

Manufacturer's Instructions for Lifeline® MC/RC90 and MC/RC90 LSZH Jacketed: One Hour and Two-Hour Fire-Resistive Cables – UL 2196/ULC-S139



Technical Information Sheet #400

This Technical Information Sheet (TIS) covers Lifeline® MC/RC90 and MC/RC90 LSZH Jacketed Single and Multi-Conductor: UL/ULC Certified and Listed One-Hour and Two-Hour Fire-Resistive Power Cables.

Applications

Lifeline® MC/RC90 Cables have been qualified and listed to the demanding requirements of UL 2196 and ULC-S139, and are UL Listed Type MC and ULC Listed Type RC90.

Lifeline® MC/RC90 Cables meet various industry code requirements of National Building Code of Canada Articles 3.2.6 and 3.2.7, NFPA 70, NFPA 72 and NFPA 101 (Lifeline® MC/RC90 LSZH Jacketed also meet NFPA 130 and NFPA 502) for fire resistance according to UL 2196 and ULC-S139 standards when selected and installed per applicable codes including federal, state, local and municipal rules, laws and regulations as well as Electrical Circuit Integrity Systems 50 and 50A (FHIT.50 and FHIT.50A) or Electrical Circuit Integrity Systems Certified for Canada - 51 and 51A (FHIT7.51 and FHIT7.51A). Note that Authorities Having Jurisdiction (AHJ) should be consulted for approval prior to cable purchase and installation.

Requirements

1) Codes / Laws / Regulations

Selection and installation compliance is dependent on the applicable issue of any code or addendum that covers the use of Lifeline® MC/RC90, Fire-Resistive Cables.

2) UL Electrical Circuit Integrity Systems #50 and #50A (FHIT.50 and FHIT.50A) for USA & Systems #51 and #51A (FHIT7.51 and FHIT.51A) For Canada

The most current listing details and supporting information applicable to Lifeline® MC/RC90 Cables' fire-resistive rating (FRR) or Circuit Integrity Rating (CIR) classification can be obtained from UL's UL Product IQ website by searching for keywords: FHIT.50, FHIT.50A, FHIT7.51, or FHIT.51A..

Where:

FHIT.50 & FHIT7.51 cover single-conductor and multi-conductor cables with 2-hour FRR at 480 volts utilization or CIR at 600 volts utilization and includes optional taped splice for conductor sizes 2AWG and larger. Refer to TIS 403 for splice installation instructions

FHIT.50A & FHIT7.51A cover single-conductor and multi-conductor cables with 1-hour FRR at 480 volts utilization or CIR at 600 volts utilization and optional ceramic stand-off splice for use with conductor sizes 14AWG to 350MCM. Refer to TIS 402 for splice installation instructions.

3) Manufacturer's Instructions – TIS #400

All Lifeline® MC/RC90 Cable products are covered by specific datasheets and supporting Technical Information Sheets that provide the user with information to properly select and install Lifeline® MC/RC90 Cables in a reliable and trouble-free manner. Do not hesitate to contact your Lifeline® MC/RC90 Cable representative should you have any questions.

Additional Features Available

1) Optional Outer Jacket

A corrosion resistant outer jacket is available over copper armor for applications with destructive corrosive conditions.

2) Splices

A two-hour and one-hour UL Classified fire resistive splices are available for Lifeline® MC/RC90 and Lifeline® MC/RC90 LSZH Cable. See FHIT.50 and FHIT.50A for USA installations and FHIT7.51 and FHIT7.51A for Canada installations and contact your Lifeline® MC/RC90 Cable representative for additional instructions.

Installation Parameters

1a) Cable: Lifeline® MC for USA

Code compliant cable classified as one-hour or two-hour fire-resistive according to UL 2196 when installed in accordance with FHIT.50, or FHIT.50A, the National Electric Code (NEC), and all applicable federal, state, and municipal regulations.

1b) Cable: Lifeline® RC90 for Canada

Code compliant cable classified as one-hour or two-hour fire-resistive according to ULC-S139 when installed in accordance with FHIT7.51 or FHIT7.51A, the Canadian Electric Code (CEC), and all applicable federal, state, and municipal regulations.

2) Securing and Supporting Spacing

Code compliant fire-resistive installation in both horizontal and vertical orientations requires the cable be secured and supported at intervals not exceeding four feet (48 inches), at each side cable bends, and within one foot (12 inches) of cable connector terminations. Noted exception: support spacing described above is in lieu of support spacing allowed in the NEC and CEC, and is required for compliant two-hour fire-resistive installation.

3) Supports and Fasteners

Cables shall be secured to supports using steel two-piece single-bolt pipe clamps. Supports shall be steel components or other fire rated components (described in FHIT.50 and FHIT.50A or FHIT7.51 and FHIT7.51A) proven to meet the required fire resistance ratings. No substitute components are allowed.

