, receiver side may never receive the report. This is because most of the time success codes can only be compiled based on the instant communication between the device and the network that is registered to, unless the reporting method requires a direct acknowledge from the receiver. Hereby the accuracy of the success code will be equally proportional to the reliability of the selected reporting method and the transfer protocol.

[1] Low Battery Number, Call Button Number, SIM Change Number, Master Number

Report Type SRT# NMR/GPS

SRT# Report Format

The SRT# report format consists of a header, which have the same structure for all SRT#-messages described in this document, a section with optional parameters, and message information.

Syntax: #T,u...u,A.BB,L,C[,R[,D][,H][,X/Y]],< info>

Parameter	*Length*	*Description*
T	1	Message type A – Alarm Message M – Normal Message (periodic report, start/stop message, etc.)
u…u	0/1…19	Unit Identifier This field may be empty
A.BB	4…n	Battery Voltage
L	1	Alarm Status 0: No Alarm 1: Alarm
C	1…4	Report Cause This field further defines the message type into what caused the message to be sent.
R	1…2	GSM Receive Level (higher is better) 0: -113dBm 1-30: -113+(2xR)dBm 31: -51dBm 99: Unknown Note: This field is optional
D	1…10	Distance travelled in meters Note: This field is optional
H	4	Digital In/Out states (16bit hexadecimal string) *b15-b10:* Reserved b9: AUXCTRL1 (GSW 10.0.0+) b8: AUX1 (GSW 10.0.0+) *b7:* VIB *b6:* IR *b5:* PB *b4:* AUX0 *b3:* IGNITION *b2:* AUXCTRL0 *b1:* PRIVACY *b0:* DOUT Note: This field is optional and currently only available for SRT278 with GSW 9.1.1+, GSW 8.1.3+ and GSW 10.0.0+
X	4	Analogue In #1 (Optional for SRT278 GSW 8.1.5+, 9.1.5+, 10.0.2+) Input voltage in millivolt
Y	4	Analogue In #2 (Optional for SRT278 GSW 8.1.5+, 9.1.5+, 10.0.2+) Input voltage in millivolt
<info>	1…n	This field includes additional information in a message.

Report Causes

The following is a list of all currently defined report causes and corresponding acknowledge commands:

Note: Codes and commands listed below are not valid for SRT278 Avant Fleet.
Acknowledge codes are bound to the effective OVLS codes. The list is based on default values.

Report Cause	*Description*	*Acknowledge Command*
0	Start (GSM off-to-on)	A:0/900;
1	Stop (GSM on-to-off)	A:0/910;
2	Response to command	N/A
3	Periodic report (time)	A:0/700;
4	Pushbutton alarm	A:0/340;
5	Low battery voltage alarm	A:0/490;
6	Cell-tracking Alarm	A:0/000;
7	SIM Card Change Alarm	N/A
8	Alarm Call Answer Report	A:0/920;
9	Motion (IR) Detector Alarm	A:0/300;
10	Vibration Sensor Alarm	A:0/310;
11	Sound Detector Alarm	A:0/930;
12	Temperature Sensor Alarm	A:0/320;
13	Configuration Change Alarm	N/A
14	Distance report	A:0/710;
15	Charge-off Alarm	A:0/400;
16	Geo-fence Alarm	A:0/720;
17	GNSS Fix Message	A:0/630;
18	GNSS No Fix Message	A:0/640;
19	Passivity Alarm	A:0/330;
20	Passivity Alert	N/A
23	Test Alarm	A:0/350;
25	Response message to command #C85	N/A
28	Conditional Periodic Reporting (CPR) Timerstop	A:0/750;
29	CPR Periodic Tick Expired (Mode B only)	A:0/760;
30	Geo Fence Exit Message	A:0/730;
31	Tamper Alarm / Function Button 1 On	A:0/200;
32	External Alarm 1 / Function Button 2 On	A:0/210;
33	External Alarm 2 / Function Button 3 On	A:0/220;
34	External Alarm 3 / Function Button 4 On	A:0/230;
35	External Alarm 4 / Function Button 5 On	A:0/240;
36	External Alarm 5 On	A:0/250;
37	External Alarm 6 On	A:0/260;
38	External Alarm 7 On	A:0/270;
39	Status Check	N/A
40	Manual Stop alarm	A:0/770;
41	Heartbeat message	A:0/660;
42	Man Down alarm	A:0/370;
43	Pair in range alarm	A:0/800;
44	Pair out of range alarm	A:0/810;
45	Country Change Alarm	A:0/380;
46	ISM Zone Alarm (see #C36)	A:0/820;
47	ISM Zone Clear (see #C36)	A:0/830;

48	IPS Tag Tampered	A:0/840;
49	Charge-on Alarm	A:0/410;
50	IPS Tag signal detected	A:0/850;
51	IPS Tag hand off	A:0/860;
52	IPS Tag signal lost	A:0/870;
53	Tamper Alarm / Function Button 1 Off	A:0/100;
54	External Alarm 1 / Function Button 2 Off	A:0/110;
55	External Alarm 2 / Function Button 3 Off	A:0/120;
56	External Alarm 3 / Function Button 4 Off	A:0/130;
57	External Alarm 4 / Function Button 5 Off	A:0/140;
58	External Alarm 5 Off	A:0/150;
59	External Alarm 6 Off	A:0/160;
60	External Alarm 7 Off	A:0/170;
61	Breathalyzer Test Result	A:0/670;
62	Humidity Sensor Alarm	A:0/390;
65	Alarm Receiver (SRT330) shutdown request	A:0/940;
66	ISM network heartbeat signal missed	A:0/880;

SRT# Report Types

SRT# Standard NMR

This report type includes information about the GSM cells that the unit is currently registered with. The included information is MCC (Mobile Country Code), MNC (Mobile Network Code), LAC (Location Area Code) and CI (Cell Identifier) for the main cell and up to 6 neighboring cells.

