

LASERGRAPH DSP RELEASE NOTES 2024

Contents

December 2024	2
New Piced Command "Do.SoftBlank"	2
New Trickfilm Command "SetBeamBrush"	4
New SetVariables Function "IOfBuffer()"	8

December 2024

Lasergraph DSP System Software 2024/12/12

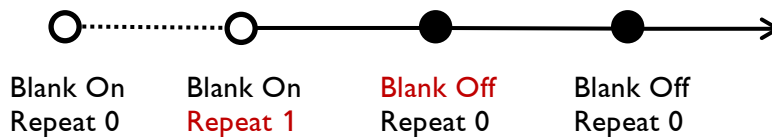
New Piced Command "Do.SoftBlank"

The new command "Do.SoftBlank" can be used to convert hard line endings into soft line endings. In addition to the fact that the pictures look more pleasant, the refresh rate is also increased in most cases.

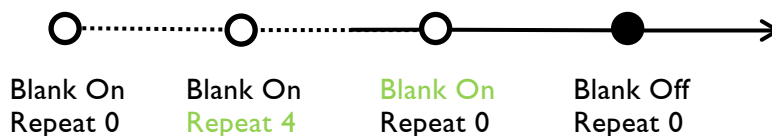
Do.SoftBlank [<Repeat>] /OnlyUp /OnlyDown

- <Repeat> The parameter "Repeat" is optional.
 If no repeat is specified, a repeat of 4 will be used.
- /OnlyUp By default all line beginnings and line endings will be modified.
 If "/OnlyUp" is specified, only line beginnings will be modified.
- /OnlyDown By default all line beginnings and line endings will be modified.
 If "/OnlyDown" is specified, only line endings will be modified.

Example of a line beginning with hard blank change:



The same line beginning after "Do.SoftBlank" is entered:



Notes:

- The command "Do.SoftBlank" only affects lines with hard blank changes (repeat > 0). Therefore, closed contours, such as circles, are not affected.
- To prevent short lines from disappearing completely, only lines with a minimum length of 3 resp. 2 sections are modified.

Example:



Original Picture



Do.SoftBlank



Do.SoftBlank /OnlyUp



Do.SoftBlank /OnlyDown

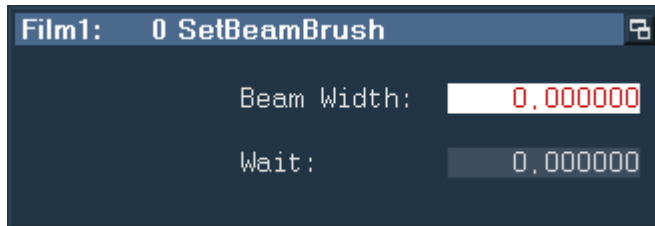
A big thank you to Bas Verstraelen for providing the pictures!

New Trickfilm Command "SetBeamBrush"

The old Lasergraph DSP already had an analog output signal on the 25-pin D-Sub connector for controlling the line width (Beambrush). Due to the lack of available hardware, there was no need to control this signal from the DSP.

This has now changed with the release of our flexible lens "LA.brush".

To be able to use it, there is a new Trickfilm command for setting the line width:



Beam Width The parameter "Beam Width" must be in range from 0.000 to 1.000. Where 0.000 is the smallest possible line width and 1.000 is the maximum possible line width.

Wait As the lens requires a certain time until the desired line width has been reached, you can use the parameter "Wait" to specify a time to wait before starting with the next picture.

Notes:

- Both parameters can also contain curves or variables.
- The line width set with the command "SetBeamBrush" remains valid for all subsequent pictures until it is changed by another "SetBeamBrush".

To have lines with different widths within a scene, you can achieve this by using several display commands.

Example:

```
Loop
  SetBeamBrush
  DisplayPicture
  SetBeamBrush
  DisplayPicture
LoopEnd
```

- For the future, it is planned to integrate the line width into the abstract generator and make it adjustable within a single picture.
- The preview window does not yet show different line widths.

Examples:



These and other examples can be found in the demo files under "Commands".

