## "2" Download folder

This command, when "2" key is pressed, downloads the strings from current folder, including empty strings. Data is downloaded in the units currently selected by "U" command. It is a good idea to turn sensors off with "Z" command when you are reviewing or downloading data.

🍓 eCrony - HyperTer	minal						
<u>File E</u> dit ⊻iew <u>⊂</u> all	<u>T</u> ransfer <u>H</u> elp						
DAT>					"2	" key was	pressed here
MMR: <begin> Fol=</begin>	06 Str=01 Siz=	=02					proceedinore
MMR:06:01:01 163							
MMR:06:01:02 163	3 08 f/s 72 3 fa	h					
MMR: <fnd></fnd>							
MMR: <begin> Fol=</begin>	06 Str=02 Siz=	=03					
MMR:06:02:01 825							
MMR:06:02:02 825	98 f/s 72 3 fat						
MMR:06:02:03 825							
MMR: <fnd></fnd>							
MMR: <begin> Fol=</begin>	06 Str=03 Siz=	=03					
MMR:06:03:01 413							
MMR:06:03:02 413							
MMR:06:03:03 413	31 f/s 72 3 fat						
MMR: <end></end>							
DAT>							
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

### "3" Download eDisk

This command, "3" key, downloads all the folders present on eDisk, including empty ones. Strings and folder are identified with abbreviated names. If your folders are full you may have to save downloaded data to a text file. HyperTerminal buffer has only room for 500 lines/shots. In the example below we show part of downloaded data:

MMR: <be MMR:05:</be 	nd> Fol=0 egin> Fol= 02:01 825 nd> Fol=0	05 Str=02 .98 f/s 72.				
MMR:05:	egin> Fol= 03:01 206 nd> Fol=0	.66 f/s 72.3				
	nd> egin> Fol= 01:01 163					
MMR:06:	01:02 163 01:02 163 nd> Fol=00	8.08 f/s 72				
MMR:06:	egin> Fol= 02:01 825 02:02 825	.91 f/s 72.3	3 fah			

## "Z" Turn sensors off

The "Z" key command turns sensors Off. When sensors are Off, battery power consumption is reduced by more then 50%. You may want to turn sensors Off when you are reviewing data or setting up the unit. The unit must be calibrated again with "C" command in order to accept shots again. CE-3 also logs your Setup changes for the current sequence number.

<b>eCrony - HyperTerr</b> Eile Edit <u>V</u> iew <u>C</u> all		)						<u>- I X</u>
DAT> <end> SYS:00512 SLev=20 DAT&gt;06:05 22.0 CA DAT&gt;</end>		<sup>-</sup> Sens=OFF CA	P=OFF		" <b>Z</b> "	key was pi	ressed he	re
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print ech	10 4

## "1" Download current string

This command downloads current string from memory when "1" key is pressed. This can only be done from Data or Stats mode. Data is downloaded in the units currently selected by "U" command. It is a good idea to turn sensors off with "Z" command when you are reviewing or downloading data.

🍓 eCrony - HyperTerminal							×
<u>Eile E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ransfer <u>H</u> el	)						
DAT>					" <b>1</b> " was	pressed here	
MMR: <begin> Fol=06 Str=02 Siz</begin>							
MMR:06:02:01 1638.17 f/s 69.4	fah						
MMR:06:02:02 1636.86 f/s 70.8	fah						
MMR:06:02:03 1645.66 f/s 70.8	fah						
MMR:06:02:04 1662.80 f/s 70.8	fah						
MMR:06:02:05 1646.65 f/s 71.6	fah						
MMR:06:02:06 1646.40 f/s 71.6	fah						
MMR:06:02:07 1630.33 f/s 71.6	fah						
MMR: <end> CAP=OFF</end>							
DAT>							
Connected 1:46:45 TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	1

#### "9" Turn the unit Off and saves folder

This is similar to "**P**" command – it turns the unit Off by pressing "**9**" key. But unlike "**P**" command, it saves current folder and your current working status to eDisk, before the unit is turned Off. When using PC, saving data to eDisk is unnecessary, because PC has a far better storage capability. Also PC stores more information then eDisk can. Use this command if you need to save current setup status, such power down time, sensitivity level, archery mode etc.

#### "Ctrl-A" Delete entire folder

This command deletes current folder by pressing "Ctrl-A" keys

#### "Ctrl-B" Un-delete deleted folder

This command reverses deletion of current folder by pressing "Ctrl-B" keys.

	LFol Fol=(	06 MaxStr	=06:03:00_01 C =06:03:03 01 C	"Ctrl-A" key f "Ctrl-B" key f	
DAT>			-		

### "Ctrl-E" Select CAM test mode

This command, when "Ctrl-E" keys are pressed, is only active from Data or Stats menu. There are 4 CAM modes and only CAM1 & CAM2 are documented here. CAM3 and CAM4 are reserved for service personnel and factory testing. Do not set the unit to CAM3 and CAM4. If you discover unfamiliar commands and change their values, you must restore factory settings by pressing <DATA+STATS+MENU> keys on the unit itself. This resets the unit; but before you do that, save your data by pressing "9" key first.

<u>File E</u> dit ⊻iew <u>⊂</u> all	Transfer	Help						
DAT> <end> MEN&gt;<dat> 00?</dat></end>			"M" was pressed here to enter any Menu mode "Ctrl-E" was pressed here to increment CAM mode					
SYS:00085 Cam=02 MEN> <dat> 00?</dat>	-		CAM mode changed to CAM2 from CAM1					
SYS:00085 Cam=03	3							
MEN> <dat> 00? SYS:00085 Cam=04</dat>	4							
MEN> <dat> 00?</dat>	4							
SYS:00085 Cam=01	1							
		33 <end> CAP=OF</end>	Ŧ					
MEN> <dat> 00?03</dat>								
MEN> <dat> 00?03 DAT&gt;</dat>								

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#### "W" Display current data location

This command, "W" key, displays current data location. It refers to data that is stored in the unit and not on the PC. It is a good idea to check your present location before you start shooting, so that you know where your data will be stored. This is all logged on the PC.

🍓 eCrony - HyperTerr	ninal							
<u>Eile E</u> dit ⊻iew <u>⊂</u> all (	[ransfer <u>H</u> e	lp						
DAT> SYS:00512 Att=08:0 DAT>	6:05_03 Fc	I=08 Str=06 Siz=	05 Sho=03					
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

Att=08:06:05_03	Location Folder 08, String 06, Shot 05, Reviewed Shot 03
Fol=08	Folder number is 8
Str=06	String is 6
Siz=05	Shot is 5, next shot will be placed in position #7
Sho=03	Currently reviewed shot number is 3.

#### "Y" Locate Min or Max position in the string

This command, by pressing "**Y**" key, finds the location of current stats, such as Low or High only. You must be in Stats Mode and select "**Hi**" or "**Low**" using scroll keys.

	🍓 eCrony - HyperTerm	inal					_	
	Eile Edit ⊻iew ⊆all <u>T</u> r	ansfer <u>H</u> elp						
	STS>06:Lo 1800.42 STS>06:02 1800.42 STS>06:Hi 1801.00 STS>06:05 1801.00 STS>			Low Stats was "Y" was press "Dwn-Arrow" "Y" was presse	ed here, it j pressed, Hi	gh Stats w	vere set	
	Connected 1:46:45	TTY	4800 8-N-1	SCROLL C	APS NUM	Capture	Print echo	
,	>06:Lo 1800.42) >06:02 1800.42)	indicat		stats view f ation of "Lo			n be rec	alled by
,	>06:Hi 1801.00) >06:05 1801.00)	indicat	•	stats view f ation of "Hi			an be re	called by

### "S" Set Stats Mode

This command sets Stats mode. When **"S**" is pressed, the stats for the current string are displayed. Windows scroll keys can be used to move from stats to stats, from string to string and from folder to folder.

🍓 eCrony - HyperTermi	inal						_	
<u>Eile E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp							
STS>06:Lo 1800.42 STS>06:Hi 1800.69 STS>06:Av 1800.58 STS>06:Es 0.27 STS>06:Sd 0.14750								
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

#### "T" Select data type

This command, by pressing "T" key, selects data type that Data Mode or Stats mode will display. CE-3 stores only two data types: Velocity and Temperature, and this command simply toggles between these two types.

🍓 eCrony - HyperTerm	ninal						_	
<u>Eile E</u> dit ⊻iew <u>C</u> all <u>T</u> i	ransfer <u>H</u> elp							
DAT>00512 Vel:f/s 18 DAT>00512 Tmp:fah								
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

#### "U" Change units for selected data type

This command changes units of a selected data type by pressing "**U**" key. Velocity units can be changed from m/s to f/s (or vice versa) and temperature can be changed from Celsius to Fahrenheit (or vice versa). You must first select data type in order to be able to change the units.

🏀 eCrony - HyperTerm	inal						_	. 🗆 ×
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ransfer <u>H</u> elp							
DAT>00512 Vel:m/s 5 DAT>00512 Vel:f/s 18 DAT> DAT>00512 Tmp:fah DAT>00512 Tmp:cel 2 DAT>	300.42 71.6							
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

#### "Ctrl-T" Text & Notes entry mode

This command, by pressing "Ctrl-T" keys, sets up text mode. Text mode allows you to enter notes into the log file.

After pressing "Ctrl-T" you can enter your text. Pressing "Esc" key or firing a shot will terminate this mode.

There is no limit on the amount of text that can be typed while in the text mode, but because this is a data logging program, you can not edit it.

🧠 eCrony - HyperTermi	nal					
<u>Eile E</u> dit ⊻iew <u>⊂</u> all <u>T</u> r	ansfer <u>H</u> elp					
CAL:00085 120 140 1 DAT>00085 <end> TXT:00085 Jak's load TXT:00085 July/10/20 CAP:00085 413.28 f/s CAP:00086 413.31 f/s CAP:</end>	#1 05 <end> 2012.706 *s*</end>	72.3 fah 03:04			ed in yped in an	I here Id shot fired here automatically exit text mode
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS NUM	Capture	Print echo

#### "Ctrl-W" Change string size

This command, by pressing "Ctrl-W" keys, changes string size. When string size is changed, the folder is deleted. Use this command with caution; data recovery is still possible from Data Menu, however data sequence may be lost.

This command cycles through the possible string sizes - there are 4, 5, 6, 8, 10, 13, 20 and 40 shots per string. There is room for only 40 shots in each folder; therefore, as you increase string size, you reduce number of strings available.

When you use PC, number of strings available on CE-3 does not matter because data logging allows you to store thousands of strings with Sequence ID from 00000 to 65,535.

String size setting is useful for "Running Stats" monitoring. By setting string size, your load group size, you will be able to see on the PC screen live stats as you add new shots.

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File Edit View Call Tran:	sfer Help							
jio <u>E</u> aic <u>Tion C</u> ail <u>T</u> ian.	vior <u>H</u> olp							
DAT> <end></end>			"Ctrl-W	" was n	ressed he	re		
SYS:00541 MaxStr=01 M	MaxSho=40		"Ctrl-W" was pressed here String Size is now 40 shots per string					
DAT> <end></end>	indification fo		"Ctrl-W" was pressed here					
SYS:00541 MaxStr=02 M	MaxSho=20	String Size is now 20 shots per string						
DAT> <end></end>			"Ctrl-W" was pressed here String Size is now 13 shots per string					
SYS:00541 MaxStr=03 M	/laxSho=13							
DAT> <end></end>								
SYS:00541 MaxStr=04 M	MaxSho=10							
DAT> <end></end>								
SYS:00541 MaxStr=05 M	MaxSho=08							
DAT> <end></end>	JayCha-06							
2.10	viax5n0=06							
SYS:00541 MaxStr=06 M	viaxSh0=06							
DAT> <end> SYS:00541 MaxStr=06 M DAT&gt;<end></end></end>	viax5n0=00							

## "Esc" Exit current operation

This command, "Esc" key, exits current, non-critical operation, such as "CAP:" or "TXT" mode, etc.

🍓 eCrony - HyperTermi	nal							
<u>E</u> ile <u>E</u> dit ⊻iew <u>C</u> all <u>T</u> ra	ansfer <u>H</u> elp							
CAP:00525 1801.12f/s CAP: <end> DAT&gt;00526 <end> TXT:00526 This is a te DAT&gt;</end></end>			_	2			s pressed h s pressed h	
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

## "Enter" Enter key same as <ENTER> key

This command is "**Enter**" key on PC keyboard and simulates the "**Enter**" button on the chronograph. In Data and Stats, it will acknowledge alarms, or display current Data or Stats. In menu mode, it displays function value or executes the function.

Eile	Edit	⊻iew	⊆all	Transfer	Help				
DA <sup>-</sup> DA <sup>-</sup>		1800	.69						
DA	•								

## "Delete" Delete current shot

Pressing "Delete" key deletes current shot. See example below, where shot is deleted.

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餋 eCrony - HyperTerminal	
<u>File E</u> dit <u>V</u> iew <u>C</u> all Iransfer <u>H</u> elp	
DAT> <end></end>	"P" key was pressed here
SYS:00511 Power OFF <end> SYS:00511 eChrony.com (c)2005, CE3:V10S143012191105</end>	Anukau propod
SYS:00511 Att=08:06:05 05	Any key pressed
SYS:00511 Power ON	
SYS:00511 Ready CAP=OFF MEN <dat> 00?06:05 1800.15<end> CAP=OFF</end></dat>	"D" key was pressed
DAT>	"C" key was pressed
CAL:00511 002 011 067 124 181 219 212 211 211 861	Unit recalibrated
DAT> <end> CAP:00511 1800.42f/s 100.957*s* 71.6fah 06:05 05 1800.42</end>	
CAP:	
Connected 1:46:45 TTY 4800 8-N-1 SCROLL CAPS	NUM Capture Print echo

## "Q" Query system status

This command displays system status, when "**Q**" key is pressed. It is a good idea to check status of the chronograph before you start shooting.

🍓 eCrony - HyperTermi	nal						_ 🗆 ×
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> ra	ansfer <u>H</u> elp						
DAT> SYS:00085 eChrony.cc SYS:00085 Bat=8.63V SYS:00085 Faf=OFF A SYS:00085 K*Log=ON SYS:00085 Ke1=/5 Tm SYS:00085 MaxFol=10 SYS:00085 Att=06:03: SYS:00085 Ready CA DAT>	/ Tmp=23.5C Arc=OFF Sen J L*Log=ON J np=fah Tim=si 0 MaxStr=03 05_05	PwrDown=ON s=OFF SLev= *Log=ON Can ec	=00:30 50% Cal=0	D		<b>Q</b> " key wa	is pressed
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

Bat=8.46V Tmp=23.5C PwrDown=ON=00:30 Arc=OFF Sens=OFF SLev=50% Cal=861 Faf=ON J*Log=ON K*Log=ON L*Log=ON Vel=f/s Tmp=fah Tim=sec MaxFol=10 MaxStr=03 MaxSho=13	Battery Power in Volts. Ambient temperature in Celsius Automatic power shutdown, enabled, set for 30 min. Archery mode is Off. Sensors are Off Sensitivity level set to 50% Current calibration setting is 861 Fast fire is On. Capture Tag log is On Temperature log is On Running Stats log is On Velocity in feet per second. Temperature in Fahrenheit. Time in seconds. Maximum Folders available - 10 There are 3 Strings per folder for this folder Each string has can have 13 shots in this folder
Att=06:03:05_05	Current location is Folder 06, String 03, Shot 05, review 05

This command, "M" key, takes the user to current menu mode. When in Stats Mode, it takes user to Stats-Menu. When in Data Mode, it takes user to Data-Menu.

