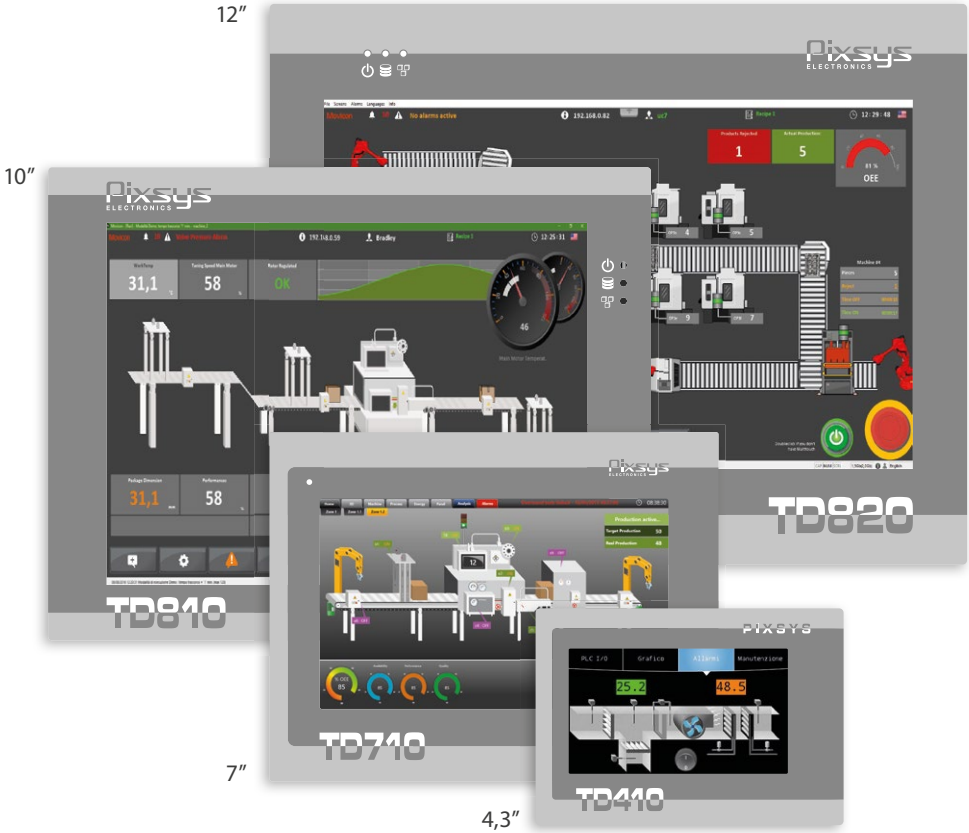
HMI series

410-710-810-820

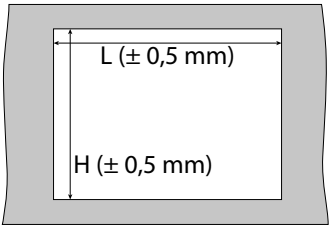
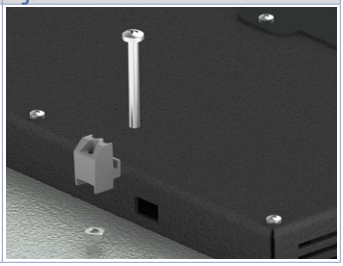
HMI TOUCH SCREEN



Quick start guide - Guida breve all'installazione

2 Device installation

The device panel is installed in the cutout using provided plastic hooks. The number of provided plastic hooks depends on the panel. The thickness of the wall or cabinet plate must be between 1 mm and 5 mm. An ISO 7045 (ex UNI 7687 DIN 7985A) Phillips screwdriver is needed to tighten and loosen the screws on the retaining clips. The maximum tightening torque for the retaining clips is 0,5 Nm.
Devices must be installed on a flat, clean and burr-free surface; uneven areas can cause damage to the display when the screws are tightened or the intrusion of dust and water. (as per figures 1 and 2)

Cut-out	Fig. 1	Fig. 2
		

	TD410	TD710	TD810	TD820
External dimensions (mm)	140 x 100 x 29	204 x 160 x 35	274 x 216 x 35	317 x 256 x 35
Cut-out (mm)	132 x 90	181 x 144	259 x 202	302 x 242

2.1 Spacing for air circulation and ventilation

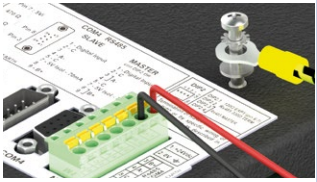
In order to guarantee sufficient air circulation, allow 5cm of empty space above, below, to the side and behind the device. No other ventilation system is required. The HMI device is self-ventilated and approved for inclined mounting at angles up to ±35°in stationary cabinets.

