

GPD GLOBAL®

CF-8 FORMULA CALCULATOR SOFTWARE

USER'S GUIDE

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GPD Global®

611 Hollingsworth Street
Grand Junction, CO 81505
(970) 245-0408 FAX (970) 245-9674
web: www.gpd-global.com email: request@gpd-global.com

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1.0 INTRODUCTION

The CF-8 Calculator Software package (Part No. CF8CALPKG) calculates station settings and die requirements on a customer-supplied IBM PC/XT compatible computer for use on the GPD CF-8 Precision Lead Former.

This software assists with set-ups and new forms. **Operator set up is faster and a lot more accurate.** Just enter the values of the component dimensions, forming parameters, and form type. Strike one function key and the computer automatically calculates all station settings and recommends appropriate dies. If parameters are selected outside the limits of the machine, the program will suggest an optional form or different die selection. This protects the machine from damage due to improper set up.

GPD Global®'s CF-8 Precision Lead Former shears and forms leads for a wide variety of axial electrical components. Simple die changes enable the CF-8 to produce many different forms of leads with minimal effort on the part of the machine operator.

2.0 FEATURES

Software residing on the customer-supplied computer communicates with the operator through a series of user-friendly menus and data entry screens, eliminating the need for the operator to know anything about computers. The engineer and/or operator calculates machine settings through the keyboard. Except for selection of a part number, the user does not need to be familiar with a typewriter keyboard beyond using various function keys.

An operator or engineer who is familiar with the use of menus and data entry on a computer can begin using the CF-8 Calculator Package with no additional training beyond acquaintance with the CF-8.

2.1 THE DATA BASE

The CF-8 Calculator Package maintains a data base of known parts in the attached computer. Information is referenced by part number, which may consist of a primary and secondary number. The operator can find a desired part number knowing only a portion of the number.

2.2 DEFINING A PART

The engineer can easily enter new data or change existing data for a part. In general, the engineer enters only known information about the part such as part sizes and desired final form. Dies required and die adjustments are calculated automatically.

2.3 DIE SELECTION AND ADJUSTMENT

In most cases, the operator simply uses a part number to select the part to process. The CF-8 Calculator Package then tells the operator what dies to install. After dies are installed, the operator adjusts the machine as required for the selected part.

2.4 SECURITY

The engineer can define passwords to restrict selected features of the CF-8 Calculator Package to use only by authorized personnel.

2.5 REPORTS

The CF-8 Calculator Package offers the ability to generate printed reports of material on the data base. These features require the installation of a printer using Epson-compatible controls as LPT1.

The major selections across the top of the menu allow you to perform functions as follows:

3.1.1 Programs

This option allows you to create or modify parts in the data base. You can define a new part or select a part to modify after selecting PROGRAMS.

3.1.2 Reports

This option allows you to print selected types of reports if you have a printer attached to the customer-supplied computer. You may be able to limit the range of material printed after selecting one of these options. If the printer is not ready, the software will wait until it is ready; if there is no printer attached, the software ignores the request.

3.1.3 Backup

This option allows you to format disks and create a backup of the CF-8 Calculator Package software and data base to the formatted disks.

NOTE: Current backups should always be available in case the data base is accidentally destroyed by a power failure or other disaster.

3.1.4 Exit

This selection exits to the MSDOS monitor on the computer. It is usually password-protected and is usually used only to restore the data base from backup disks.

4.0 CREATING/CHANGING PROGRAMS

New CF-8 Calculator Package programs are created or changed by selecting PROGRAMS from the main menu. When this option is selected, the Access Program Information screen (Figure 4) is displayed.

4.1 ADDING A NEW PROGRAM

There are two ways to create a new CF-8 Calculator Package program. If the new program is similar to an existing program, you can duplicate the existing program and edit it by modifying program screen with different function key options; this process is described in Section 4.2 *Changing Existing Programs*. To create an entirely new program not based on an existing program, press [F1] (ADD) in the Access Program Information screen. This displays an empty program screen similar to Figure 4.

```

CF-8/CF-12 Calculator - Access Program Information

Primary Part Number
Secondary Part Number
Description

Body Diameter      0                Center To Center    0
Body Length        0                Protrusion          0
Wire Diameter      0                Stand-Off           0
Board Thickness    0                Stress Relief Forming Plate 0
Hole Diameter      0

Form Description                Ejector Blade 0
    
```

Figure 4 Access Program Information Screen

To create the program, begin by filling in the part number and description entries with the desired information (see sample program screen, Figure 5). Enter the raw part characteristics Body Diameter, Body Length, and Wire Diameter as integers (in units of .001 inches or .01 mm depending on your configuration). Then enter the PC board characteristics of Thickness, Hole Diameter, and mounting characteristics of Center To Center hole spacing, Protrusion through the board, Stand-Off spacing, and the Stress Relief Forming Plate (if used) in the same units.

Note that some of the characteristics may have minimum and/or maximum acceptable values. If you enter a value out of the acceptable range, an overlaid display will indicate the acceptable values.

Next move to the Form Description and press [Enter] to display a list of supported forms. Use the [Up ↑] and [Down ↓] to select the desired form and press [Enter]. Available forms and their names are shown in Appendix *Form Descriptions*; consult this appendix if, necessary, to obtain the required form name.

Once a form has been selected, press [F1] to calculate the remainder of the entries. If no calculation errors occur, the remainder of the screen is filled with the calculated information. If the calculation was not possible, a Help screen appears with information about why the calculation failed and what you can do to correct it. (If the Help screen exceeds the size of the display, use [Up ↑] and [Down ↓] to see the rest of the screen). Correct the problem and recalculate.

