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NAPCO GEMINI C-SERIES
GEMC-255, GEMC-128, GEMC-96 and GEMC
Combination Commercial / Residential Fire / Burglary Alarm Contr

DATA SHEET

Reviewed for Code Compliance
Inspections Division
Approved with Conditions
Date: 02/06/17

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GENERAL DESCRIPTION

NAPCO's Gemini C-Series GEMC-255, GEMC-128, GEMC-96 and GEMC-32 are state-of-the-art microcomputer-based combination Commercial Fire, Commercial Burglary, Residential Fire and/or Residential burglary alarm control panels of modular design. The GEMC-255 will support up to 255 zones with optional zone expansion modules, wireless receiver modules, Fire and Burg SLC modules and/or GEMC-BK1 keypads (with integral zone expander).

A minimum system requires a Gemini C-Series GEMC-XXXMB motherboard, a GEMC-PS24V7A or GEMC-PS24V4A power supply, a GEMC-HSKIT1425 or GEMC-HSKIT1416 enclosure, either a GEMC-FK1 or GEMC-BK1 keypad and at least one of the following:

- GEMC-FW-SLC: Fire SLC Module with associate Fire point devices
- GEMC-F8ZCPIM Conventional 8 Fire Zone Expander Plug in Module
- GEMC-BSLC: Burg SLC Module with associated Burglary point devices
- GEMC-EZM8: 8 zone expansion zone module listed for both commercial Fire and Burglary
- GEMC-RECV: RF Receiver with associated wireless transmitters

Each C-Series control panel includes an integral dual telephone line digital communicator, with two RJ-45 jacks for each supervised telephone line (with programmable delay), two RJ-25 jacks for local downloading, home automation (not permitted in UL installations) and NL-MOD integration; four 2A NAC circuits, relay output, trouble sounder output, active low E7 and E8 outputs, keyswitch input, remote bus and aux. power output and tamper input, two SLC module connectors, and an input for battery harness. Telephone Line 1 is inserted into TELCO # 1 (the top RJ-45 jack) and Telephone Line 2 is inserted into TELCO # 2 (bottom RJ-45 Jack). **Note:** Only two NAC circuit terminals (NAC A and NAC D with optional 12V or 24V) are available on the GEMC-96 and GEMC-32.

Keypads feature a liquid-crystal display for messages. In normal use, the LCD shows zone identification, system status messages and 4 distinct status icons. Conventional LED's and a sounder are also provided for annunciation.

Data may be quickly and easily downloaded to the control panel using a PC-compatible computer with NAPCO's PCD-Windows Quickloader Download software and a PCI2000 computer interface. Or, the panel may be programmed using the keypad in its secondary mode of operation. In keypad programming modes (there are two: Dealer and User), the LCD shows memory address, data values, programming prompts, and the alphanumeric characters required for entering up to 195 user codes and custom zone descriptions. **Note:** In Commercial Fire applications, PCD-Windows Downloader software is required to ensure required programming, and prevent erroneous entries.

Note: The GEMC-128, GEMC-96 and GEMC-32 control panels each support up to 128, 96 and 32 zones, respectively.

PHYSICAL

GEMC-HSKIT1425 (Larger Enclosure): 14.25W x 24.042"H x 6D"
GEMC-HSKIT1416 (Smaller Enclosure): 14.25W x 16.046"H x 6D"

AGENCY LISTINGS

For the GEMC-System

UL365: Police Station Alarm Units
UL609: Local Burglar Alarm Units and Systems
UL864 9th Edition: Commercial Fire
UL985: Household Fire Warning System Units
UL1023: Household Burglar Alarm System Units
UL1610: Central Station Burglar Alarm Units
UL294: Access Control Systems
NFPA 72 National Fire Alarm Code
Security Industry Association (SIA) False Alarm Reduction Standard CP-01
CSFM: California State Fire Marshall (Fire Systems Only)
FM Approval: (Pending)
NYCFD: NYC Fire Department (Fire Systems Only)

For the GEMC-12V2APS-CF,-R

UL603: Power Supplies for Use with Burglar Alarm Systems
UL1481: Power Supplies for Fire Protective Signaling Systems

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ORDERING INFORMATION

GEMC-FW-FIRE128KT

128-Point Firewolf GEMC Commercial Fire Alarm Panel Kit, with:

- 14 x 25" Red Enclosure, GEMC-HSKIT1425
- 7A, 24V Power Supply, GEMC-PS24V7A-R
- 128 Point Addressable Fire SLC Module, GEMC-FW-SLC
- Red LCD Fire Keypad, GEMC-FK1

GEMC-FW-FIRE96KT

96-Point Firewolf GEMC Commercial Fire Alarm Panel Kit, with:

- 14 x 16" Red Enclosure, GEMC-HSKIT1416
- 4A, 24V Power Supply, GEMC-PS24V4A-R
- 96 Point Addressable Fire SLC Module, GEMC-FW-SLC

GEMC-COMBO128KT

128-Point Gemini C-Series Commercial Combo Fire/Burg Alarm Panel Kit, with:

- Large 14 x 25" Red Enclosure, GEMC-HSKIT1425
- 7A, 24V Power Supply
- Burg Module with 12V power supply provides isolated 4-wire Burglary bus for Burglary keypads and devices, plus 12V power output for auxiliary devices. Independent Burglary Bell output. Complete separation of Fire and Burglary power, plus independent Burglary battery connection and charger for independent Burglary standby operation in power failure.
- 128 Point Addressable Fire SLC Module, Burg Module, GEMC-BSLC

GEMC-255MB-R: 255 Zone C-Series Motherboard
GEMC-128MB-R: 128 Zone C-Series Motherboard
GEMC-96MB-R: 96 Zone C-Series Motherboard
GEMC-32MB-R: 32 Zone C-Series Motherboard
All C-Series Control Panels: Installation Instructions (see WI1653)
All C-Series Control Panels: Programming Instructions (see WI1673)

