

**OPERATIONS
AND PROCEDURES
FOR THE
PRODUCTIVITY
SOFTWARE**



Productivity Software Features

- Remote CS-230 calibration and set-up on a personal computer.
- CS-230 calibration and set-up by mouse (point and click).
- CS-230 data logging, analyzing and report generating.
- Logged data accepted from a D.L.I.U.
- Logged data and calibration data transfer from a Caliprompter.
- Full 32 bit application.
- Runs in Windows 95/NT.
- Year 2000 compliant

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**F U N C T I O N A L
P U R P O S E**

The Productivity Software package was designed as a logical companion to the Compu-Spread® CS-230 system. It takes the spreading control to a higher level of fleet management, which makes the fleet operation more efficient and cost effective.

This software allows the use of a personal computer to analyze logged data from CS-230 controller, via a Data Logging Interface Unit (DLIU) or a Caliprompter. All of the data available from a CS-230 can be viewed and manipulated in an intuitive and easy to use format, that includes a help menu. The information can be analyzed and such information as distance and quantity is displayed for four materials over a specified time period and a specified range of trucks. The average rates for both spread and blast application are also calculated, as well as seasonal totals for distance and quantity. Any error that has been reported by the CS-230 will also be tabulated and reported at this time.

Calibration information can be uploaded and/or downloaded to your P.C. from a CS-230 via a Caliprompter. In this way, an entire fleet of vehicles can be calibrated and set-up in a matter of minutes, with data that you rationalized and customized at your desk.

The Productivity Software is easy to install on a computer with either Window95 or Windows NT operating system. An intuitive and user friendly Graphics User Interface (GUI) is at your finger tips within minutes.

DESCRIPTION

Once the software has been installed on a personal computer, the calibration data can be either uploaded from a Caliprompter or downloaded to a Caliprompter. The logged data can only be uploaded into the computer software for the purpose of generating reports and analysis.

A DLIU can be connected to a serial port (COM) of a PC and then stored logged data may be uploaded to the PC. This logged data may now be viewed, analyzed, converted to text format (comma delimited text file) for use in Lotus, Excel, and many other spreadsheet programs), printed out or deleted.

If a Caliprompter is being used, logged data plus calibration data can be managed in the same manner. Also, calibration data can be altered and downloaded from the PC to a Caliprompter. The calibration data allows you to rationalize the operation of your CS-230 units right from your desktop, then use a Caliprompter to deliver the calibration data directly to your spreader vehicles.

NOTE: Before continuing please be sure to register your software disk. A registration form has been included within your help menu. Record the registration number from the diskette onto this form. To access the registration form, double click on the word registration within your help index and select print topic. Fill out the form as required and fax or mail back to Basic Technologies.

**S O F T W A R E
I N S T A L L A T I O N**

1. Insert the first software disk into the appropriate drive on your computer
2. From the Start Menu, select Run and type A:\SETUP
3. Follow the on screen prompts

**M I N I M U M S Y S T E M
R E Q U I R E M E N T S**

- Pentium Processor
- Windows 95 or Window NT
- 16 MB of RAM
- 1.44 MB floppy disk drive
- 10 MB free space on hard drive
- 256 color or higher display

**S O F T W A R E
O P E R A T I O N**

Once the program has been installed, and running, you may begin using it right away by accessing the menu items.

The software operation instructions are included in the on line help of the software. You may read and/or print them by accessing the HELP menu.

NOTE: It is recommended that you print the help menu and add this to the back of this module for future reference.

**M E N U
E X P L A N A T I O N**

S E T - U P

COM1/COM2

The Compu-Spread 98 software requires a serial communication port on your PC to transfer information to and from your Caliprompter or DLIU. The software installation defaults to COM1. If it is required, you may change the default port to COM2 by simply clicking on COM2 in the Set-up Menu.

R E G I O N

Some CS-230 system users may have multiple regions, sites or yards with more than one truck operating there. This menu option allows the user to enter up to twenty different regions for differentiating the logged data from different areas. This option is also very useful in the Analysis Report Menu. Click on Set-up, then select Region. At the flashing cursor, type in the name of the region you wish to use. Up to twenty characters may be entered here. Click on Add to add the name to your list. If you have only one region or area and do not change anything, the default will remain "Region 1".

U P L O A D

C a l i b r a t i o n / L o g g e d D a t a

Ensure your Caliprompter is connected to a proper COM port on your PC. Set the Caliprompter to 'PC Connection' in the menu screen. In the Upload Menu on the software, click on Calibration or Logged Data, depending on which information you wish to upload. At this point a Region Screen will pop up. You must select a region; site or yard that has already been set up or select the default Region 1. Once the upload has started, a progress status bar will appear.

