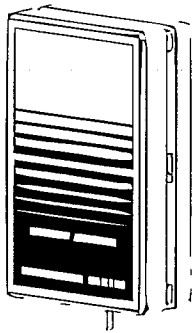
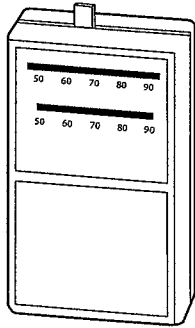


# 31-10x Non-Digital On/Off Thermostat



31-100



31-102

### Application

The 31-100 and 31-102 model thermostats control heating or cooling applications which require a single pole/double throw (SPDT) system switch, adjustable heat anticipator and fixed cooling anticipator.

### Features

- A bi-metal activated reed switch is used as the switching mechanism
- Mounted directly on wall or standard outlet box
- Adjustable heat anticipator
- Fahrenheit and Celsius models

### Specifications

#### Inputs

Power Input . . . . . 24 to 30 Vac, 1.0 amp.  
Heat Anticipator . . . . . 24 Vac, 0.3 to 1.2 amps.  
Cool Anticipator . . . . . .5 KΩ.

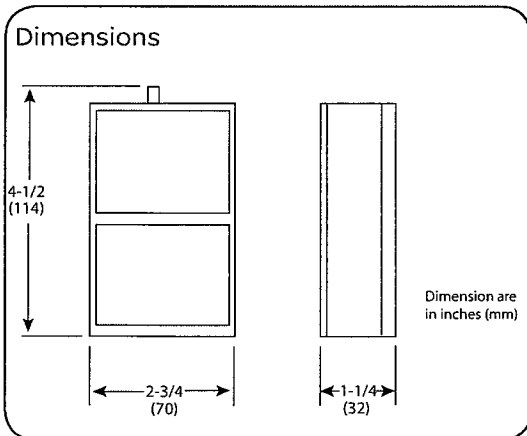
#### Outputs

Setpoint Adjustment Range . . . . . 50 to 90 °F  
(10 to 32 °C)  
Setpoint Differential: . . . . . .2 Fahrenheit degrees.

#### Environment

Temperature Limits:  
Shipping & Storage . . . 0 to 120 °F (-18 to 49 °C).  
Operating . . . . . 32 to 110 °F (0 to 43 °C).  
Humidity: . . . . . 95% RH non-condensing.  
Location: . . . . . NEMA Type 1.

Model	Description
31-100	Standard low voltage thermostat in Celcius.
31-102	Standard low voltage thermostat in Fahrenheit.



## Checkout

### System Switch:

Heat = heating only.  
Cool = cooling only.

Verify that the thermostat is level.

### Heating

1. Verify heat anticipator setting.
2. Set point should be adjusted below the room temperature.
3. Adjust the set point slowly upward until the thermostat switch closes. This should be within 2°F (1.1°C) of room temperature.

### Cooling

1. Set point should be adjusted above room temperature.
2. Adjust set point slowly downward until thermostat switch opens. This should be within 2°F (1.1°C) degrees of room temperature.

## Theory of Operation

A magnet is attached to a bi-metallic strip that expands when it is heated and contracts when it is cooled. When the magnet moves over the reed switch from one end to the other, it makes or breaks the contacts of reed switch.

## Maintenance

The 31-10x series requires no maintenance. Replace defective modules.  
Regular maintenance of the total system is recommended to assure sustained, optimum performance.

## Field Repair

None. Replace any damaged or failed components with functional replacements.

## Installation

### Inspection

Inspect the package for damage. If damaged, notify the appropriate carrier immediately. If undamaged, open the package and inspect the device for obvious damage. Return damaged products.

### Requirements

- Tools (not provided)
  - Screwdriver
  - Digital multimeter
- Training: Installer must be a qualified, experienced technician
- Other accessories as appropriate

## Precautions

### WARNING:

Electrical shock hazard! Disconnect power before installation to prevent electrical shock or equipment damage.

Make all connections in accordance with the electrical wiring diagram and in accordance with national and local electrical codes.