The information included in this report type can be used to specify reference cell information for cell tracking purposes.

Syntax: #T,u…u,A.BB,L,C,R,NMR,<GSM cell information>

Parameter	***Description***
<GSM cell information>	MCC,MNC,LAC,CI [,MCC,MNC,LAC,CI][,MCC,MNC,LAC,CI][,MCC,MNC,LAC,CI] [,MCC,MNC,LAC,CI][,MCC,MNC,LAC,CI][,MCC,MNC,LAC,CI] Note: The first set of MCC, MNC, LAC and CI are for the main cell. The remaining sets are for the neighbouring cells.
MCC	Mobile Country Code 3 decimal digits
MNC	Mobile Network Code 2-3 decimal digits
LAC	Location Area Code 4 hexadecimal digits
CI	Cell Identifier 4 hexadecimal digits

SRT# Alternative NMR

This report type includes information about the GSM cells that the unit is currently registered with. The included information is different from that included in SRT# Standard NMR and is MCC, MNC and LAC for the main cell, and CI, BCCH (Broadcast Control Channel) and RXLev from the main cell and up to 6 neighboring cells.

Syntax: #T,u…u,A.BB,L,C,NMR,<GSM cell information>

Parameter	***Description***
<GSM cell information>	MCC,MNC,LAC,CI,BCCH,RXLev [,CI,BCCH,RXLev][,CI,BCCH,RXLev][,CI,BCCH,RXLev] [,CI,BCCH,RXLev][,CI,BCCH,RXLev][,CI,BCCH,RXLev] Note: The first set of CI, BCCH and RXLev are for the main cell. The remaining sets are for the neighbouring cells.
MCC	Mobile Country Code 3 decimal digits
MNC	Mobile Network Code 2-3 decimal digits
LAC	Location Area Code 4 hexadecimal digits
CI	Cell Identifier 4 hexadecimal digits
BCCH	Broadcast Carrier Channel 1-4 decimal digits
RXLev	Receive power level Range 0-63 0: < -110dBm 1: -110dBm to -109dBm 2: -109dBm to -108dBm … 62: -49dBm to -48dBm 63: > -48dBm

SRT# SIM Card Change Alarm

This report is only sent as an alarm message due to SIM Card Change Alarm triggering. The included information is the IMSI of the new SIM Card.

Syntax: #A,u…u,A.BB,L,7,R,IMSI:<imsi>

Parameter	***Description***
<imsi>	The IMSI number of the SIM Card

SRT# Alarm Call Answer Report

This report is only sent after an alarm call to give information about if anyone answered the call and which number answered.

Syntax: #A,u…u,A.BB,L,8,R,<msg>[nmbr]

Parameter	***Description***
<msg>	If alarm call was successful: AlarmCallIsAnsweredBy If no one answered the alarm call: AlarmCallIsNotAnswered
nmbr	The number which answered the call, in case of a successful alarm call.

SRT# Temperature Sensor Alarm

This report is only sent as an alarm message due to Temperature sensor alarm. The included information contains the current temperature.

Syntax: #A,u…u,A.BB,L,12,R,Temperature:<value>

Parameter	***Description***
<value>	The temperature value string. The string is always 9 characters long as siii.dddd where s is sign (+ or -), iii is the integer part and dddd is the decimal part.

SRT# Configuration Change Alarm

This report is only sent as an alarm message due to configuration change alarm.

Syntax: #A,u…u,A.BB,L,13,R,ConfigurationChanged

SRT# Breathalyzer Report

This report is only sent due to incoming alcohol breath test results from supported Bluetooth breathalyzer devices (ABT). A single report can contain up to 4 test results.

Syntax:
#M,u…u,A.BB,L,61,R;ABT:<TesterBTAddress> <ABTResult1> [[<ABTResult2>… [<ABTResult4>]]…]

Parameter	***Description***
<TesterBTAddress>	12 digit hexadecimal Bluetooth address of alcohol breathe tester device (ABT).
<ABTResult>	<res> hhmmdd hhss Depending on the success of breath test, result field (<res>) can either represent alcohol concentration value expressed in g/L or reason of failure given as error result code: **Subfield** / **Description** *dd.dddd**g/L*** – Alcohol concentration value given as a decimal and expressed in g/L. Note that digit number of integral part may vary while fractional part is always 4 digits (even when result is zero (0)). ***ERR:**i* – Error result code given as integer value. Refer to AL5-BT error result codes table for respective descriptions to specified index values. *hhmmdd hhss* – Timestamp of breath test performed, in UTC: yy – year mm – month dd – day hh – hour mm – minute

SRT# Standard GPS

This report type includes position information obtained through GNSS. The included information contains the same data as a $GPRMC sentence from a GNSS receiver, which includes date, time and validity of the position as well as the position itself.

