

FLS110 Evaluation Kit hardware and Windows 10 GUI

FLS110 Evaluation Kits are available to order through the Flusso [web site](#) and a number of distributors.

Figure 1 shows what's in the box.

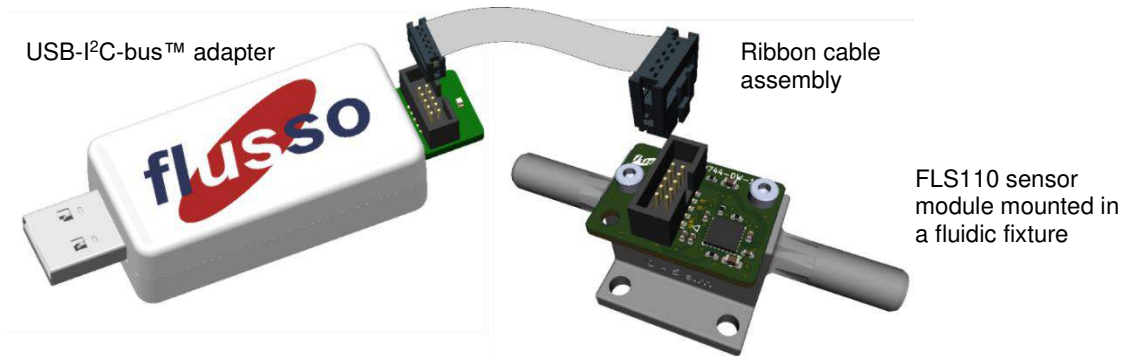


Figure 1: FLS110 Evaluation Kit hardware

A Windows 10 GUI that let's you operate the evaluation kit is available to download from the Flusso web site.