Information! If additional space is needed to operate or maintain the device, this must be taken into consideration during installation.

Caution! The spacing specifications for air circulation are based on the worst-case scenario for operation at the maximum specified ambient temperature. The maximum specified ambient temperature must not be exceeded!

Caution! An inclined installation reduces the convection by the HMI device and therefore the maximum permissible ambient temperature for operation.

3 Power supply and grounding



Danger! This device is only permitted to by supplied by a SELV / PELV (class 2) power supply or with safety extra-low voltage (SELV) in accordance with EN 60950.

Connect a 24VDC 1,0A (min.) power supply, as showed into the figure. Connect the device grounding with a conductor of 18AWG (2,5mmq) minimum section. For the whole series it is suggested to use a **24 VDC 1,0A 24VA power supply (Pixsys code 2700.10.008)**.
Use Copper, Copper-Clad Aluminium or Aluminium conductors wire for all electric connection.

Caution! 24VDC power supply line must be protected by a 1,0A fuse.
Caution! Functional ground must be kept as short as possible and connected to the largest possible wire cross section at the central grounding point (e.g. the control cabinet or system).

4 Wiring connections

This device has been designed and manufactured in conformity to Low Voltage Directive 2006/95/EC, 2014/35/EU (LVD) and EMC Directive 2004/108/EC, 2014/30/EU (EMC). For installation into industrial environments please observe following safety guidelines:

- Separate control lines form power wires;
- Avoid proximity of remote control switches, electromagnetic contactors, powerful engines and use specific filters;
- Avoid proximity of power groups, especially those with phase control;
- It is strongly recommended to install adequate mains filter on power supply of the machine where the controller is installed, particularly if supplied 230 VAC. The controller is designed and conceived to be incorporated into other machines, therefore CE marking on the controller does not exempt the manufacturer of machines from safety and conformity requirements applying to the machine itself.

5 Technical data

5.1 Main features

	TD410	TD710	TD810	TD820
Power supply voltage	12 ÷ 24 VDC ± 10%			
Consumption (typical use with 2 USB devices)	7,5 VA	13 VA	16 W	15 W
Temperature range	0..50°C			
Humidity range	10..90% (without condensation)			

5.2 Hardware features

CPU	ARM® CORTEX™ - A8 @1.0GHz
RAM	512 MB DDR3
eMMC	4GB

5.3 Touch LCD: 4 wires resistive

	TD410	TD710	TD810	TD820
Resolution	4.3" TFT 480 x 272	7" TFT 800 x 480	10" TFT 800 x 600	12" TFT 1280 x 800
Colors	65K (16 bit)	65K (16 bit)	65K (16 bit)	65K (16 bit)
Back-lighting	LED 400 cd/m2	LED 280 cd/m2	LED 320 cd/m2	LED 220 cd/m2
Back-lighting duration*	50000 h Typ @ 25°C**		30000 h Typ @ 25°C**	
Lifetime**	17		10	

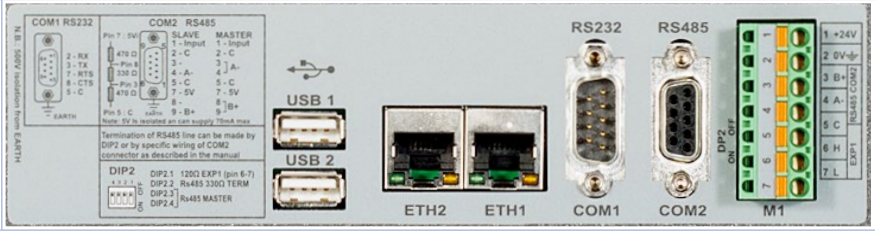
* *Brightness reduction to the 80% of default setting*