This is a mirror image of menu key on the CE-3 unit. In Menu mode, PC keys replace pushbuttons on the unit. Scroll keys navigate trough the menu. "**PgUp**" is equivalent to <**ENTER+UP>** and "**PgDn**" is equivalent to <**ENTER+DOWN>** 

餋 eCrony - HyperTerm	inal							
Eile Edit ⊻iew ⊆all Ir	ransfer <u>H</u> e	P						
DAT> <end> MEN<dat> 00?06:05 DAT&gt;06:Hi 1801.00 STS&gt;<end> MEN<sts> 00?06:Hi STS&gt;</sts></end></dat></end>				" <b>M</b> "	key was	s pressed	here	
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print ec	ho //

#### "O" Decrease Sensor Sensitivity

The command, "O" key, decreases optical sensitivity of the chronograph. This is opposite of "I" command which increases sensor sensitivity. Please refer to "I" command on page 22.

#### "P" Turns the unit Off without saving

This command turns the unit Off when "P" key is pressed. It can be turned On again by pressing any key. However, when unit is turned On again, it goes into a safe mode with sensors turned Off, and hence, it has to be recalibrated and set to Data Mode to accept shots. There are two ways to recalibrate the unit:

a) **The safe way** - press "**C**" to calibrate. When calibration is done, press "**D**" to continue with shooting (i.e., you decide to go ahead).



b) Normal mode – press "D" to go to Data mode and from there press "C" to calibrate. In this mode CE-3 will decide for you if the environment is acceptable and enable sensors accordingly. Please note: CE-3 has a limited intelligence and may not always be right.

## "Backspace" Un-delete deleted shot

By pressing "Backspace" key, you restore last deleted current shot.

🍓 eCrony - HyperTerm	inal				 l ×
Eile Edit ⊻iew ⊆all <u>T</u> i	ransfer <u>H</u>	(elp			
DAT> <end> CAP:00526 1800.58f/ CAP:00527 1800.04f/ CAP:00528 <end> DAT&gt;DELSho Sho=0 DAT&gt;UNDSho Sho=0</end></end>	s 0.851s 4		"Del"	as presseo was press <b>(space</b> " w	ere
DAT>					

## "Alt-Delete" Delete current string

This command, "Alt-Delete" keys, deletes current string number. See example below.

#### "Alt-Backspace" Un-delete deleted string

Press "Alt-Backspace" keys to undo deletion of the string.

🧠 eCrony - HyperTeri	minal				_	
<u>File E</u> dit ⊻iew <u>⊂</u> all	<u>T</u> ransfer <u>H</u> elp					
DAT> <end></end>						
CAP:00537 1801.12 CAP:00538 1800.58						
CAP:00538 1800.58 CAP:00539 1800.85						
		0.0 .0.0 000_	_00 .000.00			
CAP:00540 <end></end>						
DAT>DELStr Str=04				lete" was pre		
DAT>DELStr Str=04 DAT>UNDStr Str=04				<b>lete</b> " was pre ckspace" was		
DAT>DELStr Str=04						
DAT>DELStr Str=04 DAT>UNDStr Str=04						

#### "PgUp" Move to the next folder

By pressing "**PgUp**" key, this command moves to the next folder, up one number. Current folder is saved on eDisk before the new one is retrieved.

#### "PgDn" Move to the previous folder

By pressing "PgDn" key, this command moves to the previous folder, down one number. Current folder is saved on eDisk before the new one is retrieved.

ethe entry trans call a			
<u>File E</u> dit <u>V</u> iew <u>⊂</u> all ]	jransfer <u>H</u> elp		
DAT>			"W" pressed to get current location
SYS:00087 Att=01:02	2:00 01 Fol=	01 Str=02 Siz=00 S	
DAT>Fol=02 MaxStr			"PgUp" pressed to move one folder forwar
DAT>Fol=03 MaxStr	=04 Str=00 A	Att=03:01:00_01	"PgUp" pressed to move one folder forwar
DAT>Fol=04 MaxStr	=04 Str=01 A	tt=04:01:10 10	"PgUp" pressed to move one folder forwar
DAT>Fol=03 MaxStr	=04 Str=00 A	Att=03:01:00_01	"PgDn" pressed to move one folder back
DAT>Fol=02 MaxStr	=04 Str=00 A	Att=02:02:00_01	"PgDn" pressed to move one folder back
DAT>Fol=01 MaxStr	=04 Str=00 A	Att=01:02:00_01	
DAT>		—	
Connected 1:46:45	TTY	4800 8-N-1 50	ROLL CAPS NUM Capture Print echo

#### "Right Arrow" Move to the next string

This command, by pressing "Right Arrow" key, moves to the next string, up one number.

#### "Left Arrow" Move to the previous string

This command, by pressing "Left Arrow" key, moves to the previous string, down one number.

🧞 eCrony - HyperTermi	nal						_ 🗆	×
<u>E</u> ile <u>E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp							
SYS:00541 Att=05:06: SYS:00541 MaxFol=1			5 Sho=05					
DAT>07:08 1800.69 DAT>01:08 1800.69 DAT>02:08 1800.42				"Right Arrow" key was pressed here				
DAT>03:08 1800.69 DAT>04:08 1800.42 DAT>03:08 1800.69				"Left /	Arrow"	key was j	pressed here	
DAT>03:08 1800.69 DAT>02:08 1800.42 DAT>01:08 1800.69								
DAT>07:08 1800.69 DAT>								
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	//.

#### "Up Arrow" Move to the next shot or stats

This command, by pressing "Up Arrow" key, moves to the next shot or stats, up one number.

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#### "J" Turn CAP: tag On/Off

This command toggles J\*Log On or Off by pressing "J" key. When J\*Log is Off, data is sent to PC without CAPTURE tag, just the sequence number. In the example below, first shot has J\*Log On but the second shot has J\*Log Off.

🧠 eCrony	/ - HyperTe	rminal						
<u>E</u> ile <u>E</u> dit	⊻iew <u>⊂</u> all	<u>T</u> ransfer	Help					
CAP:000 STS> SYS:000 STS> <e< th=""><th>)65 206.71 )66 <end> )66 J*Log= nd&gt;</end></th><th>OFF</th><th>4 sec 23.2 cel 02:0 : 23.2 cel 02:01_Lo</th><th>-</th><th></th><th>"J"</th><th>key was p</th><th>pressed here</th></e<>	)65 206.71 )66 <end> )66 J*Log= nd&gt;</end>	OFF	4 sec 23.2 cel 02:0 : 23.2 cel 02:01_Lo	-		"J"	key was p	pressed here
	1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

#### "K" Turns temperature Log sent to PC On/Off

This command toggles K\*Log On or Off by pressing "K" key. When K\*Log is off, temperature data is not sent to PC. In the example below, first shot has K\*Log On, second shot has K\*Log Off.

🍓 eCrony - HyperTerm	inal					
<u>Eile E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ransfer <u>H</u> elp					
STS> <end> CAP:00067 206.71 f/s CAP:00068 <end> STS&gt;<end> SYS:00068 K*Log=OI STS&gt;<end> CAP:00068 206.71 f/s CAP:</end></end></end></end>	FF		1	<b>"K</b> "	key was p	pressed here

#### "L" Turns Stats Monitor Log sent to PC On/Off

This command toggles L\*Log On or Off by pressing "L" key. When L\*Log is Off, temperature data is not sent to PC. In the example below, first shot has K\*Log on, second shot has L\*Log off.

🍓 eCrony - HyperTerm	inal						_ [] >
<u>File E</u> dit ⊻jew <u>C</u> all <u>I</u> r	ansfer <u>H</u> elp						
DAT> <end> CAP:0004 1801.55 f/s CAP:0004 <end> DAT&gt; SYS:0004 L-Log=OFF DAT&gt;<end> CAP:0004 1800.19 f/s</end></end></end>	:		_02 1801.5	5	"L	." key was	pressed here
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

#### Help within Menu mode

🍓 eCrony - HyperTe	rminal						_	
<u>F</u> ile <u>E</u> dit ⊻iew <u>C</u> all	<u>T</u> ransfer <u>H</u> e	lp						
DAT> <end></end>								
MEN> <dat> 00?&lt;</dat>	End>							
HLP: ESC=Exit								
HLP: D=Data								
HLP: S=Stats								
HLP: M=Menu								
HLP: C=Calibrate								
HLP: For more info	rmation. See	File eChrony.ht	ml					
HLP: <end></end>		, .						
MEN> <dat> 00?</dat>								
HLP: <end> CAP=</end>	OFF							
	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

#### "I" Increase sensor sensitivity

This command, "I" key, increases optical sensitivity of the chronograph. This is generally handled by the CE-3 internal programs; however, you can override automatic setting by changing this value.

It can be set from 0% (the lowest value) to 95% (the highest value) in increments of 5%. Please remember that setting sensitivity too high (for example, 95%), may cause false reading. Default value is 60%.

Before you change this value, please check system status by pressing "**Q**" key first. You may need to use "**O**" command (page 24) which decreases sensitivity. In the example below, sensitivity it was increased to 65%.

Please note that commands "I" and "O" turn sensors Off, and therefore, any change here requires recalibration of the unit. You must press "C" to calibrate the unit (which is also the only way to find out if your setting will actually work). The fine settings, in increments of 1%, are available from Data Menu.

🏀 eCrony - HyperTerm	ninal					
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u>	ransfer <u>H</u> elp					
SYS:00513 Bat=8.44	V Tmn-24 10		0.20			
SYS:00513 Arc=OFF						
			-506			
SYS:00513 Faf=ON (						
SYS:00513 Vel=f/s T		sec				
SYS:00513 Ready C/	AP=OFF					
DAT> <end></end>					was pressed l	
SYS:00513 SLev=55	% Arc=OFF S	ens=OFF CA	P=OFF		tivity increased	
DAT> <end></end>					was pressed a	
SYS:00513 SLev=60	% Arc=OFF S	ens=OFF CA	P=OFF		tivity increased	
DAT> <end></end>				"I" key	was pressed a	again
SYS:00513 SLev=65	% Arc=OFF S	ens=OFF CA	P=OFF	Sensi	tivity increased	d to 65%
DAT>				" <b>C</b> " ke	y was pressed	here
CAL:00513 508 230	113 223 212 2	216 212 658		Unit re	ecalibrated	
DAT>						
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS IN	IUM Capture	Print echo

#### "Down Arrow" Move to the previous shot or stats

This command, by pressing "Down Arrow" key, moves to the previous shot or stats, down one number.

🦓 eCrony - HyperTerm	ninal							
<u>File Edit View Call T</u>	ransfer	Help						
DAT>								
SYS:00541 Att=05:07	7:08_05	Fol=05	Str=07 Siz=	=08 Sho=05				
SYS:00541 MaxFol=	10 Max	Str=07 M	/laxSho=05					
DAT>07:04 1800.97				"Dow	n Arrov	<b>v</b> " key v	vas presse	ed here
DAT>07:03 1800.69								
DAT>07:Lo 1800.42								
STS>07:Hi 1800.97								
STS>07:Av 1800.69								
STS>07:Hi 1800.97								
STS>07:Lo 1800.42								
STS>07:03 1800.69							as presse	
DAT>07:02 1800.97				"Dow	n Arrov	<b>v</b> " key v	vas presse	ed here
DAT>07:01 1800.42								
DAT>07:02 1800.97				"Up A	Arrow" k	ey was	pressed h	nere
DAT>07:03 1800.69								
DAT>								
Connected 1:46:45	TTY		4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

## **Excel Data Import Macros**

Following macros are available to import eChrony Data

<u>Macro Name</u>	<u>Shortcut Key</u>	What does it do
Import CAP Data	Ctrl-Shift-C	Imports Captured data from eChrony.ht
Import MMR Data	Ctrl-Shift-M	Imports eDisk Memory from eChrony.ht
Stats Setup	Ctrl-Shift-S	Sets Up Stats for a single string.
Clear All Data	Ctrl-Shift-Z	Clears MMR_Data, CAP_Data sheets

Limitations: These formulas occupy a considerable amount of space in this file. Therefore, if you plan to shoot more than 500 shots per session, we recommend that you make your own spreadsheet file and use "Data Import" functions located under <File> or <Data> menu in Microsoft Excel. All fields are delimited with space character for easy data importing. Excel will automatically detect data format. You will also have to save your shots into a text file from within "eChrony.ht" because HyperTerminal has a buffer for only 525 shots.

# **Examples of PC Remote control**

#### A1. OS Independent PC Interface

CE-3 Chronograph will communicate with any equipment that has RS232 port. This makes our unit virtually independent of any Operating System (OS) used. Most Operating Systems have access to some form of TTY terminal emulation; therefore, you can use CE-3 with old DOS machines, Windows 3.XX, Windows 95, Windows 98, Windows 2000, Windows ME, Windows XP, Linux, McIntosh etc. There are some restrictions:

- 1) Baud rate 300 to 4800 b/s, selectable from the CE-3 key. Default is 4800 b/s.
- 2) For higher baud rates, PC must support Software handshaking Xon/Xoff
- 3) CE-3 uses only 3-Wire interface, it does not support Hardware handshaking
- 4) CE-3 is shipped with standard DB9 interface connector only

CE-3 can be remotely controlled from the PC, including Power On/Off, without the need for proprietary software. It uses a single key for all operations; that is you press one key only. If you forget the key for a particular function, just press "H" to get Help list. This help comes directly from CE-3; therefore, it is PC independent. For detailed description of all the command keys, click <u>Key Commands</u>.

#### Key Examples:

- "H" The help key, displays the list and description of control keys
- "C" Calibrates the unit
- "Q" Displays system status, settings, temperature, battery power etc.
- "P" Turns the unit off
- "A" Turns archery mode On/Off
- "Deletes current shot
- "Alt-Del" Deletes current string.
- "1" Downloads current string
- "2" Downloads current folder
- "3" Downloads entire eDisk, all folders
- "9" Saves current folder to eDisk
- "PgUp" Moves to the next folder
- "Right" Moves to the next string.
- "Up" Moves to the next shot.

All keys have an equivalent "Ctrl-Key" available for the OS (Operating System) that does not support HyperTerminal emulation. All data for velocities, times, temperature etc. is sent in such format that most Spreadsheets and Data Base programs can easily import. The data can also be printed out directly to a printer. With old DOS machines the data can be "Echoed" to the printers directly.

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(Faf=OFF) indicates Fast Fire is Off and (Faf=ON) indicates that it is On.

