600V CU PVC TFN PAIRS PVC SPOS Instrumentation

Type TC-ER Instrumentation Cable 600 Volt Copper Conductors PVC/Nylon Insulated Singles Shielded Pairs with Overall Shield SPOS. PVC Jacket Heat, Moisture, Oil and Sunlight Resistant RoHS rated for -30°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 pair size. For #18 awg pair: Drain is 20 awg. For #16 awg pair: Drain is 18 awg.
4. **Twisted Shielded Pair:** 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 pair 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 paired conductors are colored black, white, and alpha-numeric printed. Each pair 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 -30°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 rip cord 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
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
- EPA 40 CFR, Part 26, Subpart C heavy metals per Table 1, TCLP method

SAMPLE PRINT LEGEND:

SOUTHWIRE® XXAWG SHIELDED XXPAIRS PVCN/PVC TYPE TC-ER TFN E75755 (UL) 600V 90°C DRY OIL RES I SUNLIGHT RESISTANT DIRECT BURIAL -- SEQUENTIAL MARKING

Table 1 – Weights and Measurements

Stock Number	Cond. Size	Number of Pairs	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	pair	inch	mil	mil	inch	lb/1000ft	inch	Ω/1000ft
562953	18	2	0.045	15	45	0.336	70	2.0	6.669
563027	18	4	0.045	15	45	0.460	119	2.7	6.669
563029	18	8	0.045	15	60	0.635	228	3.8	6.669
563032	18	12	0.045	15	60	0.732	319	4.3	6.669
559154	18	24	0.045	15	80	1.065	631	6.3	6.669
566952	18	36	0.045	15	80	1.207	899	7.2	6.669
563035◊	16	2	0.056	15	45	0.368	93	2.2	4.181
563037◊	16	4	0.056	15	45	0.515	162	3.0	4.181
581425	16	4	0.056	15	60	0.537	179	3.2	4.181
581426	16	5	0.056	15	60	0.601	217	3.6	4.181
579042	16	6	0.056	15	60	0.684	256	4.1	4.181
581377	16	7	0.056	15	60	0.715	292	3.9	4.181
563039◊	16	8	0.056	15	60	0.720	315	4.3	4.181
563041◊	16	12	0.056	15	80	0.867	478	5.2	4.181
582633◊	16	16	0.056	15	80	0.984	612	5.9	4.181
559145◊	16	24	0.056	15	80	1.174	876	7.0	4.181
566949◊	16	36	0.056	15	80	1.379	1261	8.2	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 Pairs	Diameter Over Conductor	Insul. Thickness	Jacket Thickness	Approx. OD	Approx. Weight	Min Bending Radius	DC Resistance @ 25°C
	AWG/ Kcmil	pair	inch	mm	mm	mm	lb/km	mm	Ω/km
562953	18	2	0.045	0.38	1.14	8.53	104	50.80	21.88
563027	18	4	0.045	0.38	1.14	11.68	177	68.58	21.88
563029	18	8	0.045	0.38	1.52	16.13	339	96.52	21.88
563032	18	12	0.045	0.38	1.52	18.59	475	109.22	21.88
559154	18	24	0.045	0.38	2.03	27.05	939	160.02	21.88
566952	18	36	0.045	0.38	2.03	30.66	1338	182.88	21.88
563035◊	16	2	0.056	0.38	1.14	9.35	138	55.88	13.72
563037◊	16	4	0.056	0.38	1.14	13.08	241	76.20	13.72
581425	16	4	0.056	0.38	1.52	13.64	266	81.28	13.72
581426	16	5	0.056	0.38	1.52	15.27	323	91.44	13.72
579042	16	6	0.056	0.38	1.52	17.37	381	104.14	13.72
581377	16	7	0.056	0.38	1.52	18.16	435	99.06	13.72
563039◊	16	8	0.056	0.38	1.52	18.29	469	109.22	13.72
563041◊	16	12	0.056	0.38	2.03	22.02	711	132.08	13.72
582633◊	16	16	0.056	0.38	2.03	24.99	911	149.86	13.72
559145◊	16	24	0.056	0.38	2.03	29.82	1304	177.80	13.72
566949◊	16	36	0.056	0.38	2.03	35.03	1877	208.28	13.72

Typical Electrical Specifications for Each Pair

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

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