



# ULC Installation Guide for PowerSeries Pro

## For all installations

During any ULC Installation described within this guide, all the rules for safe installation specified in the CEC (Canadian Electrical Code) shall be respected. This guide is intended to be used in conjunction with the following DSC alarm control panel models unless otherwise stated: PowerSeries Pro models HS3248, HS3128, HS3032. Always use this guide in conjunction with the corresponding installation manual for the alarm control panel.

- For mounting on the exterior of a vault, safe, or stockroom, installation of vibration detector is required (see Note 7).
- Power Adapter: switching mode type, cord connected (Model HS65WPSNA) or hardwired (HS65WPSNAS), output rated 18 VDC/3.6 A (65 W), Class 2 power limited, UL/cUL Listed. Refer to the installation manual for acceptable models used for each type of application.
- Install with ULC Listed devices where applicable.
- Refer to installation instructions of other manufacturers FACP's (Fire Alarm Control Panel) for any wiring connections between DSC/Tyco Subscriber's units and these manufacturer's listed fire alarm control panels.

| Requirements  | Household Burglary  | Household fire  | Central station burglary monitoring  | Central station fire monitoring   | Local burglary  |
|---|---|---|--|---|---|
| Minimum battery standby   | 4 hours   | 24 hours  | 24 hours   | 24 hours  | 24 hours  |
| Battery size  | 12 V/4 Ah or<br>12 V/7 Ah or<br>12 V/17 Ah                          | 12 V/7 Ah or<br>12 V/17 Ah  | 12 V/7 Ah or<br>12 V/17 Ah   | 12 V/7 Ah or<br>12 V/17 Ah  | 12 V/7 Ah or<br>12 V/17 Ah  |
| System entry delay  | ≤ 180 seconds   | N/A   | ≤ 60 seconds (security levels II/III/IV)   | N/A   | ≤ 25 seconds  |
| System exit delay   | ≤ 45 seconds  | N/A   | ≤ 45 seconds (security levels II/III/IV)   | N/A. Bell shall not sound   | ≤ 45 seconds  |
| Minimum bell cutoff time  | 4 minutes   | 5 minutes   | Max. 4 minutes   | N/A   | Max. 4 minutes  |
| Equipment standard  | CAN/ULC-S304:16   | CAN/ULC-S545:02   | CAN/ULC-S304:16  | CAN/ULC-S559:13   | CAN/ULC-S304:16   |
| Installation standard   | CAN/ULC-S302:14   | CAN-ULC-S540  | CAN/ULC-S302:14  | CAN/ULC-S561:13   | CAN/ULC-S302:14   |
| Communicator  | Enabled   | Enabled   | Enabled. See Note 1  | Enabled. See Note 2   | Optional  |
| ULC marking<br><b>Note:</b> For residential installations the commercial type marking is also acceptable (subscribers' Unit)  | Household Burglary Alarm System Control Unit                        | Household Fire Warning Alarm System Control Unit                    | Commercial Burglary Equipment or Subassembly   | Commercial Burglary Equipment or Subassembly  | Commercial Burglary Equipment or Subassembly                        |
| Power LED (model ULC-LA)<br><b>Note:</b> Not required if HS2LCDPRO, HS2LCDRFPRO9, HS2TCHPRO with AC indicator are being used. | Optional  | Required  | Required   | Required  | Required  |
| AC power adapter  | Use Model HS65WPSNA. Cord Connected. Mount inside/outside enclosure | Use Model HS65WPSNA. Cord Connected. Mount inside/outside enclosure | Use Model HS65WPSNA. Cord connected (Security Levels 1-4). Mount inside/outside enclosure. Optional use Model HS65WPSNAS. Hard-wired connected (Security Level 4). Mount only inside enclosure, use High Voltage Barrier kit. Optional hardwired connection. | Use Model HS65WPSNAS. Hard-wired connected. Mount only inside enclosure. Check local authority. | Use Model HS65WPSNA. Cord connected. Mount inside/outside enclosure |
| Tamper protection   | Optional  | Optional  | Required. See Note 8.  | Optional  | Required. See Note 8.   |
| Cabinet<br><b>Note:</b> ULC marking might be applied on the outside of the enclosure or inside on the PCB assembly.           | HS3010C<br>HSC3020C   | HS3010C<br>HSC3020C   | HS3010C<br>HSC3020C  | HSC3010CR   | HSC3030CAR  |
| Special notes   |   | See Note 4  | See Note 5   | See Notes 3, 7, 10  | See Notes 5, 6  |

## Notes

**Note 1:** Communication Channel Security (applicable to Commercial Burglary/Financial Installations)

| <b>Passive Levels</b><br><b>Note: Test transmission required every 24 hr (on each communication channel).</b>   |  |  |   |                                  |
|---|--|--|---|----------------------------------|
|   | Transmitter(s)   | Supervision of communication channel (s)   | Receiver equipment at signal receiving centre (SRC)   | Security level (CAN/ULC-S302-14) |
| P1  | Single communication channel:<br>Dialer: integrated in HS3032, HS3128, HS3248<br>GSM/HSPA: plug in module 3G9080, 3H9080, LE9080<br>IP: integrated in HS3032, HS3128, HS3248<br>Refer to figure 5.   | Loss of communication channel shall initiate local trouble signal within 180 seconds | SG-MLR2-DG/<br>SG-MLR2000 /<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I/<br>SG-System 5 | I                                |
| P2  | Communication channels:<br>Dialer and GSM/HSPA back-up, Dialer and IP back-up,<br>GSM/HSPA and Dialer back-up, IP and GSM/HSPA back-up,<br>GSM/HSPA and IP back-up.<br>Refer to diagrams 1, 2, and 5   | Failure of either channel shall be reported to the SRC within 240 seconds            | SG-MLR2-DG/<br>SG-MLR2000 /<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I/<br>SG-System 5 | II                               |
| P3  | Dual Communication System: GSM/HSPA and IP, Dialer and IP, Dialer and GSM/HSPA. Status change signals shall be sent simultaneously over both communication channels. Refer to diagrams 1, 2, and 5. Use separate PGM outputs programmed to activate for each type of event identified as a status change signal: Burglar Alarm, Holdup, Duress, Tamper, Opening/Closing. Use zone expander where more zone inputs are required to accommodate the transmission of these signals. | Failure of either channel shall be reported to the SRC within 240 seconds            | SG-MLR2-DG/<br>SG-MLR2000 /<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I/<br>SG-System 5 | III                              |
| <b>Notes:</b> The telephone service should be of a type that provides for timed release disconnect, in order to give the digital alarm communicator transmitter (dialer) the ability to disconnect an incoming call to the protected premises. If the lines (numbers) are in a single hunt group, they shall be individually accessible; otherwise, separate hunt groups shall be required. These lines shall be used for no other purpose than receiving signals from a digital alarm communicator transmitter. These lines (numbers) shall be unlisted. A timed release disconnect requirement applies to the telephone lines (numbers) connected to the digital alarm communicator receiver. The numbers assigned to the digital alarm communicator receiver shall be individually accessible, even where they are connected in rotary (hunt group). Models SG-MLR2-DG and SG-MLR2000 Receivers (DACR type) are legacy products that are still used by some ULC Listed Signal Receiving Centres. |  |  |   |                                  |

| <b>Active Levels</b><br><b>Note: Check-in /polling signal required every 90 seconds</b> |   |   |  |                                  |  |
|---|---|---|--|----------------------------------|--|
|   | Transmitter(s) equipment at protected premises  | Supervision of communication channel(s)   | Receiver equipment at signal receiving centre (SRC)  | Security level (CAN/ULC-S302-14) | Back-up requirements for network equipment |
| A1  | GSM/HSPA: LE4010/LE4010CF, LE4020/LE4020CF, TL880LE, plug in modules 3G9080/3H9080/LE9080<br>IP: integrated in HS3032/HS3128/HS3248<br>AES 128-bit encryption. Refer to diagrams 1, 4, 5. | Loss of communication channel shall be indicated at SRC within 180 seconds          | SG-System 5<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I<br>(512 supervised transmitters) | I                                | 24 hr standby power or dialer as back-up   |
| A2  | GSM/HSPA: LE4010/LE4010CF, LE4020/LE4020CF, TL880LE, plug in modules 3G9080/3H9080/LE9080<br>IP: integrated in HS3032/HS3128/HS3248<br>AES 128-bit encryption. Refer to diagrams 1, 4, 5. | Loss in 180 seconds at SRC; Identification at SRC; Compromise detection 240 seconds | SG-System 5<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I<br>(512 supervised transmitters) | II                               | 24 hr standby power or dialer as back-up   |

| Active Levels<br>Note: Check-in /polling signal required every 90 seconds | Transmitter(s) equipment at protected premises  | Supervision of communication channel(s)  | Receiver equipment at signal receiving centre (SRC)  | Security level (CAN/ULC-S302-14)  | Back-up requirements for network equipment |
|---|---|--|--|---|--|
| A3  | GSM/HSPA: LE4010/LE4010CF, LE4020/LE4020CF, TL880LE, plug in modules 3G9080/3H9080/LE9080<br>IP: integrated in HS3032/HS3128/HS3248<br>AES 128-bit encryption. Refer to diagrams 1, 4, 5. | Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds | SG-System 5<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I<br>(512 supervised transmitters) | III<br>IV (only when used in conjunction with a passive communication channel rated P1) | 24 hr standby power or GSM as back-up      |
| A4  | GSM/HSPA: LE4010/LE4010CF, LE4020/LE4020CF, TL880LE, plug in modules 3G9080/3H9080/LE9080<br>IP: integrated in HS3032/HS3128/HS3248<br>AES 128-bit encryption. Refer to diagrams 1, 4, 5. | Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds | SG-System 5<br>SG-System IV /<br>SG-System III /<br>SG-System II /<br>SG-System I<br>(512 supervised transmitters) | IV  | 24 hr standby power                        |