FEATURES

- Supports up to 255 Fire and/or Burglary zones programmable for Area, Exit/Entry Delay, Interior, Follower, Day Zone/Trouble, Chime, Fire options, Sensor Watch, Swinger Shutdown, Zone Anding and a variety of other features.
- Supports up to a total of 195 individually coded Burg and/or Fire users using the keypad (also 195 with PCD-Windows software), each with a programmable authority level.
- Supports four NAC circuits: Three 24V (2A) NAC circuits and one 24V or regulated 12V (selectable for use with UL Listed 12V sounding devices shown in the table "**EXAMPLES OF DEVICES COMPATIBLE WITH BELL OUTPUTS**") 2A NAC circuit. **Note:** The GEMC-96 and GEMC-32 only provide two NAC circuits (one 24V (2A) NAC circuit and one 12V or 24V selectable 2A NAC circuit). **Note:** If a constant 24VDC power source is required to power a 24VDC device, one of t NAC circuits can be converted to 24VDC thus reducing the total number of NAC circu in the system.
- Opening Suppression and Closing Suppre able through Napco PCD-Windows C Download software, suppress reporting within programmed "windows of time".
- Exception Reporting can transmit a "Fail to Close Report" if the panel is not armed within programmed intervals and, similarly, a "Fail to Open Report" if the panel is not disarmed within programmed intervals of time.
- Panel can be programmed to automatically arm any area at any time.
- Trouble Sounder Output.
- Two Active low programmable outputs (2A maximum). **Note:** Relies on 2A over current protection of connected circuit.
- Key switch input.
- Aux Power: Output 12V Regulated @ 750mA maximum current.
- Remote Bus Power: 12V Regulated @ 750mA maximum current, supporting up to 7 keypads, zone expansion modules, or wireless receivers, etc. (use the GEMC-12V2APS power supply for additional current).
- Supports up to fifteen (15) system keypads maximum, with a maximum of seven (7) GEMC-FK1 Fire keypads allowed only in Area 1. The maximum number of Burglary keypads allowed decreases as Fire keypads (or GEM-ACM modules) are added to the system. System limit examples:
  - **Burg-Only System:** Zero Fire keypads in Area 1, 15 Burglary keypads in Areas 2-8
  - **Combination System:** 1 Fire keypad in Area 1, 14 Burglary keypads in Areas 2-8
  - **Combination System:** 7 Fire keypads in Area 1, 8 Burglary keypads in Areas 2-8
  - **Fire-Only System:** 7 Fire keypads maximum in Area 1 (one Area only in the system)
- Fire Aux Relay Output Power (when wet): 12V Regulated Maximum 750mA (dry contact Form C relay rated 30VAC / VDC, 2.5A maximum)
- Maximum combined 12V Regulated standby current (Remote Power + Auxiliary Power + NAC D 12V Output) = 1.4A
- Enclosure tamper input (for cover and/or enclosure back).
- Supports three burglary GEMC-BK1 keypad panics: Police, Auxiliary & Ambush.
- Supports up to 8 independent area partitions (1 Fire area and 7 Burg areas).
- English-language prompts & system status messages.
- User-customized zone descriptions, re-programmable as required.
- Supports eight 2-wire smoke detector zones or normally open Fire initiating device zones using a GEMC-F8ZCPIM Fire Zone Expander.
- Supports 8 different types of Fire SLC devices including a supervised output module.

- Reports alarms, restores and troubles by zone.
- 800 event Burglary log.
- 800 event Fire log.
- 6000 event access control log.
- 255 Event Schedule.
- 96 External Output Events.
- Burglary Keypad Overview Mode permits monitoring and control of total Burglary system from one keypad.
- Two programmable Entry Delay times.
- Two Interior-Zone groups.
- Dynamic System battery test interrupts charging and places battery under load, monitors battery voltage and battery charger voltage every 100 seconds.
- Chime 1 programmable by zone with programmable duration.
- Chime 2 programmable with distinct sound.
- Non-volatile FLASH memory retains data during power losses.
- Real-Time Clock IC retains accurate time for up to extended two week power loss.
- Napco PCD-Windows Quickloader™ Download software programmable, including two RJ-25 input receptacles. **Note:** In Commercial Fire applications, Quickloader™ software must be used to ensure valid programming and prevent erroneous entries; the system cannot be placed into operation without Quickloader™.
- Auto-Download Log.

Communicator Features

- Two supervised telephone line RJ-45 inputs listed for Fire and Burglary signaling.
- Compatible with SIA and Point ID receiver formats.
- Two RJ-25 inputs for internet communication via the optional GEMC-NL-MOD for listed high security internet communication to the NL-RECV central station receiver.
- Rotary dial, TouchTone™ only, and TouchTone™ with Rotary backup.
- Three 20-digit telephone numbers.
- Backup Reporting; Dual Reporting; Split Reporting.
- 195 User Codes with Burglary area Open/Close Reporting by user.
- AC Failure Reporting with programmable report delay (1-3 hours).
- GEM-ACM1D (version 2 firmware only) and GEM-2D Access Control Modules provide integrated access control to the burglary alarm functions of the GEMINI C-Series control panel.

Compatible Receivers

The following receivers are compatible:

- Ademco MX-8000
- Surgard MLR-2
- Osbourne Hoffman 2000e
- NAPCO Net.Link™ NL-RCV-RMPCUL
- Ademco 685

GEMC-FK1 Fire Keypad Features

- English-language LCD display with six visu
and sounder annunciators ("AC ON" and "F
SUPV, TROUBLE, SILENCED and DISABL
- Supports a maximum of seven (7) GEMC-F
pads allowed only in Area 1.
- Communicator Test to Central facilitates testing.
- "One Man Test" menu option.
- Input for Primary User Interface trouble sounder

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GEMC-BK1 Burglary Keypad Features

- Separate Burglary bus (on the GEMC-BM / GEMC-BM/PS) isolates the Fire system from faults on Burglary devices.
- English-language LCD display; LED and sounder annunciators.
- Supports a maximum of 15 GEMC-BK1 Burg keypads (less the number of GEMC-FK1 Fire keypads and GEM-ACM modules).
- Provisions for Police, Auxiliary and Ambush panic alarms.
- Integral 4-zone EZM included in each GEMC-BK1 keypad.
- Communicator Test to Central facilitates testing; Fault-Find diagnostics simplify troubleshooting.
- PGM output.
- Jumper selectable "Burg Service Mode" (jumper JP2) allows the Burglary part of the system to be serviced (changed) while allowing the Fire system to continue to function as intended (for Combination Fire and Burglary systems).

Note: See individual accessory work instructions (WI's) for exceptions and other information.

SPECIFICATIONS

GEMC-255MB, GEMC-128MB, GEMC-96MB and GEMC-32MB Gemini C-Series Motherboards

ELECTRICAL RATINGS

Motherboard Power Supply (GEMC-PS24V7A and GEMC-PS24V4A) Input Power: 120AC 60Hz, 3A; maximum 15A dedicated branch circuit.

Motherboard (GEMC-255MB, GEMC-128MB, GEMC-96MB and GEMC-32MB) Input Power: 24VDC, maximum 7A.

Output Power:

Note: All outputs circuits are power-limited.

Note: The GEMC-96MB and GEMC-32MB provide two 2A NAC circuits (one 24V and one 12V or 24V selectable).

- **NAC A, NAC B, NAC C:** Regulated 24V NAC circuit; 2A maximum. When configured for 24V Auxiliary Power, it is a Special Application output only listed with the GEMC-24VR. The GEMC-24VR output is Regulated 24VDC, 1A maximum.
- **NAC D: When configured for 24V:** Regulated 24V NAC circuit; 2A maximum. When configured for 24V Auxiliary Power, it is a Special Application output only

listed with the GEMC-24VR. The GEMC-24VR output is Regulated 24VDC, 1A maximum.

