CIMCO ELECTRONICS, INC.
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E-MAIL: cimco@cimcoelectronics.com

P.O. Box 1338
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Series 21 - Specifications

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OPERATIONAL SPECIFICATION

1. Signal processing and control logic shall be micro-controller based.

2. Reference Features Document for
   1. Standard features or
   2. Optional features

3. Mounted in hinged cabinet
   1. Replace instrument in field
   2. Can be installed without de-energizing transformer

4. Temperature sensor choices shall be
   1. Non-magnetic
   2. Type E thermocouple or
   3. 100 ohm RTD (NOT RECOMMENDED BECAUSE OF MAGNETIC AND ELECTRICAL FIELD INTERFERENCE!)

5. Relay set-point choices shall be
   1. Fan power on (fail-safe)
   2. Alarm on (fail-safe)
   3. Trip on
   4. Fourth set-point (optional)
   5. Fifth set-point - fail-safe (optional)

6. Relay set-point adjustments
   1. Programmable from front panel
   2. Access code
   3. Program ON temperature
   4. Program OFF (dead-band) temperature

7. Temperature display (physical)
   1. Three digit red LED
   2. Range 0-250 ºC
   3. Accuracy +/- 1ºC
   4. 0.625" high

8. Temperature display (features)
   1. Indicate all three input temperatures
   2. Indicate mathematical average of three phase inputs (left, center & right)
   3. Indicate maximum temperature memory of one, two, or three inputs

9. Local alarm
   1. 90 db standard
   2. 95 and 105 db optional

10. System test to verify:
    1. Ambient temperature
    2. All status lights
    3. Set-point on and off temperatures
    4. All relay operations except trip relay

11. Maximum temperature memories
    1. Store on EE Prom
    2. Non-volatile
    3. One, two, or three sensors

12. Status display
    1. Power on - green LED
    2. Fans on - amber LED
    3. Alarm on - red LED
    4. Trip on - red LED
    5. Phase with hottest temperature - green LED
    6. Fan mode: auto or manual on - amber LED

13. Display controls
    1. Display maximum temperature memories
    2. Reset maximum temperature memories
    3. Read temperature of "other phases"
    4. Indicate phase with highest temperature
    5. Indicate phase shown on digital display

14. Fail-safe features for
    1. Loss of power to instrument
    2. Open sensor for phases
    3. Micro-controller
    4. Set-point ranges
    5. EE Prom
    6. More details in "Field Diagnostics" document, pages 4 and 5

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ANALOG OPERATIONAL SPECIFICATION
COMMUNICATIONS OPTIONS

1. VDC signals: 0 to 250ºC
    1. 0-1 vdc
    2. 0-2.5 vdc
    3. 0-5 vdc
    4. 0-10 vdc

2. Current loops: 0 to 250ºC
    1. 0-1 milli-amp
    2. 0-10 milli-amp
    3. 0-20 milli-amp
    4. 4-20 milli-amp

3. Number of analog signals available
    1. One for highest phase temperature
    2. Three for all three phase temperatures
    3. Current operating temperatures

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DIGITAL OPERATIONAL SPECIFICATION
COMMUNICATIONS OPTIONS
REMOTE COMPUTER MONITORING

1. Monitor local instrument

2. Display in "Features Document", pages 9 and 10

3. RS-485
   1. Up to 4,000 feet
   2. Monitors up to 250 instruments
   3. Two wire: twisted pair

4. RS-232C - up to 200 feet

5. DOS, Windows, Windows 95, or NT

6. RS-485 to RS-232 converter (special order)

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HARDWARE SPECIFICATIONS
Relays and Fuses

1. Fan power relays
    1. Fail-safe
    2. Form B (Normally Closed)
    3. Two relays only
    4. Horse power for each relay
        1. One horse power at 120 vac
        2. Two horse power at 240 vac
    5. Current rating on each relay
        1. 30 amps at 120 vac
        2. 30 amps at 240 vac
    6. Fan fuse rating
        1. Maximum total current - 30 amps
        2. As shipped - 20 amps slow blow