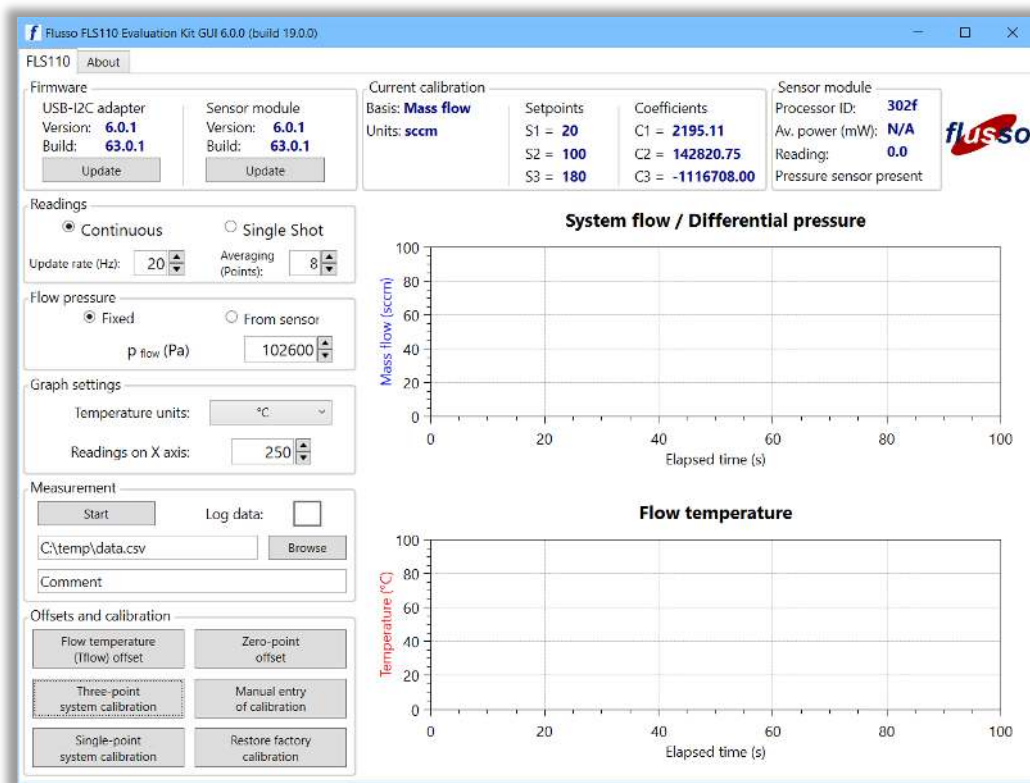


Figure 2: FLS110 Evaluation Kit Windows 10 GUI

With the fixture and sensor module pre-assembled and tested by us, you can quickly start trying out a real FLS110 flow sensing solution. Please refer to these documents for more information:

- FLS110 Evaluation Kit User Guide (FL-000956-UG)
- FLS110 Miniature Gas Flow Sensor Datasheet (FL-000038-DS)
- Developing Your Flow Sensing Solution With FLS110 (FL-000986-TN)

Evaluation Kit selection

From Table 1, select an FLS110 evaluation kit according to fixture type, your flow (or differential pressure) range of interest, and whether or not you wish to measure flow pressure as well. Pictures and more details about the different fluidic fixtures are provided in Table 2 on pages 3 to 6. The fixtures have unique product codes of their own embossed on the side, so you can check exactly what you have received.

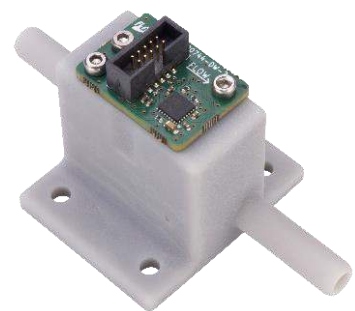
Table 1: FLS110 Evaluation Kit selector

FLS110-STM32 sensor module		Sensor module FL-001068-PT without flow pressure sensing	Sensor module FL-001168-PT with flow pressure sensing
<p>Top side of the module</p>		<p>Supplied with the Evaluation Kits listed in this column, below</p>	<p>Supplied with the Evaluation Kits listed in this column, below</p>
Fixture type	Nominal range 0..	Evaluation Kit product code	Evaluation Kit product code
Through-flow / DP	200 sccm / 500 Pa	FLS-110-EK-630 inline ports FLS-110-EK-771 parallel ports	FLS-110-EK-1173 inline ports FLS-110-EK-1391 parallel ports
Viscous bypass	5 slm	FLS-110-EK-673	FLS-110-EK-1174
	10 slm	FLS-110-EK-674	FLS-110-EK-1237
	25 slm	FLS-110-EK-675	FLS-110-EK-1238
	50 slm	FLS-110-EK-676	FLS-110-EK-1240
	100 slm	FLS-110-EK-677	FLS-110-EK-1242
	250 slm	FLS-110-EK-678	FLS-110-EK-1243
	500 slm	FLS-110-EK-679	FLS-110-EK-1244
Venturi		FLS-110-EK-622	FLS-110-EK-1392

Using the fluidic fixtures

The fluidic fixtures are 3D-printed in Accura® Xtreme™ grey material from 3D Systems Corporation (<https://www.3dsystems.com/>). No surface coating is applied. We have used this material successfully for testing at temperatures from 0 °C to +50 °C but it is not suitable for more extreme temperatures or long-term use – discolouration and embrittlement is to be expected with aging.

When connecting/disconnecting the fluidic fixtures to/from your test set-up beware of creating or disturbing dust that could be carried into the FLS110 by the flow and adversely affect sensing performance. Push-fit pneumatic connectors are very convenient but often have metal inserts to grip the tube, which scratch the surface and create dust. We recommend leaving them in place once fitted to the fixture.






