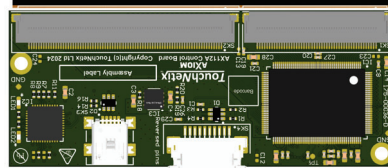


Brilliance



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1 Highlights

Brilliance multi-touch capacitive touch sensors and assemblies have the following features:

- TouchNetix™ aXiom controller with >80dB SNR for the best HMI performance in harsh environments.
- Low sensor drive voltage for low RF emissions and long-term sensor reliability.
- Industry-leading EMC performance.
- 16-bit XY multi-touch reporting of up to 10 concurrent touches.
- 'Dual mode' capacitive measurement for thick glove and water operation.
- Support for very thick cover lenses including non-uniform (3D) surfaces.
- Support for air gaps between the lens and sensor.
- Programmable gain per node, so no issues with edge/corner sensitivity.
- Reporting rates of up to 250Hz.
- Narrow sensor edge margins.
- Reference driver code for integration with Windows™ and Linux™ embedded systems.¹
- Connection via USB mini-B connector or 10-way 1mm pitch ZIF FFC connector.
- Supported by TouchNetix™ proprietary TouchHub2 tuning/evaluation software for Windows™.
- "Mouse emulation" support in legacy OS and embedded versions of Windows™.
- Bare sensor supplied as 0.425mm thick PET substrate with bonded passive FPC.
- 3D CAD STEP files available.
- Support for 'dial on display'.
- Force/press sensing and haptics triggering - Contact TouchNetix™ for further information.

¹Link to TouchNetix™ GitHub <https://github.com/TouchNetix>

2 Ordering Part Numbers

2.1 Touch Sensor Assemblies

Name	Order code	(inches)		Orientation	LCD display AA size (mm)		Sensor size (mm)	
	Sensor & FPC Assy	Diagonal	Aspect Ratio		Long Axis	Short Axis	Long Axis	Short Axis
Gemini	840-00205	7	15:9	Landscape	152.45	93.84	165.13	108.02
Libra	840-00206	10.1	16:10	Landscape	219.96	138.00	229.18	153.38
Orion	840-00207	12.1	16:10	Landscape	263.62	165.60	274.25	182.48
Pegasus	840-00208	15.6	16:9	Landscape	344.23	193.54	356.96	212.44
Draco	840-00203	21.5	16:9	Landscape	476.64	270.51	490.87	389.69

Table 2.1-1: Touch Sensor Assemblies

This sensor list will be updated as new sizes are released. Please contact TouchNetix™ for the current Brilliance sensor road map.

2.2 Control boards

Order Code	Name	Touch Controller	Host Communications
830-00082	AX198A aXiom Control Board	AX198-I-LQFP256	I ² C and USB ²
830-00018	AX112A aXiom Control Board	AX112A-I-LQFP156	I ² C and USB ²
830-00071	AX80A aXiom Control Board	AX80A-I-LQFP128	I ² C and USB ²
830-00070	AX54A aXiom Control Board	AX54A-I-QFN88	I ² C and USB ²

Table 2.2-1: Control Board Information

2.3 Brilliance starter kit

The following kits are available.

Order Code	Order Description	Sensor	Controller
880-00102-A	7.0" Brilliance starter kit	Gemini	AX54A
880-00103-A	10.1" Brilliance starter kit	Libra	AX80A
880-00114-A	12.1" Brilliance starter kit	Orion	AX112A
880-00105-A	15.6" Brilliance starter kit	Pegasus	AX112A
880-00106-A	21.5" Brilliance starter kit	Draco	AX198A

Table 2.3-1: Brilliance start kit list

2.3.1 Brilliance starter kit contents

- Brilliance Sensor laminated to standard lens (7", 10.1", 12.1", 15.6", 21.5" Resp.)
- aXiom Control Board (AX198A, AX112A, AX80A, AX54A resp.)
- USB Cable (Type A Plug to Mini USB Type B Plug) 0.5m
- TouchNetix™ TouchHub2 evaluation and tuning software for Windows 10/11™
- Metal Touch probe assembly³

²For I²C only control boards contact TouchNetix

³Metal touch is required when running auto-tuning algorithm in TouchHub2 software.

3 Mechanical Specifications

3.1 Sensor / FPC Assembly

Base material:	2-layer PET film sensor
Thickness:	425um typ. Including top OCA layer.
Dimensions:	Refer to Section 9 Mechanical Drawings.
Outline drawings:	DXF/PDF/STP assembly drawings available on request.
LCD attachment:	Refer to Section 3.4
Attachment to housing:	See TNxAN00010 Recommended Attachment Methods for Touchscreen Assemblies.
Max lens thickness:	10mm glass.

