Galva

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this help file is for Galva V1.82

Galva is a programme specially designed to draw galvanometer, potentiometer, VC and switch scales. The programme is a graphic command interpreter which supports colours and offers numerous possibilities in the field of designing linear or non linear scales.
You can also use it for the design of complete front panels and drilling layouts, as well as for many other applications, such as the printing of log sheets, of cross-section paper (with lin/log scales) are possible. Galva is provided with many examples and you can imagine many more !

Before using the programme, you are required to read the Conditions of Use and accept and comply with them.

Language: from version 1.60 onwards, Galva has become multilingual, i.e. it can easily function in different languages. To add a new language, you must volunteer to translate all texts contained in the programme, as well as this help file, into the target language. If you know how to use Galva and are willing to become a "language correspondent", please contact the author.

Summary:

To print the Help, print this page then the four main chapters listed below (-):

Go to next chapter

Introduction

This programme was first created to design galvanometer scales, then it was developed to draw scales for potentiometers, VCs and so forth. Therefore this Help file deals mainly with the designing of galvanometer scales, but of course the principles apply in all cases. Both straight and curved scales can be drawn. The programme has a large number of possible applications, and so a minimal amount of time must be spent to learn how to use it. This Help file and the many examples contained in the programme have been created to help you get started. How long do you think it took to write the programme and the Help file? So sit down and get started by reading this Help file, it will help you save time and be more efficient.

Galva is a **command interpreter**, i.e, you will have to write a kind of programme which describes what you intend to draw. To do this, you must use different commands or instructions.

Example 1: Cercle = 20, 30, 10 draws a circle whose centre is 20 mm right to and 30 mm above the reference point which is by default the left bottom limit, and whose radius is 10 mm.

Example 2: Texte = 20, 40, bleu, GC,My Text will produce "My Text", bold and centered, at coordinates 20, 40.

Of course, it helps if you are familiar with programming – whatever the language. But starting out with Galva can also be an introduction to programming. The programming is sequential, that is, commands are executed in their order of appearance in the code (or programme). If an instruction draws a big white circle, everything there which has previously been drawn will become hidden by the circle. The Stop command will help you spot that kind of mistake easily.

After launching the programme, you will see on the left side of the screen a "screen quality" graphic representation of the design as it will be printed (on the default printer) and on the right side of the screen the "coded" text describing it. At the bottom, near the "code" window are the coordinates of the **mouse** when it is located in the graphic window (see note under CT command and RefCur menu), and, in the "L CurrentLine/TotalNumberOfLines" form, the **number** of the "code" line being edited. Please bear in mind that the screen resolution is generally inferior to the printer's resolution; therefore the thickness of lines on the screen, for example, does not exactly match the printed output, excepted when the zoom ratio is sufficient.

This programme works on the Windows platform, so you can use the mouse or the keyboard shortcuts to execute commands from the Windows menu.

Getting Started

Let's have a quick look to the **menu.**

File gives access to a sub menu which allows you to:

- **Open** a file,
- Create a **New** graphic (by loading the Galva.daN file, which can be edited),
- **Import Meterfile**: import a file as generated by WB6BLD Jim Tonne's "Meter" programme,
- **Save**: save the current file (whose name is shown in the top banner),
- **Save As**: save as a file with another name,
- **Choose Printer:** choose a default printer,
- **Print**the graphic representation of the code in the right window,
- to **Zoom Print**the graphic representation of the code from the right window , i.e with the possibility to modify the X and Y scale factors. (It goes without saying that when using a factor different from 1 the dimensions are no longer in millimetres).
- **Print Code**(the code files are ASCII text files; they may be edited or printed by way of any text editor, but in that case without the colours).
- Or **Quit** (leave) the programme.

Syntax opens a window reminding you how to access rapidly a command syntax (**F2** key).

Visualise shows the graphic representation of the code in the right window. You have to use this menu or its shortcut Alt-V each time you want to check the result of a code modification.

Zoom (keyboard shortcut : **F7**) opens a small window allowing to define the **zoom level** on the screen. The

current value is selected when the window opens, so all one has to do is enter a new value and press carriage return in order to validate the new value. At the bottom of this window a correction factor, which allows to get exact dimensions in mm for a zoom ratio of 1, may be entered. This correction factor is saved in the configuration file and needs being entered only once. When clicking on "Zoom" with the Ctrl key depressed, (keyboard shortcut : **Ctrl-F7**), the zoom ratio returns to the ZoomIni value in use when code was last executed..

RefCur (keyboard shortcut : **F8**) allows to define a reference point (0,0) to display the cursor coordinates to show the coordinates of objects defined after a CT command. The coordinates of this point are given in relation to the CentreE command. When there is no CentreE command, the reference is the bottom left corner of the graphic. In all cases, the presence of the letter Z at the end of the coordinates (0,0z) informs that it is the bottom left corner which must be the reference. When clicking on RefCur with the Ctrl key depressed (keyboard shortcut : **Ctrl-F8**), the coordinates are again displayed in relation with the CentreE command, or 0,0 by default.

Options gives access to a sub menu:

- when **Double-Click** is checked, double-clicking in the graphic window copies the mouse coordinates into the code at the current position of the cursor. Caution : the coordinates are relative with regard to the last entered CentreE command or to the point defined in **RefCur**, regardless of the CT commands .
- to hide/ show the **Code** window of the programme (keyboard shortcut : **F5**),
- to enlarge the code window by **Enlarge Code** (Shift-F5),
- to go back to the default code window width by **Init. Code** (Ctrl-F5),
- **CentreCursor** (Ctrl-O) to center the cursor within the graphic window,
- **Patches** in order to activate options : option number 1 allows you to settle a character positioning programme which appeared under Windows XP when characters are drawn with a 0, 90, 180 or 270 degree angle, option number 2 allows to print by leaving the Printer menu,
- to permits you to Choose a **Language**.

Colour shows a colour palette. Leaving the window with OK enters the RGB values of the selected colour into the code window at the current position of the cursor.

Printer Fonts List shows what fonts are available for printing and therefore usable. When leaving the window by choosing "OK" the font name is inserted into the code window at the current position of the cursor.

Finally, **Help…** gives access to a sub menu :

- **Help** (or pressing the **F1** key) shows this Help file,
- **Word Help**(Shift-F1) gives direct access to the help file regarding the selection or the word under the cursor in the text zone.
- whereas **About Galva** gives informations about the programme.

Examples

Numerous examples, or models, are contained within the programme. To visualise or print them rapidly, go to "File", "Open" and pick one of the files (default extension : .dat). For printing (which is highly advisable, since screen pictures are of a lesser quality), go to "File" then "Print". To get a general idea of the programme's capabilities, print the files whose names below are in blue.