🍓 eCrony - HyperTermi	nal						_ 🗆 ×
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp						
DAT> <end> SYS:00513 Faf=OFF DAT&gt;<end> SYS:00513 Faf=ON DAT&gt;</end></end>				"F" key was pr Fast Fire is O "F" key was pr Fast Fire is O	ff ressed aga		
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS NUM	Capture	Print ecl	ho

#### "H" Display Help information

The "H" key command displays simple help text. Use this command to find your way out of a specific mode. This help resides inside the chronograph; therefore, it has a limited number of lines. You can press "H" any time except when in Text mode. Help screen is available from Data, Stats and Menu modes. Menu mode has help text only for emergency exit information.

#### Help within Data & Stats mode

🍓 eCrony - HyperTern	ninal								
<u>F</u> ile <u>E</u> dit ⊻iew <u>C</u> all <u>T</u>	ransfer	Help							
DAT> <end></end>									
HLP: ESC=Exit									
HLP: D=Data									
HLP: S=Stats									
HLP: M=Menu									
HLP: C=Calibrate									
HLP: J=J*Log									
HLP: K=K*Log									
HLP: L=L*Log									
HLP: T=Type									
HLP: U=Units									
HLP: A=Archery									
HLP: P=Power Off									
HLP: Z=Sensors Off									
HLP: Q=System State	us								
HLP: W=Where is it									
HLP: F=Fast Fire									
HLP: I=Sensitivity++									
HLP: O=Sensitivity									
HLP: Y=Locate HiLo	ט								
HLP: 1=String Get									
HLP: 2=Folder Get									
HLP: 3=eDisks Get	otion (		Chrony html						
HLP: For more inform HLP: <end> CAP=OF</end>		See File	echrony.ntml						
Connected 1:46:45	TTY		4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print ech	10 //

#### "C" Calibrates the unit

This command starts Adaptive Calibration by pressing "C" key. When completed successfully, with no error message, the unit returns to **Data mode** for the shot recording.

If the Calibration failed, the unit returns to **Data-Menu mode**. If calibration failure is critical, then sensors are turner off, as indicated by (**CAP=OFF**). From here it is necessary to proceed manually.

CE-3 does not have enough intelligence to make a good decision on marginal conditions, so you have to decide whether to proceed or not. It only recognizes serious problems and then alerts you with (ERR=Cal) and (CAP=OFF).

🏀 eCrony - HyperTerminal	
<u>File Edit V</u> iew <u>C</u> all Iransfer <u>H</u> elp	
DAT> <end></end>	"C" key was pressed here
CAL:00491 861 408 102 242 213 216 213 214 862	Calibration was successful
CAL:00491 121 164 107 063 013 122 082 209 280 631 MEN> <dat> 00?02:20 1710.97<end></end></dat>	Marginal conditions detected Unit is waiting for your decision"
DAT> CAL:00491 869 700 1020 1020 1021 1021 ERR=Cal	"D" was pressed to ignore and proceed Calibration failed
MEN> <dat> 00?02:20 1710.97<end> CAP=OFF DAT&gt;</end></dat>	Sensors are turned Off"
Connected 1:46:45 TTY 4800 8-N-1 SCRO	LL CAPS NUM Capture Print echo

### "D" Set Data mode

This command sets Data mode On. When "D" key is pressed, current shot and its location are displayed. In our example below (07:01) indicates String-7, Shot-1, with velocity (1800.42).

Windows scroll keys can be used to move through folders, strings and shots. See also command <u>"S" Set Stats Mode</u> (page 27)

🍓 eCrony - HyperTermi	inal							
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp							
DAT>07:01 1800.42 DAT>								
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	11.

## "F" Turn Fast fire On and Off

This command turns Fast fire On or Off when "F" key is pressed. This is not true rapid fire detection. Rapid fire requires far more complex operation than CE-3 can provide right now. Normal mode of operation holds sensors inactive between shots for about 2 seconds, and thus, increases measurement reliability. Fast fire mode holds sensors inactive between shots for 0.7 seconds, which reduces reliability. Our future releases will have a true rapid fire capability.

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### A2. Reduced Data Log

The unit sends to the PC all information available as each shot is fired. It sends identifying header, serial shot number, velocity, time between shots, ambient temperature and calculated string information, such as current location number or stats. Unless all this information is needed, it can clutter PC display. With a single key stroke you can turn some information On or Off.

To get rid of all extra information the unit sends to the PC, we provided 3 keys for this. "J" turns Off or On Data Capture headers, called "J\*Log". "K" turns Off or On temperature data, called "K\*Log", and "L" turns Off or On running stats & string location, called "L\*Log". To make sure that you have access to these commands, press "D" to place the unit in a DATA mode.

#### J\*Log Command - turns Off or On Data Capture headers

🍓 eCrony - HyperTerm	inal						
<u>File E</u> dit <u>Y</u> iew <u>⊂</u> all <u>T</u>	ransfer <u>H</u> el	p					
CAP:0001 <end> DAT&gt; SYS:0001 J-Log=OFf DAT&gt;<end> #0001 1800.73 f/s 4.8 #0002 1800.73 f/s 2.3</end></end>	87 sec				"J	" key was	pressed here
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

#### K\*Log Command - turns Off or On temperature data

餋 eCrony - HyperTermii	nal						_O×
_ <u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> ra	insfer <u>H</u> elp						
CAP:0003 <end> DAT&gt;<end> SYS:0003 K-Log=OFF DAT&gt;<end> CAP:0003 1801.28 f/s</end></end></end>					"К	(" key was	pressed here)
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo 🥢

#### L\*Log Command - turns Off or On running stats & string location

🍓 eCrony - HyperTermin	nal						_ 🗆 ×
<u>Eile E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ra	nsfer <u>H</u> elp						
DAT> <end></end>							
CAP:0004 1801.55 f/s	18.568 sec	75.9 fah 01:02	2 02 1801.5	5			
CAP:0004 <end></end>							
DAT>							
SYS:0004 L-Log=OFF					"	_" key was	s pressed here
DAT> <end></end>							
CAP:0004 1800.19 f/s	3.345 sec 7	5.9 fah					
Connected 1:46:45	ТТҮ	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

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#### J, K, L\*Log Off example

eCrony - HyperTer							- 🗆 '
<u>File E</u> dit ⊻iew <u>C</u> all	Iransrer Help	)					
DAT>							
DAT>				" <b>J</b> " key	was presse	ed here	
SYS:00085 J*Log=C	DFF			"K" kov	was press	od horo	
SYS:00085 K*Log=(	DFF			n ney	was press	eunere	
DAT> SYS:00085 L*Log=0				"L" key	was press	ed here	
DAT>							
#00090 1641.25 f/s :					#90 was fir		
#00091 1644.68 f/s #00092 1643.95 f/s			A shot #91 was fired here A shot #92 was fired here				
#	000				aiting for 1		shot
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS NUM	Capture	Print ech	10

## A3. Full Data Log

If "J\*Log", "K\*Log" and "L\*Log" are not turned Off, then the unit sends all available information to the PC. In the example below the unit was setup to display the running average on the last 5 shots. It can easily display the Running Stats on Low, High, Average, STD etc.

🧞 e	Crony	- Hyp	erTer	minal									
File	Edit	<u>V</u> iew	⊆all	<u>T</u> ransfer	Help								
ST	S> <e< th=""><th>nd&gt;</th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th><th></th></e<>	nd>											
CA	P:001	09 16	40.03	f/s 11.3	80 *s*	71.6 fah	08:01	Av 1640	.03				
CA	P:001	10 16	40.28	f/s 2.79	1 sec 7	1.6 fah	08:02	Av 1640.	15				
CA	P:001	11 16	40.03	f/s 2.25	9 sec 7	'1.6 fah	08:03_	Av 1640.	11				
								Av 1640.					
								Av 1641.					
								Av 1641.					
		15 16	45.17	f/s 2.06	6 sec 7	'1.6 fah	08:05_	Av 1642	38				
CA	P:									wai	ting for th	e next sho	ot
Conr	nected :	l:46:45		TTY		4800 8-1	V-1	SCROLL	CAP	s NUM	l Captur	e Print ea	:ho //

### A4. Magnified View

When HyperTerminal is used from Windows 95, 98, 2000, ME or XP, it can be set up to view the results from a distance by selecting large font. Below is an example of "HyperTerminal" setup for large text , which is "Courier New, Bold, size 40" (larger font may be used if your screen permits). The chronograph here is set up with "J\*Log", "K\*Log" and "L\*Log" turned Off to reduce display clutter and the example below is real life size. We provide two HyperTerminal files, eChrony.ht for regular view and eChronyBig.ht for magnified view. The settings can be modified to suit your own needs.

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CE-3 Chronograph can operate in the following modes, which are indicated by the prompt tag as follows:

Prompt Tag	Description	Selected by	Key
DAT>	Data mode for data viewing.	User	" <mark>D</mark> "
STS>	Stats mode for stats viewing.	User	" <mark>S</mark> "
MEN <dat></dat>	Data Menu mode for data control.	User	" <mark>M</mark> " (*)
MEN <sts></sts>	Stats Menu mode for setup control.	User	" <mark>M</mark> " (*)
TXT:	Text mode for entering comments.	User	"Ctrl-T"
CAP:	Data Capture mode, shot detected	Automatic	none
SYS:	System mode, system changes made	Automatic	none
CAL:	Calibration mode, calibration executed	Automatic	none
ERR:	Error mode, when errors occur.	Automatic	none

(\*) Key "M" is active in either Data Mode or Stats Mode.

As most of the functions are automatic, all the user has to do is to select Data mode, Stats mode, Menu mode or Text mode.

## **Detailed Key Command descriptions**

#### "A" Turn Archery On/Off

Pressing "A" key turns On or Off archery mode. When archery mode is changed, either turned On or Off, the sensors are turned Off as indicated by (CAP=OFF). The unit must be recalibrated again by pressing "C" key.

🇞 eCrony - HyperTerminal		
<u> E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp		
DAT> <end> SYS:00491 SLev=20% Arc=OFF Sens=O DAT&gt;</end>	FF CAP=OFF	"A" key was pressed here Archery mode is Off
CAL:00491 861 408 102 242 213 216 213 DAT> <end></end>	"A" key was pressed here	
SYS:00491 SLev=20% Arc=ON Sens=OF DAT> CAL:00491 862 863 519 119 275 232 255		Archery mode is On
DAT>	201 200 202 009 (	
Connected 1:46:45 TTY 4800 8	-N-1 SCROLL	CAPS NUM Capture Print echo

#### Keys that may cause data loss

TTY	PC	Function Description
1	1	String Download
2	2	Folder Download
3	3	eDisk Download, All folders
3	9	Save data to eDisk and turn the unit Off
Esc	Esc	Exit Current Operation
Ctrl-^	Del	Shot Delete
Ctrl-\	BSpc	Shot Undelete
Ctrl	Alt-Del	String Delete
Ctrl-]	Alt-BSpc	String Undelete
Ctrl-O	PgUp	Folder Increment or Menu Value Increment
Ctrl-K	PgDn	Folder Decrement or Menu Value Decrement
Ctrl-R	Right	String Increment or Move to Next Menu
Ctrl-L	Left	String Decrement or Move to Previous Menu
Ctrl-U	Up	Scroll Up, Data, Stats or Submenu Up
Ctrl-D	Down	Scroll Down, Data, Stats or Submenu Down
Ctrl-M	Enter	Enter key, Execute menu, acknowledge alarms
Ctrl-J	Ctrl-J	Line Feed
Ctrl-W	Ctrl-W	Change String size, select next size
Ctrl-A	Ctrl-A	Folder Delete
Ctrl-B	Ctrl-B	Folder Undelete
Ctrl-T	Ctrl-T	Text Mode On, enter text notes
Ctrl-E	Ctrl-E	Select CAM mode, extended functions

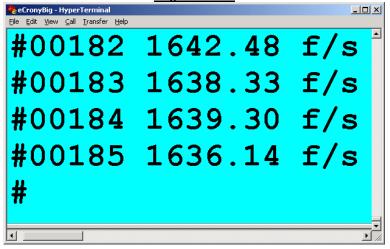
When the unit is first powered on, it displays the following text on the HyperTerminal or TTY screen:



#### Explanations for the above display

SYS: 00488	System status tag Serial number for the next shot.
eChrony.com	The company eChrony Inc. that designed this product
(c)2005	This product's copyright belongs to eChrony Inc.
CE3:	This product's model number
V10	Firmware version number
S143012191105	Serial number
Att=06:03:07_01	Data Position, Folder=6, String=3, Shot=7, View Shot=1
Power On	Power is On
Ready	Unit is Ready
DAT>	You are in Data View mode

#### Magnified view



## A5. Normal View

In normal view, with small regular font "Currier New Regular 12", you will see all the information at once. The example below shows shot serial number, velocity, time, temperature, string number and running average, or string number and running percent standard deviation. You can turn off some of the displayed data to suit your needs.

🏀 eChrony - HyperTerminal	
<u>File E</u> dit <u>V</u> iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp	
	<u> </u>
STS> <end></end>	
CAP:00090 1634.92 f/s 14.53	37 *s* 72.3 fah 05:01_Av 1634.92
	5 sec 72.3 fah 05:02_Av 1632.50
	/ sec 72.3 fah 05:03_Av 1632.50
	. sec 72.3 fah 05:04_Av 1632.50
	2 sec 72.3 fah 05:05_Av 1632.93
	sec 72.3 fah 05:06_Av 1632.90
	sec 72.3 fah 05:07_Av 1632.81
	sec 72.3 fah 05:08_Av 1632.59
	9 sec 72.3 fah 05:08_Av 1632.56
CAP:00099 <end> STS&gt;DELStr Str=05 Siz=08</end>	
STS>DELSCI SCI-03 SIZ-08 STS>05:Es ******	
STS>05.ES	
STS>05: Pd ******	
STS> <end></end>	
CAP:00099 1638.57 f/s 29.06	38  *s* 72.3  fah 05:01  Pd 0.
	2 sec 72.3 fah 05:02 Pd 0.27271
CAP:00101 1630.81 f/s 2.405	sec 72.3 fah 05:03 Pd 0.25246
CAP:00102 1634.92 f/s 2.205	sec 72.3 fah 05:04 Pd 0.20857
CAP:00103 1632.26 f/s 2.408	8 sec 72.3 fah 05:05_Pd 0.18784
CAP:00104 1631.78 f/s 2.251	. sec 72.3 fah 05:06_Pd 0.17521
	2 sec 72.3 fah 05:07_Pd 0.16039
	3 sec 72.3 fah 05:08_Pd 0.14943
CAP:_	
•	

## A6. Save Shots to a File

Our chronograph uses native HyperTerminal program that is supplied with all Microsoft Windows. HyperTerminal program, **eChrony.ht**, has a buffer memory for only 500 shots. For more than 500 shots, captured data have to be saved into a text file (even millions of shots per session can be recorded this way). To save your data to a text file, choose "Transfer/Capture Text" and select your destination: "Text File". CE-3 transmits data in an easy format for importing to any spreadsheet or Data Base programs. However, we only provide macros and some spreadsheet programs for Microsoft Excel.