If you wish to use dies other than those recommended by the software, move to the desired die description (other than Stations 4 (top) or 5 (top)) and press [Enter]. If dies are allowed in that station for the selected form, a list will appear. Use the [Up ↑] and [Down ↓] to select a die and press [Enter]. Then press [F1] to recalculate the station settings.

When the calculation is complete, you can test the program by installing the proper dies. Then adjust the machine and run several parts. If any values need changing, change them and repeat the process. Whenever a dimension is modified, pressing [F1] will recalculate both the die descriptions and the station settings. If only a die description is modified, pressing [F1] will only recalculate the station settings.

When you are satisfied with the program, press [F10] to save it. To exit without saving the program, press [Esc].

4.2 CHANGING EXISTING PROGRAMS

To change an existing program (or to create a copy of an existing program as a starting point for creating a new program), the existing program must first be displayed. To locate a program, press [F3] (Search) and select the desired program. To see a list of available programs, press [Enter]. A filled-in screen such as that shown in Figure 5 appears.

If you want to change the program displayed, press [F2] to edit. To create a new program from an existing program, press [F9] (Duplicate), change the part number to the new part number, and press [F10] to establish the new program.

To edit the displayed program, simply change the entries as needed, press [F1] to recalculate and [F10] to save the changes. All operations are the same as when adding a new part.

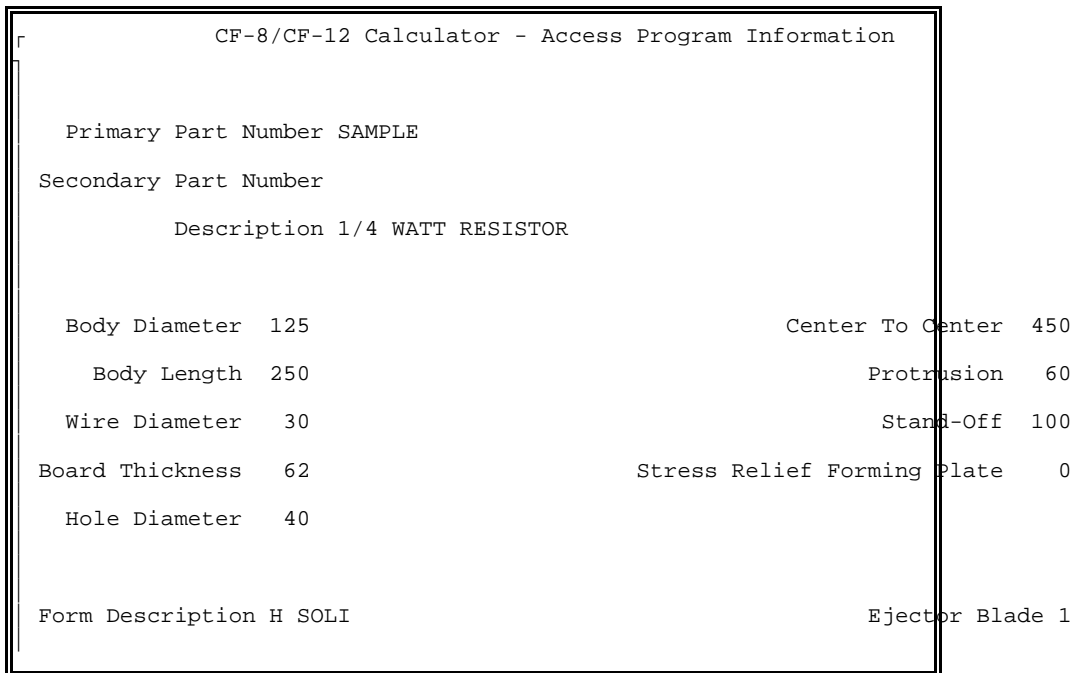


Figure 5 Existing Program Screen

4.3 DELETING A PROGRAM

To delete an existing program, first display it (using the Search function, [F3], if necessary). Then press [F4] (Delete). Press [Y] in response to the message, then press [Enter]. Be sure you want to do this: once a program is deleted, it cannot be restored.

4.4 PRINTING A PROGRAM

If your computer has a printer attached, the program data can be printed. First display the desired program (using the Search function, [F3], if necessary). Then press [F6] (Print). If the printer is not ready, the software waits until it is ready; if there is no printer attached the request is ignored.

5.0 REPORTS

Program data can be printed, if the computer has a printer attached, by selecting one of the options from the sub-menu under REPORTS on the main menu. If no printer is attached, the request is ignored. If a printer is attached but not ready when a print request is made, the software waits for the printer to become ready.

5.1 LIST ALL PROGRAM INFORMATION

This option first requests a part number, then prints all data associated with the part. It is essentially the same as requesting Print from the PROGRAMS option.

5.2 LIST BY PART NUMBER RANGE

This option requests a primary part number. If you supply no part number, all part numbers are printed. If you supply only a partial part number, all part numbers starting with the supplied characters are printed.

This option allows you to select printing of detail data (the same printout as produced by LIST ALL PROGRAM INFORMATION), or printing of a reduced list containing only primary and secondary part numbers with descriptions.

5.3 LIST BY DESCRIPTION RANGE

This option requests a part description rather than a primary part number. If you supply no description, all part numbers are printed. If you supply only a partial description, all part numbers having descriptions starting with the supplied characters are printed.

This option allows you to select printing of detail data (the same printout as produced by LIST ALL PROGRAM INFORMATION), or

printing of a reduced list containing only primary and secondary part numbers with descriptions.

