

# EXT-3D/CL3X/2517 300V LF

## Electronic equipment robot cable

Multi core cable	Heat resistance ★★★★★	Oil resistance ★★★★★	Noise resistance ★	Flame resistance ★★★★★	Torsion resistance ★★★★★★	Flexibility resistance ★★★★★	Cable carrier ★★★★★★	Multi pair cable	Heat resistance ★★★★★	Oil resistance ★★★★★	Noise resistance ★★	Flame resistance ★★★★★	Torsion resistance ★★★★★★	Flexibility resistance ★★★★★	Cable carrier ★★★★★★
※The characteristic is an aim.								※The characteristic is an aim.							

Meeting standard



Certification	EXT-3D LF		
	UL CL3X	UL AWM	cUL AWM
Applicable standard	UL13	UL758	CSA C22.2 No.210
Official symbol	CL3X	UL STYLE 2517	CSA AWM II A/B
Voltage rating	300V	300V	300V
Temperature rating	105°C	105°C	105°C
Conductor	UL13	UL758	CSA C22.2 No.210
Flame rating	VW-1	VW-1	FT1

### Application

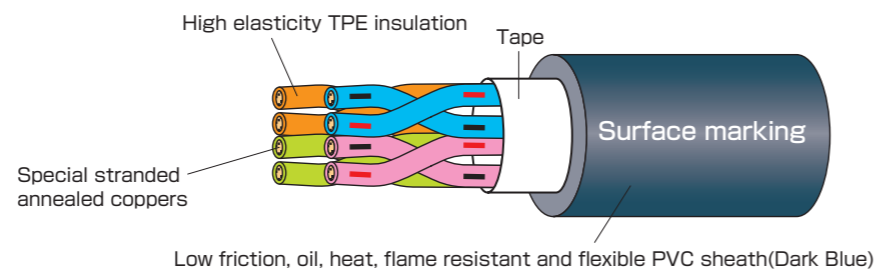
- Appropriate wiring for multi-joint unit portion. (Twist test 20 million times or more.)
- Appropriate for cable chain wiring for high-speed moving. (Cable chain test 20 million times or more.)
- CL3X that is the listing standard is acquired and it corresponds to NFPA70,79.
- Robot cable with UL and cUL at 300V, 105°C. (Category : AVLV2, AVLV8, QPTZ)

### Feature

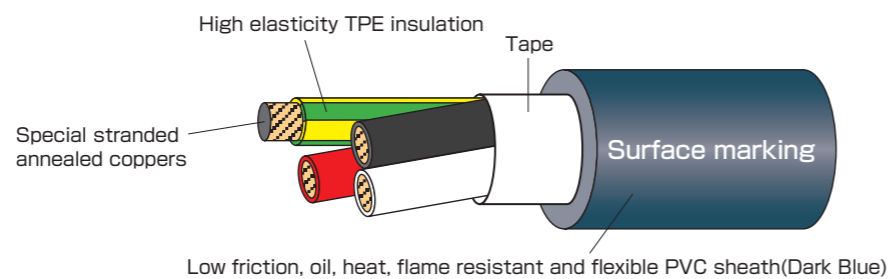
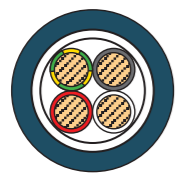
- Extremely fine conductor use.
- High bending elasticity and heat resistant TPE is used for insulation.
- Oil and heat resistant PVC used for sheath.
- Low friction material used for sheath.
- Flame resisting : UL VW-1, cUL FT1.