**Notes:** For equipment used at the protected premises or SRC and intended to facilitate IP communications (hubs, routers, NID, DSL/Cable modems) 24h back-up power is required. Where such cannot be facilitated, a secondary (back-up) communication channel is required.

**Notes for using Private, Corporate and High Speed Data Networks:** Network access and domain access policies shall be set to restrict unauthorized network access, and “spoofing” or “denial of service” attacks. Select the internet service providers that have redundant servers/systems, back-up power, routers with firewalls enabled and methods to identify and protect against “denial of service” attacks (i.e., via “spoofing”).

**Notes for using Public Switched and Wireless Data Networks:** Communication channels shall be facilitated such that the communicator will restrict unauthorized access, which could otherwise compromise security.

**Note 2:** Fire Monitoring Communication Systems (Refer to the wiring diagrams in this guide for possible configurations). Fire alarms shall be received at SRC in 60 seconds. Trouble signals shall be received at SRC in 90 seconds. AES 128-bit encryption for active and passive IP connections (applies to Ethernet and Cellular paths).

| IP or GSM/HSPA communication paths   | Transmitter equipment at protected premises   | Supervision of communication channel(s)  | Receiver equipment at signal receiving centre (SRC)  |
|--|---|--|--|
| Passive<br><b>Note:</b> Test transmission required every 24 hr (on each communication channel) | Dialer with GSM/HSPA, Dialer with IP, GSM/HSPA with IP<br>Fire alarms shall be sent simultaneously over both communication channels<br>Refer to diagram 5 | Failure of either channel shall be reported to the SRC within 180 seconds.<br>Failure of both channels shall be indicated locally in 240 seconds | SG-MLR-DG/<br>SG-MLR2000/<br>SG-System 5/<br>SG-System IV/<br>SG-System III/<br>SG-System II/<br>SG-System I |
| Active<br><b>Note:</b> Check-in/polling signal required every 90 seconds.                      | GSM/HSPA: LE4010/LE4010CF, LE4020/LE4020CF, plug in modules 3G9080/3H9080/LE9080<br>IP: integrated in HS3032/HS3128/HS3248<br>Refer to diagram 5          | Loss of communication channel shall be indicated at SRC within 180 seconds   | SG-System 5/<br>SG-System IV/<br>SG-System III/<br>SG-System II/<br>SG-System I                              |

**Note:** Models SG-MLR2-DG, SG-MLR2000 are not ULC Listed under the ULC-S559-04 requirements.

**Note:** For equipment used at the protected premises or SRC and intended to facilitate the IP communications (hubs, routers, NID, DSL/Cable modems) 24h back-up power is required. Where such cannot be facilitated, a secondary (back-up) communication channel is required.

**Note 3:** Each ULC labelled “Subscribers' Unit Fire and/or Burglary” communication system shall be connected to a ULC labelled “Fire Alarm Control Unit” if they are to monitor a complete fire alarm system. As minimum, system fire alarms, supervisory and troubles signals shall be transmitted to the SRC.

**Note 4:** Program input zones as Fire Type for connection of ULC labelled 4-wire smoke detectors (e.g., DSC FSA-410A series) or program PGM 2 for connection of compatible ULC labelled 2-wire smoke detectors (e.g., DSC FSA-210A series). Refer to Zone Wiring Diagrams in this guide.

**Note 5:** Double end-of-line zone configuration must be used for Security Levels II-IV Installations (refer to Zone Wiring Diagrams in this guide for possible configurations).

**Note 6:** Only one contact per zone (refer to Zone Wiring Diagrams for double door/window contact in this guide).

**Note 7:** For financial/bank applications when mounting the control panel on the exterior of a vault, safe, or stockroom, installation of vibration detector is required. Recommended assault sensor UTC, model 5422.

**Note 8:** This may be connected to ULC labelled Sprinkler Riser devices (refer to Zone Wiring Diagrams in this guide).

**Note 9:** All system enclosures must be 24-hour tamper protected against opening or removal (DSC Tamper Kit T-1 or equivalent). This includes control unit and accessory cabinets, transmitters, initiating devices and bells/strobes. Keypads must be tampered if they use a zone input or if they are installed outside the protected area.

**Note 10:** When performing the test for loss of communications channel on a LE4010/LE4010CF, LE4020/LE4020CF, TL880LE, or 3G9080/3H9080/LE9080, it is recommended that you remove the SIM card from the communicator to simulate loss of communications. Removing the antennae is not an acceptable method for testing on these models as the radio used in this product may be able to communicate without the antennae connected. The Cellular Service attribute must also be enabled via C24 Communications.

**Note 11:** As per ULC Bulletin 2017-02A, ULC Fire and Security Systems Group is accepting the use of MFVN digital telephone services for connection of digital dialer transmitters ULC listed to be connected to the public switched telephone network communication system. Since the MFVN communication channel technologies available are not provided with 24 hour standby power on the equipment and facilities used between the premises and the signal receiving center, it is required that, for passive communication channels used in monitored protective signaling system installations, the testing time of the passive communication channels should be reduced from the current 24 hours to 6 hours to better ensure that the system and communication channels are operating in their intended manner to reduce the life safety risk. A change in testing frequency for intrusion alarm systems is not required due to the many different levels of line security options available for these system types, which should be applied based on communication supervision needs for each installation. For PowerSeries Pro panels, the following programming options shall be adjusted to meet the new 6h test transmission when used in ULC-S561 compliant installations:

- Section [022] turn option 4 ON for hours.
- Section [377] option [003] set to 006 (for 6 hours).
- Section [309] option [002] enable test transmission for all applicable receivers.

## Programming

The notes in the installation and programming sections describing the system configurations for ULC Listed installations must be implemented.

## Protection of the control unit - burglary

The local control unit and local power supply must be protected in one of the following ways:

- The control unit and power supply must be located within the area of greatest protection on a tamper protected circuit.
- Each partition shall arm the area protecting the control unit and the audible alarm device power supply. This may require duplicate protection armed by each partition. Access to this protected area, without causing an alarm, will require that all partitions are disarmed.

In all cases described above, the protected area for the control unit must be programmed so that it cannot be bypassed, and installed in accordance with CAN/ULC-S302.

