

## 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.

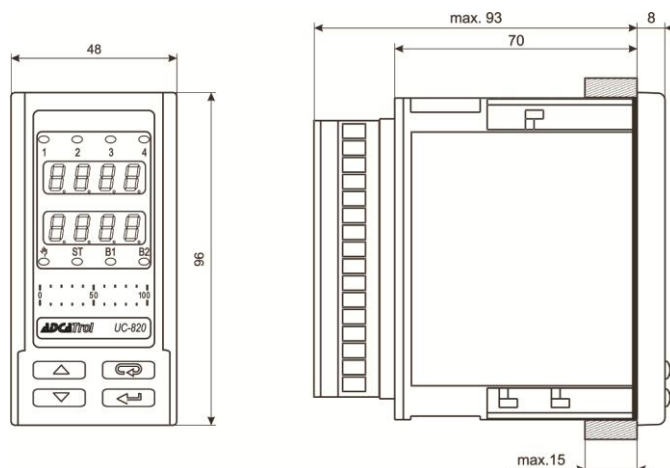
The controller includes a set of universal type inputs for RTD, thermocouple (TC), logic (binary) and analog inputs. The controller has options for relay, open-collector (OC) and analog outputs using the innovative SMART PID algorithm.

### 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.

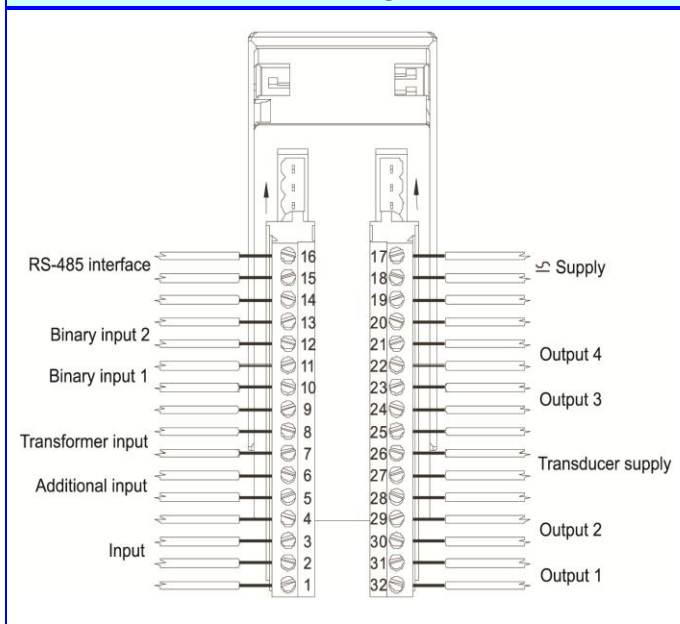
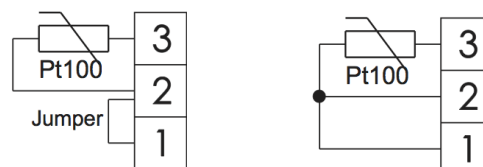
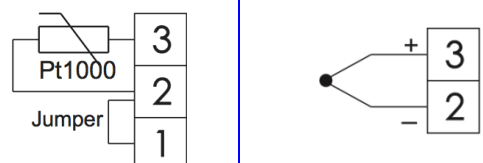
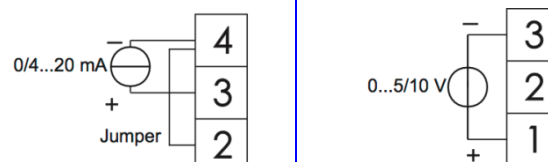
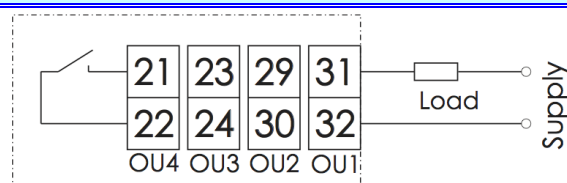
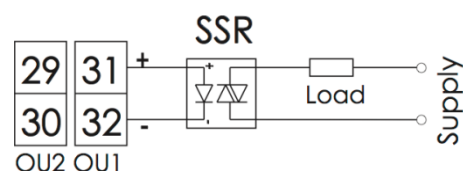
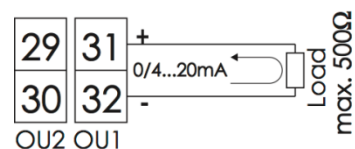
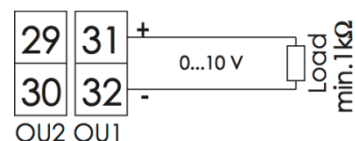
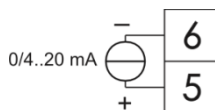
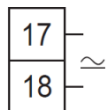
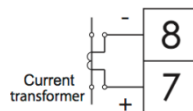
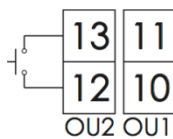
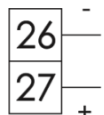
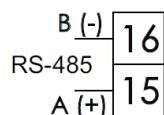


### DIMENSIONS (mm)





TECHNICAL DATA		
<b>RATED OPERATING CONDITIONS</b>		
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	
<b>SAFETY AND COMPATIBILITY REQUIREMENTS</b>		
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	
<b>INPUT</b>		
<b>Type</b>	<b>Range</b>	<b>Error</b>
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	
<b>OUTPUT</b>		
<b>Type</b>	<b>Properties</b>	<b>Load Capacity</b>
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
<b>DIGITAL INTERFACE</b>		
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	
<b>EXTERNAL FEATURES</b>		
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	

**WIRING DIAGRAM  
TERMINAL STRIP**

**CONNECTION OF INPUT SIGNALS**
**PT100 (2 AND 3 WIRE SYSTEM)**

**PT1000**
**THERMOCOUPLE**

**CURRENT INPUT**
**VOLTAGE INPUT**

**CONTROL/ALARM OUTPUT SIGNALS**
**OUTPUT 1, 2, 3, 4: RELAY**

**OUTPUT 1, 2: VOLTAGE 0/5 V (SSR)**

**OUTPUT 1, 2: CONT. CURRENT 0/4...20 mA**

**OUTPUT 1, 2: CONT. VOLTAGE 0...10 V**

**OTHER CONNECTIONS**
**POWER SUPPLY**
**ADDITIONAL ANALOG  
INPUT SIGNAL**

**BINARY INPUT 1 AND 2**
**CURRENT  
TRANSFORMER INPUT**

**RS-485 INTERFACE**
**TRANSDUCER SUPPLY  
24V**




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

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