4) Cable Trays

Cable shall be installed in steel cable trays in accordance with NEC or CEC and tray manufacturer's instructions. Trays shall be supported at intervals not exceeding four feet (48 inches) and cables shall be secured to trays with steel clamps or straps at intervals not exceeding four feet (48 inches).

5) Cable Bending

The minimum bending radius for Lifeline® MC/RC90 cable is defined in two conditions.

1. The minimum pulling radius is 10 times the cable diameter when the cable is under tension and is being pulled around bends during installation (Example: if cable diameter is 1 inch, the minimum bend radius is 10 inches, and minimum diameter of sheaves or rollers used during installation is 20 inches).
2. The minimum training radius is 7 times the cable diameter in accordance with NEC Article 330 when the cable is not under tension and when the cable is in final installation position. During installation and handling, the bend radius should be kept as large as possible using a sheave with the full minimum bending radius of the cable.

6) Cable Pulling and Handling

Proper cable pulling and handling techniques are essential to ensure a damage free installation. The Lifeline® MC/RC90 Installation Manual (TIS #401) describes the recommended best practices.

Lifeline® MC/RC90: One-Hour and Two-Hour Fire Resistive Multiconductor Cables – UL 2196/ULC-S319



Fire Resistive Cable for Survivability in a Fire



APPLICATIONS

Lifeline® MC/RC90 fire resistive cables were designed to meet and have successfully passed one-hour and two-hour fire rating certification tests per UL 2196 and ULC-S319, and are classified in Electrical Circuit Integrity Systems FHIT No. 50 and No. 50A for USA and FHIT7 No. 51 and No. 51A for Canada.

Lifeline® MC/RC90 Cables can be used in the following applications to provide survivability during a fire:

- Tall Buildings
- Fire Pumps
- Emergency Feeder Cables
- Ventilating Fans
- Stairwell Pressurization
- Exit Lighting
- Elevators / OEO
- Emergency lighting for roadway and transit tunnels when cables include optional LSZH jacket over armor

Lifeline® MC/RC90 Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® MC/RC90 Cables are less costly and easier to install for many applications.

Fire resistive cables are required per NFPA 70/NEC, Articles 517, 695, 700, 708, 728 and 760 as well as NFPA 72 and NFPA 101. in USA and in Canada in addition to National Building Code of Canada Articles 3.2.6 and 3.2.7.10

DESIGN PARAMETERS

CONDUCTORS: Bare stranded copper, 14 AWG through 600 kcmil

INSULATION: Ceramifiable Silicone Zero Halogen (LSZH)

INNER BINDER JACKET: Ceramifiable Silicone Zero Halogen (LSZH)

ARMOR: Continuously Welded and Corrugated Copper

IDENTIFICATION:

ORIGIN USA PRYSMIAN MA P/N [#####] [X]/C [Y]AWG [Z]mm²
LIFELINE® UL MC-ST1 600V 90C FOR CT USE IEEE 1202/FT4 (cUL)
RC90 600V SILICONE -40C (UL) 2196 FRR 2HR FHIT 50 or FRR 1HR
FHIT 50A 480V UTILIZATION (ULC) S319 CIR 2HR FHIT7 51 or CIR 1HR
FHIT7 51A 600V UTILIZATION ([mm]/[yr]) (SEQUENTIAL FOOTAGE)

Notes: [#] is cable part number

[X] is the number of conductors

[Y] is cable size in AWG or kcmil

[Z] is cable size in mm²

¹ FRR 2HR FHIT#50 & CIR 2HR FHIT7 No. 51 includes taped splice for cables with conductor sizes 2AWG to 600MCM

² FRR 1HR FHIT#50A & CIR 2HR FHIT7 No. 51A applies ceramic stand-off splice for cables with 14AWG to 350MCM conductors

LIFELINE® MC SPECIFICATIONS & RATINGS IN USA

- Listed to UL 1569, *Metal Clad Cables*, as Type MC 600 Volt, Rated 90°C.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Classified to UL 2196 with one-hour and two-hour FRR.
- UL FHIT No. 50 with 2-hour FRR at 480 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- UL FHIT No. 50A with 1-hour FRR at 480 volts utilization, covers multi-conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101 compliant.
- Corrugated Copper Armor meets Equipment Grounding Conductor requirements of NEC Table 250.122.

