

HMI series

410-710-810-820-830

HMI TOUCH SCREEN



Table of contents

1	Safety guidelines.....	5
1.1	Policies and procedures.....	5
1.2	Installation guidelines.....	5
1.3	Viruses and dangerous programs.....	5
1.4	Organization of safety notices.....	6
2	Spacing for air circulation and ventilation.....	6
3	Device installation.....	6
4	Power supply and grounding.....	7
5	Wiring connections.....	8
6	Technical data.....	8
6.1	Main features.....	8
6.2	Hardware features.....	8
6.3	Touch LCD: 4 wires resistive.....	8
7	Communication interfaces.....	8
7.1	CANopen.....	9
7.1.a	Using CAN / EXP1 on terminal M1 (Not available for -EL versions).....	9
7.2	RS232.....	9
7.2.a	Using RS232 / COM1 on DB9 (Not available for TD410 and -EL versions).....	9
7.3	RS485.....	9
7.3.a	Using RS485 / COM2 on terminal M1.....	9
7.3.b	Using RS485 / COM2* MASTER on DB9 (Not available for TD410 and -EL versions).....	10
7.3.c	Using RS485 / COM2 SLAVE on DB9 (Not available for TD410 and -EL versions).....	10
7.4	USB interfaces.....	10
8	Ethernet interface.....	11
8.1	Technical data.....	11
9	Internal ethernet Switch (only TD810-TD820-TD830).....	11
10	Battery.....	11
10.1	Internal battery replacement.....	11
10.2	Battery detail.....	12
11	TdControlPanel.....	12
11.a	WIN EXPLORER.....	13
11.b	HMI_MOVICON.....	13
11.c	PLC LOGICLAB.....	13
11.d	LAN ETH1.....	13
11.e	BACKLIGHT - BUZZER.....	14
11.f	WINVNC.....	14
11.g	BACKUP-RESTORE.....	14
12	LogicLab Suite.....	16
12.a	Language modification.....	16
12.b	Create - load a project.....	17
12.c	Connection to target.....	17
12.d	Compiling and downloading the code.....	18
12.e	Watch window.....	18
13	Interfacing Movicon 11 with LogicLab.....	19
13.a	Creating a new Movicon project.....	19
13.b	Driver configuration.....	20
13.c	Downloading the Movicon code to the target.....	21
14	Simulation of the whole project SoftPLC + SCADA.....	21

Indice degli argomenti

1	Norme di sicurezza.....	24
1.1	Regolamenti e procedure.....	24
1.2	Linee guida per l'installazione.....	24
1.3	Virus e programmi pericolosi.....	24

1.4	Organizzazione delle note di sicurezza	25
2	Spazi per la circolazione dell'aria e la ventilazione	25
3	Installazione del dispositivo	25
4	Alimentazione e messa a terra dello strumento.....	26
5	Collegamenti elettrici.....	27
6	Dati tecnici.....	27
6.1	Caratteristiche generali	27
6.2	Caratteristiche hardware	27
6.3	LCD touch: 4 fili resistivo	27
7	Interfacce di comunicazione.....	28
7.1	CANopen	28
7.1.a	Utilizzo CAN / EXP1 su morsetto M1 (Non disponibile su versioni -EL).....	28
7.2	RS232	28
7.2.a	Utilizzo RS232 / COM1 su DB9 (Non disponibile per TD410 e versioni -EL).....	28
7.3	RS485.....	29
7.3.a	Utilizzo RS485 / COM2 su morsetto M1.....	29
7.3.b	Utilizzo RS485 / COM2* MASTER su DB9 (Non disponibile per TD410 e versioni -EL).....	29
7.3.c	Utilizzo RS485 / COM2 SLAVE su DB9 (Non disponibile per TD410 e versioni -EL).....	29
7.4	Interfaccia USB.....	30
8	Interfaccia Ethernet.....	30
8.1	Dati tecnici	30
9	Switch ethernet interno (solo TD810-TD820-TD830).....	30
10	Batteria.....	31
10.1	Sostituzione batteria tampone interna	31
10.2	Dettagli della batteria.....	31
11	TdControlPanel.....	31
11.a	WIN EXPLORER.....	32
11.b	HMI MOVICON	32
11.c	PLC LOGICLAB	32
11.d	LAN ETH1.....	33
11.e	BACKLIGHT - BUZZER	33
11.f	WINVNC.....	33
11.g	BACKUP-RESTORE	33
12	Suite LogicLab.....	36
12.a	Cambio lingua.....	36
12.b	Creazione - caricamento di un progetto	36
12.c	Collegamento al target	37
12.d	Compilazione e scaricamento del codice.....	37
12.e	La watch window.....	38
13	Interfacciare Movicon 11 con LogicLab.....	38
13.a	Creazione di un nuovo progetto Movicon.....	38
13.b	Configurazione del Driver.....	39
13.c	Trasferimento del codice Movicon nel target.....	40
14	Simulazione dell'intero progetto SoftPLC + SCADA.....	41

1 Safety guidelines

Programmable logic controllers (PLCs), operating/monitoring devices (industrial PCs, HMI) have been designed, developed and manufactured for conventional use in industrial environments. They were not designed, developed and manufactured for any use involving serious risks or hazards that could lead to death, injury, serious physical damage or loss of any kind without the implementation of exceptionally stringent safety precautions. In particular, such risks and hazards include the use of these devices to monitor nuclear reactions in nuclear power plants, their use in flight control or flight safety systems as well as in the control of mass transportation systems, medical life support systems or weapons systems.

