

Intelligent Graphic Annunciator Panel



DEVELOPED BY

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DOCUMENT HISTORY

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Revision	Section	Date	Reason for Change
0	All Sections	05/02	Initial Release
1	All Sections	10/04	Release of CyberCat System
2	Section 3.0	08/07	Corrected Parts List
3	All Sections	07/08	Revised per Fike formatting standard; added Gemcom components; removed 10-2373 Zone Annunciator creating new manual 06-452.
4	Sections 1.2 and 2.4	10/08	Updated listings and approvals and component current draw values per UL Ninth edition testing
5	Section 4.6	08/10	Revised binary addressing to include setting for fast baud rate communication.

ABOUT THIS MANUAL

This manual is intended to be a complete reference for the installation, operation, and service of the Fike Intelligent Graphic Annunciator Panel. The information contained in this manual shall be used by factory trained service technicians who are authorized to work on this product. This manual also serves as the Operations Manual for the component.

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 and programming.

PRODUCT SUPPORT

If you have a question or encounter a problem not covered in this manual, you should first try to contact the distributor who installed the Fike system. Fike has a worldwide distribution network. Each distributor sells, installs, and services Fike equipment. Look on the back of the cabinet door, there should be a sticker with an indication of the distributor who installed 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 www.fike.com. If you are unable to contact your installing distributor or you simply do not know who installed the system, you can contact Fike Technical Support at (800) 979-FIKE (3453) for Commercial Products and (888) 628-FIKE (3453) for Fire Alarm Products, Monday through Friday, 8:00 am to 4:30 pm CST.

SAFETY INFORMATION

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



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

Note: Provides information on installation, operation, maintenance, performance or general tips that are important but not hazardous to anything or anyone.

TERMS USED IN THIS MANUAL

Acknowledge - To confirm that a message or signal has been received, such as by the pressing of a button or the selection of a software command.

Configure - The control board is 'set-up' to properly recognize and supervise a device as the design requires.

Fire Alarm Control Unit (Panel) - A system component that receives inputs from automatic and manual fire alarm devices and might supply power to detection devices and to a transponder(s) or off-premises transmitter(s). The control unit might also operate releasing circuits or solenoids, provide transfer of power to the notification appliances, or transfer of condition to relays or devices connected to the control unit. The fire alarm control unit can be a local fire alarm control unit or a master control unit.

Fire Alarm Signal - A signal from a fire alarm-initiating device such as a manual fire alarm box, automatic fire detector, waterflow switch, or other device in which activation is indicative of the presence of a fire or fire signature.

Fire Alarm System - Components and circuits arranged to monitor and annunciate the status of fire alarm or supervisory signal-initiating devices and to initiate the appropriate response to those signals.

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

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

Reset - A control function that attempts to return a system or device to its normal, non-alarm state.

RS232 - A data communication standard produced by the Electronics Industry Association (EIA). This was developed to provide a standard for interface between data terminal equipment and data circuit – terminating equipment employing Serial Binary Data Interchange. Maximum cable length is 50 feet. Fike system RS232 connections utilize an RJ11 jack which provides connection through serial/phone type cable.

RS485 - A data communication standard produced by the Electronics Industry Association (EIA). This standard was developed to insure compatibility between units provided by different manufacturers, and to allow for reasonable success in transferring data over specified distances and/or data rates. Maximum cable length is 4000 feet using Belden 9841 or equivalent twisted pair shielded low capacitance cable.

Zone - A defined area within a protected premises. A zone can define an area from which a signal can be received, an area to which a signal can be sent, an area in which a form of control can be executed, a particular area being protected. This term is used to create the relationship between activation inputs to notification outputs and peripherals.

1.0 PRODUCT OVERVIEW

The Intelligent Graphic Annunciator Panel (Exhibit 1) is used to provide a custom graphic display of the protected area(s) using LEDs to indicate the location and/or status of intelligent system devices, individual zone status or system status. Each graphic display is custom made to suit the needs of the customer and the project scope (typically a building floor plan layout). Available panel sizes range from 14" x 14" (36cm x 36cm) to 36" x 30" (91.5cm x 76cm).

The Graphic Annunciator communicates with the associated control panel via the panel's RS485 peripheral bus. When the annunciator receives an event from the control panel (such as alarm or trouble) it will illuminate the appropriate LED and/or sound the local piezo based on annunciator programming. Switch inputs are available on the Graphic Annunciator for sending control functions to the associated control panel (e.g., Reset, Silence, Acknowledge and LED Test).

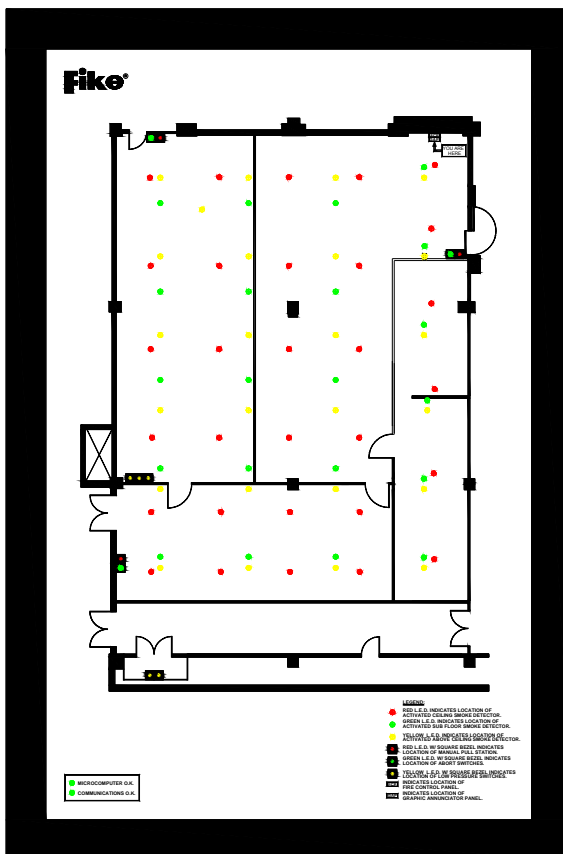


Exhibit 1: Intelligent Graphic Annunciator

Features:

- Can be located up to 4,000 ft. (1,219 m) from the associated control panel
- Communicates on the associated control panel's RS485 peripheral bus
- Graphic card configurable via on-board RS232 port or via associated control panel using C-Linx Software
- Surface, Flush or Semi-flush mountable
- Local piezo sounds for annunciation of new events: Alarm = Pulsed; Supervisory = Warble; Trouble = Constant
- LEDs can be configured for diagnostics of communication and power (graphic panel status)
- Immediate visual status of multiple zones in compact area
- No limit on the number of sensors or input module addresses assigned to an LED
- LEDs can be assigned to provide a visual indication of switch status
- Battery backed configuration if power is removed
- Bi-directional communication with associated control panel to provide remote capability to Silence, Reset, and Acknowledge system events.
- One Intelligent Graphic panel can be utilized to provide a single annunciation point for several networked panels.

1.1 COMPATIBILITY

The Intelligent Graphic Annunciator Panel is compatible with the following Fike intelligent control panels: Cheetah Xi; Cheetah Xi 50; CyberCat 254; CyberCat 1016; and CyberCat 50, all firmware versions.

1.2 AGENCY STANDARDS AND COMPLIANCE

This Fire Alarm product complies with the following standards:

- NFPA 70 – NEC, Article 300 Wiring Methods
- NFPA 70 – NEC, Article 760 Fire Protective Signaling Systems
- NFPA 72 – National Fire Alarm Code
- UL 864 – Control Units and Accessories for Fire Alarm Systems

1.3 RELATED STANDARDS

- NFPA 1 – Fire Prevention Code
- NFPA 13 – Sprinkler Systems
- NFPA 77 – Static Electricity
- NFPA 92A – Smoke-Control Systems
- NFPA 92B – Smoke Management Systems
- NFPA 101 – Life Safety Code
- NFPA 110 - Emergency Standby Power Systems
- UL 464 – Audible Signaling Appliances
- UL 1481 – Power Supplies for Fire Protective Signaling Systems
- UL 1971 – Visual Signaling Appliances
- Applicable Local and State Building Codes
- Requirements of the Local Authority Having Jurisdiction

1.4 RELATED DOCUMENTATION

Further details about the product referenced in this document can be found in the following manuals.

Document Title	Part Number
CyberCat 50 Manual	06-368
CyberCat (254/1016) Manual	06-326
Cheetah Xi Manual	06-356
Cheetah Xi 50 Manual	06-369
C-Linx Software Manual	06-448

Table 1: Related Documentation

1.5 ORDERING INFORMATION

The following components must be ordered as a minimum for a complete and operational graphic annunciator panel:

1. Door Assembly - each door assembly includes the door frame, silk-screened Lexan viewing window, one Graphic Controller Card, one Switch Card, and LED Driver Board #1, which supports up to 128 LEDs.
2. LEDs (light emitting diodes) – specific quantity of each color of LED must be specified when ordering the door assembly.
3. Back Box and optional trim ring – which can be shipped separately to allow framing into wall construction prior to completion of door assembly.
4. If the graphic panel layout requires more than 128 LEDs, it is necessary to order additional parts. Refer to Section 3.2 for additional parts required based on the number of LEDs.

