

## Electronic equipment robot cable

Multi core cable		Multi pair cable	
Heat resistance	★★★	Heat resistance	★★★
Oil resistance	★★★★★	Oil resistance	★★★★★
Noise resistance	★	Noise resistance	★★
Flame resistance	★★★★	Flame resistance	★★★★
Torsion resistance	★★★★★	Torsion resistance	★★★★★
Flexibility resistance	★★★★★	Flexibility resistance	★★★★★
Drag chain	★★★★★★★	Drag chain	★★★★★★★

※ The characteristic is an aim.



Certification	UL AWM	cUL AWM
Applicable standard	UL 758	CSA C22.2 No.210
Official symbol	UL STYLE 20276	CSA AWM II A/B
Voltage rating	30V	30V
Temperature rating	80°C	80°C
Conductor	UL 758	CSA C22.2 No.210
Flame rating	VW-1	FT1

### Application

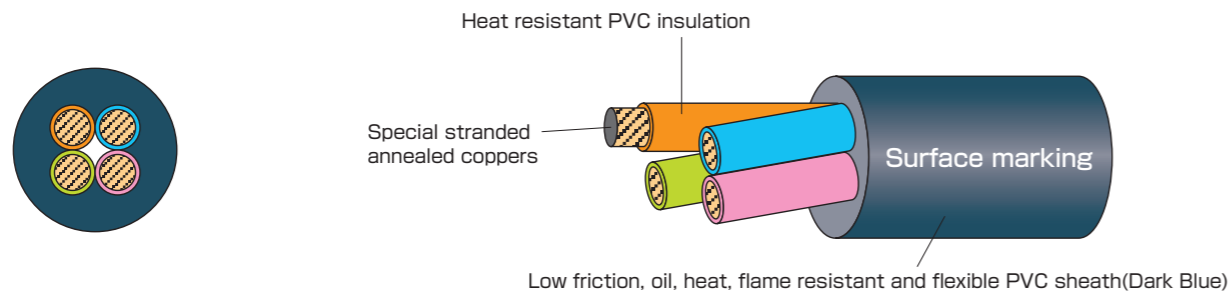
- Appropriate for drag chain wiring for high-speed moving.
- Drag chain test 50 million times or more. (or more ability 100 million times)
- Robot cable with UL and cUL at 30V 80°C. (Category : AVL V2, AVL V8)

### Feature

- Extremely fine special conductor use.
- Low friction and heat resistant PVC used for insulation.
- Oil and heat resistant PVC used for sheath.
- Low friction material used for sheath.
- Flame resisting : UL VW-1, cUL FT1.

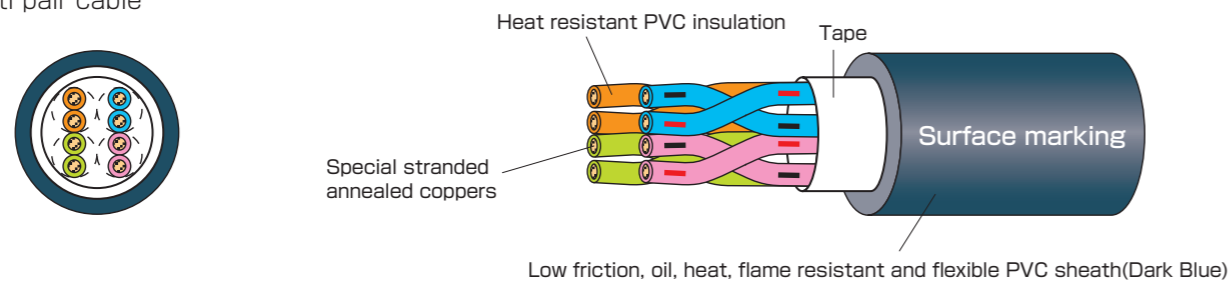
### Construction figure

Multi core cable



※ Cable with more than 10 cores : binder tape on cores.