1.1 Policies and procedures

Electronic devices are never completely failsafe. If the programmable control system, operating/monitoring device or power supply fails, the user is responsible for ensuring that other connected devices, e.g. motors, are brought to a secure state.

When using programmable logic controllers or operating/monitoring devices as control systems together with a soft PLC, safety precautions relevant to industrial control systems must be observed in accordance with applicable national and international regulations. The same applies for all other devices connected to the system, such as drives.

All tasks such as the installation, commissioning and servicing of devices are only permitted to be carried out by qualified personnel. Qualified personnel are those familiar with the transport, mounting, installation, commissioning and operation of devices who also have the appropriate qualifications (e.g. IEC 60364). National accident prevention regulations must be observed.

The safety notices, information on connection conditions (type plate and documentation) and limit values specified in the technical data are to be read carefully before installation and commissioning and must always be observed.

1.2 Installation guidelines

- These devices are not ready for use upon delivery and must be installed and wired according to the specifications in this documentation in order for the EMC limit values to apply.
- Installation must be performed according to this documentation using suitable equipment and tools.
- Devices are only permitted to be installed by qualified personnel without voltage applied. Before installation, voltage to the control cabinet must be switched off and prevented from being switched on again.
- General safety guidelines and national accident prevention regulations must be observed.
- Electrical installation must be carried out in accordance with applicable guidelines (e.g. line cross sections, fuses, protective ground connections).

1.3 Viruses and dangerous programs

This system is subject to potential risk each time data is exchanged or software is installed from a data medium (e.g. diskette, CD-ROM, USB flash drive, etc.), a network connection or the Internet. The user is responsible for assessing these dangers, implementing preventive measures such as virus protection programs, firewalls, etc. and making sure that software is only obtained from trusted sources.

1.4 Organization of safety notices

Safety notices in this manual are organized as follows:

Safety notice	Description
Danger!	Disregarding these safety guidelines and notices can be life-threatening.
Warning!	Disregarding these safety guidelines and notices can result in severe injury or substantial damage to property.
Caution!	Disregarding these safety guidelines and notices can result in injury or damage to property.
Information!	This information is important for preventing errors.

2 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 $\pm 35^\circ$ 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.

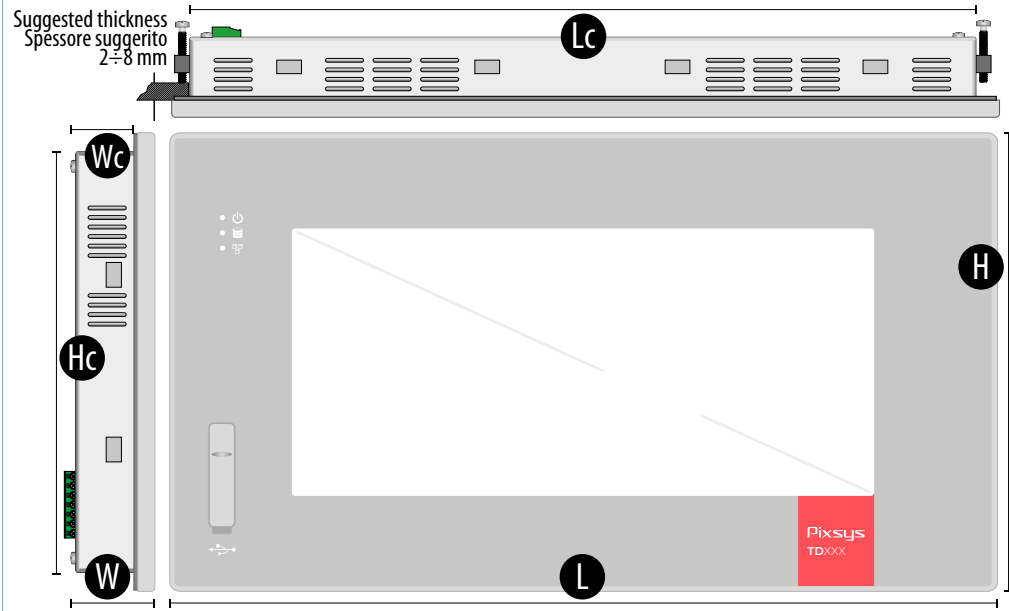
3 Device installation

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)



Dimensions



Models	L	H	W*	Wc*	Lc	Hc
TD410-AD	140	100	36	30	130	89
TD710-AD	204	160	41	35	181	144
TD810-AD	274	216	40	31	260	200
TD820-AD	317	256	42	33	302	242
TD830-AD	406	270	50	41	391	255

* Dimensions refer only to the product without the size of terminals and cables.

4 Power supply and grounding



Danger! This device is only permitted to be 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 (2,5mm²) 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).

5 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 from 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.

6 Technical data

6.1 Main features

	TD410 *	TD710 **	TD810	TD820	TD830-AD
Power supply voltage	12 ÷ 24 VDC ± 10%				
Consumption (typical use with 2 USB devices)	7.5VA	13VA	16VA	15VA	20VA
Temperature range	0...50°C				
Humidity range	10...90% (without condensation)				

* entry level (-EL) model available without USB, DB9 connectors (RS232 / RS485), CAN and Ethernet ports.