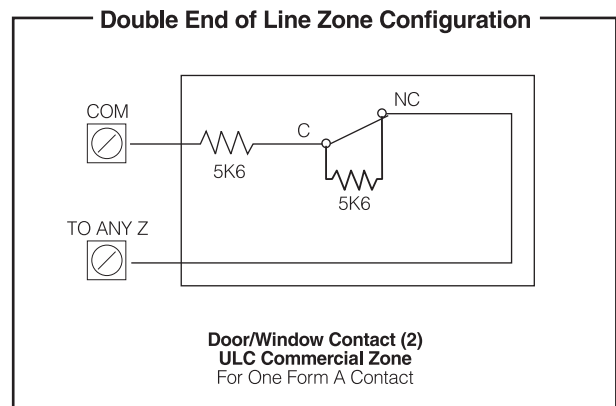
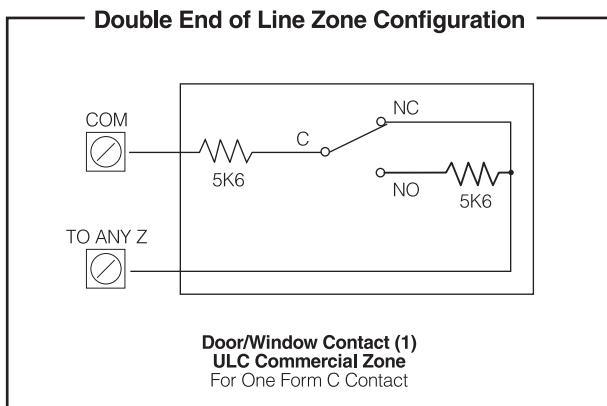
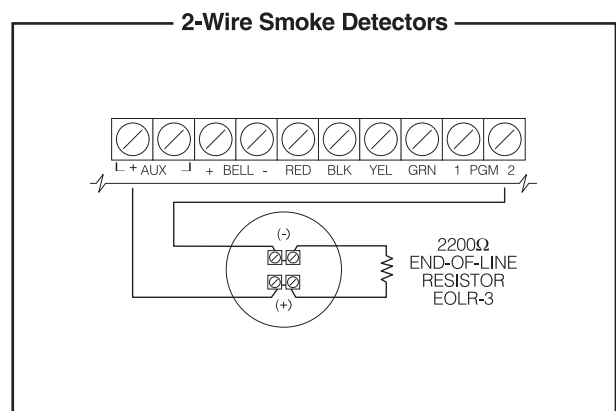
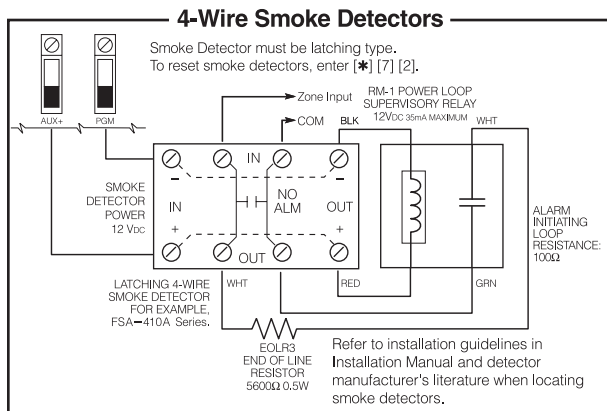
## User information

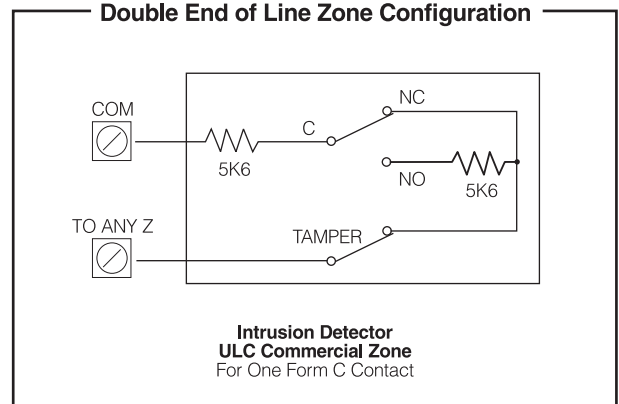
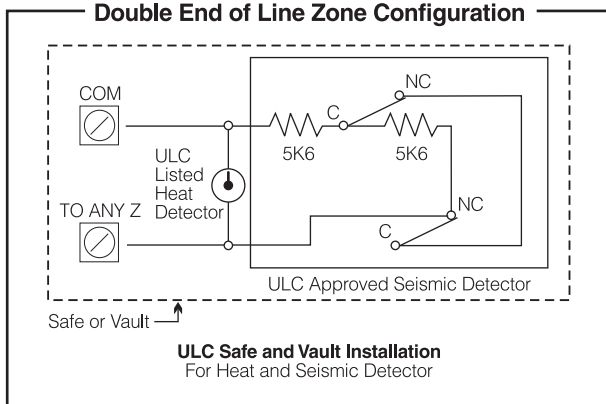
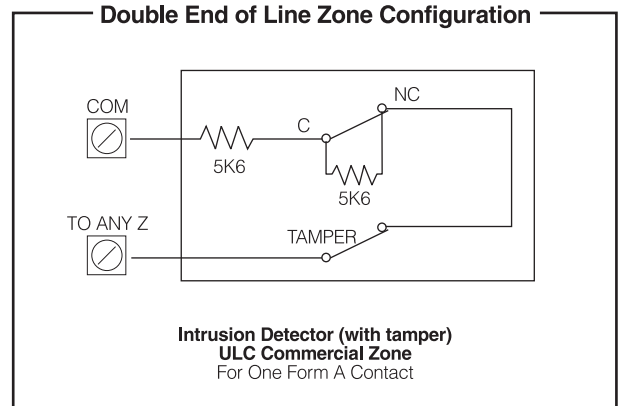
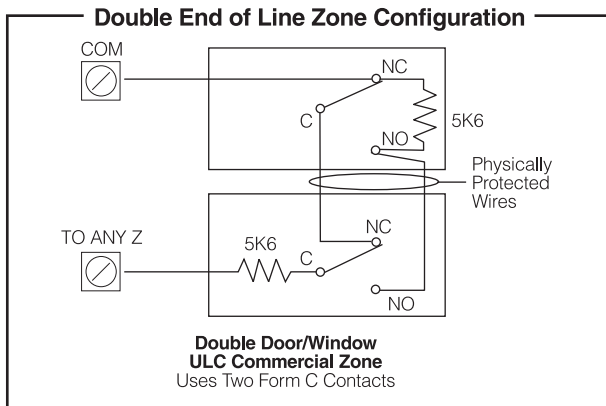
The installer should advise the users and note the following in the user instruction manual:

- Service organization name and telephone number.
- The programmed exit time.
- The programmed entry time.
- Safety precautions specified for the connected equipment.

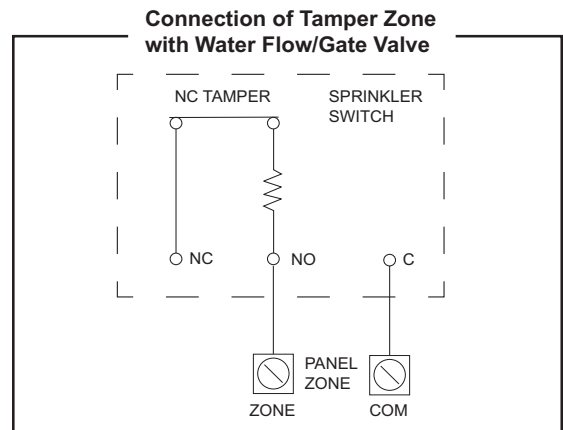
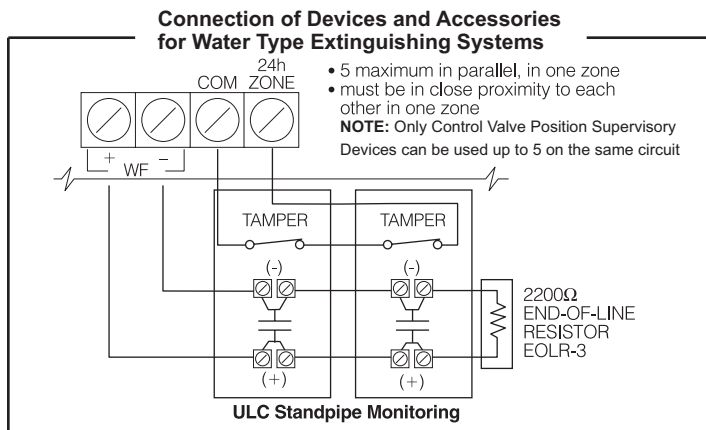
Products or components of products, which perform communications functions only, shall comply with the requirements applicable to communications equipment as specified in CAN/CSA-C22.2 No. 60950-1, Information Technology Equipment-Safety - Part 1: General Requirements.

## Zone wiring diagrams



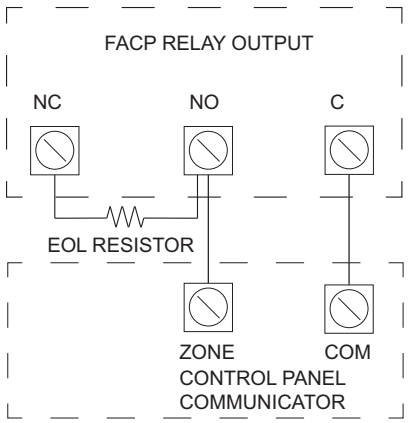


**Note:** The tamper and relay contacts (NC) used in door/window detectors or motion detectors are shown as the product is powered up and in normal supervisory condition.



**NOTE:** Reference to WF terminal block designation is only specific to certain DSC modules (MAXSYS system). PowerSeries Pro control panels can use any zone programmed as type 24 hr sprinkler when used in conjunction with a sprinkler supervision system.

