

## 600 VOLT INSTRUMENTATION TFFN/PVC PAIRS, POS, TYPE TC-ER

Type TC-ER Instrumentation Cable 600 Volt Copper Conductors PVC/Nylon Insulated Singles with Overall Shield POS. 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:

- Conductors:** Class B stranded bare copper per ASTM B-3 and B-8
- Insulation:** Premium Grade Polyvinyl Chloride (PVC) plus nylon. Black/White alpha-numeric print alternate and inverted. 1-ONE, 2-TWO
- Twisted Pair:** Black/White pairs
- Binder:** Mylar binder
- Overall Drain Wire:** Tinned Copper
- Overall Shielded:** 100% coverage aluminum/polyester foil shield with a drain wire as shown in step 5
- 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 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. 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 ripcord for easy removal.

### SPECIFICATIONS:

- ASTM B8 - Concentric Lay-Stranded Copper
- ASTM B3 - Tinned Soft or Annealed Copper
- UL Standard 1277 Electrical Power and Control Tray Cables
- Passes IEEE 383 Flame Test (70,000 btu)
- Passes FT4/IEEE 1202 Flame Test
- NEC Article 336
- EPA 40 CFR, Part 26, Subpart C, heavy metals per Table 1, TCLP method
- RoHS-2 (European Directive 2011/65/EU)

### SAMPLE PRINT LEGEND:

SOUTHWIRE® XX AWG XX PAIRS PVC/PVC TYPE TC-ER E75755 (UL) 90°C SUN AND OIL RES FT4/IEEE 1202 SEQUENTIAL MARKING



Southwire Company, LLC | One Southwire Drive, Carrollton, GA 30119 | [www.southwire.com](http://www.southwire.com)



**Table 1 – Measurements and Electrical**

| Stock Code | Cond Size AWG   | No. of Pairs.  | Insulation Thickness |      | Jacket Thickness |      | Nominal OD (Ø) |       | Nominal Weight |       | DC Resistance |       | Min Bend Radius |        |
|------------|-----------------|----------------|----------------------|------|------------------|------|----------------|-------|----------------|-------|---------------|-------|-----------------|--------|
|            |                 |                | mils                 | mm   | mils             | mm   | Inches         | mm    | Lbs/MFT        | kg/km | Ω/MFT         | Ω/km  | Inches          | mm     |
| 562951     | 18              | 1 <sup>†</sup> | 15                   | 0.38 | 45               | 1.14 | 0.274          | 6.96  | 41             | 61    | 6.66          | 21.84 | 2.192           | 55.68  |
| TBA        | 18              | 2              | 15                   | 0.38 | 45               | 1.14 | 0.406          | 10.31 | 80             | 119   | 6.66          | 21.84 | 3.248           | 82.5   |
| TBA        | 18              | 4              | 15                   | 0.38 | 45               | 1.14 | 0.468          | 11.89 | 107            | 159   | 6.66          | 21.84 | 3.744           | 95.1   |
| TBA        | 18              | 8              | 15                   | 0.38 | 60               | 1.52 | 0.621          | 15.77 | 198            | 295   | 6.66          | 21.84 | 4.968           | 126.19 |
| TBA        | 18              | 12             | 15                   | 0.38 | 60               | 1.52 | 0.726          | 18.44 | 277            | 412   | 6.66          | 21.84 | 5.808           | 147.52 |
| TBA        | 18              | 24             | 15                   | 0.38 | 80               | 2.03 | 1.004          | 25.5  | 536            | 798   | 6.66          | 21.84 | 8.032           | 204.01 |
| TBA        | 18              | 36             | 15                   | 0.38 | 80               | 2.03 | 1.136          | 28.85 | 750            | 1116  | 6.66          | 21.84 | 9.088           | 230.84 |
| 562954     | 16 <sup>†</sup> | 1 <sup>†</sup> | 15                   | 0.38 | 45               | 1.14 | 0.298          | 7.57  | 50             | 74    | 4.18          | 13.71 | 2.384           | 60.55  |
| 581376     | 16              | 2              | 15                   | 0.38 | 45               | 1.14 | 0.448          | 11.38 | 89             | 132   | 4.18          | 13.71 | 3.584           | 91.03  |
| TBA        | 16              | 4              | 15                   | 0.38 | 60               | 1.52 | 0.548          | 13.92 | 157            | 234   | 4.18          | 13.71 | 4.384           | 111.35 |
| TBA        | 16              | 8              | 15                   | 0.38 | 60               | 1.52 | 0.688          | 17.48 | 266            | 396   | 4.18          | 13.71 | 5.504           | 139.8  |
| 581377     | 16              | 12             | 15                   | 0.38 | 80               | 2.03 | 0.852          | 21.64 | 409            | 609   | 4.18          | 13.71 | 6.816           | 173.13 |
| 581424     | 16              | 16             | 15                   | 0.38 | 80               | 2.03 | 0.952          | 24.18 | 518            | 771   | 4.18          | 13.71 | 7.616           | 193.45 |
| TBA        | 16              | 24             | 15                   | 0.38 | 80               | 2.03 | 1.118          | 28.4  | 728            | 1083  | 4.18          | 13.71 | 8.944           | 227.18 |
| TBA        | 16              | 36             | 15                   | 0.38 | 80               | 2.03 | 1.268          | 32.21 | 1029           | 1531  | 4.18          | 13.71 | 10.144          | 257.66 |

All dimensions are nominal and subject to normal manufacturing tolerances

† 1 Pair is not TC-ER Rated.

| Typical Electrical Specifications for Each Pair |              |                    |
|---|--------------|--------------------|
| Size  | Capacitance  | Inductance         |
| 18 AWG  | 40.66 pF/ft. | 0.0957 μ Henry/ft. |
| 16 AWG  | 48.51 pF/ft. | 0.0895 μ Henry/ft. |