Content of the example files:

- **GalvCmd1** a command file giving examples of several types of galvanometer scales. (On the screen, it is normal that everything may be superimposed);
- GalvCmd2 a small front panel;
- **GalvCmd3** examples of lights, polygons, arrows, etc.;
- **GalvCmd4** to print GalvCmd2 et GalvCmd3;
- **GalvCmd5** to print other examples of galvanometer scales;
- **GalvCmd6** a command file calling files containing the "CentreE/I" and "CT" commands;
- GalvCmd7 a command file calling files containing the "CT" command, but without the "CentreE/I" command;
- **GalvEx*** galvanometer scales;
- **GalvEd*** straight horizontal scales;
- **GalvEv*** straight vertical scales;
- **GalvPot*** potentiometer scales;
- **GalvPot7** same as GalvCmd2, but without calling files;
- **GalvCv*** VC dials;
- **GalvInt*** switches;
- **GalvCom*** rotary switches

- **GalvDiv** pictures, lights, polygons and miscellaneous;
- **GalvDiv2** straight and curved arrows;
- **GalvPerc** drilling layouts (calls GalvBNC);
- **GalvLog** log sheet;
- **GalvTest** to ajust or check scaling factors and to see both angular graduations being used;
- **GalvDes1** drawings;
- **GalvQA*** dove tails for woodwork, cabinet making;
- **GalvPLog*** cross-section paper with lin/log scales;
- GalvPal* colour palettes.

Print **GalvPot0** in order to measure angles of VC's, potentiometers, etc… before drawing.

Position of the graphic on the screen

The bottom left corner of the graphic window corresponds, by default, to the bottom left corner of the whole graphic. However, pressing the **F6** key updates the display by placing the cursor in the centre of the graphic window. If the DoubleClic item in the Options menu is not checked, a **DoubleClick** of the mouse has the same effect. The areas below and left of the graphic are shown in grey on the screen.

Pressing the **F6** key when **Ctrl** is depressed allows returning to the normal position, and so does a **DoubleClick** (cf the above restriction) with the **Ctrl** key depressed.

Tips

In order to draw a perfect scale or dial you may, once the code seems well written, print your design on a transparency in order to superimpose it onto the original scale or dial and make sure that the design is satisfactory.

Caution: before removing a dial from a galvanometer, be careful of the powerful magnet it contains. Therefore, work on a bench with plenty of clear space so that nothing can be attracted by the magnet while you disassemble the meter, and … be very careful about the needle.

Next, it may be convenient to print on a self adhesive label, cut the label along the border, and paste it over the old design. This is the most difficult part: to paste the label exactly where it belongs! Alternately, you may choose to print on photo quality paper and use spray glue. A light box (or simply a well-lit window) will allow you to see through the label and put it in its right place.

Getting started with the code

Notes:

*- A quick summary of the syntax of any command can be displayed **by pressing the F2 key**. As long as the key is depressed the information relevant to the code line at the cursor's current position will be displayed. For more details put the cursor on the command and press Shift-F1.*

- In order to quickly get the description of a command, you may also go to the Summary of the Syntax submenu, where the commands are in alphabetical order, and double-click on the relevant command.

- In order to continue writing code on more than one line, terminate the line by " _" (space underscore, see GalvDes1).

The easiest way to start is to use an example, to modify it and to observe the result. **Do not erase a command, put an apostrophe in front of it to neutralise it.** Don't worry if the dimensions on the screen are not right, we'll see later, if need be, how to correct this by using the correction's factor in the "Zoom" menu. Bear in mind that anyway, for printing, there is no problem.

The description code (right window) must obey certain rules. A line starting with an **apostrophe** "'" is a **comment** and will be ignored. Any text right to an apostrophe in a line of code will be ignored as well, except for the "Texte =" commands for which apostrophes and commas are allowed in the text field (or parameter) which is always the last. In order to modify code text, place the cursor by clicking with the mouse in the text window and / or by using the direction arrows on your keyboard.

Colours of the text code: A line being currently edited is shown in black. As soon as you leave the line, comments will be shown in green and commands in blue so that the code is more easily identifiable.

When performing special operations, like copying and pasting incomplete code lines, colours may not function well. If so, use the Ctrl-K command to analyse the complete text.

Text may be copied by using **Ctrl-C** and **Ctrl-V**. **Ctrl-A** selects the whole text. To erase text, it is best to use **Ctrl-X**, which allows restitution by using Ctrl-V. Don't forget that **to make the effect of a command visible, you must use the Visualise menu**. The quickest way is to use the **Alt-V** shortcut (Depress the Alt key, hit the V key, and then release the Alt key.)

Some description commands work until the same command is issued again. Others have an immediate effect. Example: the "Couleur = Red" command makes red the current colour. Red will be used by default for text as well as for graphics until another "Couleur = " command is met.

Spaces and tabs may be inserted in the code for presentation purposes. They will be ignored except in **text zones**.

Capitals or lower case characters may be used indifferently with no effect, except in text zones.

The **general syntax**of any command is : Command = parameter1, parameter2, …

Some parameters are optional, it will be shown in the syntax description by square brackets. Example : " CT = [xx, yy [{,N;couleur}]]" means that the command may be entered without parameters ("CT =") or with three parameters ("CT = 40, 50, blue "). When several parameters are optional, (between square brackets), it is generally possible to omit one or several intermediate parameters by leaving their position empty between commas. Examples : "Grad = 10, 2"; "Grad = 10, 2, ,,, vert "; "Grad = 10, 2,,,3."

Sometimes, you may choose between several parameters. Those are then noted between braces "{}"and separated by semicolons. Example: "CentreE = x, y [,{N;colour}]" means that after the x and y coordinates the N parameter or a colour may be found. "Val{D,R}" means that two forms are accepted : "ValD" and "ValR".

From version 1.30 onwards, the equal sign ("=") which separates the command from the parameters may be replaced by one or more spaces or a tab.

xx, yy position of a point

Up to version 1.60, the positionof a point was defined by its Cartesian x and y coordinates. Up from this version it is also possible to enter the position of the point as a **position relative to the preceding point**. It is also possible to enter a **direction in degrees and a length / distance** (polar coordinates) relative to the preceding point. (The directions must be entered according to the trigonometrical rules: 0° = right; 90° = top; 180° = left; 270° = bottom). The corresponding general syntax is:

{ x[R], y[R]; Dir°, Length}

Since the syntax is a bit long and complex, **it will be abbreviated as "xx, yy"**.

