LaserSoft[®] **SpeedStat**[™] **PC**





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LTI LaserSoft SpeedStat PC 3.x User's Guide 4th Edition Part Number 0145000

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Section 1 - Introducing SpeedStat for Windows PC

Thank you for purchasing SpeedStat software for Windows PC. This software facilitates the collection and storage of speed measurements and then calculates basic statistics from the following Laser Technology, Inc. speed measurement devices:

- TruSpeed Sxb
- TruCAM II
- TruVISION
- UltraLyte
- TruSpeed LR
- TruSpeed Se

NOTE Any files created using previous versions of SpeedStat PC or Windows Mobile are not compatible for use with the newest version of SpeedStat PC. SpeedStat *.ltiss files can be placed in the SpeedStat/Data folder under Documents to be recognized and opened in the software.

Technical Specifications

LaserSoft SpeedStat has been designed to run on Windows operating systems for use in conjunction with Laser Technology speed enforcement instruments.

Specification	Description
Distribution	Download from: • https://www.lasertech.com/SpeedStat.aspx • http://license.lasertechpartners.com/CustomerLogin.aspx
Minimum Required Operating System	Microsoft Windows 7 or newer Computers
Connectivity to PC	 Bluetooth* Cable (4-pin to DB9 + USB converter or 6-pin to DB9 + USB converter)
Compatible Laser Models	 TruSpeed Sxb (Bluetooth, 4-pin cable) TruCAM II (6-pin cable) TruVISION (6-pin cable) TruSpeed Se (4 pin-cable) UltraLyte (4 pin-cable) TruSpeed LR (4 pin-cable)
Supported Languages	English; template is available for translation

* Connectivity to a PC over a 4-pin to DB9 (with USB converter) cable or a 6-pin to DB9 (with USB converter) cable but they may not have Bluetooth communication.

Warranty Information

For purchases including lasers, a copy of the LTI Limited Warranty should have shipped with the order. If needed, please contact LTI to obtain a copy of the LTI Limited Warranty. See the inside front cover for LTI contact information.

Laser Setup/Connection Notes

TruSpeed Sxb

- <u>Bluetooth</u> Ensure that the laser is in speed mode (not survey mode), with the vehicle indicator displaying through the scope. The laser Bluetooth function needs to be turned on with "BT_On" selected. For wireless communication, bring extra batteries. To pair the laser to a PC, go to Control Panel/Hardware and Sound/ Devices and Printers and then click "Add a Device." If the laser is powered on and within range of the PC, it should display in the list of devices as an option. Select the laser and enter the Bluetooth PIN code: 6912.
- <u>Cable</u> The only requirement for setup is to attach the laser to a PC using an LTI 4-pin to DB9 cable or an LTI 6-pin to DB9 cable. If the PC does not have a DB9 port, a DB9 to USB converter will work to make the connection.

TruCAM II/TruVISION

- <u>Bluetooth</u> These models do not have Bluetooth.
- <u>Cable</u> The only requirement for setup is to attach the laser to a PC using an LTI 4-pin to DB9 cable or an LTI 6-pin to DB9 cable. If the PC does not have a DB9 port, a DB9 to USB converter will work to make the connection.

UltraLyte/TruSpeed LR/TruSpeed Se

- <u>Bluetooth</u> These models do not have Bluetooth.
- <u>Cable</u> The only requirement for setup is to attach the laser to a PC using an LTI 4-pin to DB9 cable or an LTI 6-pin to DB9 cable. If the PC does not have a DB9 port, a DB9 to USB converter will work to make the connection.

Comm Settings

After a laser is connected to a PC and before the data collection session begins, the connection to the laser can be tested in Comm Settings within SpeedStat.

To test the connection to a laser in Comm Settings:

- 1. Ensure the laser is connected to the PC (Page 3).
- 2. Open SpeedStat.
- 3. Click from the menu bar.
- 4. The Select Serial Port screen displays (Figure 1A).
 - <u>Comm port</u>: Select a COM port from the drop-down menu. It may be necessary to try more than one until data comes in.
 - Input: Select the laser in use.
- 5. Fire the laser and if the connection exists, the laser serial string will display in the Laser data field (Figure 1B). If no data displays, change the COM port and try again.

SpeedStat	- 🗆 🗙	SpeedStat – 🗆 🗙
File Utilities		File Utilities
Select Serial Port		Select Serial Port
Laser data: 0 Comm port: Input: TruSpeed SxB • Close		Laser data: \$\$P,0,12.0,M,F*19CF Comm port: COM6 • Input: TruSpeed SxB • Close
(A)		(B)
	г.	

Figure 1

If all COM ports have been tried and no laser data is displaying in the Laser data field, try the following troubleshooting tips:

- For cabled connections, ensure that the 4-pin (or 6-pin) end is securely and correctly connected to the laser. Also ensure the DB9 end is securely and correctly connected to the PC, or in the USB converter, if one is in use.
- For Bluetooth connections, verify that the Bluetooth feature in the laser is turned on and set to BT On.
- For Bluetooth connections, ensure that the laser is paired to the PC. Lasers can only be paired to one device at a time.
- Ensure that the laser batteries are fresh. Be aware that Bluetooth connections use more battery than cabled connections. When batteries get low, the laser may fire but may not have enough power to send data out the serial port to the PC.

Serial Data Format

The SpeedStat app accepts data from LTI instruments that use a data format which is based on the NMEA 0183 Standard for Marine Electronic Navigational Devices, Revision 2.0. For more detailed information about serial data format, refer to the user's manual that shipped with the LTI instrument.