**Connection for removable  
terminal block**



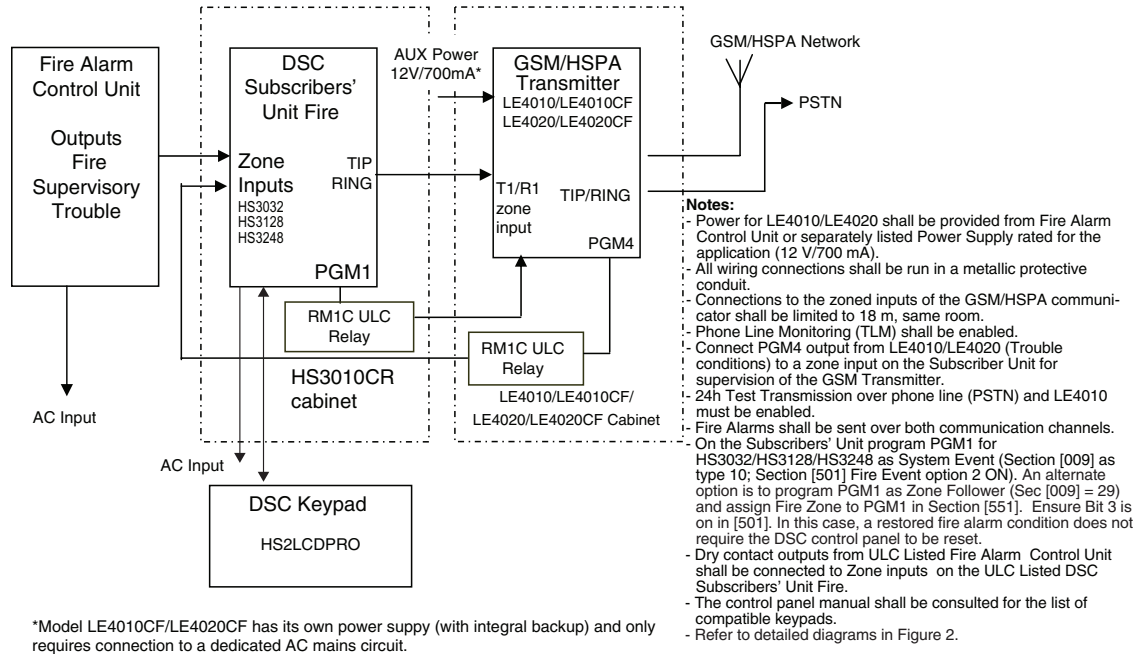
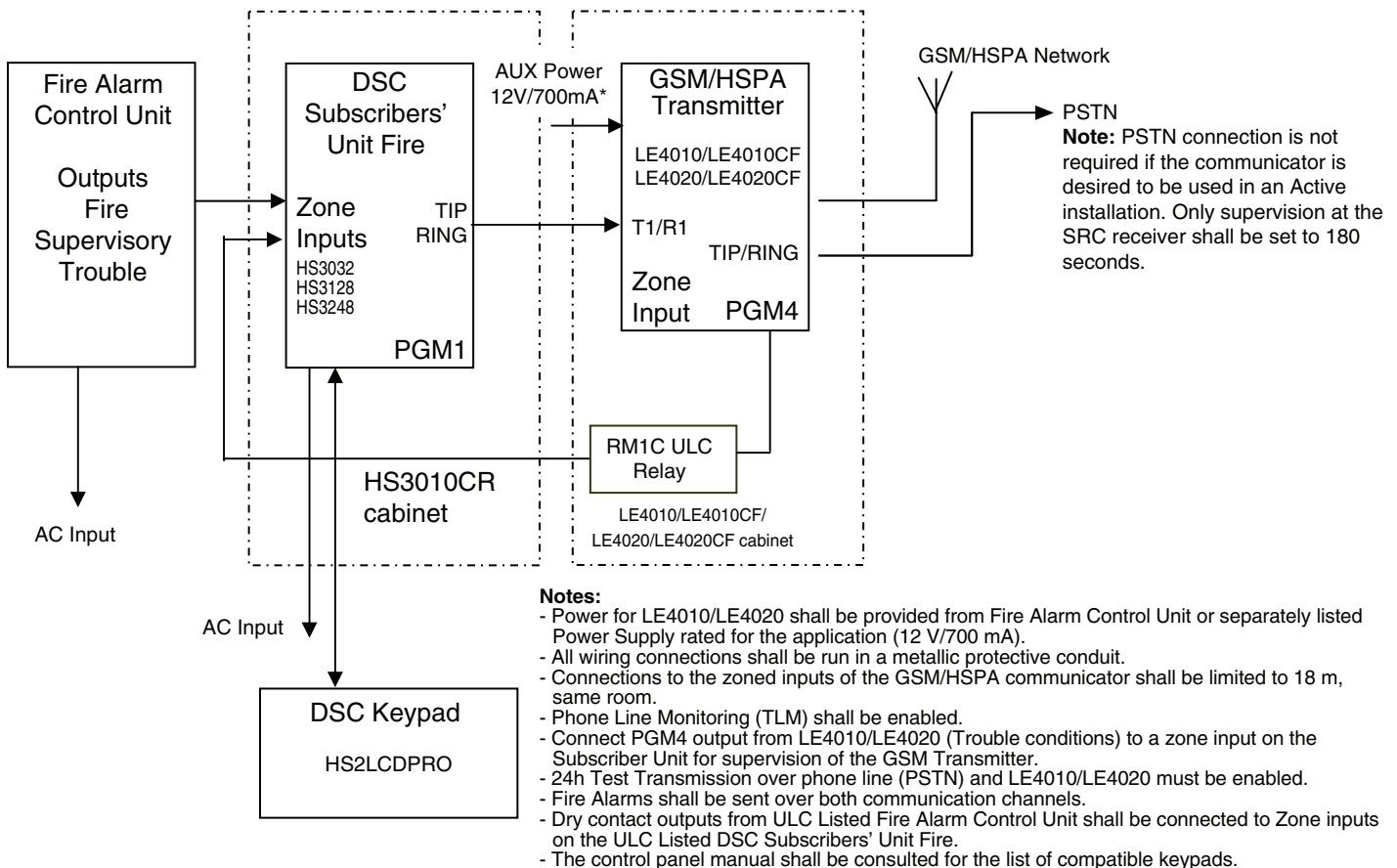
## Fire monitoring communications systems wiring diagrams

**Note:** For help in determining the type of application and the associated Security Level for ULC commercial burglar certifications, refer to Table 1 in CAN/ULC-S302-14 Standard for the Installation, Inspection and Testing of Intrusion Alarm Systems (see the following extract).

| Security level | Environmental examples   | Application examples   |
|----------------|--|--|
| Level I        | <input type="checkbox"/> low crime area<br><input type="checkbox"/> low occurrence probability factor<br><input type="checkbox"/> low asset value risk<br><input type="checkbox"/> low impact on operational risk  | <input type="checkbox"/> small retail operations<br><input type="checkbox"/> small office environments (for example, real estate)<br><input type="checkbox"/> most residential   |
| Level II       | <input type="checkbox"/> moderate crime area<br><input type="checkbox"/> moderate probability of event<br><input type="checkbox"/> easily transported assets<br><input type="checkbox"/> moderate asset value<br><input type="checkbox"/> acceptable risk - fully recoverable operations   | <input type="checkbox"/> 24 hour convenience stores (minimal staffing)<br><input type="checkbox"/> mid-size retail operations<br><input type="checkbox"/> gas stations<br><input type="checkbox"/> fitness centers<br><input type="checkbox"/> condominiums<br><input type="checkbox"/> car parks  |
| Level III      | <input type="checkbox"/> high crime area<br><input type="checkbox"/> moderate probability of event occurrence<br><input type="checkbox"/> high value assets<br><input type="checkbox"/> easily transported assets<br><input type="checkbox"/> risk to enterprise - high recovery costs   | <input type="checkbox"/> large retail operations<br><input type="checkbox"/> big box retail operations<br><input type="checkbox"/> gas stations<br><input type="checkbox"/> banks<br><input type="checkbox"/> large multi-tenant commercial enterprises<br><input type="checkbox"/> ATMs<br><input type="checkbox"/> art galleries<br><input type="checkbox"/> casinos<br><input type="checkbox"/> regional airports<br><input type="checkbox"/> car parks |
| Level IV       | <input type="checkbox"/> high crime area<br><input type="checkbox"/> very high probable occurrence of event<br><input type="checkbox"/> high profile target - terrorism<br><input type="checkbox"/> very high value assets<br><input type="checkbox"/> easily transportable assets<br><input type="checkbox"/> risk to life<br><input type="checkbox"/> risk to enterprise - very high recovery costs<br><input type="checkbox"/> long term impact on enterprise | <input type="checkbox"/> international airports<br><input type="checkbox"/> government buildings<br><input type="checkbox"/> high profile attractions/ observation towers<br><input type="checkbox"/> data centers<br><input type="checkbox"/> military bases<br><input type="checkbox"/> court houses<br><input type="checkbox"/> mines   |

