Technical Features   CONECTABLE PANEL PC 24Vcc

MODEL TYPE	Touchberry 10.1"
Input Voltage	12 to 24Vdc ((2.5A) Polarity protection)
Input rated voltage	24Vdc
Rated Power	28 W
I max.	1.5A
Size	28.6 x 21.6 x 6.4
SRAM	2/4/8 GB
Communications	I2C, Ethernet, USB (x4), SPI, Wi-Fi, Bluetooth, RTC Select from factory = (Serial TTL,, RS-232, & RS485 (x2 HALF-Duplex),)

General Features

Power supply voltage	DC power supply	12 to 24Vdc
Operating voltage range	DC power supply	11.4 to 25.4Vdc
Power consumption	DC power supply	28 W MIN.
External power supply	Power supply voltage	24Vdc
Insulation resistance		20mΩ min.at 500Vdc between the AC terminals and the protective earth terminal.
Dielectric strength		2.300 VAC at 50/60 Hz for one minute with a leakage current of 10mA max. Between all the external AC terminals and the protective ground terminal.
Shock resistance		80m/s2 in the X, Y and Z direction 2 times each.
Ambient temperature (operating)		0° to 40°C with Raspberry OS Lite
Ambient humidity (operating)		10% to 90% (no condensation)
Ambient environment (operating)		With no corrosive gas
Ambient temperature (storage)		-20° to 60°C
Power supply holding time		2ms min.
Weight		1.673 gr.

Touch Screen Specifications

Technology	Capacitive Touch Panel, 900 Nits. RTD2662 controller chip.
Image Resolution	1280 x 800
Format	16:9
Size	10.1"
Display Technology	TFT Type
Screen Type	IPS Display

Bottom side   **Left side**   **Right side**

USB 2.0

USB 3.0

Ethernet

Pinout Scheme

POWER: GND, VIN

SPI: MISO, MOSI, SCK, GND

CS0, CS1, 3,3V, 5V

I2C: SDA, SCL

RS485: A, B, Y, Z

RS232: RX, TX

TTL: RX, TX

Raspberry Pi

24VCOM POWER: VIN, GND

INPUTS: I-0, I-1, I-2, I-3, I-4, O-0

OUTPUTS: O-1, O-2, O-3, O-4
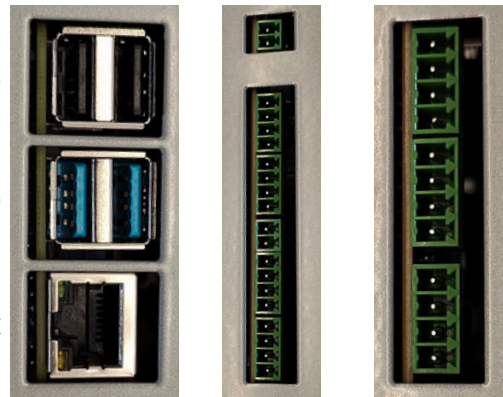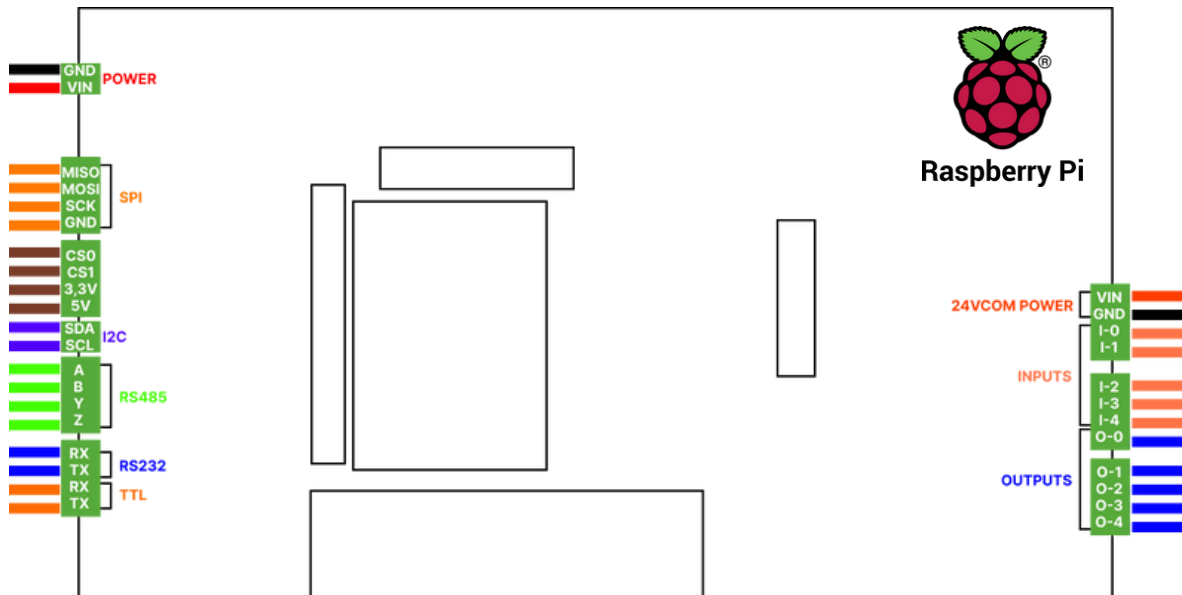
Additional Specifications