### CAUTION:

Avoid locations where excessive moisture, corrosive fumes, explosive vapors, or vibration are present.

Avoid electrical noise interference. Do not install near large conductors, electrical machinery, or welding equipment.

### Federal Communications Commission (FCC)

#### NOTE

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installations. This equipment generates, uses, and can radiate radio frequency energy and may cause harmful interference if not installed and used in accordance with the instructions. Even when instructions are followed, there is no guarantee that interference will not occur in a particular installation. If this equipment causes harmful interference to radio and television reception—which can be determined by turning the equipment off and on—the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

### Canadian Department of Communications (DOC)

#### NOTE

This class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

### European Standard EN 55022

This is a class B (European Classification) product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate

### Mounting

1. Remove the cover of the thermostat by pulling gently at the top or bottom away from base.
2. Disconnect the power supply.
3. Locate the thermostat approximately five feet above the floor level.
4. Level the thermostat and attach to wall.

**NOTE**

Do not install where anything can obstruct the air flow around thermostat. Avoid external heat sources.

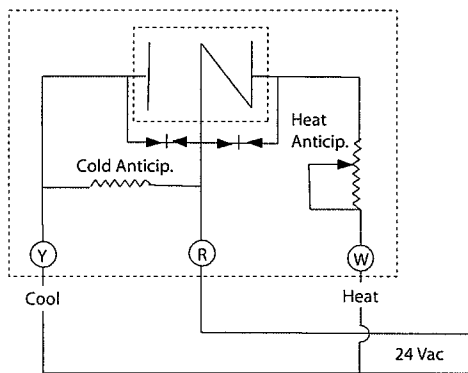
5. Connect electrical wires to the terminal screws.

**NOTE**

Wiring must not interfere with the operation of the thermostat.

6. Recheck to ensure that the thermostat is level.

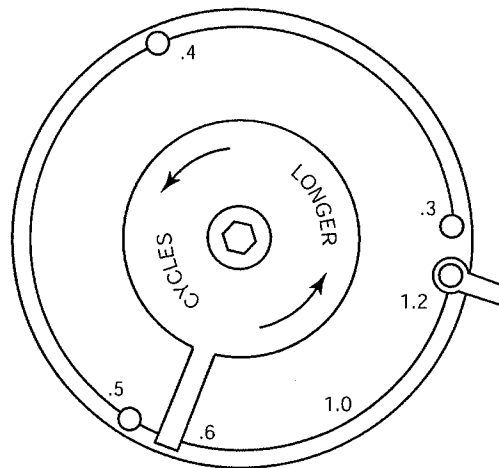
### Wiring



### Heat Anticipator

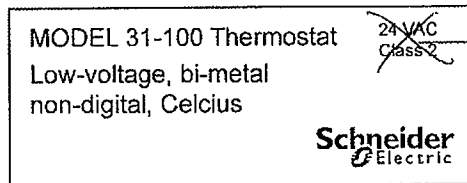
The heat anticipator is an adjustable resistor which preheats the thermostat bimetal as the space temperature approaches set point. This helps prevent overshoot or exceeding the set point.

Set adjustable heat anticipator to match the current draw in the heat circuit. For shorter "On" times move the heat anticipator pointer clockwise. Do not move more than two divisions from initial setting when setting for shorter "On" times. For longer "On" times move heat anticipator pointer counter clockwise.



31-100 White Box label  
65x25mm

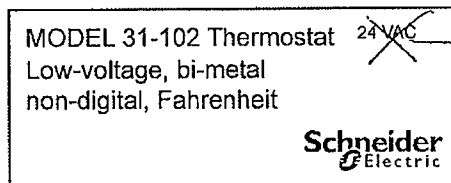
Text Color: PanTone 326C(ref) *BLACK*



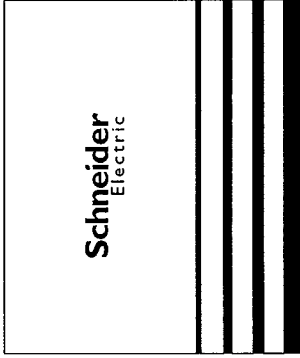
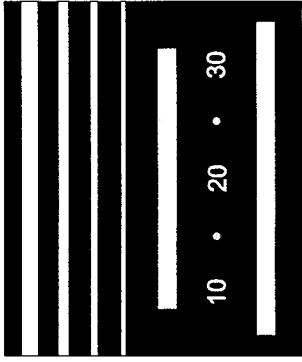
*REMOVE*