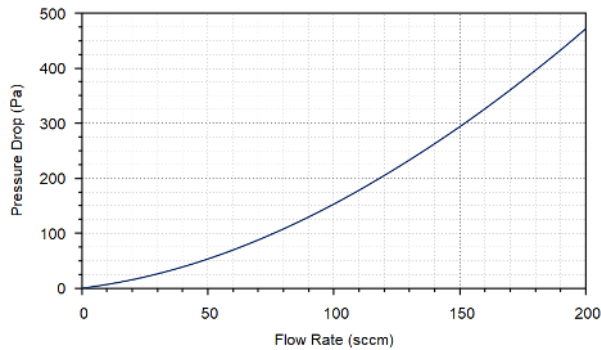


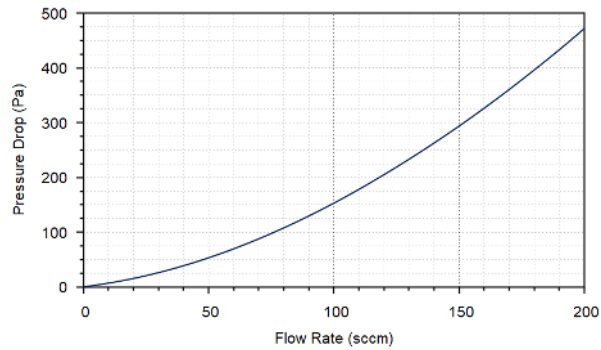




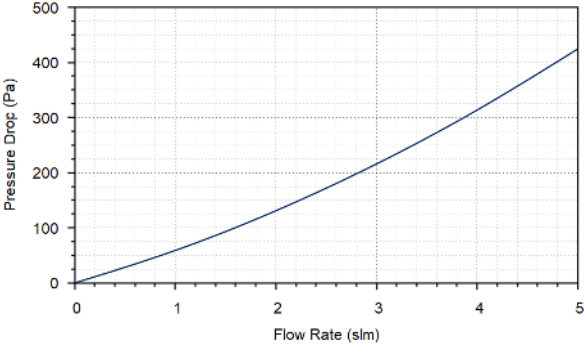


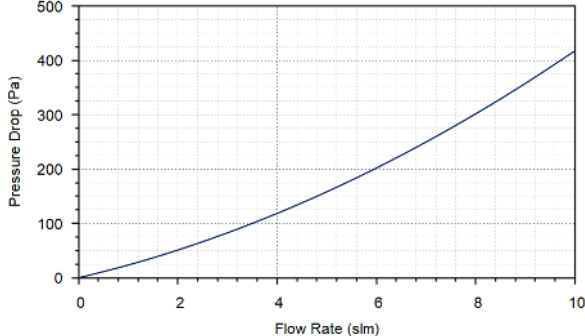


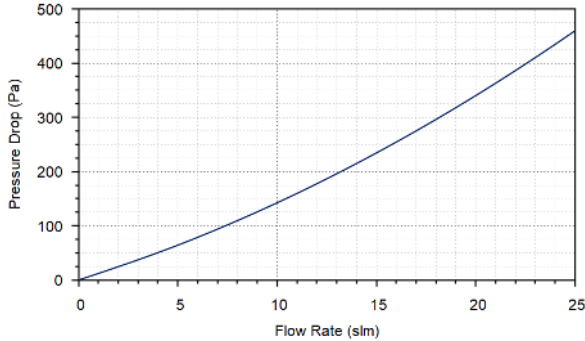
Avoid ingress of liquids; flow / DP readings will be incorrect, and it is likely that the FLS110 will be damaged.



