

Gemini™ II Multi-Hazard

Conventional Suppression Control System P/N 84-32200X-X0X



A UTC Fire & Security Company

Effective: March 2007
K-84-003

FEATURES

- **Agency Approvals**
 - UL 864 Listed # S2422/S3743
 - ULC-S527-99 Listed # S2422/ULC CS1010
 - FM Approved # 3008679 (3010)
 - CSFM Approved # 7165-1076:160
 - MEA (NYC) Accepted # 140-02-E
- **Microprocessor Based**
- **Conventional Control with Intelligence**
- **Completely and Easily Field Programmable**
- **Distributed Remote Hazard Control**
- **Remote Display Units in Local or Global Mode**
- **80-Character Alphanumeric LCD Display**
- **270-Event History Log**
- **Digital Release Countdown**
- **Listed for a Wide Range of Suppression Systems**
 - Kidde FM-200®, FE13™, CO₂ & Halon Clean Agent Suppression Systems
 - Kidde IND™ Dry Chemical & WHDR™ Wet Chemical Systems
 - Sprinkler Supervisory, Deluge/Preaction & Foam/Foam-Water Systems

DESCRIPTION

The Kidde Gemini II Multi-Hazard is the technologically most advanced Conventional Suppression (agent releasing) Control System available to the suppression industry today. Employing distributed intelligence architecture, the Kidde Gemini II system enables highly reliable monitoring and suppression control for up to eight separate hazards.

The system consists of a master Main Control Panel (MCP) which is a microprocessor based, field-configurable single hazard panel with a plethora of intelligent features including LCD Display, digital Release Countdown, password protected Menu System, Event History Log, Configuration Log, Walk Test and Remote Battery Test capability. As shown in Figure 1, this basic system can be field-expanded to be a large eight hazard Control/Display System with up to seven Remote Hazard Units (RHU) and sixteen Remote Display Units (RDU), all of which reside on a fault tolerant communications network. The MCP and each RHU is intended to be physically located in the space it is meant to protect. Since the MCP and RHUs are computer-controlled, each one can act in stand-alone mode in the event of damage to any of the other panels. Under worst case fault conditions the only protection threatened is within the space where the damage occurred. All other protected areas continue to function normally. System reliability is substantially improved since wiring for each protected space is only run a short distance to the local panel.

Featuring a compact and aesthetically pleasing design, the Gemini II is ideally suited for modern commercial, high-tech and industrial applications. It is approved for Kidde FM-200®, FE-13™ and CO₂ Clean Agent Systems as well as Kidde IND™ Dry Chemical & WHDR™ Wet Chemical Systems. The Gemini II is also listed for Sprinkler Supervisory Service and for Halon, Foam/Foam-Water and Deluge/Pre-Action Systems.



MAIN CONTROL PANEL (MCP)

MCP POWER SUPPLY

The MCP operates on 120/240 Vac 50/60 Hz Power Supply. The Power Supply Unit is rated 4 Amps at 24 Vdc and is provided with a Battery Charger to charge a 24 Vdc backup battery with a capacity 12 to 66 AH. The battery may be sized for 24 hour standby with 5 minutes alarm or for 90 hour standby with 10 minutes alarm, depending on the suppression system. The Power Supply is supervised and causes an immediate changeover to battery in the event of loss of AC input or drop in input voltage.

