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**Command Set
CAPO 2.5**

Tsw Command Set Capo
90235 1.03

1 Hardware Connection

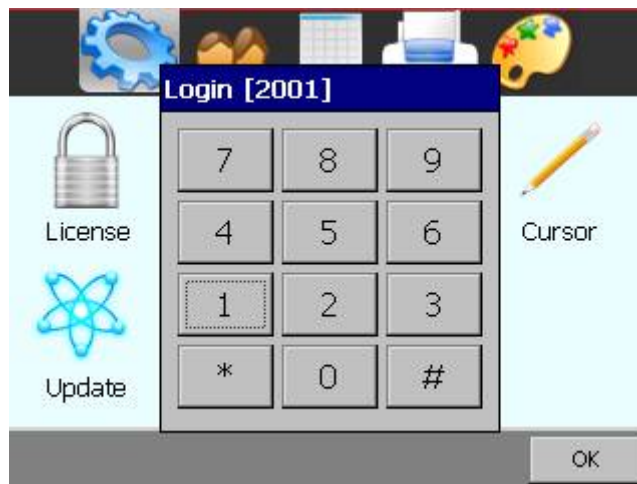
1.1 Serial Interface RS232

9 pole D-Sub
Pin 2 TXD Data CAPO to Computer
Pin 3 RXD Data Computer to CAPO
Pin 7 GND
+/- 12 V Signals
Protocol: 38400 Baud, 8 Bit, 1 Stop bit, no parity

1.2 USB Device

1.2.1 Raytech USB Driver

To communicate with the CAPO over USB it is necessary to switch to Raytech Driver Mode.
Enter Service Code "2001" to set USB Driver Mode.



Checking USB connection:

The Capo is visible a Raytech Device in the Windows Control Panel



This Mode is used for Raytech T-Base Pro, Raytech USB Driver, LibUSBDotNet.dll

1.2.2 Microsoft Active Sync (for Development only)

Required Software: Microsoft Active Sync
Active Sync Mode is selected with Service Code "2000"
Device is visible as a Microsoft Mobile device

2 Software

Minimum required firmware is 0.6.5.0 and later

Check our Web site for updates <http://http://update.raytech.ch/files/Firmware/CAPO/> or contact us.

2.1 Raytech USB/Serial Port Driver

Raytech is providing a SDK for Software integrations in .NET Projects.

3 Command Set

3.1 Command Syntax

Cmd [Para[,Para2..]] CR

Separator for cmd and Parameters ' ' (space 0x20)

Separator for Parameters: ','

Numeric Format of Numbers: float, "." as decimal point

Format of Strings: all ASCII Characters from 0x20 to 0x7f

3.2 Answerscodes

3.2.1 Synchronous Answers (Answer to a command):

Response Code	Remarks
"*0 ok"	Ok
"*1 unkn"	Unknown Command
"*2 Error"	Syntax Error
"*3 Emerg"	Emergency is pressed
"*4 Range"	Parameter is out of range
"*5 Missing Parameter"	Missing Parameter
"*7 Internal"	Internal Error
"*99 No Authorization"	Invalid License

3.2.2 Asynchronous Answers (Events/Redirected Messages)

Response Code	Remarks
"@*10 Exc, "	Redirected Exception, e.g Overcurrent
"@*11 Err, "	Redirected Error
"@*12 Wrn, "	Redirected Warning
"@*13 Msg"	Redirected Message, Status
"@*15 Settings, "	Redirected Settings Message
"@*19 Set to Local"	"Local" Button pressed on the Capo
"@*20 Start"	Measurement started
"@*21 End"	Measurement stopped
"@*R0, "	Results formated value with unit
"@*R1, "	Results formated as float

3.3 Remote/Local Operation

During some remote operations the Capo must be switched to Remote Mode.

In Remote mode,

- local operation/working is not possible.
- Messages (Messageboxes etc) to the user are redirected to the Host interface

To enter Remote mode

- Send Command "RM"
- Send a Command eg. "MU" which enters remote automatically

To return to Local Mode

- Send Command "SL" or
- Press Command Button in "Local" on the Screen.

4 Command Set

4.1 CAPO Commands

Command	Description
RM	Set to Remote
SL	Set to Local
SLX	Set to Local / Reboot CAPO
GV	Get Version Respond: device,Version,Releasedate "CAPO 2.5,0.6.4.0,07.09.16"
GV 2	Get Version Respond: device,Version,S/N,Rackmount "CAPO2.5,0.2.10.0,354099,False"
SCONF p=value[,p2=value]	SetConfig p(Parameter) = Value U=Voltage in Volt, F=Frequency in Hz, T=Testsetup [USTA USTB USTA+B GSTA+B GSTgA GSTgB GSTgA+B], C=Caption, M=MeasureMode [S C][S N L] (Single/Cont Results)(Short,Normal,Long Time)
?CONF	Get Config respond Parameter=value Syntax see Command SCONF above
MF [p=value[,p2=Value]]	Measure (Formatted Results, Formated Value with Unit) parameters (see command SCONF) allowed Results Time,Cx,Tand,Voltage,Freq,Temperature,Ix,RatioRe,RatioIm,Qual,Setup,Flags "@*R1,24290.3s,0.26pF,-0.04132,233V,50Hz,-.- Â°C,0.0190uA,0.0015476,0.0000640,-,UST A ,S,"
MF p=v[,p=v][:p2=v]..	Measure Multiple Starts Measurement (for Single Type) with parameter p, After final result continues measurement with parameter p2 etc HV Supply is not switched off e.g make a test at 100V,200V,300V MF U=100,F=50,T=USTA,M=SN;U=200;U=300 e.g make a test at USTA,USTB MF U=100,F=50,T=USTA,M=SN;T=USTB
MU [p=value]	Measure (Unformatted Results, Format is float/exponential) format see MF
?S	Get Status Respond: State = [Init,Ready,Working,Test,Error][State of Flags TriggerSwitch,Emergency,HVGnd,HVSupply (t=true,f=false) „STAT,Ready,ffff“

MT	Measure Temperature Respond temperatur in °C "25.0"

4.2 Internal Commands

XSU	Makes a Screen Shot (internal use) a screen shot is stored to USB Key in .png format
XT time	Set System Time time: ddmmyyhhmm eg.1409161651
XTL time	Set System Time time: long as multiple of 100ns (<code>DateTime.Now.Ticks</code>)
?XT	Get System Time respond: ddmmyyhhmm eg.1409161651
?XTL	Get System Time repond: long as multiple of 100ns (<code>DateTime.Now.Ticks</code>)
REBOOT	Reboots the CAPO