

# **RailSol™ - Saflex**

LS Total Solution for Rolling Stock



# About LS Cable & System

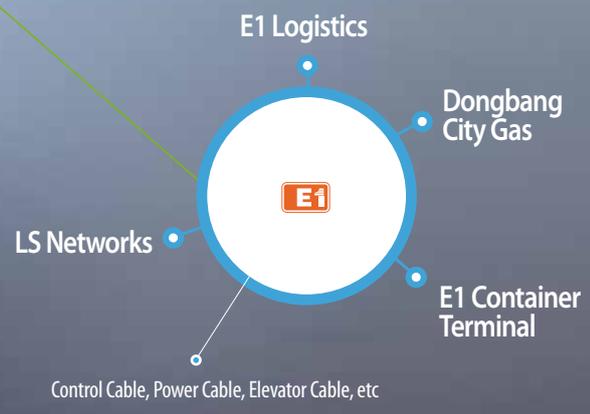
Since the separation from LG Electronics in 2003, LS Group has specialized in industrial energy, electronic energy, and industrial materials. Thus, LS Group has achieved specialized global competitiveness in these fields. LS Group is a parent company of 100 subsidiary company, including LS Cable & System, LSIS, LS Nikko Copper, LS Mtron, Gaon Cable, E1 and Yesco. LS Cable & System holds the unrivaled position of the top cable maker in Korea, and it provides total solutions for electronic power and telecommunication industries.

LS Cable & System has strived to become a global leader in the industry by implementing constant innovation since the establishment of the company. While providing high-quality solutions to help our clients, LS Cable & System is accelerating efforts to be the top player of the global cable industry by securing the top technologies in submarine cables and superconducting cables, as well as focusing on green business. Under the company vision 'Your No.1 Creative Partner', LS Cable & System dedicates its best effort to deliver only the top technology and service to its clients.



## A New Beginning as a Total Solution Provider for Electric Power and Telecommunications

History was made when LS Cable & System, the de facto holding company of LS Group, transformed into LS Holding Company in July 2008 and started as a new total-solution provider specialized in electric power and telecommunications. It was the optimized business decision to increase management efficiency of the constantly expanding business segments and to strengthen the responsible management system to foster a new growth engine to drive our business. By separating investment and business segments, LS Holdings was able to discover a new growth engine to propel the group into a new phase of growth.



The new change of business provided an opportunity to the subsidiary companies to focus on their own operations and to strengthen their respective business expertise, as well as successfully enhancing the competitiveness in the industry. LS Cable & System, as the holding company, is committed to providing continued support to the subsidiary companies, while practicing responsible management. LS Cable & System endeavor to focus on our core business while strengthening its business expertise and competitiveness as a global company.

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Class E (Exposed) and Class P (Protected)
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# Convenience for High Speed Technology



# LS Total Solution for Rolling Stock

## Application Business

The Leading Solution Provider, LS Cable & System introduced a new marketing concept, which is providing collected items applicable to an industry as a package instead of separately providing a single item. These LS Cable & System's business solutions are applicable to following industries : Wind Power Generation, Railway & Rolling stock, Airport, Power Transmission & distribution, Marine & Offshore, and Automotive. The Application Business manages various departments and their products to satisfy our customers' specific needs and convenience. The Leading Solution Provider, LS Cable & System introduced a new marketing concept, which is providing collected items applicable to an industry as a package instead of separately providing a single item. These LS Cable & System's business solutions are applicable to following industries : Wind Power Generation, Railway & Rolling stock, Airport, Power Transmission & distribution, Marine & Offshore, and Automotive. The Application Business manages various departments and their products to satisfy our customers' specific needs and convenience.

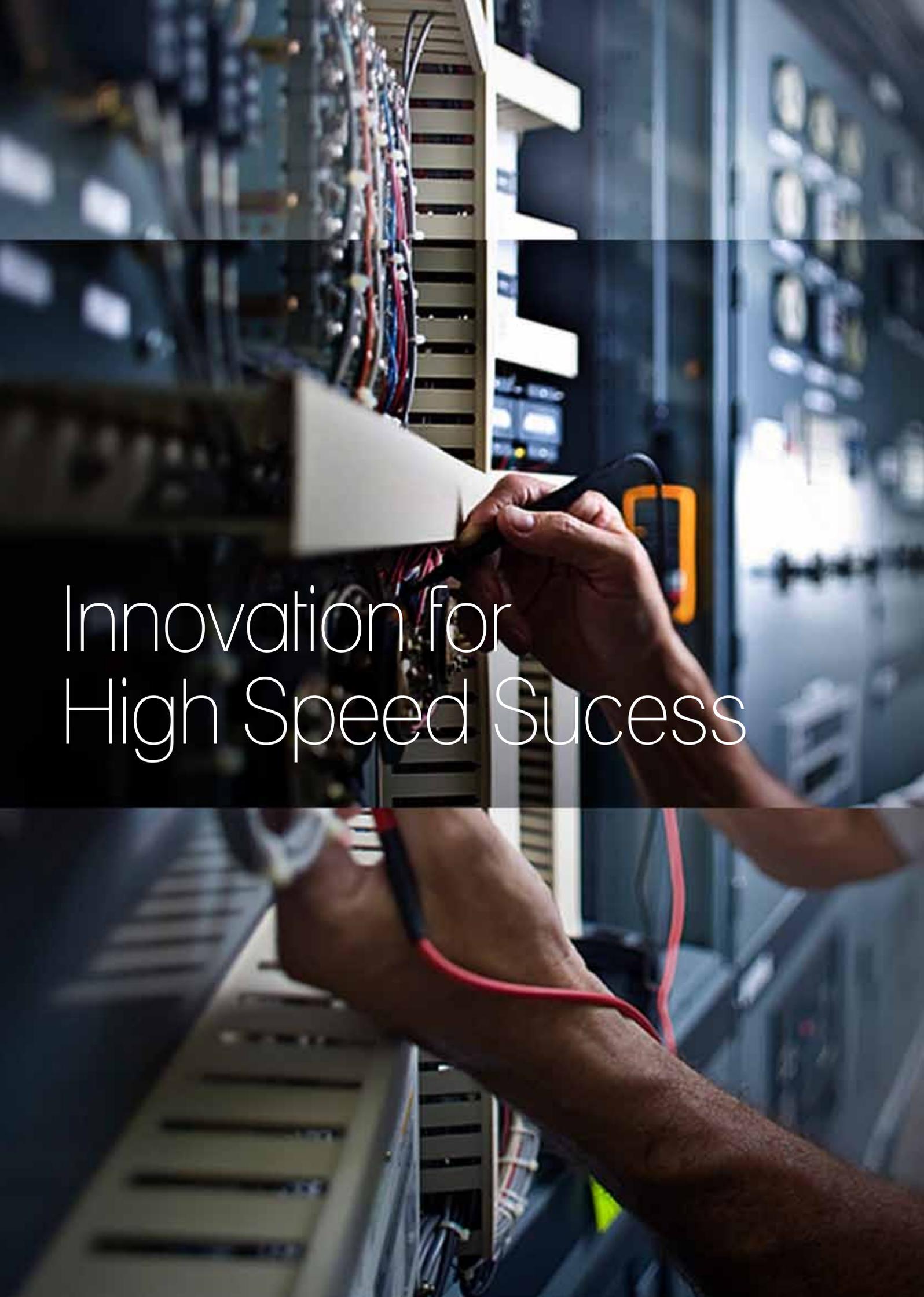
## RailSol™ - Saflex

Rolling stock technology has been developed in the last few years and this development has been driven by high speed train network. Rolling stock for metro, commute and regional line are covered by this development. To reduce both size and weight has been always required to cable manufacturers. LS Cable & System has developed products to meet our customer and offers a wide range of products for rolling stock.

LS Cable & System supplies cables which pass the fire tests relevant to rolling stock standard, and these cables have low toxicity and excellent flame resistance. Moreover, thanks to compact construction and excellent material performance, LS Cable & System offers particularly space and weight saving. RailSol™-Saflex which is LS Cable & System's rolling stock solution covers wide range of rolling stock product such as single and multi-core power cables, signal and control cables, multimedia and telecommunication cables, MV roof cable, winding wires for transformer and traction motor, rubber flooring, RF antenna and connector, components for harness and jumper cable in various versions customized with combinations of cores and cables.

The Leading Solution Provider, LS Cable & System introduced a new marketing concept, which is providing collected items applicable to an industry as a package instead of separately providing a single item. These LS Cable & System's business solutions are applicable to following industries





Innovation for  
High Speed Success

HF-RMSG-RD EN50264-3-1 0.6/1kV

# Single Core Unsheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-1

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, extra oil and fuel resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C / -50°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable OD

## Application

• Lighting circuits powered by accumulators / Equipment control and monitoring circuits / Auxiliary and electric heating circuits

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**  
EN60332-1-2  
EN60332-3-24  
EN60332-3-25  
UL1685



**Low Smoke**  
EN61034-2  
BS6853 Annex D



**Oil Resistant**  
IRM 902  
IRM 903



**Ozone Resistant**  
EN50305



**Toxicity Index**  
BS 6853 Annex B.1  
BS S 7239



**Cold Resistant**  
@-40°C/-50°C  
EN 60811-1-4

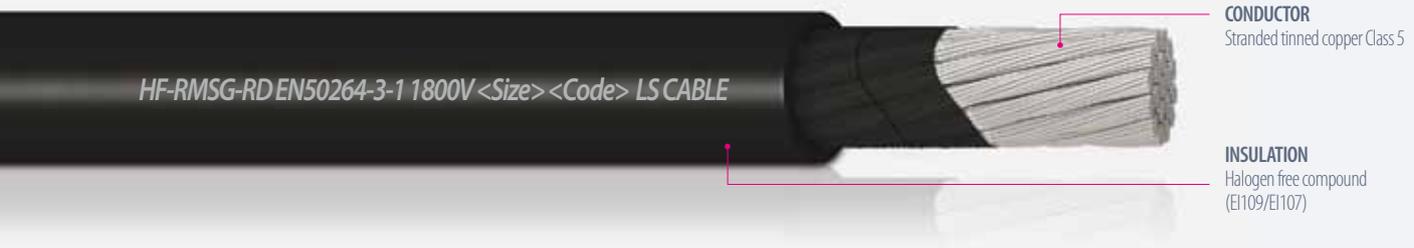
## Product List

Conductor		Insulation Thickness	Cable O.D (mm)			Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)		Nom. (mm)	Min.	Max.	
1.0	1.3	0.6	2.4	2.6	2.8	15
1.5	1.5	0.7	2.9	3.1	3.3	20
2.5	1.9	0.7	3.4	3.6	3.8	30
4	2.5	0.7	4.0	4.2	4.4	40
6	3.1	0.7	4.5	4.8	5.0	60
10	3.9	0.7	5.3	5.6	5.9	100
16	5.2	0.7	6.5	6.8	7.2	150
25	6.5	0.9	8.2	8.6	9.1	240
35	7.7	0.9	9.5	10.1	10.6	320
50	9.3	1.0	11.2	11.8	12.4	460
70	11.2	1.1	13.1	13.9	14.6	670
95	12.8	1.1	14.7	15.5	16.3	850
120	14.6	1.2	16.6	17.5	18.4	1100
150	16.2	1.4	18.5	19.6	20.6	1360
185	17.8	1.6	20.6	21.8	22.9	1830
240	20.6	1.7	23.4	24.7	26.0	2360
300	22.8	1.8	26.2	27.5	28.8	2770

\* Other range on request.