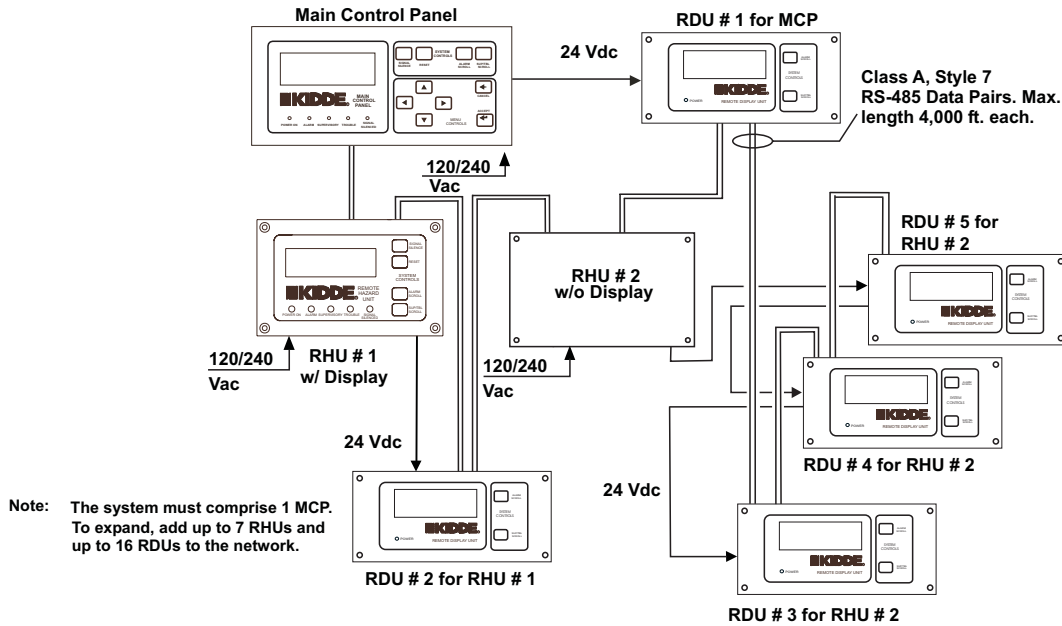


Figure 1. Typical System Block Diagram

MCP DISPLAY-CONTROL MODULE

The MCP Display-Control Module is provided with an 80-character alphanumeric LCD Display, status LEDs and System Control and Menu Control buttons as shown in Figure 2.

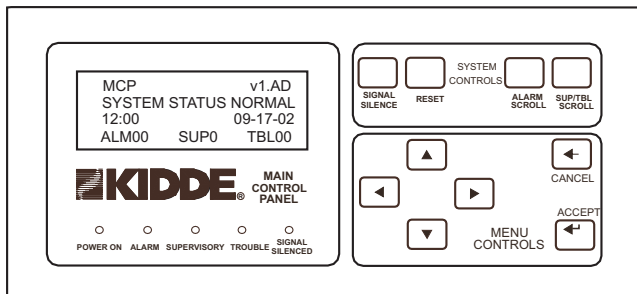


Figure 2. MCP Display-Control Module

MCP INPUT AND OUTPUT CIRCUITS

The MCP is a Single Hazard Control Panel and is provided with the following Input and Output Circuits:

- **2 Style B Class B or Style D Class A Initiating Circuits**
 - >> Up to 40 Conventional Fenwal Ionization and Photoelectric Smoke Detectors and any number of contact-closure Heat Detectors on each circuit.
 - >> Wiring style selection is by on-board links without any additional hardware.
 - >> Programmable to release agent either on single or cross-zone input.

>> Also programmable to delay Agent Release by 0 to 60 seconds.

- **1 Style B Class B Manual Release Circuit**

>> Overrides any Abort Input
 >> Programmable to delay Agent Release by 0 to 30 seconds.

- **1 Style B Class B Abort Circuit**

>> May be disabled for CO2 and Deluge/Pre-Action systems.
 >> Programmable for up to four different Abort Modes.
 >> Also programmable to generate Abort pulse tone when activated.

- **1 Style B Class B Supervisory Circuit**

- **1 Style B or Style D Class A Waterflow Circuit**

>> Wiring style selection is by on-board links without any additional hardware.
 >> Provides Non-Silenceable notification.

- **2 Style Y Class B or Style Z Class A Indicating Appliance Circuits**

>> Wiring style selection is by on-board links without any additional hardware.
 >> Rated 2.5 Amps total at 24 Vdc for polarized Audio-Visual devices.
 >> Individually programmable to operate on 1st Alarm, Waterflow, Agent Pre-Release, Manual Release and Agent Release conditions and to generate Silent, Steady, 60 bpm Pulse, 120 bpm Pulse and Temporal sound patterns either in Silenceable or Non-Silenceable mode.