- **NAC D: When configured for 12V:** Regulated 12V NAC circuit, 2A maximum or Regulated 12V Auxiliary Power, 1.4A maximum.

- **Fire Aux. Relay Output:** Wet: 12V Regulated, 750mA max.; Dry: Remove shunt for dry contacts; see Wiring Diagram; dry contact Form C relay rated 30VAC / VDC, 2.5A maximum.
- **Two Active low programmable outputs:** (2A maximum). **Note:** Relies on 2A over-current protection of connected circuit.
- **Trouble Sounder Output:** 12V Regulated, 30mA.
- **E7 and E8 Terminals:** Active low open collector outputs; 0.1V, 2A (wire only to power limited circuits 30VDC or less).
- **Auxiliary Power Output:** Output 12V Regulated @ 750mA maximum current.
- **Remote Bus Power Output:** 12V Regulated @ 750mA maximum current, supporting up to 7 keypads, zone expansion modules, or wireless receivers, etc.
- **Auxiliary Power 24V Regulated:** Can only be supplied through NAC A, NAC B, NAC C or NAC D (configured for 24V) programmed for Reverse Polarity and wired to GEMC-24VR. 1.0A* Maximum (must reduce total combined standby and alarm current by 1.1 times 24V Regulated current).
- **Maximum Combined 12V Regulated standby current:** Remote Power + Auxiliary Power + NAC D 12V Output and programmed for Reverse Polarity + AUX relay if shunt connector is installed:

  plus GEMC-BM total standby current plus 25mA;

  plus Fire Relay: 35mA (when energized);

  plus GEMC-F8ZCPIM total combined standby current +120mA = 1.4A*.

  If additional 12V current is required, use the GEMC-12V2APS-CF (for Fire applications) and/or GEMC-12V2APS-R (for non-Fire applications) Auxiliary Power supplies.
- **Maximum Total Combined 12V Regulated Standby and Alarm Current:** Remote Power + Auxiliary Power + NAC D 12V Output and programmed for Reverse Polarity + AUX relay if shunt connector is installed + NAC D alarm current:

  plus GEMC-BM total combined standby ar rent + 25mA;

  plus GEMC-F8ZCPIM total standby anc rent).
- **Maximum Total Combined 24V Stand** combined 12V standby plus alarm current times 0.6) + NAC A-D 24V standby current:

  plus (GEMC-BM total combined standby + 25mA) times 0.6;

  plus (GEMC-F8ZCPIM total combined standby + 120mA) times 0.6;

  plus GEMC-BM/PS total combined standby + 25mA;

  plus GEMC-FW-SLC total combined 24V standby current;

  plus GEMC-BSLC total combined 24V standby current = 1A*.
- **Maximum Total combined 24V Standby and Alarm Current:** (Total combined 12V standby plus alarm current times 0.6) + NAC A-D 24V standby plus alarm current:

  plus (GEMC-BM total combined standby and alarm current + 25mA) times 0.6;

  plus GEMC-BM/PS total 24V standby and alarm current + 25mA;

  plus GEMC-FW-SLC total combined 24V standby and alarm current;

  plus GEMC-BSLC total combined 24V standby and alarm current **=** 6.8A with 7A supply (GEMC-PS24V7A); 3.8A with 4A supply (GEMC-PS24V4A).
- **Maximum Battery Charging Current:** Refer to the GEMC-PS24V7A or GEMC-PS24V4A power supply specifications. The maximum charging current (trickle charge and fast charge) and the maximum ampere-hour capacity of the battery that the product is intended to charge:

Standby Time: See following charts.

Battery Power: See tables in sections "**GEMC-PS24V7A 7 AMP POWER SUPPLY**" and "**GEMC-PS24V4A 4 AMP POWER SUPPLY**" (data also located in WI1646 and WI1702).

Loop Voltage: See zone expansion modules.

Loop Current: See zone expansion modules.

Loop Resistance: See zone expansion modules.

Operating Environment: 0-49°C (32-120°F).

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COMPATIBLE SMOKE DETECTORS

UL Compatible Two-Wire Smoke Detectors using GEMC-F8ZCPIM (Providing UL Recognition or Listing)			
2 Wire Conventional Smoke Detectors			
Manufacturer	**Maximum # per Loop**	**Model**	**Base**
NAPCO	25	FW-2, FW-2R	N/A
Sentrol/ESL (GE)	20	429C, 429CT, 511C, 511AFT, 521B/BXT, 521NB, 521NBXT, 521NCSXT, 711U-UT, 712U, 713-5U, 713-6U, 721U, 721UT, 722U	N/A
System Sensor	20	2W-B, 2WT-B, 2WTR-B	N/A
System Sensor	1	2WTA-B	N/A

Note: Any normally-open devices that do not require power from the control panel may be used (such as pull stations, waterflow and thermostats), if acceptable to the authority having jurisdiction.

Important: Smoke detectors with sounders are NOT intended to replace the main fire alarm sounding device.

OTHER COMPATIBLE DEVICES

EXAMPLES OF DEVICES COMPATIBLE WITH BELL OUTPUTS	
Ademco	AD8-12; AD10-12; Ademco AB-12 Bell in Box
Amseco	MBL-8/12V; MBL-10/12V
Wheelock	46T-G4-12-R; 46T-G6-12-R; 46T-G10-12-R
Hochiki America	AL-VB-1012; AL-MB-612

Listed below are **System Sensor** models that provide audible and visible (AV) notification and conform to required synchronization protocols:

WALL MOUNT	
P2R	2 Wire Horn/Strobe Std Candela Red
P2RH	2 Wire Horn/Strobe Hi Candela Red
P2W	2 Wire Horn/Strobe Std Candela White
P2WH	2 Wire Horn/Strobe Hi Candela White
P2RK	2 Wire Horn/Strobe Std Candela Red Outdoor
P2RHK	2 Wire Horn/Strobe Hi Candela Red Outdoor
P2WK	2 Wire Horn/Strobe Std Candela White Outdoor
P2WHK	2 Wire Horn/Strobe Hi Candela White Outdoor
P4R	4 Wire Horn/Strobe Std Candela Red
P4RH	4 Wire Horn/Strobe Hi Candela Red
P4W	4 Wire Horn/Strobe Std Candela White
P4WH	4 Wire Horn/Strobe Hi Candela White
P4RK	4 Wire Horn/Strobe Std Candela Red Outdoor
P4RHK	4 Wire Horn/Strobe Hi Candela Red Outdoor
P4WK	5 Wire Horn/Strobe Hi Candela White Outdoor
SR	Strobe Std Candela Red
SRH	Strobe Hi Candela Red
SW	Strobe Std Candela White
SWH	Strobe Hi Candela White
SRK	Strobe Std Candela Red Outdoor
SRHK	Strobe Hi Candela Red Outdoor
SWK	Strobe Std Candela White Outdoor
SWHK	Strobe Hi Candela White Outdoor
SW-ALERT	Strobe Std Candela White Amber Lens with ALERT
SWH-ALERT	Strobe Hi Candela White Amber Lens with ALERT
SW-CLR-ALERT	Stroe Std Candela White Clear Lens with ALERT

