Installation Manual



10-071, Cheetah Xi 50 Addressable Fire Suppression Control System





P/N 06-369 (Rev. 8 / March, 2024)



SOLUTIONS

- / Fire Protection
- / Explosion Protection
- / Overpressure Protection
- / Pressure Activation

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REVISION HISTORY

Document Title: Cheetah Xi 50 Addressable Fire Suppression Control System Installation Manual

Document Reorder Number: 06-369

Revision	Section	Date	Reason for Change
0	All Sections	03/2007	Initial Release
1	Sections 1,2,3,4,7 & Appendix	08/2008	Added Remote 20 Zone Annunciator
2	Sections 1,2,3 & 6	03/2010	Added IRM Compatibility
3	All Sections	04/2012	Separated manual into individual Installation and Operation & Programming manuals, updated list of compatible devices, added FAAST detector.
4	All Sections	08/2014	Added FAAST XT aspirating smoke detector
5	Section 3.9.6 and Appendix A	02/2015	Added solenoid protection assembly to RCM and updated HLI current draw in battery calculation
6	All Sections	09/2015	Clarifications and General Updates
7	All Sections	10/2016	Added VESDA Modbus HLI and new FAAST detectors; Firmware V7.20
8	All Sections	03/2024	Revised to include minor board changes and updated class/style designations in accordance with UL 9th Ed.



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1.1 ABOUT THIS MANUAL

This manual is intended for those individuals who are responsible for the installation of the Fike Cheetah Xi 50 Addressable Fire Suppression Control System. Others such as architects, engineers, sales and marketing personnel, etc. will find the information useful as well. It also allows those parties responsible for verifying the system design to determine if the design parameters have been met.

The first-time installer and/or user should thoroughly read and understand the instructions contained within this manual before using this device. These instructions must be followed to avoid damage to the equipment itself or adverse operating conditions caused by improper installation, operation, and servicing.

1.2 PRODUCT SUPPORT

If you have a question or encounter a problem not covered in this manual, you should first try to contact the distributor that installed the protection system. Fike has a worldwide distribution network. Each distributor sells, installs, and services Fike equipment. Look on the inside of the door, left side, there should be a sticker with an indication of the distributor who sold the system. If you can not locate the distributor, please call Fike Customer Service for locating your nearest distributor, or go to our web-site at <u>www.fike.com</u>. If you are unable to contact your installing distributor or you simply do not know who installed the system you can contact Fike Fire Alarm Product Support at (800) 979-FIKE (3453) Option 21, Monday through Friday, 8:00 AM to 4:30 PM CST.

1.3 SAFETY INFORMATION

Important safety admonishments are used throughout this manual to warn of possible hazards to persons or equipment.

STOP WARNING

Warnings are used to indicate the presence of a hazard which will or may cause personal injury or death, or loss of service if safety instructions are not followed or if the hazard is not avoided.

A Caution

Cautions are used to indicate the presence of a hazard which will or may case damage to the equipment if safety instructions are not followed or if the hazard is not avoided.

Notes: Notes indicate the message is important, but is not of a Warning or Caution category. These notes can be of great benefit to the user and should be read.



1.4 TERMS USED IN THIS MANUAL

The following are various terms used in this manual with a brief description of each.

 Ω - Symbol for "ohm". Unit of resistance.

Abort State – ("Abort" Yellow LED ON, local panel sounder (Piezo) emits modulated fast pattern.) The Abort occurs when an input circuit configured for abort operation has been activated while an alarm condition is present. The abort state is a non-latching event and is intended for preventing a suppression zone from advancing to the release state.

AC Normal State - ("AC Normal" Green LED ON). The system is in the AC Normal state when appropriate AC power is being applied to the system.

Alarm State - ("Alarm" Red LED ON, Piezo emits a slow pulse pattern). The alarm occurs when an input circuit configured for alarm operation has been activated. Activation typically initiated by a detector or contact device. The alarm state is a latching event in the Cheetah Xi. The operator will be required to RESET the Cheetah Xi in order for the panel to exit/clear the alarm state.

Initiating Device - A system component that originates transmission of a change-of-state condition, such as in a smoke detector, manual fire alarm box, or supervisory switch. This manual interchanges the terms initiating device and input device.

Initiating Device Circuit - A circuit to which automatic or manual initiating devices are connected where the signal received does not identify the individual device operated. This manual interchanges the terms initiating device circuit and input circuit.

Normal State - ("Trouble" Yellow LED OFF). The system is in the normal state when the power supply and all circuits are configured properly, connected, and responding properly. The system remains in normal state until a trouble condition occurs.

Notification Appliance - A fire alarm system component such as a bell, horn, speaker, light, or textual display that provides audible, tactile, or visible output, or any combination thereof. The device notifies building occupants of system status. This manual interchanges the terms notification and audible appliance.

Notification Appliance Circuit - A circuit or path directly connected to a notification appliance(s). This manual interchanges the terms notification appliance circuit and audible circuit.

Non-power-Limited - A circuit designation given for wiring purposes. The amount of current flowing through the circuit is unlimited vs. being limited, or power-limited. AC power and Battery wiring is non-power-limited.

Power-Limited - A circuit designation given for wiring purposes. The amount of current flowing through the circuit is limited (typically by fuse) vs. being unlimited, or non-power-limited. The Cheetah Xi addressable loops and output circuits are power-limited. The circuit has a maximum power that flows through it or it current limits and opens the circuit.

Pre-Discharge State – ("Pre-Discharge" Red LED ON, Piezo emits a slow pulse pattern). Pre-Discharge occurs when an input circuit configured for alarm operation has been activated and the Suppression Pre-Discharge type is satisfied. The Pre-Discharge state is a latching event in the Cheetah Xi 50. The operator will be required to RESET the panel in order for the panel to exit/clear the release state.

Release State – ("Release" Red LED ON, Piezo emits a slow pulse pattern). Release occurs when an input circuit configured for manual release operation has been activated or the Pre-Discharge automatic countdown has expired with no Abort input active. The release state is a latching event and will follow the status of the supervisory input contact.

Supervisory State - ("Supervisory" Yellow LED ON, Piezo emits a fast pulse pattern). The supervisory state occurs upon activation of a supervisory input circuit. The supervisory state is non-latching and will follow the status of the supervisory input contact.

Trouble State - ("Trouble" Yellow LED ON, Piezo emits constant tone). The trouble state occurs upon any detectable condition which could impair system operation including connection problems, ground faults, hardware problems, power problems, or configuration problems. Certain trouble conditions are latching; others allow the system to reset upon trouble condition removal. Depending upon the type of trouble condition, the system may or may not remain operational. When the system is in trouble state, it is not in the normal state.

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1.5 RELATED DOCUMENTATION

To obtain a complete understanding of the specific features of the Cheetah Xi 50 or to become familiar with related functions in general, refer to the documentation listed below. Please reference the most current version or the version noted on the label located on the product.

Document Title	Part Number
Device Compatibility Document	06-186
DACT (P/N 10-2528 & 10-2476) Installation Instructions	06-479
Remote Display Unit Product Manual (RDU2, RDU10 and RDU14)	06-610
Ethernet Module (P/N 10-074) Product Manual	06-388
Multi-Interface Module (P/N 10-2583) Product Manual	06-367
Intelligent Graphic Annunciator Product Manual	06-231
Twenty Zone Remote Annunciator (P/N 10-2667) Product Manual	06-453
Relay Control Assembly (P/N 10-2777) Installation Instructions	06-580
HPM4 Relay Module (P/N 10-2770) Installation Instructions	06-443
CRM4 Relay Module (P/N 10-2204) Installation Instructions	06-345
Relay Card (P/N 10-2785) Installation Instructions	06-586
3 Card Remote Equipment Enclosure (P/N 10-2780) Installation Document	06-590
5 Card Remote Equipment Enclosure (P/N 10-2781) Installation Document	06-591
Class A Peripheral Bus Card (P/N 10-2792) Installation Instructions	06-606
Class A Peripheral Bus Card Assembly (P/N 10-080) Installation Instructions	06-609
Solenoid Supervision and Protection Assembly (P/N 10-2360) Installation	06-344
Masterbox Supervisor (P/N 10-2413) Installation Instructions	06-229
VESDA High Level Interface (P/N 68-023) Product Manual	06-158
VESDA Modbus High Level Interface (P/N 68-517) Product Manual	06-823
Hand Held Programmer (P/N 10-2648) Operating Instructions	06-390
C-Linx Panel Configuration Software Manual	06-327
33 AH Battery Enclosure Installation Instructions	06-534
75 AH Battery Enclosure Installation Instructions	06-535
50 Point Enclosure Installation Instructions	06-624
50 Point Dead-Front Panel Installation Instructions	06-647
50 Point Controller Installation Instructions	06-427
Agent Release Module (ARM III)	06-106
Impulse Release Module (IRM)	06-552
Surge Suppressor Compatibility Document	06-588
Suppression Disconnect Switch (P/N 10-2698 & 10-2699)	06-472

Exhibit 1-1: Related Documentation



Reserved for future use.

2.1 SYSTEM DESCRIPTION

The Fike Cheetah Xi 50 (P/N 10-071) is a state of the art, true addressable peer-to-peer fire suppression control system. It provides the latest technology in detection communication with extensive programmability in one cost-effective system. Its intelligence has every device communicating as a peer on the signaling line circuit. This intelligence provides speed with response times as little as one-quarter second between manual pull station activation to notification appliance sounding.

Its flexibility provides you the freedom to attach the devices you require for your specific installation. The Cheetah Xi 50 is equipped with one signaling line circuit capable of communicating with 50 addressable devices in any combination.



Exhibit 2-1: Cheetah Xi 50 Block Diagram



2.1.1 CHEETAH Xi 50 FEATURES

GENERAL

- Two 24V DC, Class A (Style Z) or Class B (Style Y) 1.75A NAC (audible) circuits on main board with integrated synchronization
- Two configurable relays and one Trouble relay
- 253 user defined zones
- 80 character, backlit LCD display
- Real time clock
- 3200 event history buffer
- Critical process monitoring
- One-person Walk Test capability
- Disable by point/circuit or zone
- Drill function at panel and remote
- Provides solenoid releasing operation
- Alarm verification
- Easy to add/remove devices
- Diagnostic menus
- Local panel sounder (piezo) with distinct event tones
- 10 Status LEDs to easily identify system status
- Available with and without integral SERIAL, Point ID DACT interface
- Supports up to 31 peripheral devices

POWER

- 24V DC power supply; 5.25 amps usable alarm power, 1.5A standby
- Operation from 120VAC/ 60 Hz or 240VAC 50 /60Hz
- Two 24V DC, 1.75A continuous auxiliary power outputs
- Supports up to 75 AH of batteries

SIGNALING LINE CIRCUIT

- Address devices with Infrared (IR) tool, similar to remote control device (non-listed).
- One addressable loop, 50 devices per loop
- NFPA Class A (Style 6), Class B (Style 4), or Class X (Class A/Style 7) with isolator devices
- True peer-to-peer digital protocol for extremely fast and reliable communications
- Addressable Device "learn" and "auto-program" functions
- Automatic day/night sensitivity adjustment
- Automatic holiday sensitivity adjustment
- Acclimate operation for detectors
- IR Tool provides ability to read sensitivity levels or perform remote test of device
- Devices contain multi-color LED for quick reference of device status
- Detectors provide early warning pre-alarm detection and can also provide a summing feature for up to 8 detectors (non-listed).
- Sounder or Relay Bases fully programmable
- Optional Remote LED can be added to a detector base, programmable for any device, zone/state

ENCLOSURE

- 18-gauge steel enclosure with Red or Black finish
- Enclosures are equipped with a 0.50" wide lip to facilitate flush mounting
- Removable exterior door for ease of installation
- Internal dead-front door option available

2.1.2 LISTINGS AND APPROVALS

Approval Ag	ency
Underwriters	Laboratories

File Number

S2203

Type:Local, Remote Station (PPU), Central Station (PPU)Service Type:A-Automatic Fire Alarm, M-Manual Fire Alarm, Releasing Device
Service, WF-Water-flow alarm, SS-Sprinkler Supervisory Service,
DACT

Type Signaling: Non-coded California State Fire Marshall (CSFM) City of New York (COA) City of Denver

7165-0900:149 #6119 Approved

2.1.3 AGENCY STANDARDS AND COMPLIANCE

This Fire Alarm Control Panel complies with the following NFPA and UL standards:

NFPA 72 – National Fire Alarm Code

UL 864 - Standard for Control Units and Accessories for Fire Alarm Systems

UL 2017 - General Purpose Signaling Devices and Systems

The installer should also be familiar with the following documents and standards:

National Fire Protection Association (NFPA) Codes:

NFPA 12	- Carbon I	Dioxide	Extinguishing	Systems
	Guiboni	DIOXIGO	Crangaiorning	9 0 9 0 10 11 10

- NFPA 12A Halon Fire Extinguishing Systems
- NFPA 13 Sprinkler Systems
- NFPA 15 Water Spray Fixed Systems
- NFPA 16 Deluge, Foam-water and Foam-water Spray Systems
- NFPA 70 National Electrical Code (NEC)
- NFPA 70 Article 300 Wiring Methods
- NFPA 70 Article 760 Fire Protective Signaling Systems
- NFPA 72 National Fire Alarm and Signaling Code
- NFPA 101 Life Safety Code
- NFPA 110 Emergency Standby Power Systems
- NFPA 750 Standard on Water Mist Fire Protection Systems
- NFPA 2001 Clean Agent Extinguishing Systems

Underwriters Laboratories (UL) Standards:

- UL 38 Manually Actuated Signaling Boxes
- UL 217 Smoke Detectors, Single and Multiple Station
- UL 228 Door Closers Holders for Fire Protective Signaling Systems
- UL 268 Smoke Detectors for Fire Protective Signaling Systems
- UL 268A Smoke Detectors for Duct Applications
- UL 346 Waterflow Indicators for Fire Protective Signaling Systems
- UL 464 Audible Signaling Appliances
- UL 521 Heat Detectors for Fire Protective Signaling Systems
- UL 1481 Power Supplies for Fire Protective Signaling Systems
- UL 1638 Visual Signaling Appliances
- UL 1971 Visual Signaling Appliances

Minimum system configurations

This table indicates the minimum components needed to meet the intended applications. Y = Yes N = No O = Optional			PU)	ing Station (PP		
Part Number	Description	Protected Premis	Central Station (P	Remote Supervisi	Releasing Service	UL Listed
10-2622	Cheetah Xi 50 Controller	Y	Y	Y	Y	Y
10-2623	Cheetah Xi 50 Enclosures	Y	Y	Y	Y	Y
10-2628	Dead Front Panel	0	0	0	0	Y
02-10881 (Note 1)	120VAC Primary Transformer	Y	Y	Y	Y	Y
02-10882 (Note 1)	240VAC Primary Transformer	0	0	0	0	Y
10-2528 (Note 2)	5-Zone DACT (Bosch FPT-DACT-LC), internal	0	Y	Y	0	Y
10-2476 (Note 2)	5-Zone DACT (Bosch FPT-DACT), external	0	0	0	0	Y
10-2646	14 Button Remote Display (Exp. Protocol)	0	0	0	0	Y
10-2631	10 Button Remote Display (Exp. Protocol)	0	0	0	0	Y
10-2630	2 Button Remote Display (Exp. Protocol)	0	0	0	0	Y
68-023	VESDA Open Protocol High Level Interface (HLI)	0	0	0	0	Y
68-517	VESDA Modbus High Level Interface (HLI)	0	0	0	0	0
10-2627	Ethernet Module	0	0	0	0	Y
10-2583	Multi-Interface Module	0	0	0	0	Y
10-1XX	Intelligent LED Graphic Annunciator	0	0	0	0	Y
10-2667	20-Zone Remote Annunciator	0	0	0	0	Y
10-2792 (Note 3)	Class A Peripheral Bus Card	0	0	0	0	Y
10-2204 (Note 4)	CRM4 Relay Module	0	0	0	0	Y
10-2770 (Note 4)	HPM4 Relay Module	0	0	0	0	Y
10-2777	Relay Control Assembly	0	0	0	0	Y
10-2785	Relay Card	0	0	0	0	Y
10-2780	Remote Equipment Enclosure, 3 Card	0	0	0	0	Y
10-2781	Remote Equipment Enclosure, 5 Card	0	0	0	0	Y
10-2154	Battery Enclosure, 33 AH maximum	0	0	0	0	Y
10-2236	Battery Enclosure, 75 AH maximum	0	0	0	0	Y

2. 3. DACT must be purchased from Fike for proper operation with the Cheetah Xi 50 panel.

