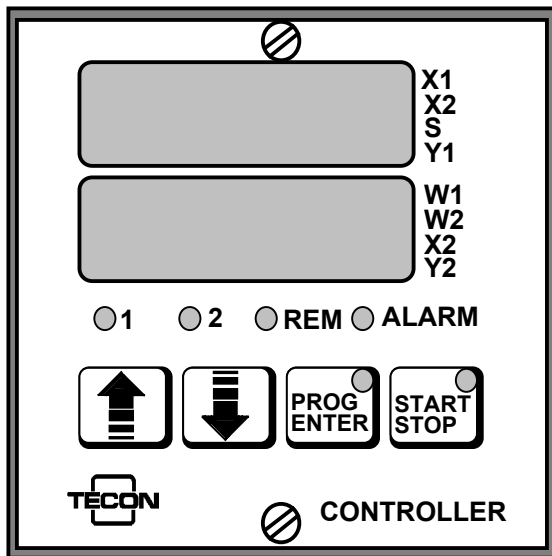


# TECON 231 Universal Controller



The three-term-PID controller TECON 231 is a member of a series of fixed setpoint, programmable and cascade controllers. With 2 sensor inputs and 2 independent controllers it is designed for sophisticated controlling tasks and is adjustable in large ranges.

With additional programmable in- and outputs and a serial interface it can be used in larger systems.

Nominal and actual value and power output can be indicated by key with large, bright LED digits. The sensor inputs can be adjusted by key to different thermocouples, resistor temperature detectors and current signals. The controller has 2 outputs and an additional alarm relay.

It can store 2 nominal values, which can be switched from outside. A ramp can be programmed for temperature rise and fall, so that the rate of temperature change can be limited. A version with 1 program sector is available too.

Connections:

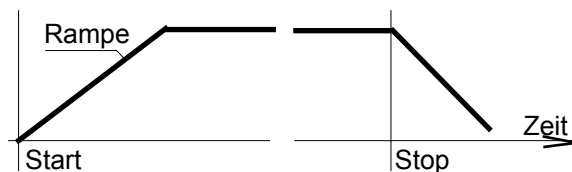
Digital GND	<input type="checkbox"/>	1		N	<input type="checkbox"/>	16	Mains
Digital output	<input type="checkbox"/>	2		L	<input type="checkbox"/>	17	230 / 115 V
Digital input	<input type="checkbox"/>	3		PE	<input type="checkbox"/>	18	50 / 60 Hz
Analogous output 2	<input type="checkbox"/>	4			<input type="checkbox"/>	19	Alarm
Analogous output 1	<input type="checkbox"/>	5			<input type="checkbox"/>	20	
Analogous input	<input type="checkbox"/>	6			<input type="checkbox"/>	21	
Analogous GND	<input type="checkbox"/>	7			<input type="checkbox"/>	22	
Current sensor 2	<input type="checkbox"/>	8			<input type="checkbox"/>	23	
Sensor 2 -	<input type="checkbox"/>	9			<input type="checkbox"/>	24	Output 2
Sensor 2 +	<input type="checkbox"/>	10			<input type="checkbox"/>	25	
Coldjunction- Compensation	<input type="checkbox"/>	11			<input type="checkbox"/>	26	
Sensor 1 -	<input type="checkbox"/>	12			<input type="checkbox"/>	27	Output 1
Sensor 1 +	<input type="checkbox"/>	13			<input type="checkbox"/>	28	
Current sensor 1 ++	<input type="checkbox"/>	14		-	<input type="checkbox"/>	29	Serial Inter- face RS 485
	<input type="checkbox"/>	15		+	<input type="checkbox"/>	30	

By adding optional prints, the following functions are possible:

- Galvanic separation of the thermocouple inputs
- Remote control with additional keyboard
- Additional in- and outputs

## Set point programming:

Ramps at start and stop



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# TECON 231 Universal Controller

## Technical Data

<b>Temperature sensors</b>		Measuring range:
Thermocouples	NiCr-Ni (K)	-200 to 1200 °C
	Fe-Co (J)	-200 to 750°C
	Pt10Rh-Pt (S)	0 to 1600°C
	Nicrosil-Nisil (N)	-200 to 1200°C
	Pt13Rh-Pt (R)	200 to 1600°C
	Pt18Rh-Pt (B)	200 to 1800°C
RTD	Pt 100	-200 to 750°C
	Pt 100 with Zener barrier 84 Ohm	-200 to 400°C
Current	4- 20 mA	-200 - 2000°C
	0- 20 mA	-200 - 2000°C
<b>Temp. measurement</b>	Accuracy :	0.3% of the range
	Resolution :	32000 points
	Number of measurements per second	10
<b>Actual value indication</b>	Display :	4 digits, LED 14mm height
	Resolution :	0.1 or 1°C
<b>Nominal value</b>	Range:	programmable
	Resolution:	0.1 or 1°C
	Entry by keys or through analogue signal or via the serial interface	
	analogue input:	1 or 10 mV/°C or 0/4 - 20 mA
<b>Limit values</b>	High and low limit, deviation from nominal value. Sensor break turns off.	
	Output: Relay change-over contact	230 V AC, 2 A
<b>Control system</b>	PID-controlling, 2 independent sets of parameters	
	Proportional band	0 - 999°C
	Lag time	0 - 9999 s
	Lead time	0 - 999 s
	Relay interval time	0 - 999 s
	Dead range between heating/cooling	0 - 99.9°C
	Self adapting on keystroke while heating up.	
<b>Controller outputs</b>	Number (available: relay, DC-signal or current)	2
	Relay contact	230 V AC, max. 2 A
	DC-signal	24 V, internal resistance 1 kOhm
	current	0/4 to 20 mA
<b>Additional inputs</b>	Analogue: set point	programmable, current or voltage
	Digital	programmable function, 24 V, 8 mA
<b>Additional outputs</b>	2 analogue outputs	programmable, current or voltage
	Range	-2 to 10 V or 0/4 to 20 mA
	Resolution of the DA-converter	8000 points
	Accuracy	0.5 % of the range
	1 digital output	function programmable, 24 V, 20 mA
<b>Temperature programs</b>	Ramp (gradient)	0.1-999.9°C/h
<b>Serial interface</b>	Type	RS 485, 2-conductor
<b>Mains supply</b>	alternately	230/115 V , 50/60 Hz, 10 VA
<b>Ambient temperature</b>		0 to 50°C
<b>Dimensions</b>	Front frame	96 x 96 mm , 5 mm high
	Controller exchangeable from the front, mounted in any position.	
	mounting depth	125 mm
<b>Weight</b>		0.5 kg
<b>Type of protection</b>	Panel	IP 64
	Enclosure	IP 20
<b>Safety</b>		EN 60065
<b>EMC</b>	Immunity	pr EN 50 082-2
	Emission	EN 50 081-1



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