2. Alarm relay and optional fifth set-point relay
    1. Fail-safe
    2. Form C (Normally Closed / Normally Open)
    3. One relay
        1. Horse power
            1. One horse power at 120 vac
            2. Two horse power at 240 vac
        2. Current rating
            1. Normally open - 20 amps
            2. Normally closed - 10 amps

3. Trip relay and optional fourth set-point relay
    1. Form C
    2. One relay
        1. Horse power
            1. One horse power at 120 vac
            2. Two horse power at 240 vac
        2. Current rating
            1. Normally open - 20 amps
            2. Normally closed - 10 amps

4. DC current for all relays
    1. Resistive load
        1. Normally open contacts
        2. 20 amps at 28 vdc
    2. Resistive load
        1. Normally closed contacts
        2. 10 amps at 28 vdc

5. Fuse protection for instrument
    1. WARNING: NOT INCLUDED WITH AC/DC INPUT CAPABLE INSTRUMENT!
    2. Shipped with 0.25 amp fuse
    3. Fast acting
    4. Helps protect against over-voltage
    5. Maximum load = 14 watts

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HARDWARE SPECIFICATIONS
Other Hardware

1. Alarms
    1. Standard
        1. 90 db
        2. Measured two feet from front of instrument.
        3. Alarm mounted on front of instrument.
        4. Instrument installed in barrier cabinet.
    2. Optional
        1. 95 db at two feet
        2. 105 db at ten feet
        3. Alarm mounted on front of instrument.
        4. Instrument installed in barrier cabinet.
2. Overlay on front of instrument
    1. LEXAN
    2. Your LOGO - optional
    3. One piece
    4. Water resistant
    5. UV resistant
    6. Smooth face-plate
    7. Includes OSHA warning label.
3. Barrier cabinet (Model A21 only)
    1. Replace instrument in field without removing the barrier cabinet.
    2. Instrument is hinge-mounted on right side.
    3. Primed and painted for outdoor use.
    4. Replace fan and instrument fuse by opening barrier cabinet.
    5. One 3/8" hole for system ground connection in bottom barrier cabinet.
    6. Knockouts for conduit fittings
        1. Two for 1" conduit on right side
        2. Two for 1" conduit on left side
        3. Two for 1" conduit on bottom
        4. One for ½" conduit on bottom
    7. Fuse mounting (optional)
        1. 600 volt class
        2. Two knockouts for BUSSMAN HPF series fuse holders
        3. Fuse holder and fuses are optional
    8. Other options
        1. Gaskets
        2. Grommets
        3. Tamper resistant hardware
        4. Strain relief hardware