Section 2 - Get Started with SpeedStat

This section describes the download and installation procedure necessary to get started with SpeedStat. It explains where to find the software, install it, and then launch it. Once the application has been successfully launched, follow the instructions in this section to understand the main menu and configure the settings.

Install & Launch SpeedStat

To install SpeedStat PC:

- This software may be downloaded for free from: https://lasertech.com/product/speedstat/
 Or from Laser Technology's License Manager site. When you purchase the software from Laser Technology, you will receive an automated email that contains your password to access License Manager. Upon logging in you can click the "Download Software" link to access the installation file: https://www.lasertech.com/License-Manager.aspx and then click "License Manager Login".
- 2. Double-click the SpeedStatPC_v3.x.exe file to install.
- 3. Click through the prompts to complete installation.
- 4. Click the SpeedStat desktop icon to launch the program (Figure 2).

Program Licensing

Upon any purchase of SpeedStat, Laser Technology generates a customer account on its License Manager website (http://license.lasertechpartners.com/CustomerLogin.aspx) that allows you to generate license keys. When SpeedStat is launched, the licensing screen displays. SpeedStat can be used for 30 days from the date of download before a license key is required. Tap the Demo button to proceed past the licensing screen and use the program. At the end of 30 days, SpeedStat cannot be used without a license key.

About the 30-day Trial

- The Demo button is in the center of the licensing screen, underneath the field where the license key is entered. The text display above the button changes depending on how many days are left in the trial. In Figure 3, the screen shows "Demo 30 days left".
- SpeedStat is fully functional during the trial period. Files created during this time are accessible throughout the trial and can be re-accessed when the program is licensed.
- Contact an authorized dealer near you to purchase a license key or call LTI for more information (1-800-790-7364 or 1-303-649-1000).
 - In speedStat □ × Fite Utilities To authorize, please contact LTI Phone: 1+877-996-2584 or: 1-303-649-1000 Email: servicecenter@lasertech.com Machine ID: 6DF1B1F404 Key: Demo 30 days left Exit Demo Start

Figure 3

NOTE Copy or notate the Machine ID value. It will be entered on the "Obtain License Key" page (see next page).



To Generate a License Key

- 1. Notate the temporary password you received from licensing@lasertechpartners.com and open License Manager, http://license.lasertechpartners.com/CustomerLogin.aspx.
- 2. Enter the email address associated with your purchase and the temporary password. Click [Submit] to log in (Figure 4A).

NOTE If you do not have your temporary password, click the [Request Password] link at the top of the screen. Once successfully logged in, the "Obtain License Key" page displays (Figure 4B).

	BLAVER TECH	HUOLOG	₽Ĕ	License Manager
ELAVER LECHUOLOCA	Customer Profile Change I	Password Obtain	License Key Download Software Log Out	
Log In Paquest Password	Purchases			
User Login	Product SpeedStat PC	Machine ID	Purchase ID 43434234-F7F9-47CE-B2AD-201E5F4788FF	License Key
Email: kcarley@lasertech.com	Get Your License	Key		,
Password:	* Purchase ID:			
	* Required Submit	Fields		
(A)			(B)	



- 3. On the "Obtain License Key" page, your purchase is displayed (Figure 4B). Enter the Machine ID and Purchase ID to create the license key:
 - Machine ID: Copy and paste (or type in) the Machine ID from the SpeedStat licensing screen (Figure 3 on previous page) to the Machine ID field in License Manager (Figure 4B).
 - **Purchase ID**: Copy the Purchase ID from the Purchases Table and paste it in the Purchase ID field in License Manager (Figure 4B).
- 4. Click [Submit] and the license key is created and displays below the fields. It is also included in the Purchases table above (Figure 5C).



5. Enter the license key into the Key field on the SpeedStat licensing screen and click [Start] (Figure 6). The SpeedStat Main Menu will be displayed (Page 8).

SpeedStat		-	×
File Utilities			
	SpeedStat PC		
	To authorize, please contact LTI		
	Email: servicecenter@lasertech.com		
	Machine ID: 6DF1B1F404		
Key:	QDR81127A68590EF0A		
4	Demo 30 days left		
	Exit Demo Start		
L			

Figure 6

NOTE If an incorrect key is entered, the SpeedStat main menu will not be displayed. Instead, the display will return to the SpeedStat licensing screen.

For assistance contact: servicecenter@lasertech.com or call 1-877-696-2584. Please provide your name, company name, purchase ID (if known) as well as the Machine ID displayed on the SpeedStat licensing screen.

Section 3 - Collect Data

About the Main Menu

Figure 7 shows the SpeedStat main menu.



Figure 7

	Collect – Start a new data collection session.						
File Menu	• Main – Leave current screen and return to the Main Menu.						
	• Exit – the program.						
	• Comm Settings – Verify communication between the laser and the PC.						
Utilities Menu	 About SpeedStat PC – See the current version for SpeedStat that is installed on the PC as well as LTI contact information. 						
	Start a new data collection session.						
	Display list of saved data collection sessions and open one.						
=	Display data collection session summary statistics.*						
	Display data collection session grid of measurements, includes option to delete any records from the session.*						
ılt	Review, filter, save and print normal and cumulative distribution curves for a data collection session.*						
←	Verify communication between the laser and the PC.						
Collect	Start a new data collection session.						
Saved Files	Display the list of saved data collection sessions and open one.						
Exit	Exit the program						

*These options are only available if a data collection session is open.