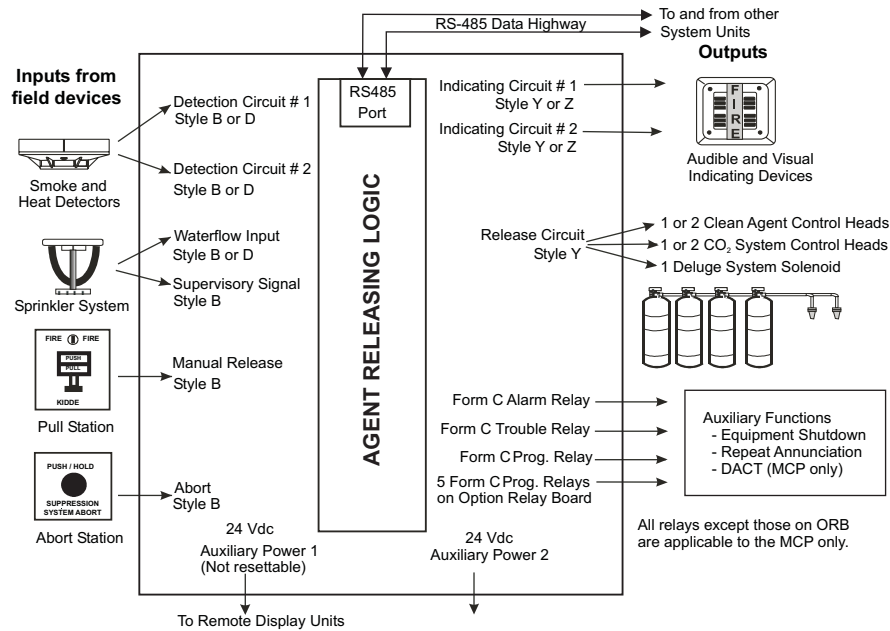


Figure 3. MCP and RHU Hazard Block Inputs and Outputs

- **1 Style Y Class B Agent Release Circuit**
 - >> Programmable to operate (a) 1 or 2 ganged 24 Vdc Kidde Solenoid Control Heads for clean agent or CO₂ systems or (b) 1 FM Group A, B, D, E or G Solenoid for Deluge/Pre-Action Systems.
 - >> A second programmable Release Circuit is also provided to operate 1 Stop Valve for systems using Clustered Agent Cylinders (a common cylinder bank protects multiple hazards and Stop Valves direct Agent to the affected area).
- **Relay Outputs**
 - >> 1 Form C System Alarm Relay
 - >> 1 Form C System Trouble Relay
 - >> 1 Form C Programmable Relay
- **Optional Relay Board (ORB)**
 - >> 5 Form C Programmable Relays

MCP CONSTRUCTION

The MCP enclosure is designed for surface mounting and is rated NEMA 1 for indoor use. It is constructed of 18 Gauge steel, painted red and kept closed by a steel door with a key-lock. All operator interface switches and indicators are located behind the locked cover. The enclosure is large enough to house two 12 AH 12 Vdc batteries for backup power supply. Battery Enclosures are available for larger capacity batteries. A trim-ring is available for flush mounting.

REMOTE HAZARD UNIT (RHU)

RHU POWER SUPPLY

The Power Supply Unit in the RHU is the same unit as in the Main Control Panel.

RHU DISPLAY-CONTROL MODULE

Remote Hazard Units are available either with or without a Display-Control Module. When used, as shown in Figure 4, the RHU Display-Control Module is similar to that of the MCP with the exception of the Menu Control buttons, which are provided only on the MCP. RHU Displays can be programmed to operate either in local or global mode.

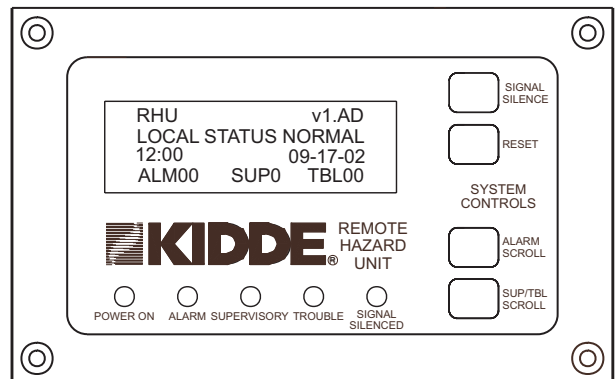


Figure 4. RHU Display-Control Module

RHU INPUT AND OUTPUT CIRCUITS

Each RHU is also a Single Hazard Panel and is similar to the Main Control Panel being provided with the same Input and Output Circuits (with the exception of the three System Relays). The Optional Relay Board (ORB) can also be mounted to the RHU.

