# CU 600V PVC-Nylon Insulation PVC Jacket THHN/THWN-2. CT Rated - Sunlight Resistant - For Direct Burial - Silicone Free

Type TC-ER Control Cable 600 Volt Copper Conductors, Polyvinyl Chloride (PVC) with nylon layer Insulation THHN or TFFN/TFN Polyvinyl Chloride (PVC) Jacket, Control Cable Conductor Identification Method 1 Table 2. CT Rated - Sunlight Resistant - For Direct Burial - Silicone Free - VW-1 Rated.


Image not to scale. See Table 1 for dimensions.

## CONSTRUCTION:

1. **Conductor:** 7 strands class B compressed bare copper per ASTM B3 and ASTM B8 for 14, 12, and 10 AWG cables. Class K bare copper per ASTM B3 and B174 for 16 AWG (26 strands) and 18 AWG (16 strands) cables
2. **Insulation:** Polyvinyl Chloride (PVC) with nylon layer. Type TFFN/TFN for 18 and 16 AWG cable. Type THHN or THWN-2 for 14, 12 , 10 AWG cables. Types THHN or THWN-2 are VW-1 Rated
3. **Filler:** Polypropylene filler on cables with 5 or less conductors
4. **Binder:** Polyester flat thread binder tape applied for cables with more than 5 conductors
5. **Overall Jacket:** Polyvinyl Chloride (PVC) Jacket

## APPLICATIONS AND FEATURES:

Southwire's 600 Volt Type TC-ER control cables are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial, aerial supported by a messenger, and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 75°C in wet locations and 90°C in dry locations, 105°C for emergency overload, and 150°C for short circuit conditions. For uses in Class I, II, and III, Division 2 hazardous locations per NEC Article 501 and 502. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC 336.10. Sunlight Resistant - For Direct Burial - Silicone Free - VW-1 Rated.

## SPECIFICATIONS:

- ASTM B3 Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- UL 66 Fixture Wire
- UL 83 Thermoplastic Insulated Wires and Cables
- UL 1277 Electrical Power and Control Tray Cables
- UL 1685 Vertical-Tray Fire Propagation and Smoke Release Test
- ICEA S-58-679 Control Cable Conductor Identification Method 1 Table 2
- ICEA S-73-532 Standard for Control, Thermocouple Extension and Instrumentation Cables
- ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test

## SAMPLE PRINT LEGEND:

{SQFTG} SOUTHWIRE® {UL} XX AWG (X.XX{mm2}) CU XX CDRS TYPE TC-ER THHN OR THWN CDRS 90°C JACKET SUNLIGHT RESISTANT DIRECT BURIAL 600 VOLTS {NOM}-ANCE

