

Control Products

Our products do more in a wide
range of applications. **Expect More.**

SCR Power Controllers:

- Zero-cross, proportional control
- Rated up to 600VAC, single phase or three phase
- 101, 102, 103, 108 Series:
 - up to 50 amps
 - cURus Certifications
- M&S Series:
 - Up to 70 amps
 - UR Certification
- Master and slave units can be combined for higher amperages
- Standard inputs: 2200 ohms, 135 ohms, 4-20 mA, 0-10 VDC
- Heatsinks and inputs electrically isolated from high voltage
- Multiple mountings available, including Type 4 and Type 4X
- SCCR ratings available up to 100 kA

S5 Series Step Controller:

Indeeco's S5 Series step controller provides low cost precision control for multi-stage applications with Linear (0-10VDC) or Pulse Width Modulated (PWM) Vernier control. Common applications include HVAC duct heaters, process air applications, boilers, and industrial ovens.

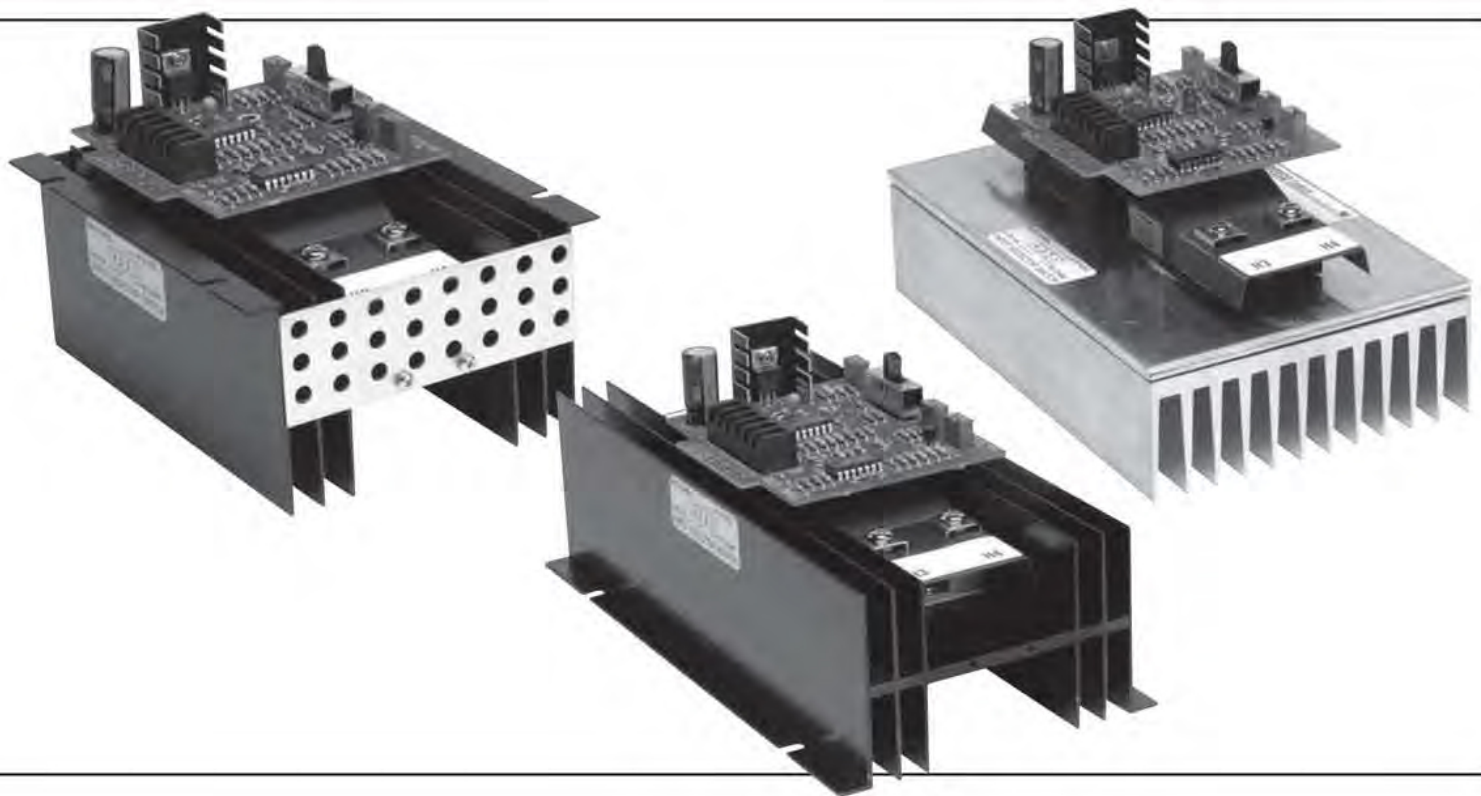
- Low voltage 24 VAC microcomputer-based stage controller
- Capable of controlling 24 VAC loads with solid state switches
- 5-stage controller with Vernier output stage rated at 100mA
- Up to 10 stages of control when using two controllers in a master/slave relationship
- True tracking and ramping Vernier linearity.
- Factory Programmable Operation:
 - Linear Sequencing/PWM Vernier
 - Linear Sequencing /Linear Vernier
 - Progressive Sequencing/PWM Vernier
 - Progressive Sequencing /Linear Vernier
- Field adjustable dip switches to support both 0-10 VDC or 4-20 mA signals
- Field adjustable dip switches to support inter-stage delays of 5-75 seconds
- Fail Safe: Unit cycles down to full OFF if input leads are open or shorted
- 6 LED status lights provide detailed status information for troubleshooting
- Built-in test mode to verify load wiring and operation
- Surge and ESD protection
- cURus Certifications

