



TruTeq Wireless (Pty) Ltd Product Specification

TruTalk

Text based man to machine
communications protocol.
(v2.03)

```
[SYSTEM INFO]COMMAND MODE
CRUISER> ?3
CRUISER> $3: Firmware Version : 01.87c
CRUISER> ?4
CRUISER> $4: Serial# : TF000001
CRUISER> ?5
CRUISER> $5: Manuf. details : truteq_05_06
CRUISER> ?6
CRUISER> IPT: 1000
CRUISER> OPT: 0000
CRUISER> SIG: 45%
CRUISER> ?10
CRUISER> $10: User Modem Init. String: AT$0=1
CRUISER> ?11 2
CRUISER> $11: 2->+27836406139,Peter
CRUISER> ?32 1
CRUISER> $32: 1->00:00:01
CRUISER> ?34 1
CRUISER> $34: 1->?21 1 1
CRUISER> ?35 1
CRUISER> $35: 1->?21 1 3
CRUISER>
[SYSTEM INFO]MODEM MODE RESTORED
```

The screenshot shows a software window titled 'YAT by TruTeq Wireless (Pty) LTD'. It has tabs for 'Terminal', 'Tools', 'Signal Strength', and 'Cruiser'. The 'Terminal' tab is active, displaying a series of AT commands and their responses. The responses include firmware version, serial number, manufacturer details, and various modem parameters. At the bottom of the window, there are settings for COM3, 9600 baud rate, 8 data bits, N parity, and 1 stop bit. There are also control buttons for 'Close', 'DTR', and 'RTS', and status indicators for TX, RX, CTS, DSR, DCD, and RI.

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1 INTRODUCTION

1.1 Background

The TruTeq range of telemetry terminals is all controlled by the same set of commands and parameters.

The commands in this document are common to the CRUISER, SMARTEE and SMARTOO and describe their function and syntax.

Note: Some of the commands are hardware related and is not available on all the platforms. Please see the availability section at every command

F

CRUISER	SMARTEE	SMARTOO
A	-	O

A = Available

O = Optional – according to modules fitted

- = Not supported in this hardware configuration

F

Note: The commands in this document are related to firmware v87d2. If your current firmware does not support a specific command that you want to use, then please contact TruTeq Wireless for an upgrade option.

The latest version of this document is available for downloading from the following link:
<http://www.truteq.com/downloads/>

2 COMMAND MODE

By default the unit's main serial port acts as a standard modem. However this serial port is also used to enter commands and to configure the unit. The AT command AT\$TT is used to enter the TruTeq TruTalk text mode command prompt. In this mode the unit will echo all incoming text, and add command prompts and readable carriage returns as well as line feeds. The command mode will time-out after a default 30 seconds, or can be quitted by typing <ctrl-z>, this will return the CRUISER into normal modem mode.

A simplified command mode is also available for use with serial applications by entering AT\$RT (RawText). In this mode there will be no echoing or prompts to simplify the serial encapsulation in a typical application.

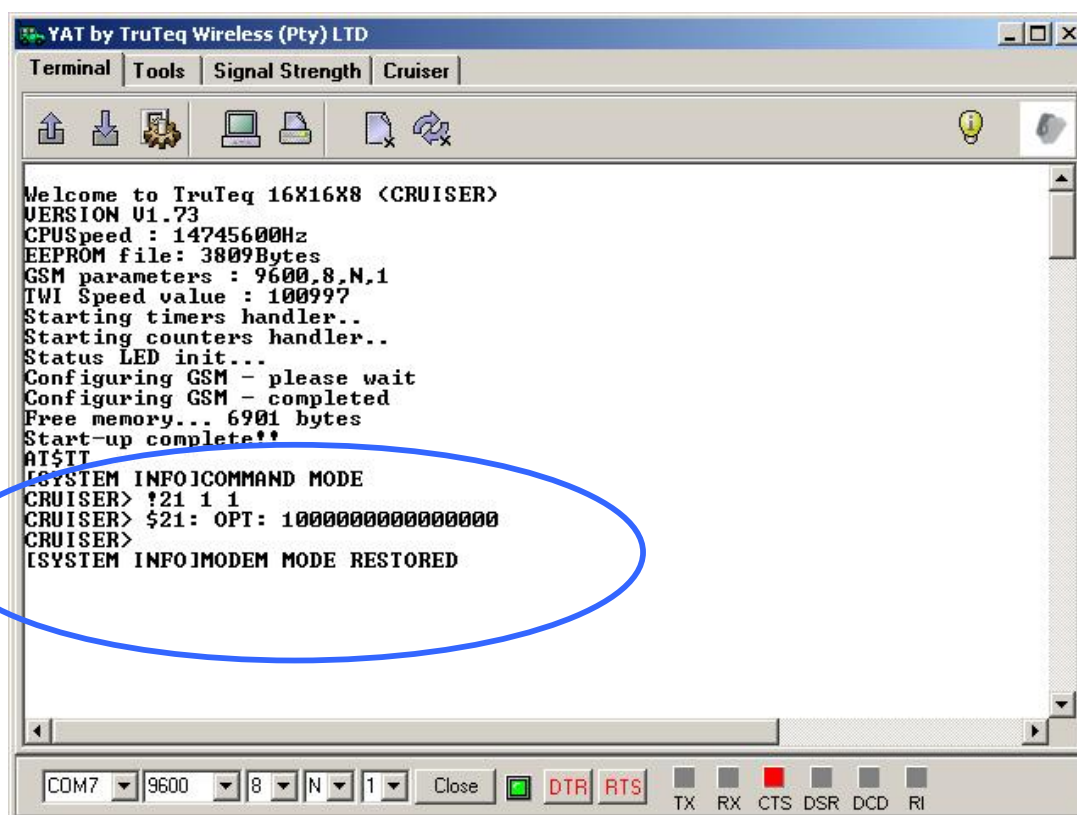
2.1 Entering Commands

Commands can be entered via the serial port, sms, GPRS or even data call.

2.1.1 Serial Port

Commands can be entered via the serial port, once the unit has started up and printed "Start-up complete!!" on the serial port. **COMMAND MODE** is entered by typing in

AT\$TT <enter>



F Default serial parameters are: 9600,8,N,1.

2.1.2 SMS

Commands can be send via sms.
Simply sms the command to the unit. Multiple commands can be send in 1 sms.



F **Note: make sure you are an allowed user before sending an sms to the unit**

2.1.3 Data call / GPRS mode

Connect to the unit either via data call or TCP connection via GPRS.
Once the connection is made then command mode can be entered by sending 3 sequential minuses (---). The remote unit will now be in command mode and ready to receive commands over the air.

3 COMMANDS & COMMAND LISTS

3.1 Commands – the building blocks of Command Lists

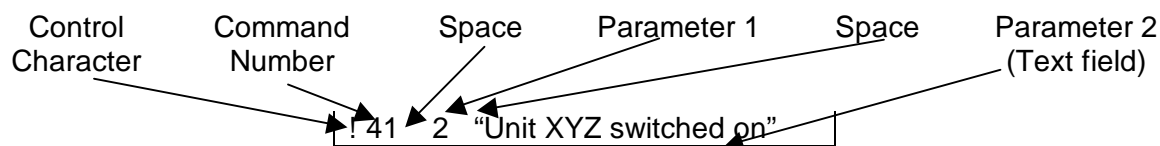
A Command starts with a Control Character (an exclamation mark <!> for a command, or a question mark <?> for a request), followed by a Command Number. This number indicates the action to be performed and are followed by different Parameters, which are always separated by at least one space.

Responses by the CRUISER unit are always returned to the Originator (person/machine who sent the request/command) in the same sequence as the request/command was made.

Any number of spaces can be used between separate Commands – the extra spaces are interpreted as white space and may be used to enhance readability. Just keep in mind that these spaces are also included in the maximum of 100 characters allowed in a Command List.

Double quotes <" "> indicates a text field and any control characters (!/?) or numbers contained between these double quotes, are handled as text only.