WALL SPEAKER STROBES	
SPSR	Wall, Red, Selectable Candela, Speaker/Strobe
SPSR-P	Wall, Red, Selectable Candela, Speaker/Strobe, plain
SPSRH	Wall, Red, Selectable Candela, Speaker/Strobe; Hi Cd
SPSRH-P	Wall, Red, Selectable Candela, Speaker/Strobe; Hi Cd, plain
SPSW	Wall, White, Selectable Candela, Speaker/Strobe
SPSW-CLR-ALERT	Wall, White, Selectable Candela, Speaker/Strobe, clear lens alert
SPSW-ALERT	Wall, White, Selectable Candela, Speaker/Strobe, amber lens alert
SPSW-P	Wall, White, Selectable Candela, Speaker/Strobe, plain
SPSWH	Wall, White, Selectable Candela, Speaker/Strobe; Hi Cd
SPSWH-P	Wall, White, Selectable Candela, Speaker/Strobe; Hi Cd, plain
SPSRV	Wall, Red, Selectable Candela, Speaker/Strobe, Hi dB
SPSRV-P	Wall, Red, Selectable Candela, Speaker/Strobe, Hi dB, plain
SPSWV	Wall, White, Selectable Candela, Speaker/Strobe, Hi dB
SPSWV-P	Wall, White, Selectable Candela, Speaker/Strobe, Hi dB, plain
SPSRK	Wall, Outdoor, Red, Selectable Candela, Speaker/Strobe
SPSRK-P	Wall, Outdoor, Red, Selectable Candela, Speaker/Strobe, plain
SPSRK-R	Wall, Outdoor, Red, Selectable Candela, Speaker/Strobe, replacement
SPSRHK	Wall, Outdor Red, Selectable Candela, Speaker/Strobe, Hi Cd
SPSWK	Wall, Outdoor, White, Selectable Candela, Speaker/Strobe
SPSWK-P	Wall, Outdoor, White, Selectable Candela, Speaker/Strobe, plain
SPSWK-R	Wall, Outdoor, White, Selectable Candela, Speaker/Strobe, replacement

OTHER COMPATIBLE DEVICES (CONT'D)

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SPANISH PAD PRINT "FUEGO"	
SR-SP	Strobe Std Candela Red - Fuego
SRH-SP	Strobe Hi Candela Red - Fuego
P2R-SP	2 Wire Horn/Strobe Std Candela Red - Fuego
P2RH-SP	2 Wire Horn/Strobe Hi Candela Red - Fuego
SCW-SP	Strobe Ceiling Std Candela White - Fuego
SCWH-SP	Strobe Ceiling Hi Candela White - Fuego
PC2W-SP	2 Wire Horn/Strobe Ceiling Std Candela White - Fuego
PC2WH-SP	2 Wire Horn/Strobe Ceiling Hi Candela White - Fuego

CEILING SPEAKER STROBES	
SPSCRH	Ceiling, Red, Selectable Candela, Speaker/Strobe; Hi Cd
SPSCW	Ceiling, White, Selectable Candela, Speaker/Strobe
SPSCW-CLR-ALERT	Ceiling, White, Selectable Candela, Speaker/Strobe, clear lens alert
SPSCW-P	Ceiling, White, Selectable Candela, Speaker/Strobe, plain
SPSCWH	Ceiling, White, Selectable Candela, Speaker/Strobe; Hi Cd
SPSCWH-P	Ceiling, White, Selectable Candela, Speaker/Strobe; Hi Cd, plain
SPSCRV	Ceiling, Red, Selectable Candela, Speaker/Strobe, Hi dB
SPSCRVH	Ceiling, Red, Selectable Candela, hi dB, Speaker/Strobe; Hi Cd
SPSCWV	Ceiling, White, Selectable Candela, Speaker/Strobe, Hi dB
SPSCWV-P	Ceiling, White, Selectable Candela, Speaker/Strobe, Hi dB, plain
SPSCWVH	Ceiling, White, Selectable Candela, Speaker/Strobe, Hi dB, Hi Cd
SPSCWVH-P	Ceiling, White, Selectable Candela, Speaker/Strobe, Hi dB, Hi Cd, plain
SPSCWK	Ceiling, Outdoor, White, Selectable Candela, Speaker/Strobe
SPSCWHK	Ceiling, Outdoor, White, Selectable Candela, Speaker/Strobe; Hi Cd

CEILING MOUNT	
PC2R	2 Wire Horn/Strobe Ceiling Std Candela Red
PC2RH	2 Wire Horn/Strobe Ceiling Hi Candela Red
PC2W	2 Wire Horn/Strobe Ceiling Std Candela White
PC2WH	2 Wire Horn/Strobe Ceiling Hi Candela White
PC2RK	2 Wire Horn/Strobe Ceiling Std Candela Red Outdoor
PC2RHK	2 Wire Horn/Strobe Ceiling Hi Candela Red Outdoor
PC2WK	2 Wire Horn/Strobe Ceiling Std Candela White Outdoor
PC2WHK	2 Wire Horn/Strobe Ceiling Hi Candela White Outdoor
PC4R	4 Wire Horn/Strobe Ceiling Std Candela Red
PC4RH	4 Wire Horn/Strobe Ceiling Hi Candela Red
PC4W	4 Wire Horn/Strobe Ceiling Std Candela White
PC4WH	4 Wire Horn/Strobe Ceiling Hi Candela White
PC4RK	4 Wire Horn/Strobe Ceiling Std Candela Red Outdoor
PC4RHK	4 Wire Horn/Strobe Ceiling Hi Candela Red Outdoor
PC4WK	4 Wire Horn/Strobe Ceiling Std Candela White Outdoor
PC4WHK	4 Wire Horn/Strobe Ceiling Hi Candela White Outdoor
SCR	Strobe Ceiling Std Candela Red
SCRH	Strobe Ceiling Hi Candela Red
SCW	Strobe Ceiling Std Candela White
SCWH	Strobe Ceiling Std Candela White
SCRK	Strobe Ceiling Std Candela Red Outdoor
SCRHK	Strobe Ceiling Hi Candela Red Outdoor
SCWK	Strobe Ceiling Std Candela White Outdoor
SCWHK	Strobe Ceiling Hi Candela White Outdoor