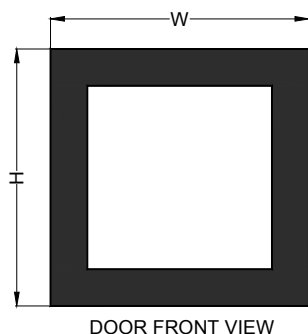
2.0 COMPONENTS

A complete Intelligent Graphic Annunciator requires four main components:

1. Door Assembly
2. Back Box
3. LED's (Light Emitting Diodes)
4. Electronic Control Hardware

2.1 DOOR ASSEMBLIES

The Graphic Annunciator door assembly is available in four sizes; two of which can be chosen as vertical or horizontal mount for a total of six choices.



Door Assemblies	
P/N	Dimensions (W x H) / Weight
10-121-B	14" x 14" (36cm x 36cm) / 14 lbs. (6.4 kg)
10-122-B	24" x 24" (61cm x 61cm) / 25 lbs. (11.3 kg)
10-123H-B	36" x 24" (91.5cm x 61cm) / 38 lbs. (17.2 kg)
10-123V-B	24" x 36" (61cm x 91.5cm) / 38 lbs. (17.2 kg)
10-124H-B	36" x 30" (91.5cm x 76cm) / 52 lbs. (23.6 kg)
10-124V-B	30" x 36" (76cm x 91.5cm) / 52 lbs. (23.6 kg)

Table 2: Door Assemblies

Door assemblies include the door frame, silk-screened Lexan viewing window, one Graphic Controller Card, one Switch Card, and LED Driver Board #1, which supports up to 128 LEDs. **Back box, trim ring, additional electrical components and LEDs must be ordered separately.**

Each door is equipped with a key-lock to provide security access to internal electronics and panel switches. The door is made of 16 gauge steel and is finished with textured black paint. The door assembly can be hinged on the right side, left side, or bottom of the back box depending upon the size of the graphic panel and how the associated back box is installed.

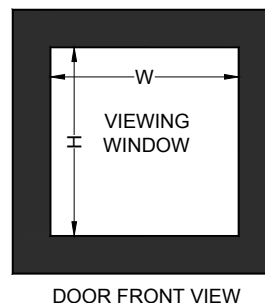
A metal back plate is provided with each door assembly. The back plate provides a mounting surface for the graphic controller card(s) and switch card. The back plate is mounted to the threaded studs supplied in the back box.

2.1.1 DOOR ASSEMBLY VIEWING WINDOW

The door assembly viewing window is available in black or white Lexan with the user-defined layout silk-screened onto the Lexan. Holes are drilled in the Lexan for placement of each LED (which simulates a device location in the hazard area). The entire viewing window and LEDs are covered with a clear Lexan sheet for protection.

Note: Lexan color must be specified when ordering graphic panel.

The maximum number of LEDs that can be installed into the viewing window Lexan can vary depending upon the door assembly selected and the graphical layout. Please contact Fike to determine the maximum number of LEDs available for your customized application.

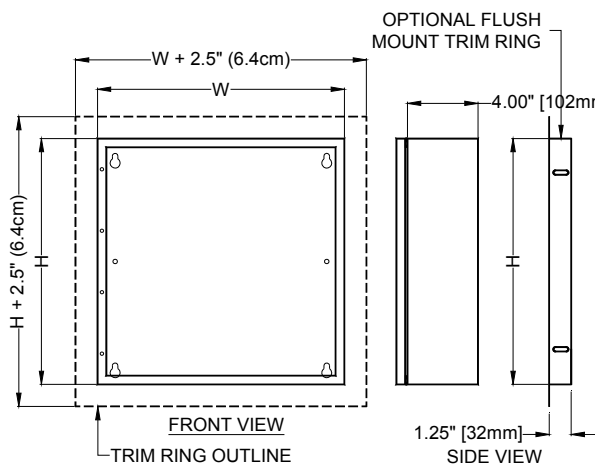


Viewing Window	
P/N	Dimensions (W x H) / Max. LEDs
10-121-B	10" x 10" (25.4cm x 25.4cm) / 64 LEDs max
10-122-B	20" x 20" (51cm x 51cm) / 384 LEDs max.
10-123H-B	32" x 20" (81.3cm x 51cm) / 512 LEDs max
10-123V-B	20" x 32" (51cm x 81.3cm) / 512 LEDs max
10-124H-B	32" x 26" (81.3cm x 66cm) / 640 LEDs max
10-124V-B	26" x 32" (66cm x 81.3cm) / 640 LEDs max

Table 3: Viewing Window Specs

2.2 BACK BOX

The Graphic Annunciator back box is available in four sizes; two of which can be chosen as vertical or horizontal mount for a total of six choices.



Back Box	
P/N	Dimensions (W x H) / Weight
10-2588-B	14" x 14" (36cm x 36cm) / 13 lbs. (5.9 kg)
10-2589-B	24" x 24" (61cm x 61cm) / 25 lbs. (7.6 kg.)
10-2590H-B	36" x 24" (91.5cm x 61cm) / 32 lbs. (9.8 kg.)
10-2590V-B	24" x 36" (61cm x 91.5cm) 32 lbs. (9.8 kg.)
10-2591H-B	36" x 30" (91.5cm x 76cm) / 50 lbs. (15.2 kg)
10-2591V-B	30" x 36" (76cm x 91.5cm) / 50 lbs (15.2 kg)
Back boxes can be surface, flush, or semi-flush mounted.	

Table 4: Back Boxes

The back box is made of 16 gauge steel and is finished with textured black paint. The back box can be surface mounted with no additional hardware required.

The back box is equipped with welded studs for mounting of electronic control hardware after box installation is complete. The back box is NOT equipped with electrical knock-outs. Installer must create electrical knockouts for connection of conduit and wiring in the field.

Each Back-box is designed to be used with following compatible door assemblies:

Back Box P/N	Door Assembly P/N
10-2588-B	10-121-B
10-2589-B	10-122-B
10-2590H-B	10-123H-B
10-2590V-B	10-123V-B
10-2591H-B	10-124H-B
10-2591V-B	10-124V-B

2.2.1 FLUSH TRIM RING

An optional flush trim ring must be ordered if recess mounting the back box. The trim ring allows the installer to adjust how deep the back box is set into the wall.

Back Box Trim Rings	
P/N	Description
10-2611-B	Trim ring for 10-2588 back box
10-2612-B	Trim ring for 10-2589 back box
10-2613-B	Trim ring for 10-2590 back boxes
10-2614-B	Trim ring for 10-2591 back boxes

Table 5: Back Box Trim Rings

Note: The back box should never be mounted deeper than flush with the finished wall. This will prevent the door from opening.

2.3 LEDS (LIGHT EMITTING DIODES)

The Graphic Annunciator utilizes Light Emitting Diodes (LEDs) to display system status. Each LED represents an intelligent system device, individual zone status or system status. LEDs are factory installed based on custom artwork (building layout) supplied by the distributor. There are four colors available to provide further status clarification.

LEDs	
P/N	Description
02-3009	Red Light Emitting Diode
02-3038	Amber Light Emitting Diode
02-3013	Green Light Emitting Diode
02-3247	Yellow Light Emitting Diode

Table 6: Light Emitting Diodes

2.4 GRAPHIC CONTROLLER CARD

The 10-2411, Graphic Controller Card (Exhibit 2) provides the interface between the Intelligent Graphic Panel and the associated Fike control panel. Each graphic panel requires at least one (1) Graphic Controller Card, which is factory mounted to the panel's back plate. The module distributes power and control for up to two (2) LED Interface Boards; each capable of driving up to 128 LEDs for a maximum number of 256 LEDs per Graphic Controller Card. As system events are received, the Graphic Controller Card will turn ON only one (1) LED at a time. The flash rate between each ON/OFF time is so short it appears that all active LEDs are on constantly. This design allows many LEDs to appear ON at the same time with minimal current being drawn from the system. The card is equipped with an on-board piezo to provide for local notification of system status changes.

*Operating Voltage Range		15 – 30 VDC
Max. Current @ 24 VDC	Alarm	140 mA (all LEDs on)
	Standby	67 mA (all LEDs off)
**Operating Temperature		0° to 49° C (32° to 120° F) 93% RH
Terminal Blocks Accept 14 – 26 AWG		
All Connections are Supervised and Power Limited		
Approximate Dimensions:	6" (15.25cm) H x 3" (7.62cm) W	
Weight:	0.2 lbs. (.09kg)	

Table 7: Graphic Controller Card Specs

Note: Power for the graphic controller is provided via a separate power loop from the associated control panel or battery backed 24 VDC, regulated, power limited, power supply listed for Fire Protective Signaling Use.

Note: The useful life of the system's standby batteries and the electronic components may be adversely affected by extreme temperature ranges and humidity. Therefore, it is recommended that this component be installed in an environment with a nominal room temperature of 15-27° C / 60-80° F.

The Graphic Controller Card is equipped with two separate terminals for connecting input switches. The switches provide the ability to remotely Reset, Silence and Acknowledge system events as well as perform a Lamp Test of all graphic panel LEDs (Exhibit 2). Terminal P7 provides a connection point for the 10-2086 (standard) graphic panel switch card. Terminals 7A through 10B provide connection points for the user to install and hard-wire their own input switches. Switches must be installed inside the enclosure and only one of the aforementioned options can be used for connecting input switches.

