

ULC Installation Guide

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 installation manual of mentioned alarm control panel.

- For mounting on the exterior of vault, safe, or stockroom, installation of vibration detector is required. (s304, 8.1.5)
- Transformer: Plug-in type or hardwired, minimum rated 16.5VAC, 37-40VA Class 2 Power limited, CSA/cETL/cUL Listed. Refer to product installation manual for acceptable models. **Note:** Do not mount the hardwired transformer inside the DSC enclosure models PC5003C, PC4050C.
- Install with ULC Listed devices where applicable.

Requirements	Household Burglary	Household Fire	Central Station Burglary Monitoring	Central Station Fire Monitoring	Local Burglary (only applicable to MAXSYS Systems)
Minimum Battery Standby	4 Hour	24 Hour	24 Hour	24 Hour	24 Hour
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	≤ 45 s	not applicable	programmable	not applicable	≤ 45 seconds
System Exit Delay	≤ 60 seconds	not applicable	programmable	not applicable	≤ 45 seconds
Minimum Bell Cutoff Time	4 minutes	5 minutes	programmable	not applicable bell should not sound	programmable
Equipment Standard	ORD-C1023-1974	CAN/ULC-S545-02	CAN/ULC-S304-06	CAN/ULC-S559-04	CAN/ULC-S303
Installation Standard	CAN-ULC-S310	CAN/ULC-S540	CAN/ULC-S302	CAN/ULC-S561-03	CAN/ULC-S302
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 Optional hardwired connection	Hardwired connection required Check local authority	Plug-in transformer Optional hardwired connection
Tamper Protection	Optional	Optional	Required *see Note 8	Optional	Required *see Note 8
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 Note 5	*see Notes 3 & 7	*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)	Risk Levels
P1	One communication channel: Dialer (PC4020/PC1864/1832/1616, HS2128/2064/2032/2016) GSM (GS3055/GS3060/3G3070/3G3070-RF/TL260GS/GS2060/3G2080/3G2080R/TL2803G/TL2803GR) IP (T-Link TL250/TL300/TL260/TL260GS/3G2060/3G2060R/TL260/TL260R/TL280/TL280R/TL2803G/TL2803GR)	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	Low
P2	Communication channels: Dialer and GSM back-up, Dialer and IP back-up, GSM and Dialer back-up, IP and Dialer back-up, IP and GSM back-up, GSM and IP back-up. Refer to diagrams 3, 6, 7, 10.	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	Medium
P3	Dual Communication System: GSM and IP, Dialer and IP, Dialer and GSM Status change signals shall be sent simultaneously over both communication channels. Refer to diagrams 3, 6, 7, 10, 11. 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	High

Notes: 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.



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Active Levels <i>Note: Check-in/Polling signal required every 90 seconds.</i>	Transmitter(s) Equipment at Protected Premises	Supervision of Communication Channel(s)	Receiver Equipment at Signal Receiving Centre (SRC)	Risk Levels	Back-up Requirements for Network Equipment
A1	IP (T-Link TL250/TL300, TL260/TL260GS/TL260R/TL2603G/TL2603GR/TL280/TL280R/TL2803G/TL2803GR) GSM/HSPA (GS2060/3G2060/3G2060R/3G2080/3G2080R/TL2803G/TL2803GR) AES 128bit encryption; Refer to diagrams 2, 4, 5, 10	Loss of communication channel shall be indicated at SRC within 180 seconds	SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	Low	24h standby power or dialer as back-up
A2	IP (T-Link TL250/TL300, TL260/TL260GS/TL260R/TL2603G/TL2603GR/TL280/TL280R/TL2803G/TL2803GR) GSM/HSPA (GS2060/3G2060/3G2060R/3G2080/3G2080R/TL2803G/TL2803GR) AES 128bit encryption; Refer to diagrams 2, 4, 5, 10	Loss in 180 seconds at SRC; Identification at SRC; Compromise detection 240 seconds	SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	Medium	24h standby power or dialer as back-up
A3	IP (T-Link TL250/TL300, TL260/TL260GS/TL260R/TL2603G/TL2603GR/TL280/TL280R/TL2803G/TL2803GR) GSM/HSPA (GS2060/3G2060/3G2060R/3G2080/3G2080R/TL2803G/TL2803GR) AES 128bit encryption; Refer to diagrams 2, 4, 5, 10	Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds	SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	High / Financial and High Value Asset	24h standby power or GSM as back-up
A4	IP (T-Link TL250/TL300, TL260/TL260GS/TL260R/TL2603G/TL2603GR/TL280/TL280R/TL2803G/TL2803GR) GSM/HSPA (GS2060/3G2060/3G2060R/3G2080/3G2080R/TL2803G/TL2803GR) AES 128bit encryption; Refer to diagrams 2, 4, 5, 10	Loss in 180 seconds at SRC; compromise detection and identification at SRC 180 seconds	SG-System IV SG-System III SG-System II SG-System I (512 supervised transmitters)	Very High	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.

Type	Transmitter(s) Equipment at Protected Premises	Supervision of Communication Channel(s)	Receiver Equipment at Signal Receiving Centre (SRC)
Passive <i>Note: Test Transmission required every 24h (on each communication channel).</i>	Dual Communication System: Dual Dialer (PC4701/PC5700) <i>Note: Subject to AHJ approval</i> Dialer with GSM, Dialer with IP Fire Alarms shall be sent simultaneously over both communication channels	Failure of either channel shall be reported to the SRC within 180 seconds. Failure of both channels shall be indicated locally in 240 seconds.	SG-MLR2-DG / SG-MLR2000 / SG-System IV / SG-System III / SG-System II / SG-System I
Active <i>Note: Check-in/Polling signal required every 90 seconds.</i>	IP (T-Link TL250/TL300/TL260/TL260GS/TL2603G/TL2603GR/TL260R/TL280/TL280R/TL2803G/TL2803GR) GSM (GS2060/3G2060/3G2060R/3G2080/3G2080R/TL2803G/TL2803GR) optional AES 128bit encryption	Loss of communication channel shall be indicated at SRC within 180 seconds.	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.			

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 Medium, High and Very High Risk 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 TL2603G(R), 3G2060(R), TL2803G(R) or 3G2080(R), 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 as the 3G radio used in this product may be able to communicate without the antennae connected.

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 or CAN/ULC-S310.

User Information

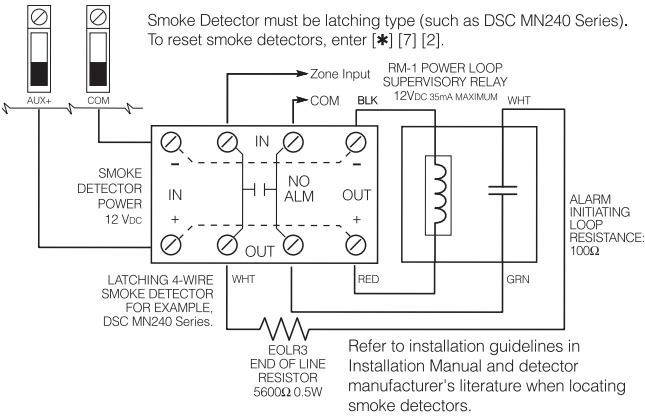
The installer should advise the users and note the following in the user instruction manual:

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

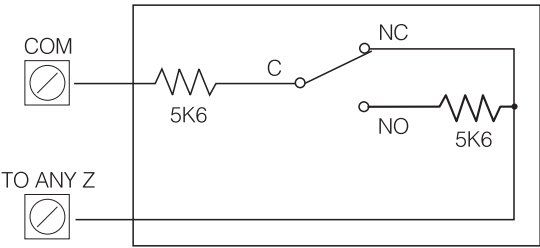
Products or components of products, which perform communications functions only, shall comply with the requirements applicable to communications equipment as specified in CAN/CSA-C22.2 No. 60950-1, Information Technology Equipment-Safety - Part 1: General Requirements.