LIFELINE® RC90 SPECIFICATIONS & RATINGS IN CANADA

- Listed to CSA C22.2 No. 123 *Metal Sheathed Cables* as Type RC90 600 Volt, Rated 90°C.
- For Wet Locations per CEC Rule 12-702.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Classified to ULC-S319 with one-hour and two-hour CIR.
- ULC FHIT7 No. 51 for 2-hour CIR at 600 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- ULC FHIT7 No. 51A for 1-hour CIR at 600 volts utilization, covers multiconductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101 compliant.
- Corrugated Copper Armor meets Equipment Bonding Conductor requirements of CEC Rule 10-610.



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Lifeline® MC/RC90: One-Hour and Two-Hour Fire Resistive Multiconductor Cables – UL 2196/ULC-S319



Fire Resistive Cable for Survivability in a Fire

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Conductors	Nominal Core Diameter (in)	Nominal Armor Diameter (in)	Ampacity* 75°C Amps	Ampacity* 90°C Amps	Cable Nominal Weight lbs/kft (kg/km)
LMC03014	14AWG	3	0.55	0.85	20**	25**	444 (660)
LMC05014	14AWG	5	0.66	0.96	20**	25**	561 (835)
LMC02012	12AWG	2	0.56	0.85	25**	30**	468 (696)
LMC03012	12AWG	3	0.59	0.90	25**	30**	505 (752)
LMC04012	12AWG	4	0.64	0.96	25**	30**	569 (847)
LMC05012	12AWG	5	0.70	0.96	25**	30**	606 (902)
LMC02010	10AWG	2	0.61	0.85	35**	40**	510 (758)
LMC03010	10AWG	3	0.64	0.96	35**	40**	579 (862)
LMC04010	10AWG	4	0.70	0.96	35**	40**	636 (946)
LMC05010	10AWG	5	0.77	1.08	35**	40**	743 (1,105)
LMC07010	10AWG	7	0.85	1.27	35**	40**	915 (1,362)
LMC02008	8AWG	2	0.70	0.96	50	55	648 (964)
LMC03008	8AWG	3	0.75	1.08	50	55	722 (1,074)
LMC04008	8AWG	4	0.82	1.20	50	55	852 (1,268)
LMC05008	8AWG	5	0.90	1.27	50	55	980 (1,458)
LMC02006	6AWG	2	0.78	1.08	65	75	747 (1,112)
LMC03006	6AWG	3	0.83	1.20	65	75	882 (1,313)
LMC04006	6AWG	4	0.91	1.27	65	75	1,036 (1,542)
LMC05006	6AWG	5	1.00	1.35	65	75	1,189 (1,770)
LMC03004	4AWG	3	0.95	1.35	85	95	1,147 (1,706)
LMC04004	4AWG	4	1.04	1.35	85	95	1,324 (1,970)
LMC05004	4AWG	5	1.15	1.57	85	95	1,717 (2,555)
LMC03003	3AWG	3	1.00	1.35	100	115	1,297 (1,930)
LMC04003	3AWG	4	1.11	1.40	100	115	1,544 (2,298)
LMC03002	2AWG	3	1.07	1.40	115	130	1,444 (2,149)
LMC04002	2AWG	4	1.18	1.57	115	130	1,887 (2,808)
LMC03001	1AWG	3	1.24	1.77	130	145	2,007 (2,987)
LMC04001	1AWG	4	1.37	1.77	130	145	2,355 (3,505)
LMC031/0	1/0AWG	3	1.33	1.77	150	170	2,235 (3,326)
LMC041/0	1/0AWG	4	1.47	1.83	150	170	2,700 (4,018)
LMC032/0	2/0AWG	3	1.41	1.83	175	195	2,616 (3,893)
LMC042/0	2/0AWG	4	1.56	1.98	175	195	3,176 (4,726)
LMC033/0	3/0AWG	3	1.52	1.98	200	225	3,029 (4,508)
LMC043/0	3/0AWG	4	1.69	2.15	200	225	3,762 (5,599)
LMC034/0	4/0AWG	3	1.64	2.15	230	260	3,624 (5,394)
LMC044/0	4/0AWG	4	1.82	2.27	230	260	4,479 (6,666)
LMC03250	250MCM	3	1.81	2.27	255	290	4,195 (6,242)
LMC04250	250MCM	4	2.00	2.48	255	290	5,271 (7,844)
LMC03350	350MCM	3	2.04	2.48	310	350	5,359 (7,976)
LMC04350	350MCM	4	2.26	2.73	310	350	6,733 (10,019)
LMC03400	400MCM	3	2.13	2.73	335	380	6,091 (9,064)
LMC04400	400MCM	4	2.37	2.79	335	380	7,606 (11,320)
LMC03500	500MCM	3	2.31	2.79	380	430	7,182 (10,688)
LMC04500	500MCM	4	2.57	3.08	380	430	9,119 (13,571)
LMC03600	600MCM	3	2.54	3.08	420	475	8,516 (12,673)
LMC04600	600MCM	4	2.83	3.35	420	475	10,833 (16,122)

* Ampacities are based on Table 310.16 of the National Electrical Code (NEC) (NFPA 70-2023) & Table 2 of the Canadian Electrical Code (CEC) for 3 current carrying conductors at 30°C ambient.