Example: (send SMS – <!41>)

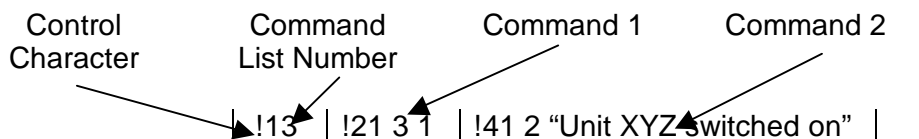


Note: Multiple commands can be entered at a time, in both the command mode and in an sms.

3.2 Command Lists

A Command List consists of a Control Character (an exclamation mark <!> for a command, or a question mark <?> for a request) and a Command List Number. This is followed by several Commands (minimum = 1, maximum = limitless). The total length of each Command List may not exceed 100 characters. The Command List Number is the association between an event and the following Commands.

Example: (start-up event – <!13>)



Note: Only one command list can be entered at a time, in both the command mode and in an sms.

3.3 Command Input / output Options

The state of a specific digital input or digital output can be specified (in Commands and Command Lists) with the following:

1. <0> - Switch off / disable / deactivate
2. <1> - Switch on / enable / activate

3.4 Command text Options

Text is entered between quotation marks "<text>", the content will be handled as one parameter. One can however add variables into the text area with the use of escape codes. Escape codes are placed between triangular brackets <escape code>. The following escape codes are available:

<C1-4>	Print counter 1 to 4
<S1>	Print serial input buffer 1
<T1-5>	Print timer 1 to 5 remaining time
<O1-20>	Print digital output 1 to 20 status (1=on 0=off)
<I1-20>	Print digital input 1 to 20 status (1=on 0=off)
<A1-8>	Print analog input 1 to 8
<AO>	Print analog output
<RS>	Received signal strength indication (0-100, or "—" if unknown)
<DQ>	Insert double quote (")
<RT>	Insert time from RTC
<RD>	Insert date from RTC
<CR>	Insert Carriage Return note: do not use CR in sms (LF does the same feature)
<LF>	Insert Line Feed
<xHH>	Insert Byte – format is 0x HEX
<SN>	Insert Serial Number
<ST>	Insert Status string
<IP>	Print own IP address

F Multiple escape codes can be within 2 brackets:
"<A1><A2><A3>" can also be written as "<A1A2A3>"

Example of sending a sms with the values of counter 1 and timer 2.

```
!41 1 "The value of counter1=<C1> and the value of timer2=<T2>"
```

If counter 1 was 25 and timer 2 was 14min and 23sec then this sms will display the following:

```
The value of counter1=25 and  
the value of timer2=00:14:23
```

4 COMMAND SUMMARY

No	Command String	Request String	Description
3		?03	Software Version
4		?04	Serial number
5		?05	Manufacturing details
6		?06	Quick view (will return all inputs, outputs and signal strength)
10	!10	?10	Customer Init String
11	!11 <N> <NoString>,<NameString>	?11 <N>	Write to phone book Note: NameString optional
12	!12 <String>	?12	Critical error command list
15	!15 <String>	?15	Start-up Commands
16	!16 <N> <Option>	?16 <N>	Control timer
17	!17 <N> <Option>	?17 <N>	Configure timer
18	!18 <N> <String>	?18 <N>	Timer time-out Command lists
21	!21 <N> <Option>	?21	Output state N+100 = internal GPIOs
32	!32 <N> <Option>	?32 <N>	Input Debounce
34	!34 <N> <String>	?34	Input trigger Commands (low to high)
35	!35 <N> <String>	?35	Input trigger Commands (high to low)
38	!38		LCD clear screen
39	!39 <position>		LCD goto
41	!41 <N> <String>		SMS Message sending
42	!42 <N> <time> "Event String"		Send event over GPRS fallback by sending SMS to phonebook position N
45	!45 <N> <String>	?45	Define customised list of Commands
46	!46 <N>		Execute custom command list number <N>
47	!47 <Dest> "String"		Send String to <Dest> 1 = LCD 2 = Serial Port (1A) 3 = Serial Port (1B) 4 = I2C @ add 10010010
50		?50	Display Analog input values
51	!51 <N> <Option>	?51 <N>	Analog Input Debounce
52	!52 <N> <highRecover> <highTrip>	?52 <N>	Analogue input configuration (High Trip Points)
53	!53 <N> <lowTrip> <lowRecover>	?53 <N>	Analogue input configuration (High Trip Points)
54	!54 <N> <String>	?54 <N>	Analogue input High Trip Command list
55	!55 <N> <String>	?55 <N>	Analogue input High Recover Command list
56	!56 <N> <String>	?56 <N>	Analogue input Low Recover Command list
57	!57 <N> <String>	?57 <N>	Analogue input Low Trip Command list
58	!58 <N> <lowLimit> <highLimit> <unit>	?58 <N>	Setup analog input scaling and units

59	!59 <N> <Option>	?59 <N>	Analogue OUTPUT Value configuration
63	!63 <String>		Set PIN code
64	!64 <String>		Submit AT commands
66	!66 <Option>	?66	GSM Reset setup
67	!67 <Option>	?67	Allowed Data Call time
68	!68 <String>	?68	HouseKeeping interval
69	!69 <String>	?69	Command mode prompt
73	!73 <Option>	?73	Day-Time setting on clock
74	!74 <Option>	?74	Date setting on clock
75	!75 <1or2> <Option>	?75 <1or2>	en/disable Day-Time event
76	!76 <1or2> <Option>	?76 <1or2>	Day-Time event time-setting
77	!77 <1or2> <String>	?77 <1or2>	Day-Time event script
80	!80 <N> <Option>	?81 <N>	Counter Value Load
81	!81 <N> <Option>		Increment counter value
82	!82 <N> <Option>		Decrement counter value
83	!83 <N> <ValueLow> <ValueHigh>	?83 <N>	Counter Compare Values
84	!84 <N> <String>	?84 <N>	Counter <= Compare Low Command lists
85	!85 <N> <String>	?85 <N>	Counter >= Compare High Command lists
87	!87 <N> <Value>	?87 <N>	Manage Counters on flow meter card
90	!90 <PB pos> <String>	?90 <PB pos>	Incoming calls (Voice) Commands
91	!91 <PB pos> <String>	?91 <PB pos>	Incoming calls (Data) Commands
92	!92 <0/1>		Answer(1) or reject(0) incoming call
95	!95 <N><Option>	?95 <N>	Control allowed users
97	!97 ALL	?97	Query number of logs or erase all logs
98	!98 <String>	?98 <N>	Write log record, or read <N> number of logs
120	!120 <N>	?120	Set number of Meters connected
121	!121 <N> <timeout>		Listen on meter <N> for <timeout> in msec or until <esc> is send
122	!122 <PortNo> <Baudrate> <framing>	?122 <PortNo>	Setup port character Baudrate:
150	!150 (1/0)	?150	GPRS Active/Inactive
151	!151 (1/0)	?151	GPRS Attached/Detached
152	!152 (1/0)	?152	GPRS Client/Server
153	!153 IP address	?153	IP address 1 (server mask)
154	!154 IP address	?154	IP address 2 (client connect)
155		?155	IP address 3 (own IP)
156	!156 <V>	?156	Server Listen Port no
157	!157 <V>	?157	Client Connection Port no
158	!158 APN add	?158	Access Point Name Server
159	!159 UserName	?159	APN username
160	!160 PassWord	?160	APN password
161	!161 <A> <C>	?161	GPRS manager setup
170	!170 (1/0)	?170	Serial input Manager Active/Inactive
171	!171 <String>	?171	Execute <String> when serial input event occurs
251		?251	Get System uptime

252	!252 <digIn> <digOut> <AnIn>	?252	IO setup
254	!254 (1/0)	?254	RS485 enable / disable
255		?255	Display free memory
256	!256		Reset Unit
257	!257 <BaudRate> <GSM_Framing> <IO_Framing>	?257	Set communications parameters
258	!258 <seconds>	?258	Set command mode timeout
259	!259 (1/0)	?259	Enable LCD 0-No LCD 1-I2C LCD 2-SPI LCD
260	!260 (0->4)	?260	Debugging to Serial port 0- No Debug 1- GSM Debug 2- System Debug 3- Allowed users Debug 4- Command handler Debug
261	!261 (0/1)	?261	Return SMS on Commands 0 – no return sms 1 – return sms (default)
262	!262 (0/1)	?262	Auto Remote Command Mode 0 – disable (default) 1 – enable

5 COMMANDS IN DETIAL

5.1 Query Firmware version _____ 3

CRUISER	SMARTEE	SMARTOO
A	A	A

This request is used to get the current firmware version installed on the device.

