

# Cimco

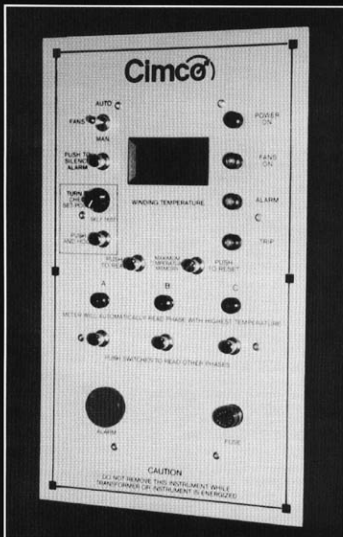
CIMCO ELECTRONICS, INC

Series 50XL-D

## Series 50XL-D

### Winding Temperature Indicator & Controller for Dry-Type Transformers

Cimco's Series 50 XL-D instruments provide winding temperature measurement, fan on-off control, alarm indication, audio alarm, trip indication, and trip and alarm switches for dry-type transformers. These instruments will also measure and remember the maximum temperature that is experienced by the three transformer coils.



**U L RECOGNIZED COMPONENT**

# OPERATING INSTRUCTIONS

## • FAN CONTROL SWITCH

The fan control switch can be in the automatic, manual, or off position. In automatic, fans turn on and off at the previously set fans on-and-off temperature. In the manual position, fans will be turned on at all times. In the optional off position, fan power is not available to the fans.

## • ALARM

The operator can silence the local alarm located on the front panel of the instrument. The remote alarm continues until the alarm condition clears. The complete alarm circuit is tested by using the self test feature.

## • SELF TEST

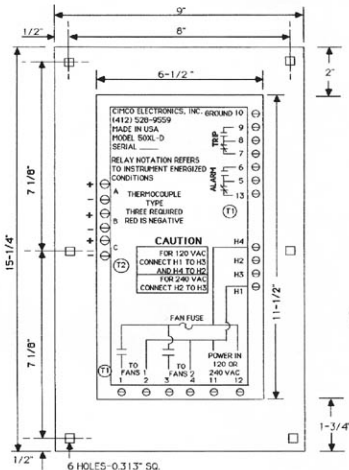
The self test feature provides the operator with the ability to test all set points without the need for additional instrumentation. The push and hold control energizes the test circuit. The make and break set points are checked by changing the turn to check control and comparing the on-off action of the fans on, alarm, and trip lights with the indication on the read-out. The fans, local and remote alarms, and trip lights are turned on by the self test feature. The trip relay is not energized during self test.

The self test feature can also be used to change the set points. **Contact the transformer manufacturer before attempting to change set-points.** The set-points are established to protect the insulation system as well as the electrical operating system.

The self test feature can also be used to test the entire electrical control scheme and fans. The trip circuit will not energize when using the self test feature.

## • MAXIMUM TEMPERATURE MEMORY

The maximum temperature memory is displayed on the meter by pressing the push to read control. The maximum memory is erased by pressing the push to reset control. The maximum temperature memory is retained in the electronics for 30 days or more if the power to the instrument is lost. A battery is not used to retain memory.



## • THREE THERMOCOUPLE SELECTOR

The three thermocouple selector feature operates automatically to select the hottest phase to be used in the control logic. To read the temperature of the other phases, press the corresponding control button. Three lights indicate which phase is the hottest and is being used in the control logic.

## • FUSE

The front mounted fuse or breaker is to protect the fans. The instrument is not fused in order to provide maximum protection for the transformer.

# GENERAL SPECIFICATIONS

FEATURE	STANDARD	OPTIONAL
SCALE RANGE	0-250°C	
SCALE TYPE	DIGITAL	
ACCURACY	±1-1/2 % OF FULL SCALE	
CURRENT LOOP		4-20 MILLI AMP
SET POINT RANGE	FULL SCALE	
DEAD BAND		
FANS	25°C	>10°C<-50°C
ALARM AND TRIP	5°C	>5°C<-20°C
FAN CONTROL	AUTO-MANUAL	AUTO-OFF-MANUAL
FAN RELAY RATINGS		
FANS 1 (SPST)	1 HP AT 120 VAC 1-1/2 HP AT 240 VAC	
FANS 2 (SPST)	1 HP AT 120 VAC 1-1/2 HP AT 240 VAC	
ALARM AND TRIP RELAY RATING	10 AMPS AT 120 VAC 8 AMPS AT 240 VAC AT PF = 1.0 1.5 AMPS AT 125 VDC 0.7 AMPS AT 240 VDC	
THERMOCOUPLE	TYPE "E" 3 REQUIRED	
SUPPLY POWER	120 OR 240 VAC	
MAXIMUM LOAD PROTECTION	30 AMPS 20 AMP FUSE	SINGLE POLE BREAKER ON FAN CIRCUIT
SONIC ALARM	FRONT PANEL MOUNT 90db - INTERMITTENT SIREN	
PANEL CUT-OUT	6.75" WIDE BY 13.875"	CONTACT CIMCO
HI-POT TEST*	1500 VAC, 60HZ, 60 SEC.	

\*TEST NOTES

- DURING HI-POT TEST, DO NOT INCLUDE THE THERMOCOUPLE TERMINALS IN THE TEST.
- DURING IMPULSE TEST; DO NOT CONNECT THERMOCOUPLE TERMINALS TO GROUND.