Start a Data Collection Session

To start a data collection session:

File Name Enter a name for the

Location

Operator

Weather

weather

.

data collection session

Enter a location for the

data collection session

Enter an operator name

Approaching/Departing

Change the caption to: Eastbound Westbound Northbound Southbound

Enter the current .

- 1. Open SpeedStat and click [Collect] from the Main Menu (Figure 8).
- 2. Enter/select the following on the Data Collection screen (Figure 9):

SpeedStat



Figure 8

Speed Limit

Enter the posted speed limit

Units

Select the units option that matches what is set on the laser

Laser Data Fields

These fields auto-fill as speed measurements are recorded: . No. of Vehicles

- Last Speed
- Last Range

- 3. Click [Start] to begin recording speed measurements (Figure 10A).
- 4. Fire the laser and capture a speed measurement (Figure 10B). Observe that the Laser Data Fields display data (No. of Vehicles = 1, Last Speed = 65, and Last Range = 1,085.6). Repeat this step until done. All of the data is automatically stored as it is collected.

Data Collection

Units: Moh

Close

Figure 9

End the data

collection session

Last sp

Last range

Operator

Weather

Speed limit: 55

No. of vehicles: 0

Start

Start the data

collection session

5. Click [Close] to end the data collection session.



Figure 10

Manage Saved Data Collection Sessions

Saved Data Collection files can be accessed, edited, or deleted within SpeedStat.

Open and Edit a Saved Data Collection Session

SpeedStat PC

(A)

- 1. Open SpeedStat and then click [Saved Files] (Figure 11A).
- 2. Click to highlight the data collection session to open and click [Open] (Figure 11B). The Summary Statistics screen displays (Figure 12A).



Figure 11

- 3. Click [Add Data]. The Data Collection screen displays (Figure 12B).
- Click [Start] and fire the laser until the desired number of speed records 4. has been added to the session.
- Click [Stop] to end data collection. 5.



Figure 12

Delete a Single Measurement Record from a Data Collection Session

- 1. Open SpeedStat and then click [Saved Files] (Figure 13A).
- 2. Click to highlight the data collection session and click [Open] (Figure 13B).

Click to display the list of measurement records. The Measurements screen displays (Figure 14A).



514	Webbles	Loophan	
Soringhill bics	venicles	Soringhil	Open
TEST APR8-2020.biss	500	I-25 AND EXIT 23	Delete
			Close



- 3. Click to select the measurement record and click [Delete] (Figure 14B).
- 4. Click OK to confirm deletion of the measurement record (Figure 14C). NOTE Record deletions cannot be undone.

SpeedStat										
File Utilities					SpeedStat					
					File Utilities					
الله الله الله الله الله	TECT A	000 2020	Itics		(1) ::: :: ::: ::: ::	I (=→				
	TESTA	PK0-2020	1055				TEST A	PR8-2020.	ltiss	
	Measurem	ents								
#	Date	Speed	Distance 🛆	Delete			Measurem	ents		
1	4/7/2020 12:24:44 PM	65	1085.6			#	Date	Speed	Distance ^	Delete
2	4/7/2020 12:25:31 PM	72	762.4			1	4/7/2020 12:24:44 PM	65	1085.6	
3	4/7/2020 12:26:13 PM	70	1529.1			2	4/7/2020 12:25:31 PM	72	762.4	
4	4/7/2020 12:26:21 PM	70	660.5			3	4/7/2020 12:26:13 PM	70	1529.1	
5	4/7/2020 12:26:25 PM	67	1824.1			4	4/7/2020 12:26:21 PM	70	660.5	
6	4/7/2020 12:26:35 PM	70	735.4			5	4/7/2020 12:26:25 PM	67	1824.1	
7	4/7/2020 12:26:37 PM	71	2040.7			6	4/7/2020 12:26:35 PM	70	735.4	
8	4/7/2020 12:26:53 PM	65	2023.9			7	4/7/2020 12:26:37 PM	71	2040.7	
9	4/7/2020 12:27:01 PM	67	1231.7			8	4/7/2020 12:26:53 PM	65	2023.9	
10	4/7/2020 12:27:03 PM	59	1499.4			9	4/7/2020 12:27:01 PM	67	1231.7	
11	4/7/2020 12:27:22 PM	66	1119.2			10	4/7/2020 12:27:03 PM	59	1499.4	
12	4/7/2020 12:27:26 PM	61	1935.6			11	4/7/2020 12:27:22 PM	66	1119.2	
13	4/7/2020 12:27:39 PM	63	/81.6	Close		12	4/7/2020 12:27:26 PM	61	1935.6	
14	4/7/2020 12:27:54 PM	68	1564.7 v	Close		13	4/7/2020 12:27:39 PM	63	/81.0	Close
						14	4/7/2020 12:27:54 PM	00	1304.7 V	Close
	(A)						(B)			
	()						()			
				2:26:13 PM	70 1529.1					
				2:26 SpeedStat DC	× 50.5					
					× 10.5					
				2:26	24.1					
				2:26 Delete record 12?	35.4					
				2:26	10.7					
				2:26	23.9					
				2·27	Cancel 21 7					
				2.27.02 PM	p1.7					
				2:27:03 PM	59 1499.4					
				(C)						

Figure 14

Delete a Saved Data Collection Session

1. Open SpeedStat and then click [Saved Files] (Figure 15A).

SpeedStat PC

d Files Open old file

(A)

Collect

Collect speed data

2. Click to highlight the data collection session and click [Delete] (Figure 15B). NOTE Once a session has been deleted, it cannot be restored.