Included in the Class A Peripheral Bus Assembly (P/N 10-080).

Mounts to relay control assembly only. Cannot mount to Cheetah Xi 50 controller. 4.

This table indicate intended applicate Y = Yes N = No O = Optional	es the minimum components needed to meet the ions.	I Premises	tation (PPU)	Supervising PDJ)	g Service	_
Part Number	Description	Protectec (Local)	Central S	Remote S Station (F	Releasing	UL Listed
63-1052	Photoelectric Detector	0	0	0	0	Υ
63-1058	Photoelectric Detector, Isolator Version	0	0	0	0	Y
67-033	Ionization Detector	0	0	0	0	Υ
67-034	Ionization Detector, Isolator Version	0	0	0	0	Υ
63-1053	Combination Photo/135°F Heat Detector	0	0	0	0	Υ
63-1059	Combination Photo/135°F Heat Detector, Isolator Version	0	0	0	0	Υ
60-1039	Heat Detector, 135°F-190°F (57-88°C) FT/RR	0	0	0	0	Υ
60-1040	Heat Detector, 135°F-190°F (57-88°C) FT/RR, Isolator	0	0	0	0	Υ
63-1054 (EBF)	Detector Base, 6-inch	0	0	0	0	Υ
63-1060 (EBFI)	Detector Base, 6-inch, Isolator Version	0	0	0	0	Υ
63-1055 (EB)	Detector Base, 4-inch	0	0	0	0	Υ
63-1061 (EBI)	Detector Base, 4-inch, Isolator Version	0	0	0	0	Y
63-1064 (EBS)	Sounder Base, 6-inch	0	0	0	0	Υ
63-1063 (EBR)	Relay Base, 6-inch	0	0	0	0	Υ
55-045 (Note 1)	MMM – Mini Monitor Module	0	0	0	Y	Υ
55-050 (Note 1)	MMM – Mini Monitor Module, Isolator Version	0	0	0	Υ	Υ
55-041 (Note 1)	MM – Monitor Module 4-inch	0	0	0	Y	Y
55-046 (Note 1)	MM – Monitor Module 4-inch, Isolator Version	0	0	0	Y	Υ
20-1063	APS – Addressable Pull Station	0	0	0	0	Υ
20-1064	APS – Addressable Pull Station, Isolator Version	0	0	0	0	Υ
55-052	RCM – Releasing Control Module	0	0	0	0	Υ
55-053	RCM – Releasing Control Module, Isolator Version	0	0	0	0	Υ
55-042	SCM – Supervised Control Module	0	0	0	Y	Υ
55-047	SCM – Supervised Control Module, Isolator Version	0	0	0	Y	Υ
10-2360	Series Solenoid Diode/Resistor	0	0	0	Y	Υ
10-2413	Masterbox Interface	0	0	0	0	Υ
55-043	RM – Relay Module	0	0	0	0	Υ
55-048	RM – Relay Module, Isolator Version	0	0	0	0	Υ
63-1057	Photo Duct Detector	0	0	0	0	Y
63-1062	Photo Duct Detector, Isolator Version	0	0	0	0	Y
63-1158	Duct Detector Housing (isolator base)	0	0	0	0	Υ
68-140	FAAST XM Aspirating Smoke Detector	0	0	0	0	Υ
68-302	FAAST XT Aspirating Smoke Detector	0	0	0	0	Y
68-509	FAAST XS Aspirating Smoke Detector	0	0	0	0	Υ
NOTES: 1.	. Module is required to monitor sprinkler system components (e.g., Water	flow, Tai	mper, Low	Air, etc	c.).

Exhibit 2-3:	MINIMUM	SYSTEM	CONFIGURATION	S – CONT.
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Reserved for future use.

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3.1 BASIC EQUIPMENT PACKAGES

The Cheetah Xi 50 system includes the equipment enclosure, control board, power transformer, and necessary mounting hardware. Components such as the cabinet color, transformer power requirements, and cabinet requirements are custom configured to suit your specific project requirements. Exhibit 3-2 shows the available ordering options for the Cheetah Xi 50 equipment packages.

C	heetah Xi 50
1	0-071-c-p-d
Enclosure Color c:	R = Red, B = Black
Transformer Power p:	1 = 120V, 2 = 240V
Enclosure Options d :	d = enclosure with dead-front panel



Exhibit 3-1: Cheetah Xi 50 System Package

Exhibit 3-2:	System	Orderina	Formats
	0,000	oraoring	

Additional system components such as batteries, detectors, modules, cards, peripheral devices, etc. must be ordered separately to suit your specific project requirements.

3.2 CHEETAH Xi 50 CONTROLLER

The heart of the Cheetah Xi 50 system is the controller (See Exhibit 3-3). The system controller consists of a printed circuit board (PCB) that incorporates the system primary power supply with battery charger, system microprocessors, hardware interface terminals, system display and operational switches. The controller is the central hub for communication between the systems intelligent, addressable field devices that are connected to the panel's signaling line circuits. The controller is also used for system timing, user interface, power delivery and system history archive.



Exhibit 3-3: Cheetah Xi 50 Controller



Exhibit 3-4 shows the location of the various connectors on the Cheetah Xi 50 controller board. The function and specifications for each connection is listed in order of terminal block designation (P) on the following pages.





Controller Specifications:

Controller Dimensions (H x W x D):	8 in. x 11 in. x 3 in. (20.3 cm x 27.9 cm x 7.6 cm)
Weight:	1.0 lbs. (0.45 kg.)
Power Output:	1.5 Amps (Normal Standby) 5.25 Amps (Alarm)
Power Consumption:	116 mA (Normal Standby)
Operating Environment:	+32°-120°F (0°-49°C) 93% relative humidity

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Terminal	Terminal	Function and Electrical	
Block	Labels	Ratings/Requirements	Wiring Requirements
P1	24VAC Secondary	 120 VAC Transformer, P/N 02-10881 2.22 Amps @ 225 VA 	Terminal block accepts 12 AWG – 16 AWG
		 240 VAC Transformer, P/N 02-10882 1.45 Amps @ 348 VA 	wire
		 Fused by F1, 15A field replaceable fuse, 	a dedicated circuit at the main building
		P/N 02-4174	power distribution center. The circuit breaker shall be equipped with a lockout
		• Non-power-infined and supervised	mechanism and be clearly labeled as a "Fire Alarm."
			CAUTION: It is critical that AC line
			power is applied to the left terminals of P1 and not the battery terminals. Doing so could cause damage to the controller.
	Battery (+ -)	 24 VDC nominal standby battery input (Two 12 VDC batteries, sealed lead acid 	Batteries larger than 18 AH must be mounted in external battery enclosure.
		only)75 amp-hour maximum charging capacity	Use 14 AWG minimum wire (max. length of 10 ft [3m] to connect batteries to controller)
		• 4 Amps @ 27 VDC max_charge current	
		 12 Amps @ 27 VDC max. supply current 	
		• Fused by F2, 15A field replaceable fuse,	
		P/N 02-4174	
D2	Alarm	Non-power-limited and supervised	All connections shall be never limited or
P2	(Relay 1)	Terminals C, NC, NO	non-power-limited, not both
		SPDT Form C relay contact	• •
		DC Operation: 5 amps @ 30 VDC (pi35)	
		• AC Operation: 0.5 amps @ 120 VAC (pf=.35)	
		Default alarm operation (configurable)	
	Supervisory (Relay 2)	Terminals C, NC, NO	All connections shall be power-limited or
	(Roldy Z)	SPDT Form C relay contact	hor-power-limited, not both
		• DC Operation: 2 amps @ 30 VDC (pf35)	
		 AC Operation: 0.5 amps @ 120 VAC (pf=.35) 	
		 Default supervisory operation (configurable) 	
	Trouble	Terminals C, NO, NC	All connections shall be power-limited or
	(Relay 3)	SPDT Form C relay contact	non-power-limited, not both
		• DC Operation: 2 amps @ 30 VDC (pf35)	Relay contacts are normally energized and
		 AC Operation: 0.5 amps @ 120 VAC (pf=.35) 	contacts are shown with power applied and no troubles present on the system.
		Default trouble operation	
P3	PC USB	 RS232 port, power-limited and supervised 	Use communication cable P/N 10-1874A or B to connect programming computer to P3
		Used for panel programming, peripheral	50 ft. (15m) maximum cable length.
		device configuration, and data retrieval using C-Linx software	PC communication: 19200 Baud, 8 data bits, no parity, 1 stop bit
		Not intended for continuous connection	
		Do not connect the PC if a ground fault is present on the controller	

Exhibit 3-5: Cheetah Xi 50 Controller Terminal Specifications



-		•	
Terminal Block	Terminal Labels	Function and Electrical Ratings/Requirements	Wiring Requirements
P4	VESDA	 RS232 port, power limited and supervised VESDA High Level Interface (HLI) P/N 68-023 and 68-517 connection point Intelligently links Xtralis VESDA detectors to the Cheetah Xi by zone number. Does not require SLC address HLI must be located in the same room as the panel and be located within 20 ft. (6.1m) 	 68-023 and 68-517 includes a 20 ft. (6.1m) RS232 cable P/N 02-15802 for connection to the Cheetah Xi controller P4. Cable must be in conduit or equivalently protected against mechanical injury. HLI must be powered from the Cheetah Xi auxiliary power outputs or a ground fault condition could occur.
P5	PERIPHERAL (232)	 Not used. Not fitted on panels marked 02- 11544 Rev B or newer. 	
P6	DACT (+ -)	 Power-limited and supervised Interface point for Digital Alarm Communicator Transmitter (Point ID communication) DACT can be mounted inside the panel or external in a separate enclosure 	Terminal blocks accept 12 – 24 AWG
	PERipherals (485) (shld,+ , -)	 Power-limited and supervised Connects to RS485 peripheral devices 31 peripheral devices maximum Typical circuit voltage will vary between 0 – 1 VDC. It should never be a constant voltage or 0 VDC Peripheral devices must be configured as supervised if 2-way communication is required 	RS485 wiring: Belden 9841 or equal. Use Belden 82841, 82842, or 89841 for plenum applications Maximum wire length of 4000 ft. (1219m), 9600 bps, 5 VDC, 1mA Maximum wire impedance 110Ω Maximum wire capacitance 0.05uF 100Ω termination resistor is required on the last device on circuit, P/N 02-2519 (supplied with each device) T-tapping of circuit is NOT allowed Terminal blocks accept 12 – 24 AWG
	24V AUX #1 and #2 (+, -, shld)	 Power-limited and supervised Regulated auxiliary power output rated 24 VDC @ 1.75A maximum, regulated 28 volts maximum Fused by F3 and F4 for short circuit, 4A field replaceable fuse, P/N 02-11412 Used to power detectors, peripheral devices, modules, etc. that require 24 VDC for operation 	The Cheetah Xi 50 controller has a total power capability of 6 amps. The Cheetah Xi 1016 is expandable to 12 amps with the addition of the 10-2474, Supplemental Power Supply Terminal blocks accept 12 – 24 AWG
P7	ADDR LOOP (+, -, shld, -, +)	 Power-limited and supervised Supports up to 50 addressable devices (only those listed in this manual) Supports Class B (Style 4), Class A (Style 6), and also Class X (Class A/Style 7) if using isolator devices Maximum loop current draw: 50 mA @ 28 VDC Typical circuit voltage will range from 24 VDC nominal to 0 – 5 VDC during data communication pulse. It should never be a constant 0 VDC FM Approved Deluge and Pre-action Sprinkler operation requirements include Class A initiating circuits only, must be wired to FM Listed/Approved devices and must incorporate maximum wiring distances and losses to maintain the required 20 4 VDC at the solenoid 	12,000 ft. (3657m) maximum wire length from panel to last device using 14 AWG Shielded cable should be used for electrically noisy environments Maximum resistance 70Ω (35Ω per leg) Maximum capacitance 0.60uF If using Class X wiring, the first and last isolator device shall be mounted within conduit, within the same room as the control panel, and no more than 20 ft. (6.1m) from the control panel Terminal blocks accept 12 – 24 AWG

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Terminal Block	Terminal Labels	Function and Electrical Ratings/Requirements	Wiring Requirements
P8 & P9	NAC #1 & #2	Power-limited and supervised	T-tapping of circuit is NOT allowed
	(, ++, shld, -, +)	 Continuous, regulated 24 VDC @ 1.75A maximum, regulated 28 volts maximum 	If using the synchronization protocol option, both circuits must use the same protocol
		• Fused by F5 and F6, 4A field replaceable	(i.e. Gentex or System Sensor)
		fuse, P/N 297004	The circuits are either ON or OFF and can
		 Supports Class B (Style Y) using 1.2KΩ EQL register, P/N 10,2570 or Class A 	not be configured for modulation patterns.
		(Style Z) using redundant wiring	Refer to Fike document 06-186, "Compatible Notification Appliances and
		 Can be programmed for Gentex or System Sensor synchronization protocols 	Releasing Devices Manual" for a list of compatible NAC devices
		 Once sync is selected, programmable for selective silence (strobes remain ON) or silence both horn and strobe 	Terminal blocks accept 12 – 24 AWG
		simultaneously.	
P10		Fike use only	
P11		Fike use only	

Exhibit 3-7: Cheetah Xi 50 Controller Terminal Specifications – Cont.