Write format:

?3

Example:

Operator to Unit	?3	Request firmware version
Unit to Operator	\$3: Firmware Version : Vx.xxx	

5.2 Query Unit Serial Number _____ 4

CRUISER	SMARTEE	SMARTOO
A	A	A

This request is used to get the device's serial number.

Write format:

?4

Example:

Operator to Unit	?4	Request serial number
Unit to Operator	\$4: Serial# : TFxxxxxx	

5.3 Query Unit Manufacturing Details _____ 5

CRUISER	SMARTEE	SMARTOO
A	A	A

This request is used to get the device's manufacturing details.

Write format:

?5

Example:

Operator to Unit	?5	Request manufacturing details
Unit to Operator	\$5: Manuf. details : xxxxxxxx	

CRUISER	SMARTEE	SMARTOO
A	A	A

This request is used to obtain the status of ALL the outputs and inputs, as well as the GSM signal strength (as a percentage). The status will be supplied in the following format:

1. Example A – one CRUISER input/output board (digital):

IPT: ABCD (Input status)
OPT: EFGH (Output status)
SIG: XX% (Signal strength)

Where:

A is the status of **Input 1** (1 = on, 0 = off)
B is the status of **Input 2** (1 = on, 0 = off)
C is the status of **Input 3** (1 = on, 0 = off)
D is the status of **Input 4** (1 = on, 0 = off)

E is the status of **Output 1** (1 = on, 0 = off)
F is the status of **Output 2** (1 = on, 0 = off)
G is the status of **Output 3** (1 = on, 0 = off)
H is the status of **Output 4** (1 = on, 0 = off)

2. Example B – three CRUISER input/output boards (digital) and two analogue input boards:

IPT: ABCDEFGHIJKL (Digital input status)
OPT: MNOPQRSTUVWXYZ (Digital output status)
ANI: a, b, c, d, e, f, g, h (Analogue input status)
SIG: XX% (Signal strength)

Where:

A is the status of **Input 1** (1 = on, 0 = off)
B is the status of **Input 2** (1 = on, 0 = off)
C is the status of **Input 3** (1 = on, 0 = off)
D is the status of **Input 4** (1 = on, 0 = off)
E is the status of **Input 5** (1 = on, 0 = off)
F is the status of **Input 6** (1 = on, 0 = off)
G is the status of **Input 7** (1 = on, 0 = off)
H is the status of **Input 8** (1 = on, 0 = off)
I is the status of **Input 9** (1 = on, 0 = off)
J is the status of **Input 10** (1 = on, 0 = off)
K is the status of **Input 11** (1 = on, 0 = off)
L is the status of **Input 12** (1 = on, 0 = off)

M is the status of **Output 1** (1 = on, 0 = off)
N is the status of **Output 2** (1 = on, 0 = off)
O is the status of **Output 3** (1 = on, 0 = off)
P is the status of **Output 4** (1 = on, 0 = off)
Q is the status of **Output 5** (1 = on, 0 = off)

R is the status of **Output 6** (1 = on, 0 = off)
S is the status of **Output 7** (1 = on, 0 = off)
T is the status of **Output 8** (1 = on, 0 = off)
U is the status of **Output 9** (1 = on, 0 = off)
V is the status of **Output 10** (1 = on, 0 = off)
W is the status of **Output 11** (1 = on, 0 = off)
X is the status of **Output 12** (1 = on, 0 = off)

a is the status of **Analogue Input 1**
b is the status of **Analogue Input 2**
c is the status of **Analogue Input 3**
d is the status of **Analogue Input 4**
e is the status of **Analogue Input 5**
f is the status of **Analogue Input 6**
g is the status of **Analogue Input 7**
h is the status of **Analogue Input 8**

Write format:

?6

Example:

Operator to Unit	?6	Request status
Unit to Operator	OPT: 0001 IPT: 1001 SIG: 85%	Return status (if only one CRUISER digital input/output card is fitted)

5.5 Modem Specific Initialisation _____ 10

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to store a list of AT commands to be performed when the device is powered-up. The user can use this to enable/disable modem specific type of commands eg: set hardware flow control to none with AT+IFC=0,0 and set auto answer on with ATSO=1.

Write format:

!10 <STRING> (AT commands must be space delimited)

?10

Example:

Operator to Unit	!10 AT+IFC=0,0 ATSO=1	Set modem H/W flow control to none and auto answer incoming calls after 1 ring.
Unit to Operator	\$10: User Modem Init. String: AT+IFC=0,0 ATSO=1	
Operator to Unit	?10	Request current user specific init string
Unit to Operator	\$10: User Modem Init. String: AT+IFC=0,0 ATSO=1	

F

Note: The unit will re-start to implement the change

5.6 Write to phone book Command _____ 11

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to store user's cell phone numbers in the SIM Phone Book. The maximum number of cell phone numbers that can be stored, will be determined by the SIM card in use (typically 200). These numbers can be overwritten with new numbers (if required).

It is important to have the users names and numbers in the phone book, as it used for sending and receiving sms. Please also see the allowed user command number 95.

F Note: These numbers are stored on the SIM card and not on the unit, so these numbers will have to be re-entered if the SIM card is swapped out or replaced.

Write format option1:

F Only the user's number is stored in this format.

!11 <Phone book position> <Cell phone number> < Phone book position> <Cell phone number>.....

?11 <Phone book position> <Phone book position> <Phone book position>.....

Example:

Operator to Unit	!11 15 +27835638592 117 +27836479220	Write phone number 0835638592 in position 15 and phone number 0836479220 in position 117 in the SIM phone book
Unit to Operator	\$11 15->+27835638592 117->+27836479220	
Operator to Unit	?11 15 117	Request current phone numbers in positions 15 and 177 in the SIM phone book
Unit to Operator	\$11 15->+27835638592 117->+27836479220	

Write format option2 (recommended):

F the user's number and name is stored in this format.

!11 <Phone book position> <Cell phone number>,<person's name> < Phone book position> <Cell phone number>,<person's name>.....

?11 <Phone book position> <Phone book position> <Phone book position>.....

Example:

Operator to Unit	!11 15 +27835638592,Peter 117 +27836479220,Jhon	Write phone number 0835638592 in position 15 and phone number 0836479220 in position 117 in the SIM phone book
Unit to Operator	\$11 15->+27835638592,Peter 117->+27836479220,Jhon	
Operator to Unit	?11 15 117	Request current phone numbers in positions 15 and 177 in the SIM phone book
Unit to Operator	\$11 15->+27835638592,Peter 117->+27836479220,Jhon	

5.7 Hardware failure Command List _____ 12

CRUISER	SMARTEE	SMARTOO
A	-	-

The CRUISER can be programmed to perform certain Commands when a hardware failure condition occurs inside the CRUISER, for example switching certain outputs on or off, sending an SMS message to a specific number in the SIM phone book, etc.

Write format:

!12 <Command1> <Command2> <Command3>

?12

Example:

Operator to Unit	!12 !21 1 0 2 0 3 0 4 0 !41 2 "Critical error on Unit XYZ"	Switch all outputs of and send and sms when any hardware failure was detected
Unit to Operator	\$12 <String>	
Operator to Unit	?12	Request current Start-up Command List configuration
Unit to Operator	\$12: !21 1 0 2 0 3 0 4 0 !41 2 "Critical error on Unit XYZ"	

5.8 Start-up Command List 15

CRUISER	SMARTEE	SMARTOO
A	A	A

The device can be programmed to perform certain Commands when a start-up (power-up) condition occurs, for example switching certain outputs on or off, sending an SMS message to a specific number in the SIM phone book, etc.