Zone Wiring Diagrams

4-Wire Smoke Detectors

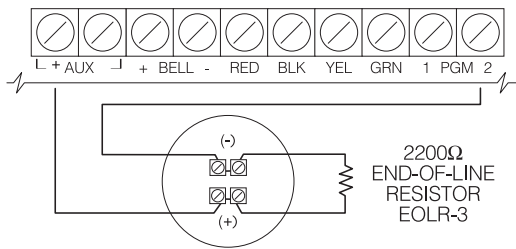


Double End-of-line Zone Configuration

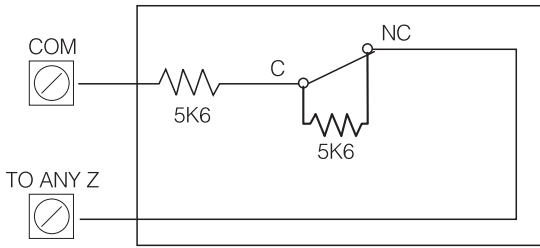


Door/Window Contact (1)
ULC Commercial Zone
For One Form C Contact

2-Wire Smoke Detectors

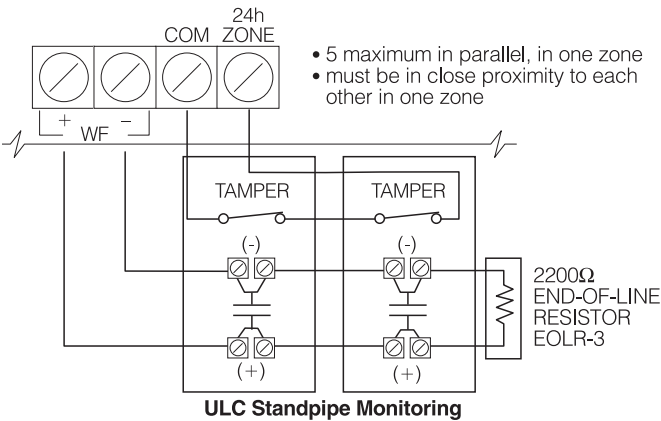


Double End-of-line Zone Configuration



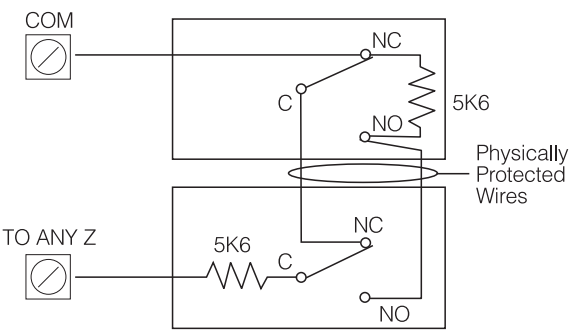
Door/Window Contact (2)
ULC Commercial Zone
For One Form A Contact

Water Flow Connection



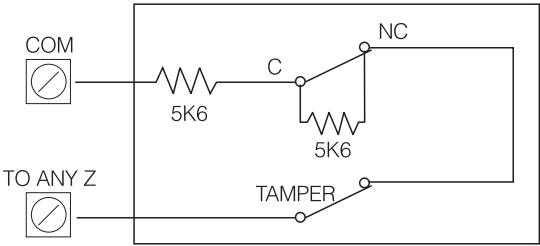
NOTE: Reference to WF terminal block designation is only specific to certain DSC modules (MAXSYS system), the PowerSeries and PowerSeries Neo control panels can use any zone programmed as type 24-Hr Sprinkler when used in conjunction with a sprinkler supervision system.

Double End-of-line Zone Configuration



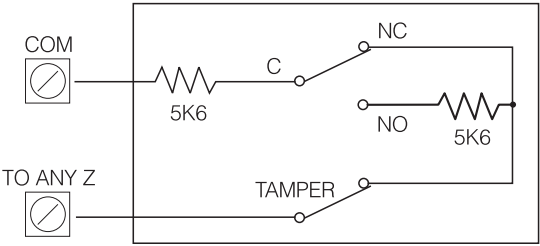
Double Door/Window
ULC Commercial Zone
Uses Two Form C Contacts

Double End-of-line Zone Configuration



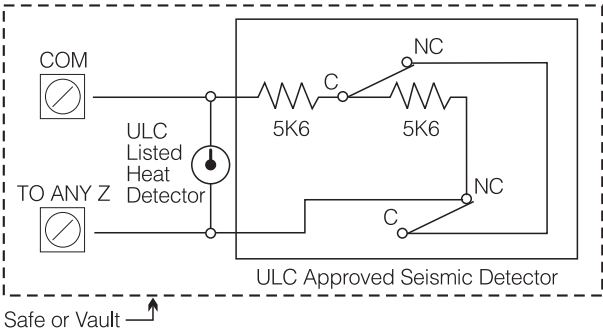
Intrusion Detector (with tamper)
ULC Commercial Zone
For One Form A Contact

Double End-of-line Zone Configuration



Intrusion Detector
ULC Commercial Zone
For One Form C Contact

Double End-of-line Zone Configuration



ULC Safe and Vault Installation
For Heat and Seismic Detector

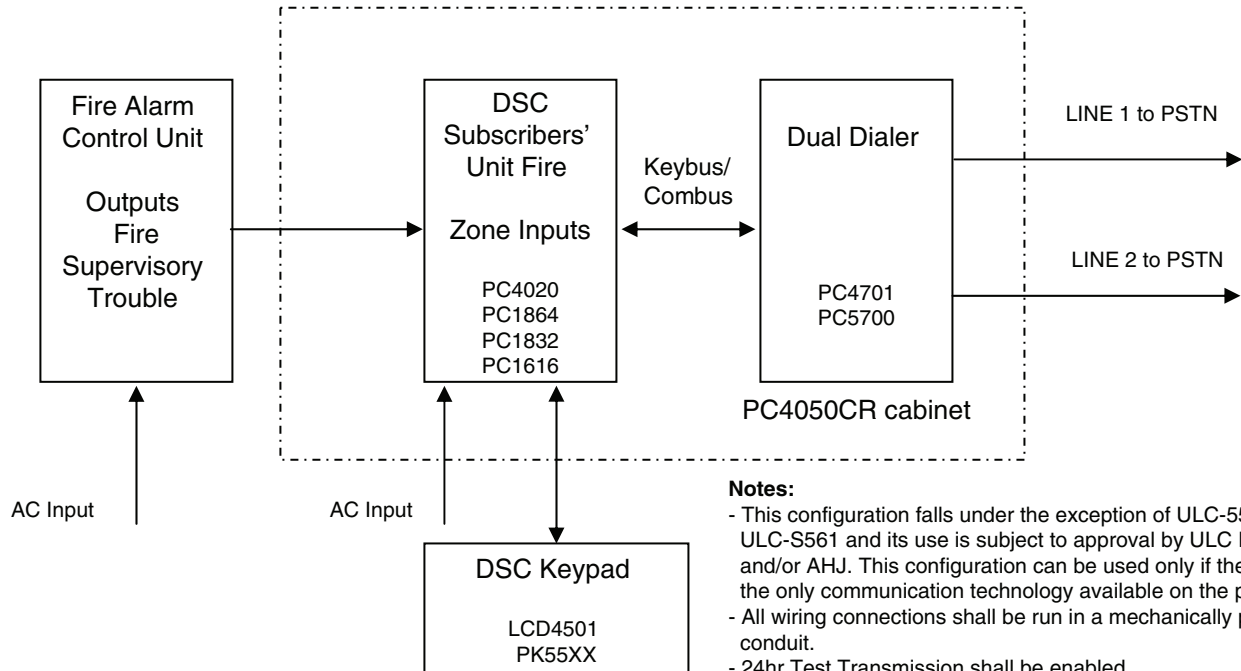
NOTE: The tamper and relay contacts (NC) used in door/window detectors or motion detectors are shown as the product is powered-up and in normal supervisory condition.

