Installation & Operating Instructions for Modularm 75

MODEL 75, 75B & 75C INSTALLATION & OPERATING INSTRUCTIONS

MODULARM MODEL 75 (B)
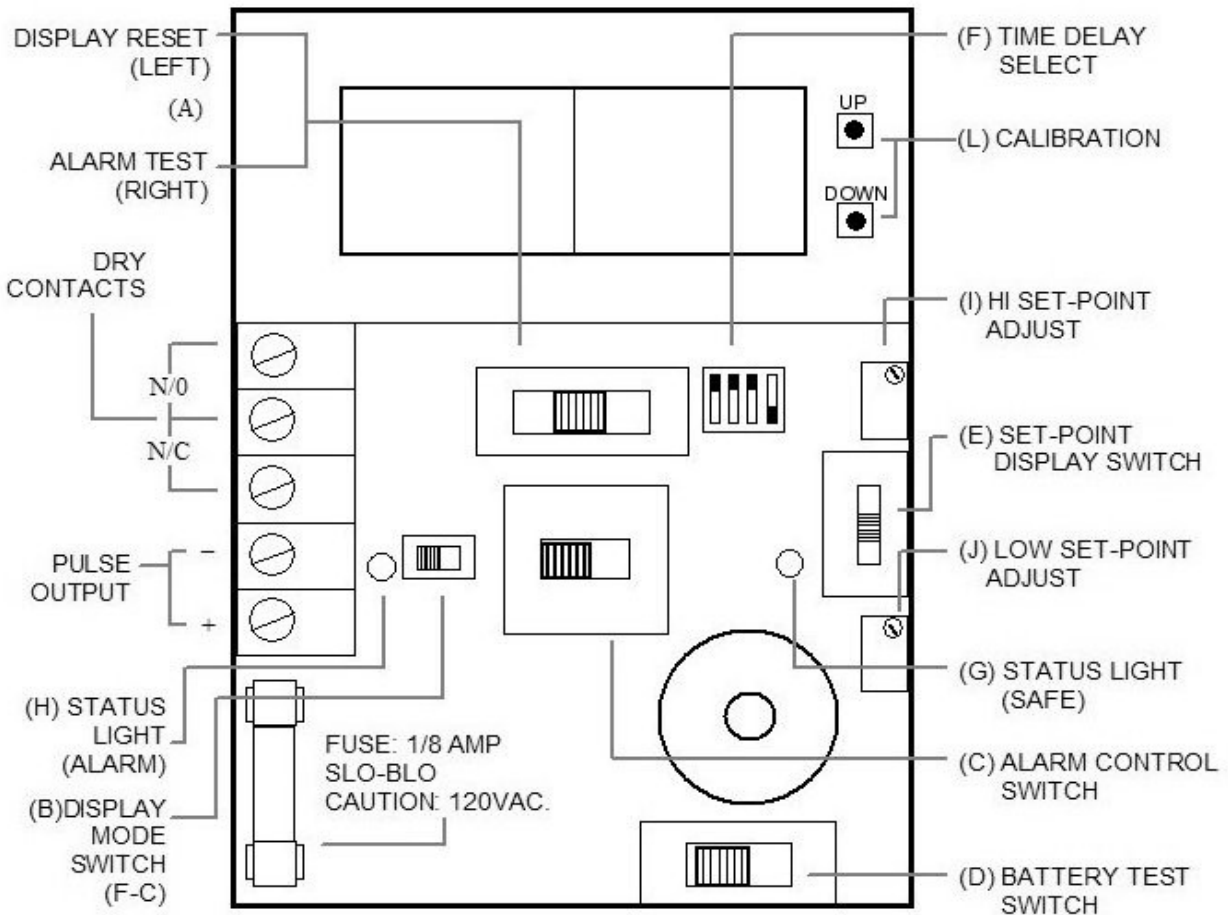
QUICK SETUP INSTRUCTIONS

1) SLIDE DISPLAY RESET SWITCH (A) TO LEFT TO STOP DISPLAY FROM BLINKING.

