

### REMOTE MOUNTING TEMPERATURE SWITCH AND CONTROL

#### FEATURES

- Single or Dual 15 A Switch Output
- Panel or Surface Mount
- Skeleton or NEMA 4X Construction
- Adjustable Ranges Within -130 to 650°F (-90 to 340°C)



## OVERVIEW

The E55 Series provides rugged, dependable temperature control for many applications. Available in single or dual output versions, with either a NEMA 4X enclosure or skeleton construction, the E55 combines flexibility with compact size. It has been used for years in diverse applications such as food service appliances, oven control and heat tracing.

## FEATURES

- Single or dual 15 A switch output
- Panel or surface mount
- Optional external manual reset
- Heat tracing models
- Copper or stainless steel bulb & capillary

## SPECIFICATIONS

<b>STORAGE TEMPERATURE</b>	-65 to 160°F (-54 to 71 °C)
<b>AMBIENT TEMPERATURE LIMITS</b>	-40 to 160°F (-40 to 71 °C); set point typically shifts less than 1% of range for a 50°F (28°C) ambient temperature change
<b>SHOCK</b>	Set point repeats after 15 G, 10 millisecond duration
<b>VIBRATION</b>	Set point repeats after 2.5 G, 5-500 CPS
<b>ENCLOSURE CLASSIFICATION</b>	Type E55 & E55A: Designed to meet NEMA 4X requirements Types E55S & E55AS: Skeleton, Not applicable
<b>SET POINT REPEATABILITY</b>	± 1% of adjustable range
<b>SWITCH OUTPUT</b>	One or two SPDT; dual switch may be separated up to 100% of range; switches may be wired "normally open" or "normally closed"
<b>ELECTRICAL RATING</b>	15 A 125/250/480 VAC resistive; 22 A 480 VAC for E55-R25HT and E55-L24HT
<b>ENCLOSURE</b>	Die cast aluminum, epoxy powder coated with stainless steel, gasketed adjustment cover
<b>WEIGHT</b>	Types E55S, E55AS (skeleton): approximately 12 oz.; Types E55, E55A: approximately 1 lb.
<b>ELECTRICAL CONNECTION</b>	1/2" NPT (female) (E55 and E55A)
<b>BULB AND CAPELLARY</b>	Models E20BC - E23BC: 6 feet copper; Models E20BS - E23BS: 6 feet stainless steel Model R25HT-101: 10 feet stainless steel Model L24HT: stainless steel, Local sensor, no capillary, for ambient sensing
<b>TEMPERATURE FILL</b>	Non-toxic oil
<b>TEMPERATURE DEADBAND</b>	Typically 1% of range under laboratory conditions (70°F circulating bath at rate of 1/2°F per minute change)

## APPROVALS

Types E55, E55A: **UL** 873 listed, File # E10667;Types E55S, E55AS; **UL** 873 recognized, File # E10667;**CSA** certified C22.2 no. 24, File # LR7814**CE** Compliance with Low Voltage Directive (LVD)

## MODEL CHART

Model	Adjustable Set Point Range		Max. Temp.		Dial Div.		Bulb Size
	°F	°C	°F	°C	°F	°C	OD x Length (inches)
Copper bulb & capillary							
E20BC	-130 to 120	-90 to 48.9	170	76.7	10	5	3/8 x 4 3/8
E21BC	0 to 150	-17.8 to 65.6	200	93.3	5	5	3/8 x 6 7/8
E22BC	50 to 300	10 to 148.9	350	176.7	10	5	3/8 x 4 3/8
E23BC	150 to 650	65.6 to 343.3	700	371.1	25	10	3/8 x 3 5/8
Stainless steel bulb and capillary							
E20BS <sup>†</sup>	-130 to 120	-90 to 48.9	170	76.7	10	5	3/8 x 4 3/8
E21BS	0 to 150	-17.8 to 65.6	200	93.3	5	5	3/8 x 6 7/8
E22BS	50 to 300	10 to 148.9	350	176.7	10	5	3/8 x 4 3/8
E23BS	150 to 650	65.6 to 343.3	700	371.1	25	10	3/8 x 3 5/8
E55 R25HT <sup>††</sup>	25 to 325	-3.9 to 162.8	600	315.6	10	–	1/4 x 7 3/16
E55 L24HT <sup>††</sup>	15 to 140	-9.4 to 60	190	87.8	5	–	3/8 x 7

<sup>†</sup> Not available with Type E55AS  
<sup>††</sup> Not available with Types E55A, E55S, E55AS



## HOW TO ORDER

### BUILDING A PART NUMBER

#### Select a **Type**

Refer to the "Type" section below.