3.2.1 NAC CIRCUIT LIMITATIONS

The NAC circuit field wiring resistance is limited by the amount of anticipated load. Many local authorities require a voltage drop calculation be performed to demonstrate the lowest voltage present at the last device. The designer shall determine the resistance of the wire specified and distance for the installation needs. From this information, they can determine the total resistance for the circuit. Exhibit 3-8 provides the maximum field wiring resistance for total device current that can also be used as a tool.

Max Current (Amps)	.1	.2	.3	.4	.5	.6	.8	1.0	1.5	2.0
Audible Max Ω's	24	12	8	6	4.8	4.0	3.0	2.4	1.6	1.2

Exhibit 3-8: NAC Circuit Field Wiring Resistand

3.2.2 CONTROLLER TEST POINTS/VOLTAGES

The Cheetah Xi 50 controller has two primary test points. While viewing the panel display, TP1 is located in the lower right corner of the board to the right of the board part number. TP2 is located just to the right of the relay block in the upper left corner of the board and is labeled 24V.

TP1 = COM

This test point should be used when making DC voltage measurements on the control board. Connect the voltmeter ground lead to this point, and then touch the positive lead to the point under test. This is the ground reference for all points on the control board.

TP2 = 24V

This test point is the + side for the main controller 24VDC power buss. If the system does not seem to operate properly even with AC power applied, connect the voltmeter positive lead to this point , and then touch the ground lead to test point TP1 to verify the board voltage.

Ground Fault, TP1 to Chassis

With a normal panel and no ground fault, this voltage is 2.17 VDC nominal for Level 1 ground fault, and 5 VDC nominal for Level 2 ground fault. If a ground fault is present, this voltage will sway in either direction. Ground fault detection impedances are 60K ohm between power ground and chassis ground or 1M ohm between main power and chassis ground.

3.3 SYSTEM ENCLOSURE

The Cheetah Xi 50 system enclosure is designed to allow mounting of the control board, AC power transformer, optional DACT, up to two 18 AH batteries, as well as one of the following optional cards and modules as required to suit your specific project requirements:

- Ethernet Module, P/N 10-2627
- Multi-Interface Module, P/N 10-2583
- Class A Peripheral Bus Card, P/N 10-2792
- Masterbox Interface, P/N 10-2413

The enclosure can be ordered as part of the basic equipment package as shown in Exhibit 3-2 or separately as shown in Exhibit 3-9.

Typical Enclosure Features

- Made of 18 gauge steel with baked on Red or Black enamel finish.
- Each enclosure is suitable for surface or flush mounting.
- Numerous conduit knockouts are provided in the back box for easy access to the cabinet during system installation.
- Press-studs supplied in enclosure back-box for easy installation of system components (i.e., Cheetah Xi 50 control board, transformer, DACT, etc.).
- The removable exterior door mounts on the left side of the cabinet only and is equipped with a keylock and display viewing window. Door opens a full 180 degrees.
- Optional dead-front panel (P/N 10-2628) isolates the operator from the interior electronics and wiring, yet can be easily removed to reveal system components for maintenance.

Cheetah Xi 50 10-2623-c-d			
Enclosure Color c:	R = Red, B = Black		
Enclosure Options d:	d = standard enclosure, with dead-front panel		

Exhibit 3-9: Enclosure Ordering Format

Refer to Section 4.0 Installation, for complete dimensional specifications of the enclosure.



Exhibit 3-10: Cheetah Xi 50 Enclosure

Refer to Fike document 06-624 for enclosure installation instructions.





3.4 DIGITAL ALARM COMMUNICATOR TRANSMITTER (DACT)

DACT, 5 ZONE WITH SERIAL INTERFACE P/N 10-2528 (BOSCH FPT-DACT-LC), INTERNAL MOUNT P/N 10-2476 (BOSCH FPT-DACT), EXTERNAL MOUNT

The Digital Alarm Communicator Transmitter (See Exhibit 3-12) is used where point identification of alarm, supervisory and trouble events is required at a Central or Remote Receiving Station. The Cheetah Xi 50 transmits all system information to the DACT via an RS485 connection. In addition, the DACT includes five programmable point inputs that can be individually configured to indicate seven types of system conditions: Fire Alarm, Waterflow Alarm, Supervisory, Monitor Alarm, System Fault, AC Failure and Low Battery. These inputs can be used in place of the intelligent RS485 connection to provide simple alarm monitoring where the receiving station is not capable of receiving point ID information.

Refer to Fike document 06-479 for more information.

Exhibit 3-12: DACT

3.4.1 DACT KEYPAD PROGRAMMER, P/N 10-2477 (BOSCH FMR-DACT-KEYPAD)

This DACT Programmer (See Exhibit 3-13) is necessary for configuring the 10-2528 and 10-2476 dialers referenced above.

Refer to BOSCH document FPT-DACT "Operation & Installation Guide" for more information.



Exhibit 3-13: DACT Programmer

3.5 PERIHERAL BUS DEVICES

Several optional components can be installed on the Cheetah Xi 50 controller's RS485 peripheral bus (31 devices maximum) to provide remote annunciation and control of system events, and to expand the systems operational capabilities. A brief description of each component and its functionality is provided in this section for reference purposes. For a complete description of each module's functionality, installation and wiring, refer to the referenced document.

Unless noted otherwise, all peripheral devices are mounted external to the Cheetah Xi 50 enclosure.

3.5.1 FOURTEEN BUTTON REMOTE DISPLAY UNIT, P/N 10-2646

The Fourteen Button Remote Display Unit (See Exhibit 3-14) provides a 4x20 character LCD that mimics the host control panel's display. This allows system status information to be displayed at a remote location. The unit is equipped with eight programmable buttons that can be used to perform system control functions such as Reset, Silence, Acknowledge, etc. Switch functions are protected by the unit's integral security access key. In addition, the RDU is equipped with an internal piezo and five status LEDs that provide instant audible and visual notification of system status changes.

Refer to Fike document 06-610 for more information.

(i) Note: This unit can only be used on systems with panel firmware V3.0 or higher.

3.5.2 TEN BUTTON REMOTE DISPLAY UNIT, P/N 10-2631

The Ten Button Remote Display Unit (See Exhibit 3-15) provides a 4x20 character LCD that mimics the host control panel's display. This allows system status information to be displayed at a remote location. The unit is equipped with four control switches that allow initiation of system Drill, Acknowledge, Silence and Reset functions from the unit. Switch functions are protected by the unit's integral security access key. In addition, the RDU is equipped with an internal piezo and five status LEDs that provide instant audible and visual notification of system status changes.

Refer to Fike document 06-610 for more information.

Note: This unit can only be used on systems with panel firmware V3.0 or higher.



Exhibit 3-14: Fourteen Button Remote Display Unit



Exhibit 3-15: Ten Button Remote Display Unit

3.5.3 TWO BUTTON REMOTE DISPLAY UNIT, P/N 10-2630

The Two Button Remote Display Unit (See Exhibit 3-16) provides a 4x20 character LCD that mimics the host control panel's display. This allows system status information to be displayed at a remote location. The unit is equipped with an internal piezo and five status LEDs that provide instant audible and visual notification of system status changes.

Refer to Fike document 06-610 for more information.

(i)Note: This unit can only be used on systems with panel firmware V3.0 or higher.

3.5.4 ETHERNET MODULE, P/N 10-2627 ETHERNET MODULE W/ ENCLOSURE, P/N 10-074

The Ethernet Module (See Exhibit 3-17) provides a means to connect the associated control panel to the Ethernet (LAN/WAN). This connection allows the associated control panel to send its history events to a remote monitoring panel that can be located either on or off the protected premises.

The module can be mounted inside the Cheetah Xi 50 enclosure or it can be mounted remotely by ordering the custom mounting enclosure.

Refer to Fike document 06-388 for more information.

3.5.5 MULTI-INTERFACE MODULE, P/N 10-2583 MULTI-INTERFACE MODULE W/ ENCLOSURE, P/N 10-069

The Multi-Interface Module (See Exhibit 3-18) provides an interface point that allows connection of the following ancillary devices to the host control panel:

- 1. Cheetah Classic panel this interface allows the MIM to act as a network card on the Cheetah Classic network. (feature not available in V7.00 firmware and higher)
- 2. Parallel Printer this interface allows a parallel printer that is listed for "Fire Protective Signaling Use" to be connected to the host control panel.
- 3. Serial Printer this interface allows a Keltron 90-series printer to be connected to the host control panel.
- 4. PC Graphic this interface allows a PC Graphic workstation to be connected to the host control panel.

The module can be mounted inside the Cheetah Xi 50 enclosure or it can be mounted remotely by ordering the custom mounting enclosure.

Refer to Fike document 06-367 for more information.



Exhibit 3-16: Two Button Remote Display Unit



Exhibit 3-17: Ethernet Module



Exhibit 3-18: Multi-Interface Module (MIM)

3.5.6 INTELLIGENT GRAPHIC ANNUNCIATOR

The LED Graphic (See Exhibit 3-19) is a custom made graphic display that provides a specific building layout pictorial with the actual fire alarm devices indicated with a color status LED (red, green, yellow or orange). When an event occurs, the intelligent data will be transferred via the RS485 output to the graphic and the specific device or zone LED will light as programmed.

Refer to Fike document 06-231 for more information.



Exhibit 3-19: LED Graphic Annunciator

3.5.7 TWENTY ZONE REMOTE ANNUNCIATOR, P/N 10-2667

The Twenty Zone Remote Annunciator (See Exhibit 3-20) is a tabular based display equipped with 40 LEDs (twenty red and twenty yellow). Each LED can be individually configured to annunciate the status of the host control panel or an individual zone/state event.

Refer to Fike document 06-453 for more information.



Exhibit 3-20: Twenty Zone Remote Annunciator

3.5.8 RELAY CONTROL ASSEMBLY, P/N 10-2777

The Relay Control Assembly (See Exhibit 3-21) provides a mounting location for up to six (6) CRM4 (P/N 10-2204) and/or HPM4 (P/N 10-2770) relay modules. This configuration allows up to twenty-four (24) programmable relays to be added to the system to provide system status indication, control of electrical loads, or general purpose switching.

The assembly includes the Relay Control Card (P/N 10-2778), Bus Card (P/N 10-2769), and Interface Cable (P/N 10-2784). The CRM4 and HPM4 relay modules are ordered separately.



Exhibit 3-21: Relay Control Assembly

Refer to Fike document 06-580 and 06-443 for more information.

()Note: The CRM4 and HPM4 relay cards are compatible with the Relay Control Assembly only.

3.5.9 RELAY CARD, P/N 10-2785

The Relay Card (See Exhibit 3-22) provides twelve (12) programmable relays integrated into a single card. When added to the system, the relays can be used to provide system status indication, control of electrical loads, and general purpose switching.

Refer to Fike document 06-586 for more information.



Exhibit 3-22: Relay Card

3.5.10 CLASS A PERIPHERAL BUS CARD, P/N 10-2792

The Class A Peripheral Bus Card (See Exhibit 3-23) provides a means of wiring the panel's RS485 peripheral bus and 24 VDC power output to the connected peripheral devices in a Class A (Style 6) format.

The card can be mounted inside the Cheetah Xi 50 enclosure or it can be mounted remotely by ordering the custom mounting enclosure.

Refer to Fike document 06-606 and 06-609 for more information.



Exhibit 3-23: Class A Peripheral Bus Card

3.6 INTELLIGENT DETECTORS

The Cheetah Xi 50 system uses intelligent detectors that not only include all necessary processing for decision making but also include the control logic for the system, greatly reducing the importance of the central controller. The operating parameters are downloaded to the devices during system configuration into nonvolatile memory.

The intelligent, addressable detectors are connected to and receive their operating power (15-30VDC) from the host control panel via the panel's signaling line circuit (SLC), which is capable of supporting up to 50 addressable devices in any combination of detectors and modules. Each addressable device is assigned a unique SLC address that allows it to be identified not only by the system controller for device supervision, but by other SLC devices as well to facilitate peer to peer system operation. A brief description of each intelligent detector and its features is provided in this section for reference purposes.

Refer to Fike document P/N 06-369-2, "Cheetah Xi 50 Operations Manual" for details of detector operation and available programming features.

Refer to installation and maintenance instructions supplied with each detector for more information.

() Note: Detector electronics are rated 32° - 120°F (0° - 49°C), 10- 93% relative humidity, unless otherwise noted.

3.6.1 PHOTOELECTRIC SMOKE DETECTOR, P/N 63-1052 PHOTOELECTRIC SMOKE DETECTOR WITH ISOLATOR, P/N 63-1058

The Photoelectric Smoke Detector (See Exhibit 3-24) is an intelligent, spot-type smoke detector that utilizes the light obscuration principle to detect smoke. The detector includes a tri-color LED for instant indication of device status. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator base.

The following modes of operation for the detector are configurable to suit your specific project requirements:

Alarm Verification	Drift Compensation
PreAlarm 1	Walktest
PreAlarm 2	Device Summing
Acclimate	Remote Annunciator
Day/Night Sensitivity	



Exhibit 3-24: Photo Detector

3.6.2 IONIZATION SMOKE DETECTOR, P/N 67-033 IONIZATION DETECTOR WITH ISOLATOR, P/N 67-034

The Ionization Smoke Detector (See Exhibit 3-25) is an intelligent, spot-type smoke detector that utilizes the ionization principle to detect smoke. The detector includes a tri-color LED for instant indication of device status. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator base.

The following modes of operation for the detector are configurable to suit your specific project requirements:

Alarm Verification PreAlarm 1 PreAlarm 2 Acclimate Day/Night Sensitivity Drift Compensation Walktest Device Summing Remote Annunciator Smolder Enhance



Exhibit 3-25: Ion Detector

3.6.3 PHOTO/HEAT COMBINATION DETECTOR, P/N 63-1053 PHOTO/HEAT DETECTOR WITH ISOLATOR, P/N 63-1059

The Photo/Heat Detector (See Exhibit 3-26) is an intelligent, spottype smoke detector that utilizes the light obscuration principle to detect smoke. In addition to the photoelectric sensing chamber, the detector is equipped with a thermistor based, 135°F heat detection circuit. The detector includes a tri-color LED for instant indication of device status. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator base.