Examples :

50, 50 defines a point of coordinates x = 50, y = 50

50R, -50R defines a point of coordinates x = xCurrentPoint + 50, yCurrentPoint – 50 (see the "Voyant" commands in the GalvPerc file and "PolyP" and "Trait" in the GalvDes1 file)

50, 50R defines a point of coordinates x = 50, yCurrentPoint + 50

180°, 50 defines a point of coordinates x = xCurrentPoint –50, yCurrentPoint (point 50 mm left to the current point, see: "Trait = 5,5,45°,15,.8mm,vert" in the GalvDiv2 file)

In most cases, you should write [xx], [yy] to show that the xx and/or yy values can be omitted. However, if xx is in degrees, yy must be indicated because the default value is 0, which corresponds to the position of the preceding point, whatever the angle.

Basic commands in their order of appearance

To draw a dial, certain commands are compulsory:

CentreE = x, y [,{colour; N}]

Such a command usually is compulsory at the beginning of code. This command defines the coordinates of the **reference point on the screen** (x=0, y=0 in the code sequence) where the axis of the galvanometer needle will be located for example. Values are given in millimetres starting from the left bottom corner. If the graphic is not centered on the screen as desired, change these parameters. If there is no "N" as third parameter, a "+" sign will give the location. It is possible to modify the colour of this sign either by

entering the optional parameter, or by preceding the command with a colour command. Examples : " CentreE = 50, 70"; "CentreE = 20,100, Bleu"; "CentreE = 20,100, N".

Influential commands : "CT", "Couleur", "EpaisT"

CentreI = x, y [, {colour;N}]

This command is equivalent to the above, but for printing. It allows positioning the graphic on the sheet not matter what its position on the screen is. When first using this command, it is advisable to use the same parameters as with the CentreE command.

Decal = offset_on_the_y_axis [,{colour plus sign;N}]

Offset (in millimetres) of the centre of the arc with regard to the axis of the galvanometer. A non obligatory command that allows to define the centre used to draw graduations with regard to the axis of the galvanometer, which allows to draw a lower scale. If there is no "N" as second parameter, a "+" sign shows the position. It is possible to modify the colour of this sign either by entering the optional parameter, or by preceding the command with a colour command. On one of the examples, you may place an apostrophe at the beginning of the line (which neutralises the command) and see what happens. The sign is not taken into account, and offsets are always downwards. Example: "Decal = -15".

For values of Decal >= 10000, see the Arc command.

Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Arc = BeginningAngle, EndAngle, Radius [, {colour;N}]

Obligatory to define a curved scale (galvanometer, potentiometer, etc.). This command defines the maximal deviation range of the needle or potentiometer. Angles must be given in degrees (0° at 9 o'clock, 180° at 3 o'clock, see GalvTest), the radius is in millimetres. The arc of the corresponding circle is then drawn. The command is compulsory before the "Grad[1{R;D}]" and "Val[1{R;D}]" commands, for which it defines the deviation range of the needle. As the square brackets show, colour indication is optional. If need be, "N" instead of a colour allows not to draw the arc (see GalvEx4). The square brackets show that colour is optional. Example: "Arc = 30, 150, 25" will draw a galvanometer with a 120° deviation (=150-30). See the GalvEx files for galvanometers, and the GalvPot files for potentiometers. GalvInt are for switches and GalvCom are for rotary switches.

In order to draw straight scales, enter "Decal >= 10000" or replace the "Arc" command with a "Droite" or a "DroiteV" command. Using "Arc" draws radial graduations (i.e pointing to the axis of the galvanometer), whereas using "Droite" or "DroiteV" draws graduations perpendicular to the scale (for galvanometers with an axis parallel to the front panel).

(When Decal is different from zero, a question mark "?" entered as fifth parameter inserts the equivalent Cercle or Trait command as a comment)

Influential commands: "CentreX", "Decal", "CT", "[Colour]", "EpaisT".

Grad = Number, Length [,First, Last, Tickness, Colour]

This command must be preceded by an "Arc", "Droite" or "DroiteV" command. It draws graduations. The Number parameter corresponds to the number of intervals (there is one graduation more than there are intervals) and Length stands for the length of each line starting from the arc. Optional parameters allow you to define the first (default value is 0) and the last (Number as default) graduation being actually drawn (for special applications: inaccurate ends of scales, etc…), the lines tickness and her colour. Examples : "Grad = 10, 2"; "Grad = 10, 2, ,,, vert"; "Grad = 10, 2, ,,3".

The number of intervals doesn't have to be an integer number (see GalvEd2 example file).

If the Exposant command specifies a logarithmic scale, "Nombre" must be replaced by "Interval[§ End[§ Start]]", in which "Interval" specifies the interval between the graduations in the first decade, "End" (not compulsory) states the value up to which those graduations appear in each decade, and "Start" states, if need be, where they must start. The meaning of "First" and "Last" does not change, but the values must be entered as internal values (See the Exposant command. See GalvEx8 et GalvPLog*).

Notes: For "Decal<>0", the length of the lines depends on the position on the scale. True value is for 0% of the scale.

Influential commands : "CentreX", "CT", "Arc" or "Droite" or "DroiteV", "Couleur", "Decal", "EpaisT", " Exposant", "Inversion".

Val = Number, Beginning, End, Distance

or **Val =** Number, Beginning[§U], End[§U], Distance [, First, Last, Colour]

or **Val{D,R} =** [[R]angle[BHGD]], Number, Beginning[§U], End[§U], Distance [,First, Last, Colour]

These commands must be preceded by an "Arc", "Droite" or "DroiteV" command. They allow to draw values of graduations. Number corresponds to the number of intervals (not necessarily corresponding to the total number of graduations, you may want to omit to mark some of the values), Beginning is the value for the first value, End is the value for the last value and Distance is the distance from the arc in millimetres. "U" after Beginning allows adding a unit (text) after each value. After "End" the unit is added after the last value only. The other optional parameters work the same way as mentioned above (or in the case of a scale interruption, see GalvEx5). Example: "Val = 10, -5, 5, 5". Negative distances result in marking values underneath the scale's arc. The pointer is updated so you can add text with the " Texte = ,,…" command.

Notes: For "Decal<>0", the distance of the arc varies according to the position on the scale. True value is for 0% of the scale.

The number of intervals doesn't have to be an integer number (see GalvEd2 example file).

As for the second syntax, when the angle is omitted (no parameter entered or zero value) default values are computed, in particular for each value of a curved scale. A "ValD" command allows you then to inscribe values by orienting text perpendicular to the direction of the offset centre (in other words, the text is parallel to a tangent of the arc, see GalvEx1), and a "ValR" command allows you to inscribe values by orienting text perpendicular to the axis direction (Radius). When the angle is specified, it is used for all inscriptions. When the specified value of the angle is preceded by the letter R (for Relative) this value is added to the calculated value. Finally, the B (bottom), H (haut = top), G (gauche = left) and D (droit = right) letters allow, if needed, to choose various positions of the text. By default, the centre of the text is at the position "Distance".