## Table 1 – Physical and Electrical Data

| Stock Number | Cond. Size | Cond. Number | Cond. Strands | Insul. Thickness | Jacket Thickness | Approx. OD | Copper Weight | Approx. Weight | DC Resistance @ 25°C | AC Resistance @ 75°C | Inductive Rectance | Min Bending Radius | Allowable Ampacity 75°C | Allowable Ampacity 90°C |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AWG | No. | strands | mil | mil | inch | lb / 1000ft | lb / 1000ft | Ω /1000ft | Ω /1000ft | Ω/1000ft | inch | Amp | Amp |
| 18 AWG | | | | | | | | | | | | | | |
| 577879 | 18 | 2 | 7 | 20 | 45 | 0.174 | 10 | 15 | 6.669 | 8.035 | 0.036 | 0.7 | - | 14 |
| 652188 | 18 | 3 | 7 | 20 | 45 | 0.280 | 15 | 45 | 6.669 | 8.035 | 0.036 | 1.1 | - | 14 |
| 577878 | 18 | 4 | 7 | 20 | 45 | 0.304 | 20 | 54 | 6.669 | 8.035 | 0.036 | 1.2 | - | 11 |
| 652191 | 18 | 5 | 7 | 20 | 45 | 0.336 | 25 | 66 | 6.669 | 8.035 | 0.036 | 1.3 | - | 11 |
| 652194 | 18 | 6 | 7 | 20 | 45 | 0.358 | 30 | 74 | 6.669 | 8.035 | 0.036 | 1.4 | - | 11 |
| 652197 | 18 | 8 | 7 | 20 | 45 | 0.385 | 40 | 93 | 6.669 | 8.035 | 0.036 | 1.5 | - | 9 |
| 652200 | 18 | 10 | 7 | 20 | 45 | 0.438 | 50 | 140 | 6.669 | 8.035 | 0.036 | 1.8 | - | 7 |
| 652203 | 18 | 12 | 7 | 20 | 45 | 0.454 | 60 | 155 | 6.669 | 8.035 | 0.036 | 1.8 | - | 7 |
| 652215 | 18 | 16 | 7 | 20 | 45 | 0.508 | 80 | 165 | 6.669 | 8.035 | 0.036 | 2.0 | - | 7 |
| 652209 | 18 | 19 | 7 | 20 | 45 | 0.560 | 95 | 239 | 6.669 | 8.035 | 0.036 | 2.2 | - | 7 |
| 652212 | 18 | 24 | 7 | 20 | 60 | 0.654 | 121 | 319 | 6.669 | 8.035 | 0.036 | 2.6 | - | 6 |
| 16 AWG | | | | | | | | | | | | | | |
| 604843◊ | 16 | 2 | 26 | 20 | 45 | 0.292 | 16 | 44 | 4.181 | 5.037 | 0.033 | 1.2 | - | 18 |
| 604850◊ | 16 | 3 | 26 | 20 | 45 | 0.308 | 24 | 58 | 4.181 | 5.037 | 0.033 | 1.2 | - | 18 |
| 604868◊ | 16 | 4 | 26 | 20 | 45 | 0.333 | 32 | 70 | 4.181 | 5.037 | 0.033 | 1.3 | - | 14 |
| 604876◊ | 16 | 5 | 26 | 20 | 45 | 0.362 | 40 | 81 | 4.181 | 5.037 | 0.033 | 1.4 | - | 14 |
| TBA | 16 | 6 | 7 | 20 | 45 | 0.380 | 56 | 101 | 4.181 | 5.037 | 0.033 | 1.5 | - | 14 |
| 604892◊ | 16 | 7 | 26 | 20 | 45 | 0.393 | 55 | 107 | 4.181 | 5.037 | 0.033 | 1.6 | - | 12 |
| TBA | 16 | 8 | 7 | 20 | 45 | 0.410 | 72 | 124 | 4.181 | 5.037 | 0.033 | 1.6 | - | 12 |
| 604918◊ | 16 | 9 | 26 | 20 | 45 | 0.454 | 72 | 135 | 4.181 | 5.037 | 0.033 | 1.8 | - | 12 |
| TBA | 16 | 10 | 7 | 20 | 45 | 0.476 | 88 | 151 | 4.181 | 5.037 | 0.033 | 1.9 | - | 9 |
| 604942◊ | 16 | 12 | 26 | 20 | 45 | 0.510 | 95 | 174 | 4.181 | 5.037 | 0.033 | 2.0 | - | 9 |
| 604975 | 16 | 15 | 26 | 20 | 45 | 0.595 | 120 | 226 | 4.181 | 5.037 | 0.033 | 2.4 | - | 9 |
| 605014◊ | 16 | 19 | 26 | 20 | 60 | 0.625 | 152 | 274 | 4.181 | 5.037 | 0.033 | 2.5 | - | 9 |
| TBA | 16 | 20 | 7 | 20 | 60 | 0.632 | 168 | 286 | 4.181 | 5.037 | 0.033 | 2.5 | - | 9 |
