



**FIRE RESISTANT CABLE**



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## Fire Resistant Cable

Used for fire resistant and circuit integrity, essentially to prevent life from smoke and noxious fumes, and where sensitive equipment maybe damage by acid forming gases.

All RAMCRO fire resistant cable are with sub-brand RAMFIRECRO-F3, are manufactured in according to the major international standard; BS 6387 C-W-Z - BS 7629 - IEC 60331-21 - EN 50200 - BS 8434-2 etc.

The material and the structure used for this type of cables depends on the performance required: fire time exposition, fire temperature and extra burning events.

Fire performance classes: Flame retardant (FRLS), Low smoke fumes (LS), Fire resistant (FRHF), Low smoke, Halogen free and Fire retardant (HF).

The typically applications for this type of cable are the transmission of analogue and digital signal and control systems.

Allowed for use in zone 1 and 2, group II, classified areas (IEC 60079-14).

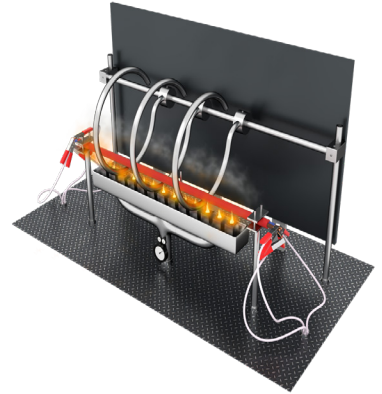


# FIRE RESISTANT TEST

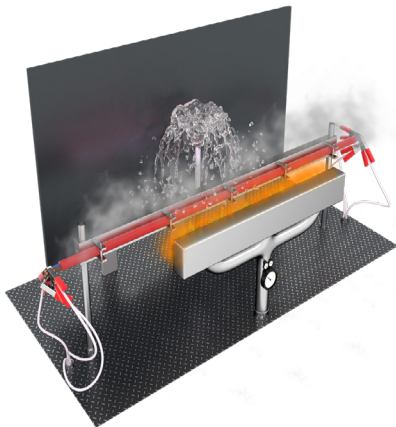
All the fire resistant test are carried out in RAMCRO LAB

## FIRE RESISTANCE (Cat. C)

The cable is exposed to fire at the 950°C for 180 minutes.



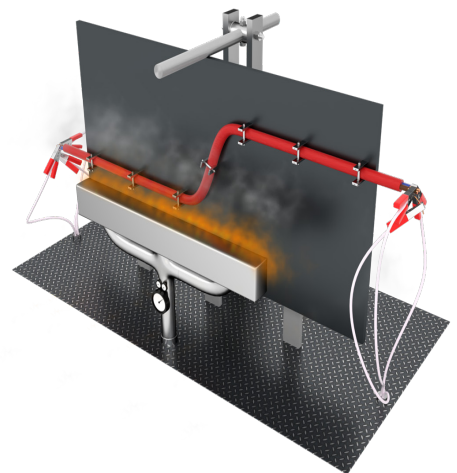
## FIRE AND WATER RESISTANCE (Cat. W)



The cable is exposed for 15 minutes to flame at 650°C and for additional 15 minutes to fire and water spray.

## FIRE RESISTANCE WITH MECHANICAL SHOCKS (Cat. Z)

The cable is mounted on a vertical panel and shocked with a steel bar for 15 minutes while submitted to the action of a flame.

