
Tyco Security Products

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ULC Installation Guide

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: MAXSYS (PC4020)*, PowerSeries (PC1864/PC1832/PC1616)*, PowerSeries Neo (HS2128/HS2064/HS2032/HS2016). 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 6).
- Transformer: Plug-in type or hardwired, minimum rated 16.5 Vac, 37 VA to- 40 VA Class 2 Power Limited, CSA/cETL/cUL Listed. Refer to the product installation manual for acceptable models.
Note: Do not mount the hardwired transformer inside DSC enclosure models PC5003C, PC4050C.
- 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 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 (MAXSYS only)
Minimum Battery Standby	4 hours	24 hours	24 hours	24 hours	24 hours
Battery Size Note: Battery capacity can be selected based on calculated AUX current consumption for the system (including all accessories).	12V/4Ah	1 x 12V/7Ah or 2 x 12V/7Ah	1 x 12V/7Ah or 2 x 12V/7Ah	1 x 12V/7Ah or 2 x 12V/7Ah	1 x 12V/7Ah or 2 x 12V/7Ah
System Entry Delay	≤ 180 seconds	not applicable	≤ 60 seconds (security levels II/III/IV)	not applicable	≤ 45 seconds
System Exit Delay	≤ 45 seconds	not applicable	≤ 45 seconds (security levels II/III/IV)	not applicable	≤ 45 seconds
Minimum Bell Cutoff Time	4 minutes	5 minutes	max 4 minutes	not applicable bell shall not sound	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 Note: For residential installation the commercial type marking is also acceptable (Subscribers' Unit).	Household Burglary Alarm System Control Unit	Household Fire Warning Alarm System Control Unit	Subscribers' Unit Burglary or Subscribers' Unit-Accessory Burglary	Subscribers' Unit Fire Alarm or Subscribers' Unit-Accessory Fire Alarm	Local Burglar Alarm
Power LED (Model ULC-LA) (Not required if PK/RFK55XX keypads with AC indicator enabled are being used.)	Optional	Required	Required	Required	Required
AC Power	Plug-in transformer Optional hardwired connection	Plug-in transformer Optional hardwired connection	Plug-in transformer (Security Levels I-II), hardwired connection (Security Levels III-IV)	Hardwired connection required Check local authority	Plug-in transformer (Security Levels I-II), hardwired connection (Security Levels III-IV)
Tamper Protection	Optional	Optional	Required. See Note 9	Optional	Required. See Note 9
Cabinet Note: ULC marking might be applied on the outside of the enclosure or inside on the PCB assembly.	DSC Models PC5003C PC500C Concourse	DSC Models PC5003C PC4050C Concourse	DSC Models PC5003C PC4050C	DSC Models PC5003C/PC4050C/ PC4050CR (Red) Note: Do not install the hardwired transformer in the PC5003C and PC4050C enclosures.	DSC Models (Attack Resistant) CMC-1 PC4050CAR
Special Notes		*see Note 4	*see Notes 5, 6, and 7	*see Notes 3, 7, 8 and 12	*see Notes 5 & 6

*NOTES

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

Passive Levels Note: Test Transmission required every 24h (on each communication channel)	Transmitter(s) Equipment at Protected Premises	Supervision of Communication Channel(s)	Receiver Equipment at Signal Receiving Centre (SRC)	Security Levels (CAN/ULC-S302-14)
P1	One communication channel: Dialer: PC4020/PC1864/1832/1616, HS2128/2064/2032/2016) GSM/HSPA: 3G4000/3G4010/3G8080(I)/3G2080(R)E, TL280(R)E, 3G4010CF, LE4000, LE4010, LE4020, LE4010CF, LE4020CF, TL280LE(R), LE2080(R), LT880LE IP: T-Link TL250/TL300/TL300CF/TL280E/TL280RE/TL2803GE/TL2803GRE, TL280LE(R), LT880LE Refer to diagrams 3, 7a, 7b, 10, 11, 12, and 13	Loss of communication channel shall initiate local trouble signal within 180 seconds	SG-MLR2-DG/ SG-MLR2000 / SG-System IV / SG-System III / SG-System II / SG-System I/SG-System 5	I
P2	Communication channels: Dialer and GSM/HSPA back-up, Dialer and IP back-up, GSM/HSPA and Dialer back-up, IP and Dialer back-up, IP and GSM/HSPA back-up, GSM/HSPA and IP back-up. Refer to diagrams 3, 7a, 7b, 10, 11, 12, and 13. Note:When remote GSM/HSPA communicators are used in active systems or in conjunction with other Dialer passive channels (IP), the phone line monitoring can be disabled in C24 settings.	Failure of either channel shall be reported to the SRC within 240 seconds	SG-MLR2-DG / SG-MLR2000 / SG-System IV / SG-System III / SG-System II / SG-System I/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 3, 7a, 7b, 10, 11, 12, and 13. 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 / SG-MLR2000 / SG-System IV / SG-System III / SG-System II / SG-System I/SG-System 5	III

Note: 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.

Active Levels 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 Levels (CAN/ULC-S302-14)	Back-up Requirements for Network Equipment
A1	IP: T-Link TL250/TL300/TL300CF, TL280(R)E/ TL2803G(R)E, TL280LE(R) GSM/HSPA: 3G2080(R)E/TL2803G(R)E/3G4000/ 3G4010/3G8080(I)/3G4010CF, LE4000, LE4010, LE4020, LE4010CF, LE4020CF, TL280LE(R), LE2080(R) AES 128-bit encryption: Refer to diagrams 2, 10, 11, 12, and 13.	Loss of communication channel shall be indicated at SRC within 180 seconds	SG-System 5 SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	I	24h standby power or dialer as back-up
A2	IP (T-Link TL250/TL300/TL300CF, TL280(R)E/ TL2803G(R)E, TL280LE(R)) GSM/HSPA (3G2080(R)E/TL2803G(R)E/3G4000/ 3G4010/3G8080(I)/3G4010CF, LE4000, LE4010, LE4020, LE4010CF, LE4020CF, TL280LE(R), LE2080(R)) AES 128-bit encryption; Refer to diagrams 2, 10, 11, 12, and 13.	Loss in 180 seconds at SRC; Identification at SRC; Compromise detection 240 seconds	SG-System 5 SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	II	24h standby power or dialer as back-up

Active Levels 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 Levels (CAN/ULC-S302-14)	Back-up Requirements for Network Equipment
A3	IP (T-Link TL250/TL300/TL300CF, TL280(R)E/TL2803G(R)E, TL280LE(R)) GSM/HSPA (3G2080(R)E/TL2803G(R)E/3G4000/3G4010/3G8080(I)/3G4010CF, LE4000, LE4010, LE4020, LE4010CF, LE4020CF, TL280LE(R), LE2080(R)) AES 128-bit encryption; Refer to diagrams 2, 10, 11, 12, and 13.	Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds	SG-System 5 SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	III IV (only when used in conjunction with a passive communication channel rated P1)	24h standby power or GSM as back-up
A4	IP (T-Link TL250/TL300/TL300CF, TL280(R)E/TL2803G(R)E, TL280LE(R)) GSM/HSPA (3G2080(R)E/TL2803G(R)E/3G4000/3G4010/3G8080(I)/3G4010CF, LE4000, LE4010, LE4020, LE4010CF, LE4020CF, TL280LE(R), LE2080(R)) AES 128-bit encryption; Refer to diagrams 2, 10, 11, 12, and 13.	Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds	SG-System 5 SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	IV	24h standby power

Note: 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. AES128-bit encryption for active and passive IP connections (applies to Ethernet and Cellular paths).

Type	Transmitter(s) Equipment at Protected Premises	Supervision of Communication Channel (s)	Receiver Equipment at Signal Receiving Centre (SRC)
Passive Note: Test Transmission required every 24h (on each communication channel).	Dual Communication System: Dual Dialer (PC4701/PC5700). Refer to diagram 1. Note: Subject to AHJ approval Dialer with GSM/HSPA, Dialer with IP, GSM/HSPA with IP Fire Alarms shall be sent simultaneously over both communication channels. Refer to diagrams 3, 6a, 7a, 7b, 10, and 11.	Failure of either channel shall be reported to the SRC within 180 seconds. Failure of both channels shall be indicated locally in 15 minutes.	SG-MLR2-DG / SG-MLR2000 / SG-System 5/SG-System IV / SG-System III / SG-System II / SG-System I
Active Note: Check-in/Polling signal required every 90 seconds.	IP: T-Link TL250/TL300(CF), TL280(R)E/TL2803G(R)E GSM/HSPA: 3G2080E/3G2080RE/TL2803GE/TL2803GRE/3G4010/3G4010CF/LE4010/LE4010CF/LE4020/LE4020CF. Refer to diagrams 2, 4, 5, 6b, 10, and 11.	Loss of communication channel shall be indicated at SRC within 180 seconds.	SG-System 5/SG-System IV / SG-System III / SG-System II / SG-System I (512 supervised transmitters)

Note: Models SG-MLR2-DG, SG-MLR2000 are not ULC Listed under the ULC-S559-04 requirements. Dual dialer is not for use with PowerSeries Neo panels. *Models PC4020, PC4701, PC1864, PC1832, PC1616, PC5700, TL260, TL260GS, TL2603G, TL2603G(R), TL280(R), TL2803G(R), GS2060, 3G2060, 3G2080(R) are not ULC listed under the ULC-S559-13 requirements as of effective date of the standard. Only products manufactured before December 16, 2016 can be used in new ULC certified installations. After this date these products can be used only as replacement parts in existing installations and the marking will indicate: “For Replacement Only – Complies with ULC-S559-04”.

