

VITALink® Circuit Integrity Cables

FAQs

I. GENERAL QUESTIONS

1) What is a fire-resistive cable system?

A fire-resistive cable system is a cable and components used to ensure survivability of critical circuits for a specified time under fire conditions per Article 728 in the National Electrical Code (NEC). Fire-resistive cables, fire-resistive conductors, and components shall be tested and listed as a complete system, including but not limited to the cable, conduit, couplings, pull boxes, and other critical components. Fire-resistive cable systems are tested in accordance with UL 2196 and follow the ASTM E119 Temperature Curve reaching 1850°F in two hours and then must withstand a direct fire hose stream without loss of continuity.

2) Why do I need circuit integrity cables?

Circuit integrity cables are utilized to protect critical emergency circuits and maintain the operability of fire alarm systems in order to ensure adequate egress time and first responder safety during fire conditions. Pathway survivability is necessitated both by code and engineering risk analysis and varies according to each location circumstance. Typically, it is used in large and/or high occupancy structures that require partial evacuation or relocation in the event of a fire. To learn more, please contact us to schedule a webinar or on-site training.

3) Where do I need to use circuit integrity cables?

A. Typical locations

- High occupancy buildings (places of assembly, e.g. stadiums, casinos, airports, etc.)
- High-rise buildings
- Hospitals and health care facilities
- Hotels, universities, and government buildings
- Tunnels and subways

B. Common applications:

VITALink® Dual Rated CI/CIC (300V)

- EVAC systems (e.g. critical smoke and fire alarm applications)
- Area of Refuge 2-way communications
- Firefighter's Telephone systems
- Control circuits (e.g. stairwell pressurization systems, ATS)

VITALink® Ethernet (300V)

- Area of Refuge (e.g. digital signage, VoIP 2-way communications)
- 10Base-T networks for fire alarm panels
- Emergency telephones (VoIP)
- Audio/video monitoring

VITALink Coax (300V)

- DAS or BDA systems
- Emergency responder radio communication systems (ERRCS)

VITALink® Armored (300V)

- Commercial retrofits with non-UL 2196 approved conduit (e.g. historical buildings)
- Emergency communications in transit tunnels and platforms

VITALink® MC/RC90 (600V)

- Emergency generators
- Smoke evacuation systems
- Fan/Damper pressurization systems
- Fire pump feeder/controls
- Fireman's elevators

VITALink® MC/RC90 Transit (600V)

- Emergency lighting
- Ventilation systems
- Emergency power

VITALink[®] Circuit Integrity Cables FAQs

4) What's the difference between Circuit Integrity (CI) and Circuit Integrity in Conduit (CIC)?

VITALink[®] CI/CIC cables are dual rated CI and CIC – one cable qualified to UL 2196 for two different installation scenarios. CI for free air installation is a conduit-free solution for riser and horizontal (non-plenum) installations per NEC Article 760.24. CIC is a circuit integrity system that includes the physical protection of conduit and is installed per UL FHIT System 40A or FHIT7 System 40A. Please consult your local AHJ for local code enforcement.

The dual rating does not apply to VITALink[®] Ethernet, VITALink[®] Armored cables, or VITALink[®] MC/RC90 cables. The CIC acronym is not to be confused with the abbreviation for control and instrumentation cable in Canada. VITALink[®] CIC cables are for circuit integrity applications when installed in conduit.

5) What are the NFPA code applications?

- NFPA 70 - National Electrical Code
- NFPA 72 - Fire Alarm & Signaling Code
- NFPA 101 - Life Safety Code
- NFPA 130 - Fixed Guideway for Transit and Passenger Railway Systems
- NFPA 502 - Road Tunnels, Bridges, and Other Limited Access Highways
- NFPA 1221 (1225) - Emergency Services Communications

6) Where can I access a specification?

Please visit www.comtrancorp.com for 300V products or www.r-scc.com for 600V products.

7) Where can I purchase this product?

All VITALink[®] products are sold through our distribution partners. Please contact us to locate a distributor in your area.

8) Why choose VITALink[®] over other UL-approved 2 Hour Fire Rated cables?

