

ATR144

Controller / Regolatore



Model identification

The ATR144 series includes 2 versions:

Power supply 24..230 VAC/VDC $\pm 15\%$ 50/60 Hz – 5 Watt/VA	
ATR144-ABC	1 analogue input + 2 relays 5 A + 1 D.I/O
ATR144-ABC-T	1 analogue input + 1 relays 5 A + 1 D.I/O + RS485

Technical data

General features

Displays	4 digits 9.6 mm (0.38 pollici), 5 digits 7.1 mm (0.28 pollici)
Operative conditions	Temperature: 0-45° C - Humidity 35..95 uR% Max. altitude: 2000m
Sealing	IP65 front panel (with gasket) IP20 box and terminals
Materials	Box and front panel: PC UL94V2 self-extinguishing
Weight	Approx. 120 g



Hardware features

Analogue input	<p>AI1: Configurable via software. Input: Thermocouple type K, S, R, J,T,E,N,B. Automatic compensation of cold junction from -25...85° C. Thermoresistances: PT100, PT500, PT1000, Ni100, Ni120, PTC 1K, NTC 10K (β 3435K and β3694K), NTC 2252 (β3976K) Input V/mA: 0-1 V, 0-5 V, 0-10 V, 0-20 o 4-20 mA, 0-60 mV. Pot. Input: 1...150 KΩ.</p>	<p>Tolerance (25° C) $\pm 0.2\% \pm 1$ digit (on F.s.) for thermocouple, thermoresistance and V/mA. Cold junction accuracy 0.1° C/°C.</p> <p>Impedence: 0-10 V: $R_i > 110$ KΩ 0-20 mA: $R_i < 5$ Ω 0-40 mV: $R_i > 1$ MΩ</p>
Relay outputs	Configurable as command and alarm output.	Contacts: 5 A - 250 VAC Resistive load.
SSR outputs	Configurable as command and alarm output.	12 V, 25 mA. Min. load 1 mA
Power supply	Extended power-supply 24..230 VAC/VDC $\pm 15\%$ 50/60 Hz Overvoltage category: II	Consumption: 5 Watt/VA



Software features

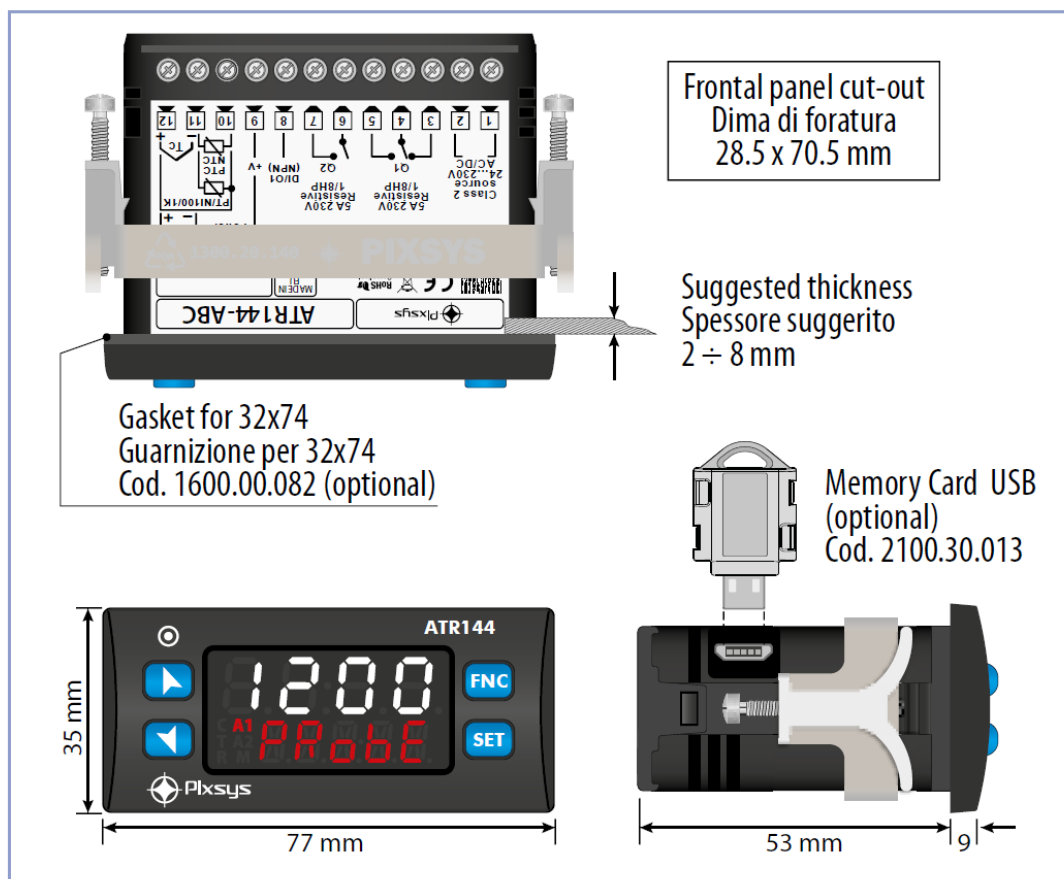
Regulation algorithms	ON-OFF with hysteresis. P, PI, PID, PD with proportional time
Proportional band	0..9999°C o °F
Integral time	0,0..999,9 sec (0 exclude)
Derivative time	0,0..999,9 sec (0 exclude)
Controller functions	Manual or automatic Tuning, selectable alarm, protection of command and alarm setpoints.