Section 4 - Summary Statistics

Once data collection is complete, there are two ways to view Summary Statistics and do some basic filtering of the data.

- At the end of the data collection session, after clicking [Stop], click [Close] and the Summary Statistics screen will automatically display.
- When accessing a saved data collection session, click [Saved Files], then click the file to highlight it, and click [Open]. Any time a data collection session is open, Summary Statistics can be found by

clicking in the menu bar at any time.

Summary Statistics Screen Overview

Figure 16 shows the Summary Statistics screen.



Figure 16

Review Data & Apply Filters

When the Summary Statistics screen is first displayed, it includes the basic statistics for vehicles that have been observed during the data collection session. Filters permit flexible report generation for a specific subset of vehicles.

Summary

The Summary Statistics screen shows basic statistics about the speed measurement data that was collected. The following values are updated when filters are applied:

- Vehicles: The total number of vehicles.
- Speed Limit: The value that was entered as the posted speed limit on the Data Collection screen.
- Lowest Speed: The slowest speed included in the open data collection session.
- Highest Speed: The fastest speed included in the open data collection session.
- Avg Speed: (sum of all speeds)/(total number of vehicles)
- **Pace Speed**: Defined as a 10-MPH interval centered on the average speed of observed vehicles. [(Ave speed rounded up) - 5] to [(Avg speed rounded up) + 4]
- [Close] Button: Exits the Summary Statistics screen and returns the display to the Main Menu.

Date & Time Filter

The date and time filter filters the data to show a specific date..." and time interval. Allows you to generate a report or graph for a specific date and time interval. As an example, the filter can be set to include a single day from a 4-day collection period, or a specific interval like a "rush hour."

To apply a date & time filter:

- 1. Open the data collection session to display the Summary Statistics screen (Figure 17A).
- 2. Check the box next to the Date and Time Filter and enter a start date and time range for specific speed measurements (Figure 17B).
- 3. Once values are entered, the Summary and percentiles values change to reflect the filter settings (Figure 17C).

E SpeedSat File Ukildes	- 0 X	Date and	Time Filter	
TEST APR8-2020.Itiss Date and Time Fiter Start: 4/ 7/2020 V 12:24:10 PM V L	d Fiter wz 54	Start: 4, to: 4,	/ 7/2020 ~ 12:24:10 PM ~ / 7/2020 ~ 12:45:00 PM ~	
to: 4/ 7/2020 ~ 2:02:49 PM ~ Hi Direction filter: Al vehicles -	gh: 83		(B)	
Summary Speed Limt = 75 Vehides = 89 Speed Limt = 75 Lowest Speed = 54 Highest speed = 83 Average speed = 70.39 Pace speed = 65 to 74	Percentiles 15th-65 50th=70 85th=76 95th=79 Add Data			
Reports				
Report Type: Summary Report format: Text Report Report file: TEST ARR8-2020-sum Save P	• • int Report Close	Summary Vehicles = 44 Lowest speed = 54 Average speed = 69.41	Speed Limit = 75 Highest speed = 83 Pace speed = 64 to 73	Percentiles 15th=63 50th=70 85th=74 95th=78
(A)			(C)	



Speed Filter

The speed filter filters the data to show a specific range of speeds. Allows for the generation of a report or graph for a specific range of speeds. As an example, the filter can set to exclude any outlying data value, such as a bicycle or a Ferrari going way too fast.

To apply a speed filter:

- 1. Open the data collection session to display the Summary Statistics screen (Figure 18A).
- 2. Check the box next to the Speed Filter and enter the Low and High speed values (Figure 18B).
- 3. Once values are entered, the Summary and percentiles values change to reflect the filter settings (Figure 18C).

TEST AP	R8-2020.ltiss		Low: 55	
□ Date and Trne Fiter Start: 4/ 7/2020 → to: 4/ 7/2020 → Drection fiter: Al vehicles	☐ Speed Fiker Low: 54 High: 83		(B)	
Summary Vehicles = 89 Lowest speed = 54 H Average speed = 70.39 Pace s	Percentiles Speed Limt = 75 15th=65 S0th=70 85th=76 peed = 65 to 74 95th=79 Add Data			
Reports Report type: Summany		Summary		Percentiles
Reports Report type: Summary Report format: Text Report Report file: TEST APR8-2020 Save	- 	Summary Vehicles = 86 Lowest speed Average spee	Speed Limit = 75 = 55 Highest speed = 80 d = 70.29 Pace speed = 65 to 74	Percentiles 15th=65 50th=70 85th=75 95th=78

Figure 18

Section 5 - Reports

Reports can be generated for any open data collection session. Reports will reflect any filters applied prior to report generation. The available report types are as follows:

- Text Report *.txt Text Format
- Spreadsheet Report *.csv Comma Delimited Format

Reports can be generated can be based on the following options:

- Summary
- 15 Min Intervals
- 30 Min Intervals
- 60 Min Intervals
- Graphs (Refer to Page 20 for how to save graph files)

Summary

The Summary report shows the number of vehicles in MPH (or KPH) increments.