Once the Upload function is complete, a set of three files (same file name with different extensions) will automatically be created with the file name including region name you entered in the Set-up Menu and the current year, month and day. Logged data files will have the extensions .log, .inf, .val. Calibration data files will have the extensions .cfg, .vcf, .ext.

NOTE: See Module 7E for proper operating instructions for your Caliprompter.

D O W N L O A D

Ensure that your Caliprompter is connected to a proper COM port on your PC. Set the Caliprompter to PC Connection in the Menu Screen. Select Download on the Software menu. Select the calibration file you wish to download to your Caliprompter and click on open. A progress bar will appear at the bottom of the screen. The file selected will automatically download into your Caliprompter.

NOTE: If there is an error message during a upload or download, please check the communication port or cable connection.

Once the download is completed, the program will return to the main menu screen.

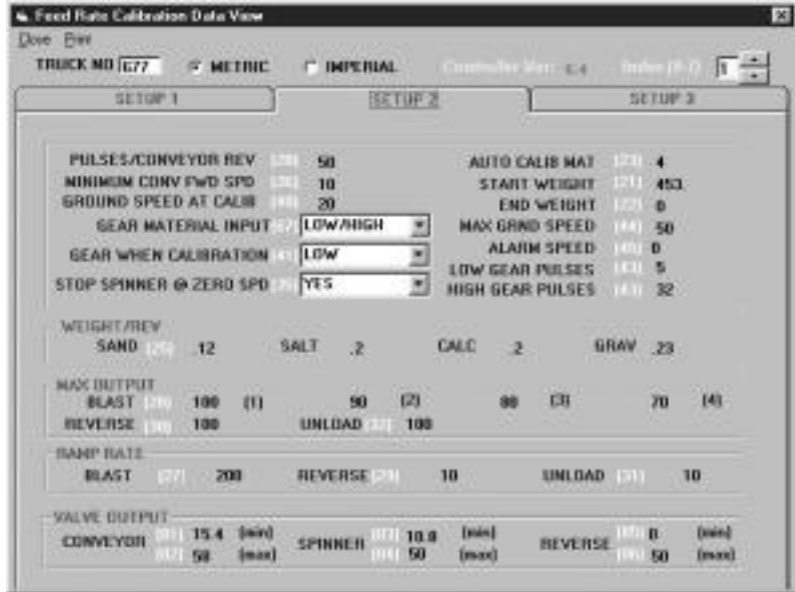
V I E W

This menu allows you to view the calibration and logged data.