** Small overcurrent protection limitations per NEC Article 240.4(D): (4) 14AWG – 15amps, (6) 12AWG – 20amps, (30) 10AWG – 30amps. & CEC Rule 14-104: (Subrule 2a) 14AWG – 15amps, (Subrule 2b) 12AWG – 20amps, (Subrule 2c) 10AWG – 30amps

*** Refer to Table 310.15(C)(1) of the National Electrical Code (NEC) (NFPA 70-2023) or Table 5C of the Canadian Electrical Code (CEC) for more than three current-carrying conductors.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change

Lifeline® MC/RC90: One-Hour and Two-Hour Fire Resistive Single Conductor Cables – UL 2196/ULC-S139



Fire Resistive Cable for Survivability in a Fire



APPLICATIONS

Lifeline® MC/RC90 fire resistive cables were designed to meet and have successfully passed one-hour and two-hour fire rating certification tests per UL 2196 and ULC-S139, and are classified in Electrical Circuit Integrity Systems FHIT No. 50 and No. 50A for USA and FHIT7 No. 51 and No. 51A for Canada.

Lifeline® MC/RC90 Single Conductor Cables can be used in the following applications to provide survivability during a fire:

- Tall Buildings
- Fire Pumps
- Emergency Feeder Cables
- Ventilating Fans
- Stairwell Pressurization
- Exit Lighting
- Elevators / OEO
- Emergency lighting for roadway and transit tunnels when cables include optional LSZH jacket over armor

Lifeline® MC/RC90 Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® MC/RC90 Cables are less costly and easier to install for many applications. Fire resistive cables are required per NFPA 70/NEC, Articles 517, 695, 700, 708, 728 and 760 as well as NFPA 72 and NFPA 101. in USA and in Canada in addition to National Building Code of Canada Articles 3.2.6 and 3.2.7.10.

DESIGN PARAMETERS

CONDUCTORS: Bare stranded copper, 1/0 AWG through 750 kcmil

INSULATION: Ceramifiable Silicone Zero Halogen (LSZH)

INNER BINDER JACKET: Ceramifiable Silicone Zero Halogen (LSZH)

ARMOR: Continuously Welded and Corrugated Copper

IDENTIFICATION:

ORIGIN USA PRYSMIAN MA P/N [#####] 1/C [X]AWG [Y] mm²
LIFELINE® (UL) MC-ST1 600V 90C FOR CT USE IEEE 1202/FT4 (cUL)
RC90 600V SILICONE -40C (UL) 2196 FRR 2HR FHIT 50 or FRR 1HR
FHIT 50A 480V UTILIZATION (ULC) S139 CIR 2HR FHIT7 51 or CIR 1HR
FHIT7 51A 600V UTILIZATION ([mm]/[yr]) (SEQUENTIAL FOOTAGE)

Notes: [#] is cable part number

[X] is the number of conductors

[Y] is cable size in AWG or kcmil

[Z] is cable size in mm²

¹ FRR 2HR FHIT#50 & CIR 2HR FHIT7 No. 51 includes taped splice for cables with conductor sizes 2AWG to 600MCM

² FRR 1HR FHIT#50A & CIR 2HR FHIT7 No. 51A includes ceramic stand-off splice for cables with 14AWG to 350MCM conductors

LIFELINE MC SPECIFICATIONS & RATINGS IN USA

- Listed to UL 1569, *Metal Clad Cables*, as Type MC 600 Volt, Rated 90°C.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Classified to UL 2196, with one-hour and two-hour FRR.
- UL FHIT No. 50 with 2-hour FRR at 480 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- UL FHIT No. 50A with 1-hour FRR at 480 volts utilization, covers multi-conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101 compliant.
- Corrugated Copper Armor meets Equipment Grounding Conductor requirements of NEC Table 250.122.

LIFELINE RC90 SPECIFICATIONS & RATINGS IN CANADA

- Listed to CSA C22.2 No. 123 *Metal Sheathed Cables* as Type RC90 600 Volt, Rated 90°C.
- For Wet Locations per CEC Rule 12-702.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Classified to ULC-S139 with one-hour and two-hour CIR.
- ULC FHIT7 No. 51 for 2-hour CIR at 600 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- ULC FHIT7 No. 51A for 1-hour CIR at 600 volts utilization, covers multiconductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101 compliant.
- Corrugated Copper Armor meets Equipment Bonding Conductor requirements of CEC Rule 10-610.