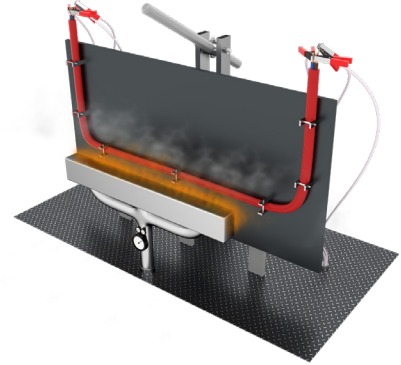


# FIRE RESISTANT TEST

All the fire resistant test are carried out in RAMCRO LAB

## FIRE RESISTANCE (EN 50200 PH 15-30-60-90-120)

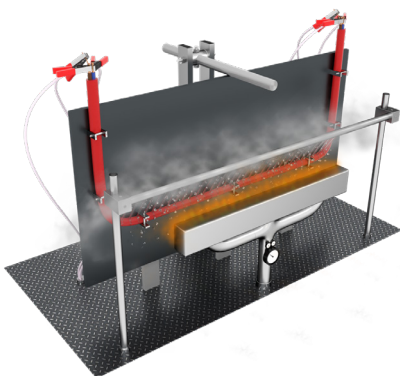
This test is carried out to verify the circuit integrity of cables exposed to fire at 830°C and mechanical shocks.



### CLASSIFICATION

<b>EN 50200 PH 15</b>	Flame exposure for 15 min
<b>EN 50200 PH 30</b>	Flame exposure for 30 min
<b>EN 50200 PH 60</b>	Flame exposure for 60 min
<b>EN 50200 PH 90</b>	Flame exposure for 90 min
<b>EN 50200 PH 120</b>	Flame exposure for 120 min

## FIRE RESISTANCE BS EN 50200 annex E



This test is carried out to verify circuit integrity during a fire. The cable is exposed to a flame at 830°C and mechanical shocks for 15 minutes and additional 15 minutes to flame, mechanical shocks and water spray.

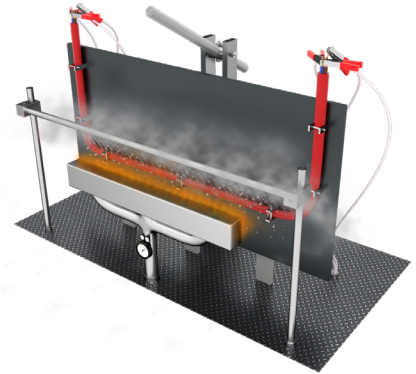


# FIRE RESISTANT TEST

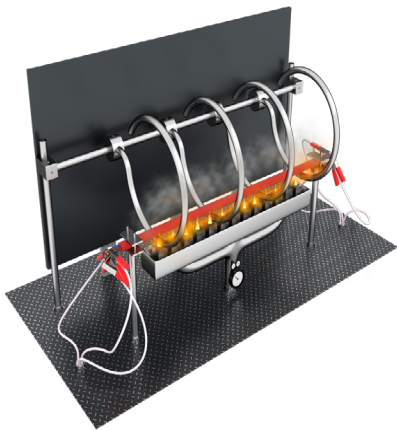
All the fire resistant test are carried out in RAMCRO LAB

## FIRE RESISTANCE (BS 8434-2)

This test is carried out to verify circuit integrity during a fire. The cable is exposed to a flame at 930°C and mechanical shocks for 60 minutes and additional 60 minutes to flame, mechanical shocks and water spray.



## FIRE RESISTANCE (IEC 60331-21, CEI 20-36)



This test is carried out to verify circuit integrity even during a fire. A sample of cable is held on a flame at about 750°C for a period of minimum 90 min, under rated voltage.

# FIRE RETARDANT TEST

*All the fire resistant test are carried out in RAMCRO LAB*

## FLAME PROPAGATION TEST ON A SINGLE CABLE (IEC 60332-1)

A 60 cm long sample of cable is vertically fixed with two clamps inside a small cabin, open on the front. The cable is subjected to the action of a flame produced by a calibrated Bunsen burner.

The application time of the flame is according to the cable diameter (60-480 seconds).

At the end of the test the burnt portion of cable must not be 50 mm close to the higher clamp.



# FIRE RETARDANT TEST

*All the fire resistant test are carried out in RAMCRO LAB*

## FIRE PROPAGATION TEST ON BUNCHED CABLES (IEC 60332-3)



Samples of cables 3,5 m long in quantities required by standard are installed on a ladder inside a metallic cabinet. They are subjected to the action of a flame at 750°C for a specific time (20 or 40 minutes).

Cables must not burn for more than 2,5 m.