24 VDC power for the card is provided via a separate power loop from the associated control panel or a battery backed 24 VDC, regulated, power-limited, power supply listed for Fire Protective Signaling Use.

Note: If power is supplied from a source other than the control panel, a ground fault condition could occur.

The Graphic Controller Card interfaces to the associated control panel via the panel's RS485 peripheral bus. The associated control panel must be configured to supervise the graphic annunciator controller card(s) for supervision to occur. Cards that are supervised will initiate a trouble event at the control panel upon loss of RS485 communication or 24 VDC power.

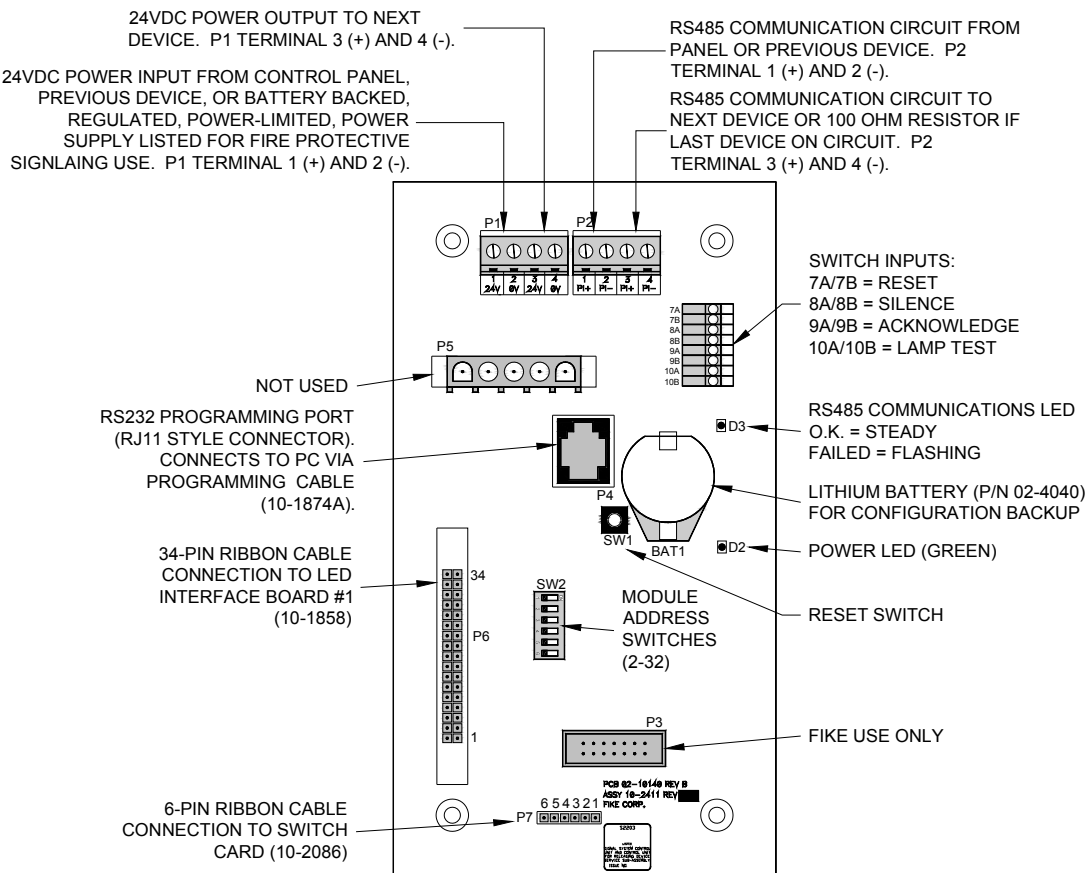


Exhibit 2: Graphic Controller Card, 10-2411

2.5 SWITCH CARD

The 10-2086, Switch Card (Exhibit 3) comes with four non-configurable switches that provide the following functions:

RESET - This function will reset the Fike control panel. The panel will then command the peripherals to reset.

ACKNOWLEDGE - This function will send the acknowledge command to the Fike control panel. The acknowledge silences the control panel local audible and the Remote devices local audibles. Acknowledge also changes any flashing Alarm, Trouble, or Supervisory LED's to steady ON.

SILENCE - This function will send the silence command to the control panel. The control panel local audible and the Remote Display local audible will both silence. Any active notification appliances will also silence (if programmed for silence). The silence will cause any flashing alarm, trouble or supervisory LED to change to steady ON.

LED TEST - This function turns on all the LED's at this graphic panel only.

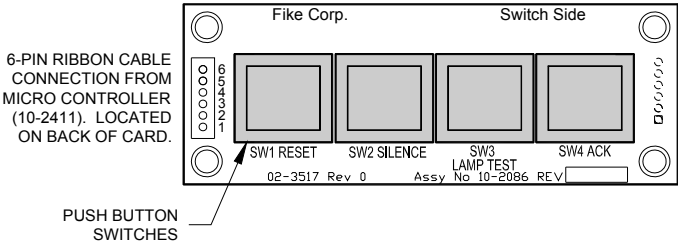


Exhibit 3: Switch Card, 10-2086

Approximate Dimensions:	6" (15.25cm) H x 3" (7.62cm) W
Weight:	0.054 lbs. (.025kg)

Table 8: Switch Card Specs

The switch card is mounted inside the graphic panel enclosure to the back plate and can be accessed by opening the panel door using the key-lock. A 6-pin ribbon cable 02-3029 is used to connect the switch card to terminal P7 on the graphic controller card. If multiple cards are used, additional 6-pin ribbon cables must be used to connect terminal (P7) on all cards together.

2.6 LED INTERFACE BOARD NO. 1

The 10-1858, LED Interface Board #1 (Exhibit 4) provides the interface point between the Graphic Controller Card and the LEDs. Each Graphic Card must have an LED Interface Board #1 for connection of the first set of 128 LEDs. The board is factory mounted to the backside of the graphic panel door assembly. The LEDs are factory installed and connected to the board's 8-position terminal blocks (32 total) as required to suit the layout of the custom graphic display. A 34-pin ribbon cable 10-1950 is used to connect terminal P1 on LED Interface Board No. 1 to terminal P6 on the Graphic Controller Card.

Approximate Dimensions:	3.3" (8.4cm) H x 8" (20.3cm) W x 0.75" (1.9cm) D
Weight:	0.392 lbs. (.18kg)

Table 9: LED Interface Board No. 1 Specs

2.7 LED INTERFACE BOARD NO. 2

The 10-1859, LED Interface Board #2 (Exhibit 5) is used if the graphic layout requires more than 128 LEDs. The board is factory mounted to the backside of the graphic panel door assembly. The LEDs are factory installed and connected to the board's 8-position terminal blocks (32 total) as required to suit the layout of the custom graphic display. A 34-pin ribbon cable 10-1903 is used to connect terminal P1 on LED Interface Board No. 2 to terminal P2 on the LED Interface Board No. 1.

Approximate Dimensions:	3.3" (8.4cm) H x 8" (20.3cm) W x 0.75" (1.9cm) D
Weight:	0.392 lbs. (.18kg)