Write format:

!15 <Command1> <Command2> <Command3>

?15

Example:

Operator to Unit	!15 !21 3 1 !21 4 0 !41 2 "Unit XYZ switched on"	Start-up Command List Number, Switch output 3 on, Switch output 4 off, Send an SMS message to phone book position 2 that reads: "Unit XYZ switched on"
Unit to Operator	\$15 !21 3 1 !21 4 0 !41 2	"Unit XYZ switched on"
Operator to Unit	?15	Request current Start-up Command List configuration
Unit to Operator	\$15 !21 3 1 !21 4 0 !41 2	"Unit XYZ switched on"

F

Note: The unit will re-start to implement the change

5.9 Control timers Command 16

CRUISER	SMARTEE	SMARTOO
A	A	A

There are 5 separate timers in the CRUISER and this Command can be used to start or stop any of the timers. When a specific timer runs out, a Command associated with the event could be to start the timer again, thereby creating a recurring timed event.

C Tip: Remember to first load a time into the timer with command 17 before starting the count down timer.

Option Parameters:

0 = stop timer

1 = start count-down timer

2 = start count-up timer

Write format:

!16 <Timer number> <Option> <Timer number> <Option> <Timer number> <Option>.....

?16 <Timer number> <Timer number> <Timer number>.....

Example:

Operator to Unit	!16 4 0 1 1	Stop timer 4 and start timer 1
Unit to Operator	\$16: 1->1 4->0	
Operator to Unit	?16 1 4	Request current status of timers 1 and 4
Unit to Operator	\$16: 1->1 4->0	

F Note: That when the count-up option is used there will be no event script associated with the timer. The event script is only executed when the timer reaches zero.

5.10 Configure timers Command _____ 17

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command can configure the 5 timers' characteristics in hours, minutes and seconds to a maximum of 99 hours, 59 minutes and 59 seconds. If not configured, the default will be '0' (no timer).

Write format:

!17 <Timer number> <hh:mm:ss> <Timer number> <hh:mm:ss>.....

?17 <Timer number> <Timer number> <Timer number>.....

Example:

Operator to Unit	!17 1 00:10:30 5 06:00:00	Set timer 1 to 10 minutes and 30 seconds, set timer 5 to 6 hours
Unit to Operator	\$17: 1->00:10:30 5->06:00:00	
Operator to Unit	?17 5 1	Request current configuration of timers 5 and 1
Unit to Operator	\$17: 5->05:59:51 1->00:10:21	

F Note: This Command doesn't physically switch any of the timers on, but just configures their characteristics. Use the Control timers Command <!16> to switch any/all of the timers on.

5.11 Timer time-out Command List _____ 18

CRUISER	SMARTEE	SMARTOO
A	A	A

The timers can be programmed to perform certain Commands when it runs out, for example it could switch certain outputs on or off, send an SMS message to a specific number in the SIM phone book, etc.

Write format:

!18 <Timer number> <Command1> <Command2> <Command3>

?18 <Timer number>

Example:

Operator to Unit	!18 4 !21 3 1 !21 4 0 !41 7 "Timer timed out" !17 4 24:00:00	Timer time-out Command List Number – in the event of a time-out of timer number 4 the following Commands will be performed: Switch output 3 on, Switch output 4 off, Send an SMS message to phone book position 7 that reads: "Timer timed out", Re-start the timer again (recurring timed event)
Unit to Operator	\$18 1->!21 3 1 !21 4 0 !41 7 "Timer timed out" !17 4 24:00:00	
Operator to Unit	?18 4	Request current Timer timed-out Command List configuration for Timer number 4
Unit to Operator	\$18 1->!21 3 1 !21 4 0 !41 7 "Timer timed out" !17 4 24:00:00	

5.12 Output state Command 21

CRUISER	SMARTEE	SMARTOO
O	-	-

This Command is used to switch the defined output on or off, or to toggle (if it is on then switch it off and if it is off then switch it on) the output.

Option Parameters:

0 = switch output off

1 = switch output on

2 = toggle output

3 = pulse the output

Write format:

!21 <Output number > <Option> <Output number > <Option>.....

Example:

Operator to Unit	!21 2 1 4 0 1 2	Switch output 2 on, switch output 4 off, toggle output 1
Unit to Operator	OTP: 1100	

F Note: The status of the standard outputs are volatile, thus the outputs will always start in the off position when the unit is power-cycled.

5.13 Input Debounce Command 32

CRUISER	SMARTEE	SMARTOO
O	A	O

The Debounce period is the amount of time that lapses before a specific task is performed. This Command can configure the Debounce period of an input in hours, minutes and seconds to a maximum of 99 hours, 59 minutes and 59 seconds. If not configured, the input will (by default) have no Debounce period.

Write format:

!32 <Input number> < hh:mm:ss > <Input number> < hh:mm:ss >.....

?32 <Input number> <Input number> <Input number>.....

Example:

Operator to Unit	!32 1 00:00:25	Configure input 1 to have a 25 second debounce period before executing the associated Command List
Unit to Operator	No response	
Operator to Unit	?32 1	Request current Debounce period configuration of input 1
Unit to Operator	\$32 00:00:25	

5.14 Input trigger (low to high) Command List _____ 34

CRUISER	SMARTEE	SMARTOO
O	A	O

The device can be programmed to perform certain Commands when an input is triggered/opened/switched on, for example switch certain outputs on or off, start the timer, send an SMS message to a specific number in the SIM phone book, etc.

Write format:

!34 <Input number> <Command1> <Command2> <Command3> <;>

?34 <Input number> <Input number>.....

Example:

Operator to Unit	!34 1 !21 3 1 !21 4 0 !41 2 "Door has been opened";	Command List Number – in the event of a trigger on input 1 then the following Commands will be performed: Switch output 3 on, Switch output 4 off Send an SMS message to phone book position 2 that reads: "Door has been opened"
Unit to Operator	No response	
Operator to Unit	?34 1	Request current Input trigger (low to high) Command List configuration for input 1
Unit to Operator	1: !34 1 !21 3 1 !21 4 0 !41 2 "Door has been opened";	

5.15 Input trigger (high to low) Command List _____ 35

CRUISER	SMARTEE	SMARTOO
O	A	O

In some applications one would want the device to perform certain Commands in the event when an input is switched off/closed/return to its original status or position.

Write format:

!35 <Input number> <Command1> <Command2> <Command3> <;>

?35 <Input number> <Input number>.....

Example:

Operator to Unit	!35 1 !21 3 0 !21 4 1 !41 2 "Door has been closed";	Command List Number – in the 'off' event of input 1 then the following Commands will be performed: Switch output 3 off, Switch output 4 on, Send an SMS message to phone book position 2 that reads: "Door has been closed"
Unit to Operator	No response	
Operator to Unit	?35 1	Request current Input trigger (high to low) Command List configuration for input 1
Unit to Operator	1: !35 1 !21 3 0 !21 4 1 !41 2 "Door has been closed";	

5.16 LCD clear screen _____ 38

CRUISER	SMARTEE	SMARTOO
0	-	-

This command is used to clear the LCD*

Write format:

!38

Example:

Operator to Unit	!38	Clear LCD
Unit to Operator	\$38: LCD screen cleared!	

*If LCD is fitted

5.17 LCD goto position _____ 38

CRUISER	SMARTEE	SMARTOO
0	-	-

This command is used to move the LCD* cursor to a specific position. The positions are different for the 2 display types:

LCD 2X15

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
16	17	18	19	20	21	22	23	24	25	26	27	28	29	30

LCD 4X20

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80

Write format:

!39 <position>

Example:

Operator to Unit	!39 21	Go to second line if a 4X20 LCD is used
Unit to Operator	\$39: LCD cursor moved to: 21	

*If LCD is fitted

5.18 Send SMS message _____ 41

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to send SMS messages to any of the cell phone numbers in positions 1 to 200 of the SIM Phone Book. The same SMS message can be sent to multiple phone numbers in a single Command.

Write format:

!41 <Position number> <Position number> <Position number> <"> <Text message> <">

Example:

Operator to Unit	!41 3 55 69 "Hello World" 1 "Hello World was sent"	Send "Hello World" to the cellphone numbers in positions 3, 55 and 69 and send "Hello World was sent" to the cellphone number in position 1 in the SIM Phone Book
Unit to Operator	\$41: message send status.	

5.19 Send GPRS message _____ 42

CRUISER	SMARTEE	SMARTOO
A	-	-

This command creates a TCP Client connection to IP address 2 on port # 2 (see command 154 and 157). A SIM phone book position must also be supplied in case the GPRS connection was unsuccessful. The message will then be send via SMS. The connection open time-out must also be supplied (this field is in seconds).