Syntax (with distance): #T,u…u,A.BB,L,C,R,D,GPS,<position information>
Syntax (w/o distance): #T,u…u,A.BB,L,C,R,GPS,<position information>

Parameter	***Description***
<position information>	hhmmss.ds,S,DDMM.mmmm,N/S,DDDMM.mmmm,E/W, k.k,h.h,DDMMYY, d. d,v,p
hhmmss.ds	Position time, in UTC. hh – hour mm – minute ss.ds – second Note: the number of decimals included in the time may vary.
S	Position Status A – Position is Valid V – Position is Invalid
DDMM.mmmm	Latitude DD – Degree MM.mmmm – Minutes Note: the number of decimals included may vary.
N/S	North or South
DDDMM.mmmm	Longitude DDD – Degrees MM.mmmm – Minutes Note: the number of decimals included may vary.
E/W	East or West
k.k	Speed in knots Note: the number of decimals included may vary.
h.h	Heading Note: the number of decimals included may vary.
DDMMYY	Position date
d.d	Magnetic variation Note: This field is optional and will be left blank if not included in the data received from GNSS.
v	Declination E=East or W=West Note: This field is optional and will be left blank if not included in the data received from GNSS.
p	Mode indicator A=Autonomous N=Data not valid W=IPSLOC (Geolocation feed from IPS broadcast message)

SRT# Extended

This protocol presents every type of location information obtained by various methods available in SRT products. These types include GNSS coordinates, main and neighboring GSM cell dumps, RF tag feeds, information received via “TEXT:” command, and network properties of scanned WIFI access points. The protocol contains all data provided by “SRT# Standard GPS” and extends it followed by a semicolon (;).

The report protocol is only applicable for communication methods utilizing IP (GPRS) due to the limited message length imposed by SMS standard. Note that fields in between square brackets ([]) as well as the parameters are only displayed if respective values are obtainable.

Syntax (with distance): #T,u…u,A.BB,L,C,R,D[,GPS,<position information>][;][<extended GNSS & misc. info>][,NMR,<Cell Environment Description>][,RFT,< RF Tag Feed >][,WIFI,<WIFI Scan Response>][,TEXT,< ”TEXT:” SMS Feed >]

Syntax (w/o distance): #T,u…u,A.BB,L,C,R[,GPS,<position information>][;][<extended GNSS & misc. info>][,NMR,<Cell Environment Description>][,RFT,< RF Tag Feed >][,WIFI,<WIFI Scan Response>][,TEXT,<”TEXT:” SMS Feed>]

Syntax (ABT Report): #**M**,u…u,A.BB,**0**,**61**,R;<Alcohol Breath Tester Result>

Note: Prefix letters typed in bold represent field identifier.

Parameter	***Description***
<extended GNSS & misc. info>	**sa**ss,**dp**b.b,**al**cc,**gs**D,**ts**stt.u,**pr**d,**fb**eeeee,**cs**f,**io**jjjj,**ai**kk,**sq**g,**fl**ii

Subfield	***Description***
sa*ss*	Amount of satellites used obtain the position through GNSS.
dp*b.b*	Horizontal dilution of precision. Note: the number of decimals included may vary.
al*cc*	Altitude in meters. Note: the number of decimals included may vary.
gs*D*	GNSS receiver Status F: Active and have an updated fix A: Active but does not have an updated fix S: In sleep mode I: Inactive N: GNSS receiver not detected
ts*stt.u*	Current temperature value in Celsius. s is the sign character (+ or -), tt is the integer part and u is the fractional part. Note: This field is not included if temperature sensor does not exist.
pr*d*	Effective configuration profile index given as single digit decimal (#C95)
fb*eeeee*	Function button status for buttons configured to operate in toggle mode. Each digit position is corresponds to toggle state of respective function button where 0 indicates toggle off and 1 indicates toggle on. The value remains 0 if toggle mode is not enabled. Note: This field exists if function buttons are available.
cs*f*	Battery charging Status 0: Not charging 1: Charging Note: This field exists only if charger alarm is activated (CHG4 in #C1)
sq*g*	Report sequence number given as a decimal. Numbers range from 1 to 65535. Note that number of digits varies.
fl*ii*	Fuel tank level. Value given in hexadecimals. Note: This field is not included if no level sensor is attached.

Parameter	***Description***
	io*jjjj* — Four digit hexadecimal value which is a bitmap variable representing effective alarm input and output states. See mapping table below:

Bit Position	***Alarm I/O***	***Value***
15-12	Reserved	N/A
11	Relay	0: Open 1: Closed
10	Vibration sensor	0: No vibration 1: Vibration detected (10 seconds idle time)
9	Motion Sensor (IR)	0: No motion 1: Motion detected (10 seconds idle time)
8	Charger Connection	0: Disconnected 1: Connected
7	External Alarm Input 7	0: Input Signal High 1: Input Signal Low
6	External Alarm Input 6	0: Input Signal High 1: Input Signal Low
5	External Alarm Input 5	0: Input Signal High 1: Input Signal Low
4	External Alarm Input 4	0: Input Signal High 1: Input Signal Low
3	External Alarm Input 3	0: Input Signal High 1: Input Signal Low
2	External Alarm Input 2	0: Input Signal High 1: Input Signal Low
1	External Alarm Input 1	0: Input Signal High 1: Input Signal Low
0	External Alarm Input 0 / Tamper (SRT356)	0: Input Signal High 1: Input Signal Low

