Type SP-OS

Type ITC/PLTC Thermocouple Extension Cable

Multiple Shielded Pairs - 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 Tinned Stranded Copper Drain Wire
H Aluminum/Synthetic Polymer Tape
J Rip Cord
K Okoseal Jacket

Specifications

Conductors: Solid alloys per ANSI MC 96.1

Insulation: Flame-retardant Okoseal® (PVC) per UL 13 and UL 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 solid 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; not included in single group cables.

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

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

Jacket: Color-coded, flame-retardant, low temperature Okoseal per UL 13 and UL 2550. A rip cord is laid longitudinally under the jacket to facilitate removal.

Classification: UL Listed as Type ITC/PLTC - Instrumentation Tray Cable/Power Limited Tray Cable for use in accordance with Article 335 and 722 of the 2023 National Electrical Code.

The cables comply with UL 2250 and UL 13 for CL2 and CL3.

Applications

Okonite 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 conductor operating temperatures up to 105°C; in cable trays; in raceways; supported by a messenger wire; under raised floors. Suitable Class I, Division 2, Class II, Division 2, or Class III, Division 1 hazardous locations. Also for use as Power-Limited fire protective signaling cable (FPL) per NEC Article 760.

Product Features

- Passes the UL 1581 and IEEE 383-1974 vertical tray flame tests.
- Sunlight Resistant & Oil resistant.
- Individual pairs are numbered and color coded for simplified hook-up.
- Individual pairs are completely isolated.
- 100% shield coverage for reduced electrostatic noise pick-up.
- Good external noise rejection.
- Excellent weathering characteristics.
- Communication wire included in each cable for voice communication during installation or instrument calibration.
- Suitable for low temperature installation to -40°C.

Type SP-OS

Type ITC/PLTC Thermocouple Extension Cable

Multiple Shielded Pairs - Individual and Overall Shield - 105°C Rating

For Cable Tray Use

Conductors: 20 AWG; Okoseal Insulation: 15 mils

ASA/ISA Type	Catalog Number	Number of Pairs	Jacket Thickness-(mils)	Nominal Cable O.D. - Inches	Cross-Sectional Area † (sq in)	Approx Net Weight (lbs/1000')	Approx Ship Weight (lbs/1000')
EX	284-10-1204	4	50	.45	0.16	98	121
	284-10-1208	8	50	.56	0.25	159	183
	284-10-1210	10	60	.64	0.32	207	246
	284-10-1212	12	60	.70	0.38	236	275
	284-10-1216	16	60	.77	0.47	294	333
	284-10-1220	20	60	.81	0.52	353	392
	284-10-1224	24	70	.97	0.74	430	494
	284-10-1236	36	70	1.09	0.93	594	658
	284-10-1250	50	70	1.19	1.11	792	872
JX	284-10-2204	4	50	.43	0.16	99	120
	284-10-2208	8	50	.53	0.25	157	181
	284-10-2210	10	60	.64	0.32	205	244
	284-10-2212	12	60	.70	0.38	231	270
	284-10-2216	16	60	.77	0.47	291	330
	284-10-2220	20	60	.81	0.52	349	388
	284-10-2224	24	60	.97	0.74	425	489
	284-10-2236	36	70	1.09	0.92	587	651
	284-10-2250	50	70	1.19	1.11	782	862
KX	284-10-3204	4	50	.43	0.16	98	121
	284-10-3208	8	50	.53	0.25	159	183
	284-10-3210	10	60	.64	0.32	207	246
	284-10-3212	12	60	.70	0.38	236	275
	284-10-3216	16	60	.77	0.47	294	333
	284-10-3220	20	60	.81	0.52	353	392
	284-10-3224	24	60	.97	0.74	430	494
	284-10-3236	36	70	1.09	0.93	594	658
	284-10-3250	50	70	1.19	1.11	792	872
TX	284-10-4204	4	50	.45	0.16	99	122
	284-10-4208	8	50	.56	0.25	160	184
	284-10-4210	10	60	.64	0.32	209	248
	284-10-4212	12	60	.70	0.38	236	275
	284-10-4216	16	60	.77	0.47	297	336
	284-10-4220	20	60	.81	0.52	357	396
	284-10-4224	24	60	.97	0.74	435	499
	284-10-4236	36	70	1.09	0.93	602	666
	284-10-4250	50	70	1.19	1.11	803	883

ELECTRICAL SPECIFICATIONS
Per UL Standard 2250

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 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 392.22.

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		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	—	70.7 ohms
JX	Iron	White	Constantan	Red	Black	0 to 200°C	± 2.2°C	± 1.1°C	35.7 ohms
KX	Chromel	Yellow	Alumel	Red	Yellow	0 to 200°C	± 2.2°C	—	59.0 ohms
TX	Copper	Blue	Constantan	Red	Blue	-60 to 100°C	± 1.0°C	± 0.5°C	29.8 ohms

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