



Type SP-OS

Type ITC/PLTC Wire Armored Instrumentation Cable

Multiple Shielded Pairs or Triads - Overall Shield

300 Volts - 105°C Rating

For Cable Tray Use



- A Bare Stranded Copper Conductors
- B Okoseal Insulation
- C Tinned Stranded Copper Group Drain Wire
- D double faced Aluminum/Polyester Backed Tape Group Shield
- E Twisted, Shielded Pairs/Triads
- F Communication Wire
- G Double Faced Aluminum/Polyester Backed Tape
- H Tinned Stranded Copper Drain Wire
- J Rip Cord
- K Inner Black Okoseal Jacket
- L Galvanized Steel Wire Armor
- 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 Standard 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/synthetic polymer backed 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 backed 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 Standard 13 and 2250. A rip cord is laid longitudinally under the jacket to facilitate removal.

Wire Armor: A single serving of soft annealed galvanized steel wires applied with a left-hand lay and 90% minimum coverage.

Outer Jacket: Black, flame-retardant, low temperature Okoseal per UL Standard 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.

The cable core complies with UL 2250 and UL 13 for PLTC, CL2 and CL3.

Applications

Okonite single wire armor (SWA) 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; for direct burial. Suitable Class I, Division 2, Class II, Division 2, or Class III, Division 2 hazardous locations. Also for use as power-Limited fire protective signaling cable (FPL) per NEC Code 760.

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 wire armor provides excellent longitudinal strength for use as a messenger cable or for support in vertical drops (NEC Section 300-19) and provides the physical protection against mechanical damage.

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

Product Features

- Sunlight resistant.
- Excellent electromagnetic shielding.
- Oil resistant.
- Individual pairs or triads are completely isolated.
- Maximum noise rejection.
- Communication wire included in each cable for voice communication during installation or instrument calibration.
- Excellent longitudinal strength.
- Lower installed system cost than conduit or EMT systems.
- Excellent Cut-through resistance.
- Suitable for IEC/BS application.
- OSHA Acceptable.

Type SP-OS

Type ITC/PLTC Wire Armored Instrumentation Cable

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

For Cable Tray Use

Okoseal Insulation: 15 mils



Product Data Section 5: Sheet 16

Catalog Number	Size AWG (Stranded)	Number of Pairs	Number of Triads	Inner Jacket Thickness - mils	Inner Jacket Nominal O.D. In.	Armor Wires - No. x SWG*	Armor O.D. Nominal (In.)	Outer Jacket mils	Nominal Cable O.D. - (In.)	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
261-10-8204	20(7X)	4	50	.42	38 x 18	.53	50	.64	.32	355	394	
261-10-8208		8	50	.56	34 x 18	.65	50	.76	.45	474	513	
261-10-8210		10	60	.66	31 x 16	.78	60	.92	.66	693	757	
261-10-8212	20(7X)	12	60	.69	32 x 16	.81	60	.94	.69	736	800	
261-10-8216		16	60	.76	35 x 16	.88	60	1.01	.80	842	906	
261-10-8220		20	60	.82	31 x 14	.98	60	1.12	.99	1103	1183	
261-10-8224	20(7X)	24	70	.94	34 x 14	1.10	70	1.25	1.22	1283	1389	
261-10-8236		36	70	1.06	29 x 12	1.26	70	1.41	1.56	1801	1917	
261-10-8250		50	70	1.21	34 x 12	1.42	70	1.57	1.93	2201	2344	
261-15-8204	20(7X)	4	50	.48	29 x 18	.58	50	.69	.37	388	427	
261-15-8212		12	60	.77	34 x 16	.89	60	1.03	.83	830	894	
261-15-8216		16	60	.79	30 x 14	.95	60	1.09	.93	1103	1183	
261-15-8224	20(7X)	24	70	.99	36 x 14	1.15	70	1.30	1.33	1462	1568	
261-15-8236		36	70	1.11	31 x 12	1.32	70	1.47	1.70	2068	2184	
261-10-8304	18(7X)	4	50	.49	30 X 18	.60	50	.70	.38	405	444	
261-10-8308		8	50	.61	29 X 16	.73	50	.84	.55	648	712	
261-10-8310		10	60	.73	35 X 16	.86	60	.99	.77	817	881	
261-10-8312	18(7X)	12	60	.75	35 X 16	.88	60	1.01	.80	864	928	
261-10-8316		16	60	.83	31 X 14	.99	60	1.13	1.00	1148	1228	
261-10-8320		20	70	.94	35 X 14	1.10	70	1.27	1.27	1370	1450	
261-10-8324	18(7X)	24	70	1.04	29 X 12	1.25	70	1.40	1.54	1782	1898	
261-10-8336		36	70	1.19	33 X 12	1.40	70	1.55	1.89	2176	2319	
261-10-8350		50	80	1.42	39 X 12	1.63	80	1.80	2.54	2772	2959	
261-15-8304	20(7X)	4	50	.54	32 X 18	.64	50	.75	.44	453	492	
261-15-8312		12	60	.80	30 X 14	.96	60	1.09	.93	1133	1213	
261-15-8316		16	60	.89	33 X 14	1.05	60	1.18	1.09	1319	1399	
261-15-8324	20(7X)	24	70	1.10	31 X 12	1.32	70	1.47	1.70	2047	2163	
261-15-8336		36	70	1.24	35 X 12	1.45	70	1.61	2.04	2537	2680	
261-10-8404	16(7X)	4	50	.54	37 x 18	.63	50	.74	.43	477	516	
261-10-8408		8	60	.71	33 x 16	.83	60	.96	.72	827	891	
261-10-8410		10	60	.82	31 x 14	.98	60	1.12	.98	1126	1206	
261-10-8412	16(7X)	12	60	.85	31 x 14	1.06	60	1.14	1.02	1192	1272	
261-10-8416		16	70	.98	35 x 14	1.14	70	1.29	1.31	1451	1557	
261-10-8420		20	70	1.06	30 x 12	1.27	70	1.43	1.61	1931	2047	
261-10-8424	16(7X)	24	70	1.17	38 x 12	1.38	70	1.54	1.86	2177	2320	
261-10-8436		36	80	1.37	38 x 12	1.58	80	1.75	2.41	2791	2978	
261-10-8450		50	80	1.57	44 x 12	1.78	80	1.95	2.99	3468	3734	
261-15-8404	20(7X)	4	50	.58	35 x 18	.68	50	.79	.49	542	581	
261-15-8412		12	70	.97	34 x 14	1.13	70	1.28	1.29	1440	1546	
261-15-8416		16	70	1.02	29 x 12	1.23	70	1.38	1.50	1948	2064	
261-15-8424	20(7X)	24	80	1.27	36 x 12	1.48	80	1.66	2.16	2632	2775	
261-15-8436		36	80	1.43	41 x 12	1.64	80	1.82	2.60	3319	3585	

ELECTRICAL SPECIFICATIONS Per UL Standard 13 & 2250

Conductor Resistance, nominalohms/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

* Steel Wire Gage

† Cross-sectional area for calculation of cable tray fill in accordance with NEC Section 318-8

Aluminum Loxarmor available on special order.

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



THE OKONITE COMPANY

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