

# CCW® Armored Instrumentation, Pairs/Triads, Individual and Overall Shield

UL Type ITC-HL/PLTC, PVC, 300 V, 105°C, Sunlight-Resistant, Direct Burial  
UL Marine Shipboard Cable, ABS CWCMC



## Product Construction:

### Conductor:

- Bare annealed copper per ASTM B3
- Class B stranding per ASTM B8

### Insulation:

- Flame-retardant Polyvinyl Chloride (PVC), rated 105°C per UL Standards 13 and 2250
- Color-coded per ICEA Method 1: pairs – black and white; triads – black, white and red. Each conductor in each pair or triad is printed alphanumerically for easy identification

### Shielded Pairs/Triads:

- Isolated and individually twisted pairs or triads with a Flexfoil® aluminum/polyester tape shield providing 100% coverage
- Stranded tinned copper drain wire, two sizes smaller than insulated conductors

### Cable Assembly:

- Individually shielded pairs or triads and communication wire are cabled together with a left hand lay
- Communication wire: 22 AWG solid bare copper, flame-retardant Polyvinyl Chloride (PVC), rated 105°C, orange

### Overall Shield:

- Flexfoil® aluminum/polyester tape shield providing 100% coverage
- Stranded tinned copper drain wire, same size as insulated conductors

### Inner Jacket:

- Flame-retardant Polyvinyl Chloride (PVC) per UL Standards 13 and 2250, black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C
- Nylon rip cord to facilitate jacket removal

### CCW Armor:

- Impervious, continuously welded and corrugated aluminum alloy sheath per UL 1569
- CCW armor conductivity meets the grounding requirements of NEC Article 250

### Overall Jacket:

- Flame-retardant, moisture- and sunlight-resistant Polyvinyl Chloride (PVC) per UL Standards 13 and 2250, black
- Low temperature performance meets ASTM D746 brittleness temperature at or below -40°C

## Applications:

- CCW armored Instrumentation cables with individually shielded pairs or triads and an overall shield provide superior protection and reliability against physical damage for use in instrumentation and process control applications requiring ITC-HL or PLTC wiring methods where shielding against both external EMI and EMI between groups is required
- For use as Power Limited Tray Cable on circuits rated 150 V or less and 5 amps or less in Class 2 or Class 3 circuits in accordance with NEC Article 725
- For use as Instrumentation Tray Cable on circuits rated 150 V or less and 5 amps or less in accordance with NEC Article 727
- Recognized for use in Class I and III, Divisions 1 and 2; Class II, Division 2; or Class I, Zones 1 and 2 hazardous locations per NEC Articles 501, 502, 503 and 505

## Applications: (cont'd.)

- Installed indoors or outdoors, in wet or dry locations, in a raceway, as aerial cable on a messenger, in cable trays, or for direct burial
- Recognized for use on fixed or floating offshore petroleum facilities as recommended by the American Petroleum Institute

## Features:

- CCW armor provides superior mechanical protection and an impervious barrier to moisture, gas and liquids
- CCW armor provides EMI shielding performance
- Meets cold impact at -40°C

## Specifications:

### Design Adherence:

- UL 13 Power-Limited Circuit Cables
- UL 2250 Instrumentation Tray Cable
- UL 1569 Metal Clad Cables
- UL 1309/CSA C22.2 No. 245 Marine Shipboard Cable

### Flame Tests:

- ICEA T-29-520 (210,000 BTU/hr)
- IEEE 383 (70,000 BTU/hr)
- CSA FT4
- IEEE 1202 (70,000 BTU/hr)
- UL 1581 (70,000 BTU/hr)
- IEC 60332-3 Cat. A

### Compliances:

- UL Type PLTC, SUN RES, DIR BUR, -40°C, UL File # E36118
- UL Type ITC-HL, UL File # E177408
- UL Listed Marine Shipboard, UL File # E85994
- American Bureau of Shipping (ABS) Listed for CWCMC
- RoHS Compliant

# CCW<sup>®</sup> Armored Instrumentation, Pairs/Triads, Individual and Overall Shield

UL Type ITC-HL/PLTC, PVC, 300 V, 105°C, Sunlight-Resistant, Direct Burial  
UL Marine Shipboard Cable, ABS CWCMC