Table 10: LED Interface Board No. 2 Specs

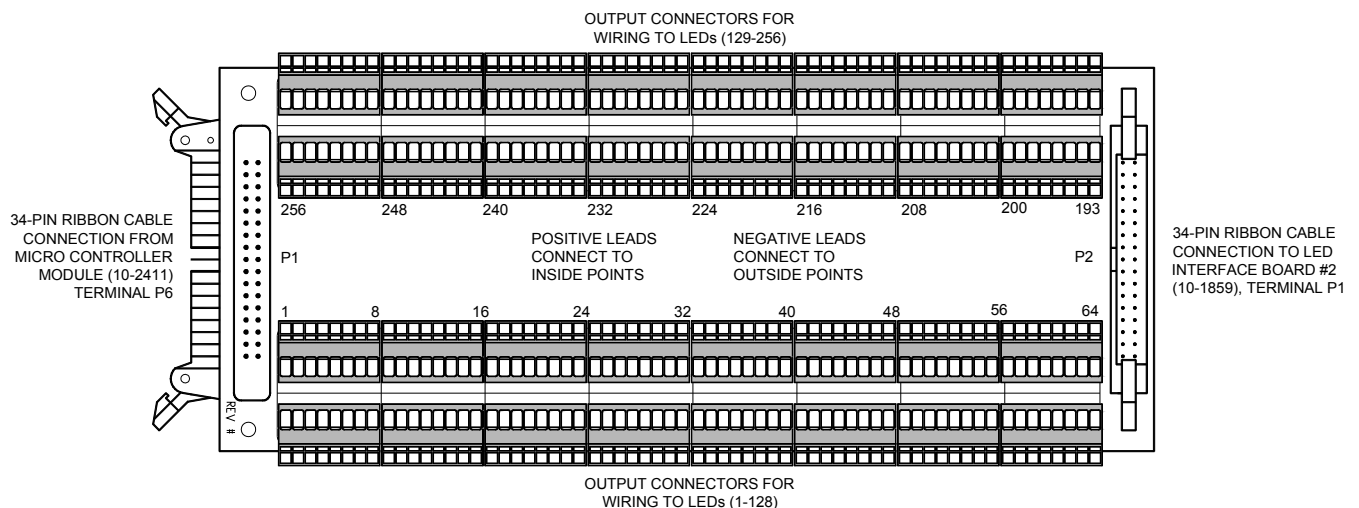


Exhibit 4: LED Interface Board No. 1, 10-1858

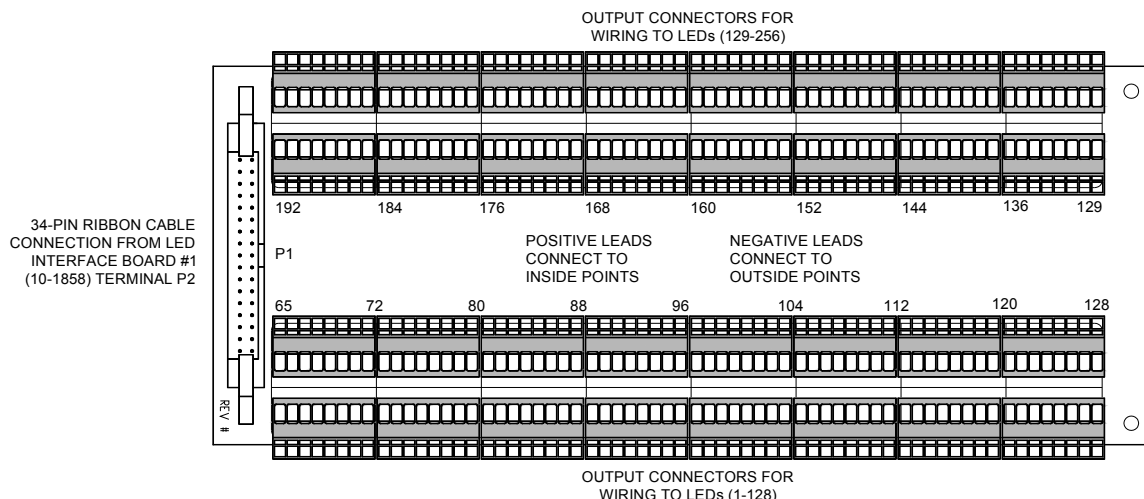


Exhibit 5: LED Interface Board No. 2, 10-1859

2.8 REPLACEMENT/SPARE PARTS

P/N	Description
02-4040	Lithium Battery, 3 volt, Ray-O-Vac BR2032
10-1903	34-pin ribbon cable, Ctrl.-Driver, 24" long
10-1950	34-pin ribbon cable, Ctrl.-Driver, 48" long
02-3029	6-pin ribbon cable, Ctrl.-Switch, 24" long
02-3030	6-pin ribbon cable, Ctrl.-Ctrl., 10" long
02-2840	Standoff for Graphic Controller Card
02-2580	Key Lock assembly
02-4983	Replacement Key
02-3002	Plastic Standoffs for LED Interface Boards
02-2840	Standoff for Control & Switch Card Mtg.
02-2519	100Ω Resistor

Table 11: Replacement/Spare Parts

3.0 DESIGN CONSIDERATIONS

3.1 PANEL ARTWORK

The layout of the graphic panel display window is custom designed to suit the customer's requirements. Preliminary artwork shall be submitted to Fike for creation of production level artwork. Drawing templates are available from Fike to assist you in creating the preliminary artwork. Graphic panel production will not commence until the production level artwork is approved and signed off by the responsible parties (e.g., distributor of record, end user, AHJ, etc.). If changes are required after panel production has begun, extra charges may be incurred.

3.2 ADDITIONAL PARTS

If the graphic panel layout requires more than 128 LEDs, it is necessary to order additional parts. Table 12 provides a breakdown of the parts that must be ordered based on the number of LEDs required.

3.3 RS485 CIRCUIT

Communication between the control panel and the Graphic Controller Card(s) occurs over a power-limited, 2-wire, RS485 serial interface. The standard Fike RS485 circuit can drive up to 32 devices including the control panel. The number of Graphic Controller Cards that can be installed on the system is dependent upon the number of devices installed on each given fire alarm control panels RS485 circuit. The RS485 circuit can not be T-Tapped; it must be wired in a continuous fashion. The maximum wire distance from the control panel to the Graphic Controller Card is 4,000 feet (1219 m) of Belden 9841 low capacitance cable. For plenum applications, use Belden 82841, 82842, or 89841. Limit the total wire resistance to 96 ohms maximum. Do not run the RS485 cable adjacent to, or in the same conduit as 120volts AC service, noisy electrical circuits that are powering mechanical bells or horns, audio circuits above 25 volts RMS, or motor control circuits.

3.4 24 VDC POWER CIRCUIT

Each Graphic Controller Card requires a filtered, 24 VDC power connection. Power is provided via a separate power loop from the associated control panel or battery backed 24 VDC, regulated, power-limited, power supply listed for Fire Protective Signaling Use. Each card must be accounted for in the control panel's power and battery calculations. Utilize the power information provided in Section 2.4 for these calculations. If the control panel is configured to supervise the graphic card(s), a loss of power will register as a communication failure at the control panel.

Note: If power to the graphic controller card is supplied from a source other than the control panel, a ground fault condition could occur.

TOTAL PARTS REQUIRED FOR PANELS WITH MORE THAN 128 LEDs					
Number of LEDs		129-256	257-384	385-512	513-640
P/N	Description	Qty.	Qty.	Qty.	Qty.
10-1858	Interface Board #1	1	2	2	3
10-1859	Interface Board #2	1	1	2	2
10-2411	Graphic Controller Card	1	2	2	3
10-1903	34-pin ribbon cable, Ctrl.-Driver, 24" long	2	3	4	5
10-1950	34-pin ribbon cable, Ctrl.-Driver, 48" long	note	note	note	note
02-3029	6-pin ribbon cable, Ctrl.-Switch, 24" long				
02-3030	6-pin ribbon cable, Ctrl.-Ctrl., 10" long	1	2	2	3
Note: The 10-1950 ribbon cable must be ordered in place of the 10-1903 ribbon cable when ordering the 10-123 and 10-124 door assemblies					

Table 12: Additional Parts

4.0 INSTALLATION

The following installation instructions are to be used by the field technician to connect the Intelligent Graphic Annunciator panel to the associated control panel. The instructions must be strictly adhered to, to prevent potential damage to the control panel and the associated equipment.

Caution

1. *The control panel and associated equipment contains static sensitive components. Always ground yourself with a proper wrist strap before handling any circuits so that static charges are removed from the body. Use static suppressive packaging to protect electronic assemblies removed from the unit.*
2. *Never remove or install boards, internal cables or components with power applied. Failure to follow the steps above can result in irreparable damage to the system components. This damage may adversely affect the operation of the control unit but its effect may not be readily apparent.*

4.1 SELECT PANEL MOUNTING LOCATION

The mounting location for the graphic panel is very important. Vibration, dust, moisture, electromagnetic interference, and radio frequency interference are all types of problems that could adversely effect the successful operation and useful life of the equipment. Fike recommends that the graphic panel be installed in an environment with a nominal room temperature of 15°-27°C / 60°-80°F, with a relative humidity of 85 percent. Do not install in an environment that exceeds these temperature and humidity ratings.

4.2 INSTALL BACK BOX

The back box and optional flush mount trim-ring are typically installed prior to receiving the door assembly and electronics. The back box is not equipped with electrical knock-outs. Installer must create electrical knockouts for connection of conduit and wiring in the field. Knockouts should be created using a knockout punch on the sides, top or bottom of the enclosure only.

Caution

Do not install electronic components in the back box until enclosure is free from drywall dust, debris, and necessary conduit knockouts have been punched into the enclosure.

Note: Do not install conduit from the back of the box unless you get approval from Fike on an acceptable location.

The back box has mounting holes provided on one side for securing the door assembly. Prior to installing the back box, verify whether the door assembly is to be hinged on the enclosures left side or right side and install the box accordingly.

The back box can be surface or flush mounted as required to suite project requirements (Exhibits 6 through 9). For surface mounting, utilize the mounting key holes supplied in the back of the enclosure and secure the box to the wall with suitable anchors. For flush mounting, an optional flush mount trim-ring is required. Cut the opening in the wall to fit the back box dimensions and install the flush mount trim-ring securing with suitable anchors. Insert the back box into the trim-ring opening and secure with suitable anchors. The trim ring allows the installer to adjust how deep the back box is set into the wall.

Note: The back box is not fire rated; do not install in fire-rated walls.

Note: The back box should never be mounted deeper than flush with the finished wall. This will prevent the door from opening.