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.

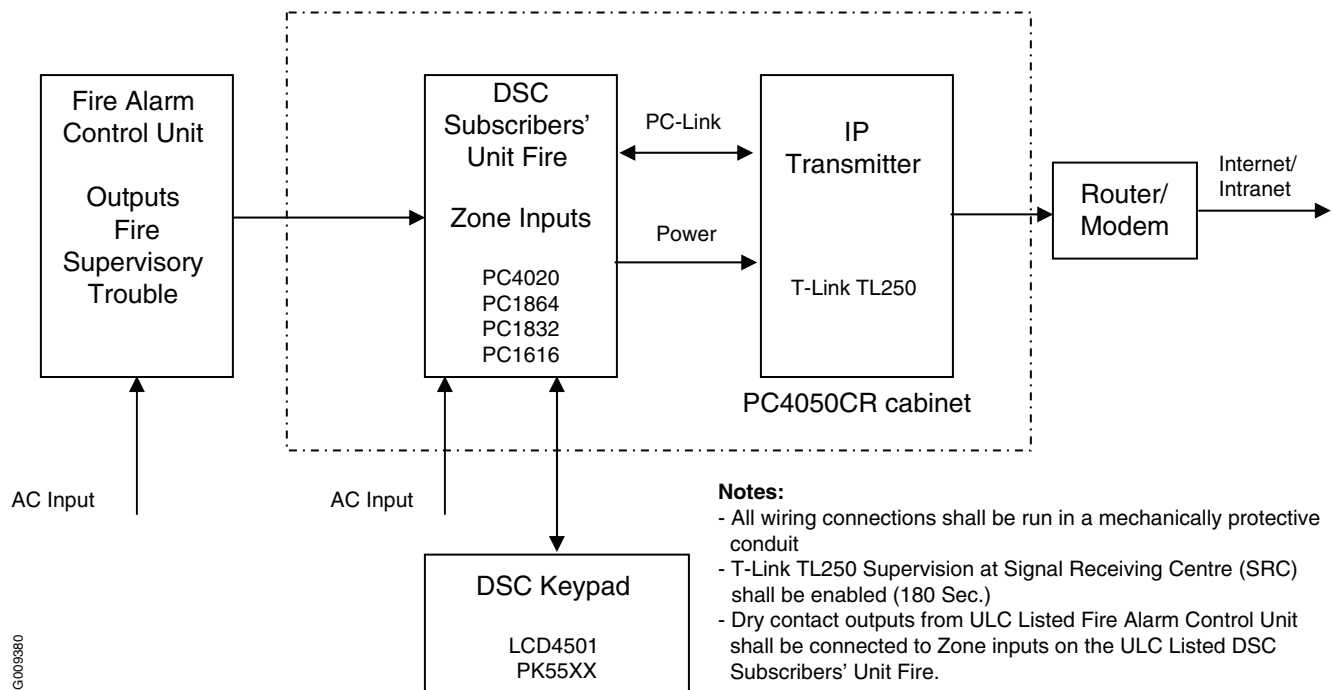
1. DSC Subscribers' Unit Fire and Dual Dialer (Passive Communication System)



Notes:

- This configuration falls under the exception of ULC-559 and ULC-S561 and its use is subject to approval by ULC Inspector and/or AHJ. This configuration can be used only if the PSTN is the only communication technology available on the premises.
- All wiring connections shall be run in a mechanically protective conduit.
- 24hr Test Transmission shall be enabled.
- Dry contact outputs from ULC Listed Fire Alarm Control Unit shall be connected to Zone inputs on the ULC Listed DSC Subscribers' Unit Fire.

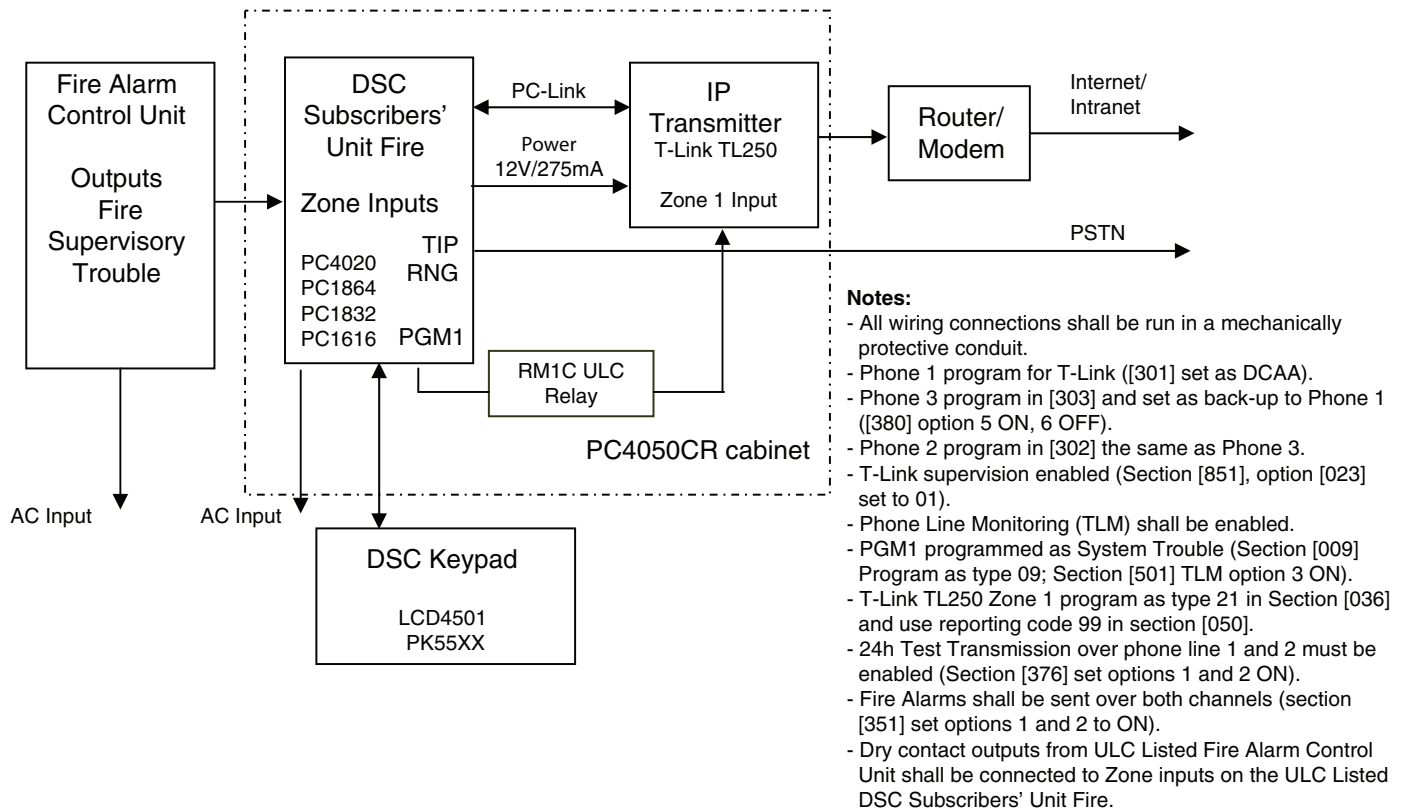
2. DSC Subscribers' Unit Fire and IP Transmitter (Active Communication System)