The following modes of operation for the detector are configurable to suit your specific project requirements:

Drift Compensation	
Walktest	
Remote Annunciator	
Flame Enhance	



Exhibit 3-26: Photo/Heat Detector

() Note: Photo element of detector can be programmed as Supervisory and Heat element for Alarm.

3.6.4 HEAT DETECTOR, P/N 60-1039 HEAT DETECTOR WITH ISOLATOR, P/N 60-1040

The Heat Detector (See Exhibit 3-27) is a spot-type detector, designed to be programmable for a set-point range of $135-174^{\circ}F$ (57.2-78.9°C) for ordinary detection or $175-190^{\circ}F$ (79.4-87.8°C) for intermediate detection. Detectors in the ordinary range may be programmed for either fixed temperature or $15^{\circ}F$ (9.4°C) rate of rise operation. Detectors in the intermediate range are Fixed temperature only. The detection set-point is software programmable in five degree increments from $135-190^{\circ}F$ (57.2-87.8°C). The detector includes a tri-color LED for instant indication of device status. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator base.

The following modes of operation for the detector are configurable to suit your specific project requirements:

Alarm Verification	Walktest
PreAlarm 1	Remote Annunciator
PreAlarm 2	Fixed Temp/Rate-of-Rise



Exhibit 3-27: Heat Detector

spot-type smoke detector that utilizes the light obscuration principle to detect smoke. The detector is designed for use inside the duct detector housing only and should not be used for open area applications. The detector includes a tri-color LED for instant indication of device status. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator base.

The following modes of operation for the detector are configurable to suit your specific project requirements:

Alarm Verification	Drift Compensation
PreAlarm 1	Walktest
PreAlarm 2	Device Summing
Acclimate	Remote Annunciator
Day/Night Sensitivity	

()Note: Photo Duct Detector can be programmed as a Supervisory input as required by some Local Authority Having Jurisdictions (AHJ).

3.6.5.1 DUCT DETECTOR HOUSING, P/N 63-1158

The Duct housing (See Exhibit 3-29) is equipped with an integral base for mounting either the P/N 63-1057 or P/N 63-1062 duct detectors. The housing provides a remote alarm output for use with auxiliary devices, such as the remote LED annunciator and remote test stations. Unlike similar DUCT detectors, separate 24VDC is NOT required.

Five different lengths of sampling tube are available for penetrating into the DUCT:

P/N 63-1159 = up to 1ft. (0.3m) ducts P/N 63-1160 = 1ft. - 2ft. (0.3m - 0.6m) ducts P/N 63-1161 = 2ft. - 4ft. (0.6m - 1.2m) ducts P/N 63-1162 = 4ft. - 8ft. (1.2m - 2.4m) ductsP/N 63-1163 = 8ft. - 12ft. (2.4m - 3.7m) ducts



Exhibit 3-28: Photo Duct Detector



Exhibit 3-29: Duct Detector Housing

Dimportant Note: Duct Detector and Housing must ordered separately and both are required.

Refer to Section 3.8 for accessory devices that can be used in conjunction with the duct detector housing to provide remote testing and visual notification options.

3.6.6 FAAST ASPIRATING SMOKE DETECTORS

FAAST aspirating smoke detectors (See Exhibit 3-30) use a pipe network with a series of sampling holes to continuously draw air from the controlled environment to the detection chamber to monitor the environment for smoke particulate.

FAAST's highly specialized detection chamber uses Dual Vision technology to detect extremely low concentrations of smoke while maintaining a high level of immunity to non-smoke particulate – enabling Very Early Warning type smoke detection in harsh and difficult environments.

The detection chamber, which utilizes a blue LED and an infrared laser to analyze the air sample, has a configurable range of 0.00029% - 6.25% Obs/ft (0.00095% - 20.5% Obs/m) and has been specifically designed to provide high sensitivity and stability. This sensitivity range can meet and exceed the requirements of Very Early Warning smoke detection, making FAAST highly customizable to meet site-specific requirements.



Exhibit 3-30: FAAST Detectors

FAAST provides multiple levels of alarm, allowing for the implementation of strategic response plans and ample time to address a smoke event before it escalates into an actual fire and causes damage and downtime.

FAAST connects directly to the Cheetah Xi panel's signaling line circuit without the need for any additional hardware or software. This allows the detector to intelligently communicate with the panel just like any other detection device on the loop. Detector conditions are displayed at the FAAST unit and at the Cheetah Xi control panel to provide clear indication of the system status, particulate levels, alarm levels, air flow and faults.

	68-509	68-140	68-302	
	FAAST XS	FAAST XM	FAAST XT	
Coverage Area	5,000 sq. ft.	8,000 sq. ft.	28,800 sq. ft.	
	(464 sq. m)	(743 sq. m)	(2,676 sq. m)	
Max. Single	180 ft.	262 ft.	400 ft.	
Pipe Run	(54.8 m)	(79.8 m)	(121.9 m)	
Total Pipe Run	300 ft.	450 ft.	1,050 ft.	
	(91.5 m)	(137 m)	(320 m)	
Sensitivity Range	0.00029% obs/ft. to 6.25% obs/ft. (0.00095% obs/m to 20.5% obs/m)			
Air Movement	0 – 4000 ft/min. (0 – 1,219 m/min.)			
Relays (Form C)	5	8	8	

Refer to the product documentation supplied with the FAAST detector for installation, operation and maintenance instructions.

3.7 DETECTOR BASES

Several detector bases are available to allow connection of the addressable detectors to the panel's signaling line circuit (SLC). Each base provides a twist-lock feature for securing the detector to the base. Each base also provides a connection point for an optional Remote LED (P/N 02-3868), as described in Section 3.8.

A brief description of each detector base and its features is provided in this section for reference purposes.

3.7.1 FOUR-INCH BASE, P/N 63-1055 (System Sensor EB) BASE W/ ISOLATOR, P/N 63-1061 (System Sensor EBI)

The Four-Inch Base (See Exhibit 3-31) can be used with any of the Cheetah Xi 50 detectors. It mounts directly to 3 1/2 inch octagon boxes and 4 inch square boxes with plaster ring, and European boxes with 50, 60, and 70 mm screw spacing. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator detector.



Exhibit 3-31: 4-inch Base

3.7.2 SIX-INCH BASE, P/N 63-1054 (System Sensor EBF) BASE WITH ISOLATOR, P/N 63-1060 (System Sensor EBFI)

The Six-Inch Base (See Exhibit 3-32) can be used with any of the Cheetah Xi 50 detectors. It mounts directly to 3-1/2 inch and 4 inch octagon boxes (with or without plaster rings), and single gang boxes. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring when used with an isolator detector.

3.7.3 SOUNDER BASE, P/N 63-1064 (System Sensor EBS)

The sounder base (See Exhibit 3-33) provides the ability to notify occupants near the detection device(s). The base includes a local 85 db sounder that can be activated upon the specific detector alarm. It is designed to follow the remote LED programming for the detector attached to the base and can be configured for 8 different sounds and/or priorities. This base requires separate 24VDC continuous auxiliary power from the main control panel.

3.7.4 RELAY BASE, 6", P/N 63-1063 (System Sensor EBR)

The relay base (See Exhibit 3-34) provides a local dry contact relay (Form C) output that can be activated for any or multiple states or zone activation. If default programming is used, the relay will follow the remote LED programming for the detector. This base does NOT require separate 24VDC auxiliary power from the main control panel. It obtains its necessary power from the SLC.



Exhibit 3-32: 6-inch Base



Exhibit 3-33: Sounder Base



UL S2203 FM

Exhibit 3-34: Relay Base

3.8 REMOTE TESTING AND NOTIFICATION ACCESSORIES

The following accessories add functionality to the Cheetah Xi 50 detection system by allowing quick, convenient inspections at eye level and effective audible and visual notification options.

3.8.1 REMOTE ANNUNCIATOR, P/N 02-3868 (System Sensor RA100Z)

The remote annunciator (See Exhibit 3-35) can be used with any of the Cheetah Xi detector bases, including the duct detector housing. It is fully programmable from the detector head and can light different flashes for different devices/states with up to 8 different priority rows. It mounts directly to single gang electrical box with a minimum depth of 2.5 inches or directly to a wall or ceiling. The annunciator's red LED can provide visual indication of an alarm condition.

3.8.2 REMOTE TEST STATION, P/N 02-3869 (System Sensor RTS151)

The remote test station (See Exhibit 3-36) is designed to enable testing of remotely mounted duct smoke detectors from a convenient location. It mounts directly to single gang electrical box with a minimum depth of 2.5 inches or directly to a wall or ceiling. The annunciator is equipped with a red LED that provides visual indication of an alarm condition and a magnetic test function that allows remote testing of the connected detector.

Special programming is required on the associated DUCT detector when using this remote test station. See programming manual.

3.8.3 REMOTE TEST STATION WITH KEY, P/N 02-4998 (System Sensor RTS151KEY)

The remote test station with key (See Exhibit 3-37) is designed to enable testing of remotely mounted duct smoke detectors from a convenient location. It mounts directly to single gang electrical box with a minimum depth of 2.5 inches or directly to a wall or ceiling. The annunciator is equipped with a red LED that provides visual indication of an alarm condition and a keyed test/reset function that allows remote testing and resetting of the connected detector.

Special programming is required on the associated DUCT detector when using this remote test station. See programming manual.



Exhibit 3-35: Remote Annunciator



Exhibit 3-36: Remote Test Station



Exhibit 3-37: Remote Test Station with Key
3.9 ADDRESSABLE MODULES

The Cheetah Xi 50 system uses intelligent input and output modules to provide an interface between the control panel and conventional notification and initiating devices. The operating parameters for each module are downloaded to the device during system configuration into nonvolatile memory. When an input device (detector or input module) determines that action should be taken, it transmits a message over the panel's SLC loop. Output devices receive this message and use their downloaded parameters to determine if they should take action. Each module is provided with a tricolor LED to indicate instant device status (green = normal; yellow=trouble; red = active).

The modules are connected to and receive their operating power (15-30VDC) from the host control panel via the panel's signaling line circuit (SLC). The SLC loop is capable of supporting up to 50 addressable devices in any combination of detectors and modules. Each addressable device is assigned a unique SLC address that allows it to be identified not only by the system controller for device supervision, but by other SLC devices as well to facilitate peer to peer system operation. A brief description of each addressable module and its features is provided in this section for reference purposes.

Refer to Fike document 06-369-2, "Cheetah Xi 50 Operations Manual" for details of module operation and available programming features.

Refer to installation and maintenance instructions supplied with each module for more information.

()Note: Module electronics are rated 32° - 120°F (0° - 49°C), 10- 93% relative humidity, unless otherwise noted.

3.9.1 MINI MONITOR MODULE, P/N 55-045 MINI MONITOR MODULE WITH ISOLATOR, P/N 55-050

The Mini Monitor Module (See Exhibit 3-38) can be used to monitor normally open or normally closed contacts of conventional initiating devices. It is designed for mounting in a small junction box directly behind the monitored device. This module will monitor a Class B (Style B) wired input device only using the 39K ohm end of line resistor. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring.

3.9.2 MONITOR MODULE, P/N 55-041 MONITOR MODULE WITH ISOLATOR, P/N 55-046

The Monitor Module (See Exhibit 3-39) is used to monitor normally open or normally closed contacts of conventional initiating devices wired either Class B (Style B) or Class A (Style D). Class B wiring requires the use of a 39K ohm end of line resistor. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring. A module cover plate (not shown) is included with the module.

3.9.3 ADDRESSABLE PULL STATION, P/N 20-1063 ADDRESSABLE PULL STATION WITH ISOLATOR, P/N 20-1064

The Addressable Pull Station (See Exhibit 3-40) is a non-coded, dual-action manual pull station. A Mini Monitor Module is housed inside the pull station to provide an alarm initiating input to the control panel. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring.



Exhibit 3-38: Mini Monitor Module



Exhibit 3-39: Monitor Module



Exhibit 3-40: Pull Station

3.9.4 ADDRESSABLE AGENT RELEASE PULL STATION, P/N 20-1343

The Addressable Agent Release Pull Station (See Exhibit 3-41) is a non-coded, dual-action manual release pull station. A Mini Monitor Module is housed inside the pull station to provide an alarm initiating input to the control panel. The pull station provides a manual means of discharging an automatic fire extinguishing system.

(D)Note: No isolator version of this pull station is available.

3.9.5 SUPERVISED CONTROL MODULE, P/N 55-042 SUPERVISED CONTROL MODULE WITH ISOLATOR, P/N 55-047

The Supervised Control Module (See Exhibit 3-42) is used to switch an external power supply or audio amplifier to notification appliances. The module monitors the external power input for loss of power and signals the Cheetah Xi 50 panel accordingly. The module includes a tri-color LED for instant indication of device status. The module is capable of providing an optional pulsing output to signal different states, when interfaced with the Cheetah Xi 50 addressable loop. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring. A module cover plate (not shown) is included with the module.

In addition to interfacing with notification appliances, the SCM can also be used to operate either of the following interfaces:

3.9.5.1 SOLENOID PROTECTION ASSEMBLY, P/N 10-2360

The SCM can be connected to a single sprinkler solenoid rated up to 2 amps maximum at 24VDC. The Solenoid Protection Assembly (See Exhibit 3-43) <u>must</u> be used when connecting a solenoid to the SCM. Refer to Fike document 06-186 for compatible sprinkler solenoids (Factory Mutual Approved Groups A-G).

Refer to Fike document 06-344 for more information.

3.9.5.2 MASTERBOX INTERFACE, P/N 10-2413

The Masterbox Interface (See Exhibit 3-44) provides the Cheetah Xi 50 control panel with the ability to activate a Local Energy Type Auxiliary Fire Alarm System as defined by NFPA 72. The Masterbox Interface <u>must</u> be used in conjunction with a Supervised Control Module (P/N 55-042/55-047).

Refer to Fike document 06-229 for more information.



Exhibit 3-41: Agent Release Pull Station



Exhibit 3-42: Supervised Control Module



Exhibit 3-43: Solenoid Protection Assembly



Exhibit 3-44: Masterbox Interface

3.9.6 RELAY MODULE, P/N 55-043 RELAY MODULE WITH ISOLATOR, P/N 55-048

The Relay Module (See Exhibit 3-45) provides two Form C dry contact relays configurable for single operation via the intelligent addressable loop. It contains a wide range of operating modes including multi-zone operation of up to 4 different states and multi-state programming. Optional feedback or independent contact closure input available for use on non-critical input such as monitoring the relay closure or closure from the device that it is monitoring. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring. A module cover plate (not shown) is included with module.



