

Honeywell Preferred Maintenance

SPECIAL SERVICES/PROVISIONS

**Parts List For
City of Winnipeg Transit System
Fire Alarm System
Drawing No. 311332-1
Drawing No. 311332-2**

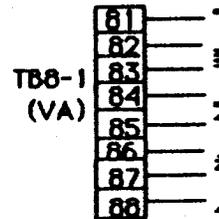
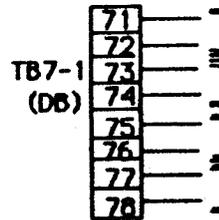
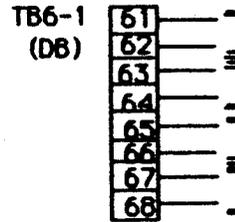
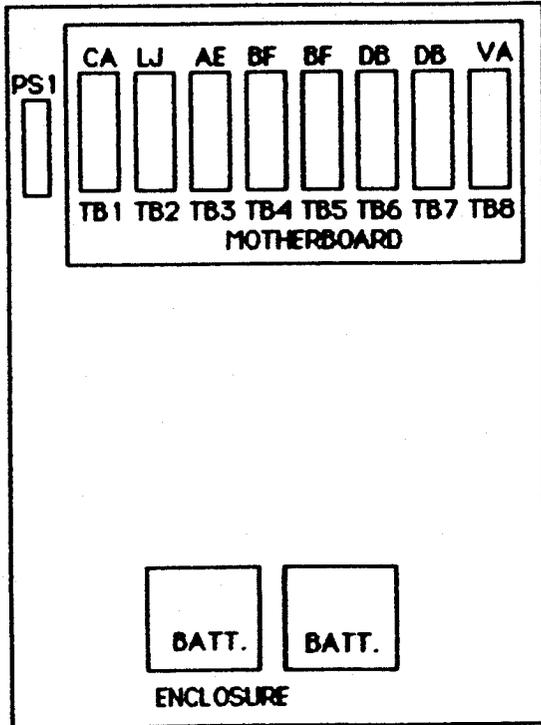
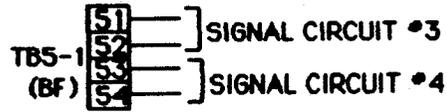
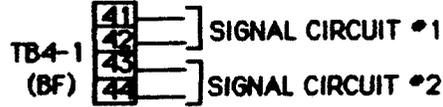
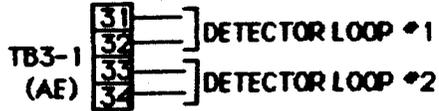
1.	Manual Pull Station	FM950	54
2.	Photo Electric Smoke Detector	TC806A1011	21
3.	Monitor Module c/w EOLR	TC809A1018	89
4.	Fault Isolator Module	TC811A1006	2
5.	Control Module c/w EOLR	TC810A1015	11
6.	Duct Detector c/w Sample Tube	DH1851DC-A ST-5	1 1
7.	EOLR Resistors 1.91K c/w Coverplates	14501600-001	4
8.	FS-90 Panel c/w		
	.1 Control Board	CA-BOARD	1
	.2 Intelligent Loop	AE-BOARD	1
	.3 COMM/Display	LJ-BOARD	1
	.4 Indicating Circuits	BF-BOARD	2
	.5 Driver/Indication	DB-BOARD	2
	.6 Transmitter	VA-BOARD	1
	.7 Motherboard		1
	.8 Power Supply	14505148-001	1
	.9 Batteries	13-AH	4
	.10 Battery Superv Module	14506408	1
	.11 Tamper Switch	145D5159	1
	.12 Fuse Holder	14501847	1

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**Parts List For
City of Winnipeg Transit System
Fire Alarm System
Drawing No. 311332-1
Drawing No. 311332-2**

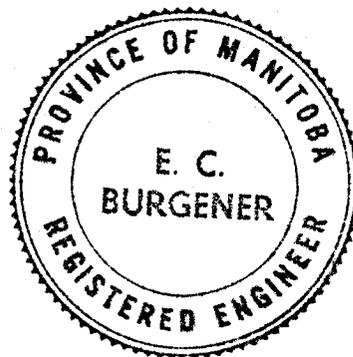
9.	Aux. Superv. Relay For DH1851	EF0425SR	1
10.	Aux. Relay For DH1851	AR10	1
11.	Fan Relay		1
12.	Electronic Horns	EH-DL1-R	66
13.	Thermal Sensor	TC808A	17
14.	Annunciator	HW-EA510-16	1
15.	Flow Switch		17
16.	Tamper Switch		17



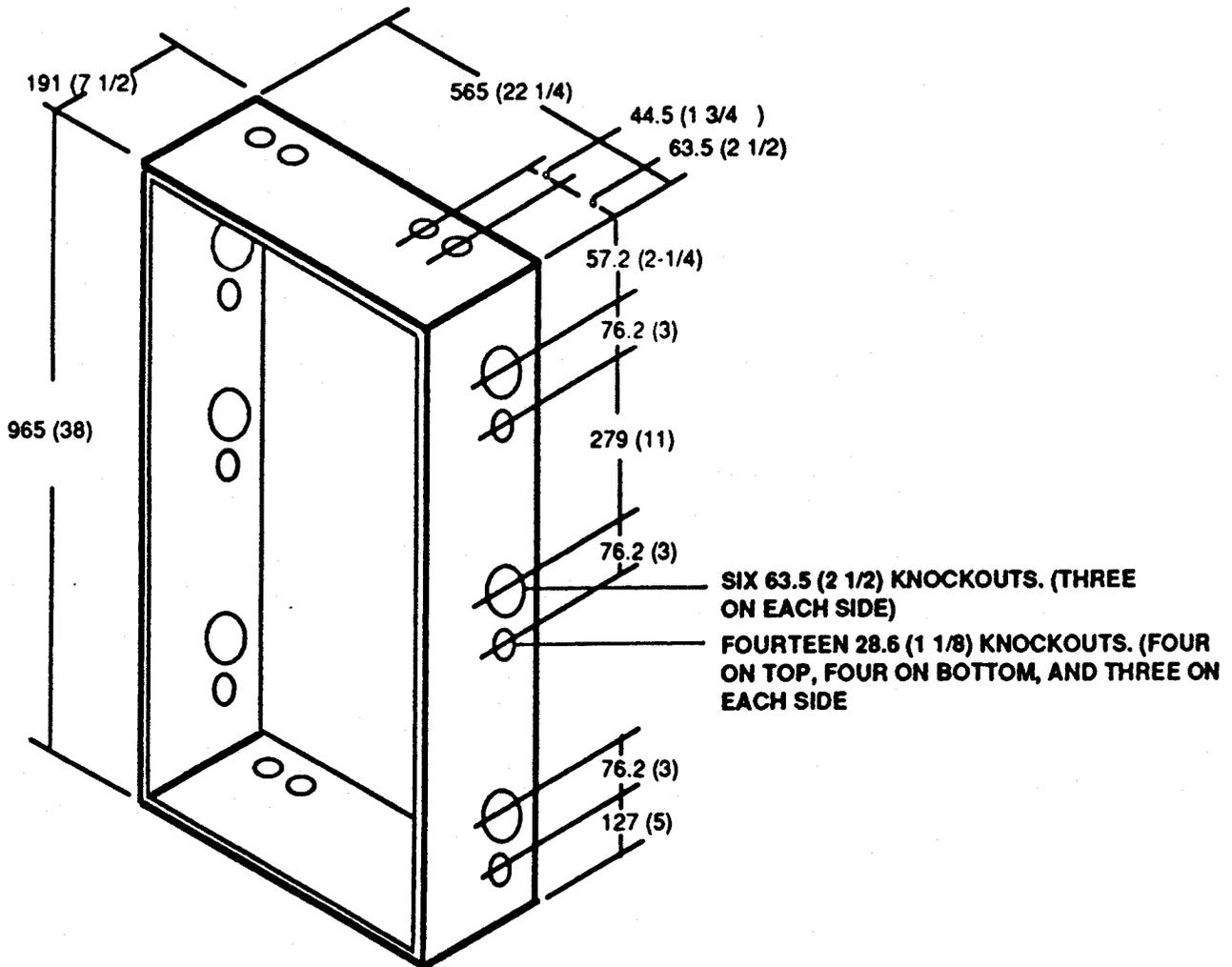
MAIN FIRE ALARM PANEL

LEGEND:

- CA - CONTROL BOARD - CONTROLS UP TO 4 MOTHERBOARDS
- LJ - COMM/DISPLAY BOARD - FOUR DIGIT NUMERICAL DISPLAY
- AE - LOOP INTERFACE BOARD - TWO 2-WIRE INTELLIGENT LOOP INTERFACE CIRCUIT
- BF - INDICATOR BOARD - TWO 2-WIRE INDICATING CIRCUITS + 2 SPST N.O. RELAYS
- PS1 - 120 VAC POWER SUPPLY



**FIRE ALARM SYSTEM
CITY OF WPG TRANSIT.
DRAWING 31-1332-2**



DOUBLE ENCLOSURE WITHOUT KNOCKOUTS
1450515-004

DOOR PART NUMBER 14505152-001

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: FS90 DOUBLE ENCLOSURE

Project:

Customer:

Dwn:

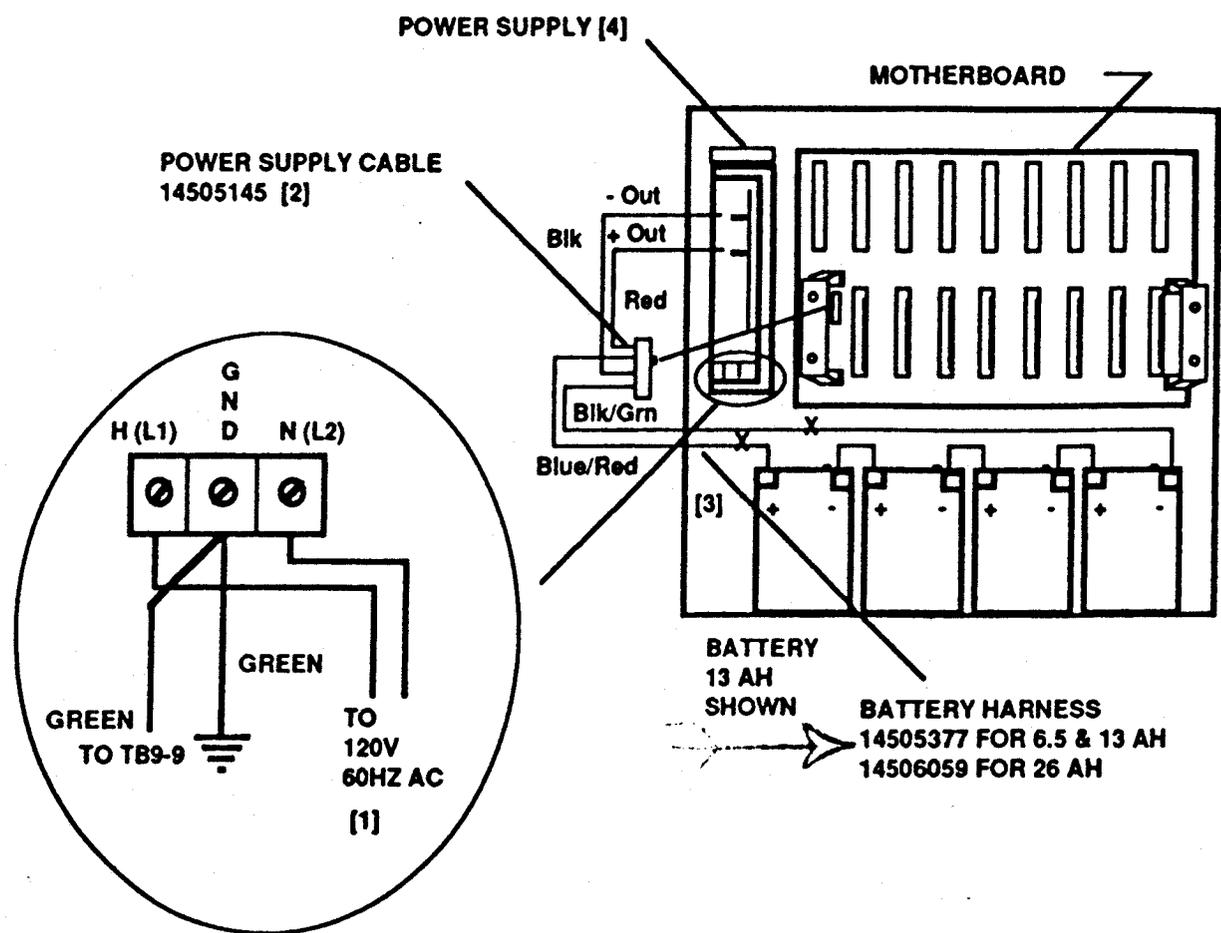
Location:

Chk:

3-2

No.	Revision	Date	Dwn.	Dwg. No.:	14505151-002	Date Dwn:

1



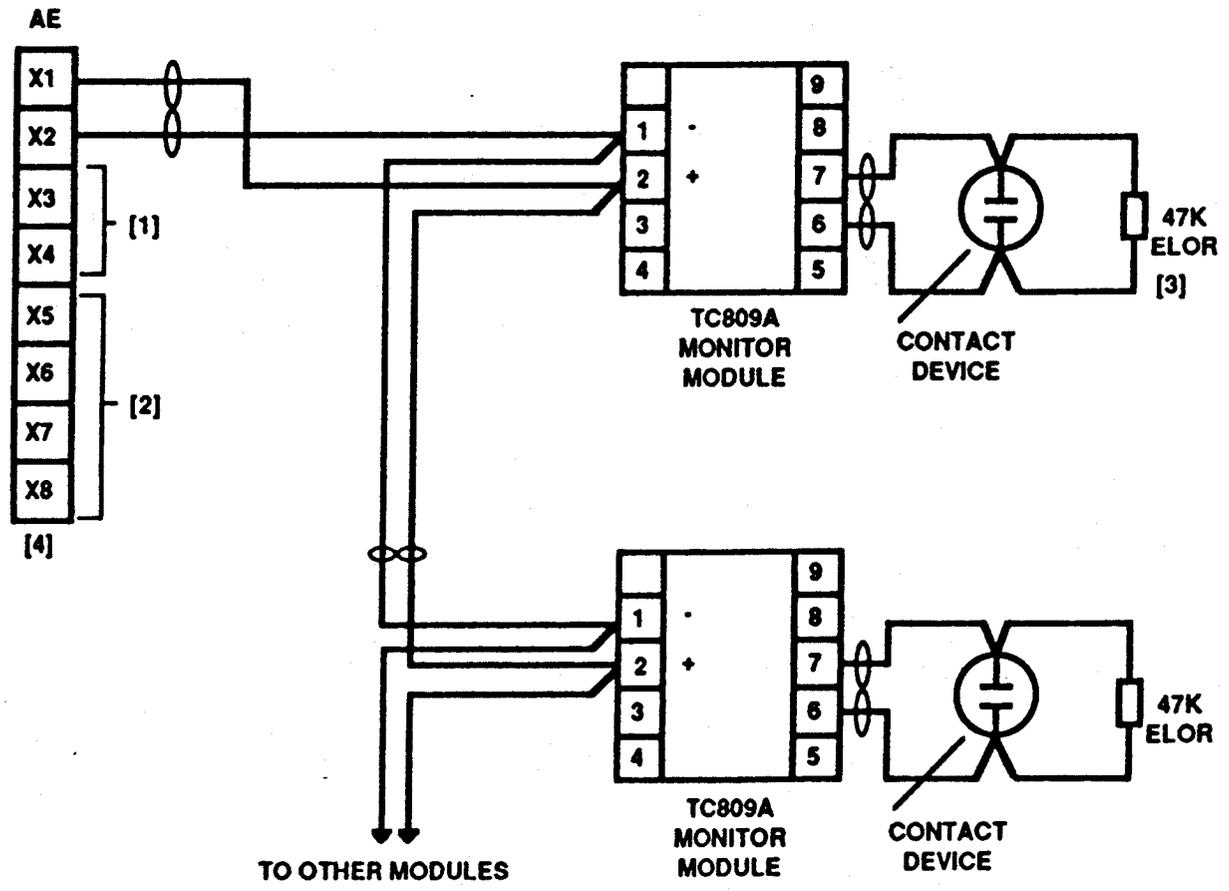
- [4] INPUT POWER 120 VAC 1.5 A. MAX.
OUTPUT POWER 28.5 VDC 2 A IN SUPERVISION
4 A IN ALARM
- [3] X INDICATES WIRE SPLICE
- [2] POWER SUPPLY CABLE PROVIDES QUICK CONNECT
TERMINALS FOR CONNECTIONS TO POWER SUPPLY
- [1] FACTORY MUTUAL (FM) APPROVAL REQUIRES AN IN LINE
FUSE. WIRE NUT LEAD WIRE OF FUSE 14501872-016 (2A,
120VAC) AND FUSE HOLDER
14501847 IN SERIES TO 120V AC SOURCE AND
POWER SUPPLY TERMINAL H (L1)



DIMENSION: IN MILLIMETRES (INCHES)

				Honeywell	
				Title: INTERNAL POWER SUPPLY WIRING	
				Project:	
		Customer:		Dwn:	
		Location:		Chk:	
No.	Revision	Date	Dwn.	Dwg. No.: 14505148-001	Date Dwn:

29-6



[4] X IS MOTHERBOARD TERMINAL
BLOCK NUMBER 1 THROUGH 8

[3] EOLR TO BE MOUNTED IN
ACCORDANCE WITH ULC S524

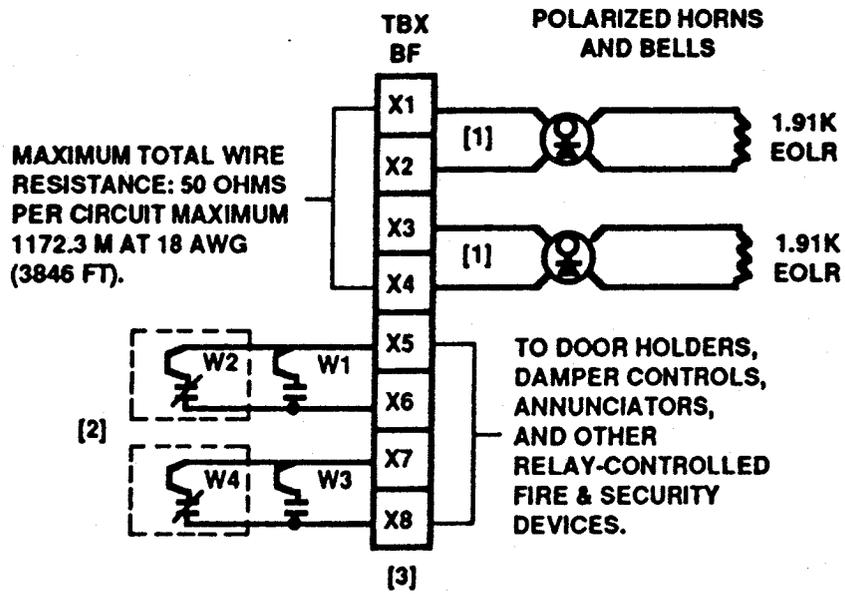
[2] NOT USED

[1] ADDITIONAL LOOP

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell			
Title: AE BOARD 2 WIRE LOOP c/w CONTROL MOD			
Project:			
Customer:			Dwn:
Location:			Chk:
No.	Revision	Date	Dwn.
Dwg. No.:		Date Dwn:	

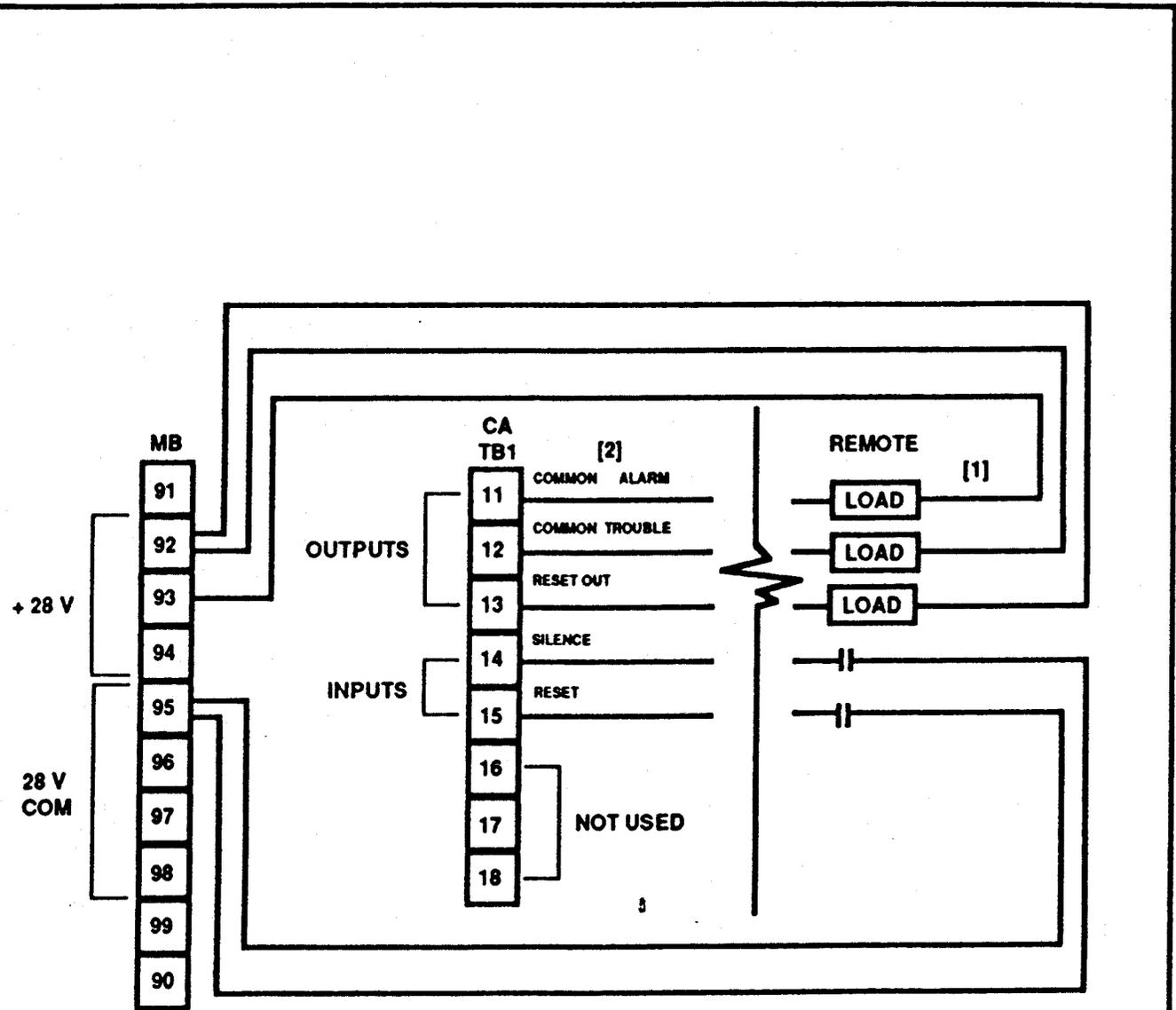
51



- [3] X IS MOTHERBOARD TERMINAL BLOCK NUMBER 1 THROUGH 8
- [2] STANDARD FACTORY CONFIGURATIONS: NORMALLY OPEN CONTACTS-W1 & W3 IN AND W2 & W4 ARE REMOVED. NORMALLY CLOSED CONTACTS FOR EACH OUTPUT ARE POSSIBLE BY ADDING JUMPERS W2 OR W4 AND REMOVING W1 OR W3.
- [1] X1 AND X3 + IN SUPERVISION MODE
- IN ALARM MODE
- X2 AND X4 + IN SUPERVISION MODE
- IN ALARM MODE

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell			
Title: BF BOARD WIRING			
Project:			
Customer:		Dwn:	
Location:		Chk:	
No.	Revision	Date	Dwn.
Dwg. No.:		Date Dwn:	



[3] THE CONTROL BOARD (CA) IS ALWAYS LOCATED IN SLOT 1 (CONNECTED TO TB1) OF THE FIRST MOTHERBOARD

[2] MAXIMUM WIRE LENGTH IS 1219.2 M (4000 FT) AT 18 AWG.

[1] OUTPUT IS STEADY ON FOR ALARM OR TROUBLE CONDITIONS.

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: CA BOARD WIRING

Project:

Customer:

Dwn:

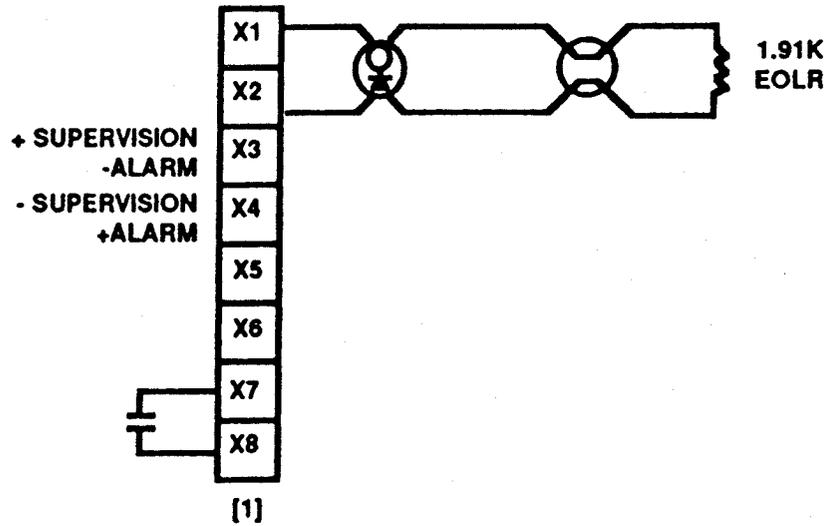
Location:

Chk:

No.	Revision	Date	Dwn.	Dwg. No.: 14505104-001	Date Dwn:
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8-1

**BF
MOTHERBOARD
TERMINAL
BLOCKS**



[1] X IS MOTHERBOARD TERMINAL
BLOCK NUMBER 1 THROUGH 8

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: TWO-WIRE INDICATING CIRCUIT

Project:

Customer:

Dwn:

Location:

Chk:

No.

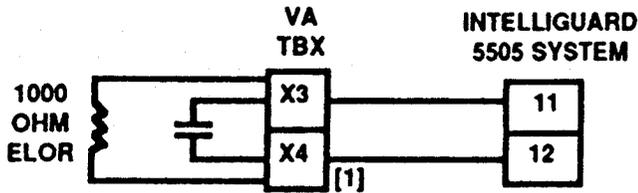
Revision

Date

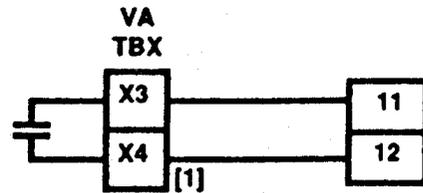
Dwn.

Dwg. No.:

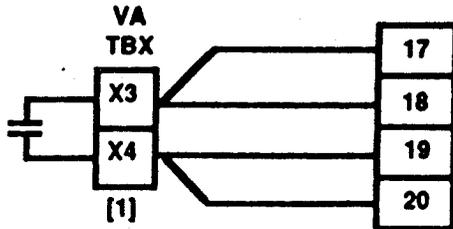
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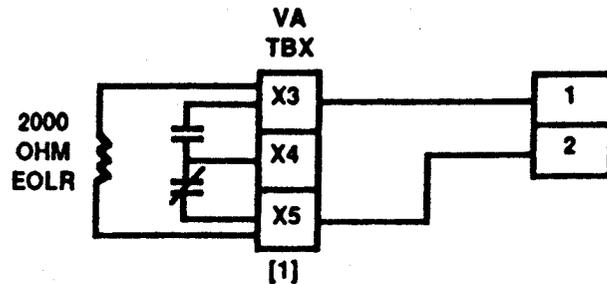
**HONEYWELL SECURITY LINK
7709/7719 ALARM TRANSPONDERS**



**HONEYWELL SECURITY LINK
7707 ACCESS TERMINAL**



**HONEYWELL SECURITY LINK
7701 SLAVE TRANSMITTER**



[1] X IS MOTHERBOARD TERMINAL
BLOCK NUMBER 1 THROUGH 8

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: VA TRANSMITTER LINKS OUTPUT WIRING

Project:

Customer:

Dwn:

Location:

Chk:

No.