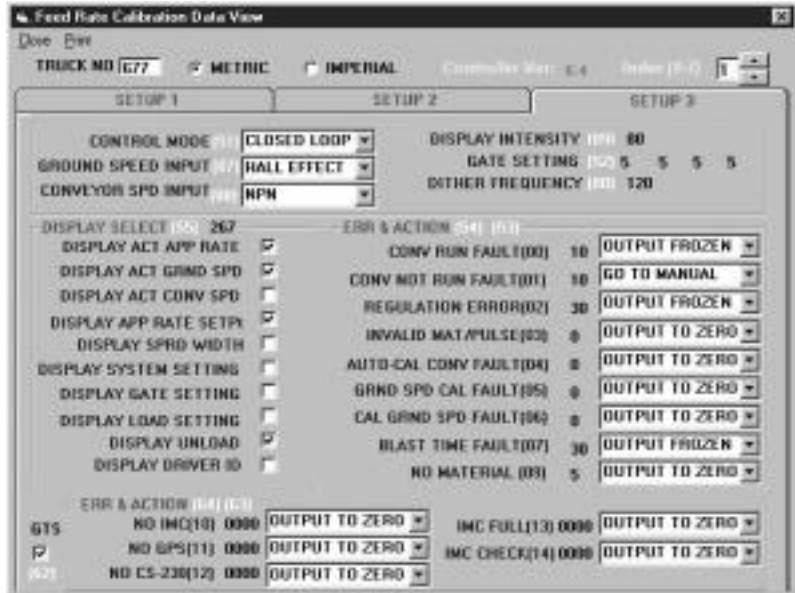
Sample Calibration for SETUP 1

	0	1	2	3	4	5	6	7	8	9
SAND										
CLOSED LOOP	0	370	570	780	1000	0	0	0	0	0
OPEN LP (0.1%)	0	100	200	300	400	500	600	700	800	900
MANUAL (0.1%)	0	100	200	300	400	500	600	700	800	900
SALT										
CLOSED LOOP	0	170	220	250	0	0	0	0	0	500
OPEN LP (0.1%)	0	100	200	300	400	500	600	700	800	900
MANUAL (0.1%)	0	100	200	300	400	500	600	700	800	900
CALC										
CLOSED LOOP	0	150	150	200	500	0	0	0	0	0
OPEN LP (0.1%)	0	100	200	300	400	500	600	700	800	900
MANUAL (0.1%)	0	100	200	300	400	500	600	700	800	900
GRAV										
CLOSED LOOP	0	0	0	0	0	0	0	0	0	0
OPEN LP (0.1%)	0	100	200	300	400	500	600	700	800	900
MANUAL (0.1%)	0	100	200	300	400	500	600	700	800	900
SPTD WIDTH(0.1%)										
	0	100	200	300	400	500	600	700	800	900
	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)

Sample Calibration for SETUP 2



Sample Calibration for SETUP 3



To view the uploaded calibration data from a specific truck, simply select View then click on Calibration. Select the file that you wish to view and open it. In the top left corner of computer screen, you will see a Truck Number. To select the specific truck you want to view, move the cursor to the right side of your screen and click the up or down arrow until the correct Truck Number appears on the left.

You may also change the calibration (or parameters) data in this menu. Simply click on the arrow to reveal a pull down menu of options, or click and swipe over a numeric value, highlight it and enter a new number.

CAUTION: When making changes to calibration values, ensure that you understand why these modifications are being made and the consequences of each change. Please refer to Module 6C for detailed explanation of parameters.

L o g g e d D a t a

Event No.	Day	Sp'd Rate	Start Time	Run Time	Run Dist.	Blast Dist.	Avg. Speed	Sp'd Qty	Blast Qty	Pounce Dist.	Load Nbr	Gate Nbr	Exit Nbr
01	00	0000	15:42	00:00:12	000.16	000.02	040.0	00000	00000	00.00	2	01	-
02	01	0220	15:42	00:00:11	000.16	000.00	052.4	00019	00000	00.00	2	01	-
03	01	0250	15:43	00:02:00	001.73	000.00	046.7	00417	00000	00.00	2	01	-
04	01	0000	15:45	00:14:13	011.77	000.00	049.7	00000	00000	00.00	2	01	-
05	01	0220	15:59	00:14:01	011.62	000.00	049.7	00078	00000	11.27	2	01	-
06	01	0250	16:14	00:02:50	002.46	000.00	049.8	00203	00000	01.65	2	01	-
07	01	0170	16:17	00:17:30	014.57	000.00	050.0	01108	00000	00.05	2	01	-
08	01	0220	16:35	00:00:12	000.17	000.00	051.0	00030	00000	00.00	2	01	-

	MAT1	MAT2	MAT3	MAT4
PERIOD RUN DISTANCE	0.0	42.64	0.0	0.0
PERIOD BLAST DISTANCE	0.0	0.02	0.0	0.0
PERIOD SPREAD QUANTITY	0.0	1955.0	0.0	0.0
PERIOD BLAST QUANTITY	0.0	0.0	0.0	0.0
SEASON DISTANCE	0.0	42.64	0.0	0.0
SEASON QUANTITY	0.0	1954.0	0.0	0.0

To view the uploaded Logged Data from a specific truck, simply select View then click on Logged Data. Select the file that you wish to view and open it. As stated above in the Calibration Section, you can scroll through different truck numbers to view their specific logged data.

NOTE: Upon initial power up of the CS-230, no date will be recorded in the logged data. A date will only appear once a function is activated, i.e.: Appl. Rate, Spread Width.

