Southwire® Machine Flex® CU 600/1000V THHN Insulation Gray TPE Jacket. Silicone-Free

Type TC-ER Machine Tray Control Cable 600/1000 Volt Copper Conductors, Polyvinyl Chloride (PVC) with nylon layer Insulation Thermoplastic Elastomer Jacket, 90°C Dry 75°C Wet -40°C Cold Impact Identification Method 4. Silicone-Free



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

1. **Conductor:** Class K, Flexible stranded bare annealed copper per ASTM B3, B172, and B174
2. **Insulation:** Polyvinyl Chloride (PVC) with nylon layer THHN
3. **Ground:** One Green Ground with Yellow Stripe THHN
4. **Jacket:** Sunlight Resistant Gray Thermoplastic Elastomer TPE: Other jacket colors available upon request

APPLICATIONS AND FEATURES:

Southwire's Machine Flex® control tray cables 600/1000 Volt conform to NFPA 79 and are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial 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, 130°C for emergency overload, and 150°C for short circuit conditions. For uses in Class I, II, 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. Southwire's machine tray cable is ideal for use in CNC machines, grinding, cutting, metal forming, buffing, bottling equipment, conveyors, processing & packaging equipment, assembly lines, control panels, food and beverage, oil sands, plant expansion, wind energy and data centers. Multiple approvals for multiple applications. Cable is rated for -40°C cold impact. Two conductor cables contain no green/yellow ground.

SPECIFICATIONS:

- ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors
- ASTM B174 Standard Specification for Bunch-Stranded Copper
- UL 13 Power-Limited Circuit Cables
- UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG)
- UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 1000 kcmil)
- UL 758 AWM Style 2587
- UL 1063 Machine Tool Wiring (MTW)
- UL 1277 TC-ER
- UL 1690 Data Processing Cable (DP-1)
- UL 2250 Instrumentation Tray Cable
- UL 2277 Type WTTC
- CSA C22.2 No. 210 Appliance wiring material products I/II A/B
- CSA C22.2 No.230 Tray Cables - Rated TC

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- CSA C22.2 No. 239 Control 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
- Exceeds Ecolab PM-40-1 Material Resistance Test With 30-day Exposure, UL Verified V747862
- **CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive**
- NFPA 79 Electrical Standard for Industrial Machinery
- Made in America: Compliant with both Buy American and Buy America Act (BAA) requirements per 49 U.S.C. § 5323(j) and the Federal Transit Administration Buy America requirements per 49 C.F.R. part 661

SAMPLE PRINT LEGEND:

18 - 12 AWG:
SOUTHWIRE® XX AWG (X.XXmm2) X/C PVC/NYLON TYPE TC-ER E75755 (UL) 600V 90°C DRY 75°C WET SUN RES OIL RES I/II DIR BUR -40°C OR MTW FLEXING OR DP-1 OR WTTC 1000V OR PLTC OR ITC OR AWM 2587 -- LL90458 CSA CIC/TC FT4 OR AWM I/II A/B 105°C 1000V -40°C FT4 -- NOM-ANCE 90°C PVC/NYLON PVC-TPE THHN/THWN FT4 600V -- {CE} RoHS-2 MADE IN USA

10 AWG and Larger:
SOUTHWIRE® XX AWG (XX.X{MM2}) XX/C PVC/NYLON TYPE TC-ER E75755 {UL} 600V 90°C DRY 75°C WET SUN RES OIL RES I/II DIR BUR -40°C OR MTW FLEXING OR DP-1 OR WTTC 1000V OR AWM 2587 -- LL90458 {CSA} CIC/TC FT4 OR AWM I/II A/B 105°C 1000V -40°C FT4 -- {NOM}-ANCE 90°C PVC/NYLON PVC-TPE THHN/THWN FT4 600V -- {CE} RoHS-2 -- MADE IN USA

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Table 1 – Physical and Electrical Data

