



Wire Armored Type SP-OS

Type ITC/PLTC Armored 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/Synthetic Polymer Tape
- E** Twisted Shielded Pairs
- F** Communication Wire
- G** Aluminum/Synthetic Polymer Tape
- H** Tinned Stranded Copper Group Drain Wire
- J** Rip Cord
- K** Inner Okoseal Jacket
- L** Galvanized Steel served wire Armor
- 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, solid 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.

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

Outer Jacket: Color-coded, flame-retardant 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 CL2 and CL3.

Applications

Okonite SWA Type 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 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 a 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.

Product Features

- Passes flame test for use in cable tray.
- Sunlight resistant.
- Oil resistant.
- Excellent electromagnetic shielding.
- Individual pairs are numbered and color-coded for simplified hook-up.
- Maximum noise rejection.
- Communication wire included in each cable for voice communication during installation or instrument calibration.
- Excellent longitudinal strength.
- OSHA Acceptable.
- Excellent cut-through resistance.
- Meets IEC/BS Specification.
- Suitable for installation at low temperature to -40°C.

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

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Product Data

Section 5: Sheet 28



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.	Armor Wires - No. x SWG	Armor O.D. Nominal - In.	Outer Jacket - mils	Nominal Cable O.D. - Inches	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
EX	284-10-8104	4	50	.45	36 x 20	.52	50	.63	.29	.29	290	314	
	284-10-8108	8	50	.56	33 x 18	.66	50	.77	.43	.43	456	495	
	284-10-8110	10	60	.64	30 x 16	.77	60	.90	.64	.64	668	732	
	284-10-8112	12	60	.70	32 x 16	.82	60	.95	.66	.66	720	784	
	284-10-8116	16	60	.77	35 x 16	.89	60	1.02	.58	.58	823	887	
	284-10-8120	20	60	.81	30 x 14	.97	60	1.10	.95	.95	1063	1143	
	284-10-8124	24	70	.97	33 x 14	1.13	70	1.29	1.17	1.17	1234	1340	
	284-10-8136	36	70	1.08	29 x 12	1.30	70	1.45	1.49	1.49	1755	1871	
	284-10-8150	50	70	1.19	33 x 12	1.40	70	1.55	1.89	1.89	2115	2258	
JX	284-10-8204	4	50	.45	36 x 20	.52	50	.63	.29	.29	289	313	
	284-10-8208	8	50	.56	33 x 18	.66	50	.77	.43	.43	454	493	
	284-10-8210	10	60	.64	30 x 16	.77	60	.90	.64	.64	666	730	
	284-10-8212	12	60	.70	31 x 16	.82	60	.95	.66	.66	706	770	
	284-10-8216	16	60	.77	35 x 16	.89	60	1.02	.77	.77	820	884	
	284-10-8220	20	60	.81	30 x 14	.97	60	1.10	.95	.95	1059	1139	
	284-10-8224	24	70	.97	33 x 14	1.13	70	1.29	1.15	1.15	1230	1336	
	284-10-8236	36	70	1.09	29 x 12	1.30	70	1.45	1.49	1.49	1748	1864	
	284-10-8250	50	70	1.19	33 x 12	1.40	70	1.55	1.89	1.89	2105	2248	
KX	284-10-8304	4	50	.45	36 x 20	.52	50	.63	.29	.29	290	314	
	284-10-8308	8	50	.56	33 x 18	.66	50	.77	.43	.43	456	495	
	284-10-8310	10	60	.64	30 x 16	.77	60	.90	.64	.64	668	732	
	284-10-8312	12	60	.70	32 x 16	.82	60	.95	.66	.66	720	784	
	284-10-8316	16	60	.77	35 x 16	.89	60	1.02	.58	.58	823	887	
	284-10-8320	20	60	.81	30 x 14	.97	60	1.10	.95	.95	1013	1143	
	284-10-8324	24	70	.97	33 x 14	1.13	70	1.29	1.17	1.17	1234	1340	
	284-10-8336	36	70	1.09	29 x 12	1.30	70	1.45	1.49	1.49	1755	1871	
	284-10-8350	50	70	1.19	33 x 12	1.40	70	1.55	1.89	1.89	2115	2258	
TX	284-10-8404	4	50	.45	36 x 20	.52	50	.63	.29	.29	291	315	
	284-10-8408	8	50	.56	33 x 18	.66	50	.77	.43	.43	457	496	
	284-10-8410	10	60	.64	30 x 16	.77	60	.90	.64	.64	670	734	
	284-10-8412	12	60	.70	31 x 16	.82	60	.95	.66	.66	710	774	
	284-10-8416	16	60	.77	35 x 16	.89	60	1.02	.77	.77	826	890	
	284-10-8420	20	60	.81	30 x 14	.97	60	1.10	.95	.95	1067	1147	
	284-10-8424	24	70	.97	33 x 14	1.13	70	1.29	1.15	1.15	1239	1345	
	284-10-8436	36	70	1.09	29 x 12	1.30	70	1.45	1.49	1.49	1762	1878	
	284-10-8450	50	70	1.19	35 x 12	1.40	70	1.55	1.89	1.89	2125	2268	

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.

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 318-8

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

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	± 1.0°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



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