

## SSD Documentation

# SSD Cables and Connectors

Version Number : 3

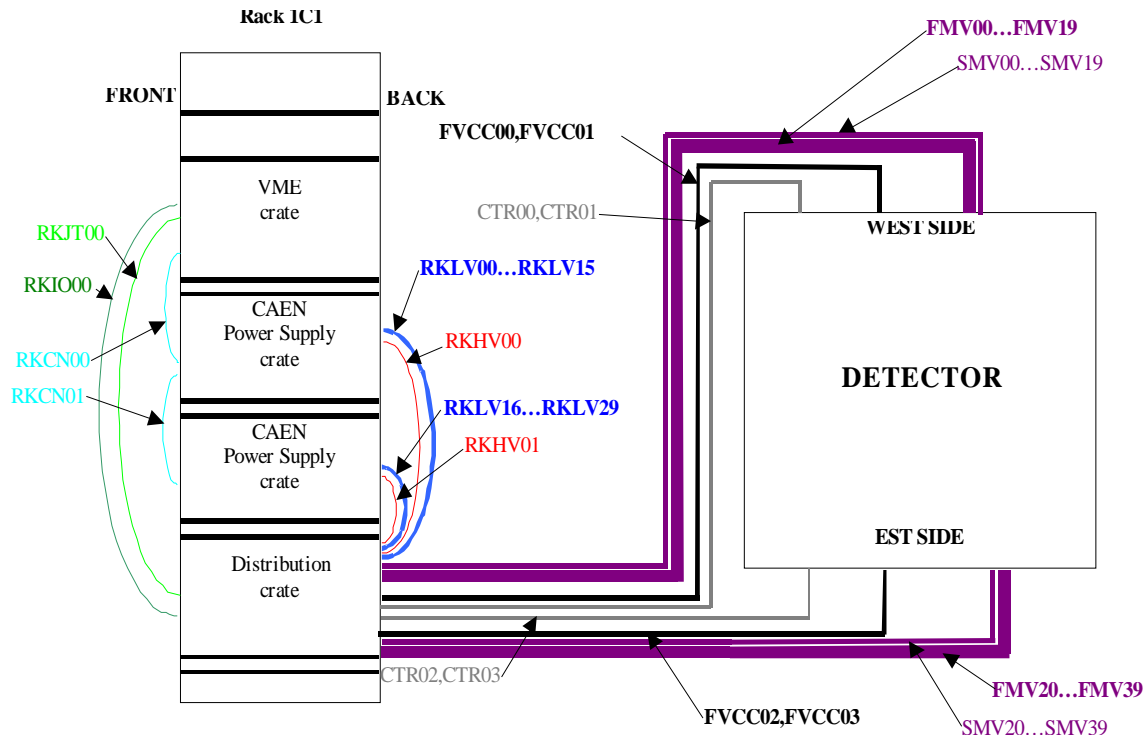
04-july-02

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## 1 Cables and connectors running from the south platform to the TPC wheel



### STAR- SSD Connectors specifications

Connectors	Cable / Location	Manufacturer Part Number	Material	Max Current	Operating Voltage (Max)	Voltage Rating	Temperature Rating	Flammability Rating
Inside Rack Cable Low Voltage	RKLVxx PS, Distr Crate	Amphenol 777-RR-B25P	glass-filled thermoplastic	2A	5V	500V	-55°C 105°C	ULV94V-0
Inside Rack Panel Low Voltage	RKLVxx PS, Distr Crate	Amphenol 177-RR-B25S	glass-filled thermoplastic	2A	5V	500V	-55°C 105°C	ULV94V-0
Inside Rack Cable High Voltage	RKHVxx PS, Distr Crate	Amphenol 777-RR-C37P	glass-filled thermoplastic	1mA	50V	500V	-55°C 105°C	ULV94V-0
Inside Rack Panel High Voltage	RKHVxx PS, Distr Crate	Amphenol 177-RR-C37S	glass-filled thermoplastic	1mA	50V	500V	-55°C 105°C	ULV94V-0
Inside Rack Panel Mixed Voltage	FMVxx, SMVxx Rack	AMP CPC 206838-1	glass-filled thermoplastic	2A	50V	1500V	-55°C 105°C	ULV94V-0
Cable Mixed Voltage	FMVxx, SMVxx TPC Wheel	AMP CPC 206837-1	glass-filled thermoplastic	2A	50V	1500V	-55°C 105°C	ULV94V-0