Note: SRT346 external alarm inputs (0-4) are inverted, i.e. low and high signals yield 0 and 1 respectively for the relevant bit positions.

ai*kk* — Measured voltage from analogue input. The value given as two digit hexadecimal ranging from 00 to FF which represents quantization levels where each step equals to a value of 10,9375 mV.
Note: If humidity sensor is connected, following formula yields the percentage of relative humidity (sensor RH) assuming a typical temperature of 25°C:
Sensor RH = ((0xkk)/256 - 0.1515)/0.00636
True RH with temperature compensation given by:
True RH = (Sensor RH)/(1.0546-0.00216*T), T in C

<Cell Environment Description>	<MainCellDump>,<NghbrCell1Dump>....<NghbrCell6Dump >, **rt**yymmddhhmmss
<CellDump>	**cc**eeeff,**ac**gggg,**ci**hhhh,**bc**ffff,**rx**rr

Subfield	***Description***
cc*eeeff*	MCC/MNC tuple eee - MCC (Mobile Country Code) 3 decimal digits ff - MNC (Mobile Network Code) 2-3 decimal digits
ac*gggg*	Location Area Code 4 hexadecimal digits
ci*hhhh*	Cell identifier 4 hexadecimal digits
bc*ffff*	Broadcast Control Channel Freq absolute

ffff	***Range***
1-124	P900 range
1-124,975-1023 and 0 for 1024	E900 range
128-251	850 range
512-885	DCS1800 range
1536-1834	PCS1900 range

rx*rr*	RSSI level on BCCH channel, in idle mode.

rr	***dBm Range***
0	-110 dBm or less
1	-110 dBm to -109 dBm
2	-109 dBm to -108 dBm
3-63	-108 dBm to -49 dBm
62	-49 dBm to -48 dBm
63	-48 dBm and greater

rt*yymmddhhmmss*	UTC date and time of cell environment description. yy - year mm - month dd - day hh – hour mm – minute ss – second

< RF Tag Feed >	**ui**uuuuuuuu,**pw**p,**rs**rr,**fr**ff,**jl**ll,**tx**t...t,**tt**yymmddhhmmss**,tv**a

Subfield	*Description*
***ui**uuuuuuuu*	Unique ID of RF tag from which information is received. 8 hexadecimal digits.
eiv	Single integer digit between 0-7 that indicates one of the following states: 0: Normal 1: Tamper detection 2: Mains power outage 3: Tamper detection & Mains power outage 4: Low battery 5: Tamper detection & Low battery 6: Mains power outage & Low battery 7: Tamper detection & Mains power outage & Low battery
pwp	RF output power of RF tag: 1: -10 dBm 2: 0 dBm 3: 5 dBm 4: 10 dBm 5: 17 dBm Single hexadecimal digit.
rsrr	Absolute valued of RSSI information from unit to RF tag in dBm. Always negative. If equals to “FF”, RSSI value is not known or not detectable. 2 hexadecimal digits.
frff	Message broadcast period of RF tag in seconds. 2 hexadecimal digits.
jlll	Two-digit hexadecimal. Highest allowable network jump level of RF tag. 2 hexadecimal digits.
txt...t	ASCII text broadcasted by RF tag. It can be up to a maximum of 45 characters.
***tt**yymmddhhmmss*	UTC date and time of when RF tag feed was received. yy - year mm - month dd - day hh – hour mm – minute ss – second
***tv**a*	Position Status 1 – Position is Valid 0 – Position is Invalid

<Wifi Scan Response>	<AP1>,<AP2>,...<AP15>, **wt**yymmddhhmmss
<AP>	**id**mmmmmmmm,**ws**rr,**ch**cc

Subfield	***Description***
id*mmmmmmmm*	The MAC address corresponding to the access point.
ws*rr*	Absolute value of the RSSI information. For example, if the RSSI is -20dBm, the value returned is 20. RSSI information indicates the signal strength of the Access Point.
ch*cc*	Channel Number of the Access Point. This value can be one of many values, as listed.

Actual Channel Number	***cc***
All Channels	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13

wt*yymmddhhmmss*	UTC date and time of when network scan was carried out. yy - year mm - month dd - day hh – hour mm – minute ss – second

<”TEXT:” SMS Feed>	**ms**t...t,**et**hhmm

Subfield	***Description***
ms*t...t*	Message text received via SMS command. Text length can be up to 50 characters.
et*hhmm*	States the time in hours and minutes within the next 24 hours when standard message content is restored (i.e. text feed is removed). hh - hour mm - minute If this field is missing, text feed is valid until cancelled by the user (see “ABORT”).