31-102 White Box label  
63x25mm

Text Color: PanTone 326C(ref) *BLACK*

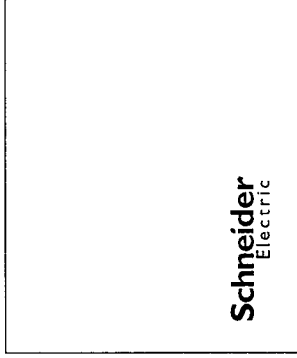
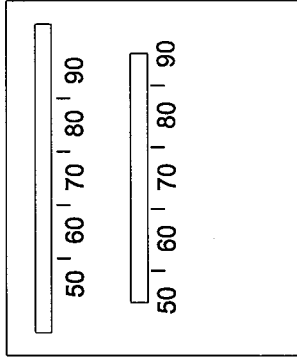


*REMOVE*



31-100 Decal Label

Black Text on white background



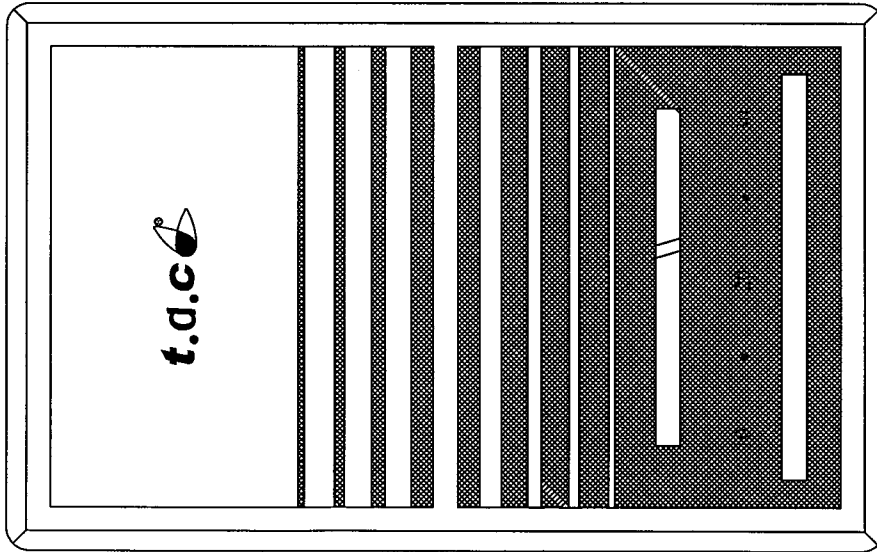
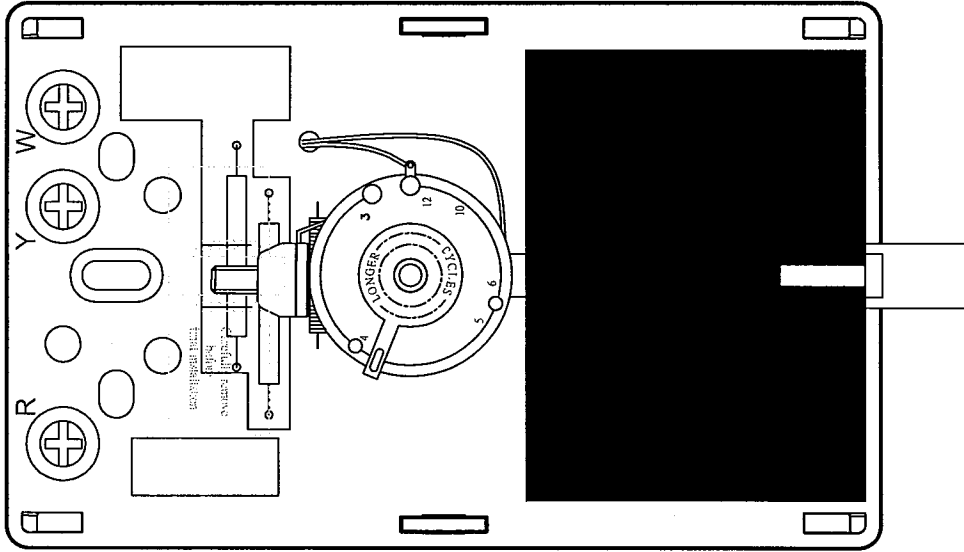
31-102 Decal Label