HF-RMSG-RD EN50264-3-1 1.8/3kV

# Single Core Unsheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-1

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, extra oil and fuel resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C / -50°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable OD

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage in protected area

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**  
EN60332-1-2  
EN60332-3-24  
EN60332-3-25  
UL1685



**Low Smoke**  
EN61034-2  
BS6853 Annex D



**Oil Resistant**  
IRM 902  
IRM 903



**Ozone Resistant**  
EN50305



**Toxicity Index**  
BS 6853 Annex B.1  
BS S 7239



**Cold Resistant**  
@-40°C/-50°C  
EN 60811-1-4

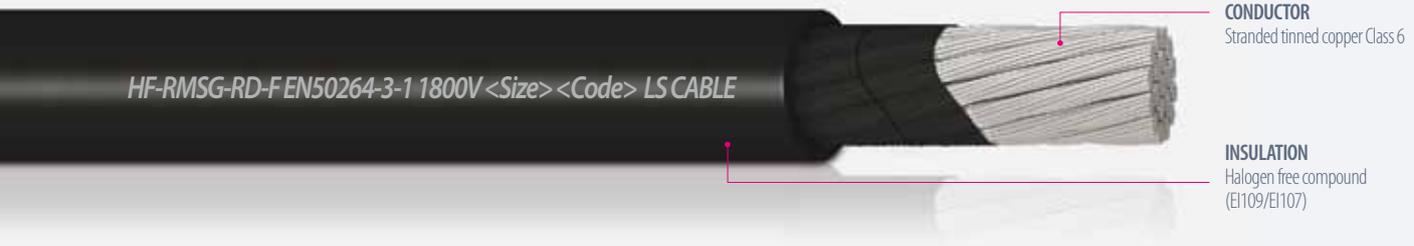
## Product List

Conductor		Insulation Thickness	Cable O.D (mm)			Approx. Cable Weight kg / km
Cross Section (mm <sup>2</sup> )	Ø (mm)		Nom. (mm)	Min.	Max.	
1.5	1.5	2.0	5.3	5.7	6.2	45
2.5	1.9	2.0	6.0	6.4	6.7	60
4	2.5	2.0	6.6	6.9	7.3	80
6	3.1	2.0	7.0	7.4	7.8	100
10	3.9	2.0	8.0	8.4	8.8	155
16	5.2	2.0	9.0	9.5	10.0	210
25	6.5	2.0	10.4	11.0	11.6	290
35	7.7	2.0	11.7	12.4	13.0	390
50	9.3	2.0	13.1	13.9	14.6	590
70	11.2	2.0	14.9	15.8	16.6	750
95	12.8	2.2	16.8	17.8	18.7	930
120	14.6	2.2	18.5	19.6	20.6	1180
150	16.2	2.2	20.1	21.2	22.3	1440
185	17.8	2.4	22.0	23.2	24.4	1740
240	20.6	2.4	24.8	26.1	27.5	2300
300	22.8	2.4	27.3	28.7	30.1	2900

\* Other range on request.

HF-RMSG-RD-F EN50264-3-1 1.8/3kV

# Single Core Extra Flexible Unsheathed Power Cables



**CONDUCTOR**  
Stranded tinned copper Class 6

**INSULATION**  
Halogen free compound  
(E1109/E1107)

## Conductor

- Stranded tinned copper, Class 6 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-1

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, extra oil and fuel resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C / -50°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage in protected area

## Properties



### Halogen Free

EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



### Flame Retardant

EN60332-1-2  
EN60332-3-24  
EN60332-3-25  
UL1685



### Low Smoke

EN61034-2  
BS6853 Annex D



### Oil Resistant

IRM 902  
IRM 903



### Ozone Resistant

EN50305



### Toxicity Index

BS 6853 Annex B.1  
BS S 7239



### Cold Resistant

@-40°C/-50°C  
EN 60811-1-4

## Product List

Conductor		Insulation Thickness mm	Nominal Cable O.D. Ø (mm)	Approx. Cable Weight kg / km
Cross Section (mm²)	Ø (mm)			
1.5	1.5	2.0	5.7	45
2.5	1.9	2.0	6.2	60
4	2.5	2.0	7.0	80
6	3.1	2.0	7.5	100
10	3.9	2.0	8.4	150
16	5.2	2.0	9.6	210
25	6.5	2.0	11.2	290
35	7.7	2.0	12.5	390
50	9.3	2.0	14.2	590
70	11.2	2.0	16.2	750
95	12.8	2.2	18.2	930
120	14.6	2.2	20.0	1180
150	16.2	2.2	21.8	1440
185	17.8	2.4	23.9	1740
240	20.6	2.4	27.1	2300
300	22.8	2.4	29.2	2750
400	26.1	2.6	33.0	4000

\*Other range on request.

HF-RMSG-RD EN50264-3-1 1.8/3kV

# Single Core Sheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-1

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, extra oil and fuel resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C / -50°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run on trays, exposed

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**  
EN60332-1-2  
EN60332-3-24  
EN60332-3-25  
UL1685



**Low Smoke**  
EN61034-2  
BS6853 Annex D



**Oil Resistant**  
IRM 902  
IRM 903



**Ozone Resistant**  
EN50305



**Toxicity Index**  
BS 6853 Annex B.1  
BS 5 7239



**Cold Resistant**  
@-40°C / -50°C  
EN 60811-1-4

## Product List

Conductor		Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)	mm	mm	Ø (mm)	kg / km
1.5	1.5	1.3	0.8	5.9	60
2.5	1.9	1.3	0.8	6.3	70
4	2.5	1.3	0.8	6.8	90
6	3.1	1.3	0.8	7.4	110
10	3.9	1.5	0.8	8.7	170
16	5.2	1.5	0.8	10.1	240
25	6.5	1.8	1.0	12.3	360
35	7.7	1.8	1.0	13.7	480
50	9.3	1.8	1.0	15.3	630
70	11.2	1.8	1.0	17.3	860
95	12.8	2.2	1.0	19.6	1100
120	14.6	2.2	1.0	21.4	1380
150	16.2	2.2	1.2	23.4	1680
185	17.8	2.4	1.2	25.5	2060
240	20.6	2.4	1.2	28.4	2620
300	22.8	2.4	1.2	30.6	3120
400	26.1	2.6	1.4	36.8	4250

\* Other range on request.

HF-RMSG-RD EN50264-3-1 3.6/6kV

# Single Core Sheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-1

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, extra oil and fuel resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C / -50°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending (once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run on trays, exposed

## Properties



### Halogen Free

EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



### Flame Retardant

EN60332-1-2  
EN60332-3-24  
EN60332-3-25  
UL1685



### Low Smoke

EN61034-2  
BS6853 Annex D



### Oil Resistant

IRM 902  
IRM 903



### Ozone Resistant

EN50305



### Toxicity Index

BS 6853 Annex B.1  
BS S 7239



### Cold Resistant @-40°C/-50°C

EN 60811-1-4

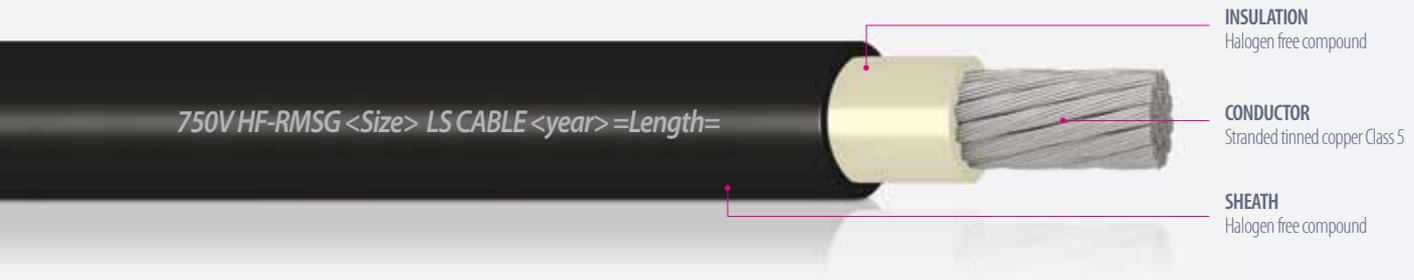
## Product List

Conductor		Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)				
2.5	1.9	2.6	0.8	9.6	110
4	2.5	2.6	0.8	10.2	130
6	3.1	2.6	0.8	10.7	150
10	3.9	2.6	0.8	11.7	200
16	5.2	2.6	0.8	12.9	280
25	6.5	2.9	1.0	15.6	410
35	7.7	2.9	1.0	17.0	510
50	9.3	2.9	1.0	18.6	670
70	11.2	2.9	1.0	20.6	910
95	12.8	2.9	1.0	22.2	1110
120	14.6	2.9	1.2	24.5	1400
150	16.2	2.9	1.2	26.1	1680
185	17.8	3.2	1.2	28.8	2010
240	20.6	3.4	1.4	32.4	2670
300	22.8	3.4	1.4	35.0	3190
400	26.1	3.4	1.4	38.7	4470

\* Other range on request.

750V HF-RMSG

# Single Core Sheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to IEC60228

## Design Standard

- NFF63-826

## Insulation

- Low smoke, Halogen free compound
- White (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound
- Black (unless otherwise specified)

## Technical Data

• Voltage	DC 750V
• Min. Ambient temperature for use	-25°C
• Fire Performance	Tested in Accordance with - Flame-Retardant : IEC60332-3-24 Cat.C - Smoke Density : IEC61034-2 - Toxicity : BS6853 Annex B

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run on trays, exposed

## Properties



Halogen Free

IEC60754-2  
IEC60684-2



Flame Retardant

NF C 32-070  
IEC60332-1/2/3



Low Smoke

IEC61034-2



UV Resistant

UL 1581



Oil Resistant

IRM 902



Ozone Resistant

UIC 895 OR



Toxicity Index

BS 6853 Annex B.1  
BS 5 7239

## Product List

Conductor	Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	mm	mm	Ø (mm)	kg / km
1.0	0.46	0.8	3.77	8
1.5	0.46	0.69	3.79	36
2.5	0.46	0.69	4.27	45
4	0.46	0.58	4.64	60
6	0.55	0.58	5.31	85
10	0.60	0.6	6.53	135
16	0.60	0.7	8.03	195
25	0.70	0.65	9.53	300
35	0.75	0.53	11.30	443
50	0.80	0.55	13.50	623
70	0.80	0.55	15.60	847
95	0.95	0.65	18.10	1119
120	0.95	0.58	19.80	1445
150	1.00	0.63	22.00	1775
185	1.10	0.7	24.40	2115
240	1.20	0.8	27.80	2762
300	1.30	0.85	31.20	3452
400	1.30	0.8	35.20	4474

\*Other range on request.

1500V HF-RMSG

# Single Core Sheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to IEC60228

## Design Standard

- NFF63-826

## Insulation

- Low smoke, Halogen free compound
- White (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound
- Black (unless otherwise specified)

## Technical Data

• Voltage	DC 1500V
• Min. Ambient temperature for use	-25°C
• Fire Performance	Tested in Accordance with - Flame-Retardant : IEC60332-3-24 Cat.C - Smoke Density : IEC61034-2 - Toxicity : BS6853 Annex B

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage in protected area / Jumper

## Properties



Halogen Free

IEC60754-2  
IEC60684-2



Flame Retardant

NF C 32-070  
IEC60332-1/2/3



Low Smoke

IEC61034-2



UV Resistant

UL 1581



Oil Resistant

IRM 902



Ozone Resistant

UIC 895 OR



Toxicity Index

BS 6853 Annex B.1  
BS 5 7239

## Product List

Conductor	Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	mm	mm	∅ (mm)	kg / km
1.5	0.6	0.9	4.55	60
2.5	0.65	0.9	5.07	82
4	0.65	0.9	5.66	100
6	0.65	0.9	6.15	130
10	0.65	0.95	7.33	185
16	0.65	1.05	8.83	250
25	0.70	1.05	10.33	350
35	0.75	1.05	11.70	430
50	0.80	1.05	13.48	590
70	0.90	1.04	15.33	790
95	1.00	1.2	17.93	1020
120	1.00	1.2	19.8	1320
150	1.00	1.02	21.44	0550
185	1.12	0.88	23.28	1900
240	1.19	1.41	27.33	2500
300	1.19	1.61	32.5	3562

\*Other range on request.