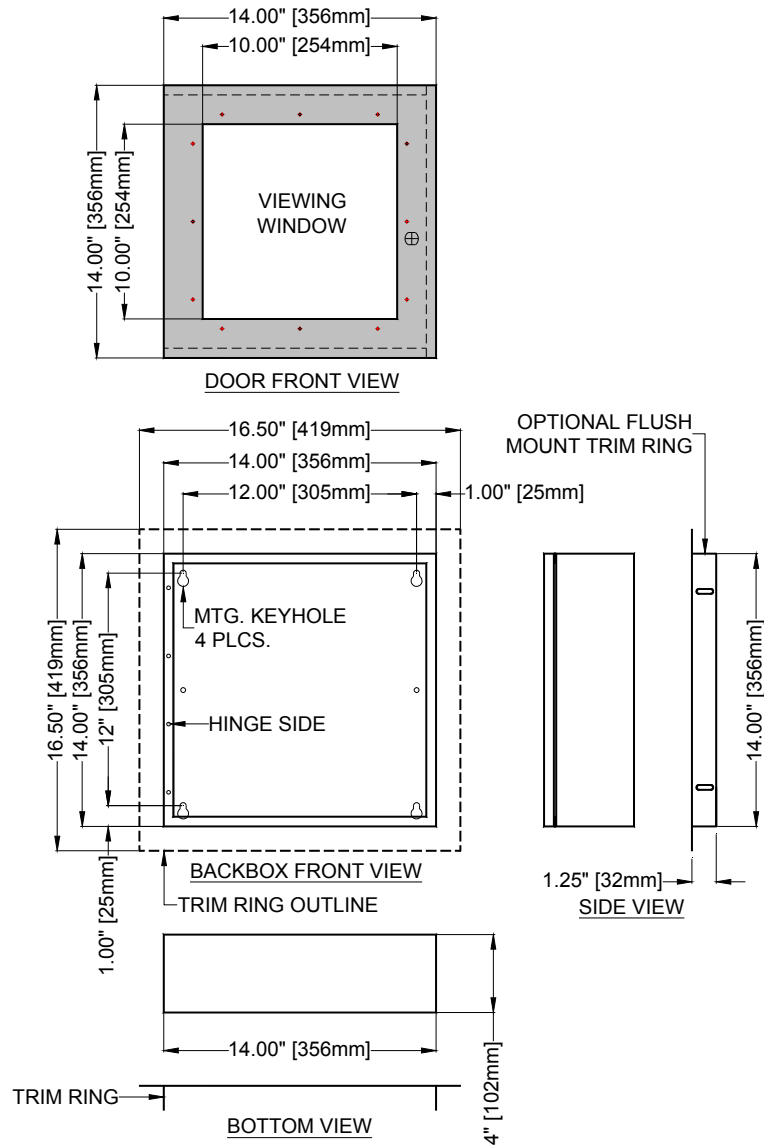


Exhibit 6: 10-121 Door Assembly and Back Box Dimensions

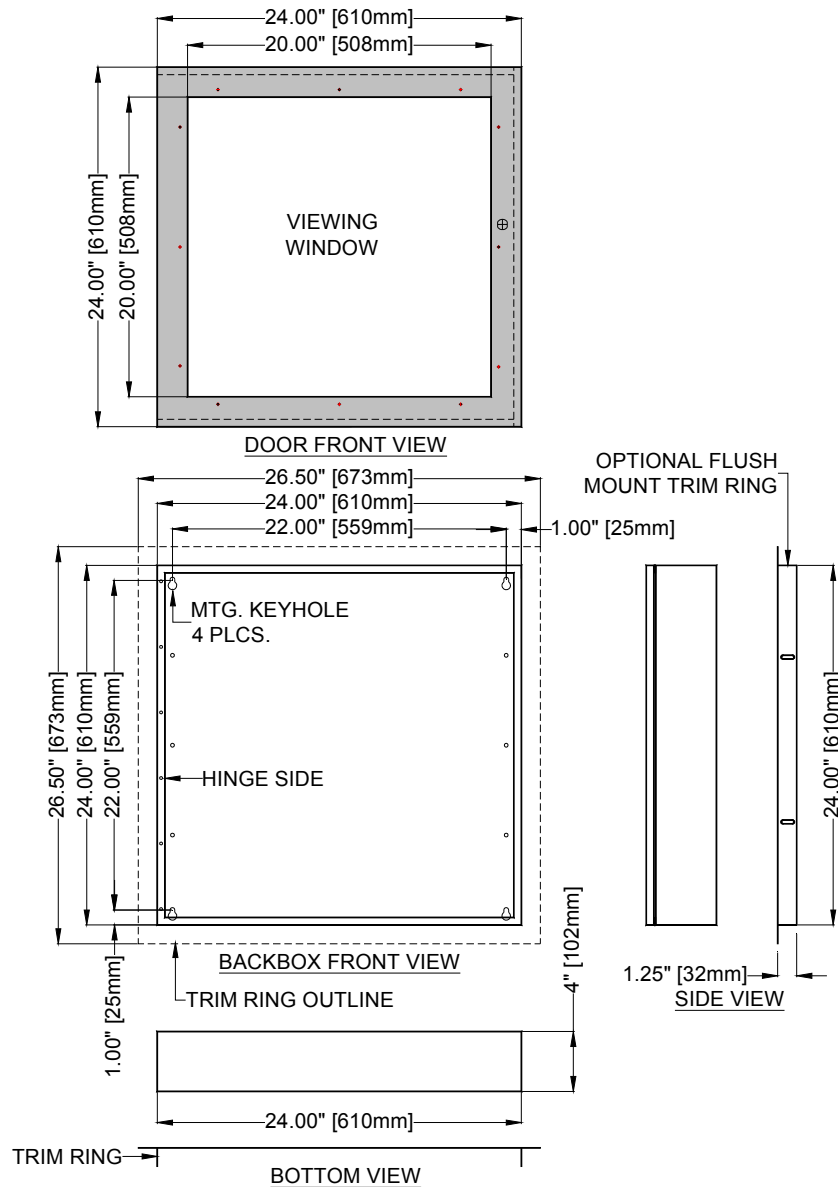


Exhibit 7: 10-122 Door Assembly and Back Box Dimensions

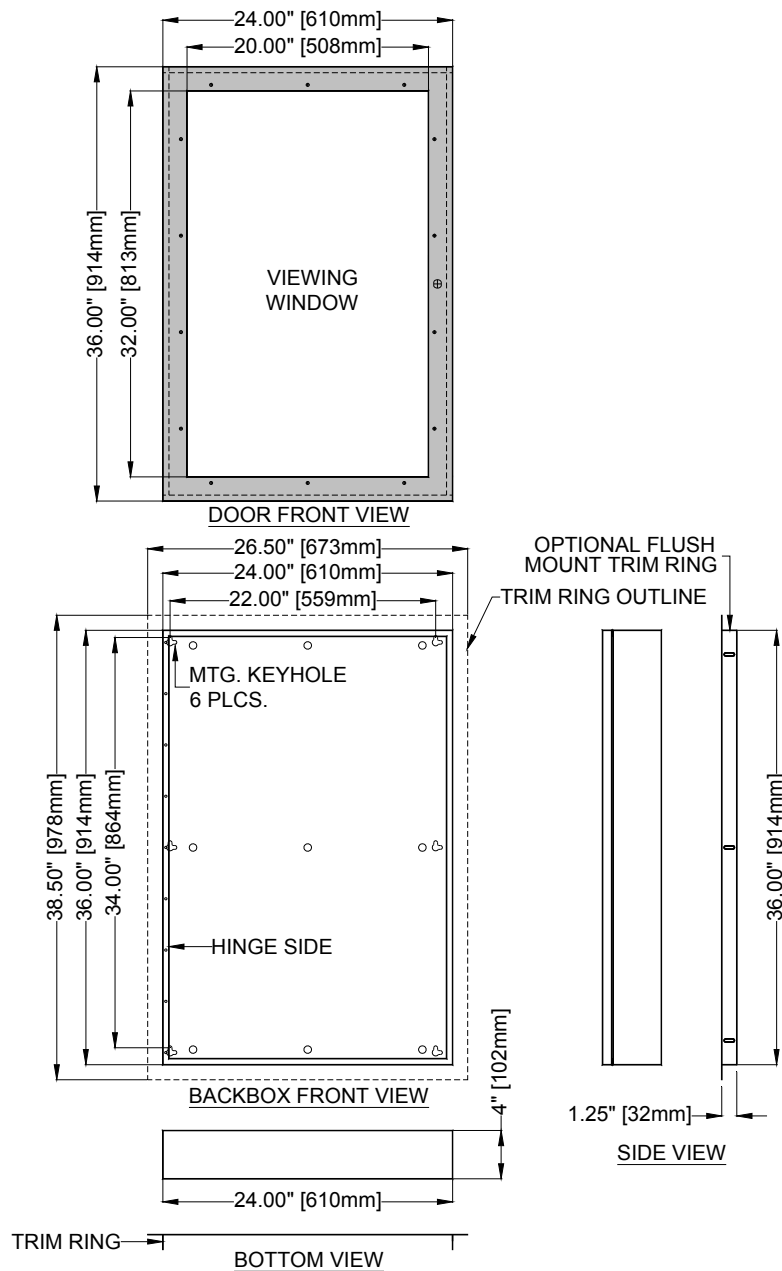


Exhibit 8: 10-123 Door Assembly and Back Box Dimensions

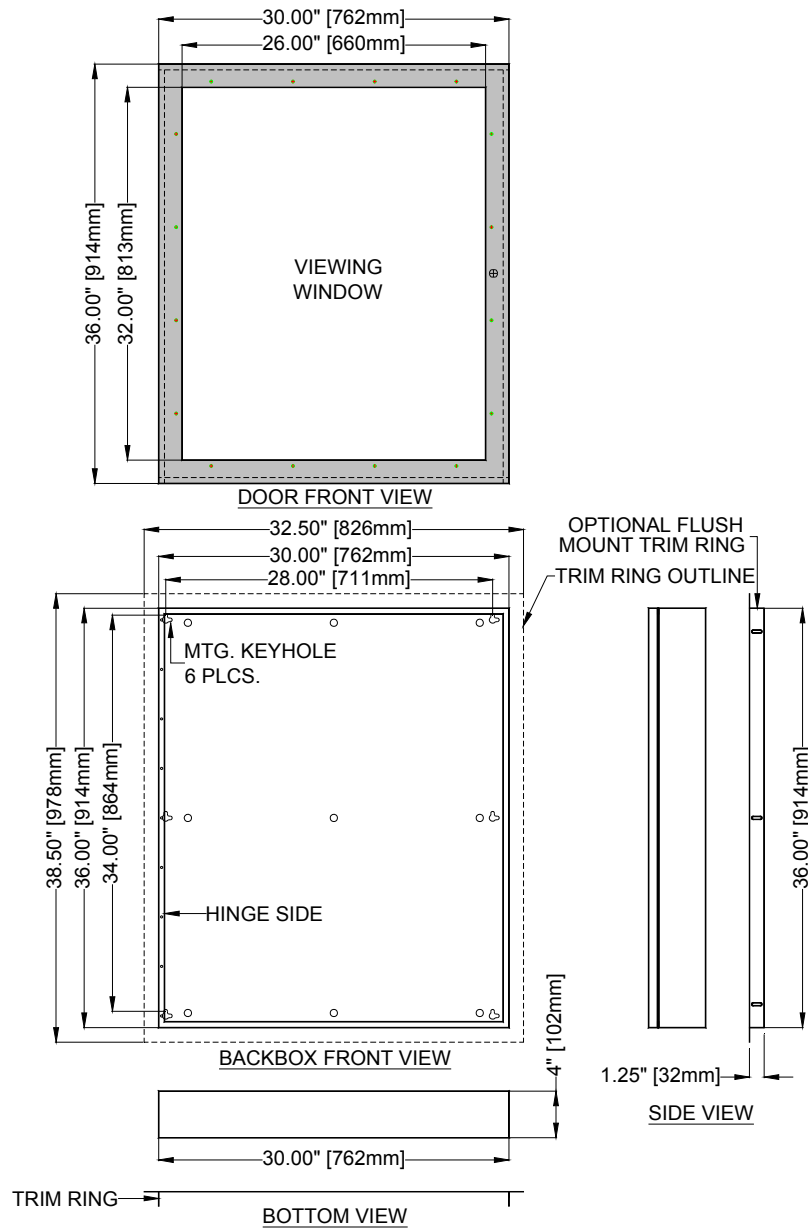


Exhibit 9: 10-124 Door Assembly and Back Box Dimensions

4.3 PULL FIELD WIRING INTO BACK-BOX

Unless otherwise detailed in this manual or in other documents relating to this module, the designer, installation and service technician shall utilize published standards and references such as: NFPA 70 National Electrical Code; NFPA 72 National Fire Alarm Code; and other standards which may be relevant to the Local Authority Having Jurisdiction (AHJ) for field wiring installation requirements.

Caution

If connecting the graphic panel to an existing system, disconnect AC power, batteries, and RS485 circuit from control panel and wait 60 seconds prior to module installation. Failure to do so can damage circuits.

1. Pull RS485 and 24 VDC power wiring into back-box utilizing created knockouts. Leave sufficient wire to make connections at module terminals without straining board components.
2. Temporarily Short conductors at one end and measure the total wire resistance. Compare measured value to the listed circuit limitations for the particular panel that the module is being tied to. If values are within the circuit limitations, proceed to next step.

Caution

If megger testing of field wiring is required, all field devices MUST be disconnected from the circuit prior to testing. Megger testing could damage electronic components.

4.4 INSTALL DOOR ASSEMBLY AND BACK PLATE

The door assembly and back plate are typically shipped together and are installed after the back box installation is complete and all dust and debris has been removed from the enclosure. The following steps should be taken to install the door assembly and back plate to the back box.