6.0 **BACKUP**

The BACKUP option on the main menu allows backup to floppy disk of all files in the CF-8 Calculator Package. **Backups are important!** In case of a local disaster, they allow you to restore your system with minimal loss. It is recommended that you back up your files once a week or whenever a large number of programs have been created or changed. Keep the backups in a safe place.

If you are using the stand-alone version of the CF-8 Calculator Package software, you can transfer data between the CF-8 (or CF-12) and the stand-alone system with backup disks. Simply back up the data on one system and restore it on another.

NOTE: The BACKUP option on the main menu can only be used with MSDOS versions 5.0 or earlier.

6.1 **FORMAT**

Prior to selecting BACKUP, a sufficient number of formatted disks must be available for the backup. The FORMAT option allows you to format disks in preparation for a backup. In general, you should format one more disk than was needed for the last backup assuming a regular backup schedule.

WARNING: Formatting destroys any data on the disks!

Do not format the disks used for your prior backup. Always keep the last set of backup disks until the next set is complete. It is preferable to keep at least 3 consecutive sets of backup disks.

6.2 **BACKUP**

To back up data files, obtain a sufficient quantity of formatted disks and select BACKUP from the menu. The software prompts for new disks as needed. As each disk is removed, label it with the date, number of the disk, and any other information pertaining to the backup. When backup is complete, store the disks in a safe place.

6.3 RESTORING DATA

To restore data from backup disks, first select EXIT from the main menu. When the MSDOS prompt appears, mount the first disk of the backup set and type

RESTORE A: C:[Enter]

to begin the restore. You will be prompted to mount the backup disks in order as they are needed.

When the restore is complete, type

CF12[Enter]

to restart the CF-8 Calculator Package software.

NOTE: RESTORE can only be used with MSDOS versions 5.0 or earlier.

7.0 SYSTEM CONFIGURATION

Many features of the CF-8 Calculator Package are flexible, allowing the individual site to select options tailored to the needs of the site. These features include passwords, operator restrictions, and details such as whether units of displayed values are in inches or millimeters.

To change the system configuration, move the highlight on the main menu to CONFIG. The main menu displays the configuration options shown in Figure 6. Select the appropriate item to perform an operation as described in the remainder of this chapter.

```
CF-8/CF-12 Calculator - Main Menu
-----
|
| RUN  PROGRAMS  REPORTS  BACKUP  CONFIG  EXIT
|-----|
|                                     | Calibration Mode
|-----|                                     | Passwords & Tweak Enables
|-----|                                     | Set Access Levels
|-----|                                     | System Limits
|-----|                                     | Tool Change Settings
|-----|                                     | Environment Options
|-----|-----|
|
|
|
|
|
|
```

Figure 6 Configuration Options

7.1 PASSWORDS & TWEAK ENABLES

The engineer can assign passwords for the operator and engineer and can restrict the use of tweak mode. Select **PASSWORDS AND TWEAK ENABLES** from the main menu; the screen shown in Figure 7 appears.

Enter the passwords for the operator and engineer (the operator password is not effective if the engineer password is blank). This screen only defines passwords; passwords must be enabled with **SET ACCESS LEVELS** before they are effective.

Whether tweaking is allowed (enabled) and whether tweak changes may be saved only applies to control software on the CF-12. Ignore this function if using the software as a calculator.

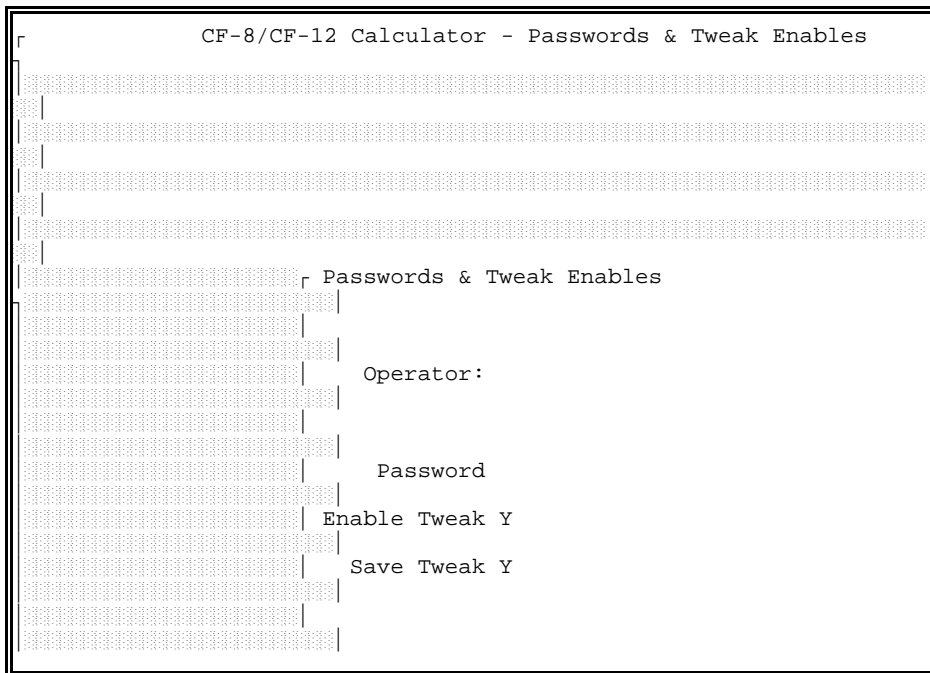


Figure 7 Passwords and Tweak Enables Screen

7.2 SET ACCESS LEVELS

The operator can be allowed or denied access to various system features. To change these restrictions, select SET ACCESS LEVELS from the main menu; the display shown in Figure 8 appears. For each feature, Level 0 allows access with no password; Level 1 allows access with the operator password or the engineer password; and Level 2 allows access with the engineer password only. (Passwords are defined with the option PASSWORDS AND TWEAK ENABLES).

