



SHORTFORM DATASHEET
Subject to change, consult TNx prior to design-in

Part of the



Family of touchscreens

Rev	Date	Author	Notes
A1	23/02/2015	PG	First Issue

1 Highlights

Cybelle is part of TouchNetix’ Brilliance family of capacitive touchscreen assemblies.

It has the following features:

- + ***Up to 12-bit XY multi-touch reporting***
- + ***Supports up to 10 simultaneous touches***
- + ***Reporting rate typically 80 to 100Hz depending on configuration***
- + ***2mm chemically strengthened glass front lens***
- + ***Option for customizable cover lens up to 4mm glass subject to quantity***
- + ***Available as sensor only, without lens***
- + ***Robust sensor design allows operation with a wide range of 10.4” displays***
- + ***Industry leading EMC performance, especially for conducted immunity***
- + ***Viewing area is diagonal 4:3, tailored to fit most 10.4” TFT LCD panels***
- + ***I2C or USB communication interface***
- + ***Optional USB adapter PCB to support multi-touch HID digitizer or “mouse mode” in legacy O.S.s and embedded versions of Windows™***
- + ***Active FPC tail connects to host via low cost 10 way 1mm pitch ZIF connector***
- + ***Allows contemporary “bezel free” designs***
- + ***3D CAD available on request¹***
- + ***Supported by TouchNetix’ proprietary TNx TouchHub tuning software for Windows™***

¹ STEP file

2 Ordering Part Number

2.1 Touchscreen Assembly (sensor plus lens)

Part Number: **TNxBR-104A-A9-AB-002rr**



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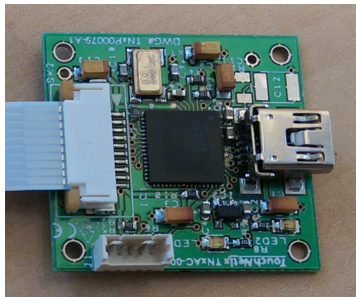
2.2 Sensor Assembly (no lens)

Part Number: **TNxBR-104A-A9-AB-001rr**

2.3 Optional Accessories

2.3.1 Mouse Mode USB Adapter (TNxAC-003)

Connects to the 10-way FFC connector on the sensor control PCB and outputs to a USB Mini-B receptacle. This allows the host to treat the touch panel as a Mouse HID device in either relative (touchpad) mode or absolute (digitizer style) mode. The board measures 32x30mm².



² Note that J1 (rectangular 5-way B2W connector) in the picture is an optional fit and is *not* populated by default.

2.3.2 EVK

An evaluation kit is available

Part Number: TNxBR-EVK-104A-A9-AB-002rr

Each kit contains the following items:

- 1x Cybelle Touchscreen Assembly
- 1x TNxAC-003 Mouse Mode USB Adapter
- 1x USB stick containing TNx TouchHub evaluation and tuning software for XP/Win7/8

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3 Specifications

3.1 Sensor

Base material:	PET (Polyethylene terephthalate) interconnects in silver
Thickness:	0.5mm typ. from rear of lens
Overall dimension:	243.85mm x 188.8mm typ.
Active (touch) area:	216.6mm by 163.2mm
Transmittance	>85%
Max lens thickness:	4mm glass, 2.5mm polycarbonate, 2mm acrylic
Mass:	Consult TNx
Orientation:	Suitable for portrait or landscape use
Attachment to housing:	See “TNxAN00010 Recommended Attachment Methods for Touchscreen Assemblies”

3.2 Standard Cover Lens

Material:	2.0mm (nom) chemically strengthened soda-lime glass
Overall dimensions:	269.3mm by 208.9mm
Transparent window:	211mm by 158.2mm
Border decoration:	Process black ink, rear-side printed
Surface treatment:	None
Surface hardness:	6-7H typ.
Anti-shatter:	Fragmentation resistance of bonded sensor ³
Protective film:	Peel off type, to entire upper lens surface

3.3 FPC

Position:	Exits sensor at middle of short edge
Material:	Polyimide substrate + localized epoxy-glass FR4 rigidiser
Rigidiser dimensions:	39.5mm by 29.7mm
Rigidiser thickness:	1.6mm
Components:	Top (touch) side only above rigidiser
Max component height:	1.8mm above rigidiser top surface
Flexible Tail Length ⁴ :	50mm
Tail overall from sensor:	120mm
Bond width at sensor	163.5mm
Contact fingers:	Gold plated
Mounting:	See “TNxAN00009 FPC Considerations for Touchscreen Assemblies”
Host connector type:	1mm pitch 10way ZIF. Example: FCI SFW10R-2STxxLF or equivalent
Min bend radius:	2mm
Max bending cycles:	3

³ Application testing required: sensor does not cover entire lens

⁴ Measured from contacts to the nearest edge of the component rigidiser

3.4 LCD Mounting

An LCD can be mounted to the rear of the sensor using an adhesive gasket⁵ using suitable pressure sensitive adhesive e.g. 3M VHB™ or equivalent⁶. The sensor is also suitable for full optical bond to the LCD using wet or dry adhesive. Contact TNx for guidance.