Determine type number based on switch output, enclosure, adjustment and reference.

Fill in the type portion of your part number with the corresponding number.

#### Select a **Model**

Refer to the "Model Charts".

Determine model based on adjustable range, and capillary material.

Fill in the model portion of your part number with the corresponding number.

#### Select an **Option**

Refer to the "Options" section.

Determine option number based on switch output, optional materials or other product enhancements.

Fill in the option portion of your part number with the corresponding number.

Leave "option" portion blank if no options are needed. *FOR MULTIPLE OPTIONS:* Call United Electric Controls.

### TYPE

- E55: Bulb & capillary; one SPDT output; Epoxy coated enclosure; external adjustment with reference dial, tamper-resistant cover
- E55A: Bulb & capillary; two SPDT outputs; Epoxy coated enclosure; external adjustment with reference dial, tamper-resistant cover
- E55S: Bulb & capillary; one SPDT output; skeleton construction; external adjustment with reference dial
- E55AS: Bulb & capillary; two SPDT outputs; skeleton construction; external adjustment with reference dial

### OPTIONS SWITCHES

- 0500 Close deadband, 5 A 125/250 VAC resistive. NOT AVAILABLE ON MODELS R25HT, L24HT
- 1530 External manual reset, 15 A 125/250/480 VAC resistive; reset on increasing temperature. NOT AVAILABLE ON TYPES E55S, E55AS & MODELS R25HT, L24HT
- 2000 20 A 125/250 VAC resistive NOT AVAILABLE ON MODELS R25HT, L24HT

### GENERAL

- M020 Pilot light AVAILABLE HEAT TRACE MODELS R25HT, L24HT ONLY
- M201 Factory set one switch; specify increasing or decreasing temperature and set point
- M202 Factory set two switches; specify increasing or decreasing temperature and set point. NOT AVAILABLE ON TYPES E55, E55S
- M270 Calibrated dial in Celsius
- M444 Paper ID tag
- M446 Stainless steel ID tag & wire attachment (attachment location will vary depending on product)

**UNION CONNECTORS**

(Not available on models R25HT, L24HT)

Option	Replacement Number	Description
	<u>Brass</u>	
W027	SD6213-27	1/2" NPT w/ 3/4" bushing
W045	SD6213-45	3/4" NPT
W051	SD6213-51	1/2" NPT
	<u>304 Stainless Steel</u>	
W028	SD6213-28	1/2" NPT w/ 3/4" bushing
W046	SD6213-46	3/4" NPT
W050	SD6213-50	1/2" NPT

**THERMOWELLS**

For all bulb &amp; capillary switches, all 1/2" NPT Internal (Not available on models R25HT, L24HT)

	<u>Brass</u>	
W075	SD6225-75	3/4" bushing adapter, 4" BT
W191	SD6225-191	1/2" NPT, 4" BT
W118	SD6225-118	3/4" bushing adapter, 7" BT
W192	SD6225-192	1/2" NPT, 7" BT
	<u>316 Stainless Steel</u>	
W076	SD6225-76	3/4" NPT, 4.5" BT
W193	SD6225-193	1/2" NPT, 4.5" BT
W119	SD6225-119	3/4" NPT, 7.5" BT
W177	SD6225-177	1/2" NPT, 7.5" BT

**OPTIONAL LENGTHS:**

Optional immersion stem lengths to 15" available in brass, with or without 316 st/st thermowell. Consult UE for additional information.

\*Optional capillary length to 50' available in copper or 304 st/st. Armor or Teflon® capillary protection available to lengths less than or equal to capillary length. Consult UE for additional information.

\*\*Consult UE regarding repeatability and ambient effects on capillary lengths over 30'.

