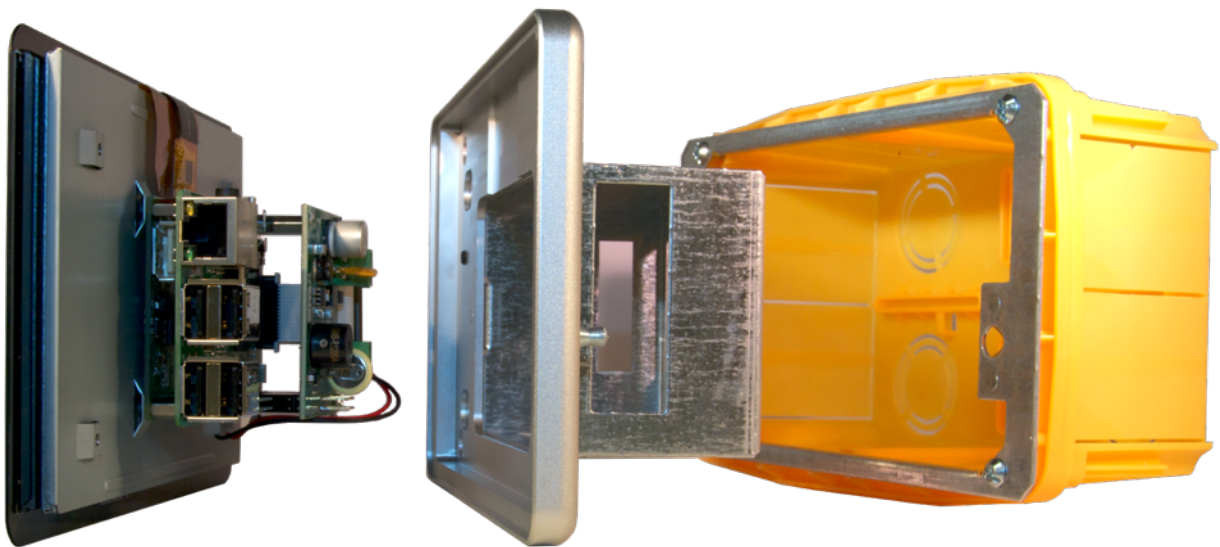# Strato Pi Touch Display
Quick Reference

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www.sferalabs.cc

To avoid electrical shock or damage to the electronic components, always disconnect the power from Strato Pi Touch Display before you work on it. Don't touch any components on the Raspberry Pi card or other cards while the device is on.

Follow all applicable electrical safety standards, guidelines, specifications and regulations for installation, wiring and operations of Strato Pi Touch Display.

<u>Carefully ead this Strato Pi Touch Display user guide before installation.</u>

Strato Pi Touch Display is not authorised for use in safety-critical applications where a failure of the product would reasonably be expected to cause personal injury or death. Safety-critical applications include, without limitation, life support devices and systems, equipment or systems for the operation of nuclear facilities and weapons systems. Strato is neither designed nor intended for use in critical military or aerospace applications or environments and for automotive applications or environment. Customer acknowledges and agrees that any such use of Strato Pi Touch Display is solely at Customer's risk, and that Customer is solely responsible for compliance with all le

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SPECIFICATIONS

Power supply	12/28V⎓ (VDC) Reverse polarity protection with auto resetting fuse. Surge protection up to ±500V/2ohms 1.2/50μs
5Vcc maximum output current (Ta 22 °C)	1.8 A @ 12V PS 2.0 A @ 24V PS
Battery input (UPS version only)	12V lead acid battery (not provided). Suggested capacity: 1.2Ah. Reverse polarity protection with auto resetting fuse. Surge protection up to ±500V/2ohms 1.2/50μs
Battery charge voltage (UPS version only)	15V
Battery charge current (UPS version only)	30mA at 12V battery voltage
Voltage threshold for switching to battery mode (UPS version only)	7.2V, 0.2V hysteresis
Typical current consumption at VS+=12V⎓ including Raspberry Pi 3 current, with low CPU/GPU load and no USB devices connected	430mA w/o Ethernet and battery 450mA with Ethernet and battery Actual current consumption may vary based on working conditions
Typical current consumption at VS+=24V⎓ including Raspberry Pi 2 current, with low CPU/GPU load and no USB devices connected	240mA w/o Ethernet and battery 250mA with Ethernet and battery Actual current consumption may vary based on working conditions
Raspberry platform compatibility	Pi 3 Model B
Raspberry Touch Display	display size: 7" diagonal resolution: 800 x 400 touch panel: 10-finger multi-touch
Serial communication ports (Base and UPS versions only)	RS485 Half-Duplex with automatic data direction management RS232 Full-Duplex
Baud Rates on COMM ports	1200 to 115200
ESD-Protection Voltage on RS232 TX/RX	±15kV human body model ±8kV contact discharge
ESD-Protection Voltage on RS485 A/B	±15kV human body model ±8kV contact discharge
Surge protection on RS485 A/B	Surge protection up to ±500V/2ohms 1.2/50μs; 600W peak pulse power capability at 10/1000μs waveform
Fail safe feature on RS485	Yes

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Installation and use restrictions

(Applicable in the European Union and other European countries with separate collection systems). This marking on the product, accessories or literature indicates that the product should not be disposed of with other household waste at the end of their working life. To prevent possible harm to the environment or human health from uncontrolled waste disposal, please separate these items from other types of waste and recycle them responsibly to promote the sustainable reuse of material resources. Household users should contact either the retailer where they purchased this product, or their local government office, for details of where and how they can take these items for environmentally safe recycling. This product and its electronic accessories should not be mixed with other commercial wastes for disposal.