To create a Summary report:

- 1. Open a data collection session to display the Summary Statistics screen (Figure 19A).
- 2. <Optional> Apply filters.
- 3. Click the Report Type drop-down menu and select "Summary" from the list of options (Figure 19B).
- 4. Click the Report Format drop-down menu and select either Text or Spreadsheet report.





Figure 19

Continued on Next Page

5. And then Click:

•

- [Save] to generate and save the report:
 - Text Report: your file name-sum.txt (Figure 20A).
 - Spreadsheet Report: your file name-sum.csv (Figure 20B).
 - Saved reports are found here on the PC: Documents/SpeedStat/Reports/your file name Folder
 - [Print Report] to send the report directly to a printer.

NOTE This option prints the report without creating a file.

TEST APR8-2020-su	m.txt - Not	tepad
File Edit Format Vie	w Help	
File: TEST APR8	-2020	
Location: I-25	AND EXI	T 23
Operator: OFFIC	ER FRIE	NDLY
Weather: SUNNY		
Speed limit: 75	Mph	
Date: 4/7/2020	12:24:10	0 PM to 4/14/2020 6:43:11 PM
Total vehicles	recorde	d in report = 89
Lowest recorded	speed	= 54
Average speed		= 70.39
Hignest recorde	a speea	= 83
10 Mph pace spe	ed = 65	- 74
Percent under p	ace spe	ed = 0.00
Percent in pace	speed	= 0.0
Percent over pa	ce spee	d = 0.0
	-	
15th = 65		
50th = 70		
85th = 76		
95th = 79		
Speed Count P	ercent	Cum%
54 1	1.1	1.1
55 0	0.0	1.1
56 1	1.1	2.2
57 0	0.0	2.2
58 1	1.1	3.4
59 1	1.1	4.5
60 0	0.0	4.5
61 1	1.1	5.6
62 1	1.1	6.7
63 2	2.2	9.0
64 2	2.2	11.2
65 7	7.9	19.1
66 5	5.6	24.7
70 13	14.6	50.6
71 8	9.0	59.6
72 7	7.9	67.4
73 3	3.4	70.8
74 5	5.6	76.4
75 7	7.9	84.3
70 3	3.4	91.0
78 2	2.2	93.3
79 3	3.4	96.6
80 1	1.1	97.8
81 0	0.0	97.8
82 0	0.0	97.8
83 2	2.2	100.0



(A)

Figure 20

15 Min Intervals

The 15 Min Intervals report shows the number of vehicles in each 2 MPH (or 2 KPH) increments for each 15-minute interval of the data collection session.

To create a 15 Min Interval report:

- 1. Open a data collection session to display the Summary Statistics screen (Figure 21A).
- 2. <Optional> Apply filters.
- 3. Click the Report Type drop-down menu and select "15 Min Interval" from the list of options (Figure 21B).
- 4. Click the Report Format drop-down menu and select either Text or Spreadsheet report.
- 5. And then Click:
 - [Save] to generate and save the report.
 - Text Report: your file name-15mins.txt (Figure 21C).
 - Spreadsheet Report: your file name-15mins.csv (Figure 21D).
 - Saved reports are found here on the PC: Documents/SpeedStat/Reports/your file name Folder.
 - [Print Report] to send the report directly to a printer. NOTE This option prints the report without creating a file.

SpeedStat – 🗆 X	
File Utilities	
TEST APR8-2020.Itiss	
Date and Time Fiter □ Speed Fiter Start: 4/ 7/2020 ~ 12:24:10 PM ~ Low: 54 to: 4/ 7/2020 ~ 2:02:49 PM ~ High: 83	
Direction filter: All vehicles	
Summary Percentiles Vehides = 89 Speed Limt = 75 15th=65 Lowest speed = 54 Highest speed = 83 85th=76 Average speed = 70.39 Pace speed = 65 to 74 95th=79	
Add Data	
Reports • Report type: Summary • Report format: Text Report • Report file: TEST APR8-2020-sum • Save Print Report • Close • •	Reports Report type: 15 mn intervals • Report format: Text Report • Report file: TEST APR8-2020-15mins • Save Print Report
(A)	(B)
TEST APR8-2020-15mins.txt - Notepad File Edit Format View Help File: TEST APR8-2020 Location: I-25 AND EXIT 23 Operator: OFFICER FRIENDLY Weather: SUNNY Speed limit: 75 Mph Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:43:11 PM	
4)7/2020 12:15 PM 1 3 4 4)7/2020 12:15 PM 1 1 0 6 4)7/2020 12:30 PM 2 1 1 0 6 4/7/2020 12:35 PM -12:44 PM 2 1 1 0 6 4/7/2020 12:35 PM -12:59 PM 2 2 8 2 8 Totals: 6 4 12 5 18 Percentage: 6.7 4.5 13.5 5.6 20.2 2	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$
(C	2)
<pre> TEST APR8-2020-15mins.txt - Notepad File Edit Format View Help File: TEST APR8-2020 Location: I-25 AND EXIT 23 Operator: OFFICER FRIENLY Weather: SUNNY Weather: SUNNY Speed limit: 75 Mph Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:43:11 PM </pre>	
15 minute intervals 0-62 63-64 65-66 67-68 69-70 4/7/2020 12:15 PM - 2 1 3 4 4/7/2020 12:35 PM - 12:44 PM 2 1 1 0 6 4/7/2020 12:35 PM - 12:44 PM 2 1 1 0 6 4/7/2020 12:45 PM - 12:59 PM 2 2 8 2 8 Totals: 6 4 12 5 18 Percentage: 6.7 4.5 13.5 5.6 20.2 2	$\begin{array}{cccccccccccccccccccccccccccccccccccc$
(D)

30 Min Intervals

The 30 Min Intervals report shows the number of vehicles in each 2 MPH (or 2 KPH) increments for each 30-minute interval of the data collection session.