Each entry in Set Access Levels Figure 8, controls access to a display screen. Two entries on the list control access to the PROGRAMS and EXIT options on the main menu. The other entries control access to sub-menus of the CONFIG option on the main menu.

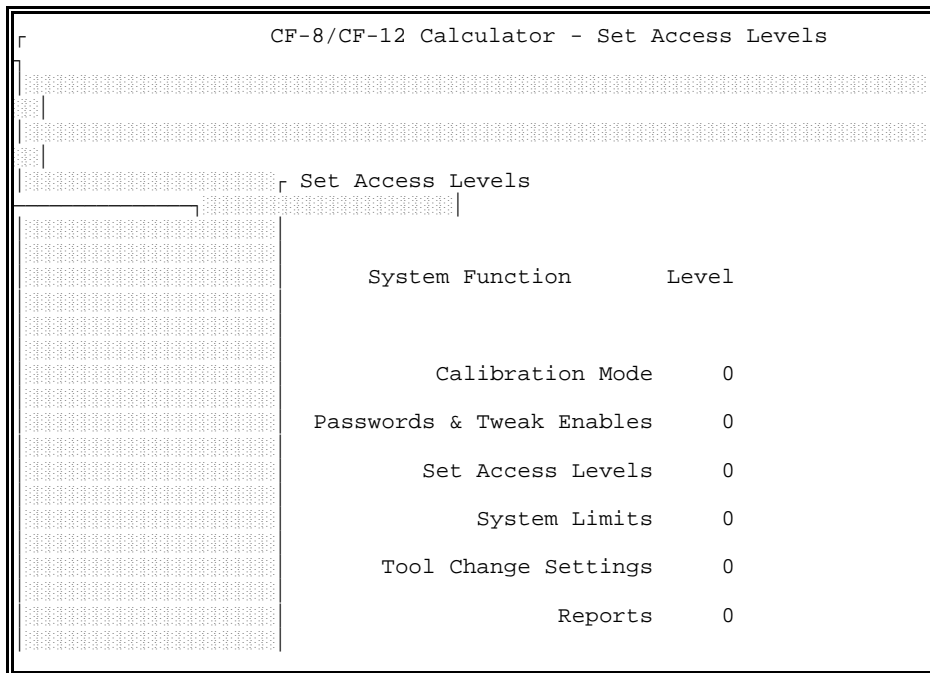


Figure 8 Set Access Levels Screen

7.3 SYSTEM LIMITS

Not applicable to the CF-8 Calculator Package.

7.4 TOOL CHANGE SETTINGS

Not applicable to the CF-8 Calculator Package.

7.5 ENVIRONMENT OPTIONS

Various internal options can be configured as needed by selecting ENVIRONMENT OPTIONS from the main menu. The screen shown in Figure 9 appears.

Units for display and data entry can be set to inches (I) or millimeters (M) as desired. This value can be changed at any time; existing data are displayed in the selected units regardless of the units used to enter the data.

Detail Parts per Page can be set to 1 or 2.

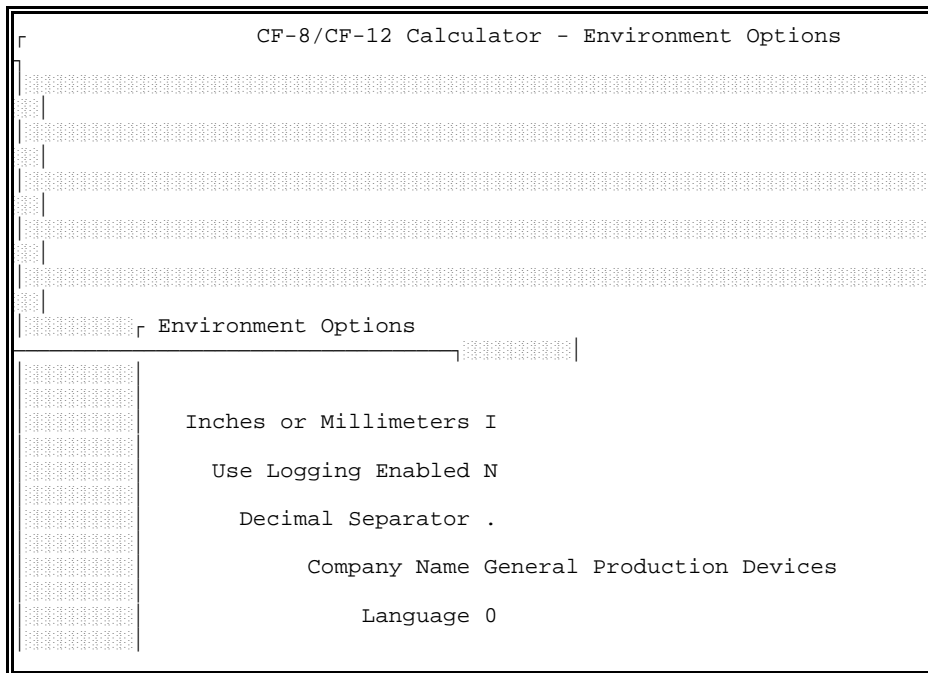


Figure 9 Environment Options Screen

The character used as a decimal separator can be chosen by the site. This character is usually a period for English-speaking sites or a comma for many European sites.