Text file is selected form eChrony.ht								
Capture 1	ext		<u>? ×</u>					
Folder:	C:\MyWork\Test01.TXT							
<u>F</u> ile:	C:\MyWork\Test01.TXT		Browse					
		Start	Cancel					

#### Once the Text file is selected you can Stop or Pause any time

🏀 eCrony - HyperTerminal	
File Edit View Call Transfer Help	
The tak view car       Training thep         SYS:00009       Send Fie       CE3:V01S143012191105         SYS:00009       Receive Fie       PwrDown=0N=00:30         SYS:00009       Kei       Send Fie       FwrDown=0N=00:30         SYS:00009       Kei       Send Text       Stop         SYS:00009       Kei       Send Text File       Pause         SYS:00009       Att       Send Text File       Pause         SYS:00009       Reary       Stop       File       Pause         SYS:00009       Reary       Capture to Printer       Pause       Resume         SYS:00009       Reary       Stop       File       Pause       Resume         SYS:00009       Reary       Stop       File       Pause       Resume       CAP:00018 824.12       f/s 1.997 sec 72.3 fah 01:10_Lo 0.01       CAP:00011 624.12 f/s 1.997 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.37 f/s 4.240 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.31 f/s 2.012 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.31 f/s 2.012 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.43 f/s 2.012 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.43 f/s 2.072 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.42 f/s 1.991 sec 72.3 fah 01:10_Lo 0.01       CAP:00018 824.42 f/s 1.991 sec 72.3 fah 01:10_Lo 0.01       CAP:00021 824.63 f/s 1.991 sec 72.3 fah 01:10_Lo 0.01       CAP:0002	
View	

## A7. Import Data to Spreadsheet

Here is an example of importing a string from **eChrony.ht** (HyperTerminal program) to **eChrony.xls** (Excel program).

There are many ways to import data to Excel:

- 1) Import Captured data directly from eChrony.ht with our Excel macros.
- 2) Import Downloaded data from CE-3 eDisk with our macros.
- 3) Use Excel data import utility, which will easily detect our data format.

There are many ways to select data to be imported to your computer. In our case we have chosen string 02 with block select from HyperTerminal and pressed "Ctrl-C". You can also select an entire file or captured data block from within eChrony.ht. To move these shots to Excel, click on eChroy.xls and run import macro - see example below:

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The "TTY Terminal" or the PC "Terminal Software" must permit the use of the following control keys.

Crtl-@	Ctrl-D	Ctrl-H	Ctrl-L	Ctrl-P	Ctrl-T	Ctrl-X	Ctrl-\
Crtl-A	Ctrl-E	Ctrl-l	Ctrl-M	Ctrl-Q	Ctrl-U	Ctrl-Y	Ctrl-]
Ctrl-B	Ctrl-F	Ctrl-J	Ctrl-N	Ctrl-R	Ctrl-V	Ctrl-Z	Ctrl-^
Ctrl-C	Ctrl-G	Ctrl-K	Ctrl-O	Ctrl-S	Ctrl-W	Ctrl-[	Ctrl

The control characters in red italic letters may be used by the TTY terminal software for its own use, as well as CE-3 Chronograph. Their functions are as follows,

	<ul> <li>Stop Program Execution</li> <li>New Line</li> </ul>		<ul><li>Xon, Terminal Ready</li><li>Xoff, Terminal Not Ready</li></ul>
Ctrl-L	<ul><li>New Page</li><li>Carriage Return</li></ul>	Ctrl-Z	= End of Text file = Esc, Stop

# Control keys for CE-3 chronograph

## Keys that do not change data

TTY	PC	Function Description
А	Α	Archery On/Off
В	В	Reserved
С	С	Calibrate
D	D	Data mode
E	E	Reserved
F	F	Fast fire On/Off
G	G	Reserved
Н	H	Help
1	- I	Sensitivity change, 0 to 95% by 5% steps
J	J	J*Log, CAP Index Log On/Off
K	K	K*Log, Temperature Log On/Off
K	L	L*Log, Calculated Value Log On/Off
М	Μ	Menu Mode On
Ν	Ν	Reserved
0	0	Decrease sensitivity, 0 to 95% by 5% steps
Р	Р	Power Off
Q	Q	Query system status.
R	R	Reserved
S	S	Stats Mode On
Т	т	Data Type select, Velocity or Temperature
U	U	Units select, Metric or Imperial
V	V	Reserved
W	W	Where is Current Record Location, Folder, String, Shot
X	X	Reserved
Y	Y	Locate Position of <i>Minimum</i> or <i>Maximum</i> in the string
Ζ	Z	Turn sensors Off, reduce power consumption by 50%

M	licros	oft Ex	cel - e	Chrony.	xls									_ 🗆	×
8	Eile	<u>E</u> dit	⊻iew	Insert	F <u>o</u> rmat	<u>T</u> ools	<u>D</u> ata	<u>W</u> indow	Help		Type a		n for help 👘 🚽	- 8	×
	A5		-	fx	MMR:03:	:01:01 *	12.92 f	/s 72.3 f	ah						
		A		ECCE	F	0	; H	1	J	K	L	M	N	0	
1	1	Heli	2		D	ownic	ad e	Disk D	ata		eCł	rony	Help		F
2	-		-		eChrony	com Co	nvriah	t © 200	5, CE-3V10		Data		1000		
3	FUI	NCTIC	ONS	0000	contony.	00111-00	(P)	200	0,020710		Data	0.20	1000		
4				1110	Fol:Str:Sl	no Fo	ol_Str	Shot	Veloc	ity	Temperat	ure	Count		
5	MMF	2:03:0	1:01 1	1011	03:01:01	3	1	1	12.92	f/s	72.3	l fah	1		
6	MMF	2:03:0	1:02 1	1011	03:01:02	? Э	1	2	12.92	f/s	72.3	fah	2		
7	MMF	2:03:0	2:01.2	1011	03:02:01	з		1	25.84	f/s	72.3	fah	3		
8	MMF	2:03:0	2:02.2	1011	03:02:02		2	2	25.84	f/s	72.3	l fah	4		
9	MMF	2:03:0	2:03 2	1011	03:02:03		2	3	25.84	f/s	72.3	fah	5		
10	MMF	2:03:0	3:01 5	1011	03:03:01		3	1	51.68	f/s	72.3	l fah	6		
11	MMF	2:03:0	3:02 5	1011	03:03:02	? З	3	2	51.68	f/s	72.3	l fah	7		
12	MMF	2:03:0	4:01.1	1011	03:04:01			1	103.35	f/s	72.3	l fah	8		
13	MMF	2:03:0	4:02.1	1011	03:04:02			2	103.35	f/s	72.3	l fah	9		
14	MMF	2:03:0	4:03 1	1011	03:04:03	3 З	4	3	103.35	f/s	72.3	l fah	10		
15	MMF	2:03:0	4:04 1	1011	03:04:04	ι з	4	4	103.35	f/s	72.3	l fah	11		
16	DAT:	>													
17	MMF	l:≤Be	gin> F	1109											
18		l:≤En		1109											
19	MMF	l:≤Be	gin> F	1109											-
4 4	F F	∖ CAI	P_Data		_Data / St	ats1 / S	itats2 /	( Graphs	/ DTemp / l	•					•
Read	ły														1

#### **TTY Terminal Interface**

CE-3 is controlled from PC or TTY terminal by pressing a single key. It uses alphanumeric characters, 0 to 9, A to Z and control characters Ctrl-A to Ctrl-Z.

Destructive operations use control character to prevent accidental use. These destructive operations are such as **Delete/Undelete** Folder, String etc.

We provide a HyperTerminal script files for Windows 98, XP, ME and 2000 that takes advantage of the Windows keys for easy use. For Windows keys to work with Hyper Terminal you have to download HyperTerminal upgrade from Microsoft or from Hilgraeve website.

CE-3 will work with any TTY Terminal or Terminal software that uses RS232 communications. PC or TTY terminal must be setup with the following parameters:

Baud Rate:	300 to 4800
Data Bits:	8 Bits
Parity:	None
Stop Bits:	1, 1-1/2 or 2
Flow Control:	XOn/XOff, or None

Note: When Flow Control is set to None, there may be loss of data if your PC is slow. CE-3 transmits data as fast as baud rate allows. This requires flow control for slow terminals and PC's. PC Interface manual, CE-3 Chronotar Chronograph, © Copyright eChrony inc. 2004/2005

#### Block Select Capture Data

<end></end>								
STS>02:Pd	0.02163							
STS>DELST:	r Str=02	Siz=08						
STS> <end></end>								
CAP:00169	825.25 f	f/s 178.	466 *s	* 73.	0 fa	ah 02:01_3	Pd O.	
CAP:00170	825.62 f	f/s 2.10	0 sec	73.0	fah	02:02_Pd	0.03149	۶,
CAP:00171	825.80 f	f/s 2.05	0 sec	73.0	fah	02:03 Pd	0.03391	L,
CAP:00172	825.43 f	f/s 2.81	0 sec	73.0	fah	02:04 Pd	0.02876	5
CAP:00173	825.31 f	E/s 41.6	84 sec	: 73.0	fał	ı 02:05 ₽«	d 0.0274	19
CAP:00174	825.49 f	f/s 2.06	5 sec	73.0	fah	02:06 Pd	0.02459	9
CAP:00175	825.68 f	f/s 2.19	2 sec	73.0	fah	02:07 Pd	0.02419	9
CAP:00176	825.37 f	E/s 6.69	3 sec	73.0	fah	02:08 Pd	0.02318	3
CAP:00177	825.19 f	f/s 2.61	8 sec	73.0	fah	02:08 Pd	0.02461	Γ,
CAP:00178	825.56 f	f/s 2.11	2 sec	73.0	fah	02:08 Pd	0.02405	5
CAP:						—		

To import eChrony data, just run one of the following macros available in eChrony.xls program:

Macro name:		
Clear_ALL_Data	<u>×</u>	<u>R</u> un
Clear_ALL_Data Import_All_Data_To_DTemp Import_CAP_Data		Cancel
Import_MMR_Data Stats_Setup		<u>S</u> tep Into
		<u>E</u> dit
		Create
	7	<u>D</u> elete
Macros in: All Open Workbooks	•	Options

After you execute "Import\_CAP\_Data", your spreadsheet will contain the data shown below. Please note that eDisk data are imported into "MMR\_Data" sheet and Captured data are imported into "CAP\_Data" sheet. The stats are available in "Stats1" and "Stats2" sheet. This is an open source Excel file and you can modify formulas and macros to suit your needs. All import data are translated with functions & formulas and not with Microsoft Visual Basic.

Capture Data Sheet

M 🔁	icrosof	t Exc	el - e	Chrony.	ĸls									
8	Eile B	dit	⊻iew	Insert	Form	nat <u>T</u> ools	<u>D</u> ata	<u>W</u> indow	Help			Type a question for	help 👻 🗕 🗄	7 >
	A5		-	f <sub>x</sub>	CAP	00169 825	.25 f/s	178.466 *	's* 73	1.0 fah 02:1	01_Pd 0.			
		A		ECCE	F	G	H	I	J	K M	N	0	P	
1	H	elp				Dow	nloa	d Captu	ire D	ata		eChrony	Helt	<b>)</b> -
2						eChrony.co	m Coj	oγright ©	2005	, CE-3V10	)			
3	FUN	CTIO	NS											
4	Origi	nal [	) ata	1110	ndex	Velo	city_	Ti	mer	Temper	Str:Sho_C	CD CCDa	<u>ita Count</u>	_
5	CAP:0	0169	9 825	1011	169	825.25	i f/s	178.466	*s*	73.0 fah	02:01_P	d 0.000 k	00 1	
6	CAP:0	0170	) 825.	1011	170 -	825.62	f/s	2.100	sec	73.0 fah	02:02_P	9 0.031	49 <b>2</b>	
7	CAP:0				171	825.80	l f/s ∣	2.050	sec	73.0 fah			91 <b>3</b>	
8	CAP:0				172	825.43		2.810		73.0 fah				
9	CAP:0				173	825.31		41.684		73.0 fah				
10	CAP:0				174	825.49		2.065		73.0 fah				
11	CAP:0				175	825.68		2.192		73.0 fah				
12	CAP:0				176	825.37		6.693		73.0 fah				
13	CAP:0				177 178	825.19 825.56		2.618		73.0 fah				
14 15	CAP:0 <end></end>			1011	176	620.3t	i ws	2.112	sec	73.0 fah	02:08_P	9 0.024	05 10	
					Data	/ Stats1 / S	hate?	(Crache (	DTor	n (Linika	[4]			. (
i∢ ∢ Reac		CAP	_Data	V MMR	Data	V prarez V p	itatsz j	C araphs X	Dieli	p X onics ,				
ceac	y													Ξ,

"CCD" shown in the above table is calculated data, which in this case, is the Running %STD on the last 8 shots. If you execute "Stats\_Setup" macro, you get stats sheet shown below. We only provide a simple Stats functions in "Stats1" and "Stats2" sheet. You can use them as a working base for your own Spreadsheet calculations.

					St	ats1 She	et			
	1icrosof	t Exc	el - eChrony.:	kls						
	<u>F</u> ile <u>E</u>	dit	⊻iew Insert	F <u>o</u> rmat <u>T</u> oo	ls <u>D</u> ata <u>V</u>	<u>M</u> indow <u>H</u> elp		Туре а	question for help	×
	A5		<b>▼</b> f <sub>x</sub>	=IF(ROW()<5	5,1,IF(\$B5=0	),"",SUM(\$B5	:\$B\$5)))			
	A	В	CI	DE	F	G	Н		J	К 🔺
1	Hel	<b>)</b>	Select	Statistics	Lo, Hi, J	Av, Es for	CAP_Data			Hel
2	1	0								
3	Shot	<u>t</u> 1	Velo	ocity	Low	High	Average	ExSpread	Std	PStc
4	numbe	er	feet/sec	meters/sec	feet/sec	feet/sec	feet/sec	feet/sec	feet/sec	%Ste
5	1	1	825.25	251.536	825.25	825.250	825.250	0.000	0.000000	0.000
6	2	1	825.62	251.649	825.25	825.620	825.435	0.370	0.261630	0.031
7	3	1	825.80	251.704	825.25	825.800	825.557	0.550	0.280416	0.033
8	4	1	825.43	251.591	825.25	825.800	825.525	0.550	0.237557	0.028
9	5	1	825.31	251.554	825.25	825.800	825.482	0.550	0.227090	0.027
10	6	1	825.49	251.609	825.25	825.800	825.483	0.550	0.203142	0.024
11	7	1	825.68	251.667	825.25	825.800	825.511	0.550	0.199786	0.024
12	8	1	825.37	251.573	825.25	825.800	825.494	0.550	0.191605	0.023
13	9	1	825.19	251.518	825.19	825.800	825.460	0.610	0.205852	0.024
14	10	1	825.56	251.631	825.19	825.800	825.470	0.610	0.196638	0.023
15		0								-
<b>H</b> •	Г►ЭЦ	CAP	_Data / MMR	Data <mark>\Stats1</mark>	🖊 Stats2 🏑 G	iraphs / DTemp	Units , 🖣			
Rea	dy									//.