UPS Service	GPIO_23: RPI's shutdown detector GPIO_24: RPI's power failure warning
RS-485 / RS-232 / Serial TTL	Select your mode from Factory
SPI Voltage Level	Configurable by jumper, can be 3,3V or 5V
I2C Voltage Level	Configurable by jumper, can be 3,3V or 5V
Screen's Power Supply	12V @ 2 A
Screen Controller	GT9271

I/Os distribution

Inputs:
- 3 Digital Inputs.
- 2 Analog Inputs, configurable by jumpers to be:
    - **0 - 10 Vdc** or **4 - 20 mA**

Outputs:
- 5 Digital Outputs.
- Must be powered between 7.5-24 Vdc in its correspondent pins.

Working with I/Os

Interaction with I/Os is possible through Bash Scripts, Python Scripts and Terminal commands with easy syntax. Consult the User Guide for more information about this type of scripts.

Screen Configuration Menu

Brightness	Brightness can be adjusted in the Color Menu that can be accessed with the **first button** located behind the screen
Contrast	Contrast can be adjusted in the Color Menu that can be accessed with the **first button** located behind the screen
Saturation	Saturation can be adjusted in the Color Menu that can be accessed with the **first button** located behind the screen
Sound	Sound can be adjusted using the **two last buttons** located behind the screen.
Sleep Mode	The screen can be put in Sleep Mode using the **second button** located behind the screen. Pressing the button again will wake up the screen
Display Port	The display port can be changed to HDMI or VGA using the **middle button** located behind the screen. Industrial Shields Panel PC does not support VGA connection as VGA port is not connected.

Notes

1. There are **XXX** on the reference number show:
- **First two characters** are related to the expansion modules connected to the PLC unit and the RAM Memory model.
- **The third character** is related to the CPU RAM memory space:

    See the Reference Table. Example:
- xxxxx2xxxxxx - 2GB RAM Memory
- xxxxx3xxxxxx - 4GB RAM Memory
- xxxxx4xxxxxx - 8GB RAM Memory