The exact syntax is [{B;H}][{G;D}], but is not used so the overview is better.

If the Exposant command specifies a logarithmic scale, "Number" must be replaced by "Interval[§ End[§ Start]]", in which "Interval" specifies the spacing between the graduations of the first decade, "End" (not compulsory) states the value up to which those graduations appear in each decade, and "Start" states, if need be, where they must start. The "Begin" value is a multiplier for the internal scale as defined by the "Exposant" command, and the "End" parameter is ignored except when it contains one of the following : "P", "E", "S" or "§U". When using P the values are followed by a unit prefix (1000 becomes 1k, 20000000 becomes 20M) and the prefix is preceded by a space character if U is preceded by a space character. When using E the scientific notation is used (1.5E2) and when using S the scientific notation with powers multiple of 3 (150E0) is used. U point out a unit symbol (text) which will be added after each value. For optional parameters see "Grad". See GalvEx8 and GalvPLog*.

Influential commands: CentreX", "Decal", "CT", "Arc" or "Droite" or "DroiteV", "Couleur", "Police", "TailleP ", "Exposant", "Inversion".

Other commands.

FormatI = {Portait; Paysage}

Defines the orientation of the printing: Portrait mode or Landscape ("Paysage" in French) mode. This command must be written once before any other instruction.

~~**Facteur[s] =** *Correction factor~~ **This command has been suppressed** since version 1.70, see **Zoom** menu.

Or

~~**Facteurs =** [XFactor, YFactor]~~ **This command has been suppressed** since version 1.70., see **Zoom** menu.

When present, this command must be placed before any drawing command. It allows you to modify the scale factors on the X and Y axes on the screen. Open the **GalvTest** file. Should the dimensions on the screen not look right, or fit what you wanted, you can then calculate a correction factor for the first syntax (this is recommended as it also modifies the font size) which will simultaneously modify the scale factors of both scales according to your wishes.

Example: if the ruler ten graduations measure 14 cm on the screen, "Facteur = *0.71" will reduce the dimensions on the screen to the true measure (10 cm) and reduce the font size accordingly. Once the dimensions are right, you can zoom back by writing another "Facteur" command just after. Try writing the following command on the next line:

Facteur = *.5

Then 5cm on the screen will represent 10cm (to visualise a complete A4 sheet on the screen, for example).

To obtain the scale values of your system, insert a "Facteurs =" command without parameters (or suppress the apostrophe in front of such a command in an example file) and these scale values will appear as

parameters behind the command, without modifying any dimensions. You can then directly modify those values to change the scale factors without changing the character size (this second syntax is normally without object since the first has been created).

Please note: the "Facteur[s]" commands of included files are not taken into account.

CT = [xx, yy [, {color; N}]

The "CT" commands have been added to version 1.60 in order to make it easier to draw front panels, drilling layouts, etc. They are close to the "CentreE" and "CentreI" commands inasmuch as they define a new reference point (x=0, y=0 coordinates in the following code sequence). Unlike the "CentreE" and "CentreI" commands, they are active for all graphic commands on screen as well as for printing and are still active when a file is called or when called by a "Fichier" command.

The "CT" commands allow easy positioning of several graphic objects. For example you can write a number of "CT" commands sequentially to draw knobs or elements.

The "CentreE/I" commands are used to put into position the objects of a graphic representation as a whole, whereas the "CT" commands allow you to put into position different graphic object groups. In this way there are some possibilities to combine these commands – you will have to choose according to what you aim to draw. One easy way to deal with this is to write a pair of "CentreE/I" at the beginning of the file in order to position a main element, then to use "CT" commands to position whatever other elements may follow :

CentreE = …
CentreI = …
Description of main element, frame, etc …
…
CT = …
Description of another element
…
CT = …
Description of yet another element
…

See GalvPerc, GalvPot4, GalvPot7, GalvCv1 and GalvCmd6, which calls two files containing "CT" commands (for checking purposes, note that GalvPot5 is an example without "CentreE/I" commands whereas GalvCmd7 calls this file).

Note : Caution : the mouse coordinates displayed at the bottom of the graphic screen are coordinates with regard to the "CentreE" command encountered in the code (the call for a file is equivalent to a "CentreE = 0, 0" command, i.e the left bottom corner). When while writing a code line for an element positioned by a "CT" command you wish to know the mouse coordinates relatively to this point, use the menu RefCur to set this point as a new reference; see GalvPot4).

Droite = Xbeginning, Xend [, y, {colour; N}]
or **DroiteV** = Ybeginning, Yend [, x, {colour; N}]

These commands are equivalent to the "Arc" command when designing galvanometer scales with straight scales (or grids). The "Droite" command is used to draw horizontal lines, the "DroiteV" command for vertical ones. One of these commands is compulsory before the "Grad[1{R;D}]" and "Val[1{R;D}]" commands if you want to draw a straight scale as it defines the maximum deviation of the needle. The values of x (y) and the y (x) position are in millimetres. The corresponding straight line is then drawn. If need be, the "N" letter instead of a colour allows not to draw the straight line. As you can see from the presence of square brackets, colour is optional. Example: "Droite = -30, 30" for a galvanometer with a 60 mm deviation (=30+30). See the example files GalvED abd GalvEV.

Influential commands : "CentreX", "CT", "[Couleur]", "EpaisT".

Grad1 = %scale, length [, Tickness, Colour] [,...]

Must be preceded by an "Arc", "Droite" or "DroiteV" command. It draws one or several graduations corresponding to the given value(s) in percentage of scale and of specified length(s). The « %scale » values may be replaced by values expressed in "°" or in millimetres, according to case, followed by "°". Examples: Grad1 = 50, 3 ; Grad1 = 90°,3.

If the Exposant command specifies a logarithmic scale, "%echelle" must be replaced by "Internal value" which specifies the value in the internal scale as defined by the "Exposant" command. See GalvEx8 and GalvPLog*.

Note: For "Decal<>0", the length of the lines varies according to their position on the scale. True value is for

0% of the scale.
Influential commands : "CentreX", "CT", "Arc" ou "Droite" ou "DroiteV", "Couleur", "Decal", "EpaisT", "Exposant", "Inversion".