# Example of CE-3 downloading data

When you use CE-3 in the field without PC, all your work is saved in volatile memory. Please note, only CF mode saves data on eDisk whenever the unit is turned off or folders are changed. This data can be downloaded later on to your PC by following these steps:

- 1) Plug CE-3 into the COM1 port on your PC.
- 2) Click on eChrony.ht, the HyperTerminal program
- 3) In HyperTerminal program click on "Transfer"
- 4) Select "Capture Text"
- 5) Choose file name to save your data.
- 6) Press "Space Bar" or any key to wake up the unit.
- 7) Press "3" to download entire work.

The file contains entire disk; here only a portion is displayed, which belong to the folder number 3. All folders are distinctly identified for Excel import.

### **Downloaded Folder from memory**

🍓 eCrony - HyperTei	rminal						
<u>F</u> ile <u>E</u> dit ⊻iew <u>⊂</u> all	<u>T</u> ransfer <u>H</u> elp	)					
DAT>							
MMR: <begin> Fol=</begin>	03 Str=01 Siz	z=02					
MMR:03:01:01 12.9	2 f/s 72.3 fah	1					
MMR:03:01:02 12.9	2 f/s 72.3 fah	1					
MMR: <end></end>							
MMR: <begin> Fol=</begin>	03 Str=02 Siz	z=03					
MMR:03:02:01 25.8							
MMR:03:02:02 25.8	4 f/s 72.3 fah						
MMR:03:02:03 25.8	84 f/s 72.3 fah	1					
MMR: <end></end>							
MMR: <begin> Fol=</begin>	03 Str=03 Siz	z=02					
MMR:03:03:01 51.6							
MMR:03:03:02 51.6	8 f/s 72.3 fah						
MMR: <end></end>							
MMR: <begin> Fol=</begin>	03 Str=04 Siz	z=04					
MMR:03:04:01 103							
MMR:03:04:02 103	35 f/s 72.3 fa	h					
MMR:03:04:03 103	.35 f/s 72.3 fa	h					
MMR:03:04:04 103	35 f/s 72.3 fa	h					
MMR: <end></end>							
DAT>							
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo

# Exporting data to Excel file

- 1) Open text file created by eChrony.ht
- 2) Go to "Edit"
- 3) Choose "Select All"
- 4) Click on "Copy"
- 5) Open file eChrony.xls
- 6) Execute macro "Import\_MMR\_Data"

All your data is now exported and aligned in the Excel spreadsheet. Data is also sorted to remove any comments etc.

#### Turn off some data log

	<u>T</u> ransfer <u>H</u> elp					
DAT> <end> SYS:00047 K*Log= DAT&gt; SYS:00047 L*Log=</end>			Te	emperatur ressed to	e Data turn off	rature data is not sent stats data turned off
DAT> CAP:00501 1801.12 CAP:00502 1800.58 CAP:00503 1801.12	3 f/s 1.015 se	c				
CAP:00504 1801.12 CAP:00505 1801.12 CAP:	2 f/s 0.980 se	c				

When display clutter is reduced, you can magnify the view within the **eChrony.ht** screen.

Here is an example with display set to font "Courier New, Bold, size 40". To reduce display clutter J\*Log, K\*Log & L\*Log has been turned off with "J", "K" and "L" keys.

The timer values are not visible because the magnification it too large. Velocities can be clearly seen from a large distance. Here is an example from an earlier work session with sequence number **00283**.

#### Magnified view Window

eChronyBig - HyperTerminal		
File Edit View Call Transfer Help		
#00283	1617.41	f/s <sup>*</sup>
#00284	1613.86	f/s
#00285	1612.20	f/s
#00286	1619.31	f/s
#		
•		

#### PC Interface manual, CE-3 Chronotar Chronograph,

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Stats2 Sheet

í۵)	<u>File E</u> di	t	View Insert	Format <u>T</u> ool	ls Data Window	Help	Тура		
	A5	-			.1,IF(\$B5=0,"",SU				
	A	в	C E	) E	F	G	Н	1	J
1	Help		Select of	Statistics	Pf & En fo	CAP_Data	Bulle	et mass(Grams) =	40.955
2	1								1
3	Shot	1	Velo	city	PowerFactor	PowerFactor	Energy	CCData	Shot
4	number	с	feet/sec	meters/sec	(gr-f/s)/1000	gm-m/s	Joules	02:01_Pd	number
5	1	1	825.25	251.536	521.5860106	10301.6650710	1295.6208428	0.0000000	1
6	2	1	825.62	251.649	521.8198632	10306.2838121	1296.7828838	0.0314900	2
7	3	4	825.80	251.704	521.9336293	10308.5307672	1297.3483894	0.0339100	3
8	4	4	825.43	251.591	521.6997767	10303.9120261	1296.1860950	0.0287600	4
9	5	4	825.31	251.554	521.6239327	10302.4140560	1295.8092465	0.0274900	5
10	6	4	825.49	251.609	521.7376988	10304.6610112	1296.3745398	0.0245900	6
11	7	1	825.68	251.667	521.8577852	10307.0327971	1296.9713720	0.0241900	7
12	8	1	825.37	251.573	521.6618547	10303.1630411	1295.9976639	0.0231800	8
13	9	н.	825.19	251.518	521.5480886	10300.9160860	1295.4324528	0.0246100	9
14	10	1	825.56	251.631	521.7819412	10305.5348270	1296.5944094	0.0240500	10
15									
•	i ► H\_C	AP	Data / MMR_	Data / Stats1	Stats2 (Graphs )	(DTemp / Units /	1		Þ
Read	tv								

Import data size is limited to 65,000 shots for Microsoft Excel. Also, when importing large amounts of data (over 500 shots), you should use Excel data import utility and not our data import macros. Our macros have been fixed to import data on 500 shots. If you are familiar with Excel, you can modify our macros to import up to 65,000 shots.

We provide Microsoft Excel program **eChrony.xls** and some Excel macros to get you started. In the near future we will provide a direct link between Excel and eChrony CE-3 chronograph.

Here is an Example of eDisk data import, and, in this case, only a single string was imported. You can import a single folder or an entire eDisk with all the folders in it. Again, select a block and press "**Ctrl-C**" (shortcut keys for copying a selection):

Block Select String Data	
🏀 eChrony - HyperTerminal	- U ×
Eile Edit View Call Iransfer Help	
STS>02:Lo 825.19	
STS>02:Hi 825.80	
STS>02:Av 825.47	
STS>02:Es 0.61	
STS>02:Sd 0.19857	
STS>02:Pd 0.02405	
STS>	
MMR: <begin> Fol=02 Str=02 Siz=08</begin>	
MMR:02:02:01 825.80 f/s 73.0 fah	
MMR:02:02:02 825.43 f/s 73.0 fah	
MMR:02:02:03 825.31 f/s 73.0 fah	
MMR:02:02:04 825.49 f/s 73.0 fah	
MMR:02:02:05 825.68 f/s 73.0 fah	
MMR:02:02:06 825.37 f/s 73.0 fah	
MMR:02:02:07 825.19 f/s 73.0 fah	
MMR:02:02:08 825.56 f/s 73.0 fah	
MMR: <end></end>	
STS>_	
	<b>_</b>

After executing "Import\_MMR\_Data" macro from eChrony.xls file, the data are transferred to the "MMR\_Data" sheet shown below. Please note, that CE-3 does not save Time information on eDisk - it is only available with Data Capture.

					]	lmpor	ted	String	g Data				
M	icros	oft Ex	cel - el	Chrony.	.xls							_ 🗆	×
8	File	<u>E</u> dit	⊻iew	Insert	t F <u>o</u> rmat	<u>T</u> ools [	ata	<u>W</u> indow	Help	Ту	pe a question for help		x
	- A5		-	f,	MMR:02:0	2:01 82	5.80	f/s 73.0 f	fah				
		A		ECDE	F	G	Н		J	K	L M	N	
1		Hel	2		Do	wnloa	d e[	Disk Da	ata		eChrony	Help	-
2					eChrony.c	om Cop	yright	© 2005	5, CE-3V10		Data Size	1000	
3	FU	NCTIC	DNS										
4	Orig	ginal	Data	1110_	Fol:Str:Sh	<u> </u>	Str	Shot	Velocit	¥_	Temperature	Count	
5			2:01 8		02:02:01	2	2	1	825.80	f/s	73.0 fah	1	
6	MMF	R:02:0	2:02 E	1011	02:02:02	2	2	2	825.43	f/s	73.0 fah	2	
7	MMF	R:02:0	2:03 8	1011	02:02:03	2	2	3	825.31	f/s	73.0 fah	3	
8	MMF	R:02:0	2:04 8	1011	02:02:04	2	2	4	825.49	f/s	73.0 fah	4	
9	MMF	R:02:0	2:05 8	1011	02:02:05	2	2	5	825.68	f/s	73.0 fah	5	
10	MMF	R:02:0	2:06 8	1011	02:02:06	2	2	6	825.37	f/s	73.0 fah	6	
11	MMF	R:02:0	2:07.8	1011	02:02:07	2	2	- 7	825.19	f/s	73.0 fah	7	
12	MMF	R:02:0	2:08 8	1011	02:02:08	2	2	8	825.56	f/s	73.0 fah	8	
13	STS:	>02:L	o 825.	0009									
14	STS:	>02:H	i 825.)										
15	STS:	>02:A	v 825.	0 0 0 9									
I4 - 4	• •	I 🗋 CAI	P_Data	) MMR	L_Data / Stal	:s1 / Sta	ts2 /	Graphs /	DTem 📢				۰ſ
Read	ly .												

### A8. Continuous Stats Monitor

When set to Stats mode, CE3 sends updated statistics of the current string to the PC on every shot. In this example we selected Extreme Spread ("Es") to be displayed after every shot. The string size selected was 5 shots per string. This way you can see continuous update of "Es" for each of the 5 shots:

🏀 eCrony - HyperTerminal						
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> ransfe	er <u>H</u> elp					
SYS:00166 MaxStr=08 Ma STS>DELStr Str=03 Siz=( STS> <end></end>			ey used, 5 S ey used, St		g size select as cleared	ed
CAP:00166 825.82 f/s 18. CAP:00167 825.57 f/s 2.3 CAP:00168 825.57 f/s 2.1 CAP:00168 825.51 f/s 2.1 CAP:00178 825.88 f/s 2.0 CAP:00171 825.38 f/s 2.0 CAP:00173 825.76 f/s 2.8 CAP:00178 825.57 f/s 2.2 CAP:00176 825.26 f/s 2.2 CAP:00176 825.26 f/s 2.2 CAP:00176 825.39 f/s 2.2 CAP:00176 825.39 f/s 2.2 CAP:00176 825.39 f/s 2.2 CAP:00177 825.39 f/s 2.2 CAP:00177 825.39 f/s 2.2	00 sec 76.6 fah 03:02_E 15 sec 76.6 fah 03:04_E 23 sec 76.6 fah 03:05_E 48 sec 76.6 fah 03:05_E 40 sec 76.6 fah 03:05_E 40 sec 76.6 fah 03:05_E 96 sec 76.6 fah 03:05_E 98 sec 76.6 fah 03:05_E 98 sec 76.6 fah 03:05_E 15 sec 76.6 fah 03:05_E	s 0.25 s 0.31 s 0.80 s 0.86 s 0.86 s 0.86 s 0.86 s 0.86 s 0.55 s 0.43 s 0.50	first sho		d, replacing ring; maximi ne.	um
Connected 1:46:45 TTY	4800 8-N-1	SCROLL CA	PS NUM	Capture	Print echo	

PC Interface manual, CE-3 Chronotar Chronograph, © Copyright eChrony inc. 2004/2005

To start CE-3, you may decide to press "D" key to go into Data mode, followed by "C" key to calibrate the unit. Display will then show:

## Calibrate unit Message

🏀 eCrony - HyperTe					
<u>File E</u> dit ⊻iew <u>C</u> all	<u>T</u> ransfer <u>H</u> e	þ			
DAT>06:02 825.85 DAT> CAL:00501 123 17		5	" <b>C</b> " w	as pressed he	ere
DAT>					

CE-3 completed the calibration successfully and it has decided that the range is fine. There is no CAP=OFF message because CE-3 turned the sensors on and it is now ready for your shots. If you do not care about Folders, Strings or Running Stats, then just start shooting.

You may want to clear current string first by pressing "Alt-Del" key. In this example we pressed "S" key to go into Stats mode and then "Down" key three times to select Running Stats for "Extreme Spread". After firing 5 shots, the display will show as follows:

## Clear String & Set Stats example

🍓 eCrony - HyperTern	ninal					
Eile Edit ⊻iew ⊆all ]	[ransfer į	<u>H</u> elp				
DAT>					Alt-Del" was	s pressed here
DAT>DELStr Str=06	Siz=03					
DAT>06:Lo				" <b>S</b> " was p	ressed here	to select stats
STS>06:Hi						s pressed here
STS>06:Av						
STS>06:Es			"Dw	n-Arrow" wa	s pressed til	Es appeared
STS> <end></end>					First shot	was fired here
CAP:00501 1801.24	f/s 1844.	207 *s* 93.6 fah	06:01 Es 0.00	5		
CAP:00502 1800.69	f/s 1.553	sec 93.6 fah 06	:02 Es 0.55			
CAP:00503 1800.97	f/s 1.772	sec 94.3 fah 06	:03 Es 0.55			
CAP:00504 1800.97	f/s 2.042	sec 93.6 fah 06	:04 Es 0.55			
CAP:00505 1800.42	f/s 2.241	sec 93.6 fah 06	:05 Es 0.82			
CAP:						

The first shot had index number (CAP:00501) with velocity of (1801.24 f/s).

The elapsed time between this shot and previous shot was (1844.207\*s\*). (\*s\*) indicates that the clock was turned off since last shot and therefore this time is not valid. Subsequent times are valid (sec). The ambient temperature was (93.6 fah). The extreme spread for string-6, shot-1 (06:01\_Es 0.00) was (0.00). If you do not need temperature and running stats, these can be turned off to reduce the clutter. Here is an example:

easy import to any Spread Sheet or Data Base programs. It also allows data to be printed out on any printer.

All events related to data capture and chronograph setup that may affect velocity measurement are given an Index number and an Identifier tag. This information is important for Excel and other Data Base programs because it is used for filtering out non essential information or to keep track of the work history. The Index number starts at 00000 and can go up to 65535. When it reaches 65535, it resets back to 00000. This sequence number is stored in the unit as system information.

# Example of CE-3 interface

Here is an example of a typical display with Velocity data, Timer data, Temperature data and Running Stats. The Running Stats, in this example, are set to monitor the **"Extreme Spread"** on the last 5 shots. Velocity is in **"f/s"**, Time is in **"sec"** and the Temperature is in Fahrenheit **"fah"**.