CATALOG NUMBER	COND. SIZE (AWG)	NO. OF PAIRS	INSULATION THICKNESS		COMMUNICATION WIRE SIZE		INNER JACKET THICKNESS		NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		CROSS-SECTIONAL AREA <sup>1</sup> SQ. IN.	APPROXIMATE NET WEIGHT		
			mils	mm	AWG	mils	mm	mils	mm	INCHES	mm	INCHES	mm	mils	mm	INCHES		mm	LBS/1000 FT	kg/1000 m
<b>20 AWG 7W (0.52 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED PAIRS</b>																				
9250.20021221	20	2	20	0.51	22	12	0.30	78	1.98	0.48	12.2	0.68	17.3	50	1.27	0.79	20.1	0.50	260	387
9250.20041221	20	4	20	0.51	22	12	0.30	78	1.98	0.54	13.7	0.74	18.8	50	1.27	0.85	21.6	0.57	308	458
9250.20061221	20	6	20	0.51	22	12	0.30	78	1.98	0.63	16.0	0.84	21.3	50	1.27	0.95	24.1	0.72	376	560
9250.20081221	20	8	20	0.51	22	12	0.30	93	2.36	0.72	18.3	0.96	24.4	50	1.27	1.07	27.2	0.91	490	729
9250.20101221	20	10	20	0.51	22	12	0.30	93	2.36	0.82	20.8	1.09	27.7	50	1.27	1.20	30.5	1.15	576	857
9250.20121221	20	12	20	0.51	22	12	0.30	93	2.36	0.85	21.6	1.12	28.4	50	1.27	1.23	31.2	1.20	615	915
9250.20161221	20	16	20	0.51	22	12	0.30	93	2.36	0.93	23.6	1.24	31.5	50	1.27	1.35	34.3	1.45	753	1,121
9250.20201221	20	20	20	0.51	22	12	0.30	109	2.77	1.05	26.7	1.36	34.5	50	1.27	1.47	37.3	1.72	873	1,299
9250.20241221	20	24	20	0.51	22	12	0.30	109	2.77	1.16	29.5	1.51	38.4	60	1.52	1.64	41.7	2.14	1,062	1,580
9250.20361221	20	36	20	0.51	22	12	0.30	109	2.77	1.31	33.3	1.60	40.6	60	1.52	1.73	43.9	2.38	1,340	1,994
9250.20501221	20	50	20	0.51	22	12	0.30	124	3.15	1.54	39.1	1.83	46.5	60	1.52	1.96	49.8	3.06	1,725	2,567

<b>18 AWG 7W (0.82 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED PAIRS</b>																				
9250.18021221	18	2	20	0.51	22	12	0.30	78	1.98	0.51	13.0	0.71	18.0	50	1.27	0.82	20.8	0.54	279	415
9250.18041221	18	4	20	0.51	22	12	0.30	78	1.98	0.57	14.5	0.78	19.8	50	1.27	0.89	22.6	0.63	351	522
9250.18061221	18	6	20	0.51	22	12	0.30	93	2.36	0.71	18.0	0.95	24.1	50	1.27	1.06	26.9	0.89	488	726
9250.18081221	18	8	20	0.51	22	12	0.30	93	2.36	0.76	19.3	1.00	25.4	50	1.27	1.11	28.2	0.98	545	811
9250.18101221	18	10	20	0.51	22	12	0.30	93	2.36	0.87	22.1	1.15	29.2	50	1.27	1.26	32.0	1.26	644	958
9250.18121221	18	12	20	0.51	22	12	0.30	93	2.36	0.90	22.9	1.17	29.7	50	1.27	1.28	32.5	1.30	693	1,031
9250.18161221	18	16	20	0.51	22	12	0.30	109	2.77	1.02	25.9	1.33	33.8	50	1.27	1.44	36.6	1.65	885	1,317
9250.18201221	18	20	20	0.51	22	12	0.30	109	2.77	1.12	28.4	1.47	37.3	50	1.27	1.58	40.1	1.99	1,062	1,580
9250.18241221	18	24	20	0.51	22	12	0.30	109	2.77	1.24	31.5	1.59	40.4	60	1.52	1.72	43.7	2.35	1,214	1,807
9250.18361221	18	36	20	0.51	22	12	0.30	124	3.15	1.44	36.6	1.64	41.7	60	1.52	1.77	45.0	2.49	1,592	2,369
9250.18501221	18	50	20	0.51	22	12	0.30	124	3.15	1.68	42.7	1.96	49.8	60	1.52	2.09	53.1	3.48	2,105	3,133

<b>16 AWG 7W (1.31 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED PAIRS</b>																				
9250.16021221	16	2	20	0.51	22	12	0.30	78	1.98	0.55	14.0	0.75	19.1	50	1.27	0.86	21.8	0.59	309	460
9250.16041221	16	4	20	0.51	22	12	0.30	78	1.98	0.63	16.0	0.84	21.3	50	1.27	0.95	24.1	0.72	403	600
9250.16061221	16	6	20	0.51	22	12	0.30	93	2.36	0.77	19.6	1.01	25.7	50	1.27	1.12	28.4	1.00	563	838
9250.16081221	16	8	20	0.51	22	12	0.30	93	2.36	0.83	21.1	1.10	27.9	50	1.27	1.21	30.7	1.17	665	990
9250.16101221	16	10	20	0.51	22	12	0.30	109	2.77	0.99	25.1	1.30	33.0	50	1.27	1.41	35.8	1.58	842	1,253
9250.16121221	16	12	20	0.51	22	12	0.30	109	2.77	1.02	25.9	1.33	33.8	50	1.27	1.44	36.6	1.65	912	1,357
9250.16161221	16	16	20	0.51	22	12	0.30	109	2.77	1.12	28.4	1.47	37.3	50	1.27	1.58	40.1	1.99	1,127	1,677
9250.16201221	16	20	20	0.51	22	12	0.30	109	2.77	1.24	31.5	1.59	40.4	60	1.52	1.72	43.7	2.35	1,315	1,957
9250.16241221	16	24	20	0.51	22	12	0.30	124	3.15	1.40	35.6	1.64	41.7	60	1.52	1.77	45.0	2.49	1,552	2,310
9250.16361221	16	36	20	0.51	22	12	0.30	124	3.15	1.59	40.4	1.92	48.8	60	1.52	2.05	52.1	3.34	2,086	3,104
9250.16501221	16	50	20	0.51	22	12	0.30	140	3.56	1.89	48.0	2.19	55.6	60	1.52	2.32	58.9	4.28	2,770	4,122

