

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:

- Conductor:** Class B stranded bare copper per ASTM B3 and B8
- Insulation:** Premium Grade Polyvinyl Chloride (PVC) plus nylon Black/White alpha-numeric print alternate and inverted. 1-ONE, 2-TWO.
- 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.
- Twisted Shielded Triads:** 100% coverage aluminum/polyester foil shield with an individual drain wire shown in step 3
- Binder:** Mylar binder
- 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.
- Overall Shielded:** 100% coverage aluminum/polyester foil shield with a drain wire as shown in step 6
- Rip Cord:** Rip cord under jacket for ease of removal
- 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 covered 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:

- ASTM B3 Standard Specification for 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 (1/0 and Larger)
- EPA 40 CFR, Part 26, Subpart C heavy metals per Table 1, TCLP method



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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	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25° C
	AWG/ Kcmil	triad	mil	mil	inch	lb/1000ft	inch	Ω/1000ft
TBA	18	2	15	45	0.492	104	3.936	6.66
674433	18	4	15	60	0.603	172	4.824	6.66
TBA	18	8	15	60	0.776	290	6.208	6.66
TBA	18	12	15	80	0.983	498	7.864	6.66
TBA	18	16	15	95	1.112	653	8.896	6.66
TBA	18	24	15	100	1.384	949	11.072	6.66
TBA	18	36	15	100	1.578	1334	12.624	6.66
646357	16	2	21	62	0.548	146	4.4	4.18
TBA	16	2	15	60	0.57	148	4.56	4.18
TBA	16	4	15	60	0.666	255	5.328	4.18
646359	16	8	21	84	0.885	454	7.1	4.18
TBA	16	8	15	80	0.906	481	7.248	4.18
646164	16	12	15	95	1.103	690	8.824	4.18
599949	16	16	15	95	1.234	875	9.872	4.18
TBA	16	24	15	100	1.54	1290	12.32	4.18
TBA	16	36	15	100	1.758	1820	14.064	4.18

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item



Table 2 – Weights and Measurements (Metric)

Stock Number	Cond. Size	Number of Triads	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25° C
	AWG/ Kcmil	triad	mm	mm	mm	lb/km	mm	Ω/km
TBA	18	2	0.38	1.14	12.50	155	99.97	21.85
674433	18	4	0.38	1.52	15.32	256	122.53	21.85
TBA	18	8	0.38	1.52	19.71	432	157.68	21.85
TBA	18	12	0.38	2.03	24.97	741	199.75	21.85
TBA	18	16	0.38	2.41	28.24	972	225.96	21.85
TBA	18	24	0.38	2.54	35.15	1412	281.23	21.85
TBA	18	36	0.38	2.54	40.08	1985	320.65	21.85
646357	16	2	0.53	1.57	13.92	217	111.76	13.71
TBA	16	2	0.38	1.52	14.48	220	115.82	13.71
TBA	16	4	0.38	1.52	16.92	379	135.33	13.71
646359	16	8	0.53	2.13	22.48	676	180.34	13.71
TBA	16	8	0.38	2.03	23.01	716	184.10	13.71
646164	16	12	0.38	2.41	28.02	1027	224.13	13.71
599949	16	16	0.38	2.41	31.34	1302	250.75	13.71
TBA	16	24	0.38	2.54	39.12	1920	312.93	13.71
TBA	16	36	0.38	2.54	44.65	2708	357.23	13.71

Typical Electrical Specifications for Each Triad

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