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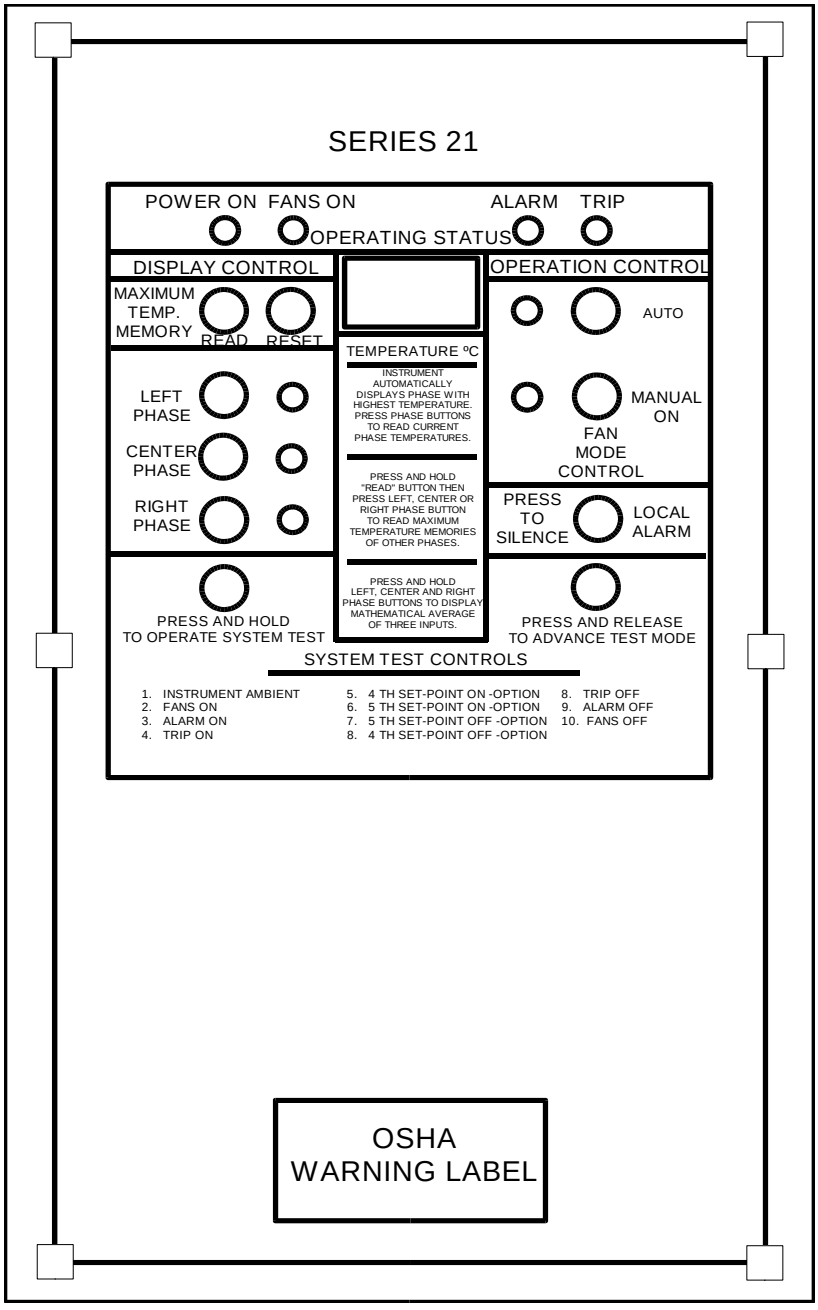

REFERENCE NOTES

1. OPERATING INSTRUCTIONS: USE DRAWINGS
   1. 10-21-96-A (Operator Instruction Manual, pages 5 and 6)
   2. 10-21-96-B (Programming Instruction Manual, pages 12-14)
   3. 10-21-96-C (Programming Instruction Manual, pages 15 and 16)
   4. 10-21-96-D (Field Diagnostics, pages 17 and 18)
2. INSTALLATION AND CONNECTION INSTRUCTIONS ARE INCLUDED WITH EACH INSTRUMENT. USE DRAWING 2-26-97-A (Field Installation Manual, page 2).
3. CONTACT CIMCO FOR COMPLETE LITERATURE AND DETAILED DRAWINGS.
4. FACE-PLATE IS BLACK WITH WHITE LETTERS AND LINES. THIS DRAWING IS SHOWN WITH BLACK LINES ON WHITE FOR COPY CONVENIENCE.
5. OSHA LABEL IS INCLUDED IN THE OVERLAY AND IS OSHA STANDARD RED, BLACK AND WHITE.
6. REFERENCE DRAWING 2-26-97-A (Field Installation Manual, page 2) FOR MAGNETIC FIELD SHIELDING INSTRUCTIONS.

PANEL SIZE = 9" X 15.25"
MOUNTING HOLES ON 8" X 14.15" CENTERS
OVERLAY IS BLACK LEXAN WITH WHITE LETTERS AND TRIM LINES.
PANEL IS STEEL; PRIMED, BLACK 0.04" THICK