### STAR- SSD cables specifications

Cables	Nb cond	AWG	Manufacturer Part Number	Material	Max Current	Operating Voltage (Max)	Voltage Rating	Temperature Rating	Flammability Rating
Inside Rack Low & High Voltage (RKLVxx, RKHVxx)	27	22	HELUKABEL LiY-CY 20070	Copper PVC	LV : 1A HV : 1mA	LV: 5V HV : 50V	300V	-30°C 105°C	IEC 332-1
Mixed Voltage Force (FMVxx)	12	17	HELUKABEL LiY-CY 16483	Copper PVC	LV : 1A HV : 1mA	LV: 5V HV : 50V	600V	-30°C 90°C	IEC 332-1
Mixed Voltage Sense (SMVxx)	8	22	HELUKABEL LiY-CY 20061	Copper PVC	1mA	50V	300V	-30°C 105°C	IEC 332-1

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Control (CTRxx)	27	22	HELUKABEL LiY-CY 20070	Copper PVC	-	5V	300V	-30°C 80°C	IEC 332-1
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## 2 cables and connectors running on the SVT/SSD support cones :

### 2.1 Cables

Cable name	AWG	Max current	Operating Voltage	Manufacturer & part numb.	material	Voltage rating	Operating Temperature	Flammability rating
Power cables low volt. side	20	2 A	0 V	Alcatel Lyflex	PVC Copper	500 V	-10 C to + 60 C	NF C 32-070 C2 CEI 332-1
Power cables high volt. side	20	2 A	50 V	Alcatel Lyflex	PVC Copper	500 V	-10 C to + 60 C	NF C 32-070 C2 CEI 332-1
Sense cables low volt. side	24	0 A	0 V	Alpha wire 5599/5	PVC Copper Aluminium	300 V	-20 C to +80 C	UL VW1
Sense cables high volt. side	24	0 A	50 V	Alpha wire 5599/5	PVC Copper Aluminium	300 V	-20 C to +80 C	UL VW1
Signal & power cable	28	300 mA	0-5V	3M KU-KM PVV-SB	PVC Copper	300 V	-20 C to +60 C	UL VW1
High voltage cable	24	1mA	0-50V	Alpha wire 5092	PVC Copper	300 V	-20 C to +80 C	UL VW1

### 2.2 Connector for power, sense and high voltage cable :

At the large end of the cone, only one connector is used per group of cable. That means the power cable, the sense cable and the 'high voltage cable (50 V) are connected together.

- **AMP : M series 14 position**



housings material :	phenolic
temperature rating :	-55C to +150C
flammability rating :	UL94V-0
dielectric withstanding voltage (sea level) :	AC 900 V,rms
current rating :	13 A

At the small end of the cone, two types of connector are used the group of cable.

- **Taitek** : power cable and HV cable
 

type :	2.54mm header housing and crimp terminal
part number	254WS08G
number of pins	8
housing material :	Nylon
temperature rating :	-40 C to +105C
flammability rating :	UL 94V-2
dielectric withstand voltage :	AC 1200 V rms
operating voltage	AC 250 V rms
current rating	5 A

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- **FCI** : sense cable
  - type : HE13
  - part number : 6110 03 2
  - number of pins : 6, double row
  - temperature rating : -55C to +125 C
  - flammability rating : UL 94V-0
  - dielectric withstanding voltage : AC 1000 V rms
  - current rating : 3 A

### 2.3 connector for the signal cable :

- Harting : SCSI connector
  - type : SCSI connector
  - part number : 60 03 068 5100
  - housing material : thermoplastic doped with glass
  - shield material : brass
  - number of pins : 68 pins
  - temperature rating : -55C to +105 C
  - flammability rating : UL 94V-0
  - dielectric withstanding voltage : AC 750 V rms
  - operating voltage : AC 240 V rms
  - operating current : 1A

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# Annexe

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# TRONIC-CY (LIY-CY) EMC\*-preferred type flexible, colour coded to DIN 47100, screened



HELUKABEL LIY-CY



## Technical data

- Special PVC data screened cables, adapted to DIN VDE 0245, 0812
- **Temperature range**
  - flexing -5°C to +80°C
  - fixed installation -40°C to +80°C
- **Nominal voltage**
  - 0,14 mm<sup>2</sup> = 350 V
  - ≥ 0,25 mm<sup>2</sup> = 500 V
- **Test voltage a.c., 50 Hz**
  - core/core 1200 V
  - core/screen 800 V
- **Insulation resistance**
  - min. 200 MOhm x km
  - conductor cross-section (mm<sup>2</sup>) 0,14 ≥ 0,25
- **Capacitance** (approx.-value) at 800 Hz (pF/m)
 

core/core	120	150
core/screen	240	270
- **Load** (A) According to different cross-sections, see table Technical Information
- **Inductance** approx. 0,65 mH/km
- **Impedance** approx. 78 Ohm
- **Coupling resistance** ≤ 250 Ohm/km
- **Minimum bending radius** 10 x cable Ø
- **Radiation resistance** up to 80 x 10<sup>6</sup> C/kg (up to 80 Mrad)

