

Multi-Conductor CU 600V PVC THHN or TFFN/TFN PVC Control Cable. Silicone Free

Type TC-ER Control Cable 600Volt 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. Silicone Free. VW-1 Rated.



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

- 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
- Insulation:** Polyvinyl Chloride (PVC) with nylon layer 19 Mils thick for 18, 16, 14, 12 AWG cables and 24 Mils for 10 AWG cables, Type TFFN/TFN for 16 AWG cable and Type THHN or THWN for 14, 12, 10 AWG cables. Types THHN or THWN are VW-1 Rated
- Filler:** Polypropylene filler on cables with 5 or less conductors
- Binder:** Polyester flat thread binder tape applied for cables with more than 5 conductors
- 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. Silicone Free. Types THHN or THWN are VW-1 Rated.

SPECIFICATIONS:

- ASTM B3 Standard Specification for Soft or Annealed Copper Wire
- ASTM B8 Concentric-Lay-Stranded Copper Conductors
- UL 66 Fixture Wire Type TFFN
- 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



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SAMPLE PRINT LEGEND:

SOUTHWIRE EXXXXX #P# (UL) [#AWG Or #kcmil] CU THHN PVC/PVC 600V Type TC-ER For CT USE SUN. RES. For DIRECT BURIAL YEAR (NESC) [SEQUENTIAL FEET MARKS]

Stock No: 408633

SOUTHWIRE{R} MASTER-DESIGN E75755 {UL} 14 AWG (2.08{mm²}) CU 7 CDRS TYPE TC-ER-JP THHN OR THWN CDRS 90 {D}C JACKET SUNLIGHT RESISTANT DIRECT BURIAL 600 VOLTS {NOM}-ANCE

Table 1 – Physical and Electrical Data

Stock Number	Cond. Size	Cond. Number	Diameter Over Cond.	Insul. Thickness	Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	DC Resistance	AC Resistance @ 90°C	Min Bending Radius	Allowable Ampacity At 60°C *	Allowable Ampacity 75°C *	Allowable Ampacity 90°C *
	AWG	No.	inch	mil	mil	inch	lb /1000ft	lb /1000ft	Ω /1000ft	Ω /1000ft	inch	Amp	Amp	Amp
18 AWG														
577879	18	2	0.046	15	45	0.268	15	36	6.54	8.34	1.1	6	6	6
652188	18	3	0.046	15	45	0.280	15	45	6.54	8.34	1.1	6	6	6
652191	18	5	0.046	15	45	0.336	25	66	6.54	8.34	1.3	5	5	5
652194	18	6	0.046	15	45	0.362	30	76	6.54	8.34	1.4	5	5	5
652197	18	8	0.046	15	45	0.389	40	94	6.54	8.34	1.6	4	4	4
652200	18	10	0.046	15	45	0.442	50	116	6.54	8.34	1.8	3	3	3
652203	18	12	0.046	15	45	0.458	60	131	6.54	8.34	1.8	3	3	3
652215	18	16	0.046	15	45	0.508	80	165	6.54	8.34	2.0	3	3	3
652209	18	19	0.046	15	45	0.564	95	208	6.54	8.34	2.3	3	3	3
652212	18	24	0.046	15	45	0.658	120	260	6.54	8.34	2.6	3	3	3
16 AWG														
604843◇	16	2	0.056	19	45	0.279	16	44	4.180	5.226	1.1	8	8	8
604850◇	16	3	0.056	19	45	0.294	24	56	4.180	5.226	1.2	8	8	8
604868◇	16	4	0.056	19	45	0.318	32	69	4.180	5.226	1.3	8	8	8
604876◇	16	5	0.056	19	45	0.345	40	82	4.180	5.226	1.4	6	6	6
TBA	16	6	0.056	19	45	0.373	48	97	4.180	5.226	1.5	6	6	6
604892◇	16	7	0.056	19	45	0.373	56	106	4.180	5.226	1.5	6	6	6
TBA	16	8	0.056	19	45	0.402	64	121	4.180	5.226	1.6	5	5	5
604918◇	16	9	0.056	19	45	0.430	72	135	4.180	5.226	1.7	5	5	5
TBA	16	10	0.056	19	45	0.467	81	152	4.180	5.226	1.9	5	5	5
604942◇	16	12	0.056	19	45	0.482	97	174	4.180	5.226	1.9	4	4	4
604975	16	15	0.056	19	60	0.564	121	229	4.180	5.226	2.3	4	4	4
605014◇	16	19	0.056	19	60	0.592	153	273	4.180	5.226	2.4	4	4	4
TBA	16	20	0.056	19	60	0.621	161	291	4.180	5.226	2.5	4	4	4
605071	16	25	0.056	19	60	0.686	201	356	4.180	5.226	2.7	4	4	4
605121	16	30	0.056	19	60	0.724	242	415	4.180	5.226	2.9	3	3	3
605196◇	16	37	0.056	19	60	0.780	298	498	4.180	5.226	3.1	3	3	3
14 AWG														
408484◇	14	2	0.070	19	45	0.305	26	58	2.630	3.288	1.2	15	15	15
408518◇	14	3	0.070	19	45	0.322	38	75	2.630	3.288	1.3	15	15	15
408542◇	14	4	0.070	19	45	0.350	51	93	2.630	3.288	1.4	14	15	15



