

Safety Limit Temperature Control Is UL[®] Recognized For Non-Redundant Backup Limit Protection



The Series 142 safety limit controller is ideally suited for limit applications requiring tamper-proof operation, agency approvals and immunity to hostile environments.

The factory-fixed set point cannot be altered by operator action or neglect.

Agency approvals ensure compliance with recognized standards.

Epoxy potting makes the Series 142 resistant to environments with vibration or humid/corrosive conditions.

Compact size and sub-panel mounting make the Series 142 readily adaptable to many applications.

Its single, factory-fixed set point thermocouple input and Form C, 3 amp electromechanical relay output provides simplicity and reliability for many applications. Sensor break protection ensures fail-safe process shut down upon input failure.

The Series 142 safety limit and ON/OFF temperature controllers are UL[®] recognized and CSA certified. In addition, select inputs of the safety limit controller are A.G.A. certified.

The Series 142 can be specified to function as:

Limit Control

- Manual reset on power loss and overtemperature
- Auto-reset on power loss and manual reset on overtemperature

Temperature Control

- ON/OFF

Performance Capabilities

- Accuracy to $\pm 1\%$ of span
- Operating environment
32 to 130°F (0 to 54°C),
0 to 90% RH, non-condensing

^① Electromechanical relay output warranted for 100,000 closures only.

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Features

- Sub-panel mounting
- Reset function
- Factory-set, fixed set point
- Sensor break protection
- Epoxy potting
- Agency approvals
- Three-year warranty^①

Benefits

- Provides convenient, flexible installation
- Provide modes to fit most applications
- Ensures tamper-proof operation
- Provides positive system shutdown
- Provides vibration and corrosion resistance
- Meets certification requirements/compliance
- Provides Control Confidence[®]

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S E R I E S 1 4 2

Specifications—W142-XSPN Rev A00

Limit Control Mode

- High limit control
- Latched manual reset with $\pm 3^{\circ}\text{F}$ (1.7°C) hysteresis
- Reset can only be made when process temperature drops below limit set point. Terminals are provided for remote reset in the event of an overtemperature condition. (Reset switch user supplied)

Operator Interface

- Non-adjustable, factory-fixed set point

Input Ranges

Specified temperature ranges represent the controller's operational span. Refer to page 123 for thermocouple temperature sensor ranges/tolerances.

Thermocouple

Type E	265 to 1050°F
	(129 to 566°C)
Type J	50 to 1000°F
	(10 to 538°C)
Type K	300 to 2500°F
	(149 to 1371°C)
Type T	60 to 275°F
	(16 to 135°C)

For special input set points, contact your Watlow representative.

Output

- Electromechanical relay^①, SPDT, 3A @ 120/240V~(VAC), Form C, with RC suppression on ON/OFF temperature controller version. Off state output impedance is 20k Ω with RC suppression.

Output Relay Status Upon Power Restoration

(Assuming process temperature is not above set point)

- Auto reset: Output relay automatically re-energizes
- Manual reset: Manual reset is required to re-energize output relay

ON/OFF Temperature Control Mode

- OFF—when process temperature exceeds factory-fixed set point
- ON—when process temperature is less than factory-fixed set point
- Hysteresis (switching differential) $\pm 3^{\circ}\text{F}$ (1.7°C) nominal

Accuracy

- Calibration accuracy: $\pm 1\%$ of span, at $77^{\circ}\text{F} \pm 5^{\circ}\text{F}$ ($25^{\circ}\text{C} \pm 3^{\circ}\text{C}$) ambient and rated line voltage $\pm 1\%$
- Accuracy span: $\pm 2.5\%$ of range or 1000°F (540°C) minimum, whichever is greater.
- Thermocouple temperature stability: Typically $\pm 5\mu\text{V}/^{\circ}\text{F}$ ($9\mu\text{V}/^{\circ}\text{C}$) ambient
- Voltage stability: $\pm 0.01\%$ of span /% of rated line voltage

Terminals

- $\frac{1}{4}$ inch quick connect lugs (spade/applianc

Line Voltage/Power

- 120V~(VAC), $\pm 10\%$; (108-132V~[VAC]), 50/60Hz, $\pm 5\%$
- 208/240V~(VAC); $\pm 10\%$; (187-264V~[VAC]), 50/60Hz, $\pm 5\%$
- Power consumption 4VA maximum

Operating Environment

- 32 to 130°F (0 to 54°C)
- 0 to 90% RH, non-condensing

Agency Approvals

- UL 197, 873, 991; File #E43684
- CSA C22.2 #24-1987, File #LR30586
- A.G.A., File 23-1C1

Ordering Information—W142-XMNN Rev A00

1 4 2 A - - 0 0

To order, complete the model number to the right with the information below.