NO PAD PRINT "PLAIN"	
P2R-P	2 Wire Horn/Strobe Wall Std Candela Red - PLAIN
P2RK-P	3 Wire Horn/Strobe Wall Std Candela Red - PLAIN Outdoor
P2W-P	2 Wire Horn/Strobe Wall Std Candela White- PLAIN
P2WK-P	3 Wire Horn/Strobe Wall Std Candela White- PLAIN Outdoor
P2RH-P	2 Wire Horn/Strobe Wall Hi Candela Red - PLAIN
P2RHK-P	3 Wire Horn/Strobe Wall Hi Candela Red - PLAIN Outdoor
P2WH-P	2 Wire Horn/Strobe Wall Hi Candela White - PLAIN
P2WHK-P	3 Wire Horn/Strobe Wall Hi Candela White - PLAIN Outdoor
P4R-P	4 Wire Horn/Strobe Wall Std Candela Red - PLAIN
P4RH-P	4 Wire Horn/Strobe Wall Hi Candela Red - PLAIN
P4W-P	4 Wire Horn/Strobe Wall Std Candela White - PLAIN
P4WH-P	4 Wire Horn/Strobe Wall Hi Candela White - PLAIN
SR-P	Strobe Wall Std Candela Red - PLAIN
SRK-P	Strobe Wall Std Candela Red - PLAIN Outdoor
SW-P	Strobe Wall Std Candela White - PLAIN
SWK-P	Strobe Wall Std Candela White - PLAIN Outdoor
SRH-P	Strobe Wall Hi Candela White -PLAIN
SRHK-P	Strobe Wall Hi Candela White -PLAIN Outdoor
SWH-P	Strobe Wall Hi Candela White -PLAIN
SWHK-P	Strobe Wall Hi Candela White -PLAIN Outdoor
PC2R-P	2 Wire Horn/Strobe Ceiling Std Candela Red - PLAIN
PC2W-P	2 Wire Horn/Strobe Ceiling Std Candela White - PLAIN
PC2RH-P	2 Wire Horn/Strobe Ceiling Hi Candela Red - PLAIN
PC2WH-P	2 Wire Horn/Strobe Ceiling Hi Candela White - PLAIN
SCR-P	Strobe Ceiling Std Candela Red - PLAIN
SCW-P	Strobe Ceiling Std Candela White - PLAIN
SCRH-P	Strobe Ceiling Hi Candela Red - PLAIN
SCWH-P	Strobe Ceiling Hi Candela White - PLAIN

CHIMES & CHIME/STROBE	
CHR	Chime, Red
CHW	Chime, White
CHSR	Chime/Strobe, Red
CHSW	Chime/Strobe, White

HORNS	
HR	Horn, Red
HW	Horn, White
HRK	Horn, Red, Outdoor

MINI-HORN	
MHR	Mini-Horn, Red
MHW	Mini-Horn, White

OUTDOOR	
P2RHK-R	Repl 2 Wire Horn/Strobe Wall Hi Candela Red Outdoor
P2RK-R	Repl 2 Wire Horn/Strobe Wall Std Candela Red Outdoor
P2WHK-R	Repl 2 Wire Horn/Strobe Wall Hi Candela White Outdoor
P2WK-R	Repl 2 Wire Horn/Strobe Wall Std Candela White Outdoor
P4RHK-R	Repl 4 Wire Horn/Strobe Wall Hi Candela Red Outdoor
P4RK-R	Repl 4 Wire Horn/Strobe Wall Std Candela Red Outdoor
SRHK-R	Repl Strobe Wall Hi Candela Red Outdoor
SRK-R	Repl Strobe Wall Std Candela Red Outdoor
SWHK-R	Repl Strobe Wall Hi Candela White Outdoor
SWK-R	Repl Strobe Wall Std Candela White Outdoor
HRK-R	Repl Horn Red Outdoor

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COMPATIBLE APPLIANCES

The following tables list the appliances produced by Cooper Wheelock that are compatible with the Wheelock synchronization protocol:

COMPATIBLE WHEELOCK SYNCHRONIZING HORNS	
AH-12	AH-24
AH-12WP	AH-24WP
HS-24	MIZ-24S
NH-12/24	HN
ZNH	HNC

COMPATIBLE WHEELOCK SYNCHRONIZING HORN STROBES	
AS-121575W	AS-241575W
AS-24MCW	AS-24MCC
AS-24MCWH	AS-24MCCH
AS-2415C	AS-2430C
AS-2475C	AS-24100C
ASWP-2475W	----------
NS4-121575W	NS-121575W
HS4-241575W	NS-2-41575W
HS4-24MCW	NS-24MCW
HS4-24MCWH	HS4-24150C
----------	HS
----------	HSC
HS4-24185W	----------
ZNS-MCW	----------
ZNS-MCWH	----------

COMPATIBLE WHEELOCK SYNCHRONIZING STROBES	
RSS-121575W	RSSP-121575W
RSS-241575W	RSSP-241575W
RSS-24MCW	RSSP-24MCW
RSS-24MCC	----------
RSS-2415C	ST
RSS-2430C	STC
RSS-2475C	----------
RSS-24100C	----------
RSS-2415CR	----------
RSS-2430CR	----------
RSS-2475CR	----------
RSS-24100CR	----------
RSS-24150C	----------
RSS-24177C	----------
RSS-24150W	RSSP-24150W
RSS-24177W	RSSP-24177W
RSS-24185W	RSSP-24185W
RSS-24150CR	----------
RSS-24177CR	----------
RSSWP-2475W	----------
ZRS-MCW	----------
ZRS-MCWH	----------

COMPATIBLE WHEELOCK NON-SYNCHRONIZING APPLIANCES	
MB-G6-12	MB-G6-24
MB-G10-12	MB-G10-24
MIZ-TC12	MIZ-TC24

COMPATIBLE WHEELOCK APPLIANCES WITH SYNCHRONIZING STROBES	
AMT-241575W	AMT4-241575W
AMT-2475W	AMT4-2475W
AMT-241575W-NYC	AMT4-241575W-NYC
AMT-2475W-NYC	AMT4-2475W-NYC
MT-12575W	----------
MT-241575W	MT-2475W
MTWP-2475W	ET70WP-2475W
CH70-24MCW	CH90-24MCW
CH70-24MCC	CH90-24MCC
CH70-2415C	CH90-2415C
CH70-2430C	CH90-2430C
CH70-2475C	CH90-2475C
CH70-24100C	CH90-24100C
CH70-24150C	CH90-24150C
CH70-24177C	CH90-24177C
CH70-24150W	CH90-24150W
CH70-24MCWH	CH90-24MCCH
CH70-24185W	CH90-24185W
E70-24MCW	E90-24MCW
E70-24MCC	E90-24MCC
E70-2415C	E90-2415C
E70-2430C	E90-2430C
E70-2475C	E90-2475C
E70-24100C	E90-24100C
E70-24150C	E90-24150C
E70-24177C	E90-24177C
E70-24150W	E90-24150W
E70-24MCWH	E90-24MCCH
E70-24185W	E90-24185W
ET70-24MCW	ET90-24MCW
ET70-24MCC	ET90-24MCC
ET70-2415C	ET90-2415C
ET70-2430C	ET90-2430C
ET70-2475C	ET90-2475C
ET70-24100C	ET90-24100C
ET70-24150C	ET90-24150C
ET70-24177C	ET90-24177C
ET70-24150W	ET90-24150W
ET70-24MCWH	ET90-24MCCH
ET70-24185W	ET90-24185W
SA-70-24-SL	SA-90-24-SL
SA-70-24-SLM	SA-90-24-SLM

