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Dallas, Texas, USA



⚠ IMPORTANT

These instructions are intended as a general guide and do not supersede local codes in any way. Consult authorities having jurisdiction before installation. Read all of the information in this manual before operating this equipment.

THIS MANUAL MUST BE LEFT WITH THE OWNER FOR FUTURE REFERENCE

General

The Lennox VRF Manager (LVM) touch screen centralized control system can monitor and control up to 64 VRF systems with up to 192 VRF outdoor units and 1024 VRF or Mini-Split indoor units. See Appendix A.

The system consists of one touch screen centralized controller connected with a minimum of one (maximum of four) LVM hardware devices.

A field-supplied router switch and communication wiring is required.

All Lennox VRF outdoor and indoor units can be connected to the LVM system. All Lennox MPA and MLA mini-split indoor units can be connected to the LVM system.

The connected VRF or mini-split systems will provide cooling and heating to the building at the direction of the LVM. Refer to the individual unit's manuals for information about that specific unit.

INSTALLATION INSTRUCTIONS

LVM System Installation

VRF Systems - LVM System
507662-01
12/2016

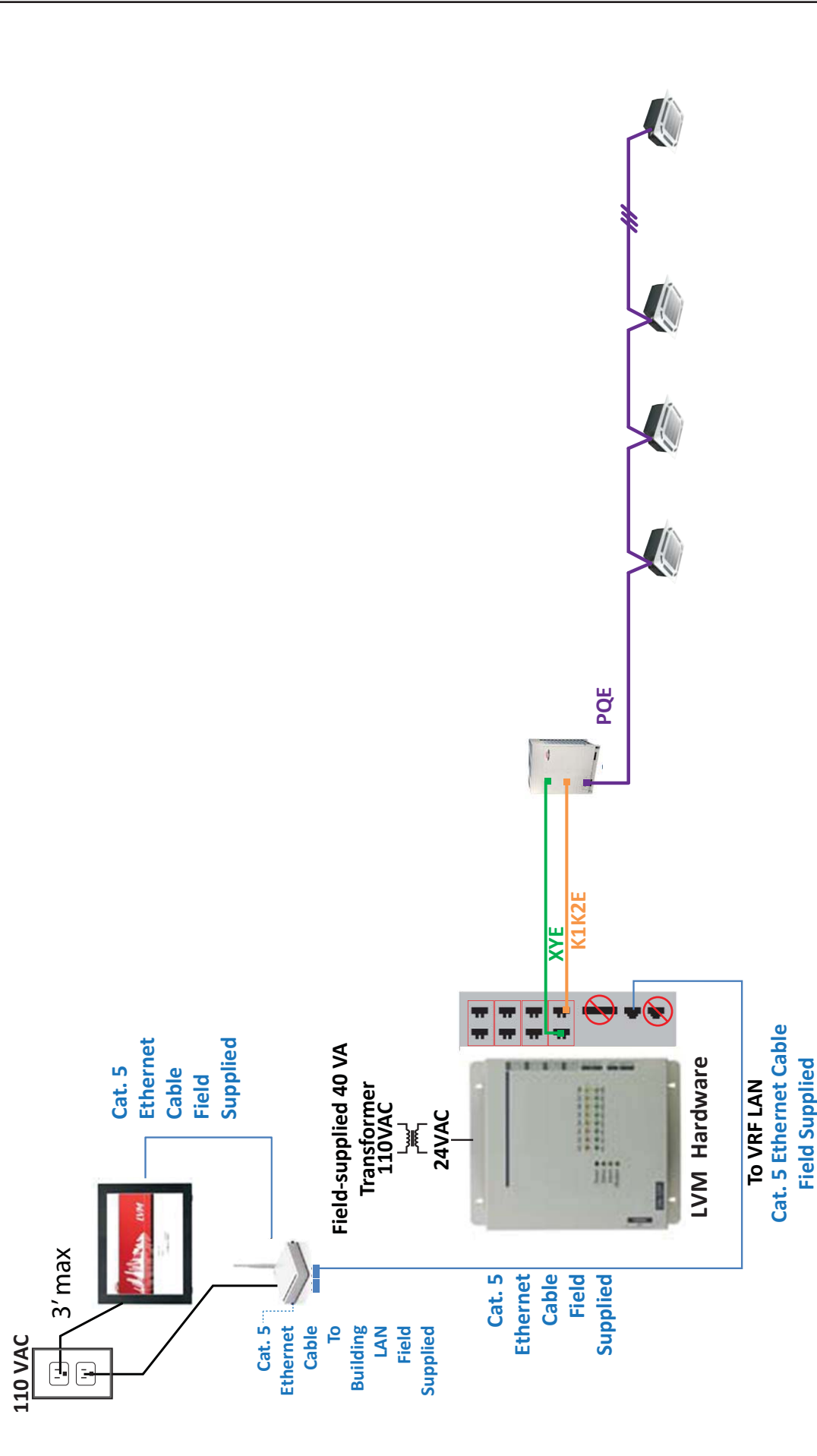
On Site Requirements

- 1 - Touch Screen Centralized Controller
V0CTRL12 (12" screen) or V0CTRL15 (15" screen)
- 1 - LVM Hardware - V0CTRL85
- 1 - LVM software key dongle
- 1 - Router switch, wireless or wired (field-supplied)
- 2 - Cat. 5 ethernet cable (field-supplied)
- 1 - 40 VA step-down transformer (field-supplied)
18 GA, stranded, 3-conductor shielded control wire
(polarity sensitive) (field supplied)
- 110V power supply(ies) (field supplied)
- Commissioned Lennox VRF system(s)

