



C-L-X[®] Type SP-OS

Type ITC/PLTC Armored Instrumentation Cable

Multiple Shielded Pairs or Triads - Overall Shield

300 Volts - 105°C Rating

For Cable Tray Use



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

Specifications

Conductors: Bare soft annealed copper, Class B, 7-strand concentric per ASTM B-8.

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

Conductor Identification: Pigmented black and white in pairs, black, red and white in triads; white conductor numerically printed for group identification.

Group Shield: Aluminum/Polyester tape overlapped to provide 100% coverage, and a 7-strand tinned copper drain wire, two sizes smaller than the conductor. All group shields are completely isolated from each other.

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

Assembly: Pairs or triads 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 conductor.

Inner Jacket: Black, flame-retardant, low temperature Okoseal per UL 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: Black, flame-retardant, low temperature Okoseal per UL 13 and 2250.

Classifications: UL Listed as ITC/PLTC - Instrument Tray Cable/Power Limited Tray Cable for use in accordance with Article 727 and Article 725 of the National Electrical Code.

Cables comply with UL 2250 and UL 13 for PLTC, CL2 and CL3.

Applications

C-L-X Type SP-OS (Pair/triad - Individual and Overall Shield) instrumentation cables are designed for use as instrumentation, process control, in ITC non-classified or labeled circuits up to 150 volts and 5 amps (750VA) 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 or direct burial. Suitable in Class I & 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. It may be installed in both exposed and concealed work, secured to supports not greater than 6 feet apart.

The isolated individual shields over each pair, when properly grounded, prevent crosstalk or capacitive coupling between adjacent pairs which occurs with ac signals, particularly the pulse type.

The overall shield eliminates most of the static interference from the electric field radiated by power cables and other electrical equipment. The C-L-X sheath provides physical protection against mechanical damage as well as complete protection against moisture or gases entering the cable.

For dc service in wet locations X-Olene[®] insulation is recommended.

Product Features

- Passes the UL 13, IEEE 383-1974 vertical tray flame tests.
- Passes the IEEE 1202 vertical tray flame test (2 pr #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 for direct burial (2 PR #20 AWG and larger)
- Complete pre-packaged, factory-tested wiring system-color coded.
- C-L-X enclosure permits installation in cable tray containing light and power cables without a barrier separator.
- Individual pairs or triads are completely isolated.
- Impervious, continuous sheath excludes moisture, gases and liquids.
- C-L-X sheath exceeds equipment grounding conductor requirements of NEC Article 250.
- Lower installed system cost than conduit or EMT systems.
- UL listed as Marine Shipboard cable.
- American Bureau of Shipping listed as CWCMC Type PLTC & CWCMC-ITC.
- Meets API Standards 14F & 14FZ.
- Suitable for low temperature installation to -40°C.