COMPATIBLE WHEELOCK CODED AUDIBLE APPLIANCES	
AMT-12/24	AMT4-12/24
AMT-12/24-NYC	AMT4-12/24-NYC
CH70	CH90
CSX10-24-DC	CSXG10-24-DC
MT-12/24	MT4-12/24

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WIRE LENGTHS

Four Wire Conventional Bus Maximum Wire Length and Loading (See individual accessory installation instructions for exceptions)			
Gauge (solid)	**Resistance (Ω)**	**Length (ft)**	**Max. Current (ma)**
22	16.8	1000	120
	8.4	500	240
	4.2	250	450
18	6.6	1000	240
	3.3	500	480
	1.65	250	850
16	4.2	1000	480
	2.1	500	850
	1.1	250	1700
14	2.6	1000	600
	1.3	500	1000
	.65	250	2000
12	1.7	1000	750
	.85	500	1500
	.51	300	2000

NAC MAXIMUM LINE IMPEDANCE

GEMC SERIES NAC MAXIMUM LINE IMPEDANCE IS 1.8 OHMS				
AWG	**RESISTANCE /1000 FEET**	**DISTANCE WITH 2A LOAD (FEET)**	**DISTANCE WITH 1A LOAD (FEET)**	**DISTANCE WITH 500MA LOAD (FEET)**
18	6.6	125	250	500
16	4.2	200	400	800
14	2.6	325	650	1300
12	1.7	500	1000	2000

POWER SUPPLY JUMPERS

GEMC-PS24V7A & GEMC-PS24V4A BATTERY CHARGE CURRENT JUMPERS			
No. of Jumpers	**Trickle Charge**	**Total Charge**	**No. of Batteries**
0	210 mA	1.50A	2 sets
1	440 mA	1.72A	3 sets
2	680 mA	1.96A	4 sets

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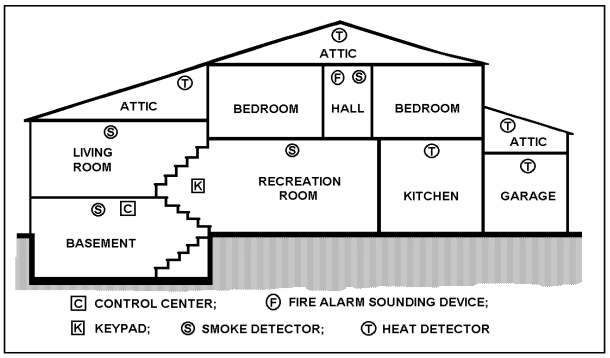
TYPICAL INSTALLATIONS

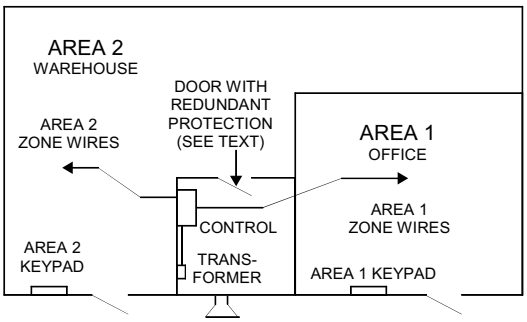
TYPICAL RESIDENTIAL FIRE INSTALLATION (Where permitted by local codes)

At least one smoke detector should be installed directly outside each sleeping area. If there is more than one floor, additional smoke detectors should be installed on each level, including the basement. The living-area and basement smoke detectors should be installed near the stairway of the next upper level.

For increased protection, additional detectors should be installed in areas other than those required, such as the dining room, bedrooms, utility room, furnace room, and hallways. Heat detectors, rather than smoke detectors, are recommended in kitchens, attics, and garages due to conditions that may result in false alarms and improper operation. Large areas and areas with partitions, ceiling beams, doorways, and open joists will require additional detectors.

Refer to NFPA Standard No. 74 (National Fire Protection Association, Batterymarch Park, Quincy, MA 02269) for additional information, including proper mounting of detectors.





TYPICAL COMBINATION COMMERCIAL FIRE AND BURGLARY PARTITIONED INSTALLATION

Described and illustrated here are an example of a typical Combination Commercial Fire and Burg partitioned system. The Fire devices must be assigned to Area 1, leaving the remaining Areas (2-8) to be used for the partitioning of the Burglary system. Additionally, the system must provide for common-area protection of the control-panel room. This system meets all UL requirements for a partitioned installation.

- All areas in the GEMC system must be owned and managed by the same person(s).
- All Fire devices must be programmed and wired to Area 1. That is, the system may be divided into up into 1 Fire Area and 7 Burglary Areas, allowing access by only those users programmed for their respective area(s).
- Zone Expanders in Commercial Burg installations shall be installed within the protected area of the partition. **NOTE:** Expansion zone modules must be placed within the area their zones are protecting.
- Keypads must be located within the protected area of the partition they control--or--the integral keypad tamper switch enabled.
- All areas must be part of one building at one street address.
- The control panel and all wiring protecting each partitioned area must be confined to the respective area and may not encroach upon the other area. This requires that the control panel room have redundant protection; that is (a) multiple sets of door contacts, each wired to a separate zone and (b) one of those zones programmed for each area. In order to gain access to this protected area without causing an alarm, both partitions must be disarmed. In lieu of redundant protection, 24-Hour Zones may be used. Any zone protecting the control panel may not be programmed for bypass.
- The sounding device must be placed such that the bell test can be heard by all partitions.