Installation Points

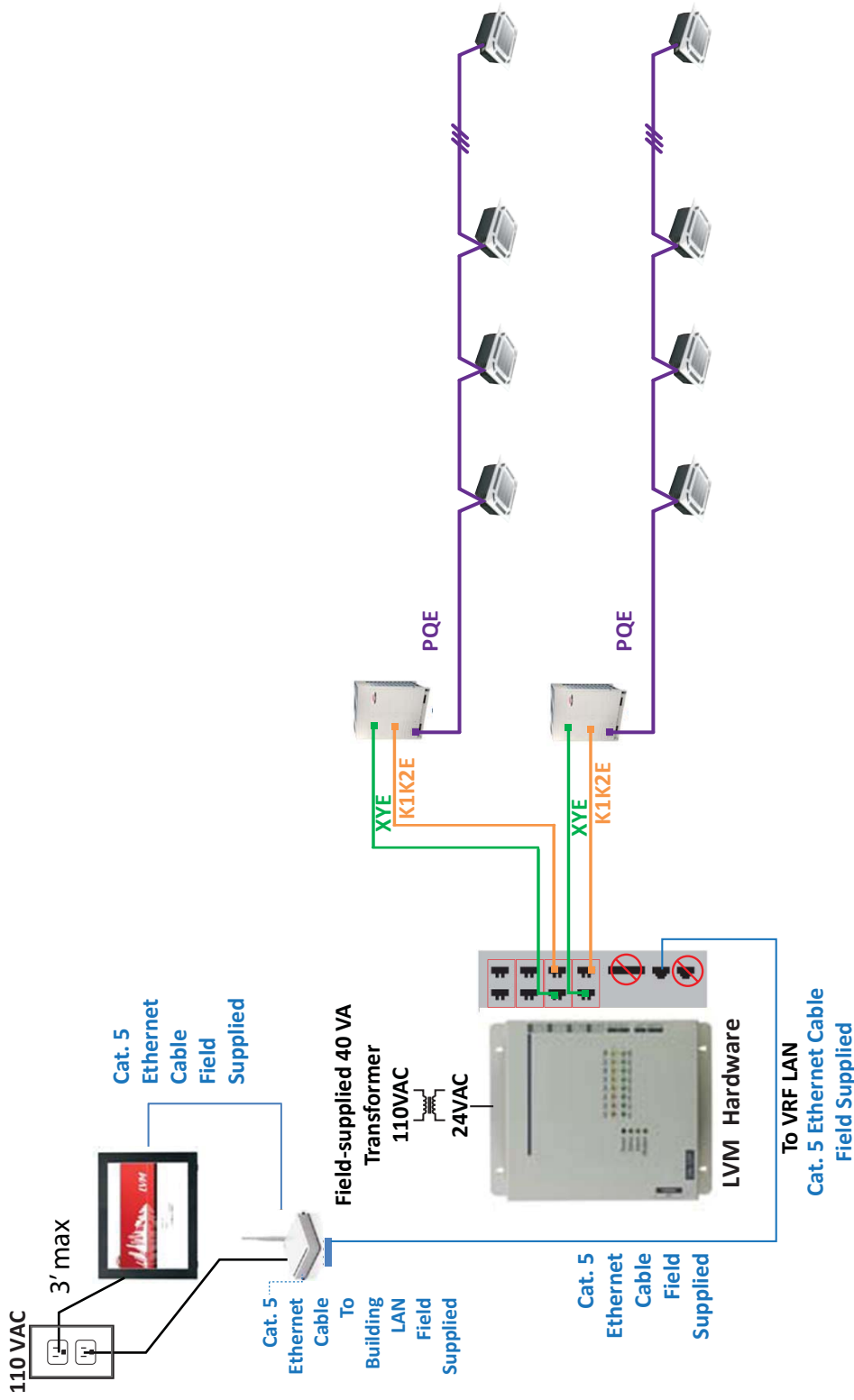
Installation consists of determining the location of each component, supplying power to the devices as required and running electrical wires or cables.

1. Decide where to place each equipment component.
2. Ensure that the proper power supply is provided. See wiring diagrams.
3. Run wiring and cables. See wiring diagrams.
4. Commission the Lennox VRF system(s).
5. Commission the LVM system.



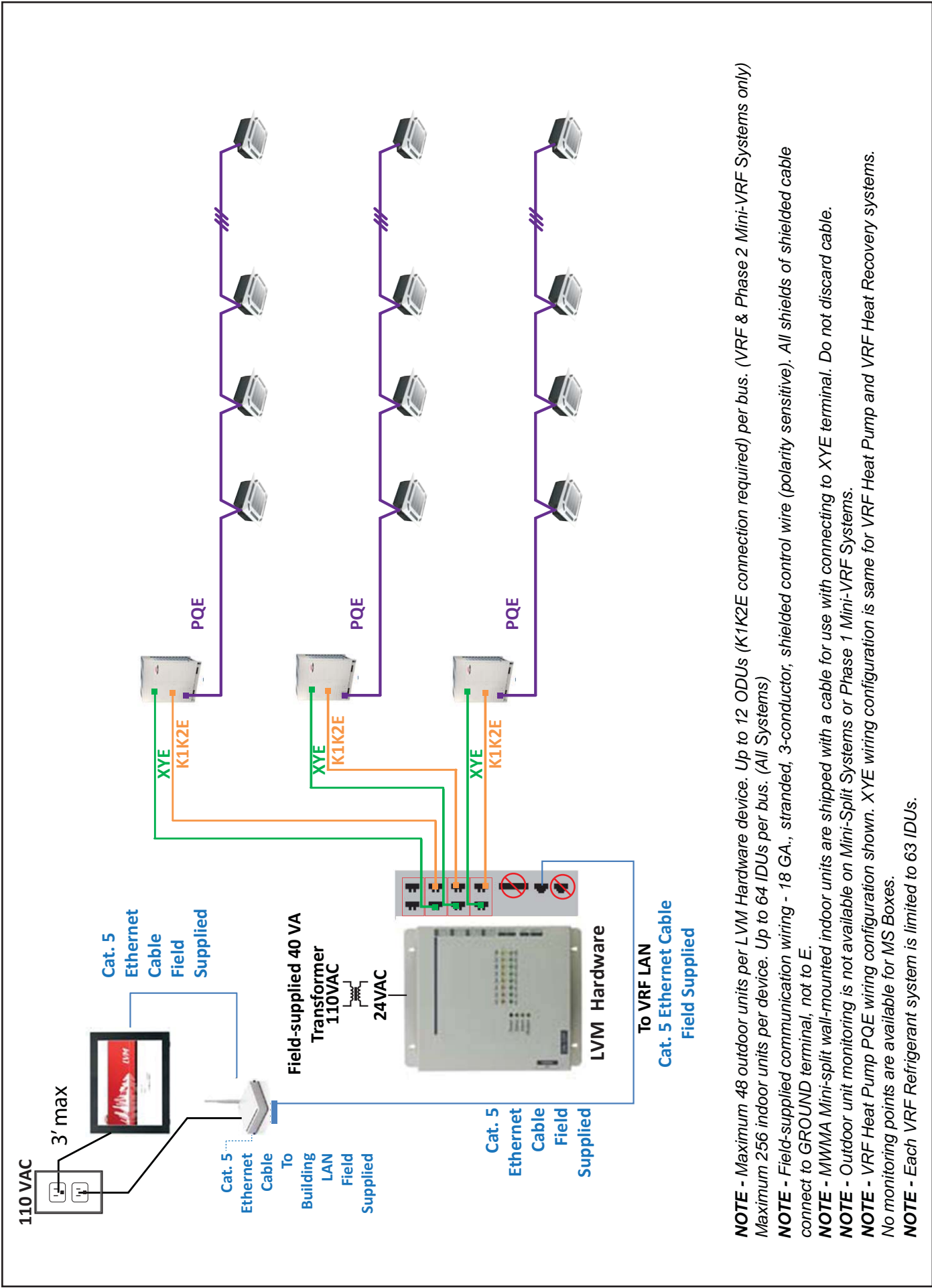
- NOTE** - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only) Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)
- NOTE** - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.
- NOTE** - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.
- NOTE** - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.
- NOTE** - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 1. One Single Module System



