# 600V CU EPR PAIRS CPE POS Instrumentation

Type TC-ER Instrumentation Cable 600 Volt Tinned Copper Conductors EPR Insulated Single Pairs with Overall Shield POS. CPE Jacket Heat, Moisture, Oil and Sunlight Resistant. Rated for -30°C to 90°C




Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** Class B stranded tinned copper per ASTM B3 and B33
2. **Insulation:** Twisted pair with Premium Grade Flame-retardant Ethylene Propylene Rubber FR-EPR Black/White alpha-numeric print alternate and inverted. 1-ONE, 2-TWO
3. **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.
4. **Overall Shielded:** 100% coverage aluminum/polyester foil shield with a drain wire as shown in step 5
5. **Rip Cord:** Rip cord under jacket for ease of removal
6. **Jacket:** Black sunlight, oil and moisture resistant thermoplastic Chlorinated Polyethylene CPE jacket

## 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 tinned copper conductors insulated with Ethylene Propylene Rubber EPR. 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 wet or dry and rated for Class I Div II hazardous locations, sun and oil resistant. The jacket is black Chlorinated Polyethylene CPE with a rip cord for easy removal. 1 Pair is not TC-ER Rated.

## SPECIFICATIONS:

- ASTM B33 Standard Specification for Tin-Coated Soft or Annealed Copper Wire
- UL 44 Thermoset-Insulated Wires and Cables
- UL 1277 Electrical Power and Control Tray Cables
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test
- ICEA S-73-532 Control, Thermocouple Extension, and Instrumentation Cables (applicable to sizes 20-9 AWG conductors)
- 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


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## SAMPLE PRINT LEGEND:

SOUTHWIRE® XX AWG XX PAIRS EPR/CPE TYPE TC-ER E-FILE (UL) 600V 90°C WET/DRY SUN AND OIL RESI DIRECT BURIAL FT4/IEEE 1202 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 |
| 592128 | 18 | 1 | 0.045 | 30 | 45 | 0.309 | 46 | 1.8 | 6.669 |
| TBA | 18 | 2 | 0.045 | 30 | 45 | 0.463 | 75 | 2.7 | 6.669 |
| TBA | 18 | 4 | 0.045 | 30 | 60 | 0.57 | 134 | 3.4 | 6.669 |
| 677058 | 18 | 5 | 0.045 | 30 | 60 | 0.715 | 178 | 4.2 | 6.669 |
| TBA | 18 | 8 | 0.045 | 30 | 60 | 0.734 | 224 | 4.4 | 6.669 |
| 631377 | 18 | 12 | 0.045 | 30 | 80 | 0.941 | 377 | 5.6 | 6.669 |
| 592115 | 16 | 1 | 0.056 | 30 | 45 | 0.333 | 57 | 1.9 | 4.181 |
| TBA | 16 | 2 | 0.056 | 30 | 45 | 0.501 | 94 | 3 | 4.181 |
| TBA | 16 | 3 | 0.056 | 30 | 60 | 0.578 | 191 | 3.5 | 4.181 |
| 598542 | 16 | 4 | 0.056 | 30 | 60 | 0.589 | 177 | 3.5 | 4.181 |
| TBA | 16 | 8 | 0.056 | 30 | 60 | 0.796 | 290 | 4.7 | 4.181 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item
† 1 Pair is not TC-ER Rated.
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.

## 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 |
| 592128 | 18 | 1 | 0.045 | 0.76 | 1.14 | 7.85 | 68 | 45.72 | 21.88 |
| TBA | 18 | 2 | 0.045 | 0.76 | 1.14 | 11.76 | 112 | 68.58 | 21.88 |
| TBA | 18 | 4 | 0.045 | 0.76 | 1.52 | 14.48 | 199 | 86.36 | 21.88 |
| 677058 | 18 | 5 | 0.045 | 0.76 | 1.52 | 18.16 | 265 | 106.68 | 21.88 |
| TBA | 18 | 8 | 0.045 | 0.76 | 1.52 | 18.64 | 333 | 111.76 | 21.88 |
| 631377 | 18 | 12 | 0.045 | 0.76 | 2.03 | 23.90 | 561 | 142.24 | 21.88 |
| 592115 | 16 | 1 | 0.056 | 0.76 | 1.14 | 8.46 | 85 | 48.26 | 13.72 |
| TBA | 16 | 2 | 0.056 | 0.76 | 1.14 | 12.73 | 140 | 76.20 | 13.72 |
| TBA | 16 | 3 | 0.056 | 0.76 | 1.52 | 14.68 | 284 | 88.90 | 13.72 |
| 598542 | 16 | 4 | 0.056 | 0.76 | 1.52 | 14.96 | 263 | 88.90 | 13.72 |
| TBA | 16 | 8 | 0.056 | 0.76 | 1.52 | 20.22 | 432 | 119.38 | 13.72 |

## Typical Electrical Specifications for Each Pair

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

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