Installation and setting parameters to use David-laserscanner with the automated projector-controller

linescan3

by Gunter Weber 06.2009

Installing com0com

Download your com0com version from http://sourceforge.net/projects/com0com/

Unzip com0com to your desktop

Open the unzipped folder and run "setup.exe"

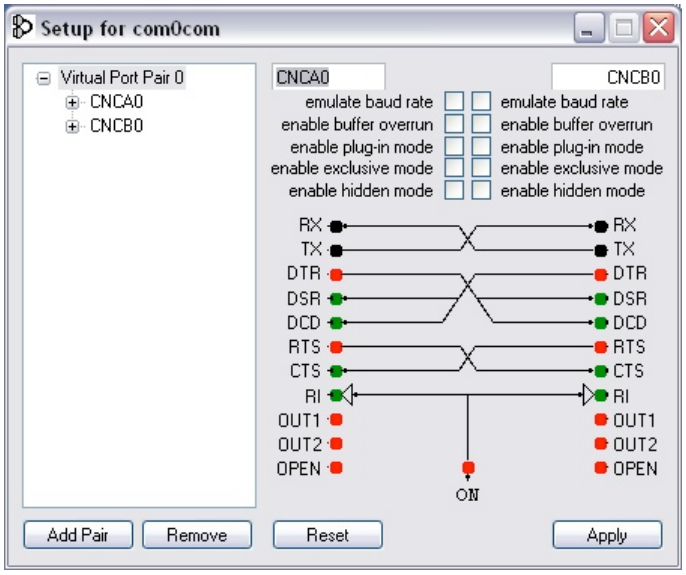
Accept all default settings of the installer. When finished close the installer.

Now WINDOWS hardware assistant detects two new devices and wants to search for updated software.
- select "No, not this time" and click Next;
- select "Install the software automatically (Recommended)" and click Next.
repeat this for the second device.

The one COM port pair with names CNCA0 and CNCB0 will be available on your system after the installation.

Settings

Open START/Programms/com0com/setup

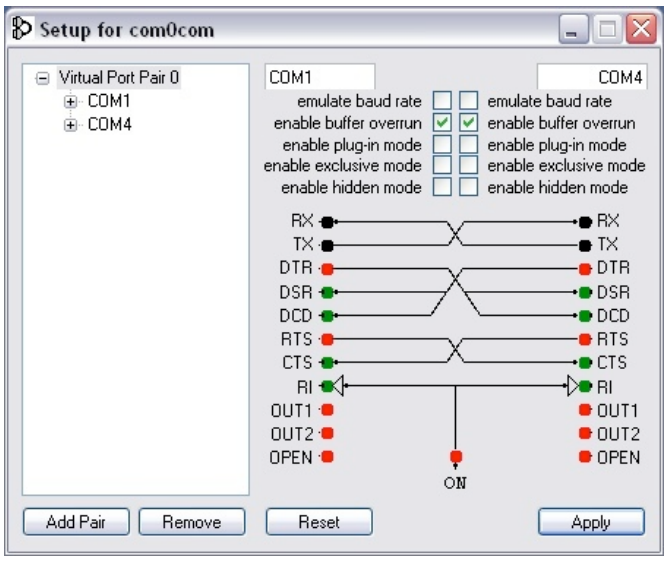


1. Now change the port‘s name from "CNCA0" to "COM1" (gets blue)
and change the port‘s name from "CNCB0" to "COM4"(gets blue)
(If one of the ports gets red this port is already in use by some advice)

2. Enable checkboxes at "enable buffer overrun" for both ports

3. Click Apply
(If a warning pops up that one of the ports is already in use, contact your admin to check out whether there might b a conflict. You can force com0com to use that port by clicking "continue")

Now the window should look like:



If so, close com0com;

(If not, correct the pin wires by clicking a pin on the left and dragging to the wished pin on the right. When done click Apply once again.)

Now your virtual COM connection is ready.
This connection will remain in your settings, so you´ve to do this only the very first time.

Setup your second monitor:
(you should connect your projector when your PC isn´t on)

Start your PC

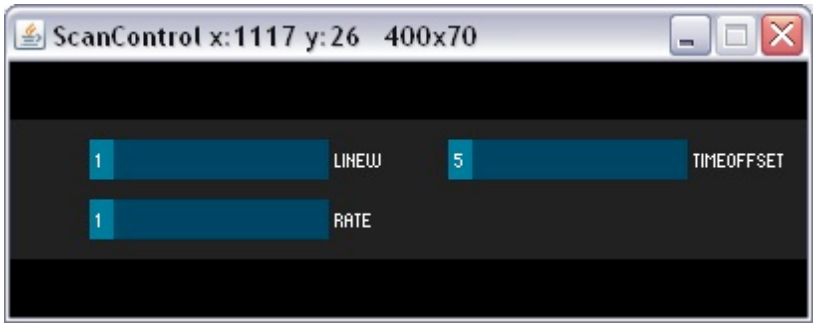
RMB click the desktop;
Choose Preferences;
Choose the preferences tab;

Drag your second monitor to the upper left of your first monitor;
Set its resolution to 1024x768;
Enable the second monitor.
Click OK;

Now your projector should show your desktop background.

Run linescan3.exe

Your projector gets black and maybe there is a white line at the top.
On your first monitor appears a small control dialogue (this has to stay open or minimised):



Slider "LINEW": line-width in pixels (0 means no line)
Slider "RATE": 1/RATE = progress of the line per frame (the higher, the slower)
TIMEOFFSET: delay between the received signal and the motion of the line

DAVIDs Advanced Settings

open DAVID

Click on „Advanced settings“ button

Browse to: AdvancedSettings/Laserscanner/LaserplaneCalculation/LaserMotionEstimation

Set:

Enabled value="TRUE"

MotionBase value="2"

ScanStartDetectionMode value="0"

UseRememberedPlanePoses value="False"

Browse to:
AdvancedSettings/Laserscanner/Triangulation

Set:

AllowPointsBehindPlanes value="True"

BackgroundFilterFactor value="-1"

Browse to:
AdvancedSettings/Communication

Set:

PortName value="COM4"

Browse to:
AdvancedSettings/Communication/Messages

Set:

AnalyzeImage value="M"

SetupCamScanning value="U"

All other values should be default values.
Close the advanced settings dialogue.

Do your Reference Scan

Now clicking forward to the calibration page of your projection should turn to white.

Do your calibration as usual.

Switch to scanning.

Now there are two radio buttons: Reference - and Repetition Scan.

Make sure that Reference is active.

I recommend to scan an empty corner to get the longest line on the reference planes to achieve the best plane calculation possible.

Simply click START.

The line appears at the projections bottom and moves slowly upwards.

When the line reached the top STOP.

Now there should pop up a message that DAVID has detected an rotating motion.

Now DAVID overwrites the file where it stores the positions of the light-planes for each frame: laser_motion.xml

So if you want to save a previous version of that file you should rename or move it before starting the reference scan.

Do your repetition scans

Now as long as you do not change the relation of cam and projector, you are able to scan without any background corner. If you leave the corner at its position, this is not a reference object any more but simply a part of the world that DAVID sees.