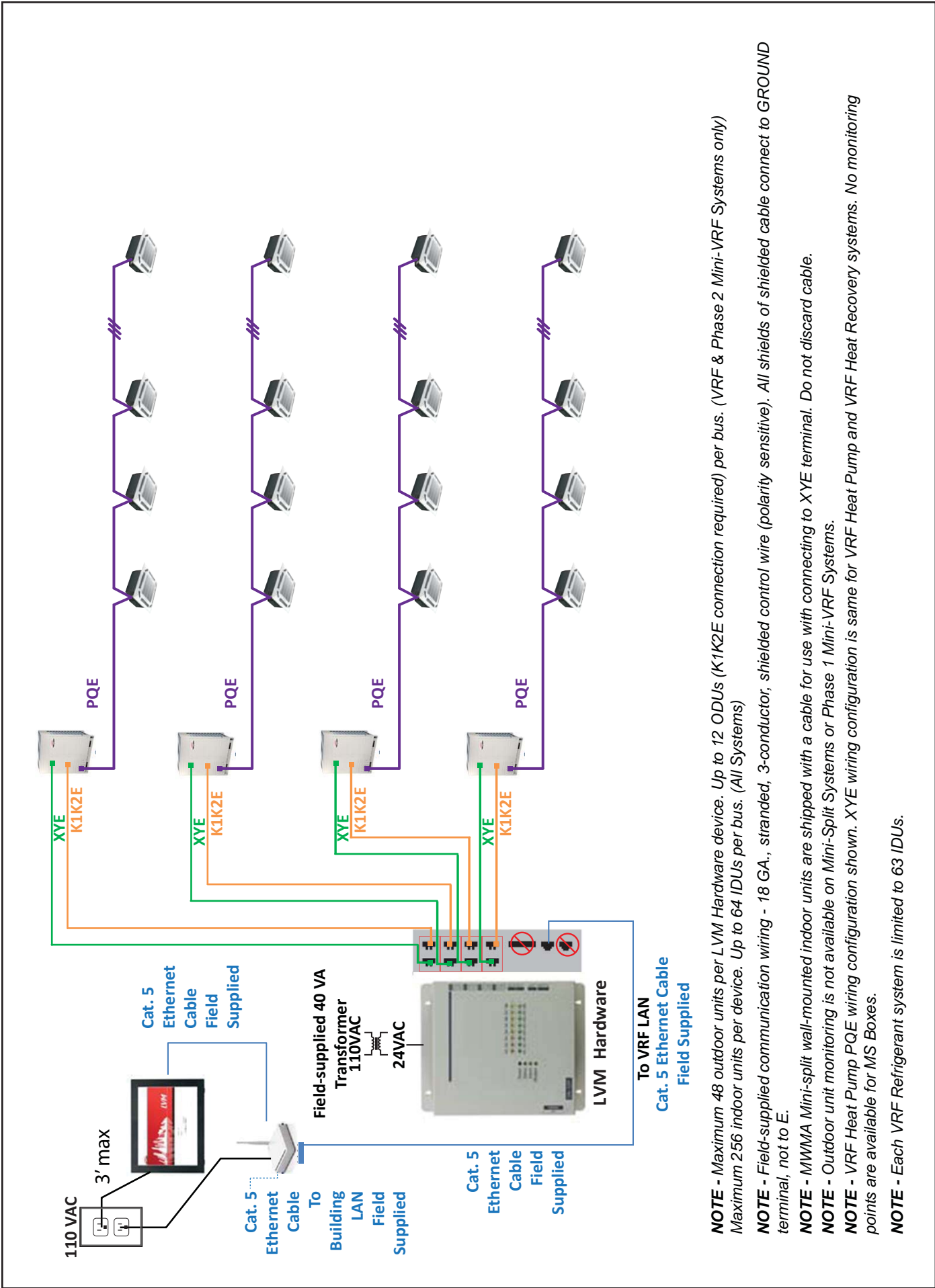
- NOTE** - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only) Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)
- NOTE** - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.
- NOTE** - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.
- NOTE** - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.
- NOTE** - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.
- NOTE** - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 2. Two Single Module Systems



- NOTE** - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only) Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)
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- NOTE** - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.
- NOTE** - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.
- NOTE** - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.
- NOTE** - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 3. Three Single Module Systems