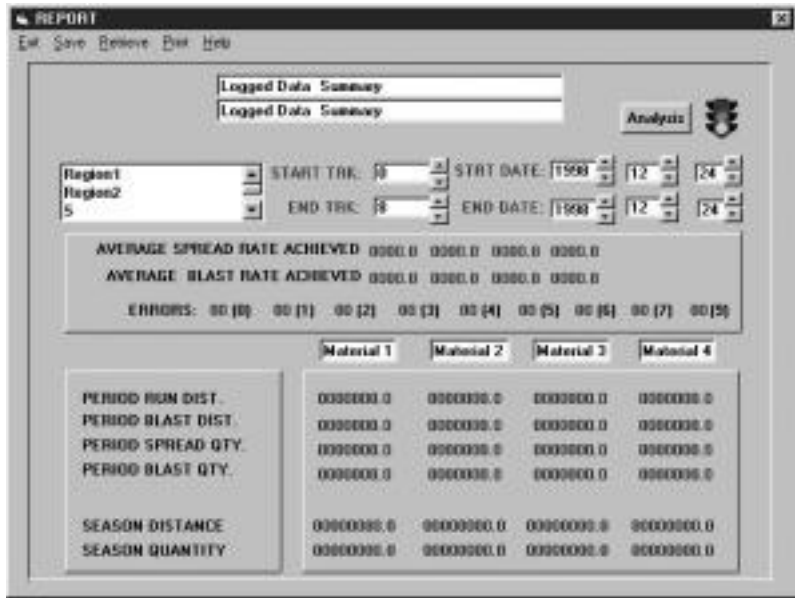
T O O L S O u t p u t

The Output function will allow you to convert a logged data file into a comma delimited text format so that it can be loaded into other spreadsheet software, such as Lotus or Excel. To output a file, select Output from the Tools Menu. Click on the file you wish to convert, and then click OK. At this point, a new file will be created with the extension .TXT. The new text file can be found in the Compuspread98 folder. This file can now be loaded into a Lotus or Excel spreadsheet.

D e l e t e

This function simply allows you to delete a file. You may delete either Calibration data files or Logged Data files. To delete a file, select Delete from the Tools Menu. Select Calibration or Logged Data. Click on the file you wish to delete, then click okay.

A n a l y s i s



This function allows you to view and analyze the Logged Data collected from your fleet. Select Analysis from the Tools Menu. There are two title fields on top where the text can be entered to identify the Summary Report. Select the region, which is to be analyzed. Multiple regions can be selected by holding the CTRL key and clicking on additional regions. Next, enter the range of truck numbers that are to be included in the report. This can be done by using the up/down arrows or by highlighting the field and typing them in. Enter the time frame using the same procedure. All four material names can be entered in the fields below or they will default to Material 1, 2, 3, and 4. Lastly click on the Analysis button on the top right corner. The screen will display "please wait" until the analysis is complete. This process could take a few minutes depending on the time frame and truck range selected. The information can now be saved (for instance, Region-1998102901.sum) or printed for future use.

The possible errors and number of occurrences are listed. Double click on the blue error number and a brief description of the error will appear. To close the Report Screen, select the Exit Menu.

**EXPLANATION OF
DATA COLLECTED**

There are two types of data collected by the CS-230 system:

1. CALIBRATION DATA
2. LOGGED DATA

CALIBRATION DATA

The CS-230 controllers may be calibrated (set-up) in several ways:

All of the set-up adjustments (parameters) and the auto calibration procedure steps may be accessed, one at a time, directly through the digital readout on the face of the CS-230 controller, without any other external devices. However an abbreviated name and a number identify these parameters only. The person doing this work must have a manual handy to rationalize his efforts. He must also go through each parameter setting of the CS-230 in every vehicle he is setting up to ensure the settings are correct for that truck.

If a Caliprompter is used, the person doing the set-up and/or the auto calibration procedure can read the parameter numbers and names as well as word prompts, one at a time, directly from the caliprompter's readout. With the on-screen instructions the caliprompter can be used to make all of the set-up adjustments and/or perform the auto calibration procedure with little or no additional help. Once a particular vehicle has been set-up, its calibration data may be uploaded to the caliprompter then downloaded to other vehicles equipped with the same spreader system. Also, up to eight different sets of calibrations data (identified by truck number) may be stored in a caliprompter. This upload, download and storage capability can save hours of vehicle set-up time.

Many set-up parameters may be viewed and/or changed at one time (in three rational groupings), on a PC screen. Adjustments can be made and the set-up information for eight different vehicles (identified by number) may be saved in one record. The file names given to the downloaded record describe the year, month and day the record was generated making the file management rational.

CAUTION: These three files share data and must be kept together in and/or copied together to the same directories, if the data is to be downloaded, customized and/or viewed within the software.

WARNING: See compatibility chart.

These records may be stored (along with others) on a disk.

LOGGED DATA

Benefits of logged data:

Troubleshooting is made easier by using the record kept, within a CS-230 (of type, time and circumstance) when each error occurs. This information may be accessed and analyzed for a complete understanding of the occurrence and therefore a plan of action can be taken.

Liability issues are quickly resolved by viewing logged data (such as vehicle speed, spread rate, etc.). The data can be downloaded and stored after each day that the vehicle has been spreading or the data, with respect to the last 100 events, can be accessed at anytime.

