

Series 21 - Operator Instruction Manual

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Series 21 with Microprocessor

STANDARD INSTRUCTIONS FACE-PLATE

OPERATING STATUS

- 1) Power on light is green.
 - 2) Fans on light is amber (yellow).
 - 3) Alarm on light is red.
 - 4) Trip on light is red.
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DISPLAY CONTROLS

- 1) **MAXIMUM TEMPERATURE MEMORY (MTM)**
 - 1) **PRESS READ** to display MTM since last reset.
 - 2) **PRESS RESET** to erase MTM.
 - 3) **MTM** is retained indefinitely with loss of power.
 - 2) **READ OTHER PHASES**
 - 1) Instrument automatically displays highest temperature input.
 - 2) Green LED indicates hottest phase.
 - 3) **PRESS** other buttons to read other phases.
 - 3) **SYSTEM TEST**
 - 1) **PRESS AND HOLD** bottom left button.
 - 2) **PRESS AND RELEASE** bottom right button to advance test mode.
 - 3) **TEST MODE SEQUENCE** is described on face-plate.
 - 1) Local alarm can be silenced if desired.
 - 2) Trip relay will not turn on.
 - 3) Trip relay turns on only with input signal.
 - 4) **RELEASE** bottom left button when test is complete.
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OPERATION CONTROLS

- 1) **FAN MODE CONTROL** LED's indicate auto or manual control of fan power.
 - 2) **START-UP** condition is **AUTO**.
 - 3) **PRESS MANUAL ON** to energize fans for continuous running.
 - 4) **PRESS AUTO** to return to automatic mode.
 - 5) **FAN EXERCISER (PROGRAMMABLE)** will energize fans once per week.
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FAIL- SAFE START-UP DEFINITION

1. At start-up, alarm and fan contacts are in "on-state".
 2. Alarm and fan contacts change to "off-state" when power is applied or,
 3. Alarm and fan relays revert to "on-state" if thermocouple is open or,
 4. Alarm and fan contacts revert to "on-state" if power is lost.
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Options

- 1) Each option has dedicated instructions.
- 2) Contact Cimco if not supplied with instrument.

Series 21 with Microprocessor (continued)

STANDARD CONNECTION INSTRUCTIONS BACK-PLATE

INPUT POWER

**WARNING! POWER CONNECTIONS ARE DIFFERENT FOR AC/DC INPUT INSTRUMENTS!
REFERENCE "FEATURES" DOCUMENT FOR POWER CONNECTIONS!**

STANDARD A21 CONNECT LAST TO T-11 & T-12

1. Determine input power voltage.
 2. Connect H1, H2, H3, and H4 while following Instructions on the back of the instrument.
 3. The 0.25 amp fuse protect the instrument if 240 VAC is applied while the instrument is connected for 120 VAC power.
-

A21 AC/DC INPUT CAPABLE OPTION ONLY

1. CONNECT TO T-11 AND T-12
-

FAN POWER CONTROL (CONNECT FIRST) TWO OUTPUTS TOTAL

1. Fan power relays are Fail-safe.
 2. Fans one output power use T-1 and T-2.
 3. Fans two output power use T-3 and T-4.
 4. Each circuit rating if used alone is 30 amps, 1 HP at 120 VAC, 2 HP at 240 VAC
 5. Total rating for both circuits together is 30 amps, 2 HP at 120 VAC , 4 HP at 240 VAC
 6. Instrument is supplied with 20 amp fuse. Maximum fuse rating is 30 amps.
 7. Additional fan controls are available with optional fourth and fifth set-point relays.
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TEMPERATURE SENSORS - CONNECT SECOND

1. Non-magnetic Type E thermocouple is standard.
 2. Red lead is always negative.
 3. Cut thermocouples to length.
 4. Never form loop with the thermocouple leads
 5. Strip 3/8 to 0.4 inch insulation from metal leads.
 6. Use clamp on terminal block to connect thermocouples to terminal blocks on back of instrument.
 7. Do not use crimp lugs.
 8. Clamp leads firmly in place.
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SYSTEM GROUND

1. Instrument ground is isolated from system ground.
 2. Connect system ground to T-10.
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Series 21 with Microprocessor