# FIRE RESISTANT CABLE

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## BS 6387:2013 Cat. C-W-Z

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE PLANET - BS 6387:2013



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, solid

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- BS 6387:2013 Cat. C-W-Z
- IEC 60754-1:2014
- BS EN 61034-2:2005
- EN 50200:2015 (Class PH30/PH120)

### IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO-F3 - FIRE RESISTANT – LSZH – LPCB 568a/02 – BS EN 50267-2-1 – BS 6387 C-W-Z – EN 50200 PH 120 – 300/500V – CONDxAREA + E BATCH N. + MADE IN ITALY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MΩ\*km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## BS 6387:2013 Cat. C-W-Z

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0211HFESL-F3(IE)	2x1.00*	6.2*	56	18.5
SAR0311HFESP-F3(IE)	3x1.00*	6.3*	72	18.5
SAR0411HFESQ-F3(IE)	4x1.00*	6.9*	91	18.5
SAR0511HFESD-F3(IE)	5x1.00	7.8	113	18.5
SAR0711HFESD-F3(IE)	7x1.00	8.4	147	18.5
SAR1211HFESD-F3(IE)	12x1.00	11.0	238	18.5
SAR1911HFESD-F3(IE)	19x1.00	12.8	357	18.5
SAR0214HFESL-F3(IE)	2x1.50**	6.6**	67	12.3
SAR0314HFESP-F3(IE)	3x1.50**	6.8**	88	12.3
SAR0414HFESQ-F3(IE)	4x1.50**	7.4**	111	12.3
SAR0514HFESD-F3(IE)	5x1.50	8.3	138	12.3
SAR0714HFESD-F3(IE)	7x1.50	9.0	181	12.3
SAR1214HFESD-F3(IE)	12x1.50	11.8	296	12.3
SAR1914HFESD-F3(IE)	19x1.50	14.2	461	12.3
SAR0218HFESL-F3(IE)	2x2.50**	7.4**	89	7.6
SAR0318HFESP-F3(IE)	3x2.50**	7.7**	123	7.6
SAR0418HFESQ-F3(IE)	4x2.50**	8.4**	157	7.6
SAR0518HFESD-F3(IE)	5x2.50	9.2	191	7.6
SAR0718HFESD-F3(IE)	7x2.50	10.1	254	7.6
SAR1218HFESD-F3(IE)	12x2.50	13.2	418	7.6
SAR1918HFESD-F3(IE)	19x2.50	16.0	654	7.6

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR\_\_HCESL-F3(IE)

## BS 6387:2013 Cat. C-W-Z

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE PLANET - BS 6387:2013



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 strand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- BS 6387:2013 Cat. C-W-Z
- IEC 60754-1:2014
- BS EN 61034-2:2005
- EN 50200:2015 (Class PH30/PH120)

### IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO-F3 - FIRE PLANET – LSZH – LPCB 568a/02 – EN 60754-1 – BS 6387 C-W-Z – EN 50200 PH30/PH120 – 300/500V – CONDxAREA + E BATCH N. + MADE IN ITALY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## BS 6387:2013 Cat. C-W-Z