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Lifeline® MC/RC90: One-Hour and Two-Hour Fire Resistive Single Conductor Cables – UL 2196/ULC-S139



Fire Resistive Cable for Survivability in a Fire

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Conductors	Nominal Core Diameter (in)	Nominal Armor Diameter (in)	Ampacity* 75°C Amps	Ampacity* 90°C Amps	Cable Nominal Weight lbs/kft (kg/km)
LMC011/0	1/0AWG	1	0.65	0.90	230	260	744 (1,108)
LMC012/0	2/0AWG	1	0.69	0.96	265	300	863 (1,285)
LMC013/0	3/0AWG	1	0.74	1.08	310	350	1,020 (1,518)
LMC014/0	4/0AWG	1	0.80	1.20	360	405	1,213 (1,806)
LMC01250	250MCM	1	0.87	1.27	405	455	1,389 (2,067)
LMC01300	300MCM	1	0.93	1.27	445	500	1,558 (2,318)
LMC01350	350MCM	1	0.98	1.35	505	570	1,734 (2,580)
LMC01400	400MCM	1	1.03	1.40	545	615	1,942 (2,890)
LMC01500	500MCM	1	1.11	1.57	620	700	2,434 (3,622)
LMC01600	600MCM	1	1.22	1.77	690	780	2,886 (4,295)
LMC01750	750MCM	1	1.32	1.77	785	885	3,375 (5,022)

* Ampacities are based on Table 310.17 of the National Electric Code (NEC) NFPA 70-2023 & on Table 1 of the Canadian Electrical Code (CEC) for single insulated conductors in free air at 30°C
The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change

Lifeline® MCRC90 LSZH: One-Hour and Two-Hour Fire Resistive Multiconductor Cables – UL 2196/ULC-S139



Fire Resistive Cable for Survivability in a Fire



APPLICATIONS

Lifeline® MC/RC90 LSZH fire resistive cables were designed to meet and have successfully passed one-hour and two-hour fire rating certification tests per UL 2196 and are classified in FHIT No. 50, and No. 50A, and FHIT7 No. 51 and No. 51A.

Lifeline® MC/RC90 Cables can be used in the following applications to provide survivability during a fire:

- Emergency Feeder Cables
- Ventilating Fans
- Exit Lighting
- Emergency lighting and ventilation for roadway and transit tunnels

Lifeline® MC/RC90 LSZH Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® MC/RC90 LSZH Cables are less costly and easier to install for many life safety fire resistive applications in roadway and tunnel environments with a LSZH jacket to protect against corrosion.

Fire resistive cables are required per NFPA 70/NEC, Articles 517, 695, 700, 708, 728 and 760 as well as NFPA 72 and NFPA 101 in USA and in Canada in addition to National Building Code of Canada Articles 3.2.6 and 3.2.7.10.

DESIGN PARAMETERS

CONDUCTORS: Bare stranded copper, 14 AWG through 600 kcmil

INSULATION: Ceramifiable Silicone Zero Halogen (LSZH)

INNER BINDER JACKET: Ceramifiable Silicone Zero Halogen (LSZH)

ARMOR: Continuously Welded and Corrugated Copper

JACKET: Thermoplastic Flame Resistant LSZH Jacket

IDENTIFICATION:

ORIGIN USA PRYSMIAN MA P/N [#####] [X]/C [Y]AWG [Z] mm² LIFELINE®(UL) MC 600V 90C WET LOCS FOR CT USE IEEE 1202/FT4-ST1 SUN RES DIR BUR (cUL) RC90 600V SILICONE -40C SUN RES FT4-ST1 (UL) 2196 FRR 2HR FHIT 50 or FRR 1HR FHIT 50A 480V UTILIZATION (ULC) S139 CIR 2HR FHIT7 51 or CIR 1HR FHIT7 51A 600V UTILIZATION ([mm]/[yr]) (SEQUENTIAL FOOTAGE)

Notes: [#] is cable part number

[X] is the number of conductors

[Y] is cable size in AWG or kcmil

[Z] is cable size in mm²

¹ FRR 2HR FHIT#50 & CIR 2HR FHIT7#51 includes taped splice for cables with conductor sizes 2AWG to 600MCM

² FRR 1HR FHIT#50A & CIR1HR FHIT7#51A includes ceramic stand-off splice for cables with 14AWG to 350MCM conductors

LIFELINE MC SPECIFICATIONS & RATINGS FOR USA

- Listed to UL 1569, *Metal Clad Cables*, as Type MC 600 Volt, Rated 90°C.
- For Wet Locations.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Sunlight resistance.
- Direct Burial.
- Classified to UL 2196 with one-hour and two-hour FRR.
- UL FHIT No. 50 with 2-hour FRR at 480 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- UL FHIT No. 50A with 1-hour FRR at 480 volts utilization, covers multi conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101, NFPA 130, NFPA 502 compliant.
- Corrugated Copper Armor meets Equipment Grounding Conductor requirements of NEC Table 250.122.