To create a 30 Min Interval report:

- 1. Open a data collection session to display the Summary Statistics screen (Figure 22A).
- 2. <Optional> Apply filters.
- 3. Click the Report Type drop-down menu and select "30 Min Interval" from the list of options (Figure 22B).
- 4. Click the Report Format drop-down menu and select either Text or Spreadsheet report.
- 5. And then Click:
 - [Save] to generate and save the report.
 - Text Report: your file name-30mins.txt (Figure 22C).
 - Spreadsheet Report: your file name-30mins.csv (Figure 22D).
 - Saved reports are found here on the PC: Documents/SpeedStat/Reports/your file name Folder.
 - [Print Report] to send the report directly to a printer. NOTE This option prints the report without creating a file.

SpeedStat		- • ×		
	TEST APR8-2020.Itiss			
□ Date and Time Fi Start: 4/ 7/20 to: 4/ 7/20	ter □ Speed Fiter 10 ○ 12:24:10 PM ○ Low: 54 10 ○ 2:22:249 PM ○ High: 83			
Direction filte	Al vehicles			
Vehicles = 89 Lowest speed = 54 Average speed = 7	Speed Lmt = 75 15thre55 Highest speed = 83 85th-76 0.39 Pace speed = 65 to 74 95th=79			
Barrada	Add Data			
Reports Report type: Report format: Report file:	Summary • Text Report • TEST APR8-2020-sum Save Print Report		Reports 30 min intervals Report format: Text Report Report file: TEST APR8-2020-30mins	•
	Close		Save	Print Report
	(A)		(B)	
	TEST APR8-2020-30mins.txt - Notepad File Edit Format View Help File: TEST APR8-2020 Location: I-25 AND EXIT 23 Operator: OFFICER FRIENDLY Weather: SUNNY Speed limit: 75 Mph Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:4: 30 minute intervals 0-62 63-64 65	3:11 PM -66 67-68 69-70 71-72 73-74 75-7	76 77-78 79-80 81-82 83-84 85-100 Total	
	4/7/2020 12:00 PM - 12:30 PM 2 1 4/7/2020 12:30 PM - 1:00 PM 4 3	3 3 4 2 1 0 9 2 14 13 7 10	0 1 0 1 0 18 18 18 18 16 16 17 16 16 17 16 16 17 16 16 17 16 16 17 16 16 16 17 16 16 16 17 16 16 16 17 16	
	Percentage: 6.7 4.5 13	.5 5.6 20.2 16.9 9.0 11.2	2 5.6 4.5 0.0 2.2 0.0	
		(C)		
	Tile: TSST APR8.2020 Location: I-25 AND EXIT 23 Operator: OFFICER FRIENDLY Weather: SUNNY Speed limit: 75 Mph Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:43:11 PM			
	30 minute intervals 0-62 63-64 4/7/2020 12:00 PM - 12:30 PM 2 4/7/2020 12:30 PM - 1:00 PM 4 Totals: 6 Percentage: 6.7	65-66 67-68 69-70 71-72 73-74 1 3 3 4 2 3 9 2 14 13 4 12 5 18 15 15 13.5 5.6 20.2 16.9	75-76 77-78 79-80 81-82 83-84 85-100 Totr 1 0 1 1 0 1 1 0 1	al 18 71 89
		(D)		



60 Min Intervals

The 60 Min Intervals report shows the number of vehicles in each 2 MPH (or 2 KPH) increments for each 1-hour interval of the data collection session.

To create a 60 Min Interval report:

- 1. Open a data collection session to display the Summary Statistics screen (Figure 23A).
- 2. <Optional> Apply filters.
- 3. Click the Report Type drop-down menu and select "60 Min Interval" from the list of options (Figure 23B).
- 4. Click the Report Format drop-down menu and select either Text or Spreadsheet report.
- 5. And then Click:
 - [Save] to generate and save the report.
 - Text Report: your file name-60mins.txt (Figure 23C).
 - Spreadsheet Report: your file name-60mins.csv (Figure 23D).
 - Saved reports are found here on the PC: Documents/SpeedStat/Reports/your file name Folder
 - [Print Report] to send the report directly to a printer. NOTE This option prints the report without creating a file.