Revision

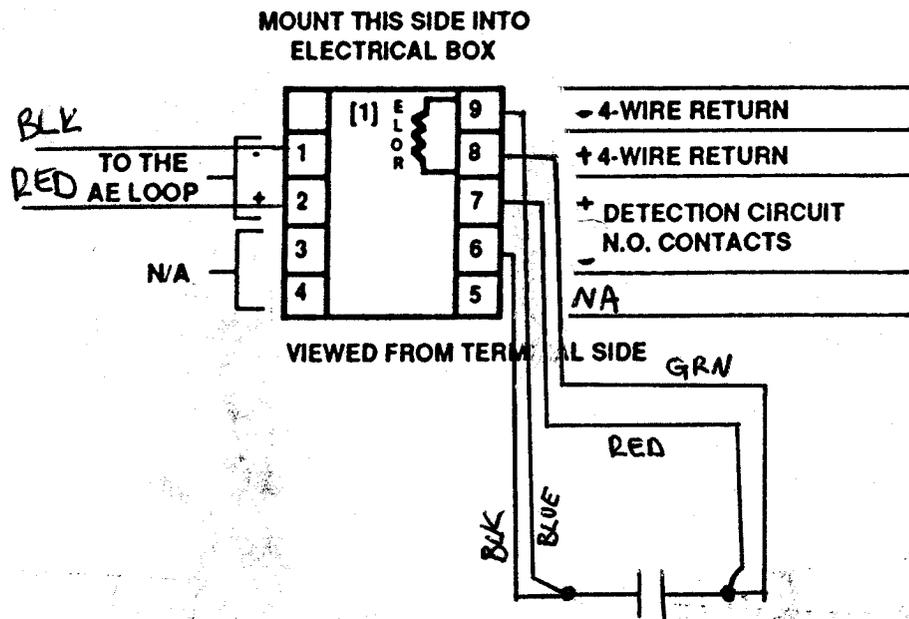
Date

Dwn.

Dwg. No.:

Date Dwn:

TC809A MONITOR MODULE



**MOUNT IN STANDARD 10-CM (4-IN) SQUARE X
3.8 CM (1-1/2 IN)
ELECTRICAL BOX. ONLY USE SIDE
KNOCKOUTS. USE 5-CM (2-IN)
DEEP BOX, OR EXTENSION RING FOR 3.31 MM²
(12 AWG) WIRING OR
REAR MOUNTING**

**(1) INTERNAL EOLR PROVIDED
FOR 4-WIRE LOOP**

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: TC809A MONITOR MODULE WIRING

Project:

Customer:

Dwn:

Location:

Chk:

No.

Revision

Date

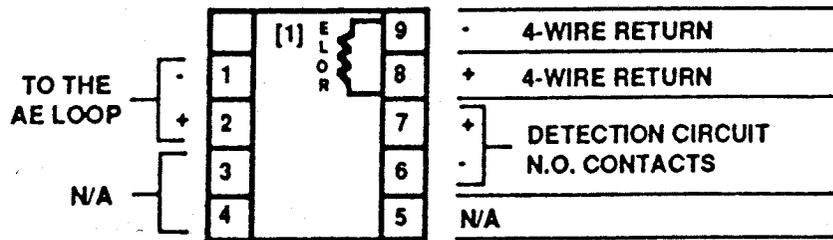
Dwn.

Dwg. No.:

Date Dwn:

TC809A MONITOR MODULE

**MOUNT THIS SIDE INTO
ELECTRICAL BOX**



VIEWED FROM TERMINAL SIDE

**MOUNT IN STANDARD 10-CM (4-IN) SQUARE X
3.8 CM (1-1/2 IN)
ELECTRICAL BOX. ONLY USE SIDE
KNOCKOUTS. USE 5-CM (2-IN)
DEEP BOX, OR EXTENSION RING FOR 3.31 MM²
(12 AWG) WIRING OR
REAR MOUNTING**

**[1] INTERNAL EOLR PROVIDED
FOR 4-WIRE LOOP**

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: TC809A MONITOR MODULE WIRING

Project:

Customer:

Dwn:

Location:

Chk:

No.

Revision

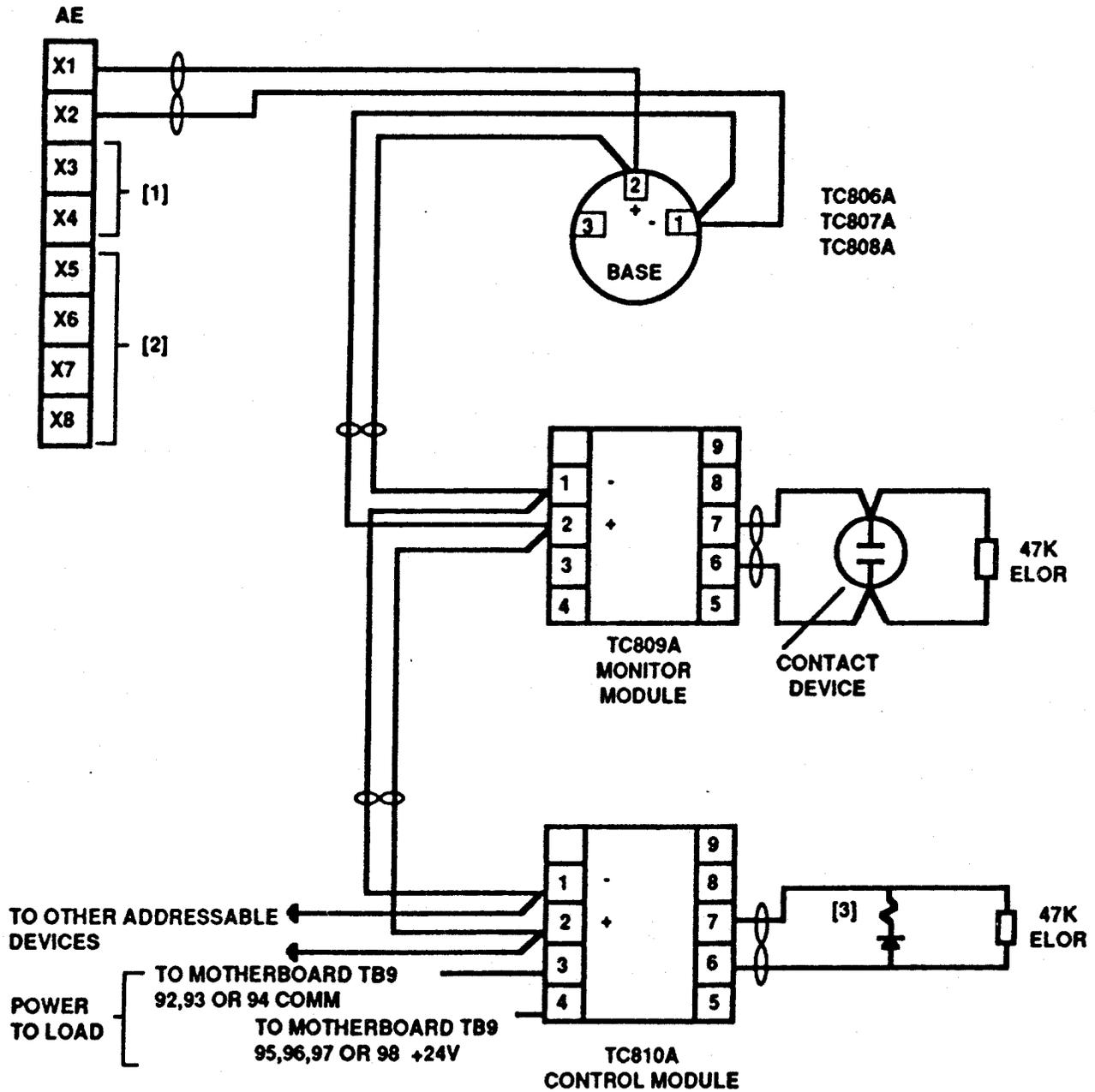
Date

Dwn.

Dwg. No.:

Date Dwn:

29-2



[3] THIS DEVICE CAN BE A BELL OR SPEAKER PROVIDED THE POWER SOURCE IS SELECTED CORRECTLY

[2] NOT USED

[1] ADDITIONAL LOOP

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: AE BOARD 2 WIRE LOOP WITHOUT FAULT ISOLATOR

Project:

Customer:

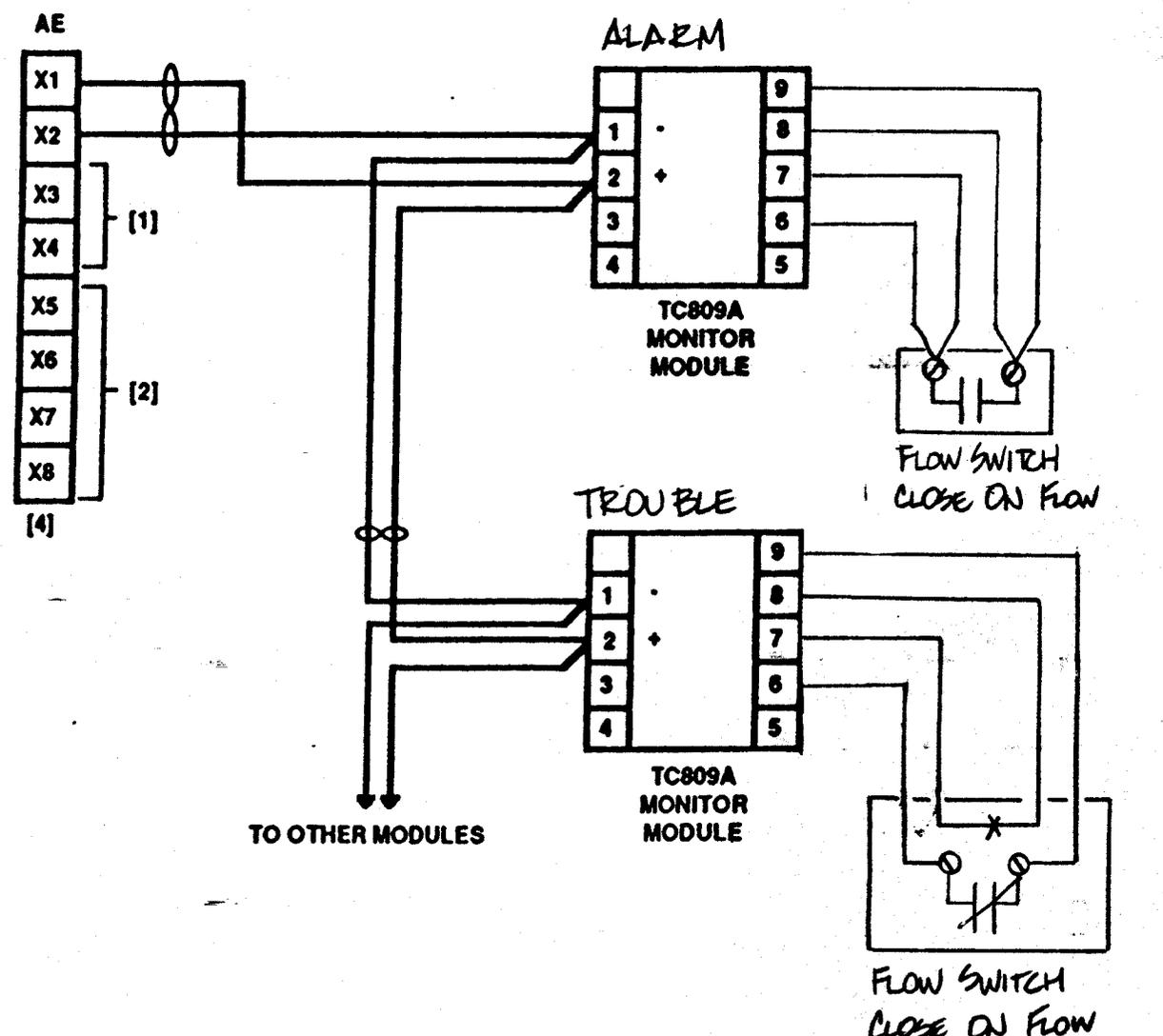
Dwn:

Location:

Chk:

No.	Revision	Date	Dwn.	Dwg. No.:	Date Dwn:
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29-6



- [4] X IS MOTHERBOARD TERMINAL BLOCK NUMBER 1 THROUGH 8
- [3] EOLR TO BE MOUNTED IN ACCORDANCE WITH ULC S524
- [2] NOT USED
- [1] ADDITIONAL LOOP

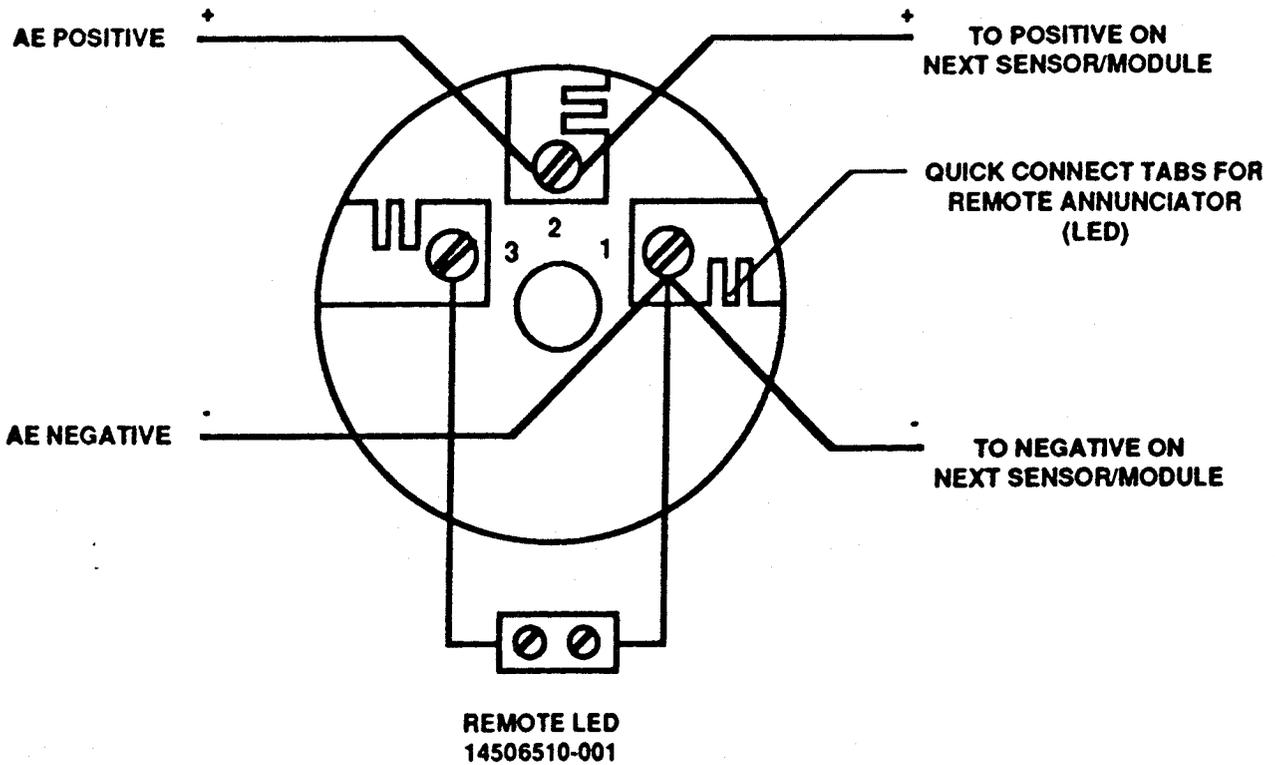
DIMENSION: IN MILLIMETRES (INCHES)

FLOW SWITCH
CLOSE ON FLOW
TO GIVE TROUBLE
SIGNAL. (USED ON
3 FIRE MAIN
FEEDERS)
2 - OSBORNE
1 - BRANDON

Honeywell			
Title: AE BOARD 2 WIRE LOOP c/w CONTROL MOD - FLOW SWITCH DETAIL -			
Project: CITY OF WPG TRANSIT GARAGE			
Customer: CITY OF WPG TRANSIT		Dwn:	
Location: 421 OSBORNE ST		Chk:	
No.	Revision	Date	Dwn.
Dwg. No.:		Date Dwn:	

No.	Revision	Date	Dwn.