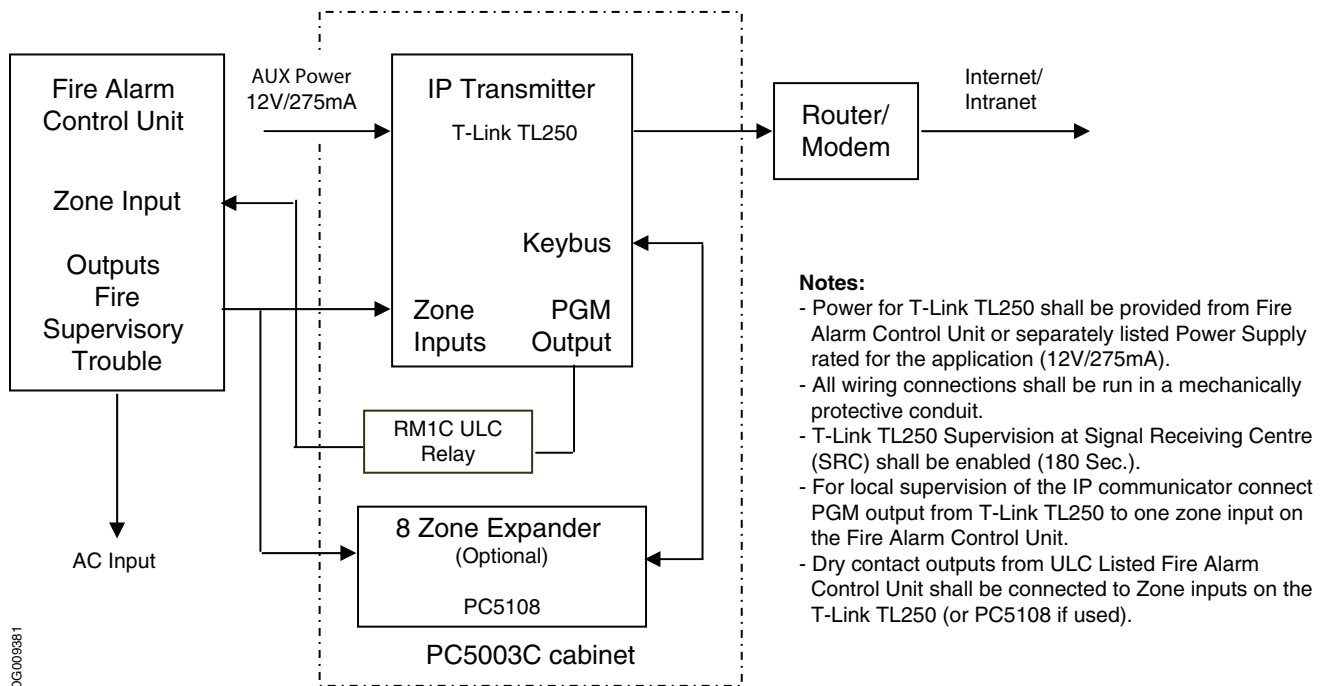
Notes:

- All wiring connections shall be run in a mechanically protective conduit
- T-Link TL250 Supervision at Signal Receiving Centre (SRC) shall be enabled (180 Sec.)
- Dry contact outputs from ULC Listed Fire Alarm Control Unit shall be connected to Zone inputs on the ULC Listed DSC Subscribers' Unit Fire.

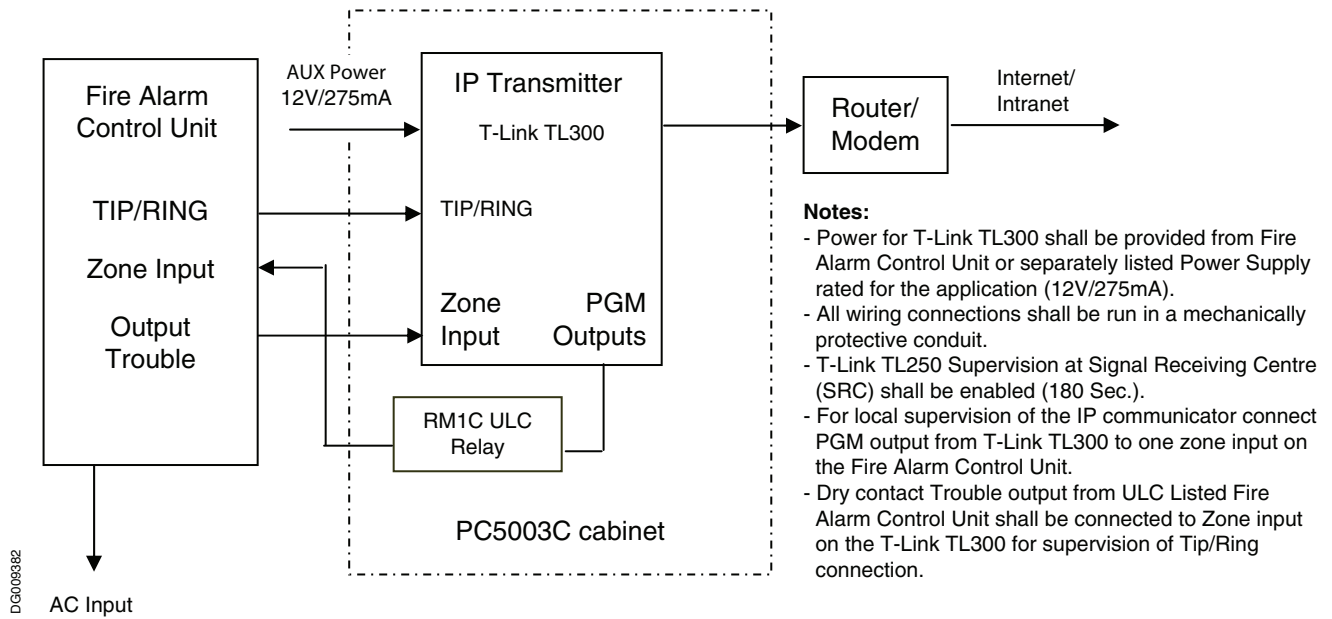
3. DSC Subscribers' Unit Fire and IP Transmitter (Passive Communication System)