2. The analog inputs has a 3% of tolerance.

I/Os Ranges

- Analogic Input voltage: 0 - 10 Vdc.
- Analogic Input current: 4 - 20 mA.
- Digital I/Os voltage: 5 - 24 Vdc.
- Digitial I/Os current: 250 mA.
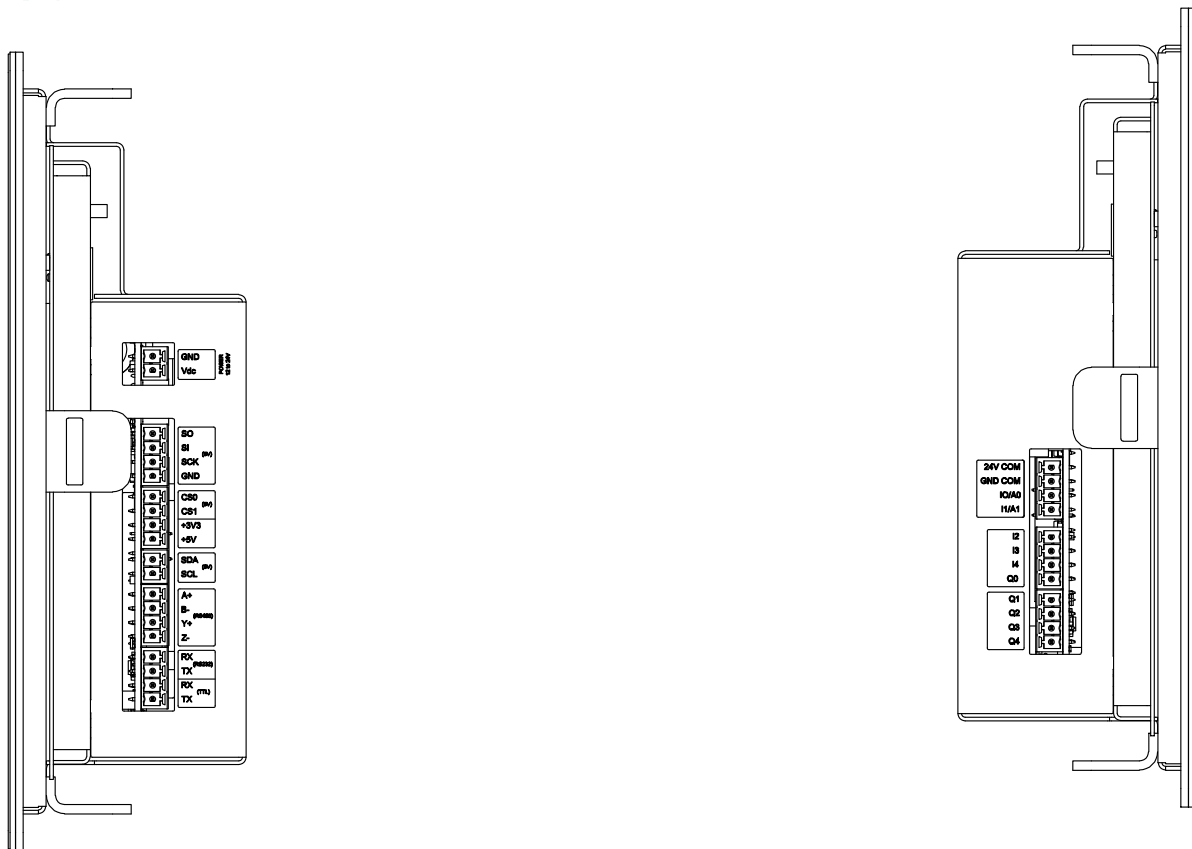
Main changes compared to previous versions

