

The TCR Series of solid-state temperature control is a low cost modular approach to accurate control of temperature. The high power output is available in 6, 10 and 20 amperes and provides setpoint temperature control. The efficient mounting surface allows for utilization of equipment as the heat sink. Designed for use with resistive loads.

Operation:

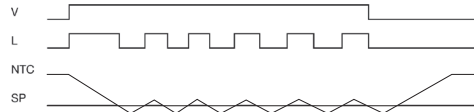
Setpoint Control: TCR Series is a single setpoint temperature controller. When the thermistor resistance is high (above the setpoint), the solid-state output is ON. When the thermistor resistance decreases (temperature increases) to setpoint or below, the output turns OFF.

It must be recognized that temperature differential (under and overshoot) is largely due to the system as a whole. The mass of the system, size of the heaters and sensor all play an important part. Single setpoint control is best when there is little or no lag time between heater and sensor, and when the heater is not oversized.

For more information see:

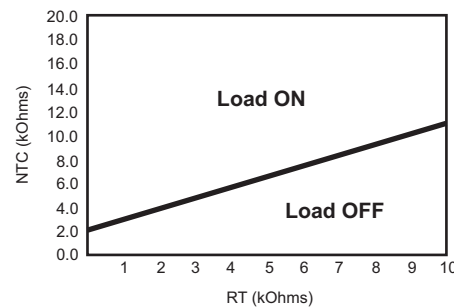
Appendix B, page 165, Figure 4 for dimensional drawing.

Function:



V = Voltage
L = Load
SP = Setpoint
NTC = Negative Temperature Coefficient Thermistor
RT = External Setpoint Adjustment

Adjustment vs. Thermistor Resistance:



Note: If R_T value exceeds 13kOhms, the output will not energize.

Features:

- NTC thermistor sensing for low cost setpoint control
- Solid-state output to control resistive heaters
- 6, 10 or 10A solid-state output
- External adjustment of the setpoint
- Small package, encapsulated, single-screw mounting
- Metal back surface, utilizes equipment as heat sink

Approvals:

Auxiliary Products:

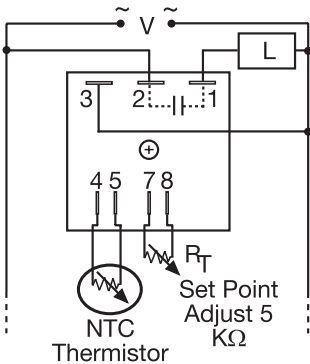
- **Female quick connect:**
P/N: P1015-13 (AWG 10/12)
P/N: P1015-64 (AWG 14/16)
P/N: P1015-14 (AWG 18/22)

Available Models:

TCR9C

If desired part number is not listed, please call us to see if it is technically possible to build.

Connection:



Caution: NTC Thermistor must be electrically insulated, 1500 volts RMS minimum.

Order Table:

TCR	X	X
	Input Voltage	Output Rating
	4 - 120VAC	A - 6A
	6 - 230VAC	B - 10A
	9 - 120-240VAC	C - 20A