** entry level (-EL) model available without USB, DB9 connectors (RS232 / RS485) and CAN port.

6.2 Hardware features

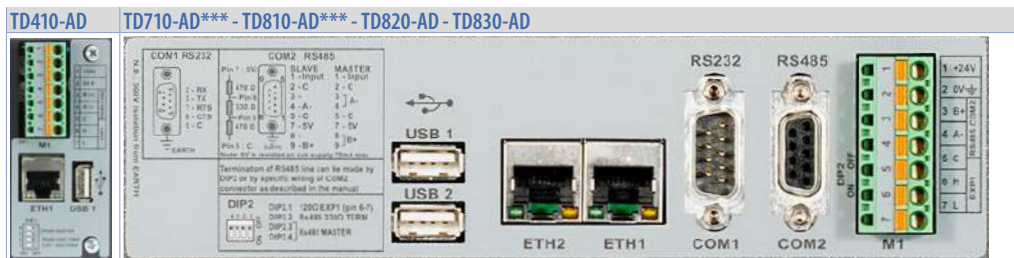
CPU	ARM® CORTEX™ - A8 @1.0GHZ
RAM	512 MB DDR3
eMMC	4GB

6.3 Touch LCD: 4 wires resistive

	TD410-AD	TD710-AD	TD810-AD	TD820-AD	TD830-AD
Resolution	4.3" TFT 480 x 272	7" TFT 800 x 480	10" TFT 800 x 600	12" TFT 1280 x 800	15,6" TFT 1366 x 768
Colors	65K (16 bit)	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	LED 300 cd/m2
Back-lighting duration*	50000 h Typ @ 25°C**		30000 h Typ @ 25°C**		50000 h Typ @ 25°C**
Lifetime**	17		10		17

* Brightness reduction to 80% of default setting / ** Functioning years per 8 hours / day

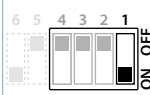
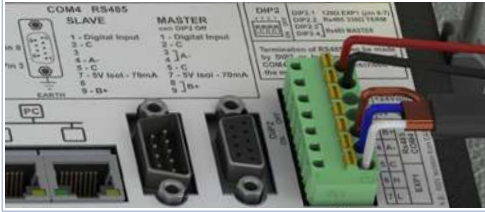
7 Communication interfaces



*** ETH2 not available on this model.

7.1 CANopen

7.1.a Using CAN / EXP1 on terminal M1 (Not available for -EL versions)

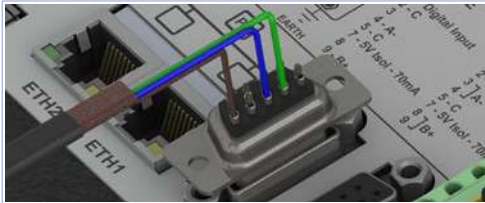


DIP2 (DIP1 for TD410 with switch 5/6 ONLY for internal use)
EXP1/CAN with termination resistor 120Ω

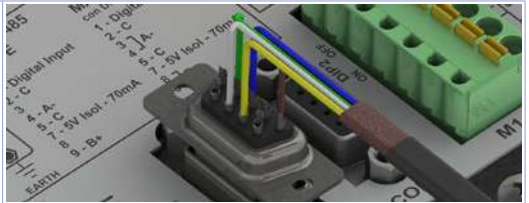
PIN5: GND (brown)
PIN6: CANH (blue)
PIN7: CANL (white)

7.2 RS232

7.2.a Using RS232 / COM1 on DB9 (Not available for TD410 and -EL versions)



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

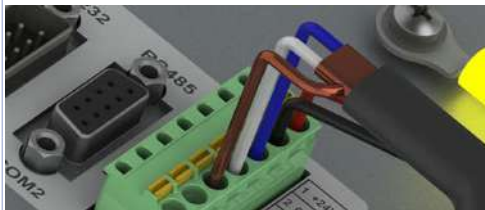


RS232 connection with RTS / CTS:

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

7.3 RS485

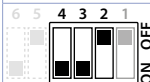
7.3.a Using RS485 / COM2 on terminal M1



DIP2 (DIP1 for TD410 with switch 5/6 ONLY for internal use)



RS485 MASTER:
Termination 330Ω Polarization 470Ω



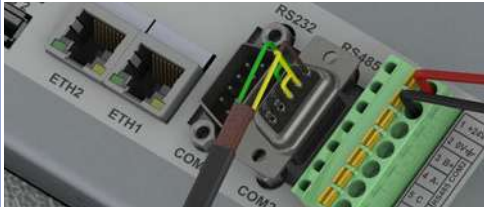
RS485 MASTER:
Polarization only 470Ω



RS485 SLAVE

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

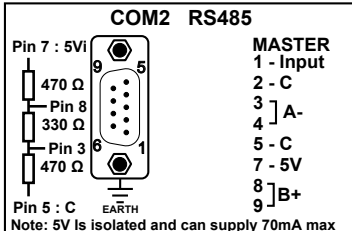
7.3.b Using RS485 / COM2* MASTER on DB9 (Not available for TD410 and -EL versions)



DIP2: 2,3,4 set to OFF

To use termination resistor on DB9, short-circuit pin 3 with 4 and 8 with 9 on DB9 for MASTER mode

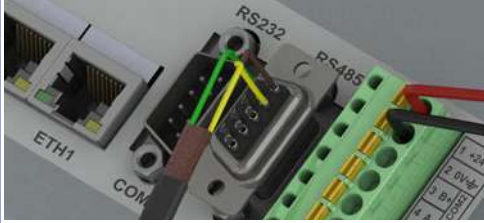
COM2 RS485



Note: 5V is isolated and can supply 70mA max

* 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.