The Releasing Control Module (See Exhibit 3-46) provides an interface between the suppression system solenoid, agent release module (ARM), or impulse releasing module (IRM) and the addressable loop. The module requires 24VDC continuous output power from the panel to power the selected releasing device(s). The module provides two different output connections (solenoid or release module) of which ONLY ONE can be used per module.

It contains a wide range of operating modes including multi-zone operation of up to 4 different states and multi-state programming. The isolator version provides complete short circuit isolation for NFPA Class X (Class A/Style 7) wiring. A module cover plate (not shown) is included with module.

Refer to Fike document 06-106, "Agent Release Module (ARM) Manual" and 06-552, "Impulse Release Module (IRM) Manual" for proper connections to ARM(s) or IRM(s).

()Note: ARM's and IRMs may be intermixed on the same releasing circuit.

3.9.7.1 SOLENOID PROTECTION ASSEMBLY, P/N 10-2360

The RCM can be connected to a single releasing solenoid rated up to 2 amps maximum at 24VDC. The Solenoid Protection Assembly (See Exhibit 3-47) <u>must</u> be used when connecting a solenoid to the RCM. Refer to Fike document 06-186 for compatible releasing solenoids.

Refer to Fike document 06-344 for more information.



Exhibit 3-45: Relay Module



Exhibit 3-46: Releasing Module



Exhibit 3-47: Solenoid Protection Assembly

3.10 VESDA HIGH LEVEL INTERFACE

The VESDA HLI (See Exhibit 3-48) is a custom device that provides an integrated interface between the Cheetah Xi 50 panel and any VESDA detector(s) connected to the VESDA net, allowing bi-directional communication. Communication between the control panel and the HLI is made via the control panel's RS232 peripheral bus. The HLI should be powered via the Cheetah Xi 50 panel's 24VDC continuous auxiliary power.

- Open Protocol HLI, P/N 68-023 (compatible with panel firmware versions 7.01 and older)
- Modbus HLI, P/N 68-517 (compatible with panel firmware versions 7.20 and newer)

Refer to Fike documents 06-158 and 06-823 for more information.



Exhibit 3-48: VESDA HLI

3.11 PROGRAMMING AND CONFIGURATION EQUIPMENT

The items discussed in this section are *not* UL listed; however, one or more of these items can be used to facilitate proper configuration of the Cheetah Xi 50 system.

3.11.1 IR REMOTE TOOL, P/N 55-051

The IR Remote tool (See Exhibit 3-49) is a hand-held remote control that is designed to communicate with the panel and other devices through any selected device on the loop. It can read device information such as type, loop, address and sensitivity. It can also write device information such as loop, address, branch and service date and initiate device test. It features a 16-character liquid crystal display and a 17-button keypad.

Features of the IR Remote Tool:

- Operates with 2 AA Batteries
- Communicates bi-directionally with any device
- Easily configure devices by setting the loop and address
- Quickly read sensitivity levels
- Easily test photo and ion detectors in the sub-floor, as well as duct detectors
- Immediately record the date serviced
- Instantly perform a remote test of any detector or module, if programmed for Walktest with IR
- Effortlessly complete a walk test as required
- Access and test hard-to-reach detector or module through any device



Exhibit 3-49: IR Remote Tool

3.11.2 HAND HELD PROGRAMMER, P/N 10-2648 (NON-LISTED)

The Hand Held Programmer (See Exhibit 3-50) provides the user the ability to **address** the Cheetah Xi 50 addressable devices. The Hand Held Programmer contains the same operating code as the Cheetah Xi 50 and can be used as a training device and/or troubleshooting tool.

Refer to Fike document 06-390 for more information.

3.11.3 C-LINX SOFTWARE, P/N 06-327

The C-Linx Software provides a computer interface to the Cheetah Xi 50 controller. It provides the designer the tools to design a system in their office and then load the configuration at the project site. It also provides the ability to retrieve, save and print the configuration and history of events from the control panel as well as perform several diagnostic functions.

Refer to Fike document 06-448 for more information.

3.11.4 INTERFACE CABLE, P/N 10-2629

The 10-2629 interface cable (See Exhibit 3-51) consists of a USB 2.0 A/B Male-to-Male assembly. It should be used when programming using the C-Linx Software to the 50 point panel or Handheld Programmer.

()Note: Requires drivers for proper operation. Drivers can be downloaded from Fike Customer Portal.



Exhibit 3-50: Hand Held Programmer



Exhibit 3-51: USB Communication Cable

3.12 BATTERIES AND BATTERY ENCLOSURES

Batteries are required for alarm systems for maintaining emergency back-up power. Two each 12V batteries are required and are to be wired in series for maintaining a 24VDC back-up. Most systems require at least a 24 hour standby current with 5 minutes alarm current for determining minimum battery size. Refer to Appendix A for Battery Calculation form for determining required battery size for system.

3.12.1 BATTERY ASSEMBLIES

P/N 10-2626 – Two 12 AH batteries with wire harness
P/N 10-2190-2 – Two 18 AH batteries with wire harness
P/N 10-2192 – Wire harness for 7.2 AH and 18 AH batteries
P/N 10-2517 - Wire harness with Battery EOL (for use if batteries give fault but load test good)

3.12.2 BATTERIES

Two 12 volt batteries wired in series are required to maintain 24 Vdc backup.

Battery
Battery

3.12.3 BATTERY ENCLOSURES

Batteries larger than 18 AH will not fit inside the Cheetah Xi 50 panel enclosure(s); therefore, one of the following battery enclosures must be installed to house the batteries. Interconnecting cables from the battery cabinet to the Cheetah Xi 50 enclosure shall be in installed in conduit.

3.12.3.1 33AH BATTERY ENCLOSURE (BATTERIES NOT INCLUDED)

P/N 10-2154-c (c = **R**ed or **B**lack)

The 33AH Battery Enclosure (See Exhibit 3-53) is a heavy gauge metal enclosure designed to house two 33AH batteries. Conduit knockouts are provided to provide entry of battery wiring. The box lid is installed onto the back-box using the 4 mounting screws provided.

Refer to Fike document 06-534 for more information.

3.12.3.2 75AH BATTERY ENCLOSURE (BATTERIES NOT INCLUDED)

P/N 10-2236-c (c = **R**ed or **B**lack)

The 75AH Enclosure (See Exhibit 3-54) is a heavy gauge metal enclosure designed to house two 75AH batteries. Conduit knockouts are provided to provide entry of battery wiring. The box lid is installed onto the back-box using the 4 mounting screws provided.

Refer to Fike document 06-535 for more information.



Exhibit 3-52: Sealed Batteries



Exhibit 3-53: 33AH Battery Enclosure



Exhibit 3-54: 75AH Battery Enclosure

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4.1 SYSTEM INSTALLATION SEQUENCE

This section provides general instructions that should be adhered to when installing the Cheetah Xi 50 system. Refer to the installation instruction sheets supplied with each component for specific installation instructions.

The following checklist is provided to assist the installer during system installation:

Task	Refer to
Select the enclosure mounting location.	Section 4.2
Select the enclosure mounting option (flush or surface).	Section 4.3
Mount the enclosure.	Section 4.4
Wire Selection	Section 4.5
Circuit Class Designations	Section 4.6
Pull field wiring into enclosure.	Section 4.7
Verify the field wiring.	Section 4.8
Install internal panel components.	Section 4.9
Connect AC power to the controller.	Section 4.10
Install batteries.	Section 4.11
Apply power to the panel.	Section 4.12
Connect field wiring.	Section 4.13
Initial power-up with field wiring connected.	Section 4.14
Configure the system.	Section 4.15
Conduct acceptance testing.	Section 4.16
Install the dead-front panel.	Section 4.17

4.2 SELECT THE ENCLOSURE MOUNTING LOCATION

The mounting location for the Cheetah Xi 50 enclosure is very important. Fike recommends that all system enclosures be installed in an area that is readily accessible with sufficient room to allow easy installation and maintenance, and that is capable of maintaining a nominal room temperature of 0°-49°C / 32°-120°F, with a relative humidity of 93 percent. Do NOT install in an environment that exceeds these temperature and humidity ranges.

Additional items to consider when selecting the appropriate mounting location for the enclosure includes: vibration, dust, moisture, electromagnetic interference, and radio frequency interference. These are all types of problems that could adversely effect the successful operation and useful life of the electronic components and should be avoided if possible.

Mount the enclosure at a height that allows easy access to system electronic components for maintenance and service. Allow sufficient clearance around the enclosure for the outer door to swing freely.



4.3 SELECT THE ENCLOSURE MOUNTING OPTION

The Cheetah Xi 50 system enclosure is designed to be surface or flush mounted. For surface mounting, you will utilize the mounting holes provided in the back of the enclosure to secure it to the wall. For flush mounting, you will need to cut an opening in the wall to fit the back-box dimensions (See Exhibit 4-1) and secure the enclosure in place by utilizing the through holes located on the sides of the box. The enclosure back-box is designed to fit between wall framing members for flush mounting.

()Note: The Cheetah Xi 50 enclosure is NOT fire rated; do not install on or in fire rated walls unless steps are taken to maintain the fire rating of the wall.

4.4 MOUNT THE ENCLOSURE

The following general steps shall be used to install the system enclosure:

- 1. The outer door can be removed to make installation of the back-box easier. To remove the outer door, unscrew the hinge screws located at the top and bottom of the enclosure.
- 2. Determine the quantity and size of conduit to be attached to the enclosure and punch out the appropriate conduit knockouts. All field wiring is to be routed into the enclosure via knock-out openings. Conduit knock-outs are provided for two distinct conduit sizes. Removing just the inside hole creates a one-half inch (1/2") opening. Removing the entire opening provides a three-quarter inch (3/4") opening.

() Note: Unless otherwise detailed in this manual or in other documents relating to this control panel, the technician shall utilize published standards and references such as NFPA 70 National Electrical Code, NFPA 72 National Fire Alarm Code, and others, which may be relevant to the Local Authority Having Jurisdiction for selecting the appropriate conductor size and quantity.

(i) Note: If batteries are to be installed in the enclosure, do not use the conduit knock-outs in the bottom of the enclosure.

- 3. For <u>surface mounting</u>, mark and pre-drill holes in mounting surface and secure the back-box to the wall using appropriate mounting hardware.
- For <u>flush mounting</u>, mark and cut an opening in the wall to fit the back-box dimensions (See Exhibit 4-1). Wall must be framed to accommodate the back box dimensions. Secure the enclosure in place with appropriate mounting hardware utilizing the through holes located on the sides of the box.
- 5. Reinstall the outer door using existing mounting hardware.
- 6. Connect the grounding wire from the outer door to the enclosure back-box. Check for continuity between door and back-box.

Wote: Refer to Fike document 06-624, "50 Point Enclosure Installation Instructions" for further details.



Exhibit 4-1: Enclosure Dimensions

4.5 WIRE SELECTION

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When planning the type of wire to be used, refer to National Electrical Code (NFPA 70), wire manufacturers product specifications and National Fire Alarm and Signaling Code (NFPA 72). The wiring specifications shown in Exhibit 4-2 may be used to estimate the appropriate wire size. Completely review the System Components section for planning the appropriate wiring for each circuit and device.

Sizo		Dian	neter	Uncoate	d Copper	Coated	Copper
(AWG)	Strands	in.	mm	ohm/kFT	ohm/km	ohm/kFT	ohm/km
18	1	0.040	1.02	7.77	25.5	8.08	26.5
18	7	0.046	1.16	7.95	26.1	8.45	27.7
16	1	0.051	1.29	4.89	16.0	5.08	16.7
16	7	0.058	1.46	4.99	16.4	5.29	17.3
14	1	0.064	1.63	3.07	10.1	3.19	10.4
14	7	0.073	1.85	3.14	10.3	3.26	10.7

Exhibit 4-2: Conductor Properties (excerpted from NFPA 70, Chapter 9, Table 8)



4.6 CIRCUIT CLASS DESIGNATIONS

The circuits on the Cheetah Xi 50 controller and its field devices can be configured for Class B (two wire), or Class A or X (four wire) operation. Class B wiring does not include a redundant path and the operational capability stops at a single open. Class A wiring includes a redundant path and the operational capability continues past a single open. When Class A wiring is utilized, no t-tapping is allowed and the return leg from the last device on the circuit back to the panel or device must be run in a separate conduit from the main leg. With Class A wiring, the control panel is constantly supervising all wiring (both main and redundant). Once an open fault is detected on either leg, the panel immediately transfers communication to the intact redundant leg of the Class A wiring. Class X wiring is the same as Class A wiring, but requires the use of isolator devices in order to provide operational capabilities past a single open or short-circuit.

4.7 PULL FIELD WIRING INTO THE ENCLOSURE

The Cheetah Xi 50 system wiring is classified as either power-limited or non-power-limited per NEC article 760. All power-limited wiring must be separated from all non-power-limited wiring by a minimum distance of 1/4 inch (6 mm) within the system enclosure. The Cheetah Xi 50 power-limited versus non-power-limited circuits are designated as follows:

Power-Limited circuits include:

- P2 Relays (Alarm, Supervisory, Trouble)^{1,2}
- P3 Computer Interface Connection
- P4 VESDA HLI Interface
- P5 Not Used
- P6 RS-485 Peripheral Buss, DACT, AUX Power
- P7 Signaling Line Circuit
- P8 & P9 Notification Appliance Circuits (1 & 2)

¹Connected to power-limited or nonpower-limited field wiring, but not both.

 2 When the optional DACT module is installed, the incoming phone lines (power-limited) must be separated from any nonpower-limited P2 relay connections.

Nonpower-limited circuits include:

P1 – AC Power Supply Input and Battery Input P2 – Relays (Alarm, Supervisory, Trouble)^{1,2}

When installing optional components within the Cheetah Xi 50 enclosure, refer to the installation instructions supplied with each component for designation of power-limited versus non-power-limited circuits. Route all field wiring through the appropriate conduit knockouts, then to the appropriate circuit terminals. Provide adequate wire length to allow strain relief.

4.8 VERIFY FIELD WIRING

The integrity of the field wiring shall be tested before installing field devices or landing the field wiring to the system controller. With the end of each circuit open, the following tests shall be conducted:

- 1. Verify absence of ground-fault on any field wiring prior to connecting the circuits. Refer to specifications for acceptable readings.
- 2. Verify no stray voltages exist on any field wiring prior to device installation.
- 3. Verify each conductor is free from shorts between all other conductors and chassis.
- 4. Measure wire resistance with a short across the circuit at a point furthest from circuit start. This is typically across EOL for Class B and at the panel for Class A or Class X.