TC806A/TC807A/TC808A INTELLIGENT SENSORS



DISTANCE FROM DETECTOR TO REMOTE LED IS 152M (500 FT) MAX.

PERFORM ALL WIRING TO THE BASE, THEN INSTALL SENSOR TO BASE

BASE MOUNTS INTO 102-MM (4-IN) OCTAGONAL OR SQUARE BOX

DIMENSION: IN MILLIMETRES (INCHES)

Honeywell

Title: TC806A/TC807A/TC808A SENSOR WIRING

Project:

Customer:

Dwn:

Location:

Chk:

No.

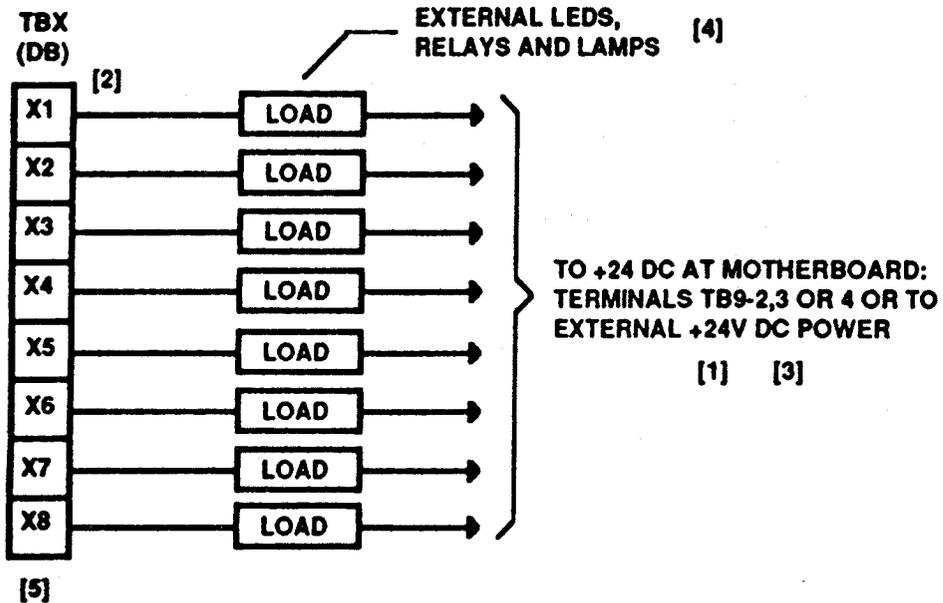
Revision

Date

Dwn.

Dwg. No.:

Date Dwn:



[5] X IS MOTHERBOARD TERMINAL
BLOCK NUMBER 1 THROUGH 8

[4] IF THE LOAD IS AN LED, PUT A 2K RESISTOR
IN SERIES WITH THE LED TO PREVENT THE
LED FROM GLOWING (NOT FULLY ON) IN
THE NORMAL CONDITION.

[3] MAXIMUM WIRE LENGTH IS 1172.3M (3846
FT) AT 18 AWG WITH 50 OHMS MAXIMUM
RESISTANCE PER CIRCUIT.

[2] MAXIMUM CURRENT OUTPUT IS
100MA PER TERMINAL.

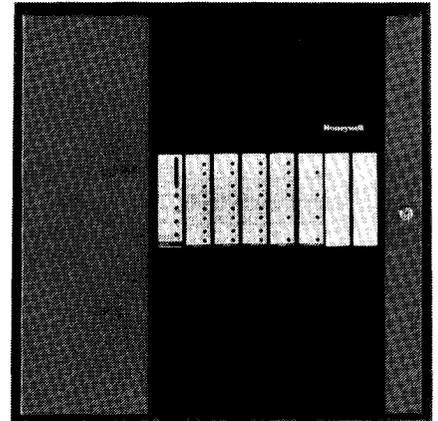
[1] MUST CONNECT EXTERNAL POWER
COMMON TO MOTHERBOARD TERMINALS
TB9-5,6,7, OR 8.

DIMENSION: IN MILLIMETRES (INCHES)

				Honeywell	
				Title: DB BOARD WIRING	
				Project:	
				Customer:	Dwn:
				Location:	Chk:
No.	Revision	Date	Dwn.	Dwg. No.:	Date Dwn:

Honeywell

DeltaNet FS90 Fire & Security System



R3256

GENERAL

The DeltaNet FS90 Fire & Security System provides real-time, microprocessor-based fire and security functions. Applications are determined by a selection of function boards. System operating parameters are contained in nonvolatile memory that can be user-modified without installation or wiring changes. System operation provides for alarm verification, cross-zoning, annunciation, and control.

The System is an integral part of DeltaNet architecture, requiring only the addition of a function board to establish communication with higher-order systems. If communication with a higher-order system is lost, the System independently continues its fire alarm and security functions. The DeltaNet FS90 Fire & Security System provides individual zone alarm, supervisory and trouble indication, zone disconnect switches, and a local audible signal.

The DeltaNet FS90 Fire & Security System meets NFPA 71, 72A, B, C, and D, UL864 and 1076 requirements and is UL listed and FM approved.

FEATURES

- Stand-alone operation and/or integration with higher-order systems
- Operating system and application data file resident in nonvolatile memory
- User-modifiable data file requires no programming or hardware changes
- Real-time, microprocessor-controlled fire and security functions
- Versatile communication interfaces
- Optional high security line supervision (UL Grade AA)
- Optional battery supervision

DeltaNet FS90 Fire & Security System

DESCRIPTION

The microprocessor-based DeltaNet FS90 Fire & Security System provides a selection of function boards to meet a variety of fire and security applications. The System accommodates expansion through integration with higher-order systems. Control functions residing in nonvolatile memory are field modifiable and require no installation changes.

Stand-Alone Operation or System Integration:

The DeltaNet FS90 Fire & Security System consists of an enclosure with locking door, power supply, Motherboard, Control Board, and a number of function boards. Single or double enclosures accommodate one or two Motherboards, respectively.

The Motherboard provides eight slots for function boards, each with an associated terminal block for field wiring. A Control Board monitors, controls, and directs System functions. One Control Board controls up to four fully loaded Motherboards. Batteries assure standby power in the event of a power failure.

Integration with a Sentara 324, DELTA 1000, or DeltaNet System requires the addition of only a Communication Board and necessary interconnect wiring. An integrated DeltaNet FS90 Fire & Security System can be remotely powered from the higher-order system.

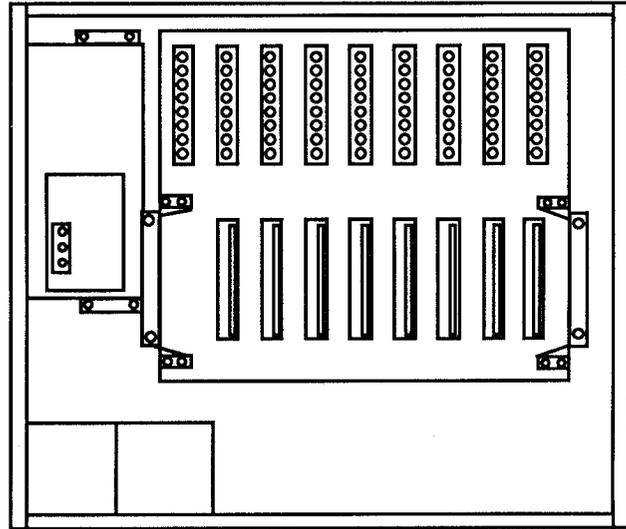
Nonvolatile Memory:

The Control Board includes a microprocessor and memory in RAM, EPROM, and EEPROM. The Operating System (OS) in EPROM monitors fire and security alarm-detection inputs, processes data according to EEPROM parameters, and directs alarm-signaling outputs. Nonvolatile OS and site data file ensure continuous operation and provide system integrity.

User-Modifiable Data File:

DeltaNet FS90 Fire & Security System functions are set up without special equipment or changes to hardware. EPROM contains typical application values that can be transferred to EEPROM. For custom applications, the appropriate default values are modified during System setup and then transferred to EEPROM.

EEPROM values are easily changed. Control Board switches select the application parameters and values, and LED indicators confirm inputs and acknowledge EEPROM entry.



Fire Alarm and Security Functions:

C49-1

The System provides versatile alarm-detection and alarm-signaling applications. Supervised alarm-detection zones can provide the following:

- Alarm and trouble indication by zone.
- Individual zone disconnect.
- Alarm Verification: Time interval (up to 60 seconds) during which the System verifies an alarm occurrence.
- Second Detector: When an alarm occurs, a local audible signal sounds. If a second alarm occurs on the same zone, the System sounds an evacuation signal.
- Supervision/Water Flow Indication: For sprinkler-system supervisory and waterflow (nonsilenceable) indication.

Supervised alarm signaling zones can provide:

- Alarm and trouble indication by zone.
- Two-wire or four-wire fault-tolerant indicating circuits.
- Cross Zoning: Indicating circuits can be logically ANDed.
- Indicating (output) circuits can be logically ANDed or ORed.
- Signal Coding: Audible-signal frequency (20 to 120 pulses per minute) can be selected to accommodate march-time coding.
- Time Delay: Time interval (up to 8 minutes) between initiating circuit activation and relay/output activation.
- Time Cutoff: Time interval (up to 8 minutes) between initiating circuit activation and indicating circuit deactivation.
- Supervised command outputs.
- Individual indicating zone disconnect.

DeltaNet FS90 Fire & Security System

√	Mnemonic	Function Board	Description	Controls	Indicators
	CA	Control 14505104	Outputs: 24V dc, 100 mA, common alarm, common trouble, and smoke detector reset	Silence, Acknowledge, Reset, Panel Test, and Manual Evacuation	Alarm, Trouble, Silence, Low Battery, Ground Fault, Disconnect, Power, Setup, and Run
	AA	Initiating Four-zone, two-wire 14505106-001	Four supervised circuits (50 ohms/60 mA max.) for n.o. alarm devices and compatible smoke detectors	Disconnect per circuit	Alarm and Trouble per circuit
	AB	Initiating Two-zone, four-wire 14505108	Two supervised circuits (50 ohms/60 mA max.) for n.o. alarm devices and compatible smoke detectors		
	AC	Initiating Four-zone, two-wire 14505106-002	Four supervised circuits (50 ohms/60 mA max.) for n.o. alarm devices		
	AD	Digital Input 14505118	Eight inputs for n.o. or n.c. contacts or for logical inputs	N/A	Circuit energized
	AF	Security Initiating 14505188-001	Four 2-wire supervised security circuits with secure/access switching	Secure/access switch per circuit	Alarm, Access, and Secure per circuit
	AG	Security Initiating 14505188-002	Four 2-wire supervised security circuits	N/A	Alarm, Access, and Secure per circuit
	AH	High Security Line Monitor 14506432	Four 2-wire supervised UL Grade AA high security circuits	Access per circuit	Alarm and Access per circuit
	BF	Indicating Two-zone, two-wire, two relays 14505110	Two supervised circuits (2.0A max.) for polarized bells, horns, and visual. Two relays with user-selectable n.o. or n.c. contacts (2A, 30V dc max. resistive load)	Disconnect per circuit	Alarm and Trouble per circuit. Relays are energized
	BG	Indicating Two-zone, four-wire 14505126	Two supervised circuits (2.0A max.) for polarized bells, horns, and visuals		
	DA	Accessory Relay 14505112-001	Four unsupervised relays (2A, 30V dc max. resistive load), each with n.o. contacts only	N/A	Circuit energized
	DC	Accessory Relay 14505112-002	Four unsupervised relays (2A, 30V dc max. resistive load), each with user-selectable n.o. or n.c. contacts		
	DB	Remote Driver 14505116	Eight supervised circuits (100 mA)	N/A	Circuit energized and Trouble per circuit
	VA	Transmitter 14505114	Supervised local energy and master circuits, One single pole double throw contact (2A, 30V dc max.) and supervised 24V dc polarity reversal (2.0A) telephone line	Disconnect	Alarm, Trouble, and Circuit energized
	LA	Communication (Sentara CP/DeltaNet) 14505120	DC-coupled/ac-coupled, two/three-wire for communication between CP and DeltaNet FS90 Fire & Security System	N/A	Transmit, Receive, and Communication Fail
	LB	Communication (DELTA 1000/Distributed Control Processor) 14505122-002	DC, two-wire	N/A	Transmit, Receive, and Communication Fail
	LC	Communication (DELTA 1000/Distributed Control Processor) 14505122-002	DC, four-wire		
	LD	Communication (DELTA 1000/Distributed Control Processor) 14505128-001	Tone, two/four-wire		
	LE	Communication (DELTA 1000/Distributed Control Processor) 14505128-002	Tone, eight-wire		
	LF	Communication (DELTA 1000/Distributed Control Processor) 14505122-003	Fiber Optic—Redundant Half Duplex		

T655

DeltaNet FS90 Fire & Security System

SPECIFICATIONS

Model:

DeltaNet FS90 Fire & Security System:
Motherboard 14505102: Provides eight function-board slots, each with an associated terminal block for field wiring
Power Supply 14505148-001
Power Supply Cable 14505145
Enclosure with Knockouts 14505151-001/002 (Single/Double)
Enclosure without Knockouts 14505151-003/004 (Single/Double)
Enclosure Door 14505152-001/002 (Single/Double)
Function Boards from the table

System Capacity:

Four Motherboards for up to 32 function-board slots; one Control Board per System

Typical Electrical Requirements:

Requirements for One Power Supply with One Motherboard:
Voltage: 120V ac, +10%, -15%, 50/60 Hz
Current Draw: 1.5A max.
Power Supply: 4A at 28V dc nominal
Battery: 24V dc

Environmental Operating Limits:

Temperature: 0 to 120F (-17 to 49C)
Relative Humidity: 5 to 95%, noncondensing

Dimensions:

Single Enclosure:
24 in. (610 mm) high, 22-1/4 in. (565 mm) wide,
7-3/4 in. (197 mm) deep
Double Enclosure:
38 in. (965 mm) high, 22-1/4 in. (565 mm) wide,
7-3/4 in. (197 mm) deep

Mounting:

Surface or semiflush

Shipping Weights:

Motherboard: 2.5 lb (1.13 kg)
Power Supply: 8 lb (3.6 kg)
Enclosures:
Single: 23 lb (10.4 kg)
Double: 31 lb (14.1 kg)
Enclosure Door:
Single: 8 lb (3.6 kg)
Double: 12 lb (5.4 kg)
Batteries:
14506056-001 (two for 6.5 Ah): 5.7 lb (2.6 kg)
14506056-002 (two for 26 Ah): 18.7 lb (8.5 kg)

Communication:

Type (dependent on Communication Board): Current loop, tone, telephone channels, dc-coupled, ac-coupled, fiber optics
Wiring: Two-wire, three-wire, four-wire, or four-wire fault tolerant

Software Required:

S958 DeltaNet FS90 Fire & Security Operating System software

Optional Accessories:

Tamper Switch 14505159
Control Relay Assembly 14505172
Motherboard Interconnect Cable 14505154
Lightning Protector 14502412
Legend Cards 14505149
High Security Line Monitor 14506432
High Security Remote Transmitter 14506430
Battery 14506056-001: Two for 6.5 Ah; four for 13 Ah
Battery 14506056-002: Two for 26 Ah
Battery Harness 14505377: For 6.5 Ah and 13 Ah batteries
Battery Harness 14505375: For 26 Ah batteries
Battery Supervision Module 14506408

Approvals:

UL 864 Listed for use in NFPA 71, 72A, B, C, and D applications
UL 1076 Listed for Proprietary Burglar Alarm
FM Approved for Fire Alarm Systems

Honeywell

In the USA: Honeywell Plaza, Minneapolis, Minnesota 55408
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74-2549

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MLF TAB: III. F.