SpeedStat – D X	
File Utilities	
TEST APR8-2020.Itiss	
Date and Time Filter	
Start: 4/ 7/2020 V 12:24:10 PM V Low: 54	
to: 4/ 7/2020 v 2:02:49 PM v High: 83	
Direction filter: All vehicles -	
Summary Percentiles	
Vehicles = 89 Speed Limit = 75 15th=65 50th=70	
Lowest speed = 54 Highest speed = 83 85th=76 Average speed = 70.39 Pace speed = 65 to 74 osth=70	
Alteringe speed = 70.57 Pate speed = 05 to 71 gsm=79	
Add Data	
Reports	Reports
Report type: Summary	Report time _ 60 min interrule
Report file: TEST APR8-2020-sum	
Sava Driat Danart	Report format: Text Report •
	Report file: TEST APR8-2020-60mins
Close	Save Print Report
	 (D)
(A)	(B)
TTET ADDO 2020 COntracts Matured	
ESI APR8-2020-bumins.txt - Notepad	
File: TEST APR8-2020	
Location: I-25 AND EXIT 23	
Weather: SUNNY	
Speed limit: 75 Mph Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:43:11 PM	
	Construction in the second second second second second second second
60 minute intervals 0-62 63-64 65-66 67-68 69-70 71 4/7/2020 12:00 PM - 12:59 PM 6 4 12 5 18	-72 73-74 75-76 77-78 79-80 81-82 83-84 85-100 Total 15 8 10 5 4 0 2 0 89
Totals: 6 4 12 5 18	15 8 10 5 4 0 2 0 89
Percentage: 6.7 4.5 13.5 5.6 20.2 16	.9 9.0 11.2 5.6 4.5 0.0 2.2 0.0
	(C)
File: TEST APR8-2020 Location: I-25 AND EXIT 23	
Operator: OFFICER FRIENDLY	
Speed limit: 75 Mph	
Date: 4/7/2020 12:24:10 PM to 4/14/2020 6:43:11 PM	
60 minute intervals 0-62 63-64 65-66 67-68	69-70 71-72 73-74 75-76 77-78 79-80 81-82 83-84 85-100 Total
4/7/2020 12:00 PM - 12:59 PM 6 4 12 5 Totals: 6 4 12 5	18 15 8 10 5 4 0 2 0 89 18 15 8 10 5 4 0 2 0 89
Percentage: 6.7 4.5 13.5 5.6	20.2 16.9 9 11.2 5.6 4.5 0 2.2 0
	(D)

Figure 23

Normal & Cumulative Distribution Graphs

The Graphs screen displays a representation of an open data collection session. Graphs will reflect any filters that have been applied to the data. Two types of graphs are available:

- Normal Distribution: Shows a conventional bar graph of measured speeds (Figure 24A).
- Cumulative Distribution: Shows the percentage of vehicles in increasing speed ranges (Figure 24B).





Overview

To view the Graphs screen:

- 1. Open a data collection session file.
- 2. <Optional> Apply filters.
- 3. Click from the menu bar (Figure 25A).
- 4. The Graphs screen displays (Figure 25B).
- 5. Apply a Direction filter to include the following:
 - All Vehicles
 - Only Approaching Vehicles
 - Only Departing Vehicles





- 6. <optional> Click:
 - [Save] under each graph to save it as an image file that can be printed or emailed.
 - Normal Distribution filename: your file name-normal.bmp (Figure 26B).
 - Cumulative Distribution filename: your file name-cumulative.bmp (Figure 26C).
 - Saved graphs are found here on the PC: Documents/SpeedStat/Reports/your file name Folder
 - Graph Sizes:
 - Small = 150 x 150 dpi
 - Large = 300 x 300 dpi
 - [Print] under each graph to send to print out the graph image.
- 7. Click [Close] to leave the Graph screen and return to the SpeedStat Main Menu.







Creating a Custom Graph

The following instructions will assist with creating a custom graph using Microsoft® Excel.

- 1. Create a Spreadsheet report (*.csv) of any report type. In this example, the Summary report with no applied filters is used.
- 2. Open the report in Microsoft Excel.
- 3. Depending on the selected report:
 - Create a graph using Chart Wizard
 - Create a Pivot Chart report (Data > PivotTable and PivotTable Report).
 - For more information, see Appendix A (Page 22).

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Appendix A - Creating Custom Graphs in Excel

Use Summary Data to Create a Graph

The following instructions will assist with creating a custom graph using Microsoft® Excel.

- 1. Open the Summary report in Excel.
- 2. Select the data to be included in the graph (Figure 27A).
- 3. Select Insert from the Menu Bar and then click PivotChart in Excel (Figure 27B).





Figure 27

4. Click [OK] (Figure 27C) and Pivot Chart Fields display (Figure 28).

PivotChart Fields		Ŧ	×
Choose fields to add to report			<⊘> ▼
Search			Q
Speed			
Drag fields between areas belo	ow:		
T Filters	III Legend (Series	;)	
■ Axis (Categories)	Σ Values		
Defer Layout Update			Update

Figure 28

LTI LaserSoft[®] SpeedStat™ PC 3.x User's Guide Appendix A - Creating Custom Graphs in Excel Page 23

- 5. Click on the word Speed from the Pivot Chart Fields box and drag and drop it into the Axis field (Figure 29A).
- 6. Click on the word Count from the Pivot Chart Fields box and drag and drop it into the Values field (Figure 29B).
- 7. Double-click anywhere on components of the chart to change them such as chart title, legend and axis labels.



(A)



(B) Figure 29

Use Interval Data to Create a Graph

The following instructions will assist with creating a custom graph using interval data in Microsoft® Excel.

- 1. Open the Interval report in Excel.
- 2. Select the data to be included in the graph (Figure 30A).
- 3. Select Insert from the Menu Bar and then click the Kine or Area chart option.
- 4. Select the "100% Stacked Line with Markers" option from the drop-down list (Figure 30B).
- 5. The graph displays (Figure 30C).