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Stock Number	Cond. Size	Cond. Number	Diameter Over Cond.	Insul. Thickness	Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	DC Resistance	AC Resistance @ 90°C	Min Bending Radius	Allowable Ampacity At 60°C *	Allowable Ampacity 75°C *	Allowable Ampacity 90°C *
	AWG	No.	inch	mil	mil	inch	lb /1000ft	lb /1000ft	Ω /1000ft	Ω /1000ft	inch	Amp	Amp	Amp
408575◇	14	5	0.070	19	45	0.380	64	113	2.630	3.288	1.5	14	15	15
608836	14	6	0.070	19	45	0.413	77	133	2.630	3.288	1.7	14	15	15
408633◇^	14	7	0.070	19	45	0.413	90	147	2.630	3.288	1.7	12	15	15
608703	14	8	0.070	19	45	0.446	102	168	2.630	3.288	1.8	12	15	15
408740◇	14	9	0.070	19	45	0.478	115	189	2.630	3.288	1.9	12	15	15
605477	14	10	0.070	19	60	0.554	128	219	2.630	3.288	2.2	9	11	12
408807◇	14	12	0.070	19	60	0.568	154	260	2.630	3.288	2.3	9	11	12
412874	14	15	0.070	19	60	0.627	192	318	2.630	3.288	2.5	9	11	12
412908◇	14	19	0.070	19	60	0.658	243	383	2.630	3.288	2.6	9	11	12
608729	14	20	0.070	19	60	0.691	256	408	2.630	3.288	2.8	9	11	12
552133◇	14	25	0.070	19	60	0.765	320	502	2.630	3.288	3.1	8	9	11
557553	14	30	0.070	19	60	0.810	384	587	2.630	3.288	3.2	8	9	11
552190◇	14	37	0.070	19	80	0.913	474	741	2.630	3.288	3.7	7	8	10
12 AWG														
408468◇	12	2	0.087	19	45	0.340	41	79	1.660	2.075	1.4	20	20	20
408526◇	12	3	0.087	19	45	0.360	61	104	1.660	2.075	1.4	20	20	20
408559◇	12	4	0.087	19	45	0.392	81	131	1.660	2.075	1.6	16	20	20
408583◇	12	5	0.087	19	45	0.428	102	160	1.660	2.075	1.7	16	20	20
608737	12	6	0.087	19	45	0.466	122	189	1.660	2.075	1.9	16	20	20
408641◇	12	7	0.087	19	45	0.466	143	211	1.660	2.075	1.9	14	17	20
608745	12	8	0.087	19	45	0.504	163	241	1.660	2.075	2.0	14	17	20
408757◇	12	9	0.087	19	60	0.572	183	287	1.660	2.075	2.3	14	17	20
608752	12	10	0.087	19	60	0.621	204	322	1.660	2.075	2.5	10	12	15
408815◇	12	12	0.087	19	60	0.641	244	371	1.660	2.075	2.6	10	12	15
412882	12	15	0.087	19	60	0.710	305	457	1.660	2.075	2.8	10	12	15
412916	12	19	0.087	19	60	0.746	387	555	1.660	2.075	3.0	10	12	15
TBA	12	20	0.087	19	60	0.785	407	590	1.660	2.075	3.1	10	12	15
552166	12	25	0.087	19	80	0.911	509	761	1.660	2.075	3.6	9	11	13
609180	12	30	0.087	19	80	0.963	611	891	1.660	2.075	3.9	9	11	13
552224	12	37	0.087	19	80	1.037	753	1075	1.660	2.075	5.2	8	10	12
10 AWG														
408492◇	10	2	0.111	24	45	0.407	65	117	1.040	1.300	1.6	30	30	30
408534◇	10	3	0.111	24	45	0.433	97	156	1.040	1.300	1.7	30	30	30
408567◇	10	4	0.111	24	45	0.473	130	199	1.040	1.300	1.9	24	28	30
408591◇	10	5	0.111	24	45	0.519	162	244	1.040	1.300	2.1	24	28	30
608778	10	6	0.111	24	60	0.596	194	306	1.040	1.300	2.4	24	28	30
408658◇	10	7	0.111	24	60	0.596	227	340	1.040	1.300	2.4	21	24	28
608786	10	8	0.111	24	60	0.645	259	389	1.040	1.300	2.6	21	24	28
408765◇	10	9	0.111	24	60	0.693	291	438	1.040	1.300	2.8	21	24	28
608794	10	10	0.111	24	60	0.755	324	492	1.040	1.300	3.0	15	17	20
408823◇	10	12	0.111	24	60	0.780	389	570	1.040	1.300	3.1	15	17	20



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	AWG	No.	inch	mil	mil	inch	lb /1000ft	lb /1000ft	Ω /1000ft	Ω /1000ft	inch	Amp	Amp	Amp
601658	10	15	0.111	24	80	0.908	486	737	1.040	1.300	3.6	15	17	20
601666	10	19	0.111	24	80	0.954	615	894	1.040	1.300	3.8	15	17	20
608802	10	20	0.111	24	80	1.003	648	950	1.040	1.300	5.0	15	17	20
608810	10	25	0.111	24	80	1.112	810	1173	1.040	1.300	5.6	13	15	18
608828	10	30	0.111	24	80	1.178	971	1377	1.040	1.300	5.9	13	15	18
TBA	10	37	0.111	24	80	1.271	1198	1667	1.040	1.300	6.4	12	14	16

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

† Ampacities are based on Table 310.15 (B)(16) of the NEC, 2017 Edition. Ampacities of insulated conductors rated up to and including 2000 Volts, based on ambient temperature of 30°C (86°F)

^Stock No: 408633 TYPE TC-ER-JP

