

**UNIVERSAL PROCESS CONTROLLER  
UC-820**

**DESCRIPTION**

The UC-820 is a digital universal controller used in the automation of industrial processes. It is ideally suited for use with our range of instrumentation, electric and pneumatic control valves and other electrical equipments.

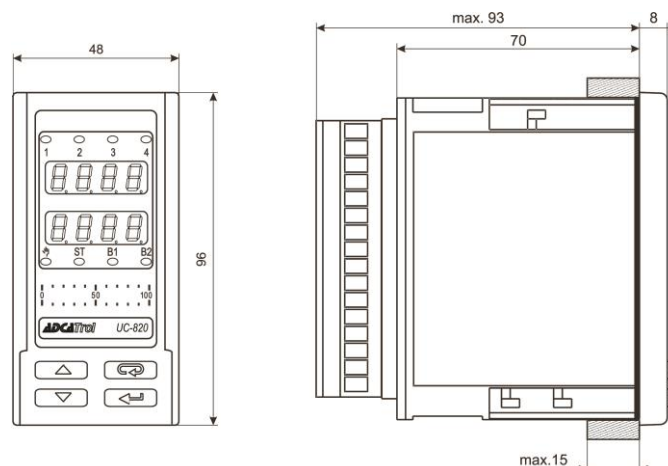
The controller includes a set of universal type inputs for RTD, thermocouple (TC), logic (binary) and analog inputs. The controller has options for relay, open-collector (OC) and analog outputs using the innovative SMART PID algorithm.

**MAIN FEATURES**

- Universal measuring input: Resistance thermometer (RTD), thermocouples (TC), 0/4...20 mA and 0...5/10 V.
- Binary input control.
- Set point value: constant, programmed or from the additional analog input.
- On/off, PID, PID three-step and two-step control (valve control) or PID of heating-cooling type.
- 2 NO relay outputs and 2 other outputs of choice between relay, OC or analog outputs (0/4...20 mA or 0...10 V).
- Soft-start function.
- 8 types of alarm functions.
- 24 V dc loop power supply output.
- Signal retransmission.
- "Gain scheduling" function.
- Timer function.
- Auto-tuning using the smart PID algorithm.
- Measurement of heating current and monitoring of heater overheating or shortening of the control element.
- Galvanically isolated inputs and outputs.
- Password protection.
- Fully programmable from the front panel.
- RS-485 Modbus RTU communication.
- Degree of protection IP65.



**DIMENSIONS (mm)**



**TECHNICAL DATA**

**RATED OPERATING CONDITIONS**

Supply Voltage	85...253 V ac/dc or 20...40 V ac/dc
Temperature	Ambient: 0...23...50 °C; Storage: -20...70°C
Humidity	< 85% without condensation
Operating Position	Any

**SAFETY AND COMPATIBILITY REQUIREMENTS**

Electromagnetic Compatibility	Noise immunity acc. to EN 61000-6-2
	Noise emissions acc. to EN 61000-6-4
Pollution level	Level 2 acc. to EN 61010-1
Installation category	Cat. III acc. to EN 61010-1
Maximal phase-to-earth operating voltage	Supply/Output circuits: 300 V; Input circuits: 50 V acc. to EN 61010-1

**INPUT**

Type	Range	Error
PT100	-200...850 °C	0.2%
PT1000	-200...850 °C	0.2%
Fe-CuNi (J)	-100...1200 °C	0.3%
Cu-CuNi (T)	-100...400 °C	0.3%
NiCr-NiAl (K)	-100...1372 °C	0.3%
PtRh10-Pt (S)	0...1767 °C	0.5%
PtRh13-Pt (R)	0...1767 °C	0.5%
PtRh30-PtRh6 (B)	200...1767 °C	0.5%
NiCr-CuNi (E)	-100...1000 °C	0.3%
NiCrSi-NiSi (N)	-100...1300 °C	0.3%
Chromel-kopel (L)	-100...800 °C	0.3%
Current channels (I)	0/4...20 mA	0.2% +/- 1 digit
Voltage channels (U)	0...5/10 V	0.2% +/- 1 digit
Binary	Voltageless	

