



Southwire

One Southwire Drive
Carrollton, Ga. 30119 USA

Southwire SDN

Small Diameter Flexible Control Cable

For Pendant, Reeling and Other Continuous Flexing Applications

18 - 12 AWG • 600 Volts • 90°C Dry and 75°C Wet

Scope

This specification covers multiconductor UL listed Type TC cable consisting of stranded, uncoated annealed copper, insulated with a flame retardant polymer and nylon jacket, cabled together with fillers, as required, mylar tape wrapped and jacketed overall with a black arctic grade, flame resistant, neoprene. American's SDN® cables conform to UL Type power and control tray cables and Articles 336, 392, 500 and 501 of the 2002 National Electrical Code. Cables pass UL-1277 and IEEE 383 70,000 BTU and the CSA FT4 flame tests. Cables are rated 600 volts, 90°C dry and 75°C wet. UL file no. E60749. CSA rated as Type CIC TC, 90°C, 600 volt Control and Tray Cable under file no. LR8825.

Applications

UL and CSA listed and OSHA acceptable. Recognized for use in Class 1 or 2, Division 2 hazardous locations. To be installed in trays, raceways, troughs, channels, ducts, conduit and by direct burial. Recommended for wet or dry locations and outdoors in cable trays where a sunlight resistant rating is required. Designed for control, power, lighting, telemetering, signal, relay traffic control, wherever flexible, small diameter cable is required such as cranes, hoists and robotics applications. The thermoset jacket will withstand chaff from welding and severe abrasion. The cable can be used indoors and outdoors; in pendant, reeling and other continuous flexing applications down to -55°C.

Construction

Conductors: Bare, soft annealed copper per ASTM B-3.

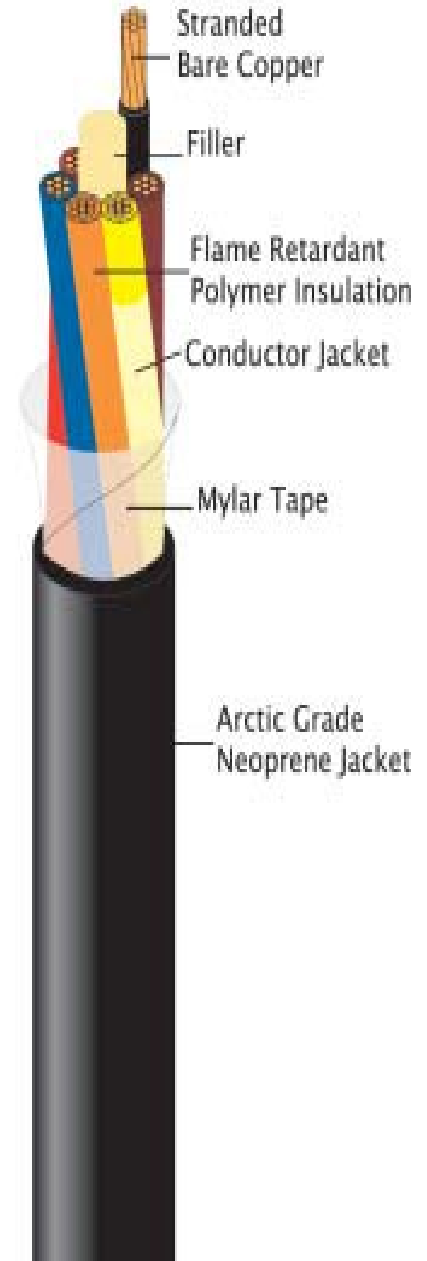
Insulation: Each conductor is concentrically insulated with a 15 mil wall of high dielectric flame retardant polymer with 5 mil wall of clear polyamide (nylon) jacket extruded over primary insulation and conforming to UL requirements.

Cabling: The applicable number of conductors are cabled together with fillers as necessary with a suitable lay. A clear mylar tape is helically applied over the core.

Overall Jacket: Heavy duty, flame and oil resistant arctic grade neoprene (black) per UL-1277 and ICEA S-73-532 part 4. Cable Identification (Ink print on one side of jacket): "SDN (Size) AWG (no. cdrs.) TC 90°C dry 75°C wet sunlight resistant 600V Direct Burial (UL)---Southwire---CSA CIC TC 90°C dry 60°C wet TPE/N (-40°C) oil resistant FT4"

Color Coding: ICEA Method 1 Table E-2. See Color Code Chart on page 32.

Construction Options: Consult factory for specifications on cables with alternative stranding and/or appropriate shields (aluminum/polyester tape, tinned copper or bare copper braids).



Copyright 2010, Southwire Company.
All Rights Reserved.