7.3.c Using RS485 / COM2 SLAVE on DB9 (Not available for TD410 and -EL versions)

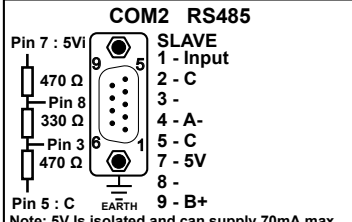


DIP2: 2,3,4 set to OFF

Make sure about this setting for DIP2 for SLAVE mode.

No short-circuit on DB9

COM2 RS485



Note: 5V is isolated and can supply 70mA max

7.4 USB interfaces

HMI comes equipped with a USB 2.0 (Universal Serial Bus) host controller with multiple USB interfaces accessible externally for the user. This interface is not available on -EL models.

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)

8 Ethernet interface

8.1 Technical data

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

Ethernet 1 interface (ETH1)	TD410-AD / TD710-AD and -L	TD810-AD / TD820-AD / TD830-AD
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)

9 Internal ethernet Switch (only TD810-TD820-TD830)



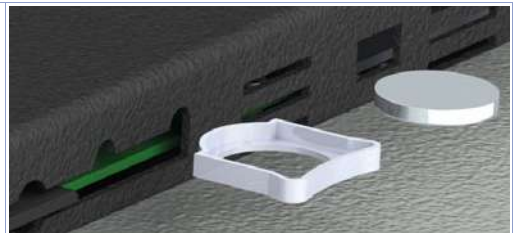
Two Ethernet 10/100/1000 Mbit ports on the rear side of the operator panel are available. ETH1 and ETH2 are internally connected to CPU through a Gigabit switch. Thanks to dual port it is possible to make daisy-chain of more devices without using external ethernet switches. Using VLAN system option,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



10 Battery

10.1 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 on models TD410/TD710 or by dedicated battery compartment on TD810 and greater.



10.2 Battery detail

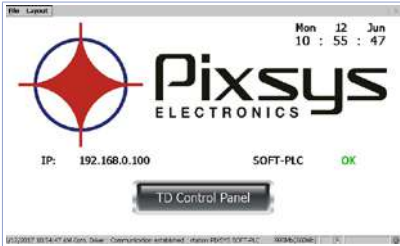
Classification	Lithium Coin
Chemical System	Lithium / Manganese Dioxide (Li/MnO ₂)
Nominal Voltage	3.0 Volts
Typical Capacity	235 mAh (to 2.0 volts)
Typical (Li) Content	0.109 grams (0.0038 oz.)
Energy Density	198 milliwatt hr/g, 653 milliwatt hr/cc
Operating Temp	-30C to 60C

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.

11 TdControlPanel



At switch-on a project starts allowing to verify the machine general status, date/system hour, related IP address, SoftPLC execution in background.

Using a VNC client you can view from your PC what is displayed on the PLC / HMI. Starting a browser with active Java service it is possible to test if the device Webserver function is active. For this function it is necessary to use Internet Explorer.



Press “Td Control Panel,” to access the device control panel and verify/configure all the services and projects to be launched at starting. It is possible also to configure the standby time for the backlighting switch off and the buzzer at display pressure.



The following paragraphs describe each function of the TdControlPanel windows.

NB: Pictures show device standard configuration.

11.a WIN EXPLORER



From this window it is possible to choose a set of options to start Windows CE and execute TDControlPanel.

- The first option starts Windows CE with desktop.
- The second option allows TDControlPanel starting if , during the switch on , the key “Stop” is keep pressed .
- Enabling the third option it is possible to set a protection password to avoid that unauthorized users, keeping pressed “STOP” , access TDControlPanel settings..

“START WINDOWS DESKTOP” allows to start “Explorer.exe” to access Windows CE desktop.

11.b HMI_MOVICON



From this window it is possible to select which Movicon 11 services/programs execute automatically at starting.

The functions of the Movicon scada are available in all HMI and in “WEB” version PL500 (PL500-335-1AD-WEB)

“START” activates manually the Movicon project (and the file upload service)

11.c PLC LOGICLAB

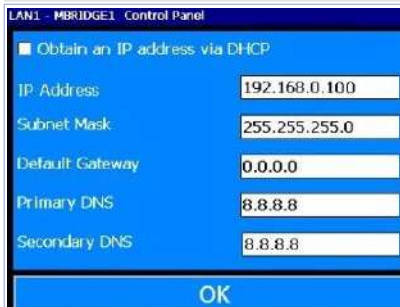


From this window it is possible to enable/disable the SoftPLC execution at starting. Selecting “*RUN console DEBUG*”, during the SoftPLC execution, the Debug window will be filled with real-time system events to verify possible anomalies.

NB: this function requires many device resources. It is suggested to keep it active only if there are problems during the software development. Disable this function at the end of the development phase.

“START” activates manually the SoftPLC project (and any debug window).