### Construction figure

· 24~20AWG



· 18~14AWG



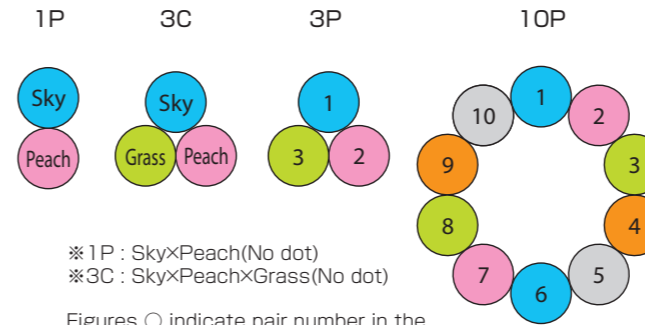
### Surface marking



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

### Identification

· 24~20AWG



※ 1P : Sky×Peach(No dot)  
 ※ 3C : Sky×Peach×Grass(No dot)

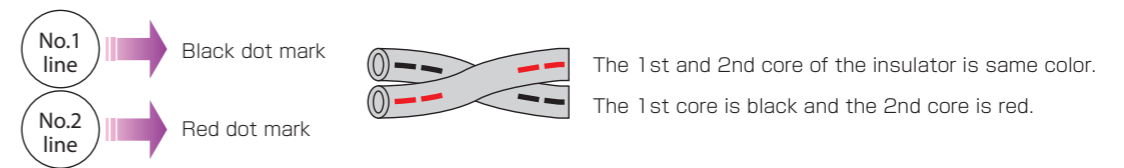
Figures ○ indicate pair number in the identification table.

※A short point is 1mm, the length point is 2mm, the interval is 1mm, and the pitch is about 12mm.

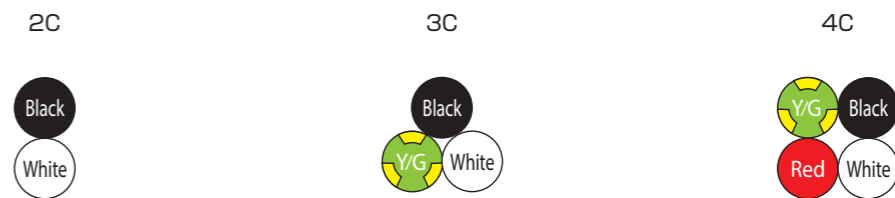
#### Identification table

Pair number	Color of insulation	Dot mark	Pair number	Color of insulation	Dot mark
1	Sky	—	16	Sky	—
2	Peach	—	17	Peach	—
3	Grass	—	18	Grass	—
4	Orange	—	19	Orange	—
5	Gray	—	20	Gray	—
6	Sky	—	21	Sky	—
7	Peach	—	22	Peach	—
8	Grass	—	23	Grass	—
9	Orange	—	24	Orange	—
10	Gray	—	25	Gray	—
11	Sky	—	26	Sky	—
12	Peach	—	27	Peach	—
13	Grass	—	28	Grass	—
14	Orange	—	29	Orange	—
15	Gray	—	30	Gray	—

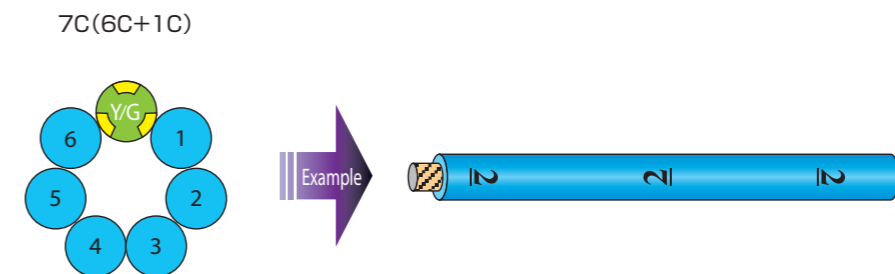
#### Example of pair



· 18~14AWG



· 7 cores or more is identified by numbering



※Y/G indicates green core with yellow stripe(30~50%). Figures in ○ indicate black numbering on light blue insulator.