3000V HF-RMSG

# Single Core Sheathed Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to IEC60228

## Design Standard

- NFF63-826

## Insulation

- Low smoke, Halogen free compound
- White (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound
- Black (unless otherwise specified)

## Technical Data

• Voltage	DC 3000V
• Min. Ambient temperature for use	-25°C
• Fire Performance	Tested in Accordance with - Flame-Retardant : IEC60332-3-24 Cat.C - Smoke Density : IEC61034-2 - Toxicity : BS6853 Annex B

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run on trays, exposed

## Properties



Halogen Free

IEC60754-2  
IEC60684-2



Flame Retardant

NF C 32-070  
IEC60332-1/2/3



Low Smoke

IEC61034-2



UV Resistant

UL 1581



Oil Resistant

IRM 902



Ozone Resistant

UIC 895 OR



Toxicity Index

BS 6853 Annex B.1  
BS 5 7239

## Product List

Conductor	Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	mm	mm	∅ (mm)	kg / km
10	2.0	1.3	11.2	210
16	2.0	1.4	13.2	300
25	2.0	1.4	14.8	400
35	2.0	1.5	16.3	520
50	2.0	1.5	18.3	690
70	2.0	1.6	20.5	920
95	2.0	1.7	22.5	1160
120	2.0	1.7	24.6	1440
150	2.0	1.8	26.7	1740
185	2.0	1.9	29.2	2090
240	2.0	2.0	32.0	2680

\* Other range on request.

HF-RMSG-HT EN50382-2 1.8/3kV

# Single Core Unsheathed High Temperature Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)
- Stranded annealed copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50382-2

## Insulation

- Low smoke, Halogen free silicone rubber according to EN50382-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	120°C / 150°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run in protected areas

## Properties



### Halogen Free

EN50267-2-1  
EN50267-2-2  
EN50264-1 Annex B  
EN60684-2



### Flame Retardant

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



### Low Smoke

EN61034-2  
BS6853 Annex D



### Oil Resistant

IRM 902



### Ozone Resistant

EN50305



### Toxicity Index

BS 6853 Annex B.1  
BS 5 7239



### Cold Resistant @-40°C

EN 60811-1-4

## Product List

Conductor		Insulation Thickness	Nominal Cable O.D	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)	mm	Ø (mm)	kg / km
1.5	1.5	2.5	6.7	55
2.5	1.9	2.5	7.1	66
4	2.5	2.5	7.6	85
6	3.1	2.5	8.2	105
10	3.9	2.5	9.1	150
16	5.2	2.5	10.2	215
25	6.5	2.5	11.7	310
35	7.7	2.5	13.0	390
50	9.3	2.5	14.5	540
70	11.2	2.5	16.3	740
95	12.8	2.7	18.3	950
120	14.6	2.7	20.0	1200
150	16.2	2.7	21.6	1460
185	17.8	2.7	23.3	1750
240	20.6	2.7	25.9	2300
300	22.8	2.7	28.3	2800
400	26.1	2.9	32.0	3900

\*Other range on request.

HF-RMSG-HT EN50382-2 3.6/6kV

# Single Core Unsheathed High Temperature Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)
- Stranded annealed copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50382-2

## Insulation

- Low smoke, Halogen free silicone rubber according to EN50382-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	120°C / 150°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending (once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run in protected areas

## Properties



**Halogen Free**

EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**

EN61034-2  
BS6853 Annex D



**Oil Resistant**

IRM 902



**Ozone Resistant**

EN50305



**Toxicity Index**

BS 6853 Annex B.1  
BS S 7239



**Cold Resistant  
@-40°C**

EN 60811-1-4

## Product List

Conductor		Insulation Thickness	Nominal Cable O.D	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)			
2.5	1.9	3.0	8.1	82
4	2.5	3.0	8.7	100
6	3.1	3.0	9.2	120
10	3.9	3.0	10.1	170
16	5.2	3.0	11.3	240
25	6.5	3.0	12.7	330
35	7.7	3.0	14.0	420
50	9.3	3.0	15.5	570
70	11.2	3.0	17.3	780
95	12.8	3.0	18.9	970
120	14.6	3.0	20.5	1300
150	16.2	3.1	22.3	1500
185	17.8	3.2	24.4	1800
240	20.6	3.4	27.4	2400
300	22.8	3.4	29.8	2800
400	26.1	3.4	33.1	4100

\* Other range on request.

HF-RMSG-HT EN50382-2 1.8/3kV

# Single Core Sheathed High Temperature Power Cables



**INSULATION**  
Halogen free compound

**CONDUCTOR**  
Stranded tinned copper Class 5

**SHEATH**  
Halogen free compound

## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)
- Stranded annealed copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50382-2

## Insulation

- Low smoke, Halogen free silicone rubber according to EN50382-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50382-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	120°C / 150°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run, exposed

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**  
EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**  
EN61034-2  
BS6853 Annex D



**Oil Resistant**  
IRM 902



**Ozone Resistant**  
EN50305



**Toxicity Index**  
BS 6853 Annex B.1  
BS S 7239



**Cold Resistant @-40°C**  
EN 60811-1-4

## Product List

Conductor		Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)	mm	mm	Ø (mm)	kg / km
1.5	1.5	1.3	1.4	7.1	60
2.5	1.9	1.3	1.4	7.5	75
4	2.5	1.3	1.4	8.0	90
6	3.1	1.3	1.4	8.6	110
10	3.9	1.5	1.4	9.9	170
16	5.2	1.5	1.4	11.1	240
25	6.5	1.8	1.4	13.1	340
35	7.7	1.8	1.4	14.4	440
50	9.3	1.8	1.4	15.9	590
70	11.2	1.8	1.5	17.9	800
95	12.8	2.2	1.5	20.4	1100
120	14.6	2.2	1.6	22.3	1300
150	16.2	2.2	1.6	23.9	1600
185	17.8	2.4	1.7	26.2	1900
240	20.5	2.4	1.8	29.0	2400
300	22.8	2.4	1.9	31.6	3000
400	26.1	2.6	2.0	35.5	4300

\* Other range on request.

HF-RMSG-HT EN50382-2 3.6/6kV

# Single Core High Temperature Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)
- Stranded annealed copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50382-2

## Insulation

- Low smoke, Halogen free silicone rubber according to EN50382-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50382-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	120°C / 150°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Auxiliary circuits at line voltage / Traction circuits / Electric heating fed at line voltage run, exposed

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
N50264-1 Annex B  
EN60684-2



**Flame Retardant**  
EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**  
EN61034-2  
BS6853 Annex D



**Oil Resistant**  
IRM 902



**Ozone Resistant**  
EN50305



**Toxicity Index**  
BS 6853 Annex B.1  
BS S 7239



**Cold Resistant  
@-40°C**  
EN 60811-1-4

## Product List

Conductor		Insulation Thickness	Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
Cross Section (mm <sup>2</sup> )	Ø (mm)				
2.5	1.9	2.6	1.4	10.2	120
4	2.5	2.6	1.4	10.7	140
6	3.1	2.6	1.4	11.2	160
10	3.9	2.6	1.4	12.2	210
16	5.2	2.6	1.4	13.4	290
25	6.5	2.9	1.4	15.4	400
35	7.7	2.9	1.4	16.7	510
50	9.3	2.9	1.5	18.4	650
70	11.2	2.9	1.5	20.2	880
95	12.8	2.9	1.6	22.0	1100
120	14.6	2.9	1.6	23.6	1400
150	16.2	2.9	1.7	25.4	1600
185	17.8	3.2	1.8	28.1	2000
240	20.6	3.4	1.9	31.3	2600
300	22.8	3.4	1.9	33.7	3200
400	26.1	3.4	2.0	37.2	4400

\* Other range on request.

HF-RMSG-RD EN50264-3-2 300/500V

# Multi-Core Unscreened Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-2

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Internal safe circuits / Control and monitoring circuits

## Properties



**Halogen Free**

EN50267-2-1  
EN50267-2-2  
EN50264-1 Annex B  
EN60684-2



**Flame Retardant**

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**

EN61034-2



**Oil Resistant**

IRM 902  
IRM 903



**Ozone Resistant**

EN50305



**Toxicity Index**

BS 6853 Annex B.1



**Cold Resistant  
@-40°C**

EN 60811-1-4

## Product List

Number of Cores	Conductor		Insulation Thickness mm	Sheath Thickness mm	Nominal Cable O.D. Ø (mm)	Approx. Cable Weight kg / km
	Cross Section (mm <sup>2</sup> )	Ø (mm)				
2	1.0	1.3	0.4	0.6	5.9	40
4	1.0	1.3	0.4	0.6	6.8	72
7	1.0	1.3	0.4	0.7	8.3	120
9	1.0	1.3	0.4	0.7	9.7	150
12	1.0	1.3	0.4	0.7	10.9	190
19	1.0	1.3	0.4	0.8	13.0	300
24	1.0	1.3	0.4	1.0	15.6	400
32	1.0	1.3	0.4	1.0	17.2	510
37	1.0	1.3	0.4	1.0	17.9	580
40	1.0	1.3	0.4	1.0	18.6	630
4	1.5	1.5	0.5	0.7	8.1	95
7	1.5	1.5	0.5	0.7	9.6	170
9	1.5	1.5	0.5	1.0	11.9	230
12	1.5	1.5	0.5	1.0	13.3	290
19	1.5	1.5	0.5	1.0	15.6	440
24	1.5	1.5	0.5	1.2	18.7	570
32	1.5	1.5	0.5	1.2	20.5	740
37	1.5	1.5	0.5	1.2	21.3	840
4	2.5	1.9	0.5	0.7	9.1	130
7	2.5	1.9	0.5	0.8	11.1	250
9	2.5	1.9	0.5	1.0	13.5	340
12	2.5	1.9	0.5	1.0	15.1	430
24	2.5	1.9	0.5	1.2	21.3	850

\* Other range on request.

HF-RMSG-RD EN50264-3-2 300/500V

# Multi-Core Screened Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-2

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Screen

- Tinned copper braid

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C
• Allowable Min. bending radius	10D

\* D: Cable O.D

## Application

• Internal safe circuits / Control and monitoring circuits

## Properties



**Halogen Free**

EN50267-2-1  
EN50267-2-2  
EN50264-1 Annex B  
EN60684-2



**Flame Retardant**

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**

EN61034-2



**Oil Resistant**

IRM 902  
IRM 903



**Ozone Resistant**

EN50305



**Toxicity Index**

BS 6853 Annex B.1



**Cold Resistant  
@-40°C**

EN 60811-1-4

## Product List

Number of Cores	Conductor		Insulation Thickness mm	Sheath Thickness mm	Nominal Cable O.D. Ø (mm)	Approx. Cable Weight kg / km
	Cross Section (mm <sup>2</sup> )	Ø (mm)				
2	1.0	1.3	0.4	0.6	6.7	58
4	1.0	1.3	0.4	0.6	7.7	87
7	1.0	1.3	0.4	0.7	9.2	140
9	1.0	1.3	0.4	0.7	10.8	180
12	1.0	1.3	0.4	0.7	12.0	230
19	1.0	1.3	0.4	0.8	14.4	340
24	1.0	1.3	0.4	1.0	17.0	440
32	1.0	1.3	0.4	1.0	18.6	550
37	1.0	1.3	0.4	1.0	19.2	610
40	1.0	1.3	0.4	1.0	19.9	660
4	1.5	1.5	0.5	0.7	8.9	120
7	1.5	1.5	0.5	0.7	10.7	190
9	1.5	1.5	0.5	1.0	13.0	260
12	1.5	1.5	0.5	1.0	14.4	320
19	1.5	1.5	0.5	1.0	16.9	480
24	1.5	1.5	0.5	1.2	20.0	610
32	1.5	1.5	0.5	1.2	21.9	770
37	1.5	1.5	0.5	1.2	22.7	870
4	2.5	1.9	0.5	0.7	10.2	170
7	2.5	1.9	0.5	0.8	12.3	270
9	2.5	1.9	0.5	1.0	14.9	370
12	2.5	1.9	0.5	1.0	16.5	470
24	2.5	1.9	0.5	1.2	22.7	870

\* Other range on request.

