

## UDC100 Universal Digital Controller

## Specification

### Overview

The UDC100 Universal Digital Controller is a microprocessor-based 1/4 DIN low cost temperature controller. It combines the highest operating simplicity with the benefits of digital technology. Its large dial allows easy parameter set-up. This microprocessor-based device provides a high degree of flexibility, repeatability, accuracy and temperature stability. Its simple ON-OFF/PID control algorithm with alarm and timer option capability make the UDC100 ideal for such applications as food processing (e.g. bakery ovens), small industrial furnaces and ceramics kilns. The UDC120 version has 2-loop control for excellent space integration and cost saving capabilities.



### Features

#### High functionality at low cost

The UDC100 offers the benefits of microprocessor technology at a very competitive price.

#### Easy to use

Thanks to analog-feel ergonomics the UDC100 is very simple to use. The interface has been selected to provide the most intuitive way to set-up parameters. The UDC100 is the ideal replacement for the well-known and popular AL/CL analog controller family.

#### Custom built for OEMs

The UDC100 has been designed to meet OEM requirements. Product overlay, labels, input ranges and firmware can be "tailored" to your particular specification. The integrated solution of the timer and 2-loop model is a perfect example of how the UDC100 is adaptable to meet specific market segment needs.

#### High level of integration

Several functions have been integrated to provide cost and space savings as well as to reduce wiring and set-up time. The UDC110T offers control and duration of the process thanks to its integral timer function. The UDC120 integrates 2 loops in one DIN format to provide a high level of integration.

### Features, continued

#### Rugged design for optimum repeatability and reliability

The unit's digital technology gives it extremely good stability in case of ambient temperature variation. This drift-free capability allows process control in the most severe industrial environments. All functional parts are mounted on a rugged chassis for easy replacement without disturbing field wiring. A rugged 10 Amp output relay is provided as standard for direct control application.

#### Universal isolated input

Input 1 can be configured for any input type and is isolated from relay output. In the dual loop model, input 2 type is identical to input 1 and is not isolated from input 1.

#### Dual loop model

This model offers two independent loops with two separate 3- or 4-digit displays. Control parameters and setpoints are independent of each loop. The possibility exists of one single SP for both loops.

#### Single or dual displays

According to the version, the displays will have 3 or 4 digits. The UDC100 basic model has one display. Models

### Features, continued

UDC110 and UDC120 provide dual displays for PV and SP reading or PV1 and PV2.

#### Moisture-resistant front panel

The front panel has IP54 front face protection against dust and water (hosedown).

#### PC configuration editor

Current parameters such as setpoints, alarm value and duration are configurable from the instrument's front face. All other parameters can be easily modified via a PC configurator package. Specific configuration can be saved, uploaded or downloaded for maintenance management.

#### Timer

The UDC110T provides a configurable time period from 0 to 9 hours. The timer is initiated by a key on the front face. An electromechanical relay and a front face LED are activated at the end of the timeout period. The relay is latched and requires manual acknowledgement from the operator.

#### Alarm selection

One alarm is available with a remote electromechanical relay action. The alarm type can be set on PV high or low, Deviation high or low, Band.