**Notes:**

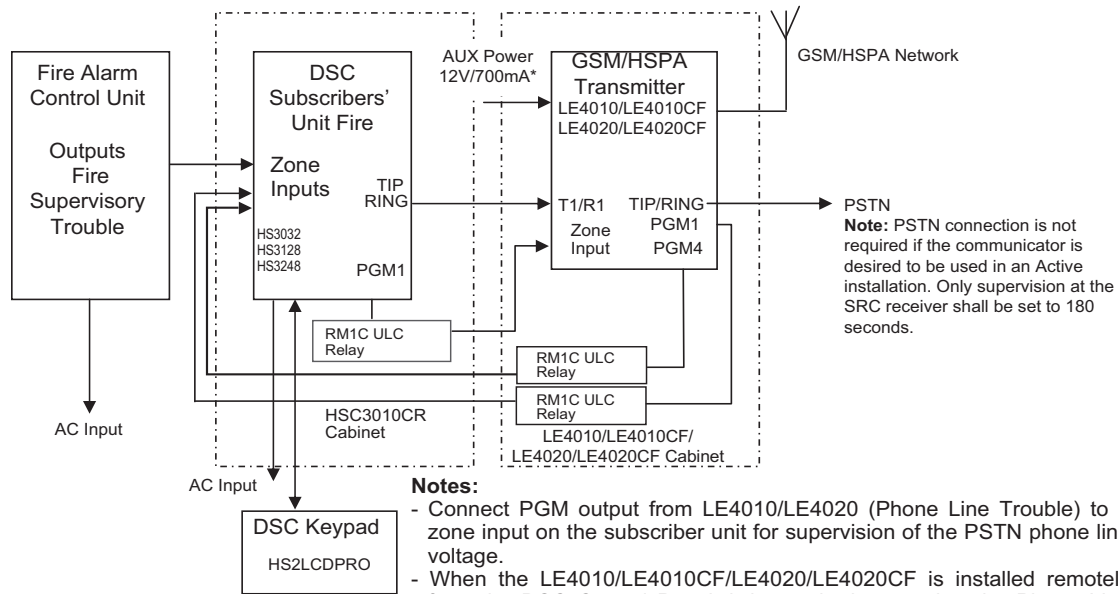
- These wiring diagrams are also representative for commercial burglary monitoring applications.
- Either RM1C ULC or RM2 relays can be used for ULC installations.
- Recommended power supply models: HSM3204CX, HSM3350.
- Refer to power supply installation manual for compatible control panels.

**1a. DSC subscribers' unit fire and GSM/HSPA transmitter (passive communications system)****1b. DSC subscribers' unit fire and GSM/HSPA transmitter (active communications system)**



# 1c. DSC subscribers' unit fire and GSM/HSPA transmitter mounted remotely

Alternate wiring diagram for DSC subscribers' unit fire and GSM/HSPA transmitter passive/active communication system - using phone line supervision relay

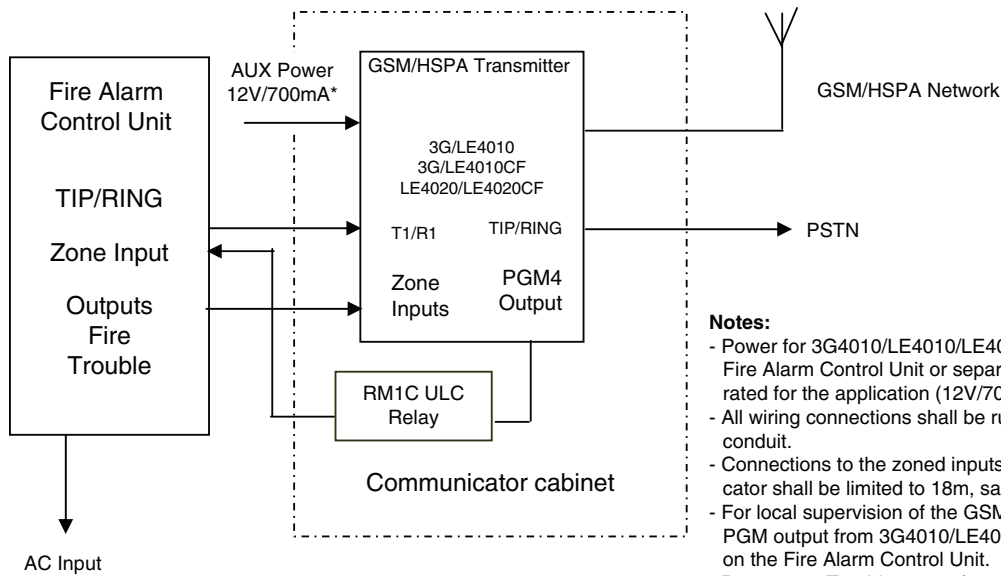


## Notes:

- Connect PGM output from LE4010/LE4020 (Phone Line Trouble) to a zone input on the subscriber unit for supervision of the PSTN phone line voltage.
- When the LE4010/LE4010CF/LE4020/LE4020CF is installed remotely from the DSC Control Panel, it is required to monitor the Phone Line Trouble condition at the keypad by using an additional RM1C Relay.
- All wiring connections shall be run in a mechanically protective conduit. Connections to the zoned inputs of the GSM/HSPA communicator shall be limited to 18 m, same room.
- Refer to notes in Figure 1A and detailed diagrams in Figure 3 for additional information.

\*Model LE4010CF/LE4020CF has its own power supply (with integral backup) and only requires connection to a dedicated AC mains circuit.

## 2a. Fire alarm control unit (with dialer) and GSM/HSPA transmission (passive communication system)



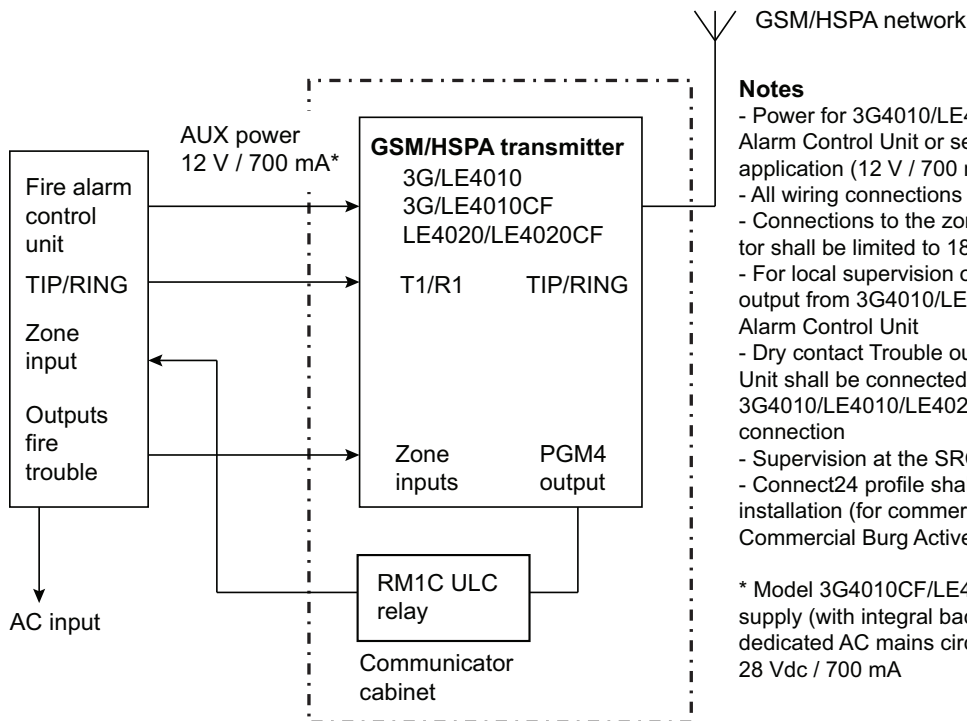
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\*Model 3G4010CF/LE4010CF/LE4020CF has its own power supply (with integral backup) and only requires connection to a dedicated AC mains circuit. Model LE4020CF input range is 10-28Vdc/700mA.

### Notes:

- Power for 3G4010/LE4010/LE4020 shall be provided from Fire Alarm Control Unit or separately listed Power Supply rated for the application (12V/700mA).
- All wiring connections shall be run in a metallic protective conduit.
- Connections to the zoned inputs of the GSM/HSPA communicator shall be limited to 18m, same room.
- For local supervision of the GSM/HSPA transmitter connect PGM output from 3G4010/LE4010/LE4020 to one zone input on the Fire Alarm Control Unit.
- Dry contact Trouble output from ULC Listed Fire Alarm Control Unit shall be connected to Zone input on the 3G4010/LE4010/LE4020 for supervision of control units Tip/Ring connection.
- Fire Alarms shall be sent over both communication channels. Fire output from Fire Alarm Control Unit shall be connected to an Input on the 3G4010/LE4010/LE4020 that is programmed as fire.
- 24h Test Transmission must be enabled on the dialer and on the 3G4010/LE4010/LE4020.