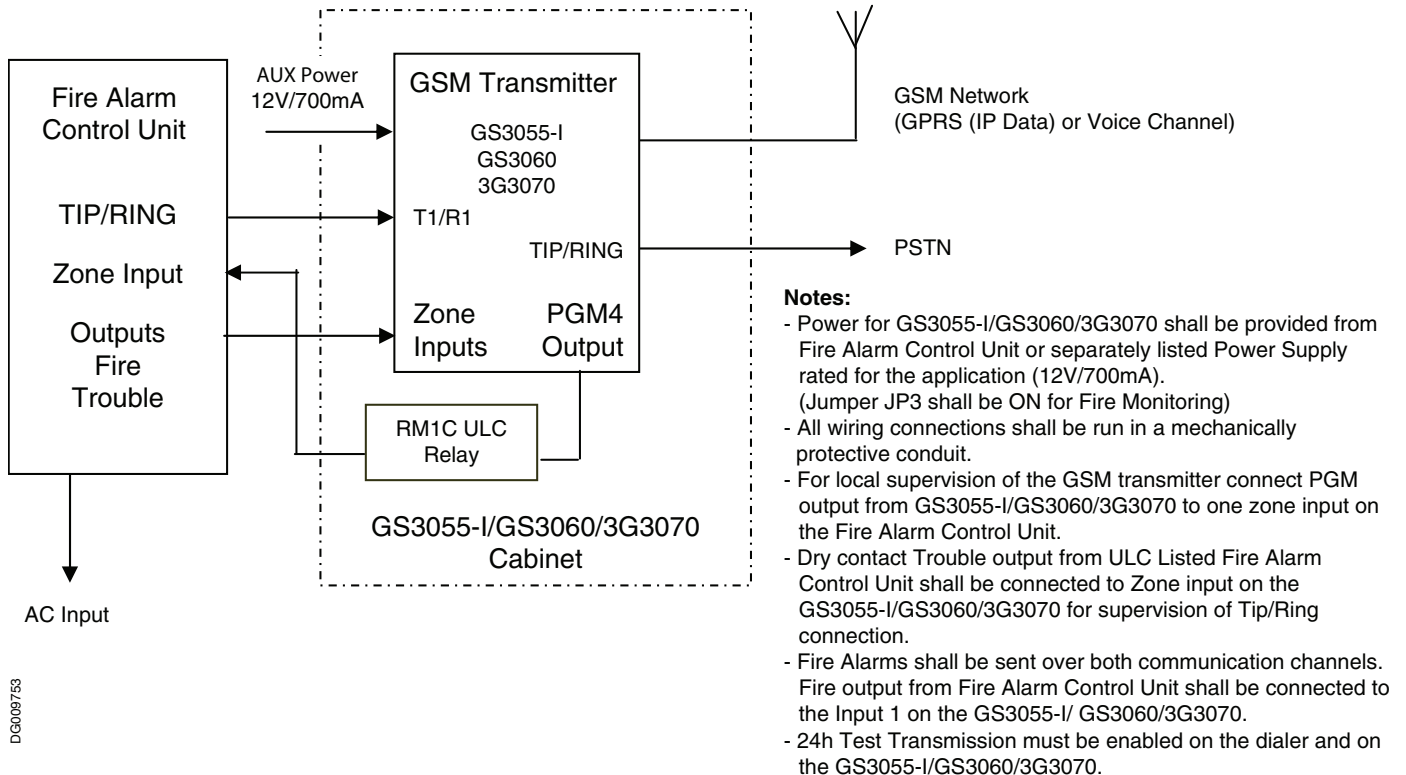
4. Fire Alarm Control Unit (with no dialer) and IP Transmitter (Active Communication System)



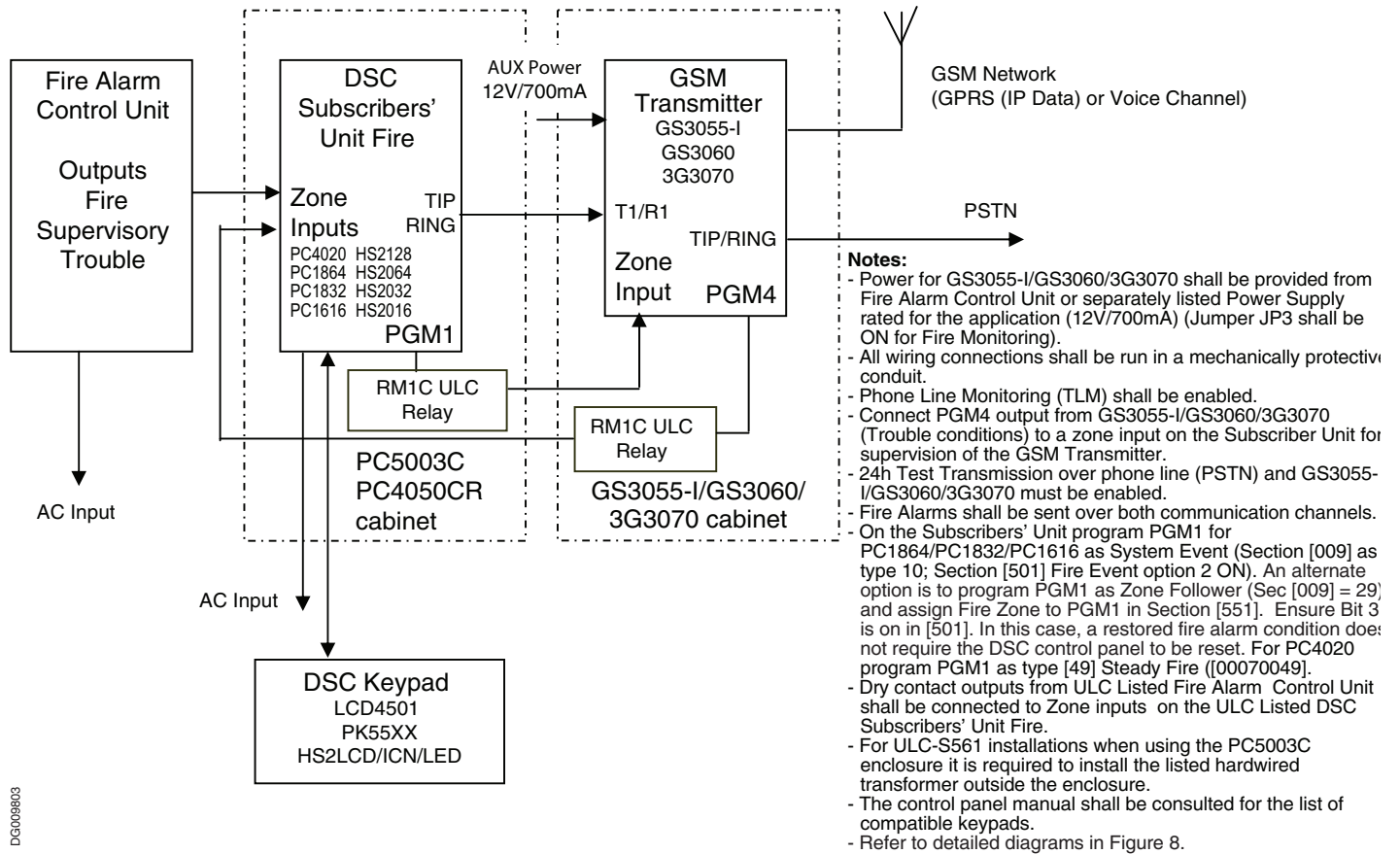
5. Fire Alarm Control Unit (with dialer) and IP Transmitter (Active Communication System)