1. Remove the door assembly and back plate from the packaging and check for shipping damage. If there is evidence of shipping damage, call Fike's customer service department.
2. Install the back plate onto the mounting studs provided in the back of the enclosure. Secure in place with supplied mounting hardware.
3. Install door assembly on to back box by aligning door hinge with mounting holes provided in the back box and secure with supplied mounting hardware (Exhibit 10). Door assemblies are typically hinged on the left side, unless specified differently when ordered. Due to the size and weight of the door assembly, larger graphic panels will require two individuals to install the door assembly.

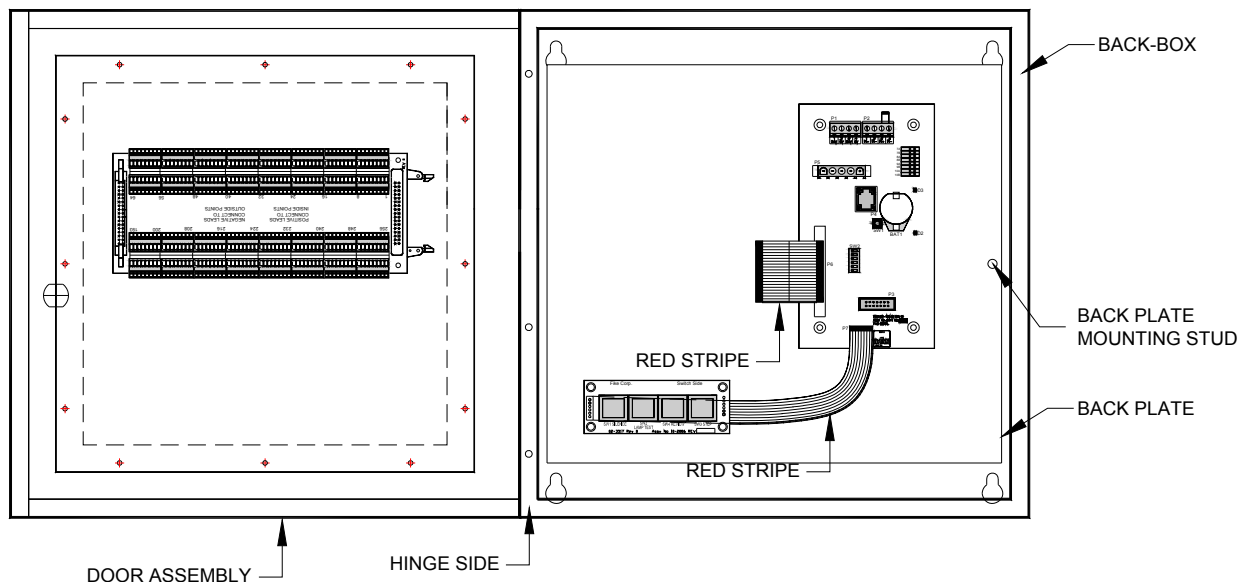


Exhibit 10: Door Assembly and Back Plate Installation

4.5 CONNECT RIBBON CABLES

The ribbon cables are typically connected to the Switch Card and Graphic Controller Card(s) when shipped from the factory. Final connections to the LED Interface Boards are made after the door assembly has been mounted to the back-box. If the ribbon cables are not shipped pre-installed, each cable is keyed with a red stripe that designates position one (1) on the ribbon cable. For proper operation, cable(s) must be connected to the Graphic Controller Card(s) and Switch Card so that the red key stripe is secured to position 1 on the terminal block(s). See Exhibits 2 and 3 for terminal designations.

Connect the 34-pin ribbon cable(s) from Graphic Controller Card (P6) to LED Interface Board No. 1 (P1). The cable connectors on the LED Interface Board(s) are keyed so that the ribbon cable can only be connected in the proper orientation. For reference purposes, Exhibit 11 shows the ribbon cable connections required for the largest graphic panel configuration available.