Val1 = %scale, text, distance [, Colour] [,...]
or **Val1{D,R} =** [[R]angle[BHGD]], %scale, text, distance [, Colour] [,...]
These commands must be preceded by an "Arc", "Droite" or "DroiteV" command. They inscribe one or several texts (not necessarily numbers) to mark graduations at the value(s) given in % of the scale and at one (or several) specified distance(s). In the case of negative distances, the text is inscribed below the scale. The « %scale » values may be replaced by values expressed in "°" or in millimetres, according to case, followed by "°". Examples: Val1 = 50,50%; Val1 = 90°,50%.
The pointer is updated so you can add text by using the "Texte = ,,…" command.
For "Val1D" and "Val1R" respectively see "ValD" and "ValR".
If the Exposant command specifies a logarithmic scale, "%echelle" must be replaced by "Internal value" which specifies the value in the internal scale as defined by the "Exposant" command. See GalvEx8 and GalvPLog*.
Note: For "Decal<>0", the length of the lines varies according to their position on the scale. True value is for 0% of the scale.
Influential commands : "CentreX", "Decal", "CT", "Arc" or "Droite" or "DroiteV", "Couleur", "Police", "TailleP", "Exposant", "Inversion".

Inversion =
Inverts the above/below (or right/left) position of a scale.

Exposant = z
or **Exposant** = L, Nb_Decades[, Start, End]
Allows to modify the linearity of graduations. The default value is 1 for regularly spaced graduations. A value of 2 corresponds to graduations with a power of two compared to a linear scale. An example is shown in GalvaEx2.
Thesecond syntax allows to generate logarithmic scales. Nb_Decades gives the number of decades, Start and End are the initial and final values in the first and last decade.

```
Exposant = 3        'generates an 1 to 1000 internal scale
Exposant = 4, 3, 2 'generates a 3 to 20000 internal scale
```

See GalvEx8 and GalvPLog*.

Sect[P] = %beginning, %end, distance1 [, distance2, colour]
Must be preceded by an "Arc", "Droite" or "DroiteV" command. This command draws a sector beginning at "%beginning" of the scale and ending at "%end". The "%beginning", %end" values can also be replaced by values expressed in « ° » or in millimetres, according to case, followed by "°". Examples: Sect = 0, 50, 3, 5 ; Sect = 40°, 90°, 3, 5.
"SectP" draws a sector filled with colour. See GalvEx3, GalvEx7, GalvEd2 and GalvEv2.
When the Exposant command specifies a logarithmic scale, "%start, %end" must be replaced by "Internal_Start_Value, Internal_End_Value" which specify the values within the internal scale as it is defined by the "Exposant" command.
Influential commands : "CentreX", "CT", "Arc" or "Droite" or "DroiteV", "Couleur", "Decal", "EpaisT", "Exposant".

Couleur = colour
Defines the default colour. Available colours are : "**White**", "**Black**", "**Red**", "**Green**", "**Blue**", "**Yellow**", "**Cyan**", "**Magenta**". Any colour can be obtained by defining it: "**RGB** RedValue GreenValue BlueValue", each of the three colour values must be between 0 and 255. Example: "RGB 0 0 0" is black, "RGB 255 255 255" is white, "RGB 240 255 240" is light green and "RGB 240 240 240" is grey. The "Colour" menu allows you to choose a colour, then to put the corresponding RGB code at the current position of the cursor.
Note: Colours may be stated either in English or in French. E.g.: "Couleur = Rouge" or "Couleur = Red" or "RVB 255 0 0".

Cadre[P] = [xx0], [yy0], xx1, yy1 [, colour]
"Cadre" draws a rectangle which may be the frame of a dial, of a cutout, etc. xx0, yy0 are the coordinates

of the bottom left-hand corner and xx1, yy1 (see xx, yy) those of the upper right-hand corner.
"CadreP" draws a rectangle filled with the specified colour. This allows you to have a background colour without having to print a whole sheet of the background colour. Caution: this background colour will cover every preceding design. So you must write this command before the command it will cover (if desired draw again the plus sign corresponding to the CentreE/I or CT command by writing a "Plus = 0, 0, 1" command).
Influential commands : "CentreX", "CT", "Couleur", "EpaisT".

CadreA[P] = [xx0], [yy0], xx1, yy1, radius [, colour]
Similar to "Cadre", but the angles of the frame are rounded according to the value of the radius. If the radius value is positive, the corner is rounded towards the exterior, if it is negative, the corner is rounded inwards. "CadreAP" fills the frame with colour. See GalvDiv2.
Influential commands : "CentreX", "CT", "Couleur", "EpaisT".

EpaisT = [nb_pixels]
or **EpaisT =** thickness mm
Defines the default line thickness.
The first syntax (with parameter) defines thickness in terms of printed pixels. Default value is 1. In general, screen resolutions are inferior, so the screen representation will not be exactly like the printed version, except when using a sufficient zoom level.
The second syntax allows you to define thickness of print in millimetres. Example: "EpaisT = 0.5 mm".
With no parameters, the current values in pixels and millimetres are inserted after the command.

Cercle[I] = [xx], [yy], r[§coefficient] [,beginning, end, colour]
Without the beginning and end parameters, this command draws a circle (or an ellipse) of centre xx, yy (see xx, yy) and of radius r. Optional parameters are angles at the beginning and the end of a circle arc (0 to 720° trigonometrical order of rotation: 0° at 3 o'clock, 180° at 9 o'clock, see GalvTest). If an angle is negative, its positive value is used and a radius is plotted at this angle (two negative angles result in a pie chart). For circle arcs, the cursor remains at the end of the arc with the "Cercle" command, at the beginning of the arc with the "CercleI" command.
When "coefficient" is present and different from 1, an ellipse will be drawn. "Coefficient" is the y/x ratio.
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

CercleP = [xx], [yy], r[§coefficient] [,beginning, end, colour]
Draws a circle or part of a circle filled with the given colour. The beginning (0 to 360°) and end angles (0 to 720° trigonometrical order of rotation : 0° at 3 o'clock, 180° at 9 o'clock, see GalvTest) need not be negative as for empty pie charts.
For "coefficient" see above.
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Voyant = [xx], [yy], diameter, NumType [, colour]
Draws a light whose form depends on the type number. "NumType" accepts values from 1 to 5. Look for examples in the GalvDiv file.
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Poly[P] = [couleur,] [xx1], [yy1], xx2, yy2, xx3, yy3, …
Draws a n sided polygon. The xxi, yyi coordinates (see xx, yy) are those of the vertex.
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

DemiLune[P] = [xx], [yy], MeanR, BeginningAngle, EndAngle, Width [, Colour]
Allows you to draw a kind of half moon: for example around a potentiometer to indicate the sense of increase (see GalvCmd2, GalvPot3). "Xx", "yy" (see xx, yy) are the coordinates of the symbol centre, "MeanR" the mean radius, "BeginningAngle" the angle (0° at 9 o'clock, 180° at 3 o'clock) for which the symbol is pointed, "EndAngle" the angle for which the width corresponds to the Width parameter. The "P" parameter fills the symbol with colour. See GalvTest.
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Fleche[P] = [xx], [yy], AngleDirection, length [, Tickness, ArrowAngle, colour]
Draws arrow heads (filled with colour if "P"). "AngleDirection" is the angle giving the arrow's direction:

0° full right, 90° upwards, 180° full left, 270° downwards, etc. This command allows arrow heads to be placed at the extremity of straight lines, circle arcs or graduation scales (see GalvDiv2). "ArrowAngle" is the angle formed by the two straight lines of the arrow head. Default is 60°.

Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Police = FontName [,Top_Coef]

Chooses a character font. Available fonts are listed with the "Printer Fonts List" menu.

The "Top_Coef" (<1) parameter allows for a font, size and style to change the vertical position of top aligned or vertically centered characters. If need be, use GalvPol in order to determine the "Top_Coef" = fraction between the upper part of the line and the top of the character in black. By default the system value in use often is an intermediate value between the value for the top of an “X” and the value for the top of an "É". The text then seems to be written too low. See GalvTest.

TailleP = *Standard_Size_Multiplicator [style]
or **TailleP** = New_Standard_Size [style]
or **TailleP** = [*StandardSizeMultiplicator style][,Text, Width_Var_Name, Height_Var_Name]

Changes the default (standard) size of characters (font size = taille police in French) and their aspect (style). The first syntax allows you to multiply the standard size by a given value. Example: "TailleP = *1.5 B" produces characters one and a half size of standard, and in bold print. Styles (Bold (B or G), Italics (I), Underlined (U or S) do not apply to the "Texte" command after version 1.20.

The second syntax changes the standard size. Example : "TailleP = 10" (points). Currently use the first syntax. The second syntax when placed at the file beginning will then modify the size of all characters.

The third syntax allows to get the print width and height of the text "Text" in the variables "Width_Var_Name " and " Height_Var_Name ". Example: "TailleP = *2B,MyText,%W,%H".

Texte = [xx], [yy], [Colour],[*k#RaBIUCXYDHV],this text

Writes "this text" at the coordinates xx, yy (see xx, yy). Note the absence of space before "this text". A space there would be considered part of the text. Style codes mean:

*k Multiplier of font size
Ra Rotation of a given "a" angle. Zero corresponds to normal writing (this code non compatible with the V parameter))
B Bold (or G).
I Italics.
U Underlined (or S).
C Centered with regard to the width and height of the text.
X Centered with regard to the width of the text.
Y Centered with regard to the height of the text.
D Right-aligned text.
H Aligned to the top of the text.
V Text is written vertically (i.e one character per line) (this code non compatible with the Ra parameter).
Jump to next line (to line N if N#) before printing of text (horizontal text, see examples in GalvEx1, GalvDiv).

In the absence of "CXD" the text is left-aligned and placed "above the line".

"Texte" commands without x or y values permit the writing after a piece of text (or "Val1", "Val", …) more text after a change of font, style or size for example (have a look at the "ohm" symbol in the GalvEx2 file).

Influential commands: "CentreX", "CT", "Couleur", "TailleP" (not the styles).

TexteC = [xx], [yy], radius, angle,[Colour],[*kBIUX],this text

Writes "this text" in an arc shape. The arc's centre is at xx, yy (see xx, yy) and the radius is r. Using the X style parameter centers the text on the "angle"(see GalvCom3), if not it starts at "angle". Note the absence of any space before "this text", since this space character would be considered part of the text. Code styles have the same meaning as above for "Texte".

Influential commands: "CentreX", "CT", "Couleur", "TailleP" (not the styles).

Trait = [xx0], [yy0], xx1, yy1 [, Tickness, Colour [, xx2, yy2, …]]

Draws one or several lines from the xx0, yy0 point to the xx1, yy1 point (see : xx, yy) and if relevant from xx1, yy1 to xx2, yy2, etc. The Tickness and Colour optional parameters allow using values other than the default values.

Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Plus = [xx], [yy], HalfSize [, Colour]
or **+** = [xx], [yy], HalfSize [, Colour]
Draws a plus sign centered on xx, yy (see xx, yy). The length of each straight line is two "HalfSize" (in millimetres).
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

X = [xx], [yy], halfSize [, Colour]
Draws a cross centered on xx, yy (see xx, yy). The length of each straight line is two "HalfSize" (in millimetres).
Influential commands: "CentreX", "CT", "Couleur", "EpaisT".

Percer = [xx], [yy], d [, Colour]
Draws a plus sign and a circle as a drilling pattern (d=diameter in millimeters) centered on xx, yy (see xx, yy).
Influential commands: "CentreX", "CT"," "Couleur", "EpaisT".

Separateur = New_parameters_Separator_character[, New_Separator2]
Allows to define new separator characters (instead of comma and "§"), so for example, commas may be used within a "Val1" text zone. Example : "Separateur = ;".

Stop =
Stops code interpretation by the computer. Any code after this command will not be taken into account.

? = [X_Variable_Name, Y_Variable_Name]
Without parameters, this command sends back a commentary line with the current x and y coordinates. With parameters the coordinates are put into the variables which can then be used in the code. See GalvBNC.

Fichier = Name_of_file_to_be_included [, [xx], [yy] [parameters]]
For including a code file located in the Galva folder, hence making it easy to put several elements on one print. The elements may be superimposed on the screen (use "CentreE" to edit each file), and can be positioned at the right place for printing by using the relevant "CentreI" commands. The xx and yy (see xx, yy) optional values make it possible to position the file's content at a given place on screen as well as on the printer (zero values are considered as absence of parameter so it is possible to enter 0.001 instead of zero).
For parameters, see Variables.
Influential commands : CentreX, CT.

Image = Name_of_graphic_file[, xx, yy, coefficient, position]
Allows to include a picture defined by a .jpg, .gif, .bmp, .ico, ...file. "Coefficient" allows to modify the size of the picture and by default the coordinates correspond to the bottom left point. The presence of code letters in the "position" parameter allows to modify the image position with regard to the x, y coordinates :
C centered horizontally and vertically;
X centered horizontally;
D right aligned;
Y centered vertically;
H top aligned.
See GalvLog and GalvTest.
Influential commands : CentreX, CT.

QA[1][2] = xx1, yy1, xx2, yy2, Number, Height[§Thickness][, Slope°, Ratio, LineWidth, Colour[§colourR]]
Allows drawing dove tails (for woodwork or cabinet making). The first four parameters define the x and y coordinates of the start and end points. "Nombre" defines the number of dove tails and "Hauteur" their height. All the other parameters are optional, that is, they may be omitted (See GalvQA1 n°4 drawing).
"Pente" defines the slope of the dove tails in degrees (9° is the default value); "Rapport" allows modifying the ratio between the salient part and the sunken part (50% is the default value); "eTrait" defines the

thickness of the line and "Couleur" its colour.

When "1" is present in the command, the returns on one side are drawn. When "2" is present, the returns on the other side are drawn. "12" is legal. For the returns, "Epaisseur" defines the width of the returns (thickness of the board, similar to "Hauteur" by default) and "couleurR" defines the colour of the returns (similar to "Couleur" by default).