Multi pair cable



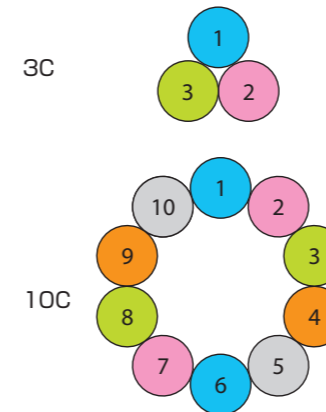
### Surface marking



※R15 indicates "Compliant with RoHS Directive 2011/65/EU and Directive (EU) 2015/863 (10 substances)".

### Identification

Multi core cable



Identification table 1

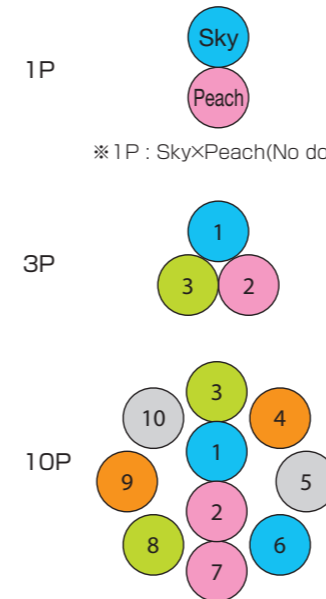
Line number	Color of insulation	Dot mark
1	Sky	
2	Peach	
3	Grass	
4	Orange	
5	Gray	
6	Sky	■
7	Peach	■
8	Grass	■
9	Orange	■
10	Gray	■
11	Sky	■ ■
12	Peach	■ ■
13	Grass	■ ■
14	Orange	■ ■
15	Gray	■ ■
16	Sky	■ ■ ■
17	Peach	■ ■ ■
18	Grass	■ ■ ■
19	Orange	■ ■ ■
20	Gray	■ ■ ■

Line number	Color of insulation	Dot mark
21	Sky	■ ■ ■ ■
22	Peach	■ ■ ■ ■
23	Grass	■ ■ ■ ■
24	Orange	■ ■ ■ ■
25	Gray	■ ■ ■ ■
26	Sky	■ ■ ■ ■ ■ (Continuation)
27	Peach	■ ■ ■ ■ ■ (Continuation)
28	Grass	■ ■ ■ ■ ■ (Continuation)
29	Orange	■ ■ ■ ■ ■ (Continuation)
30	Gray	■ ■ ■ ■ ■ (Continuation)
31	Sky	■ ■ ■ ■ ■
32	Peach	■ ■ ■ ■ ■
33	Grass	■ ■ ■ ■ ■
34	Orange	■ ■ ■ ■ ■
35	Gray	■ ■ ■ ■ ■
36	Sky	■ ■ ■ ■ ■
37	Peach	■ ■ ■ ■ ■
38	Grass	■ ■ ■ ■ ■
39	Orange	■ ■ ■ ■ ■
40	Gray	■ ■ ■ ■ ■

Figures ○ indicate core number in the identification table 1.  
 ※ A short point is 1mm, the length point is 2mm, the interval is 1mm, and the pitch is about 12mm.

Multi pair cable



Identification table 2

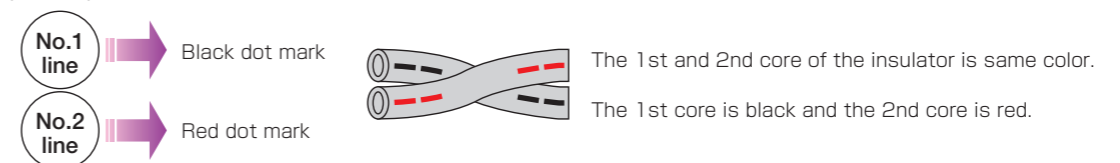
Pair number	Color of insulation	Dot mark
1	Sky	■ ■
2	Peach	■ ■
3	Grass	■ ■
4	Orange	■ ■
5	Gray	■ ■
6	Sky	■ ■ ■
7	Peach	■ ■ ■
8	Grass	■ ■ ■
9	Orange	■ ■ ■
10	Gray	■ ■ ■
11	Sky	■ ■ ■ ■
12	Peach	■ ■ ■ ■
13	Grass	■ ■ ■ ■
14	Orange	■ ■ ■ ■
15	Gray	■ ■ ■ ■

