



**BAD  
CROSS!**

你所沒想過的圓柱體排列問題!

**問:** 當圓柱體施加一個外力握住後,會怎麼排列?  
**Ans:** 圓柱就自然的陷到兩根圓柱中間

**問:** 內圈與外圈要旋轉時,內外旋轉半徑一樣嗎?  
**Ans:** 當然不一樣!

**問:** 這樣會造成甚麼問題?  
**Ans:** 線轉彎時,內圈會把外圈的線繃死  
外圈會提早損壞  
線纜旋轉半徑很大



多向纏絞機 COMPLEX-CROSS MACHINE

在SUNRISE

我們透過上下層交錯排列,  
讓內外圈不互相繃緊,  
線纜內外圈自然舒張,  
所以線纜不互纏,柔軟好捲收!



**NICE  
COMPLEX  
CROSS!**



**Why** the Multi-Cable made by SUNRISE especially flexible  
SUNRISE adopts the cabling technology of "multi radial rotating cabling"  
This method allows internal and external core wires overlap together, but it won't fall into the gap between the upper and lower layer  
The external core wire even won't strangle the internal wire jacket when turning circle, caused some part of wire being intertwined tightly

Type 類型	Characteristic 特點	Fixed instalment 固定安裝	SNAKE TRUNK 移動傳輸	FANTAIL 直接分岔線	Heavy electric Noise zone 強干擾區
Standard 標準型	Shield for each channel 每通道均有屏蔽	OK	OK	OK	NO
Rainbow 彩虹線	Shield for each channel 每通道均有屏蔽彩色易識別好找線	OK	OK, 但有點多餘	OK	NO
Economic 無中線經濟型	Shield for each channel and a light and thin 每通道均有屏蔽 - 外層再屏蔽; 輕便/較薄	OK	OK	NO	OK
Star quad 星絞線	Shield for each channel; 4 conductors for one channel 每通道均有屏蔽, 每通道四導體	OK	OK	OK	OK
Rainbow Star quad 星絞彩虹	Shield for each channel; 4 conductors for one channel 每通道均有屏蔽, 每通道四導體, 彩色易識別好找線	OK	OK, 有點多餘	OK	OK

多蕊纜類型的選用 The selection of Multi-Pair cable type



STARQUAD星絞多芯纜,專為長距離布放而設計的多芯信號用纜線  
使用星絞結構來達到抗干擾的效果,本系列分為兩個子系列:  
一為黑色中被絞多芯纜  
一為彩色中被絞多芯纜  
滿足工程主幹或直接分岔使用的不同用途

#### STARQUAD Multi-Pair Cable.

Especially designed for long laying signal multi-pair cable.  
Using star-quad structure to achieve the effect of interference.  
This series is divided into two sub-series.  
One is black middle jacket STARQUAD Multi-Pair cable.  
Another one is colorful middle jacket Rainbow STARQUAD Multi-Pair cable.  
To meet the different purposes on engineering trunk or direct bifurcation usage.



COLOR ITEM LIST 色彩系列型號						
COLOR	CHANNEL					
BROWN	1	9	17	25	33	41
RED	2	10	18	26	34	42
ORANGE	3	11	19	27	35	43
YELLOW	4	12	20	28	36	44
GREEN	5	13	21	29	37	45
BLUE	6	14	22	30	38	46
PURPLE	7	15	23	31	39	47
GRAY	8	16	24	32	40	48

ITEM NO 型號	307080065	30708R8040
JACKET COLOR 顏色	黑色中絞 BLACK INNER JACKET	彩色中絞 COLORFUL INNER JACKET
CONDUCTOR 導體	BLACK	BLACK
WIRE INFORMATION 線材資料	4* [(7/0.12) + PE0.9mmBLUE/WHITE] +DW7/0.16TC + AL-FOIL + PVC 3.0]'CHANNEL + JACKET PVC	4* [(7/0.12) + PE0.9mmBLUE/WHITE] +DW7/0.16TC + AL-FOIL + COLORFUL PVC 3.0]'CHANNEL + JACKET PVC
MAIN CONDUCTOR AWG 主要導體直徑	26AWG 0.158mm <sup>2</sup> (2C PARALLEL)	26AWG 0.158mm <sup>2</sup> (2C PARALLEL)
ELECTRICAL PERFORMANCE 電氣性能		
Cond.D.C.R. ohm/1Km 導體電阻/1km	242	242
Shield D.C.R. ohm/1Km 屏蔽層電阻/1km	148.94	148.94
Nom.Cap.(pF/m)between conductors. 導體間電容	48	48
Nom.Cap.(pF/m)between conductors/shield 導體/屏蔽層間電容	108	108
Voltage Breakdown 絕緣承受電壓	300V	300V
MECHANICAL PERFORMANCE 機械性能		
Flex Life Number of times load 500g +/-30° 搖晃壽命次數 負載 500g 角度 +/-30°	---	---
Tensile Strength (26°C,65%RH) 拉伸斷裂力量	---	---
Applicable Temperature 建議工作溫度	-20°C ~ +60°C (-4°F ~ +140°F)	-20°C ~ +60°C (-4°F ~ +140°F)
Peak Temperature 極限工作溫度	-40°C ~ +70°C (-40°F ~ +158°F)	-40°C ~ +70°C (-40°F ~ +158°F)
COLOR & ORDER INFORMATION 色彩與訂購資訊		