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210HFESL-F3(IE)	2x1.00*	6.5*	59	18.5
SAS0310HFESP-F3(IE)	3x1.00*	6.6*	76	18.5
SAS0410HFESQ-F3(IE)	4x1.00*	7.2*	95	18.5
SAS0510HFESD-F3(IE)	5x1.00	8.1	118	18.5
SAS0710HFESD-F3(IE)	7x1.00	8.8	154	18.5
SAS1210HFESD-F3(IE)	12x1.00	11.5	248	18.5
SAS1910HFESD-F3(IE)	19x1.00	13.5	372	18.5
SAS0215HFESL-F3(IE)	2x1.50*	7.0*	72	12.3
SAS0315HFESP-F3(IE)	3x1.50*	7.2*	95	12.3
SAS0415HFESQ-F3(IE)	4x1.50*	8.1*	123	12.3
SAS0515HFESD-F3(IE)	5x1.50	8.8	148	12.3
SAS0715HFESD-F3(IE)	7x1.50	9.6	196	12.3
SAS1215HFESD-F3(IE)	12x1.50	12.6	319	12.3
SAS1915HFESD-F3(IE)	19x1.50	15.2	498	12.3
SAS0225HFESL-F3(IE)	2x2.50*	8.1*	101	7.6
SAS0325HFESP-F3(IE)	3x2.50*	8.3*	135	7.6
SAS0425HFESQ-F3(IE)	4x2.50*	9.1*	170	7.6
SAS0525HFESD-F3(IE)	5x2.50	9.9	207	7.6
SAS0725HFESD-F3(IE)	7x2.50	10.8	277	7.6
SAS1225HFESD-F3(IE)	12x2.50	14.7	470	7.6
SAS1925HFESD-F3(IE)	19x2.50	17.2	713	7.6
SAS0240HFESL-F3(IE)	2x4.00*	10.0*	151	4.7
SAS0340HFESP-F3(IE)	3x4.00*	10.2*	205	4.7
SAS0440HFESQ-F3(IE)	4x4.00*	11.2*	263	4.7
SAS0540HFESD-F3(IE)	5x4.00	12.3	322	4.7

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS\_\_HCESL-F3(IE)

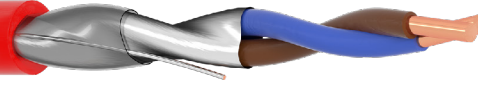
# STANDARD FIRE SUN

LPCB 568c/02

BS 7629-1:2008

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - STANDARD FIRE SUN - BS 7629-1:2008



## CONSTRUCTION

### Formation:

Plain annealed copper wire, solid

### Insulation:

Special mix silicon rubber

### Wrapping:

at least 1 layer of plastic tape 0,023 mm

### Collective Screen:

0,026 mm Aluminium / PETP tape over tinned copper drain wire

### Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

### Colour Outer Sheath:

Red or White

## STANDARD REFERENCES

- BS 7629-1:2008
- BS 6387:2013 (CWZ)
- EN 50200:2006 (Class PH30/PH120)
- EN 50200:2006 Annex E (30 mins)
- BS 5839-1:2013 (Clause 26.2d Standard)

## IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

## CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

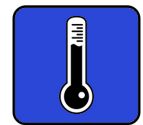
## TEMPERATURE RANGE

### During Operation:

-30° C up to +180°C

### During Installation:

-5° C up to +50°C



## CABLE PRINTING

RAMFIRECRO -F3 STANDARD FIRE SUN - FIRE RESISTANT ELECTRIC CABLE - LSZH - 300/500V - BS 7629-1:2008 - BS EN50200 PH30/120 - BS 6387 CWZ - 2x1,5 mmq + E - LPCB 568c/02 - MADE IN ITALY - BATCH N°