| 605071 | 16 | 25 | 26 | 20 | 60 | 0.700 | 201 | 350 | 4.181 | 5.037 | 0.033 | 2.8 | - | 8 |
| 605121 | 16 | 30 | 26 | 20 | 60 | 0.767 | 242 | 412 | 4.181 | 5.037 | 0.033 | 3.1 | - | 8 |
| 605196◊ | 16 | 37 | 26 | 20 | 60 | 0.867 | 297 | 529 | 4.181 | 5.037 | 0.033 | 3.5 | - | 7 |
| 14 AWG | | | | | | | | | | | | | | |
| 408484◊ | 14 | 2 | 7 | 20 | 45 | 0.305 | 25 | 56 | 2.631 | 3.170 | 0.058 | 1.2 | 20 | 25 |
| 408518◊ | 14 | 3 | 7 | 20 | 45 | 0.322 | 38 | 74 | 2.631 | 3.170 | 0.058 | 1.3 | 20 | 25 |
| 408542◊ | 14 | 4 | 7 | 20 | 45 | 0.351 | 51 | 94 | 2.631 | 3.170 | 0.058 | 1.4 | 16 | 20 |
| 408575◊ | 14 | 5 | 7 | 20 | 45 | 0.380 | 64 | 109 | 2.631 | 3.170 | 0.058 | 1.5 | 16 | 20 |
| 608836 | 14 | 6 | 7 | 20 | 45 | 0.416 | 76 | 130 | 2.631 | 3.170 | 0.058 | 1.7 | 16 | 20 |
| TBA | 14 | 8 | 7 | 20 | 45 | 0.456 | 115 | 176 | 2.631 | 3.170 | 0.058 | 1.8 | 14 | 17 |
| 408740◊ | 14 | 9 | 7 | 20 | 45 | 0.490 | 115 | 189 | 2.631 | 3.170 | 0.058 | 2.0 | 14 | 17 |
| 605477 | 14 | 10 | 7 | 20 | 45 | 0.556 | 128 | 222 | 2.631 | 3.170 | 0.058 | 2.2 | 10 | 12 |
| 408807◊ | 14 | 12 | 7 | 20 | 45 | 0.573 | 153 | 256 | 2.631 | 3.170 | 0.058 | 2.3 | 10 | 12 |
| 412874 | 14 | 15 | 7 | 20 | 60 | 0.632 | 192 | 312 | 2.631 | 3.170 | 0.058 | 2.5 | 10 | 12 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AWG | No. | strands | mil | mil | inch | lb / 1000ft | lb / 1000ft | Ω /1000ft | Ω /1000ft | Ω/1000ft | inch | Amp | Amp |
| 412908◊ | 14 | 19 | 7 | 20 | 60 | 0.664 | 243 | 381 | 2.631 | 3.170 | 0.058 | 2.7 | 10 | 12 |
| 608729 | 14 | 20 | 7 | 20 | 60 | 0.697 | 256 | 401 | 2.631 | 3.170 | 0.058 | 2.8 | 10 | 12 |
| 552133◊ | 14 | 25 | 7 | 20 | 60 | 0.802 | 320 | 507 | 2.631 | 3.170 | 0.058 | 3.2 | 9 | 11 |
| 557553 | 14 | 30 | 7 | 20 | 60 | 0.875 | 384 | 620 | 2.631 | 3.170 | 0.058 | 3.5 | 9 | 11 |
| 552190◊ | 14 | 37 | 7 | 20 | 80 | 0.949 | 475 | 759 | 2.631 | 3.170 | 0.058 | 3.8 | 8 | 10 |
| 12 AWG | | | | | | | | | | | | | | |
| 408468◊ | 12 | 2 | 7 | 20 | 45 | 0.348 | 40 | 77 | 1.662 | 2.002 | 0.054 | 1.4 | 25 | 30 |
| 408526◊ | 12 | 3 | 7 | 20 | 45 | 0.369 | 61 | 108 | 1.662 | 2.002 | 0.054 | 1.5 | 25 | 30 |
| 408559◊ | 12 | 4 | 7 | 20 | 45 | 0.401 | 81 | 149 | 1.662 | 2.002 | 0.054 | 1.6 | 20 | 24 |
| 408583◊ | 12 | 5 | 7 | 20 | 45 | 0.438 | 101 | 183 | 1.662 | 2.002 | 0.054 | 1.8 | 20 | 24 |
| 408641◊ | 12 | 7 | 7 | 20 | 45 | 0.477 | 142 | 237 | 1.662 | 2.002 | 0.054 | 1.9 | 17 | 21 |
| 608737 | 12 | 6 | 7 | 20 | 45 | 0.481 | 122 | 189 | 1.662 | 2.002 | 0.054 | 1.9 | 20 | 24 |
| TBA | 12 | 8 | 7 | 20 | 60 | 0.546 | 182 | 268 | 1.662 | 2.002 | 0.054 | 2.2 | 17 | 21 |
| 408757◊ | 12 | 9 | 7 | 20 | 60 | 0.580 | 183 | 332 | 1.662 | 2.002 | 0.054 | 2.3 | 17 | 21 |
| TBA | 12 | 10 | 7 | 20 | 60 | 0.634 | 223 | 326 | 1.662 | 2.002 | 0.054 | 2.5 | 12 | 15 |