Write format:

!42 <Position number> <Connection Open Time-out> <"> <Text message> <">

Example:

Operator to Unit	!42 3 1 "Input 1 sw on!"	Send "Input 1 sw on!" to the IP address 2 on port # 2.If unsuccessful then send "Input 1 sw on!" via sms to phone book position 3.
Unit to Operator	\$42: message send status.	

5.20 Custom command list _____ 45

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command is used to create custom command lists. There are 10 custom command lists.

C Tip: Use custom command lists when deferent events must execute the same script, or when the 100 characters associated with an event is to little.

Write format:

!45 <List number> <Command List>

Example:

Operator to Unit	!45 5 !41 1 2 "Door status = <l4>"	When custom command list 5 is called then it will send a sms to phone book positions 1 & 2 giving the status of the door switch
Unit to Operator	\$45: 5->!41 1 2 "Door status = <l4>"	

5.21 Execute Custom command list _____ 46

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command is used to generate the event that will execute the associated custom command list.

Write format:

!46 <List number>

Example:

Operator to Unit	!46 5	Execute custom command list 5.
Unit to Operator	\$46: Now running cmd list: 5	

C Tip: Use command 261 to switch off return sms if the custom command list is going to send the required sms.

5.22 Send String command 47

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to send a string to either the serial port (Dest=2) or the LCD (Dest = 1).

Write format:

!47 <Destination> "String"

Example:

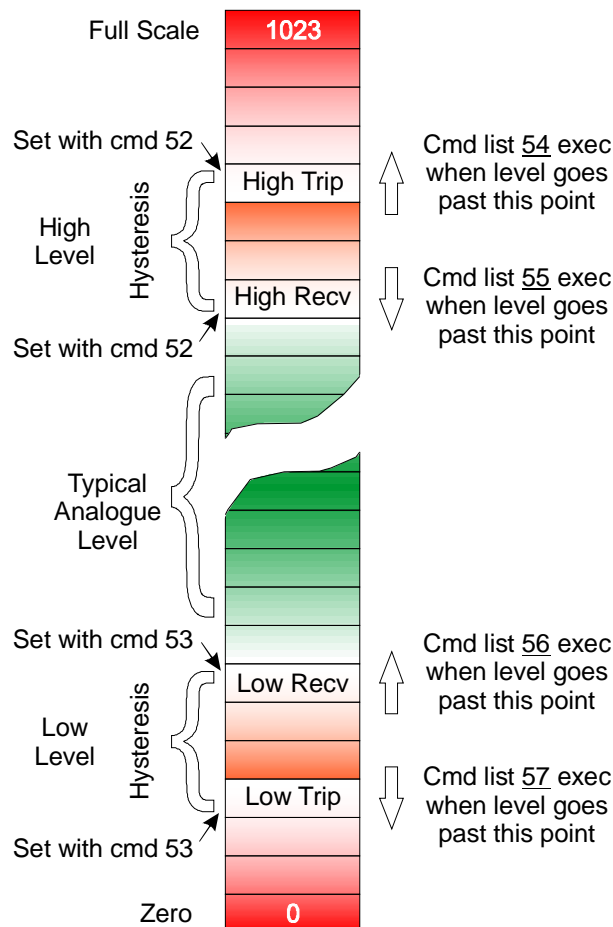
Operator to Unit	!47 1 "Input4=<I4>"	Write input 4 status to LCD
Unit to Operator	\$47: text message send OK	

5.23 ANALOGUE Set-up 50-58

CRUISER	SMARTEE	SMARTOO
O	-	-

Separate Command Lists are linked to the events where an analogue value passes a certain level. The following diagram explains which command lists are associated with which level.

Figure An1:



5.23.1 Read analogue status

50

This Command is used to read the analogue values.
The default value format will be an integer between 0 and 1023.

F Note: If an analogue was scaled using command 58, then the scaled value will be displayed.

Read format:

?50

Example:

Operator to Unit	?50	Read analogues
Unit to Operator	\$50: 0, 22.3degC, 0, 15.8Vdc	

5.23.2 Analogue debounce

51

This Command is used to set/get the analogue delay times.

Read format:

?51 <An#>

Write format:

!51 <An#> <debounceTime>

Example:

Operator to Unit	!51 1 00:00:01 2 24:00:00	Set analogue 1 debounce to 1 second and analogue 2 debounce to 24hours
Unit to Operator	\$51: 1->00:00:01 2->24:00:00	
Operator to Unit	?51 1 2	Query # 1 and 2's debounce periods
Unit to Operator	\$51: 1->00:00:01 2->24:00:00	

5.23.3 Analogue high trip levels

52

This Command is used to set/get the analogue high trip and recover levels.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?52 <An#>

Write format:

!52 <An#> <High level recover value> <High level trip value>

Example:

Operator to Unit	!52 1 854 902	
Unit to Operator	\$52: 1->852,902	
Operator to Unit	?52 1	
Unit to Operator	\$52: 1->852,902	

5.23.4 Analogue low trip levels

53

This Command is used to set/get the analogue low trip and recover levels.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?53 <An#>

Write format:

!53 <An#> <Low level trip value> <Low level recover value>

Example:

Operator to Unit	!53 1 301 357	
Unit to Operator	\$53: 1->301,357	
Operator to Unit	?53 1	
Unit to Operator	\$53: 1->301,357	

5.23.5 Analogue high trip command list 54

This Command is used to set/get the analogue high trip command list.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?54 <An#>

Write format:

!54 <An#> <CMD list>

Example:

Operator to Unit	!54 1 !21 2 1	
Unit to Operator	\$54: !21 2 1	
Operator to Unit	?54 1	
Unit to Operator	\$54: !21 2 1	

5.23.6 Analogue high recover command list 55

This Command is used to set/get the analogue high recover command list.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?55 <An#>

Write format:

!55 <An#> <CMD list>

Example:

Operator to Unit	!55 1 !21 2 0	
Unit to Operator	\$55: !21 2 0	
Operator to Unit	?55 1	
Unit to Operator	\$55: !21 2 0	

5.23.7 Analogue low recover command list

56

This Command is used to set/get the analogue low recover command list.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?56 <An#>

Write format:

!56 <An#> <CMD list>

Example:

Operator to Unit	!56 1 !21 1 0	
Unit to Operator	\$56: !21 1 0	
Operator to Unit	?56 1	
Unit to Operator	\$56: !21 1 0	

5.23.8 Analogue low trip command list

57

This Command is used to set/get the analogue low trip command list.

C Tip: See figure An1 for a better understanding to the use of this command.

Read format:

?57 <An#>

Write format:

!57 <An#> <CMD list>

Example:

Operator to Unit	!57 1 !21 1 1	
Unit to Operator	\$57: !21 1 1	
Operator to Unit	?57 1	
Unit to Operator	\$57: !21 1 1	

This Command is used to set/get the analogue scaling.

The output of the analogue sensor, being 4-20mA or 0-5V, almost always represents some sort of measurement. When queering the analogue value it's always handy to have it already scaled to the correct range and unit of the measured device.

When for example: measuring a temperature or voltage it's much better to have it already converted rather than to receive the raw 0-1023 count and having to do the conversion yourself.

Read format:

?58 <An#>

Write format:

!58 <An#> <An_0_Value> <An_1023_Value> <unit>

Example:

Operator to Unit	!58 1 0 300 Vac	
Unit to Operator	\$58: 1->0.00,300.00,Vac	
Operator to Unit	?58 1	
Unit to Operator	\$58: 1->0.00,300.00,Vac	

Examples:

- If you measure mains voltage and your input range on the analogue converter is 0->300V input 0-5V output then use command 58 as follows:

```
!58 1 0 300 Vac
```

When you query analogue 1 it will return eg: 235.6Vac

- If you measure a value as a percentage

```
!58 1 0 100 %
```

When you query analogue 1 it will return eg: 65.35%

- If you have a 4-20mA sensor attached to it and you want to display it as a percentage
Formula to calculate the value in a 4-20mA system is:
Display Value = ((full-scale)/16)(mA-4)
To calculate the AN_0_Value set to mA=0
Remember that 4mA must display 0% thus; the absolute AN_0_Value must be -25.

```
!58 1 -25 100 %
```

When you query analogue 1 (and the current is 4mA) it will return: 0.00%

Thus any negative values returned means there's something wrong with the sensor.

