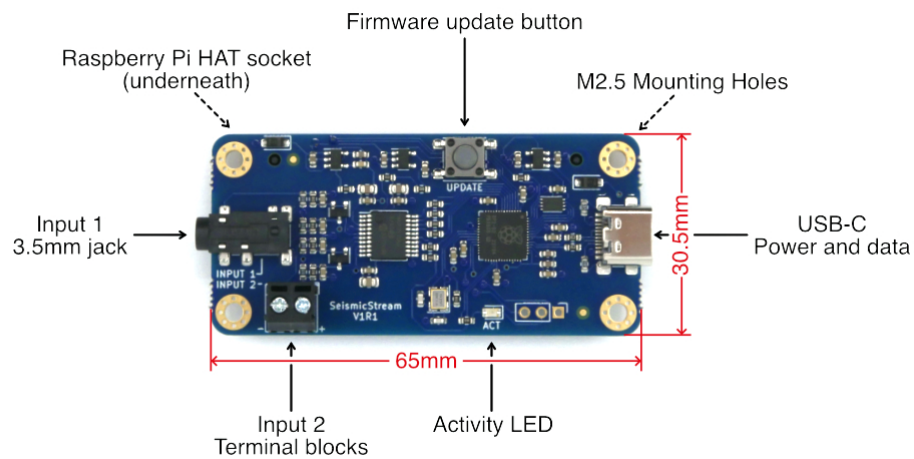# SeismicStream Seismometer Interface Technical Specs

RED-SST

The SeismicStream Interface has been designed as an easy-to-use, yet powerful, digitiser for seismic data. It is compatible with our own seismometer kits, using the 3.5mm jack connection, or other commercially available units using the terminal block input.

Features

The SeismicStream Seismometer Interface features the following:

- Based on the RP2040 chip

- USB-C connector

- Choice of inputs:

    - 3.5mm jack for use with our seismometer kits

    - Terminal posts for use with other seismometers or geophones

- 40-pin socket connector for connection to Raspberry Pis (optional)

- Red status indicator LED

- Simplified ASCII data output

Data Format

Data is sent as ASCII text, with one value per line:

```
20

100

0

-36
```

Sample Rate

On board, low-pass anti-aliasing filters are adjusted automatically when changing the sample rate (SPS). The following sample rates are available: 25, 50 and 100 SPS.

Gain

The following gains are available:

×1 = 0.64μV/count

×2 = 0.32μV/count

×4 = 0.16μV/count

×8 = 0.08μV/count

×16 = 0.04μV/count

Control Interface

The gain, sample rate and input can be adjusted by sending single characters over the serial port (USB or UART):

ASCII Character	Command	ASCII Character	Command
1	×1 = 0.64μV/count	a	25 SPS
2	×2 = 0.32μV/count	b	50 SPS
4	×4 = 0.16μV/count	c	100 SPS
8	×8 = 0.08μV/count	x	Input one
6	×16 = 0.04μV/count	y	Input two

Serial Port Settings

Baud rate	115200
Parity	None
Stop bits	1
Flow control	None

Drivers

Windows 10+, MacOS and Linux shouldn't require any extra drivers to connect to the SeismicStream board. If using an older version of Windows e.g. XP/7/8, it is possible to connect to the board by following the instructions outlined for serial connections to other RP2040 based boards e.g. the Raspberry Pi Pico.

Firmware Updates

The device's firmware can be updated by visiting the SeismicStream device webpage at https://seismic.redfern.uk, connecting to the board via USB, and then pressing the 'bootloader' button on the webpage. The SeismicStream will then appear as a drive on your computer. Download the latest firmware update (located next to the button itself) and copy this to the drive. It should automatically disconnect once it is successful.

Alternatively you can hold the 'update' button whilst plugging the SeismicStream board into your computer, which will also make it appear as a drive on your computer. Once again you will need to download the updated firmware and copy this across to the device. As with the other method, it should automatically disconnect the drive.
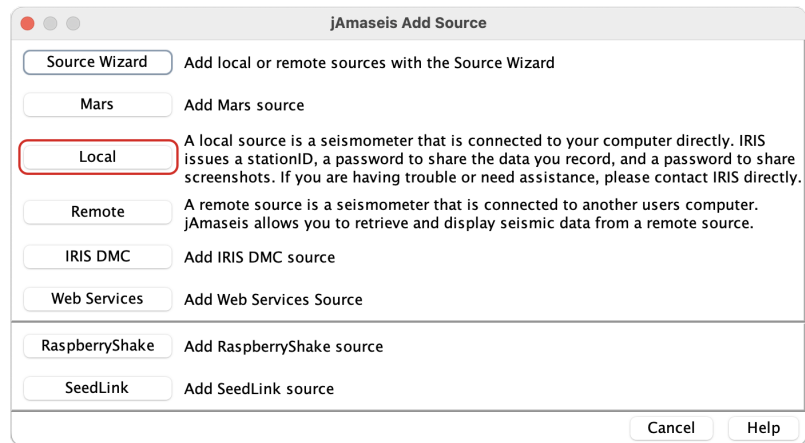
Using with jAmaSeis