| 408815◊ | 12 | 12 | 7 | 20 | 60 | 0.657 | 244 | 425 | 1.662 | 2.002 | 0.054 | 2.6 | 12 | 15 |
| 412882 | 12 | 15 | 7 | 20 | 60 | 0.734 | 305 | 454 | 1.662 | 2.002 | 0.054 | 2.9 | 12 | 15 |
| 622420 | 12 | 16 | 7 | 20 | 60 | 0.738 | 325 | 478 | 1.662 | 2.002 | 0.054 | 3.0 | 12 | 15 |
| 412916 | 12 | 19 | 7 | 20 | 60 | 0.772 | 388 | 562 | 1.662 | 2.002 | 0.054 | 3.1 | 12 | 15 |
| TBA | 12 | 20 | 7 | 20 | 60 | 0.802 | 426 | 585 | 1.662 | 2.002 | 0.054 | 3.2 | 12 | 15 |
| 552166 | 12 | 25 | 7 | 20 | 80 | 0.943 | 509 | 761 | 1.662 | 2.002 | 0.054 | 3.8 | 11 | 13 |
| TBA | 12 | 30 | 7 | 20 | 80 | 0.982 | 630 | 879 | 1.662 | 2.002 | 0.054 | 3.9 | 11 | 13 |
| 552224 | 12 | 37 | 7 | 20 | 80 | 1.064 | 755 | 1084 | 1.662 | 2.002 | 0.054 | 5.3 | 10 | 12 |
| 10 AWG | | | | | | | | | | | | | | |
| 408492◊ | 10 | 2 | 7 | 25 | 45 | 0.420 | 64 | 115 | 1.040 | 1.253 | 0.050 | 1.7 | 35 | 40 |
| 408534◊ | 10 | 3 | 7 | 25 | 45 | 0.446 | 97 | 159 | 1.040 | 1.253 | 0.050 | 1.8 | 35 | 40 |
| 408567◊ | 10 | 4 | 7 | 25 | 45 | 0.505 | 129 | 207 | 1.040 | 1.253 | 0.050 | 2.0 | 28 | 32 |
| 408591◊ | 10 | 5 | 7 | 25 | 45 | 0.565 | 161 | 258 | 1.040 | 1.253 | 0.050 | 2.3 | 28 | 32 |
| TBA | 10 | 6 | 7 | 25 | 60 | 0.611 | 226 | 325 | 1.040 | 1.253 | 0.050 | 2.4 | 28 | 32 |
| 408658◊ | 10 | 7 | 7 | 25 | 60 | 0.615 | 226 | 381 | 1.040 | 1.253 | 0.050 | 2.5 | 24 | 28 |
| TBA | 10 | 8 | 7 | 25 | 60 | 0.662 | 290 | 406 | 1.040 | 1.253 | 0.050 | 2.6 | 24 | 28 |
| 408765◊ | 10 | 9 | 7 | 25 | 60 | 0.715 | 291 | 501 | 1.040 | 1.253 | 0.050 | 2.9 | 24 | 28 |
| TBA | 10 | 10 | 7 | 25 | 60 | 0.774 | 355 | 496 | 1.040 | 1.253 | 0.050 | 3.1 | 17 | 20 |
| 408823◊ | 10 | 12 | 7 | 25 | 60 | 0.806 | 388 | 652 | 1.040 | 1.253 | 0.050 | 3.2 | 17 | 20 |
| 601666 | 10 | 19 | 7 | 25 | 80 | 0.993 | 613 | 903 | 1.040 | 1.253 | 0.050 | 4.0 | 17 | 20 |
| TBA | 10 | 20 | 7 | 25 | 80 | 1.028 | 678 | 941 | 1.040 | 1.253 | 0.050 | 5.1 | 17 | 20 |
| TBA | 10 | 25 | 7 | 25 | 80 | 1.140 | 840 | 1149 | 1.040 | 1.253 | 0.050 | 5.7 | 15 | 18 |
| TBA | 10 | 30 | 7 | 25 | 80 | 1.207 | 1002 | 1349 | 1.040 | 1.253 | 0.050 | 6.0 | 15 | 18 |
| TBA | 10 | 37 | 7 | 25 | 80 | 1.303 | 1228 | 1631 | 1.040 | 1.253 | 0.050 | 6.5 | 14 | 16 |

All dimensions are nominal and subject to normal manufacturing tolerances
◊ Cable marked with this symbol is a standard stock item

* Ampacities based upon 2023 NEC Table 310.16 and do not take into account the overcurrent protection limitations in NEC 240.4(D) of 15 Amps for 14 AWG CU, 20 Amps for 12 AWG CU, and 30 Amps for 10 AWG CU (independent of the conductor temperature rating and stranding if size is present in table). Also, see NEC sections 310.15 and 110.14(C) for additional requirements.
* Ampacities have been adjusted for more than Three Current-Carrying Conductors.