## Cable structure

- Bare copper, fine wire conductors for ≥ 0,5 mm<sup>2</sup> to DIN VDE 0295 cl. 5 and IEC 60228 cl. 5, conductor make-up
  - for 0,14 mm<sup>2</sup> = 18x0,1 mm
  - 0,25 mm<sup>2</sup> = 14x0,25 mm
  - 0,34 mm<sup>2</sup> = 7x0,25 mm
- Special PVC core insulation Y12, to DIN VDE 0207 part 4
- Cores stranded in layers with optimal lay-length
- Colour coded to DIN 47100, but without colour repetition
- Core wrapping with foil
- Tinned, copper braided screen, approx. 85% coverage
- Special PVC outer sheath YM2, to DIN VDE 0207 part 5 outer sheath grey
- Extensively oil resistant
- Chemical Resistance – see table Technical Informations
- PVC self-extinguishing and flame retardant, test method B according to DIN VDE 0472 part 804 and IEC 60332-1
- The materials used in manufacture are cadmium-free and contain no silicone and free from substances harmful to the wetting properties of lacquers

## Application

These screened cables are used for flexible use with free movement without tensile stress or forced movements in dry, moist and wet rooms but not suitable for open air, wherever the construction requirements call for a minimum outer diameter, TRONIC is the suitable cable to use. This applies especially to such areas as tool making and machine industries as well as electronic, computer, measurement and control sectors.

The extremely small outer diameter make suitable for miniature plugs etc.

\* **EMC** = Electromagnetic compatibility  
**Note** To optimise the EMC features we recommend a large round contact of the copper braiding on both ends.

<sup>\*)</sup> **Note**  
 AWG sizes are approximate equivalent values.  
 The actual cross-section is in mm<sup>2</sup> – see page T 15.

CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC.

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km	AWG-no. <sup>*)</sup>
20001	2 x 0,14	3,7	120	20	26
20002	3 x 0,14	3,8	130	27	26
20003	4 x 0,14	4,1	145	32	26
20004	5 x 0,14	4,6	155	37	26
20005	6 x 0,14	4,9	182	42	26
20006	7 x 0,14	4,9	190	48	26
20007	8 x 0,14	5,3	213	55	26
20008	10 x 0,14	6,0	287	65	26
20009	12 x 0,14	6,2	305	77	26
20010	14 x 0,14	6,6	320	79	26
20011	16 x 0,14	6,9	432	89	26
20012	18 x 0,14	7,1	510	103	26
20013	20 x 0,14	7,6	550	116	26
20014	21 x 0,14	7,6	560	120	26
20015	24 x 0,14	8,4	620	131	26
20081	25 x 0,14	8,1	610	136	26
20016	27 x 0,14	8,6	650	142	26
20017	30 x 0,14	8,9	690	157	26
20018	32 x 0,14	9,1	760	163	26
20019	36 x 0,14	9,7	830	182	26
20020	40 x 0,14	10,2	880	209	26
20021	42 x 0,14	10,7	940	217	26
20022	44 x 0,14	11,1	1110	226	26
20023	48 x 0,14	11,1	1150	240	26
20024	52 x 0,14	11,4	1240	270	26
20025	56 x 0,14	11,8	1320	320	26
20026	61 x 0,14	12,2	1460	370	26
20027	80 x 0,14	19,0	2260	510	26
20028	100 x 0,14	23,0	2670	580	26

HELUKABEL® TRONIC-CY is also available in a paired version  
 (e.g. HELUKABEL®-PAAR-TRONIC-CY 16 x 2 x 0,14 mm<sup>2</sup>)