Black Text on white background

REV.	DESCRIPTION	CHK. BY	DATE
B	底殼加裝黑色方形	LIAO HONG WU	2006.08.09
C	Change the Brand name To TAC	LIAO HONG WU	2007.01.29
D	Add the TAC's Product No.	Ken Tang	Aug 9, 2007

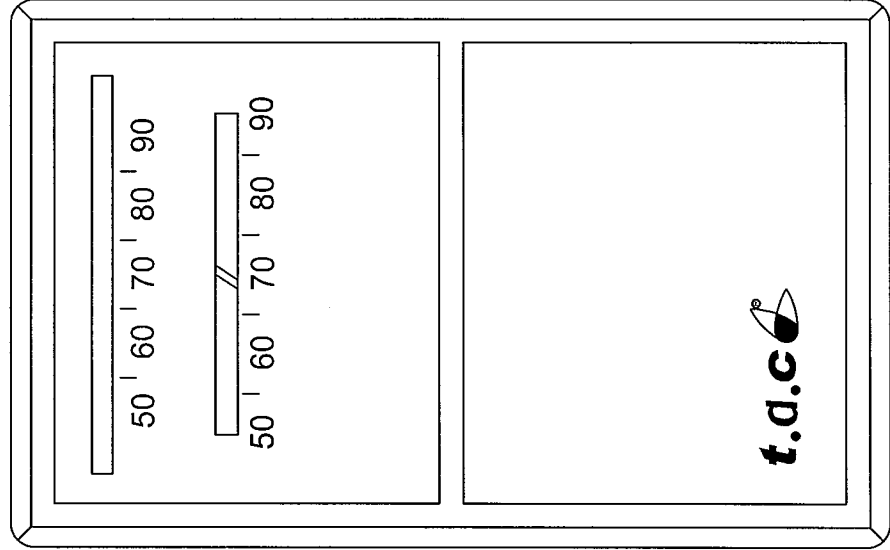
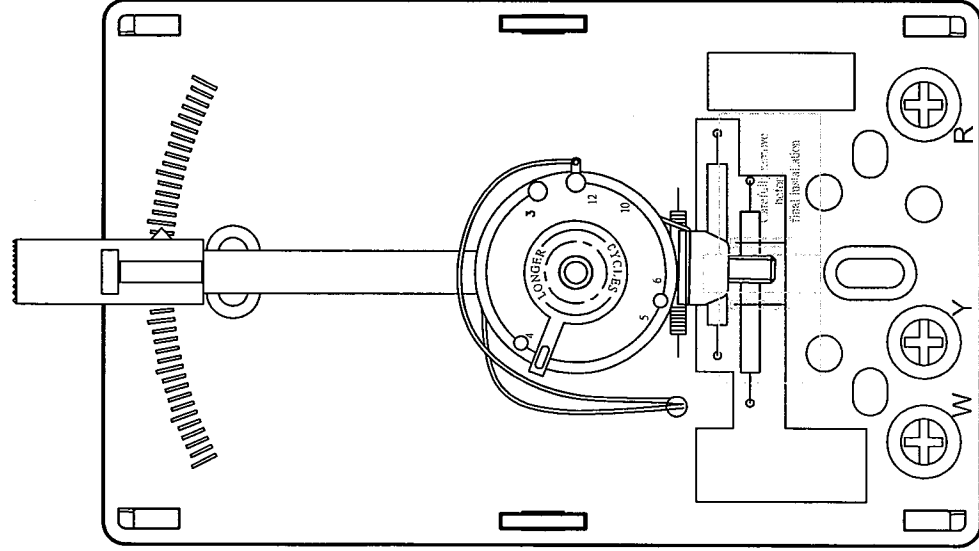
**Notes:**