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

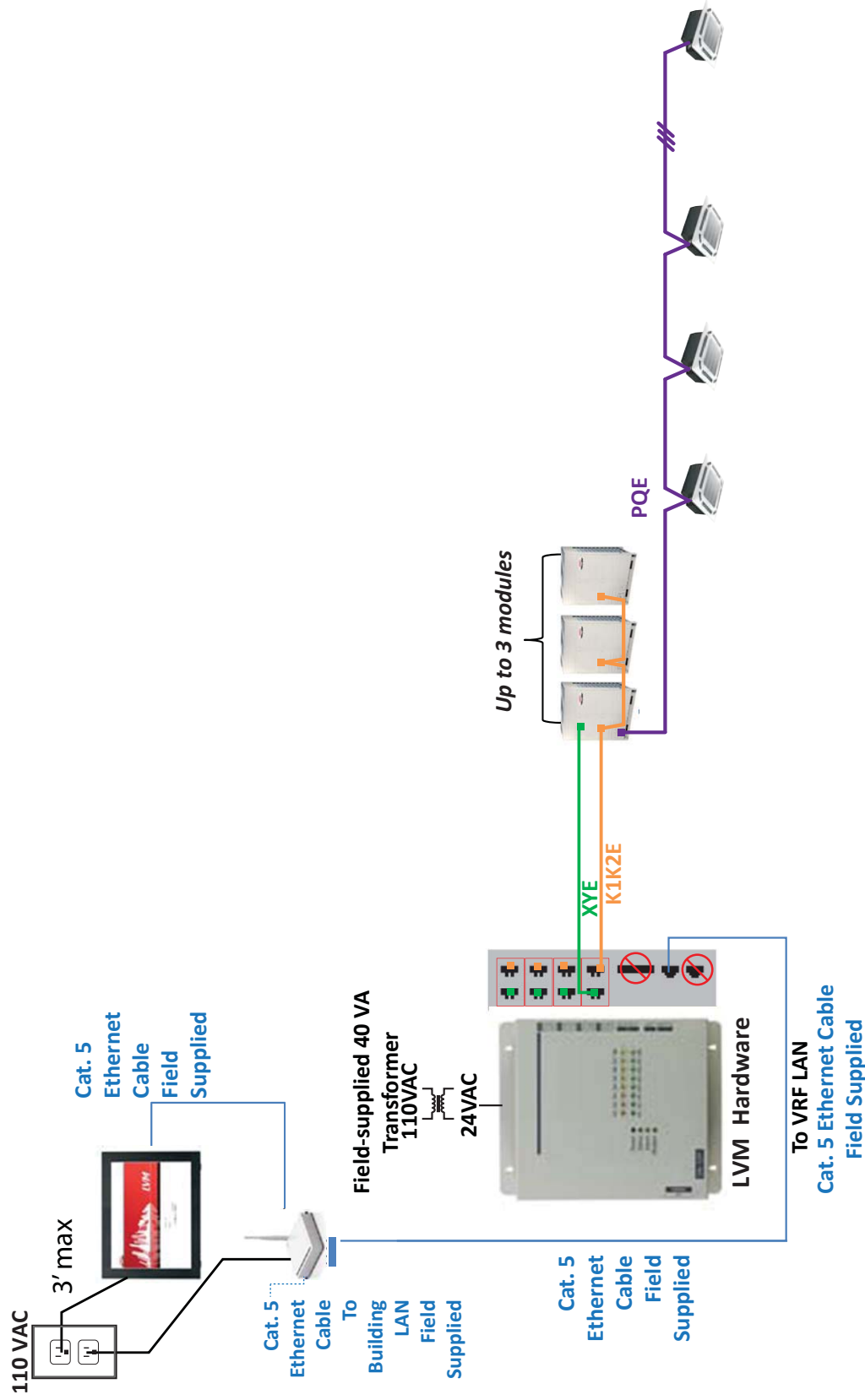
NOTE - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 4. Four Single Module Systems



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

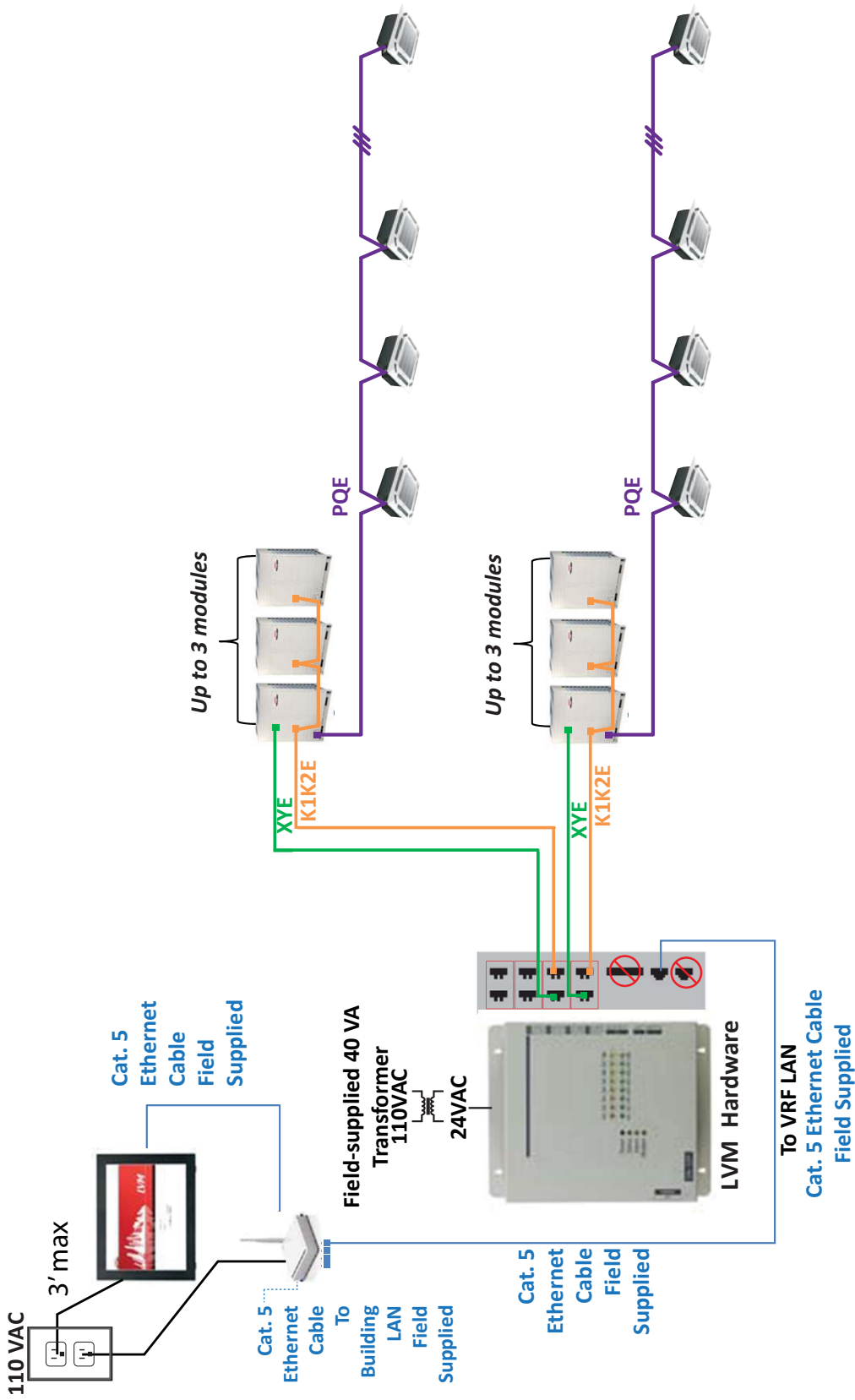
NOTE - MWMMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 5. One Multi-Module System