2) SELECT FAHRENHEIT OR CENTIGRADE WITH DISPLAY MODE SWITCH (B).

3) SELECT AND ADJUST HIGH AND LOW SETPOINTS WITH SETPOINT DISPLAY SWITCH
    (E) AND HIGH AND LOW SETPOINT ADJUSTS (I & J).

4) SELECT TIME DELAY WITH TIME DELAY SELECT SWTICH (F).

5) ALARM CONTROL SWITCH MUST BE IN RIGHT HAND (SAFE) POSITION WHEN
    TEMPERATURE IS OKAY FOR NORMAL OPERATION.

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MODEL 75 & 75B GENERAL DESCRIPTION

The Modularm Model 75 Temperature Monitoring System is designed to constantly monitor temperature and will provide audible, visual and remote notification whenever refrigeration failure occurs. The basic operation of the Model 75 is described as follows:

Through the use of an electronic temperature probe the ambient temperature of a walk-in cooler or freezer or other temperature sensitive environment is constantly monitored. When the monitored temperature goes above or below the temperature setpoints an electronic time delay circuit is activated. The purpose of the time delay is to override defrost cycles and other short term changes in temperature that occur during normal operation. When temperature in the monitored area exceeds the setpoints beyond the length of the time delay the alarm activates, providing audible, visual and, if so connected, remote notification that an alarm condition has occurred.

(Note 1): The Model 75 offers Battery Backup as an option. (75B) When so ordered, the Model 75B will also annunciate any power failures which may occur.

(Note 2): The Model 75 offers Thermostatic Control as an option. (75C) When so ordered, the Model 75C will provide electronic temperature control.

CONTROLS, INDICATORS, & FUNCTIONS (REFER TO FRONT COVER)

A)   DISPLAY RESET, ALARM TEST SWITCH – Holding switch momentarily to left stops Digital Readout from blinking and provides constantly on temperature display. Holding switch to right provides TEST MODE. In Test, display will read ---F or ---C, and alarm will activate in 3 – 30 seconds depending on length of time delay selected.

B)   DISPLAY MODE SWITCH – Selects between Fahrenheit or Centigrade.

C)   ALARM CONTROL SWITCH – Disables or Resets alarm.

D)   BATTERY TEST SWITCH (75B) – Used to check condition of backup battery. (Battery is rechargeable & 75B contains charging circuitry.)

E)   SETPOINT DISPLAY SWITCH -   Provide display of Alarm Temperature Setpoints on Digital Readout. Holding up displays High Setpoint. Holding down displays Low setpoint.

F)   TIME DELAY SELECT SWITCH – Provides selection of length of Time Delay before alarm activates.

G, H) STATUS LIGHTS – Provides visual indication of monitored condition.
(Green = Safe.   RED = Abnormal or Alarm Condition.)

I, J) SETPOINT ADJUSTMENTS – Allows for adjustment of high & low Alarm Temperature Setpoints.

K)   DRY CONTACTS, PULSE OUTPUT TERMINAL STRIP – Provides for activation of Remote Notification Equipment. (Bells, Sirens, Lights, Dialers, Central Station, Etc.),

L)   CALIBRATION SWITCHES - Allows for calibration of the DIGITAL READOUT

INSTALLING THE ALARM

1)   Remove the two screws which hold on the faceplate and remove the faceplate.

2)   Mount the unit in a suitable location:
        a). Surface Mount – Use the four mounting holes on the back wall of the   enclosure.
        b). Flush Mount – Make a cutout in the mounting surface, 9 3/8" high x 4 3/8" wide. Use the four mounting holes on the front flange of the enclosure.

