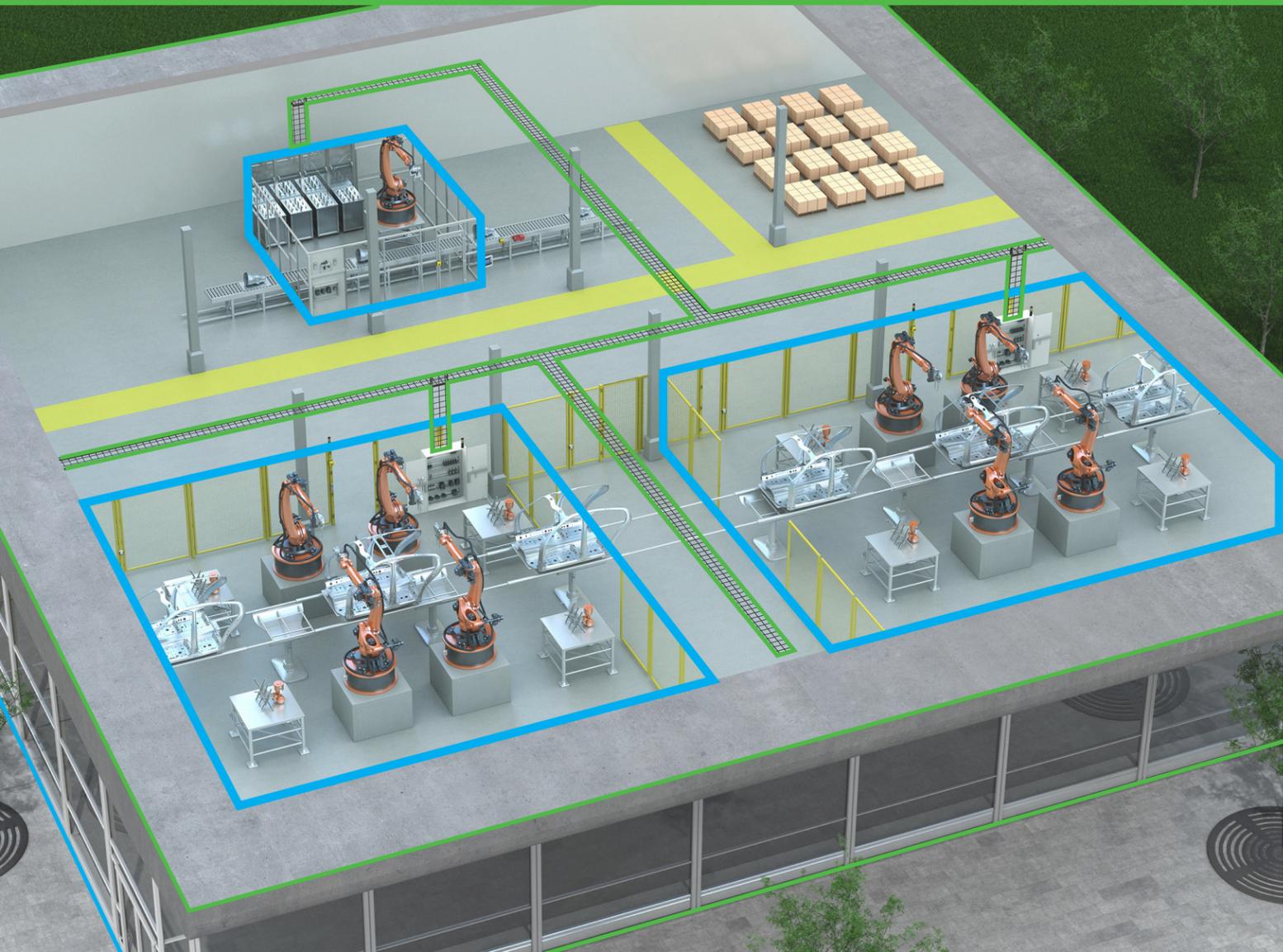


NORTH AMERICAN CABLE INSTALLATION GUIDE

Where to Install, How to Use



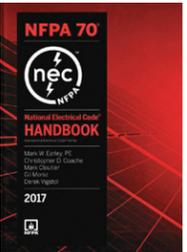


UL LISTINGS FOR INDUSTRIAL CABLE



“UL Listed” shows that a cable has been tested and proven for a specific use. This ensures the cable matches the UL Standards and meets the requirements of the National Electric Code (NEC). In North America cables with a UL Listing are typically used for field wiring.