Control Series 142 =

Temperature safety limit, latching, 3A relay, environmentally sealed controller, or basic ON/OFF temperature controller

Output Type

A = Electromechanical relay^①, Form C, 3A, with RC suppression on ON/OFF temperature controller, without contact suppression on limit controller

Set Point

2 = Remote/Adjustable^②

3 = Fixed (See below for available factory-fixed set points)

Input (Thermocouple)

ANSI Type E

669 = 110°C	679 = 365°F (185°C)	682 = 575°F (302°C)
685 = 265°F (129°C)	684 = 450°F (232°C)	664 = 1050°F (566°C)
670 = 150°C	675 = 500°F (260°C)	
668 = 155°C	678 = 565°F (296°C)	

ANSI Type J

626 = 50°F (10°C)	③606 = 350°F (177°C)	693 = 650°F (343°C)
666 = 145°F (63°C)	③607 = 375°F (191°C)	620 = 675°F (357°C)
686 = 65°C	③608 = 400°F (204°C)	621 = 700°F (371°C)
683 = 150°F (66°C)	③609 = 425°F (218°C)	622 = 725°F (385°C)
③609 = 155°F (68°C)	689 = 444°F (229°C)	623 = 750°F (399°C)
681 = 175°F (79°C)	③698 = 450°F (232°C)	624 = 775°F (413°C)
672 = 185°F (85°C)	③612 = 475°F (246°C)	625 = 800°F (427°C)
③600 = 200°F (93°C)	③613 = 500°F (260°C)	627 = 850°F (454°C)
688 = 215°F (102°C)	614 = 525°F (274°C)	628 = 875°F (468°C)
③601 = 225°F (107°C)	615 = 550°F (288°C)	696 = 900°F (482°C)
③602 = 250°F (121°C)	695 = 572°F (300°C)	630 = 925°F (496°C)
③603 = 275°F (135°C)	616 = 575°F (302°C)	631 = 950°F (510°C)
③604 = 300°F (149°C)	617 = 600°F (316°C)	632 = 975°F (524°C)
③605 = 325°F (163°C)	618 = 625°F (329°C)	633 = 1000°F (538°C)

ANSI Type K

619 = 300°F (149°C)	639 = 1300°F (704°C)	652 = 1950°F (1066°C)
667 = 460°F (238°C)	640 = 1350°F (732°C)	692 = 2000°F (1093°C)
671 = 550°F (288°C)	687 = 750°C	654 = 2050°F (1121°C)
690 = 600°F (315°C)	641 = 1400°F (760°C)	655 = 2100°F (1149°C)
674 = 700°F (371°C)	642 = 1450°F (788°C)	656 = 2150°F (1177°C)
677 = 788°F (420°C)	643 = 1500°F (816°C)	657 = 2200°F (1204°C)
629 = 800°F (427°C)	644 = 1550°F (843°C)	658 = 2250°F (1232°C)
691 = 875°F (468°C)	645 = 1600°F (871°C)	659 = 2300°F (1260°C)
635 = 1000°F (537°C)	646 = 1650°F (899°C)	660 = 2350°F (1288°C)
634 = 1050°F (566°C)	647 = 1700°F (927°C)	661 = 2400°F (1316°C)
636 = 1150°F (621°C)	648 = 1750°F (954°C)	662 = 2450°F (1343°C)
673 = 648°C	649 = 1800°F (982°C)	663 = 2500°F (1377°C)
637 = 1200°F (649°C)	650 = 1850°F (1010°C)	
638 = 1250°F (677°C)	651 = 1900°F (1038°C)	

ANSI Type T

680 = 60°F (16°C)	694 = 275°F (135°C)
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Line Voltage/Power

- 1 = 120V~(VAC)
- 2 = 208/240V~(VAC)

Control Operation

- 2 = Limit Control—Manual reset on power loss and overtemperature
- 3 = Limit Control—Auto reset on power loss/manual reset on overtemperature
- 4 = Temperature Control—ON/OFF