6. Fire Alarm Control Unit (with dialer) and GSM Transmitter (Passive Communication System)

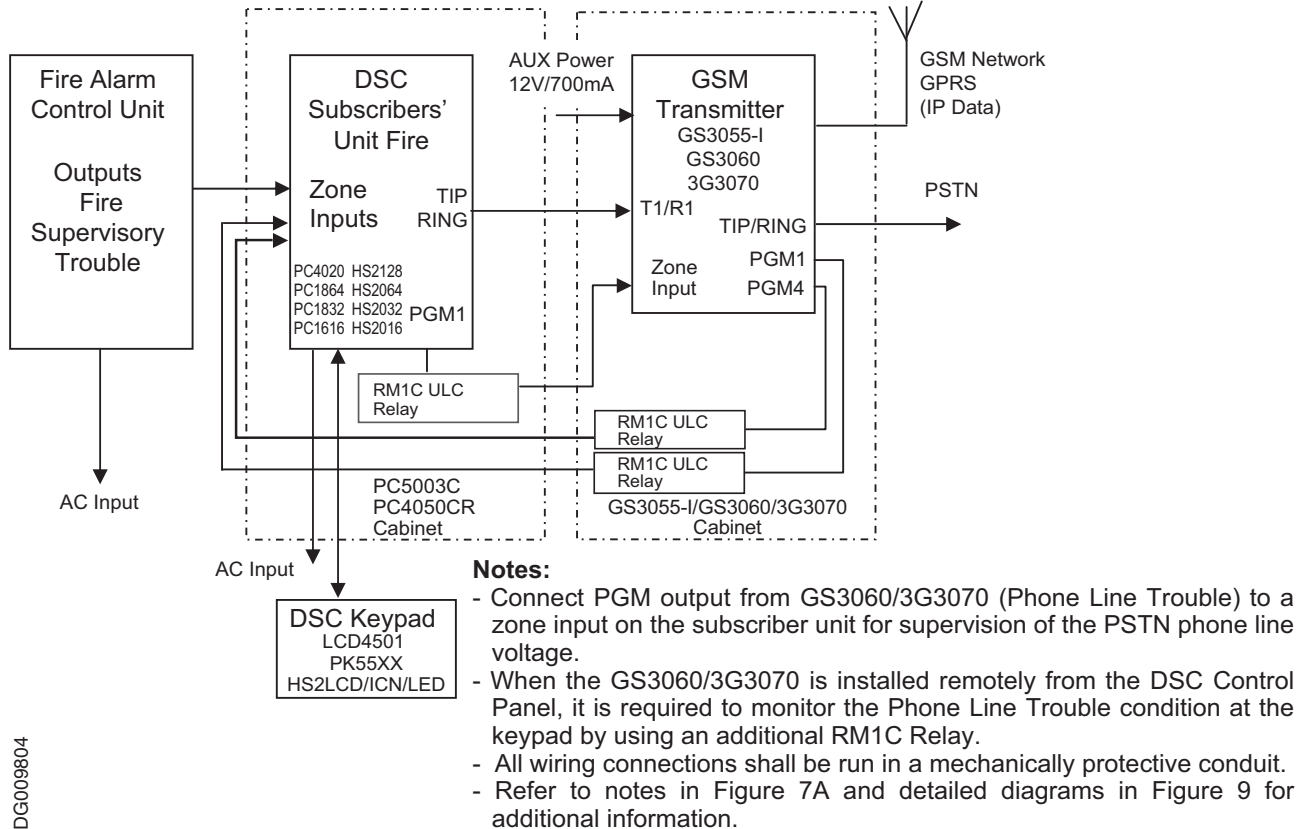


7A. DSC Subscribers' Unit Fire and GSM Transmitter (Passive Communication System)

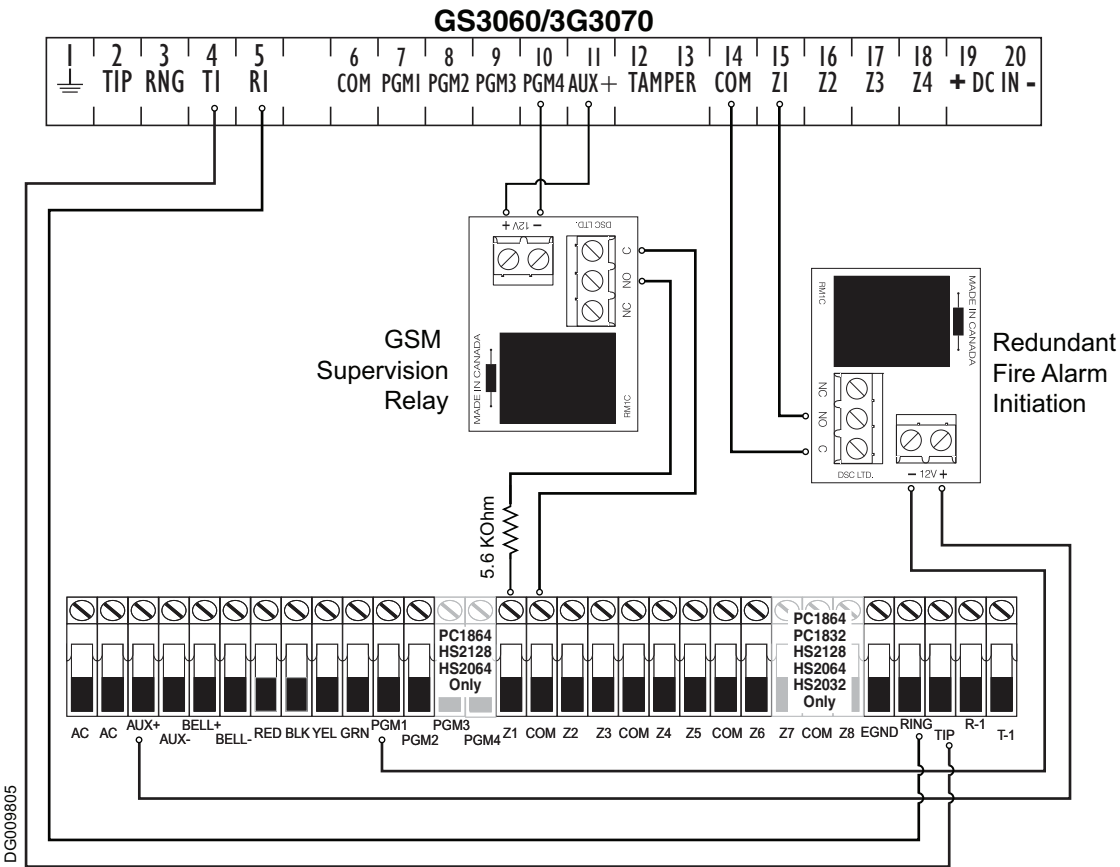


7B. DSC Subscribers' Unit Fire and GSM Transmitter Mounted Remotely

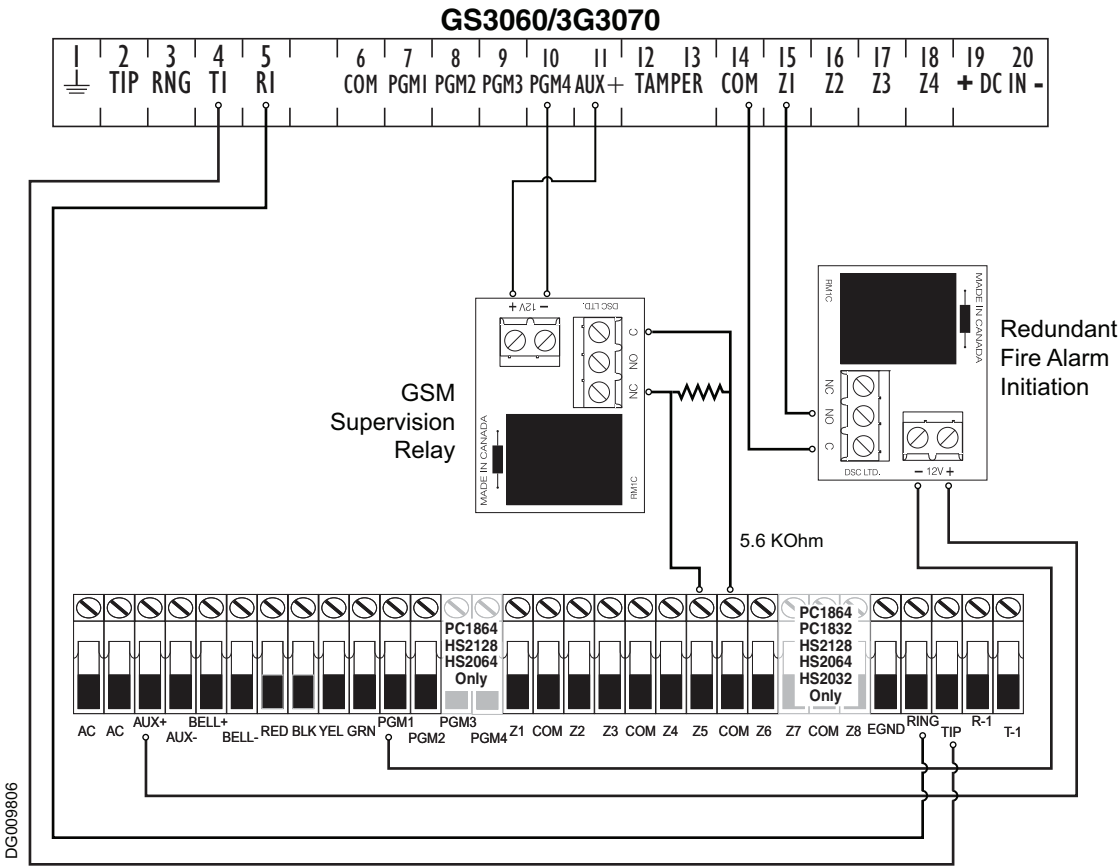
Alternate Wiring Diagram for DSC Subscribers' Unit Fire and GSM Transmitter Passive Communication System -Using Phone Line Supervision Relay