- 1) Click on the Excel file "eChrony.xls".
- 2) Click on the HyperTerminal program "eChrony.ht".
- 3) Here it is assumed that your PC has one free COM1 port. If you have an older PC, it may be necessary to find a free COM port first.
- 4) Plug the interface cable into on the PC and the other end into CE-3.
- 5) From within the HyperTerminal window press "Q" or "W" or "Space
  - Bar" key. This will wake up the unit and display the following message

#### Power On Message

<u>File E</u> dit ⊻iev	v <u>C</u> all	<u>T</u> ransfer	Help					
SYS:00501 F			-	CE3-1/10S	14201210110	5		
SYS:00501 e SYS:00501 A SYS:00501 F SYS:00501 F	Att=01: Power	06:03_02 ON	2	023.0103	14301219110	J		

Display shows the Company's name, Model number (CE3) and Version (V10).

(eChrony.com) is the engineering company that designed this product.

(SYS:00501) states that your next shot will have Index number (00501).

(Att=01:06:03\_02) is the last working status before the unit was turned Off. Last work was at Folder number (01), String number (06) and Shot number (03). Number (\_02) indicates your last data review position was shot number (02).

(Ready CAP=OFF) indicates that the unit is ready but the sensors are turned Off. When PC wakes up the unit, it always goes to CF Mode, first Data Menu location.

There are many ways to proceed from here. (MEN<DAT> 00?) indicates that you are in the Data-Menu.

## A9. Adaptive Calibration

CE-3 provides different ways to run adaptive calibration: remotely from a PC or locally from CE-3 keys. Adaptive calibration runs in automatic mode or in manual mode. Here are some examples:

🇞 e	Crony	- Нур	erTe	rminal							_	
File	Edit	⊻iew	⊆all	<u>T</u> ransfer	Help							
DA.									vas pre	essed to g	et System S	statu
						CE3:V11S14		)				
						PwrDown=C						
						IS=OFF SLev		)3				
						J*Log=ON Ca	at=01					
				Tmp=fal								
						MaxSho=10						
				01:10_1								
		23 Re	eady	CAP=OF	÷		"					
DA											auto calibra	
			3 05	8 180 19	1 524		Cal	bration fi	nished		ully with 191	
	T> <e< th=""><th></th><th></th><th>~ ~ ~ ~</th><th></th><th></th><th></th><th></th><th></th><th></th><th>ot was fired</th><th></th></e<>			~ ~ ~ ~							ot was fired	
				t/s 23.40	00 ^S^ 7	3.0 fah 01:10	_10 824.26				ot recorded	
		)24 <e< td=""><td>=na&gt;</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>go to Data n</td><td></td></e<>	=na>								go to Data n	
	T> <e< td=""><td></td><td>~~~</td><td></td><td></td><td></td><td>ey was press</td><td></td><td></td><td></td><td></td><td></td></e<>		~~~				ey was press					
		)AT>					" key was pr					
				4 186 18							ed with 188/	
			00?0	1:10 824	.20 <en< td=""><td>a&gt;</td><td>Oh</td><td></td><td></td><td></td><td>her to exit N</td><td></td></en<>	a>	Oh				her to exit N	
	T> <e< td=""><td></td><td></td><td>51- 47 4</td><td>0 +-+ 7</td><td></td><td></td><td>ots can n</td><td>ot be r</td><td></td><td>ow - Data m</td><td></td></e<>			51- 47 4	0 +-+ 7			ots can n	ot be r		ow - Data m	
						3.0 fah 01:10 3.0 fah 01:10					ot was fired	
											ot was fired	
						8.0 fah 01:10 8.0 fah 01:10					ot was fired	
CA		21 02	.4.02	1/5 2.910	sec 73	.0 iai 01.10	_10 624.62					
CA	Ρ.									waiting	for the next	Sno
<i></i>	acted	1:46:4	5	TTY		4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

## A10. Change String Size

"Ctrl-W" key is used here to toggle through string sizes. Since each folder can only hold 40 shots, increasing the string size reduces number of strings per folder. Since PC records all shots, therefore string size can be used for defining Stats Monitor during a shooting session.

🏀 eCrony - HyperTerminal	
<u> E</u> ile <u>E</u> dit ⊻iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp	
DAT> <fnd></fnd>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=01 MaxSho=40	Setup is for 1 string with 40 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=02 MaxSho=20	Setup is for 2 strings with 20 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=03 MaxSho=13	Setup is for 3 strings with 13 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=04 MaxSho=10	Setup is for 4 strings with 10 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=05 MaxSho=08	Setup is for 5 strings with 8 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=06 MaxSho=06	Setup is for 6 strings with 6 shots each
DAT> <end> SYS:00178 MaxStr=07 MaxSho=05</end>	"Ctrl-W" key pressed to get next size Setup is for 7 strings with 5 shots each
DAT> <fnd></fnd>	"Ctrl-W" key pressed to get next size
SYS:00178 MaxStr=08 MaxSho=05	Setup is for 8 strings with 5 shots each
DAT> <end></end>	" <b>Ctrl-W</b> " key pressed to get next size
SYS:00178 MaxStr=09 MaxSho=04	Setup is for 9 strings with 4 shots each
DAT> <end></end>	"Ctrl-W" key pressed to get next size
SYS:00028 MaxStr=10 MaxSho=04	Setup is for 10 strings with 4 shots each
DAT> <end></end>	
Connected 1:46:45 TTY 4800 8-N-1	SCROLL CAPS NUM Capture Print echo

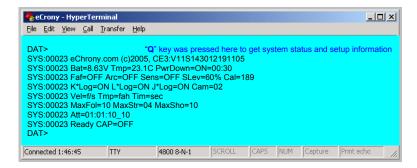
#### A11. Archery, Fast fire & Sensitivity

Pressing "A" key toggles Archery mode On or Off. Pressing "F" toggles fast fire On or Off. Pressing "I" key increments sensitivity by 5%. Pressing "O" key decrements sensitivity by 5%. When archery mode or sensitivity is changed, sensors are turned off as indicated by "CAP=OFF". The unit has to be recalibrated again to implement these changes. Calibration will also check your new settings against current environment and let you know if your setting will function in the current environment.

🏀 eCrony - HyperTermi	nal							l ×
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp							
DAT> <end></end>			" <b>A</b> " L		roooo	d orobony	was turned O	
SYS:00028 SLev=60%				ey was p	Jiesse		was turned O /ere turned Ot	
DAT> <end></end>	AIC=ON S	ens=OFF CA					ere turned Or led archerv O	
SYS:00028 SLev=60%				was pres	sseu a	gain, it turn	led archery O	"
DAT> <end></end>	• AIC-OFF	Selis-OFF CF			ood it	turned Eee	t fire mode O	
SYS:00028 Faf=ON C			г кеу и	vas pres	sea, it	tumed Fas	a life mode O	1
DAT> <end></end>	AP=OFF		li kou woo ne			turned Fee	t fire mede O	
SYS:00028 Faf=OFF			key was pre	essed ag	an, it	turned Fas	t fire mode O	T.
DAT> <end></end>	CAP=OFF	" <b>!</b> " ko		ad it in a		Loopoitivity	by EQ( to CEO	,
SYS:00028 SLev=65%				ea, it inc	reased	sensitivity	by 5% to 65%	0
DAT> <end></end>	• AIC-OFF			ad it inc		Loopoitivity	by 5% to 70%	,
SYS:00028 SLev=709				eu, it inc	leased	sensitivity	by 5% to 70%	0
DAT> <end></end>	• AIC-OIT			ad it inc	roscor	Leoneitivity	by 5% to 75%	2
SYS:00028 SLev=75%				eu, it inc	eased	sensitivity	by 578 to 75.	0
DAT> <end></end>	• AIC-OIT			d it dec	reaser	consitivity	by 5% to 70%	6
SYS:00028 SLev=70%				u, n ucc	Casee	schalling	by 570 to 707	Ů
DAT> <fnd></fnd>				d it dec	reaser	consitivity	by 5% to 65%	6
SYS:00028 SLev=65%	Arc=OFE			u, n ucc	Casee	scholivity	by 570 to 057	0
DAT> <end></end>				was nre	ssed h	ere to reca	alibrate the un	it
CAL:00023 123 058 1	80 181 519						y with 181/51	
DAT> <fnd></fnd>			Guild				was fired her	
CAP:00023 814.23 f/s	41.329 *s*	72.0 fah 01:10	10 814.23				recorded here	-
CAP:							r the next sho	-
				- augusta				
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print echo	

## A12. Query Chronograph Status & Setup

When "Q" key is pressed, the unit sends System status and setup information.



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There are two shortcut keys for macros, **<Ctrl-Shft-M**> for importing eDisk Memory data and **<Ctrl-Shft-C**> for importing Capture data. These macros can also be executed from **<Tools>** / **<Macros> <Run>** of the Excel program.

We used Macros & Formulas to make it easier for the end-user; however, there are other ways to import the data. If you are familiar with Excel, you can use Excel Data Import utilities from the main menu. From <File> menu choose <Open>, specify file type as text and type your file's name that you want you to import. From <Data> menu go to Import <External Data>, then to <Import Data>specifying file type as text. Excel will interpret CE-3 data ASCII format very easily.

#### Please note that spreadsheet file "eChrony.xls" has two Sheets:

- 1) "MMR\_Data" for eDisk Data Importing.
- 2) "CAP\_Data" for Capture Data Importing.

## **PC interface overview**

- 1 Data transfer rate, 300 to 4800 Bits/Sec
- 2 Exports data to Excel with just a few key strokes
- 3 Data can be exported on the fly, anytime between shots.
- 4 Downloads Current String data
- 5 Downloads Current Folder data
- 6 Downloads Entire eDisk data all Folders (CE-3 V10 has only 10 folders)
- 7 Records up to 65,536 shots per session into a file for later use
- 8 Transmits Velocity data, from 2.00 f/s to 9999.99 f/s, (or m/s)
- 9 Transmits Timer data, range of 8388.000 Sec, resolution +/- 0.001 Sec.
- 10 Transmits Ambient Temperature data, in Fahrenheit or Celsius
- 11 All Captured Shots are assigned Index number for Data Base Sorting
- 12 The unit provides full remote control from PC, including power On & Off
- 13 Selects what data to record, Temperature, running Stats, Tags etc.
- 14 Displays running stats on the last, 4, 5, 6, 8, 10, 13, 20, 40 shots
- 15 Stores up to 400 shots on eDisk when used without PC (\*)
- 16 Magnified Display View when using HyperTerminal.
- (\*) Please note that CE-3 has memory for only 400 shots on eDisk. Also, CE-3 does not store timer data on eDisk, it only transmits it to the PC. Higher models will be able to store timer data and will have capacity on eDisk for up to 12,000 shots.

## **Basic features of the CE-3 PC interface**

CE-3 is connected to the PC through a 16 feet cable provided with the unit. Extensions for 30, 60,120 & 200 feet are sold separately. You can also use commercial audio cable extensions. The unit is controlled remotely from PC with a single key stroke operation and without the requirement for complex interface programs.

To make easier for the user, we provide HyperTerminal script files and Excel macro files. These files only run on Microsoft Windows operating systems. For other operating systems, you may have to find your own suitable ASCII Terminal programs. If you need a program for DOS 4.0, 5.0 or 6.0 please let us know.

When a shot is fired, CE-3 transmits Velocity Data, Timer Data, Temperature Data and Event-Sequence number to the PC. The information is in a data logging format for

# Quick steps to import live captured data

- 1) Connect CE-3 to COM1 port on the PC.
- 2) Click on eChrony.ht file this starts HyperTerminal program.
- 3) Click on eChrony.xls file this starts Excel program.
- 4) Go to eChrony HyperTerminal window.
- 5) Type "Q" or press "space bar" this will wake up CE-3, if not already on.
- 6) Select stats for stats monitor and fire your shots
- 7) Go to <Edit>, click on <Select All>
- 8) Go to <Edit>, click on <Copy>
- 9) Go to Excel window and press <Ctrl-Shft-C> Capture data import macro

#### Example of "eChrony.ht" captured data window

🏀 eCrony - HyperTerminal	_ 🗆 ×
<u>File Edit View Call Transfer H</u> elp	
	1
ST5> <end> CAP:00033 206.70 f/s 12.970 *s* 73.0 fah 01:01_Av 206.70 CAP:00034 206.69 f/s 1.903 sec 73.0 fah 01:02_Av 206.69 CAP:00035 206.69 f/s 2.364 sec 73.0 fah 01:03_Av 206.69 CAP:00036 <end> ST5&gt;02:Av ********</end></end>	
STS> <end> CAP:00036 825.99 f/s 19.752 *s* 73.0 fab 02:01_Av 825.99 CAP:00037 825.93 f/s 3.399 sec 73.0 fab 02:02_Av 825.96 CAP:00038 825.68 f/s 1.540 sec 73.0 fab 02:03_Av 825.86 CAP:00039 825.43 f/s 1.530 sec 73.0 fab 02:04_Av 825.75</end>	
CAP:00040 <end> STS&gt;03:Av <b>******</b> STS&gt;<end> CAP:00040 1646.90 f∕s 8.982 <b>*</b>s* 72.3 fab 03:01 Av 1646.90</end></end>	
CAP:00041 1641.99 f/s 2.157 sec 72.3 fah 03:02_Av 1644.44 CAP:00042 1644.44 f/s 3.376 sec 72.3 fah 03:03_Av 1644.44 CAP:00043 1645.67 f/s 1.434 sec 72.3 fah 03:04_Av 1644.75 CAP:00044 1642.14 f/s 16.506 sec 73.0 fah 03:05_Av 1644.22	
CAP:00045 <end> STS&gt;04:Av ******* STS&gt;<end> CAP:00045 3269.37 f∕s 16.189 *s* 72.3 fah 04:01 Av 3269.37</end></end>	
CAP: 00046 3273.25 f/s 1.715 sec 72.3 fah 04:02_Av 3271.31 CAP:	