<table>
<tr><td><Alcohol Breath Tester Result></td><td>ab<TesterBTAddress><ABTResult1>[[<ABTResult2>...[<ABTResult11>]]...]]</td></tr>
<tr><td><TesterBTAddress></td><td>sXXXXXXXXXXXX
12 digit hexadecimal Bluetooth address of alcohol breathe tester device.</td></tr>
<tr><td><ABTResultN></td><td><res>tyymmddhhmm
<table>
<tr><th>Subfield</th><th>Description</th></tr>
<tr><td><res></td><td>Depending on the success of breath test, result field can either represent alcohol concentration value (rdd.dddd) expressed in g/L or reason of failure given as error result code (ei):
<table>
<tr><th>Subfield</th><th>Description</th></tr>
<tr><td>rdd.dddd</td><td>Alcohol concentration value given as a decimal and expressed in g/L. Note that digit number of integral part may vary while fractional part is always 4 digits (even when result is zero (0)).</td></tr>
<tr><td>ei</td><td>Error result code given as integer value. Refer to AL5-BT error result codes table for respective descriptions to specified index values.</td></tr>
</table></td></tr>
<tr><td>tyymmddhhss</td><td>Timestamp of breath test performed, in UTC:
yy – year
mm – month
dd – day
hh – hour
mm – minute</td></tr>
</table></td></tr>
</table>

Report Type OVLS

Syntax Regular (with GNSS): A:yt1<geolocation><LF><message>;
Syntax Regular (w/o GNSS): A:yt0<message>;

Syntax B&M (with GNSS): ALARMu…u,A:yt1<geolocation><LF><message>;
Syntax B&M (w/o GNSS): ALARMu…u,A:yt0<message>;

Syntax Extended (with GNSS): ALARMu…u,A:yt1<geolocation><LF><message><LF><status>;
Syntax Extended (w/o GNSS): ALARMu…u,A:yt0<message><LF><status>;

Syntax SRT: ALARMu…u,A:yts[<geolocation>]<LF><message>;

Parameter	***Description***
ALARM*u…u***,**	Unit Identifier This parameter is optional and included only in OVLS – SRT, OVLS – B&M and OVLS – Extended report types. The unit identifier may be an empty string.
y	Alarm Category (0 – 9)
t	Alarm Type (0 – 9)
s	Packet Type 0: Voice call supported. Preset message, geolocation not available. 1: Voice call supported. Preset message, geolocation by GNSS. 2: Voice call supported. Message and geolocation by IPS. 3: Voice call supported. Message by IPS; geolocation not available. 4: Voice call supported. Message by IPS; geolocation by GNSS. 8: Voice call not supported. Preset message, geolocation not available. 9: Voice call not supported. Preset message, geolocation by GNSS. A: Voice call not supported. Message and geolocation by IPS. B: Voice call not supported. Message by IPS; geolocation not available. C: Voice call not supported. Message by IPS; geolocation by GNSS.

<table>
<tr><td><Geolocation></td><td>Geolocation Data: <N|S>DDMMmm<E|W>DDDMMmmefrrASYYMMDDhhmmU
<table>
<tr><th>Subfield</th><th>Description</th></tr>
<tr><td><N|S></td><td>N: North
S: South</td></tr>
<tr><td>DD</td><td>Latitude – Degrees</td></tr>
<tr><td>MM</td><td>Latitude – Minutes</td></tr>
<tr><td>mmf</td><td>Latitude – Decimal minutes</td></tr>
<tr><td><E|W></td><td>E: East
W: West</td></tr>
<tr><td>DDD</td><td>Longitude – Degrees</td></tr>
<tr><td>MM</td><td>Longitude –Minutes</td></tr>
<tr><td>mme</td><td>Longitude –Decimal minutes</td></tr>
<tr><td>rr</td><td>Blank spaces</td></tr>
<tr><td>A</td><td>Constant</td></tr>
<tr><td>S</td><td>Position status
0: Not updated
1: Updated
2: Updated differential (GNSS only)
9: Updated with low reliability (GNSS only)</td></tr>
<tr><td>YYMMDD</td><td>Date</td></tr>
<tr><td>hhmm</td><td>Time</td></tr>
<tr><td>U</td><td>Constant, indicates that the date and time is in UTC</td></tr>
</table></td></tr>
<tr><td><LF></td><td>Linefeed character</td></tr>
<tr><td><message></td><td>Message contains one of the following information:
- Specified OVLS text message respective to the report type.
- IPS broadcast message (Syntax SRT only)
- User text received via “TEXT:” action command. See “TEXT:” command description.
Note: User text has priority over the ones listed above hence overwrites existing.</td></tr>
</table>

<table>
<tr><td><IPS broadcast message></td><td colspan="2">IPS broadcast message: [rripuuuuuuuubbjjyymmddhhmmss]t..t
<table>
<tr><th>Subfield</th><th>Description</th></tr>
<tr><td>rr</td><td>RSSI value from unit to originating node in dBm. Given as absolute value, always negative.
If equals to “FF”, RSSI value is not known or not detectable.
2 hexadecimal digits.</td></tr>
<tr><td>i</td><td>Single integer digit between 0-7 that indicates one of the following states:
0: Normal
1: Tamper detection
2: Mains power outage
3: Tamper detection & Mains power outage
4: Low battery
5: Tamper detection & Low battery
6: Mains power outage & Low battery
7: Tamper detection & Mains power outage & Low battery</td></tr>
<tr><td>p</td><td>RF output power of originating node:
1: -10 dBm
2: 0 dBm
3: 5 dBm
4: 10 dBm
5: 17 dBm
Single hexadecimal digit.</td></tr>
<tr><td>uuuuuuuu</td><td>Unique ID of originating node.
8 hexadecimal digits.</td></tr>
<tr><td>bb</td><td>Message broadcast period of originating node in seconds.
2 hexadecimal digits.</td></tr>
<tr><td>jj</td><td>Two-digit hexadecimal. Highest allowable network jump level of originating node.
2 hexadecimal digits.</td></tr>
<tr><td>yymmdd</td><td>RTC date of message reception, in UTC.</td></tr>
<tr><td>hhmmss</td><td>RTC time of message reception, in UTC.</td></tr>
<tr><td>t…t</td><td>Custom ascii text message up to maximum of 45 characters.</td></tr>
</table>
Note: Broadcast message is displayed when IPS feed the latest valid position info. OVLS text is restored otherwise.</td></tr>
<tr><td><status></td><td>R:r</td><td>GSM Receive level rx (higher is better)
0: rx < -101dBm
1: -101dBm to -91dBm
2: -91dBm to -85dBm
3: -85dBm to -79dBm
4: -79dBm to -71dBm
5: -71dBm < rx</td></tr>
<tr><td></td><td>B:b</td><td>Battery level bx (higher is better)
0: bx < 3.5V
1: 3.5V to 3.6V
2: 3.6V to 3.7V
3: 3.7V to 3.8V
4: 3.8V to 3.9V
5: 3.9V < bx</td></tr>
</table>