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer Ø ca. mm	Cop. weight kg/km	Weight ca. kg/km	AWG-no. <sup>*)</sup>
20084	1 x 0,25**	2,9	7,2	27	24
20029	2 x 0,25	4,3	13,8	31	24
20030	3 x 0,25	4,5	18,6	36	24
20031	4 x 0,25	4,9	22,0	40	24
20032	5 x 0,25	5,5	26,5	51	24
20085	6 x 0,25	5,8	32,4	58	24
20033	7 x 0,25	5,9	35,0	64	24
20034	8 x 0,25	6,3	42,1	82	24
20035	10 x 0,25	7,0	49,9	85	24
20036	12 x 0,25	7,3	58,0	90	24
20037	14 x 0,25	7,8	62,0	144	24
20038	16 x 0,25	8,2	67,0	110	24
20039	18 x 0,25	8,6	78,0	142	24
20086	19 x 0,25	8,7	79,0	146	24
20040	20 x 0,25	9,1	88,0	152	24
20041	21 x 0,25	9,1	91,0	150	24
20042	24 x 0,25	10,2	96,0	163	24
20092	25 x 0,25	10,3	99,0	169	24
20043	27 x 0,25	10,5	122,0	176	24
20044	30 x 0,25	10,8	132,0	189	24
20045	32 x 0,25	11,0	138,0	204	24
20046	36 x 0,25	11,7	146,0	219	24
20087	37 x 0,25	11,7	152,0	230	24
20047	40 x 0,25	12,1	157,0	247	24
20048	42 x 0,25	12,7	160,0	269	24
20049	44 x 0,25	13,1	164,0	292	24
20050	48 x 0,25	13,3	164,0	317	24
20051	52 x 0,25	14,0	175,0	330	24
20052	56 x 0,25	14,4	189,0	343	24
20053	61 x 0,25	14,8	204,0	365	24
20054	80 x 0,25	25,5	387,0	480	24
20055	100 x 0,25	28,0	505,0	605	24

Continuation ►

\*\* Note: for 1 core cable screen of helically wound



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# TRONIC-CY (LIY-CY) EMC\*-preferred type flexible, colour coded to DIN 47100, screened



CE = The product is conformed with the EC Low-Voltage Directive 73/23/EEC

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer dia. ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
20088	1 x 0.34**	3.2	13.5	24	22
20056	2 x 0.34	4.8	18.0	30	22
20057	5 x 0.34	5.1	22.0	37	22
20058	4 x 0.34	5.6	32.2	48	22
20059	5 x 0.34	6.0	31.0	54	22
20085	6 x 0.34	6.5	45.0	61	22
20060	7 x 0.34	6.6	51.0	67	22
20061	8 x 0.34	7.1	54.0	81	22
20062	10 x 0.34	8.0	65.0	103	22
20063	12 x 0.34	8.4	70.0	110	22
20064	14 x 0.34	8.9	81.0	153	22
20065	16 x 0.34	9.4	88.0	159	22
20066	18 x 0.34	9.9	103.0	172	22
20069	19 x 0.34	10.1	106.0	181	22
20067	20 x 0.34	10.8	112.0	191	22
20068	21 x 0.34	10.8	116.0	199	22
20069	24 x 0.34	11.9	129.0	229	22
20093	25 x 0.34	11.6	120.0	241	22
20070	27 x 0.34	12.2	138.0	258	22
20071	30 x 0.34	12.6	158.0	290	22
20072	32 x 0.34	12.9	163.0	305	22
20073	36 x 0.34	13.6	178.0	330	22
20090	37 x 0.34	13.8	192.0	348	22
20074	40 x 0.34	14.4	198.0	364	22
20075	42 x 0.34	15.1	203.0	389	22
20076	44 x 0.34	15.5	214.0	414	22
20077	48 x 0.34	15.8	227.0	420	22
20078	52 x 0.34	16.2	242.0	450	22
20079	56 x 0.34	16.6	267.0	480	22
20080	61 x 0.34	17.1	295.0	520	22
20081	80 x 0.34	25.6	524.0	580	22
20082	100 x 0.34	28.5	620.0	694	22
16001	1 x 0.5**	3.4	15.0	40	20
16002	2 x 0.5	5.4	29.0	45	20
16003	3 x 0.5	5.8	38.0	55	20
16004	4 x 0.5	6.4	45.0	61	20
16005	5 x 0.5	6.8	51.0	76	20
16006	6 x 0.5	7.4	66.0	89	20
16007	7 x 0.5	7.6	68.0	98	20
16008	8 x 0.5	8.3	80.0	117	20
16009	10 x 0.5	9.4	98.0	135	20
16010	12 x 0.5	9.7	107.0	157	20
16011	14 x 0.5	10.4	122.0	190	20
16012	16 x 0.5	11.1	129.0	210	20
16013	18 x 0.5	11.6	152.0	217	20
16526	19 x 0.5	11.7	156.0	246	20
16014	20 x 0.5	12.6	161.0	275	20
16015	24 x 0.5	13.7	230.0	337	20
16016	25 x 0.5	13.9	250.0	351	20
16527	27 x 0.5	14.0	265.0	373	20
16017	30 x 0.5	14.6	276.0	396	20
16018	32 x 0.5	15.0	291.0	431	20
16164	34 x 0.5	15.4	298.0	440	20
16019	36 x 0.5	15.7	305.0	445	20
16528	37 x 0.5	16.1	317.0	458	20
16020	40 x 0.5	16.5	345.0	470	20
16021	50 x 0.5	18.4	407.0	570	20
16022	61 x 0.5	19.4	580.0	650	20
16023	80 x 0.5	25.0	690.0	780	20
16024	100 x 0.5	25.9	814.0	990	20