Printed in USA

Rev. 12-87

Honeywell

FM950E, KE Manual Fire Alarm Stations



GENERAL

The FM950 Manual Fire Alarm Stations are noncoded general alarm devices. Pulling down the hinged cover closes the circuit to activate the alarm switch. The FM950KE model provides a key-operated evacuation switch located behind the cover. The stations are restored to normal with a narrow-bladed tool.

FEATURES

- Surface or semiflush mounted.
- Narrow, low-profile design.
- Dual-action cover option.
- Operates with or without glass rod.
- Sturdy aluminum construction.
- Two stage model provides key-operated general alarm.

FM950E, KE Manual Fire Alarm Stations

DESCRIPTION

The FM950 Manual Fire Alarm Stations are non-coded general alarm devices activated by pulling down a hinged cover. The two stage model provides an additional key-operated general alarm switch located behind the cover.

SPECIFICATIONS

Models:

- FM950E Manual Fire Alarm Station with spst normally open general alarm switch.
- FM950KE Two Stage Manual Fire Alarm Station with spst normally open alert alarm switch and spst key-operated general alarm switch

Electrical Rating:

1A at 30V dc.

Finish:

Red baked enamel on extruded aluminum.
Raised silver-coloured lettering on black field.

Environmental Operating Limits:

Temperature: -70 to 150°F (-57 to 66°C)
Humidity: 0 to 95% rh.

Dimensions:

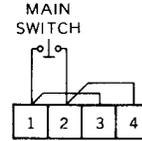
3 1/2 in. (89mm) wide, 4 3/4 in. (121mm) high,
2 3/16 in. (56mm) deep (including terminal strip).

Mounting:

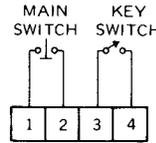
Surface-mounted on metal mounting box BS950, 3 5/8 in. (91mm) wide, 5 in. (125mm) high, 2 in. (50mm) deep. Semiflush mounted on a standard single-gang backbox and plaster ring (obtained locally).

Wiring:

Screw-type terminal block for field wiring:
FM950E general alarm:



FM950KE alert alarm with key-operated general alarm:



Optional Accessories:

- BS950 Surface Mounting Box.
- FM150GR Glass Rods (package of 10 rods with 10 pressure pins for breakglass modification).
- FM150GE Double-Action Cover.

Approvals:

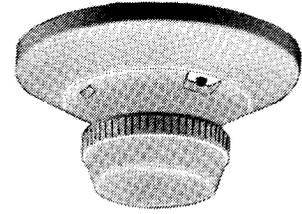
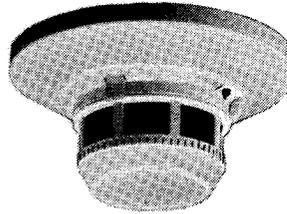
UL and ULC Listed.

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Honeywell

TC806A Photoelectric and TC807A Ionization Smoke Sensors



TC806A PHOTOELECTRIC SENSOR

TC807A IONIZATION SENSOR

GENERAL

The TC806A Photoelectric Smoke Sensor and the TC807A Ionization Smoke Sensor are intelligent smoke detection devices for use with the DeltaNet FS90 Fire & Security Plus ("FS90 Plus") System. These intelligent sensors, using a custom integrated circuit, provide for two-way communication with the FS90 Plus. FS90 Plus systems use a proprietary communication protocol containing both digital and analog signals which allows each sensor to communicate its individual address and sensor type (e.g., photoelectric or ionization) and an analog value. FS90 Plus analyzes the analog signal to measure the sensitivity of each sensor and determine its status: alarm, prealarm (needs maintenance), normal, and trouble.

The TC806A has an optical sensing chamber and uses the light-scattering principle. The TC807A uses a dual, unipolar ionization chamber. Both sensors provide stability and fast response to a broad range of fire conditions. Each sensor address is established via two 10-digit decade switches located in the sensor head. These sensors plug into a common mounting base for simple installation, servicing, and replacement.

FEATURES

- Early detection of fire conditions
- Direct-dial decade switches for easy address entry
- Continuous monitoring of sensor sensitivity
- Electronics conformal-coated to resist corrosion
- High-velocity performance
- Optional tamper-resistant mounting
- Dual LEDs to provide 360-degree viewing
- Disassembly for easy cleaning
- Easy plug-in of sensor heads to common base
- Low current drain
- Built-in test switch
- UL Listed for 268
- Meets requirements of EN54

TC806A Photoelectric, TC807A Ionization Smoke Sensors

DESCRIPTION

The intelligent TC806A Photoelectric Smoke Sensor and the TC807A Ionization Smoke Sensor are low-voltage, two-wire, solid-state devices that provide for integral communications with DeltaNet FS90 Fire & Security Plus System ("FS90 Plus"). These devices report their individual address, sensor type, and analog signals which correspond to their sensitivity/status.

The TC806A and TC807A use a common mounting base, which also is used with the intelligent TC808A Electronic Thermal Sensor, and are suitable for direct surface or electrical box mounting. The sensor heads are sealed to prevent the entry of dust, dirt, insects, and air from above the unit when mounted on an electrical box. The sensors have an insect-resistant screen (1/4 in. [0.635 mm] openings) to reduce nuisance alarms. Two LEDs on the sensor head provide for 360-degree viewing of visual alarm indicators. These LEDs pulse when FS90 Plus polls the sensor. Two direct-dial decade switches provide for easy address entry. These sensors also provide for local testing via a built-in magnetic reed switch.

The common base is available in two versions: one with a flange (6-3/16 in. [157 mm]) that accommodates mounting on a 4-in. (102-mm) electrical box and a second version without a flange (4 in. [102 mm]) for mounting with metric-sized electrical boxes.

SPECIFICATIONS

Models:

- TC806A Photoelectric Smoke Sensor
- TC807A Ionization Smoke Sensor

Operating Voltage:

15-28V dc

Power Consumption:

5 mA alarm current with LEDs latched on
0.2 mA maximum supervisory current

Environmental Operating Limits:

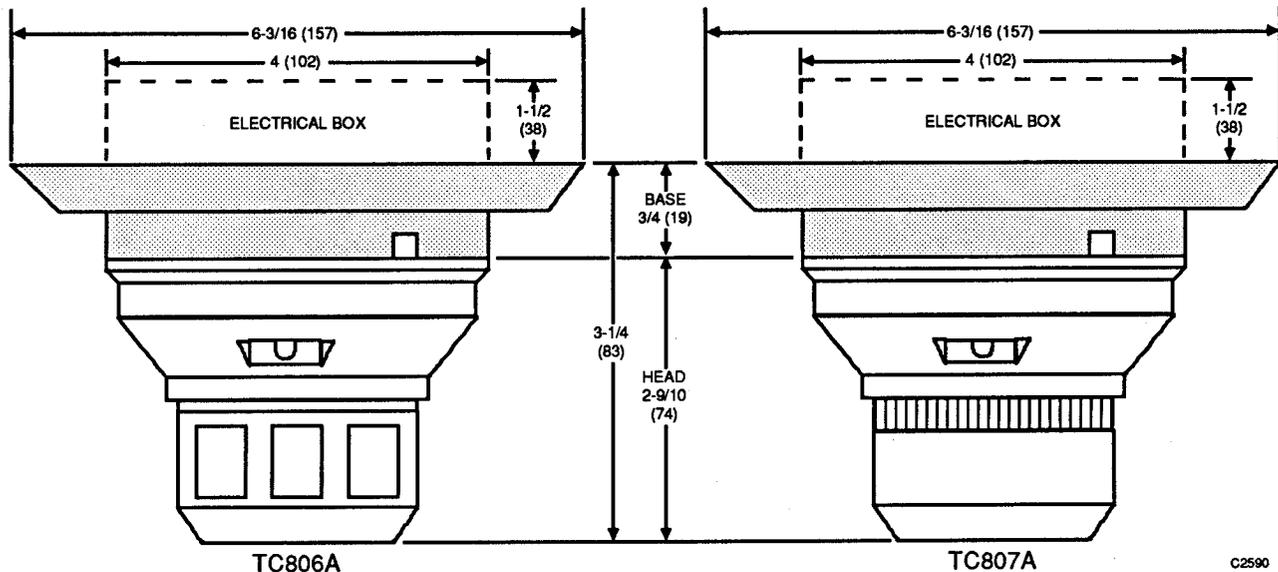
Temperature: 14 to 140F (-10 to 60C)
Humidity: 10 to 93% rh, noncondensing

Sensor Coverage:

Maximum recommended sensor coverage is 900 ft² (83.6 m²), spacing 30-ft (9m) centers. Physical characteristics of area (e.g., high ceilings or large air movement) may reduce sensor coverage.

Dimensions in Inches (Millimeters):

NOTE: Total depth of base and sensor assembled is 3-1/4 in. (83 mm) because part of sensor head is inside base.



C2590

TC806A Photoelectric, TC807A Ionization Smoke Sensors

Mounting:

Surface mounted on ceiling or wall using standard electrical box (4 in. [102 mm] square and 1-1/2 in. [38 mm] deep, or 3 or 4 in. [76 or 102 mm] octagonal and 1-1/2 in. [38 mm] deep)

Nominal Sensitivity:

TC806A: 2.3 percent/foot obscuration
TC807A: 1.5 percent/foot obscuration

Velocity Ratings:

TC806A: 3000 ft/min
TC807A: 2000 ft/min

Testing:

Built-in test switch using magnet
Remote-test capability from DeltaNet Micro Central/Excel Plus System

Indicators and Switches:

Two LEDs on opposite sides of sensor head for 360-degree viewing angle. LEDs blink for normal and are steady for alarm.
Two decade switches for setting sensor address (01-99)

Weight:

5 oz (150 gm)

Base Terminals:

Screw terminals accept up to 12 AWG (0.823 mm²) wire

Lamp Life:

LED rated at 40 years

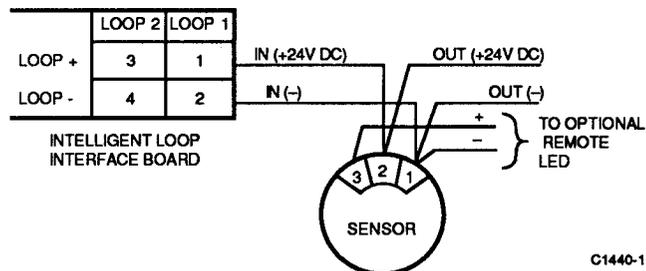
Approvals:

UL Listed per UL Standard 268
ULC Listed
CSFM Listed
EN54

Additional Equipment:

Required:
14506414 Sensor Base
Optional:
Magnet for local testing of individual sensors
14506510 Remote LED

Terminal Designations:



C1440-1

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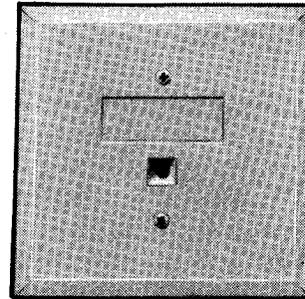
95C-10578
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MLF TAB: III. B. 2.

Printed in Canada

Rev. 12-88

Honeywell

→ → → TC809A Monitor, → → → TC810A Control, and → → → TC811A Fault Isolator Modules



GENERAL

The TC809A Monitor, TC810A Control, and TC811A Fault Isolator Modules are intelligent loop interface devices in the DeltaNet FS90 Fire and Security Plus ("FS90 Plus") System. These units, along with intelligent smoke and thermal sensors in the FS90 Plus, provide a complete range of intelligent loop functions, which include addressable/analog sensing, monitoring and control, plus enhanced survivability of loop communications.

The TC809A Monitor Module monitors dry contact type fire or security initiating devices. It reports its unique address to the FS90 Plus to pinpoint the exact alarm location.

The TC810A Control Module supervises and controls indicating devices and their associated wiring. The TC810A can also provide Single Pole Double Throw (SPDT) switching action for other locally powered equipment. Each TC810A is assigned a unique address and is controlled by the FS90 Plus.

The TC811A Fault Isolator Module is used on FS90 Plus intelligent loop communication circuits along with other modules and sensors. It detects a wire-to-wire short and electrically isolates that condition from the circuit so communication is maintained with unaffected devices on the same circuit.