	CHANNEL 通道數	ITEM 品號	OD. 外径	WEIGHT 重量	ITEM 品號	OD. 外径	WEIGHT 重量
CHANNEL& ITEM 通道數與品號	4	307080065	10	12.3	30708R8040	10	12.3
	8	307080066	13	20.4	30708R8080	13	20.4
	12	307080067	15	26.7	30708R8120	15	26.7
	16	307080068	18	39.7	30708R8160	18	39.7
	20	307080069	19.5	47.1	30708R8200	19.5	47.1
	24	307080070	22	59.1	30708R8240	22	59.1
	28	307080071	23.5	67.6	30708R8280	23.5	67.6
	32	307080072	25.5	77	30708R8320	25.5	77
(100Mweight/ 100M 重量(kg))	40	307080073	27	89.8	30708R8400	27	89.8
	48	307080074	30	118.9	30708R8480	30	118.9



彩虹線是SUNRISE最為暢銷的一種多芯線,他適合應用於流動演出現場,當然在工程安裝上也很方便,你只要利用電阻色碼就能快速的尋找號碼(讓現場安裝速度加快許多!)  
SUNRISE認為,黑色外皮滾彩條型式的外被識別尋找有其不便之處  
因此我們採取的是8色循環,並加印號碼於線上,加快了整體找線的速度!

The Rainbow Multi-Pair Cable is a kind of product which is convenient for the usage on-site of mobile performance or frequent plugging. Using resistor color code to find numbers quickly! SUNRISE believes: By rolling color bars pattern to find out cable-jacket identification has its own inconvenience. Therefore we take an eight-color cycle. And add numbers printed on the wire To quicken the overall speed of finding out channel wire.



標準型的多芯線,是搭配滾筒線纜車/線纜盒使用的,便於直接分岔製作!  
由於都是同一顏色的外皮,在尋找上較不容易,建議使用於拔插次數較少的場合,如教會這一類的場合  
每一通道均使用鋁箔以保護100%屏蔽

Standard type Multi-Pair Cable. To collocate with drum cable wheel / cable box to use. Convenient for the direct bifurcation production. As same color on the channel jacket. Not easily to find out channel wire  
Recommended to use it on the occasion of less plugging and unplugging.  
Like church such kind of occasion. Each channel using aluminum-foil to ensure 100% shielding.

COLOR ITEM LIST 色彩系列型號

COLOR	CHANNEL					
BROWN	1	9	17	25	33	41
RED	2	10	18	26	34	42
ORANGE	3	11	19	27	35	43
YELLOW	4	12	20	28	36	44
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BLUE	6	14	22	30	38	46
PURPLE	7	15	23	31	39	47
GRAY	8	16	24	32	40	48