** *Functioning years per 8 hours / day*

6 Communication interfaces

TD410

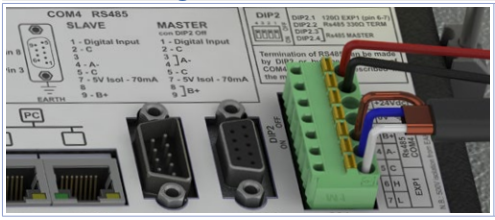
TD710*** - TD810 - TD820



*** *ETH2 not available on this model.*

6.1 CANopen

6.1.a Using CAN / EXP1 on terminal M1



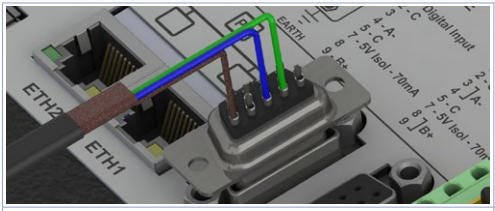
DIP2

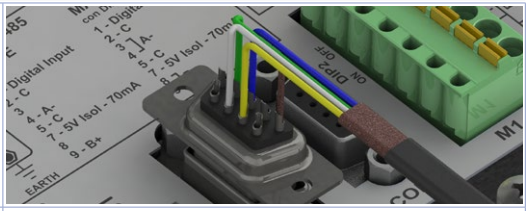
OFF
ON EXP1/CAN with termination resistor 120Ω
EXP1/CAN con terminazione 120Ω

PIN5: GND (brown)
PIN6: CANH (blue)
PIN7: CANL (white)

6.2 RS232

6.2.a Using RS232 / COM1 on DB9 (No available for TD410)



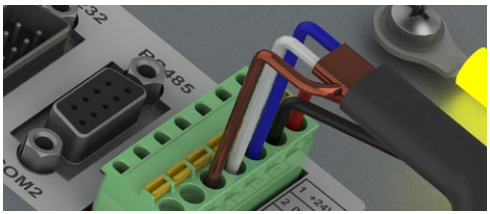


Standard RS232 connection:
PIN2: RX (green)
PIN3: TX (blue)
PIN5: GND (brown)

RS232 connection with RTS / CTS:
PIN2: RX (green)
PIN3: TX (blue)
PIN5: GND (brown)
PIN7: RTS (white)
PIN8: CTS (yellow)

6.3 RS485

6.3.a Using RS485 / COM2 on terminal M1



DIP2

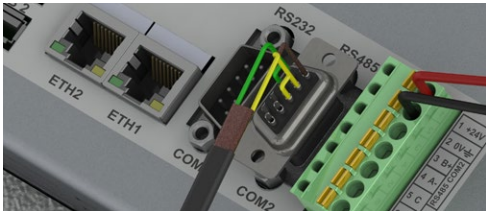
4 3 2 1 OFF / ON RS485 MASTER:
Termination 330Ω Polarization 470Ω
Terminatore 330Ω Polarizzatore 470Ω

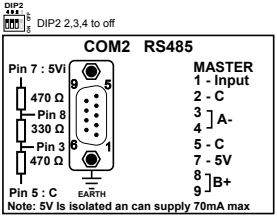
4 3 2 1 OFF / ON RS485 MASTER:
Polarization only 470Ω
Solo polarizzatore 470Ω

4 3 2 1 OFF / ON RS485 SLAVE

PIN3: B+ (green)
PIN4: A- (yellow)
PIN5: GND (brown)

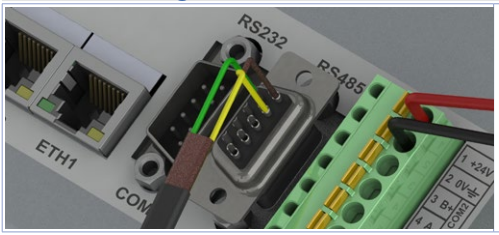
6.3.b Using RS485 / COM2* MASTER on DB9 (No available for TD410)

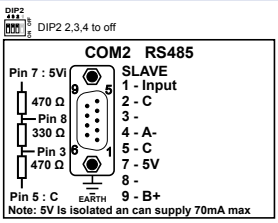




* *Using the DB9 connector it is possible to introduce termination resistances using DIP2 as for terminal M1 or short-circuiting terminals 3-4 e 8-9, as showed in the figure.*

6.3.c Using RS485 / COM2 SLAVE on DB9 (No available for TD410)





6.4 USB interfaces

The HMI comes equipped with a USB 2.0 (Universal Serial Bus) host controller with multiple USB interfaces accessible externally for the user.