4/1/2020	4	2	. 0	4	0	0		+ 0		4	L.	0	0	
4/7/2020	2	1	. 1	0	6	7		3 2	1	0	(2	0	2
4/7/2020	2	1	3	3	4	2		1 0	1	0	0	0 0	0	1
15 minute 0-62		63-64	65-66	67-68	69-70	71-72	73-74	75-76	77-78	79-80	81-82	83-84	85-100	Total
Date: 4/7/2020	12:24	:10 PM to	4/14/2020	6:43:11 PM	М									
Speed limit: 75 I	Mph													
Weather: SUNN	Y													
Operator: OFFIC	ER F	RIENDLY												
Location: I-25 A	ND E)	(IT 23												
File. TEST AFRO-	2020													



(C) Figure 30

Appendix B	- '	Troublesh	ooting Tips
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Problem	Solution
No communication between laser and the PC.	 For cabled connections, ensure that the 4-pin end is securely and correctly connected to the laser. Also ensure the DB9 end is securely and correctly connected to the PC, or in the USB converter, if one is in use.
	 For Bluetooth connections, verify that the Bluetooth feature in the laser is turned on and set to BT_On.
	 For Bluetooth connections, ensure that the laser is paired to the PC. Lasers can only be paired to one device at a time.
	• Ensure that the laser batteries are fresh. Be aware that Bluetooth connections use more battery than cabled connections. When batteries get low, the laser may fire but may not have enough power to send data out the serial port to the PC.
An error message was displayed while working in SpeedStat.	Error messages are often self-explanatory. Clear the message and correct the error before proceeding. If the error continues, restart SpeedStat. If the error persists, restart the PC (see above). For persistent error messages, email Laser Technology for support at servicecenter@lasertech.com.
A speed measurement was accidentally deleted.	Reshoot or manually re-add the speed measurement. Speed measurement deletions cannot be undone.

NOTE SpeedStat v3.x is designed for Windows PCs running operating systems 7 or newer. To check the version of the operating system of the PC, navigate to Windows Settings and then About.

Appendix C - Uninstall SpeedStat

Step 1 - Uninstall SpeedStat:

- 1. Open Windows Control Panel.
- 2. Select "Programs" and "Uninstall a Program" (Figure 31A).
- 3. Select SpeedStat from the list and click "Uninstall" (Figure 31B).
- 4. Follow the prompts to complete the uninstall.

Control Panel		- D X
$\leftarrow \rightarrow \lor \bigstar $ $\blacktriangleright $ Control Panel		ע ט] Search Control Panel א
 ← → ∨ ↑ ■ > Control Panel Adju <	ust your computer's settings System and Security Review your computer's status Save backup copies of your files with File History Backup and Restore (Windows 7) Network and Internet View network status and tasks Add a device Adjust commonly used mobility settings Programs Uninstall a program Cet programs	View by: Category • User Accounts ♥ Change account type Appearance and Personalization Clock and Region Change date, time, or number formats Ease of Access Let Windows suggest settings Optimize visual display

(A)

5	Programs and Features					- 0	×			
÷	← → ∨ ↑ 👔 > Control Panel > Programs > Programs and Features v ひ Search Programs and Features									
	Control Panel Home	Uninstall or change a program								
	View installed updates	To uninstall a program, select it from the list and then click Un	install, Change, or Repair.							
•	Turn Windows features on or									
	off	Organize - Uninstall Change Repair				- 11	?			
	Install a program from the	Name	Publisher	Installed On	Size	Version	^			
	network	Microsoft Visual C++ 2012 Redistributable (x64) - 11.0.61030	Microsoft Corporation	9/4/2019	20.5 MB	11.0.61030.0				
		Microsoft Visual C++ 2017 Redistributable (x64) - 14.16.27033	Microsoft Corporation	4/1/2020	23.1 MB	14.16.27033.0				
		Microsoft Visual C++ 2017 Redistributable (x86) - 14.16.27033	Microsoft Corporation	4/1/2020	20.1 MB	14.16.27033.0				
		Realtek Audio COM Components	Realtek Semiconductor Corp.	9/29/2018	599 KB	1.0.2				
		😹 Realtek Card Reader	Realtek Semiconductor Corp.	9/4/2019	14.6 MB	10.0.15063.21300				
		🔀 Realtek High Definition Audio Driver	Realtek Semiconductor Corp.	9/29/2018	227 MB	6.0.1.8622				
		🔀 Realtek USB Audio	Realtek Semiconductor Corp.	9/29/2018		6.3.9600.2172				
		Snap Camera 1.7.0	Snap Inc.	4/1/2020	211 MB	1.7.0				
		SpeedStat	Laser Technology Inc.	4/13/2020	2.33 MB	0.03.0000				
		Streaming Audio Recorder V4.2.3	APOWERSOFT LIMITED	11/20/2019	51.1 MB	4.2.3				
		Teams Machine-Wide Installer	Microsoft Corporation	8/26/2019	90.3 MB	1.2.0.19260				
		分 Thunderbolt™ Software	Intel Corporation	9/29/2018		17.1.64.250				
		TruPoint300_Updater	Laser Technology	11/30/2018	9.54 MB	3.55.906.0				
		𝗮 Windows Driver Package − Leica Geosystems Net (11/01/201	Leica Geosystems	9/4/2019		11/01/2013 7.2.3667.9				
		Windows Mobile Device Center	Microsoft Corporation	11/1/2018	27.4 MB	6.1.6965.0				
							~			
		Laser Technology Inc. Product version: 0.03.0000 Help link: mailto:sup	Support link: http://www oport@lasert Size: 2.33 MB	lasertech.com						

(B)

Figure 31

Step 2 - Delete Reports and Data

- 1. Open File Explorer.
- 2. Navigate to Documents/SpeedStat
- 3. Delete the SpeedStat folder.