# HF-RMSG-RD EN50264-3-2 0.6/1 kV Multi-Core Unscreened Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-2

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C

## Installation (allowable bending radius)

For diameter (mm)	Fixed installation	Careful bending
		(once only at termination)
≤ 12	4D	3D
>12	6D	4D

\* D: Cable O.D

## Application

• Lighting circuits / Auxiliary and electric heating circuits / Control and monitoring circuits

## Properties



**Halogen Free**

EN50267-2-1  
EN50267-2-2  
EN50264-1 Annex B  
EN60684-2



**Flame Retardant**

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**

EN61034-2



**Oil Resistant**

IRM 902  
IRM 903



**Ozone Resistant**

EN50305



**Toxicity Index**

BS 6853 Annex B.1



**Cold Resistant  
@-40°C**

EN 60811-1-4

## Product List

Number of Cores	Conductor		Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
	Cross Section (mm <sup>2</sup> )	Ø (mm)	mm	Ø (mm)	kg / km
2	1.5	1.5	0.7	7.8	63
2	2.5	1.9	0.7	8.7	85
2	4	2.5	0.7	9.7	117
2	6	3.1	0.8	10.9	160
2	10	3.9	1.0	13.2	260
2	16	5.2	1.0	15.4	380
2	25	6.5	1.2	19.4	580
2	35	7.7	1.2	22.1	770
2	50	9.3	1.4	25.9	1100
3	1.5	1.5	0.7	8.3	85
3	2.5	1.9	0.7	9.2	120
3	4	2.5	0.7	10.3	170
3	6	3.1	0.8	11.6	230
3	10	3.9	1.0	14.1	360
3	16	5.2	1.0	16.4	550
3	25	6.5	1.2	20.1	840
3	35	7.7	1.2	23.5	1100
3	50	9.3	1.4	27.6	1600
4	1.5	1.5	0.7	9.1	110
4	2.5	1.9	0.7	10.1	150
4	4	2.5	0.8	11.6	210
4	6	3.1	1.0	13.2	290
4	10	3.9	1.0	15.5	470
4	25	6.5	1.4	23.3	1100

\* Other range on request.

HF-RMSG-RD EN50264-3-2 0.6/1 kV

# Multi-Core Screened Power Cables



## Conductor

- Stranded tinned copper, Class 5 according to EN60228(IEC60228)

## Design Standard

- EN50264-3-2

## Insulation

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Sheath

- Low smoke, Halogen free compound according to EN50264-1
- Black (unless otherwise specified)

## Screen

- Tinned copper braid

## Technical Data

• Physical properties	Extra low temperature, oil resistance
• Normal operating conductor temperature	90°C
• Min. Ambient temperature for use	-40°C
• Allowable Min. bending radius	10D

\* D: Cable O.D

## Application

• Lighting circuits / Auxiliary and electric heating circuits / Control and monitoring circuits

## Properties



**Halogen Free**

EN50267-2-1  
EN50267-2-2  
EN50264-1 Annex B  
EN60684-2



**Flame Retardant**

EN60332-1-2  
EN60332-3-24  
EN60332-3-25



**Low Smoke**

EN61034-2



**Oil Resistant**

IRM 902  
IRM 903



**Ozone Resistant**

EN50305



**Toxicity Index**

BS 6853 Annex B.1



**Cold Resistant**

@-40°C  
EN 60811-1-4

## Product List

Number of Cores	Conductor		Sheath Thickness	Nominal Cable O.D.	Approx. Cable Weight
	Cross Section (mm <sup>2</sup> )	Ø (mm)	mm	Ø (mm)	kg / km
2	1.5	1.5	0.7	8.6	88
2	2.5	1.9	0.7	9.5	110
2	4	2.4	0.7	10.8	160
2	6	3.0	0.8	12.1	210
2	10	3.9	1.0	14.3	310
2	16	5.0	1.0	16.8	470
2	25	6.4	1.2	20.8	690
2	35	7.7	1.2	23.7	920
2	50	9.2	1.4	27.5	1300
3	1.5	1.5	0.7	9.1	110
3	2.5	1.9	0.7	10.0	150
3	4	2.4	0.7	11.4	210
3	6	3.0	0.8	12.7	280
3	10	3.9	1.0	15.4	440
3	16	5.0	1.0	17.8	640
3	25	6.4	1.2	22.1	950
3	35	7.7	1.2	25.1	1300
3	50	9.2	1.4	29.2	1800
4	1.5	1.9	0.7	9.9	136
4	2.5	2.4	0.7	11.2	193
4	4	3.0	0.8	12.6	260
4	6	3.9	1.0	14.3	360
4	10	5.0	1.0	16.9	550
4	25	6.4	1.4	24.9	1260

\* Other range on request.





# Convenience for High Speed Technology

The Leading Solution Provider, LS Cable & System introduced a new marketing concept, which is providing collected items applicable to an industry as a package instead of separately providing a single item. These LS Cable & System's business solutions are applicable to following industries :  
Wind Power Generation, Railway & Rolling stock, Airport, Power Transmission & distribution, Marine & Offshore, and Automotive.  
The Application Business manages various departments and their products to satisfy our customers' specific needs and convenience.

LSRS EN50306-2 300/500V

# Thin Wall Single Core Unsheathed Light Weight Control Cables



## Conductor

- Tinned copper wires according to EN50306-2

## Insulation

- Low-Smoke, Halogen-Free irradiated compound
- White - unless otherwise specified

## Use Condition

• Voltage	• 300/500V (a.c.) • 450/750V (d.c.)
• Dielectric withstanding voltage (5min.)	2000V (a.c.)
• Permissible conductor temperature	-40°C ~ 125°C
• Maximum continuous operating temperature (Based on EN50306-1:2002)	105°C

## Cable Properties

• Vertical flame test (Single-wire)	-	EN60332-1-2 (EN50265-2-1)
• Vertical flame test (Multi-wires)	-	EN50305 9.1.2
• Toxicity test	ITC 6	EN50305 9.2
• Halogen gas volume	5mg/g	EN50267-2-1
• Corrosivity of combustion gases	pH 4.3 Conductivity 10 $\mu$ S/mm	EN50267-2-2
• Smoke density test	Transmissivity 70%	EN61034-2 (EN50268-2)

## Application

This wire is applied to fixed internal wiring for a train, single-core cable for vehicles, and rating voltage to ground is 300V or less. (Reference : EN50355:2003 EN50343:2003)

**Product List** (Thin Wall, Single Core Unsheathed - 300V/500V)

Part Number	Cross Sectional Area	Conductor (Construction)	Diameter		Insulation Thickness	Cable Diameter		Conductor Resistance	Weight	
			Min.	Max.		Min.	Max.		Copper	Cable
	mm <sup>2</sup>	n x m	mm	mm	mm	mm	mm	Max. Ω/km	kg/km	kg/km
LSRS 1x0.50SQ	0.50	19*0.18	0.80	0.95	0.18	1.15	1.45	40.1	4.5	7
LSRS 1x0.75SQ	0.75	37*0.16"	1.00	1.15	0.18	1.35	1.65	26.7	6.9	8
LSRS 1x1.0SQ	1.0	37*0.18"	1.10	1.30	0.18	1.45	1.80	20.0	8.8	10
LSRS 1x1.5SQ	1.5	37*0.23"	1.45	1.65	0.22	1.95	2.21	13.7	1.3	20
LSRS 1x2.5SQ	2.5	37*0.30"	1.85	2.15	0.28	2.50	2.75	8.21	2.2	25

\* Other range on request.

LSRS-SB EN50306-3 300/500V

# Thin Wall Single Core and Multi Core Screened and Sheathed Light Weight Control Cable



## Conductor

- Tinned copper wires according to EN50306-2

## Overall Screen

- Tinned copper wires

## Insulation

- Low-Smoke, Halogen-Free irradiated compound
- Black - unless otherwise specified

## Use Condition

• Voltage (U/U)	• 300/500V (a.c.) • 450/750V (d.c.)
• Dielectric withstanding voltage (5min.)	2000V (a.c.)
• Permissible conductor temperature	-40°C ~ 125°C
• Maximum continuous operating temperature (Based on EN50306-1:2002)	105°C

## Cable Properties

• Vertical flame test (Single-wire)	-	EN60332-1-2 (EN50265-2-1)
• Vertical flame test (Multi-wires)	-	EN50305 9.1.1 / 9.1.2
• Toxicity test	• Insulation : ITC 6 • Sheath : ITC 3	EN50305 9.2
• Halogen gas volume	5mg/g	EN50267-2-1
• Corrosivity of combustion gases	pH 4.3 Conductivity 10 $\mu$ s/mm	EN50267-2-2
• Smoke density test	Transmissivity 70%	EN61034-2 (EN50268-2)

## Application

This cable is applied to fixed internal wiring for a train, multi-core cable for vehicles, and rating voltage to ground is 300V or less. (Reference : EN50355:2003 EN50343:2003)

**Product List** (Thin Wall, Single Core and Multi Core Screened and Sheathed - 300V/500V)

Part Number	Cross Sectional Area mm <sup>2</sup>	Sheath Thickness mm	Cable Diameter		Weight Cable kg/km
			Min. mm	Max. mm	
LSRS-SB EN50306-3 1x0.5SQ	1*0.5	0.20	2.3	2.8	13
LSRS-SB EN50306-3 2x0.5SQ	2*0.5	0.20	3.5	4.3	27
LSRS-SB EN50306-3 3x0.5SQ	3*0.5	0.20	3.7	4.5	34
LSRS-SB EN50306-3 4x0.5SQ	4*0.5	0.20	4.0	5.0	41
LSRS-SB EN50306-3 1x0.75SQ	1*0.75	0.20	2.5	3.0	17
LSRS-SB EN50306-3 2x0.75SQ	2*0.75	0.20	3.9	4.7	34
LSRS-SB EN50306-3 3x0.75SQ	3*0.75	0.20	4.0	5.0	42
LSRS-SB EN50306-3 4x0.75SQ	4*0.75	0.20	4.5	5.5	56
LSRS-SB EN50306-3 1x1.0SQ	1*1.0	0.20	2.7	3.2	20
LSRS-SB EN50306-3 2x1.0SQ	2*1.0	0.20	4.2	5.2	40
LSRS-SB EN50306-3 3x1.0SQ	3*1.0	0.20	4.5	5.5	55
LSRS-SB EN50306-3 4x1.0SQ	4*1.0	0.20	5.0	6.0	67
LSRS-SB EN50306-3 1x1.5SQ	1*1.5	0.20	3.1	3.6	28
LSRS-SB EN50306-3 2x1.5SQ	2*1.5	0.20	5.1	6.1	62
LSRS-SB EN50306-3 3x1.5SQ	3*1.5	0.20	5.4	6.4	79
LSRS-SB EN50306-3 4x1.5SQ	4*1.5	0.20	6.0	7.0	97
LSRS-SB EN50306-3 1x2.5SQ	1*2.5	0.20	3.6	4.4	41
LSRS-SB EN50306-3 2x2.5SQ	2*2.5	0.20	6.4	7.4	87
LSRS-SB EN50306-3 3x2.5SQ	3*2.5	0.20	6.8	7.8	115
LSRS-SB EN50306-3 4x2.5SQ	4*2.5	0.20	7.5	8.5	144

\* Other range on request.