VITALink[®] is the most versatile and comprehensive circuit integrity cabling system, consisting of dual rated CI/CIC cables, Ethernet cables, coaxial cables, CCW armored cables, and Type MC/RC90 cables for commercial and transit environments. These products lead the industry in 2 hour fire rated protection with solutions for power, control, communications, IP, and RF circuits.

9) What are the benefits of VITALink[®] over alternative methods?

- Requires no special tools or training for installation
- Available in long lengths
- Optional 2 hour fire rated splices
- Less labor intensive than most alternative methods
- Less overall cost than most alternative methods
- Readily available with no lead time; stocked at partner locations throughout North America

II. INSTALLATION & TECHNICAL QUESTIONS

1) Where can I find the manufacturer's installation instructions?

For FHIT/FHIT7 Systems 40A, 40B, and 40C, please visit www.comtrancorp.com. For FHIT/FHIT7 Systems 120, 120A, and 60, please visit www.r-scc.com.

2) What are the installation instructions when the dual rated CI/CIC cables are being installed as CI for free air?

Installation is per NEC Article 760.24

VITALink® Circuit Integrity Cables FAQs

3) Do installers need special tools, training, or certification?

No, any licensed contractor/integrator can install our cable with typical cable installation tools.

4) Are there specific branded components that need to be utilized with the system? Why?

- Per NEC Article 728, fire-resistive cables, fire-resistive conductors, and components shall be tested and listed as a complete system, shall be designated for use in a specific fire-rated system, and shall not be interchangeable. This requires manufacturers to test and list brand specific hardware with each system tested and listed to UL 2196 to ensure compatibility.
- Hardware requirements can be found in the FHIT document and the manufacturer's installation instructions.
- Using non-approved hardware will nullify the circuit integrity rating; always check with the AHJ for exceptions.

5) Why not get approvals for alternate brands of components?

Any product or changes/additions in the assembly components or procedures requires extensive re-testing at UL.

6) Can cables be installed in galvanized rigid conduit?

Currently, there are no UL 2196-listed circuit integrity cables certified for use in rigid conduit. The dual rated CI/CIC cables and Ethernet cables are approved with both EMT and IMC conduit. Due to their continuously corrugated and welded (CCW) copper armored constructions, VITALink® Coax, Armored, and MC/RC90 cables do not require conduit for installation.

7) Tell me about the approved pull boxes for VITALink® CI/CIC and VITALink® Ethernet cables.

- The system is approved with Wiegmann brand NEMA-1 rated enclosures (manufactured by Hubbell) and Adalet NEMA 4X stainless steel enclosures.
- Recommendations for box sizes can be found in the manufacturer's installation instructions.

8) Tell me about conduit fill for VITALink® CI/CIC and VITALink® Ethernet cables.

- The conduit fill charts can be found on the FHIT document and manufacturer's installation instructions.
- The different VITALink® CI/CIC constructions (e.g. shielded, unshielded, stranded, solid, different gauge sizes, etc.) may be installed in the same conduit. The limitation defaults to the cable with the most stringent conduit fill.
- VITALink® CI/CIC cables and VITALink® Ethernet cables cannot be installed in the same conduit.
- Conduit fill is the same for both vertical and horizontal constructions.
- VITALink® Armored Coax, VITALink® Armored, and VITALink® MC/RC90 cables are not required to be installed in conduit.

9) Can I install other types of cables in the same conduit as VITALink® cables?

No, only cables and components tested and approved through the UL 2196 test may be utilized. Adding additional building wire or communication cables will have an unpredictable effect on the ability of the VITALink® cable to operate in case of a fire, which would jeopardize the 2 hour rating.

10) Can I use condulets or LBs for installation?

No, condulets are not approved in FHIT System 40A.

VITALink® Circuit Integrity Cables FAQs

1) Does VITALink® have UL 2196-approved splices?

Yes, the VITALink® dual rated CI/CIC cables and the VITALink® Armored cables can be installed with a pigtail crimp taped splice. We have approved splicing procedures which can be accessed at www.comtrancorp.com. Splice kits are also available upon request. VITALink® Ethernet and VITALink® Coax products are not approved for splicing.

