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The Curvace Viewer is a GUI application which works together with the [Curvace Readout Board](#) . The application allows to scan all serial ports for connected devices. These devices are recognized by an identification sequence sent by each device.

A device sends the alphanumeric 7 byte sequence 'CURVACE' followed by a protocol dependent numeric 3 byte sequence as identification. The Curvace Viewer currently supports two data transmission protocols.

### General Protocol

Both transmission protocols follow the same scheme:

- BOARD: send identification (repeat every 250ms)
- PC: send configuration (framerate and framenummer)
- BOARD: acknowledge configuration for top and bottom controller: stops sending identification, send configuration from top and bottom controller
- PC: send start signal
- BOARD: send 'framenummer' of data blocks (visual/OF) at given framerate
- BOARD: reset

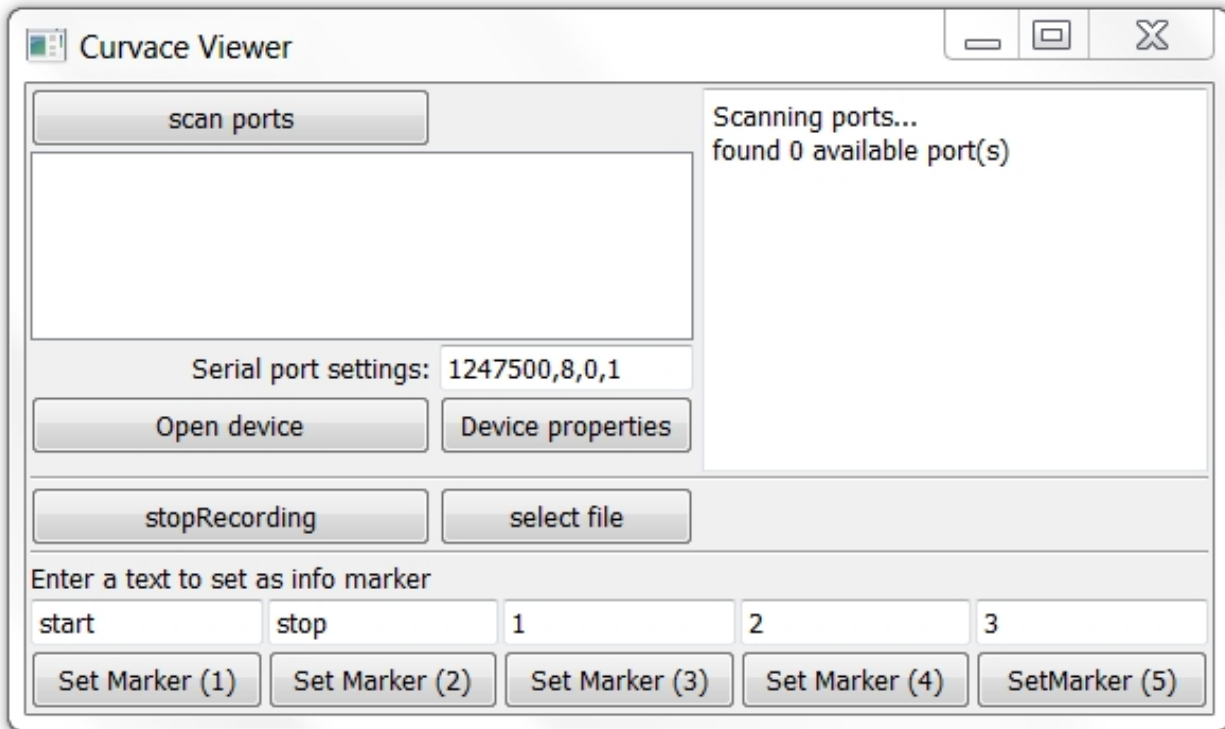
The serial connection runs at 1247500/8-N-1.

### Visual Data Transmission

With visual data transmission the Curvace Viewer receives the output of the photosensors. The Readout Board combines the data from both controllers on the cylindrical CURVACE to a single frame consisting of 42 x 15 data values each encoded in 2 bytes.

### Optic Flow Transmission

With the optic flow protocol no visual data is transmitted. Instead the Readout Board computes optic flow on-board and sends the optic flow data to the Curvace Viewer.



Curvace Viewer - main application control window

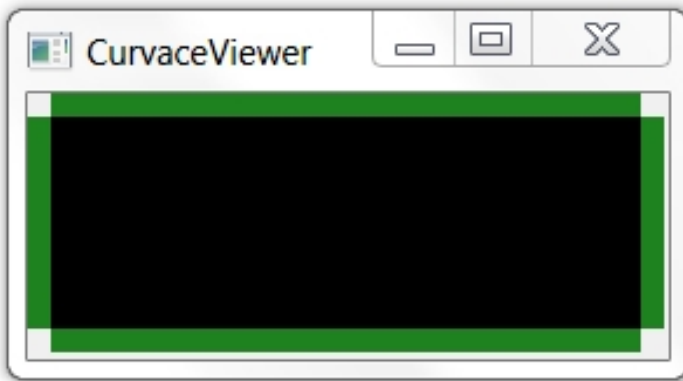
### Application Usage

Before scanning ports the serial port settings value must be set to the correct value. When the port scan is finished the Viewer shows a list of connected devices with the corresponding port and the identification number of the device.

By selecting a device and clicking on 'device properties' the user can change the settings that are used when opening the device (usually frame rate and frame number).

The select file dialog allows to save visual data to a CDS file. The recording can be forced to stop pressing 'stopRecording' while still receiving data from the device. The bottom row of 'set marker' buttons allow to add textual markers to the next recorded frame. The marker text can be freely adjusted. Additionally a time stamp is stored together with each recorded frame.

The message window on the right shows status information. The separate viewer window displays the received visual or optic flow data.



Curvace Viewer - data display window