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SUMMARY OF UL REQUIREMENTS

- ***System must be tested at least weekly under AC/battery and Battery-Only conditions.***
- ***Wiring must be performed in accordance with all local and national electrical codes.***
- ***Listed or Recognized Limited-Energy Cable for initiating, indicating and supplementary circuits must be used.***
- ***Do not map wireless or SLC devices to EZM zones to which conventional devices are wired.***
- ***Smoke detectors are NOT intended to replace the main fire alarm sounding device.***

UL COMMERCIAL FIRE (LOCAL)

INSTALLATION / WIRING

Types of devices to be used:

- Two wire Smoke detectors only to be used (see table in section "**COMPATIBLE SMOKE DETECTORS**") only on zones 1-8 on the GEMC-F8ZCPIM module or FWC-FSLC-CZM (see WI1714 for compatible detectors).
- Minimum one (1) GEMC-FK1 keypad required.
- Four-wire Smoke detectors shall to be used on the GEMC-F8ZCPIM or GEMC-EZM8 connected to the 4-wire Fire bus and the device powered by the reset power from the GEMC-F8ZCPIM module or NAC D configured for smoke power. The FWC-FSLC-CZM connected to the SLC loop and the device powered by the reset power from the GEMC-F8ZCPIM module or NAC D configured for smoke power.
- UL Listed End-of-Line Relay for Fire (if using 4-wire smoke detectors).
- Signaling Line Circuit (SLC) devices connect to the GEMC-FW-FSLC module. See table in section "**OTHER COMPATIBLE DEVICES**" for model numbers. See WI1647 for a description of the GEMC-FW-SLC's circuit ratings and wiring instructions.
- Dry contact devices such as Pull Stations and Thermals must connect to the GEMC-F8ZCPIM; the GEMC-EZM8 connected to the 4-wire Fire bus; or the FWC-FSLC-CZM, -EZM2, -EZM1 connected to the GEMC-FW-FSLC module.
- NAC (Notification Appliance Circuits): See table in section "**COMPATIBLE APPLIANCES**".

PROGRAMMING

- Must be programmed with PCD-Windows Quickloader Download software as account type "Commercial Fire".

UL COMMERCIAL FIRE (REPORTING)

Requires all requirements for UL Commercial Fire (Local).

INSTALLATION / WIRING

- Requires two telephone lines to be installed, a GEMC-NL-MOD, or GEMC-NL-MOD with a single telephone line (**Note:** Telco must always be Line 1).
- Minimum one (1) GEMC-FK1 keypad required.

PROGRAMMING

- Must be programmed and placed in operation with PCD-Windows Quickloader Download software.

UL COMMERCIAL BURGLARY (UL609 LOCAL)

INSTALLATION / WIRING

- All partitions must be owned and managed by the same person/organization, part of the same structure, and be of the same street address.
- Required to be installed with either the GEMC-BM Burg module or the GEMC-BM/PS Burg module with power supply.
- The GEMC-HSKIT1425, GEMC-HSKIT1425W or GEMC-HSKIT1416W enclosure must be protected by the GEMC-KOTAMPERKIT (with two tampers and knockout protection); enable enclosure tamper programming option and cut enclosure tamper enable jumper
- The GEMC-BK1 keypad(s) must be installed within the protected area or back tamper switches must be wired and configured (cut jumper JP1 to enable).
- Install "Burg Only" jumper shunt if configuring system without Fire.
- Install Ademco AB-12 Bell in Box, with attack resistant housing, to Burg Bell output located such that it can be heard in all partitions.
- All zones must have EOL resistors installed at the last device in the zone.
- Maximum Entry delay is 45 seconds; Maximum Exit delay is 60 seconds

PROGRAMMING

- Programming must include Auto Output Test Upon Arming.
- Trouble on Night Open may not be programmed for any zone.
- Enable Bell on Keypad Tamper.
- Enable Burg Bell Tamper if any Burglary areas are armed.
- Burg Bell must be programmed for at least a 15 minute duration.
- All Burglary initiating zones must be programmed for Burglary Bell Output.
- A maximum Entrance and Exit Delay of 60 seconds.
- Enable Enclosure Tamper.

UL COMMERCIAL BURGLARY (UL365 POLICE STATION CONNECT) and (UL1610 CENTRAL STATION UNITS)

Requires all requirements for UL Commercial Burglary (UL609 Local), plus the following:

INSTALLATION / WIRING

- Central Station UL1610 requires the NL-MOD with UL High Security Check-in programming option enabled--or--a standard TELCO telephone line with Line-Fault enabled (**Note:** Telco wiring to the panel shall be a minimum of 26 AWG).
- For systems without Line Security the DACT (Line 1) and/or DACT (Line 2) or GEMC-NL-MOD may be used. For DACT reporting the system must check in a minimum of once every 24 hours with the central station. For systems with Line Security the DACT (Line 1) and the GEMC-NLMOD (Line 2) dual reporting must be used.

PROGRAMMING

- Must be programmed with PCD-Windows Quickloader Download software as account type "Commercial Fire".

UL COMBINATION COMMERCIAL FIRE AND BURGLARY (LOCAL)

Requires all requirements for UL Commercial Fire (Local) and UL Commercial Burglary (Local).

INSTALLATION / WIRING

- For Maintenance to the Burglary system, the Fire system must continue to operate as intended, as per the "**INTRODUCTION**" section earlier in this manual.
- All Fire devices must be wired to the motherboard or the

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GEMC-FSLC module(s);
- All Burg devices must be wired to the GEMC-BM or BM/PS or the GEMC-BSLC module.
- Minimum one (1) GEMC-FK1 and one (1) GEMC-BK1 keypad required.

PROGRAMMING
- Must be programmed with PCD-Windows Quickloader Download software as account type "Commercial Fire".

UL COMBINATION COMMERCIAL FIRE AND BURGLARY (REPORTING)

Requires all requirements for UL Commercial Fire (Reporting) and UL Commercial Burglary (Reporting).

INSTALLATION / WIRING
- For Maintenance to the Burglary system, the Fire system must continue to operate as intended, as per the "**INTRODUCTION**" section earlier in this manual.
- All Fire devices must be wired to the motherboard or the GEMC-FSLC module(s);
- All Burg devices must be wired to the GEMC-BM or BM/PS or the GEMC-BSLC module.
- Central Station UL1610 requires the NL-MOD with UL High Security Check-in programming option enabled--or--a standard TELCO telephone line in TELCO 1 jack (**Note:** Telco wiring to the panel shall be a minimum of 26 AWG).
- Minimum one (1) GEMC-FK1 and one (1) GEMC-BK1 keypad required.

PROGRAMMING
- Must be programmed with PCD-Windows Quickloader Download software as account type "Commercial Fire".
- Must enable TELCO 1 Line Fault if telephone line is used.

UL COMBINATION RESIDENTIAL FIRE AND BURGLARY (LOCAL & REPORTING)

INSTALLATION / WIRING
- Initiating loops supervised if longer than 3 feet.
- UL Listed End-of-Line Relay for Fire (if using 4-wire smoke detectors).
- System must be tested at least weekly under AC/battery and Battery-Only conditions.
- Audible temporal pattern (ANSI 3.41) is required for UL Residential Fire alarm installations for at least one NAC.
- Replace the rechargeable battery at least every 4 years.
- Minimum one (1) GEMC-FK1 keypad required.
- If the battery is heavily discharged, replace it or have it tested by a qualified technician.
- For silent panic, connect only to UL-listed holdup devices.
- System must be serviced at least once every year.
- Must use a UL Listed sounding appliance; for required audible Burglary sounding appliances, refer to table named "**EXAMPLES OF DEVICES COMPATIBLE WITH BURG BELL OUTPUT**" earlier in this manual. Must use Listed Fire audible appliance rated for at least 85 decibels.