RHU CONSTRUCTION

When using the optional Display-Control Module, the RHU Enclosure is similar to that of the MCP. If this option

is not selected, the RHU Enclosure has no viewing window.

REMOTE DISPLAY UNIT (RDU)

RDU POWER SUPPLY

The RDU operates on 24 Vdc Power received from the non-resettable Auxiliary 24 Vdc Power Output of the MCP or associated RHU or any other UL Listed 24 Vdc Power Supply Unit.

RDU DISPLAY-CONTROL MODULE

The RDU is a “display only” unit and can be programmed to operate either in local or global mode. In local mode, it mimics the Display of the MCP or the RHU to which it is assigned. In global mode, it mimics the display of the MCP. The RDU Display-Control Module provides a LCD Display, one Power/Communication Status LED and System Controls as shown in Figure 5.

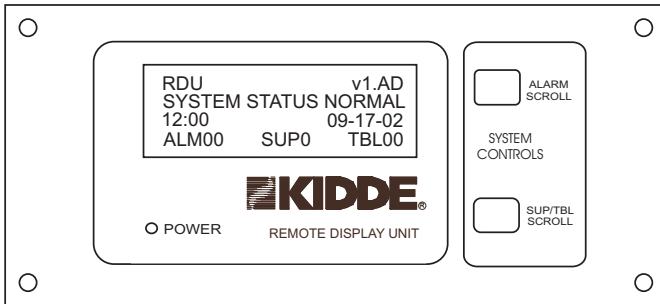


Figure 5. RDU Display-Control Module

RDU HAZARD BLOCK

RDUs do not control suppression systems, but optionally, may be used to accept one Manual Release and one Abort input from the local protected zone to which the associated MCP or RHU is assigned.

RDU CONSTRUCTION

The RDU Backbox is constructed of 18 gauge steel, painted beige and kept closed by the Display-Control Module front plate. The front plate itself is constructed of 18 gauge steel and is painted red.

SPECIAL GEMINI II CONFIGURATIONS

As shown in Figure 6, due to special Canadian annunciation requirements, MCPs listed by ULC of Canada are designed to be suitable for mounting one to three LED Display Modules. Each LED Display Module pertains to one zone of protection and provides 16 zone-specific LEDs over and above the five System LEDs provided on the MCP Display-Control Module. Enclosures of ULC listed MCP and RHU units are provided dead-front panels.