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4.9 INSTALL INTERNAL PANEL COMPONENTS

Before installing the internal panel components into the enclosure back-box, thoroughly clean the enclosure making sure that it is clean and free from any construction dust or debris. The Cheetah Xi 50 electronics contain static sensitive components. Handle the electronics by the edges only and avoid touching the integrated components. Keep the electronics in the protective static bags it was shipped in until time for installation. Always ground yourself with a proper wrist strap before handling the module(s) to reduce the risk of damage due to static discharge.

(D)Note: The mounting hardware for installing the panel components is shipped with the system enclosure.

4.9.1 INSTALL AC POWER TRANSFORMER

The following general steps shall be used to install the AC power transformer into the back-box:

- 1. Locate the four threaded press studs provided in the enclosure back-box for mounting the transformer (See Exhibit 4-3).
- 2. Position the transformer over the press studs making sure that the transformer's H1 and H2 (AC primary input) terminals are facing to the left side of the enclosure. Secure the transformer in place with four 6-32 hex nuts and lock-washers provided with the enclosure.



Exhibit 4-3: Transformer Mounting Location



Exhibit 4-4: Transformer Mounting



4.9.2 CONNECT AC POWER TO THE TRANSFORMER

System AC line power (120 VAC or 240 VAC, 50/60 Hz) must originate from a dedicated circuit at the main building power distribution center. The circuit breaker shall be equipped with a lockout mechanism and be clearly labeled as a **"Fire Alarm**" circuit. Route the power to the system through the dedicated grounded metallic conduit.



Verify that AC power circuit has been turned off before connecting power wiring to the transformer.

The following general steps shall be used to connect AC power to the transformer:

- 1. Route the AC hot and neutral wires to the transformer (See Exhibit 4-5).
- 2. Secure Hot and Neutral wires to terminals H1 and H2.



- 3. Install the AC ground wire (G) under the transformer onto the mounting stud identified with the grounding sticker. This connection provides lightning and transient protection for the panel and must make a good mechanical connection to the enclosure.
- 4. Tighten the hex nuts to secure the transformer and ground wire in place.
- 5. Align and lower the plastic terminal cover onto the transformer and snap in place.
- 6. DO NOT ENERGIZE THE AC POWER SOURCE AT THIS TIME!



Exhibit 4-5: Power Transformer Wiring

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4.9.3 INSTALL OPTIONAL DACT

If the optional DACT (P/N 10-2528) is to be installed within the Cheetah Xi 50 enclosure, it must be installed prior to installing the control board (See Exhibits 4-6 and 4-7).

The following general steps shall be used to install the DACT into the back-box:

- 1. Locate the four threaded press studs provided in the enclosure back-box for mounting the DACT (See Exhibit 4-6) and install the four hex stand-offs (.625, F/F #6-32) supplied with the DACT onto the threaded press studs.
- 2. Align the mounting holes provided in the four corners of the DACT with the stand-offs and secure in place using the four #6-32 screws supplied with the DACT (See Exhibit 4-7).



Exhibit 4-6: DACT Mounting Location

Refer to the installation instructions supplied with the DACT for specific installation instructions.



4.9.4 INSTALL THE CHEETAH XI 50 CONTROLLER

The following general steps shall be used to install the Cheetah Xi 50 controller:

- 1. Locate the four threaded press studs provided in the enclosure back-box for mounting the controller board (See Exhibit 4-8) and install the four hex stand-offs (2.5", M/F #6-32) supplied with the enclosure onto the threaded press studs.
- Locate the threaded press studs provided in the enclosure back-box for keypad support (See Exhibit 4-9) and install the hex stand-off (2.5", F/F #6-32) supplied with the enclosure onto the threaded press stud.
- 3. Align the mounting holes provided in the four corners of the controller board with the stand-offs and secure in place using the four #6-32 hex nuts supplied with the enclosure (See Exhibit 4-9).



Exhibit 4-8: Controller Mounting Location



Exhibit 4-9: Controller Mounting

4.10 CONNECT AC POWER TO THE CONTROLLER

AC power connections to the Cheetah Xi 50 Controller must be made with the main power breaker locked out.

The following general steps shall be used to connect AC power to the controller:

 Connect wiring from the secondary side of the AC power transformer (X1 and X2) to the controller's P1 - 24VAC Secondary terminals (See Exhibit 4-10) making sure to land wires to the correct terminals.

⚠ Caution
The transformer input should never be connected to the
battery input. Reversing the AC and Battery input will damage
the controller.

2. Do **NOT** energize the AC power source at this time!



Exhibit 4-10: AC Power Connections



4.11 INSTALL BATTERIES

The Cheetah Xi 50 enclosure is capable of housing up to two (2) 18 AH batteries. Where larger or additional battery Amp-Hours are required, a separate battery cabinet can be installed to house the batteries. The battery cabinet must be installed in the same room as the control panel with a maximum wire length of 10 ft. (3 m). Interconnect wiring shall be 14 AWG minimum and shall be installed in conduit.

The following general steps shall be used to install the batteries:

- 1. Install the batteries (2) into bottom of the enclosure and/or into the separate battery cabinet.
- 2. Connect the positive (+) battery cable lead from the (P1) positive battery input terminal to the positive (+) terminal of the first battery.
- 3. Connect the negative (-) battery cable lead from the (P1) negative battery input terminal to the negative (-) terminal of the second battery.
- 4. A jumper is supplied to provide the connection between the negative (-) terminal on the first battery to the positive (+) terminal on the second battery. *Do NOT install this jumper at this time!*



Exhibit 4-11: Battery Connections

4.11.1 BATTERY CUTOFF

The Cheetah Xi 50 panel has battery cutoff feature that allows the system batteries to be automatically disconnected from the load if the system's operating voltage (AC/DC) drops below 19 volts. This feature prevents the batteries from being discharged beyond their end-of-discharge terminal voltage thus preventing potential damage to the batteries or control unit, which could result in abnormal operation of the control unit during battery discharge period or on re-energizing by the main power supply. Upon restoration of the main power supply, the batteries shall be automatically reconnected to the system. Refer to Appendix D for battery cutoff wiring diagram.

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4.12 APPLY POWER TO THE PANEL

Prior to connecting any field wiring to the panel, apply power to the controller and verify proper operation.

The following general steps shall be used to apply power to the controller:

- 1. Turn on the breaker and power the control panel with AC power only. The AC Power LED on the control panel display should illuminate. In addition, the system Trouble LED should illuminate because the batteries are not connected.
- 2. Install the supplied jumper cable between the negative (-) terminal of the first battery to the positive (+) terminal of the second battery.
- 3. With the batteries connected, verify that the only the system AC POWER LED is illuminated.
- 4. Identify and fix any problems indicated by the controller.
- 5. Power down the controller by first disconnecting the batteries (DC power), then transferring the AC circuit breaker.

▲ Caution

Immediately power down the system (DC followed by AC) if the display shows improper characters, you smell smoke, or if you see sparks. Each of these conditions indicates improper connections or malfunction of components.



4.13 CONNECT FIELD WIRING

The Cheetah Xi 50 Controller is equipped with terminal block connectors, which facilitate easy connection of field wiring to the appropriate terminals. See Exhibit 4-12 for terminal block designations and their general function for reference purposes.



Exhibit 4-12: Cheetah Xi 50 Board Terminal Connections

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4.13.1 GENERAL RELAY WIRING (P2)

The panel provides three Form-C relay contacts which will activate on system Alarm, Supervisory, and Trouble conditions (See Exhibit 4-13). The Trouble Relay is normally energized to allow it to change state when power to the main control board is lost. Relay contacts are shown with power applied and no Troubles present. The circuit board provides labeling for the three form C relays where C=common; NC=normally closed; and NO=normally open. These connections can all be wired power-limited or non-power-limited, but not both.

4.13.2 RS232 WIRING (P3-P5)

The panel provides one USB and one RS232 jack which allow intelligent devices to link into the Cheetah Xi 50 controller (See Exhibit 4-14). These connections are all supervised and power-limited.

P3 – USB jack dedicated for programming the panel using the C-Linx software. USB programming cable P/N 10-2629 (or equivalent) must be used for this connection.

P4 – RS232 jack dedicated for connection to a VESDA network via a VESDA HLI interface. A 20 ft. (6.1m) serial cable P/N 02-15802, is provided with the HLI for connection to the controller. The HLI is considered a permanent connection to the RS232 port (P4) and shall be located within 20 ft. (6.1m) from the control panel.

P5 - currently not used.

4.13.3 AUXILIARY POWER WIRING (P6)

The panel provides two 24VDC, power-limited, supervised, non-resettable power outputs rated at 1.75 amps maximum (See Exhibit 4-15). These power outputs can be used to power addressable output modules, graphic annunciators, 4-wire detectors, some duct detectors, beam detectors, etc.

Note: The Cheetah Xi 50 Control Panel has a total power capability of 5.25 amps.



Exhibit 4-13: P2 Relay Connections



Exhibit 4-14: RS232 Wiring (P3-P5)



Exhibit 4-15: (P6) Auxiliary Power Wiring



4.13.4 PERIPHERAL BUS WIRING (P6)

The panel provides a single isolated RS485 data interface between the Cheetah Xi 50 panel and compatible peripheral devices identified in Section 3.5. The peripheral bus must be connected in a daisy chain configuration as shown in Exhibit 4-16. These connections are all supervised and power-limited. Do not branch or star tap the peripheral bus.



Exhibit 4-16: (P6) RS485 Peripheral Bus Wiring

4.13.5 DACT WIRING (P6)

The panel provides a dedicated connection point for the optional internal Digital Alarm Communicator Transmitter (See Exhibit 4-17).

Refer to Fike document 06-479 for more details.



Exhibit 4-17: (P6) RS485 DACT Wiring

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4.13.6 SIGNALING LINE CIRCUIT WIRING (P7)

Communication between the control panel and each intelligent, addressable device takes place through the Signaling Line Circuit (SLC). The SLC is supervised and power-limited. The SLC loop can be wired to meet the requirements of NFPA Class B (Style 4), Class A (Style 6), or Class X (Class A/Style7) circuits (See Exhibit 4-18 and 4-19). For details on how to wire each addressable device to the SLC loop, refer to the installation instructions supplied with each device.

Be aware of surrounding environment when installing the addressable loop, looking for possible sources of electrical interference. All SLC wiring should be segregated from such sources for optimum operation. Conduit and shielded cable help prevent electrical interferences from being induced. Shielded wire is not required, but if used install the outgoing drain wire at the panel. Connect it through and insulate at each junction box and leave unconnected and insulated at the last device.

(i) Note: FM Approved Deluge and Pre-action Sprinkler operation requires that initiating device circuits be Class A and wired to FM Listed/Approved devices.

⚠ Caution
If using a High voltage device to verify ground isolation of
loop wiring, do not expose devices or modules to the high
voltage. Damage to the devices will occur.

4.13.6.1 CLASS B WIRING

Exhibit 4-18 shows the typical wiring of a supervised and power-limited two-wire SLC that meets NFPA 72, Class B (Style 4) requirements. This wiring method does not include a redundant path. In the event of a single wire break, the communication to devices after the break is lost. This wiring method will support t-tapping (Detector #3 is T-Tapped off Detector #2).



Exhibit 4-18: Class B SLC Wiring



4.13.6.2 CLASS A OR CLASS X WIRING

Exhibit 4-19 shows typical wiring of a supervised and power-limited four-wire SLC that meets NFPA 72, Class A (Style 6) or Class X (Class A/Style 7) requirements. This wiring method includes a redundant path. In the event of a single wire break, the communication to devices after the break continues. This wiring method will not support t-tapping



Exhibit 4-19: Class A and Class X SLC Wiring

4.13.6.3 CLASS X WIRING

Class X wiring (Class A/Style 7) is the same as Class A wiring, except that it utilizes isolator devices to provide short-circuit protection for the signaling line circuit (SLC). The circuitry built-into the isolator devices allow communication to devices to continue past a single short-circuit. Short circuit protection can be provided for the entire signaling line circuit or for selected sections of the signaling line circuit. Isolator devices can be installed to electrically isolate a zone of detectors and/or modules from the remainder of the loop by installing an isolator type device at the point where the SLC enters and leaves the zone. A maximum of 50 devices can be installed between two isolator type devices.

Wote: If using isolator bases, the loop + is separated between terminal 1 (in) and terminal 2 (out).

4.13.6.4 REMOTE LED WIRING

The detector base has the ability to attach a remote LED as shown in Exhibit 4-20. Power for operation of the LED is drawn from the control panel's addressable loop. The addressable loop is limited to a maximum of 100 mA total for addressable devices plus remote LED devices.





4.13.7 NOTIFICATION APPLIANCE CIRCUIT WIRING (P8 & P9)

P8 and P9 are two separate notification appliance circuits (NAC's) that provide the ability to activate compatible, UL-listed notification appliances listed in Fike document 06-186, "Device Compatibility manual." The NAC circuits are fused (4 amp), supervised, power-limited, and can be wired Class B (Style Y) (using 1.2K EOL) or Class A (Style Z) (no EOL), as shown in Exhibits 4-21 and 4-22. Shielded wiring is not required; however, if used, land at the panel terminal block and pass through at each device similar to SLC device wiring.

The NACs can be configured to initiate the Gentex Commander Series or System Sensor SpectrAlert Series sync protocol. This allows all devices (strobes and horns) connected to the circuit to operate in unison. It also allows audible devices to be silenced while the visual signals remain operational or silence both audible and visual devices. This is accomplished without requiring purchase and installation of a separate sync module. Both circuits must be programmed to use the same manufacturers sync pulse if this option is used.



Exhibit 4-21: (P8/P9) NAC Circuit Wiring – Class B



Exhibit 4-22: (P8/P9) NAC Circuit Wiring – Class A

4.14 INITIAL POWER-UP WITH FIELD WIRING CONNECTED

- 1. Energize AC power to Cheetah Xi 50 controller and field power supplies (if installed) with field wiring connected.
- 2. Connect batteries to the Cheetah Xi 50 controller and field power supplies (if installed).
- 3. Validate that all devices begin to function appropriately and wiring is connected properly.
- 4. Correct all circuit faults.

🗥 Caution

Immediately power down the system (DC followed by AC) if the display shows improper characters, you smell smoke, or if you see sparks. Each of these conditions indicates improper connections or malfunction of components. After power is removed, investigate for source of malfunction by checking module connections in the area of the malfunction.



4.15 CONFIGURE SYSTEM

There are many different methods that can be chosen to configure the Cheetah Xi 50 fire alarm system. The two most common choices would be to AUTO PROGRAM or ENGINEERED CONFIGURE. Any combination of these two methods may also successfully accomplish matching the field devices to the installation configuration requirements. Refer to Fike Document 06-657, "Cheetah Xi 50 Programming Manual" for specific details on how to configure the system.