- If you want to use the analogue as an un-scaled raw value then use command 58 as follows:

```
!58 1 0 1023
```

Note: leave the unit field empty

When you query analogue 1 it will return eg: 768

5.24 SIM PIN management 63

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set/get the PIN number of the SIM card.

Read format:

?63

Write format:

!63 <PIN_NUMBER>

Example:

Operator to Unit	?63	
Unit to Operator	\$63: PIN=12345 (PIN enter failed!)	
Operator to Unit	!63 5670	
Unit to Operator	\$63: PIN=5670 (NEW PIN!)	
Operator to Unit	?63	
Unit to Operator	\$63: PIN=5670 (PIN OK)	

5.25 Submit AT command 64

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to submit an AT command to the modem, via the command mode prompt.

Write format:

!64 "<AT-command>"

Example:

Operator to Unit	!64 AT	Query modem
Unit to Operator	\$64: OK	
Operator to Unit	!64 "ATS0=1"	Set auto answer on after one ring
Unit to Operator	\$64: OK	
Operator to Unit	!64 "AT+CCED=0,1"	Query the connected base station information
Unit to Operator	\$64: +CCED: 655,10,278c,3811,40,85,63,,,0,,,0 OK	

5.26 GSM reset interval _____ 66

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set/get the GSM reset interval in minutes.

Read format:

?66

Write format:

!66 <Interval>

Example:

Operator to Unit	?66	
Unit to Operator	\$66: GSM reset interval : 1440	
Operator to Unit	!66 2880	
Unit to Operator	\$66: GSM reset interval : 2880	

F Note: It is recommended to keep the interval on 1440 (default value)

5.27 GSM data call reset interval _____ 67

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set/get the GSM data call reset interval in minutes.

Read format:

?67

Write format:

!67 <Interval>

Example:

Operator to Unit	?67	
Unit to Operator	\$67: Data-call reset interval : 10	
Operator to Unit	!67 30	
Unit to Operator	\$67: Data-call reset interval : 30	

F Note: It is recommended to set the interval to 0 (zero) if GPRS connections is used

5.28 GSM house keeping interval _____ 68

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set/get the GSM house keeping interval.

Read format:

?68

Write format:

!68 <Interval>

Example:

Operator to Unit	?68	
Unit to Operator	\$68: HK interval : 1	

F Note: It is recommended to keep the interval on 1 (default value)

5.29 Command Prompt 69

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set/get the command prompt.

Read format:

?69

Write format:

!69 <command prompt>

Example:

Operator to Unit	?69	
Unit to Operator	\$69: Command Prompt : CRUISER>	
Operator to Unit	!69 myHome>	
Unit to Operator	\$69: Command Prompt : myHome>	

5.30 RTC: Time-of-Day 73

CRUISER	SMARTEE	SMARTOO
0	-	-

The RTC (Real Time Clock) is used to execute commands at a certain time of the day. There are 2 different time-of-day events that can be individually enabled and disabled.

This Command is used to set/get the time.

F Note: A Real Time Clock must be installed if this function is to be used

Read format:

?73

Write format:

!73 <hh:mm:ss>

Example:

Operator to Unit	!73 15:04:00	Set the Time-of-Day to 4min past 3pm
Unit to Operator	\$73: Time is 15:04:00	
Operator to Unit	?73	Query the Time-of-Day
Unit to Operator	\$73: Time is 15:04:10	

5.31 RTC: Date _____ 74

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to set/get the Date.

F Note: A Real Time Clock must be installed if this function is to be used

Read format:

?74

Write format:

!74 <DD/MM/YY>

Example:

Operator to Unit	!74 21/07/06	Set the Date to 21 July 2006
Unit to Operator	\$74: Date is 21/07/06	
Operator to Unit	?74	Query the Date
Unit to Operator	\$74: Date is 21/07/06	

5.32 RTC: En/Disable Time-of-Day event _____ 75

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to enable or disable the execution of a command script associated with a Time-of-Day event

F Note: A Real Time Clock must be installed if this function is to be used

Read format:

?75 <event#>

Write format:

!75 <event#> <0/1>

Example:

Operator to Unit	!75 1 1 2 0	Enable event 1 and disable event 2
Unit to Operator	\$75: 1->1 2->0	
Operator to Unit	?75 2	Query the status of event 2
Unit to Operator	\$75: 2->0	

5.33 RTC: Time-of-Day event time setting _____ 76

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to set the time of the day that the event must happen.

F Note: A Real Time Clock must be installed if this function is to be used

Read format:

?76 <event#>

Write format:

!76 <event#> <time-of-event>

Example:

Operator to Unit	!76 1 06:00:00 2 18:00:00	Set event 1 to 6am and event 2 to 6pm
Unit to Operator	\$76 1->06:00:00 2->18:00:00	
Operator to Unit	?76 2	Query the time of event 2
Unit to Operator	\$76: 2->18:00:00	

5.34 RTC: Time-of-Day event command list _____ 77

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to set the command list to be executed when the preset time-of-day is reached.

F Note: A Real Time Clock must be installed if this function is to be used

Read format:

?77 <event#>

Write format:

!77 <event#> <command list>

Example:

Operator to Unit	!77 1 !21 1 0	Switch output 1 off at the time of event 1
Unit to Operator	\$77 1->!21 1 0	
Operator to Unit	?77 2	Query the script associated with event 2
Unit to Operator	\$77 2->!21 1 1	

CRUISER	SMARTEE	SMARTOO
A	A	A

There are 4 separate counters in the CRUISER.

These commands can be used to load values, increment or decrement with values and assign command list to be executed when a counter reaches a certain value.

Note: Counters are signed 32bit integers thus the range is:

-2,147,483,648 to +2,147,483,648

The value of a counter can also be included in a message by using <Cx> inside the message eg: !41 1 "Counter values inside CRUISER: 1=<C1> 2=<C2> 3=<C3> 4=<C4>"

5.35.1 Counter Value Load 80

This Command is used to load a value into a counter (this will overwrite the current value of the counter).

It is also used to obtain the current value of the counter.

Read format:

?80 <N>

Write format:

!80 <N> <value>

Example:

Operator to Unit	?80 1	Read counter 1 value
Unit to Operator	\$80: 1->250	

5.35.2 Counter Increment 81

This Command is used to increment (increase the value of) any of the counters with a given value.

Write format:

!81 <N> <value>

Example:

Operator to Unit	!81 1 1	Increment counter 1 with 1
Unit to Operator	\$80: 1->251	
Operator to Unit	!81 1 15	Increment counter 1 with 15
Unit to Operator	\$80: 1->266	

5.35.3 Counter Decrement 82

This Command is used to decrement (decrease the value of) any of the counters with a given value.

Write format:

!82 <N> <value>

Example:

Operator to Unit	!82 1 1	Decrement counter 1 with 1
Unit to Operator	\$80: 1->249	
Operator to Unit	!82 1 15	Decrement counter 1 with 15
Unit to Operator	\$80: 1->234	

5.35.4 Counter low / high compare values 83

This Command is used to set/get the counter low & high compare values.

Read format:

?83 <N>

Write format:

!83 <N> <low compare value> <high compare value>

Example:

Operator to Unit	!83 1 10 20	
Unit to Operator	\$83: 1->10,20	
Operator to Unit	?83 1	
Unit to Operator	\$83: 1->10,20	

5.35.5 Counter low compare command list 84

This Command is used to set/get the counter low command list.

This command list will be executed when the counter value is smaller or equal to the low_compare_value set in !83

Read format:

?84 <N>

Write format:

!84 <N> <String>

Example:

Operator to Unit	!84 1 !21 1 1	
Unit to Operator	\$84: 1 !21 1 1	
Operator to Unit	?84 1	
Unit to Operator	\$84: 1 !21 1 1	

5.35.6 Counter high compare command list 85

This Command is used to set/get the counter high command list.

This command list will be executed when the counter value is higher or equal to the high_compare_value set in !83

Read format:

?85 <N>

Write format:
!85 <N> <String>

Example:

Operator to Unit	!85 1 !21 1 0	
Unit to Operator	\$85: 1 !21 1 0	
Operator to Unit	?85 1	
Unit to Operator	\$85: 1 !21 1 0	

5.36 Manage Pulse Counters for FlowMeterCard_____ 87

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to set and query the values of the non-volatile high-speed counters in the CRUISER pulse counter card.