LIFELINE RC90 SPECIFICATIONS & RATINGS FOR CANADA

- Listed to CSA C22.2 No. 123 *Metal Sheathed Cables* as Type RC90 600 Volt, Rated 90°C.
- For Wet Locations.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Sunlight resistance.
- Direct Burial.
- Classified to ULC-S139 with one-hour and two-hour CIR
- ULC FHIT7 No. 51 with 2-hour CIR at 600 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- ULC FHIT7 No. 51A with 1-hour FRR at 600 volts utilization, covers multi-conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101, NFPA 130, NFPA 502 compliant.
- Corrugated Copper Armor meets Equipment Bonding Conductor requirements of CEC Rule 10-610.



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Lifeline® MCRC90 LSZH: One-Hour and Two-Hour Fire Resistive Multiconductor Cables – UL 2196/ULC-S139



Fire Resistive Cable for Survivability in a Fire

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Conductors	Nominal Core Diameter (in)	Nominal Armor Diameter (in)	Nominal Jacket Diameter (in)	Ampacity* 75°C Amps	Ampacity* 90°C Amps	Cable Nominal Weight lbs/kft (kg/km)
LMCJ03014	14AWG	3	0.55	0.85	0.95	20**	25**	541 (805)
LMCJ05014	14AWG	5	0.66	0.96	1.06	20**	25**	664 (989)
LMCJ02012	12AWG	2	0.56	0.85	0.95	25**	30**	563 (838)
LMCJ03012	12AWG	3	0.59	0.90	1.00	25**	30**	607 (904)
LMCJ04012	12AWG	4	0.64	0.96	1.06	25**	30**	677 (1,007)
LMCJ05012	12AWG	5	0.70	0.96	1.06	25**	30**	720 (1,072)
LMCJ02010	10AWG	2	0.61	0.85	0.95	35**	40**	605 (901)
LMCJ03010	10AWG	3	0.64	0.96	1.06	35**	40**	686 (1,021)
LMCJ04010	10AWG	4	0.70	0.96	1.06	35**	40**	743 (1,106)
LMCJ05010	10AWG	5	0.77	1.08	1.18	35**	40**	862 (1,282)
LMCJ07010	10AWG	7	0.85	1.27	1.37	35**	40**	1,050 (1,563)
LMCJ02008	8AWG	2	0.70	0.96	1.06	50	55	755 (1,123)
LMCJ03008	8AWG	3	0.75	1.08	1.18	50	55	840 (1,251)
LMCJ04008	8AWG	4	0.82	1.20	1.30	50	55	982 (1,462)
LMCJ05008	8AWG	5	0.90	1.27	1.37	50	55	1,105 (1,645)
LMCJ02006	6AWG	2	0.78	1.08	1.18	65	75	901 (1,340)
LMCJ03006	6AWG	3	0.83	1.20	1.30	65	75	1,013 (1,507)
LMCJ04006	6AWG	4	0.91	1.27	1.37	65	75	1,175 (1,749)
LMCJ05006	6AWG	5	1.00	1.35	1.45	65	75	1,352 (2,013)
LMCJ03004	4AWG	3	0.95	1.35	1.45	85	95	1,301 (1,936)
LMCJ04004	4AWG	4	1.04	1.35	1.45	85	95	1,478 (2,200)
LMCJ05004	4AWG	5	1.15	1.57	1.69	85	95	1,889 (2,811)
LMCJ03003	3AWG	3	1.00	1.35	1.45	100	115	1,445 (2,151)
LMCJ04003	3AWG	4	1.11	1.40	1.50	100	115	1,698 (2,527)
LMCJ03002	2AWG	3	1.07	1.40	1.50	115	130	1,598 (2,378)
LMCJ04002	2AWG	4	1.18	1.57	1.69	115	130	2,093 (3,114)
LMCJ03001	1AWG	3	1.24	1.77	1.89	130	145	2,248 (3,346)
LMCJ04001	1AWG	4	1.37	1.77	1.89	130	145	2,596 (3,863)
LMCJ031/0	1/0AWG	3	1.33	1.77	1.89	150	170	2,468 (3,673)
LMCJ041/0	1/0AWG	4	1.47	1.83	1.95	150	170	2,949 (4,388)
LMCJ032/0	2/0AWG	3	1.41	1.83	1.95	175	195	2,857 (4,252)
LMCJ042/0	2/0AWG	4	1.56	1.98	2.10	175	195	3,424 (5,096)
LMCJ033/0	3/0AWG	3	1.52	1.98	2.10	200	225	3,285 (4,889)
LMCJ043/0	3/0AWG	4	1.69	2.15	2.27	200	225	4,034 (6,003)
LMCJ034/0	4/0AWG	3	1.64	2.15	2.27	230	260	3,913 (5,824)
LMCJ044/0	4/0AWG	4	1.82	2.27	2.42	230	260	4,774 (7,104)
LMCJ03250	250MCM	3	1.81	2.27	2.42	255	290	4,490 (6,681)
LMCJ04250	250MCM	4	2.00	2.48	2.63	255	290	5,676 (8,447)
LMCJ03350	350MCM	3	2.04	2.48	2.63	310	350	5,764 (8,578)
LMCJ04350	350MCM	4	2.26	2.73	2.88	310	350	7,169 (10,668)
LMCJ03400	400MCM	3	2.13	2.73	2.88	335	380	6,538 (9,730)
LMCJ04400	400MCM	4	2.37	2.79	2.94	335	380	8,071 (12,012)
LMCJ03500	500MCM	3	2.31	2.79	2.94	380	430	7,647 (11,380)
LMCJ04500	500MCM	4	2.57	3.08	3.25	380	430	9,694 (14,427)
LMCJ03600	600MCM	3	2.54	3.08	3.25	420	475	9,091 (13,529)
LMCJ04600	600MCM	4	2.83	3.35	3.52	420	475	11,463 (17,058)