- Introduction of I/Os in the new Touchberry 10.1" Panel PC .
- 5 Digital Ouputs, 3 Digital Inputs and 2 Analog Inputs overall.
- New communications have been added: RS-485 HD/FD, RS232 and Serial TTL.
- The Screen is now Capacitive.
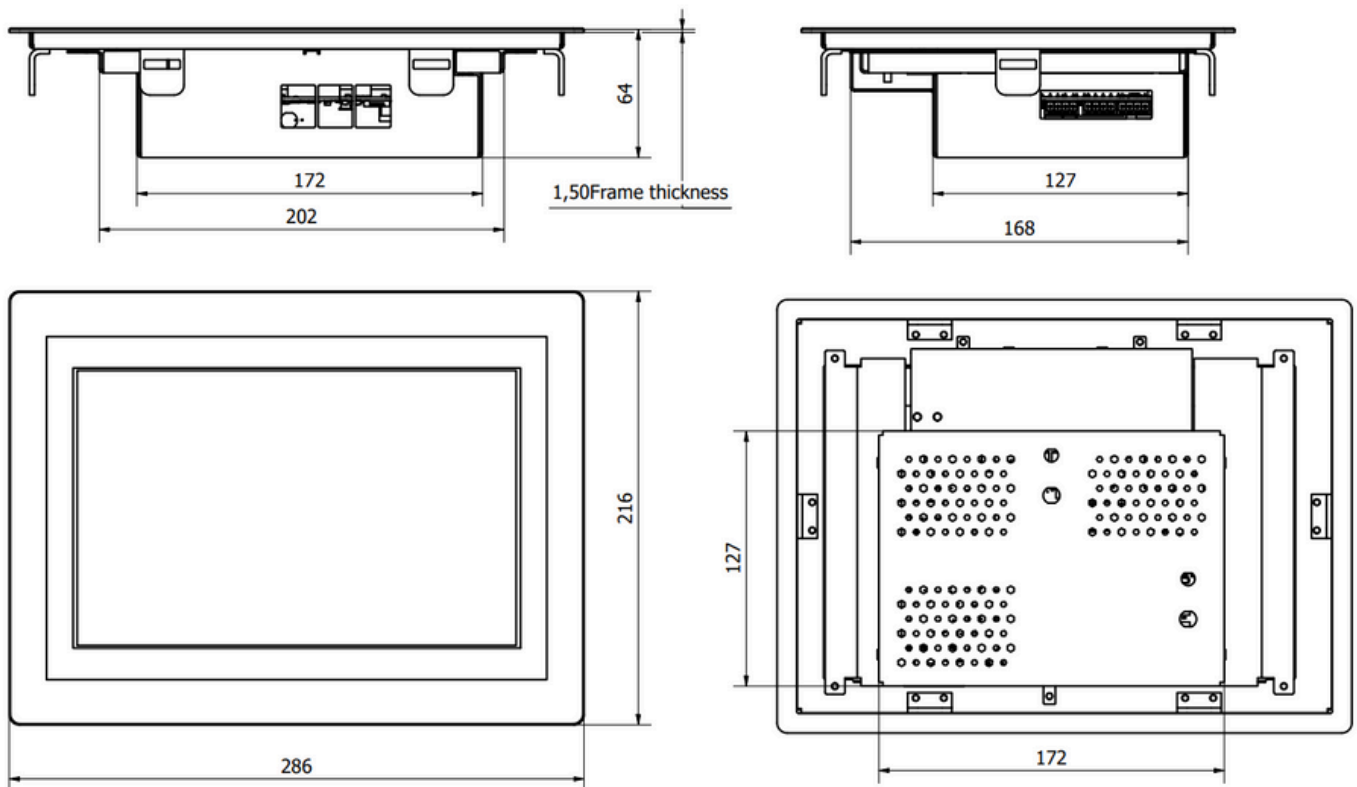
x1 EXPANSION BOARD SLOTS

Customize one additional communication expansion on your Panel PC and prepare your custom-made project

Serigraphy

GND
Vdc
POWER
12 to 24V

SO
SI (M)
SCK
GND

CS0
CS1 (M)
+3V3
+5V

SDA (M)
SCL

A+
B- (RS485)
Y+
Z-

RX
TX (RS232)
RX
TX (TTL)

24V COM
GND COM
I0/A0
I1/A1

I2
I3
I4
Q0

Q1
Q2
Q3
Q4

Size

172
202
64
1,50 Frame thickness

127
168

216
286

127
172

Performance Specifications

Raspberry Board	Raspberry Pi 4 B
I/O control method	Combination of the cyclic scan and immediate refresh processing methods.
Programming language	Linux applications: Bash Scripts, Python and more!.
CPU	Broadcom BCM2711, Quad core Cortex-A72 (ARM v8) 64-bit SoC @ 1.5GHz
Website	https://www.raspberrypi.org/

Panel PC Access

How to access to the Panel PC's Raspberry:

-Linux users: using ssh specifying the IP address: 10.10.10.20/24 (eth0).

