



## PLC with integrated TFT touch screen operator panel

- Case DIN 43700 96x96
- Graphic LCD 320x240 with 65536 colours
- Touch screen
- Mini-USB programming port
- Contact programming with Ladder language
- Three serial communication ports
- Optional Ethernet port
- Compact PLC compatible with the standard serial communication protocol Modbus RTU

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# 1 HARDWARE CHARACTERISTICS

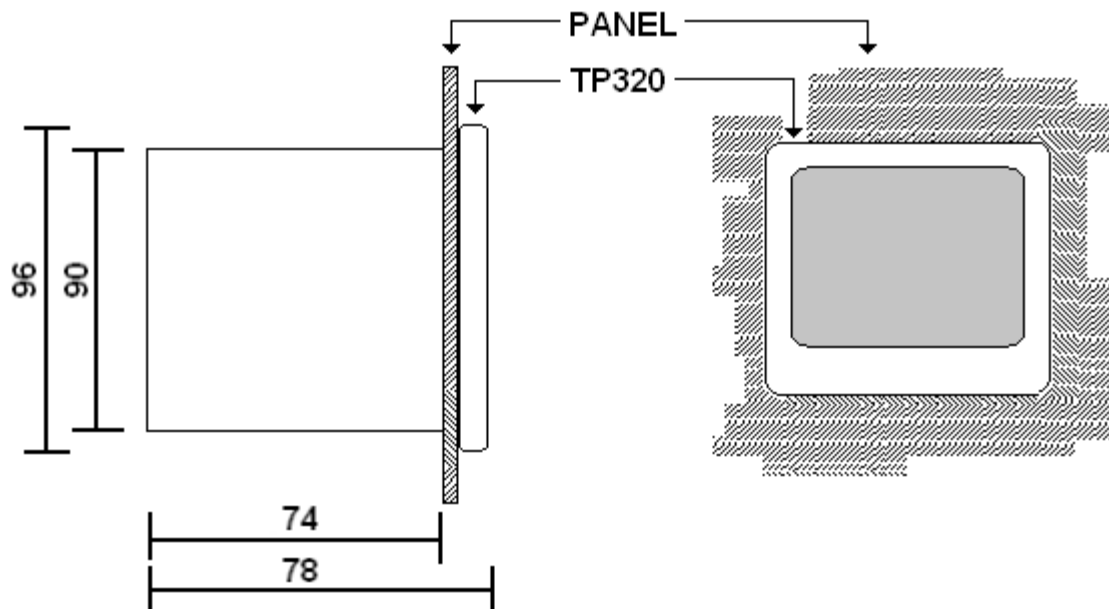
This chapter describes the hardware characteristics of TP\_320 :

