



C-L-X[®] Type SP-OS

Type ITC/PLTC Thermocouple Extension Cable

Multiple Pair - Overall Shield

105°C Rating

For Cable Tray Use



- A Solid Thermocouple Alloy Conductor
- B Okoseal Insulation
- C Tinned Stranded Copper Group Drain Wire
- D Aluminum/Polyester Tape
- E Twisted Shielded Pairs
- F Communication Wire
- G Aluminum/Polyester Tape
- H Tinned Stranded Copper Group Drain Wire
- J Rip Cord
- K Inner Okoseal Jacket
- L Impervious, Continuous, Corrugated Aluminum C-L-X Sheath
- M Outer Okoseal Jacket

Specifications

Conductors: Solid alloys per ANSI MC 96.1.

Insulation: Flame-retardant Okoseal[®] (PVC) per UL Standard 13 and 2250, 15 mils nominal thickness, 105°C temperature rating.

Conductor Identification: Pigmented insulation on individual conductors, negative conductor numerically printed for group identification.

Group Shield: Aluminum/polyester taped overlapped to provide 100% coverage, and a tinned copper drain wire, two sizes smaller than the conductor. All group shields are completely isolated from each other.

Communications Wire: 22 AWG bare copper conductor, 12 mils nominal flame-retardant Okoseal insulation, 105°C temperature rating.

Assembly: Pairs assembled with left-hand lay. Flame-retardant, non-wicking fillers included where required to provide a round cable.

Cable Shield: Aluminum/polyester tape overlapped to provide 100% coverage, and a 7-strand tinned copper drain wire, same size as the conductor.

Inner Jacket: Color-coded, flame-retardant, low temperature, Okoseal per UL Standard 13 and 2250. A rip cord is laid longitudinally under the jacket to facilitate removal.

C-L-X Sheath: A close-fitting, impervious, continuously welded and corrugated aluminum sheath provides complete protection against moisture, liquids, and gases, has excellent mechanical strength, and provides equipment grounding through the sheath.

Outer Jacket: Color-coded, flame-retardant, low temperature, Okoseal per UL Standard 13 and 2250.

Classification: UL Listed as Type ITC/PLTC - Instrumentation Tray Cable/Power Limited Tray Cable for use in accordance with Article 725 and 727 of the National Electrical Code. The cables comply with UL 2250 and UL 13 for PLTC, CL2 and CL3.

Applications

Okonite Type C-L-X SP-OS (Pair - Individual and Overall Shield) thermocouple extension cables are designed for use as instrumentation and process control cables in ITC non-classified or labeled circuits and in Class 2 or 3 Power-Limited circuits where maximum shielding against external interference is required, as well as shielding among groups, particularly where the cable may be subject to abnormally

high current or voltage interference; indoors or outdoors; in wet or dry locations with conductor operating temperatures up to 105°C; in cable trays; in raceways; supported by a messenger wire; under raised floors; for direct burial. Suitable Class I, Division 2, Class II, Division 2, or Class III, Division 2 and Class I, Zone 2 hazardous locations. Also for use as Power-Limited fire protective signaling cable (FPL) per NEC Code 760. The C-L-X sheath provides physical protection against mechanical damage. It may be installed in both exposed and concealed work, secured to supports not greater than 6 feet apart.

Product Features

- Passes the UL 1581 & IEEE 383-1974 vertical tray flame tests.
- Passes the IEEE 1202-1991 vertical tray flame test (2 pair #18 AWG and larger).
- Passes the 210,000 BTU/hr vertical tray flame test per ICEA T-29-520 and the 210,000 BTU/hr corner configuration test.
- UL listed as sunlight resistant.
- UL listed for direct burial (2 pr #20 AWG and larger).
- Complete pre-packaged, factory-tested wiring system-color coded.
- C-L-X cables are quality inspected to meet or exceed applicable UL Standards.
- C-L-X enclosure permits installation in cable tray containing light and power cables without a barrier separator.
- Individual pairs are numbered and color coded for simplified hook-up.
- Individual pairs are completely isolated for maximum noise rejection.
- Impervious, continuous sheath excludes moisture, gases and liquids.
- C-L-X sheath exceeds equipment grounding conductor requirements of NEC Section 250.
- Excellent compression and impact resistance.
- Lower installed system cost than conduit or EMT systems.
- OSHA Acceptable.
- UL listed as Marine Shipboard cable.
- American Bureau of Shipping listed as CWCMC-PLTC and CWCMC-ITC.
- Recognized by US Coast Guard as Type MC or CWCMC.
- Suitable for low temperature installation to -40°C.