Table 3.1-1: Sensor & FPC Assembly specifications

3.2 aXiom Control Board Assemblies

	AX198A	AX112A	AX80A	AX54A
Board material	FR4	FR4	FR4	FR4
Board thickness	1.0mm	1.0mm	1.0mm	1.0mm
Length	133mm	79mm	79mm	48mm
Width	71mm	32mm	33mm	42.5mm
Connections to sensor FPC	2 x Hirose FH28H-80S-0.5SH 80-way 1 x Hirose FH28-60S-0.5SH 60-way	1 x Hirose FH28H-80S-0.5SH 80-way 1 x Hirose FH28-50S-0.5SH 50-way	1 x Hirose FH28H-80S-0.5SH 80-way 1 x Hirose FH28-50S-0.5SH 50-way	1 x Hirose FH28-60S-0.5SH 60-way
Host Connection	MOLEX 52207-1060, 10-way 1mm FFC/FPC ZIF socket, top contact (SK4) USB MINI-B (SK5)	MOLEX 52207-1060, 10-way 1mm FFC/FPC ZIF socket, top contact (SK4) USB MINI-B (SK3)	MOLEX 52207-1060, 10-way 1mm FFC/FPC ZIF socket, top contact (SK3) USB MINI-B (SK4)	MOLEX 52207-1060, 10-way 1mm FFC/FPC ZIF socket, top contact (SK4) USB MINI-B (SK3)
Maximum component height	3.7mm (above PCB) – SK5	3.7mm (above PCB) – SK3	3.7mm (above PCB) – SK4	3.7mm (above PCB) – SK3

Table 3.2-1: Control board assembly details

NOTE:

- Components on top side of PCBs only.
- Rear side is suitable for adhesive tape mounting and is covered with solder resist but should not be assumed to be fully insulated.
- M2 mounting holes are provided, which are connected to GND on both sides of the PCB.