## 2b. Fire alarm control unit (with dialer) and GSM/HSPA transmission (active communication system)

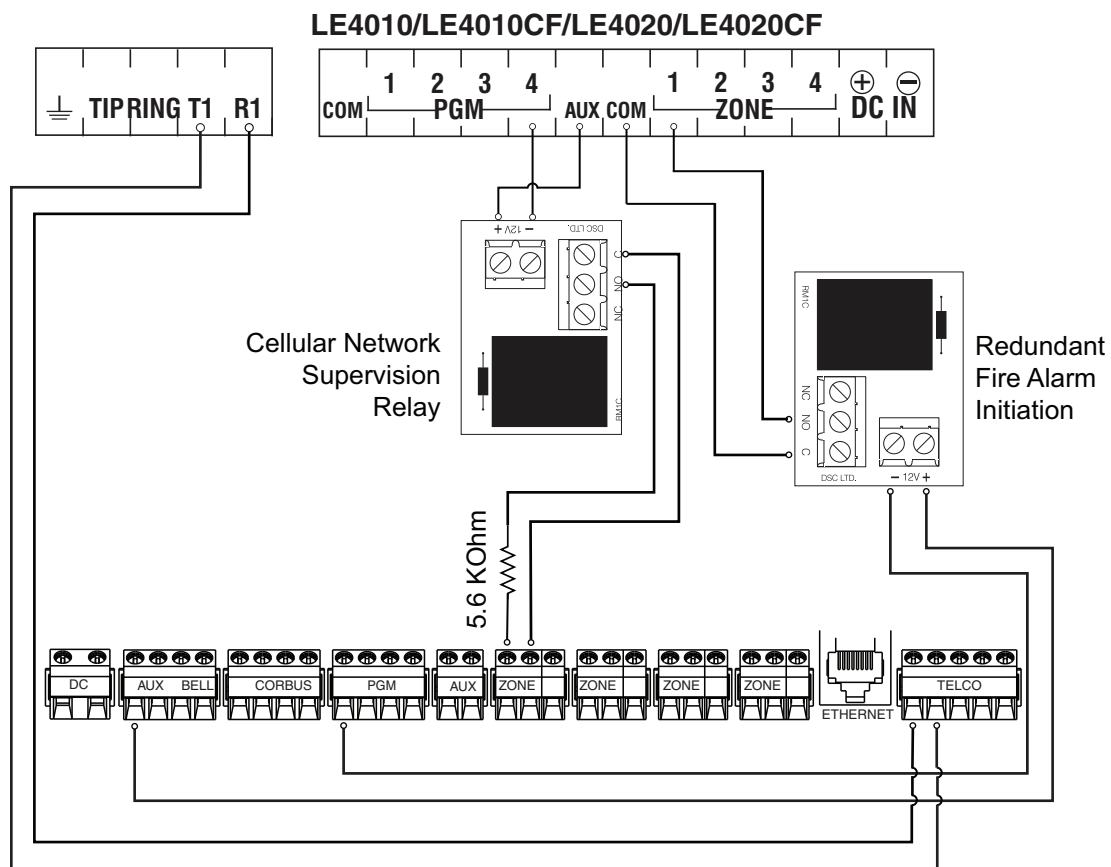


### Notes

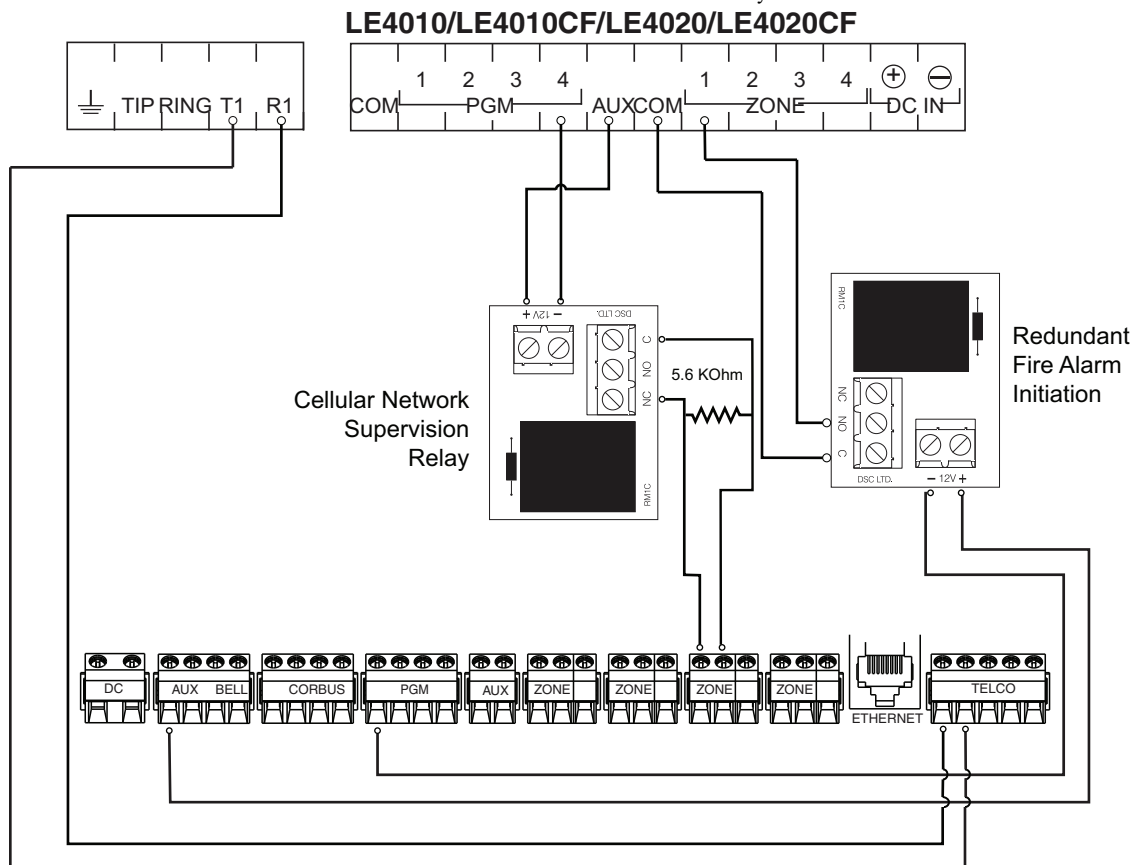
- Power for 3G4010/LE4010/LE4020 shall be provided from Fire Alarm Control Unit or separately listed Power Supply rated for the application (12 V / 700 mA)
- All wiring connections shall be run in a metallic protective conduit
- Connections to the zoned inputs of the GSM/HSPA communicator shall be limited to 18 m, same room
- For local supervision of the GSM/HSPA transmitter, connect PGM output from 3G4010/LE4010/LE4020 to one zone input on the Fire Alarm Control Unit
- Dry contact Trouble output from ULC Listed Fire Alarm Control Unit shall be connected to Zone input on the 3G4010/LE4010/LE4020 for supervision of control units TIP/RING connection
- Supervision at the SRC receiver shall be set to 180 seconds
- Connect24 profile shall be set to ULC Commercial Fire Active installation (for commercial burglary applications choose ULC Commercial Burg Active profile)

\* Model 3G4010CF/LE4010CF/LE4020CF has its own power supply (with integral backup) and only required connection to a dedicated AC mains circuit. Model LE4020 input range is 10 Vdc - 28 Vdc / 700 mA