Pair number	Color of insulation	Dot mark
16	Sky	■ ■ ■ ■
17	Peach	■ ■ ■ ■
18	Grass	■ ■ ■ ■
19	Orange	■ ■ ■ ■
20	Gray	■ ■ ■ ■
21	Sky	■ ■ ■ ■ ■ (Continuation)
22	Peach	■ ■ ■ ■ ■ (Continuation)
23	Grass	■ ■ ■ ■ ■ (Continuation)
24	Orange	■ ■ ■ ■ ■ (Continuation)
25	Gray	■ ■ ■ ■ ■ (Continuation)
26	Sky	■ ■ ■ ■ ■
27	Peach	■ ■ ■ ■ ■
28	Grass	■ ■ ■ ■ ■
29	Orange	■ ■ ■ ■ ■
30	Gray	■ ■ ■ ■ ■

Figures ○ indicate pair number in the identification table 2.  
 ※ A short point is 1mm, the length point is 2mm, the interval is 1mm, and the pitch is about 12mm.  
 ※ 10 pairs or more is double-circle structure. (except 28AWG)

Example of pair



# EXT-II/20276 LF



## Electronic equipment robot cable

### > Construction table

No. of cores No. of pairs	Conductor			Heat-resistant PVC insulation		Low friction, oil, heat, flame resistant flexible PVC sheath		Approx. weight (lbs/1000ft) (kg/km)	Electrical Characteristics			Allowable ampacity (A)
	Size (AWG)	Construction (Line/mm)	Outside diameter (mm)	Outside diameter (inch)	Outside diameter (mm)	Overall diameter approx. (inch)	Overall diameter approx. (mm)		Conductor resistance (Ω/km20°C)	Insulation resistance (MΩkm20°C)	Electrical strength (V/1min.)	
1P						0.122	3.1	7(11)	less than 235			2.5
3C						0.126	3.2	10(15)	less than 230			2.1
2P						0.157	4.0	13(19)				2.0
3P						0.177	4.5	15(23)				1.7
4P						0.189	4.8	18(27)				1.5
5P	28	19/0.08	0.4	0.034	0.86	0.205	5.2	21(32)	less than 235	more than 10	500	1.4
6P	(0.0804mil)	(19/3.2mil)	(16mil)			0.224	5.7	25(38)				1.3
7P						0.240	6.1	29(43)				1.3
8P						0.256	6.5	33(49)				1.2
10P						0.291	7.4	40(60)				1.2
12P						0.343	8.7	53(80)				1.1
1P						0.150	3.8	12(18)	less than 143			2.7
3C						0.157	4.0	14(21)	less than 136			2.3
2P						0.193	4.9	19(28)				2.2
3P						0.224	5.7	24(36)				1.9
4P						0.240	6.1	28(41)				1.7
5P						0.260	6.6	32(48)				1.6
6P	26	30/0.08	0.51	0.038	0.97	0.280	7.1	37(55)	less than 143	more than 10	500	1.5
7P	(0.128mil)	(30/3.2mil)	(20mil)			0.299	7.6	44(65)				1.4
8P						0.327	8.3	50(75)				1.4
10P						0.331	8.4	57(85)				1.2
12P						0.362	9.2	64(95)				1.2
15P						0.398	10.1	77(115)				1.1
20P						0.445	11.3	101(150)				1.0
25P						0.504	12.8	121(180)				0.96
2C						0.169	4.3	17(25)				4.4
3C						0.177	4.5	19(28)				3.7
4C						0.189	4.8	22(33)				3.4
5C						0.205	5.2	25(37)				3.1
6C						0.220	5.6	29(43)				3.0
8C	24	48/0.08	0.75	0.048	1.21	0.256	6.5	40(60)	less than 97.9	more than 10	500	2.8
10C	(0.204mil)	(48/3.2mil)	(30mil)			0.291	7.4	44(65)				2.6
12C						0.287	7.3	47(70)				2.3
16C						0.315	8.0	60(90)				2.1
20C						0.350	8.9	74(110)				2.0
30C						0.417	10.6	108(160)				1.7
40C						0.472	12.0	138(205)				1.6
2C						0.181	4.6	19(29)				5.7
3C						0.189	4.8	23(34)				4.8
4C						0.205	5.2	26(39)				4.4
5C						0.228	5.8	34(50)				4.1
6C						0.244	6.2	37(55)				3.9
8C	22	72/0.08	0.90	0.054	1.36	0.280	7.1	50(75)	less than 62.2	more than 10	500	3.6
10C	(0.324mil)	(72/3.2mil)	(35mil)			0.315	8.0	57(85)				3.3
12C						0.311	7.9	60(90)				3.0
16C						0.350	8.9	81(120)				2.8
20C						0.382	9.7	94(140)				2.6
30C						0.465	11.8	141(210)				2.3
40C						0.520	13.2	181(270)				2.1
2C						0.201	5.1	26(38)				7.6
3C						0.209	5.3	30(44)				6.4
4C						0.236	6.0	37(55)				5.9
5C						0.252	6.4	44(65)				5.4
6C						0.272	6.9	50(75)				5.2
8C						0.311	7.9	67(100)				4.8
10C	20	119/0.08	1.1	0.063	1.60	0.366	9.3	84(125)	less than 39.1	more than 10	500	4.5
12C	(0.518mil)	(119/3.2mil)	(43mil)			0.358	9.1	87(130)				4.1
16C						0.394	10.0	111(165)				3.7
20C						0.441	11.2	141(210)				3.4
24C						0.484	12.3	168(250)				3.3
30C						0.531	13.5	205(305)				3.0
40C						0.598	15.2	265(395)				2.7