1. APPLIED VOLTAGE : 24VAC
2. THREE TERMINALS : W, Y, R.
3. FUNCTIONS : HEAT & COOL
4. OPERATION : PUSH ROD OPERATION.
5. PUSH ROD ORIENTATION : DOWNWARD OPERATION.
6. TEMPERATURE RANGE : 10°C - 30°C.
7. PACKAGING : WITH WHITE BOX, AND INSTRUCTION BOOK.
8. HOUSINGS COLOR : WHITE



MATERIAL	---		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM TOLERANCES EXCEPT AS NOTED		PROJECTION		DECIMALS		ANGLES		
FINISH/CALIBRATION	---						----		----		
SCALE	Not to scale	QTY :	---								
SHEET	1	OF	1								
PART NAME				Product Drawing		DRN		LIAO HONG WU		2007.03.14	
CHKD				APPD		PRODUCT NAME: REED SWITCH WALL THERMOSTAT		CUSTOMER NAME: TAC (31-100)		REV. D	

REV.	DESCRIPTION	CHK. BY	DATE
B	Change the Brand Name to TAC	LIAO HONG WU	2007.01.29
C	Add TAC's Product No.	Ken Tang	Aug 9, 2007



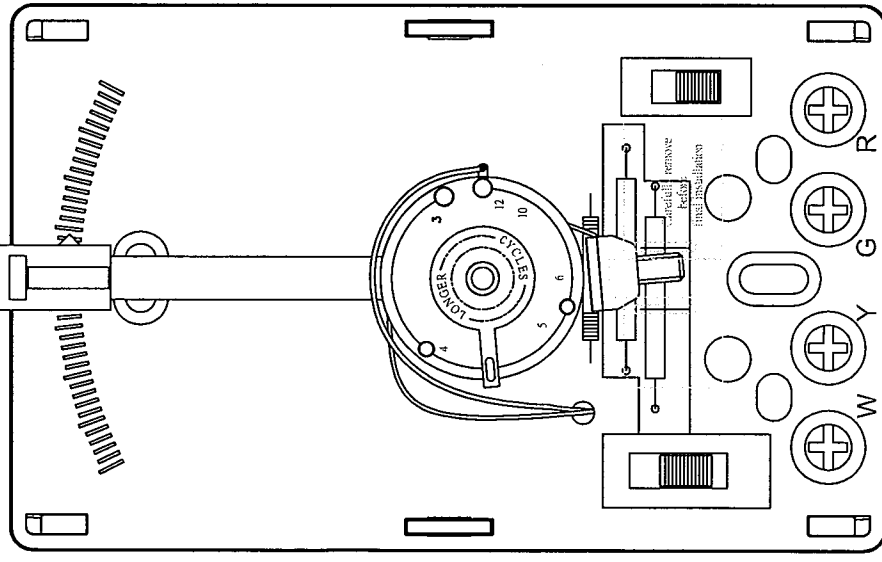
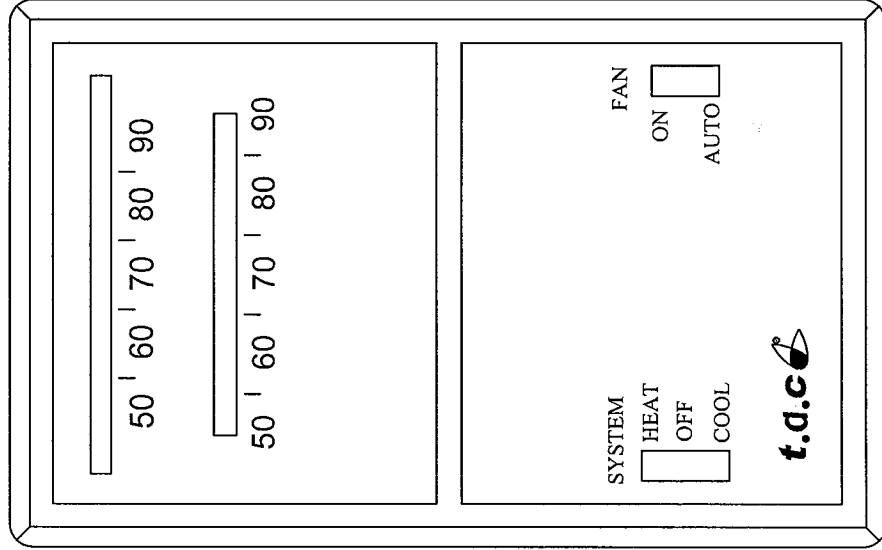
**Notes:**