PROGRAMMING
- Minimum alarm timeout of 5 minutes.
- Maximum exit time: 60 seconds.
- Maximum entry time: 45 seconds.
- Do not program Swinger Shutdown, Force (Auto) Arming, Selective Bypass, Group (Interior) Bypass, 50ms Loop Response or Auto Bypass.
- Program Disable Callback Download.
- Abort Delay may not exceed 45 seconds (Reporting only).
- All zones must be programmed for Priority.
- Do not program any zones for Keyswitch Arming.

SIA CP-01 COMPLIANCE REQUIREMENTS

Refer to the "**CP-01 Quick Reference Chart--SIA Fa Reduction**" table for additional information.

PCD-WINDOWS QUICKLOADER ERROR CHECKING

The UL Commercial Fire Error Check is a subset of the UL Commercial Fire Reporting Error Check. **Note:** Fire zones must also be programmed to trip indicating circuits (NAC's).

In the **Feature** View screen:

1. Any Zone programmed for "Area 1 (FIRE)" shall not be programmed for any other feature except:
   - Report Alarm Tel1
   - Report Alm Restore Tel1
   - Report Trouble Tel1
   - Report Tbl Restore Tel1
   - Report Alarm Tel3
   - Report Alm Restore Tel3
   - Report Trouble Tel3
   - Report Tbl Restore Tel3
   - Fire Verification
   - Waterflow
   - Supervisory
   - Monitor Zone
2. The following are mutually exclusive:
   - Fire Verification
   - Waterflow
   - Supervisory
   - Monitor Zone
3. If the panel is selected for UL Commercial Fire Reporting then any Zone programmed for "Area 1 (FIRE)" shall be programmed for:
   - Report Alarm Tel1
   - Report Alm Restore Tel1
   - Report Trouble Tel1
   - Report Tbl Restore Tel1

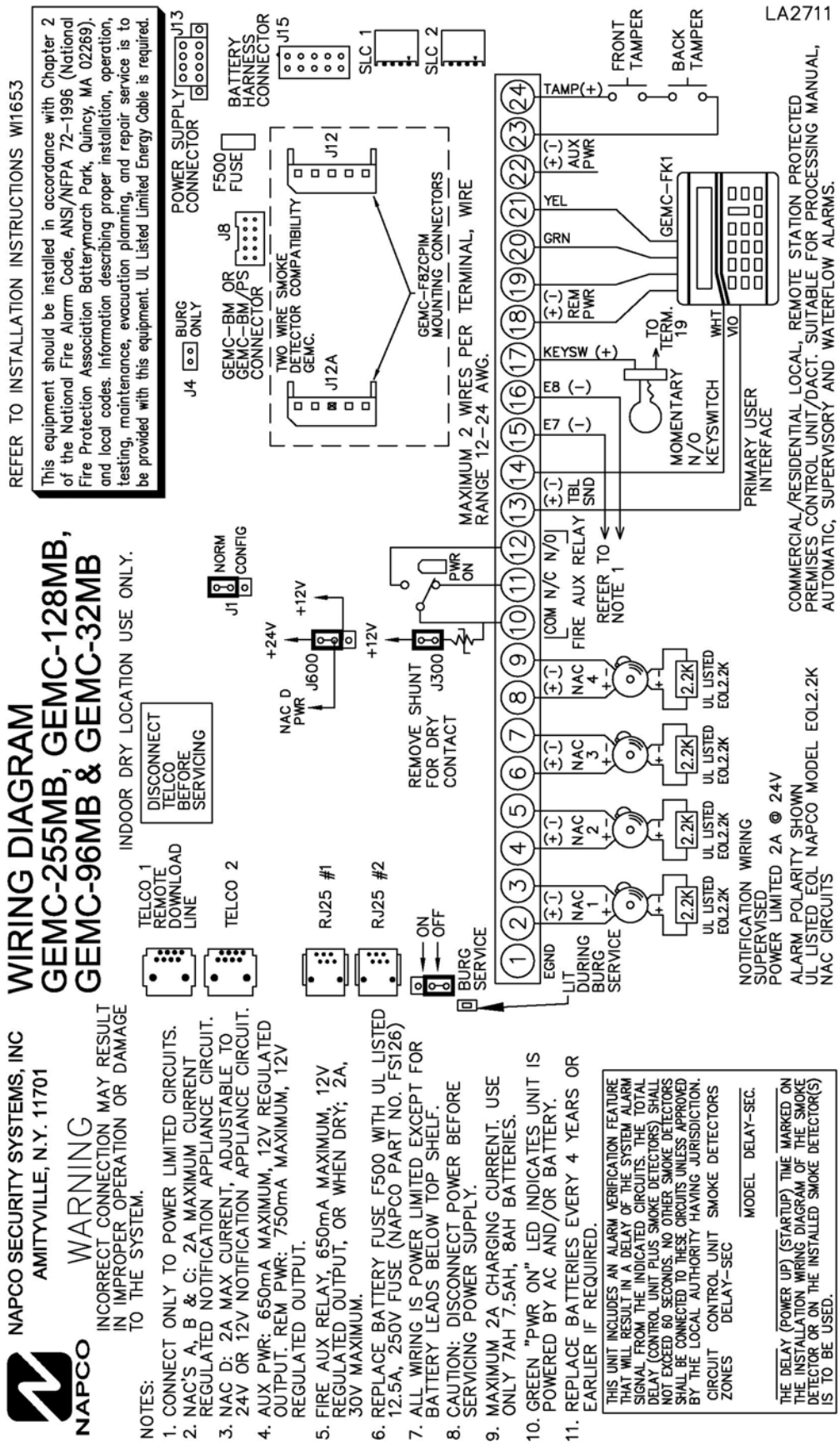
   They may also be programmed for
   - Report Alarm Tel3
   - Report Alm Restore Tel3
   - Report Trouble Tel3
   - Report Tbl Restore Tel3

System Assignment Screen

System Reporting and Outputs

Every Report Topic except the following shall be enabled on "Report on Alarm Telco 1" except the following optional reporting features:
- Sensor Watch
- Service Message
- Alarm Supervisory
- Telemetry Trouble
- Telemetry Failure
- ACM Power Failure
- ACM Low battery

GEMINI C-SERIES WIRING DIAGRAM



Smoke Detector Compatibility Identifier GEMC

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