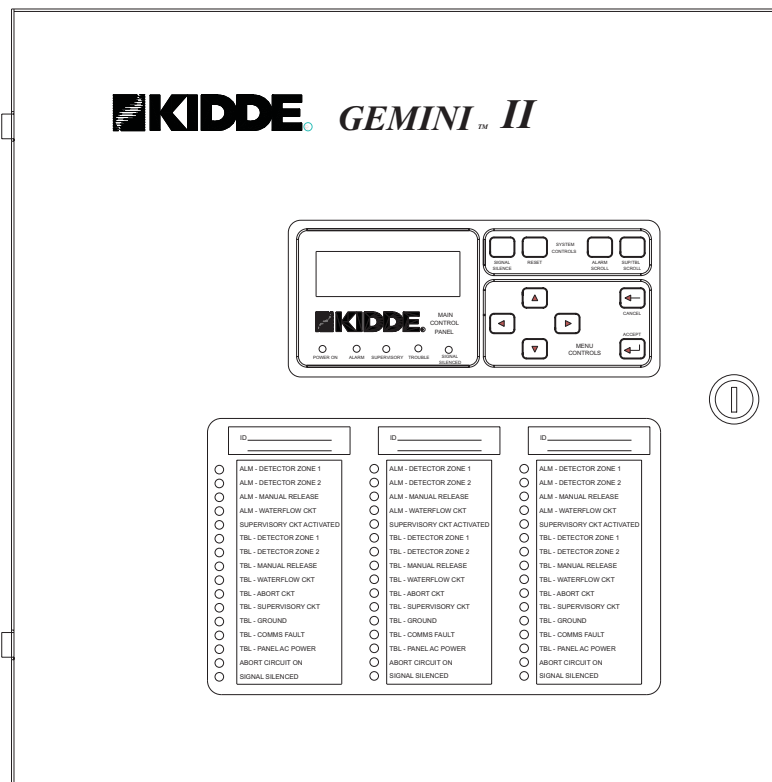


Figure 6. ULC Listed Main Control Panel

GEMINI II SYSTEM INTELLIGENCE

The Gemini II System allows operator access to its intelligence via the Menu Control buttons on the Main Control Panel. The Main Menu, which is enabled by pressing any Menu Control Button (except Cancel) on the Main Control Panel (MCP), is structured per the architecture shown in Figure 7. The Set, Isolate and Test functions are password protected to limit access to authorized personnel only.

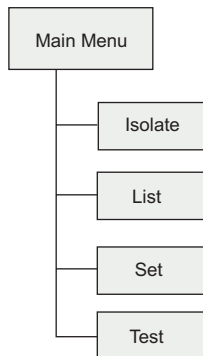


Figure 7. Menu Structure

The **Set Function** allows the operator to change password, set current date and time and the site-specific operating configuration for the entire system. When the System is initialized, the MCP downloads the operating configuration to the RHUs and RDUs.

The **List Function** enables the operator to list the system operating configuration, any isolated devices, registered RHUs and RDUs and the Event History Log.

The **Event History Log** is a compilation of all Alarm, Trouble, Supervisory and Event messages stored in non-volatile memory. A maximum of 270 events can be stored and the occurrence of a new event beyond the maximum capacity erases the first. The Event Log can be cleared by using the Gemini II ISP (In-Service Programming) Utility CD-ROM.

The **Isolate Function** is used to isolate and de-isolate input and output circuits on the MCP and all remote units. The **Test Function** allows the operator to conduct a system Walk test and Battery test on the MCP and all remote units.

IN-SERVICE PROGRAMMING

The ISP Utility is a software program used to clear the Event History Log of a Gemini II System and to upload feature enhancements to its operating system. The ISP Utility CD-ROM operates on IBM compatible computers running Windows 95, 98, 2000, XP, ME or NT and is connected to the ISP port on the MCP, RHU and RDU via Kidde P/N 74-100016-003 PEGAsys™ Telephone Cable with DB9 Adapter.

TECHNICAL SPECIFICATIONS

MAIN CONTROL PANEL (MCP)

Input Supply:	120/240 Vac 50/60 Hz
Current Draw:	3.0 Amps @ 120 Vac or 1.4 Amps @ 240 Vac
Output Rating:	4.0 Amps @ 24 Vdc
Charger Output:	3.5 Amps max @ 27.3 Vdc
Aux. Power Output:	0.5 Amps max @ 24 Vdc
Notification Output:	2.5 Amps total @ 24 Vdc
Quantity per System:	One
Enclosure Rating:	NEMA 1
Enclosure Material:	18 gauge steel, painted red
Dimensions (W x H x D):	15.5 in. x 15.5 in. x 5.0 in. (393 mm x 393 mm x 127 mm)
Ambient Temperature:	32° to 120°F (0° to 49°C) max.
Relative Humidity:	93% non-condensing max.

REMOTE HAZARD UNITS (RHU)

Input Supply:	120/240 Vac 50/60 Hz
Current Draw:	3.0 Amps @ 120 Vac or 1.4 Amps @ 240 Vac
Output Rating:	4.0 Amps @ 24 Vdc
Charger Output:	3.5 Amps max @ 27.3 Vdc
Aux. Power Output:	0.5 Amps max @ 24 Vdc
Notification Output:	2.5 Amps total @ 24 Vdc
Quantity per System:	Maximum 7 (3 for ULC Systems)
Enclosure Rating:	NEMA 1
Enclosure Material:	18 gauge steel, painted red
Dimensions (W x H x D):	15.5 in. x 15.5 in. x 5.0 in. (393 mm x 393 mm x 127 mm)
Ambient Temperature:	32° to 120°F (0° to 49°C) max.
Relative Humidity:	93% non-condensing max.