## ELECTRICAL DATA

### Insulation Resistance @ 20°C:

> 200 MΩ\*km

### Test Voltage Core-Core:

2000 V

### Test Voltage Core-Screen:

2000 V

### Mutual Capacitance:

< 150 nF/km

### Inductance:

< 1 mH/km

### Operating Voltage:

300/500 V

## CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## BS 7629-1:2008

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0211HFESL-F3PH120	2x1.00*	6.4*	66	18.5
SAR0311HFESP-F3PH120	3x1.00*	6.5*	83	18.5
SAR0411HFESQ-F3PH120	4x1.00*	7.1*	101	18.5
SAR0511HFESD-F3PH120	5x1.00	7.8	120	18.5
SAR0711HFESD-F3PH120	7x1.00	8.4	155	18.5
SAR1211HFESD-F3PH120	12x1.00	11.2	251	18.5
SAR1911HFESD-F3PH120	19x1.00	13.0	370	18.5
SAR0214HFESL-F3PH120	2x1.50*	7.3*	88	12.3
SAR0314HFESP-F3PH120	3x1.50*	7.4*	111	12.3
SAR0414HFESQ-F3PH120	4x1.50*	8.1*	137	12.3
SAR0514HFESD-F3PH120	5x1.50	8.8	162	12.3
SAR0714HFESD-F3PH120	7x1.50	9.6	211	12.3
SAR1214HFESD-F3PH120	12x1.50	12.9	342	12.3
SAR1914HFESD-F3PH120	19x1.50	15.1	510	12.3
SAR0218HFESL-F3PH120	2x2.50*	8.6*	129	7.6
SAR0318HFESP-F3PH120	3x2.50*	8.7*	166	7.6
SAR0418HFESQ-F3PH120	4x2.50*	9.6*	205	7.6
SAR0518HFESD-F3PH120	5x2.50	10.7	251	7.6
SAR0718HFESD-F3PH120	7x2.50	11.7	326	7.6
SAR1218HFESD-F3PH120	12x2.50	15.4	523	7.6
SAR1918HFESD-F3PH120	19x2.50	18.1	787	7.6

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAR\_\_\_HCESL-F3PH120

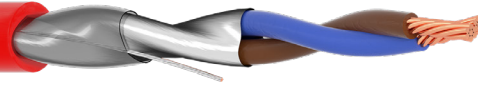
# STANDARD FIRE SUN

LPCB 568c/02

BS 7629-1:2008

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - STANDARD FIRE SUN - BS 7629-1:2008



## CONSTRUCTION

### Formation:

Plain annealed copper wire, 7 strand

### Insulation:

Special mix silicon rubber

### Wrapping:

at least 1 layer of plastic tape 0,023 mm

### Collective Screen:

0,026 mm Aluminium / PETP tape over tinned copper drain wire

### Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

### Colour Outer Sheath:

Red or White

## STANDARD REFERENCES

- BS 7629-1:2008
- BS 6387:2013 (CWZ)
- EN 50200:2006 (Class PH30/PH120)
- EN 50200:2006 Annex E (30 mins)
- BS 5839-1:2013 (Clause 26.2d Standard)

## IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

## CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

## TEMPERATURE RANGE

### During Operation:

-30° C up to +180°C

### During Installation:

-5° C up to +50°C



## CABLE PRINTING

RAMFIRECRO –F3 STANDARD FIRE SUN - FIRE RESISTANT ELECTRIC CABLE – LSZH - 300/500V - BS 7629-1:2008 - BS EN50200 PH30/120 - BS 6387 CWZ - 2x1,5 mmq + E - LPCB 568c/02 - MADE IN ITALY - BATCH N°

## ELECTRICAL DATA

### Insulation Resistance @ 20°C:

> 200 MΩ\*km

### Test Voltage Core-Core:

2000 V

### Test Voltage Core-Screen:

2000 V

### Mutual Capacitance:

< 150 nF/km

### Inductance:

< 1 mH/km

### Operating Voltage:

300/500 V

## CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free





## BS 7629-1:2008

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210HFESL-F3PH120	2x1.00*	6.7*	69	18.5
SAS0310HFESP-F3PH120	3x1.00*	6.8*	86	18.5
SAS0410HFESQ-F3PH120	4x1.00*	7.4*	105	18.5
SAS0510HFESD-F3PH120	5x1.00	8.1	125	18.5
SAS0710HFESD-F3PH120	7x1.00	8.8	160	18.5
SAS1210HFESD-F3PH120	12x1.00	11.7	261	18.5
SAS1910HFESD-F3PH120	19x1.00	13.7	386	18.5
SAS0215HFESL-F3PH120	2x1.50*	7.6*	92	12.3
SAS0315HFESP-F3PH120	3x1.50*	7.8*	116	12.3
SAS0415HFESQ-F3PH120	4x1.50*	8.5*	143	12.3
SAS0515HFESD-F3PH120	5x1.50	9.3	171	12.3
SAS0715HFESD-F3PH120	7x1.50	10.3	227	12.3
SAS1215HFESD-F3PH120	12x1.50	13.6	362	12.3
SAS1915HFESD-F3PH120	19x1.50	15.9	540	12.3
SAS0225HFESL-F3PH120	2x2.50*	9.0*	135	7.6
SAS0325HFESP-F3PH120	3x2.50*	9.2*	174	7.6
SAS0425HFESQ-F3PH120	4x2.50*	10.3*	220	7.6
SAS0525HFESD-F3PH120	5x2.50	11.3	262	7.6
SAS0725HFESD-F3PH120	7x2.50	12.3	343	7.6
SAS1225HFESD-F3PH120	12x2.50	16.3	350	7.6
SAS1925HFESD-F3PH120	19x2.50	19.2	827	7.6
SAS0240HFESL-F3PH120	2x4.00*	10.2*	189	4.7
SAS0340HFESP-F3PH120	3x4.00*	10.4*	244	4.7
SAS0440HFESQ-F3PH120	4x4.00*	11.4*	302	4.7
SAS0540HFESD-F3PH120	5x4.00	12.5	362	4.7

