

**scale**

<b>keys:</b>	[from]	<number>	source picture
	[to]	<number>	output picture
	range/msd	<n1>, <n2>	output range or required mean/standard deviation
<b>options:</b>	preset		assume source picture range given by existing values of <i>min</i> , <i>max</i>

Use **scale** to re-scale a picture linearly so that it contains a different pixel range. For example, use **scale** to scale a picture into the range 0–255 before conversion to *Byte* form, or to standardise grey scales between several different pictures which you want to combine into a montage.

**Examples**

```
scale 1 byte
```

This command scales picture 1 into the range 0–255 and converts it to *Byte* form. Refer to *Appendix C, Semper Keys and Options* for detail of the general key **byte**.

```
scale 50 51 msd 1, 0.2
```

This command scales picture 50 to 51, with a final mean of 1 and a standard deviation of 0.2.

```
scale range 1e3, 1.3e3
```

This command scales the current picture into the range 1000–1300.

```
min=0 max=2; scale preset range 20, 10
```

This command scales the current picture so that the range 0–2 becomes 20–10 (which means a contrast reversal).

**Description**

If necessary, **scale** scans the source picture to determine the initial range or mean/standard deviation. Note that an *abandon* request at this stage simply causes it to continue with estimated parameters.

**scale** records the final range in the output picture label, and returns it in the variables *min*, *max* whenever it is known reliably (that is, unless you specify **msd** or **preset** or make an *abandon* request during an initial range scan). Otherwise, the variables *min* and *max* (and in the **msd** mode *mean*, *me2*, *sd* also) are reset to the source picture values.

## Semper 6 Command Reference

### scale

If the output is in *Byte* form, **scale** truncates pixels outside the range 0–255 at the nearer limit.

For more general rescaling operations, including histogram equalisation, use the **map** command.

#### Notes

multi-layer pictures:	fully supported
forms used internally:	integer (for <i>Byte</i> data), fp, complex
variables set:	<i>min</i> , <i>max</i> (unless <b>preset</b> or <b>msd</b> , final pixel range) <i>mean</i> , <i>me2</i> , <i>sd</i> (if <b>msd</b> , source picture mean and standard deviation)
variables used:	<i>min</i> , <i>max</i> (if <b>preset</b> , source picture pixel range)
see also:	<b>map</b>

#### Defaults and Ranges

keys/options	defaults	range
[from]	current picture, held in the variable <i>select</i>	valid picture number
[to]	source picture	valid picture number
range/msd	range 0–255	real numbers
preset	actual minimum and maximum pixel range	