	T:*t*	Temperature in Celsius, no decimals included Note: This field is not included if no temperature sensor is attached.
	G:*g*	GNSS receiver Status F: Active and have an updated fix A: Active but does not have an updated fix S: In sleep mode I: Inactive P: In privacy mode; position parameters masked N: GNSS receiver not detected
<status alt>	**R:***r*	Same as in *<status>*
	B:*a.bb*	Battery voltage
	T:*t.u*	Temperature in Celsius, including one decimal digit after decimal comma Note: This field is not included if no temperature sensor is attached.
	G:*g*	Same as in *<status>*

Default Messages for OVLS Report Type

Message	*Description*	*Priority*	*Type*
GSMStart	Start message	9	0
GSMStop	Stop message	9	1
RequestMessage	Message sent as a response to request	6	0
PeriodicMessage	Periodic message	7	0
AlarmButton	Pushbutton alarm	3	4
LowVoltage	Low battery voltage alarm	4	9
OutsidePermittedCell	Main cell change alarm (CTF1)	0	0
OutsidePermittedArea	Cell environment change alarm (CTF2)	0	1
InsideForbiddenCell	Main cell change alarm (CTF3)	0	2
InsideForbiddenArea	Cell environment change alarm (CTF4)	0	3
OutsidePermittedCells	Main cell change alarm (CTF5)	0	4
InsideForbiddenCells	Main cell change alarm (CTF6)	0	5
IMSI=<IMSI number>	SIM Card Change alarm	6	1
AlarmCallIsNotAnswered	Message about unsuccessful alarm call	9	3
AlarmCallIsAnsweredBy<nmbr>	Message about successful alarm call	9	2
MotionSensor	Motion detector alarm	3	0
VibrationSensor	Vibration sensor alarm	3	1
Temperature=<value>	Temperature sensor alarm	3	2
ConfigurationChanged	Configuration change alarm	6	2
Distance=<distance in meters>	Distance report	7	1
ChargeOff	Charger-off alarm	4	0
GeoFence	Unit is outside permitted area (GNSS based)	7	3
GeoFenceExit	Unit is inside permitted area (GNSS based)	7	2
FixAfterAlarm	Fix message after alarm	6	3
NoFixAfterAlarm	NoFix message after alarm	6	4
LarmTimer	Passivity Alarm	3	3
LarmTimerRenew	Passivity Alert message	7	4
Test	Test Alarm (Simulates Pushbutton alarm)	3	5
TimerStop	Conditional Periodic Reporting (CPR) timeout	7	5
ManualStop	CPR Periodic Tick Expired (Mode B only)	7	6
RequestMessage	Response message to command #C85	6	5
Tamper Alarm	Tamper Alarm / Function Button 1 On	2	0
ExtAlarm1	External Alarm 1 / Function Button 2 On	2	1
ExtAlarm2	External Alarm 2 / Function Button 3 On	2	2
ExtAlarm3	External Alarm 3 / Function Button 4 On	2	3
ExtAlarm4	External Alarm 4 / Function Button 5 On	2	4
ExtAlarm5	External Alarm 5 On	2	5
ExtAlarm6	External Alarm 6 On	2	6
ExtAlarm7	External Alarm 7 On	2	7
Status	Status Check Alarm	3	6
Heartbeat	Heartbeat message	6	6
ManualStop	CPR manual stop by SMS command	7	7
ManDown	Man Down alarm	3	7
PairInRange	Pair in range	8	0
PairOutOfRange	Pair out of range	8	1
CountryChange	Country Change Alarm	3	8
ISMZoneAlarm	Unit detected ISM zone (see #C36)	8	2

