

## SoliStat™ 2

Patent Pending



### Overview

#### Ease of Use, Unequaled Performance

Engenity's new SoliStat is a reliable and easy to use temperature controlled switch for D.C. powered heating and cooling applications. Incorporating a calibrated RTD sensor, microcontroller, and solid-state switch in a rugged and weatherproof housing, SoliStat is the only one-piece, ready-to-use temperature control solution available for use in applications where:

- Operating temperatures range from  $-40^{\circ}\text{F}$  ( $-40^{\circ}\text{C}$ ) to  $+257^{\circ}\text{F}$  ( $+125^{\circ}\text{C}$ )
- Accurate trip point temperatures below  $32^{\circ}\text{F}$  are required
- Direct Currents up to 20A or greater are being switched
- A low-power standby/shutdown mode is required

#### No Arcing

Because of its solid-state construction, SoliStat exhibits none of the arcing associated with the opening and closing of mechanical switches, a characteristic that is particularly pronounced in D.C. applications. Switch arcing, the leading cause of intermittent operation and eventual failure in mechanical switches, is eliminated in SoliStat. As a result, SoliStat exhibits longer mean time to failure than its thermo-mechanical counterparts.

#### Solid-State Reliability

The combination of RTD temperature sensing, solid-state switching, and weather-resistant construction ensures reliable and repeatable operation over the course of SoliStat's lifetime. SoliStat is also highly resistant to damage from mechanical vibration and shock as well as variations in ambient temperature and humidity. For D.C. applications in harsh environments or widely variable environmental conditions there is no better performing temperature control element available.

### Applications

SoliStat has been developed for D.C. powered applications that require simple on/off control in response to changing temperatures.

- Transportation
  - Fuel line and fuel filter warming
  - Engine compartment component warming
- Off-grid industrial uses:
  - Water line and filter freeze prevention
  - Equipment cabinet warming and cooling
  - Instrumentation monitoring and temperature regulation
- Portable emergency response equipment



*SoliStat 2 in a 12VDC heat tracing application (insulation removed).*

#### Wide Range of Set Points and Configurations

The standard configurations for SoliStat are:

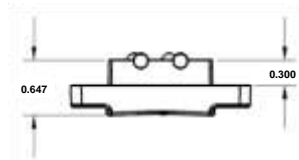
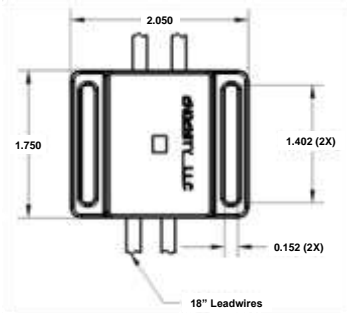
- On/Off control; factory programmable lower and upper trip-points from  $-40^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$  inclusive,  $\pm 2^{\circ}\text{F}$  tolerance, minimum deadband of  $5^{\circ}\text{F}$ .
- Fixed On-Time control; factory programmable trip-point from  $-40^{\circ}\text{F}$  to  $+257^{\circ}\text{F}$  inclusive, factory programmable on-time in 1sec. increments.

#### Electrical Flexibility, Ease of Customization

SoliStat's standard operating voltage range is 6V through 24V. Regardless of the applied operating voltage, SoliStat is capable of switching up to 20A of Direct Current. Standard SoliStats ship 3 to 4 business days after order. No minimum purchase quantities are required.

SoliStat is also customizable; it can be easily modified for operation at currents up to 30A depending on operating voltage and process temperature, and there are many variations (e.g., heat/cool control, remote set-point control, operating voltage up to 80VDC, etc.) that can be economically implemented. Consult your local representative or the factory for details.

## Standard Product Dimensions (inches)



## Standard Features

- Operating Temperature:  $-40^{\circ}\text{C}$  ( $-40^{\circ}\text{F}$ ) to  $+125^{\circ}\text{C}$  ( $+257^{\circ}\text{F}$ )
- Storage Temperature:  $-65^{\circ}\text{C}$  ( $-76^{\circ}\text{F}$ ) to  $+150^{\circ}\text{C}$  ( $+302^{\circ}\text{F}$ )
- Set-point Tolerance:  $\pm 1.1^{\circ}\text{C}$  ( $\pm 2^{\circ}\text{F}$ )
- Housing Material: Mineral Filled Nylon
- Sensor Heatsink: Anodized Aluminum
- Leads: 14AWG stranded wire, ETFE insulation
- Lead Length: **18" standard, other lengths available**
- Dust and Water Resistance: IP67
- RoHS Compliance: Yes

## SoliStat Part Number Configuration

SoliStat 2 is available in two versions:

SoliStat 2-10 for applications up to 10A

SoliStat 2-20 for applications up to 20A

SoliStat 2 is configured according to the following part numbering system:

SoliStat 2-##.a.b.c.d.e

Where:

$a = O$  for On/Off control or  $T$  for fixed on-time control

$b = H$  for heating control (switch closes on falling temp.) or  $C$  for cooling control (switch closes on rising temp.)

$c =$  turn-on temperature/temperature at which switch closes in degrees Fahrenheit, 'P' before the number indicates positive, 'N' indicates negative

*e.g., P32 =  $+32^{\circ}\text{F}$ , N19 =  $-19^{\circ}\text{F}$ , etc.*

$d =$  turn-off temperature/temperature at which switch opens in degrees Fahrenheit if  $a = O$ , or on-time in seconds if  $a = T$

$e = S$  for low-power standby/shutdown mode, or factory assigned alpha-numeric to indicate special features or configurations—leave blank if ordering a standard SoliStat

Examples:

*SoliStat 2-10.O.H.N19.N16* = SoliStat 2, 10A maximum current, On/Off Control, Heating, turns on with temperature falling downward through  $-19^{\circ}\text{F}$ , turns off with temperature rising through  $-16^{\circ}\text{F}$

*SoliStat 2-20.T.H.P35.30* = SoliStat 2, 20A maximum current, Fixed On-Time Control, turns on with temperature falling downward through  $+35^{\circ}\text{F}$ , turns off after 30 seconds

*SoliStat 2-10.O.C.P100.P85* = SoliStat 2, 10A maximum current, On/Off Control, Cooling, turns on with temperature rising through  $+100^{\circ}\text{F}$ , turns off with temperature falling through  $+85^{\circ}\text{F}$

*SoliStat 2-20.O.H.P60.P70.S* = SoliStat 2, 20A maximum current, On/Off Control, Heating, turns on with temperature falling downward through  $+60^{\circ}\text{F}$ , turns off with temperature rising through  $+70^{\circ}\text{F}$ , with low-power standby/shutdown mode



*SoliStat 2 is not protected against long-term accidental reverse polarity connection to the power supply. Please consult your local representative or the factory if you require reverse polarity protection!*



www.engenuity.com



Made in the U.S.A.



engenuity, LLC  
2306 Robbins Street  
Saint Paul, Minnesota 55114-1142

+1 (651) 288-2590