Write format:
!87 <counter #> <Value>

Read format:
?87 <counter #>

Example:

Operator to Unit	?87 1 5	Query the values of non-volatile counters 1&5
Unit to Operator	\$87: 1->12045 5->23	
Operator to Unit	!87 5 0	Set the value of pulse counter 5 to Zero
Unit to Operator	\$87: 5->0	

5.37 Incoming Voice calls command list _____ 90

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command can be used to program the CRUISER unit to execute certain commands when an incoming voice call is received from one of the first 10 numbers in the phonebook.

Read format:

?90 <N>

Write format:

!90 <N> <String>

Example:

Operator to Unit	!90 3 !21 2 3 !92 0	Toggle output 2 and hang-up the incoming call
Unit to Operator	\$90 3->!21 2 3 !92 0	
Operator to Unit	?90 3	Request the voice command list of user number 3
Unit to Operator	\$90 3->!21 2 3 !92 0	

5.38 Incoming Data calls command list _____ 91

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command can be used to program the CRUISER unit to execute certain commands when an incoming data call is received from one of the first 10 numbers in the phonebook.

Read format:

?91 <N>

Write format:

!91 <N> <String>

Example:

Operator to Unit	!91 5 !92 1	Answer the incoming call
Unit to Operator	\$91 5->!92 1	
Operator to Unit	?90 5	Request the data command list of user number 5
Unit to Operator	\$91 5->!92 1	

5.39 Incoming call control _____ 92

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command can be used to program the CRUISER unit to answer (1) or reject (0) a call.

Write format:

!92 <Option>

Example:

Operator to Unit	!92 1	Answer the incoming call
Unit to Operator	\$92: incoming call : Answered	

5.40 Control allowed users Command _____ 95

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command can be used to program the CRUISER unit to allow only some or all of the cell phone numbers in the first 10 positions of the SIM Phone Book to send Commands / Command Lists to the CRUISER unit.

Write format:

!95 <Allowed user number> <Option> <Allowed user number> <Option>.....

?95 <Allowed user number> <Allowed user number> <Allowed user number>

Example:

Operator to Unit	!95 2 0 4 1	Disable allowed user number 2 and enable allowed user number 4
Unit to Operator	\$95 2->0 4->1	
Operator to Unit	?95 2	Request the current status of allowed user number 2
Unit to Operator	\$95 2-0	

5.41 LOGGING: Records manager _____ 97

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command is used to query the number of log records in the MMC card or to clear all the records.

Write format: (This will delete all the records in the log file)

!97 ALL

Read format: (This will return the number of records in the log file)

?97

Example:

Operator to Unit	!97 ALL	Erase all the records in the log file
Unit to Operator	\$97: Number of records: 0	

CRUISER	SMARTEE	SMARTOO
A	-	-

This Command is used add a log record, or to retrieve a number of the last logged records.

Write format:

!98 <Log string>

Read format:

?98 <number of log record to read>

Example:

Operator to Unit	!98 "Temp at <RT> was <A4CRLF>"	Write the string to the log file, containing the time as well as the value of analog input4
Unit to Operator	\$98: number of logs: 1	
Operator to Unit	?98 10	Read the last 10 records
Unit to Operator	CRUISER> \$98: Reading last 10 record(s): CRUISER> Temp at 13:03:46 was 24.8degC Temp at 13:05:08 was 24.6degC Temp at 13:05:46 was 24.9degC Temp at 13:07:54 was 24.8degC Temp at 13:09:24 was 25.1degC Temp at 13:13:23 was 24.9degC Temp at 13:18:25 was 25.1degC Temp at 13:23:27 was 25.3degC Temp at 13:28:30 was 25.3degC Temp at 13:33:32 was 25.3degC	

CRUISER	SMARTEE	SMARTOO
0	-	-

The CRUISER can be fitted with 6X full-featured serial ports. This configuration is called the Communications Processor.

F Note: These commands are only applicable to the serial ports1 -> 6. Use command 257 to set-up the CTRL/AMR port

5.43.1 Configure serial Port 110

This Command is used set-up the data parameters of the specified serial port.

Write format:

!110 <port#> <Baud-rate option> <Framing option>

Read format:

?110 <port#>

Example:

Operator to Unit	!110 3 4800 8,N,1	Set port number 3 to 4800 baud and 8,N,1 framing
Unit to Operator	\$110: 3->4800,8N1	

5.43.2 Connect to serial port 111

This Command is used to connect to the specified port. A time-out in sec must be specified in order to connect back to the main serial port. Entering into remote command mode can also end a connection.

Write format:

!111 <Value> <timeout>

Read format:

No read option available

Example:

Operator to Unit	!111 3 30	Connect to port 3 for 30 seconds
Unit to Operator	\$111: Now connected to Port # 3:.....	

5.44 OCTOPUS Set-up 120-122

CRUISER	SMARTEE	SMARTOO
0	-	-

The CRUISER can be fitted with serial “listening” devices. These serial inputs are configured according to the IrDA specification, and is used in conjunction with the ABB A120 / A1100 electricity meters, or any other meter that’s got an IrDA output.

C Tip: There’s 4 inputs / card and up to 4 cards can be connected to an OCTOPUS, resulting in ability to read 16 IrDA meters, from 1 device.

F Note: The processor must be ordered as an “OCTOPUS” to support this function.

5.44.1 Set number of meters 120

This Command is used to specify the number of electricity meters connected to the CRUISER.

Write format:

!120 <Value>

Read format:

?120

Example:

Operator to Unit	?120	Query the number of meters connected to the CRUISER
Unit to Operator	\$120: 5	
Operator to Unit	!120 6	Set the number of meters to 6 (eg one was added)
Unit to Operator	\$120: 6	

5.44.2 Listen to meter# 121

This Command is used to connect the dial-in device to the specified meter, to obtain the latest meter reading. A time-out in ms must be specified in order to connect back to the main serial port.

Write format:

!121 <Value> <timeout>

Read format:

No read option available

Example:

Operator to Unit	!121 3 5000	Listen to the IrDA data on meter number 3 for 5 seconds
Unit to Operator	\$121: Now listening on Meter # 3:.....	

5.44.3 Set Meter's IrDA data rates 122

This Command is used set-up the data parameters of the IrDA output from the connected meter.

There are 3 Baud-rate options:

- 1 = 2400 baud
- 2 = 4800 baud
- 3 = 9600 baud

There are 2 Character-framing options:

- 0 = 8,N,1
- 1 = 7,E,1

Write format:

!122 <port#> <Baud-rate option> <Framing option>

Read format:

?122 <port#>

Example:

Operator to Unit	!122 3 2 0	Set port number 3 to listen on 4800 baud and 8,N,1 framing
Unit to Operator	\$122: 3->4800,8N1	

CRUISER	SMARTEE	SMARTOO
A	A	A

5.45.1 GPRS activate / deactivate 150

This Command can be used to activate or deactivate the GPRS server functionality inside the CRUISER.

F Note: set parameters in commands 153 → 161 before setting GPRS manager to ACTIVE.

C Tip: first set GRPS manager in-active before changing any parameters (!150 0)

Write format:

!150 0 or 1

?150

Example:

Operator to Unit	!150 1	Activate GPRS server (Note: first setup parameters 152-160 before activating GPRS)
Unit to Operator	\$150: GPRS active	
Operator to Unit	?150	Request the current status of GPRS manager
Unit to Operator	\$150: GPRS active	

5.45.2 GPRS IP address 1 153

This is the IP address from which a connection is allowed. Use 255.255.255.255 to allow all incoming connections.

Write format:

!153 172.24.16.2

?153

Example:

Operator to Unit	!153 255.255.255.255	Allow incoming connections from any server
Unit to Operator	\$153: IP address 1: 255.255.255.255	
Operator to Unit	?153	Request the current IP address 1 field
Unit to Operator	\$153: IP address 1: 255.255.255.255	

5.45.3 GPRS IP address 2 154

This is the IP address to whom a client connection is made.