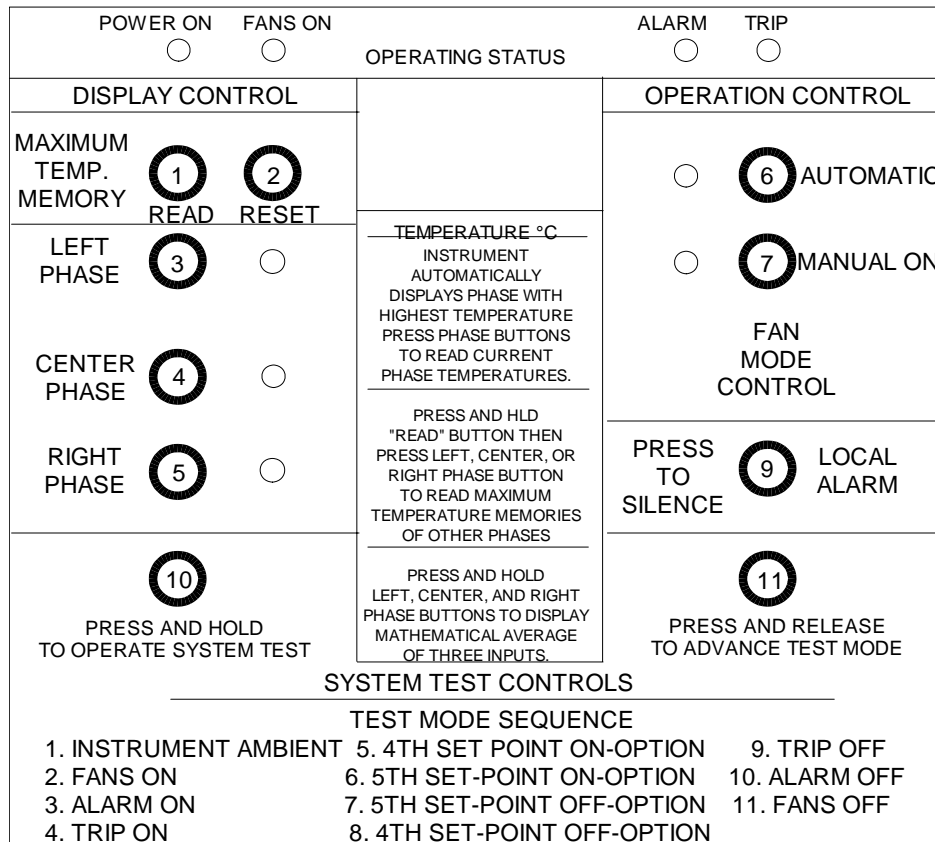
(continued)

TRIP AND ALARM RELAYS

1. Form C relays.
2. Contacts are dry.
3. Alarm relay is Fail-safe
4. Trip relay is NOT Fail-safe

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- 1) Obtain permission from the transformer manufacturer before changing any programmable features.
 - 2) Contact Cimco for programming instructions

FIGURE 1



OPERATOR CONTROL PANEL

TABLE 1

STEP MODE

1. INSTRUMENT AMBIENT
2. FANS ON
3. ALARM ON
4. TRIP ON
5. 4TH SET-POINT ON - OPTIONAL
6. 5TH SET-POINT ON - OPTIONAL
7. 5TH SET-POINT OFF - OPTIONAL
8. 4TH SET-POINT OFF - OPTIONAL
9. TRIP OFF
10. ALARM OFF
11. FAN OFF

Key code

= Digital display

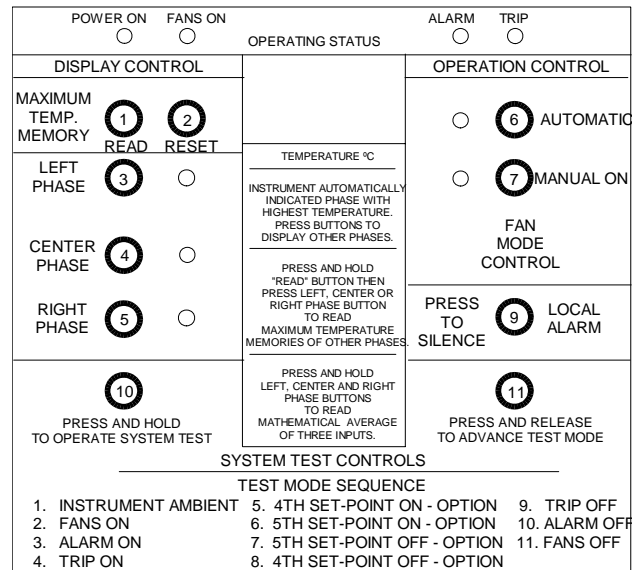
= Display and control / buttons

= LED's

Operating Instructions for Monitoring Features

1. First time (as shipped) start-up status
 1. Fan mode is automatic
 2. Fan exerciser is off.
2. Check instrument fuse if Power on status light is "OFF".
3. Future "start-up's" use customer's choice of programmed operations.
 1. Reference drawing 10-21-96-B (Programming Instructions, pages 12-14).
 2. Access code is required for all programmable features.
4. Reset or restart software (if instrument does not respond to commands)
 1. Press and hold buttons 1 and 6 and 9
 2. All lights except for "POWER ON" will turn off.
 3. Release 1 and 6 and 9 buttons.
 4. Instrument software will reset to normal start-up mode.
5. Display maximum temperature memory.
 1. Press button 1.
 2. Display will indicate highest temperature in memory.
 3. Phase LED's will indicate which phase temperature is displayed.
6. Display maximum temperature memory (MTM) of other phases
 1. Press and hold button 1. then press
 2. Button 3 to display MTM of left phase or
 3. Button 4 to display MTM of center phase or
 4. Button 5 to display MTM of right phase.
 5. Release button 1.
7. Erase maximum temperature memories.
 1. Maximum temperature memories include
 2. Press button 2 to reset all MTM's to zero.
 1. Three phases
 2. Highest of all three phases.