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 Level II, III, 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 3G4010, 3G4010CF, LE4010, LE4020, LE4010CF, LE4020CF, TL2603G(R), 3G2060(R), TL2803G(R), 3G2080(R), TL2803G(R)E or 3G2080(R)E, 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 3G 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: When performing the test for loss of communications channel on a 3G3070, it is recommended that you remove the antenna from the communicator to simulate loss of communications. Please note that the 'Cellular Service' attribute must also be enabled via C24 Communications.

Note 12: 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 Neo 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.

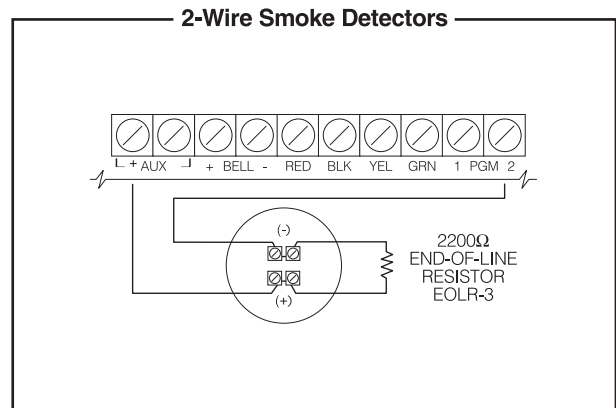
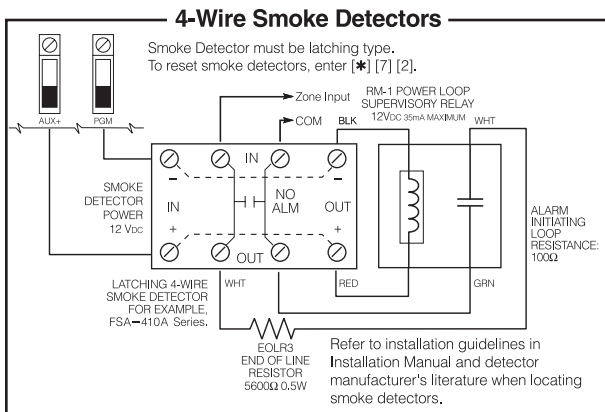
User information

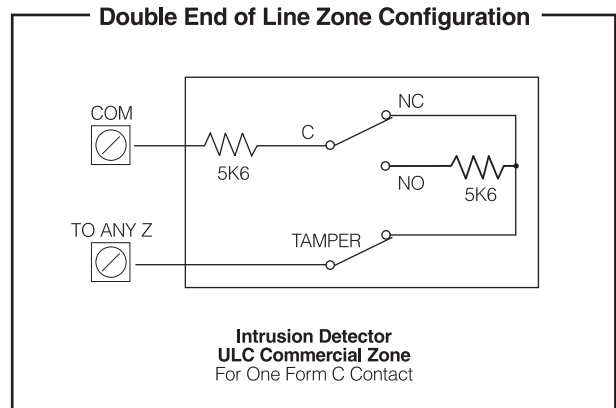
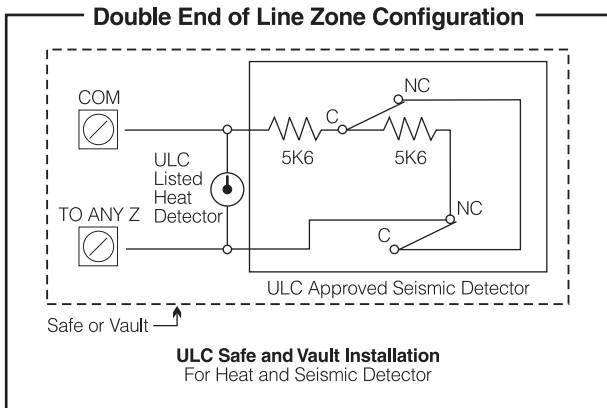
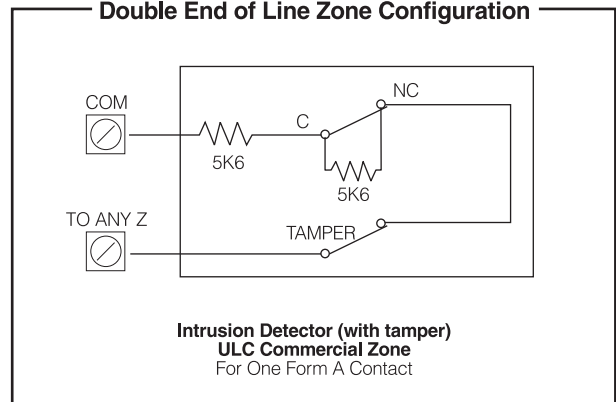
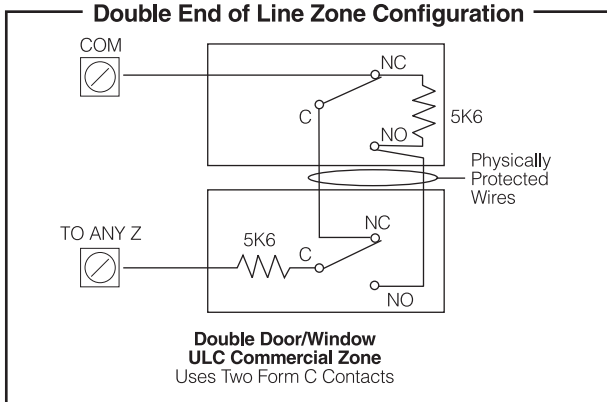
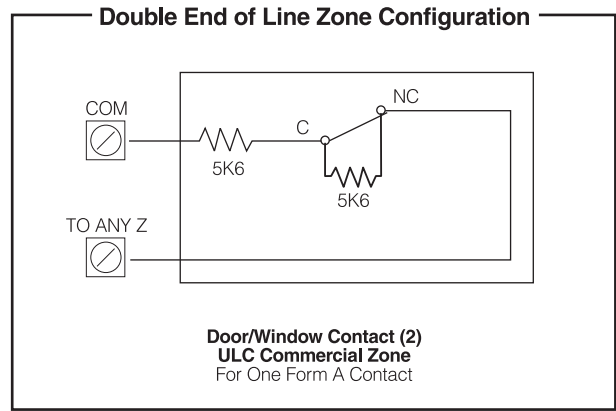
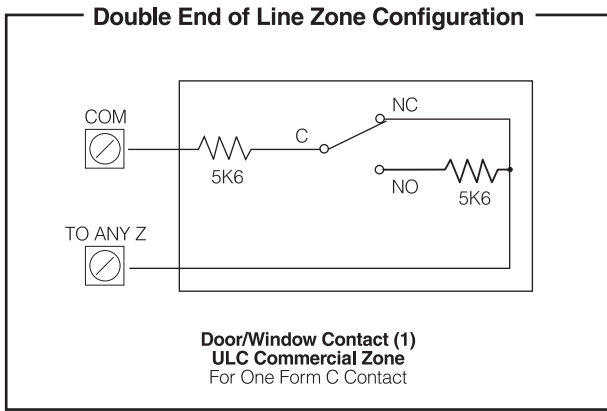
The installer should advise the users and note the following in the user instruction manual:

- 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.

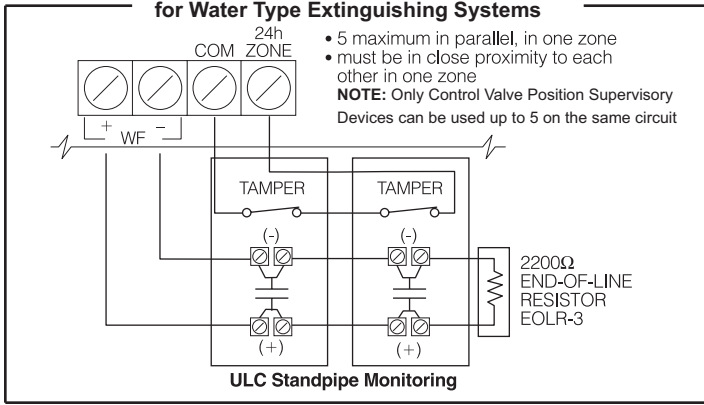
Zone wiring diagrams





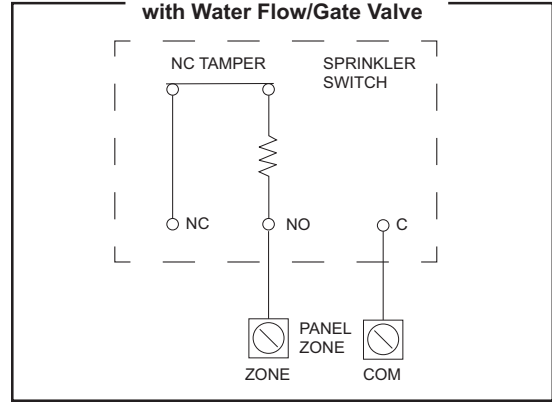
Note: The tamper and relay contacts (NC) used in door/window detectors or motion detectors are shown as the product is powered up and in normal supervisory condition.

Connection of Devices and Accessories for Water Type Extinguishing Systems

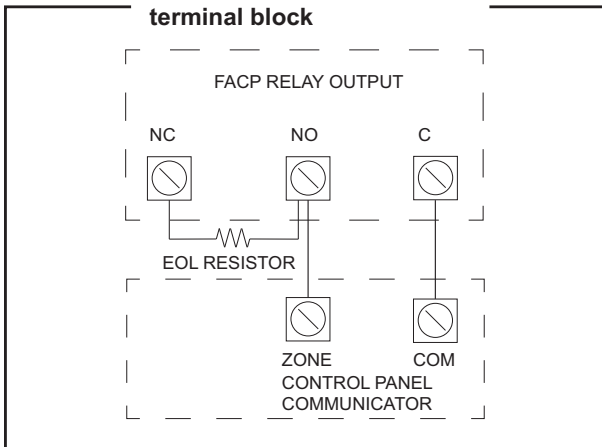


Note: Reference to WF terminal block designation is only specific to certain DSC modules (MAXSYS system). PowerSeries and PowerSeries Neo control panels can use any zone programmed as type 24 hr sprinkler when used in conjunction with a sprinkler supervision system.

