

## lsd

<b>keys:</b>	<b>[from]</b>	<i>&lt;number&gt;</i>	source picture
	<b>[to]</b>	<i>&lt;number&gt;</i>	output picture
	<b>over</b>	<i>&lt;number&gt;</i>	width of block/ strip evaluated around each pixel

Use **lsd** to calculate the local standard deviation (root mean square deviation) over a square block of neighbouring pixels around each source pixel. In effect, **lsd** tells you the brightness variation around each pixel.

**Examples**

```
lsd 1; display
```

This command presents bright pixels wherever the source varies strongly within a 5 square neighbourhood – this operation is quite a good smooth edge detector.

```
hp 1 to 2 over 20; lsd to 3 over 20; min=-2 max62; calc :2/:3 to dis
```

This command displays 1 with mean and standard deviation both standardised over 20 pixel blocks.

**Description**

Note that with **lsd**, execution time is more or less independent of the block size, so you can use very large block sizes if necessary. You use the **over** key for the size of block over which the local average is to be taken (default 5).

Edge pixels of the source, where the block averaged overflows the source, are processed as if the boundary values are repeated indefinitely outwards. If you specify an even value for the **over** key, the replaced source pixel is rounded to the bottom right from the block centre.

**Notes**

multi-layer pictures:	faulted
forms used internally:	fp, complex
see also:	<b>imean, lvariance</b>

## Semper 6 Command Reference

**lsd**

### 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
over	width/strip 5	positive integer