8.0 EXIT TO MSDOS

The EXIT option on the main menu exits from the CF-8 Calculator Package software to the MSDOS operating system. This option is not needed for most CF-8 (or CF-12) operations and is normally disabled for operator usage.

Typically, this feature is used for only two purposes: to restore data from backup disks as described in Chapter 6 *BACKUP*, and to install updated versions of the CF-8 Calculator Package software as described in Chapter 9 *INSTALL SOFTWARE UPDATE(S)*.

9.0 INSTALL SOFTWARE UPDATE(S)**9.1 FIRST TIME INSTALLATION**

If you are installing Version 2.5 of the software on the CF-12 for the first time, or you are installing the CF-8 Calculator Package on a hard disk, perform the following set of instructions applicable to the type of operating system used by your computer:

Windows Operating Systems:

1. Place the new software disk in Drive A. Select Programs > MS-DOS Prompt from the Windows Start button.
2. At the C:\WINDOWS prompt, create a directory by typing the following:

MD CF12 [Enter].
3. Copy the CF-8 Calculator Package onto the C: drive by typing the following:

COPY A:*.* C:\WINDOWS\CF12 [Enter].

DOS Operating Systems:

1. Place the new software disk in Drive A. At the MSDOS prompt, type

A:INSTALL [Enter]
2. Follow the instructions given in the install program.

9.2 RUNNING CF-8 CALCULATOR PACKAGE FROM A FLOPPY DISK

If you do not have a hard disk and would like to use the CF-8 Calculator Package on a floppy system, perform the following set of instructions applicable to the type of operating system used by your computer:

Windows Operating Systems:

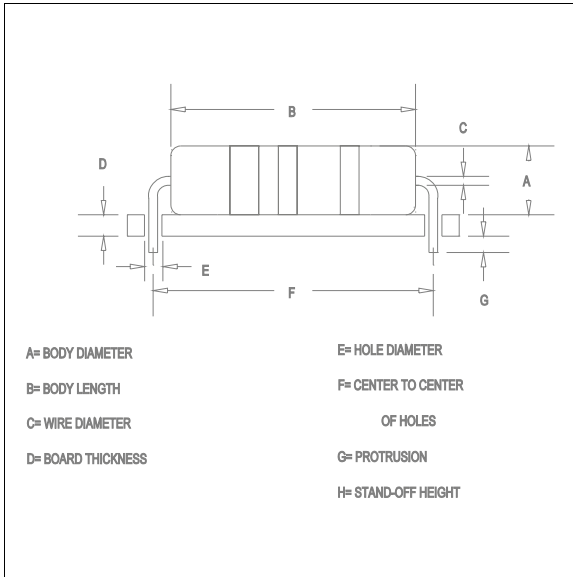
1. Place the CF-8 Calculator Package disk in Drive A.
2. Double-click on the Windows "My Computer" icon.
3. Double-click on the Floppy (A:) drive selection.
4. Start the CF-8 Calculator Program by double-clicking on the A:\CF12CALC.EXE file.

DOS Operating Systems:

1. Place the CF-8 Calculator Package disk in Drive A. At the MSDOS prompt, type

A: [Enter]
CF12 [Enter]
2. At this point the CF-8 Calculator Package software will load and run.

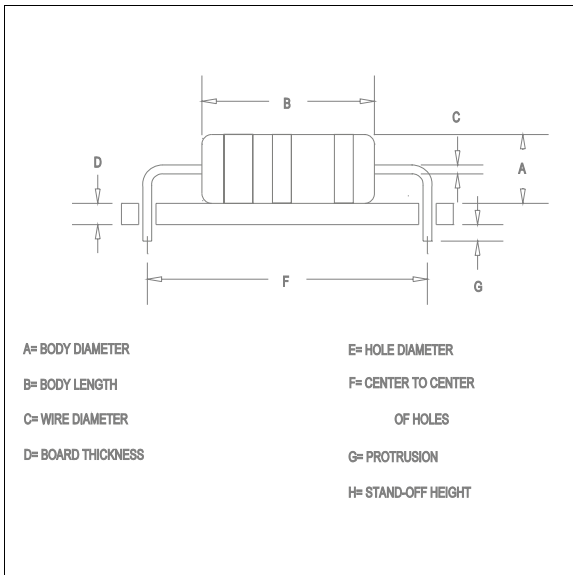
APPENDIX FORM DESCRIPTIONS



H CTC

Horizontal Center To
 Center

Max Lead Dia. .030"