**OUTPUT**

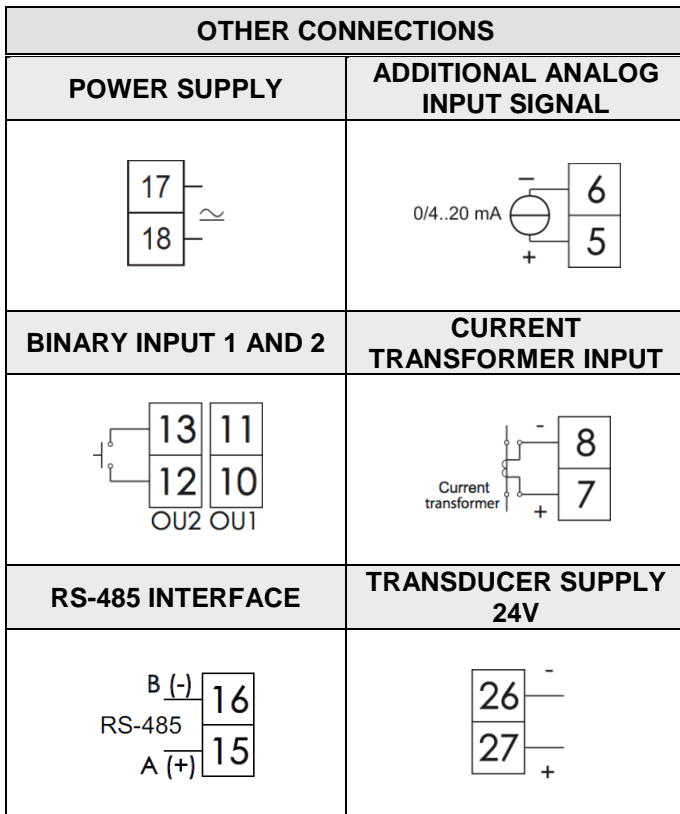
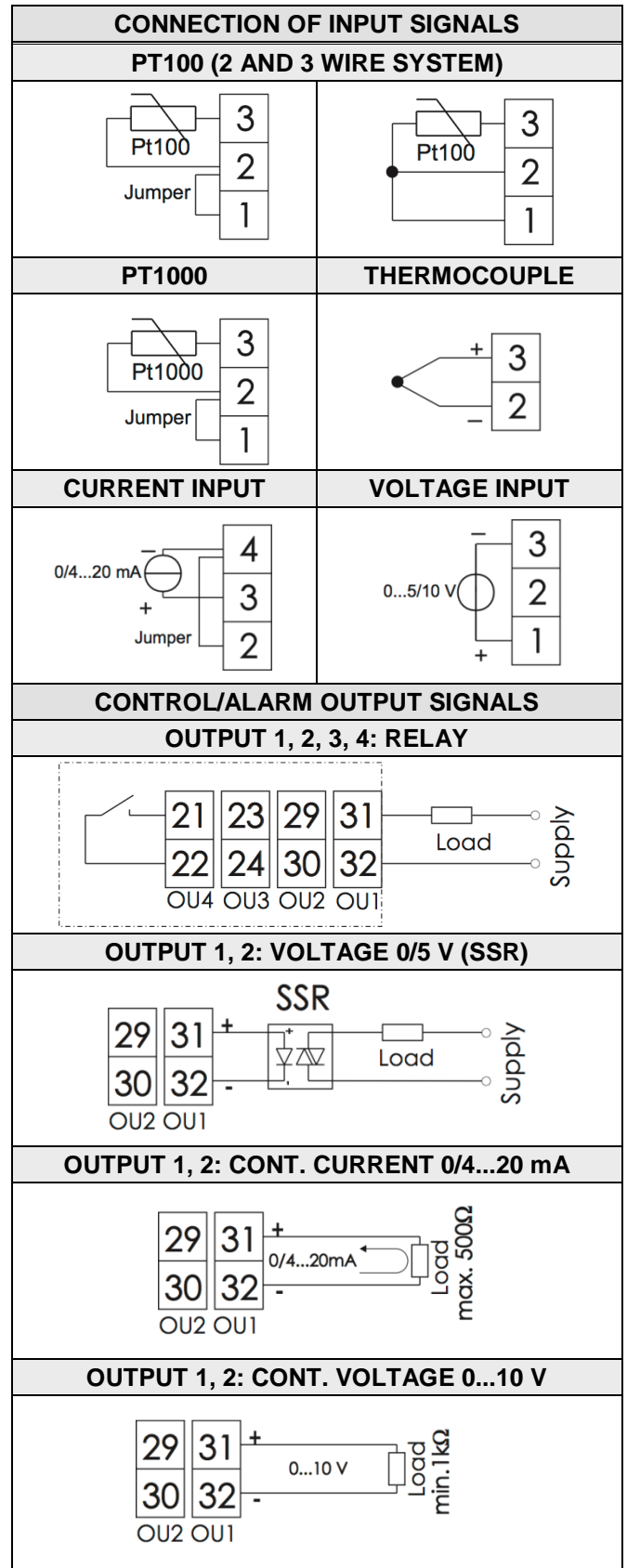
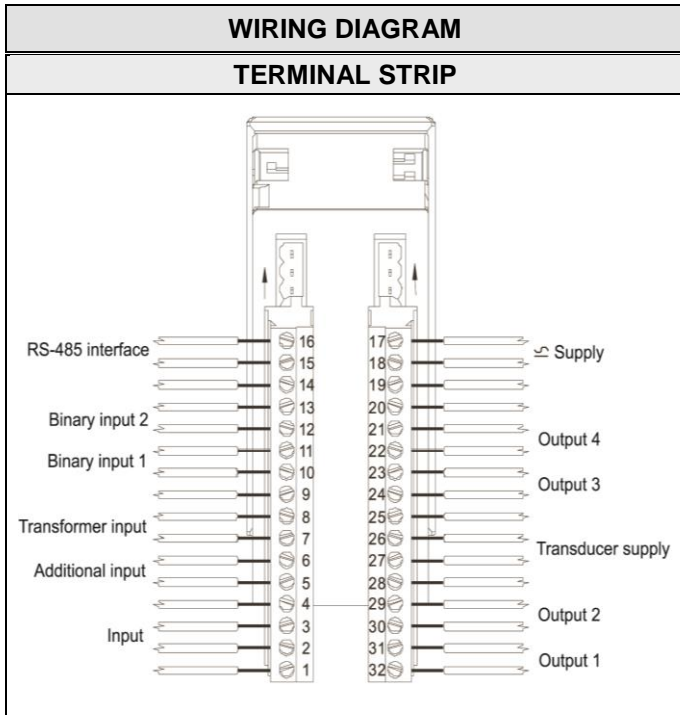
Type	Properties	Load Capacity
Relay (voltageless)	NO contacts	2 A/ 230 V ac
OC open-collector	0/5 V	Max. 40 mA
Continuous voltage	0...10 V	$R_{load} \geq 1k\Omega$
Continuous current	0/4...20 mA	$R_{load} \leq 500\Omega$
Transducer supply output	24 V dc	Max. 30 mA