Influential commands : CentreX, CT, Couleur, EpaisT.

ZoomIni = value

Allows defining a **default** Zoom value for a file. Without this command, level 1 is used. Caution: the modification of "value" in the code window has no immediate effect on the zoom level. In order for it to operate, you must first visualize (Alt-V) the file (= modification of the default value), then enter Ctrl-F7 (applying of the default value). See also the Zoom menu.

PalCoul[{2;3}] = N, width, height

Inserts a colour palette with N levels for each colour (Red, Green and Blue). See GalvPal*. A printout allows comparing the colours on the printout and on the screen. PalCoul2 generates the same type of colour palette as the "Colour" menu.

Influential commands : CentreX, CT

Variables

Using variables proves useful in formulae and/or when an argument or parameter is used a number of times, since by replacing it with a variable one has to change its value only once. Variables also offer new possibilities for the transmission of arguments when calling files or using formulae (expressions).

The name of a variable must begin with a "**%**" character and it is possible to use up to 26 variables. Names of variables are not case sensitive. In order to assign a value to a variable, just type the following command: %Ma_Variable = value. "Value" can be a numeric value, text (without apostrophe " ' ") or a whole commande (without apostrophe " ' "). Next, all one has to do is use the name of the variable instead of its content. Example:

```
'File1
%Colour1 = green
%Colour2 = RGB 200 255 200
%Radius = 10
…
CT = 20,30,%Colour1
Cercle = ,,%Radius,,,%Colour2

'File2
Fichier = File1,10,10                'No passing of arguments, the variables being used are those of File1
Fichier = File1,10,10,red, green, 5  'The parameter values are passed to the 3 variables of File1 in their
        respective order of appearance.
%Colour1 = blue
%Colour2 = RGB 0 255 200
%Radius = 15
Fichier = File1,10,10,%%             'The %% characters specify that all the File2 variables are passed to File1
Fichier = File1,10,10,%%,yellow,%Radius=12 'A number of combinations is possible, here all File2 variables
        are passed to File1, the value "yellow" is affected to the first variable in File1 (%Colour1); Finally the
        value "12"is affected to the %Radius variable from File1.
```

See GalvVar*, GalvBNC, and GalvBNC2.

Expressions

Most of the **numerical parameters** can be entered in the form of formulae containing constants, variables, the "(", ")", "+", "-", "*", "/" and "^" (power) signs and the Log, Abs, Sqr, Sin, Cos and Tan functions.

For example : -%X1/2, -(%V-5)*3, 20*Log(%X). A new numerical value can be immediately affected to a variable by using a double equal sign. For example : %Var == %Var1+5. With only one equal sign the variable gets the alphabetical sequence, which is calculated only when the variable is being used.

See GalvVar*, GalvBNC, GalvBNC2 and GalvPal2

Most of the **alphabetical parameters** can be written as formulae containing both text and variables. The

names of variables must be followed by a space character. For example : The result is %X1 mm.

Go to next chapter

Syntax summary

? = [X_Variable_Name, Y_Variable_Name]
Arc = AngleBeginning, AngleEnd, Radius [, {colour;N}]
Cadre[P] = [xx0], [yy0], xx1, yy1 [, colour]
CadreA[P] = [xx0], [yy0], xx1, yy1 [, colour]
CentreE = x, y [,{colour ;N}]
CentreI = x, y [,{colour,N}]
Cercle[I] = [xx], [yy], radius[§coefficient] [,beginning, end, colour]
CercleP = [xx], [yy], radius[§coefficient] [,beginning, end, colour]
Couleur = colour
CT = [xx, yy [{colour ;N}]]
Decal = offset_in_y [,{colour_of_plus_sign; N}]
DemiLune[P] = [xx], [yy], MeanRadius, angleBeginning, angleEnd, width [, colour]
Droite = Xbeginning, Xend [, y, {colour;N}]
DroiteV = Ybeginning, Yend [, x, {colour; N}]
EpaisT = [{nb_pixels ; thickness mm}]
Exposant = {z; L, Nb_Decades[, Start, End]}
Fichier = Name_of_file_to_be_included [, xx, yy [parameters]]
Fleche[P] = [xx], [yy], angleDirection, length [, épaisT, ArrowAngle, colour]
FormatI = {Portrait ; Paysage} (once, before any command)
Grad = Number, Length [,First, Last, Tickness, colour] (after Arc, Droite or DroiteV)
Grad1 = %scale, length [, Tickness, colour] [,...] (after Arc, Droite ou DroiteV)
Inversion =
PalCoul[{2;3}] = NumberOfLevels, width, height
Percer = [xx], [yy], diametre [, colour]
Plus = [xx], [yy], Halfsize [,colour]
Police = FontName [, Top_Coef]
Poly[P] = [colour,] [xx1], [yy1], xx2, yy2, xx3, yy3, …
QA[12] = xx1, yy1, xx2, yy2, Number, Height[§Thickness][, Slope°, Ratio, LineWidth, Colour[§colourR]]
Sect[P] = %beginning, %end, distance1 [, distance2, colour] (after Arc, Droite or DroiteV)
Separateur = New_parameters_Separator_character[, New_Separator2]
Stop =
TailleP = *Standard_Size_Multiplicator Style [,Text, Width_Var_Name, Height_Var_Name]
TailleP = New_Standard_Size Style
Texte = [xx], [yy], [Colour], [*k#RaBIUCXYDHV],This text
TexteC = [xx], [yy], radius, angle, [Colour], [*kBIUX],this text
Trait = [xx0], [yy0], xx1, yy1 [, Tickness, Colour [, xx2, yy2 [,…]]]
Val = Number, Beginning[§U], End[§U], Distance [,First, Last, colour] (after Arc, Droite or DroiteV)
Val{D,R} = [[R]angle[BHGD]],Number,Beginning[§U],End[§U],Distance[,First,Last,Colour] (after Arc, Droite or DroiteV)
Val1 = %scale, text, distance [, Colour] [,...] (after Arc, Droite or DroiteV)
Val1{D,R} = [[R]angle[BHGD]],%scale,text,distance[,Colour] [,...] (after Arc, Droite or DroiteV)
Voyant = [xx], [yy], d, NumType(1to5) [, Colour]
X = [xx], [yy], Halfsize [, Colour]
ZoomIni = value

To continue writing a command on the next line, end the current line by typing " _" (underline preceded by a space. If you omit the space character, the command does not work).
Positioning xx, yy of a point.
Variable names begin with %.

Goto next chapter

Versions

Main developments

1.82 - Minor corrections.