11.d LAN ETH1



From this window it is possible to modify the device network configuration parameters. Any modification will require a restart to be applied.

NB: to transfer the SoftPLC program and Movicon on the device, it must have a fixed address. It is not possible to operate in DHCP.

The HMI default IP address is 192.168.0.100
The PL500 default IP address is 192.168.0.99

11.e BACKLIGHT - BUZZER



From this window it is possible to configure backlighting and buzzer parameters. Enabling “Always ON” the backlighting keeps always active. Otherwise, enter time value in seconds on “Backlight ON for..(sec)” to enable the switching off or the lamp attenuation.

The first two fields allows to select the lamp brightness percentage (100% = ON, 0%=OFF) during standard operation or standby.

“Buzzer frequency” allows to select the buzzer tone frequency (an higher frequency corresponds to a more acute tone). Select “Buzzer OFF” to deactivate the buzzer at touch.

“TEST” keys allow to test selected parameters before saving the configuration.

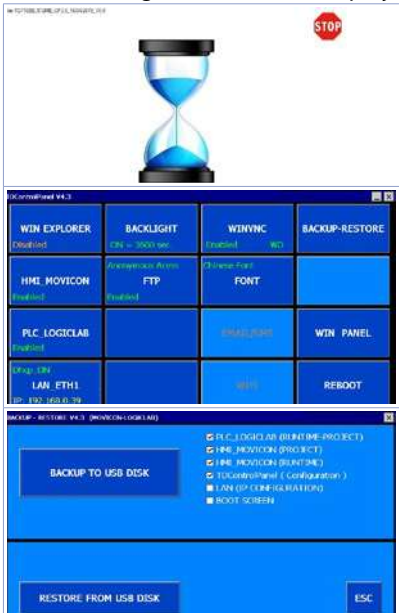
11.f WINVNC



From this window it is possible to enable/disable the VNC remote Desktop service. Press “START VNC” to activate manually this service. Press “START VNC_CONFIG” to access VNC configuration window and set the authentication system or modify access password. **NB.** Parameter modification is recommended to expert users, incorrect parameters modification will cause remote desktop service malfunctioning. **Default password to access remote Desktop through VNC is “1234”.**

11.g BACKUP-RESTORE

BACKUP of LogicLab and Movicon projects stored on HMI.



After downloading LogicLab and Movicon projects on HMI and after setting the HMI for their automatic execution at each starting, switch off the HMI and restart it keeping the STOP icon pressed.

TDCONTRONAL window will be opened

Insert a USB pen (FAT32 formatted) in one of the available USB ports.

Press BACKUP-RESTORE to access the utility for projects backup and device configuration

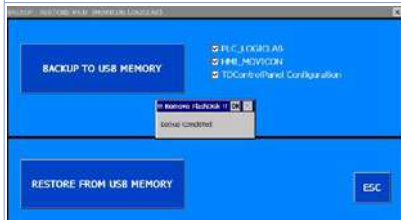
This window allows to select backup options:

- PLC_LOGICLAB (RUNTIME PROJECT): for backup of LogicLab project and complete Runtime and also of the configuration completed in the window PLC_LOGICLAB (accessible from main window of TdControlPanel)
- HMI_MOVICON (PROJECT): for backup of single Movicon project and configuration completed in the window HMI_MOVICON (accessible from main window of TdControlPanel)
- HMI_MOVICON (RUNTIME): backup only for Runtime
- TdControlPanel (Configuration): for backup of complete configuration performed within different utilities accessible from main window of TdControlPanel. *Attention: this backup will include also the eventual Password for TdControl Panel if it has been set in WIN EXPLORER
- LAN (IP CONFIGURATION): for backup of network settings of HMI
- BOOT SCREEN: for backup of background image visualized during system start up

Tick all boxes to obtain a complete backup of the settings and software projects stored on the HMI. This is useful and time-saving when requested to program multiple HMIs for same application.



Press BACKUP TO USB DISK to open USB memory connected to the device; it will be possible to select destination folder and name for backup file (default file name will be date and time of backup creation)



Press OK to start backup (Hourglass will show up). A confirmation popup will advise when process will be completed. Press OK to close popup, press ESC, then the device may be switched off.

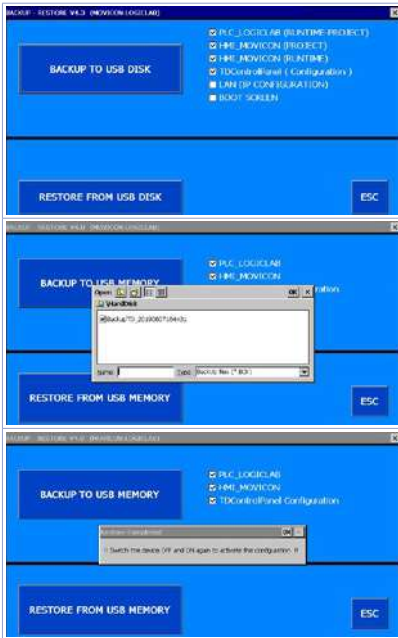
RESTORE procedure to restore LogicLab and Movicon projects on HMI.