REMOTE DISPLAY UNITS (RDU)

Input Supply:	24 Vdc (nominal)
Quantity per System:	Maximum 16
Backbox Rating:	NEMA 1
Backbox Material:	18 gauge steel, painted beige
Front Plate Material:	18 gauge steel, painted red
Dimensions (W x H x D):	8.0 in. x 4.45 in. x 2.25 in. (203 mm x 113 mm x 57 mm)
Ambient Temperature:	32° to 120°F (0° to 49°C) max.
Relative Humidity:	93% non-condensing max.

ORDERING INFORMATION

CONTROL PANELS	PART NUMBER
Gemini II Main Control Panel (MCP-ULI) 120/240 Vac 50/60 Hz Input. Stand-alone Unit controls 1 Hazard Block. NEMA 1 Enclosure will house two 12 Vdc 12 AH Batteries (order selected batteries separately).	84-322001-001
Gemini II Main Control Panel (MCP-ULI/ULC) 120/240 Vac 50/60 Hz Input. Stand-alone Unit controls 1 Hazard Block. NEMA 1 Enclosure with 1 pre-mounted LED Display Module and dead-front will house two 12 Vdc 12 AH Batteries (order selected batteries separately).	84-322001-010
Gemini II Remote Hazard Unit with Display (RHU-ULI) 120/240 Vac 50/60 Hz Input. Networked Unit controls 1 Hazard Block. NEMA 1 Enclosure will house two 12 Vdc 12 AH Batteries (order selected batteries separately).	84-322002-001
Gemini II Remote Hazard Unit w/o Display (RHU-ULI) 120/240 Vac 50/60 Hz Input. Networked Unit controls 1 Hazard Block. NEMA 1 Enclosure will house two 12 Vdc 12 AH Batteries (order selected batteries separately).	84-322002-002
Gemini II Remote Hazard Unit with Display (RHU-ULI/ULC) 120/240 Vac 50/60 Hz Input. Networked Unit controls 1 Hazard Block. NEMA 1 Enclosure with dead-front will house two 12 Vdc 12 AH Batteries (order selected batteries separately).	84-322002-005
Gemini II Remote Display Unit (RDU) 24 Vdc Input. Networked Unit controls 1 Manual Release and 1 Abort Circuit. Complete with Backbox.	84-322003-001
Gemini II Optional Relay Board (ORB) Mounted on MCP or RHU Board. Provides 5 Form C Programmable Relays.	84-322001-009
Gemini II LED Display Module (ULI/ULC) Mounted on MCP. Max 2 per Canadian system.	84-322001-013
ACCESSORIES	
12 AH, 12 Vdc Sealed Lead Acid Battery (2 required for 24 Vdc, 4 required for 24 AH, 24 Vdc)	06-115915-047
17 AH, 12 Vdc Sealed Lead Acid Battery (2 required for 24 Vdc, 4 required for 34 AH, 24 Vdc)	06-115915-046
33 AH, 12 Vdc Sealed Lead Acid Battery (2 required for 24 Vdc, 4 required for 66 AH, 24 Vdc)	89-100052-001
Gemini II Battery Cabinet for 2 of 33 AH Batteries	84-322004-001
Resistor Kit (10 ea. 10 Kohm, 5%, 0.5 Watt, EOLRs, 5 ea. 3.9 Kohm, 5%, 0.5 Watt EOLRs and 1 ea. 2 Kohm, 5%, 1 Watt Releasing Circuit Dummy Resistor)	06-129923-001
Gemini II Design, Installation, Operation and Maintenance Manual	06-235975-001
Gemini II In-Service Programming (ISP) Utility CD-ROM Rev AD	84-322005-001

For detailed design, installation, configuration and additional ordering information, refer to the Kidde Gemini II Design, Installation, Operation & Maintenance Manual P/N 06-235975-001.

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