“Cybelle” 10.4” Touchscreen Assembly Datasheet

Part of the

Brilliance

Family of touchscreens

Subject to change, consult TNx prior to design-in

<table>
<thead>
<tr>
<th>Rev</th>
<th>Date</th>
<th>Author</th>
<th>Notes</th>
</tr>
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<tr>
<td>A1</td>
<td>23/02/2015</td>
<td>PG</td>
<td>First Issue</td>
</tr>
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</table>
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 request**
- **Supported by TouchNetix’ proprietary TNx TouchHub tuning software for Windows™**

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1 STEP file
2 Ordering Part Number

2.1 Touchscreen Assembly (sensor plus lens)

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

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.

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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
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
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: 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 gasket\(^5\) using suitable pressure sensitive adhesive e.g. 3M VHB™ or equivalent\(^6\). 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 electronics\(^7\).

3.5 Environmental

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-20°C to +70°C</td>
</tr>
<tr>
<td>Operating humidity</td>
<td>5 to 90% RH non-condensing</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-30°C to +85°C</td>
</tr>
<tr>
<td>Storage humidity</td>
<td>45 to 85% RH non-condensing</td>
</tr>
<tr>
<td>Impact rating</td>
<td>IK rating dependent on final application. Consult TNx</td>
</tr>
<tr>
<td>RoHS</td>
<td>Compliant</td>
</tr>
</tbody>
</table>

\(^5\) To be fitted by customer or as part of 3\(^{rd}\) 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