C-L-X Type SP-OS



Product Data Section 5: Sheet 14

Type ITC/PLTC Armored Instrumentation Cable

Multiple Shielded Pairs or Triads - Overall Shield 300V - 105°C Rating

For Cable Tray Use

Okoseal Insulation: 15 mils

Catalog Number	Strand Size (AWG)	Number of Pairs	Number of Triads	Inner Jacket Thickness - mils	Nominal Core O.D. (In.)	C-L-X O.D. (In.)	Outer Jacket mils	Nominal Cable O.D. - (In.)	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
561-10-3202	20(7X)	2	40	0.36	0.58	50	0.69	.37	198	217	
561-10-3204		4	50	0.43	0.62	50	0.73	.42	234	314	
561-10-3206		6	50	0.48	0.71	50	0.82	.53	286	366	
561-10-3208	20(7X)	8	50	0.53	0.75	50	0.86	.58	317	397	
561-10-3210		10	50	0.57	0.80	50	0.91	.65	393	473	
561-10-3212		12	60	0.63	0.84	50	1.95	.71	430	510	
561-10-3216	20(7X)	16	60	0.72	0.97	50	1.08	.92	501	581	
561-10-3220		20	60	0.81	1.06	50	1.17	1.08	581	661	
561-10-3224		24	70	0.90	1.15	50	1.26	1.25	704	794	
561-10-3236	20(7X)	36	70	1.04	1.34	50	1.45	1.65	907	1013	
561-10-3250		50	70	1.19	1.51	60	1.65	2.14	1230	1373	
561-15-3204	20(7X)	4	50	0.45	0.67	50	0.78	.48	258	338	
561-15-3208		8	50	0.56	0.80	50	0.91	.65	369	439	
561-15-3212		12	60	0.67	0.89	50	1.00	.79	504	584	
561-15-3216	20(7X)	16	60	0.77	1.02	50	1.13	1.00	604	684	
561-15-3224		24	70	0.96	1.24	50	1.35	1.43	852	958	
561-15-3236		36	70	1.11	1.42	50	1.53	1.84	1117	1260	
▲ 561-10-3302	18(7X)	2	40	0.38	0.58	50	0.69	0.37	212	292	
▲ 561-10-3304		4	50	0.49	0.71	50	0.82	0.53	273	353	
561-10-3306		6	50	0.55	0.75	50	0.86	0.58	338	418	
▲ 561-10-3308	18(7X)	8	50	0.60	0.80	50	0.92	0.65	389	469	
561-10-3310		10	60	0.67	0.89	50	1.00	0.79	479	559	
▲ 561-10-3312		12	60	0.71	0.93	50	1.04	0.85	529	609	
561-10-3316	18(7X)	16	60	0.79	1.06	50	1.17	1.08	632	738	
561-10-3320		20	60	0.88	1.15	50	1.26	1.25	778	868	
▲ 561-10-3324		24	70	0.98	1.24	50	1.35	1.43	889	995	
561-10-3336	18(7X)	36	70	1.15	1.47	50	1.58	1.96	1203	1346	
561-10-3350		50	80	1.36	1.69	60	1.82	2.60	1629	1812	
561-15-3304	18(7X)	4	50	0.54	0.75	50	0.86	.58	314	394	
561-15-3308		8	60	0.69	0.93	50	1.04	.85	475	555	
561-15-3312		12	60	0.79	1.06	50	1.17	1.08	632	712	
561-15-3316	18(7X)	16	70	0.90	1.15	50	1.26	1.25	781	861	
561-15-3324		24	70	1.06	1.34	50	1.45	1.65	1097	1240	
561-15-3336		36	80	1.29	1.60	60	1.73	2.35	1539	1682	
▲ 561-10-3402	16(7X)	2	50	0.44	0.67	50	0.78	0.48	255	336	
▲ 561-10-3404		4	50	0.52	0.71	50	0.82	0.53	327	407	
561-10-3406		6	50	0.59	0.84	50	0.95	0.71	434	514	
▲ 561-10-3408	16(7X)	8	60	0.69	0.93	50	1.04	0.85	505	585	
561-10-3410		10	60	0.75	1.02	50	1.13	1.00	604	684	
▲ 561-10-3412		12	60	0.81	1.06	50	1.17	1.08	671	777	
561-10-3416	16(7X)	16	70	0.95	1.24	50	1.35	1.43	855	945	
561-10-3420		20	70	1.03	1.34	50	1.45	1.65	1004	1101	
▲ 561-10-3424		24	70	1.10	1.37	50	1.48	1.72	1245	1388	
561-10-3436	16(7X)	36	80	1.29	1.60	60	1.73	2.35	1678	1842	
561-10-3450		50	80	1.53	1.87	60	2.00	3.14	2172	2428	
▲ 561-15-3404	16(7X)	4	50	0.58	0.80	50	0.91	0.65	384	464	
▲ 561-15-3408		8	60	0.79	1.02	50	1.13	1.00	609	689	
▲ 561-15-3412		12	70	0.95	1.19	50	1.30	1.33	862	952	
561-15-3416	16(7X)	16	70	1.04	1.34	50	1.45	1.65	1053	1159	
561-15-3424		24	80	1.27	1.60	60	1.73	2.35	1574	1738	
561-15-3436		36	80	1.49	1.83	60	1.96	3.02	2119	2306	

ELECTRICAL SPECIFICATIONS	
Conductor Resistance, nominal	.....ohms/1000 ft. @20°C
20 AWG	..... 10.4
18 AWG	..... 6.5
16 AWG	..... 4.1
Insulation Test Voltage (spark test)	.....5000 Volts ac
Dielectric Test Voltage	.....1500 Volts ac for 15 sec.
Insulation Resistance Constant @60°F minimum (natural material typical value)	.....2000 Megohms-1000 ft.
Loop Resistance, nominal (2 conductor) ohms-1000 ft @20°C	
20 AWG	..... 20.8
18 AWG	..... 13.0
16 AWG	..... 8.2
Mutual Capacitance (PF/ft.)*	
#20	..... 59
#18	..... 68
#16	..... 76

*Typical Value

▲ Authorized Stock Item: Available from our Customer Service Center.

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

† **Cross-sectional** area for calculation of cable tray fill in accordance with NEC Section 392.22.

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 3 to 1. For example, to order 12 pr. 20 AWG with a bare aluminum C-L-X, the catalog number would be 561-10-1212.

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

Length Tolerance: Cut lengths of 1000 feet or longer are subject to a tolerance of ± 10%; less than 1000 feet ± 15%.