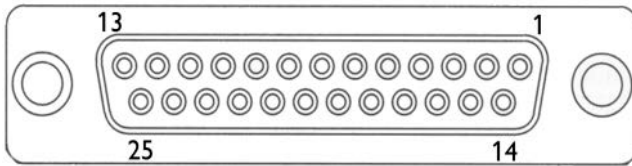
Hardware requirements:

How a projector equipped with LA.brush is connected to the Lasergraph DSP and what preparations are necessary for this depends on the projector and the concrete hardware of the Lasergraph DSP.

On old DSP cards of the Lasergraph DSP workstation (no ILDA output) there is a dedicated pin "Beambrush" for controlling the line width (pin 11).

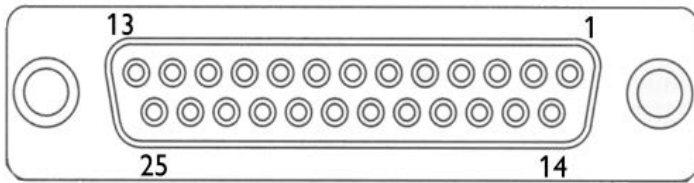
On new DSP cards (with ILDA output) and on the Lasergraph DSP compact, compact dual and travel, the signal "Beambrush" can be applied to the pin "User-defined signal 3" as an alternative to the color signal "Cyan" according to the ILDA Standard Projector specification. As the modification has to be done inside the device, we kindly ask you to contact us if you want to do this.

Lasergraph DSP workstation (old DSP Card)



PIN No.	PIN Assignment	Level
1	X	-10V ... +10V
2	Y	-10V ... +10V
3	Blank (beam on/off)	TTL (0V beam on, +5V beam off)
4	Blue (Color 3)	0V ... +5V
5	Green (Color 2)	0V ... +5V
6	Green (Color 2)	0V ... +5V
7	Cyan (Color 4)	0V ... +5V
8	Yellow (Color 6)	0V ... +5V
9	GND	
10	Logoshutter	0V ... +5V
11	Beambrush	0V ... +5V
12	DU	
13	P7	TTL
14	Red (Color 1)	0V ... +5V
15	3D L/R	TTL (0V: 3D left, +5V: 3D right)
16	3D on/off	TTL (0V: 3D on, +5V: 3D off)
17	GND	
18	Red (Color 1)	0V ... +5V
19	Blue (Color 3)	0V ... +5V
20	Indigo (Color 5)	0V ... +5V
21	Blank (beam on/off)	TTL (0V beam on, +5V beam off)
22	+5V (maximum 500 mA) Supply voltage	
23	GND	
24	DU	
25	DU	

Lasergraph DSP workstation (new DSP Card with ILDA Output),
Lasergraph DSP compact / compact dual / travel



PIN No.	Signal	Level
1	X+	-10V ... +10V against X-
2	Y+	-10V ... +10V against Y-
3	Intensity+	0V / +5V against Intensity-
4	Interlock A	Interlock loop
5	Red+	0V ... +5V against Red-
6	Green+	0V ... +5V against Green-
7	Blue+	0V ... +5V against Blue-
8	Indigo+	0V ... +5V against Indigo-
9	Yellow+	0V ... +5V against Yellow-
10	Cyan+/Beambrush+	0V...+5V against Cyan-/Beambrush-
11	3D L/R+	0V / +5V against 3D L/R-
12	reserved	Return lead for the projector
13	Shutter	0V ... +5V
14	X-	Return lead for X+
15	Y-	Return lead for Y+
16	Intensity-	Return lead for Intensity+
17	Interlock B	Interlock loop
18	Red-	Return lead for Red+
19	Green-	Return lead for Green+
20	Blue-	Return lead for Blue+
21	Indigo-	Return lead for Indigo+
22	Yellow-	Return lead for Yellow+
23	Cyan-/Beambrush-	Return lead for Cyan+/Beambrush+
24	3D L/R-	Return lead for 3D L/R+
25	GND	

New SetVariables Function "IOfBuffer()"

In older versions of the Lasergraph DSP System software there were already functions for querying and setting properties of a picture within a picture buffer:

XOfBuffer	Returns or defines the X-coordinate of a point
YOfBuffer	Returns or defines the Y-coordinate of a point
ZOfBuffer	Returns or defines the Z-coordinate of a point
NOfBuffer	Returns or defines the number of points in the picture
MOfBuffer	Returns or defines the matrix of a point
ROfBuffer	Returns or defines the repeat value of a point
VOfBuffer	Returns or defines the vector flag of a point
BOfBuffer	Returns or defines the blank value of a point
POfBuffer	Returns or defines the palette value of a point
COfBuffer	Returns or defines the color value of a point

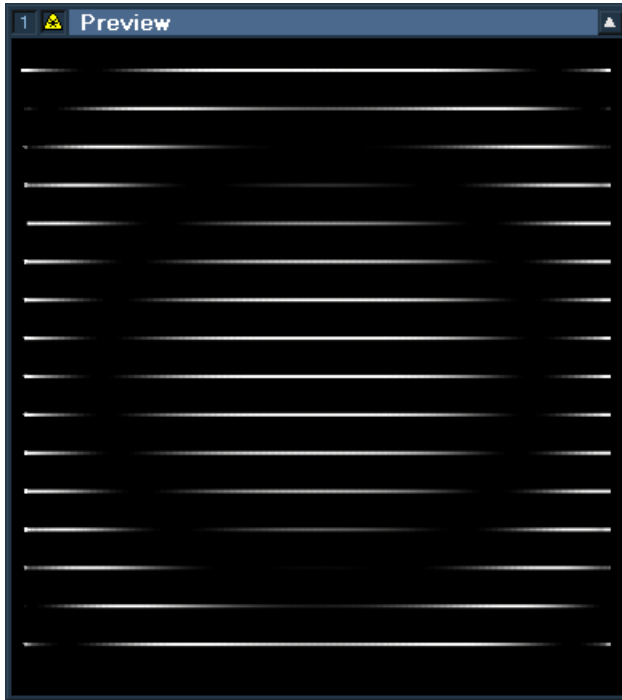
New is the possibility to query or change the brightness (intensity) of a point:

IOfBuffer (bn, x)	Returns or defines the intensity of a point "x" from the picture in buffer "bn". The value lies between 0.000 and 1.000.
bn	The number of the buffer has to be between 0 and 7.
x	x=0.000 is the first and x=1.000 is the last point of the picture.

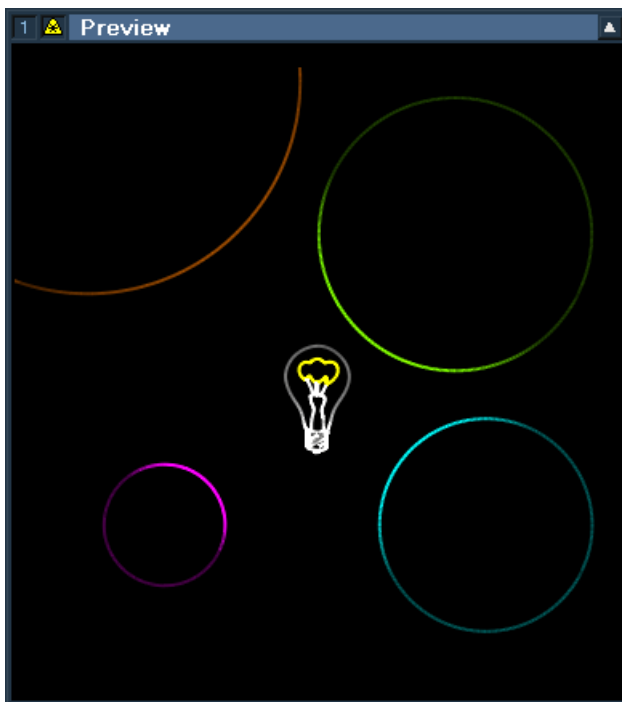
There are a wide range of possible applications for the new function. Some of them require basic mathematical knowledge, such as the examples on the following page.

For users without mathematical background, we will create different examples that can be easily adapted for use in your own shows.

Examples:



Sine-wave change of the brightness depending on the distance to the center



Drop shadow of a virtual light source