Message	***Description***	***Priority***	***Type***
ISMZoneClear	Unit lost contact with ISM zone (see #C36)	8	3
IPSTagMoved	IPS Tag tampered	8	4
ChargeOn	Charger connected	4	1
IPSTagInRange	IPS Tag signal detected	8	5
IPSTagHandoff	IPS Tag hand off	8	6
IPSTagOutOfRange	IPS Tag signal lost	8	7
TamperAlarmOff	Tamper Alarm / Function Button 1 Off	1	0
ExtAlarm1Off	External Alarm 1 / Function Button 2 Off	1	1
ExtAlarm2Off	External Alarm 2 / Function Button 3 Off	1	2
ExtAlarm3Off	External Alarm 3 / Function Button 4 Off	1	3
ExtAlarm4Off	External Alarm 4 / Function Button 5 Off	1	4
ExtAlarm5Off	External Alarm 5 Off	1	5
ExtAlarm6Off	External Alarm 6 Off	1	6
ExtAlarm7Off	External Alarm 7 Off	1	7
ABT: < result >	Breathalyzer Test Result	6	7
HumiditySensor	Humidity Sensor Alarm	3	9
Shutdown	Alarm Receiver (SRT330) shutdown request	9	4
ISMDeviceLost	ISM network heartbeat signal missed	8	8

Report Type MPTP

!EMG

This report type is only sent for pushbutton alarms if specified by parameter PBF in #C16.

Syntax:
!EMG_01/01_emer_**xxx**%_gps_1_**nDD**.**MM**.**ss**,**d**_**eDDD**.**MM**.**ss**,**d**_
DD.**MM**.**YYYY**_**HH**:**MM**:**SS**_**zzz**km/h_**yyy**deg

Syntax (GNSS module not detected or turned off):
!EMG_01/01_emer_xxx%_gps_0_----------_----------_----------_--------_-------_------

Parameter	***Description***
xxx	Battery status
n	North/South
DD	Latitude – Degrees
MM	Latitude – Minutes
ss	Latitude – seconds
d	Latitude – decimal second
DDD	Longitude – Degrees
MM	Longitude – Minutes
ss	Longitude – seconds
d	Longitude – decimal second
DD.MM.YYYY	Date
HH:MM:SS	Time
zzz	Speed
yyy	Direction

Dignita AL5-BT Bluetooth Breathalyzer - Error Result Codes

<error> is defined as below:

<error>	*Display Message*	*Meaning*
1	CAL	Re-calibration warning due to one of the following reasons: - Number of times that breath tests performed have reached 2000 - ABT has not been calibrated in 365 days
2	Err	Breath test is terminated due to one of the following reasons: - Password error - Calibration data error
3	Er-b	Breath test is terminated due to inaccurate blowing
4	Er-O	Ambient temperature exceeds the optimal temperature conditions
5	Er-S	Suction is not detected after breath test
6	Er-t	Blowing temperature is lower than appropriate range
7	Hi	Alcohol concentration is above the measurable range (2.000mg/L)
8	BAT-L	ABT Battery Low

Version History

Version	*Date (mm-yy)*	*Notes*	*Author*
3.0	06-08	Creation of base document from splitting “299 Software Specification V2.4a” into separate command specification and functional specification documents. Updated with commands added in GSW 6.x and GSW 7.x. Rewritten report type sections. Report types now grouped as: Report Type SRT# NMR/GPS Report Type OVLS and Report Type MPTP Added section SRT# Command Compatibility Notes	Tobias Lindkvist
3.0.1	11-08	Minor corrections Added Status Check Alarm Message	Tobias Lindkvist
3.0.2	04-09	Restructured to reflect that the command structure is not tied to a specific product while command numbers and parameters may be specific Parameter ACE added Parameter WSE added	Tobias Lindkvist
3.1.0	08-09	Passivity Alarm support (added with GSW 8.5 for SRT 299 and GSW 3.5 for SRT 306): PSI, PSD and PSA added to #C40 – Call Button & Timer Button Configuration CPS and VPS added to #C11 – Vibration and Voice call configuration PRN added to #C16 – Message format selection Add URL to User Defined support (added with GSW 8.6 for SRT 299 and GSW 3.6 for SRT 306): UWU added to #C16 – Message format selection	Tobias Lindkvist
3.1.1	07-10	Minor corrections ‘UDP Source Port Configuration’ command #C27 added SRT356 applicable commands #C80, #C81, #C82 added Alarm Acknowledge Mode Parameters: SAR, SSS and SAT added to #C91 – Extended GSM Configuration Updated ‘Report Causes’ table CAT added to #C40 – Call Button Configuration ACT and EAI added to #C11 – Vibration and Voice call configuration Updated ‘Enable alarm call’ parameters for alarm types defined in #C11 – Vibration and Voice call configuration	Tahir Albayrak Burak Zencirci
3.1.2	10-10	Battery level field was missing in syntax lines for SRT# Standard GPS	Tobias Lindkvist
3.1.3	01-11	“Unsupported Commands and Parameters” section revised SEM added to #C11 – Vibration and Voice call ‘?OVLS’ command added	Burak Zencirci