### 3. Connection details for GSM/HSPA supervision relay and redundant fire alarm transmission

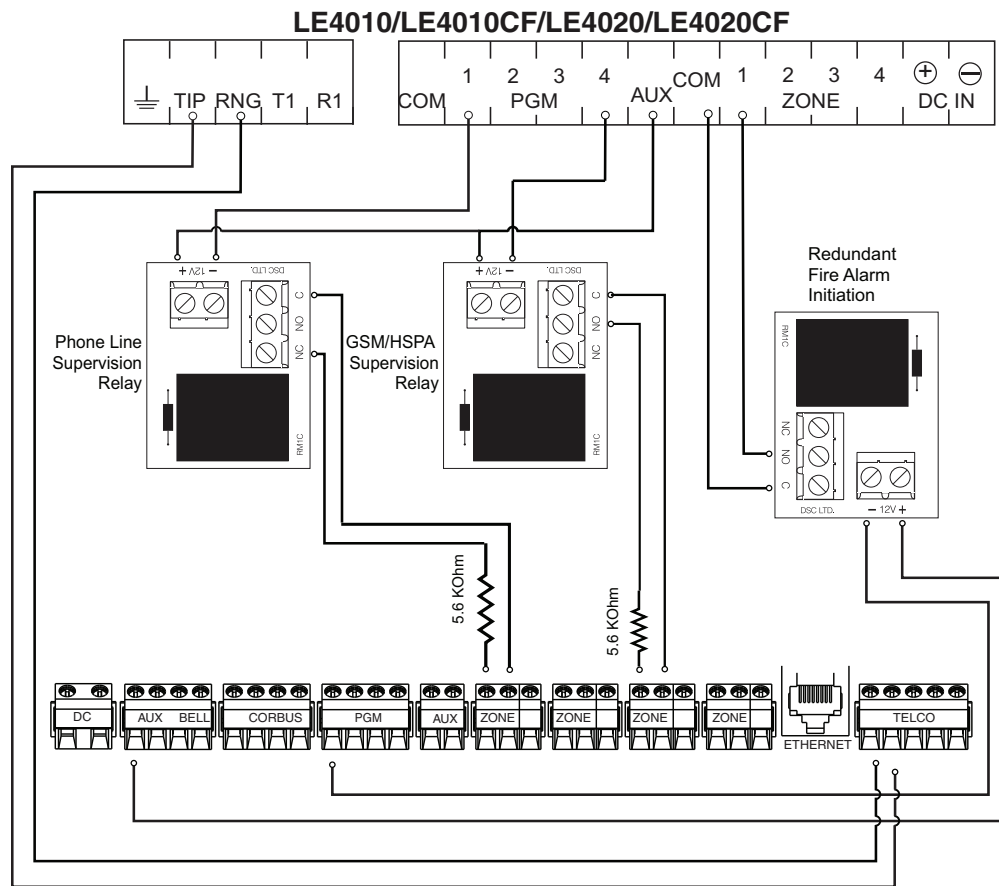


**Note:** Use EOL resistor in series with N.O. contacts of the relay connected to PGM4.

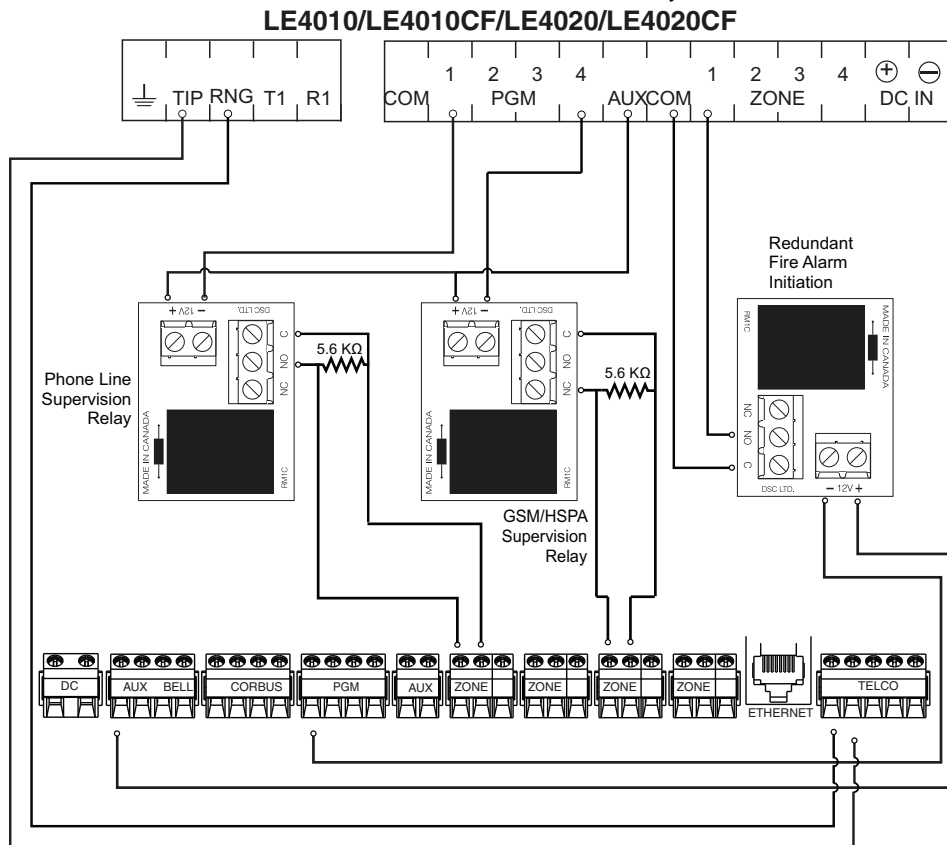


**Note:** Use EOL resistor in parallel with N.C. contacts of the relay connected to PGM4.

#### 4. Connection details for GSM/HSPA supervision relay, phone line supervision and redundant fire alarm transmission

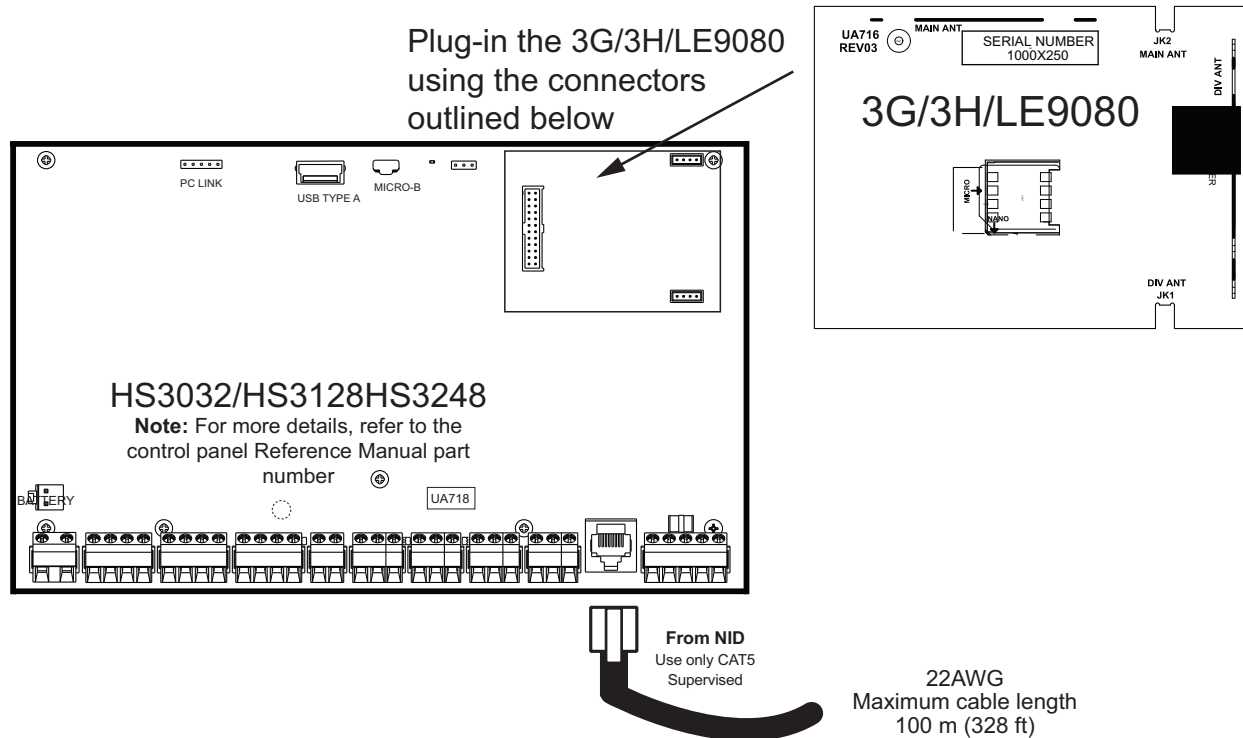


**Note:** Use EOL resistor in series with N.O. contacts of the relay connected to PGM4.



**Note:** Use EOL resistor in parallel with N.C. contacts of the relay connected to PGM4.

## 5. Wiring diagram active/passive communication system



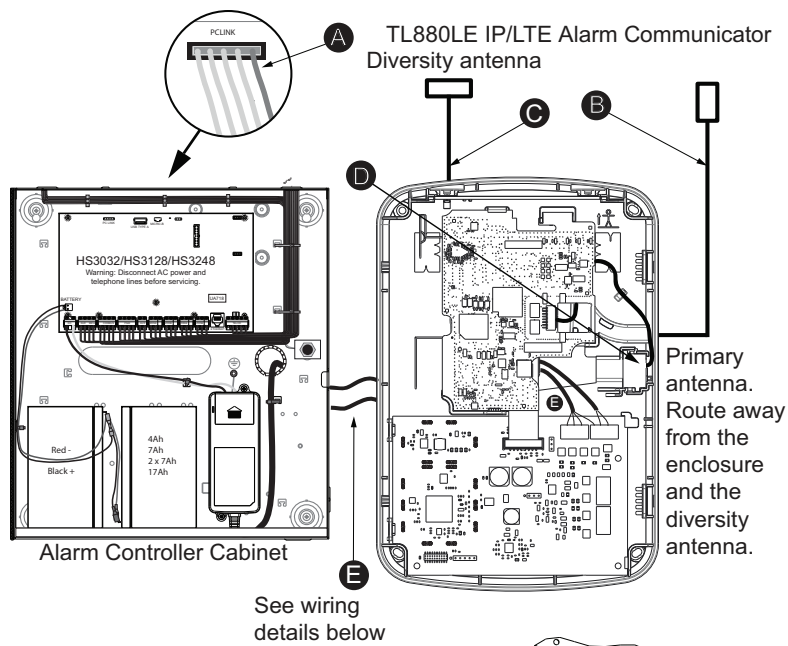
**Note:** Communicator programming (section [851]) is only supported through the Connect24 web portal.