Connection of Tamper Zone with Water Flow/Gate Valve



Connection for removable terminal block

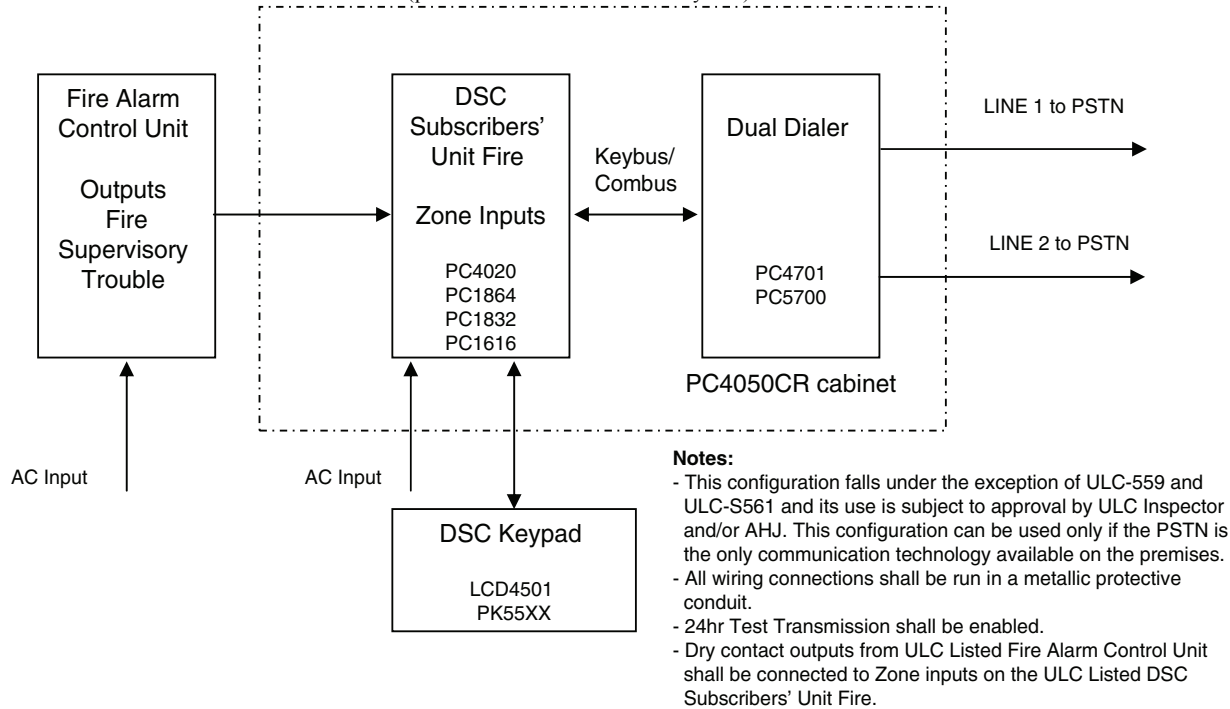


Fire monitoring communication systems wiring diagrams

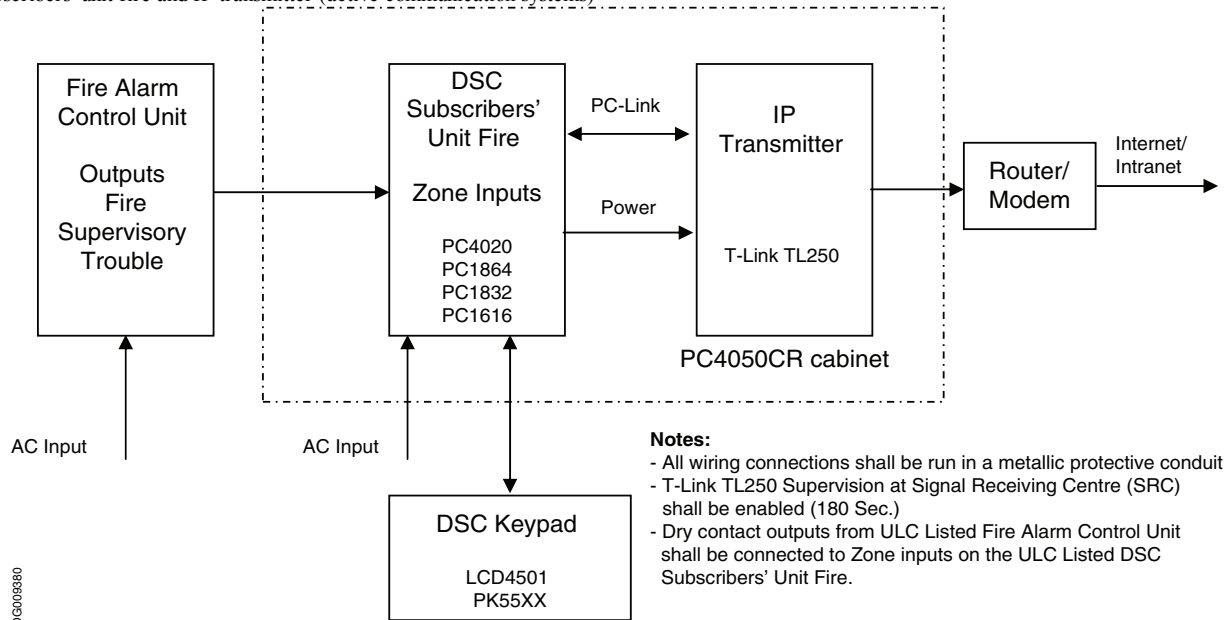
Notes:

- These wiring diagrams are also representative for commercial burglary monitoring applications.
- Either RM1C ULC or RM2 relays can be used for ULC installations.
- Recommended DSC power supply models: PC5204/PC5200/PC4204CX/HSM2204/HSM2300
- Refer to power supply installation manual for compatible control panels.

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



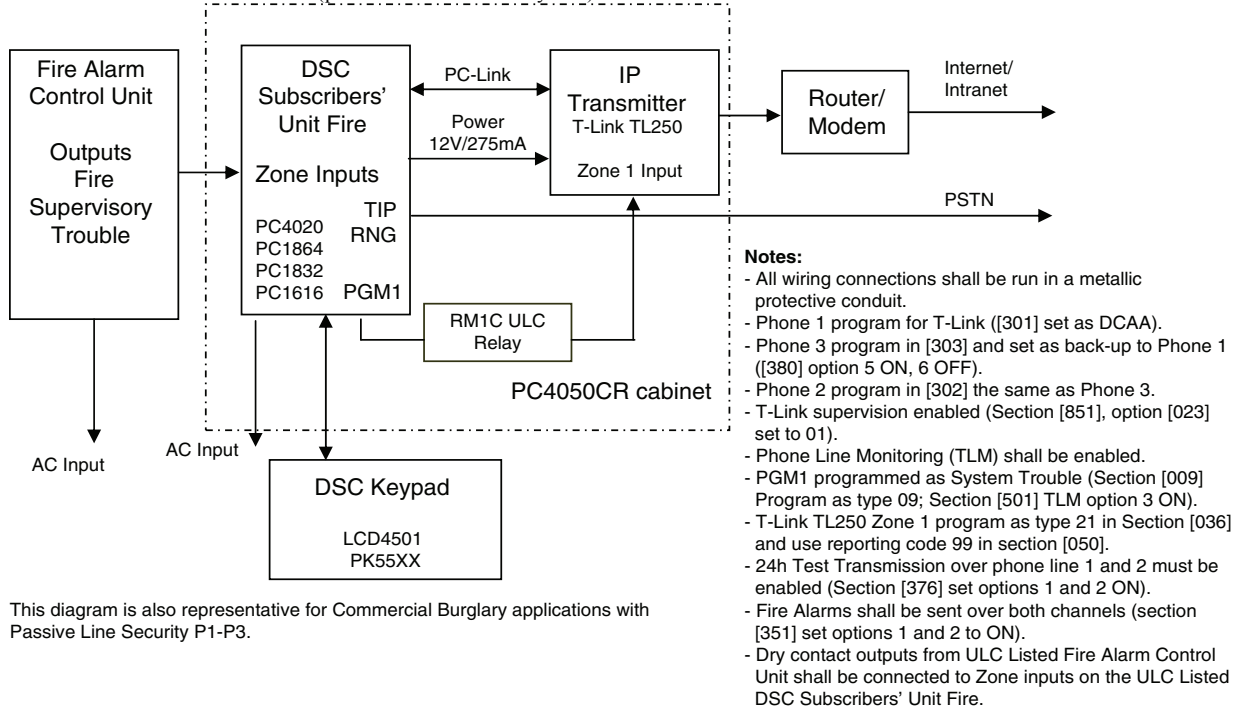
2. DSC subscribers' unit fire and IP transmitter (active communication systems)