4.16 ACCEPTANCE TEST

Once the system has been wired, configured, and any faults corrected, all installed components should be tested as a system to insure proper operation and to verify compliance with applicable NFPA standards. Testing should be conducted by a factory-trained fire alarm technician in the presence of a representative of the Authority Having Jurisdiction (AHJ) and the owner's representative.

The initial system check is required to verify that all components of the system are installed and operating as intended. Where test results differ from those expected, corrective action must be taken.

Before commencing testing, notify all areas where the alarm sounds and off-premises locations that receive alarm and trouble transmissions that testing is in progress.

When the system has been tested and found to operate satisfactorily, a "Record of Completion" document, referenced in NFPA 72, shall be filled out and mounted near the fire alarm panel or provide it to the building representative.

Records of all testing and maintenance shall be kept on the protected premises for a period of at least five (5) years.

A complete check of installed field wiring and devices should be made at regular intervals, in accordance with NFPA 72 requirements.

4.17 INSTALL THE DEAD-FRONT PANEL

The dead-front panel should not be installed until after all testing and system commissioning has been completed. Refer to Fike document 06-647, "50-point Dead-Front Panel Installation Instructions".



Exhibit 4-23: Dead-Front Panel

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Power calculations must be completed to determine standby and alarm current loads for the system to assure that the system power supply is capable of providing the required quantity of power during normal system operation and fire alarm conditions. The power requirements cannot exceed the capabilities of the system power supply. Amp-hour requirements must be calculated as well to determine proper back-up battery size selection.

The following battery calculation form provides the current draw (standby and alarm) of each compatible device that can be connected to the system. To calculate the required standby and alarm power, as well as required back-up battery size for the system, simply list the number of each type of device that will be connected to the system in the quantity column(s) and perform the required calculations.

BATTERY CALCULATION FORM

Item		Des	scrip	tion	Sta Curr Unit	andby rent per (Amps)		Qty		Total Syste Standby Current p Unit (Amp	em y ber os)	Alarm Current per Unit (Amps)		Qty		Total System Alarm Current per Unit (Amps)
1	10-2622 S	yste	m C	ontroller (CSC)	0	.116	х	1	=	0.116		0.228	х	1	Π	0.228
2	Signaling I	_ine	Circ	uits (SLC)			х	1	=				x	1	Π	
	S	ectic	on 2	Totals					_	▼						▼
3	Auxiliary P	owe	r				х	1	=				x	1	=	
	S	ectic	on 3	Totals	[N	lote 1]		-		▼		[Note 2 & 3]				▼
4	Notification	n Cir	cuits	§ [Note 8]		NA	х	NA	=	NA			x	1	=	
	S	ectic	on 4	Totals						▼		[Note 2]				▼
						Total S (Syster Currer	n Stano nt (Amp	dby os):			Total : Cເ	Syst urrer	em Ala nt (Amp	rm s):	
	Max. Quie	scer	nt Lo	oad (Standby):	[Not	hr e 4]		Total	Alar	m Load:	[Note	min. x 1 5]	/60	=		hr
Re Stan	equired dby Time (hr)		s	Total System tandby Current (Amps)	E Required Standby Capacity (Amp-hr) Required Alarm Time (hr) Total System Alarm Current (Amps)					Required Alarm Capacity (Amp-hr)						
		х			=						х			=		
Requ Capa	ired Standb icity (Amp-hi	y -)		Required Ala Capacity (Amp	rm p-hr)	(Tota Capac	ıl Requ city (An	iired np-hr)	Optio	nal Factor of Safety			Adju apa	sted Battery city (Amp-hr)
			+			=				x			=			
												[Note 6]				[Note 7]

Section 1 - System Requirements

Notes:

- 1. Auxiliary Power cannot exceed 1.5 A in normal standby condition.
- 2. Auxiliary Power plus Notification Power cannot exceed 5.25 A.
- Auxiliary Power does not include current delivered to SCM during alarm conditions. This current is totaled in Section 4.0 Notification Appliances.
 NFPA 72 requires that the secondary power supply have sufficient capacity to operate the system under non-alarm condition for a minimum of 24 hours. Alternate standby times may be required by the local authority or approval agency. Factory Mutual requires that the secondary Power Supply have sufficient capacity to operate the system under non-alarm condition for the
- Factory Mutual requires that the secondary Power Supply have sufficient capacity to operate the system under non-alarm condition for the following systems Standard System 24 hours, Voice Evacuation 24 hours, Pre-Action/Deluge Release 90 hours.
- 5. NFPA 72 requires that at the end of the 24 hour standby period, the secondary power supply shall have sufficient capacity to operate all alarm notification appliances used for evacuation or to direct aid to the location of an emergency for 5 minutes (0.083 hr) standard, 15 minutes for emergency voice/alarm communication service or UL 2572 mass notification service. Factory Mutual requires that at the end of the required standby period, the secondary Power Supply shall have sufficient capacity to operate all
- alarm notification appliances used for or to direct aid to the location of an emergency for 5 minutes (0.083 hr) standard, 15 minutes for emergency voice/alarm communication service and 15 minutes Pre-Action/Deluge Release.
- 6. 1.2 represents a battery derating factor of 20 percent.
- 7. Cheetah Xi 50 control panel can support charging up to 75 AH standby batteries.
- 8. Section 4.0 shall only include the current draw of notification appliances powered by the Cheetah Xi 50 system controller. This includes the two on-board notification appliance circuits (NAC 1 & 2).



Item	Addressable Device Description	Standby Current per Unit (mA)		Qty		Total Standby Current per Unit (mA)	Alarm Current per Unit (mA)		Qty		Total Alarm Current per Unit (mA)
1	63-1052/1058 Photo	0.481	х		=	· · · ·	2.000	х		=	
2	67-033/034 Ion	0.481	х		=		2.000	х		=	
3	63-1053/1059 Photo/Heat	0.481	х		=		2.000	х		=	
4	60-1039/1040 Heat	0.451	х		=		2.000	х		=	
5	63-1057/63-1062 Photo/Duct	0.481	х		=		2.000	х		=	
6	68-140 FAAST XM [Note 1]	0.330	х		=		0.481	х		=	
7	68-302 FAAST XT [Note 1]	0.330	х		=		0.481	х		=	
8	68-509 FAAST XS [Note 1]	0.330	х		=		0.481	х		=	
9	55-045/050 MMM	0.485	х		=		2.000	х		=	
10	55-041/046 MM	0.485	х		=		2.000	х		=	
11	20-1063/1064 Pull Station	0.370	х		=		2.000	х		=	
12	20-1343 Release Pull Station	0.370	х		=		2.000	х		=	
13	55-042/047 SCM [Note 2]	0.630	х		=		2.000	х		=	
14	55-043/048 RM	0.580	х		=		2.000	х		=	
15	63-1063 Relay Base	0.170	х		=		0.170	х		=	
16	55-052/053 RCM [Note 3]	0.450	х		=		6.000	х		=	
17	63-1064 Sounder Base [Note 1]	0.300	х		=		0.300	х		=	
18	02-3868 Remote Annunciator	NA	х	NA	=	NA	10.000	х		=	
19	02-3869 Remote Test	NA	х	NA	=	NA	10.000	х		=	
20	02-4998 Remote Key Test	NA	х	NA	=	NA	12.000	х		=	
		Tota	al SL(Cur	C Stand rent (m.	lby A):		Tot	tal S Curi	LC Alar	rm 4):	
Тс	otal SLC Standby (mA):	/1000 =	Tota	A		Total SLC Alarn	n (mA):		/100	0 =	A Total

Section 2 – Signaling Line Circuit

Insert totals in Section 1 - Line Item 2.

Notes:

1. Device requires 24vdc power for operation. Include device current draw in Section 3.0 if power is supplied by the Cheetah Xi 50 system controller.

Device requires 24vdc power for operation of connected devices. If using the SCM to control the operation of master-box interface or sprinkler solenoids, include current draw for all connected devices in Section 3.0. If using the SCM to control notification appliances, include current draw for all connected devices in Section 4.0.

3. Device requires 24vdc power for operation of connected releasing device(s). Include current draw for all connected devices in Section 3.0.

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Section 3 – Auxiliary Power

Item	Device Description	Standby Current per Unit (Amps)		Qty		Total Standby Current per Unit (Amps)	Alarm Current per Unit (Amps)		Qty		Total Alarm Current per Unit (Amps)
1	68-140 FAAST XM	0.415	х		=		0.465	х		=	
2	68-302 FAAST XT [Note 6]		х		=			x		=	
3	68-509 FAAST XS [Note 6]		х		=			х		=	
4	55-052/053 RCM w/ Agent	0.0194	х		=		0.010	х		=	
5a	10-1832 ARM [Note 2]	0.002	х		=		0.008	х		=	
5b	10-2748 IRM [Note 2]	0.003	х		=		0.037	х		=	
6	55-052/053 RCM w/ Solenoid	0.0364	х		=		0.010	х		=	
6a	Releasing Solenoid Coil [Note 3]	NA	х	NA	=	NA		х		=	
7	55-042/047 SCM w/ Solenoid [Note 3]	NA	x	NA	=	NA		x		=	
8	10-2413 Master-box Supervisor	0.022	х		=		0.283	х		=	
8a	Master-box Trip Coil [Note 3]	NA	х	NA	=	NA		х		=	
9	63-1064 Sounder Base	0.007	х		=		0.027	х		=	
10	10-2528/-2476 DACT	0.150	х		=		0.190	х		=	
11	10-2630 2-button RDU	0.036	х		=		0.139	х		=	
12	10-2631 10-button RDU	0.036	х		=		0.139	х		=	
13	10-2646 14-button RDU	0.036	х		=		0.139	х		=	
14	10-2627 Ethernet Module	0.097	х		=		0.134	х		=	
15	10-2583 Multi-Interface	0.200	х		=		0.200	х		=	
16	10-2411 LED Graphic Micro	0.067	х		=		0.140	х		=	
17	10-2667 20-Zone Remote Annun.	0.051	х		=		0.148	х		=	
18	10-2785 Relay Card [Note 5]	0.032	х		=		0.256	х		=	
19	10-2777 Relay Assy. [Note 4]	0.047	х		=		0.109	х		=	
20	10-2204 CRM4 Relay [Note 5]	0.011	х		=		0.040	х		=	
21	10-2770 HPM4 Relay [Note 5]	NA	х	NA	=	NA	0.086	х		=	
22	10-2792 Class A Peripheral	0.057	х		=		0.057	х		=	
23	10-2814 LOC Digital Paging	0.103	х		=		0.140	х		=	
24	10-2616 Keltron Printer	0.200	х		=		1.200	х		=	
25	10-2277 VESDA OP HLI	0.245	х		=		0.245	х		=	
26	10-2946 VESDA MB HLI	0.101	х		=		0.101	х		=	
		Total Aux.	Pow Curre	ver Stan ent (Am	dby ps):		Total Au (x. P Curr	ower Ala ent (Amp	ırm os):	

Insert totals in Section 1 - Line Item 3.

Notes:

- Indicate the current draw of the devices in this section only if the 24vdc power for device operation is supplied by the Cheetah Xi 50 system controller. Typical for all devices. Indicate quantity of ARMs or IRMs connected to the RCM. 1.
- 2.
- Indicate alarm current draw of the coil that is connected to the module. 3.
- Assembly includes control card and relay bus card. Add the quantity of CRM4 and HPM4 relay cards installed on the bus card in rows 18 and 4. 19.
- Current values shown assume all relays are active. 5. 6. Current values vary depending upon set fan speed. See below for values.

	, , ,			
Detector	Current	Un	it Fan Spee	ed
		High	Medium	Low
FAAST XM	Operating	0.415 A	NA	NA
	Alarm	0.465 A	NA	NA
FAAST XT	Operating	0.465 A	0.340 A	0.220 A
	Alarm	0.493 A	0.368 A	0.248 A
FAAST XS	Operating	0.200 A	0.151 A	0.120 A
	Alarm	0.230 A	0.172 A	0.142 A



Section 4 – Notification Appliances

Item	Device Description	Alarm Current per Unit (mA)		Qty		Total Alarm Current per Unit (mA)
1			х		=	
2			х		=	
3			х		=	
4			х		=	
5			х		=	
6			х		=	
7			х		=	
8			х		=	
9			х		=	
10			х		=	
11			х		=	
12			х		=	
13			х		=	
14			х		=	
15			х		=	
16			х		=	
17			х		=	
18			х		=	
19			х		=	
20			х		=	
21			х		=	
22			х		=	
23			х		=	
25			х		=	
26			х		=	
27			х		=	
28			х		=	
29			х		=	
30			х		=	
31			х		=	
32			х		=	
33			х		=	
34			х		=	
35			х		=	
36			х		=	
37			х		=	
38			х		=	
		Total NAC Power Standby C	urren	t (Amps):	•	
				-		

Total NAC Alarm (mA):

A Total

Insert totals in Section 1 – Line Item 4.

/1000 =

Notes:

1. Include current draw of all notification appliances connected to the Cheetah Xi 50's two on-board notification appliance circuits (NAC 1 & 2), and to addressable Supervised Control Modules that are receiving 24vdc power from the Cheetah Xi 50 system controller.

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The "System Operation Posting" shown on the following pages provides a brief summary of the basic operation of the Cheetah Xi 50 system. The operational posting can also be downloaded from Fike Forums web page (document P/N 06-650). For a detailed description of the operation of the Cheetah Xi 50 system, refer to Fike document 06-369-2, "Cheetah Xi 50 Operation and Maintenance Manual" for more details.

The completed "System Operation Posting" shall either be mounted on the cabinet front or framed and located adjacent to the control unit.



Reserved for future use.



OPERATING INSTRUCTIONS

Cheetah Xi 50 Control System (P/N 10-071)



Commercial Protected Premises Control Unit

Local, Remote Station (PPU), Central Station (PPU), and Releasing Service

These instructions must be framed and displayed next to the panel in accordance with NFPA 72, National Fire Alarm Code for Local Fire Alarm System.

The key to open the panel can be found at this location:

1.0 OPERATING INFORMATION

Normal Standby

- 1. Green AC Power LED lit steady.
- 2. All notification appliances off.

System Alarm

- 1. Red Alarm LED flashes.
- 2. Local panel sounder (piezo) emits slow pulse pattern.
- 3. Alarm notification appliances on.
- 4. Alarm information visible on LCD (liquid crystal display).
- 5. DO NOT press the RESET key at this time.
- 6. Press the ACKNOWLEDGE key to turn off the local piezo. Flashing LEDs will illuminate steady after key press.
- Press the SILENCE key to turn off the local piezo and silence active notification appliances programmed for silence. Yellow silence LED will illuminate steady after button press.
- 8. Press the F1 key to display the source of the event on the top line of the LCD (liquid crystal display).
- 9. Investigate the source of the alarm condition and take appropriate actions.
- 10. After correcting the Alarm condition, press the RESET key to restore the system to normal operation.