**CAPABILITIES**

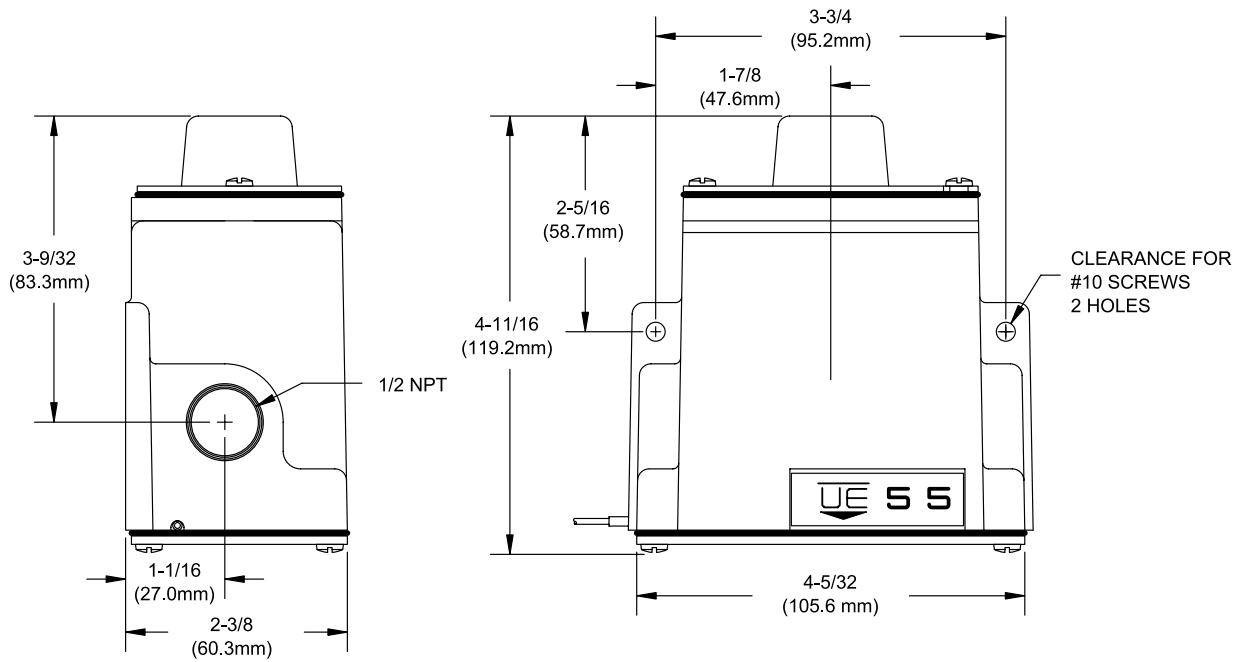
These and other modified and custom designs or options are available to help you meet specific application requirements. Consult your UE representative for other product capabilities, order restrictions and special conditions.

- Special ranges
- Many bulb configurations
- Status light for indication of setting mode