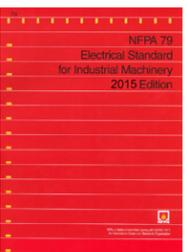
Legend	Installation Type	Details and Specification	NEC Compliance	Agency Approval	Applicable Sizes
TC	Tray Cable	<ul style="list-style-type: none"> For use in 600v Designated Tray Cables are rated 600v Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEEE1202 Sunlight Resistant if so marked Oil Resistant if so marked 	Article 336	UL 1277	18-8 AWG
TC-ER	Tray Cable - Exposed Run	<ul style="list-style-type: none"> As specified above Exposed run permitted at intervals not exceeding 1.8m (6ft) 			
PLTC	Power Limited Tray Cable	<ul style="list-style-type: none"> For use in 300v Designated Tray Cables are rated 300v Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEEE1202 Sunlight Resistant Oil Resistant if so marked 	Article 725	UL 13	22-12 AWG
PLTC-ER	Power Limited Tray Cable - Exposed Run	<ul style="list-style-type: none"> As specified above Exposed run permitted at intervals not exceeding 1.8m (6ft) 			
ITC	Instrumentation Tray Cable	<ul style="list-style-type: none"> For use in 150v Designated Tray Cables are rated 300v Flame Rating: Vertical-Tray (UL 1685) and/or FT4/IEEEE1202 Sunlight Resistant Oil Resistant if so marked 	Article 727	UL 2250	
ITC-ER	Instrumentation Tray Cable - Exposed Run	<ul style="list-style-type: none"> As specified above Exposed run permitted at intervals not exceeding 1.8m (6ft) 			
CMP	Communications Cable, Plenum	<ul style="list-style-type: none"> Flame Rating: Plenum (NFPA 262/UL 910) or CSA FT7 Sunlight Resistant if so marked Oil Resistant if so marked 	Article 800	UL 444	
CMR	Communications Cable, Riser	<ul style="list-style-type: none"> Flame Rating: Riser (UL 1666) Sunlight Resistant if so marked Oil Resistant if so marked 			
CMG	Communications Cable, General Purpose	<ul style="list-style-type: none"> Flame Rating: CSA FT4 Sunlight Resistant if so marked Oil Resistant if so marked 			
CM	Communications Cable, General Purpose	<ul style="list-style-type: none"> Flame Rating: Vertical-Tray (UL 1685) Sunlight Resistant if so marked Oil Resistant if so marked 			
CMX	Communications Cable, Limited Use	<ul style="list-style-type: none"> Flame Rating: UL VW-1 Sunlight Resistant if so marked Oil Resistant if so marked 			



NEC / NFPA 70

UL Listed Cable Styles for US National Electric Code (NEC)
NFPA 70 Installation Locations

Represents Zone



NFPA 79

UL Recognized Cable Styles for NFPA 79 Machinery Installation Locations

Represents Zone

ADDITIONAL CABLE CERTIFICATIONS

Legend	Certification	Details and Specifications	Protocol
SUN. RES.	Sunlight Resistant	Resistant to 720 hours of harsh UV and heat	UL 444
OIL RES I	Oil Resistant I	Test: Oil immersion for 4 days at 100°C Certification: Exposure to oil at temperatures not in excess of 60°C (140°F)	UL 1277
OIL RES II	Oil Resistant II	Test: Oil immersion for 60 days at 75°C Certification: Exposure to oil at temperatures not in excess of 75°C (167°F)	
CMP	Flame Rating: Plenum	Test: 88kW horizontal. Exposed to flame for 20min. Flame spread can't exceed 5ft	NFPA 262
CMR	Flame Rating: Riser	Test: 154kW vertical. Exposed to flame for 30min. Flame spread can't exceed 12ft	UL 1666
FT4	Flame Rating: FT4	Test: 20kW vertical. Exposed to flame for 20min. < 1.5m vertical flame spread	CSA FT4
CM, PLTC, ...	Flame Rating: Vertical Tray	Test: 20kW vertical. Exposed to flame for 20min. < 8' vertical flame spread	UL 1685
VW-1	Flame Rating: VW-1	Test: 500W vertical. Requires < 10" vertical flame spread	UL 1581
FT1	Flame Rating: FT1	Test: 500W vertical. Exposed to flame for five 15 sec. applications, <25% of a paper indicator burnt	CSA FT1
FT2	Flame Rating: FT2	Test: 500W horizontal. Exposed to flame for five 15 sec. applications, <100mm from end to end	CSA FT2

NOTE: This document is intended only as a guideline for cable installations. Certification and/or approval of an installation falls ultimately at the discretion of local inspectors and their interpretation of electrical codes.