-Windows users: we recommend to use PuTTY ssh client. The IP address have to be specified: 10.10.10.20/24 (eth0).

You can download the latest release of PuTTY here: https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html

UPS Shield

This Panel PC has integrated an UPS Shield, a device which provides an anti-voltage drop protection system designed to avoid data corruption when the current is suddenly cut off.

RTC

This Panel PC has integrated the DS3231 Real Time Clock model which is powered by a button battery (CR1216 or CR1220).

Outputs

After a reboot/power disconnection and reconnection, the UPS will be activated and, until the device is fully initialized again (it will take some seconds), the outputs will maintain their last activation state. For more information about that consult the User Guide.

Warnings

Unused pins should not be connected. Ignoring the directive may damage the controller.

Before using this product, it is the responsibility of the user to read the product's User Guide and all accompanying documentation.

Industrial Shields PLCs must be powered between 12Vdc and 24Vdc. If a higher voltage is supplied to the equipment can suffer irreversible damage.

Maintenance must be performed by qualified personnel familiarized with the construction, operation, and hazards involved with the control.

Maintenance should be performed with the control out of operation and disconnected from all sources of power.

The Industrial Shields Family PLCs are Open Type Controllers. It is required that you install the Panel PC in a housing, cabinet, or electric control room. Entry to the housing, cabinet, or electric control room should be limited to authorized personnel.

Inside the housing, cabinet or electric control room, the Industrial Shields PLC must be at a minimum distance from the rest of the components of a minimum of 25 cm, it can be severely damaged.

Failure to follow these installation requirements could result in severe personal injury and/or property damage. Always follow these requirements when installing Panel family PCs.

In case of installation or maintenance of the Panel PC please follow the instructions marked in the Installation and Maintenance section on the User Guide.

Do not disconnect equipment when a flammable or combustible atmosphere is present.

Disconnection of equipment when a flammable or combustible atmosphere is present may cause a fire or explosion which could result in death, serious injury and/or property damage.

Inside the encapsulated, there are supercapacitors of 25F which can be dangerous. Be careful with them.

This equipment does **not include galvanic isolation between the grounds** of the different systems. This means that if an external device or sensor that shares the same ground reference (GND) with the system is connected, any potential difference between these grounds could damage the connected components. To avoid issues with interference, ground loops, or damage to external equipment, ensure that all connected devices share the same ground reference or use systems with appropriate isolation. The recommendations in this case are:

- **Connection Review:** Verify that all ground connections are properly made and that there are no significant potential differences between them.
- **Use of Isolation:** Consider using **galvanic isolators** or **isolation transformers** if it is necessary to connect equipment with different ground references.

Symbology

▬▬ ▪▪▪	Indicates that the equipment is suitable for direct current only; to identify relevant terminals
∼	Indicates that the equipment is suitable for alternating current only; to identify relevant terminals
⊓	To identify the control by which a pulse is started.
⏚	To identify an earth (ground) terminal in cases where neither the symbol 5018 nor 5019 is explicitly required.
⊗	To identify the switch by means of which the signal lamp(s) is (are) switched on or off.
CE	CE marking indicates that a product complies with applicable European Union regulations
⚠	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
⚡	To indicate hazards arising from dangerous voltages

Technical Support

You can contact with us using the best channel for you:

@ support@industrialshields.com

🌐 www.industrialshields.com

📝 Visit our Blog, Forum or Ticketing system

💬 Use our chat service

📄 Check the user guides

▶ Visit our Channel