3)   Run the probe into the monitored compartment and locate the sensor in a spot which will typify the average ambient temperature. Recommended location is in front of the blower on the ceiling in the center of the room. Make sure that the sensor and sensor wire is positioned so that it will not be damaged by any products or items in the monitored area. Fasten the probe with the provided 3/8" clamp. (NOTE: If desired, the sensor wire can be lengthened hundreds of feet using ordinary thermostat wire without affecting accuracy of the displayed temperature. It can be shortened as well. If this is necessary, proper polarity must be observed when reconnecting probe. i.e., white to white & black to black. If a splice is made in the monitored compartment, seal with silicone to prevent moisture from causing erroneous temperature readings. Also, if probe is extended into monitored compartment through back wall of alarm, seal opening to prevent moisture from entering alarm.   SPECIAL NOTE: DO NOT RUN SENSOR LINE FOR EXTENDED DISTANCES IN CONDUIT WITH HIGH VOLTAGE OR "BOUNCING" OR ERRONEOUS READINGS WILL RESULT!)

4)   Bring AC Power (110VAC Standard) 220VAC Optional if so ordered) through suitable conduit to the hole in the top of the enclosure. Connect to the black & white #18 wires which are located in the small compartment above the actual alarm unit. Insulate the splice and tuck the wires back into the compartment.

SETTING UP THE ALARM

1)   Provide power to the alarm unit. If horn is sounding, throw ALARM CONTROL SWITCH to opposite position.

2)   Digital Readout blinks when power is first applied or whenever power is interrupted and restored. Stop the readout from blinking by sliding the DISPLAY RESET SWITCH to the left position and then releasing.

3)   Select Fahrenheit or Centigrade with the DISPLAY MODE SWITCH. Left is Fahrenheit. Right is Centigrade.

4)   Select the alarm setpoints with the SETPOINT DISPLAY SWITCH and the SETPOINT ADJUSTMENT CONTROLS.   The selected setpoint will display on the Digital Readout. (Standard setpoint range is -40F to 120F or -40C to 49C. Other ranges available on request.)

5)   Select length of time delay desired with TIME DELAY SELECT SWITCH. This switch matrix provides four switches which may be used singly or in combination to produce any time delay desired from 10 minutes to 150 minutes in 10 minute increments. (Other ranges available on request.) A switch is selected if the top of the rocker is pushed in. See drawing on following page:

IMPORTANT!! AT LEAST ONE TIME DELAY SWITCH MUST BE SELECTED OR THE ALARM WILL NOT FUNCTION PROPERLY.

EXAMPLE: SET FOR 70 MINUTES DELAY
                    (BLACK SQUARE = PUSHED IN)

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10 MINUTES                    80 MINUTES

20 MINUTES                    40 MINUTES
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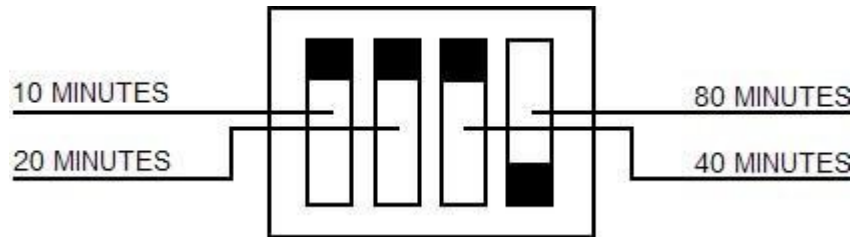
OPERATING SEQUENCE OF ALARM

Once properly installed and set up, virtually all user alarm functions are controlled by the ALARM CONTROL SWITCH. This switch has two positions and for all monitored conditions there is only one position of the ALARM CONTROL SWITCH where the alarm will be silent. The Model 75 was designed in this way so as t prevent the user from inadvertently leaving the ALARM CONTROL SWITCH in the "wrong" position.   WHEN THE ALARM IS SILENT, THE CONDITION OF THE MONITORED BOX IS INDICATED BY THE STATUS LIGHTS.