Stock Number	Cond. Size	Cond. Number	Cond. Strands	Diameter Over Cond.	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	Jacket Color
	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp	
18 AWG																
677071	18	2	16	0.044	15	45	0.266	10	35	6.659	8.265	0.036	1.1	-	14	GY
581511◊	18	3	16	0.044	15	50	0.281	15	50	6.659	8.265	0.036	1.1	-	14	BK
582642	18	4	16	0.044	15	50	0.306	20	55	6.659	8.265	0.036	1.2	-	11	GY
582644◊	18	5	16	0.044	15	50	0.332	25	74	6.659	8.265	0.036	1.3	-	11	GY
139265	18	6	16	0.044	15	45	0.348	30	84	6.659	8.265	0.036	1.4	-	11	GY
581513◊	18	7	16	0.044	15	50	0.358	35	91	6.659	8.265	0.036	1.4	-	10	GY
582645	18	9	16	0.044	15	50	0.411	45	121	6.659	8.265	0.036	1.6	-	10	GY
582646◊	18	12	16	0.044	15	50	0.456	60	128	6.659	8.265	0.036	1.8	-	7	GY
582647◊	18	18	16	0.044	15	65	0.554	91	226	6.659	8.265	0.036	2.2		7	GY
646262	18	19	16	0.044	15	65	0.56	96	201	6.659	8.265	0.036	2.2		7	GY
581514◊	18	25	16	0.044	15	65	0.635	126	254	6.659	8.265	0.036	2.5		6	GY
16 AWG																
677072◊	16	2	26	0.059	15	45	0.294	16	45	4.181	5.189	0.033	1.2	-	18	GY
581515◊	16	3	26	0.059	15	50	0.318	24	59	4.181	5.189	0.033	1.3	-	18	GY
582648◊	16	4	26	0.059	15	50	0.339	32	71	4.181	5.189	0.033	1.4	-	14	GY
582649◊	16	5	26	0.059	15	50	0.37	41	86	4.181	5.189	0.033	1.5	-	14	GY
139203	16	6	26	0.059	15	50	0.4	49	116	4.181	5.189	0.033	1.6	-	14	GY
581516◊	16	7	26	0.059	15	50	0.4	57	122	4.181	5.189	0.033	1.6	-	13	GY
139204	16	8	26	0.059	15	50	0.431	65	142	4.181	5.189	0.033	1.7	-	13	GY
582651◊	16	9	26	0.059	15	50	0.462	73	163	4.181	5.189	0.033	1.8	-	13	GY
139205	16	10	26	0.059	15	50	0.5	81	187	4.181	5.189	0.033	2	-	9	GY
582652◊	16	12	26	0.059	15	50	0.509	97	175	4.181	5.189	0.033	2	-	9	GY
582653◊	16	18	26	0.059	15	65	0.623	146	305	4.181	5.189	0.033	2.5	-	9	GY
646263	16	19	26	0.059	15	65	0.63	154	272	4.181	5.189	0.033	2.5	-	9	GY
581517◊	16	25	26	0.059	15	65	0.736	203	355	4.181	5.189	0.033	2.9	-	8	GY
581518	16	41	26	0.059	15	90	0.948	332	592	4.181	5.189	0.033	3.8	-	6	GY
14 AWG																
677073	14	2	41	0.073	15	45	0.324	26	59	2.621	3.253	0.058	1.3	20	25	GY
581519◊	14	3	41	0.073	15	50	0.342	38	77	2.621	3.253	0.058	1.4	20	25	GY
582654◊	14	4	41	0.073	15	50	0.375	51	97	2.621	3.253	0.058	1.5	16	20	GY
582655◊	14	5	41	0.073	15	50	0.411	64	116	2.621	3.253	0.058	1.6	16	20	GY
581521◊	14	7	41	0.073	15	50	0.445	89	150	2.621	3.253	0.058	1.8	14	18	GY
673795◊	14	8	41	0.073	15	50	0.495	102	176	2.621	3.253	0.058	2	14	18	GY
582656◊	14	9	41	0.073	15	50	0.516	115	221	2.621	3.253	0.058	2.1	14	18	GY
582657	14	12	41	0.073	15	65	0.608	153	258	2.621	3.253	0.058	2.4	10	12	GY
582658	14	18	41	0.073	15	50	0.697	230	417	2.621	3.253	0.058	2.8	10	12	GY
581522	14	25	41	0.073	15	65	0.806	318	487	2.621	3.253	0.058	3.2	9	11	GY
12 AWG																
677074	12	2	65	0.094	15	45	0.362	41	81	1.652	2.05	0.054	1.4	25	30	GY