※The test of 500V/5 minutes besides the withstand voltage test on above mentioned UL standard and CSA standard is applied.

### > Allowable ampacity

The allowable ampacity of this catalog is a value at one in the air construction and the ambient temperature 30°C.

Allowable ampacity is calculated based on JCSO168.

Please multiply the following adjustment factors by the ambient temperature.

●Adjustment factors (at ambient temperature)

Ambient temperature(°C)	30	40	50	60	70	80	90	100
Adjustment factors	1.00	0.89	0.77	0.63	0.45	—	—	—

### > Movement characteristic

*) 1 Bending	Bend A	*) 2 U-shaped turn-back SS	90° bending A	Twist		*) 3 Move bending C
				Straight A	Bending A	
A	A	SS	A	A	A	C

Examination's time:  
 SS= More than 50 million times B= More than 5 million times  
 S= More than 20 million times C= More than 3 million times  
 A= More than 10 million times D= More than 1 million times

\*) 1 It is C when overall diameter of the cable is 20mm or more, and D when overall diameter of the cable is 30mm or more.

\*) 2 Our original test showed that no case of wire breakage could be detected for EXT-II-SB/20276 5PX24AWG even after 100 million cycles. 28AWG is "S" RANK.

\*) 3 When overall diameter of the cable is 20mm or less.

※ The longevity of the cable inside a drag chain is dependent on the travel distance. Please consult our Sales Department when wiring a travel distance of 5m or greater.

### > Oil resistance

Insulating oil	Lubricating oil	Cutting oil I	Cutting oil II	Hydraulic oil	Grease
A	A	B	B	B	B

※A~C in the table indicate the characteristics below.

A: There is no problem on practical use at all.

B: Deterioration slightly no problem almost on practical use.

C: It is sometimes deteriorated to some degree, and not possible to use it.

### > Standard sales length

100m

(Sales by short length is available for large sizes. Please contact us which sizes are available.)