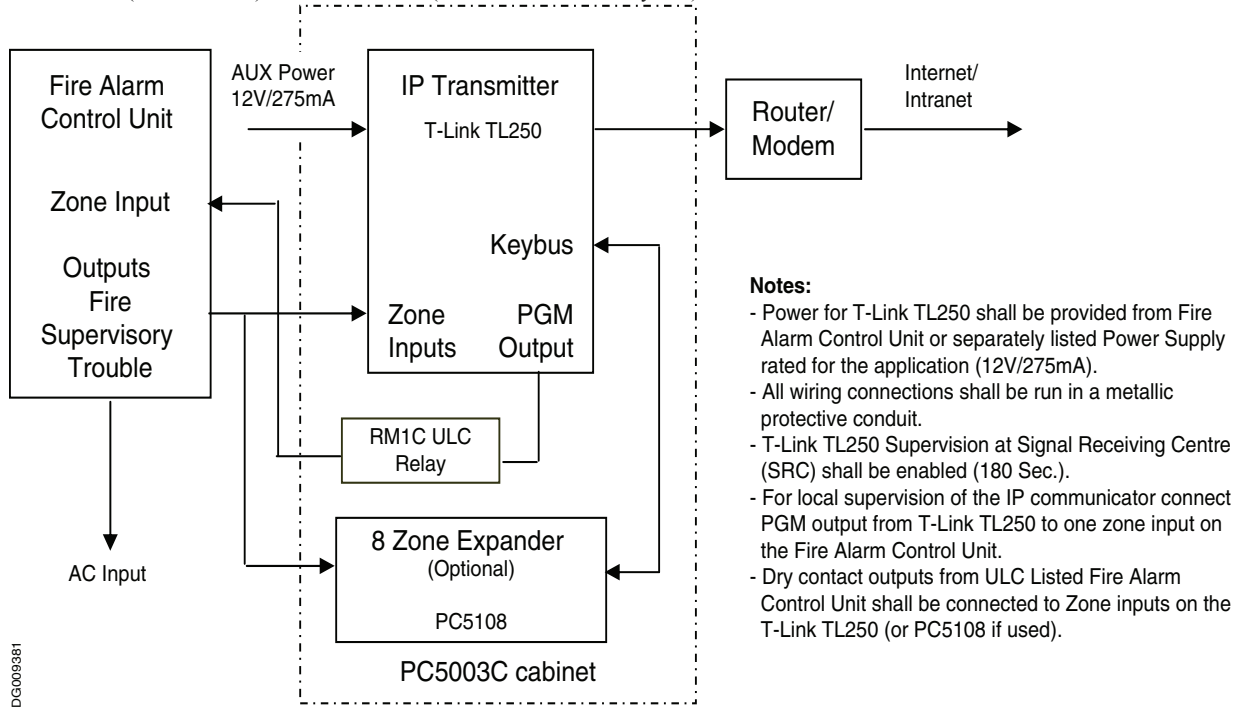
DC009880

This diagram is also representative for Commercial Burglary applications with Active Line Security A1-A4.

3. DSC subscribers' unit fire and IP transmitter (passive communication system)

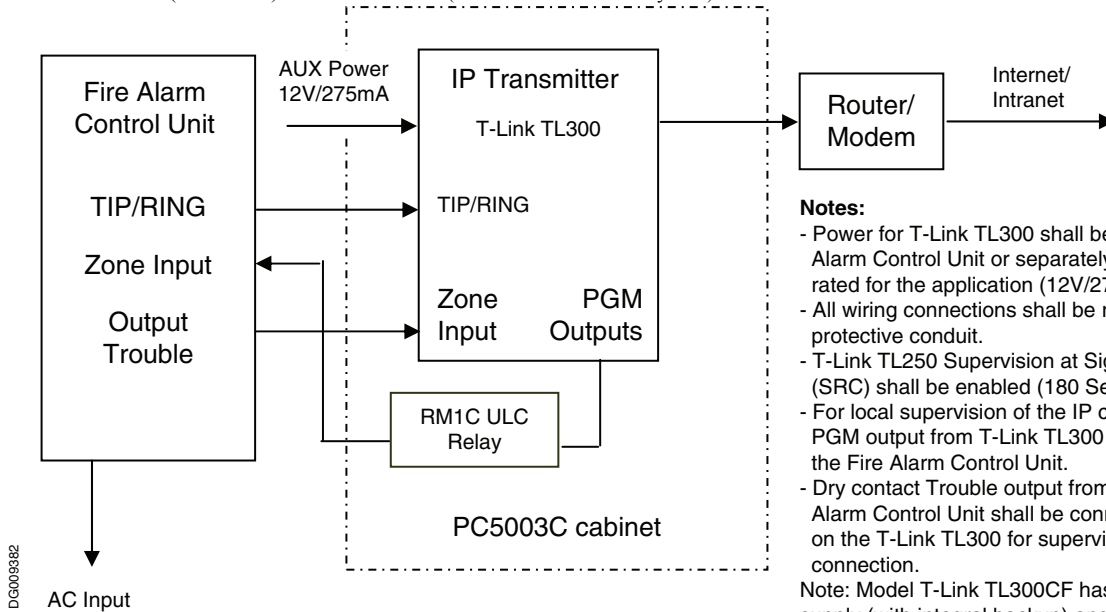


4. Fire alarm control unit (with no dialer) and IP transmitter (active communication system)



DC009381

5. Fire alarm control unit (with dialer) and IP transmitter (active communication system)

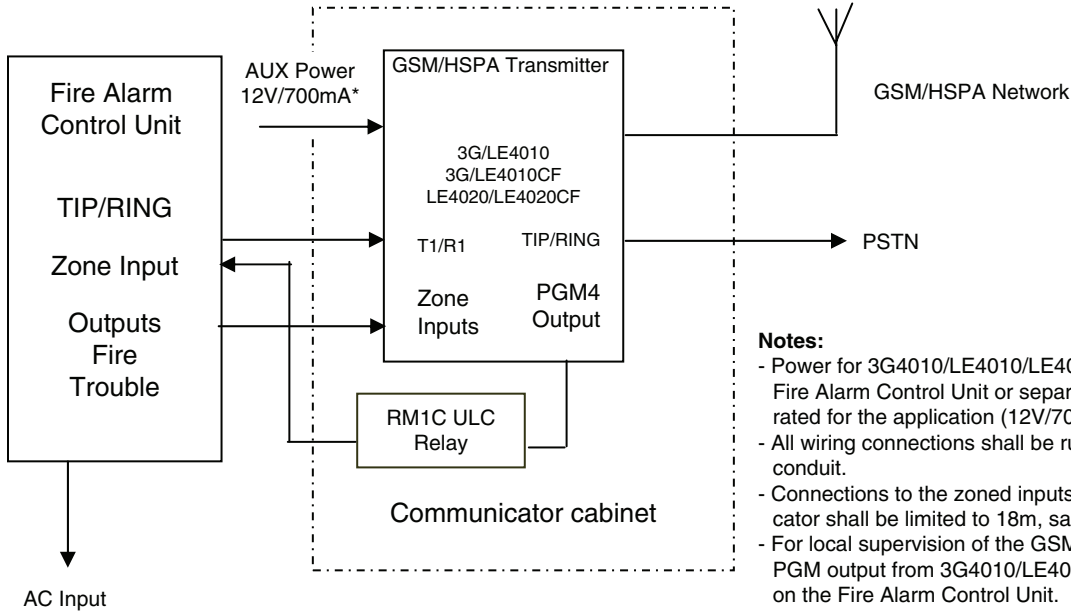


Notes:

- Power for T-Link TL300 shall be provided from Fire Alarm Control Unit or separately listed Power Supply rated for the application (12V/275mA).
- All wiring connections shall be run in a metallic protective conduit.
- T-Link TL250 Supervision at Signal Receiving Centre (SRC) shall be enabled (180 Sec.).
- For local supervision of the IP communicator connect PGM output from T-Link TL300 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 T-Link TL300 for supervision of Tip/Ring connection.

Note: Model T-Link TL300CF has its own power supply (with integral backup) and only requires connection to a dedicated AC mains circuit.

6a. Fire alarm control unit (with dialer) and GSM/HSPA transmitter (passive communication system)

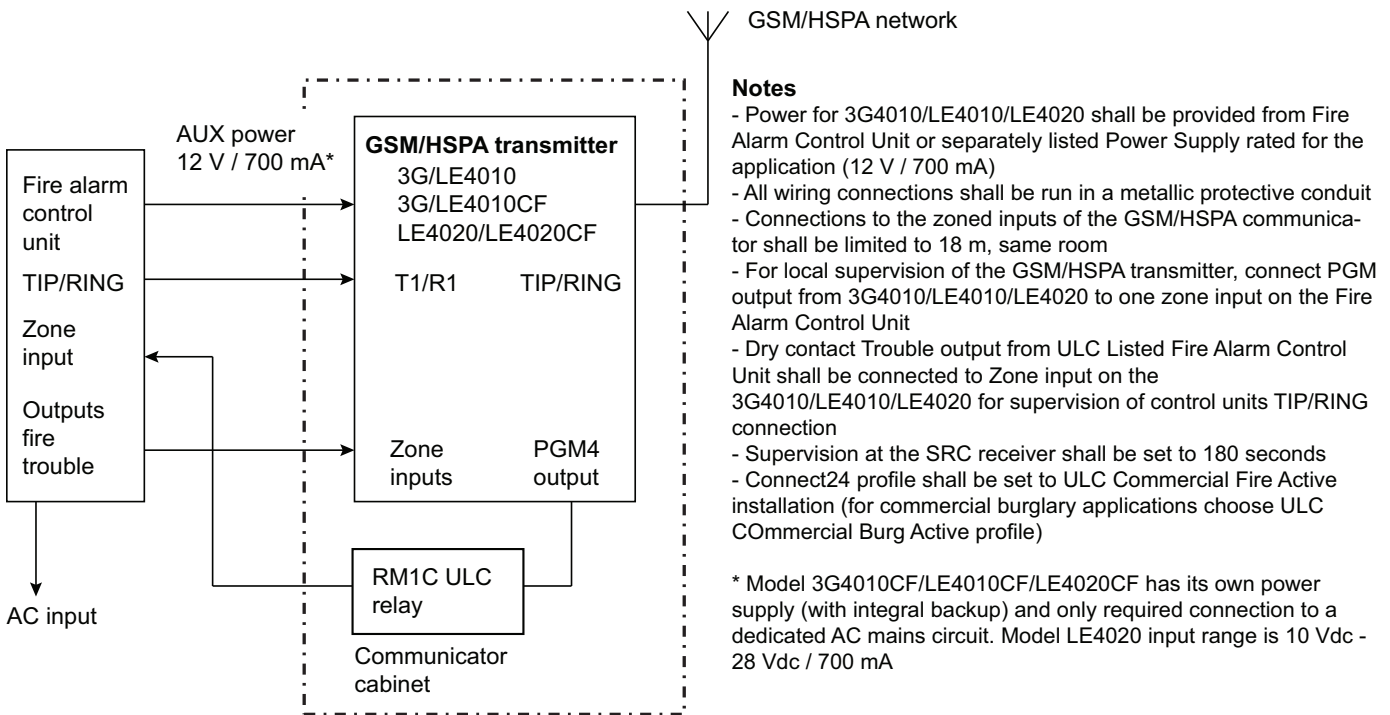


Notes:

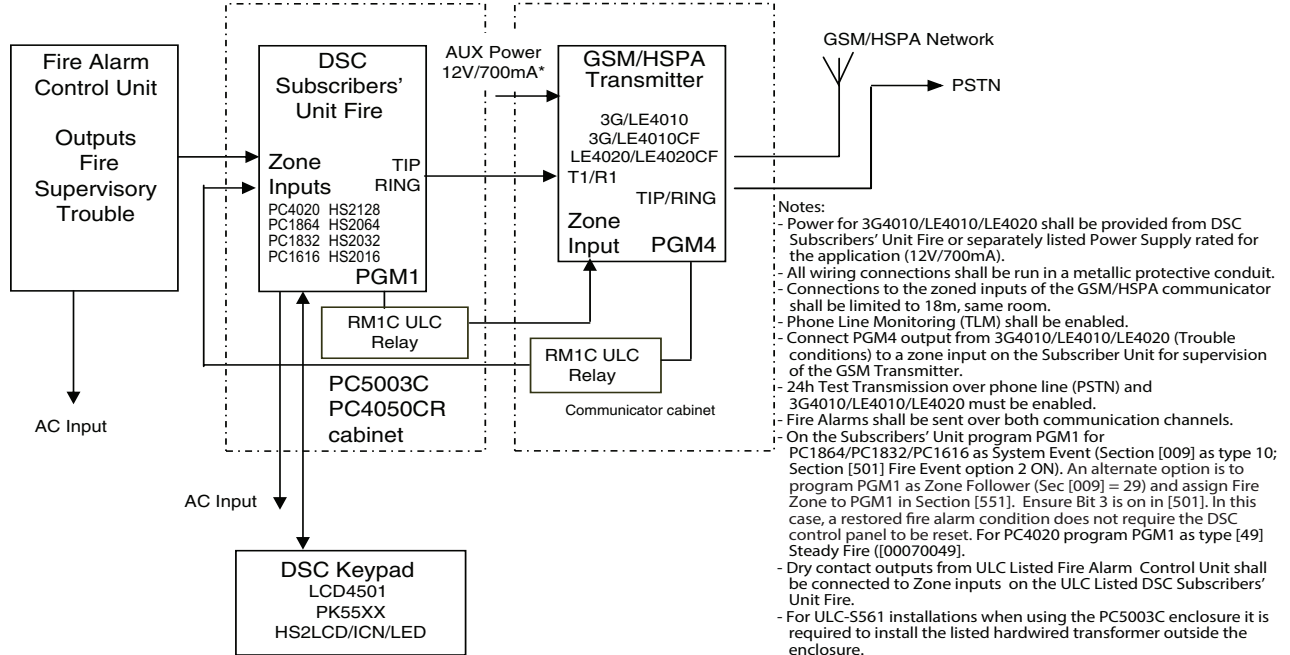
- Power for 3G4010/LE4010/LE4020 shall be provided from Fire Alarm Control Unit or separately listed Power Supply rated for the application (12V/700mA).
- All wiring connections shall be run in a metallic protective conduit.
- Connections to the zoned inputs of the GSM/HSPA communicator shall be limited 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.

*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.

6b. Fire alarm control unit (with dialer) and GSM/HSPA transmitter (active communication system)



7a. DSC subscribers' unit fire and GSM/HSPA transmitter (passive communication system)

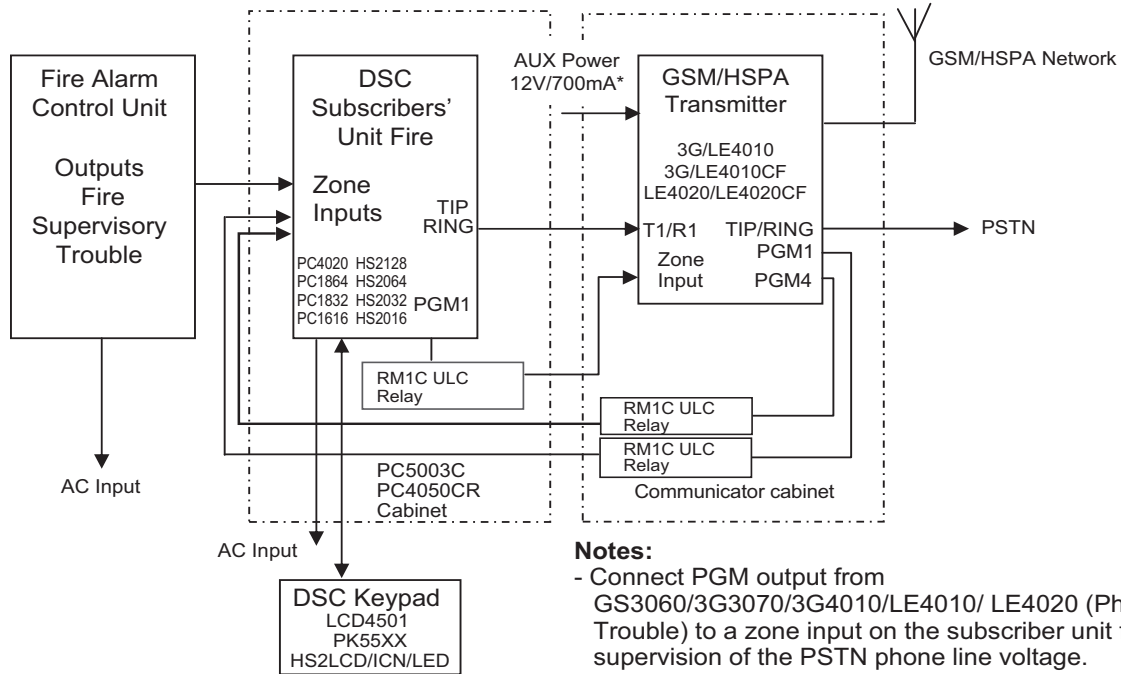


*Model 3G4010CF/LE4010CF/LE4020CF has its own power supply (with integral backup) and only requires connection to a dedicated AC mains circuit. Model LE4020CF input range is 10-28Vdc/700mA.

This diagram is also representative for Commercial Burglary applications with Passive Line Security P1-P3.

7b. DSC subscribers' unit fire and GSM/HSPA transmitter mounted remotely

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



Notes:

- Connect PGM output from GS3060/3G3070/3G4010/LE4010/ LE4020 (Phone Line Trouble) to a zone input on the subscriber unit for supervision of the PSTN phone line voltage.
- When the 3G4010/LE4010/LE4020 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 metallic protective conduit.
- Refer to notes in Figure 7A and detailed diagrams in Figure 9 for additional information.

*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.

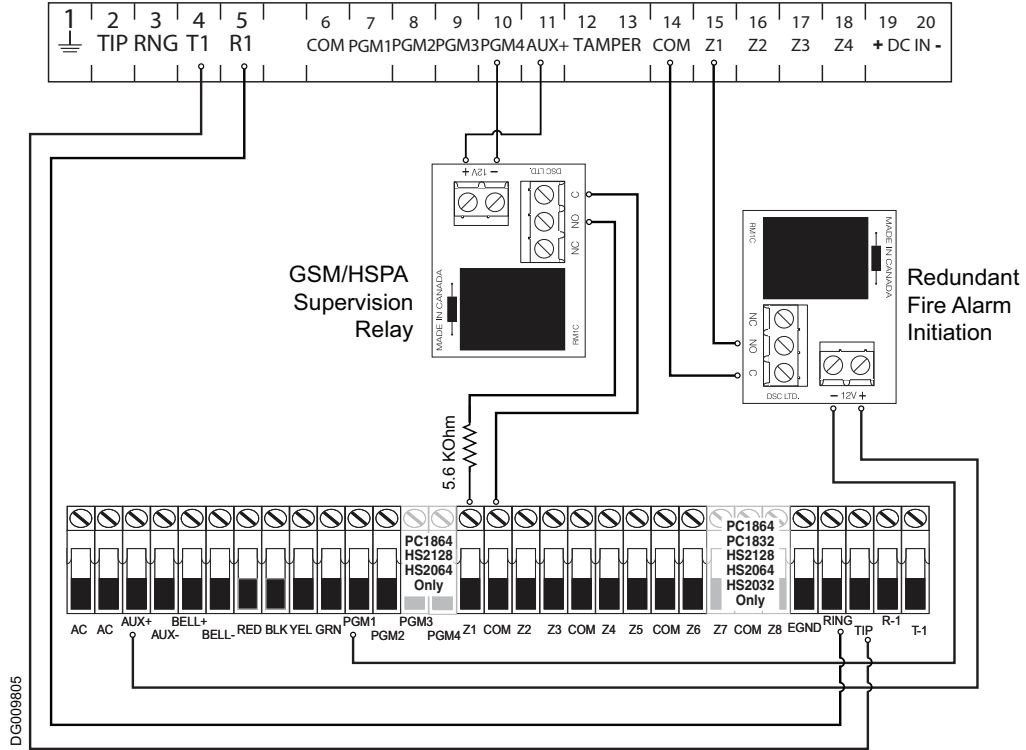
This diagram is also representative for Commercial Burglary applications with Passive Line Security P1-P3.