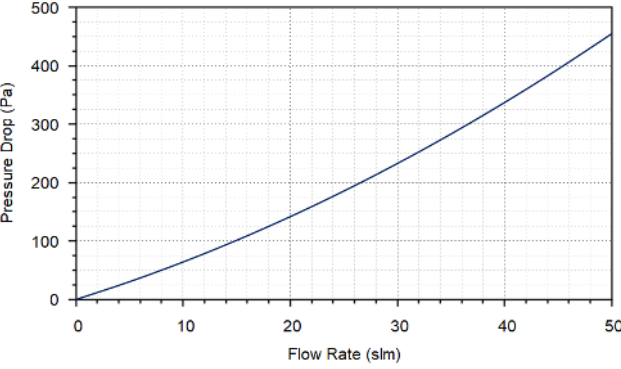


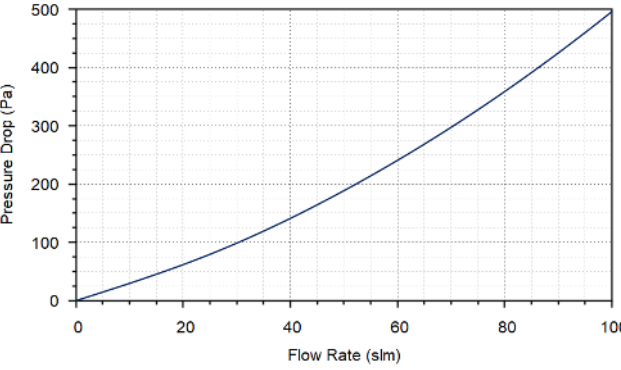


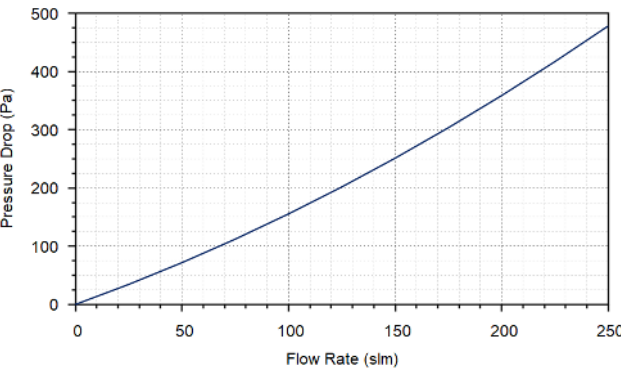
The FLS110 ports are sealed into fixtures using O-rings. If you need to replace them, we recommend Nitrile 50 ShA or 70 ShA, 1 mm inside diameter, 0.5 mm cross section.



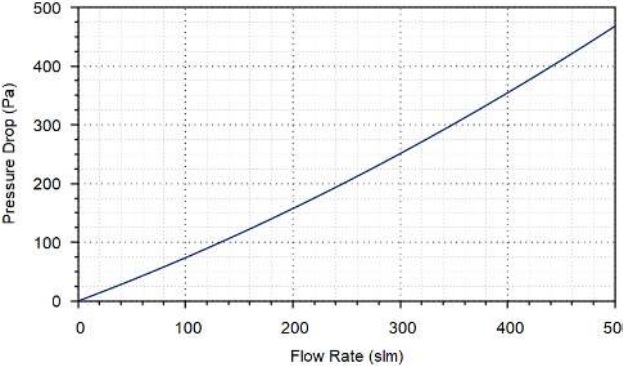


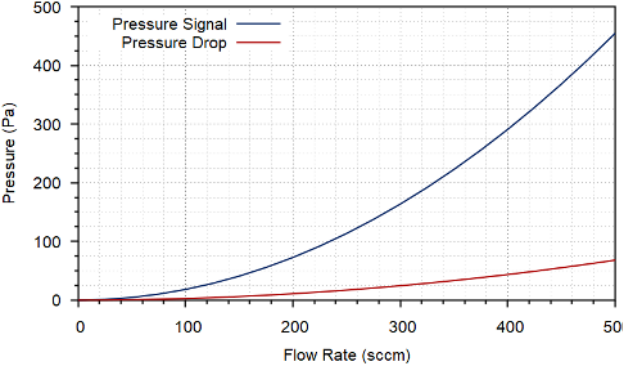
Table 2: Fluidic fixture details for the different FLS110 Evaluation Kits

Below the evaluation kit product code **FLS-110-EK-xxxx** we show the product code fluidic fixture itself FL-xxxxxx-DW and envelope dimensions (L x W x H)