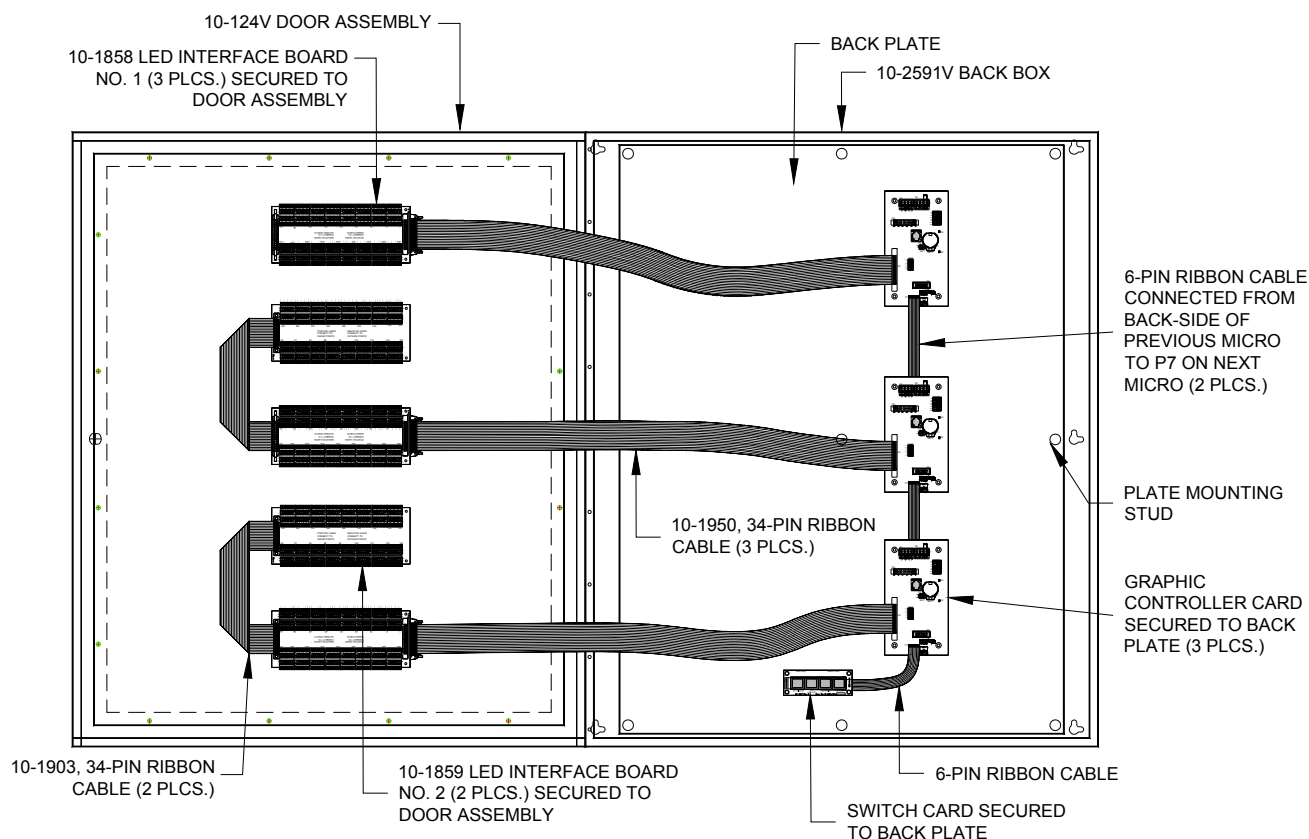


Exhibit 11: Ribbon Cable Connections (Maximum LEDs)

4.6 DIP SWITCH SETTINGS

Each Graphic Controller Card requires a unique address for identification on the RS485 peripheral bus. DIP switch SW2 (switch 1-6) is used to set the address for the card (Exhibit 12). A maximum number of 31 devices can be connected to the RS485 peripheral bus circuit. The device addresses do not need to be sequential and can be set to any number between 02 and 32. Note that 00 is not a valid address and 01 is reserved for the control panel.

The setting of the DIP switches will vary depending upon the communication baud rate required (9600 bps or 38400 bps). Table 13 shows the switch settings required to select each baud rate.

Note: When 38400 bps communication rate is used, the card can not be assigned to address 32.

Note: Baud rate selection is available only on cards with firmware version 3.10.

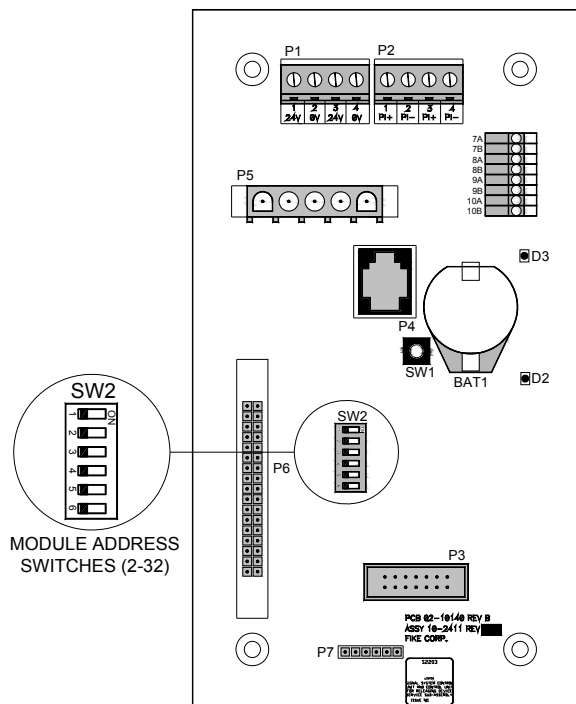


Exhibit 12: Graphic Controller Card Addressing

Binary Value	1	2	4	8	16	32
Dip Switch #	1	2	3	4	5	6
Address						
9600 bps baud rate	0	NOT VALID				
	1	ON	◀ RESERVED FOR PANEL			
	2		ON			
	3	ON	ON			
	4			ON		
	5	ON		ON		
	6		ON	ON		
	7	ON	ON	ON		
	8				ON	
	9	ON			ON	
	10		ON		ON	
	11	ON	ON		ON	
	12			ON	ON	
	13	ON		ON	ON	
	14		ON	ON	ON	
	15	ON	ON	ON	ON	
	16					ON
	17	ON				ON
	18		ON			ON
	19	ON	ON			ON
	20			ON		ON
	21	ON		ON		ON
	22		ON	ON		ON
	23	ON	ON	ON		ON
	24				ON	ON
	25	ON			ON	ON
	26		ON		ON	ON
	27	ON	ON		ON	ON
	28			ON	ON	ON
	29	ON		ON	ON	ON
	30		ON	ON	ON	ON
	31	ON	ON	ON	ON	ON
	32					ON
38400 bps baud rate	0	NOT VALID				
	1		◀ RESERVED FOR PANEL			
	2		ON			ON
	3	ON	ON			ON
	4			ON		ON
	5	ON		ON		ON
	6		ON	ON		ON
	7	ON	ON	ON		ON
	8				ON	ON
	9	ON			ON	ON
	10		ON		ON	ON
	11	ON	ON		ON	ON
	12			ON	ON	ON
	13	ON		ON	ON	ON
	14		ON	ON	ON	ON
	15	ON	ON	ON	ON	ON
	16					ON
	17	ON				ON
	18		ON			ON
	19	ON	ON			ON
	20			ON		ON
	21	ON		ON		ON
	22		ON	ON		ON
	23	ON	ON	ON		ON
	24				ON	ON
	25	ON			ON	ON
	26		ON		ON	ON
	27	ON	ON		ON	ON
	28			ON	ON	ON
	29	ON		ON	ON	ON
	30		ON	ON	ON	ON
	31	ON	ON	ON	ON	ON

Table 13: Binary Addressing

4.7 CONNECT FIELD WIRING

1. Disconnect AC power and batteries from the Control panel and wait 60 seconds prior to connecting field wiring. Failure to do so can damage circuits.
2. Disconnect all RS485 connections from the Control panel.
3. Connect the RS485 circuit wiring to terminal block P2, terminals 1 (+) and 2 (-) as illustrated in Exhibit 13.

Note: RS485 terminals on some control panels or modules are labeled A/B versus +/-.

4. Remove the 100-ohm resistor and connect outgoing RS485 circuit wiring to terminal block P2, terminals 3 (+) and 4 (-) as illustrated in Exhibit 13. If last device on the circuit, leave the resistor in place.
5. Connect the 24 VDC wiring to terminal block P1, terminals 1 (24V) and 2 (0V) as illustrated in Exhibit 13.
6. Connect outgoing 24 VDC wiring (if applicable) to terminal block P1, terminals 3 (24V) and 4 (0V) as illustrated in Exhibit 13.

Caution

1. Power must be turned off when connecting 24 VDC power to the module to avoid damaging the equipment.
2. Do not reverse the 24V (P1) and RS485 (P2) terminal blocks or wiring. Damage to the system will occur.
3. Do not over tighten screw terminals. Over tightening may damage threads, resulting in reduced terminal contact pressure and difficulty with screw terminal removal.

4.8 POWER-UP GRAPHIC PANEL

Before applying power to the graphic, verify that all boards, cables and components (e.g., lithium battery on graphic controller card) are properly installed then reapply AC power and batteries (in that order) to the associated control panel or field power supply. Diagnostic LED (D2) on the graphic controller card should illuminate steady. Verify field wiring voltages; if voltages measure outside of the values stated in this manual at any time, immediately power down and check field wiring for possible faults.

Reconnect all RS485 connections to the control panel. Diagnostic LED (D3) on the graphic controller card should illuminate steady. If flashing, communication with the control panel has failed. If this should occur, first try pressing the reset switch (SW1) on the graphic controller card. This will reset the card's micro causing it to attempt to reestablish communication with the control panel. If communication is not established, immediately power down and check the control panel configuration and field wiring for possible faults.