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

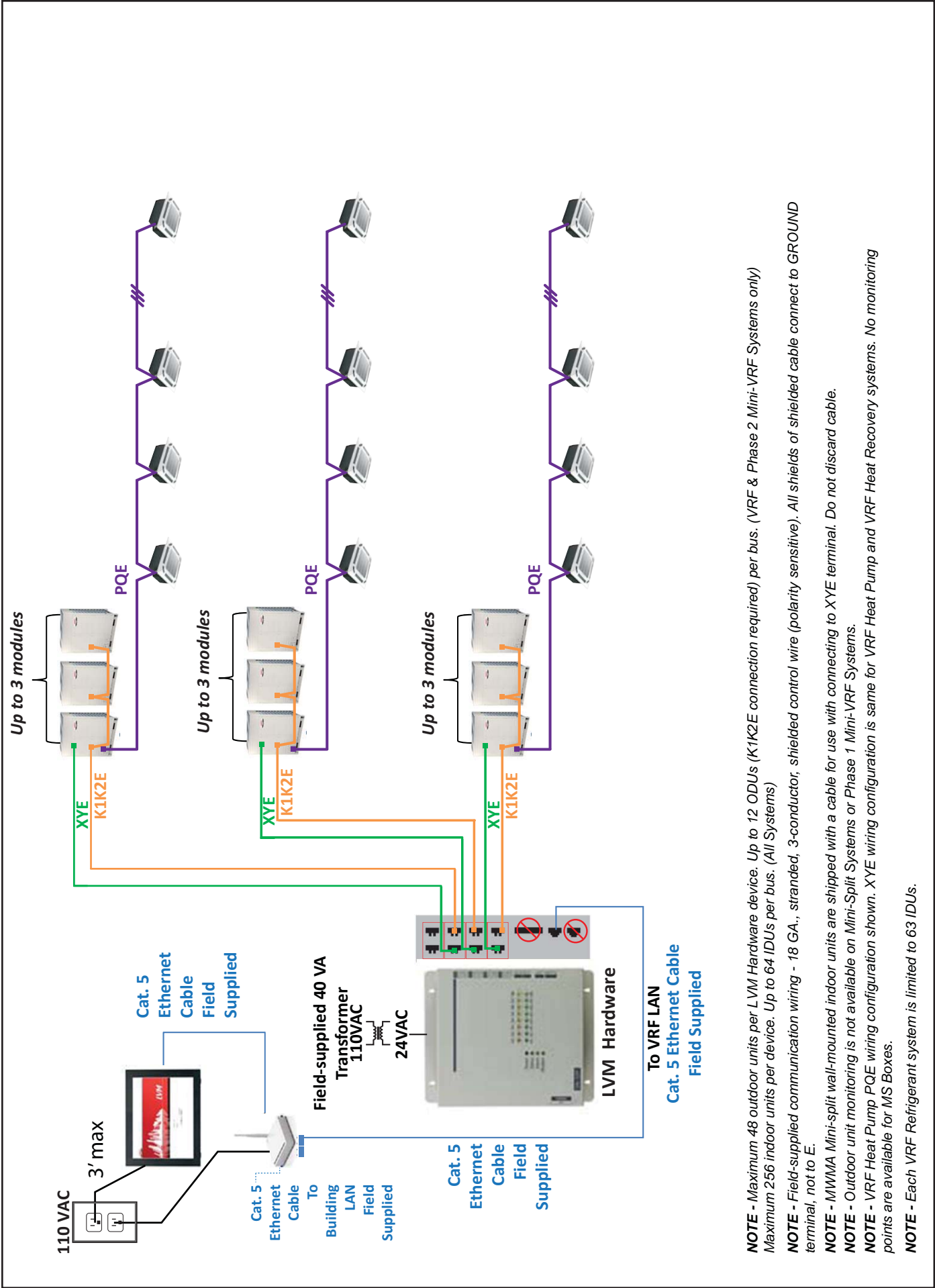
NOTE - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 6. Two Multi-Module Systems



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

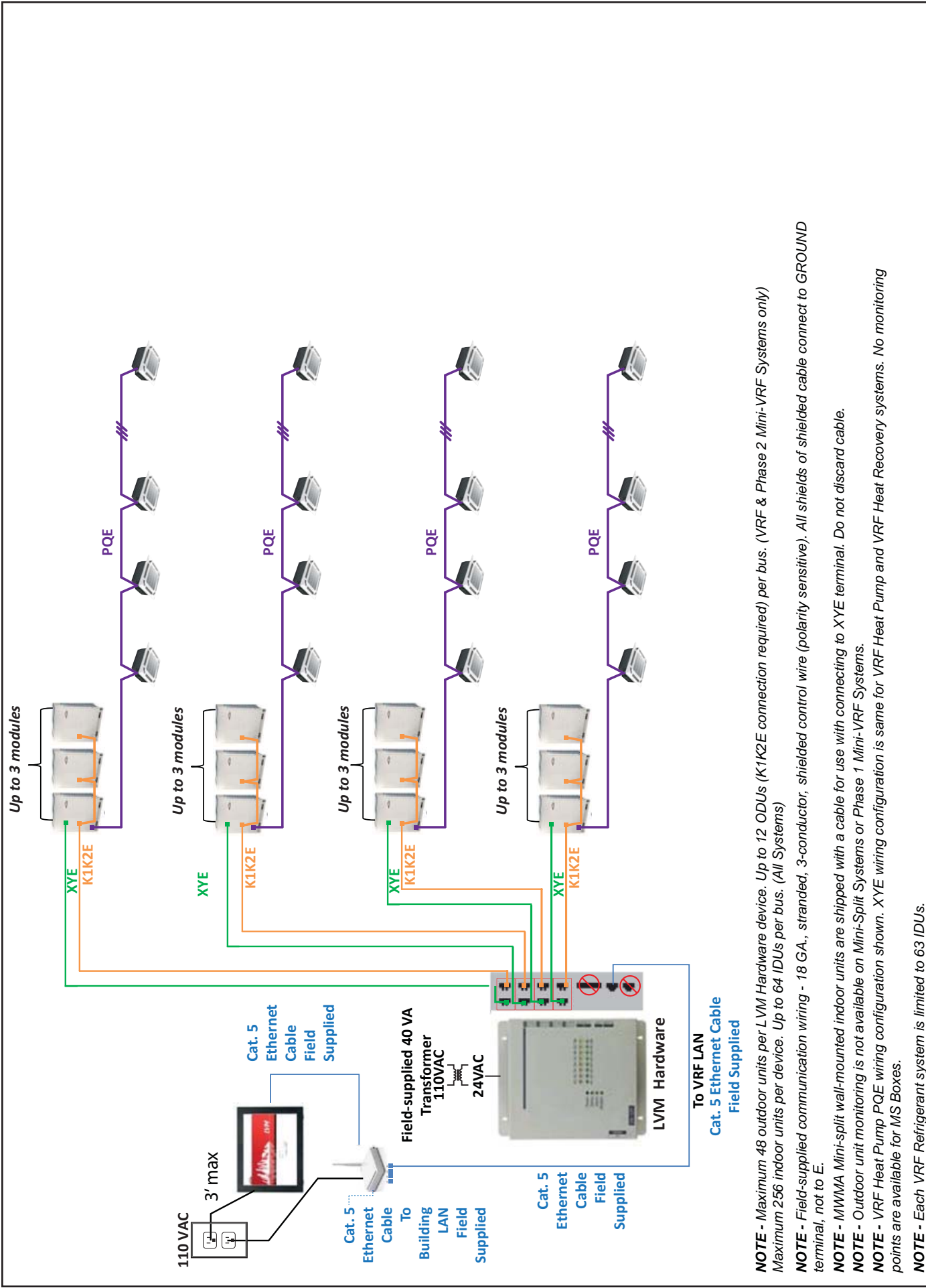
NOTE - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 7. Three Multi-Module Systems