DG009804

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

Connection Details for GSM/HSPA Supervision Relay & Redundant Fire Alarm Transmission

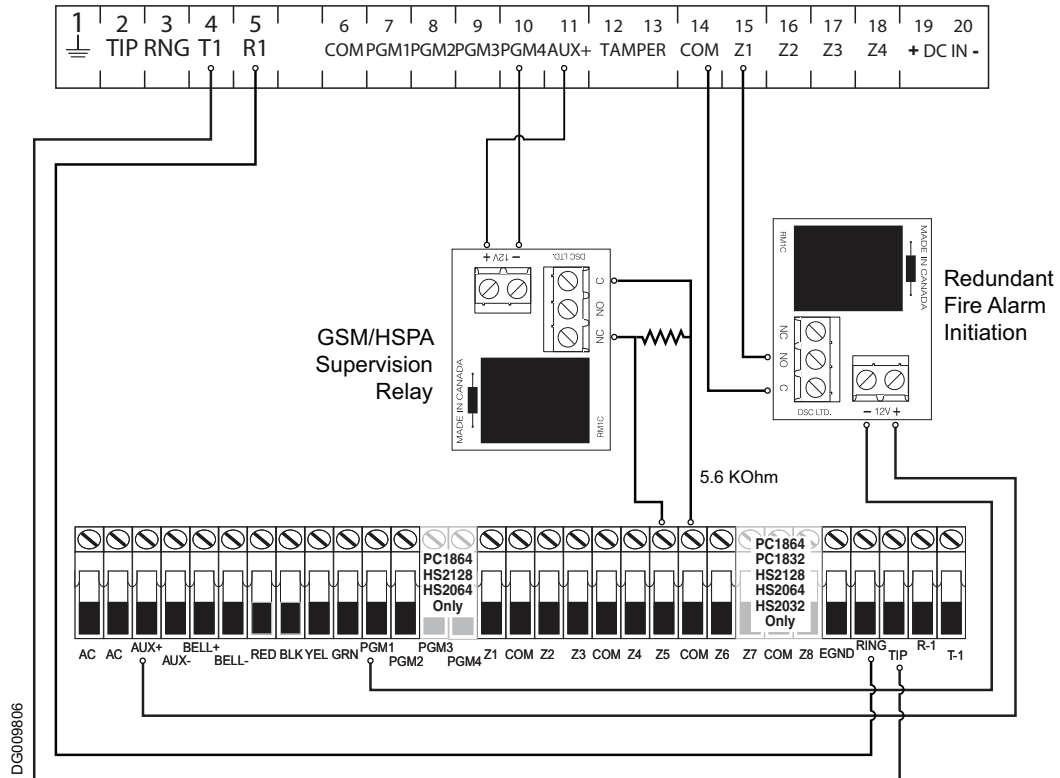
GS3060/3G3070/3G/LE4010/3G/LE/4010CF/LE4020/LE4020CF



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

Connection Details for GSM/HSPA Supervision Relay & Redundant Fire Alarm Transmission

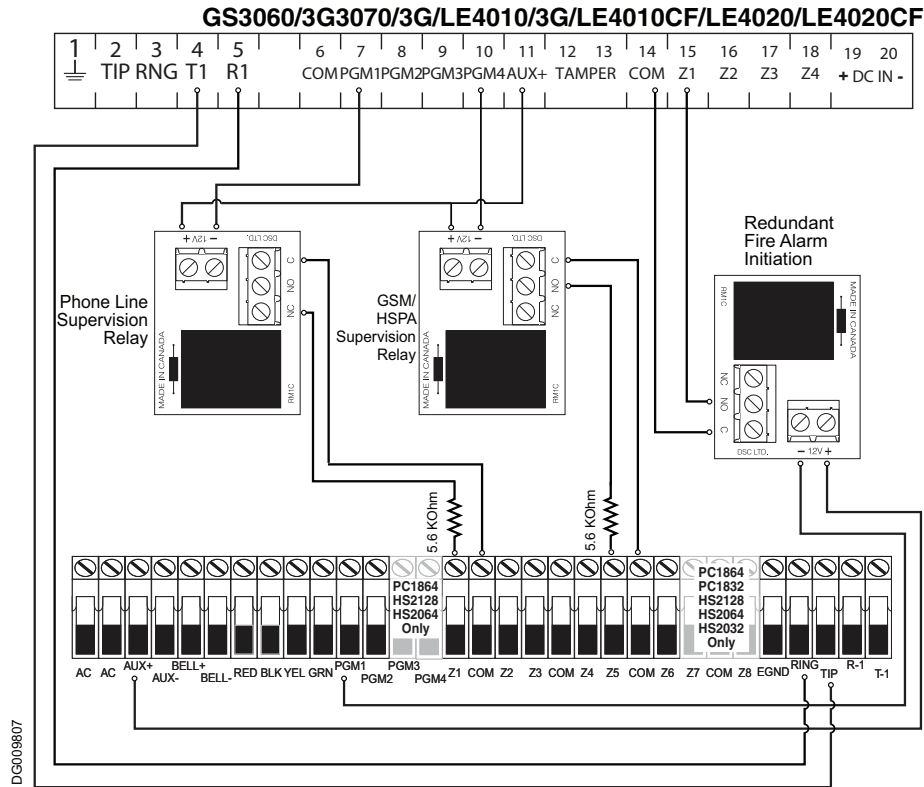
GS3060/3G3070/3G/LE4010/3G/LE/4010CF/LE4020/LE4020CF



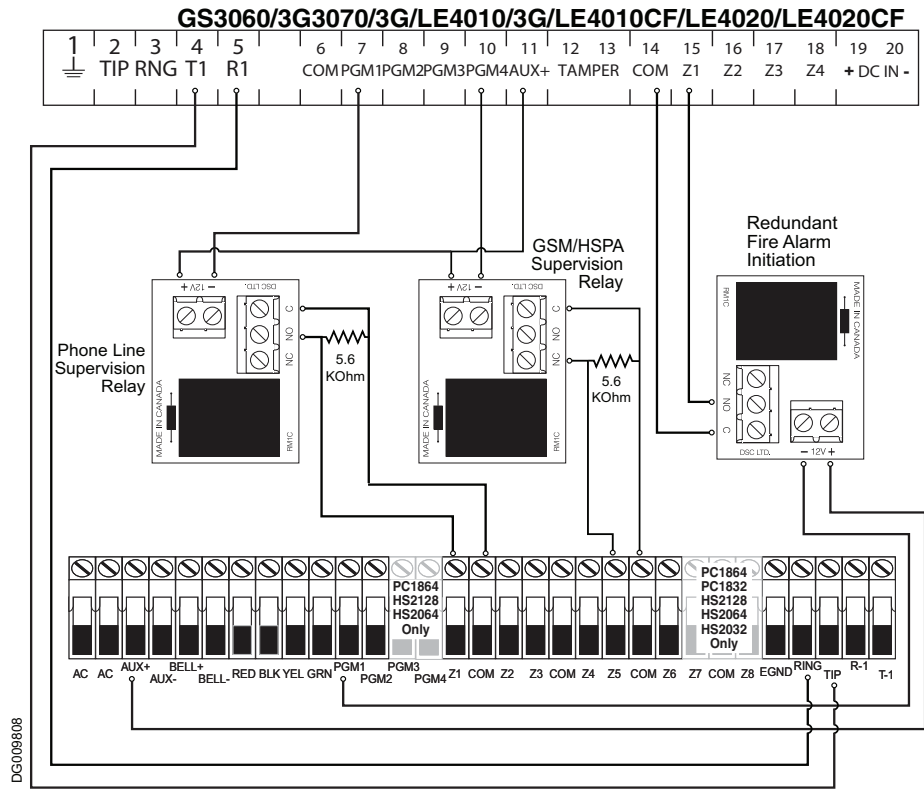
NOTE: Use EOL resistor in parallel with N.C. contacts of the relay connected to PGM4