Power: Mini (7/8") - TPE 16AWG



(UL) TC-ER 90C (-40C) SUNLIGHT RESISTANT OIL RES II 600V OR AWM 105C 600V OR CSA CIC-TC 105C (-40C) 600V FT4

- TC-ER: for use in a 600V designated tray. Exposed run permitted.
- Maximum UL Listed Temperature: 90°C
- Minimum UL Listed Temperature: -40°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: CSA FT4

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 21002
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 105°C
- Conductor Insulation Rating: 600V

NFPA 79

Sensor Actuator: M12 - TPE 18AWG



(UL) ITC 105C Sunlight Resistant or PLTC 105C Oil Res II or AWM 90C 600v or CSA CMX-Outdoor-CMG 105C or CSA AWM I/II A/B 90C 600v FT4 CE

- PLTC: for use in a 300V designated tray
- ITC: for use in a 150V designated tray
- CMG: for Communications, general purpose use
- CMX-Outdoor: for Communications, limited use
- Maximum UL Listed Temperature: 105°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: CSA FT4

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 20626
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 90°C
- Conductor Insulation Rating: 600V

NFPA 79

Network: ProfiNet - TPE 22AWG



C(UL)US CMX Outdoor - CM ITC/PLTC 75C Sunlight Res Oil Res II or AWM 80C 600V

- PLTC: for use in a 300V designated tray
- ITC: for use in a 150V designated tray
- CM: for Communications, general purpose use
- CMX-Outdoor: for Communications, limited use
- Maximum UL Listed Temperature: 75°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: Vertical-Tray (UL 1685)

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 2463
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 80°C
- Conductor Insulation Rating: 600V

NFPA 79

M12 - TPE 22AWG



(UL) ITC 105C Sunlight Resistant or PLTC 105C Oil Res II or AWM 90C 300v or CSA CMX-Outdoor-CMG 105C or CSA AWM I/II A/B 90C 300v FT4 CE

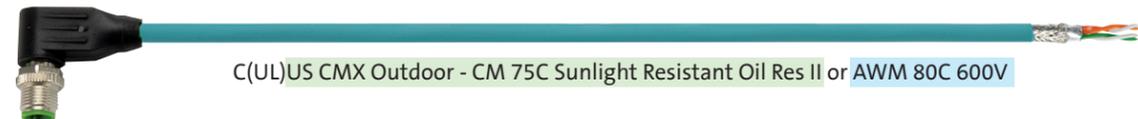
- PLTC: for use in a 300V designated tray
- ITC: for use in a 150V designated tray
- CMG: for Communications, general purpose use
- CMX-Outdoor: for Communications, limited use
- Maximum UL Listed Temperature: 105°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: CSA FT4

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 20626
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 90°C
- Conductor Insulation Rating: 600V

NFPA 79

Ethernet - TPE 24AWG



C(UL)US CMX Outdoor - CM 75C Sunlight Resistant Oil Res II or AWM 80C 600V

- CM: for Communications, general purpose use
- CMX-Outdoor: for Communications, limited use
- Maximum UL Listed Temperature: 75°C
- Sunlight Resistant
- Oil Resistant II
- Flame Rating: Vertical-Tray (UL 1685)

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 2463
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 80°C
- Conductor Insulation Rating: 600V

NFPA 79

M12 - PVC 22AWG



(RU) AWM 2464 VW1 --- CSA AWM I/II A/B 80C 300V FT1

- For use in NFPA79 installation areas only

NEC / NFPA 70

- Appliance Wiring Material: AWM Style 2464
- For internal wiring or external inter-connection of equipment
- Maximum Temperature: 80°C
- Conductor Insulation Rating: 300V
- Flame Rating: UL VW1 and CSA FT1

NFPA 79



stay connected

1327 Northbrook Parkway, Suite 460 | Suwanee, GA 30024
P: 770-497-9292 | F: 770-497-9391 | murrinc.com