® Southwire is a registered trademark
of Southwire Company.



Southwire
 One Southwire Drive
 Carrollton, Ga. 30119 USA

II. CONSTRUCTION DATA:

Conductor Data

Conductor Size AWG	Stranding/Dia.	Insulation Thickness	Conductor Jkt. Thickness	Component OD
18	16/0100	.015	.004	.088
16	19/0117	.015	.004	.097
14	19/0147	.015	.004	.112
12	19/0185	.015	.004	.131

Cable Data

No. of Conds.	18 AWG • ES16176					16 AWG • ES16177					14 AWG • ES16178					12 AWG • ES16179				
	Part No.	OA Jkt. Thick. (MILS)	Approx. O.D. (IN)	Approx. Weight Lbs./M FL.	Min. Bend Radius for Dynamic Applic. (IN)	Part No.	OA Jkt. Thick. (MILS)	Approx. O.D. (IN)	Approx. Weight Lbs./M FL.	Min. Bend Radius for Dynamic Applic. (IN)	Part No.	OA Jkt. Thick. (MILS)	Approx. O.D. (IN)	Approx. Weight Lbs./M FL.	Min. Bend Radius for Dynamic Applic. (IN)	Part No.	OA Jkt. Thick. (MILS)	Approx. O.D. (IN)	Approx. Weight Lbs./M FL.	Min. Bend Radius for Dynamic Applic. (IN)
2	38780	45	.275	46	3.25	38486	45	.290	51	3.50	38799	45	.320	78	4.00	38809	45	.360	109	4.50
3	38498	45	.285	50	3.50	38487	45	.305	62	3.75	38509	45	.340	84	4.00	38515	45	.380	115	4.75
4	38781	45	.315	60	3.75	38488	45	.330	77	4.00	38510	45	.370	104	4.50	38516	45	.415	146	5.00
5	38499	45	.335	71	4.00	38489	45	.360	92	4.25	38511	45	.400	127	5.00	38517	45	.450	177	5.50
6	38500	45	.360	83	4.50	38490	45	.390	107	4.75	38512	45	.435	147	5.25	38518	45	.490	209	6.00
7	38782	45	.380	108	4.50	38491	45	.420	123	5.00	38800	45	.470	165	5.75	38810	60	.570	230	6.75
8	38501	45	.420	109	5.00	38492	45	.450	137	5.50	38834	45	.505	200	6.00	38519	60	.605	294	7.25
9	38783	45	.450	120	5.50	38631	45	.475	165	5.75	38801	60	.570	235	7.00	38811	60	.650	325	7.75
10	38502	45	.450	128	5.50	38484	45	.485	165	6.00	38513	60	.580	246	7.00	38841	60	.655	350	8.00
11	38784	45	.470	135	5.75	38792	45	.500	180	6.00	38802	60	.595	270	7.25	38812	60	.675	375	8.25
12	38503	45	.465	142	5.75	38493	45	.500	188	6.00	38635	60	.595	290	7.25	38642	60	.675	395	8.25
13	38785	45	.490	153	6.00	38793	60	.555	225	6.75	38803	60	.625	305	7.75	38813	60	.700	430	8.50
14	38629	45	.485	165	6.00	38632	60	.555	240	6.75	38636	60	.625	325	7.75	38814	60	.720	455	8.75
15	38786	45	.515	170	6.00	38794	60	.585	255	7.00	38804	60	.655	340	8.00	38843	60	.730	480	9.00
16	38504	45	.510	175	6.00	38494	60	.585	258	7.00	38514	60	.655	354	8.00	38815	60	.755	505	9.00
17	38787	60	.590	230	7.00	38795	60	.635	290	7.50	38805	60	.725	400	8.75	38816	60	.800	530	9.50
18	38788	60	.590	230	7.00	38796	60	.635	290	7.50	38806	60	.725	410	8.75	38817	60	.800	555	9.50
19	38630	60	.590	240	7.00	38495	60	.635	298	7.50	38637	60	.725	430	8.75	38818	80	.800	605	9.50
21	38789	60	.605	270	7.25	38797	60	.650	340	7.75	38807	60	.740	470	9.00	38819	80	.880	680	10.5
24	-	60	.660	285	7.50	38485	60	.715	367	8.50	38638	60	.805	510	9.75	38644	80	.955	773	11.75
25	38790	60	.680	300	8.00	38798	60	.730	380	8.75	38808	80	.875	520	10.5	38820	80	.970	782	11.75
30	38791	60	.695	335	8.50	38496	60	.750	432	9.00	38639	80	.890	660	11.0	38645	80	1.010	1032	12.25
37	38506	60	.775	388	9.25	38497	80	.870	558	10.5	38640	80	.990	785	12.0	38821	80	1.145	1120	13.75
60	-	-	-	-	-	38633	80	1.045	953	12.5	-	-	-	-	-	-	-	-	-	-

Notes:

1. For static applications, the minimum bending radius would be 6 times the cable O.D.
2. Maximum reeling tension in pounds should not exceed .0024 times the circular mil area.
3. For the use of basket weave grips, a minimum of 12" in length is recommended to prolong cable life in all working applications.