See “TNxAN00010-A1 Recommended Attachment Methods for Touchscreen Assemblies”.

It is strongly recommended that early testing with a target LCD is conducted to identify any incompatibilities with noisy LCD drive electronics⁷.

3.5 Environmental

Operating temperature:	-20°C to +70°C
Operating humidity:	5 to 90% RH non-condensing
Storage temperature:	-30°C to +85°C
Storage humidity:	45 to 85% RH non-condensing
Impact rating:	IK rating dependent on final application. Consult TNx
RoHS:	Compliant

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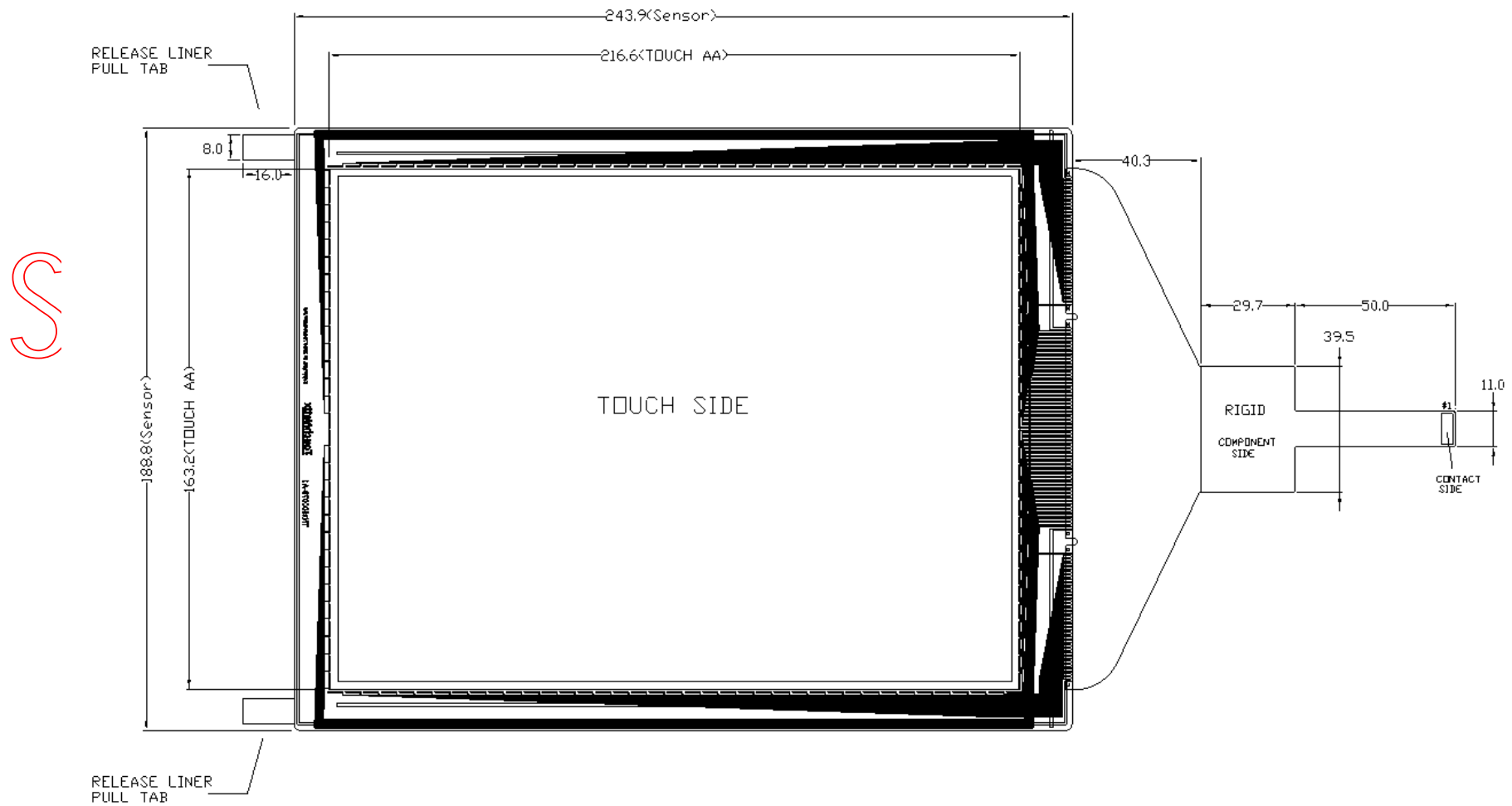
⁵ To be fitted by customer or as part of 3rd party “moduler’s” responsibility

⁶ It is very important to conduct material compatibility trials for any adhesives that are in direct contact with any part of the sensor, unless they are already proven to be non-aggressors

⁷ The Brilliance series is designed to repel most LCD noise but there are so many LCD variants with radically different levels of noise emitted, that pre-testing is advised.

6 Mechanical Drawings

6.1 Sensor Assembly drawing



6.2 Touchscreen Assembly drawing

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