VITALink® MC/RC90 cables also have approved a straight tape splice, block splice, fused block splice, and pigtail tape splice. Please visit www.r-scc.com for the splicing guides.

III. APPROVAL & RATING QUESTIONS

1) What is the utilization voltage rating of VITALink® cables?

- VITALink® CI/CIC - 300V (72V phase-to-phase)
- VITALink® Ethernet - 300V (72V phase-to-phase)
- VITALink® Coax - 300V (72V phase-to-phase)
- VITALink® Armored - 300V (72V phase-to-phase)
- VITALink® MC/RC90 - 600V
- VITALink® MC/RC90 Transit - 600V

2) Where can I find the UL 2196 FHIT/FHIT7 documents?

VITALink® products fall under 6 FHIT/FHIT7 Systems. FHIT applies to the United States and FHIT7 applies to Canada.

- FHIT/FHIT7 System 40A: VITALink® Dual Rated CI/CIC and VITALink® Ethernet
- FHIT/FHIT7 System 40B: VITALink® Armored
- FHIT/FHIT7 System 40C: VITALink® Coax
- FHIT/FHIT7 System 120, 120A, and 60: VITALink® MC/RC90 and MC/RC90 Transit

The documents can be accessed through the UL Directory. Please contact your sales representative for a PDF copy.

3) Is VITALink® approved for use in Canada?

Yes, see approvals below.

- CAN/ULC-S139 Certified with Hose Stream Test for FHIT7 Systems 40A, 40B, 40C, 120, 120A, and 60.
- CEC and CSA listed FAS 105 (VITALink® 300V cables)
- CSA 22.2 No. 123 & CSA 22.1 Article 12-700 (VITALink® 600V cables)
- VITALink® CI/CIC cables must be installed in conduit per the Canadian Electric Code, no free air installations.

4) Is VITALink® approved for use in New York City?

Yes, formal approval has been obtained from the NYC Electrical Advisory Board.

5) Is VITALink® approved for use in California?

Yes, VITALink® 300V products are the only UL-2196 listed cables approved by the California State Fire Marshal listing numbers:

- 7161-1295-0100
- 7160-1295-0101
- 7160-1295-0102

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6) Is VITALink® plenum rated?

All VITALink® fire-resistive cables are riser rated and carry an FPLR listing. VITALink® products can be installed in a plenum environment when installed in conduit per FHIT/FHIT7 system 40A.

7) Is VITALink® wet rated?

Yes, all VITALink® cables may be installed in damp locations, such as basements and tunnels, but they are not designed for prolonged submerged use.

8) Is VITALink® sunlight resistant?

VITALink® CI/CIC, Ethernet, and MC/RC90 Transit are sunlight resistant.

9) What is the temperature rating?

- VITALink® CI/CIC, Ethernet, & Armored products
 - Operating temperature = -40°C to +105°C
 - Installation temperature = -20°C to +105°C
- VITALink® Coax products
 - Operating temperature = -40°C to +75°C
 - Installation temperature = -20°C to +75°C
- VITALink® MC/RC90 products
 - Operating temperature = -40°C to +90°C
 - Installation temperature = -40°C to +90°C

10) Is VITALink® Low Smoke, Zero Halogen (LSZH)?

All VITALink® cables have a LSZH rating, except VITALink® Coax products.

IV. OTHER RESOURCES

Contact us or visit our website for additional assistance and resources:

- UL FHIT System 40A and FHIT7 System 40A (VITALink® CI/CIC & Ethernet)
- UL FHIT System 40B and FHIT7 System 40B (VITALink® Armored)
- UL FHIT System 40C and FHIT7 System 40C (VITALink® Coax)
- UL FHIT System 120 and FHIT7 System 120 (VITALink® MC/RC90 & MC/RC90 Transit)
- UL FHIT System 120A and FHIT7 System 120A (VITALink® MC/RC90 & MC/RC90 Transit - Block Splice)
- UL FHIT System 60 and FHIT7 System 60 (VITALink® MC/RC90 & MC/RC90 Transit - Fused Block & Pigtail Tape Splice)
- Manufacturer's installation instructions
- Splicing guides