## Specifications

Technical data		
Input	Accuracy	0.5 % of span $\pm$ 1 LSD
	T <sup>o</sup> Stability	0.01 % of span per °C for T/C, mA and mV input 0.04 % per °C for RTD input 0.05 % per °C for cold junction
	Sampling Rate	Four samples per second (two samples per second for 2 loops Model)
	Input Filter	Digital filter configurable via PC software. 0.0 (OFF), from 0.1 s to 120.0 seconds.
	Input Resolution	13 bits; always four times better than display resolution
	Input Isolation	Universal input isolated (type test at 3250 Vdc) from all outputs and from power supply with exception of SSR driver and second input
	Burnout current	1.5 $\mu$ A
	Input Signal Failure	<ul style="list-style-type: none"> <li>• For thermocouple, detected by any lead break within 2 seconds, upscale burnout</li> <li>• For RTD, detected by any lead break within 2 seconds, upscale burnout</li> <li>• For DC linear: 0-50 mV detected within 2 seconds, upscale burnout</li> </ul>
Stray rejection	Common Mode	> 120 dB at 50/60 Hz giving negligible effect at up to 264 Vac 50/60 Hz
	Serial Mode	> 60 dB at 100 % of Span (at 50/60 Hz)
Control	Output type	<p><i>Type available:</i> Output 1: Electromechanical relay or SSR drive (open collector) Output 2: Electromechanical relay or SSR drive (UDC120 only) (open collector)</p> <p><i>Electromechanical relay:</i> SPDT contact Resistive load: 10 A at 120 V or 240 V Life time: &gt; 600000 operations at 230 Vac / 5 amps</p> <p><i>SSR drive capability:</i> SSR &gt; 11 Vdc into 500 ohms minimum</p> <p><i>Isolation:</i> not isolated from input and other SSR output</p>
	Output algorithm	<p><i>Configurable via PC software only:</i> ON/OFF with hysteresis: 0.0 % to 100.0 %</p> <p><i>Configurable via PC software or via front face:</i> Proportional bands: 0.1% to 999.9 % Reset: Off or from 1 second to 5999 seconds Rate: From 0 seconds to 5999 seconds Two independent PID available for two loops model. Cycle times: Up to two independent cycle times available for two loops model Cycle times selection: From 0.1 seconds to 256.0 seconds</p>
Timer (Models 110T)	Duration	From 1 min to 9 hr 00 min
	Output Type	1 relay (SPDT) 10 A resistive load (115/230 Vac)
	Triggering cause	End of preset time
Alarm (Model 110A)	Number of Alarms	1 Alarm setpoint
	Output type	1 relay (SPDT) 10 A resistive load (115/230 Vac)
	Alarm type	PV High or Low, Deviation High or Low, Band

Technical data (continued)		
<b>Physical</b>	Dimension	Depth: 55 mm (2.16 in) Front Face: 96 mm x 96 mm (3.78 in x 3.78 in)
	Weight	400 grams maximum
	Cut out	92 mm x 92 mm (3.62 in x 3.62 in) Plug in with panel mounting lock
	Terminals	Screw type (combination head)
	Panel thickness	3 mm (0.118 in) maximum
<b>Front Panel</b>	Sealing	IP54
<b>Parameters Set-up</b>	Dial button	For Process, Alarm SP and Timer duration Parameter set-up speed proportional to the angle speed.
<b>Power</b>	Type	115/230 Vac 50/60 Hz 24/48 Vac 50/60 Hz
	Consumption	5 Watts
<b>Environmental</b>	EMI Susceptibility	Designed to meet EN50082-1: 1992 and EN50082-2: 1995
	EMI Emissions	Designed to meet EN50081-1: 1992 and EN50081-2: 1994
	Safety	Designed to comply with EN61010-1: 1993
<b>Approval</b>	Europe	CE Mark: Conformity with 72/23/EEC Low voltage directive Conformity with 89/336/EEC EMC directive
	United States / Canada	Designed to meet UL and CSA certified C22.2 N1010-1 / 95 standard (certified) (for altitude < 2000 m).