Strato Pi Touch Display contains a small non rechargeable manganese dioxide lithium coin battery. This cell battery contain so little lithium that it should not qualify as a reactive hazardous waste. If you need to follow specific disposal procedures for the battery, it can be easily separated from the circuit board by simply cutting its two terminals near the soldering points (paying attention not to pinch or fracture the battery body).

Standards and regulations

The design and the setting up of electrical systems must be performed according to the relevant standards, guidelines, specifications and regulations of the relevant country. The installation, configuration and programming of the devices must be carried out by trained personnel. The installation and wiring of connected devices must be performed according to the recommendations of the manufacturers (reported on the specific data sheet of the product) and according to the applicable standards. All the relevant safety regulations, e.g. accident prevention regulations, law on technical work equipment, must also be observed.

Safety instructions

Protect the unit against moisture, dirt and any kind of damage during transport, storage and operation. Do not operate the unit outside the specified technical data. Never open the housing. If not otherwise specified, install in closed housing (e.g. distribution cabinet). Earth the unit at the terminals provided, if existing, for this purpose. Do not obstruct cooling of the units. Keep out of the reach of children.

Set-up

For the first installation of the device proceed according to the following procedure:

✓ make sure all power supplies and the external battery are disconnected

✓ install and wire the device according to the schematic diagrams on the specific data sheet of the product

✓ after completing the previous steps, switch on the power supply and other circuits.

Standards

- ✓ 2014/35/UE (Low Voltage)
- ✓ 2014/30/UE (EMC)
- ✓ EN61000-6-2:2005 (EMC Immunity)
- ✓ EN60664-1:2007 (Electrical safety)
- ✓ EN61000-6-3:2007 (Emission)
- ✓ 2011/65/UE (RoHS).

Hardware Installation

The Strato Pi Touch Display is shipped fully assembled. You will only have to access the Raspberry Pi board to install your microSD card, and connect the power and other optional cables.

Two M4 threaded holes in the back of the display panel are available to screw the display directly to a panel board. A optional back box is also available for in-wall installations.

μSD installation

As the μSD socket is behind the flat cable that connects the Pi board with the display control board, there is no direct access to the μSD socket when the Strato Pi UPS Touch Display is assembled. You will need to remove the back steel cradle to expose the electronic boards to insert and extract the μSD card.

1. Remove power and disconnect all other connections to the Strato Pi UPS Touch Display
2. Lay the Strato Pi UPS Touch Display face down on a soft surface to avoid scratching
3. Unscrew the two lock nuts to free the back cradle from the aluminium display frame
4. Gently lift the cradle; pay attention not to damage the boards and connectors
5. Locate the μSD card socket, on the Raspberry Pi board, directly behind the white flat cable. The flat cable has a large ferrite toroid around it. It is not a problem if the toroid slides up or down, but never remove the toroid
6. Gently move the cable to have enough room to insert the μSD card in its socket; the card should be inserted with its contacts facing up (toward the back of the unit)
7. Once the card is installed, check that the flat cable is still firmly connected on both sides; if not, gently lift the connector's locks, replace the cable and push the locks back in position
8. Ensure that the toroid is not directly in contact with the μSD card, to avoid damage to the card when the cradle is re-installed
9. Gently place the cradle back, aligning the mounting screws on the sides; pay attention not to damage the boards, connectors, and internal cables
10. Screw the two lock nuts.

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Terminal block

The Strato Pi Mini Touch Display has a 2-way terminal block, used for the input voltage connection.

The maximum conductor cross section is 2.08 mm^2 (14 AWG). Recommended stripping length is 6 mm. Screw thread is M3. Never exceed 0.5 Nm torque when tightening the screws. The label attached directly below the terminal block shows where to connect the positive and negative terminals of the power supply cord.

The Strato Pi Base Touch Display and Strato Pi UPS Touch Display versions have a 9 positions terminal block, used for power, battery, and serial connections.

The maximum conductor cross section is 1.5 mm^2 (16 AWG), or 0.5 mm^2 when using ferrules (highly recommended). Recommended stripping length is 5 mm. Screw thread is M2. Never exceed 0.25 Nm torque when tightening the screws.

Refer to the appropriate Strato Pi board user guide for detailed connection instructions.

Power supply

Strato Pi Touch Display can be powered with DC voltage only:

✓ DC: nominal voltage range 12V to 28.0V.

Respect the correct polarity shown in the schematic diagram (+ -). The power supply circuit implements reverse polarity protection using an auto resetting fuse and surge protection up to ±500V/2ohms 1.2/50µs.

A blue on-board LED is lit when power supply is available.

Never connect the Raspberry Pi micro-USB power plug.

Dedicated GPIO pins

The Strato Pi board embedded in Strato Pi Touch Display use some of the Raspberry Pi's GPIO pins which should not be used for other functions.

Software Installation and usage

See the Strato Pi User Guide for detailed software installation and use information.

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