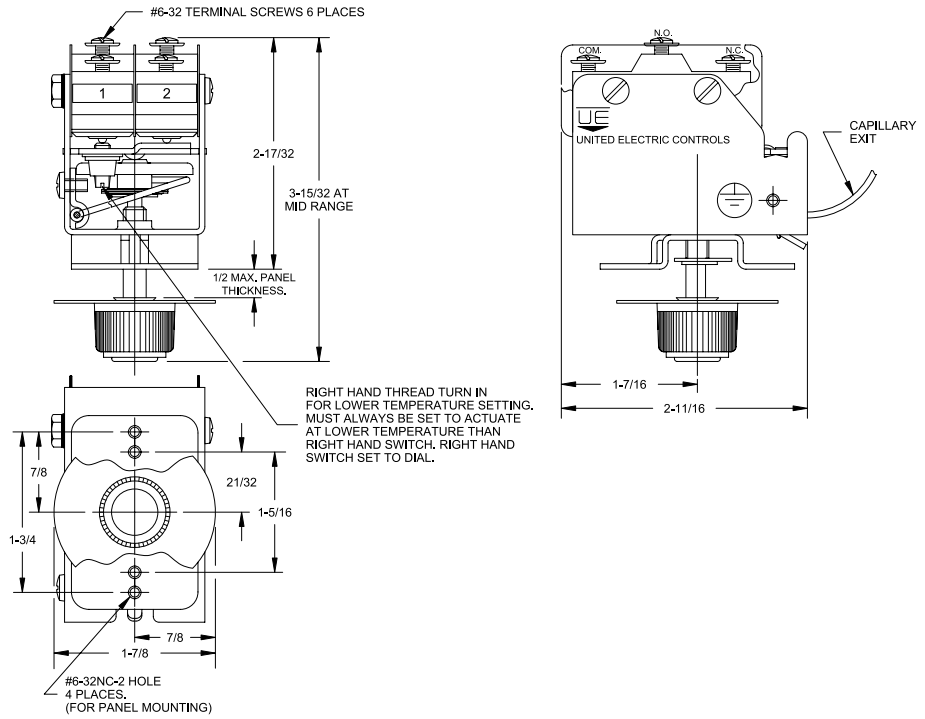


## DIMENSIONAL DRAWINGS

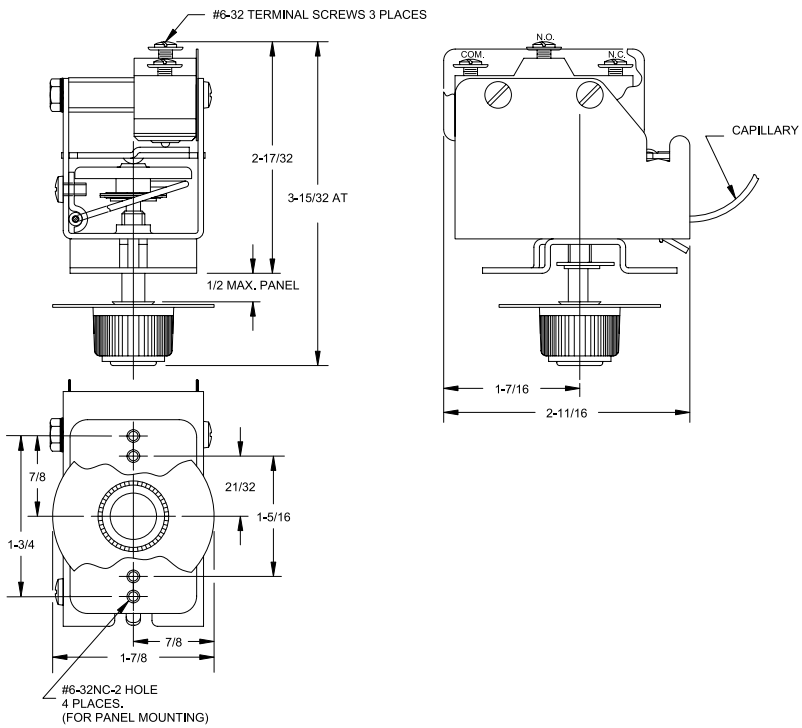
Types E55 / E55A



Type E55AS



Type E55S



## RECOMMENDED PRACTICES AND WARNINGS

United Electric Controls Company recommends careful consideration of the following factors when specifying and installing UE pressure and temperature units. Before installing a unit, the Installation and Maintenance instructions provided with unit must be read and understood.

- To avoid damaging unit, proof pressure and maximum temperature limits stated in literature and on nameplates must never be exceeded, even by surges in the system. Operation of the unit up to maximum pressure or temperature is acceptable on a limited basis (e.g., start-up, testing) but continuous operation must be restricted to the designated adjustable range. Excessive cycling at maximum pressure or temperature limits could reduce sensor life.
- A back-up unit is necessary for applications where damage to a primary unit could endanger life, limb or property. A high or low limit switch is necessary for applications where a dangerous runaway condition could result.
- The adjustable range must be selected so that incorrect, inadvertent or malicious setting at any range point cannot result in an unsafe system condition.
- Install unit where shock, vibration and ambient temperature fluctuations will not damage unit or affect operation. Orient unit so that moisture does not enter the enclosure via the electrical connection. When appropriate, this entry point should be sealed to prevent moisture entry.
- Unit must not be altered or modified after shipment. Consult UE if modification is necessary.
- Monitor operation to observe warning signs of possible damage to unit, such as drift in set point or faulty display. Check unit immediately.
- Preventative maintenance and periodic testing is necessary for critical applications where damage could endanger property or personnel.
- For all applications, a factory set unit should be tested before use.
- Electrical ratings stated in literature and on nameplate must not be exceeded. Overload on a switch can cause damage, even on the first cycle. Wire unit according to local and national electrical codes, using wire size recommended in installation sheet.
- Do not mount unit in ambient temp. exceeding published limits.