**DIGITAL INTERFACE**

Interface type	RS-485
Protocol	Modbus RTU 8N2, 8E1, 8O1, 8N1
Baud rate	4.8, 9.6, 19.2, 38.4, 57.6 kbit/s

**EXTERNAL FEATURES**

Readout field	2 x 4 digits; Digit height: 10 mm; Colors: red and green
Overall dimensions	48 x 96 x 93 mm
Weight	< 0.2 kg
Protection grade	From frontal side: IP65; From rear side: IP20
Bargraph	2 x 21 points; Colors: red and green



ORDERING CODES UC-820					
Group Designation	UC820	.1	3	1	.1
Universal process controller	UC820				
Output 1					
Relay		.1			
OC open-collector (0/5 V)		.2			
Continuous current (0/4...20 mA)		.3			
Continuous voltage (0...10 V)		.4			
Output 2					
Relay <sup>1)</sup>			1		
OC open-collector (0/5 V)			2		
Continuous current (0/4...20 mA)			3		
Continuous voltage (0...10 V)			4		
Transducer Supply 24 V					
None				0	
Supply for transducers 24 V dc 1 W				1	
Power Supply					
85...253 V ac/dc					.1
20...40 V ac/dc					.2

1) Only when a relay or OC voltage output is selected on output 1.