NORMAL SEQUENCE OF OPERATION IS AS FOLLOWS:

GREEN LIGHT = SAFE CONDITION.
BLINKING RED LIGHT = ABNORMAL CONDITION. TIME DELAY INITIATED.
SOLID RED LIGHT = ALARM CONDITION. (HORN SOUNDS. RELAY ACTIVATED.
                    6 VOLT, ONE SECOND PULSE GENERATED ACROSS PULSE
                    OUTPUT TERMINALS.)
NOTE: ON 75B, BLINKING RED LIGHT + BEEPING HORN = POWER FAILURE.

When an alarm condition occurs, throw ALARM CONTROL SWITCH toward RED LIGHT to silence horn and release relay.   RED LIGHT will remain on to indicate alarm condition. Restoration of safe condition will cause alarm to sound again indicating that ALARM CONTROL SWITCH must be returned to safe position.

CALIBRATION

In the event that the Model 75 is not reading temperature properly the alarm can be calibrated as follows:

1) Remove the faceplate. Calibration Switches are on the DIGITAL READOUT MODULE

2) Use accurate reference thermometer in physical contact with probe (or immersed in water) or use small ice bath as reference.

3) After probe has stabilized for a few minutes, use the CALIBRATION SWITCHES to change the displayed temperature agrees with reference.

4) After calibration is complete, check and readjust setpoints.

MODEL 75C CONTROL INSTRUCTIONS

The Model 75C expands the functions of the regular Model 75 by offering temperature control capability. The control circuitry operates as an "on-off" type thermostat, maintaining temperature between a selected setpoint and a selected differential setting. In all instances, the setpoint is the high limit and the differential is the low limit.

SETUP AND CONNECTION IS AS FOLLOWS:

1) Terminal strip on control board is, from left to right, N/O – COMMON – N/C. Standard control configuration is that normally open contacts make on rise. 115 or 230 VAC may be applied across these contacts, but DO NOT EXCEED THE CONTACT RATING OF 6 AMPS. Use contacts to activate secondary controlling devices such as contactor coils or solenoids.

2) A Pin Jumper Matrix on the Control Board enables the user to read and adjust the Control and Differential Setpoints in accordance with the application. (NOTE: On units which share setpoints for the alarm and control function the pin jumper matrix and separate control setpoints are deleted.) This matrix is the two rows of gold pins located near the Control Terminal Strip and it is utilized in the following manner:

> ◦ ◦   ALARM PROBE
> ◦ ◦   CONTROL SETPOINT (HIGH LIMIT)
> ◦ ◦   DIFFERENTIAL (LOW LIMIT)

Standard location for the provided PIN Jumper on the Jumper Matrix is the ALARM PROBE position. (NOTE: On units which share one probe for the alarm and control function the alarm probe position has been deleted. Therefore, place the jumper in the CONTROL PROBE position to display monitored temperature. To read CONTROL SETPOINT (HIGH LIMIT), relocate the jumper to the CONTROL SETPOINT Pins. (NOTE: The CONTROL SETPOINT must be adjusted first, as the DIFFERENTIAL adjustment is dependent on and affected by the CONTROL SETPOINT.) The CONTROL SETPOINT will read on the Digital Readout and is adjusted with the gray trimpot located next to the PIN Jumper Matrix. To read the DIFFERENTIAL (LOW LIMIT), relocate the jumper to the DIFFERENTIAL Pins and the DIFFERENTIAL SETPOINT will be displayed. Adjust the differential with the black trimpot next to the Setpoint Trimpot. (NOTE: Both limits are displayed as actual high and low limit values. Example: A control set with a high limit of 38F and a low limit of 34F will display these temperatures when the control setpoints are read. Therefore, the differential is 4F.)

ONCE ADJUSTED, RETURN THE JUMPER TO THE PROBE POSITION IN ORDER TO DISPLAY PROPER MONITORED TEMPERATURE.

SPECIAL OPTIONS

1) **PANIC ALARM:** This option provides a means by which the alarm will annunciate when personnel are inadvertently locked in a compartment. When so ordered, a twisted pair of wires is attached to the alarm for activation of this feature. Wires are connected to a Toggle or Push Button Switch (Not Provided) which is installed in a waterproof enclosure inside of the compartment. Activation of this switch causes the alarm to annunciate.