## LIMITED WARRANTY

Seller warrants that the product hereby purchased is, upon delivery, free from defects in material and workmanship and that any such product which is found to be defective in such workmanship or material will be repaired or replaced by Seller (Ex-works, Factory, Watertown, Massachusetts, INCOTERMS); provided, however, that this warranty applies only to equipment found to be so defective within a period of 24 months from the date of manufacture by the Seller. Seller shall not be obligated under this warranty for alleged defects which examination discloses are due to tampering, misuse, neglect, improper storage, and in any case where products are disassembled by anyone other than authorized Seller's representatives. EXCEPT FOR THE LIMITED WARRANTY OF REPAIR AND REPLACEMENT STATED ABOVE, SELLER DISCLAIMS ALL WARRANTIES WHATSOEVER WITH RESPECT TO THE PRODUCT, INCLUDING ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

## LIMITATION OF SELLER'S LIABILITY

Seller's liability to Buyer for any loss or claim, including liability incurred in connection with (i) breach of any warranty whatsoever, expressed or implied, (ii) a breach of contract, (iii) a negligent act or acts (or negligent failure to act) committed by Seller, or (iv) an act for which strict liability will be inputted to seller, is limited to the "limited warranty" of repair and/or replacement as so stated in our warranty of product. In no event shall the Seller be liable for any special, indirect, consequential or other damages of a like general nature, including, without limitation, loss of profits or production, or loss or expenses of any nature incurred by the buyer or any third party.

*UE specifications subject to change without notice.*

## U.S. SALES OFFICES

United Electric Controls  
32 Highland Rd.  
South Hampton, NH 03827  
Phone: 603-394-0078  
FAX: 603-394-0175

United Electric Controls  
28 N. Wise Ave.  
Freeport, IL 61032  
Phone: 815-235-3501  
FAX: 815-235-3847

United Electric Controls  
1022 Vineyard Drive  
Conyers, GA 30013  
Phone: 770-483-8400  
FAX: 770-929-8716

United Electric Controls  
5829 Grazing Court  
Mason, OH 45040  
Phone: 513-398-3175  
FAX: 513-398-3076

United Electric Controls  
27 Summit Terrace  
Sparta, NJ 07871  
Phone: 973-271-2550  
FAX: 973-729-6099

United Electric Controls  
102 Salazar Court  
Clayton, CA 94517  
Phone: 925-524-0210  
FAX: 925-524-0210

United Electric Controls  
4306 Lakeshore Forest Drive  
Missouri City, TX 77459  
Phone: 281-431-8134  
FAX: 281-431-8158

## INTERNATIONAL OFFICES

AUSTRALIA  
United Electric Controls  
(Australia) PTY Ltd  
Unit 2, 615 Warrigal Road  
Locked Bag 600  
Ashburton, Victoria  
3147, Australia  
Phone: 613-9567-0750  
FAX: 613-9567-0755

BELGIUM  
United Electric Controls-Europe  
G. Van Gervenstraat 19A  
B-9120 Beveren-Waas, Belgium  
Phone: 32-37554-383  
FAX: 32-37552-747

CANADA  
United Electric Controls  
(Canada) Ltd  
5320 Bradco Boulevard  
Mississauga, Ontario  
L4W 1G7 Canada  
Phone: 905-625-5082  
FAX: 905-625-5709

GERMANY  
United Electric Controls  
An Der Zentlinde 21  
D-64711 Erbach, Germany  
Phone: 496-062-7400  
FAX: 496-062-7501

MALAYSIA  
United Electric Controls, Far East  
No. 1-2-2, 2nd Floor  
Jalan 4/101C  
Cheras Business Centre  
Batu 5, Jalan Cheras  
56100 Kuala Lumpur, Malaysia  
Phone: 603-9133-4122  
FAX: 603-9133-4155



UNITED ELECTRIC  
CONTROLS

180 Dexter Avenue, P.O. Box 9143  
Watertown, MA 02471-9143 USA  
Telephone: 617 926-1000 Fax: 617 926-2568  
<http://www.ueonline.com>

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