3.2.1 AX198A Control Board

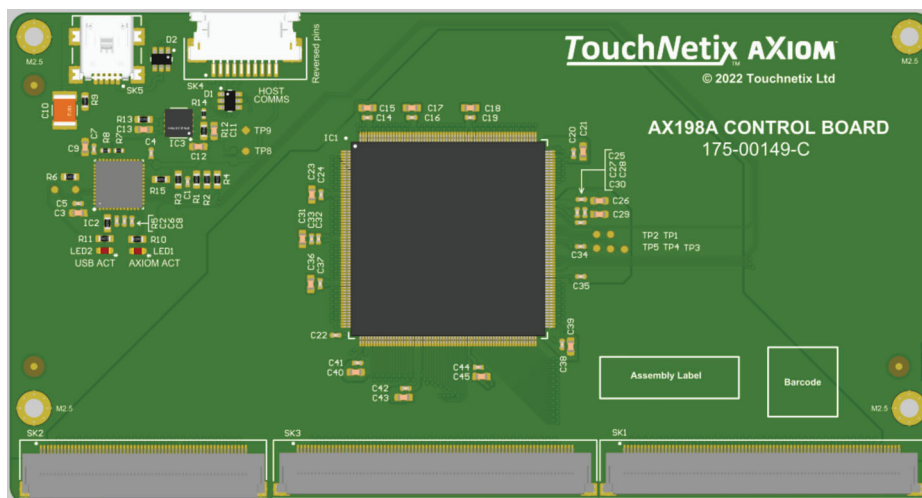


Figure 3.2.1-1: AX198A Control Board

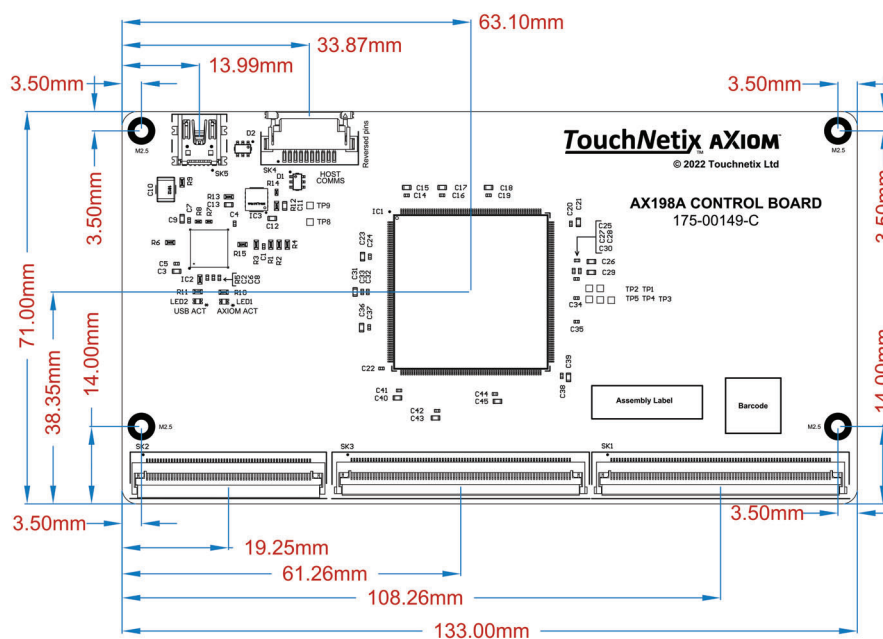


Figure 3.2.1-2: AX198A board measurements

3.2.2 AX112A Control Board

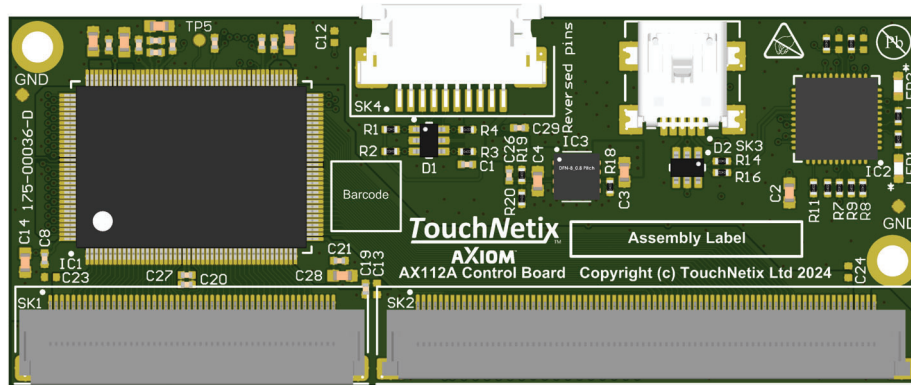


Figure 3.2.2-1: AX112A Control Board

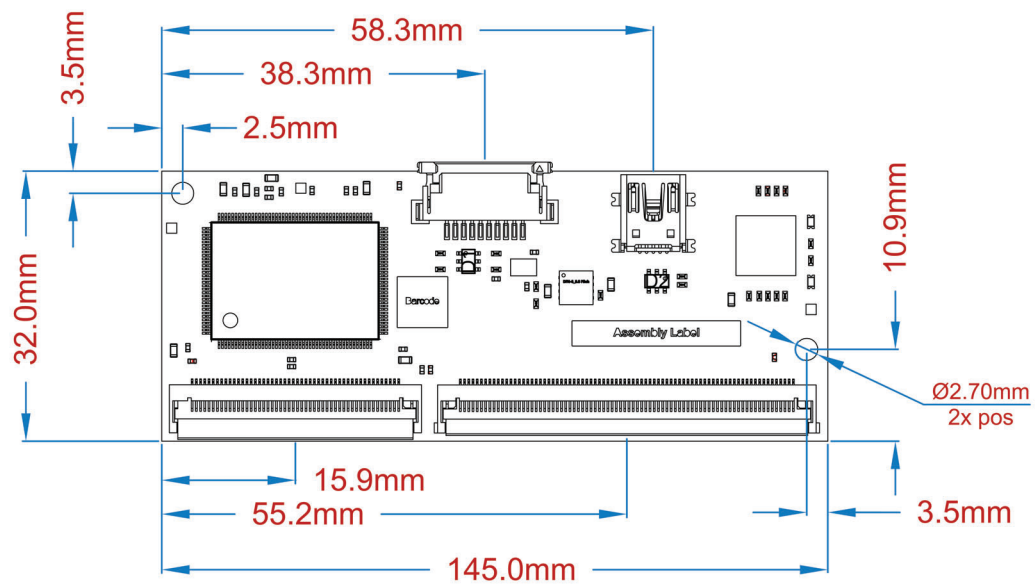


Figure 3.2.2-2: AX112A board measurements

3.2.3 AX80A Control Board

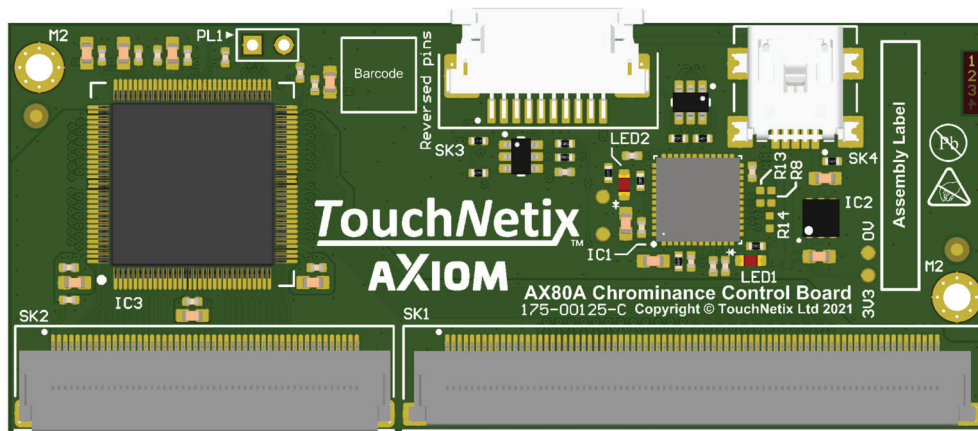


Figure 3.2.3-1: AX80A Control Board