LSRS EN50306-4 300/500V

# Standard Wall Multi Core Unscreened and Sheathed Light Weight Control Cable, Class E (Exposed) and Class P (Protected)



## Conductor

- Tinned copper wires according to EN50306-2

## Insulation

- 90°C/105°C Low-Smoke, Halogen-Free irradiated compound
- White - unless otherwise specified

## Use Condition

• Voltage (U/U)	• 300/500V (a.c.) • 450/750V (d.c.)
• Dielectric withstanding voltage (5min.)	2000V (a.c.)
• Permissible conductor temperature	-40°C ~ 125°C
• Maximum continuous operating temperature (Based on EN50306-1:2002)	105°C

## Cable Properties

• Vertical flame test (Single-wire)	-	EN60332-1-2 (EN50265-2-1)
• Vertical flame test (Multi-wires)	-	EN50305 9.1.1 / 9.1.2
• Toxicity test	• Insulation : ITC 6 • Sheath : ITC 3	EN50305 9.2
• Halogen gas volume	5mg/g	EN50267-2-1
• Corrosivity of combustion gases	pH 4.3 Conductivity 10 $\mu$ s/mm	EN50267-2-2
• Smoke density test	Transmissivity 70%	EN61034-2 (EN50268-2)

## Application

This cable is applied to fixed internal wiring for a train, multi-core cable for vehicles, and rating voltage to ground is 300V or less. (Reference : EN50355:2003 EN50343:2003)

**Product List** (Thin Wall, Multi Core Unscreened and Sheathed - 300V/500V)

Part Number	Cross Sectional Area	Cables Class E (Exposed)			
		Sheath Thickness	Overall Diameter		Weight
			Min. mm	Max. mm	
LSRS EN50306-4 1E 4x0.50SQ	4*0.5	1.0	5.5	6.5	45
LSRS EN50306-4 1E 7x0.50SQ	7*0.5	1.0	6.3	7.3	69
LSRS EN50306-4 1E 13x0.50SQ	13*0.5	1.0	8.3	9.3	116
LSRS EN50306-4 1E 19x0.50SQ	19*0.5	1.0	9.0	10.2	151
LSRS EN50306-4 1E 37x0.50SQ	37*0.5	1.0	12.3	13.5	288
LSRS EN50306-4 1E 4x0.75SQ	4*0.75	1.0	6.0	7.0	58
LSRS EN50306-4 1E 7x0.75SQ	7*0.75	1.0	6.9	7.9	88
LSRS EN50306-4 1E 13x0.75SQ	13*0.75	1.0	9.1	10.3	148
LSRS EN50306-4 1E 19x0.75SQ	19*0.75	1.0	10.0	11.2	201
LSRS EN50306-4 1E 37x0.75SQ	37*0.75	1.0	13.2	14.4	364
LSRS EN50306-4 1E 48x0.75SQ	48*0.75	1.0	14.8	16.4	463
LSRS EN50306-4 1E 4x1.0SQ	4*1.0	1.0	6.3	7.3	68
LSRS EN50306-4 1E 7x1.0SQ	7*1.0	1.0	7.3	8.3	106
LSRS EN50306-4 1E 13x1.0SQ	13*1.0	1.0	9.7	10.9	182
LSRS EN50306-4 1E 19x1.0SQ	19*1.0	1.0	10.7	11.9	247
LSRS EN50306-4 1E 37x1.0SQ	37*1.0	1.0	14.0	15.6	451
LSRS EN50306-4 1E 4x1.5SQ	4*1.5	1.0	7.4	8.4	99
LSRS EN50306-4 1E 7x1.5SQ	7*1.5	1.0	8.6	9.8	153
LSRS EN50306-4 1E 13x1.5SQ	13*1.5	1.0	11.7	12.9	271
LSRS EN50306-4 1E 19x1.5SQ	19*1.5	1.0	13.0	14.2	373
LSRS EN50306-4 1E 37x1.5SQ	37*1.5	1.0	17.2	18.8	688
LSRS EN50306-4 1E 2x2.5SQ	2*2.5	1.0	7.7	8.7	87
LSRS EN50306-4 1E 3x2.5SQ	3*2.5	1.0	8.1	9.1	118
LSRS EN50306-4 1E 4x2.5SQ	4*2.5	1.0	8.8	10.0	147

\* Other range on request.

Part Number	Cables Class P (Protected)			
	Sheath Thickness	Overall Diameter		Weight
		mm	Min. mm	
LSRS EN50306-4 1P 4X0.50SQ	0.42	4.1	5.1	32
LSRS EN50306-4 1P 7X0.50SQ	0.42	4.9	5.9	51
LSRS EN50306-4 1P 13X0.50SQ	0.56	7.3	8.3	98
LSRS EN50306-4 1P 19X0.50SQ	0.56	8.1	9.1	135
LSRS EN50306-4 1P 37X0.50SQ	0.56	10.8	12.0	246
LSRS EN50306-4 1P 4X0.75SQ	0.42	4.6	5.6	42
LSRS EN50306-4 1P 7X0.75SQ	0.42	5.5	6.5	68
LSRS EN50306-4 1P 13X0.75SQ	0.56	8.2	9.2	130
LSRS EN50306-4 1P 19X0.75SQ	0.56	9.0	10.2	184
LSRS EN50306-4 1P 37X0.75SQ	0.56	12.2	13.4	338
LSRS EN50306-4 1P 48X0.75SQ	0.56	13.9	15.5	440
LSRS EN50306-4 1P 4X1.0SQ	0.42	4.9	5.9	53
LSRS EN50306-4 1P 7X1.0SQ	0.42	6.0	7.0	88
LSRS EN50306-4 1P 13X1.0SQ	0.56	8.7	9.9	163
LSRS EN50306-4 1P 19X1.0SQ	0.56	9.8	11.0	229
LSRS EN50306-4 1P 37X1.0SQ	0.56	13.3	14.5	430
LSRS EN50306-4 1P 4X1.5SQ	0.42	6.0	7.0	79
LSRS EN50306-4 1P 7X1.5SQ	0.56	7.7	8.7	136
LSRS EN50306-4 1P 13X1.5SQ	0.56	10.7	11.9	248
LSRS EN50306-4 1P 19X1.5SQ	0.56	12.0	13.2	347
LSRS EN50306-4 1P 37X1.5SQ	0.56	16.2	17.8	651
LSRS EN50306-4 1P 2X2.5SQ	0.56	6.7	7.7	74
LSRS EN50306-4 1P 3X2.5SQ	0.56	7.7	8.1	111
LSRS EN50306-4 1P 4X2.5SQ	0.56	7.9	8.9	139

\* Other range on request.

LSRS-SB EN50306-4 300/500V

# Standard Wall Multi Core Screened and Sheathed Light Weight Control Cable, Class E (Exposed) and Class P (Protected)

300V EN50306-4 LSRS-SB &lt;Size&gt; MM 120 LS CABLE &lt;Year&gt;

- INSULATION**  
Halogen free compound
- CONDUCTOR**  
Stranded tinned copper Class 5
- OVERALL SCREEN**  
Stranded tinned copper Class 5
- SHEATH**  
Halogen free compound

## Conductor

- Tinned copper wires according to EN50306-2

## Insulation

- 90°C/105°C Low-Smoke, Halogen-Free irradiated compound
- White - unless otherwise specified

## Use Condition

• Voltage (U/U)	• 300/500V (a.c.) • 450/750V (d.c.)
• Dielectric withstanding voltage (5min.)	2000V (a.c.)
• Permissible conductor temperature	-40°C ~ 125°C
• Maximum continuous operating temperature (Based on EN50306-1:2002)	105°C

## Overall Screen

- Tinned copper wires

## Sheath

- Low-Smoke, Halogen-Free Irradiated compound (S2,EM 101 to EM 104)
- Black - unless otherwise specified

## Cable Properties

• Vertical flame test (Single-wire)	-	EN60332-1-2 (EN50265-2-1)
• Vertical flame test (Multi-wires)	-	EN50305 9.1.1 / 9.1.2
• Toxicity test	• Insulation : ITC 6 • Sheath : ITC 3	EN50305 9.2
• Halogen gas volume	5mg/g	EN50267-2-1
• Corrosivity of combustion gases	pH 4.3 Conductivity 10 $\mu$ s/mm	EN50267-2-2
• Smoke density test	Transmissivity 70%	EN61034-2 (EN50268-2)

## Application

This cable is applied to fixed internal wiring for a train, multi-core cable for vehicles, and rating voltage to ground is 300V or less. (Reference : EN50355:2003 EN50343:2003)

**Product List** (Thin Wall, Multi Core Screened and Sheathed - 300V/500V)

Part Number	Cross Sectional Area	Cables Class E (Exposed)			
		Sheath Thickness	Overall Diameter		Weight
			Min. mm	Max. mm	
LSRS-SB EN50306-4 3E 2X0.50SQ	2*0.5	1.0	5.5	6.5	46
LSRS-SB EN50306-4 3E 3X0.50SQ	3*0.5	1.0	5.7	6.7	54
LSRS-SB EN50306-4 3E 4X0.50SQ	4*0.5	1.0	6.1	7.1	64
LSRS-SB EN50306-4 3E 6X0.50SQ	6*0.5	1.0	6.9	7.9	87
LSRS-SB EN50306-4 3E 8X0.50SQ	8*0.5	1.0	7.5	8.5	107
LSRS-SB EN50306-4 3E 2X0.75SQ	2*0.75	1.0	5.9	6.9	56
LSRS-SB EN50306-4 3E 3X0.75SQ	3*0.75	1.0	6.2	7.2	65
LSRS-SB EN50306-4 3E 4X0.75SQ	4*0.75	1.0	6.5	7.5	79
LSRS-SB EN50306-4 3E 6X0.75SQ	6*0.75	1.0	7.5	8.5	106
LSRS-SB EN50306-4 3E 8X0.75SQ	8*0.75	1.0	8.2	9.2	133
LSRS-SB EN50306-4 3E 2X1.0SQ	2*1.0	1.0	6.2	7.2	62
LSRS-SB EN50306-4 3E 3X1.0SQ	3*1.0	1.0	6.5	7.5	79
LSRS-SB EN50306-4 3E 4X1.0SQ	4*1.0	1.0	6.9	7.9	93
LSRS-SB EN50306-4 3E 6X1.0SQ	6*1.0	1.0	8.0	9.0	128
LSRS-SB EN50306-4 3E 8X1.0SQ	8*1.0	1.0	8.6	9.8	157
LSRS-SB EN50306-4 3E 2X1.5SQ	2*1.5	1.0	7.1	8.1	85
LSRS-SB EN50306-4 3E 3X1.5SQ	3*1.5	1.0	7.4	8.4	103
LSRS-SB EN50306-4 3E 4X1.5SQ	4*1.5	1.0	8.0	9.0	127
LSRS-SB EN50306-4 3E 6X1.5SQ	6*1.5	1.0	9.2	10.4	174
LSRS-SB EN50306-4 3E 8X1.5SQ	8*1.5	1.0	10.2	11.4	218
LSRS-SB EN50306-4 3E 2X2.5SQ	2*2.5	1.0	8.3	9.3	117
LSRS-SB EN50306-4 3E 3X2.5SQ	3*2.5	1.0	8.6	9.8	145
LSRS-SB EN50306-4 3E 4X2.5SQ	4*2.5	1.0	9.4	10.6	180

\* Other range on request.

Part Number	Cables Class P (Protected)			
	Sheath Thickness	Overall Diameter		Weight
		mm	Min. mm	
LSRS-SB EN50306-4 3P 2X0.50SQ	0.42	4.1	5.1	33
LSRS-SB EN50306-4 3P 3X0.50SQ	0.42	4.3	5.3	39
LSRS-SB EN50306-4 3P 4X0.50SQ	0.56	4.7	5.7	48
LSRS-SB EN50306-4 3P 6X0.50SQ	0.56	5.5	6.5	70
LSRS-SB EN50306-4 3P 8X0.50SQ	0.56	6.0	7.0	88
LSRS-SB EN50306-4 3P 2X0.75SQ	0.42	4.5	5.5	39
LSRS-SB EN50306-4 3P 3X0.75SQ	0.42	4.7	5.7	49
LSRS-SB EN50306-4 3P 4X0.75SQ	0.56	5.2	6.2	63
LSRS-SB EN50306-4 3P 6X0.75SQ	0.56	6.1	7.1	87
LSRS-SB EN50306-4 3P 8X0.75SQ	0.56	6.6	7.6	113
LSRS-SB EN50306-4 3P 2X1.0SQ	0.42	4.7	5.7	47
LSRS-SB EN50306-4 3P 3X1.0SQ	0.42	5.1	6.0	62
LSRS-SB EN50306-4 3P 4X1.0SQ	0.56	5.5	6.5	76
LSRS-SB EN50306-4 3P 6X1.0SQ	0.56	6.6	7.6	105
LSRS-SB EN50306-4 3P 8X1.0SQ	0.56	7.7	8.7	140
LSRS-SB EN50306-4 3P 2X1.5SQ	0.42	5.7	6.7	67
LSRS-SB EN50306-4 3P 3X1.5SQ	0.56	6.0	7.0	85
LSRS-SB EN50306-4 3P 4X1.5SQ	0.56	6.6	7.6	104
LSRS-SB EN50306-4 3P 6X1.5SQ	0.56	8.3	9.3	155
LSRS-SB EN50306-4 3P 8X1.5SQ	0.56	8.9	10.1	198
LSRS-SB EN50306-4 3P 2X2.5SQ	0.56	7.3	8.3	100
LSRS-SB EN50306-4 3P 3X2.5SQ	0.56	7.7	8.7	127
LSRS-SB EN50306-4 3P 4X2.5SQ	0.56	8.4	9.6	158

\* Other range on request.