**EVENT
DESCRIPTION**

An event is generated:

- Each time the CS-230 is turned on
- A new spread rate has been selected for more than five seconds
- A new spread width has been selected for more than five seconds
- A new gate setting has been selected.
- A new material (Load) has been selected.
- If a data overflow occurs (i.e. too many miles or kilometers are accumulated within one event or too many pounds or kilograms of material are accumulated within this event).

If more than 100 events occur before the data has been uploaded, the next event will overwrite the first event that was stored. Therefore, only up to the last 100 events can be uploaded.

The use of the BLAST function and an error occurring will not generate a new event but will be registered within an event.

After the logged data in a CS-230 controller has been uploaded, the memory is automatically cleared as soon as ground speed is detected by the controller. However a season's distance and quantity information continue to accumulate until cleared deliberately from within the CS-230 programming mode.

Costs savings, spreading effectiveness and problem areas are also easily ascertained by analyzing logged data.

Logged data information includes:

The time and date that the data was uploaded along with the number of the truck that registered the data list. Also, the file names given to the uploaded record describe the year, month and day the record was generated, making file management rational.

These records may be stored (along with others) on a disk, or output in a .txt format for use in Lotus, Excel or other similar spreadsheet programs.

Records kept within each event:

1. The event numbers in the order that they occurred.
2. The day that the event occurred.
3. The spread rate that was selected (kg/km or lb/mi).
4. The time that the event started (hh:mm).
5. The length of time that the event lasted (hh:mm:ss).
6. The distance that the vehicle traveled (km or mi) including the distance the blast function was in operation.
7. The distance covered during blast function (km or mi).
8. The average speed of the vehicle (km/hr or mi/hr).
9. The quantity of material spread (kg or lb) including while the blast function was in operation.
10. The quantity spread during blast function (kg or lb).
11. The pause distance (km or mi).
12. The material number that was selected.
13. The gate opening number that was selected.
14. The number of the last error that occurred.

A summary of the four possible material types, for the time period since the last upload or the last 100 events, whichever covers the least number of events, including:

1. The distance that the vehicle traveled (km or mi), including the distance the blast function was in operation.
2. The distance covered during blast function (km or mi).
3. The quantity of material spread (kg or lb) including while the blast function was in operation.
4. The quantity spread during blast function (kg or lb).

A summary of the four possible material types, for the season to date, including:

1. The distance that the vehicle traveled (km or mi)
2. The quantity of material spread (kg or lb) including while the blast function was in operation.

**D A T A M A N A G E M E N T
C O M P A T I B I L I T Y
C H A R T**

Controller Cal/Dliu	CS-220 ver 2.3	C S - 2 2 0 ver 5.5	CS-230 ver 6.1/6.2/6.3 *auto cal. Bug *24hr event bug	C S - 2 2 0 ver 6.4
CAL ver 2.5	Data transfer >log data ok (non event data) >calibration ok System Requirements >DOS 5.0 or better >ver 2.0 software	N/A	N/A	N/A
CAL ver 5.5	N/A	Data transfer >log data ok >calibration ok System Requirements >ver 5.0 software >Windows 3.1/ DOS 5 or higher	N/A	N/A
CAL ver 6.0	N/A	Data transfer >log data ok >calibration ok* *wrong gate setting *wrong max blast output System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent)	Data transfer >log data ok >calibration ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *only for log data	Data transfer >log data ok >calibration ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *only for log data
DLIU ver 2.2	Data transfer >log data ok (non event data) System Requirements >DOS 5.0 or better >ver 2.0 software	N/A	N/A	N/A
DLIU v5.0/5.1 v5.2 (French)	N/A	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *if 3 blinks are not observed request for a new cable	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *if 3 blinks are not observed request for a new cable	not compatible

**D A T A M A N A G E M E N T
C O M P A T I B I L I T Y
C H A R T**

Controller	CS-220 ver 2.3	C S - 2 2 0 ver 5.5	CS-230 ver 6.1/6.2/6.3 *auto cal. Bug *24hr event bug	C S - 2 2 0 ver 6.4
Cal/Dliu				
DLIU v5.3 v5.4 (French)	N/A	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *if 3 blinks are not observed request for a new cable	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *if 3 blinks are not observed request for a new cable	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent) *if 3 blinks are not observed request for a new cable
CAL/DLIU v6.0	N/A	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent)	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent)	Data transfer >log data ok System Requirements >v5.5 software(win3.1/dos) >v6.1(win95/NT/Pent)