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

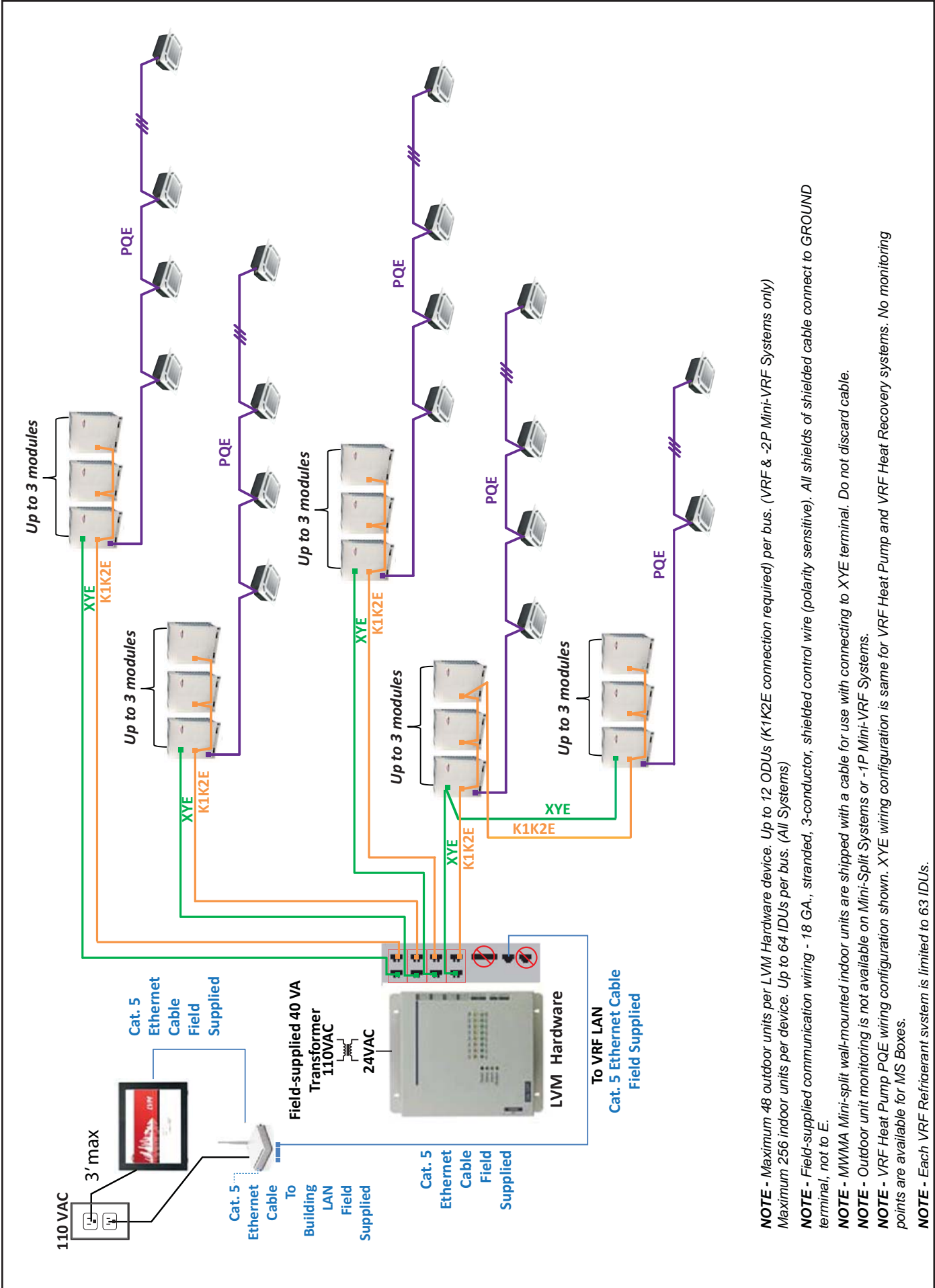
NOTE - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