FEATURES

- Provides individual addressable input for fire alarm or security devices
- Provides addressable control to indicating devices
- Provides integral LEDs to indicate scan, alarm, or activation
- Isolates short circuit fault from rest of circuit.
- Monitors either two- or four-wire (fault-tolerant) initiating device circuits
- Controls and supervises two- or four-wire (fault tolerant) indicating device circuits
- Provides full analog supervision of circuits

TC809A Monitor, TC810A Control, and TC811A Fault Isolator Modules

DESCRIPTION

The TC809A Monitor Module provides a two- or four-wire fault-tolerant initiating circuit for normally open contact fire alarm devices and supervisory devices, and either normally open or normally closed security devices. The TC809A is assigned a point address (via two direct-dial decade switches). Its address and circuit status (normal, open, short) are output to the DeltaNet FS90 Fire & Security Plus ("FS90 Plus"). An integral LED blinks each time the FS90 Plus scans the TC809A. The LED latches ON by command from the FS90 Plus.

The TC810A Control Module provides a supervised two- or four-wire fault-tolerant output indicating circuit (e.g., audible devices, strobes) and responds to normal, open, or short conditions on the circuit. The TC810A is assigned a point address (via two direct-dial decade switches). When the TC810A receives a command from the FS90 Plus, the TC810A internal relay energizes and switches externally supplied power to activate connected polarized indicating or other controlled devices. An integral LED blinks each time the FS90 Plus scans the TC810A. The LED latches ON when the output circuit or relay is commanded ON. The TC810A is field configurable from indicating device control and supervision of wiring to dry contact control action.

The TC811A Fault Isolator Module enables part of an intelligent interface board communication circuit to continue operating when a short occurs on the circuit. If used in a two-wire loop configuration, one TC811A isolates a short to the part of the loop between the TC811A and the intelligent interface board, allowing the rest of the loop to continue operating normally. Two TC811As isolate a short or open to the part of the loop between them. In a star configuration a TC811A can be used in each leg so a short on one leg does not affect communication on any other leg. An integral LED blinks to indicate normal status and is ON to indicate a short in the loop.

TC811A: 8.6 mA maximum, 120 microamperes standby
LED ON: 5.0 mA

Address Selection:

TC809A, TC810A: 01 through 99 using two address selection switches
TC811A: FS90 Plus software selectable

Environmental Operating Limits:

Temperature: 32 to 120F (-10 to 49C)
Humidity: 10 to 93% rh, noncondensing

Shipping Weight:

16 oz (454 gm)

Control Module Output:

SPDT contacts, 2A resistive at 28V dc; 300 mA at 120V ac (0.35 Power Factor)

Indicator:

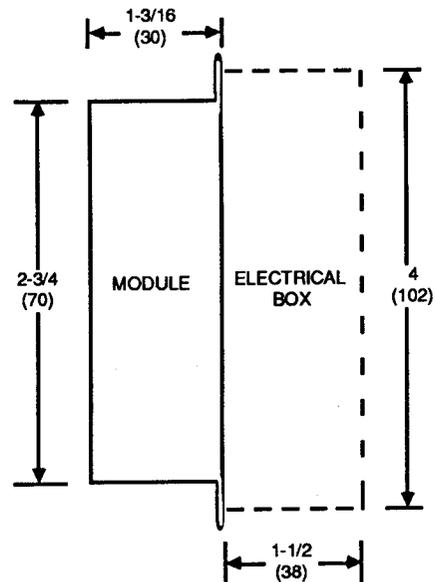
Red LED
TC809A and TC810A: Blinks when addressed; steady ON in alarm or when output activates
TC811A: Blinks when normal; steady ON in response to loop short

Mounting:

Semi-flush or surface mounted on wall using standard electrical box 4 in. (102 mm) square by 1-1/2 in. (38 mm) deep or using a 2-1/8 in. (54 mm) deep electrical box if conduit connects to the rear.
Also mounts to optional mud ring

Dimensions:

2-3/4 in. (70 mm) high by 2-1/2 in. (64 mm) wide by 1-3/16 (30 mm) deep



C2620

SPECIFICATIONS

Models:

- TC809A Monitor Module
- TC810A Control Module
- TC811A Fault Isolator Module

Operating Voltage:

15 to 28V dc

Module Power Consumption:

0.18 mA maximum supervisory current
TC809A and TC810A: 7.6 mA maximum, 160 microamperes standby

TC809A Monitor, TC810A Control, and TC811A Fault Isolator Modules

System Constraints:

Maximum TC809As or TC810As per loop: 99
Maximum TC811As per loop: 20

Additional Equipment:

14501600-027 End-of-Line Resistor

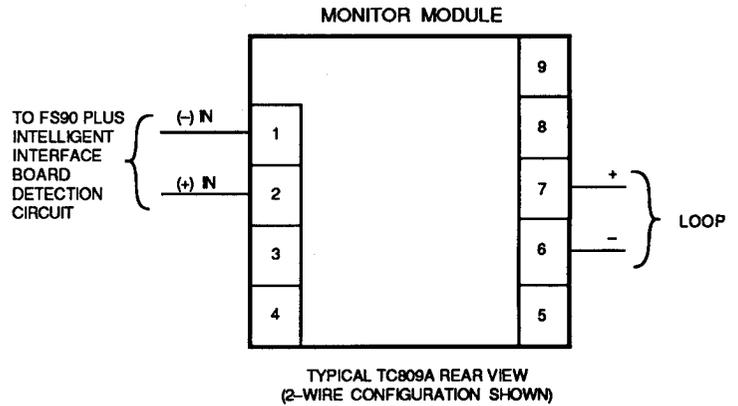
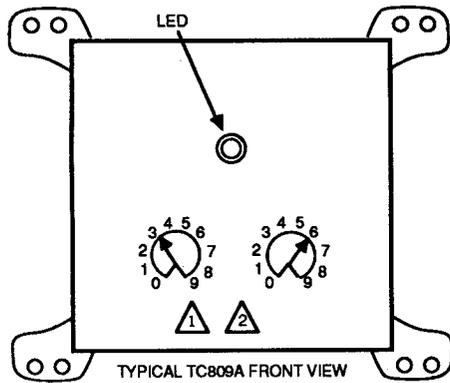
Approvals:

UL 864 Listed
ULC Listed
FM Approved
CSFM Listed

Terminals:

Screw-terminal strips accommodate up to 12 AWG (3.3 mm²) wire

Terminal Designations and Wiring Configurations:



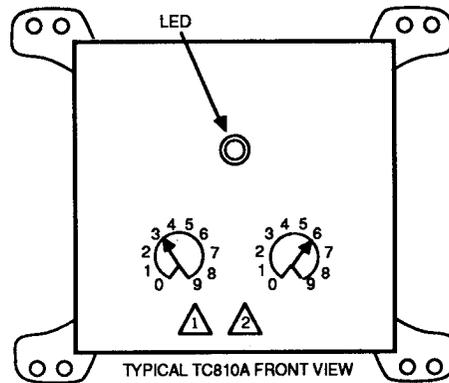
NOTES:

- 1 MODULE SHOWN WITHOUT COVERPLATE.
- 2 DECADE SWITCHES FOR MANUALLY SETTING MODULE ADDRESS. ADDRESS SHOWN IS 36.

C1441

C2821

TC809A Monitor Module Mounting and Terminal Designations



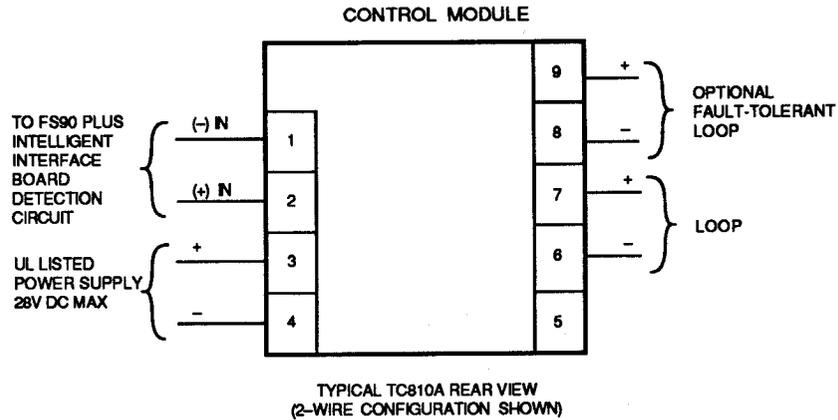
NOTES:

- 1 MODULE SHOWN WITHOUT COVERPLATE.
- 2 DECADE SWITCHES FOR MANUALLY SETTING MODULE ADDRESS. ADDRESS SHOWN IS 36.

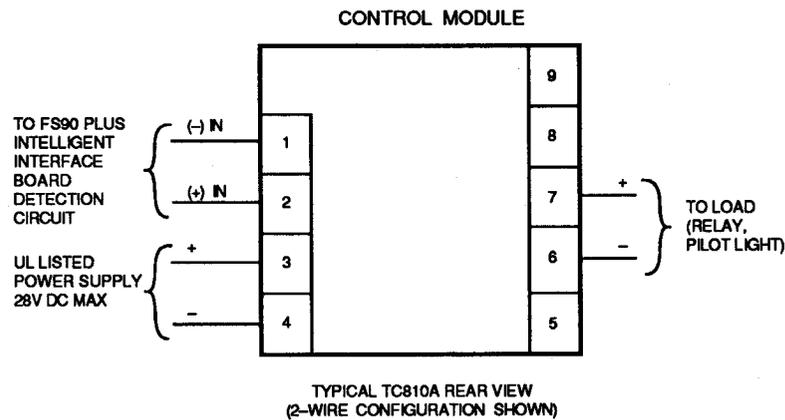
C2822

TC810A Control Module Mounting

TC809A Monitor, TC810A Control, and TC811A Fault Isolator Modules

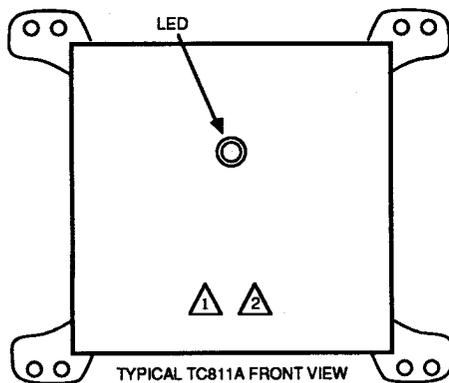


C2823

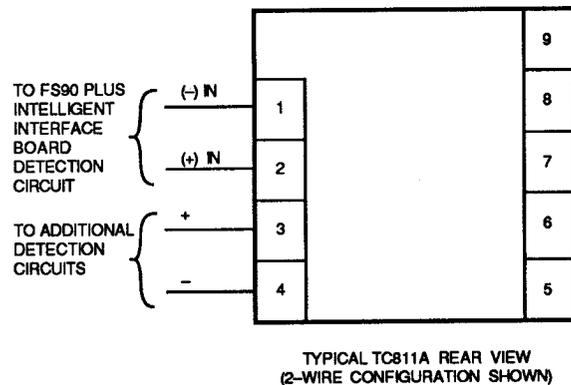


C2824

TC810A Control Module Terminal Designations



FAULT ISOLATOR MODULE



C2826

NOTES:

- 1 MODULE SHOWN WITHOUT COVERPLATE.
- 2 TC811A DOES NOT HAVE ADDRESS SWITCHES.

C2825

TC811A Fault Isolator Module Mounting and Terminal Designations

Honeywell

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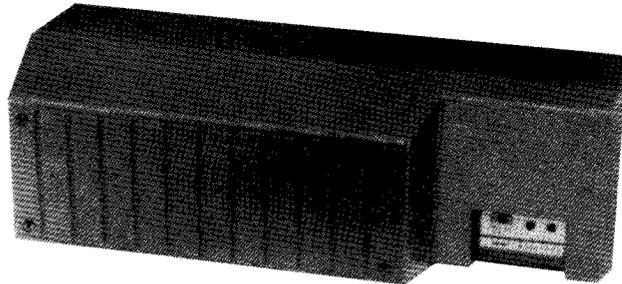
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Printed in Canada

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Honeywell

DH2851 Photoelectric and DH1851 Ionization Duct Smoke Detectors



GENERAL

The DH2851 Photoelectric and DH1851 Ionization Duct Smoke Detectors sample the air passing through air-handling systems to provide early detection of a developing hazardous condition or fire. A sufficient amount of smoke causes the Detectors to close dampers and turn off fans and to send an alarm signal to the control panel.

The Detector housing mounts on the outside of the duct wall. Air sampling tubes extend into the air duct.

A field-installed remote test station is available.

Note that Duct Smoke Detectors are not intended as a substitute for open-area protection.

FEATURES

- Quick mounting to round or rectangular ducts
- Handle air velocities from 300 to 3000 (DH1851) or 4000(DH2851) ft/min
- Integral filter system for reduced maintenance and service
- Detector head accessible without removing duct housing

DH2851 / DH1851 Duct Smoke Detectors

DESCRIPTION

The DH2851 Photoelectric and DH1851 Ionization Duct Smoke Detectors sample air passing through air-handling systems. When the Detectors sense a developing hazardous condition or fire, they close dampers and/or turn off fans and send an alarm signal to the control panel.

SPECIFICATIONS

Models:

DH2851DC-A 24V dc Photoelectric

DH1851DC-A 24V dc Ionization

DH1851AC-A 120V ac Ionization

Operating Voltage:

24V dc models:

20 to 29V dc (24V dc nominal)

120V ac models:

120V ac +10%, -15%

Power Consumption:

24V dc models: See following table.

Application	Current Draw at 24V dc (Typical)	
	Alarm	Supervision
Without AR-10 Auxilliary Relay or RM851DH Remote Test Station	26mA	100µA
With AR-10 Auxiliary Relay 145 mA		
With RM851DH Remote Test Station	Remote Switch OFF	27 mA
	Remote Switch ON	45 mA
With AR-10 Auxiliary Relay and RM851DH Remote Test Station	Remote Switch OFF	122mA
	Remote Switch ON	165mA

120V ac models:

Alarm:

50 mA at 120V ac

250 mA at 24V ac

Supervision:

30 mA at 120V ac

80 mA at 24V ac

Contacts (AC Model):

Supervisory Relay: 10 VA, 0.5A max., resistive

Alarm:

Spst, n.o.

5A at 30V dc, 120V ac, resistive

Auxiliary:

Spdt

10A at 30V dc, 120V ac, resistive

1/6 hp at 120V ac, 1/4 hp at 240V ac

NOTE: Alarm and auxiliary contact ratings also apply to AR-10 Auxiliary Relay.