* Ampacities are based on Table 310.16 of the National Electrical Code (NEC) (NFPA 70-2023) & Table 2 of the Canadian Electrical Code (CEC) for 3 current carrying conductors at 30°C ambient.

** Small overcurrent protection limitations per NEC Article 240.4(D): (4) 14AWG – 15amps, (6) 12AWG – 20amps, (30) 10AWG – 30amps. & CEC Rule 14-104: (Subrule 2a) 14AWG – 15amps, (Subrule 2b) 12AWG – 20amps, (Subrule 2c) 10AWG – 30amps

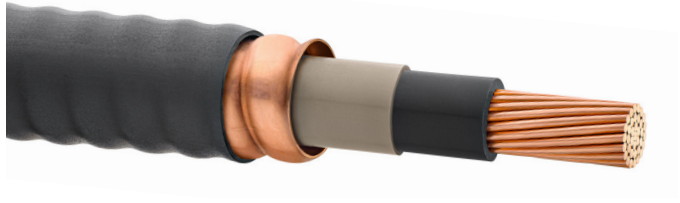
*** Refer to Table 310.15(C)(1) of the National Electrical Code (NEC) (NFPA 70-2023) or Table 5C of the Canadian Electrical Code (CEC) for more than three current-carrying conductors.

The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change

Lifeline® MC/RC90 LSZH: One-Hour and Two-Hour Fire Resistive Single Conductor Cables – UL 2196/ ULC-S139



Fire Resistive Cable for Survivability in a Fire



APPLICATIONS

Lifeline® MC/RC90 LSZH fire resistive cables were designed to meet and have successfully passed one-hour and two-hour fire rating certification tests per UL 2196 and are classified in FHIT No. 50, and No. 50A, and FHIT7 No. 51 and No. 51A.

Lifeline® MC/RC90 LSZH Single Conductor Cables can be used in the following applications to provide survivability during a fire:

- Emergency Feeder Cables
- Ventilating Fans
- Exit Lighting
- Emergency lighting and ventilation for roadway and transit tunnels

Lifeline® MC/RC90 LSZH Cables are preferred over Mineral Insulated (MI) cables, concrete encasement or the construction of fire rated assemblies based on the facts that Lifeline® MC/RC90 LSZH Cables are less costly and easier to install for many life safety fire-resistive applications in roadway and tunnel environments with a LSZH jacket to protect against corrosion.

Fire resistive cables are required per NFPA 70/NEC, Articles 517, 695, 700, 708, 728 and 760 as well as NFPA 72 and NFPA 101 in USA and in Canada in addition to National Building Code of Canada Articles 3.2.6 and 3.2.7.1.