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	AWG	No.	strands	inch	mil	mil	inch	lb / 1000ft	lb / 1000ft	Ω /1000ft	Ω /1000ft	Ω/1000ft	inch	Amp	Amp	
677188◊	12	3	65	0.094	15	50	0.389	61	108	1.652	2.05	0.054	1.6	25	30	GY
582659	12	4	65	0.094	15	50	0.42	81	137	1.652	2.05	0.054	1.7	20	24	GY
582660	12	5	65	0.094	15	50	0.502	101	208	1.652	2.05	0.054	2	20	24	GY
139262	12	6	65	0.094	15	50	0.502	122	194	1.652	2.05	0.054	2	20	24	GY
582661	12	7	65	0.094	15	50	0.544	142	263	1.652	2.05	0.054	2.2	18	21	GY
139263	12	8	65	0.094	15	65	0.574	162	260	1.652	2.05	0.054	2.3	18	21	GY
139264	12	9	65	0.094	15	65	0.615	182	291	1.652	2.05	0.054	2.5	18	21	GY
10 AWG																
677075	10	2	105	0.117	20	45	0.43	65	119	1.04	1.291	0.05	1.7	35	40	GY
677189	10	3	105	0.117	20	50	0.463	97	160	1.04	1.291	0.05	1.9	35	40	GY
581523	10	4	105	0.117	20	50	0.505	129	203	1.04	1.291	0.05	2	28	32	GY
582662	10	5	105	0.117	20	60	0.58	162	291	1.04	1.291	0.05	2.3	28	32	GY
582663	10	7	105	0.117	20	60	0.628	227	371	1.04	1.291	0.05	2.5	24	28	GY
8 AWG																
677190◊	8	3	168	0.153	30	65	0.626	158	314	0.666	0.827	0.052	2.5	50	55	GY
643367◊	8	4	168	0.153	30	65	0.68	211	366	0.666	0.827	0.052	2.7	40	44	GY
673797	8	5	168	0.153	30	65	0.766	263	456	0.666	0.827	0.052	3.1	40	44	GY
6 AWG																
677191	6	3	259	0.198	30	65	0.726	269	441	0.419	0.52	0.051	2.9	65	75	GY
643369◊	6	4	259	0.198	30	70	0.795	358	557	0.419	0.52	0.051	3.2	52	60	GY
458641	6	5	259	0.198	30	80	0.902	448	669	0.419	0.52	0.051	3.6	52	60	GY
4 AWG																
677192	4	3	420	0.235	40	80	0.89	399	650	0.263	0.326	0.048	3.6	85	95	GY
643371◊	4	4	420	0.235	40	80	0.969	532	846	0.263	0.326	0.048	3.9	68	76	GY
458779	4	5	420	0.235	40	80	1.073	665	964	0.263	0.326	0.048	5.4	68	76	GY
2 AWG																
677193	2	3	651	0.302	40	100	1.07	637	989	0.167	0.207	0.045	5.4	115	130	GY
643373◊	2	5	651	0.302	40	100	1.286	1062	1564	0.167	0.207	0.045	6.4	92	104	GY
458778◊	2	5	651	0.302	40	100	1.286	1062	1460	0.167	0.207	0.045	6.4	92	104	GY
516398	1	4	836	0.347	50	85	1.382	1313	1737	0.133	0.165	0.046	6.9	104	116	GY

All dimensions are nominal and subject to normal manufacturing tolerances

◊ Cable marked with this symbol is a standard stock item

***** Cond. Number includes green/yellow ground conductor. Constructions with only 2/C do not have a green/yellow ground conductor.

***** 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.

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