8. Connection Details for GSM Supervision Relay and Redundant Fire Alarm Transmission

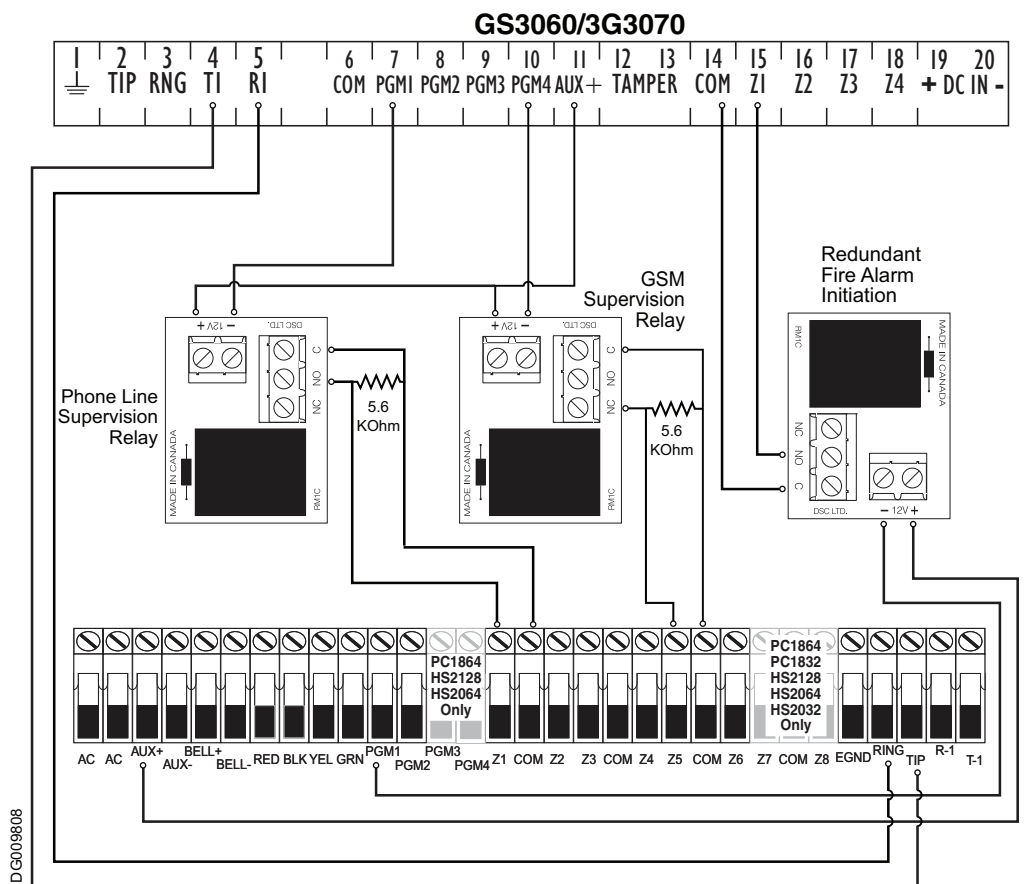
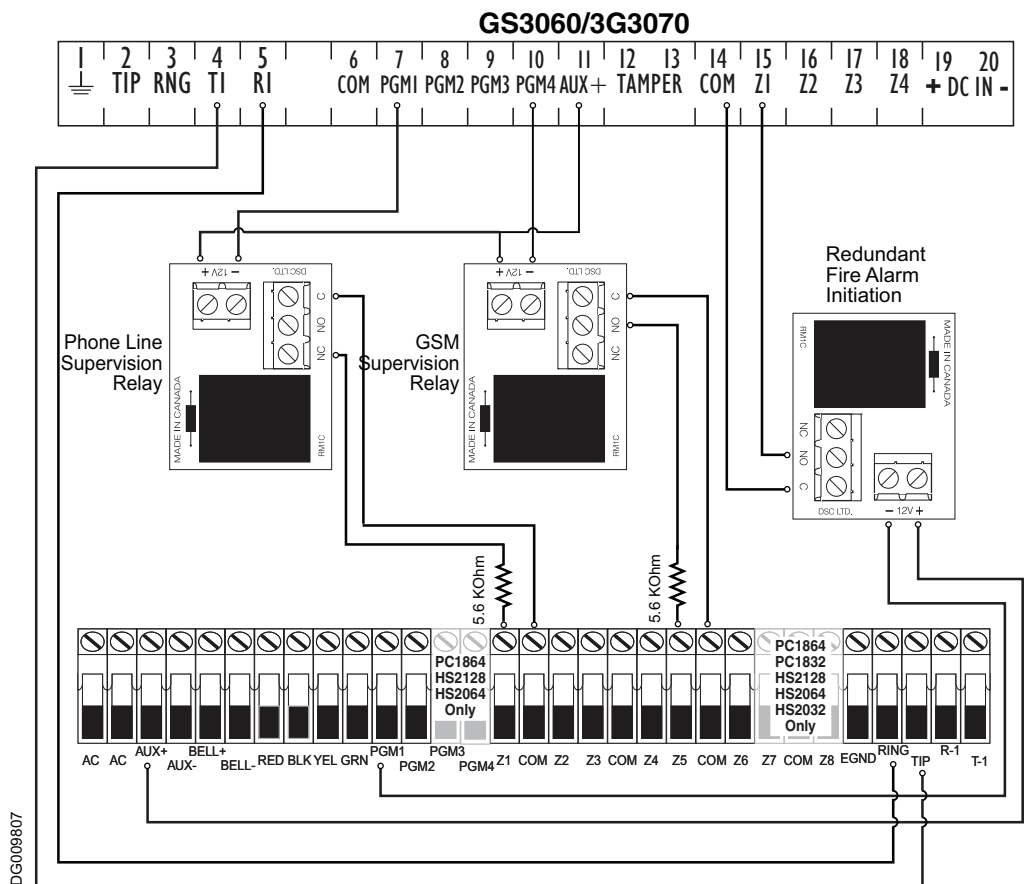