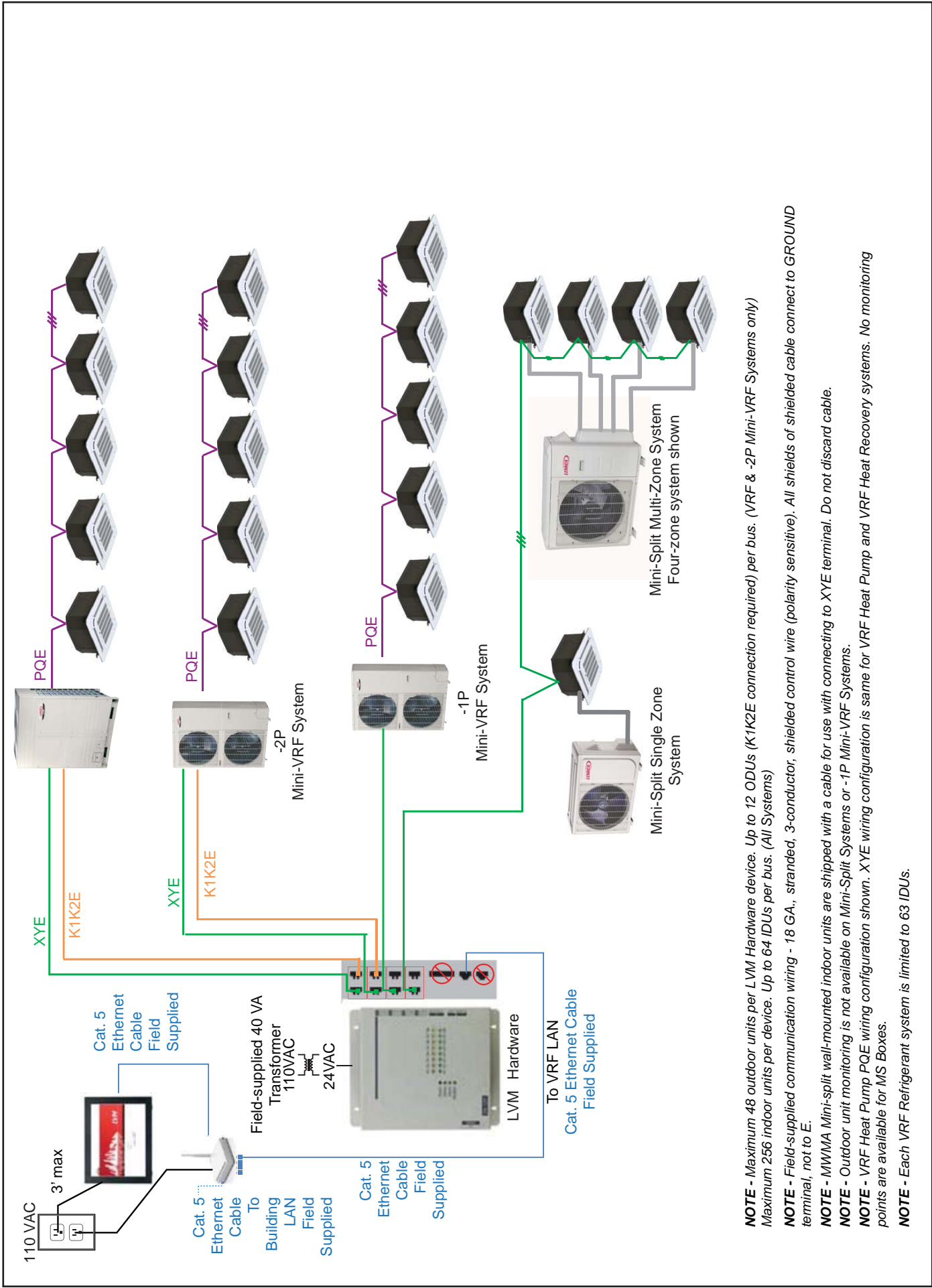
NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 8. Four Multi-Module Systems



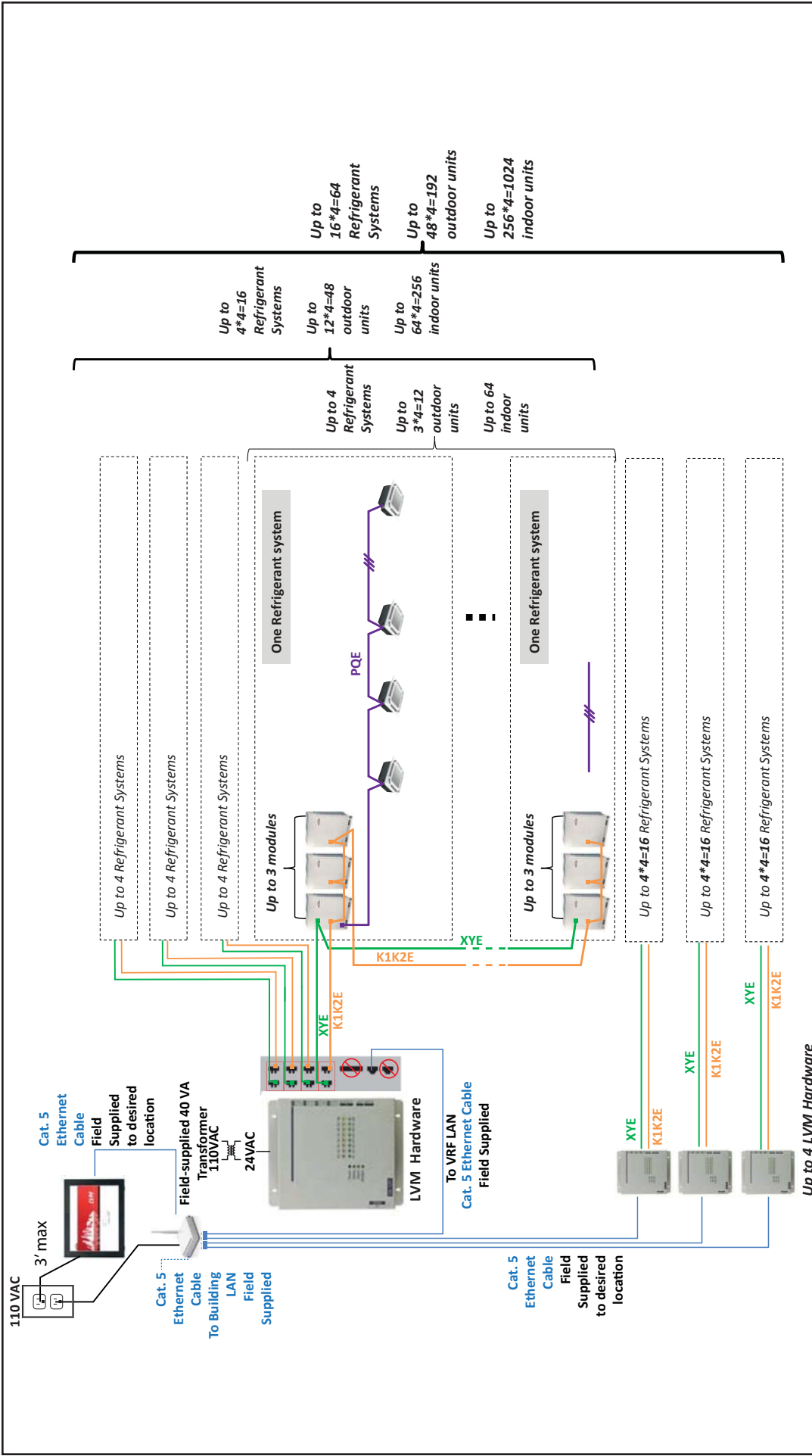
- NOTE** - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & -2P Mini-VRF Systems only) Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)
- NOTE** - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.
- NOTE** - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.
- NOTE** - Outdoor unit monitoring is not available on Mini-Split Systems or -1P Mini-VRF Systems.
- NOTE** - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.
- NOTE** - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 9. Daisy-Chain Fifth Multi-Module System



- NOTE** - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & -2P Mini-VRF Systems only) Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)
- NOTE** - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.
- NOTE** - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.
- NOTE** - Outdoor unit monitoring is not available on Mini-Split Systems or -1P Mini-VRF Systems.
- NOTE** - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.
- NOTE** - Each VRF Refrigerant system is limited to 63 IDUs.