To program a new HMI starting from an existing Backup keep pressing STOP icon during start up of the device



TdControlPanel window will be opened



Insert the USB pen containing Backup files on one of the available USB ports.
Press **BACKUP-RESTORE**

Press **RESTORE FROM USB DISK** to open USB memory connected to the HMI and select the chosen backup file

Press **OK** to start Restore process (Hourglass will show up). A confirmation popup will advise when process will be completed. Press **OK** to close popup, press **ESC**, then the device may be switched off.

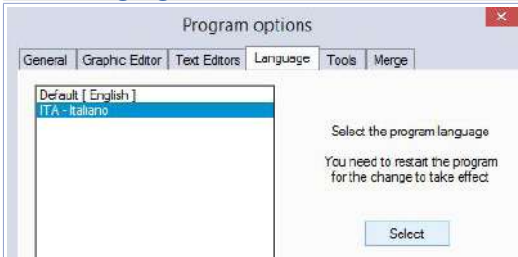
From now on at each start the HMI will start the projects (and eventually the complete configuration if selected) automatically.

12 LogicLab Suite

LogicLab Suite is the Pixsys development environment for the programming of PLC series, PL500 and all Operator panels / PanelPC.




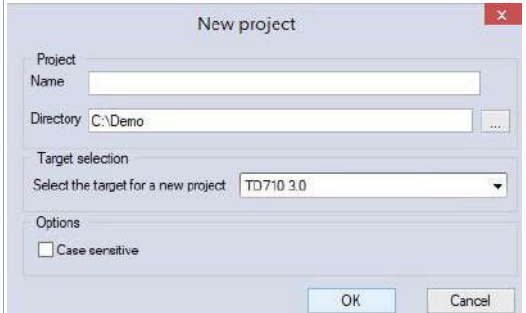
The suite is available for free download within "download area" of the website pixsys.net, no activation code is required (only registration). Supported by all 32/64bit Windows versions, starting from Windows XP SP3. Available both in English and Italian version. Once downloaded the setup file on the computer, start the installation and follow the standard procedure. The program can be activated through the icon "LogicLab" (on desktop) or from the menu "Start" > "PixsysSuite" > "LogicLab".

12.a Language modification



To modify the visualization language it is necessary to open options window from the menu "File" > "Options", go to "Language", select "ITA - italiano" and press "Select". Confirm with "OK", close and re-open LogicLab to enable the modification.

12.b Create - load a project

 	<p>Open an existing project:</p> <ul style="list-style-type: none">• With LogicLab opened, click on “Open project” or select one of the last projects form the list.• With LogicLab closed, enter on the project folder and select (double click) the chosen file (icon  and extension “.plcprj”).
	<p>Create a new project: Press “New project”. Enter the name of the new project and select the folder where the project files will be stored. Finally, select the device to be programmed.</p>

Attention: selecting “respect capital/lowercase letters”, a variable which contains a capital letter will be understood as different from another with the same name but with this letter lowercase. It is recommended to keep this selection disabled, to avoid any confusion during the drafting of the program code.

12.c Connection to target

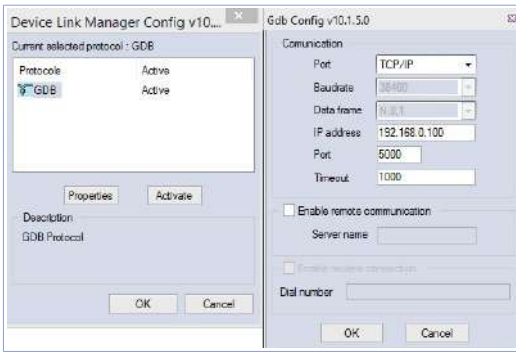
Here below please find the necessary requirements for the correct connection between target (device to be programmed) and the development environment on PC (LogicLab).

Target requirements:

- device ON and started
- configured with static IP address compatible with the network where there is the PC to which it will connect. By default, the IP address of the HMI is 192.168.0.100, for PL500 is 192.168.0.99, so the PC must have the same network and class (in this case 192.168.0.XXX) but different physical address (the last 3 digits of the IP address, with a number between 1 and 255, different from 100). If it is necessary to modify the IP address of the terminal, refer to the TD Control Panel configuration, section “LAN ETH1” on [par. 10.d](#).
- connection with net cable (direct or cross) directly to PC or through a net switch
- SoftPLC in execution (refer to TD Control Panel configuration, section “PLC LOGICLAB” on [par. 10.c](#)).

PC requirements:

- IP address compatible with the network where it is located and with the IP address configured on the target (see previous points)
- antivirus/firewall which allows the connection to network devices (normally already correctly configured)
- LogicLab configured for the connection to the target to be programmed: menu “On Line” > “Select communication”, on the window that opens press “Properties” and then enter the target IP on “IP Address”, keeping all the rest unaltered. In case of very slow networks or of a network configuration with different switches, it is possible to increase the “Timeout” value (expressed in mS).



The image represents default configuration

Confirm all windows pressing “OK” and save through or from the menu “file” > “SaveProject”. To verify the correct LogicLab and Target configurations, it is possible to make the connection pressing or from the menu “On Line” > “Connect”. If the connection is correctly done, the status bar at the lower right side will visualize “CONNECTED” and “NO CODE” (to indicate that the target is connected and has no code in it) or “DIFF CODE” (to indicate that the code which is being visualized does not correspond to those who lies in the target).



12.d Compiling and downloading the code

Once entered the project code it is necessary to verify eventual errors pressing F7, clicking on icon or from the menu “Project” > “Fill”.