ITEM NO. 型號	3070800810 彩虹型 RAINBOW TYPE	3070800005 標準型 STANDARD TYPE				
JACKET COLOR 顏色	BLACK	BLUE				
CONDUCTOR 導體	2* (20/0.10)	2* (20/0.10)				
WIRE INFORMATION 線材資料	2* [(20/0.10) + PE 1.1mm] + DW7/0.20TC + AL-FOIL + PVC 3.0J"CHANNEL + OUT JACKET PVC	2* [(20/0.10) + PE 1.1mm] + DW7/0.20TC + AL-FOIL + PVC 3.0J"CHANNEL + JACKET PVC				
MAIN CONDUCTOR AWG 主要導體直徑	26AWG 0.157mm <sup>2</sup>	26AWG 0.157mm <sup>2</sup>				
ELECTRICAL PERFORMANCE 電氣性能						
Cond.D.C.R. ohm/1Km 導體電阻/1km	117 +/- 2%	117 +/- 2%				
Shield D.C.R. ohm/1Km 屏蔽層電阻/1km	72 +/- 1%	72 +/- 1%				
Nom.Cap. (pF/m) between conductors. 導體間電容量	Less than 143	Less than 143				
Nom.Cap. (pF/m) between conductors/shield 導體/屏蔽層電容量	Less than 138	Less than 138				
Voltage Breakdown 絕緣承受電壓	300V	300V				
MECHANICAL PERFORMANCE 機械性能						
Flex Life timesload 500g +/- 30° 搖晃壽命次數 負載 500g 角度 +/- 30°	Better than 24000	Better than 24000				
Tensile Strength (26°C, 65%RH) 拉伸斷裂力量	Better 103 kgf	Better 103 kgf				
Applicable Temperature 建議工作溫度	-20°C ~ +60°C (-4°F ~ +140°F)	-20°C ~ +60°C (-4°F ~ +140°F)				
Peak Temperature 極限工作溫度	-40°C ~ +70°C (-40°F ~ +158°F)	-40°C ~ +70°C (-40°F ~ +158°F)				
COLOR & ORDER INFORMATION 色彩與訂購資訊						
CHANNEL 通道數	ITEM 品號	OD. 外徑	WEIGHT 重量	ITEM 品號	OD. 外徑	WEIGHT 重量
4	3070800800	10	12.5	3070800005	10	12.5
8	3070800810	13	20.7	3070800006	13	20.7
12	3070800820	15	27.2	3070800007	15	27.2
16	3070800830	18	40.3	3070800008	18	40.3
20	3070800840	19.5	47.9	3070800009	19.5	47.9
24	3070800850	22	60.2	3070800010	23.5	60.2
28	3070800860	23.5	68.4	3070800011	24	68.4
32	3070800870	25	78.4	3070800012	25	78.4
40	3070800880	27	91.4	3070800016	27	91.4
48	3070800890	30	115	3070800040	30	115
CHANNEL & ITEM 通道數與品號			特規 SPECIAL ITEM			
(100Mweight/ 100M 重量(kg))	2	---	---	---	3070801602	9 10
	14	---	---	---	3070801614	16.5 35.8
	36	---	---	---	3070801636	25 78.4



**Analog**  
 Digital  
**Broadcast** **Studio** **Installation** **Touring**  
**AL+DW**

輕量化的多芯信號線,每通道中被使用工業級麥拉薄膜絕緣,有效降低線直徑與重量,可低至的一般多芯線50~60%左右由於是輕量化的中線,因此通道識別改以內芯顏色表現,請參照下方表格使用

Light Multi-Pair signal cable. Each channel is used industrial grade Mylar film insulation. Effectively reduce cable diameter and weight to 50-60% of general Multi-Pair cable. Because of lightweight middle core jacket.

Hence the channel identification changed to be expressed by inner core jacket color. Please refer the below form below to use.

CH	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2+	BK	BR	ORG	YEL	GRN	BL	GRN	YEL	ORG	BR	BK	RED	RED	ORG	BR	BK
3-	RED	RED	RED	RED	RED	WH	WH	WH	WH	WH	WH	WH	BL	BL	BL	BL
CH	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
2+	GRN	BK	BR	ORG	YEL	BR	ORG	BK	BR	RED	ORG	YEL	GRN	BL	WH	YEL
3-	BL	GRN	GRN	GRN	GRN	BK	BK	TRANS	TRANS	TRANS	TRANS	TRANS	TRANS	TRANS	TRANS	TRANS

請優先識別以下顏色:紅 白 藍 綠 黑 透明 LEAD COLOR: RED WHITE BLUE GREEN BLACK TRANS(CLEAR)

### INFO 專業知識

使用輕便型纜線時,撥開線後應儘速使用熱縮套管進行散亂處理熱縮套管收縮率約為50%,如果撥開較長時,要套入熱縮套管內較長可以膠布稍為黏貼麥拉層,以免穿管時摩擦潰散!並可利用奇異筆在上面做好通導注記。

When use Mylar type Multi-Pair cable, After stripping off cable jacket, as soon as possible using heat-shrink tube to do fan-tail. The shrinkage rate of heat-shrink tube around 50%. If the cable jacket stripped off longer, the cable inserted into heat-shrink tube would be longer. Can use tape to slightly adhere on Mylar layer, avoid any friction dispersed once getting through tube. Also can use marker pen to make channel note above Mylar layer.

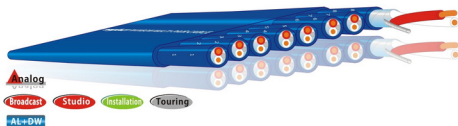


ITEM NO. 型號	3070800055
JACKET COLOR 顏色	BLACK
CONDUCTOR 導體	2" (20/0.10)
WIRE INFORMATION 線材資料	[2" [20/0.10] + PE 1.1mm] + DW7/0.20TC + AL-FOIL + MYLAR] *CHANNEL + JACKET PVC
MAIN CONDUCTOR AWG 主要導體直徑	26AWG 0.157mm <sup>2</sup>