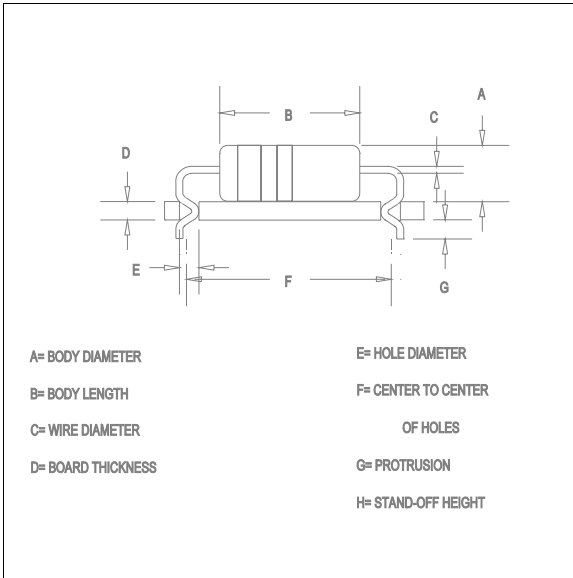


H FM

Horizontal Flush-Mount

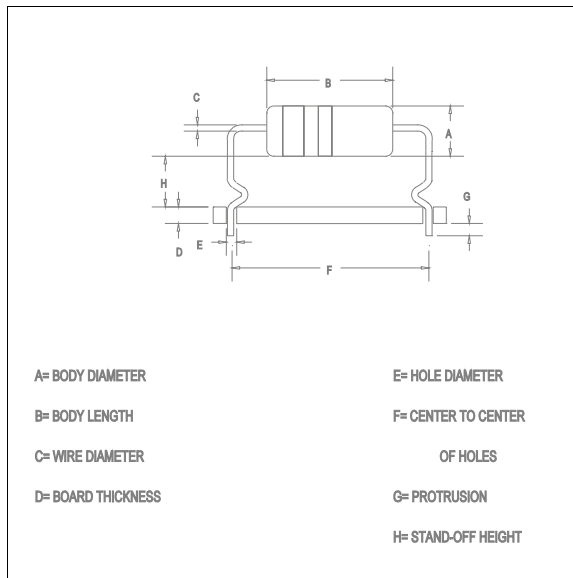
H FM CO

Horizontal Flush-Mount
 With Cutoff



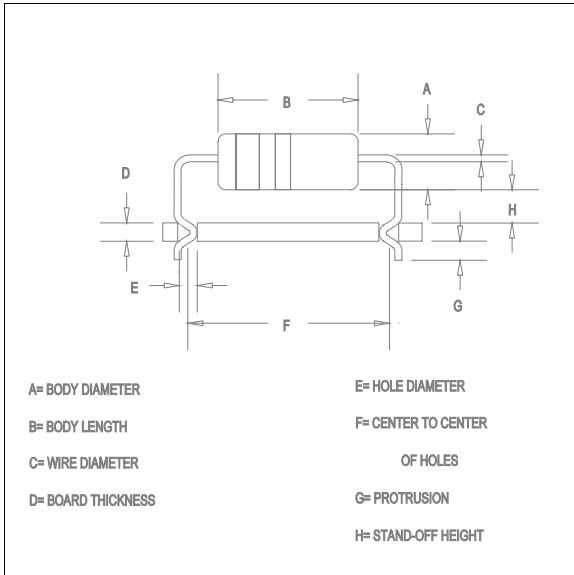
H FMLI
 Horizontal Flush-Mount
 Lock-In

H FMLI CO
 Horizontal Flush-Mount
 Lock-In With Cutoff



H SO
 Horizontal Stand-Off

H SO CO
 Horizontal Stand-Off
 With Cutoff

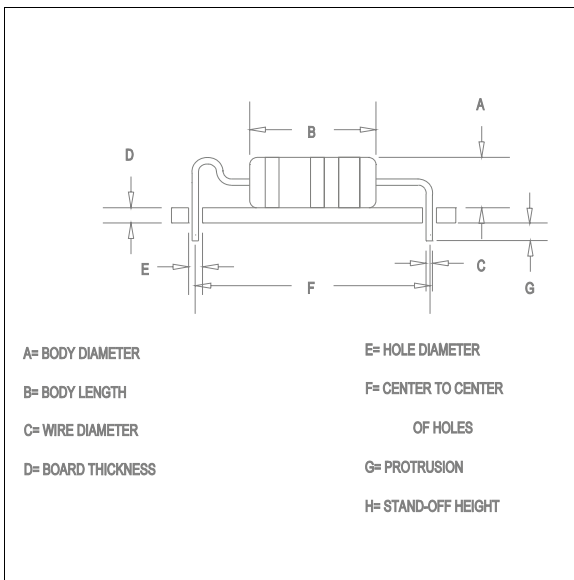


H SOLI

Horizontal Stand-Off
 Lock-In

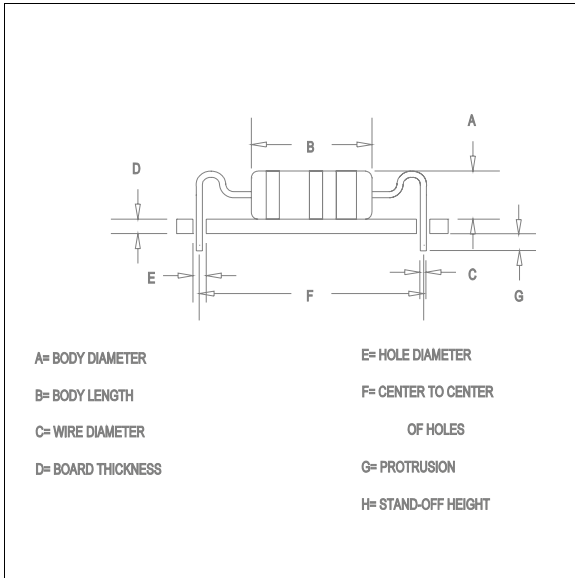
H SOLI CO

Horizontal Stand-Off
 Lock-In With Cutoff

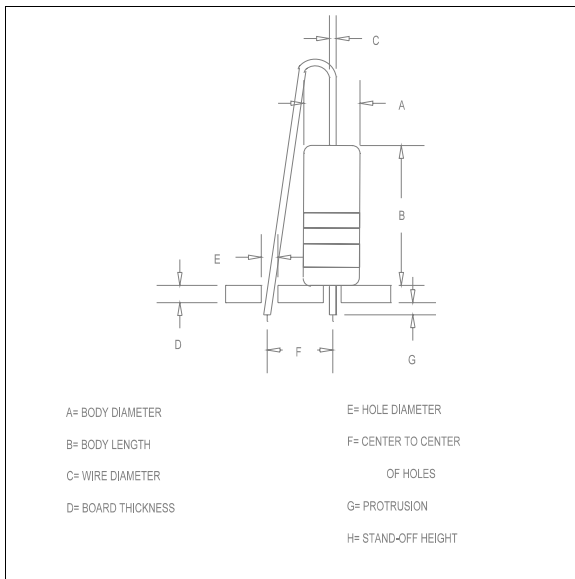


TYPE 2A MSR SGL

Type 2A Military Stress
 Relief (Single Hump)