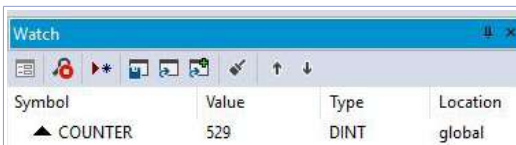
If the compilation is correctly done it is possible to transfer the program to the target pressing F5, through icon or from the menu “On Line” > “Code transferring”.

The status bar will show “CONNECTED” and “SOURCE OK” indicating that the program running on the target corresponds to that which is visualized on PC.



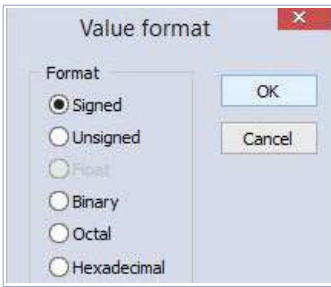
12.e Watch window


If the program running on the target corresponds to that which is being visualized on PC, the status bar will show “CONNECTED” and “SOURCE OK” and it is possible to use the window “Watch” to verify real-time the status of the variables used in the project. To enable the window “Watch”, press CTRL+T or use “View” > “View tool window” > “Watch”. To add a variable to the window “Watch”, just drag it inside or press the icon and select it manually.



From now on, the window “Watch” will visualize the value of the inserted variable, in real time.

Through it is possible to save, load and add an existing watch-list to the list of variables.



To change the visualization format, it is necessary to select the variable and press . On the window that opens, select the chosen format and confirm pressing "OK".

13 Interfacing Movicon 11 with LogicLab

NB: Movicon 11.5 or greater.

To execute only once:

Following steps are to be completed on the PC which will be used to develop the projects.

Go to download area of Pixsys website / Movicon section and download "MOVICON 11.6 Update-Aggiorna Driver.exe" corresponding to your PC system. Double click to launch the .exe file and follow instructions.

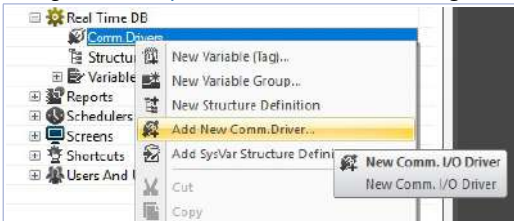
Do the same procedure also if a Panel PC (TD750-TD850-TD900-TD910-TD920) is used.

Note: with this procedure all PLC system variables and variables created and used in the PLC are imported.

The creation and the updating of the PLC variables list is done only if the LogicLab program is compiled without errors and downloaded on the target.

13.a Creating a new Movicon project

Start the software and choose the platform "Windows® X86 / X64" for Panel-PC or "Windows® CE Platform" for HMI and for "WEB" version of PL500. If the new Movicon project is being created following the Wizard, at the end it will visualize the driver configuration window, switch to the section "Driver Configuration" to [par. 12.b](#). If the driver is being installed manually, proceed as follow:



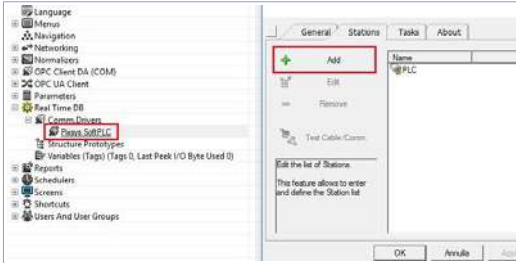
Add the communication driver with a right click on "Real time DB" and then "new communication driver".



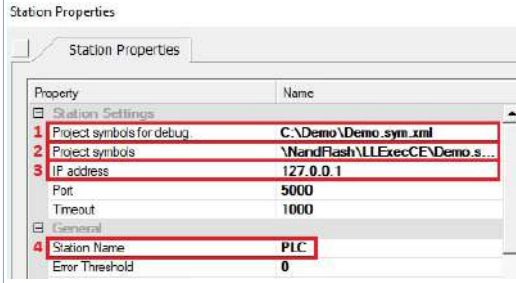
Select "Pixsys" from the manufacturer menu and then "Pixsys SoftPLC Driver".

Confirm with "OK" and double click on the driver just created to open the configuration window.

13.b Driver configuration



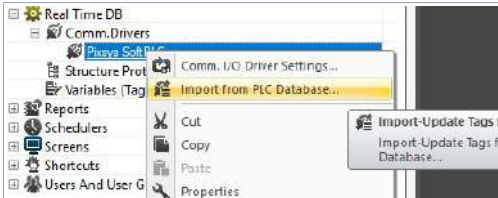
Select "Station" and add a new station pressing "ADD".



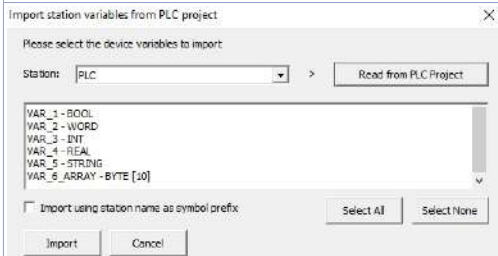
1. Enter source path of the LogicLab project located on the PC used for development. This allows to import variables, execute Movicon in preview mode on own PC, including communication with SoftPLC, and perform complete test. Next step is to indicate IP address of the target HMI/PC (only after completing development it will be necessary to enter localhost address 127.0.0.1 to enable communication of Movicon project with the softPLC of the panel itself.