## • OPERATION

As the temperature of the transformer changes, the ambient compensated circuit provides accurate indication of the highest temperature which the 3 thermocouples sense. This highest temperature is used to drive the control logic. The set points for the switch and light operation are energized from the same circuit which drives the indicator on the face of the panel. The alarm and trip relays have a 5°C hysteresis to maintain alarm and trip information. The fan control has a 25°C hysteresis to help extend the life of the fans and the fan relay contacts. The power light is green, the fans-on light is yellow, the alarm light is red, and the trip light is red.

## • CONSTRUCTION

All of the necessary circuitry and relays are enclosed. An attractive face plate covers the small cabinet and is used to mount the instrument in the dry-type transformer sheet metal enclosure. All connecting terminal points are located on the back of the instrument and are clearly labeled to help reduce error during installation.

## • THERMOCOUPLES

These instruments use Type "E" thermocouples. Type "E" thermocouples reduce the introduction of errors that can occur if thermocouples are used that contain magnetic materials. The specially constructed Cimco thermocouples can be imbedded into the 1.2 KV dry-type coils to sense the hot-spot temperature directly without concern for thermal gradients within the coils.

## • FAIL SAFE FEATURES

- With loss of power—Alarm turns on
- With loss of any thermocouple, Alarm and Fan relays turn on while the trip circuit does not turn on under either of the above conditions.
- If fan control switch is in the off position or if the fan control logic is inoperative, the trip function will activate the fan relays.

## • INSTALLATION INSTRUCTIONS

- Complete instructions are printed on the back side of the instrument next to the terminals.
- All relays are included in the instrument.
- 120 / 240 VAC input power selection
- Panel mounted
- One piece installation
- Verify accuracy by reading ambient at start.
- Set points are adjustable by transformer manufacturer
- Verify set points with self-test feature
- Use Type "E" thermocouples
- The red thermocouple lead is "negative".

# SERIES 50XL-D - FEATURES

- 120 / 240 VAC INPUT SELECTION
- 30 AMPS OF FAN POWER
- TWO SETS OF FAN POWER TERMINALS

## SELF-TEST

- ALL ON-OFF SET-POINTS CAN BE CHECKED BY USING FRONT PANEL CONTROLS.
- ALL ON SET-POINTS CAN BE CHANGED USING THE FRONT PANEL CONTROLS AND THE SCREW DRIVER ADJUSTMENTS. (DEAD BAND IS FIXED)
- MAXIMUM MEMORY IS NOT AFFECTED BY SELF-TEST
- EXTERNAL TRIP CIRCUIT IS NOT AFFECTED
- LOCAL ALARM CAN BE TESTED
- FANS AND REMOTE ALARM CAN BE TESTED
- FANS ON, ALARM, AND TRIP LIGHTS CAN BE TESTED

## FAIL-SAFE

- **FOR ANY OPEN THERMOCOUPLE**
  - METER WILL READ FULL SCALE
  - MAXIMUM MEMORY READS FULL SCALE
  - FAN, ALARM, AND TRIP LIGHTS TURN ON
  - ALARM RELAYS OPERATE
  - LOCAL SONIC ALARM OPERATES
  - TRIP RELAY DOES NOT OPERATE
- **FOR LOSS OF POWER TO INSTRUMENT**
  - ALL LIGHTS TURN OFF
  - ALARM RELAYS TURN ON
  - MAXIMUM TEMPERATURE IS STORED
  - RETAINED AT LEAST FOR 30 DAYS
  - NO LOSS OF ACCURACY
  - NO BATTERY POWER

## INSULATED THERMOCOUPLES (OPTIONAL)

- CAN BE PLACED IN 1.2 KV COILS AT THE HOT SPOT
- NO EXTRA INSULATION NEEDED

## INSTALLATION INSTRUCTIONS

- COMPLETE INSTRUCTIONS ON BACK PLATE
- TERMINALS CLEARLY MARKED
- FUNCTIONAL DESCRIPTION INCLUDED
- THERMOCOUPLE CONNECTING INSTRUCTIONS

## OPERATING INSTRUCTIONS

- SINGLE FUNCTION CONTROLS -- ALL OF THE FRONT PANEL CONTROLS PERFORM ONE FUNCTION ONLY.
- INSTRUCTIONS FOR EACH CONTROL ARE PRINTED ON THE FRONT PANEL NEXT TO THE CONTROL.
- EXPERIENCED CONTROL ROOM OPERATORS USUALLY DO NOT REQUIRE ANY TRAINING TO OPERATE THIS INSTRUMENT.

## OPERATING INSTRUCTIONS FOR MAXIMUM TEMPERATURE MEMORY

- AT START-UP
  - PRESS "PUSH TO READ"
  - PRESS "PUSH TO RESET" IF RESET IS DESIRED
- NORMAL OPERATION
  - PRESS "PUSH TO READ" TO DETERMINE MAXIMUM TEMPERATURE SINCE LAST RESET
  - PRESS "PUSH TO RESET" TO CLEAR THE MAXIMUM TEMPERATURE VALUE IN MEMORY

## OPERATING INSTRUCTIONS FOR SELF-TEST FEATURE

- SET FAN MODE CONTROL TO AUTOMATIC
- ROTATE SELF-TEST CONTROL COUNTER-CLOCKWISE
- PRESS "PUSH AND HOLD" SWITCH
- SLOWLY ROTATE SELF-TEST CONTROL CLOCKWISE
- RECORD THE TEMPERATURE INDICATION ON THE METER AS EACH OF THE CONTROL LIGHTS TURNS ON.
- SLOWLY ROTATE THE SELF-TEST CONTROL COUNTER-CLOCKWISE. (OK TO SILENCE ALARM DURING CHECK)
- RECORD THE TEMPERATURE INDICATION ON THE METER AS EACH OF THE CONTROL LIGHTS TURNS OFF

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