FLS110-STM32 module	Product code FL-001068-PT	Product code FL-001168-PT	Notes
	 For Evaluation Kits and fluidic fixtures listed in this column, below	 For Evaluation Kits and fluidic fixtures listed in this column, below	FLS110 datasheet performance specifications are based on through-flow measurements using FLS110-STM32 reference design modules, running Flusso's standard firmware. For more details see: FLS110 Hardware Design Guide (FL-000607-TN) FLS110 Firmware Integration Guide (FL-000939-TN) The PCB reference for both types is FL-000744-DW.
Evaluation kits and fixtures	Without pressure sensor port	With flow pressure sensor port	Typical characteristic
Evaluation kit product code: Fluidic fixture (size): Type Through-flow, DP Range 200 sccm, 500 Pa Port OD 6 mm	FLS-110-EK-630 FL-000630-DW (70 x 30 x 27 mm) 	FLS-110-EK-1173 FL-001173-DW (70 x 36 x 27 mm) 	 <p>Pressure Drop (Pa) vs Flow Rate (sccm)</p>
Evaluation kit product code: Fluidic fixture (size): Type Through-flow, DP Range 200 sccm, 500 Pa Port OD 6 mm	FLS-110-EK-771 FL-000771-DW (24 x 10 x 30 mm) 	FLS-110-EK-1391 FL-001391-DW (24 x 16 x 30 mm) 	 <p>Pressure Drop (Pa) vs Flow Rate (sccm)</p>

Evaluation kits and fixtures	Without pressure sensor port	With flow pressure sensor port	Typical characteristic
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 5 slm Port OD 6 mm</p>	<p>FLS-110-EK-673 FL-000673-DW (59 x 24 x 20 mm)</p> 	<p>FLS-110-EK-1174 FL-001174-DW (59 x 30 x 20 mm)</p> 	
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 10 slm Port OD 6 mm</p>	<p>FLS-110-EK-674 FL-000674-DW (61 x 24 x 16 mm)</p> 	<p>FLS-110-EK-1237 FL-001237-DW (61 x 30 x 16 mm)</p> 	
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 25 slm Port OD 10 mm</p>	<p>FLS-110-EK-675 FL-000675-DW (98 x 24 x 19 mm)</p> 	<p>FLS-110-EK-1238 FL-001238-DW (98 x 30 x 19 mm)</p> 	

Evaluation kits and fixtures	Without pressure sensor port	With flow pressure sensor port	Typical characteristic
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 50 slm Port OD 13 mm</p>	<p>FLS-110-EK-676 FL-000676-DW (133 x 17 x 27 mm)</p> 	<p>FLS-110-EK-1240 FL-001240-DW (133 x 23 x 27 mm)</p> 	
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 100 slm Port OD 16 mm</p>	<p>FLS-110-EK-677 FL-000677-DW (133 x 17 x 27 mm)</p> 	<p>FLS-110-EK-1242 FL-001242-DW (133 x 30 x 27 mm)</p> 	
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 250 slm Port OD 25 mm</p>	<p>FLS-110-EK-678 FL-000678-DW (205 x 26 x 33 mm)</p> 	<p>FLS-110-EK-1243 FL-001243-DW (205 x 26 x 33 mm)</p> 	

Evaluation kits and fixtures	Without pressure sensor port	With flow pressure sensor port	Typical characteristic
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – viscous Range 500 slm Port OD 25 mm</p>	<p>FLS-110-EK-679 FL-000679-DW (225 x 30 x 37 mm)</p> 	<p>FLS-110-EK-1244 FL-001244-DW (225 x 30 x 37 mm)</p> 	
<p>Evaluation kit product code: Fluidic fixture (size): Type Bypass – venturi Range 500 slm Port OD 25 mm</p>	<p>FLS-110-EK-622 FL-000622-DW (200 x 25 x 33 mm)</p> 	<p>FLS-110-EK-1392 FL-001392-DW (200 x 25 x 33 mm)</p> 	 <p>Venturi pressure signal is greater than the system pressure drop</p>