

display

keys:	[from]	<number>	source picture
	[to]	<number>	output display picture
	times	<number>	magnification factor
	size	<x>, <y>, <z>	dimensions of subregion to be displayed
	position	<x>, <y>, <z>	position/offset of subregion
	layer	<n1>, <n2>	range of layers in subregion
	height	<number>	if 1-D picture, height of graph in framestore pixels
	aspect	<number>	terminal aspect ratio for character-form displays (number of columns per inch divided by number of lines per inch)
	width	<number>	number of characters per line, for character form displays
	mark	<number> <yes or no>	mark source subregion
options:	preset		set display black/white levels using values held in variables <i>min</i> , <i>max</i>
	scale		if <i>noscale</i> , set black/white levels for unit scaling
	negated		negate black/white levels on display
	repeating		repeat pixels when magnifying, instead of interpolating
	letter		display picture number and title etc. at top of the partition
	border		mark partition border
	left/right, top/bottom, far/near		subregion positions
	type/log		picture is output in character form on console or to log output stream

Use **display** to display pictures. The command has more features than the **copy...to display** command, for example, automatic scaling, contrast reversal, lettering, borders, subregion display and magnification, 1-D graphs, histograms and character-form displays on your terminal.

display

Examples

```
display negated
```

This command displays the current picture with reverse contrast.

```
xwires region; display dis @region times 5 to dis:2
```

This command magnifies a region on the current display by a factor of five. The region is marked using the cursor (**xwires** command). The magnified region is displayed on dis:2.

```
.. display.layer 1 type
```

This command displays the first (back) layer on the terminal.

```
extract 50 51 size 256,1 angle pi/4; display
```

This extracts and displays a diagonal line scan from picture 50.

```
min=0 max=1E7; display preset
```

This command displays a picture using the black/white levels determined by *min*, *max*.

Description

The **display** command displays the source picture within the limits of the display partition that you specify as the output display picture number. If necessary, the output is scaled down by a suitable integer sampling factor so that it just fits inside the partition. The end result is a display picture that can be processed like any other Semper picture (unless it is undersampled or displayed in graph or character form).

The **display** command has the following features:

- multi-layer subregions
- magnification facilities
- automatic and user-defined grey-scaling
- bordering of the display
- line graphical display of 1-D pictures
- character form displays

You can define a subregion using the keys **size**, **position** and the options **left/right** etc. See *Appendix C, Semper Keys and Options* for further detail. Note that subregions are displayed as independent pictures as far as their coordinate system is concerned (as if using **cut**) but retain their source picture coordinates for later graphical purposes. Use the **layer** key to specify the range of layers to be displayed.

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Use the **times** key to magnify an image and the **repeating** option to replicate the pixels in an image, instead of interpolating.

The **display** command finds the grey-scale range of a picture or region and returns it in the variables *min*, *max*. These variables are used to set the black and white levels of the display. You can specify the grey-scaling directly by using the option **preset**. **display preset** uses the current values of *min* and *max* rather than those found by surveying the picture. You can alternatively specify the **noscale** option, to force unit intensity scaling.

By default, **display** outlines the picture border and displays the picture number, size, title and black/white range. Use the option **noborder** to turn off the bordering and **noletter** to turn off the lettering.

display gives a line graphical display of 1-D pictures on the display overlay to the same lateral scale as a 2-D display. This is also true of histogram displays. You can use the **height** key to force graph height. (Use the **times** key to increase the width).

Use the options **type/log** to force a character-form display of an image to the console or to a log file. Use the **width** key to specify the number of characters per line.

By default **display** assumes all layers, unless you specify a particular range of layers with the **layer** or **size** key.

The partition into which the picture is written may have more frames allocated to it than there are output layers, in which case the output of picture layers resumes with the first and successive layers until all of the frames in the partition have been filled. This facility allows you to handle single layer pictures on a full colour framestore with the minimum of fuss, simply by creating partitions that are three frames deep.

Notes

display marking:	region, if subregion
multi-layer pictures:	fully supported
forms used internally:	all
variables used:	<i>min</i> , <i>max</i> (if preset , pixel range for black/white level scaling)
variables set:	<i>min</i> , <i>max</i> (unless preset , pixel range within displayed picture/region)
see also:	copy...to display , cut , xwires , partition

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Defaults and Ranges

keys/options	defaults	range
[from]	current picture, held in variable <i>select</i>	valid picture number
[to]	display picture, held in the variable <i>display</i>	valid picture number
times	times 1	positive integer
size	whole picture	less than or equal to the size of the picture (integers)
position	position 0,0	within bounds of the picture (integers)
layer	all layers unless variables <i>si3/po3</i> are set	integer in range 1 to number of layers
height	lesser of half graph width and half partition height	positive integer
aspect	default given by the <i>page</i> command	real number
width	default given by the <i>page</i> command	positive integer
mark	mark off	see <i>Appendix C</i>
scale	unit scaling off	
negated	negation off	
letter	lettering on	
border	bordering on	
type/log	display on display device	