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

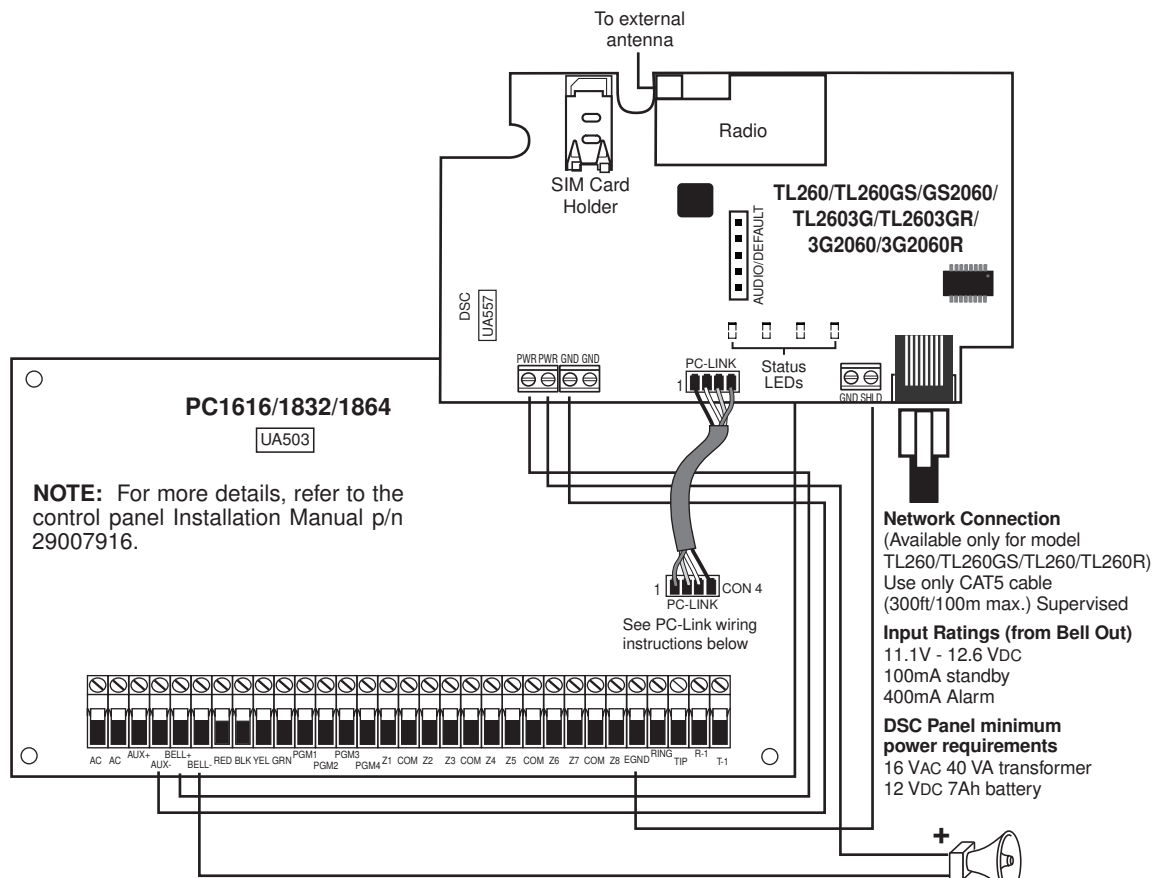
Connection Details for GSM/HSPA Supervision Relay, Phone Line Supervision Relay and Redundant Fire Alarm Transmission



Connection Details for GSM/HSPA Supervision Relay, Phone Line Supervision Relay and Redundant Fire Alarm Transmission



10. TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R wiring diagram active/passive communication system

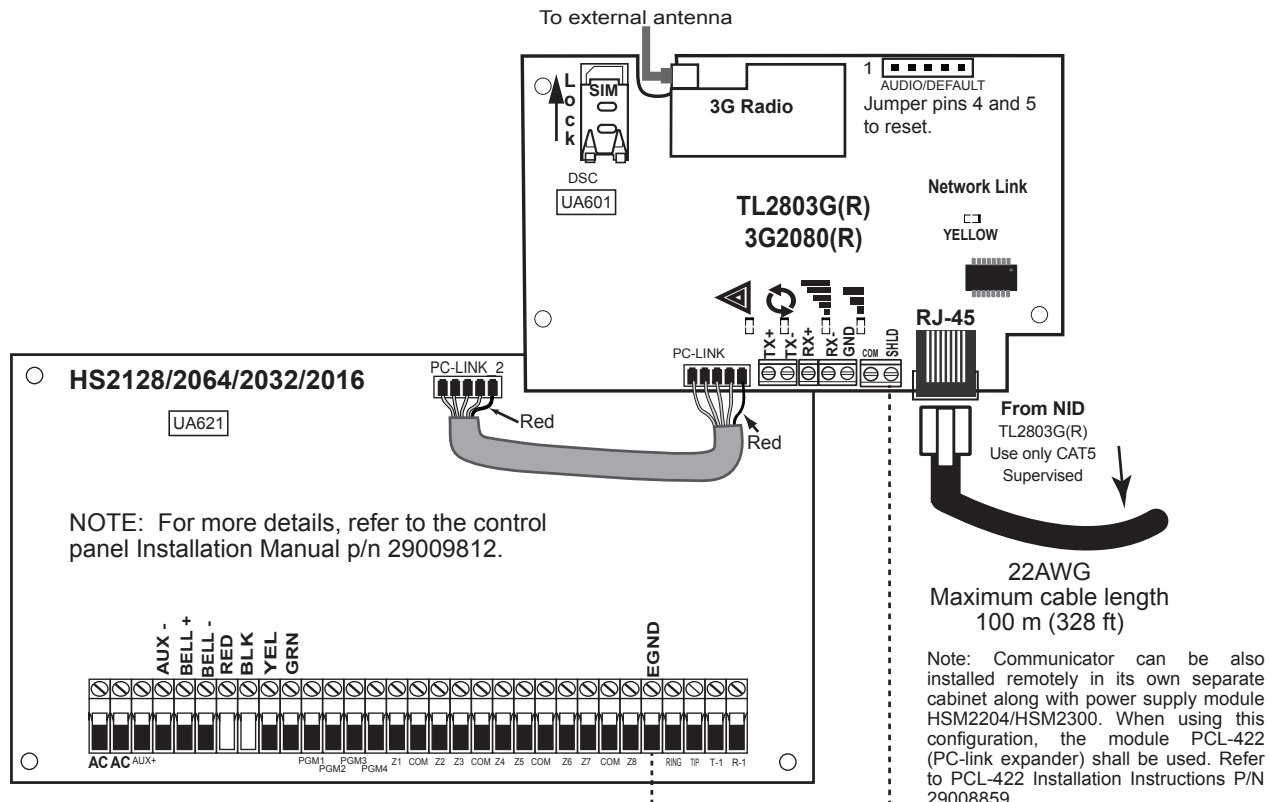


Notes:

- Power for TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R/TL260/TL260R shall be provided from PC1864/PC1832/PC1616 Subscriber's unit (Bell+ and AUX-).
- Connect PC-Link cable between TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R/TL260/TL260R and PC1864/PC1832/PC1616 as instructed and enable T-Link interface (section [382] bit 5 ON).
- Use for communication SIA format, program Section [350]= 04, Section [165] = 001 and Section [167]=060.
- TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R/TL260/TL260R can be used as a passive communication module (back-up mode for Dialer) or as an active communication module (IP, GSM or both).
- For passive configurations:
 - Phone line monitoring (TLM) shall be enabled on the panel (section [015] bit 7 ON).
 - Program the analog phone number in Section [301] (primary path).
 - Program "DCAA" in Section [302] (redundant path for Fire Alarms) and program Section [351] bit 1 and 2 ON.
 - Program "DCAA" in Section [303] (back-up path).
 - Program the call directions for tamper [359], opening/closing [367], maintenance [375] and test transmissions [376] as required by the application (bit 1 and 5 ON).
- Complete programming of the TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R/TL260/TL260R module in section [851] (IP/GSM address, supervision options, IP/GSM test transmission time and cycle).
- 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.
- For active configurations:
 - Phone line use is optional (depends on the IP or GSM channel being used and back-up power provisions for the IP channel). TLM does not need to be programmed if the phone line is not used.
 - Program "DCAA" in location [301] (IP/GSM module primary path). Select in section [851][005] whether the IP or GSM will be the primary or secondary path.
 - Complete programming of the TL260/TL260GS/GS2060/TL2603G/TL2603GR/3G2060/3G2060R/TL260/TL260R module in section [851] (IP/GSM address, supervision options, IP/GSM 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.

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11. TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R wiring diagram active/passive communication system



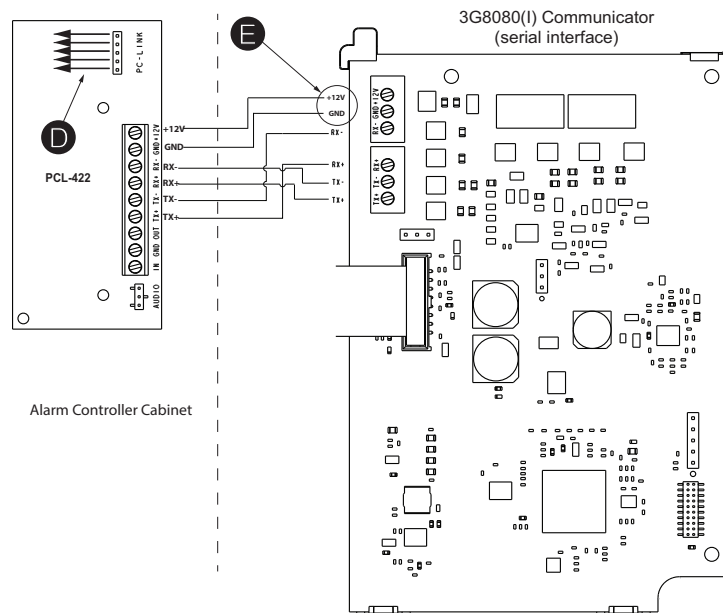
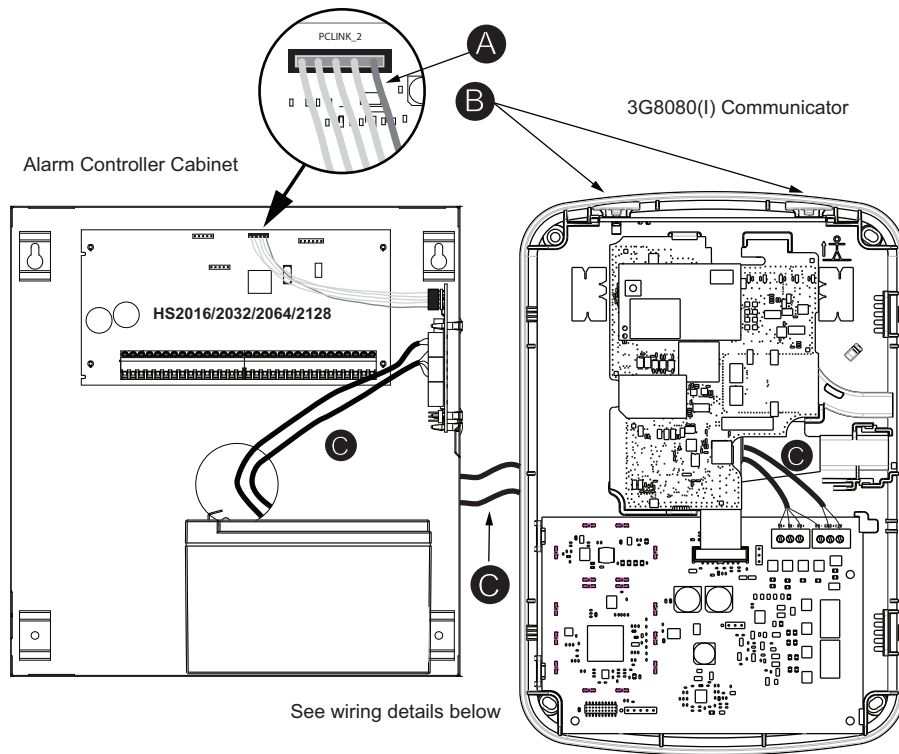
Note: Communicator programming (section [851]) is only supported through the Connect24 web portal.