FIGURE 1



8. Display current operating temperatures
 1. Press button 3 or 4 or 5 to display current phase temperatures.
 2. Press and hold buttons 3, 4, & 5 to display mathematical average of the three phase temperatures.
9. Fan Mode
 1. Start-up is always in automatic mode.
 2. Press button 7 for manual-on mode.
 3. Press button 6 for automatic mode.
10. Alarm control
 1. Press button 9 to silence local alarm.
 2. Remote alarm relay remains "on" until alarm condition clears.

Operating Instructions for Monitoring Features (continued)

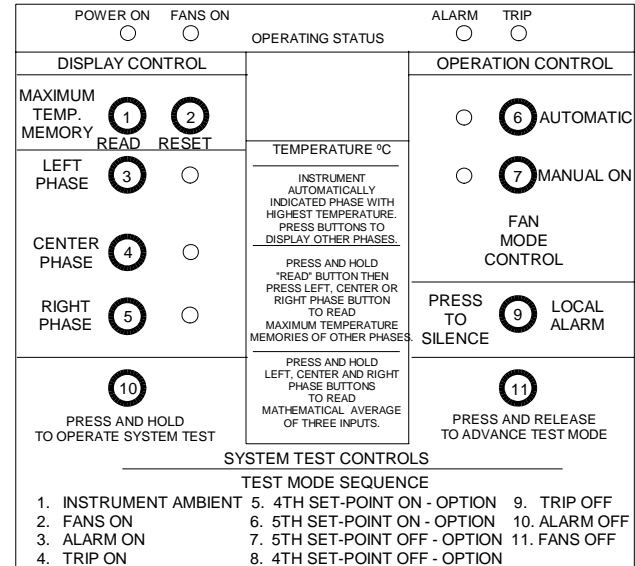
11.SYSTEM TEST (general description) (for start-up test or check set-points and relays)

1. Reference Table 1 for test mode sequence
2. Press and hold button 10 then (NOTE: User must hold button 10 until desired steps in TABLE 1 are complete.)
3. Press and release button 11 to advance TEST MODE one step.

12.SYSTEM TEST sequential actions of test mode are:

1. Instrument ambient temperature is displayed and all other LED's turn on.
2. Fans on set-point temperature is displayed.
 1. Fans on LED is turned on.
 2. Fans relays are turned on.
3. Alarm on set-point temperature is displayed.
 1. Alarm on LED is turned on.
 2. Alarm relay is turned on.
 3. Local alarm is turned on.
 4. Local alarm can be silenced if desired.
4. Trip on set-point temperature is displayed.
 1. Trip on LED is turned on.
 2. Trip relay will not turn on.
 3. Trip relay turns on only with input signal.
5. Optional Fourth set-point on-temperature is displayed.
 1. 100's decimal point is turned on.
 2. Fourth set-point relay is turned on.
6. Optional Fifth set-point on-temperature is displayed.
 1. 10's decimal point is turned on.
 2. Fifth set-point relay is turned on.
7. Optional Fifth set-point off temperature is displayed.
 1. 10's decimal point will blink.
 2. Fifth set-point relay will turn off.
8. Optional Fourth set-point off temperature is displayed.
 1. 100's decimal point will blink.
 2. Fourth set-point relay will turn off.
9. Trip-off set-point temperature is displayed and trip-on LED will blink request.
10. Alarm-off set-point temperature is displayed.
 1. Alarm-on LED will blink.
 2. Alarm relay will turn off or
 3. Local alarm will turn off if not previously silenced

FIGURE 1



11.Fans off set-point temperature is displayed.

1. Fans on LED will blink.
2. Fan relays will turn off.

12. Standard default settings are:

1. Fans set-point on 190 degrees C
2. Alarm set-point on 200 degrees C
3. Trip set-point on 210 degree C
4. 4th set-point on 230 degree C
5. 5th set-point on 230 degree C
6. 5th set-point off 220 degree C
7. 4th set-point off 220 degree C
8. Trip set-point off 200 degree C
9. Alarm set-point off 190 degree C
10. Fans set-point off 180 degree C

13. Cimco Electronics can program special defaults setting upon request.

*** Reference Table 1 on page 4.***