DH2851 / DH1851 Duct Smoke Detectors

Velocity Limits:

DH2851: 300 to 4000 ft/min
DH1851: 300 to 3000 ft/min

Environmental Limits:

Temperature: 32 to 120°F (0 to 49°C)
Humidity: 15 to 93% rh, noncondensing

Mounting:

Rectangular or round ducts

Housing:

Molded plastic

Dimensions:

14½ in. (368mm) wide, 5 in. (127mm) high,
7 in. (178mm) deep

Shipping Weight:

7 lb (3.2kg)

Additional Equipment Required:

Sampling Tube:

Metal Tube:

ST-1.5 (for duct width 1 to 2 ft [30 to 61 cm])

ST-3 (for duct width 2 to 4 ft [61cm to 120cm])

ST-5 (for duct width 4 to 8 ft [120cm to 240cm])

ST-10 (for duct width 8 to 10 ft [244cm to 305cm])

Accessories:

A1358 Replacement Filter

A7766900 Remote Alarm Lamp (approx. 20 mA)

A7771602 End of Line Supervisory Relay (24V dc,
required for separately-powered dc system)

RM851DH Remote Test Station

AR-10 Auxiliary Relay

XR-4 Removal Tool

XP-4 Extension Pole (for use with XR-4
Removal Tool)

Approvals:

UL Listed

FM Approved

ULC Listed

DH2851 / DH1851 Duct Smoke Detectors

Honeywell

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wheelock

THE SIGNAL SOURCESM

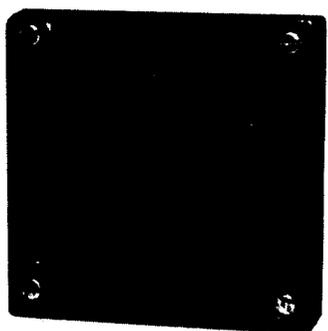
EH/EHS SERIES ELECTRONIC HORNS AND STROBE HORNS

Wheelock's new EH-Series Electronic Horns and EHS-Series Electronic Strobe Horns offer outstanding advantages over conventional electromechanical horns in performance, packaging, and economical installation. Standard broadband horn sound output is electronically produced to provide up to 103 peak dB at 10 feet with only 25 milliamps of current. The solid state design minimizes concerns about in-rush current and RFI noise while providing high reliability and long operating life unmatched by conventional horn designs.

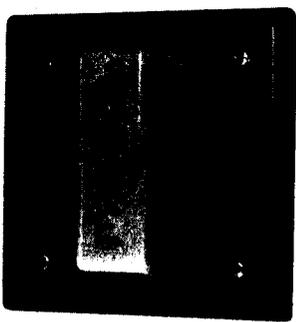
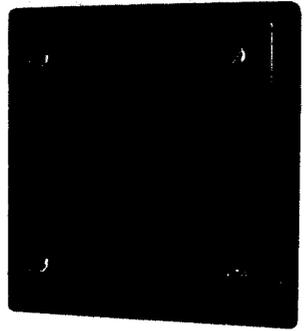
The compact package styles incorporate durable, high-impact thermoplastic construction to provide attractive appearance and convenient installation to standard 4" backboxes. All models are available with factory attached strobes for visual signaling in unison with the audible alarm (EHS-Series) or independently (EH-WS Series).

Features

- Solid state construction for unmatched performance, dependability, and economy compared to conventional designs.
- Broadband horn sound output with 103 peak dB for high audibility.
- Low current draw (0.025 Amps at 24 VDC) to minimize power supply and wiring costs.
- Wide input voltage range ensures system compatibility and allows 24 VDC horns to work on 12 VDC also.
- Flush mounting to standard 4" backboxes without need for separate trimplate.
- Full range of attractive mounting options for indoor or outdoor installations.
- High impact thermoplastic design for durable service and low shipping costs.
- Strobe horn models with single input for fast tandem wiring or dual inputs for independent operation of horn and strobe.
- Screw terminal inputs for convenient in-out wiring.
- UL listed for Fire Protective Service.



SERIES
EH-E
EHS-E



SERIES
EH-D
EHS-D

Specifications

The Alarm Signals shall be Wheelock EH/EHS Series Electronic Horns and Strobe Horns. They shall be solid state construction and shall produce a broadband horn sound output of 96 dBA (103 peak dBA) at 10 feet in an anechoic chamber. Maximum current shall be 0.025 Amps at 24 VDC (0.050 Amps at 12 VDC) for horns and 0.050 Amps at 24 VDC (0.100 Amps at 12 VDC) for strobe horns. The strobes shall produce 8000 peak candlepower at one flash per second. Mountings for surface, semi-flush, flush, and outdoor installation shall be provided with screw terminals for in-out field wiring of up to #12 gauge wire. All models shall be UL Listed for Fire Protective Service.

Ordering Information

	Model Number	Input Voltage (VDC)	Input Current (AMPS)		dBA at 10 Feet				Mounting Options	Wiring	Approvals
			12 VDC	24 VDC	12 VDC		24 VDC				
					Typical	Peak	Typical	Peak			
ELECTRONIC HORNS	EH-DL1-R	9-31.2	0.015	0.025	90	98	96	103	B, F	Fig. 1	UL, CFM* ULC*
	EH-DL2-R	9-15.6	0.050		96	103					
	EH-EL1-R	9-31.2	0.015	0.025	90	98	96	103	A, C, D, E		
	EH-EL2-R	9-15.6	0.050		96	103					

	Model Number	Input Voltage (VDC)	Input Current (AMPS)	dBA at 10 Feet		Peak Candle-power	Mounting Options	Wiring	Approvals
				Typical	Peak				
ELECTRONIC STROBE HORNS (Single Input)	EHS-DL1-W-VF-R	18-31.2	0.050	96	103	8000	B, F	Fig. 1	UL, CFM* ULC*
	EHS-DL2-W-VF-R	9-15.6	0.100	96	103	8000			
	EHS-EL1-W-VF-R	18-31.2	0.050	96	103	8000	A, C, D, E		
	EHS-EL2-W-VF-R	9-15.6	0.100	96	103	8000			

	Model Number	Horn				Strobe			Mounting Options	Wiring	Approvals
		Input Voltage (VDC)	Input Current (AMPS)	dBA at 10 Feet		Input Voltage (VDC)	Input Current (AMPS)	Peak Candle-power			
				Typical	Peak						
ELECTRONIC STROBE HORNS (Dual Input)	EH-DL1-WS-24-VF-R	18-31.2	0.025	96	103	18-31.2	0.025	8000	B, F	Fig. 2	UL, CFM* ULC*
	EH-DL2-WS-12-VF-R	9-15.6	0.050	96	103	9-15.6	0.050	8000			
	EH-EL1-WS-24-VF-R	18-31.2	0.025	96	103	18-31.2	0.025	8000	A, C, D, E		
	EH-EL2-WS-12-VF-R	9-15.6	0.050	96	103	9-15.6	0.050	8000			

NOTES:
 1. dBA is measured in an anechoic chamber with fast meter response (typical) and peak meter response (peak). 2. Horn models with 9-31.2 VDC input voltage range can be used on 24 VDC or 12 VDC systems. 3. Not recommended for use with unfiltered (full wave rectified) input voltage. 4. Standard strobe horns have white lens with red "Fire" lettering. 5. Single input strobe horns are recommended for fast wiring when horn and strobe operate in unison on continuous alarm systems. Dual input strobe horns are recommended for coded alarm systems and for independent control of the horn and strobe. 6. Approvals: UL = Underwriters Laboratories, CFM = California Fire Marshal, ULC = Underwriters Laboratories of Canada.

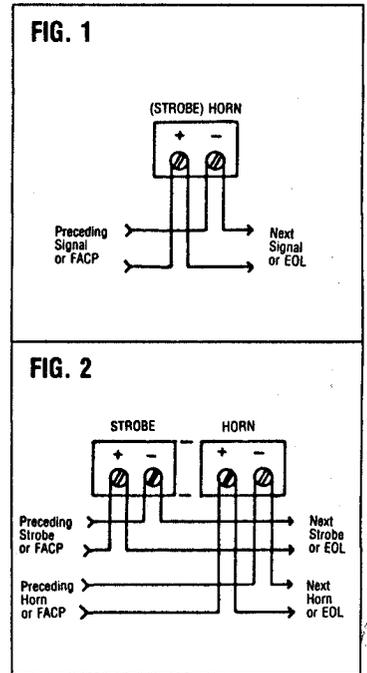
*Pending

Mounting Options

(All models shown with optional strobe. Backboxes and plates ordered separately.)

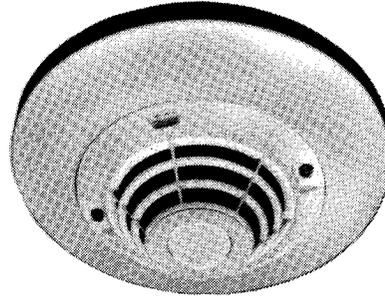
<p>A. SURFACE</p> <p>SERIES EH-E, EHS-E</p> <p>DBB</p> <p>SERIES EH-D, EHS-D</p> <p>SBB</p> <p>SERIES EH-E, EHS-E</p> <p>DBB AP</p>	<p>D. OUTDOOR</p> <p>WBB</p> <p>SERIES EH-E, EHS-E</p>	<p>E. SEMI-FLUSH</p> <p>SFP</p> <p>4" sq. x 1 1/2" deep backbox</p> <p>SERIES EH-E, EHS-E</p>	<p>F. FLUSH</p> <p>4" sq. x 2 1/8" deep backbox</p> <p>SERIES EH-D, EHS-D</p>
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Wiring



Honeywell

TC808A Electronic Thermal Sensor



GENERAL

The TC808A Electronic Thermal Sensor is an intelligent, fixed-temperature, detection device for use with the DeltaNet FS90 Fire & Security Plus ("FS90 Plus") System. The TC808A, using a custom integrated circuit, provides two-way communication with the FS90 Plus. FS90 Plus systems use a proprietary communication protocol containing both digital and analog signals which allows each sensor to communicate its individual address, sensor type (e.g., thermal), and an analog value. FS90 Plus analyzes the analog signal to measure the sensitivity of each sensor and determine its status: alarm, prealarm (needs maintenance), normal, or trouble.

The TC808A senses ambient temperature by means of dual thermistors (negative temperature coefficient resistors). The thermistors provide a fast response to rapid increases in temperature. Each sensor address is established by two 10-digit decade switches located in the sensor head. The sensor head plugs into a common base (also used with photoelectric and ionization sensors) for simple installation, servicing, and replacement.

FEATURES

- Dual thermistors for fast response to temperature increases
- Direct-dial decade address switches for easy address entry
- Continuous monitoring of sensor sensitivity
- Electronics conformal-coated to resist corrosion
- Dual LEDs to provide 360-degree viewing
- Local test feature
- Optional tamper-resistant mounting
- Seals against back pressure
- Low current drain
- Easy plug-in of sensor head to common base
- UL Listed for 521
- Meets requirements of EN54

DESCRIPTION

The intelligent TC808A Electronic Thermal Sensor is a low-voltage, two-wire, solid-state, fixed-temperature device that provides for integral communications with the DeltaNet FS90 Fire & Security Plus ("FS90 Plus") System. This device reports its individual address, sensor type, and analog signals which correspond to its sensitivity/status.

The TC808A uses a common mounting base, which is also used with the intelligent TC806A Photoelectric and TC807A Ionization Smoke sensors, and is suitable for direct surface or electrical box mounting. The sensor head is sealed to prevent the entry of dust, dirt, insects, and back pressure when mounted on an electrical box. The TC808A has an insect-resistant screen (1/4 in. [0.635 mm] openings) to reduce nuisance alarms. Two LEDs on the sensor head provide for 360-degree viewing of visual alarm indicators. These LEDs pulse when FS90 Plus polls the sensor. Two direct-dial decade switches provide for easy address entry. The TC808A provides for local testing via a built-in magnet reed switch.

The common base is available in two versions: one with a flange (6-3/16 in. [157 mm]) that accommodates mounting on a 4-in. (102-mm) electrical box and a second version without a flange (4 in. [102 mm]) for mounting with metric-sized electrical boxes.

TC808A Electronic Thermal Sensor SPECIFICATIONS

Model:

TC808A Electronic Thermal Sensor

Operating Voltage:

15-28V dc

Power Consumption:

5 mA alarm current with LEDs latched on
0.2 mA maximum supervisory current

Temperature Setting:

Fixed: 140F ±7F (60C ±4C)

Environmental Operating Limits:

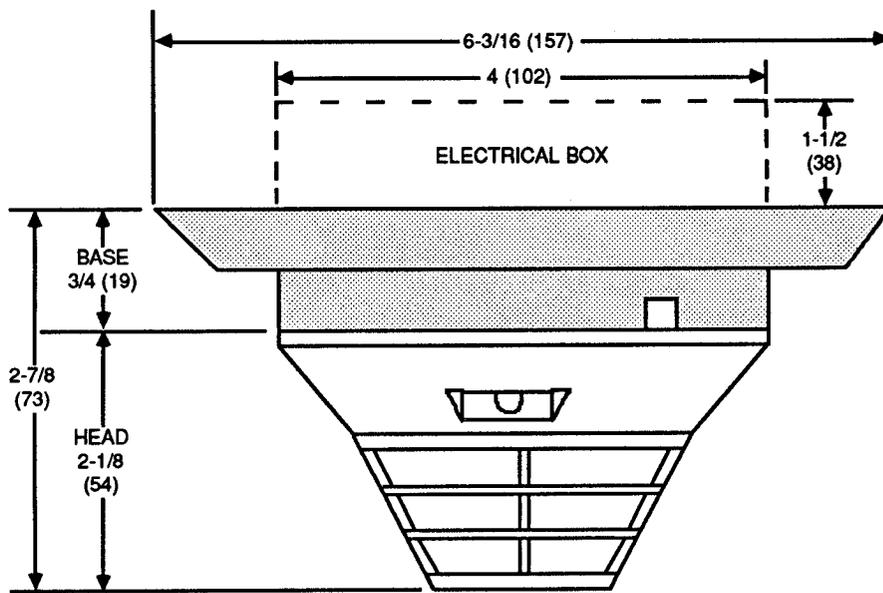
Temperature: 14 to 140F (-10 to 60C)
Humidity: 10 to 93% rh, noncondensing

Sensor Coverage:

Maximum recommended sensor coverage is 2500 ft² (232 m²), spacing 50-ft (15m) centers, 25 ft (7.6m) to side wall or partition. Physical characteristics of area (e.g., high ceilings or large air movement) may reduce sensor coverage.

Dimensions in Inches (Millimeters):

NOTE: Total depth of base and sensor assembled is 2-7/8 in. (73 mm) because part of sensor head is inside base.



TC808A

C2591

TC808A Electronic Thermal Sensor

Mounting:

Surface mounted on ceiling or wall using standard electrical box (4 in. [102 mm] square and 1-1/2 in. [38 mm] deep, or 3 or 4 in. [76 or 102 mm] octagonal and 1-1/2 in. [38 mm] deep)

Testing:

Built-in test switch using magnet
Remote-test capability from DeltaNet Micro Central/Excel Plus System

Indicators and Switches:

Two LEDs on opposite sides of sensor head for 360-degree viewing angle. LEDs blink for normal and are steady for alarm.