1.81 - Correction for compatibility with Windows 95.
- New usable functions in numerical expressions: Log, Abs, Sqr, Sin, Cos, Tan.

1.80 - Most of the parameters can now be entered as numerical or alphabetical formulae.
- **Caution** : this new possibility was not compatible with the "/" separation character previously used to separate several characters within a same line. Therefore this character has been replaced by "§". In order to read old files, you must replace the "/" characters (which are now read as division signs) with "§" characters or add the "Separateur = /" command at the beginning of the code.
- New Centre CurseurCentrecurseur submenu and Ctrl-O keyboard shortcut to centre the cursor in the graphic window.
- Added possibility to create logarithmic scales. See the Exposant, Grad[1], Val[1] and Sect[P] commands.
- New Zoom Print submenu which allows modification of the printing scale factor.
- New Aide Mot submenu and Cap-F1 keyboard shortcut for direct access to a word's help file.
- Caution : the TailleP command syntax has been slightly modified. There is no more separator between the size and style parameters and the width and height of a text can be entered into variables. However, files from previous versions remain readable.
- The ? command allows copying the X and Y coordinates of the current point into variables.
- The List Print Fonts menu allows direct insertion of a font name into the code when leaving the menu by clicking OK.
- The "§" separation character used to separate several parameters within the same field can be modified by using the Separateur command.
- Positioning of text when using the Val[1]{R;D} commands has been improved and simplified by suppressing the J (justification) letter and by adding D (Droite = right) and H (Haut = top) letters. Also, the management of position characters is done with reference to the text, whatever his orientation.
- H (Haut = top) has been added for positioning text when using the Texte command.
- With the Val[{R;D}] command it is possible to add a unit (text) after any value, or after the last value.
- Possibility to enter values in degrees or millimetres, according to case, for the Grad1, Val1 and Sect. commands.
- Two new types of colour palette can be obtained by using the PalCoul[{2;3}] command.
- Improvement of the vertical positioning of characters when changing fonts, sizes and styles, and correction of a bug appearing under Windows XP. Moreover, an added parameter in the Policecommand allows modifying the positioning of characters in order to align them to the top or to the centre.
- Several corrections and improvements have been made : A Patches command fixes a bug appearing under Windows XP/2000; the "Arc" command allows the drawing of inverted scales; new management of the configuration .cfg file directory allows launching Galva from other directories than Galva's, and with various configurations by using shortcuts; The way the Val[1]R command runs with the Arc command when Decal is >= 10000 has been corrected.

1.70 - New Image command allowing to include .jpg, .gif, .bmp, .ico, … files.
- The Facteur[s] command is suppressed and replaced by a new Zoom menu and a new ZoomIni command.
- New possibility to position the graphic windows in relation to the whole graphic.
- New possibility to change the reference point to display the coordinates of the cursor using the RefCur menu.
- New Enlarge Code menu allowing to enlarge the code window.
- New Colour menu showing a colour palette and allowing to generate the RGB code of the selected colour in the code window.
- New possibility to draw ellipses with the Cercle command.
- New QA command for drawing dove tails (woodwork, cabinet making).
- New possibility to use variables.
- New PalCoul command allowing to draw/print a colour palette.
- The number of pairs of CentreE/I commands is now reduced to 1.

- Minor corrections**.**

1.60 - This version becomes multilingual. Every language is accepted by the programme, however somebody will have to volunteer as a correspondent willing to translate the various texts of the programme into the target language. Get in touch with the author.
- New "CT" command which makes it easier to place several knobs or elements within the same source code file.
- Graphic drawing commands: the position of a point can now be defined in relation to the preceding point or by entering polar coordinates (angle + distance) in relation to the preceding point (see: xx, yy of a point).
- A new "Options" menu gives access to two sub-menus. When "Double-Click" is checked, double-clicking in the graphic window copies the mouse coordinates into the code at the current position of the cursor; "Code" (keyboard shortcut : F5) allows to hide/show the code window.
- Caution: in order to define a colour by its RGB parameters, you must now use the space character as a separator between the colour values (RGB 64 255 64).
- The "Trait" command now allows to trace several lines one after the other by using the command with new xxi, yyi values.
- The coordinates of the first point in the "Cadre" commands are now optional.
- A few minor corrections regarding the printing of code, Help available by pressing F1, ...

1.50 - New management of the code text colours : comments are in green, commands in blue.
- Please note : the new "ValD" and" Val1D" commands replace "ValR" et "Val1R". The letter "D" indicates that the text is oriented towards the offset (Decal) centre, the letter "R" indicates it is oriented towards the axis (Radius)
- New "New" submenu in the "File" menu to load Galva.daN files.
- Indication of the currently edited line.
- Possibility to import files from WB6BLD's programme "Meter".

1.40 - Possibility to write texts and graduation values in italics. ("Texte", "ValR" et V"al1R commands).
- New "TexteC" command allowing text to be written in a circular pattern.

1.34 - Capacity to deal with non integer numbers for the number of intervals of the "Val" command.
- D2 effectively made optional when using "Sect".

1.33 - Corrections : the "FormatI" command is no longer interpreted in included files;
- "CentreE/I = 0" is the default value for new programmes.
- Better management of the Decal command with Arc, Grad[1], Val[1] and Sect[P]. New limit for Decal to obtain a true straight line : >=10000.

1.31 - Correction of printing problem when printing a straight line using the "Arc" command with a great value of "Decal"
- New " ? ", Sect[P] commands; sequel of lines (" _").
- Possibility to enter the thickness of lines in millimetres.

1.30 - Correction of vertical centering for the "Texte" command, impression of the code.
- "New CercleI", "Fleche[P]", "DemiLune[P]", "PolyP", "CadreA[P]" commands.
- The = signs between command and parameters may be replaced by a space.

1.22 - New "Voyant" and "Poly" commands.
- Display of the mouse coordinates.

1.21 - F2 pops up a summing up of the syntax used in the current line.

1.20 - New management (not compatible with previous versions) of "Texte" with style, ligne suite, ...
- New commands : "Percer", "Stop", "X"", "Separateur", "CercleP"
- New possibility : "Facteurs =*…" with simultaneous management of font size.
- Management (as well as possible !) of thickness of lines on the screen.

1.10 - New commands : "Fichier", "Inversion", "FormatI", "Droite", "DroiteV

1.01 - The last line is taken into account even when it doesn't end with Carriage Return.
- Messages point out code errors.
- "Arc" command is adapted for scales of potentiometers, (with "Decal=0")
- Apostrophes and commas are legal in the "Texte" command (but comments at the end of lines are no longer possible)

1.00 - First version

Go to next chapter

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For those duly registered (i.e who have sent a postcard), questions, remarks, suggestions about this programme are welcome at the following email address: gendner@c-strasbourg.fr. Messages can be sent in French, English or German.

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