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS\_\_HCESL-F3PH120

## IEC 60331-21:1999

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE SAFE - IEC 60331-21:1999



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, solid

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- IEC 60331-21:1999
- EN 50267-2-1:1999
- EN 61034-2:2005

### IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 -FIRE SAFE- IEC 60331 N° COND. X AREA + E – LSZH 1 1/2 H 750 - LPCB 568d/01 - IEC 60331-21 - 300/500 V - BATCH N°

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## IEC 60331-21:1999

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0211HFEEL-F3	2x1.00*	6.8*	62	18.5
SAR0311HFEEP-F3	3x1.00*	7.2*	80	18.5
SAR0411HFEEQ-F3	4x1.00*	7.9*	100	18.5
SAR0511HFEED-F3	5x1.00	9.0	128	18.5
SAR0711HFEED-F3	7x1.00	9.8	165	18.5
SAR1211HFEED-F3	12x1.00	12.7	264	18.5
SAR1911HFEED-F3	19x1.00	15.2	407	18.5
SAR0214HFEEL-F3	2x1.50*	7.3*	73	12.3
SAR0314HFEEP-F3	3x1.50*	7.7*	97	12.3
SAR0414HFEEQ-F3	4x1.50*	8.4*	122	12.3
SAR0514HFEED-F3	5x1.50	9.6	156	12.3
SAR0714HFEED-F3	7x1.50	10.4	203	12.3
SAR1214HFEED-F3	12x1.50	13.6	329	12.3
SAR1914HFEED-F3	19x1.50	16.3	508	12.3
SAR0218HFEEL-F3	2x2.50*	8.1*	98	7.6
SAR0318HFEEP-F3	3x2.50*	8.6*	131	7.6
SAR0418HFEEQ-F3	4x2.50*	9.8*	177	7.6
SAR0518HFEED-F3	5x2.50	10.7	213	7.6
SAR0718HFEED-F3	7x2.50	11.6	282	7.6
SAR1218HFEED-F3	12x2.50	15.7	476	7.6
SAR1918HFEED-F3	19x2.50	18.7	734	7.6

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCEEL-F3

## IEC 60331-21:1999

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE SAFE - IEC 60331-21:1999



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 strand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- IEC 60331-21:1999
- EN 50267-2-1:1999
- EN 61034-2:2005

### IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 -FIRE SAFE- IEC 60331 N° COND. X AREA + E – LSZH 1 1/2 H 750 - LPCB 568d/01 - IEC 60331-21 - 300/500 V - BATCH N°