2. This field is self-compiling after entering path as described on previous point. If using an HMI/PL500, do not modify the self-compiling field; if using a Panel PC (TD750, TD850 etc...) enter the path used for download of the LogicLab project (default `D:\LLExc\NameMyProjectLogicLab.sym.xml`).
3. If Movicon project will be executed on the HMI/PC where the softPLC is also installed, then the IP address will be 127.0.0.1. If it will be executed on a different HMI/PC, then enter the IP address of the softPLC.
4. From the section "General" assign a name to the station, ex. "PLC".

Press OK to save settings and exit.



Now it is possible to import the LogicLab project variables on Movicon. Right click on "SoftPLC Pixsys" and select "Import PLC database".



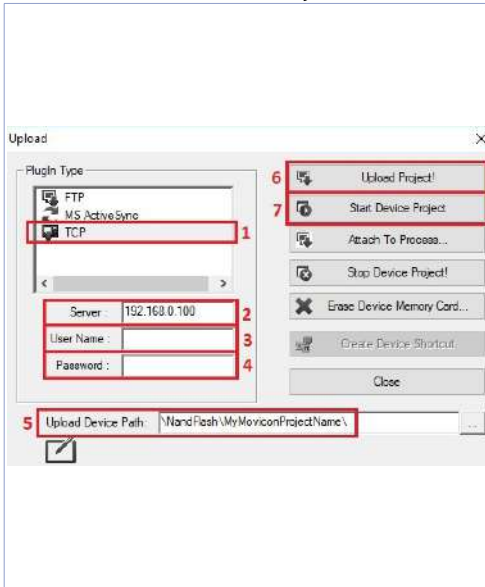
Press "Read from PLC project", the list of all available variables will be provided.

Select variables to be imported and press "Import".

NB: If importing an array variable, it will be visualized as a structure carrying the array name. Single array members will be accessible individually with following syntax `NameMyArray:NameMyArray_X` where `X` is the array index (starting from 0). Now variables are available on the Movicon project. If it is necessary to import new variables (to modify LogicLab project), repeat only the reading and import variables procedure.

13.c Downloading the Movicon code to the target

To download the Movicon Project, use the icon:





1. Select the protocol used to transfer the code: *TCP*
2. Insert the target IP address (default for HMI/PLC: *192.168.0.100*).
3. If using an HMI/PLC leave the field blank, if using a Panel-PC insert *user* (or the user name that is logged on the Panel-PC target).
4. If using an HMI/PLC leave the field blank, if using a Panel-PC insert *123456*
5. If using an HMI/PLC insert *\NandFlash\MyMoviconProjectName*, if using a Panel-PC insert *D:\MyMoviconProjectName*. In this way Movicon will create a folder named *MyMoviconProjectName* and it will download all the project files into it.
6. Press *"Upload Project!"* to download the project files to the target (press *"Yes to All"* if a project was already downloaded to overwrite the old files).
7. Once the download is completed, press *"Start Device Project"* to launch the execution of the project in the target (the project in execution will be closed and the new one will be executed).


NB: if you need to transfer different projects/versions to the target, you can change the destination folder (you must maintain the first part of the address *\NandFlash*).

Using the TdControlPanel is possible to select which Movicon 11 project will be executed automatically at starting (see paragraph *10.b*).

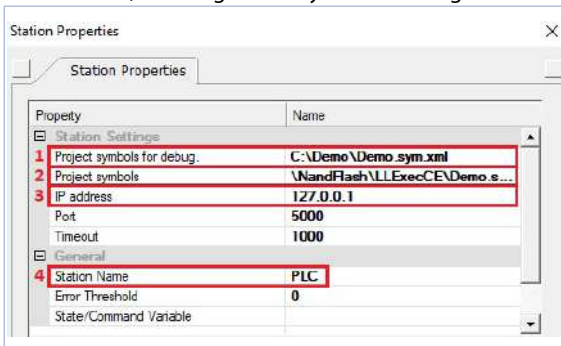
14 Simulation of the whole project SoftPLC + SCADA

From **LogicLab**, launch the simulator through the icon  or from menu *"Debug" > "Simulation mode"*. On the window which appears, create a new working area indicating the name and the destination folder (by default it is selected the folder where the project resides).

At this point, the simulator will be activated and connected (status window shows *"CONNECTED"*) but without the code (status window shows *"NO CODE"*), transfer the code pressing *F5*, through the icon  or from the menu *"Online" > "Online download code"*.

Verify that the status bar visualize *"CONNECTED"* and *"SOURCE OK"*. If *"NO CODE"* is still visualized, restart the simulator pressing  or from the menu *"On-line" > "Target reboot"*.

On Movicon, entering the Pixsys driver configurator and configure as follows:



1. Enter the folder where the LogicLab project resides and select the file *NameMyProjectLogicLab.sym.xml*
2. Enter the folder where the simulator is operating, set as filter *"All files (*.*)"* and select the file *NameMyProjectLogicLab.sym.simul*. Pay attention to the file extension, into the project folder there are many files with the same name but different extension.
3. Select the localhost address: *127.0.0.1*
4. From the section *"General"* assign a name to the station, ex. *"PLC"*.