Programming mode

by keyboard	..see paragraph 10
software LabSoftview	..on "Download section" of official pixsys site: www.pixsys.net
App MyPixsys	..through download the App on Google Play Store®, see paragraph 9 When activated by a reader/interrogator supporting NFC-V protocol, controller ATR244 is to be considered a VICC (Vicinity Inductively Coupled Card) according to ISO/IEC 15693 and it operates at a frequency of 13.56 MHz. The device does not intentionally emit radio waves.



Dimensions and installation



Electrical wirings

This controller 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 in industrial environments please observe following safety guidelines:

- Separate control line from power wires.
- Avoid proximity of remote control switches, electromagnetic contactors, powerful engines.
- Avoid proximity of power groups, especially those with phase control.
- It is strongly recommended to install adequate mains filter

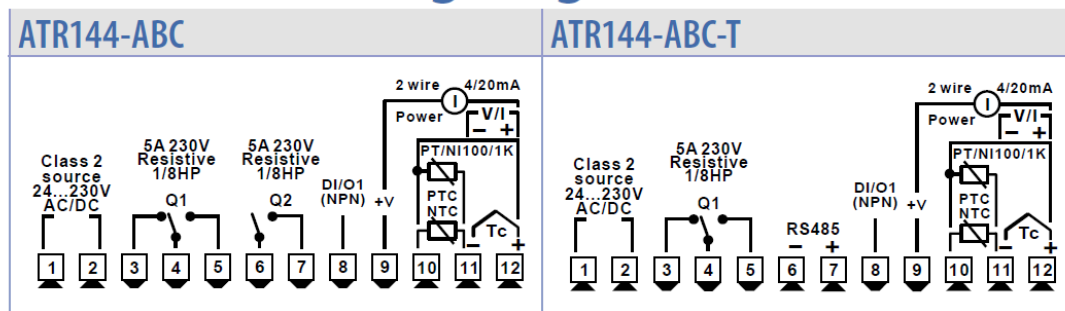


on power supply of the machine where the controller is installed, particularly if supplied 230 VAC.

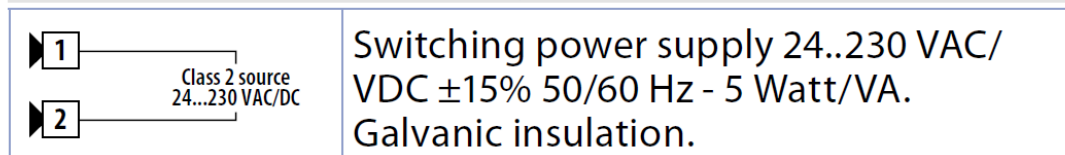
The controller is designed and conceived to be incorporated into other machines, therefore CE marking on the controller does not exempt the manufacturer of machines from safety and conformity requirements applying to the machine itself.

- Wiring ATR244, use crimped tube terminals or flexible/rigid copper wire with diameter 0.14 to 2.5 mm² (min. AWG26, max. AWG14). Cable stripping length is 7 mm.
- It is possible to connect on a single terminal two wires with same diameter comprised between 0.14 and 0.75mm².

