

File E43684  
Project 96NK31915

June 6, 1997

REPORT

on

COMPONENT - TEMPERATURE INDICATING AND  
REGULATING EQUIPMENT

Watlow Winona Inc.  
Winona, MN

Copyright © 1997 Underwriters Laboratories Inc.

Underwriters Laboratories Inc. authorizes the above named company to reproduce this Report provided it is reproduced in its entirety.

Underwriters Laboratories Inc. authorizes the above named company to reproduce that portion of this Report consisting of this Cover Page through Page 3.

## DESCRIPTION

## PRODUCT COVERED:

USR, CNR Component - Temperature control, "Mini Chef 2000" Series Models F2, followed by H or U, followed by A or C, followed by 1 through 4 or 0, followed by 1, 2, 3 or 0 followed by 1, 2, 3 or 0, followed by 1 or 0, followed by 0 or 1, followed by 0 or 1, followed by AA through ZZ.

**USR - Indicates investigation to United States Standard UL 873, Temperature Indicating.**

**CNR - Indicates investigation to Canadian Standard C22.2 No. 24 Temperature Indicating and Regulating Equipment.**

## GENERAL CHARACTER:

These devices are temperature controllers incorporating either voltage or current, DC open collector, or solid state relays. The sensor terminals are intended for connection to a thermocouple, RTD, or process transducer. The controller turns the load on or off depending on the set point or time.

## RATINGS:

**Classification -**

<b>Class A</b>	<b>Temperature controls</b>	<b>A control function that is not intended to be relied upon for the safety of the equipment; the loss of functionality in the application does not cause any hazards.</b>
----------------	-----------------------------	--

Input - 6 VA maximum, 24 V ac, Class 2 source.

Output - Solid State Relay Output - Rated 100,000 c, at 95 mA (rms) steady-state, 160 mA (Peak) Inrush, 120 V ac; and 53 mA (rms) and steady-state, 105 mA (Peak) Inrush, 240 V ac; 0.4 A, 240 V ac.

Alarm and DC open collector outputs rated as Class 2 circuits.

**\*Temperature -**

Maximum 80°C ambient.

## DESIGNATION SYSTEM:

<u>F2</u>	<u>H or U</u>	<u>A or C</u>	<u>X</u>	<u>X</u>	<u>X</u>	<u>1</u>	<u>X</u>	<u>X</u>	<u>AA</u>
I	II	III	IV	V	VI	VII	VIII	IX	X

- I. Base Model Number - Mini Chef 2000
- II. Unit Orientation  
H = Horizontal  
U = Vertical
- III. Conformal Coating  
A = Not Coated  
C = Coated
- IV. Inputs  
1 = Dual thermocouple, Type J, K or E  
2 = Dual RTD, 100 ohm, curve selectable  
3 = Dual RTD, 500 ohm, curve selectable  
4 = Dual RTD, 1000 ohm, curve selectable  
0 = No Input  
(Note: All models include two event inputs, switched DC logic signal, non-isolated.)
- V. Output Number 1  
1 = Switched DC, 30 mA, non-isolated  
2 = Solid state relay, Form A, 0.4 A, without RC suppression  
3 = Solid state relay, Form A, 0.4 A, with RC suppression  
0 = No Output
- VI. Output Number 2  
1 = Switched DC, 30 mA, non-isolated  
2 = Solid state relay, Form A, 0.4 A, without RC suppression  
3 = Solid state relay, Form A, 0.4 A, with RC suppression  
0 = No Output
- VII. Output Numbers 3 and 4  
1 = 2 event outputs, switched DC, 30 mA, non-isolated  
0 = No Event Outputs
- VIII. Battery and Real-Time Clock  
0 - None  
1 = Includes battery and real-time clock

## IX. Audible Alarm

- 0 = Alarm signal available at connector, switched DC,  
30 mA, non-isolated
- 1 = Internal alarm included

## Software

- AA = Standard Food Equipment Application Software Set
- AB through ZZ = Custom Application Software

## ENGINEERING CONSIDERATIONS (NOT FOR FIELD REPRESENTATIVE USE):

\* CNR indicates investigation to Canadian Standard C22.2 No. 24.

USR indicates investigation to UL Standard for Temperature-Indicating and -Regulating Equipment, UL 873.

Use - For use only in products where the acceptability of the combination is determined by Underwriters Laboratories Inc.

Conditions of Acceptability - When installed in the final use equipment, etc., the following are among the considerations to be made:

1. The terminals are not acceptable for field connection. The acceptability of connections to these terminals, including temperature and secureness, shall be determined in the ultimate application.

\* 2. This component has been judged on the basis of the required spacings in the Standard for Temperature Indicating and Regulating Equipment, Paragraph/Table 32.1, Column F (0-300 V), dated December 22, 1994 and CSA C22.2 No. 24.

3. When panel mounted, the front panel of the device is not considered to be acceptable as an enclosure.

4. These devices have not been investigated for safety or temperature limiting applications. **The need for fault testing (short regulating control) shall be considered as part of the end-use application.**

5. This component has been evaluated and found to comply with the Standard for Gas Appliance Thermostats, ANSI Z21.23.