S10 Series step Controller:

Indeeco's S10 series step controller does more to provide precision control for multi-stage applications. Common applications include HVAC duct heaters, industrial process heaters, circulation heaters and boilers.

- Low voltage 24 VAC microcomputer-based stage controller
- Capable of controlling 24, 120 or 240 VAC loads with solid state switches
- 10-stage controller with a pulsed 12 VDC Vernier stage rated at 100 mA.
- Up to 20 stages of control when using two units wired in a master & slave configuration
- 24 VDC power supply rated at 200 mA is available for an external sensor
- Supports both linear and progressive operation modes
- 0-10VDC, 0-20VDC, 4-20mA, 2200 ohm, 0-135 ohm fixed input selections.
- Field adjustable switches to support DC voltage ranges anywhere between 0-20 VDC
- Field adjustable switches to support independent stage on and off delays of 5-600 seconds
- 24 VDC power supplied to support external sensors
- Fail Safe: Unit cycles down to full OFF if input leads are open, reversed or shorted
- 11 LED status lights provide detailed status information for troubleshooting
- Built-in test mode for quick troubleshooting
- Surge and ESD protection
- cURus Certifications

101, 102, 103, 108 SERIES SCR POWER CONTROLLERS



TYPICAL APPLICATIONS



- HVAC Equipment
- Drying Equipment
- Industrial Ovens
- Industrial Heating Equipment

- Duct Heaters
- Air Curtains
- Process Air Heaters
- Immersion Heaters



HOW TO ORDER

Mounting & Series	Type	Max Voltage	Max Current	Input Code	SCCR KA
101 == through panel	A1 = master, 1 phase	240 = 240VAC	20 = 20 amps	A = 2200 ohm	blank
102 = inside panel	A3 = master, 3 phase	480 = 480VAC	30 = 30 amps	C = 135 ohm	-65KA
103 = through panel	B1 = slave, 1 phase	600 = 600VAC	40 = 40 amps	E = 4-20mA	-100KA
108 = remote input board	B3 = slave, 3 phase		50 = 50 amps	L = 0-10VDC (blank) = slave	

See Series 101, 102, 103, & 108 Technical Documents for complete ordering information



M&S SERIES SCR POWER CONTROLLERS



NEMA 4X rating available with the optional gasket kit. This saves space and reduces the panel size while adding little heat to the panel interior. There are no fans nor filter to maintain.

TYPICAL APPLICATIONS



- Drying Equipment
- Industrial Ovens
- Industrial Heating Equipment

- Process Air Heaters
- Immersion Heaters
- Cartridge Heaters



HOW TO ORDER

Mounting	Type	AC Phase	AC Voltage	Max Current	Input Code	Gasket Kit
101	M = master	1 = 1 phase	120 = 120VAC	50 = 50 amps	A = 2200 ohm	W = included
	S = slave	3 = 3 phase	208 = 208VAC	70 = 70 amps	C = 135 ohm	blank = (none)
			240 = 240VAC		E = 4-20mA	
			277 = 277VAC		L = 0-10VDC	
			480 = 480VAC		(blank) = slave	
			600 = 600VAC			