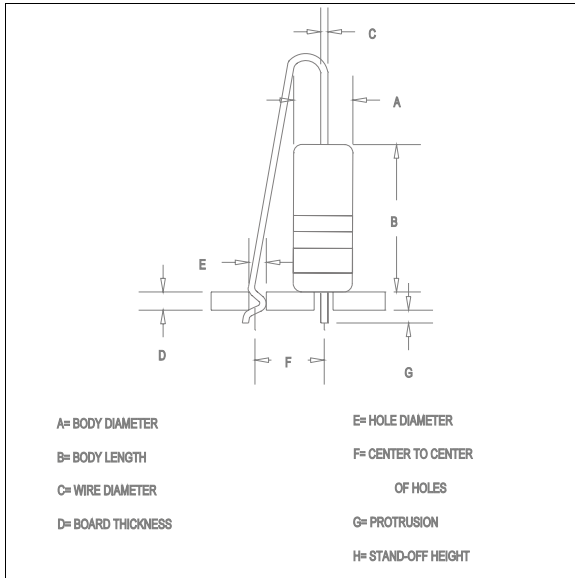


TYPE 2A MSR DBL
 Type 2A Military Stress Relief (Double Hump)



V FM
 Vertical Flush-Mount

V FM CO
 Vertical Flush-Mount With Cutoff

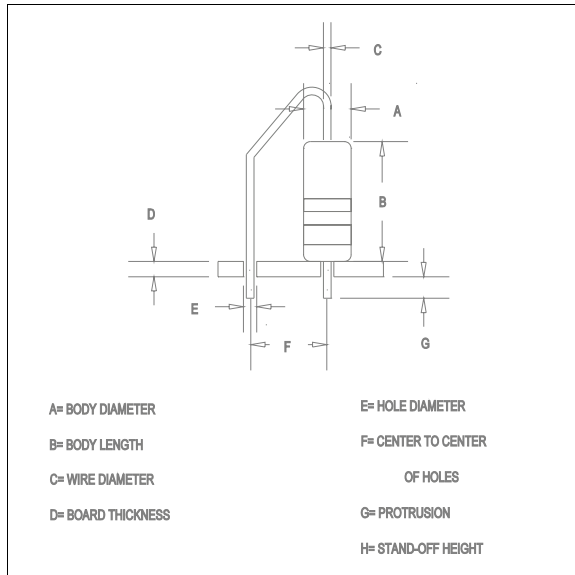


V FMLI

Vertical Flush-Mount
 Lock-In

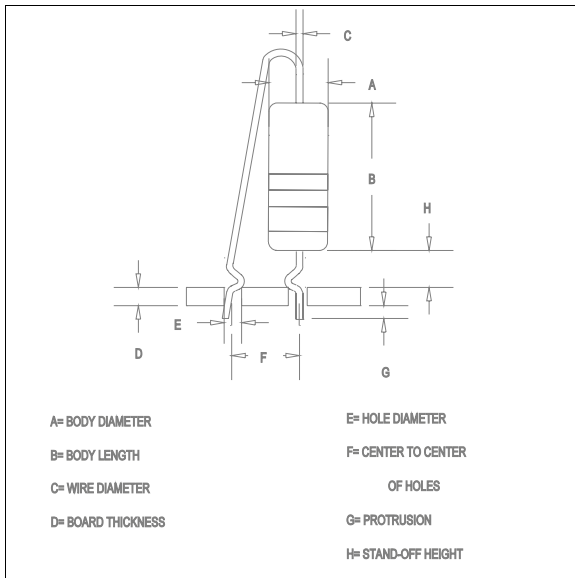
V FMLI CO

Vertical Flush-Mount
 Lock-In With Cutoff



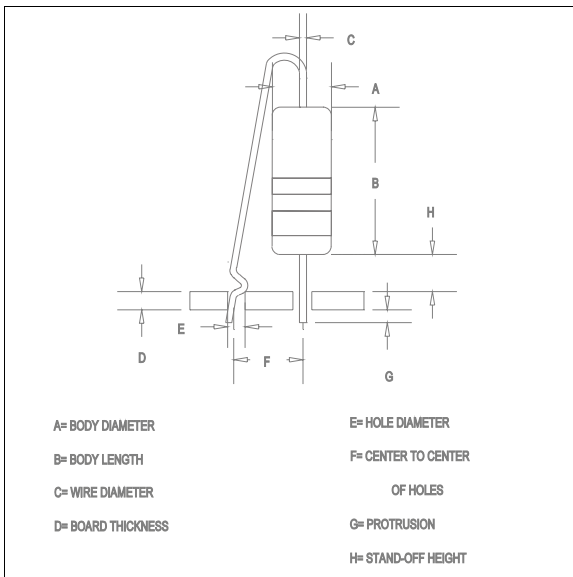
VP FM

Vertical Parallel
 Flush-Mount



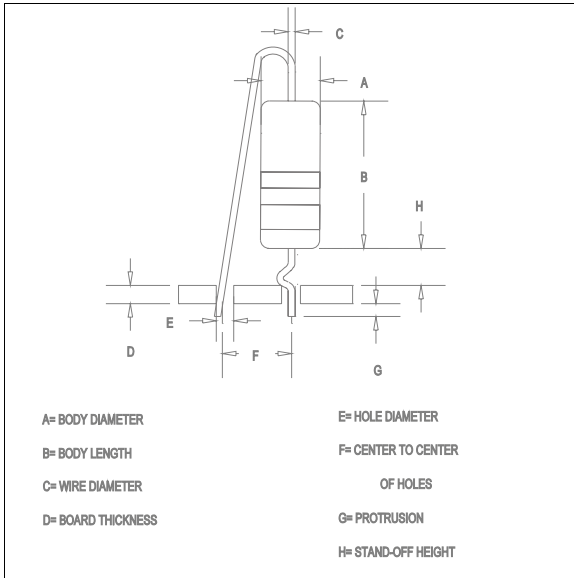
V SO B
 Vertical Stand-Off
 (Both Leads)

V SO B CO
 Vertical Stand-Off
 (Both Leads) With Cutoff



V SO L
 Vertical Stand-Off
 (Long Lead)

V SO L CO