DESIGN PARAMETERS

CONDUCTORS: Bare stranded copper, 1/0 AWG through 750 kcmil

INSULATION: Ceramifiable Silicone Zero Halogen (LSZH)

INNER BINDER JACKET: Ceramifiable Silicone Zero Halogen (LSZH)

ARMOR: Continuously Welded and Corrugated Copper

JACKET: Thermoplastic Flame Resistant LSZH Jacket

IDENTIFICATION:

ORIGIN USA PRYSMIAN MA P/N [#####] 1/C [X]AWG [Y] mm²
LIFELINE® (UL) MC 600V 90C WET LOCS FOR CT USE IEEE 1202/
FT4 ST1 SUN RES DIR BUR (cUL) RC90 600V SILICONE -40C SUN
RES FT4-ST1 (UL) 2196 FRR 2HR FHIT 50 or FRR 1HR FHIT 50A 480V
UTILIZATION (ULC) S139 CIR 2HR FHIT7 51 or CIR 1HR FHIT7 51A 600V
UTILIZATION ([mm]/[yr]) (SEQUENTIAL FOOTAGE)

Notes: [#] is cable part number

[X] is the number of conductors

[Y] is cable size in AWG or kcmil

[Z] is cable size in mm²

¹ FRR 2HR FHIT#50 & CIR 2HR FHIT7#51 includes taped splice for cables with conductor sizes 2AWG to 600MCM

² FRR 1HR FHIT#50A & CIR 1HR FHIT7#51A includes ceramic stand-off splice for cables with 14AWG to 350MCM conductors

LIFELINE MC SPECIFICATIONS & RATINGS FOR USA

- Listed to UL 1569, *Metal Clad Cables*, as Type MC 600 Volt, Rated 90°C.
- For Wet Locations.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Sunlight Resistance.
- Direct Burial.
- Classified to UL 2196 with one-hour and two-hour FRR.
- UL FHIT No. 50 with 2-hour FRR at 480 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- UL FHIT No. 50A with 1-hour FRR at 480 volts utilization, covers multi-conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101, NFPA 130, NFPA 502 compliant.
- Corrugated Copper Armor meets Equipment Grounding Conductor requirements of NEC Table 250.122.

LIFELINE RC90 SPECIFICATIONS & RATINGS FOR CANADA

- Listed to CSA C22.2 No. 123 *Metal Sheathed Cables* as Type RC90 600 Volt, Rated 90°C.
- For Wet Locations.
- For Cable Tray Use IEEE 1202/ FT4 Rated, ST1 Limited Smoke.
- Sunlight Resistance.
- Direct Burial.
- Classified to ULC-S139 with one-hour and two-hour CIR.
- ULC FHIT7 No. 51 with 2-hour CIR at 600 volts utilization covers cable constructions in table below and optional taped splice for conductor sizes 2AWG and larger.
- ULC FHIT7 No. 51A with 1-hour FRR at 600 volts utilization, covers multi-conductor cable constructions in the table below and optional ceramic stand-off splice for conductor sizes 14AWG to 350MCM.
- NFPA 70, NFPA 72, NFPA 101, NFPA 130, NFPA 502 compliant.
- Corrugated Copper Armor meets Equipment Bonding Conductor requirements of CEC Rule 10-610.



RoHS
COMPLIANT



Lifeline® MC/RC90 LSZH: One-Hour and Two-Hour Fire Resistive Single Conductor Cables – UL 2196/ ULC-S139



Fire Resistive Cable for Survivability in a Fire

LIFELINE® Part Number	Conductor Size AWG /MCM	Number of Conductors	Nominal Core Diameter (in)	Nominal Armor Diameter (in)	Nominal Jacket Diameter (in)	Ampacity* 75°C Amps	Ampacity* 90°C Amps	Cable Nominal Weight lbs/kft (kg/km)
LMCJ011/0	1/0AWG	1	0.65	0.90	1.00	230	260	841 (1,251)
LMCJ012/0	2/0AWG	1	0.69	0.96	1.06	265	300	967 (1,439)
LMCJ013/0	3/0AWG	1	0.74	1.08	1.18	310	350	1,134 (1,688)
LMCJ014/0	4/0AWG	1	0.80	1.20	1.30	360	405	1,339 (1,992)
LMCJ01250	250MCM	1	0.87	1.27	1.37	405	455	1,522 (2,266)
LMCJ01300	300MCM	1	0.93	1.27	1.37	445	500	1,690 (2,515)
LMCJ01350	350MCM	1	0.98	1.35	1.45	505	570	1,876 (2,791)
LMCJ01400	400MCM	1	1.03	1.40	1.50	545	615	2,089 (3,108)
LMCJ01500	500MCM	1	1.11	1.57	1.69	620	700	2,630 (3,914)
LMCJ01600	600MCM	1	1.22	1.77	1.89	690	780	3,099 (4,612)
LMCJ01750	750MCM	1	1.32	1.77	1.89	785	885	3,590 (5,343)

* Ampacities are based on Table 310.17 of the National Electric Code (NEC) NFPA 70-2023 & on Table 1 of the Canadian Electrical Code (CEC) for single insulated conductors in free air at 30°C
The above dimensions are approximate and subject to normal manufacturing tolerances. Information subject to change