## 1.1 Electric Characteristics

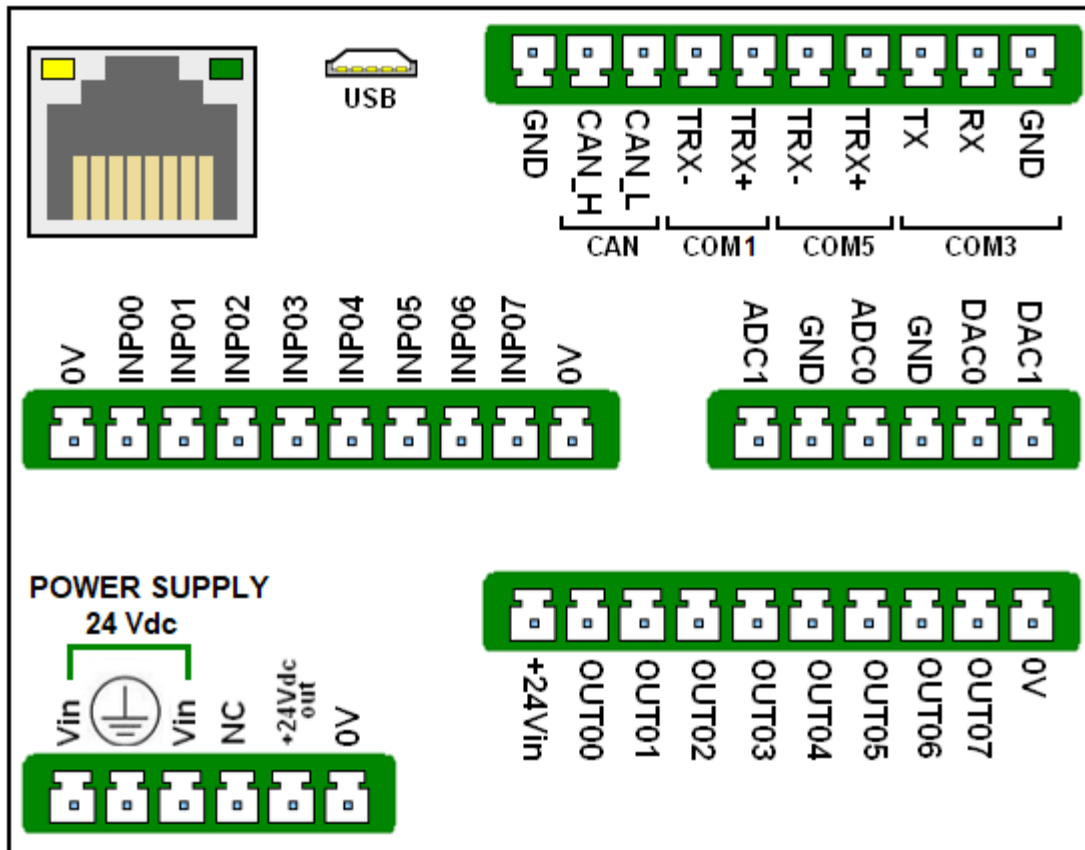
ELECTRIC CHARACTERISTICS	
Power supply voltage	24 Vdc +/- 10 %
Maximum Permitted Power Supply	27 Vdc
Current Consumption	Under 150 mA without loads [Power Supply = 24 Vdc]
Microprocessor	ARM STM 400
Program Memory	256 KByte
Pages Memory	64 MByte
EEprom	64 KByte
Cycle Time	Programmable (min 1 msec.)
Digital Inputs	8 digital inputs PNP 24 Volts including 4 fast (until 20 KHz for encoder reading) with programmable anti-noise filter (value 1 ... 16)
Analog Inputs	2 analog inputs with 12 bits resolution [0 ... 4095] ; for PT100, PT1000, thermocouple (J or K) otherwise voltage (0 ... 10 V) or current (0 ... 20 mA)
Digital Outputs	8 static outputs 24 Vdc 500 mA
Analog Outputs	2 analog outputs 0 ... 10 V with 12 bit resolution [0 ... 4095]
Plugged RAM	2048 words copied automatically into plugged RAM any 100 msec
RTC	Internal Real time clock buffered by a rechargeable battery
Current analog input Impedance	250 Ohm
Voltage analog input Impedance	10 KOhm
Serial Lines	<p>3 serial lines (COM 1, COM 3, COM 5) :</p> <p><b>COM 1</b> : It's in RS 232; it can be used with many different standard communication protocols for connect other devices (thermoregulators, inverters or network connection) besides it's used for upload applications or operative system</p> <p><b>COM 3</b> : It's in RS 485 mode and can be used with many different standard communication protocols for connect other devices (thermoregulators, inverters or network connection)</p> <p><b>COM 5</b> : It's in RS 485 mode and can be used with many different standard communication protocols for connect other devices (thermoregulators, inverters or network connection)</p>
ETH	Optional
Mini USB	Yes
USB Pendrive	No

1.2 Mechanics Characteristics

MECHANICS CHARACTERISTICS	
Temperature Range	From -10 ^C to +70^C
Humidity Range	From 10 % to 90 % (non-condensing)
Operating Atmosphere	Without corrosive gas
Noise Immunity	According to rules in force
Fixing System	Fixing Bracket
Weight	n.d.
Keyboard	Resistive Touch screen with high resolution
Display	Graphic display 320x240 with 65536 colours, backlight
Break Size	90x88 ; Depth 74 mm
Front Size	96x96



1.3 I/O Connections



## 2 SOFTWARE CHARACTERISTICS

SOFTWARE CHARACTERISTICS	
Programming Languages	AWL / Ladder
Timers	<ul style="list-style-type: none"> <li>• 256 timers at 16 bit with 1/100 sec resolution.</li> </ul> Timers are configurable like : excitation delay, disexcitation delay or one pulse <ul style="list-style-type: none"> <li>• 8 timers "free running" with a resolution of 1 msec, individually activated with system flag</li> </ul>
Counters	256 counters at 16 bit configurable like increase or decrease
Memory	8192 DATA MEMORY 16 bit general purpose, some with special meaning, numbered from DATA.00 to DATA.8191
FLAG	2048
SYS	233
RTF	1536 Retentive Flags
NVDATA	2048 Non-Volatile DATA
Developed Functions	<ul style="list-style-type: none"> <li>• Weekly Programmer</li> <li>• Recipes Management</li> <li>• Encoders Management</li> <li>• P.I.D. Temperature Regulator</li> <li>• ...</li> </ul>
Memory area check in real time mode on data table ( Debug )	Yes
Ladder's subroutines Import / Export	Yes
Contact and variable check in real time mode on ladder ( Debug Online )	Yes



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