 Vertical Stand-Off
 (Long Lead) With Cutoff

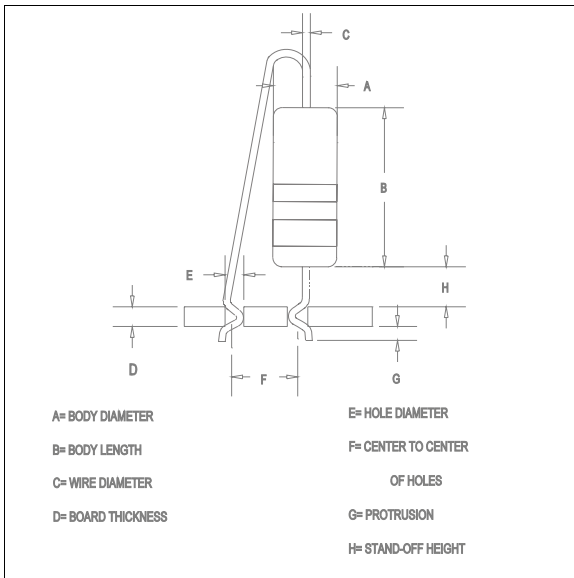


V SO S

Vertical Stand-Off
 (Short Lead)

V SO S CO

Vertical Stand-Off
 (Short Lead) With Cutoff

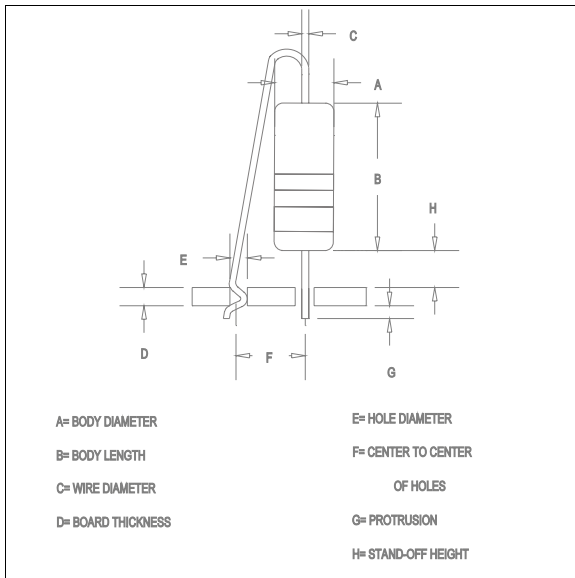


V SOLI B

Vertical Stand-Off Lock-In
 (Both Leads)

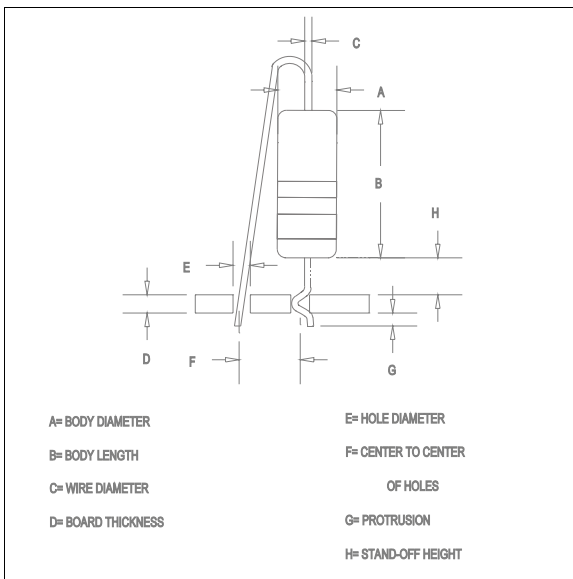
V SOLI B CO

Vertical Stand-Off Lock-In
 (Both Leads) With Cutoff



V SOLI L
 Vertical Stand-Off Lock-In
 (Long Lead)

V SOLI L CO
 Vertical Stand-Off Lock-In
 (Long Lead) With Cutoff



V SOLI S
 Vertical Stand-Off Lock-In
 (Short Lead)

V SOLI S CO
 Vertical Stand-Off Lock-In
 (Short Lead) With Cutoff