600V CU PVC TFN TRIADS PVC STOS Instrumentation

Type TC-ER Instrumentation Cable 600 Volt Copper Conductors PVC/Nylon Insulated Singles Shielded Triads with Overall Shield STOS. PVC Jacket Heat, Oil, Moisture and Sunlight Resistant RoHS rated for -25°C to 90°C



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class B stranded bare copper per ASTM B3 and B8
2. **Insulation:** Premium Grade Polyvinyl Chloride (PVC) plus nylon Black/White alpha-numeric print alternate and inverted. 1-ONE, 2-TWO.
3. **Drain Wire:** Tinned copper sized two AWG sizes smaller than triad size. For #18 awg pair: Drain is 20 awg. For #16 awg pair: Drain is 18 awg.
4. **Twisted Shielded Triads:** 100% coverage aluminum/polyester foil shield with an individual drain wire shown in step 3
5. **Binder:** Mylar binder
6. **Overall Drain Wire:** Tinned Copper sized two AWG sizes smaller than triad size. For #18 awg pair: Drain is 20 awg. For #16 awg pair: Drain is 18 awg.
7. **Overall Shielded:** 100% coverage aluminum/polyester foil shield with a drain wire as shown in step 6
8. **Rip Cord:** Rip cord under jacket for ease of removal
9. **Jacket:** Black sunlight, oil and moisture resistant Polyvinyl Chloride (PVC)

APPLICATIONS AND FEATURES:

Southwire's Instrumentation Cables Type TC-ER per UL 1277 are suitable for installations as outlined in NEC Article 336 for process control and instrumentation, control circuits for operation and interconnection of protective and signaling devices and for general use in manufacturing, industrial and commercial distribution systems. Cables are constructed with 7-strand copper conductors insulated with nylon covered PVC. The triad conductors are colored black, white, red and alpha-numeric printed. Each triad has an aluminum polyester foil with 100% coverage and a tinned drain wire. The overall assembly is cov- ered with an aluminum polyester foil with 100% coverage and a tinned drain wire. The cable is suited for use in cable trays, raceways, conduit, aerial (when supported with a messenger) and direct burial. The cable is rated for -25°C to 90°C and rated for Class I Div II hazardous locations, sun and oil resistant. The jacket is black PVC with a nylon ripcord for easy removal.

SPECIFICATIONS:

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- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- UL 66 Fixture Wire Type TFN
- UL 1277 Electrical Power and Control Tray Cables
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test
- EPA 40 CFR, Part 26, Subpart C heavy metals per Table 1, TCLP method

SAMPLE PRINT LEGEND:

SOUTHWIRE® XX AWG XX SHIELDED TRIADS PVC/PVC TYPE TC-ER E75755 (UL) 600V 90°C SUN AND OIL RES SEQUENTIAL MARKING

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Number of Triads	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	triad	inch	mil	mil	inch	lb/1000ft	inch	Ω/1000ft
TBA	18	2	0.045	20	45	0.455	89	5.5	6.669
674433	18	4	0.045	15	60	0.6	172	7.2	6.669
TBA	18	8	0.045	20	60	0.72	279	8.6	6.669
TBA	18	12	0.045	20	80	0.93	435	11.2	6.669
TBA	18	16	0.045	20	80	1.031	550	12.4	6.669
TBA	18	24	0.045	20	80	1.269	786	15.2	6.669
TBA	18	36	0.045	20	80	1.453	1113	17.4	6.669
TBA	16	2	0.056	20	45	0.501	118	6	4.181
646186	16	4	0.056	20	60	0.665	217	7.4	4.181
TBA	16	8	0.056	20	60	0.796	385	9.6	4.181
TBA	16	8	0.056	15	80	0.884	453	10.6	4.181
646164	16	12	0.056	15	90	1.04	657	12.48	4.181
599949	16	16	0.056	15	95	1.234	857	14.8	4.181
TBA	16	24	0.056	20	80	1.413	1096	17	4.181
TBA	16	36	0.056	20	80	1.621	1570	19.5	4.181

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
TBA stock codes are estimations only and actual product may vary. Please wait until a stock code is assigned to purchase connectors and/or fittings.

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Table 2 – Weights and Measurements (Metric)

Stock Number	Cond. Size	Number of Triads	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	triad	inch	mm	mm	mm	lb/km	mm	Ω/km
TBA	18	2	0.045	0.51	1.14	11.56	132	139.70	21.88
674433	18	4	0.045	0.38	1.52	15.24	256	182.88	21.88
TBA	18	8	0.045	0.51	1.52	18.29	415	218.44	21.88
TBA	18	12	0.045	0.51	2.03	23.62	647	284.48	21.88
TBA	18	16	0.045	0.51	2.03	26.19	818	314.96	21.88
TBA	18	24	0.045	0.51	2.03	32.23	1170	386.08	21.88
TBA	18	36	0.045	0.51	2.03	36.91	1656	441.96	21.88
TBA	16	2	0.056	0.51	1.14	12.73	176	152.40	13.72
646186	16	4	0.056	0.51	1.52	16.89	323	187.96	13.72
TBA	16	8	0.056	0.51	1.52	20.22	573	243.84	13.72
TBA	16	8	0.056	0.38	2.03	22.45	674	269.24	13.72
646164	16	12	0.056	0.38	2.29	26.42	978	316.99	13.72
599949	16	16	0.056	0.38	2.41	31.34	1275	375.92	13.72
TBA	16	24	0.056	0.51	2.03	35.89	1631	431.80	13.72
TBA	16	36	0.056	0.51	2.03	41.17	2336	495.30	13.72

Typical Electrical Specifications for Each Triad

Size AWG	Capacitance pF/ft	Inductance µH/ft
18	40.66	0.0957
16	48.51	0.0895

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