S10 SERIES STEP CONTROLLER



TYPICAL APPLICATIONS

- Electric Boilers
- HVAC Equipment
- Drying Equipment
- Industrial Heating Equipment
- Immersion Heaters
- Duct Heaters
- Process Air Heaters
- Cartridge Heaters



HOW TO ORDER

Typical Model Designation (Progressive Enabled):

205 - S10 - M10 -I -A 21
I II III IV V VI

Typical Model Designation (Progressive Disabled):

201 - S10 - M10
I II III

I - Product Code:

201 - Open board w/ mounting plate (Flange Mounting)

202 - Open board w/ standoffs

204 - Enclosure w/ holes for LEDs in cover. (Contact factory if REACH or RoHS required on enclosure)

205 - Enclosure w/ holes for LEDs and set point adjuster in cover. (Contact factory if REACH or RoHS required on enclosure.)

II - Basic Model: S10

III - Control Stages: M10

IV- Control Type:

I = Progressive option enabled

Blank= Progressive option disabled. Fixed for linear control regardless of switch settings

V - Supply Voltage (Used for product codes 201, 204 & 205 units only):

Code	Supply Voltage	Notes
A	24 Vac	
B	120/208/240 Vac	Supplied with 120/208/240 to 24 Vac transformer.

VI - Temperature Range for set point adjuster (Used for product code 205 units only):

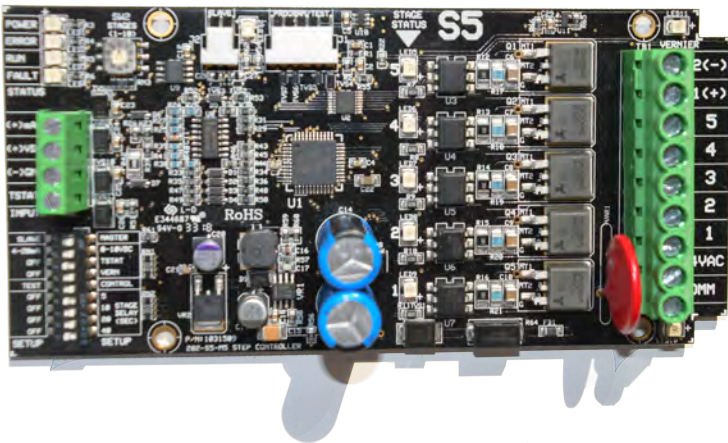
Code	Range	Code	Range	Code	Range
21	0-100°F	41	50-150°F	43	50-180°F
47	100-210°F	51	120-250°F	55	150-250°F

For use with 2200 ohm input signal and a Series 310 Thermistor Sensor.

Slave Cable: 1028815

Cable is 36" long to make the master to slave connection. Contact factory if different length cable is desired.

S5 SERIES STEP CONTROLLER



Low cost 24VAC control works with proportional thermostats, building management systems and other digital controls.

TYPICAL APPLICATIONS



- HVAC Equipment
- Electric Boilers
- Drying Equipment
- Industrial Heating Equipment

- Duct Heaters
- Immersion Heaters
- Process Air Heaters
- Cartridge Heaters



HOW TO ORDER

Step Controller:

201 - S5 - M5 - 1031553
I II III IV

I - Product Code:

- 201 - Open board with a mounting plate
- 202 - Open board w/ standoffs

II - Basic Model: S5

III - Control Stages: M5

IV - Serial:

- Blank - Linear Control with 12VDC pulsed Vernier output
- 1031553 - Progressive Control with 0-10VDC linear Vernier output
- 1031554 - Progressive Control with 12VDC pulsed Vernier output
- 1031555 - Linear Control with 0-10VDC linear Vernier output

Slave Cable: 1030123

Cable is 36" long for the master to slave connection. Contact factory if different length cable is desired.

310 SERIES THERMISTOR SENSORS

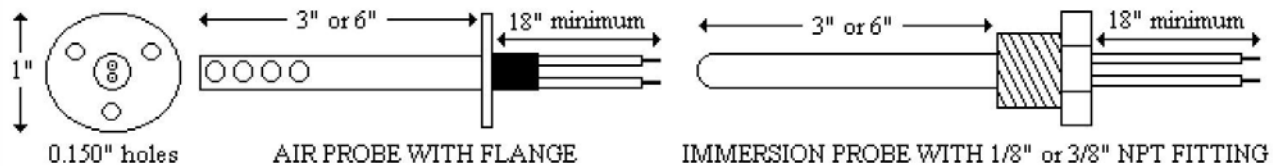


The 310 series thermistor sensors must be wired in series with a 320 series setpoint adjuster. The total resistance is 2200 ohms when the sensor temperature equals the setpoint. The NTC thermistor increases resistance as temperature decreases.