### Notes:

- Control panel model HS3032/HS3128/HS3248 has an integral DACT (PSTN and an integral Ethernet IP communication paths that together with the plug-in cellular module 3G9080/3H9080/LE9080 can be programmed to work as a communication system covering levels P1-P3 and A1-A4).
- Connect module 3G9080/3H9080/LE9080 to HS3032/HS3128/HS3248 as instructed in the installation manual and enable the alternate communicator (section [383] bit 3 ON if using the on-board Ethernet, [383] bit 4 ON if using the 3G/3H/LE9080 plug-in cellular board, or [382] bit 5 ON if using the TL880LE).
- For communication format, program section [350] [001-004] (03 for Contact ID, 04 for SIA).
- 3G9080/3H9080/LE9080 can be used as either a passive or active communication module (Ethernet/Cellular or both).
- For passive configurations (Commercial Burg Line Security Level P2, Backup transmission configuration):
  - Phone line monitoring (TLM) shall be enabled on the panel (section [015] bit 7 ON).
  - Set communicator path on the panel: section [300] [001] set to Phone line, [002] set to Alt Comm Rec 1(Ethernet channel) or Alt Comm Rec 3 (Cellular channel). Note that any communicator path can be selected as primary (location [001] or backup (location [002] in this configuration. Enable Cellular Low Signal Trouble in section [851][005] bit 8 ON).
  - Program the analog phone number in Section [301] [001] (primary path).
  - Program the partition call directions in Section [311] (enable both receivers in subsection [001] for alarms, [002] for tamper, [003] for opening/closing) as required by the application).
  - Select backup option in Section [384] (will select path to backup primary path).
  - Complete programming of the 3G9080/3H9080/LE9080 module in section [851] (Ethernet/Cellular address, supervision options, Ethernet/Cellular test transmission time and cycle).
- Passive configurations (Fire Monitoring or Commercial Burglary Line Security Level P3, simultaneous transmission configuration) can be done either using the phone line and alternate communicator module (IP or Cell), or just the dual path alternate communicator module (IP and Cell). If only the dual alternate communicator module is used then the programming associated with phone line operation is not applicable.
  - Phone line monitoring (TLM) shall be enabled on the panel (section [015] bit 7 ON).
  - Set communicator paths on the panel: section [300][001] set to Phone line, [002] set to Alt Comm Auto. If the phone line is not used, then [300] [001] shall be set to Alt Comm Auto. Enable Cellular Low Signal Trouble in section [851][005] bit 8 ON. Note that any communicator path can be selected as primary (location [001]), secondary (location [002]) or third (location [003]) in this configuration, since all paths transmit the selected events (see sections [309] and [311] - parallel communication).
  - Program the analog phone number in Section [301] [001].
  - Program the partition call directions in Section [311] (enable all applicable receivers in subsection [001] for alarms, [002] for tamper, [003] for opening/closing) as required by the application.
  - Program system call directions in Section [309] (enable all applicable receivers in subsection [001] for maintenance, [002] for test transmission) as required by the application
  - Enable parallel transmission in Section [380] bit 5 ON and [384] bit 2 OFF. Enable receiver group in section [851][010] option 4 ON and setup ethernet receiver 1 and cellular receiver 3 as a receiver group pair in section [018] set to 0103.  
**Note:** Enabling this option ensures the selected events are transmitted in parallel on all enabled communication paths.
  - Complete programming of the 3G9080/3H9080/LE9080 module in section [851] (Ethernet/Cellular address, supervision options, Ethernet/Cellular test transmission time and cycle).  
**Note:** When using redundant communications, receivers 1 and 3 shall not terminate at the same receiver line card, and receivers 2 and 4 shall not terminate at the same receiver line card. Communications will be simultaneous to receivers 1 and 3, and if unsuccessful will backup to receivers 2 and 4 simultaneously.

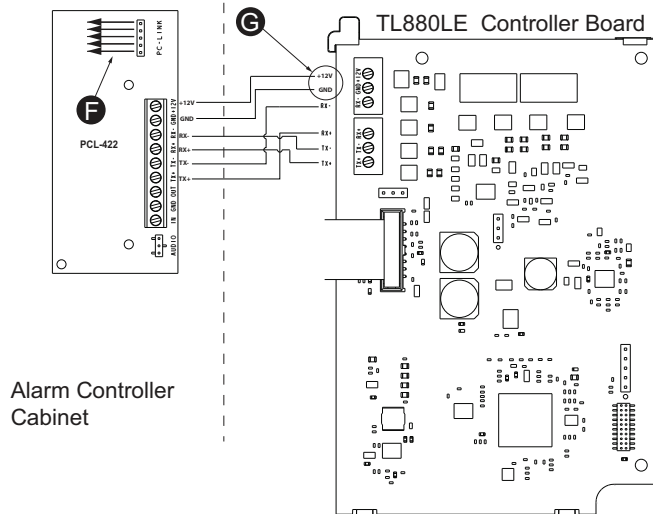
- For 24hr test transmission, [851] system test options [026-029] shall be enabled [FF] for the communication paths available. [851][124-125] and [224-225] shall be programmed with time of day for test transmission and 1440 minutes (24h) for test transmission cycle.
7. For active configurations (Fire Monitoring, Commercial Burglary Security Level A1-A4):
- Phone line use is optional (depends on the Ethernet or Cellular channel being used and back-up power provisions for the Ethernet channel). TLM does not need to be programmed if the phone line is not used. Enable Cellular Low Signal Trouble in section [851][005] bit 8 ON.
  - Set communication path: in Section [300][001] select 01 for Alt Comm. Rec 1 (Ethernet channel), or 02 for Alt Comm. Rec 3 (Cellular channel).
  - Complete programming of the 3G9080/3H9080/LE9080 module in section [851] (Ethernet/Cellular address, supervision options, Ethernet/Cellular test transmission time and cycle).
  - Program heartbeat interval in Section [851][004]=005A (90s). The supervision window at the Signal Receiving Centre's receiver shall be programmed as max. 180s. Note: select the proper supervision profile from C24 website when enrolling/registering the Cellular alarm communicator for first time.

## 6. LT880LE wiring diagram



AC wiring details for ULC-S561 using HSC3010CR enclosure

Mounted in Alarm Controller Cabinet



|   |   |
|---|---|
| A | Red wire on alarm controller PC-Link header   |
| B | Primary antenna (provided)  |
| C | Diversity antenna (provided)  |
| D | Ethernet cable connections  |
| E | Quad cables (100 ft/30 m maximum)   |
| F | Red wire on PCL-422 PC-Link header  |
| G | LTE controller board power terminals. Can be connected to power supply module (HSM3204CX/HSM3350) |

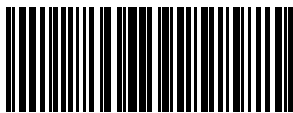
For UL Commercial Burglary installations, the TL880LE is listed as the sole means of communication (supervision window of 180 seconds required at monitoring station) or as a back-up when used in conjunction with POTS line (dialer). The communicator shall be powered from the compatible listed control unit HS3032/HS3128, HS3248 or compatible listed power supply HSM3204CX/HSM3350 that complies with the ratings specified in the communicator manual.

For ULC Commercial Burglary installations, the TL880LE is listed as an active communication system with line security level A1-A4 and as a passive communication system with communication line security level P1 when used alone or as P2-P3 when used in conjunction with the integrated POTS line (dialer) in the compatible PowerSeries Pro alarm control panels HS3032, HS3128, HS3248.

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