2) **DOOR AJAR:** This option provides a means by which the alarm will annunciate when a compartment door is left open for longer than 10 minutes. (Other times available.) A yellow "DOOR AJAR" light will glow and the alarm will begin to "time out" every time the door is open. If the door is open beyond 10 minutes the alarm will annunciate. Closing the door will reset the alarm unless a Temperature Alarm is occurring simultaneously. A twisted pair of wires is attached to the alarm for activation of this feature. Wires must be connected to a switch (not provided) that will   provide   a   contact   closure   whenever   the   door   is   open.

3) 75MP: The 75MP is a 2, 3 or 4 probe version of the Model 75 for the monitoring of   large rooms or smaller temperature sensitive rooms. Alarm scans and displays probe   temperatures   at four second intervals. Otherwise, operation is identical to a standard alarm.
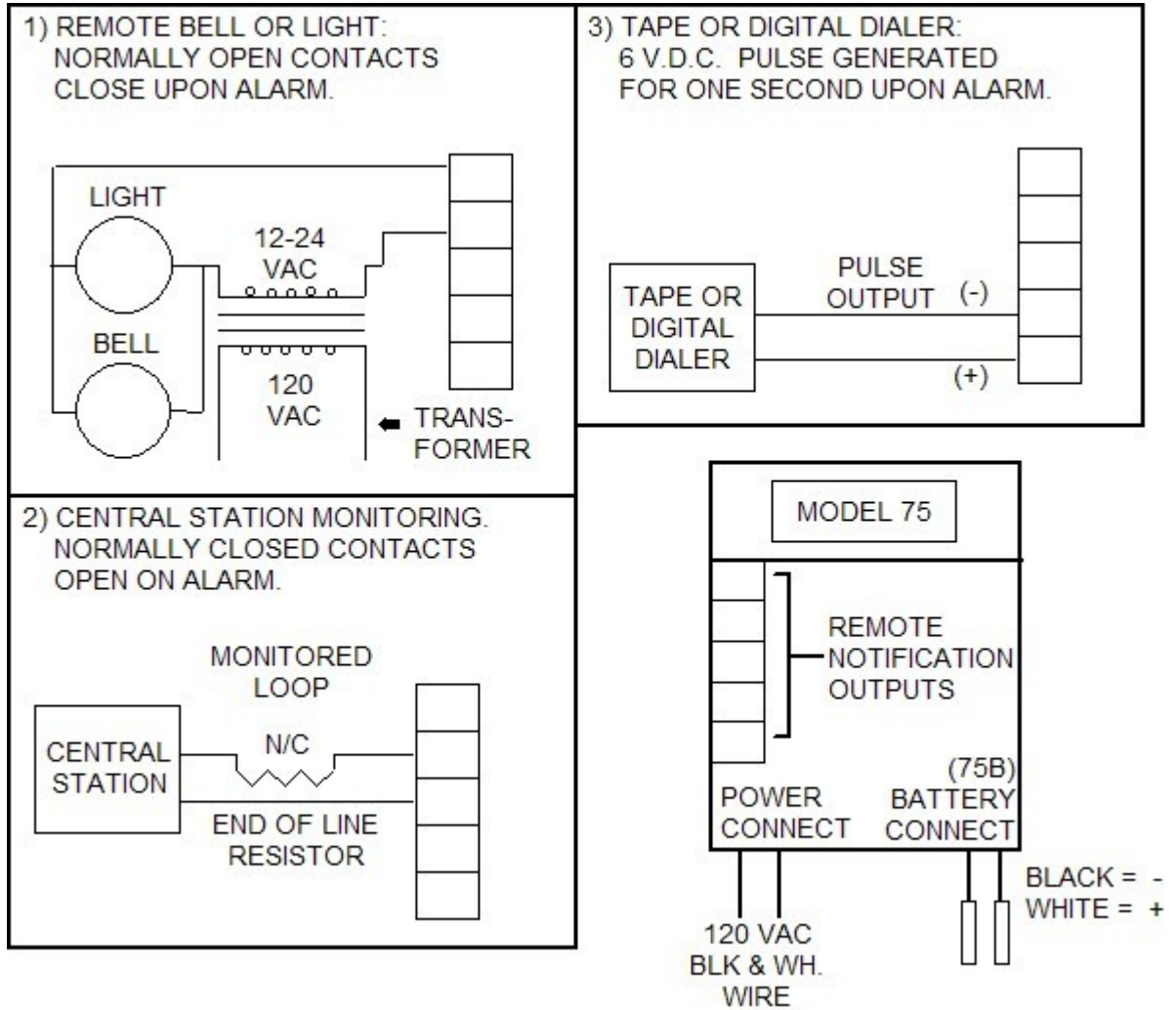
SAMPLE SPECIFICATION: MODEL 75 & 75B