For use with:

NOT for use with:

- A Series Master SCR
- M Series Master SCR
- S10 Master Step Controller
- B Series Slave SCR
- S Series Slave SCR
- S10 Slave Step Controller



HOW TO ORDER

Series	Probe Type & Availability	Temperature	Material	Length	Diameter
310-10	10 = air probe with flange (stainless steel only)	21 = 0-100°F	C = copper	03 = 3.0"	B = 0.275" typical
		41 = 50-150°F	S = 304	06 = 6.0"	
	40 = 3/8" NPT immersion (all materials & lengths)	43 = 50-180°F	stainless steel		
	41 = 1/8" NPT immersion (3" lengths only)	47 = 100-210°F			
		51 = 120-250°F			
		55 = 150-250°F			

Part Number Format: 310-10-10-21-C03B

Temperature	Resistance at 77°F	Change in Resistance
21 = 0-100°F	1085 ohms \pm 10%	14.0 Ω / °F near 77°F
41 = 50-150°F	1248 ohms \pm 10%	9.5 Ω / °F near 125°F
43 = 50-180°F	1916 ohms \pm 10%	12.0 Ω / °F near 125°F
47 = 100-210°F	1248 ohms \pm 10%	6.5 Ω / °F near 150°F
51 = 120-250°F	2372 ohms \pm 10%	21.0 Ω / °F near 180°F
55 = 150-250°F	2990 ohms \pm 10%	14.5 Ω / °F near 180°F

320 Series Setpoint Adjusters

The 320 series Setpoint Adjuster must be wired in series with a 310 Series Thermistor sensor. The total resistance is 2200 ohms when the sensor temperature equals the setpoint. The 205-S10 Series step controller uses a version of the 320 Series Setpoint Adjuster.



For use with:

- A Series Master SCR
- M Series Master SCR
- S10 Master Step Controller

NOT for use with:

- B Series Slave SCR
- S Series Slave SCR
- S10 Slave Step Controller

HOW TO ORDER

Series	Plate Type	Temperature	
320-P2	10 = Std. 1-gang, metal 2.75" W x 4.50" H	21 = 0 - 100°F	47 = 100 - 210°F
		41 = 50 - 150°F	51 = 120 - 250°F
		43 = 50 - 180°F	55 = 150 - 250°F

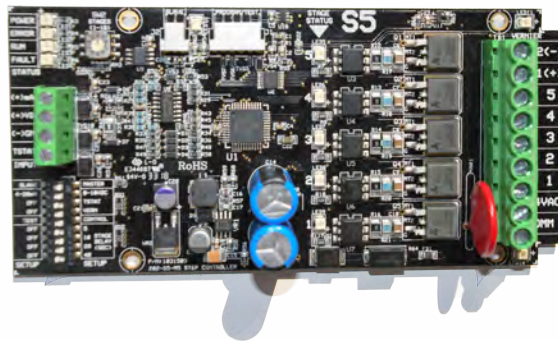
Part Number Format: 320-P2-10-21

Temperature	Min Temp	Max Temp	Knob Calibration
21 = 0-100°F	195 ohms	1470 ohms	630 ohms at 40°F
41 = 50-150°F	605 ohms	1850 ohms	1270 ohms at 90°F
43 = 50-180°F	90 ohms	1400 ohms	780 ohms at 120°F
47 = 100-210°F	1340 ohms	2025 ohms	1700 ohms at 140°F
51 = 120-250°F	140 ohms	1380 ohms	750 ohms at 190°F
55 = 150-250°F	150 ohms	1360 ohms	780 ohms at 200°F
Note: All ohmic values are $\pm 10\%$			

INDEECO will modify the standard product line or develop a custom control to satisfy your needs. We specialize in assisting small and large OEM customers with solving their controls problems.

Our ability to design, develop and manufacture electronic controls allows us to provide a quick and economical solution.

Please contact the factory to discuss possible solutions to any of your controls applications.



We have the experience and expertise to provide you with the personalized support to arrive at customized solutions.

Email sales@indeeco.com
or call 800.243.8162
to find your nearest
Indeeco representative.

When you need more
than an off-the-shelf,
standardized product.
Ask **More.**