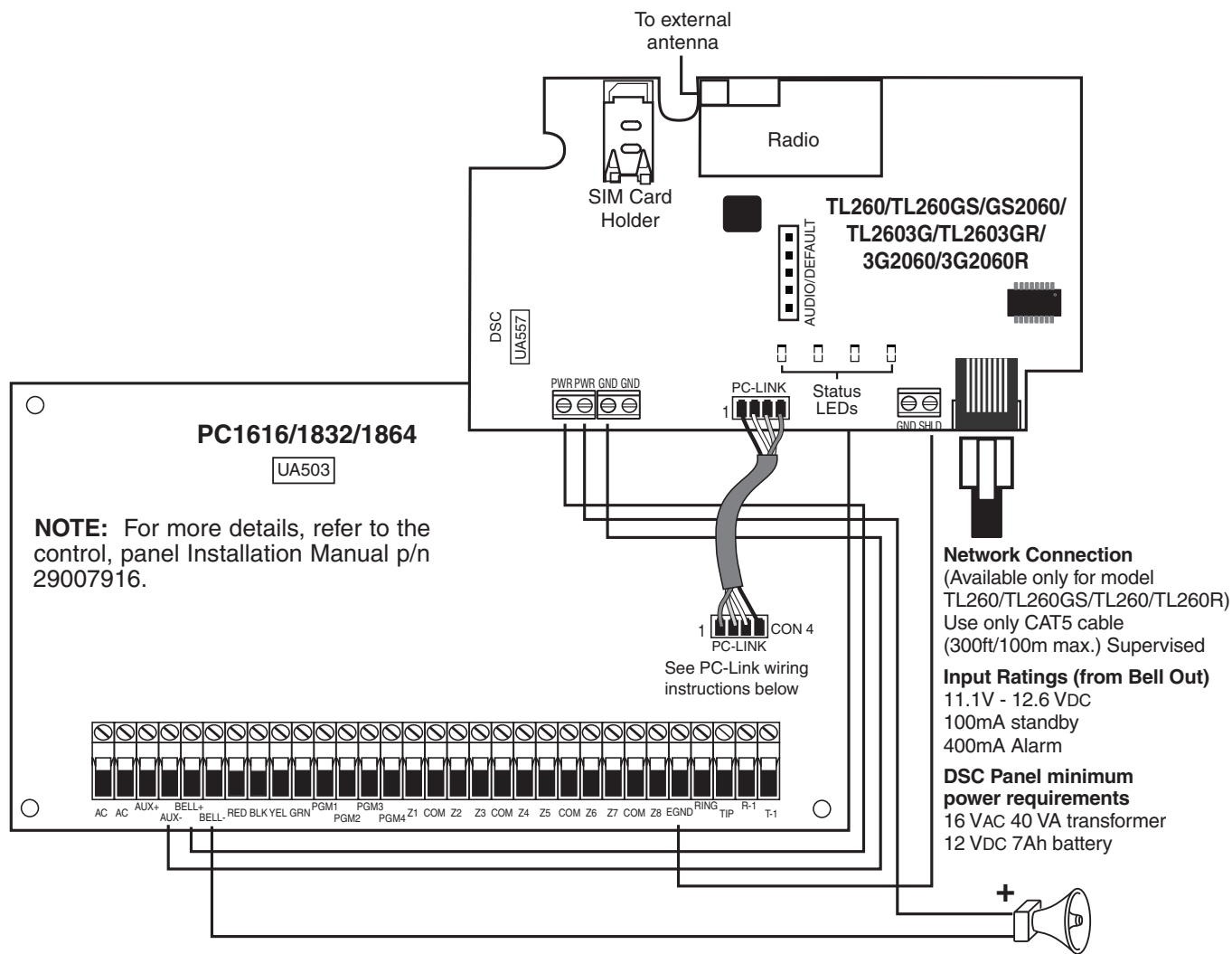
NOTE: Use EOL resistor in series with N.O. contacts of the relay connected to PGM4



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

9. Connection Details for GSM Supervision Relay, Phone Line Supervision and Redundant Fire Alarm Transmission

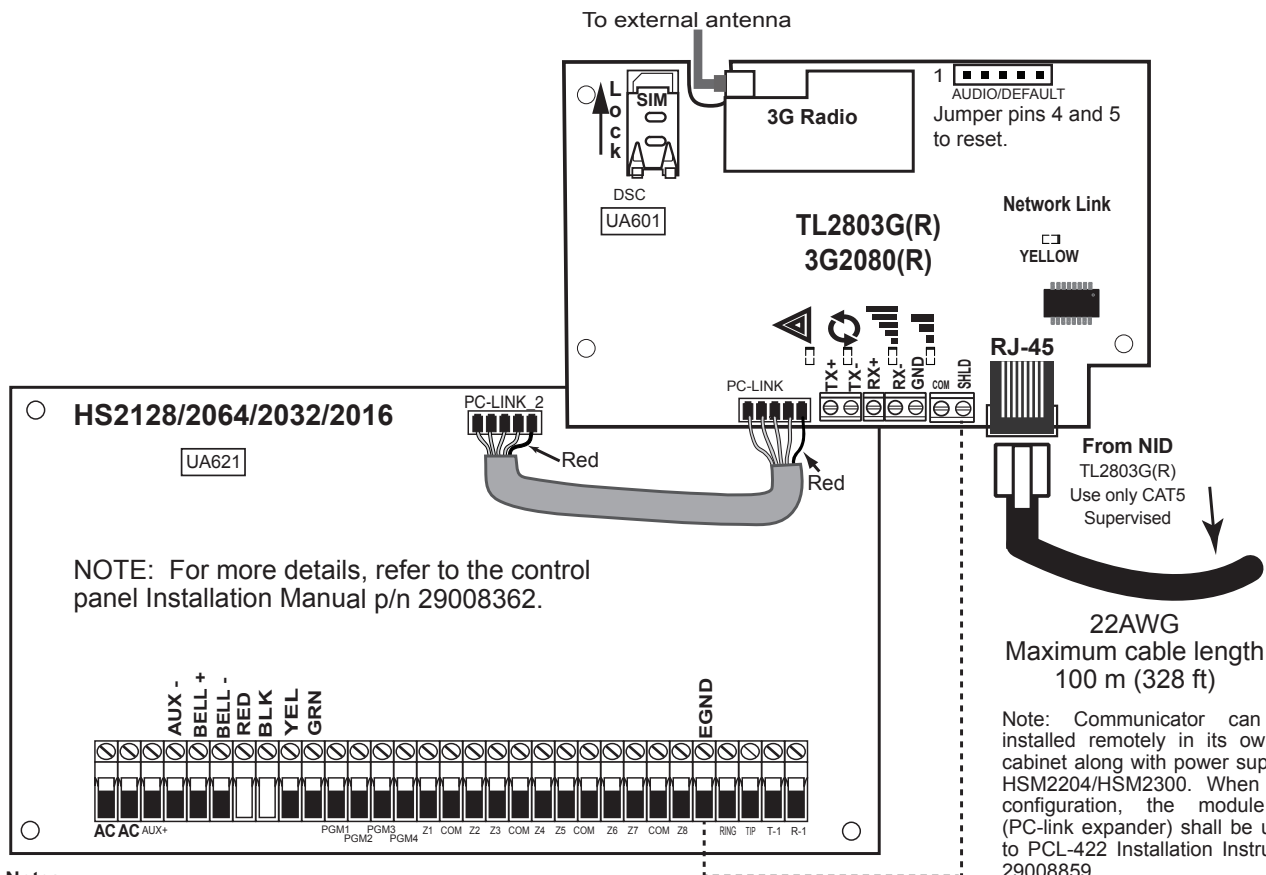




Notes:

- 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.

11.TL280/TL280R/TL2803G/TL2803GR/3G2080/3G2080R Wiring diagram Active/Passive Communication System



DG009809

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