Method 3 Table 2

Method 1 Table 2

Method 1 Table 1

COLOR CODE CHARTS

TABLE 1. ICEA Method 3 Table E-2 except colors and numbers are printed on solid base colors for easy identification.

Cond. No.	Base Color	Printing
1	.Black	.1 - Black
2	.Red	.2 - Red
3	.Blue	.3 - Blue
4	.Orange	.4 - Orange
5	.Yellow	.5 - Yellow
6	.Brown	.6 - Brown
7	.Red	.7 - Red /Black
8	.Blue	.8 - Blue /Black
9	.Orange	.9 - Orange /Black
10	.Yellow	.10 - Yellow /Black
11	.Brown	.11 - Brown /Black
12	.Black	.12 - Black /Red
13	.Blue	.13 - Blue /Red
14	.Orange	.14 - Orange /Red
15	.Yellow	.15 - Yellow /Red
16	.Brown	.16 - Brown /Red
17	.Black	.17 - Black /Blue
18	.Red	.18 - Red /Blue
19	.Orange	.19 - Orange /Blue
20	.Yellow	.20 - Yellow /Blue
21	.Brown	.21 - Brown /Blue
22	.Black	.22 - Black /Orange
23	.Red	.23 - Red /Orange
24	.Blue	.24 - Blue /Orange
25	.Yellow	.25 - Yellow /Orange
26	.Brown	.26 - Brown /Orange
27	.Black	.27 - Black /Yellow
28	.Red	.28 - Red /Yellow
29	.Blue	.29 - Blue /Yellow
30	.Orange	.30 - Orange /Yellow
31	.Brown	.31 - Brown /Yellow
32	.Black	.32 - Black /Brown
33	.Red	.33 - Red /Brown
34	.Blue	.34 - Blue /Brown
35	.Orange	.35 - Orange /Brown
36	.Yellow	.36 - Yellow /Brown
37	.Black	.1 - Black

Note: Repeat as necessary.

TABLE 3. ICEA Method 1 using solid colors with spiral stripes in accordance with Table E-2.

Cond. No.	Base Color	Printing
1	.Black	—
2	.Red	—
3	.Blue	—
4	.Orange	—
5	.Yellow	—
6	.Brown	—
7	.Red	.Black
8	.Blue	.Black
9	.Orange	.Black
10	.Yellow	.Black
11	.Brown	.Black
12	.Black	.Red
13	.Blue	.Red
14	.Orange	.Red
15	.Yellow	.Red
16	.Brown	.Red
17	.Black	.Blue
18	.Red	.Blue
19	.Orange	.Blue
20	.Yellow	.Blue
21	.Brown	.Blue
22	.Black	.Orange
23	.Red	.Orange
24	.Blue	.Orange
25	.Yellow	.Orange
26	.Brown	.Orange
27	.Black	.Yellow
28	.Red	.Yellow
29	.Blue	.Yellow
30	.Orange	.Yellow
31	.Brown	.Yellow
32	.Black	.Brown
33	.Red	.Brown
34	.Blue	.Brown
35	.Orange	.Brown
36	.Yellow	.Brown
37	.Black	—

Note: Repeat as necessary.

TABLE 4. ICEA Method 1 using solid colors with stripes in accordance with Table E-1.

Cond. No.	Base Color	Printing
1	.Black	—
2	.White	—
3	.Red	—
4	.Green	—
5	.Orange	—
6	.Blue	—
7	.White	.Black
8	.Red	.Black
9	.Green	.Black
10	.Orange	.Black
11	.Blue	.Black
12	.Black	.White
13	.Red	.White
14	.Green	.White
15	.Blue	.White
16	.Black	.Red
17	.White	.Red
18	.Orange	.Red
19	.Blue	.Red
20	.Red	.Green
21	.Orange	.Green

Note: Repeat as necessary

Method 4

TABLE 2. ICEA Method 4. Black insulation with ICEA Method 4 printed color code.

Cond. No.	Base Color	Printing
1	.Black	.1
2	.Black	.2
3	.Black	.3
4	.Black	.4

The data listed above is approximate and subject to change without notice.