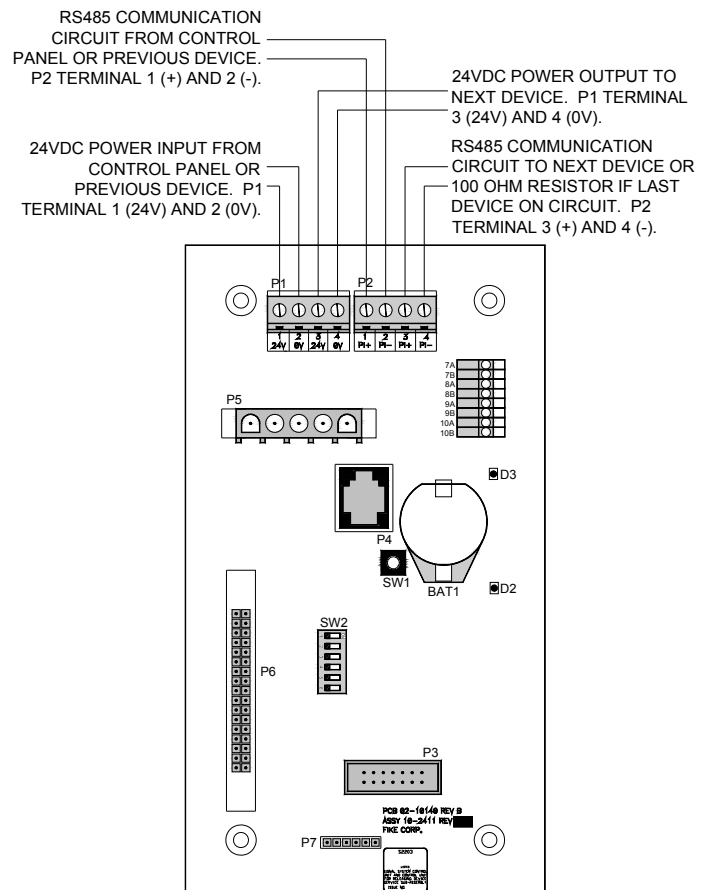


Exhibit 13: RS485 and Power Wiring Connections

5.0 PROGRAM GRAPHIC CONTROLLER CARD(S)

Each Graphic Controller Card must be programmed using Fike's C-Linx software. Refer to Fike document 06-448, "C-Linx Software manual" for programming instructions. The method for connecting to the card(s) for programming purposes varies depending upon which Fike panel the graphic annunciator is to be connected to.

Cheetah Xi (1016) or the CyberCat (254/1016)

1. Direct connection from the programming computer to the controller card (P4, RS232 port) using a 10-1874A C-Linx programming cable.

Note: RS485 wiring must be disconnected from the card (P2 terminal) and 100Ω resistor installed if programming through the card's on-board P4 RS232 port.

2. Connection from the programming computer to the control panel (P3, RS232 port) is made using a 10-1874A C-Linx programming cable. Program is transmitted via the control panel's RS485 bus connection with the annunciator (P2 terminal).

Cheetah Xi 50 or CyberCat 50

1. Connection from the programming computer to the control panel (P3, USB port) is made using a 10-2629 C-Linx programming cable. Program is transmitted via the control panel's RS485 bus connection with the annunciator (P2 terminal).

5.1 LED FUNCTIONS

- LED No. 1 is hard coded as a **Communication OK** LED. It will illuminate when communication between the graphic and the fire panel is okay.
- LED No. 2 is hard coded as a **Power OK** LED. It will illuminate when power to the graphic is normal (can be used as a power-on indicator).

The remaining 126 LEDs can be configured to illuminate upon a device activation or zone response for the following events and conditions:

- **Activation** (alarm condition/device activation) of any one of multiple devices at the fire panel. Devices include sensors and input modules. No limits on the combination of devices for each LED address.
- **Trouble** condition of any one of multiple devices at the fire panel. No limits on the combination of devices. Trouble condition includes "Device missing" or wiring faults.

- **Both activation and/or trouble** condition (as described in the two conditions above) of any one of multiple devices at the fire panel. Trouble will have the lower priority should both conditions be active at the same time. If activation produces a steady state illumination, then trouble condition will produce a pulsed illumination and vice-versa. This LED function is limited to one address per LED.
- **Pre-Alarm** activation of any one of multiple devices at the fire panel due to a pre-alarm condition (sensors only). No limits on the combination/number of devices.
- **Activation and/or Pre-Alarm** of any one of multiple devices at the fire panel. Pre-Alarm will have the lower priority should both conditions be active at the same time. If activation produces a steady state illumination, then pre-alarm condition will produce a pulsed illumination and vice-versa (Sensors only).
- **Network Device Activation** allows configuration of the LED to illuminate upon occurrence of any of the previously identified events and conditions for devices connected to any networked panel.
- **Zone State activation** of any single state condition at the fire panel in the zone(s) configured for this LED. Any combination of configured zones is allowed but only one state can be configured (one state per LED – single, multiple or all zones). The states allowed are Alarm, Trouble, Pre-Alarm, Supervisory and Zone Disable (Cheetah Xi only – Abort, Predischage, and Release)
- **Switch Feedback** of any one of the graphic card input switches for the purpose of visual feedback. When a specified switch number is active, its pre-programmed associated LED will illuminate.
- **Panel Silenced** illumination when the main panel notification circuit(s) is silenced.
- **Panel Drill** illumination when the main panel is in Drill mode.
- **Walktest** illumination when the main panel is in Walktest mode.
- **Sounder** operation follows the local graphic audible status. If the local audible is ON, this LED is ON. It re-activates on any new event & turns OFF on silence or acknowledge.

5.2 LED ILLUMINATION PATTERNS

The illumination pattern for each LED can be set for the Active, Inactive, Silence, and Acknowledged states as indicated in Table 14 (defaults are in bold):

Active	Slow Blink Fast Blink Off Continuous	Silence	Continuous Slow Fast Off
Inactive	Off Continuous Slow Blink Fast Blink	Ack	Continuous Slow Fast Off

Table 14: LED Illumination Patterns

5.3 GRAPHIC PANEL SUPERVISION

The associated control panel must be configured to supervise the graphic annunciator's controller cards for supervision to occur. Controller cards that are supervised will initiate a trouble event at the control panel upon loss of RS485 communication or 24 VDC power.

6.0 TESTING AND PLACING INTO SERVICE

To ensure proper system operation, this product must be tested in accordance with the requirements of NFPA 72 after programming operation or change in site-specific software. Reacceptance testing is required after any change, addition or deletion of system components, or after any modification, repair or adjustment to system hardware or wiring.

All components, circuits, system operations, or software functions known to be affected by a change must be 100% tested. In addition, to ensure that other operations are not inadvertently affected, at least 10% of initiating devices that are not directly affected by the change, up to a maximum of 50 devices, must also be tested and proper system operation verified.

7.0 SERVICING

Inspection, Testing, and Maintenance shall be performed by qualified individuals. Fike provides a training class for Factory Authorized Sales outlets. The training class provides Certification for Installation, Service and Maintenance of this product. The certified individual performing the service must have also read this entire manual and understand the basics of Fire Alarm Systems, codes, and standards. Before proceeding with any testing, notify all building occupants and any parties monitoring the Fire Alarm System. Notification must also be performed at the conclusion of the testing.

8.0 MAINTENANCE

In order to have an optimum Fire Protection System completely functional at all times, it is recommended to follow NFPA 72 Guidelines. A permanent record shall be maintained documenting all inspections, testing and maintenance. The components of the Intelligent Graphic Display that have a shelf life are as follows:

Battery (Lithium-Ion Coin Cell), P/N 02-4040 – Replace every 5 years. *Please dispose of batteries properly.*

Note: Replacement of coin cell battery requires removing power (24 VDC) from the card prior to battery removal. Removing both power sources will result in loss of card configuration. Connect to card and download the device configuration prior to replacing battery.

Other components may periodically require replacement or service as necessary. Indication for such service will be determined from troubleshooting and scheduled service.

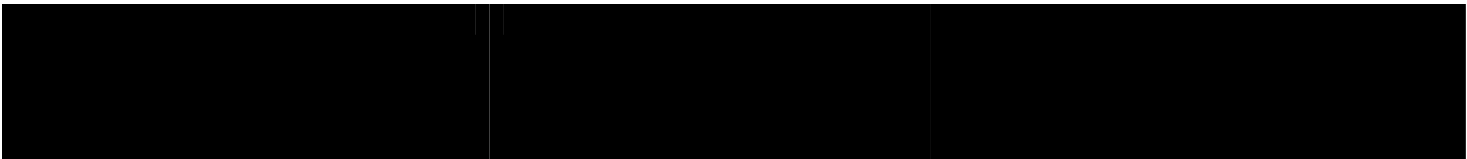
9.0 TROUBLESHOOTING

The associated Control Panel can be configured to supervise the Intelligent Graphic Display. The Control Panel will annunciate troubles from the Intelligent Graphic Display by showing a code number as indicated in Table 15. A history event will be recorded with a message.

If you encounter a problem with the graphic controller card during configuration, it can be factory initialized by pressing the Silence/Acknowledge/LED test switches at the same time, while pressing the hard reset button (SW1) on the card.

Event Display	Description	Suggested Corrective Action
PERIPH #aa ERROR 111	The configuration checksum for device #aa is incorrect. This trouble indicates the Graphic Controller Card memory is either faulty, corrupted by an external event (such as ESD strike), or needs an initial configuration.	<ol style="list-style-type: none"> 1. Re-send the configuration for the device using the laptop. 2. Interview personnel that was present near the control panel at the time and date of the event. 3. Determine the environmental conditions. 4. Check the Memory Power Voltage >2.80V with no power. The coin cell battery may require replacement. 5. Download the history and save to follow status and determine trends.
PERIPH #aa MISSING	RS485 Peripheral Devices #aa is not communicating with the associated control panel.	<ol style="list-style-type: none"> 1. Locate Peripheral Device #aa and determine if appropriate power is present and if the RS485 wire is connected properly. 2. Make sure that the address is set as required by the installation instructions for the peripheral. 3. Make sure the 100Ω termination resistor is inserted only on the last device for the peripheral loop. 4. Validate wiring is within the specifications.

Table 15: Event Description/History Messages



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