ELECTRICAL PERFORMANCE 電氣性能	
Cond.D.C.R. ohm/1km 導體電阻/1km	117 +/- 2%
Shield D.C.R. ohm/1km 屏蔽層電阻/1km	72 +/- 1%
Nom.Cap.(pF/m)between conductors. 導體間電容	Less than 143
Nom.Cap.(pF/m)between conductors/shield 導體/屏蔽層電容	Less than 138
Voltage Breakdown 絕緣承受電壓	300V

MECHANICAL PERFORMANCE 機械性能	
Flex Life Number of times load 500g +/-30° 搖晃壽命次數 負載 500g 角度 +/-30°	---
Tensile Strength (26°C,65%RH) 拉伸斷裂力量	---
Applicable Temperature 建議工作溫度	-20°C ~ +60°C (-4°F ~ +140°F)
Peak Temperature 極限工作溫度	-40°C ~ +70°C (-40°F ~ +158°F)

COLOR & ORDER INFORMATION 色彩與訂購資訊				
CHANNEL& ITEM 總線數與品號	CHANNEL 總線數	ITEM 品號	OD 外径	weight 重量
(100M weight/ 100M 重量 (kg))	4	3070800055	7.6	7.42
	8	3070800056	10	13.4
	12	3070800057	12.8	18.9
	16	3070800058	13	22.9
	20	3070800059	14.5	28.3
	24	3070800060	15.6	33.0
	28	3070800061	17	38.8
	32	3070800062	18	44.6



Analog

Broadcast

Studio

Installation

Touring

AL+DW

8通道一組,扁平多芯線,是為了劇場中配置而設計的,便於吊桿升降/或木質地板下方布放使用!  
Flat Multi-Pair Cable Designed for the theater. configuration. Convenient for lifting by batten or used below the wooden floor,8 channels in one group.

## INFO 專業知識

## 為甚麼我們用鋁箔做屏蔽層?

電波與光波都是電磁波的一種,我們對於電波由於看不見!  
所以我們可以透過光波來了解電磁波的部份特性

- 當你持著鋁箔看著太陽,你能看到太陽嗎?  
不行!因為他是一整個平面!
- 可是當你用編織物看太陽?你能看到太陽嗎?  
你還是看得到的!因為編織物之間有縫隙,  
所以編織型的麥克風線沒有廠商敢跟你保證它是100%屏蔽

舉這個例子是要說明鋁箔的隔離性優於編織,在沒有非常小半徑的扭曲狀況下,  
使用鋁箔可以得到比編織更好的隔離效果!

## Why do we use aluminum foil as shield?

Radio wave and light wave are one kind of electromagnetic waves.  
Because we can't see air wave, so we can use light wave to understand part of characteristics on the electromagnetic wave.

- When you hold a piece of aluminum foil and watch the sun thru it, can you see the sun?  
No! Because it is an entire plane!
- But when you look at the sun thru braided stuff, can you see the sun?  
You still can see it, because there's gap between braiding.  
Hence, the manufacturers of braided type microphone cable would dare assure you that it is 100% shielded.  
This example mentioned is to illustrate the isolation of the aluminum foil better than braiding under the condition of no distortion in a very small radius.  
Using aluminum foil can get better isolation effect than braiding!



ITEM NO.型號	3070802226		
JACKET COLOR 顏色	BLUE/BLACK		
CONDUCTOR 導體	2" (10.012)		
WIRE INFORMATION 線材資料	2" [(10.0.12) +PE 1.0mm] +DW/70.18TC+AL-FOIL+PVC 3.0"×8 CHANNEL+OUT JACKET PVC 5.4×29.3mm		
MAIN CONDUCTOR AWG 主要導體直徑	27AWG 0.113mm <sup>2</sup>		
ELECTRICAL PERFORMANCE 電氣性能			
Cond.D.C.R. ohm/1Km 導體電阻/1km	170		
Shield D.C.R. ohm/1Km 屏蔽層電阻/1km	108		
Nom.Cap.(pF/m)between conductors. 導體間電容量	60		
Nom.Cap.(pF/m)between conductors./shield 導體/屏蔽間電容量	120		
Voltage Breakdown 絕緣承受電壓	300V		
MECHANICAL PERFORMANCE 機械性能			
Flex Life Number of times load 500g +/-30° 搖晃壽命次數 負載 500g 角度 +/-30°	---		
Tensile Strength (26°C,65%RH) 拉伸斷裂力量	---		
Applicable Temperature 建議工作溫度	-20°C~ +60°C (-4°F~ +140°F)		
Peak Temperature 極端工作溫度	-40°C~ +70°C (-40°F~ +158°F)		
COLOR & ORDER INFORMATION 色彩與訂購資訊			
CHANNEL&ITEM 通道數與品號	顏色	ITEM 品號	CHANNEL 通道數
	BLACK 黑	3070802220	8
100M weight/ 100M 重量	BLUE 藍	3070802226	8
	24.1		(kg)