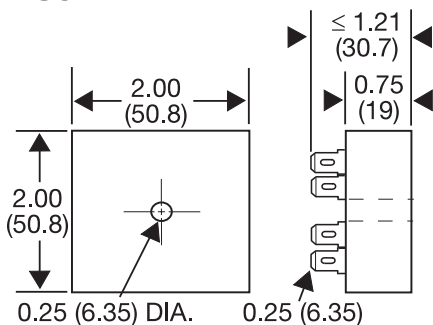
Specifications

Control Type	Single setpoint, negative temperature coefficient resistance sensing	Form	Non-isolated, single pole, zero voltage switching
Sensor Type	Thermistor, negative temperature coefficient (customer supplied)	Rating	Model Steady State Inrush**
Adjustment	Electrically insulated for 1500V RMS min. Temperature setpoint selected by means of an external resistance	A	6A
Accuracy	≤ ±5% of the setpoint resistance	B	10A
Accuracy	Add the tolerance of the NTC thermistor & the drift of the adj. pot over temp. range	C	20A
Setpoint vs. Ambient Temperature and Operating Voltage	±5% of setpoint resistance	Minimum Load Current	100mA
Reset Time	≤ 150ms	Voltage Drop	≅ 2V at rated current
Input Voltage	120 or 230VAC or 120 - 240VAC	Off State Leakage Current	≅ 5mA @ 230VAC
Tolerance	±15%	Protection	
AC Line Frequency	50/60 Hz	Dielectric Breakdown	≥2000 volts terminals to mounting surface
Output Type	Solid state	Isolation Voltage	≥100mΩ
		Circuitry	Encapsulated
		Mechanical	
		Mounting	Surface mount with one #10 (M5 x 0.8) screw
		Termination	0.25 in. (6.35 mm) male quick connect terminals
		Environmental	
		Operating / Storage Temperature	-40° to 60°C / -40° to 85°C
		Humidity	95% relative, non-condensing
		Weight	≅ 2.7 oz (77 g)

** Must be bolted to a metal surface using the included heat sink compound. The maximum mounting surface temperature is 90°C. Inrush: non-repetitive for 16ms.

Appendix B - Dimensional Drawings

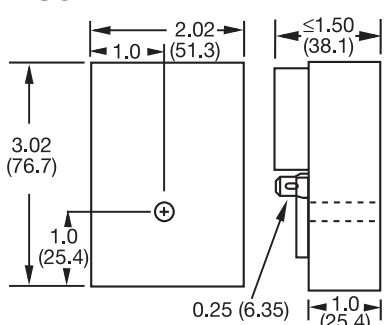
FIGURE 1



0.25 (6.35) DIA. 0.25 (6.35)

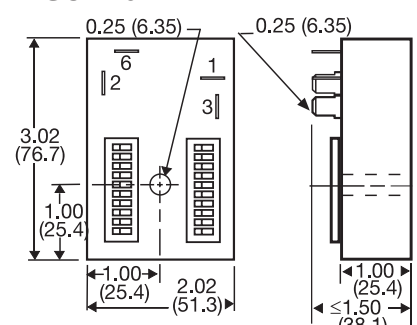
CT; ESD5; ESDR; FS100; FS200; FS300; KR3; KR9; KRDB; KRDI; KRDM; KRDR; KRDS; KRPD; KRPS; KSD1; KSD2; KSD3; KSD4; KSDB; KSDR; KSDS; KSDU; KSPD; KSPS; KSPU; KVM; T2D; TA; TAC1; TAC4; TDU; TDUB; TDUI; TDUS; TL; TMV8000; TS1; TS2; TS4; TS6; TSB; TSD1; TSD2; TSD3; TSD4; TSD6; TSD7; TSDB; TSDR; TSDS; TSS; TSU2000

FIGURE 2



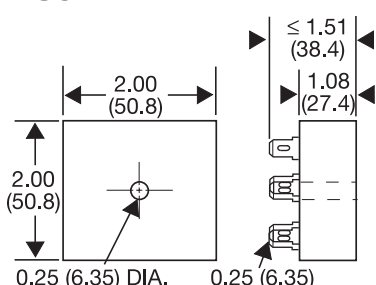
HLV; HRD3; HRD9; HRDB; HRDI; HRDM; HRDR; HRDS; HRID; HRIS; HRIU; HRPD; HRPS; HRPV; HRV; RS