MODEL 75: Each refrigerated compartment shall be monitored by a MODULARM MODEL 75 TEMPERATURE ALARM (Surface or Flush Mount.) The alarm shall provide a constant digital readout of monitored temperature, field adjustable high & low alarm temperature set-points and field adjustable time delay to override normal rises in compartment temperature. Two visual status indicators are provided: a green "Safe" light and a red "Alarm" light. Under normal conditions the green "Safe" light and a red "Alarm" light. Under normal temperatures the green light is on and the red light is off. Abnormal temperatures cause the green light to extinguish and the red light to blink. Abnormal temperatures exceeding the time delay cause a constantly on red light, activation of the horn for audible annunciation and activation of the self- contained relay for remote notification. The unit shall be reset manually with the Alarm Control Switch. Fail safe circuitry shall prevent accidental disabling of the unit. The alarm shall be enclosed in a drawn aluminum enclosure with a stainless steel faceplate.

75B ADDENDUM: When power failure occurs the green light will extinguish and the red light will begin to blink. Simultaneously, the horn will beep on and off and the internal relay will activate for remote notification.

WIRING DIAGRAM

TYPICAL REMOTE NOTIFICATION APPLICATIONS:

1) REMOTE BELL OR LIGHT:
   NORMALLY OPEN CONTACTS
   CLOSE UPON ALARM.

LIGHT

12-24 VAC

BELL

120 VAC

← TRANS-FORMER

2) CENTRAL STATION MONITORING.
   NORMALLY CLOSED CONTACTS
   OPEN ON ALARM.

MONITORED LOOP

CENTRAL STATION

N/C

END OF LINE RESISTOR

3) TAPE OR DIGITAL DIALER:
   6 V.D.C. PULSE GENERATED
   FOR ONE SECOND UPON ALARM.

TAPE OR DIGITAL DIALER

PULSE OUTPUT (-)

(+)

MODEL 75

REMOTE NOTIFICATION OUTPUTS

POWER CONNECT

(75B)
BATTERY CONNECT

120 VAC BLK & WH. WIRE

BLACK = -
WHITE = +

ADDENDUM: ADDITIONAL INSTRUCTIONS FOR UL LISTED VERSIONS OF MODEL 75 AND 75B TEMPERATURE ALARMS.