Write format:

!154 172.24.16.2

?154

Example:

Operator to Unit	!154 172.24.16.2	Make client connection to 172.24.16.2
Unit to Operator	\$154: IP address 2: 172.24.16.2	
Operator to Unit	?154	Request the current IP address 2 field
Unit to Operator	\$154: IP address 2: 172.24.16.2	

5.45.4 GPRS IP address 3 155

This is the IP address of the CRUISER, received from the network after a successful connection was established.

This will typ. be fixed IP add. on a private APN or variable IP add. on public APN

Write format:

?155

Example:

Operator to Unit	?155	Request the current IP address of the CRUISER
Unit to Operator	\$155: IP address 3: 172.24.16.7	

5.45.5 TCP Server Port number 156

This is the TCP Port where the CRUISER will be listing on.

Write format:

!156 502

?156

Example:

Operator to Unit	?156	Request the current TCP port number
Unit to Operator	\$156: Port # : 502	
Operator to Unit	!156 7800	Set the port number to 7800
Unit to Operator	\$156: Port # : 7800	

5.45.6 TCP Client Port number 157

This is the TCP Port where the CRUISER will be writing data to.

Write format:

!157 50030
?157

Example:

Operator to Unit	?157	Request the current TCP client port number
Unit to Operator	\$157: Port # : 50030	
Operator to Unit	!157 7800	Set the port number to 7800
Unit to Operator	\$157: Port # : 7800	

5.45.7 Access Point Name Server 158

Defines the APN server

Typ: "internet" for the Public APN
or "TRUTEQAPN" for the Truteq private APN

Write format:

!158 internet
?158

Example:

Operator to Unit	?158	Request the current APN setting
Unit to Operator	\$158: APN: internet	
Operator to Unit	!158 TRUTEQAPN	Set the APN to truteq's APN
Unit to Operator	\$158: APN: TRUTEQAPN	

5.45.8 User name 159

Username required for connection to the APN

Write format:

!159 myUserName
?159

Example:

Operator to Unit	?159	Request the current username
Unit to Operator	\$159: APN user name: myUserName	
Operator to Unit	!159	Clear the username field
Unit to Operator	\$159: APN user name: invalid Data	

5.45.9 Password 160

Password required for connection to the APN

Write format:

!160 myPassWord
?160

Example:

Operator to Unit	?160	Request the current password
Unit to Operator	\$160: APN user password: invalid Data	Empty password field
Operator to Unit	!160 myPassWord	Set password to myPassWord
Unit to Operator	\$160: APN user password: myPassWord	

5.45.10 GPRS manager configuration 161

The CRUISER is equipped with a GPRS connection manager. The manager maintains an “always available” connection for telemetry devices where no user intervention is possible.

Write format:

!161 <GPRS attach refresh interval> <retry interval when error received> <No data flow timeout>
?161

Example:

Operator to Unit	?161	Request the current GPRS manager setup
Unit to Operator	\$161: 240min 5min 75min	The CRUISER will detach and re-attach every 240min, in case of an error (typ GPRS network down) retries will happen every 5minutes. The CRUISER will detach and re-attach when a connection was made to the CRUISER, but no data flowed within 75minutes.
Operator to Unit	!161 1440 30 30	This will set the GPRS manager to refresh attachment to the GPRS network on a daily basis, with 30min retry intervals on errors and a 30min data flow timeout.
Unit to Operator	\$161: 1440min 30min 30min	

CRUISER	SMARTEE	SMARTOO
A	-	-

5.46.1 MMS IP address 162

This is the IP address of the MMS server.

Write format:

!162 <IP address>

?162

Example:

Operator to Unit	!162 196.30.141.145	Set the current MMS server IP address
Unit to Operator	\$162: MMS server IP address 196.30.141.145	
Operator to Unit	?162	Request the current MMS server IP address
Unit to Operator	\$162: MMS server IP address 196.30.141.145	

5.46.2 MMS Server Port number 163

This is the MMS Server Listening Port where the CRUISER will be writing data to.

Write format:

!163 <PortNumber>

?163

Example:

Operator to Unit	?163	Request the current MMS port number
Unit to Operator	\$163: MMS server Port # : 50030	
Operator to Unit	!163 50206	Set the port number to 50206
Unit to Operator	\$163: MMS server Port # : 50206	

5.47 Serial input event 170-171

CRUISER	SMARTEE	SMARTOO
A	A	A

An instrument or measuring device with unsolicited serial output (for example a tag reader) can be connected to the CRUISER/SMARTEE or SMARTOO. The unit can be configured to perform certain tasks when such an unsolicited serial event occurs.

F Note: The serial input buffer size is 150Bytes big, thus the event originating data must not be more than 150characters.

C Tip: Use the text escape code <S1> to access the buffered serial data

C Tip: The DTR handshaking line will take the unit out of the serial input event, to enable the user to access the serial port normally and to be able to deactivate the feature, or to set-up other parameters.

5.47.1 Set Serial input event active / inactive 170

This Command is used to enable / disable the Serial Input Event functionality.

Write format:

!170 <0 or 1>

Read format:

?170

Example:

Operator to Unit	?170	Query if Serial Input event feature is active
Unit to Operator	\$170: Serial input event: Inactive	
Operator to Unit	!170 1	Set the Serial Input event Active
Unit to Operator	\$170: Serial input event: Active	

5.47.2 Command List for the Serial Input Event 171

This Command is used to set the command list associated with the serial input event.

Write format:

!171 <String>

Read format:

?171

Example:

Operator to Unit	!171 !21 1 3 !41 1 "Tag number is: <S1>"	Set the unit to pulse output 1 (i.e. a light) and then sms the input string to phone book position 1
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5.48 System Hardware Set-up Parameters _____ 251-261

F Note: The units will always be supplied from TruTeq with the correct hardware configuration loaded.

F Note: These commands must be used with caution, as a wrong hardware configuration might result in the unit not responding anymore!!!

5.48.1 Get system uptime

251

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to get the unit's uptime since it was switched on.

Read format:

?251

5.48.2 Set-up Hardware number of inputs and outputs and Analogues

252

CRUISER	SMARTEE	SMARTOO
A	-	A

This Command is used to set the number of digital inputs, digital outputs and analog inputs connected to the device.

Write format:

!252 <Digital Inputs> <Digital Outputs> <Analog Inputs>

Read format:

?252

5.48.3 Set serial input to RS485

254

CRUISER	SMARTEE	SMARTOO
0	-	0

This Command is used to enable the RS485 (if fitted) option on the device

Write format:

!254 <0 or 1>

Read format:

?254

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to obtain the free memory available.

Read format:

?255

5.48.5 Force a hardware reset

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to force a hardware reset.

Write format:

!256

5.48.6 Set-up serial port communications parameters

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set-up the serial port's data parameters. An added feature is that the data-framing to the end device does not have to be the same as on the unit, thus a meter communicating on 7,E,1 framing can be connected to a server only supporting 8,N,1 framing.

Write format:

!257 <Baud-rate> <air link framing> <local port framing>

or

!257 <Baud-rate>

Read format:

?257

Example:

Operator to Unit	!257 9600 8,N,1 7,E,1	Set the unit to connect to a meter at 9600,7,E,1 but send the data to the server at 9600,8,N,1
Operator to Unit	!257 115200	Only set the baudrate to 115200 (Don't change framing set-up)

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set the time out period for command mode to return to modem mode. This time out is in seconds.

Write format:

!258 <time-out>

5.48.8 Enable LCD hardware

CRUISER	SMARTEE	SMARTOO
0	-	-

This Command is used to enable the LCD hardware.

Available options:

0-No LCD

1-I2C LCD

2-SPI LCD

Write format:

!259 <Option>

5.48.9 Set debug on or off

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to activate the debug data.

Available Options

0- No Debug

1- GSM Debug

2- System Debug

3- Allowed users Debug

4- Command handler Debug

Write format:

!260 <Option>

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to activate return sms to sender

Write format:

!261 <0 or 1>

CRUISER	SMARTEE	SMARTOO
A	A	A

This Command is used to set device into auto remote command mode on incoming connections, either via CSD data call or GPRS connection. This is 'handy' when there's no device connected to the serial port, and only the TruTalk commands is used over the air.

Write format:

!262 <0 or 1>