FIGURE 3



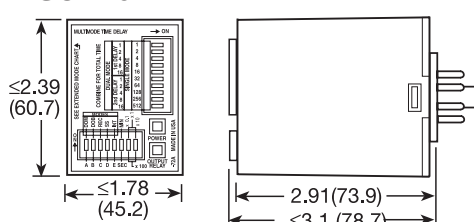
HSPZ

FIGURE 4



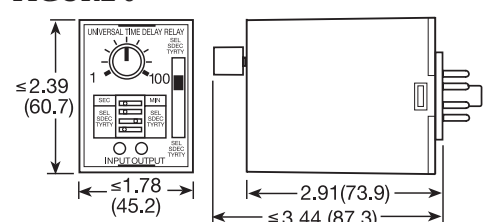
FA; FS; FSU1000*; NHPD; NHPS; NHPV; NLF1*; NLF2*; PHS*; PTHF*; SIR1; SIR2; SLR1*; SLR2*; TH1; TH2; THC; THD1; THD2; THD3; THD4; THD7; THDB; THDM; THDS; THS

FIGURE 5



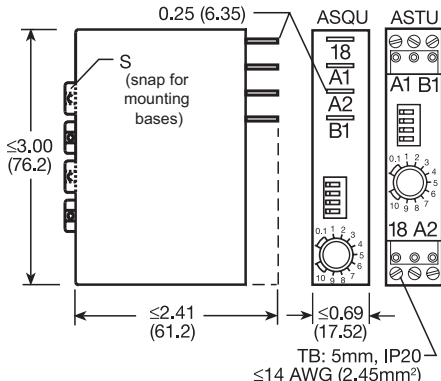
TRDU

FIGURE 6



TRU

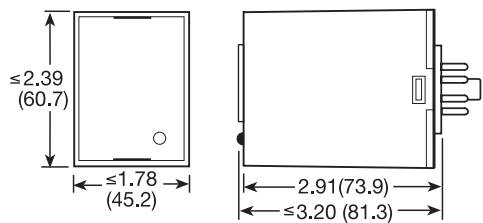
FIGURE 7



ASQU; ASTU; DSQU; DSTU

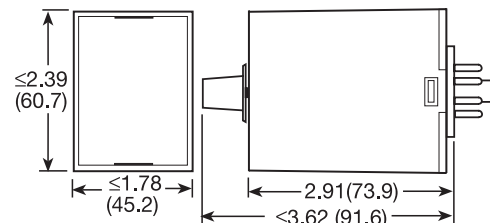
TB: 5mm, IP20
≤14 AWG (2.45mm²)

FIGURE 8



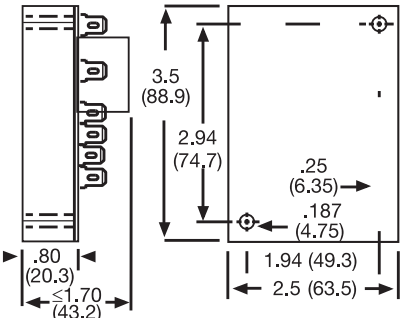
PLM; PLR; TDB; TDBH; TDBL; TDI; TDIH; TDIL; TDM; TDMB; TDMH; TDML; TDR; TDS; TDSH; TDSL

FIGURE 9



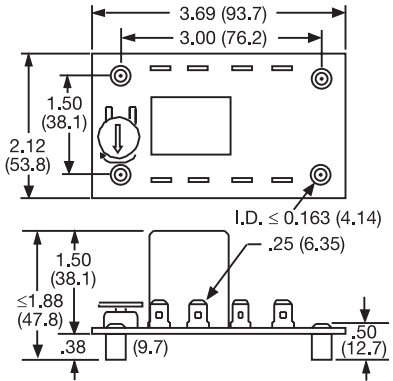
FS500; PRLB; PRM; PRLS; TRB; TRM; TRS

FIGURE 10



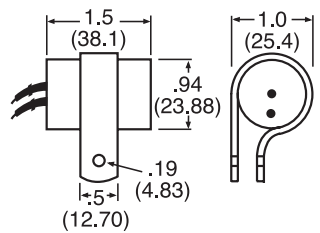
ERD3; ERDI; ERDM

FIGURE 11



ORB; ORM; ORS

FIGURE 12



FS100; FS400

inches (millimeters)