## Electronic equipment robot cable

### > Construction table

No. of cores No. of pairs	Conductor			High elasticity TPE 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						0.154	3.9	12(18)	less than 91.1			5.3
3C						0.157	4.0	15(22)	less than 89.3			4.4
2P						0.193	4.9	19(29)				4.2
3P						0.217	5.5	25(37)				3.6
4P	24	41/0.08	0.59	0.039	0.99	0.236	6.0	30(45)		more than 100	2000	3.2
5P	(0.204mm)	(41/3.2mil)	(23mil)			0.252	6.4	37(55)	less than 91.1			3.0
7P						0.295	7.5	47(70)				2.7
8P						0.315	8.0	50(75)				2.6
10P						0.370	9.4	71(105)				2.5
12P						0.413	10.5	84(125)				2.4
1P						0.165	4.2	15(22)	less than 57.6			6.9
3C						0.173	4.4	19(28)	less than 56.5			5.8
2P						0.213	5.4	26(38)				5.5
3P						0.240	6.1	32(48)				4.8
4P	22	65/0.08	0.75	0.045	1.15	0.260	6.6	37(55)		more than 100	2000	4.3
5P	(0.324mm)	(65/3.2mil)	(30mil)			0.283	7.2	47(70)	less than 57.6			4.0
7P						0.346	8.8	67(100)				3.6
8P						0.370	9.4	74(110)				3.5
10P						0.417	10.6	94(140)				3.3
12P						0.472	12.0	104(155)				3.2
1P						0.181	4.6	19(29)	less than 35.7			9.2
3C						0.189	4.8	24(35)	less than 35.0			7.8
2P						0.240	6.1	34(50)				7.4
3P						0.272	6.9	44(65)				6.4
4P	20	108/0.08	0.96	0.054	1.36	0.295	7.5	54(80)		more than 100	2000	5.8
5P	(0.518mm)	(108/3.2mil)	(38mil)			0.335	8.5	71(105)	less than 35.7			5.4
7P						0.390	9.9	94(140)				4.9
8P						0.421	10.7	108(160)				4.7
10P						0.484	12.3	138(205)				4.4
12P						0.547	13.9	168(250)				4.2
2C						0.224	5.7	30(44)				12
3C						0.236	6.0	37(55)				12
4C	18	168/0.08	1.31	0.075	1.91	0.256	6.5	44(65)		more than 100	2000	11
7C	(0.823mm)	(168/3.2mil)	(52mil)			0.339	8.6	77(115)	less than 22.3			8.8
9C						0.386	9.8	101(150)				8.1
11C						0.441	11.2	124(185)				7.6
13C						0.488	12.4	151(225)				7.3
3C	16	266/0.08	1.64	0.088	2.24	0.264	6.7	50(75)		more than 100	2000	17
4C	(1.30mm)	(266/3.2mil)	(65mil)			0.287	7.3	64(95)	less than 13.9			14
7C						0.382	9.7	108(160)				11
3C	14	420/0.08	2.07	0.109	2.77	0.311	7.9	71(105)		more than 100	2000	23
4C	(2.08mm)	(420/3.2mil)	(81mil)			0.354	9.0	94(140)	less than 8.77			20

※ 18AWG and 3C or more has the [Y/G] earth cable of an equal size.  
 ※ The test of 2000V/5 minute besides the withstand voltage test on above mentioned UL standard and the 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.

Allowable ampacity is calculated excluding grounding conductor.

Please multiply the following adjustment factors by the ambient temperature.

Note) Please refer to P.278 when you use this cable according to NFPA 70 or NFPA 79.

#### ● Adjustment factors (at ambient temperature)

Ambient temperature (°C)	30	40	50	60	70	80	90	100
Adjustment factors	1.00	0.93	0.86	0.77	0.68	0.58	0.45	0.26

### > Movement characteristic

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

Examination's time:  
 S= More than 20 million times C= More than 3 million times  
 A= More than 10 million times D= More than 1 million times  
 B= More than 5 million times E= More than 0.5 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 When overall diameter of the cable is 20mm or less.

※ The longevity of the cable inside a cable bearing 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.)