Version	*Date (mm-yy)*	*Notes*	*Author*
3.1.4	06-11	Report Log Configuration command (#C42) added REQLOG query command added OOT added to #C10 – Sensor configuration GST added to #C24 – TCP/UDP report settings TSS added to #C25 – TCP Command Channel configuration CRM, TRM added to #C40 – Call Button Configuration CTL added to #C11 TLA, TLB added to #C16 TLN in #C91 extended CDT in #C15 updated	Burak Zencirci Tobias Lindkvist
3.1.5	07-11	Updated with the DI/DO field in the report formats CRE, CRT, CRS added to #C30 – Distance based periodic reporting TLR added to #C91 – Extended GSM Configuration	Tobias Lindkvist Burak Zencirci
3.1.6	09-11	MDS, MDC, TRS, TRC (SRT400 only for now) added to #C91	Tobias Lindkvist
3.1.7	09-11	TFD, TFW, TFA added to #C91 #C42 updated	Burak Zencirci
3.1.8	Xx-11	Correction: Cell Identifier in NMR is 4 hexadecimal digits	Tobias Lindkvist
3.1.9	10-11	Command “#C43 - User defined OVLS Report Codes” added Commands “TEXT:”, “ABORT”, “MASK” added under the section “Other Commands”	Burak Zencirci
3.2.0	12-11	Command “#C85 - Request Multiple Reports” added SFS added to #C16 LBE added to #C10	
3.2.1	03-12	Command “#C85 - Request Multiple Reports” extended Command “#C88 - SMS Mask Configuration” added (“MASK” command alias) Command “#C45 - Request Buffered Reports” added to replace “REQLOG” command “REQLOG” command removed (not supported GSW 4.3.1+) Command “#C3 - Access number for incoming call” extended with validation method option. DIC added to “#C11 - Vibration and voice call configuration” Command “#C0 - Version information request” revised	
3.2.2	04-12	Added AINx fields for SRT# (SRT278 only)	Tobias Lindkvist

Version	*Date (mm-yy)*	*Notes*	*Author*
3.2.3	10-12	Updated SRT# Command Compatibility Notes MDE, MDA, MDD, MDI added to “#40 - Call Button & Timer Button Configuration” Command “#C88 - Reporting Masks Configuration” extended GCH added to “#C32 - GPS Sleep Mode” HCP, HCU added to “#C42 - Report Buffer Configuration” HBT, SSA added to “#C24 - TCP/UDP report settings” TST added to “#C10 - Sensor Configuration” AE1, AE2, AE3 added to “#C16 - Message format selection” Command “#C34 - Control Geo-fence Polygons” added Command “#C35 - Define Geo-fence Polygons” added Command “#C44 - User Defined OVLS Report Text” added Command “#C60 - Extra Report/Alarm Number Configuration” added Command “#C83 - ISM General Configuration” added Command “#C86 - Encryption Settings” added Command “#C87 - Encryption Key Configuration” added Updated “Default Messages for OVLS Report Type” table CTC command “TEXT:” extended	Burak Zencirci
3.2.4	11-12	Command “#C61 - Extra Report/Alarm Number Report Type Selection” added Pair Detection Alarm introduced in “#C31 - Geo Fence” PDE, PDA added to “#C31 - Geo Fence” Command “#C84 - Conditional Periodic Reporting” added	
3.2.5	05-13	“SRT# Extended” added as a new variation of SRT# report format AMF in #C1 extended	
3.2.6	07-13	GIT, GWT added to “#C91 -Extended GSM configuration” CDTCTZ added to “#C15 - Enable Alarm Time”	
3.3.0	07-13	Command “#C36 - Define ISM Nodes” added Command “#C62 - Schedule Zone Monitoring Task” added Command “#C63 - Manage Zone Monitoring Tasks” added Updated commands #C34, #C35 and #C83 in view of recent Wi-Fi & ISM module developments. Revised SRT# Extended report format.	
3.3.1	03-14	WAS added in command “#C15 - Enable Alarm Time” TTA added in “#C31 - Geo Fence” GSE added in “#C32 - GPS Sleep Mode” GHE added in “#C33 – GNSS Receiver General Configuration” PSU, MAO, PAO added in “#C40 – Call Button Configuration” New Command “#C89 – Alarm RX/TX Mode Configuration” Updated common Report Types list. Revised OVLS report format description. Updated various parameters related to all features introduced by SRT306i.	

Version	*Date (mm-yy)*	*Notes*	*Author*
3.3.2	08-14	Command “#C70 – Bluetooth General configuration” added Action commands “BTPAIR”, “BTUNPAIR” and “BTSCAN” added Report Causes list updated. EAI in #C11 extended. TTA in #C31 extended. RCL added in #C83. RLY in #C82 extended. Updated commands #C81 and #C17. Updated SRT# extended protocol with ‘pr’, ‘cs’, ‘sq’ and ‘fb’ fields.	
3.3.3	11-14	Action command BTRESET added. Inserted description for SRT# extended ABT result report.	
3.3.4	04-15	SRT347 introduced in compatibility notes. A1V, A2V, A1A, A2A added in #C80. LSM added in #C40. Updated SRT# extended protocol with ‘ai’ and ‘io’ fields.	
4.8.5	02-16	Changed document version numbering to match GSW revision. TEI, TRC, TMF, TFL, TCT added in #C89. RRC, RLC added in #C83. Modified ELC detection time in #C80. OVLS codes revised.	
4.8.7	04-16	EAI in #C11 extended with an additional mode SRT# GPS/Extended format supported for embedded coordinates in RF tag feed: Added ‘W’ in “mode indicator” field	
4.8.9	03-17	VPC, VAT added in #C92 Heartbeat interval extended by HBU in #C24. Privacy Mode option added for selected reports with GPS coordinates. (PMM in #C88). Some minor revisions and corrections.	
4.9.0	05-18	OVLS – SRT revision introduced (#C16) TIN added in #C11 THB added in #C89 GSS added in #C33 Access number for incoming call (#C3) can take up to 6 numbers Some other corrections	
4.9.1	09-18	Corrections	