## LSRS EN50306-4 300/500V

# Standard Wall Multi Pair, Individually Screened and Sheathed Light Weight Control Cable, Class E (Exposed) and Class P (Protected)



## Conductor

- Tinned copper wires according to EN50306-2

## Insulation

- 90°C/105°C Low-Smoke, Halogen-Free irradiated compound
- White - unless otherwise specified

## Use Condition

• Voltage (U/U)	• 300/500V (a.c.) • 450/750V (d.c.)
• Dielectric withstanding voltage (5min.)	2000V (a.c.)
• Permissible conductor temperature	-40°C ~ 125°C
• Maximum continuous operating temperature (Based on EN50306-1:2002)	105°C

## Overall Screen

- Tinned copper wires

## Sheath

- Low-Smoke, Halogen-Free Irradiated compound (S2,EM 101 to EM 104)
- Black - unless otherwise specified

## Cable Properties

• Vertical flame test (Single-wire)	-	EN60332-1-2 (EN50265-2-1)
• Vertical flame test (Multi-wires)	-	EN50305 9.1.1 / 9.1.2
• Toxicity test	• Insulation : ITC 6 • Sheath : ITC 3	EN50305 9.2
• Halogen gas volume	5mg/g	EN50267-2-1
• Corrosivity of combustion gases	pH 4.3 Conductivity 10 $\mu$ s/mm	EN50267-2-2
• Smoke density test	Transmissivity 70%	EN61034-2 (EN50268-2)

## Application

This cable is applied to fixed internal wiring for a train, multi-core cable for vehicles, and rating voltage to ground is 300V or less. (Reference : EN50355:2003 EN50343:2003)

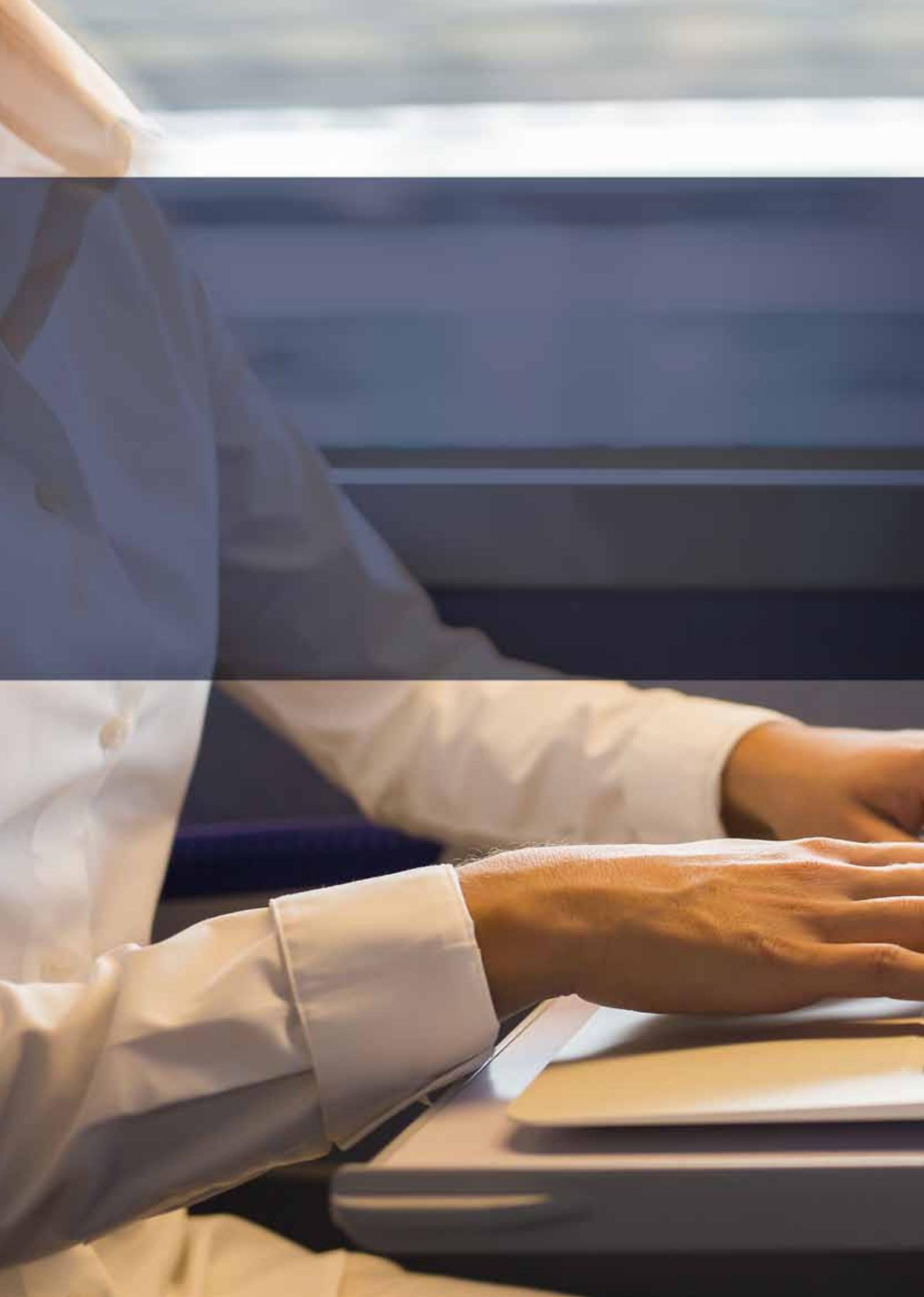
**Product List** (Thin Wall, Multi Pair Individually Screened and Sheathed - 300V/500V)

Part Number	Cross Sectional Area n x mm <sup>2</sup>	Sheath Thickness mm	Cables Class E (Exposed)		Weight Cable kg/km
			Overall Diameter		
			Min. mm	Max. mm	
LSRS EN50306-4 5E 2x2x0.50SQ	2*2*0.5	1.0	10.1	11.3	100
LSRS EN50306-4 5E 3x2x0.50SQ	3*2*0.5	1.0	10.8	12.0	148
LSRS EN50306-4 5E 4x2x0.50SQ	4*2*0.5	1.0	11.8	13.0	180
LSRS EN50306-4 5E 7x2x0.50SQ	7*2*0.5	1.0	13.9	15.5	270
LSRS EN50306-4 5E 2x2x0.750SQ	2*2*0.75	1.0	10.9	12.1	119
LSRS EN50306-4 5E 3x2x0.75SQ	3*2*0.75	1.0	11.6	12.8	174
LSRS EN50306-4 5E 4x2x0.75SQ	4*2*0.75	1.0	12.8	14.0	218
LSRS EN50306-4 5E 7x2x0.75SQ	7*2*0.75	1.0	15.1	16.7	328
LSRS EN50306-4 5E 2x2x1.05SQ	2*2*1.0	1.0	11.3	12.5	129
LSRS EN50306-4 5E 3x2x1.05SQ	3*2*1.0	1.0	12.0	13.2	191
LSRS EN50306-4 5E 4x2x1.05SQ	4*2*1.0	1.0	13.2	14.4	235
LSRS EN50306-4 5E 7x2x1.05SQ	7*2*1.0	1.0	15.7	17.3	369
LSRS EN50306-4 5E 2x2x1.55SQ	2*2*1.5	1.0	13.3	14.5	181
LSRS EN50306-4 5E 3x2x1.55SQ	3*2*1.5	1.0	14.0	15.6	264
LSRS EN50306-4 5E 4x2x1.55SQ	4*2*1.5	1.0	15.5	17.1	337
LSRS EN50306-4 5E 7x2x1.55SQ	7*2*1.5	1.0	18.7	20.3	542

\* Other range on request.

Part Number	Sheath Thickness mm	Cables Class P (Protected)		Weight Cable kg/km
		Overall Diameter		
		Min. mm	Max. mm	
LSRS EN50306-4 5P 2x2x0.50SQ	0.56	9.0	10.2	85
LSRS EN50306-4 5P 3x2x0.50SQ	0.56	9.6	10.8	118
LSRS EN50306-4 5P 4x2x0.50SQ	0.56	10.7	11.9	158
LSRS EN50306-4 5P 7x2x0.50SQ	0.56	13.0	14.2	244
LSRS EN50306-4 5P 2x2x0.750SQ	0.56	9.8	11.0	93
LSRS EN50306-4 5P 3x2x0.75SQ	0.56	10.5	11.7	147
LSRS EN50306-4 5P 4x2x0.75SQ	0.56	11.6	12.8	183
LSRS EN50306-4 5P 7x2x0.75SQ	0.56	14.0	15.6	293
LSRS EN50306-4 5P 2x2x1.05SQ	0.56	10.2	11.6	107
LSRS EN50306-4 5P 3x2x1.05SQ	0.56	10.9	12.1	163
LSRS EN50306-4 5P 4x2x1.05SQ	0.56	12.1	13.3	204
LSRS EN50306-4 5P 7x2x1.05SQ	0.56	14.6	16.2	332
LSRS EN50306-4 5P 2x2x1.55SQ	0.56	12.2	13.4	153
LSRS EN50306-4 5P 3x2x1.55SQ	0.56	13.1	14.3	232
LSRS EN50306-4 5P 4x2x1.55SQ	0.56	14.3	15.9	293
LSRS EN50306-4 5P 7x2x1.55SQ	0.56	17.6	19.2	493

\* Other range on request.

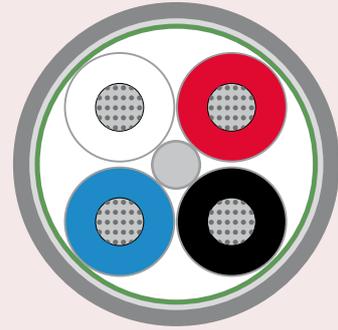




# Convenience for High Speed Technology

The Leading Solution Provider, LS Cable & System introduced a new marketing concept, which is providing collected items applicable to an industry as a package instead of separately providing a single item. These LS Cable & System's business solutions are applicable to following industries : Wind Power Generation, Railway & Rolling stock, Airport, Power Transmission & distribution, Marine & Offshore, and Automotive. The Application Business manages various departments and their products to satisfy our customers' specific needs and convenience.