## \*) Note

AWG sizes are approximate equivalent values.  
The actual cross-section is in mm<sup>2</sup> - see page T 15.

HELUKABEL® TRONIC-CY is also available in a paired version  
(e.g. HELUKABEL® PAAR-TRONIC-CY 16 x 2 x 0.14 mm<sup>2</sup>).

Part No.	No. cores x cross-sec. mm <sup>2</sup>	Outer dia. ca. mm	Cop. weight kg / km	Weight ca. kg / km	AWG-no.†)
16025	1 x 0.75**	3.8	19.0	41	18
16026	2 x 0.75	6.2	38.0	59	18
16027	5 x 0.75	6.4	50.0	66	18
16028	4 x 0.75	7.0	57.0	77	18
16029	5 x 0.75	7.6	70.0	95	18
16030	6 x 0.75	8.3	87.0	113	18
16031	7 x 0.75	8.5	96.0	130	18
16032	8 x 0.75	9.2	110.0	145	18
16033	10 x 0.75	10.5	140.0	180	18
16034	12 x 0.75	10.9	148.0	202	18
16035	14 x 0.75	11.6	167.0	225	18
16036	16 x 0.75	12.3	183.0	275	18
16037	18 x 0.75	13.0	205.0	292	18
16529	19 x 0.75	13.2	221.0	322	18
16038	20 x 0.75	14.0	238.0	362	18
16039	24 x 0.75	15.5	270.0	435	18
16040	25 x 0.75	15.5	278.0	415	18
16041	27 x 0.75	16.2	287.0	467	18
16042	30 x 0.75	16.8	315.0	486	18
16043	32 x 0.75	17.1	330.0	530	18
16163	34 x 0.75	17.5	350.0	570	18
16044	36 x 0.75	17.8	370.0	600	18
16530	37 x 0.75	18.2	386.0	640	18
16045	40 x 0.75	19.0	395.0	680	18
16130	42 x 0.75	19.7	408.0	714	18
16046	50 x 0.75	20.9	480.0	810	18
16047	61 x 0.75	22.9	555.0	900	18
16048	80 x 0.75	27.4	715.0	1200	18
16049	100 x 0.75	31.2	910.0	1440	18
16475	2 x 1	6.5	46.0	65	17
16476	3 x 1	6.9	56.0	80	17
16477	4 x 1	7.5	69.0	98	17
16478	5 x 1	8.3	85.0	127	17
16479	6 x 1	8.9	105.0	144	17
16480	7 x 1	9.0	111.0	158	17
16481	8 x 1	10.2	130.0	197	17
16482	10 x 1	11.4	140.0	252	17
16483	12 x 1	11.7	168.0	260	17
16484	14 x 1	12.7	198.0	302	17
16485	16 x 1	13.4	218.0	346	17
16486	19 x 1	13.9	259.0	412	17
16487	24 x 1	16.5	320.0	493	17
16488	27 x 1	16.8	360.0	562	17
16489	37 x 1	18.8	485.0	790	17
16500	2 x 1.5	7.5	63.0	88	16
16501	3 x 1.5	8.0	76.0	100	16
16502	4 x 1.5	8.7	98.0	126	16
16503	5 x 1.5	9.6	116.0	160	16
16504	6 x 1.5	10.6	140.0	192	16
16505	7 x 1.5	10.7	152.0	208	16
16506	8 x 1.5	11.7	172.0	244	16
16507	10 x 1.5	13.5	193.0	315	16
16508	12 x 1.5	14.0	254.0	338	16
16509	14 x 1.5	15.0	272.0	383	16
16510	16 x 1.5	15.7	285.0	424	16
16511	19 x 1.5	17.1	387.0	506	16
16512	24 x 1.5	19.5	448.0	690	16
16513	27 x 1.5	19.8	506.0	781	16
16514	37 x 1.5	23.6	682.0	941	16

## \*\* Note

For 1 core cable screen of helically wound