Touch Display Switch

CDS1 unpowered  | Example: partial mode pictures  | Backside with terminals

**Description**
- Capacitive touch technology in combination with an OLED Display
- Four softkeys and one touch button
- Functions: rotating, swiping horizontally or vertically, and tapping
- Upload of own pictures in png format and animated gif videos via USB Interface
- No operation system software necessary for the operation of the CDS1, only the machine simulator runs on MS Windows 7 and higher
- Selection from three interfaces: I2C, SPI, RS232

**Unique Selling Proposition**
- Configurable Input System
- Full Size Touchscreen
- Round shaped OLED Display
- Plug and Play

**Weblinks**
html-datasheet, General Product Information, CE declaration of conformity, RoHS, CHINA-RoHS, CAD-Drawings, Product News, Detailed request for product, Landing Page, Video
### Technical Data

#### Electrical Data
- **Supply Voltage Vcc**: 3.3 VDC ± 5%
- **Logic Input Low**: min. 70% Vcc
- **Logic Input High**: max. 30% Vcc
- **Reverse Polarity Protection**: yes
- **Connector to internal Mass Storage**: Micro USB-B 2.0
- **Connector to Customer System Control Unit**: JST XHP 10, protected against torsion
- **Interface to Customer System Control Unit**: i2C (100 kHz or 400 kHz), 4-line SPI or RS232

#### Current Consumption (Vcc = 3.3 VDC, RS232 Interface)
- All features off, sleep mode: 20 mA
- Only Touch active: 20 mA
- Only LED active (white): 110 mA
- Only Display active, full white: 210 mA
- All features on, LED and Display full white: 260 mA

#### Display
- **Type**: Graphic-PMOLED
- **Color Resolution**: 65k colors
- **Resolution**: 128 x 128 RGB Pixels
- **Brightness**: 90 cd/m², adjustable in 16 steps
- **Contrast**: 2000:1
- **Viewing Angle**: 160°
- **Refresh Rate**: 25 Pictures per sec.
- **Display Life Time**: min. 11000 h

#### Home Button LED on 6 o’clock position
- **Type**: RGB
- **Illumination Pattern**: constant, blinking 2x per sec., pumping from 0% to 100% within 1 sec and back
- **Brightness**: adjustable in 16 steps

#### Touch Data
- **Technology**: PCAP
- **Touch Pattern**: Full X-Y
- **Soft Key Positions**: 3, 6, 9, and 12 o’clock position on the Touch Wheel
- **Touch Button Position**: Center of the display
- **Soft Key / Touch Button short**: 128 to 500 ms
- **Soft Key / Touch Button long**: > 500 ms
- **Touch Movements**: Swipe Left to Right, Swipe Right to Left, Swipe Top to Bottom, Swipe Bottom to Top, Rotation Left, Rotation Right, Tap on Soft Key / Touch Button
- **System Response Time**: < 150 ms

#### Media Data
- **Mass Storage Size**: 4 Mbyte
- **Picture Format**: png
- **Picture Size**: 128 x 128 pixel
- **File Size for Pictures**: max. 20 kByte
- **Video Format**: gif
- **Video Picture Size**: 128 x 128 pixel
- **File Size for Videos**: max. 128 kByte
- **Frame Rate for animated gif videos**: min. 60 ms

#### Ambient Light Sensor
- **Sensitive Wavelength Range**: 390 - 700 nm
- **Resolution**: 12 Bit

#### Mechanical Data
- **Shock Protection**: IK 05 acc. to IEC/EN 62262
- **Screw Tightening Torque for Mounting Ring**: max. 0.2 Nm

#### Climatrical Data
- **Operating Temperature**: -20 to 60 °C
- **Storage Temperature**: -20 to 70 °C
- **IP Protection Class Front Side**: IP 67 when mounted with Seal Ring, IP 40 otherwise
- **Moisture sensitivity level**: MSL 1

#### Material
- **Housings**: PC
- **Mounting Ring**: PC
- **Seal Ring**: NBR70
- **Touch Surface**: Glass

#### Product Tests
- **Change of temperature**: -25°C / +65°C / 50%RH according to IEC 60068-2-14 Test N
- **Damp heat, steady state**: 40°C / 95%RH / 21 days according to IEC 60068-2-78
- **Glow wire test**: 750°C and 850°C according to IEC/EN 60695-2-11:2014 and IEC/EN 60335-1

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1: mechanical reverse polarity protection made from the combination of the plug and the socket; no internal reverse polarity protection
2: The life time of the display is typically defined as the time it takes for the display to lose half of its brightness and depends on the displayed pictures and animated gif video pictures. The darker the pictures and the lower the brightness, the longer the display life time
3: Partial pictures are allowed to have smaller size
4: O-Ring is not included in the 10 pcs package

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Detailed information on product approvals, code requirements, usage instructions and detailed test conditions can be looked up in General Product Information
Metal Line Switches
https://www.schurter.com/PG70

Dimension [mm]
CDS1 Module

![Dimension Diagram](image)

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<thead>
<tr>
<th>Dimension [mm]</th>
<th>CDS1 Module</th>
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Mounting ring

Assembly Instructions

SoftKey and Touch Button positions

12 o'clock

Ambient light sensor

9 o'clock

3 o'clock

Touch Button

6 o'clock (Home Button)

Mounting of the Design-In-Kit using the mounting ring

Mini USB-B to mass storage

Pin 1 supply voltage (+)

interface connector to customer system control

Pin 2 supply voltage (-)

variable for Front-Panel thickness

Mounting ring
Example for housing with integrated screw domes for mounting without mounting ring

Example for housing with screws from the panel front for mounting without mounting ring

Diagrams

### Pinout of FST XHP-10

<table>
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<tr>
<th>Pin-Nr.</th>
<th>Signal</th>
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<th>RS485</th>
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<td>x</td>
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### Pinout USB Port

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<td>ID</td>
<td>ID</td>
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</tr>
<tr>
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<td>GND</td>
<td>GND</td>
<td>ground</td>
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¹ Optional signal
² Signal is active low

### All Variants

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Availability for all products can be searched real-time: https://www.schurter.com/en/Stock-Check/Stock-Check-SCHURTER
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