The SeismicStream seismometer interface appears as a virtual COM port when connected to a computer via USB. This means that you are abe to use it with software like jAmaSeis, which can be found at https://iris.edu/hq/jamaseis.
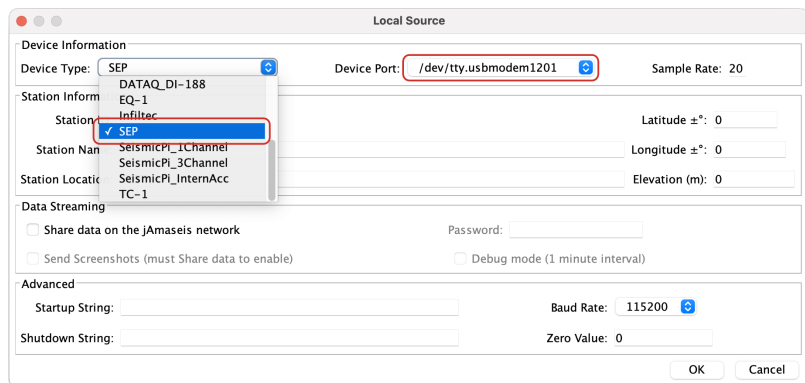
Open jAmaSeis

Navigate to `File → Manage Sources`
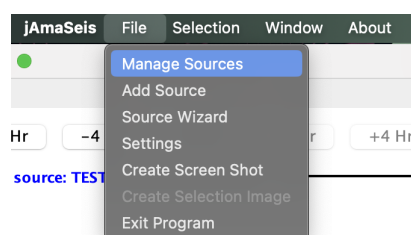
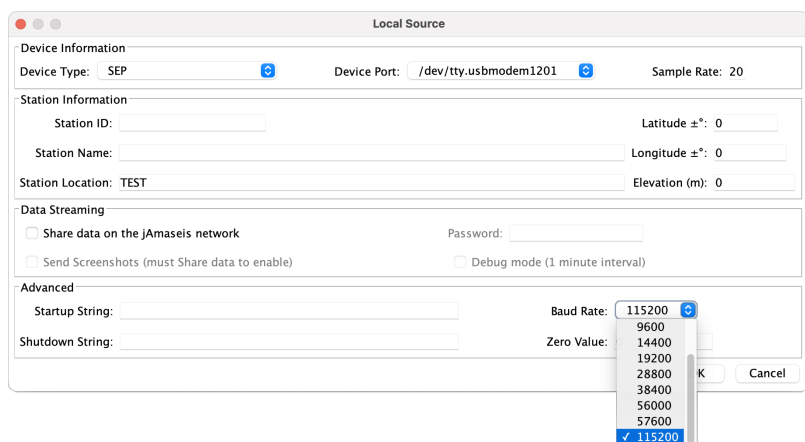
Press `Local` to add a local source
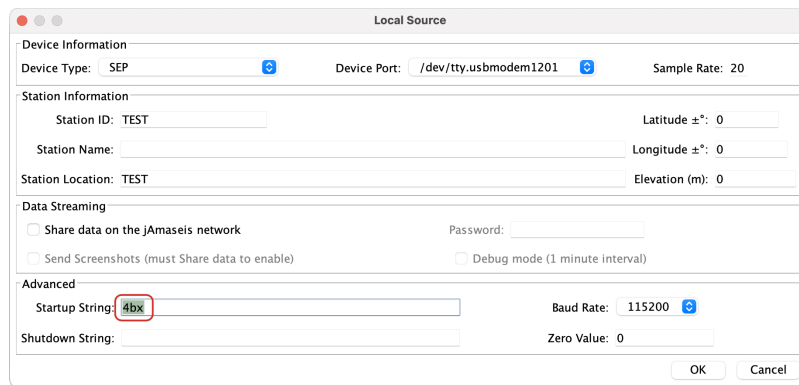

Set the `Device Type` to SEP (or SeismicStream if available). Choose the correct `Device Port` if more than one is available.

Set the `Baud Rate` to `115200`

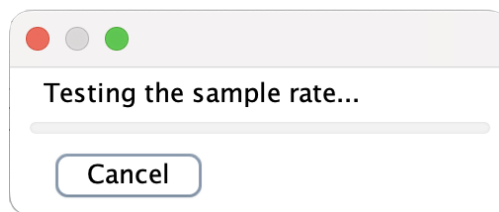Set the `Startup String` to what you require e.g. `4bx` — gain to x4, 50 SPS and input one.
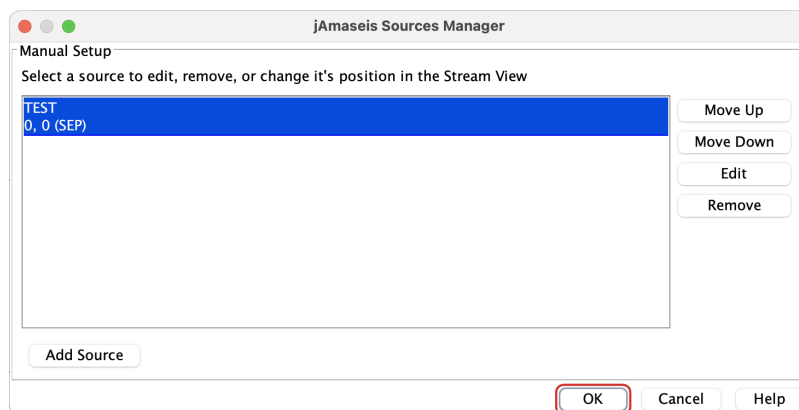
Note: You will be required to enter something into the Station ID box

Press **OK** to confirm then select your newly added SeismicStream source. If this is the first time adding the device, jAmaSeis will check the sample rate. This should only take a few seconds.

Finally press **OK** to exit the the sources manager. Your data stream should now be added to the stream view.