System Trouble/Supervisory

- 1. Yellow Trouble and/or Supervisory LED flashes.
- 2. Local piezo sounds constant tone for System Trouble.
- 3. Local piezo emits fast pulse pattern for Supervisory events.
- 4. Trouble and/or Supervisory audible(s) on.
- 5. Trouble and/or Supervisory information visible on LCD (liquid crystal display).
- 6. DO NOT press the RESET key at this time.
- 7. Press the ACKNOWLEDGE key to turn off the local piezo. Flashing LEDs will illuminate steady after key press.
- Press the SILENCE key to turn off the local piezo and silence active notification appliances programmed for silence. Yellow SILENCE LED will illuminate steady after key press.
- 9. Press the F1 key to display the source of the event on the top line of the LCD (liquid crystal display).
- 10. Investigate the source of the Trouble/Supervisory condition and take appropriate actions.
- 11. After correcting the Trouble/Supervisory condition, press the RESET key to restore the system to normal operation.

Trouble Condition – Activation of a trouble signal under normal operation indicates a problem with the system (not an alarm) that requires immediate attention. Contact your local service representative. In most trouble conditions, the fire suppression system continues to provide protection to the building and its occupants; however, trouble conditions should not be allowed to remain and should be investigated and remedied as soon as possible to ensure proper system operation.

Memory Fault – If panel experiences memory failure, local piezo sounds a constant tone, onboard trouble relay transfers, and panel buttons do not respond to user input. Under this condition, the panel is no longer providing protection to the building and its occupants. Panel is to be replaced immediately.

2.0 HISTORY AND CONTROL BUTTONS

Step Alarm – Steps through the current ALARM events stored in the panel's Alarm history buffer. Available only if there are active alarm events present on the system.

Step Super – Steps through the current SUPERVISORY events stored in the panel's Supervisory history buffer. Available only if there are active supervisory events present on the system.

Step All - Steps through ALL events stored in the panel's current event history buffer. Press the F5 key to toggle between current events and the panel's entire 3,200 event history buffer.

Drill – Manually activates all outputs and notification appliances circuits assigned for drill operation in the configuration. Press the RESET key to clear the drill activation. Displays drill activation on LCD screen.

Acknowledge – Silences the local piezo and changes all flashing LEDs to steady. All outputs remain active. Creates an acknowledge event in the panel history buffer.

Silence – Silences the local piezo sounder and all silenceable circuits. Illuminates the Yellow SILENCE LED steady and creates a silence event in the panel history buffer.

Reset – Resets the control panel to normal operation. All active control functions (relays and NACs) will deactivate. All display LEDs will illuminate steady until reset is complete. If events are still present on the system, control functions will immediately activate.

Enter – Saves and enters the current configuration settings. Use navigation buttons to change variables at the blinking cursor position.

Escape – Toggles event display from OFF-NORMAL (events present) to SYSTEM NORMAL (no events present) to TOP LEVEL menu.

Function Keys (F1 – F6) – Used to navigate through the control panel's menu system during system operation, maintenance and configuration.

3.0 LED INDICATORS

AC Power – Green LED which illuminates when AC power is applied to the control panel. Turns off when the AC power is removed or is too low for proper operation.

Alarm – Red LED that flashes when the panel enters the Alarm state. Illuminates steady after you acknowledge or silence the event. Turns off after the event is cleared and the control panel is reset.

Trouble – Yellow LED that flashes when the panel enters the Trouble state or if a zone or device is disabled. Illuminates steady after you acknowledge or silence the event. Turns off when all trouble conditions are cleared.

Supervisory – Yellow LED that flashes when the panel enters the Supervisory state or if a zone or device is disabled. Illuminates steady after you acknowledge or silence the event. Turns off when all supervisory conditions are cleared.

Silence – Yellow LED that illuminates steady after a SILENCE switch is pressed (local or remote). Turns off when DRILL or RESET key is pressed.

Pre-discharge – Red LED that flashes when the panel enters the Pre-discharge state. Illuminates steady after you acknowledge or silence the event. Turns off when the panel is reset.

Release – Red LED that flashes when the panel enters the Release state. Illuminates steady after you acknowledge or silence the event. Turns off when the panel is reset.

Disable – Yellow LED that illuminates steady when any zone is disabled. Outputs in the disabled zone will not operate. Panel will also indicate a Trouble and Supervisory event when a zone is disabled. Turns off when the panel is reset or the zone is enabled.

Abort – Yellow LED that flashes when the panel enters the Abort state. Illuminates steady after you acknowledge or silence the event. Turns off if the abort condition clears and no other abort events are present.

Ground Fault – Yellow LED that illuminates steady when a ground fault condition is present on the system. Turns off when the ground fault is cleared or the panel is reset.

4.0 MAINTENANCE AND TESTING

To ensure proper and reliable operation of the system, system inspection and testing should be scheduled as required by NFPA 72 and local codes and standards. Only a qualified Service Representative should perform testing or system maintenance.

Before Testing: Notify the fire department and/or central alarm receiving station if alarm conditions are transmitted offsite. Notify facility personnel of the test so alarm notification appliances are ignored during the test period. Physically disconnect all releasing devices.

Before Servicing: Remove AC and battery power before performing any repair or service work on the control panel. Refer to Fike document 06-369-2, "Cheetah Xi 50 Operation and Maintenance Manual" for maintenance instructions.

5.0 IN CASE OF TROUBLE CONTACT:

Name:

Address:

Phone #:

or Fike Corporation Customer Service Department (800) 979-FIKE (3453) or (816) 229-3405

Refer to Fike document 06-369-2, "*Cheetah Xi 50 Operation and Maintenance Manual*" for additional information.



C.1 COMPATIBLE COMPONENTS

The following table identifies the components that are compatible with the Cheetah Xi 50 system. Only those items listed shall be used on the system.

Part Number	Description
10-2622	Cheetah Xi 50 Control Board (included with 10-071 system)
10-2623-c	Cheetah Xi 50 Enclosure (included with 10-071 system)
or 10-2623-c-d	c: (R=Red, B=Gray) d: specifies enclosure equipped with optional dead-front
10-2628-c	Dead-front Panel, c: (R=Red, B=Black)
02-10881	Transformer, 120VAC primary
02-10882	Transformer, 240VAC primary
	OPTIONAL MODULES
10-2528	DACT (Bosch FPT-DACT-LC), 5 zone with Serial interface-for internal mounting
10-2476	DACT (Bosch FPT-DACT), 5 zone with Serial interface-w/enclosure for external mounting
	PERIPHERAL BUS DEVICES
10-2646 ¹	14-Button Expanded Protocol Remote Display Unit
10-2631 ¹	10-Button Expanded Protocol Remote Display Unit
10-2630 ¹	2-Button Expanded Protocol Remote Display
10-2627	Ethernet Module
10-2583	Multi-Interface Module
10-1XXX ¹	Intelligent LED Graphic Annunciators
10-2667 ¹	20 Zone Remote Annunciator Module
10-2777 ¹	Relay Control Assembly (includes P/N 10-2778 Control Card and P/N 10-2769 Bus Card)
10-2785 ¹	Relay Card (RC12)
10-2792	Class A Peripheral Bus Card

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¹Not FM Approved

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Part Number	Description			
INTELLIGENT DETECTORS				
63-1052	Photoelectric Detector			
67-033	Ionization Detector			
63-1053	Photo/135° F Heat Combination Detector			
60-1039	Intelligent Heat Detector, 135°-190° F (57°-88° C) Fixed Temp./ Rate of Rise			
63-1054 (EBF)	Detector Base, 6 inch (System Sensor)			
63-1055 (EB)	Detector Base, 4 inch (System Sensor)			
63-1064 (EBS)	Sounder Base, 6 inch (System Sensor)			
63-1063 (EBR)	Relay Base, 6 inch (System Sensor)			
63-1058	Photo Detector, with Isolator			
67-034	Ionization Detector, with Isolator			
63-1059	Photo/135° F Heat Combination Detector, with Isolator			
60-1040	Heat Detector, 135°-190° F (57°-88° C) Fixed Temp./ Rate of Rise, with Isolator			
63-1060 (EBFI)	Detector Base, 6 inch, with Isolator (System Sensor)			
63-1061 (EBI)	Detector Base, 4 inch, with Isolator (System Sensor)			
63-1057	Photo DUCT detector			
63-1062	Photo DUCT detector, with Isolator			
63-1158	DUCT Detector Housing (must be used with 63-1057 & 63-1062)			
68-140	FAAST XM Aspirating Smoke Detector			
68-302	FAAST XT Aspirating Smoke Detector			
68-509	FAAST XS Aspirating Smoke Detector			
DUCT DETECTOR ACCESSORIES				
02-3868	Remote Annunciator LED			
02-3869	Remote Test Station			
02-4998	Remote Test Station with Key			
63-1159	Sampling Tube, Duct Detector, up to 1 ft. (0.3m)			
63-1160	Sampling Tube, Duct Detector, 1 ft. to 2 ft. (0.3m – 0.6m)			
63-1161	Sampling Tube, Duct Detector, 2 ft. to 4 ft. (0.6m – 1.2m)			
63-1162	Sampling Tube, Duct Detector, 4 ft. to 8 ft. (1.2m – 2.4m)			
63-1163	Sampling Tube, Duct Detector, 8 ft. to 12 ft. (2.4m – 3.7m)			

Exhibit C-2: Compatible Components – Cont.

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Part Number	Description			
	ADDRESSABLE MODULES			
55-045	Mini Monitor Module (MMM)			
55-041	Monitor Module (MM), 4 inch			
20-1063	Addressable Pull Station (APS)			
55-042	Supervised Control Module (SCM)			
10-2360	Series Solenoid Diode/Resistor			
10-2413	Master-box Interface			
55-043	Relay Module (RM)			
55-052	Releasing Control Module (RCM)			
55-050	Mini Monitor Module (MMM), with Isolator			
55-046	Monitor Module (MM), 4 inch, with Isolator			
20-1064	Addressable Pull Station (APS), with Isolator			
55-047	Supervised Control Module (SCM), with Isolator			
55-048	Relay Module (RM), with Isolator			
55-053	Releasing Control Module (RCM), with Isolator			
	VESDA INTERFACE			
68-023	VESDA Open Protocol High Level Interface (HLI)			
68-517	VESDA Modbus High Level Interface (HLI)			
	PROGRAMMING AND CONFIGURATION			
55-051	Infrared (IR) Tool Remote Control for Programming/Testing Devices (non-listed)			
10-2648	Cheetah Xi Addressable Device Hand Held Programmer (non-listed)			
06-327	C-Linx Software (non-listed)			
10-1874A	Interface Cable for C-Linx Software (DB9 to RJ11)			
10-1874B	USB to DB9 Converter (02-11139) with 10-1874A interface cable			
	Provides ability to use USB serial port on laptop (USB-DB9-RJ11)			
02-11139	USB to DB9 Converter (02-11139) without 10-1874A interface cable			
10-2629	USB A/B Cable for configuration of Cheetah Xi 50 System			
10-2477	DACT Programmer (Bosch FMR-DACT-KEYPAD)			
BATTERIES AND BATTERY ENCLOSURES				
10-2626	12 AH Battery Assembly w/ wiring assembly			
10-2190-2	18 AH Battery Assembly w/ wiring assembly			
10-2192	Wiring Assembly for 7.2 AH and 18 AH Batteries (wire only)			
10-2517	Wire Assembly with Battery EOL			
02-2018	Battery, 12V, 7 AH (Requires 2 each)			
02-4622	Battery, 12V, 12 AH (Requires 2 each)			
02-2820	Battery, 12V, 18 AH (Requires 2 each)			
02-3468	Battery, 12V, 33 AH (Requires 2 each)			
A02-0252	Battery, 12V, 40 AH (Requires 2 each)			
02-4206	Battery, 12V, 75 AH (Requires 2 each)			
10-2154-R	33 AH Battery Enclosure, Red, no batteries			
10-2154-B	33 AH Battery Enclosure, Black, no batteries			
10-2236-R	75 AH Battery Enclosure, Red, no batteries			
10-2236-B	75 AH Battery Enclosure, Black, no batteries			

Exhibit C-3:	Compatible	Components -	Cont.
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Part Number	Description			
SPARE PARTS				
02-4035	Hardware Kit, #6 lock washers and hex nuts (30 each)			
02-10788	Standoff kit, 5/8" M/F, 5 each required for DACT (10 each supplied)			
02-4009	Standoff, 2" M/F, for Cheetah Xi 50 controller, 4 each required (1 each supplied)			
02-11751	Standoff, 2" F/F, for Cheetah Xi 50 controller, 1 each required (1 each supplied)			
02-11823	Key lock with cam			
02-4983	Panel Key Only (without cam)			
02-10881	Transformer, 120VAC			
02-10882	Transformer, 240 VAC			
02-4040	Battery, Lithium Coin Cell, 3V			
10-2625	Monitor and Control Module EOL Assembly, 39K			
10-2530	$14K\Omega$ Series Resistor, for Monitor Module Short Circuit detection			
10-2570	End of Line Resistor, 1.2 K (for NAC 1 & 2)			
02-4174	Fuse, 15 Amp, Mini-Auto, Fast Acting (For F1 & F2) (Littel fuse p/n 297015)			
02-11412	Fuse, 4 Amp, Mini-Auto, Fast Acting (For F3-F6) (Littel fuse p/n 297004)			
02-4981	End Of Line Relay – System Sensor EOLR-1			
02-2519	Termination Resistor, 100 ohm (for RS485 circuit)			
02-11723	Bezel, Outer Door			

Exhibit C-4: Compatible Components – Cont.

C.1.1 TOUCH-UP PAINT (NOT AVAILABLE FROM FIKE)

Sherwin Williams, Signal Red – RAL 3001 per RAL 840-HR (Matt Finish) Sherwin Williams, Light Gray – RAL 7035 per RAL 840-HR

C.1.2 NOTIFICATION APPLIANCES

Refer to Fike document 06-186 for compatible notification appliances.

C.1.3 APPROVED RELEASING DEVICES

Refer to Fike document 06-186 for compatible releasing devices.

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D.1 BATTERY CUTOFF

Exhibit D-1 below shows the components used to facilitate the battery cutoff arrangement for Fike's Cheetah Xi 50 control panel.



Exhibit D-1: Battery Cutoff Wiring Diagram



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CONTACT US

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