1. APPLIED VOLTAGE : 24VAC
2. THREE TERMINALS : W, Y, R.
3. FUNCTIONS : HEAT & COOL.
4. OPERATION : PUSH ROD OPERATION.
5. PUSH ROD ORIENTATION : UPWARD OPERATION.
6. TEMPERATURE RANGE : 50°F - 90°F
7. PACKAGING : WITH WHITE BOX
8. HOUSINGS COLOR : MILKY
9. ACCESSORY : 2 PCS. SCREW, INSTRUCTION BOOK.

MATERIAL	-----	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM TOLERANCES EXCEPT AS NOTED		PROJECTION	DECIMALS	ANGLES
FINISH/CALIBRATION	-----		-----	-----	-----	-----
SCALE	Not to scale	QTY :	---			
SHEET	1	OF	1			
PART NAME		Product Drawing				
DRN	LIAO HONG WU			2007.03.14		
CHKD	CHKD					
APPD	APPD					
PRODUCT NAME: REED SWITCH WALL THERMOSTAT		CUSTOMER NAME: TAC ( 31-102)		REV. C		
PART NO. 011152						



REV.	DESCRIPTION	CHK. BY	DATE
B	Change the Brand name to TAC	Liao Hong Wu	2007.03.14
C	Add TAC's Product NO.	Ken Tang	Aug 9, 2007