#### Example of "eChrony.xls" imported captured data

				-7011				17.115		inportes	u capturet	uata		
M	1icros	oft Exc	:el - e	Chrony.	.xls									미凶
	Eile	<u>E</u> dit	<u>V</u> iew	Insert	: F <u>o</u> rm	at <u>T</u> ools	<u>D</u> at	a <u>W</u> ind	low	Help	Туре а			a ×
	A5		-	fx	CAP:	00033 206	i.70 f.	/s 12.97	'0 *s'	* 73.0 fah C	01:01 Av 206.70	)		
		Α		ECCE	F	G	Н	I	J	ΚM	N	0	Р	Q 🔺
1		Help	,			Down	load	Capt	ure	Data		eChrony	Help	
2			-		eCh					5, CE-3V1	n			
3	FU	NCTIO	NS	0 0 0 0			000	,g 🗆	200		Ĭ			
4	Orig	jinal (	Data	1110	Index	Veloc	;ity	Ti	mer	Temper	Str:Sho_CCD	CCData	Count	
5	CAP	:00033	3 206	1011	33	206.70	f/s	12.970	*s*	73.0 fah	01:01 Av	206.70000	1	
6	CAP	:00034	1 206.	1011	34	206.69	f/s	1.903	sec	73.0 fah	01:02_Av	206.69000	2	
7	CAP	:00035	5 206.	1011	35	206.69	f/s	2.364	sec	73.0 fah	01:03_Av	206.69000	3	
8		:00038			36	825.99		19.752		73.0 fah		825.99000	4	
9		:00037			37	825.93		3.399		73.0 fah		825.96000	5	
10		:00038			38	825.68		1.540		73.0 fah		825.86000	6	
11		:00039			39	825.43		1.530		73.0 fah		825.75000	7	
12		:00040			40	1646.90		8.982		72.3 fah		1646.90000	8	
13		:00041			41	1641.99		2.157		72.3 fah		1644.44000	9	
14		:00042			42	1644.44		3.376		72.3 fah		1644.44000	10	
15		:00043			43	1645.67		1.434		72.3 fah		1644.75000	11	
16		:00044 :00045			44 45	1642.14		16.506		73.0 fah		1644.22000	12 13	
18		:00045 :00046			45 46	3269.37 3273.25		16.189		72.3 fah 72.3 fah		3269.37000	13	
		:00046 > <end< td=""><td></td><td>1011</td><td>40</td><td>3273.23</td><td>1/8</td><td>1.715</td><td>sec</td><td>72.5 Tan</td><td>04:02_Av</td><td>3271.31000</td><td>14</td><td></td></end<>		1011	40	3273.23	1/8	1.715	sec	72.5 Tan	04:02_Av	3271.31000	14	
00	0.00					(		10						
·		IIVCAP	_Data	a 🖉 MMR	_Data_/	Stats1 / :	Stats2	: / Grapi	ns / I	DTemp / l	•	1 1 1		
Read	dy													

#### PC Interface manual, CE-3 Chronotar Chronograph,

Description of the status and settings available: (please also refer to manual's index)

© Copyright eChrony inc. 2004/2005

eChrony.com (c)2005	Company Name & Copyright Model CE3, Version V1.1, Serial number S143012191105
Bat=8.63V	Battery Voltage 8.63 Volts.
Tmp=23.1C	Ambient temperature 23.1 Celsius
PwrDown=ON=00:30	Automatic Power Down enabled and set for 30 Minutes
Faf=OFF	Fast Fire set to Off
Arc=OFF	Archery set to Off
Sens=OFF	Sensors are Off, shots can not be recorded
SLev=60%	Sensitivity level is 60%
Cal=189	Last Calibration level was 189
K*Log=ON	Capture log tag is on," CAP:" tag will be sent
L*Log=ON	Temperature Log is on, temperature will be sent.
J*Log=ON	Calculated Stats log is on, calculated data will be sent.
Cam=02	Test mode enabled, full control over CE-3 enabled.
Vel=f/s	Velocity is in Feet/Seconds
Tmp=fah	Temperature in Fahrenheit.
Tim=sec	Time in Seconds.
MaxFol=10	Maximum number of Folders available
MaxStr=04	Maximum number of Strings per folders available
MaxSho=10	Maximum number of Shots per string available
Att=01:02:10_8	Folder=01, String=2, Total Shots=10, Current Shot=8
Ready CAP=OFF	Unit ready, Sensors are Off as indicated by "CAP=OFF"

## A13. Download String, Folder or Entire eDisk

Data can be downloaded any time, even during the shooting session; the unit will remember your last position. If your PC can only receive data, you can initiate all downloads from CE-3 keys. This allows you to send downloads directly to a printer with serial port. You may need to lower the baud rate (see CE-3 manual).

🏀 eCrony - HyperTermi					
<u>Eile E</u> dit ⊻iew <u>C</u> all <u>T</u> r	ansfer <u>H</u> elp				
DAT>	Str=01 Siz=04	"1" key was	oress here ar	nd current string w	as downloaded
MMR: <begin> Fol=01 MMR:01:01:01 1625.2</begin>					
MMR:01:01:02 1620.7					
MMR:01:01:03 1621.9	3 f/s 72.3 fah				
MMR:01:01:04 1626.2					
MMR: <end> CAP=OF</end>	F				
DAT>				End of dow	nloaded data
			OLL CAPS	NUM Capture	Print echo 💋

#### String download:

#### Folder download:

<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp		
DAT>	"" key was press here and surre	at folder was downloaded
MMR: <begin> Fol=01 Str=01 Siz=03</begin>	"2" key was press here and curre	I, String-1, Total 3-Shots)
MMR:01:01:01 1620.02 f/s 71.6 fah		r, String-1, Total 3-Shots)
MMR:01:01:02 1618.83 f/s 72.3 fah		
MMR:01:01:02 1618.12 f/s 72.3 fah		
MMR: <fnd></fnd>		
MMR: <begin> Fol=01 Str=02 Siz=02</begin>	(Folder-1	I, String-2, Total 2-Shots)
MMR:01:02:01 1623.60 f/s 72.3 fah	(1 61261 )	, ealing 2, retail 2 energy
MMR:01:02:02 1618.60 f/s 72.3 fah		
MMR: <end></end>		
MMR: <begin> Fol=01 Str=03 Siz=03</begin>	(Folder-1	I, String-3, Total 3-Shots)
MMR:01:03:01 1626.96 f/s 72.3 fah		
MMR:01:03:02 413.19 f/s 72.3 fah		
MMR:01:03:03 413.20 f/s 72.3 fah		
MMR: <end></end>		
MMR: <begin> Fol=01 Str=04 Siz=01</begin>	(Folder	-1, String-4, Total 1-Shot)
MMR:01:04:01 825.17 f/s 72.3 fah		
MMR: <end></end>		
MMR: <begin> Fol=01 Str=05 Siz=01</begin>	(Folder-	1, String-5, Total 1-Shot)
MMR:01:05:01 51.68 f/s 72.3 fah		
MMR: <end>&gt;</end>		End of downloaded data
DAT		

#### eDisk download:

This example would look similar to Folder Download except that all folders are downloaded. CE-3 Version 1.01 has 10 folders and each can have its own setup.

#### A14. Move between Shots, Strings & Folders

When HyperTerminal **"eChrony.ht**" is used, the scroll keys from the PC keyboard move through the eDisk data in a similar manner as in a spreadsheet. In other operating systems, you may have to use **"Ctrl-Keys"** - see <u>Key Commands</u> for scroll key equivalents.

🎨 eCrony - HyperTerm	inal							_ 🗆 ×
<u>File E</u> dit ⊻iew <u>⊂</u> all <u>T</u> r	ansfer <u>H</u> elp							
DAT>01:01 1620.02			"Up Ar	<b>row</b> " ke	v was	pressed t	o view n	ext shot
DAT>01:02 1618.83						pressed t		
DAT>01:03 1618.12		"D	own Arrow					
DAT>01:01 1620.02			t Arrow" ke					
DAT>02:02 1618.60		"Right	t Arrow" ke	, v was p	ressed	to move	to the ne	ext string
DAT>03:03 413.19			<b>ow</b> " key wa					
DAT>02:02 1618.60			"PgUp" key	was pr	essed	to move t	o the ne	xt folder
DAT>Fol=10 MaxStr=						<b>Up</b> " key '		
DAT>Fol=09 MaxStr=						<b>JUp</b> " key '		
DAT>Fol=08 MaxStr=				"	'gDn	key was p	oress to	go back
DAT>Fol=09 MaxStr=	10 Str=00 Att:	=09:10:00_01						
DAT>						End	of data s	scrolling
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM	Capture	Print ed	-bo

Example of "eChrony.ht" downloaded eDisk data window

🇞 eChrony - HyperTerminal	
Eile Edit View Call Transfer Help	
DAT>	
MMR: <begin> Fol=01 Str=01 Siz=03</begin>	
MMR:01:01:01 206.70 f/s 73.0 fah	
MMR:01:01:02 206.69 f/s 73.0 fah	
MMR:01:01:03 206.69 f/s 73.0 fah	
MMR: <end></end>	
MMR: <begin> Fol=01 Str=02 Siz=04</begin>	
MMR:01:02:01 825.99 f/s 73.0 fah	
MMR:01:02:02 825.93 f/s 73.0 fah	
MMR:01:02:03 825.68 f/s 73.0 fah	
MMR:01:02:04 825.43 f/s 73.0 fah	
MMR: <end></end>	
MMR: <begin> Fol=01 Str=03 Siz=05</begin>	
MMR:01:03:01 1646.90 f/s 72.3 fah	
MMR:01:03:02 1641.99 f/s 72.3 fah	
MMR:01:03:03 1644.44 f/s 72.3 fah	
MMR:01:03:04 1645.67 f/s 72.3 fah	
MMR:01:03:05 1642.14 f/s 73.0 fah	
MMR: <end></end>	
MMR: <begin> Fol=01 Str=04 Siz=02</begin>	
MMR:01:04:01 3269.37 f/s 72.3 fah	
MMR:01:04:02 3273.25 f/s 72.3 fah	
MMR: <end></end>	
DAT>04:02 3273.25	
DAT>_	

#### Example of "eChrony.xls" imported eDisk memory data

MM	licros	oft Ex	cel - e	Chrony.:	ĸls							_ 🗆 ×
8	Eile	Edit	⊻iew	Insert	Format	Tools	<u>D</u> ata	<u>W</u> indow	Help	Type a question	n for help 👘	- 8 ×
	A5		-	fx	MMR:01:	01:01-20	06.70	f/s 73.0	fah			
		А		ECCE	F	G	Н		J K	L M	N	0 🔺
1		Heli	2		Do	wnloa	ad el	Disk D	ata	eChrony	Help	
2			-		eChrony.c	om Cop	vriah	i © 200	5, CE-3V10	Data Size	1000	
3	FU	NCTIC	ONS	0 0 0 0			1					
4	Orig	ginal	Data	1110	Fol:Str:Sh	o Fol	Str	Shot	Velocity	Temperature	Count	
5	MM	R:01:0	1:01 1	1011	01:01:01	1	1	1	206.70 f/s	73.0 fah	1	
6	MM	R:01:0	1:02.2	1011	01:01:02	1	1	2	206.69 f/s	73.0 fah	2	
7	MMF	R:01:0	1:03 2	1011	01:01:03	1	1	3	206.69 f/s	73.0 fah	3	
8	MMF	R:01:0	2:01 8	1011	01:02:01	1	2	1	825.99 f/s	73.0 fah	4	
9	MMF	R:01:0	2:02 8	1011	01:02:02	1	2	2	825.93 f/s	73.0 fah	5	
10	MMF	R:01:0	2:03 8	1011	01:02:03	1	2	3	825.68 f/s	73.0 fah	6	
11	MMF	R:01:0	2:04 8	1011	01:02:04	1	2	4	825.43 f/s	73.0 fah	7	
12	MMF	R:01:0	3:01 1	1011	01:03:01	1	3	1	<b>1646.90</b> f/s	72.3 fah	8	
13	MMF	R:01:0	3:02 1	1011	01:03:02	1	3	2	<b>1641.99</b> f/s	72.3 fah	9	
14	MMF	R:01:0	3:03 1	1011	01:03:03	1	3	3	<b>1644.44</b> f/s	72.3 fah	10	
15	MMF	R:01:0	3:04 1	1011	01:03:04	1	3	4	1645.67 f/s	72.3 fah	11	
16	MMF	R:01:0	3:05 1	1011	01:03:05	1	3	5	1642.14 f/s	73.0 fah	12	
17	MMF	R:01:0	4:01 3	1011	01:04:01	1	- 4	1	3269.37 f/s	72.3 fah	13	
18	MMF	R:01:0	4:02 3	1011	01:04:02	1	4	2	3273.25 f/s	72.3 fah	14	
19	DAT	>										
14 4	• •		P_Data	MMR	Data / Sta	ats1 / Sta	ats2 /	Graphs ,	(DTemp / I ◀			. ►
Read	ły											

#### Data Recovery

There is command in CF Data menu, <u>una</u>, that restores all the contents found in the trash bin back to the string. This is intended for emergency use only when, for example, shots were deleted during sorting them out.

This command is only available from CF mode. Switch the unit to CF mode, press <DATA> key to get [RL: menu, press <MENU> two times to get [Sen: menu, press <UNITS> three times to get [Inc. menu.

It may be necessary to delete unwanted shots, one by one, with *AENU+DATA>* key function. The system cannot differentiate between bad and good shots; it restores all. The shots are restored back to memory in a correct sequence.

# **Introduction**

CE-3 provides a simple remote control interface labeled "HIP", Human Interface Protocol. All data is sent and received through RS232 port from the PC. The data sent and received is in ASCII readable form. The unit has also a proprietary Binary Interface Protocol "BIP" that is not accessible through TTY terminal.

The "HIP" RS232 interface can operate with Windows 95, 98, ME, 2000, NT, XT, Linux with TTY programs and Macintosh with TTY programs. If your PC can emulate TTY terminal, and, most PCs do, then you can use it for CE-3. It will even operate with the old DOS and Windows 3.XX if you can run Telix, Crosstalk, Mirror or TTY program. If you are only downloading data from CE-3 for export to Excel or to print it out, you do not need to read this entire manual. Here are the simple steps to do this.

## Quick steps to import eDisk Memory Data

- 1) Connect CE-3 to COM1 port on the PC.
- 2) Click on eChrony.ht file this starts HyperTerminal program.
- 3) Click on eChrony.xls file this starts Excel program.
- 4) Go to eChrony HyperTerminal window.
- 5) Type "Q" or press "space bar" this will wake up CE-3 if not already on.
- 6) Type "3" this downloads entire eDisk(\*) to HyperTerminal.
- 7) Go to <Edit>, click on <Select All>
- 8) Go to <Edit>, click on <Copy>
- Go to Excel window and press <<u>Ctrl-Shft-M</u>> this is a macro for importing eDisk Memory data

(\*) eDisk: an internal, permanent data storage for CE-3 chronograph. This is a tiny solid state disk, based on EEProm and it holds data without the use of battery power for up to 40 years (some chip manufacturers claim 100 years).

PC Interface manual, CE-3 Chronotar Chronograph, © Copyright eChrony inc. 2004/2005

#### A15. Resident Quick Help

When "H" key is pressed, an abbreviated list of basic control keys is displayed. This information comes directly from CE-3 and it is independent of operating system of your computer. Because of memory constrains, CE-3 Version 1.01 does not send the list of all the available control keys - you have to refer to this manual for details.