Figure 10. Multiple Lennox System Types Combined on one LVM



NOTE - Maximum 48 outdoor units per LVM Hardware device. Up to 12 ODUs (K1K2E connection required) per bus. (VRF & Phase 2 Mini-VRF Systems only)
 Maximum 256 indoor units per device. Up to 64 IDUs per bus. (All Systems)

NOTE - Field-supplied communication wiring - 18 GA., stranded, 3-conductor, shielded control wire (polarity sensitive). All shields of shielded cable connect to GROUND terminal, not to E.

NOTE - MWMA Mini-split wall-mounted indoor units are shipped with a cable for use with connecting to XYE terminal. Do not discard cable.

NOTE - Outdoor unit monitoring is not available on Mini-Split Systems or Phase 1 Mini-VRF Systems.

NOTE - VRF Heat Pump PQE wiring configuration shown. XYE wiring configuration is same for VRF Heat Pump and VRF Heat Recovery systems. No monitoring points are available for MS Boxes.

NOTE - Each VRF Refrigerant system is limited to 63 IDUs.

Drawing for reference purposes only. Your application will vary.

Figure 11. Up to Four LVM Hardware Devices

LVM / MULTIPLE SYSTEMS CONNECTED TO ONE PORT OF LVM HARDWARE (DAISY CHAIN)

VRF Heat Recovery And VRF Heat Pumps

1. Provide every outdoor unit with a network address (**ENC 4**) starting from 0 up to 16. Maximum number of outdoor units per LVM hardware is 16. See illustration on this page. **NOTE - for Double and Triple Module Units - Sub units must NOT have the same network address (ENC 4) as the main unit it serves; all network addresses (ENC 4) must be unique. Main/sub relationships are defined using ECN 1. See illustration on next page.**
2. All Indoor units connected to a VPA outdoor unit are automatically addressed by default (256 total units per LVM hardware). Manual addressing is possible using the V0STAT52 wireless controller. Manual addressing is required for indoor units connected to a VRA outdoor unit. **Note - VHIA 072 – 096 models each count as two indoor units.**
3. XYE and K1K2E shall connect from the main outdoor unit addressed as 0 (**ENC 4**), to all other main outdoor units connected to the LVM hardware. XYE and K1K2E terminals must be connected to each main outdoor unit via daisy chain connection. See illustration on page 92. **NOTE - For Double and Triple Module Units – K1K2E terminals needs to be connected from the main outdoor unit to each sub unit should sub units need to be seen from the LVM.**

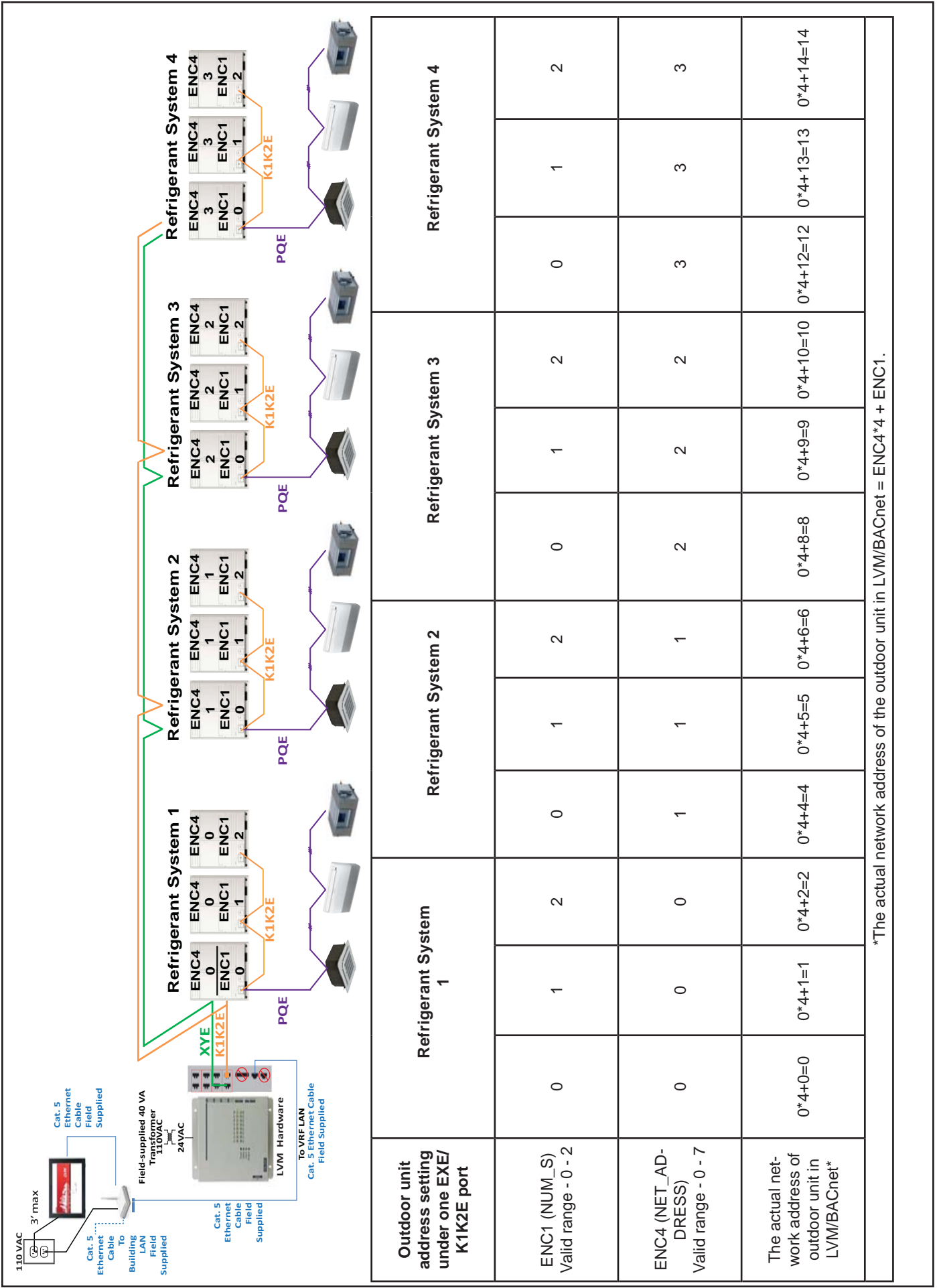


Figure 12. Outdoor Unit Addressing ENC Setting

Appendix A

LVM Maximum System Connections

- Up to 64 VRF refrigerant systems
- Up to 192 VRF Outdoor units
- Up to 1024 VRF or Mini-Split indoor units

NOTE - Refer to wiring diagrams for connection wiring details.