THE MODEL 75 AND 75B TEMPERATURE ALARMS ARE NOW OFFERED AS UL LISTED PRODUCTS (FILE #E187350). CERTAIN MODIFICATIONS HAVE BEEN MADE TO THE ORIGINAL PRODUCTS IN ORDER TO CONFORM TO UL STANDARDS. THESE MODIFICATIONS HAVE TO DO WITH ACCESS TO REMOTE NOTIFICATION FUNCTIONS, NAMELY, DRY CONTACT OUPUT AND PULSE OUTPUT. ON THE FRONT COVER OF THE STANDARD INSTRUCTION BOOKLET IS A DIAGRAM ILLUSTRATING COMPONENT LAYOUT OF SWITCHES, INDICATORS AND CONNECTION POINTS. A FIVE SCREW TERMINAL STRIP IS SHOWN AS CONNECTION POINTS FOR REMOTE NOTIFICATION FUNCTIONS. ALSO, ON PAGE 7 (BACK PAGE) OF INSTRUCTION BOOKLET, WIRING DIAGRAMS OF SOME TYPICAL REMOTE NOTIFICATION APPLICATIONS ARE SHOWN. ON THE UL LISTED VERSION THE ILLUSTRATED TERMINAL STRIP IN THESE DIAGRAMS HAS BEEN DELETED AND IS REPLACED BY INDIVIDUAL 18 GAUGE WIRES WHICH ARE BUNDLED WITH THE POWER AND GROUND WIRES. COLOR CODE FOR THESE WIRES IS AS FOLLOWS:

TERMINAL	WIRE
DRY CONTACTS – N/O	BLUE
DRY CONTACTS – COMMON	PURPLE
DRY CONTACTS – N/C	YELLOW
PULSE OUTPUT – NEGATIVE (-)	GREY
PULSE OUTPUT – POSITIVE(+)	RED

BLACK AND WHITE WIRES ARE FOR CONNECTION TO 120VAC AND GREEN WIRE IS GROUND.

RETROFITTED DEVICES AS MODIFIED IN THE ABOVE MANNER SHALL BE USED WITH A SUITABLE WIRING COMPARTMENT ACCORDING TO THE NEC CODE.

SPECIFICATIONS:

DIMENSIONS: SURFACE MOUNT - 9"L x 4"W x 1.8"D
FLUSH MOUNT – FLANGE DIMENSION – 10.375"L x 4.75"W
CUTOUT DIMENSION - 9.375:l x 4.375"W
ENCLOSURE: DRAWN ALUMINUM WITH STAINLESS STEEL FACEPLATE.
TEMPERATURE RANGE: -40ºF TO 212ºF, -40ºC TO 100ºC.*
SETPOINT RANGE: -40ºF TO 120ºF, -40ºC TO 50ºC.*
TIME DELAY: 10 TO 150 MINUTES IN 10 MINUTE INCREMENTS.*
AUDIBLE NOTIFICATION: PIEZO TYPE HORN; FREQUENCY -3.8kHz; SPL –
85db @ 3' TYPICAL.
VISUAL NOTIFICATION: GREEN LED – SAFE LIGHT, RED LED BLINKING – ABNORMAL
TEMPERATURE, RED LED SOLID ON – ALARM CONDITION.
REMOTE NOTIFICATION: DRY CONTACTS – NORMALLY OPEN (N/O) & NORMALLY CLOSED
(N/C); CURRENT CAPACITY – 6A. @ 120/240VAC, 6A. @ 28VDC. PULSE OUTPUT – 6VDC FOR 1
SECOND. (USED TO TRIGGER AVAILABLE AUTO DIALER)
SENSOR: ELECTRONIC, 1.75"L x .375"DIA. WITH 25' WIRE. WIRE MAY BE LENGTHENED IN
EXCESS OF 1000' OR SHORTRENED WITHOUT AFFECTING ACCURACY.
OPERATING: 120VAC, 1 φ45mA

*OTHER RANGES AVAILABLE

WARRANTY: All systems and components manufactured by Modularm Corporation are warranted to be free from defects in material and workmanship under normal use and service for a period of one year from date of installation. If, during this time period and after examination, any Modularm system or component appears to be defective, Modularm agrees to repair or replace same. This warranty shall not apply to any system or component that has been altered or repaired by anyone other than a factory authorized representative. Modularm Corporation limits this warranty only to those components and systems which it specifically manufactures, and its sole liability shall be to repair or replace these items and components in accordance with the aforementioned terms, and assumes no additional liabilities. No other warranty is expressed or implied regarding the sale or use of Modularm systems and components.