### Input Actuations

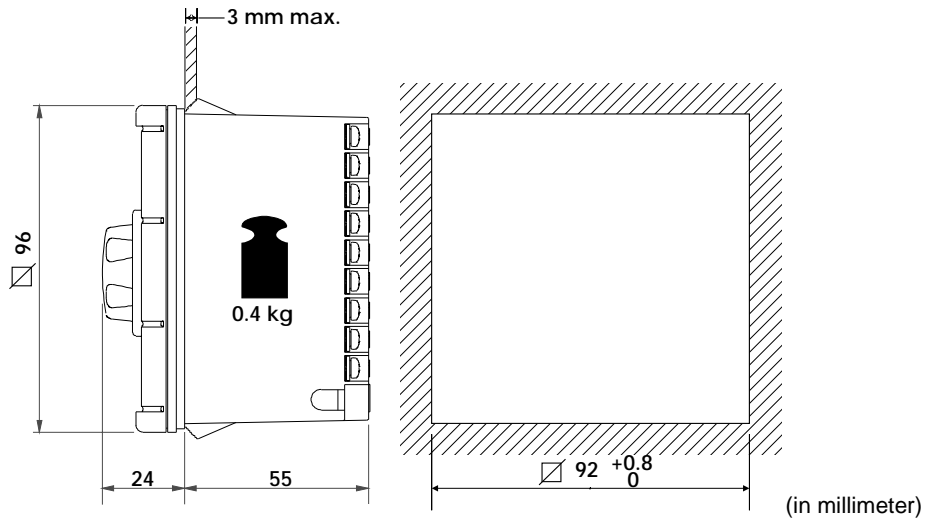
Thermocouple types	Ranges	
	°F	°C
J	32-572; 32-752; 32-999	0-300; 0-400; 0-537; 0-870
K	32-999; 32-2372	0-537; 0-999; 0-1300
L	32-932	0-500
S	32-2912	0-1600
R	32-2912	0-1600
T	32-752	0-400
RTD: (3 wires connection) PT100 (IEC) $\alpha = 0.00385$	-40-140 32-212 32-392 32-752	-40-60 0-100 0-200 0-400
DC linear:	10-50 mV 4-20 mA*	0-50 mV 0-20 mA*

\* with 2.5 ohms resistance

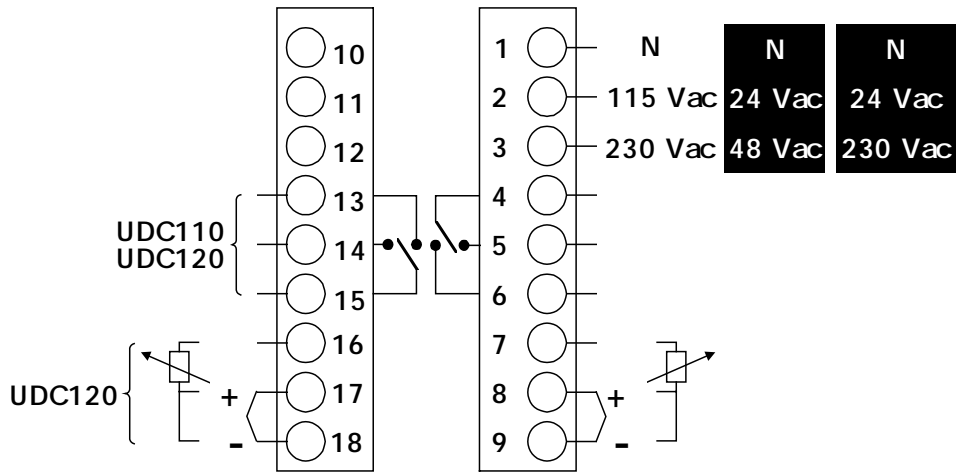
### Operating Conditions

	Reference Conditions	Operative Limits	Transportation and Storage
Ambient temperature	23 °C ± 2 °C (73 °F ± 4 °F)	0 °C to 60 °C (32 °F to 140 °F)	-20 °C to 80 °C (-4 °F to 176 °F)
Relative Humidity	60-70 %	20-95 % non -condensing	
Voltage	230 Vac ± 1 % 115 Vac ± 1 %	264/200 Vac 55/42 Vac 132/100 Vac 27.5/21 Vac	
Frequency	50/60 Hz ± 1 %	47-63 Hz	
Source resistance	< 5 ohms for thermocouple	1000 ohms max for thermocouple	
Lead resistance for RTD	< 0.1 ohm/lead (PT100)	50 ohms per lead	

**External Dimensions, Panel Cutout**



**Wiring Diagram**



For more information, contact Honeywell sales at (800) 343-0228.

*Specifications are subject to change without notice.*

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