#### Help within Data or Stats mode

🏀 eCrony - HyperTerminal	
<u>File E</u> dit ⊻iew <u>C</u> all <u>T</u> ransfer <u>H</u> elp	
DAT>	"H" key was pressed here
HLP: ESC=Exit	
HLP: D=Data	
HLP: S=Stats	
HLP: M=Menu	
HLP: C=Calibrate	
HLP: J=J*Log	
HLP: K=K*Log	
HLP: L=L*Log	
HLP: T=Type	
HLP: U=Units	
HLP: A=Archery	
HLP: P=Power Off	
HLP: Z=Sensors Off	
HLP: Q=System Status HLP: W=Where is it	
HLP: W=Where is it HLP: F=Fast Fire	
HLP: I=Sensitivity++	
HLP: O=Sensitivity	
HLP: Y=Locate HiLo	
HLP: 1=String Get	
HLP: 2=Folder Get	
HLP: 3=eDisks Get	
HLP: For more information, See File eChrony	.html
HLP: <end> CAP=OFF</end>	
DAT>	
Connected 1:46:45 TTY 4800 8-N-1 50	ROLL CAPS NUM Capture Print echo //

#### Help within Menu mode

🍓 eCrony - HyperTerm	inal						_ 🗆 ×
<u>File E</u> dit ⊻iew <u>⊂</u> all <u>T</u>	ransfer <u>H</u> elp	)					
DAT> <end> MEN&gt;<dat> 00?<er HLP: ESC=Exit HLP: D=Data HLP: S=Stats HLP: M=Menu HLP: C=Calibrate HLP: For more inform HLP: <end> MEN&gt;<dat> 00? HLP: <end> CAP=OF</end></dat></end></er </dat></end>	ation, See	File eChrony.htr	nl	ų	H" key wa∶	s pressed	here
Connected 1:46:45	TTY	4800 8-N-1	SCROLL	CAPS	NUM Capti	ure Print e	:cho //

## A16 Turn Power Off-On

The unit has full remote control. Pressing "P" key turns the unit Off and pressing any other key turns the unit On. This turns power Off without saving data to eDisk. To save data to eDisk first use "9" command.

🦓 eCrony - HyperTern		
<u>Eile E</u> dit <u>V</u> iew <u>C</u> all ]	iransfer <u>H</u> elp	
DAT> SYS:00039 Power O SYS:00039 eChrony. SYS:00039 Att=10:00 SYS:00039 Power O SYS:00039 Ready C	com (c)2005, CE 5:00_01 N	"P" key was pressed here, the unit turned off "Space bar" key was pressed here, the unit came back on E3:V01S143012191105
MEN> <dat> 00? DAT&gt;</dat>		"D" key was pressed here to go to Data mode Ready for next action
Connected 1:46:45	TTY 4	4800 8-N-1 SCROLL CAPS NUM Capture Print echo

"How to Install CE-3 Software" - please refer to page 53

#### "How to Install Hardware" - please see page 54

## **Important Notes**

#### Sensitivity Control & Muzzle Blast

Sensitivity level may be reduced to lower the effect of muzzle blast and other noise. The range may be set from **00%** to **95%** in steps of **5%** for CE-3 and **1%** for CF-3. Lowering sensitivity reduces muzzle blast effect. Unfortunately, lowering sensitivity also reduces accuracy. For muzzle blast reduction, it is better to move the unit farther back rather than reducing sensitivity. For loud firearm use **50%**; Archery, Paintball and other quiet devices use **80%**. Higher values, **85%** and up, require low Electromagnetic & Optical interference, only found in the countryside.

#### **Turning off sensors and alarms**

Special function has been provided that turns off detection electronics to save battery power and stop environment alarms. The key sequence to do this is *<MENU+UNITS>*. Use this feature when only data and statistics review are needed. To activate velocity measurement again, you **must** calibrate the unit. From CE mode, turn the unit **Off** and **On**. If you fail to calibrate it, the unit will **stop** detecting shots. To check whether sensors are turned Off, press *<MENU>* key which activates pending warning and alarms.

#### **Change Battery without losing data**

Turn the unit **Off** for about 5 seconds. While the unit is **Off** you must **not touch** any of the **keys**. The system will stay alive in hibernation, without battery at room temperature, from **4** to **20 minutes**. You have about **4** minutes to replace the **old** battery with a **new** one. If the battery is reversed, you do not lose data or damage the unit or the battery. The battery must still be replaced **correctly** within **4** minutes.

#### Flashing colon or flashing decimal points

Flashing colon or decimal points indicate that the unit will **no longer accept shots** because environment conditions have changed. You can turn sensors off and use the unit for data review only, or you can calibrate it again. Please note that the unit **will not accept shots** unless it is **calibrated** again.

#### Saving Data on eDisk is not necessary with PC

When **Power Down** command is executed with "**P**" key, CE-3 does not save data to eDisk when it is turned off. If you want to force data save before shutdown, then you must use "**9**" key command. Data saving is irrelevant when using PC because PC has a far better data storage capability. Please make sure that **HyperTerminal** is set to "**Transfer/Capture Text**"; it can log thousands of shots per session.

#### CE Mode does not use eDisk

CE-3 stores data in **volatile memory**; it means that data will be **lost** from it if the battery drops below **4.0 volts** or it **is removed**. Also, when you execute hardware reset with **<STATS+DATA+MENU>** keys, data may lose order **of sequence** and disappear; see <u>Data Recovery</u> below or refer to User's Manual on page 43. You can save your shots onto the eDisk from **CE mode** by pressing **<MENU+POWER>** key. This will force the unit to save current folder to eDisk, irrespective of the mode it is in. If you need to save your data on eDisk all the time, then you have to use **CF mode** where data saving operations are automatic. **CE mode** is intended for simple use, where all you need is some velocity measurements that do not have to be stored on eDisk. Because **CE mode** is not using eDisk, it prevents data clutter on it.

	~~
"Esc" Exit current operation	
"Enter" Enter key same as <enter> key</enter>	
"Delete" Delete current shot	
"Backspace" Un-delete deleted shot	
"Alt-Delete" Delete current string	
"Alt-Backspace" Un-delete deleted string	
"PgUp" Move to the next folder	
"PgDn" Move to the previous folder	
"Right Arrow" Move to the next string	
"Left Arrow" Move to the previous string	
"Up Arrow" Move to the next shot or stats	
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"3" Download eDisk	
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"Ctrl-A" Delete entire folder "Ctrl-B" Un-delete deleted folder	30
"Ctrl-E" Select CAM test mode	
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# How to Install CE-3 Software

All the software below is available from the website http://www.echrony.com

Media: CE-3 software comes on CD or a **3-1/2**" HD Floppy 3-1/2" floppy is the standard shipment. Visit **echrony.com** for downloads

**Contents:** We supply three files for Windows-95, Windows-98, Windows-2000, Windows-ME and Windows-XP. Our software also needs Windows programs listed below. The upgrade for HyperTerminal is available from Microsoft or from http://www.Hilgeave.com and is free of charge.

#### **Required Microsoft Software**

- HyperTerminal
  - nal must be upgraded to version 6.3 or higher
- Microsoft Excel 2002 and Up
- Microsoft Access optional data base use
- Windows 95, 98, 2000, ME, XP

#### CE-3 Software on the Disk

- eChrony.exe a self extracting archive
- **INSTALL.EXE** a simple installation file
- **README.TXT** general text information

#### Files in the archive eChrony.exe

- eChrony.ht
- normal Hyper Terminal script file
   magnified view script file
- eChronyB.ht magnified view script file
   eChrony.xls Excel sample import files with macros
- eChrony.xlseChronyH.htm
- help file in HTML format
  - help file subdirectory

# eChronyH Printing Documents and Manual

**eChrony.htm** is a hyper text file and it does not print well. To get a printable version of all the manual and reference cards please visit <u>http://www.echrony.com</u>

### Software Installation information

Insert supplied disk in drive A: and type **INSTALL**. This is a batch file that will perform the following task.

- Goes to drive C:
- Creates subdirectory eChrony
- Goes to created subdirectory eChrony and creates subdirectory CE3.
- Copies file eChrony.exe to subdirectory CE3
- Goes to subdirectory CE3 and unzips all the files in eChrony.exe
- Deletes eCHrony.exe and exits

To access **eChrony** programs from Windows go to **C:\eChrony** subdirectory, point to **CE3** and click on it to create a shortcut. Move this shortcut to your **Desktop** for easy access. Whenever you click on **CE3** shortcut, all our programs will show up. To run any of them just click on the appropriate program: **eChrony.ht**, **eChronyBig.ht**, **eChrony.xls** or **eChrony.htm** 

# Warning and Liabilities

## <u>Warning</u>

Before you use this product, you must follow all safety instructions as recommended by manufacturer of your firing device, no matter what that device may be. Irrespective of who the manufacturer of your firing device may be, you alone are ultimately responsible for using correct safety precautions. You should not use this product to get combustion pressure for your firearm.

## Liabilities

This product is a passive optical instrument. It does not emit any microwave radiation in order to measure projectile velocities.

It is your sole responsibility to safeguard yourself and other people against any injury or property damage when firing projectiles near the unit or accidentally into the unit. You must not use this product to determine firearm combustion pressure.

This product relies heavily on complex hardware, software and operating system. Because of its complexity, a finite probability exists that a software module or a hardware component may fail to function as intended. This failure may result in a loss or change of data which could produce erroneous velocity measurement. For example, a simple LCD-element failure may display number 8 as number 9 or 6. This product uses a low cost simple RS232 interface which may cause serious errors with some computers during data exchange between PC and CE-3. There are thousands of other possible failure modes; therefore, this product is not a failsafe. If fail-safe velocity measurements are required, then this product must not be used without our written approval. Approval requests will be considered only if setup is based on "multichronograph-majority-vote design" and it must be accompanied by well documented failure analysis

We assume no responsibility for the injury to any person or persons whether be consequential or inconsequential as a result of using this product. We also assume no responsibility for the damage to any property or loss of profit as a result of using this product

This product and all its associated hardware and software design are ©Copyright property of eChrony inc.

If you do not agree with any of the above statements, you must immediately return this product in its original condition to the place of purchase for a full refund.

## How to Install Hardware

#### **Required hardware**

CE-3 requires a free RS232 port on the PC. We only supply interface cable for DB9 connectors. If your PC has a DB25 connector, then you will need an adaptor to go from DB9 to DB25. DB25 is generally found on old equipment and we do not supply it.

#### Installing Hardware

Plug the mini stereo jack into the CE-3 on the right side. Plug the DB9 connector into the PC RS232 free port. If the RS232 port is not free when you run eChrony.ht, it will give you error messages that the port is not available or it is used by some other device. When these errors occur, you must find a free port and change HyperTerminal settings. Do the following

- Go to "Call" menu and click on "Disconnect"
- Go to "File" menu, select "Properties"
- Choose a different port in the "Connected using" list
- Make sure that the selected port is the one hooked up to CE-3
- Click "Ok"
- Go to "Call" menu, click on "Call" menu
- Check the connection by pressing **<DATA>** key on CE-3 unit
- Current string and velocity should be displayed.
- Now test PC remote control, type "Q" on the keyboard
- CE-3 system status should be displayed on the eChrony.ht window.

You are now ready to continue with your work.

If you have any problems with connection, get in touch with us at  $\underline{ce@echrony.com}$  and we will try to resolve the problem as soon as possible.

If you are using older PC with DOS 4.0 and up, you will need some form of TTY terminal software.

If you are using MacIntosh or Linux, just use the resident TTY terminal software. At the moment we do not have any "TTY" software for these Operating Systems; you may have to solve communication problems yourself.

# Control CE-3 from your PC !

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# **CE–3 Main Features**

- 2 Modes of operation: simple CE mode and an advanced CF mode
  - CE mode is an easy to use **single-key** operation. It is fully automatic. Just turn the unit on and wait for Auto-Calibration to complete. When your work is done, turn the unit off and your data is saved automatically in the memory. This mode does not use eDisk for permanent data storage.
  - **CF** mode is **75+** functions, **menu** driven mode and it uses **eDisk**. This is an advanced mode with full control over the unit.
- Flip between CE & CF mode by pressing <MENU+ENTER> keys.
- Sensitivity level control increases accuracy whenever possible.
- Adaptive Calibration detects environment interference.
- Super Archery mode for very sharp arrows & very small objects.
- CE-3 has a 40 shot volatile memory divided into 4 to 10 Strings.
- CE-3 has a small eDisk drive for 400 shots.
   eDisk holds data without battery for up to 40 years.
   eDisk is divided into 10 folders with 40 shots each.
- Data protection option, eDisk On-Off, available from CAM mode.
- In CF mode, data is automatically Saved-Retrieved to-from eDisk.
- Remote Control via PC Interface using plain ASCII readable text. Baud rates 300 to 4800 b/s, 3-wire cable, maximum 200 feet long. Operating System Independent Interface - RS232 TTY Terminal mode. Import data to any Spreadsheet or Data base with ASCII format. Macros provided for Microsoft Excel data import & some stats.
- Elapsed time between shots transmitted to the PC: +/- 0.001 sec.
- Download data to PC; String, Folder or an entire eDisk.
- Alarms for low battery, missed or bad shots, memory full etc.
- Ambient Temperature is recorded with each shot.
- Velocity and Temperature are synchronized at all times.
- View Statistics in Real time as you shoot. Available Stats are Low, High, Average, Extreme spread, Standard Deviation, Percent STD, Power Factor, Energy.
- View Cross String Statistics by scrolling from string to string.
- Change Units on the fly from Stats or Data mode.
- Select USA or METRIC system with One Time Conversion view.
- Bullet mass entry, 0.005 to 40.950 gm or 0.077 to 631.95 grains
- Power factor in grain-f/s or grams-m/s, Energy in joules
- Scroll up and down, Shot to Shot, in Data or Stats mode.
- Scroll left and right, String to String, in Data or Stats mode.
- Scroll forward and backward from Folder to Folder.
- Delete Shot & Undelete Shot.
- Delete String, Undelete String & Old Data restore.
- Delete Folder & Undelete Folder.
- Auto Power down, select from 00:01 to 03:50 HH:MM or None.
- Real time Ambient Temperature display in Celsius or Fahrenheit
- Real time Battery Voltage display for internal load conditions.
- For PC interface see Remote Control Examples below.

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DOX: T=0.50, I=0.17, G=0.70, B=0.30, O=0.17, Lft, Mrr, P=8.5+14, H=0.15, F=0.15 WAX: T=0.50, L=0.52, G=0.00, B=0.30, R=0.52, Lft, Nrm, H=0.15, F=0.15

# **CHRONOTAR**

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Telephone 416 223-7862

Fax 416 223-7862

<u>*E-mail*</u> ce@chrony.com

# **Returning the unit**

Before returning the unit, you must give us a call to obtain return Instructions or visit our website and click on <u>Returns</u> menu. You can also contact us vial email at <u>return@echrony.com</u>.

# **Technical support**

If you have any problem with the unit, even a minor one, please let us know. You can either, call us, email a note to <u>help@echrony.com</u>, or contact us directly via our website. Just click on <u>Contact Us</u> menu.

# **Websites**

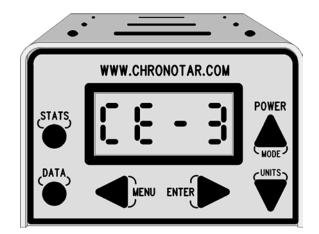
http://www.echrony.com or http://www.chronotar.com

# **PC INTERFACE MANUAL**

CE-3

# **CHRONOGRAPH**

Version 1.01



Attention Microsoft Windows users! You need to upgrade Windows HyperTerminal in order to access some Windows keys The upgrade is free from http://www.hilgraeve.com/htpe/download.html

> How to Install CE-3 Software see page 54

Printable manuals and software are available from http://www.echrony.com

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