Notes:

- Connect PC-link cable between TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R and HS2128/HS2064/HS2032/HS2016 as instructed and enable the alternate communicator (section [382] bit 5 ON).
- For communication format, program section [350] [001-004] (03 for Contact ID, 04 for SIA).
- TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R 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.
 - Program system call directions in Section [309] (enable both receivers in subsection [001] for maintenance, [002] for test transmission) as required by the application.
 - Select backup option in Section [384](will select path to backup primary path).
 - Complete programming of the TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R 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 the [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. Important Note: Enabling this option ensures the selected events are transmitted in parallel on all enabled communication paths.
 - Complete programming of the TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R module in section [851] (Ethernet/Cellular address, supervision options, Ethernet/Cellular test transmission time and cycle).
 - Disable communicator backup options in Section [384] bit 2 OFF. This allows receiver 1 and receiver 2 to operate as independent communications channels.
- Note:** In order for the communicator module paths (Ethernet and Cellular) to report simultaneously, you need to enable the redundant communications toggle on the Connect24 portal. When using the 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.
- 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 TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R 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.

Note: The above reference to models TL280, TL280R, TL2803G, TL2803GR, 3G2080, 3G2080R also covers the models TL280E, TL280RE, TL2803GE, TL2803GRE, 3G2080E, 3G2080RE that are using a different integrated radio module.

12. 3G8080/3G8080I wiring diagrams active/passive communication system



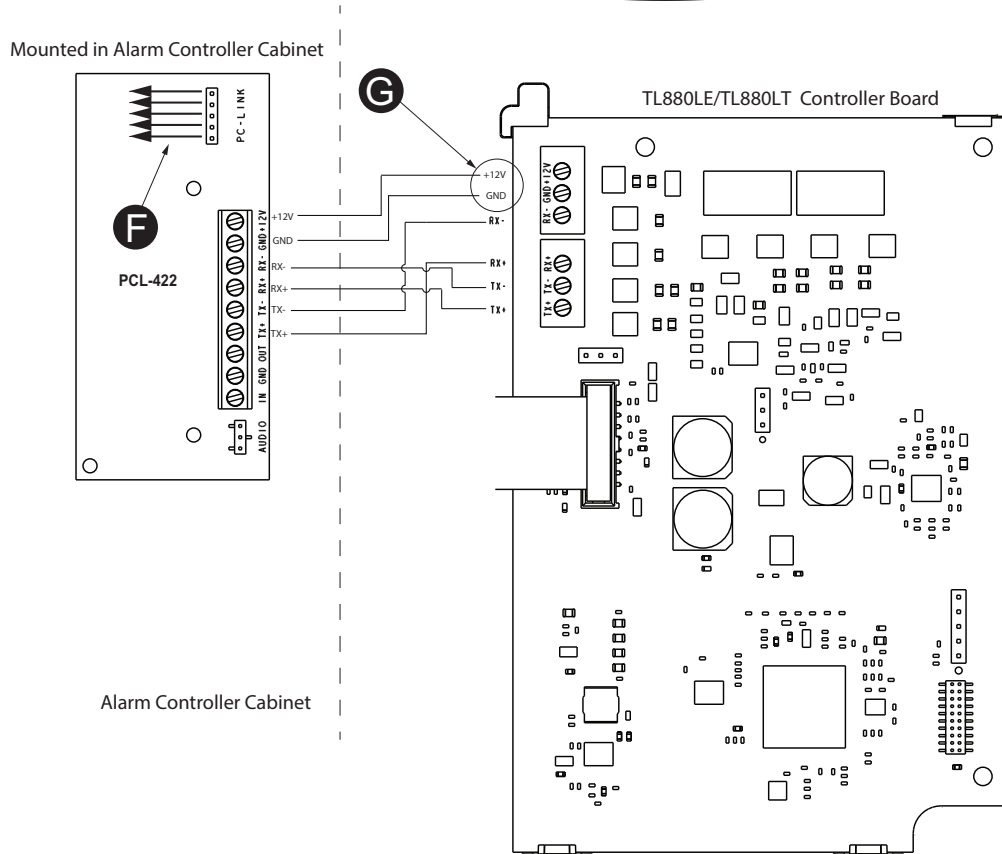
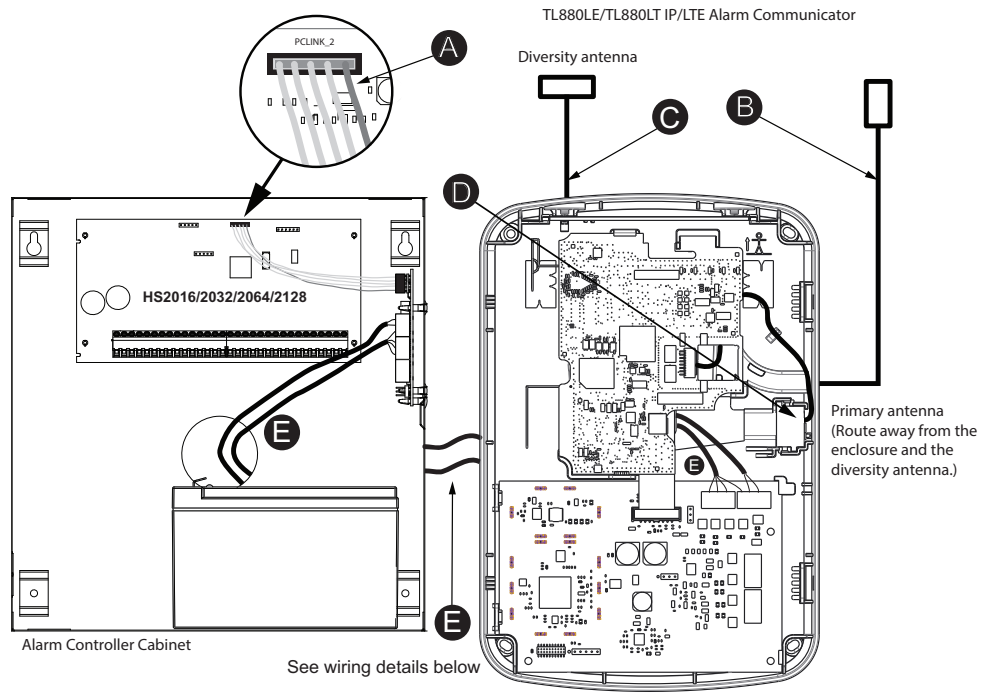
A	Red wire on alarm controller PCLink_2 Header
B	Antenna access ports
C	Quad cables (100' / 30m maximum)
D	Red wire on PCL-422 PCLink Header
E	HSPAController Board power terminals. Can be connected to power supply module (HSM2204/2300)

For UL Commercial Burglary installations, the 3G8080(I)/TL880LT are listed as the sole means of communication (supervision window of 200s required at monitoring station) or as a back-up when used in conjunction with a POTS line (dialer). The communicator shall be powered from the compatible listed control unit HS2128/HS2064/HS2032/HS2016 or compatible listed power supply HSM2204/HSM2300 that complies with the ratings specified in the communicator manual. For ULC Commercial Burglary installations, the 3G8080(I)/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 NEO Alarm Control panels HS2128, HS2064, HS2032, HS2016.

Refer to Installation Manual P/N 29009092 for more details regarding activation of the communicator Alarm.com.

The TL880LE can be used in ULC commercial burglary applications up to Security Level IV. Refer to Installation Manual P/N 29010001 for more details.

13. TL880LE/TL880LE wiring diagram active/passive communication system



A	Red wire on alarm controller PCLink_2 Header
B	Primary Antenna (provided)
C	Diversity Antenna (provided)
D	Ethernet Cable Connections
E	Quad cables (100ft / 30m maximum)
F	Red wire on PCL-422 PC-Link header
G	LTE Controller Board power terminals. Can be connected to power supply module (HSM2204/2300)

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