C-L-X Type SP-OS

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Multiple Pair - Individual and Overall Shield - 105°C Rating
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Product Data

Section 5: Sheet 26



Conductors: 20 AWG; Okoseal Insulation: 15 mils

ASA/ISA Type	Catalog Number	Number of Pairs	Inner Jacket Thickness - mils	Inner Jacket Nominal O.D. - In.	C-L-X O.D. - In.	Outer Jacket - Inches	Nominal Cable O.D. - Inches	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
EX	584-10-1204	4	50	0.42	0.62	50	0.73	0.42	230	310
	584-10-1208	8	50	0.52	0.75	50	0.86	0.58	307	387
	584-10-1210	10	50	0.57	0.80	50	0.91	0.65	380	460
	584-10-1212	12	50	0.60	0.84	50	0.95	0.71	409	489
	584-10-1216	16	60	0.71	0.97	50	1.08	0.92	484	564
	584-10-1220	20	60	0.80	1.06	50	1.17	1.08	560	640
	584-10-1224	24	60	0.87	1.15	50	1.26	1.25	668	748
	584-10-1236	36	70	1.03	1.34	50	1.45	1.65	860	966
	584-10-1250	50	70	1.18	1.47	50	1.58	1.96	1177	1320
JX	584-10-2204	4	50	0.42	0.62	50	0.73	0.42	229	309
	584-10-2208	8	50	0.52	0.75	50	0.86	0.58	305	385
	584-10-2210	10	50	0.57	0.80	50	0.91	0.65	378	458
	584-10-2212	12	50	0.60	0.84	50	0.95	0.71	405	485
	584-10-2216	16	60	0.71	0.97	50	1.08	0.92	481	561
	584-10-2220	20	60	0.80	1.06	50	1.17	1.08	556	636
	584-10-2224	24	60	0.87	1.15	50	1.26	1.25	663	743
	584-10-2236	36	70	1.03	1.34	50	1.45	1.65	853	959
	584-10-2250	50	70	1.18	1.47	50	1.58	1.96	1167	1310
KX	584-10-3204	4	50	0.42	0.62	50	0.73	0.42	230	310
	584-10-3208	8	50	0.52	0.75	50	0.86	0.58	307	387
	584-10-3210	10	50	0.57	0.80	50	0.91	0.65	380	460
	584-10-3212	12	50	0.60	0.84	50	0.95	0.71	409	489
	584-10-3216	16	60	0.71	0.97	50	1.08	0.92	484	564
	584-10-3220	20	60	0.80	1.06	50	1.17	1.08	560	640
	584-10-3224	24	60	0.87	1.15	50	1.26	1.25	668	748
	584-10-3236	36	70	1.03	1.34	50	1.45	1.65	860	966
	584-10-3250	50	70	1.18	1.47	50	1.58	1.96	1177	1320
TX	584-10-4204	4	50	0.42	0.62	50	0.73	0.42	231	311
	584-10-4208	8	50	0.52	0.75	50	0.86	0.58	309	389
	584-10-4210	10	50	0.57	0.80	50	0.91	0.65	383	463
	584-10-4212	12	50	0.60	0.84	50	0.95	0.71	410	490
	584-10-4216	16	60	0.71	0.97	50	1.08	0.92	487	567
	584-10-4220	20	60	0.80	1.06	50	1.17	1.08	564	644
	584-10-4224	24	60	0.87	1.15	50	1.26	1.25	673	753
	584-10-4236	36	70	1.03	1.34	50	1.45	1.65	867	973
	584-10-4250	50	70	1.18	1.47	50	1.58	1.96	1187	1330

SX available upon request.

(1) Special grade alloy conductors for JX and TX are available on special order.

† **Cross-sectional** area for calculation of cable tray fill in accordance with NEC Section 392.9.

Jackets - Optional jacket types available - consult local sales office.

Copper or Bronze C-L-X available on special order.

To order C-L-X Type SP-OS without the outer Okoseal jacket, change the sixth digit of the catalog number from 1 to 5 for Ex, 2 to 6 for JX, 3 to 7 for KX, and 4 to 8 for TX. For example to order 12 pr. 20 AWG Type KX with a bare aluminum C-L-X, the catalog number would be 584-10-7212.

C-L-X products manufactured in the United States under license granted by Kabelmetal of Hannover, Germany.

ELECTRICAL SPECIFICATIONS Per UL Standard 2250

Insulation Test Voltage (spark test)5000 Volts ac
Dielectric Test Voltage1500 Volts ac for 15 sec.
Insulation Resistance Constant @60°F, minimum
(natural material typical value).....2000 Ohms-1000 ft.

ASA/ISA COLOR CODE AND LIMITS OF ERROR

ASA/ISA Type	Positive Wire		Negative Wire		Outer Jacket Color	Temperature Range°C	Limits of Error		Wire Size (AWG)	Nom. Loop Resistance Per 100' @ 20°C
	Alloy	Color	Alloy	Color			Standard	Special (1)		
EX	Chromel	Purple	Constantan	Red	Purple	0 to 200°C	± 1.7°C	± 1.0°C	20	70.7 ohms
JX	Iron	White	Constantan	Red	Black	0 to 200°C	± 2.2°C	± 1.1°C	20	35.7 ohms
KX	Chromel	Yellow	Alumel	Red	Yellow	0 to 200°C	± 2.2°C	± 1.1°C	20	59.0 ohms
TX	Copper	Blue	Constantan	Red	Blue	-60 to 100°C	± 1.0°C	± 0.5°C	20	29.8 ohms



THE OKONITE COMPANY

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