## LS-MVB 4x0.5SQ, 120Ω Databus Cable



### Technical Data

• Voltage	300V
• Impedance	120Ω ± 12Ω @ 0.75~3MHz
• Temp. Range	-40°C ~ +90°C
• Attenuation	• ≤17dB/km @ 1.5MHz    • ≤25dB/km @ 3MHz

### Product List

Conductor	Cross-Section	Overall Dia.	Screen	Approx. Weight
-	mm <sup>2</sup>	mm	-	kg/km
Tinned copper	4 x 0.5	9.0	Al/Mylar tape + Tinned copper braid	100

### Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
EN60684-2



**Flame Retardant**  
IEC60332-1  
IEC 60332-3-24



**Low Smoke**  
IEC61034



**Ozone Resistant**  
EN50382



**Oil Resistant**  
IRM 902



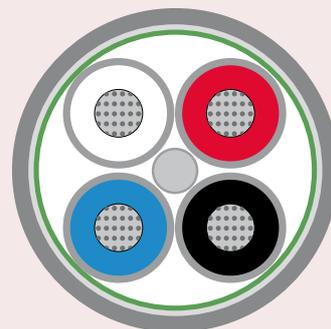
**Cold Resistant  
@-40°C**  
EN 60811-1-4

### Application

Standard communication interface for all kind of on-board equipment

LS-MVB(FR) 4x0.5SQ, 120Ω

# Databus Cable


**FIRE PROOF LAYER**

Mica tape for FR type

**INSULATION**

Foamed PE Compound

**CONDUCTOR**

Tinned annealed copper

**SCREEN**
Al/Mylar tape +  
tinned copper braid
**SHEATH**

LSZH Compound



## Technical Data

• Voltage	300V
• Impedance	120Ω ± 12Ω @ 0.75~3MHz
• Temp. Range	-40°C ~ +90°C
• Attenuation	• ≤17dB/km @ 1.5MHz • ≤25dB/km @ 3MHz
• Fire resistance	EN50200 830°C for 15 min.

## Product List

Conductor	Cross-Section	Overall Dia.	Screen	Approx. Weight
-	mm <sup>2</sup>	mm	-	kg/km
Tinned copper	4 x 0.5	9.5	Al/Mylar tape + Tinned copper braid	115

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
EN60684-2



**Flame Retardant**  
IEC60332-1  
IEC 60332-3-24



**Low Smoke**  
IEC61034



**Ozone Resistant**  
EN50382



**Oil Resistant**  
IRM 902

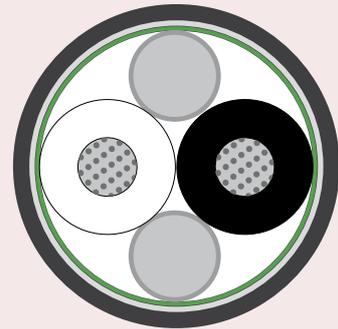


**Cold Resistant**  
@-40°C  
EN 60811-1-4

## Application

Standard communication interface for all kind of on-board equipment

## LS-WTB 2x0.75SQ, 120Ω Databus Cable



**INSULATION**  
Foamed PE Compound

**CONDUCTOR**  
Tinned annealed copper

**SCREEN**  
Al/Mylar tape +  
tinned copper braid

**SHEATH**  
LSZH Compound

### Technical Data

• Voltage	300V
• Impedance	120Ω ± 12Ω @ 0.5~2MHz
• Temp. Range	-40°C ~ +90°C
• Attenuation	• ≤11dB/km @ 1MHz    • ≤15dB/km @ 2MHz

### Product List

Conductor	Cross-Section	Overall Dia.	Screen	Approx. Weight
-	mm <sup>2</sup>	mm	-	kg/km
Tinned copper	2 x 0.75	9.0	Al/Mylar tape + Tinned copper braid	100

### Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
EN60684-2



**Flame Retardant**  
IEC60332-1  
IEC 60332-3-24



**Low Smoke**  
IEC61034



**Ozone Resistant**  
EN50382



**Oil Resistant**  
IRM 902



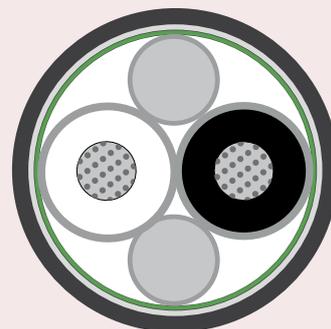
**Cold Resistant**  
@-40°C  
EN 60811-1-4

### Application

Standard communication interface between vehicles

LS-WTB(FR) 2x0.75SQ, 120Ω

# Databus Cable



**FIRE PROOF LAYER**

Mica tape for FR type

**INSULATION**

Foamed PE Compound

**CONDUCTOR**

Tinned annealed copper

**SCREEN**

Al/Mylar tape +  
tinned copper braid

**SHEATH**

LSZH Compound



## Technical Data

• Voltage	300V
• Impedance	120Ω ± 12Ω @ 0.5~2MHz
• Temp. Range	-40°C ~ +90°C
• Attenuation	• ≤11dB/km @ 1MHz    • ≤15dB/km @ 2MHz
• Fire resistance	EN50200 830°C for 15 min.

## Product List

Conductor	Cross-Section	Overall Dia.	Screen	Approx. Weight
-	mm <sup>2</sup>	mm	-	kg/km
Tinned copper	2 x 0.75	10.0	Al/Mylar tape + Tinned copper braid	120

## Properties



**Halogen Free**  
EN50267-2-1  
EN50267-2-2  
EN60684-2



**Flame Retardant**  
IEC60332-1  
IEC 60332-3-24



**Low Smoke**  
IEC61034



**Ozone Resistant**  
EN50382



**Oil Resistant**  
IRM 902



**Cold Resistant**  
@-40°C  
EN 60811-1-4

## Application

Standard communication interface between vehicles

# Recommended Current Ratings Data

## HS-RMSG-RD

### 1. Current Ratings

Conductor Cross-sectional Area sqmm	Current rating Single Cable A
1.5	30
2.5	40
4	56
6	74
10	104
16	135
25	184
35	233
50	295
70	369
95	442
120	522
150	602
185	688
240	830
300	953
400	1168

\* Based upon a 20°C ambient air temperature

\* Maximum conductor operating temperature : 90°C

### 2. Derating Factors

Temperature (°C)	Factor k <sub>t</sub> *
10	1.06
15	1.03
20	1.00
25	0.97
30	0.93
35	0.89
40	0.85
45	0.81
50	0.76
55	0.72
60	0.66
65	0.60
70	0.54
75	0.46
80	0.38
85	0.27

\* These factors are applicable to the ratings given in Table1

## EN50355 : 2003 • Annex A. Recommended current ratings for railway rolling stock cables

### 3. Current Ratings

Conductor Cross-sectional Area sqmm	Current rating Single Cable A
1.5	25
2.5	33
4	46
6	60
10	85
16	110
25	150
35	190
50	240
70	300
95	360
120	425
150	490
185	560
240	675
300	775
400	950

\* Based upon a 20°C ambient air temperature

\* Maximum conductor operating temperature : 90°C

### 4. Derating Factors

Temperature (°C)	Factor k <sub>t</sub> *
30	1.15
35	1.10
40	1.05
45	1.00
50	0.94
55	0.88
60	0.81
65	0.74
70	0.66
75	0.57
80	0.47
85	0.33

\* These factors are applicable to the ratings given in Table3

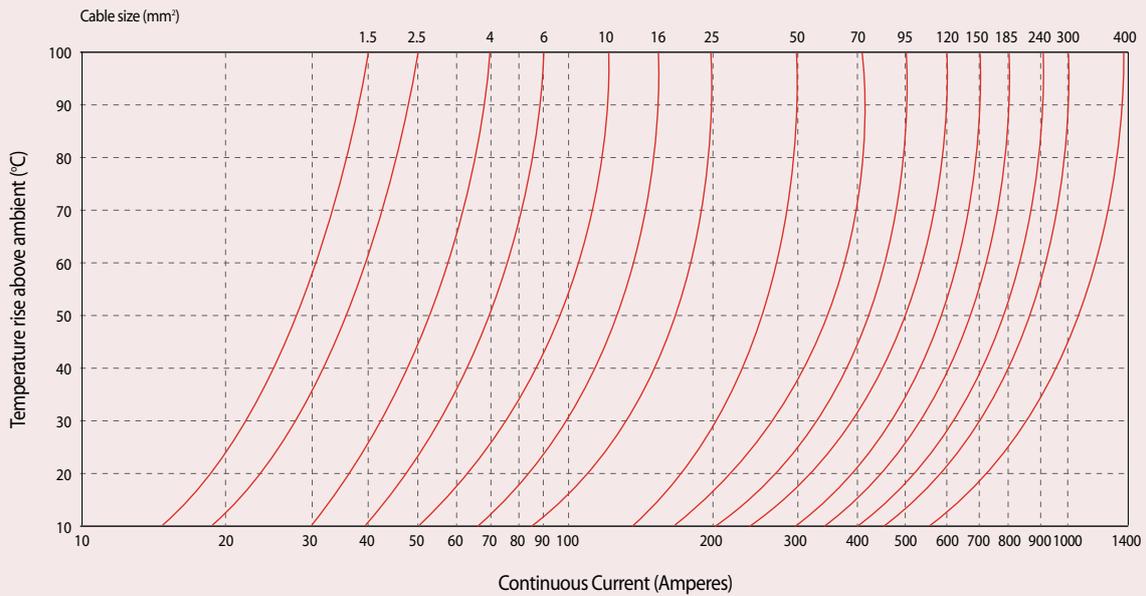
### 5. Correction factors for other ambient temperature

Temperature (°C)	Factor k <sub>t</sub> *
105	1.15
120	1.29
140	1.45
150	1.52

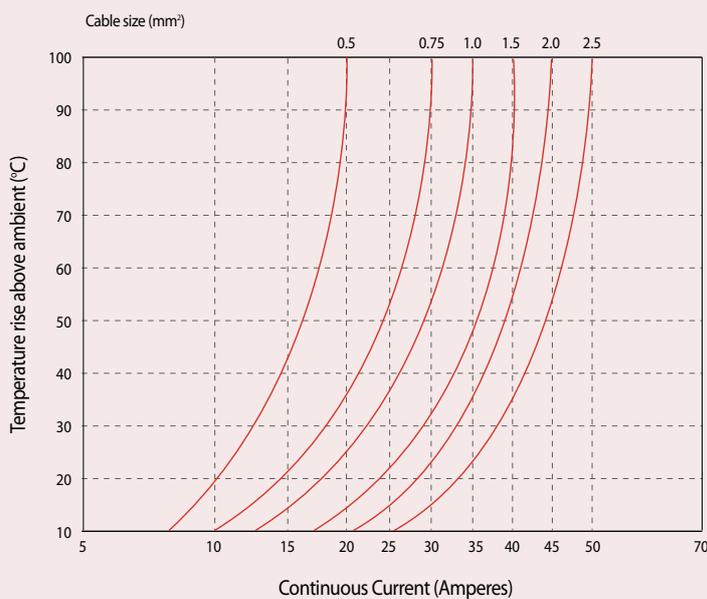
\* These factors are applicable to the ratings given in Table3

# Temperature Rise vs Current Guide

## HF-RMSG-RD (EN50264-3-1) Cables in Free Air



## LSRS Cables in Free Air (Single core)



Conductor Size (mm)	No. of Cores	Derating Factor
0.5	2	0.77
	3	0.62
	4	0.54
0.75	2	0.72
	3	0.61
1	4	0.56
	2	0.76
	3	0.67
1.5	4	0.57
	2	0.73
	3	0.63
2	4	0.57
	2	0.74
	3	0.65
2.5	4	0.56
	2	0.75
	3	0.64
	4	0.57

Table 1. Derating factors for multicore cables (LSRS-SB)

# Products & Systems of LS Cable & System

A Convenient World through the Use of Cable

## Energy Cables & Systems

LS Cable & System-setting the standards in power solution business

LS Cable & System provides highly customized electric power systems from power transmission & distribution solutions to marine, ship vessels, nuclear power and wind power systems.

Our turnkey solutions encompass the entire power transmission & distribution system from architecture, provision of raw materials, and installation, to maintenance and repair. We also lead the industry in developing cutting-edge products, such as superconducting cables, submarine cables and IT solutions for electric power.

We provide customized total solutions for a wide array of industries from nuclear power plants, manufacturing plants, railways, marine and ship vessel systems to wind power generation systems. Busduct system, which efficiently and effectively delivers high-capacity electricity, and the fire-retardant low toxic cables are a result of our decades-long commitment to creating eco-friendly products.