**Notes:**

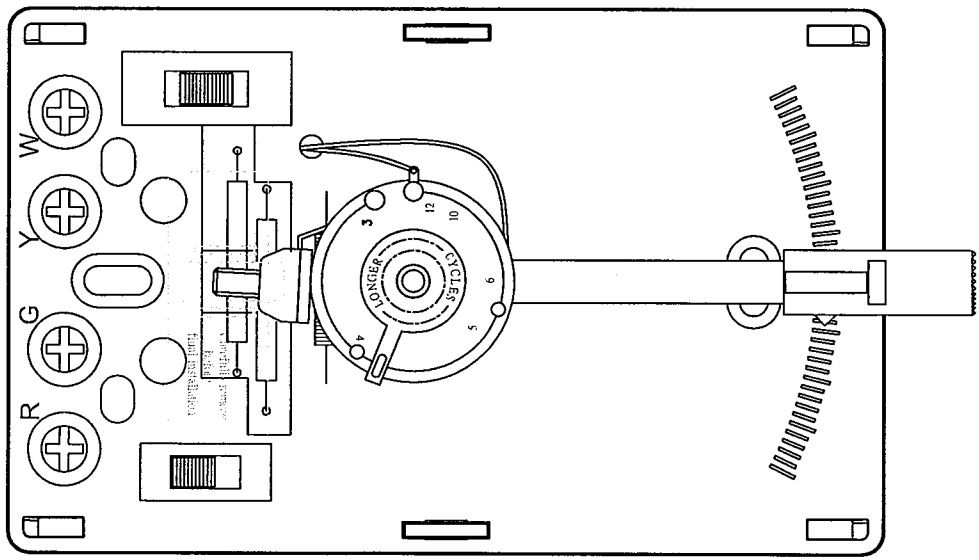
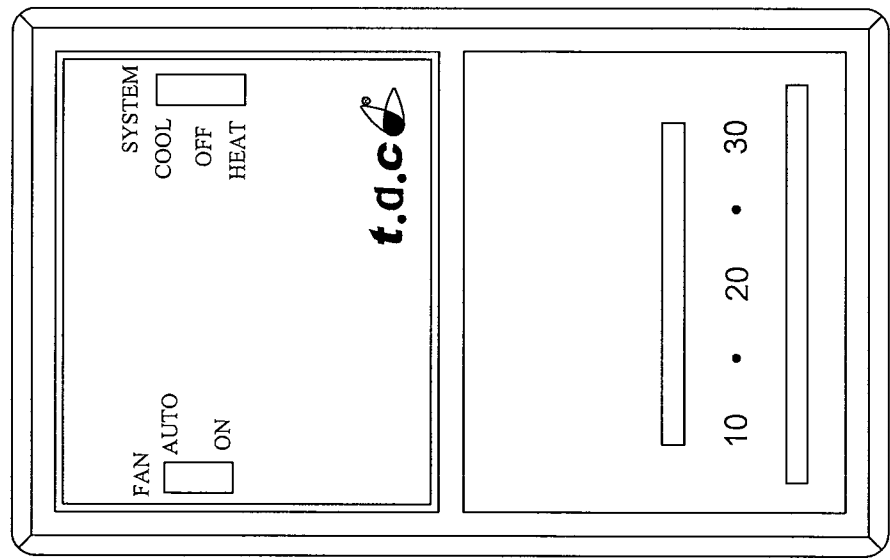
1. APPLIED VOLTAGE : 24VAC
2. FOUR TERMINALS : W , Y , G , R
3. FUNCTIONS : HEAT & COOL , WITH FAN SELECT.
4. OPERATION : PUSH ROD OPERATION , SLIDE SWITCHES SELECT.
5. PUSH ROD ORIENTATION : UPWARD OPERATION.
6. TEMPERATURE RANGE : 50°F - 90°F
7. PACKAGING : WITH WHITE BOX
8. HOUSINGS COLOR : WHITE
9. ACCESSORY : 2 PCS. SCREW INSTRUCTION BOOK

MATERIAL	-----	
FINISH/CALIBRATION	-----	
SCALE Not to Scale	QTY : ---	
SHEET	1	OF 1
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE MM TOLERANCES EXCEPT AS NOTED		
PROJECTION	DECIMALS	ANGLES
	-----	-----
<b>Advance Thermo Control</b> THERMOSTAT		
PRODUCT NAME: REED SWITCH WALL THERMOSTAT		
CUSTOMER NAME: TAC (31-103)		
PART NAME	Product Drawing	
DRN	Liao Hong Wu	2007.03.14
CHKD		
APPD		
PART NO.	011158	REV. C

REV.	DESCRIPTION	CHK. BY	DATE
B	Chang Brand name to t. a. c. was Invenstys	Liao Hong Wu	2007.03.14
C	Add TAC's Product No.	Ken Tang	Aug 9, 2007

**Notes:**

1. APPLIED VOLTAGE : 24VAC
2. FOUR TERMINALS : W , Y , G , R
3. FUNCTIONS : HEAT & COOL , WITH FAN SELECT.
4. OPERATION : PUSH ROD OPERATION , SLIDE SWITCHES SELECT.
5. PUSH ROD ORIENTATION : DOWNWARD OPERATION.
6. TEMPERATURE RANGE : 10°C - 30°C
7. PACKAGING : WITH WHITE BOX
8. HOUSINGS COLOR : WHITE
9. ACCESSORY : 2 PCS. SCREW, INSTRUCTION BOOK.



MATERIAL	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN MM TOLERANCES EXCEPT AS NOTED		PART NAME		Product Drawing
FINISH/CALIBRATION	PROJECTION	DECIMALS	ANGLES	DRN	LIAO HONG WU
SCALE Not to scale	QTY : ---	-----	-----	CHKD	2007.03.14
SHEET 1 OF 1	PROJECTION	DECIMALS	ANGLES	APPD	
	PRODUCT NAME:	REED SWITCH WALL THERMOSTAT	CUSTOMER NAME:	PART NO.	011157
				REV.	C