Two decade switches for setting sensor address (01-99)

Weight:

4 oz (113 gm)

Base Terminals:

Screw terminals accept up to 12 AWG (0.823 mm²) wire

Lamp Life:

LED rated at 40 years

Approvals:

UL Listed per UL Standard 521
ULC Listed
CSFM Listed
EN54

Additional Equipment:

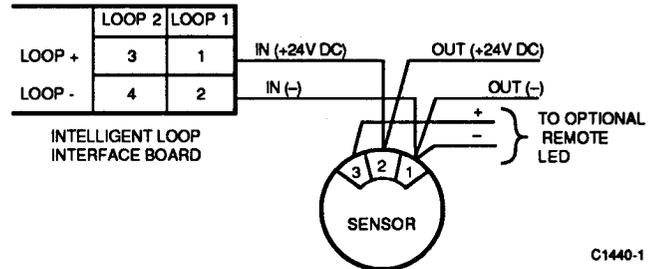
Required:

14506414 Sensor Base

Optional:

Magnet for local testing of individual sensors
14506510 Remote LED

Terminal Designations:



Honeywell

In the USA: Honeywell Plaza, Minneapolis, Minnesota 55408
In Canada: Scarborough, Ontario M1P 2V9
Subsidiaries and Affiliates Around the World

95C-10577

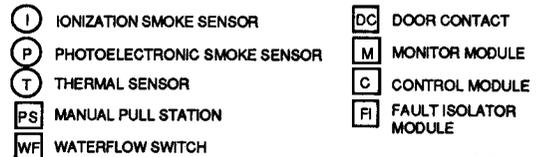
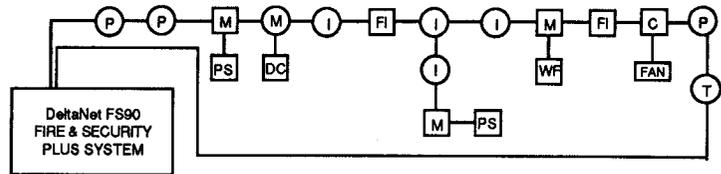
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Rev. 12-88

Honeywell

DeltaNet FS90 Fire & Security Plus System



C1438-1

GENERAL

The DeltaNet FS90 Fire & Security Plus System ("FS90 Plus") can monitor and control individually addressable fire and security devices. The FS90 Plus intelligent interface makes it possible to evaluate and respond to information from individual points rather than zones having many points. Communication boards can interface FS90 Plus to higher-order systems such as DELTA 1000 or a DeltaNet Micro Central/Excel Plus System ("Micro Central").

The FS90 Plus can have up to nine Intelligent Loop Interface Boards, each of which can have two 2-wire or one fault-tolerant 4-wire circuit. Each circuit can monitor 99 addressable sensors plus 99 addressable control module points (digital input/output points) or monitor modules (points), for a total system maximum of 975 points. A Communication/Display Board reports individual device address, smoke sensor sensitivity level, and alarm and trouble status to higher-order systems. Micro Central operators can display point status and adjust alarm and prealarm threshold values and other parameters. FS90 Plus, when interfaced with a Micro Central, can also evaluate analog information (e.g., smoke density) and adjust alarm thresholds based on occupancy times.

FEATURES

- Monitors analog information from photoelectric and ionization smoke sensors and from electronic thermal sensors
- Monitors condition of fire alarm and security devices
- Provides addressable control of indicating outputs
- Isolates short-circuit faults from selected segments of loop
- Recognizes varying levels of sensor conditions: below normal (trouble), normal, above normal (prealarm or maintenance), and alarm
- Provides priority selection of alarm levels
- Performs alarm verification on selected, individual sensors to minimize false alarms
- Provides local numeric and LED display of device address and condition
- Provides Logical Point Groups (LPGs) and Event-Initiated Programs (EIPs)
- Enables operator or EIP to change secure/access status of individual security points
- Includes self-test of sensors

DeltaNet FS90 Fire & Security Plus System

DESCRIPTION

The DeltaNet FS90 Fire & Security Plus System ("FS90 Plus") can monitor and control individually addressable fire and security devices on two- or four-wire circuits. FS90 Plus intelligent interface makes it possible to evaluate and respond to information from individual points rather than zones. Communication boards can interface FS90 Plus to higher-order DELTA or DeltaNet systems. Address and condition of fire alarm sensors and security points are displayed at the FS90 Plus.

Monitors Analog Information from Photoelectric and Ionization Smoke Sensors and from Electronic Thermal Sensors:

The TC806A Photoelectric Smoke Sensor, the TC807A Ionization Smoke Sensor, and the TC808A Electronic Thermal Sensor are tamper-resistant solid-state devices that send analog signals of sensed smoke density, particles of combustion, and temperature levels, respectively.

Each fire alarm sensor is assigned a unique point address from 01 to 99. The sensors provide continuous, analog signals to the FS90 Plus.

The FS90 Plus scans selected Modules on initiating circuits at a rate that ensures response to alarm information in less than one second regardless of the number of Modules scanned. When the alarm threshold is reached, the FS90 Plus identifies the sensor type and location (e.g., Smoke Sensor in Room 206) and commands indicating circuits (via previous programming) and individual relays (e.g., to turn off fans) to respond to the alarm.

Two integral red LEDs blink each time the FS90 Plus scans each smoke sensor. The LEDs latch on in alarm.

All three addressable sensors can be locally tested using an externally applied magnet to the sensor base.

Monitors Condition of Fire Alarm and Security Devices:

The TC809A Monitor Module provides an addressable two- or four-wire (fault-tolerant) initiating circuit for nonaddressable, normally open, contact fire alarm devices and supervisory devices, and either normally open or normally closed security devices. The TC809A has a point address from 101 to 199 and reports circuit status (normal, open, or short) to the FS90 Plus.

An integral red LED blinks each time the FS90 Plus scans the TC809A. The LED latches ON when the TC809A is in alarm.

Provides Addressable Control of Indicating Outputs:

The TC810A Control Module provides an addressable supervised two- or four-wire fault-tolerant indicating circuit (e.g., audible devices, strobes) which responds to normal, open, or short conditions on the circuit. The TC810A has a point address from 101 to 199. When the TC810A receives a command from the FS90 Plus, the internal relay energizes and activates connected indicating devices.

The TC810A can be wired to provide a nonsupervised dry contact, spdt relay output to control equipment such as fans and dampers.

An integral red LED blinks each time FS90 Plus scans the TC810A. The LED latches ON when the output circuit or relay is commanded ON.

Isolates Short-Circuit Faults from Selected Segments of Loop:

The addressable TC811A Fault Isolator Module enables part of a circuit to continue operating when a short occurs on loop wiring. If a loop configuration is used, one TC811A isolates a short to the part of the loop between the TC811A and the FS90 Plus, allowing the rest of the loop to operate normally. If two TC811As are used, they isolate a short to the part of the loop between them. In a star configuration, a TC811A can be used in each leg so a short on one leg does not affect communications on any other.

An integral red LED blinks to indicate normal status and is a steady ON to indicate a short on the loop.

Recognizes Varying Levels of Sensor Conditions: Below Normal (Trouble), Normal, Above Normal (Prealarm or Maintenance), and Alarm:

The FS90 Plus recognizes normal and alarm conditions, below-normal sensor values that reveal a trouble condition, and above-normal values that indicate either a prealarm condition or the need for maintenance. An operator at either the FS90 Plus or the higher-order system operator terminal can read sensor address and condition. An operator at a Micro Central operator terminal can adjust alarm and prealarm thresholds and other parameters.

DeltaNet FS90 Fire & Security Plus System

Provides Priority Selection of Alarm Levels:

The FS90 Plus provides two alarm levels that enable critical alarms to override less critical alarms. For example, a smoke sensor in alarm can override a security contact, or a fire alarm from one floor can override fire alarms from other floors. Alarms that are overridden remain in the FS90 Plus and display after operator acknowledgement of all Class 1 (higher-priority) alarms.

Performs Alarm Verification on Selected, Individual Sensors to Minimize False Alarms:

The FS90 Plus performs alarm verification on individual sensors and monitors the alarm verification activity of individual sensors. When interfaced with a Micro Central, this alarm verification activity can be printed to enhance system maintenance and identify problem areas.

Provides Local Numeric and LED Display of Device Address and Condition:

The FS90 Plus provides numeric and LED annunciation of sensor or device address and the current condition of the sensor. When the FS90 Plus is connected to a higher-order system, local annunciation does not interfere with annunciation at the higher-order system operator terminal.

Provides Logical Point Groups (LPGs) and Event-Initiated Programs (EIPs):

The FS90 Plus provides LPG capability. An LPG can include up to 15 devices (e.g., water-flow switches on different circuits). Each LPG commands one or more outputs (e.g., fans, dampers). Each device can be in multiple LPGs.

The FS90 Plus also provides EIPs. An EIP is an automatic system response that begins when the threshold for a specified initiator for EIPs (either a physical point or an LPG) is reached. Each EIP controls multiple output points and can be chained to another EIP.

Enables Operator or EIP to Change Secure/Access Status of Individual Security Points:

The FS90 Plus allows an operator or an EIP to change the secure/access status of individual security points. For example, the system can change the status of a security point between ACCESS during the day and SECURE at night to ensure fewer nuisance alarms during normally occupied times and greater security during normally unoccupied times (using an external signal to supply day/night status).

Includes Self-Test of Sensors:

The FS90 Plus initiates a self-test each time the Panel Test switch is activated. Every 2 minutes the FS90 Plus scans to see if a self-test has been requested. When a test is requested, LED operation is verified. Then the first 15 seconds are used to command all sensors into self-test. For the next 15 seconds, all sensors are checked for a value above 100. If a value is less than 100, a trouble is annunciated. In the last 15 seconds, sensors are commanded to terminate self-test. No alarms are received during the 45 seconds of the self-test.

SPECIFICATIONS

Circuit Boards (FS90 Plus Resident):

- 14505132 AE Intelligent Loop Interface Board (FS90 Plus interface to addressable sensors and devices)
- 14506344 LJ Communication/Display Board (FS90 Plus interface to intelligent loops, displays specific point information)

Capacity:

AE Board:

- Up to nine boards per system
- Two 2-wire circuits or one 4-wire fault-tolerant loop per board
- Per circuit: Up to 99 addressable Smoke and/or Thermal Sensors and up to 99 Monitor Modules or Control Modules. An additional 20 Fault Isolator Modules can be added over and above the module/sensor total.

NOTE: All devices on circuit can be in alarm simultaneously.

LJ Board:

- One board (required) per system
- Annunciation of devices on up to nine AE Board 2-wire circuits and/or 4-wire fault-tolerant circuits.
- Up to 198 Logical Point Groups (LPGs), each with up to 15 physical points; each physical point can be assigned to up to four LPGs.
- Up to 255 EIPs; each EIP controls up to 32 output points and/or is chained to another EIP.

Environmental Operating Limits:

- Temperature: 32 to 120F (0 to 49C)
- Humidity:
 - FS90 Plus: 5 to 95% rh, noncondensing
 - Sensors and Modules: 10 to 93% rh, noncondensing

DeltaNet FS90 Fire & Security Plus System

Wiring Limitations:

Board/ Configuration	 Wire Type	Wire Gage (mm ²)	Length in Feet (Meters)
AE 2-Wire Loop without T-Tapping	AK3741	18	1,900 (579)
	AK3750	16	3,000 (914)
	AK3752	14	4,800 (1463)
AE 2-Wire Loop with T-Tapping	AK3741	18	18,500 (5,639)
	AK3750	16	22,700 (6,919)
	AK3752	14	20,000 (6,096)
AE 4-Wire Fault-Tolerant Loop	AK3741	18	950 (290)
	AK3750	16	1,500 (457)
	AK3752	14	2,400 (732)

 All wiring is twisted pair.

T803

FS90 Plus Enclosure Dimensions:

38 in. (965 mm) high by 22-1/4 in. (565 mm) wide by 7-3/4 in. (197 mm) deep

Indicators and Controls:

AE Board:

LED display of device status on circuit or loop

LJ Board:

Four-digit numeric display of Sensor or Module address

LED display of Sensor or Module status and presence of multiple alarms

Momentary switch to display address and status of next nonnormal Sensor or Module

Software Required:

S958 DeltaNet FS90 Fire & Security Operating System software

Approvals:

UL 864 Listed for use in NFPA 71, 72A, B, C, and D applications

UL1076 Listed for Proprietary Burglar Alarm

FM Approved for Fire Alarm Systems

CSFM Listed sensors

Additional Equipment:

Required:

DeltaNet FS90 Fire & Security System (Enclosure, Motherboard, Control Board, required function or communication boards, plus power supply)

Sensors:

TC806A Photoelectric Sensor

TC807A Ionization Sensor

TC808A Electronic Thermal Sensor

Modules:

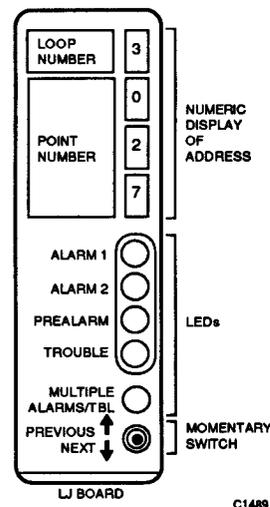
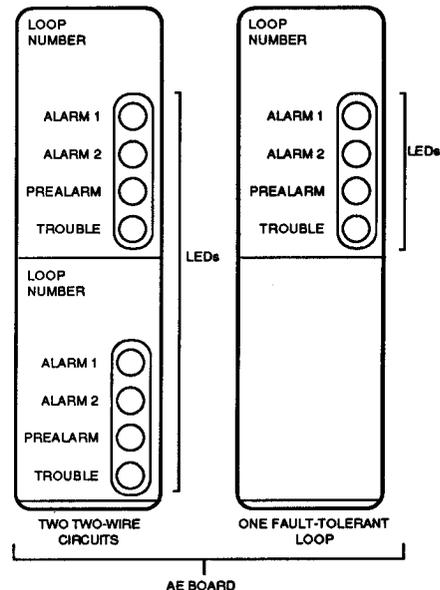
TC809A Monitor Module

TC810A Control Module

TC811A Fault Isolator Module

Optional:

For DELTA 1000 applications only: LB, LC, LD, LE, or LF Communication Board as required



FS90 Plus Intelligent Interface Boards—Indicators and Controls

Honeywell

In the USA: Honeywell Plaza, Minneapolis, Minnesota 55408
In Canada: Scarborough, Ontario M1P 2V9
Subsidiaries and Affiliates Around the World

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