CATALOG NUMBER	COND. SIZE (AWG)	NO. OF TRIADS	INSULATION THICKNESS		COMMUNICATION WIRE SIZE		INNER JACKET THICKNESS		NOMINAL CORE O.D.		NOMINAL ARMOR O.D.		JACKET THICKNESS		NOMINAL OVERALL O.D.		CROSS-SECTIONAL AREA <sup>1</sup> SQ. IN.	APPROXIMATE NET WEIGHT		
			mils	mm	AWG	mils	mm	mils	mm	INCHES	mm	INCHES	mm	mils	mm	INCHES		mm	LBS/1000 FT	kg/1000 m
<b>20 AWG 7W (0.52 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED TRIADS</b>																				
9250.20041222	20	4	20	0.51	22	12	0.30	78	1.98	0.59	15.0	0.80	20.3	50	1.27	0.91	23.1	0.66	358	533
9250.20081222	20	8	20	0.51	22	12	0.30	93	2.36	0.78	19.8	1.02	25.9	50	1.27	1.13	28.7	1.02	557	829
9250.20121222	20	12	20	0.51	22	12	0.30	93	2.36	0.93	23.6	1.24	31.5	50	1.27	1.35	34.3	1.45	761	1,132
9250.20161222	20	16	20	0.51	22	12	0.30	109	2.77	1.05	26.7	1.36	34.5	50	1.27	1.47	37.3	1.72	906	1,348
9250.20241222	20	24	20	0.51	22	12	0.30	109	2.77	1.28	32.5	1.60	40.6	60	1.52	1.73	43.9	2.38	1,287	1,915
9250.20361222	20	36	20	0.51	22	12	0.30	124	3.15	1.48	37.6	1.74	44.2	60	1.52	1.87	47.5	2.78	1,674	2,491

<b>18 AWG 7W (0.82 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED TRIADS</b>																				
9250.18041222	18	4	20	0.51	22	12	0.30	78	1.98	0.63	16.0	0.84	21.3	50	1.27	0.95	24.1	0.72	396	589
9250.18081222	18	8	20	0.51	22	12	0.30	93	2.36	0.83	21.1	1.10	27.9	50	1.27	1.21	30.7	1.17	658	979
9250.18121222	18	12	20	0.51	22	12	0.30	109	2.77	1.02	25.9	1.33	33.8	50	1.27	1.44	36.6	1.65	903	1,344
9250.18161222	18	16	20	0.51	22	12	0.30	109	2.77	1.12	28.4	1.47	37.3	50	1.27	1.58	40.1	1.99	1,115	1,659
9250.18241222	18	24	20	0.51	22	12	0.30	124	3.15	1.40	35.6	1.67	42.4	60	1.52	1.80	45.7	2.58	1,541	2,293
9250.18361222	18	36	20	0.51	22	12	0.30	124	3.15	1.59	40.4	1.92	48.8	60	1.52	2.05	52.1	3.34	2,062	3,069

<b>16 AWG 7W (1.31 mm<sup>2</sup>) INDIVIDUAL AND OVERALL SHIELDED TRIADS</b>																				
9250.16041222	16	4	20	0.51	22	12	0.30	93	2.36	0.72	18.3	0.96	24.4	50	1.27	1.07	27.2	0.58	530	789
9250.16081222	16	8	20	0.51	22	12	0.30	93	2.36	0.91	23.1	1.18	30.0	50	1.27	1.29	32.8	1.32	780	1,161
9250.16121222	16	12	20	0.51	22	12	0.30	109	2.77	1.12	28.4	1.47	37.3	50	1.27	1.58	40.1	1.99	1,144	1,702
9250.16161222	16	16	20	0.51	22	12	0.30	109	2.77	1.24	31.5	1.59	40.4	60	1.52	1.72	43.7	2.35	1,378	2,051
9250.16241222	16	24	20	0.51	22	12	0.30	124	3.15	1.55	39.4	1.83	46.5	60	1.52	1.96	49.8	3.06	1,973	2,936
9250.16361222	16	36	20	0.51	22	12	0.30	140	3.56	1.80	45.7	2.15	54.6	60	1.52	2.28	57.9	4.14	2,729	4,061

Dimensions and weights are nominal; subject to industry tolerances.  
<sup>1</sup> Cross-sectional area for cable tray fill is in accordance with NEC<sup>®</sup> Section 392.22.