- Submarine Power Cable
- Superconducting Cable System
- EHV, HV, MV, LV Cable
- OHTL, OPGW
- IT Solutions for Electric Power
- Control & Instrument Cable
- Halogen-free Cable
- Busduct System
- Industrial Specialty Cable



## Telecommunications

Providing cutting-edge, innovative technologies for a ubiquitous network



Amid the convergence of broadcasting and telecommunications, and accelerating growth of broadband and wireless networks, the telecommunications industry is undergoing a major transformation. In this rapidly evolving landscape, LS Cable & System leads the industry with customized solutions and services that meets the demanding needs of our clients worldwide. We have developed the following solutions with the scalability to serve both the private and public sector: ① NI (Network Integration) / SI (System Integration), ② ITS (Intelligent Transport Solution), and ③ UTS (Ubiquitous Total Solution).

Our quest to remain at the forefront of network technology and trends has led us to develop the following cutting-edge products: fiber-optic telecom solution, 10G Ethernet-level converged integrated cabling system, RF coaxial cable system, G-PON-based FTTH solution Our broad product portfolio and technical prowess have made us a market leader in the global telecommunications industry.

- Optical Fiber, Optical Fiber Cable
- FTTH Solutions
- RF Solutions
- Wireless Transmission System
- Coaxial Cable, UTP Cable



## Integrated Modules & Cable Systems

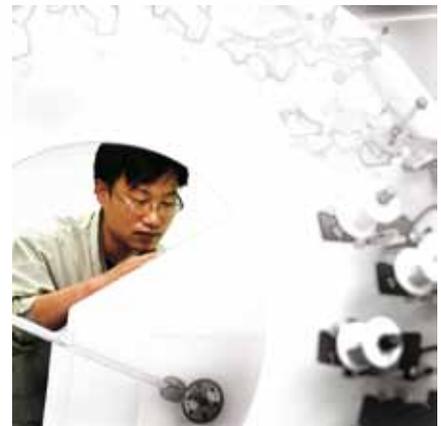
Providing the best customized cable solutions for all environments

Our dedication to meeting our clients need for faster, smaller, safer and more convenient products has kept us ahead of our peers on the technology curve. As such, our cables and modules are widely used in industrial installations, electronic devices, automobiles, aircrafts, and even military equipments and installations.

We have also maintained our commitment to developing a wide array of eco-friendly products that are safer, more efficient, and produce fewer pollutants.

Our technological breakthroughs have led us to the development of the following innovative products: FA (Factory Automation) cables for plant automation systems, eco-friendly cables for LCDs, eco-friendly PP (Polypropylene) cables for automobiles, electric solutions for hybrid vehicles, and heat shrinkable tubes that can endure temperatures up to 135°C

- Industrial Cable & Module
- Automotive Wire & Cable
- Tube Components



## Industrial Materials

Realizing a convenient future with cutting-edge materials



Based on LS Cable & System's production know-how and technologies in copper, aluminum and rubber treatment, the company is ramping up production of high value-added products, such as high-purity 8mm copper rods for vehicle wires and 0.03mm copper rod for ultra-fine wires.

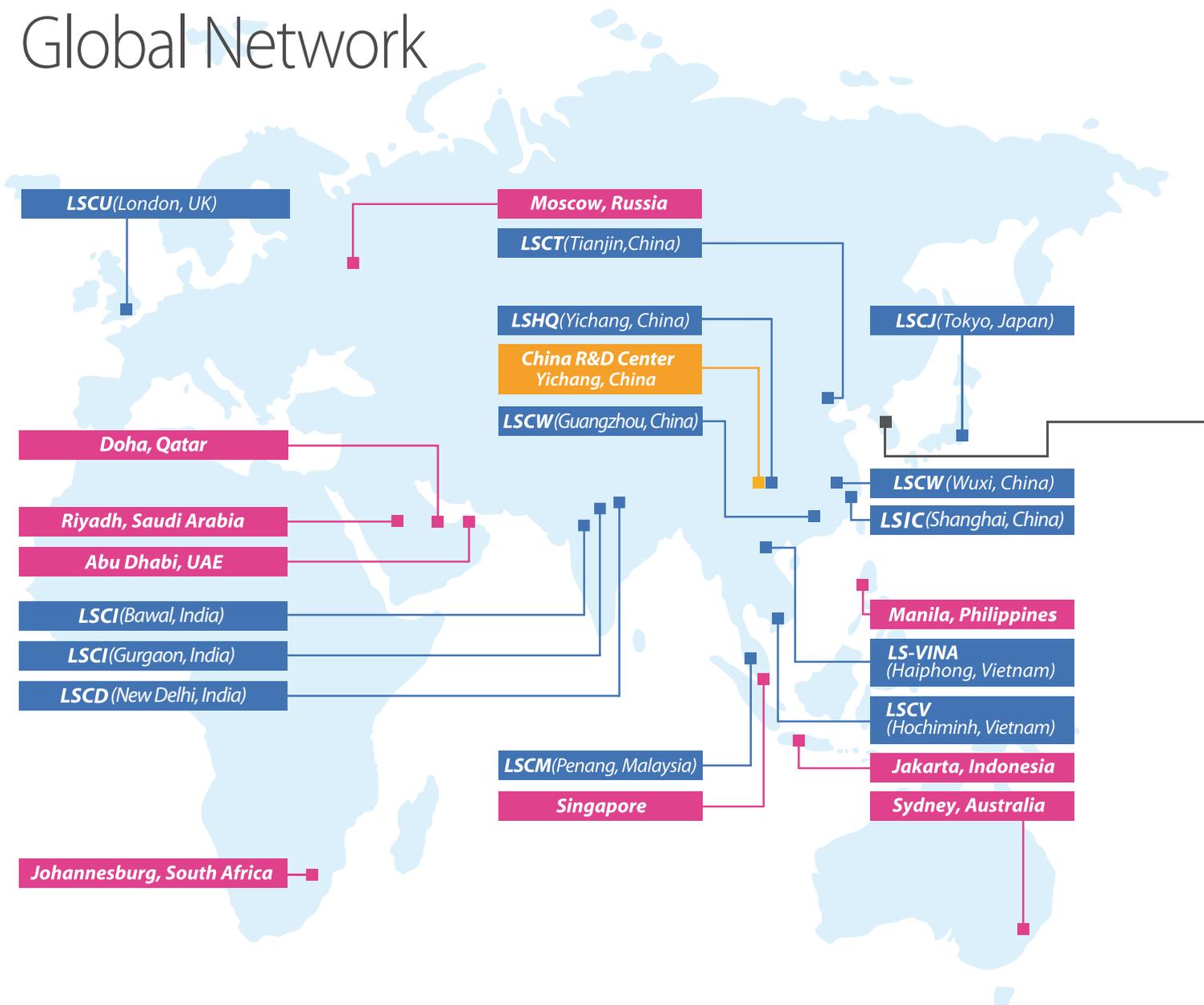
The cutting-edge technologies of our precision rectangular winding wires, suitable for hybrid vehicle motors and car generators, and eXtra Thermal Aluminum Alloy (XTAL) are bolstering LS Cable & System's brand power here and abroad. Our continuous efforts to develop innovative new materials have also led us to produce oxide free copper (OFC), alternative to copper alloy, and so on. Furthermore, all these new developments are coming about as the company makes inroads in the global cable market through its localization efforts.

With years of experience and technologies in compounding treatment, LS Cable & System produces industrial rubber products and rubber tiles, the flooring material used in construction. Global demand for our flocking-based carpet tiles, featuring excellent convenience and sanitary engineering, is booming.

- Magnet Wires
- Copper Rod
- Aluminum Materials
- Rubber Tiles



# Global Network



## Branches

### Abu Dhabi Office(U.A.E.)

Tel. +971-2-674-8780 Fax : +971-2-674-8781

### Riyadh Office(Saudi Arabia)

Tel. +966-11-269-4911

### Singapore Office(Singapore)

Tel. +65-6342-9162-3 Fax : +65-6342-9165

### Sydney Office(Australia)

Tel. +61-2-9460-0255 Fax : +61-2-9460-0355

### Moscow Office(Russia)

Tel. +7-495-258-18-05 Fax : +7-495-258-18-06

### Lima Office(Peru)

Tel. +51-1-434-6433

### Johannesburg Office(South Africa)

Tel. +27-71-688-2028 Fax : +27-11-785-8327

### Jakarta Office(Indonesia)

Tel. +62-21-7974140 / 7974013 Fax : +62-21-7993071

### Manila Office(Philippines)

Tel. +632-899-6169 Fax : +632-962-2250

### Doha Office(Qatar)

Tel. +974-4453-0333

## Subsidiaries

### LSCA(U.S.A.) : Marketing and Sales

Tel. +1-201-944-2005 Fax : +1-201-503-8130

### LSCU(U.K.) : Marketing and Sales

Tel. +44-20-8899-6671 Fax : +44-20-8899-6673

### LSCJ(Japan) : Marketing and Sales

Tel. +81-3-6205-7188 Fax : +81-3-6205-7187

### LSCD(India) : Marketing and Sales

Tel. +91-11-41064242

### LSHQ(China)

Tel. +86-717-667-7777 Fax : +86-717-667-7618

Production : Extra-High Voltage Cable, Medium & Low Voltage Cable, Overhead Transmission Line, Industrial Specialty Cable & System

### LSCT(China)

Tel. +86-22-2699-7618 Fax : +86-22-2699-7617

Production : Magnet Wire

### LSCW(China)

Tel. +86-510-8811-9000 Fax : +86-510-8534-5341

Production : Automotive Wire & Cable, Bus Duct, Electronic Wire & Cable, Tube, ACF, Accessories for EHV Cable System

### Shanghai Sales Head Office(ShangHai)

Tel. +86-21-5237-6633 Fax : +86-21-5237-8996



**LSCA (New Jersey, USA)**

**Lima, Peru**

- **LS Cable & System Branches**
- **LS Cable & System Subsidiaries**
- **R&D Center**

**Beijing Office(Beijing)**

Tel. +86-10-5761-3166 Fax : +86-10-5761-3160

**Shenzhen Office(Shenzhen)**

Tel. +86-755-8275-0470-1 Fax : +86-755-8275-0545

**Guangzhou Office(Guangzhou)**

Tel. +86-20-8767-7632 Fax : +86-20-8767-7957

**LS-VINA(Vietnam)**

Tel. +84-31-354-0141 Fax : +84-31-354-0142

Production : Extra-High Voltage Cable, Medium and Low Voltage Cable, ACSR, OPGW, SCR

**LSCV(Vietnam)**

Tel. +84-61-356-9140 Fax : +84-61-356-9148

Production : Low Voltage Cable, UTP

**LSCM(Malaysia)**

Tel. +60-4-588-9609 Fax : +60-4-588-9607

Production : Magent Wire

**LSCI(India)**

**Gurgaon: Marketing & Sales**

Tel. +91-124-428-5800-4 Fax : +91-124-428-5805

**Bawal**

Tel. +91-128-426-4267

Production : RF Feeder Cable, Network Solution, EHV, LV/MV, OPGW

**China R&D Center**

Tel. +86-717-667-7777

**Korea Operations**

**Headquarters**

Tel. +82-2-2189-9114

**Anyang Plant**

Tel. +82-31-428-4114

Production : Automotive Wire, Tube Components, HV Cable & Connectors, Bus Duct, Flooring System

**Gumi Plant**

Tel. +82-54-469-7114

Production : Power Cable up to 500kV, OHTL, OPGW, Data Cable, RF Feeder System, Copper Rod, Magnet Wire

**Indong Plant**

Tel. +82-54-469-7763

Production : Industrial Cable & Module, Optical Cable, Aluminum Materials

**Donghae Plant**

Tel. +82-33-820-3114

Production : Submarine Cable, Industrial Specialty Cable

**R&D Center**

Tel. +82-31-450-8114



Greater Value Together  
**LS Cable & System**

**LS** Cable & System  
[www.lscns.com](http://www.lscns.com)

**LS RailSol™ - Saflex**  
12F~17F, LS Tower, 127 LS-ro, Dongan-gu, Anyang-si, Gyeonggi-do, 431-848, Korea  
Tel. 82-2-2189-9114