Wiring diagram



5.1.a Power supply



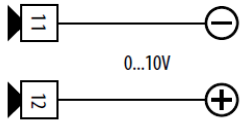
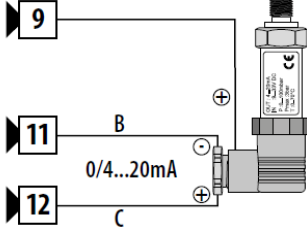
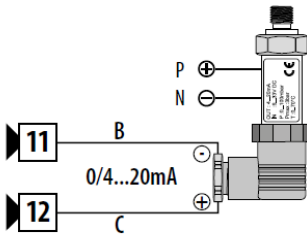
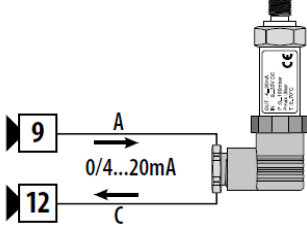


Analogue input AI1

	<p>For thermocouples K, S, R, J, T, E, N, B.</p> <ul style="list-style-type: none">• Comply with polarity• For possible extensions, use compensated cable and terminals suitable for the thermocouples used (compensated).• When shielded cable is used, it should be grounded at one side only.
	<p>For thermoresistances PT100, Ni100.</p> <ul style="list-style-type: none">• For the three-wire connection use wires with the same section.• For the two-wire connection short-circuit terminals 10 and 12.• When shielded cable is used, it should be grounded at one side only.
	<p>For thermoresistances NTC, PTC, PT500, PT1000 and linear potentiometers.</p> <ul style="list-style-type: none">• When shielded cable is used, it should be grounded at one side only to avoid ground loop currents.
	<p>For linear signals in Volt and mA</p> <ul style="list-style-type: none">• Comply with polarity• When shielded cable is used, it should be grounded at one side only to avoid ground loop currents.

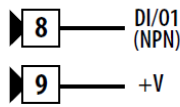


Examples of connection for linear input

	<p>For signals 0..10V</p> <ul style="list-style-type: none">• Comply with polarity
	<p>For signals 0/4..20mA with three-wire sensor</p> <ul style="list-style-type: none">• Comply with polarity <p>C = Sensor output B = Sensor ground A = Sensor power supply (12V/30mA)</p> <p>In the picture: pressure sensor.</p>
	<p>For signals 0/4..20mA with external power of sensor</p> <ul style="list-style-type: none">• Comply with polarity <p>C = Sensor output B = Sensor ground</p> <p>In the picture: pressure sensor. Connect the external power supply to pins P and N.</p>
	<p>For signals 0/4..20mA with two-wire sensor</p> <ul style="list-style-type: none">• Comply with polarity <p>C = Sensor output A = Sensor power supply (12V/30mA)</p> <p>In the picture: pressure sensor.</p>



Digital input 1



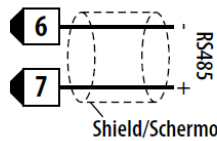
Digital input can be enabled by parameter.
Close pin 8 "DI/O1" on pin 9 "+V" to enable digital input.

Digital input 2



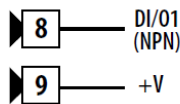
Digital input can be enabled by parameter. Not available when a resistive sensor (thermorestistances or potentiometers) is selected.
Close pin 10 on pin 11 to enable digital input.

Serial input (only on ATR144-ABC-T)



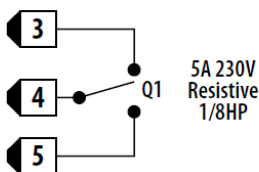
Modbus RS485 communication.
RTU Slave with galvanic insulation.
It is recommended to use the twisted and shielded cable for communications.

Digital output



Digital output NPN (including SSR) for command or alarm.
Range 12 VDC/25 mA.

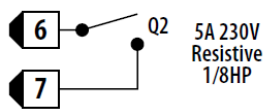
Relay output Q1



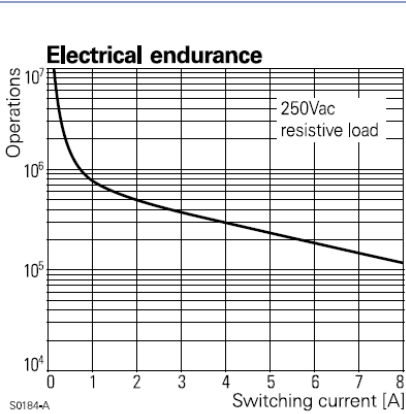
Capacity 5 A / 250 VAC for resistive loads.
See chart below.



Relay output Q2 (only on ATR144-ABC)



Capacity 5 A / 250 VAC for resistive loads.
See chart below.



Contact Q1 e Q2:

- **Rating (resistive):** 250 VAC/30 VDC, 5A
- **Maximum switching power:** 1250 VA/150W

Life:

- **Mechanical:** min. 5×10^6 operations
- **Electrical:** min. 100×10^3 operations

Display and key functions

	1	123.4	Normally displays the process. During the configuration phase, it displays the parameter groups or the parameter being inserted.
	2	PrObE	Normally displays the setpoint. During the configuration phase, it displays the parameter value being inserted.