Warning! Peripheral USB devices can be connected to the USB interfaces on this device. Due to the large number of USB devices available on the market, Pixsys cannot guarantee their performance.

Caution! Because this interface is designed according to general PC specifications, extreme care should be exercised with regard to EMC, cable routing, etc.

Type	USB 2.0
Design	Type A
Transfer rate	Low speed (1.5 Mbit/s), Full speed (12 Mbit/s), High speed (480 Mbit/s)
Current-carrying capacity	Max. 0,8 A (total of all USB ports)
Cable length	Max. 3 m (without hub)

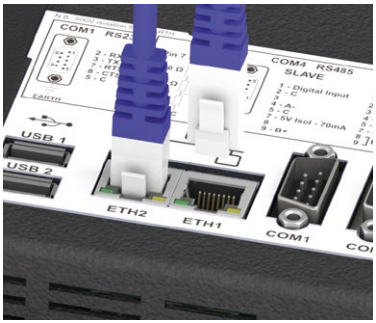
7 Ethernet interface

7.1 Technical data

This Ethernet controller is connected to external devices via the system unit.

Ethernet 1 interface (ETH1)	TD410 - TD710	TD810 - TD820
Number of ports	1	2
Controller	LAN8710A	
Cabling S/STP	(Cat 5e)	
Transfer rate	10/100 Mbit/s	10/100 Mbit/s ETH1-ETH2 to CPU Link 10/100/1000 Mbit/s ETH1-ETH2 link
Cable length	Max. 100 m (min. Cat 5e)	
LED		
Green	Link	On = Gigabit connection Off = 10/100 Mbit connection
Yellow	10/100 Mbit Activity	On =Link Blink = Activity (data transfer)

8 Internal ethernet Switch (only TD810-TD820)

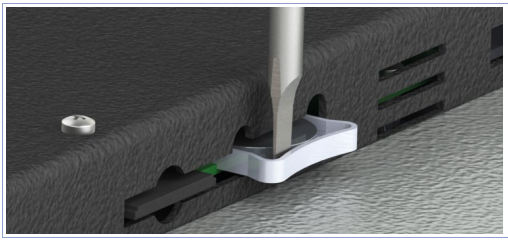


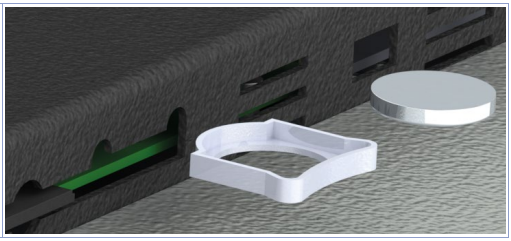
Two Ethernet 10/100/1000 Mbit ports on the rear side of the operator panel are available. ETH1 and ETH2 are internally connected to CPU through a Gigabit switch.
Thanks to dual port it is possible to make daisy-chain of more devices without using external ethernet switches.
Using VLAN system option, each port can be used as separated network interface. See TDControl user manual for more details.
For TD410 and TD710 only one Ethernet port is available.

9 Battery

9.1 Internal battery replacement

BIOS and clock store data also in case of power failure thanks to a CR2032 battery placed on the side. To replace the battery it is necessary to remove the protection and pull out the extraction box using a blade screwdriver.





9.2 Battery detail

Classification	Lithium Coin
Chemical System	Lithium / Manganese Dioxide (Li/MnO2)
Nominal Voltage	3.0 Volts
Typical Capacity	235 mAh (to 2.0 volts)
Typical (Li) Content	0.109 grams (0.0038 oz.)
Energy Density	198 milliwatt hr/g, 653 milliwatt hr/cc
Operating Temp	-30C to 60C

Warning! CR2032 is a *"Lithium Coin"* battery

Danger! KEEP OUT OF REACH OF CHILDREN. Swallowing may lead to serious injury or death in as little as 2 hours due to chemical burns and potential perforation of the esophagus. To prevent children from removing batteries, battery compartments is designed to be opened with a screwdriver and is protected by a security label.

Warning! It is suggested to replace the battery every 3 years. When the battery is removed, an internal dedicated device allows replacement without data loss if operation is completed within 1 hour since battery removal.