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## IEC 60331-21:1999

Multi-Core, Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210HFEEL-F3	2x1.00*	7.1*	64	18.5
SAS0310HFEEP-F3	3x1.00*	7.5*	83	18.5
SAS0410HFEEQ-F3	4x1.00*	8.2*	104	18.5
SAS0510HFEED-F3	5x1.00	9.4	133	18.5
SAS0710HFEED-F3	7x1.00	10.2	172	18.5
SAS1210HFEED-F3	12x1.00	13.3	276	18.5
SAS1910HFEED-F3	19x1.00	15.9	424	18.5
SAS0215HFEEL-F3	2x1.50*	7.6*	77	12.3
SAS0315HFEEP-F3	3x1.50*	8.1*	102	12.3
SAS0415HFEEQ-F3	4x1.50*	9.3*	137	12.3
SAS0515HFEED-F3	5x1.50	10.1	165	12.3
SAS0715HFEED-F3	7x1.50	11.0	215	12.3
SAS1215HFEED-F3	12x1.50	14.8	362	12.3
SAS1915HFEED-F3	19x1.50	17.2	537	12.3
SAS0225HFEEL-F3	2x2.50*	8.3*	103	7.6
SAS0325HFEEP-F3	3x2.50*	9.4*	147	7.6
SAS0425HFEEQ-F3	4x2.50*	10.3*	186	7.6
SAS0525HFEED-F3	5x2.50	11.3	224	7.6
SAS0725HFEED-F3	7x2.50	12.3	297	7.6
SAS1225HFEED-F3	12x2.50	16.6	502	7.6
SAS1925HFEED-F3	19x2.50	19.8	773	7.6

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAS\_\_\_HCEEL-F3

## BS 6387:2013 Cat. C-W-Z

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath

RAMFIRECRO-F3 - FIRE GROUND - BS 6387:2013



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Inner Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Armour:**

Galvanized steel wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red

### STANDARD REFERENCES

- BS 6387:2013 Cat. C-W-Z
- EN 60754-1:2014
- EN 61034-2:2005+A1:2013
- EN 60754-2:2014
- EN 60332-3-24:2009
- EN 60332-1-2:2004

### IDENTIFICATION OF CORES

- 2 cores: ● ●  
3 cores: ● ● ●  
4 cores: ● ● ● ●  
5 cores: ● ● ● ● ●

### TEMPERATURE RANGE

- During Operation:**  
-30° C up to +180°C  
**During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO -F3 - FIRE RESISTANT - LSZH - LPCB 568e/01 - BS 6387 CWZ - IEC 60332-3-24 - IEC 60332-1-2 - IEC 60502 - BS 7846 - 0,6/1 kV - 5x1,5 mmq - CU/Sil/LSZH/SWA/LSZH - ARMoured - MADE IN ITALY + BATCH N.

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

5000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

600/1000 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Power Cable



## BS 6387:2013 Cat. C-W-Z

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SSS0215AFESH-F3(FG)	2x1.50	14.2*	373	13.8
SSS0315AFESP-F3(FG)	3x1.50	14.3*	395	13.8
SSS0415AFESQ-F3(FG)	4x1.50	15.1*	440	13.8
SSS0515AFESD-F3(FG)	5x1.50	16.6*	563	13.8
SSS0225AFESH-F3(FG)	2x2.50	16.2*	530	8.3
SSS0375AFESP-F3(FG)	3x2.50	16.4*	566	8.3
SSS0475AFESQ-F3(FG)	4x2.50	17.3*	635	8.3
SSS0575AFESD-F3(FG)	5x2.50	18.3*	709	8.3
SSS0240AFESL-F3(FG)	2x4.00	17.1*	592	5.1
SSS0340AFESP-F3(FG)	3x4.00	17.3*	640	5.1
SSS0440AFESQ-F3(FG)	4x4.00	18.3*	725	5.1
SSS0540AFESD-F3(FG)	5x4.00	19.4*	815	5.1
SSS0260AFESL-F3(FG)	2x6.00	18.6*	716	3.4
SSS0360AFESP-F3(FG)	3x6.00	18.8*	786	3.4
SSS0460AFESQ-F3(FG)	4x6.00	20.0**	902	3.4
SSS0560AFESD-F3(FG)	5x6.00	22.0**	1132	3.4
SSS0211AFESL-F3(FG)	2x10.00	20.6**	910	2.0
SSS0311AFESP-F3(FG)	3x10.00	20.9**	1021	2.0
SSS0411AFESQ-F3(FG)	4x10.00	23.1**	1303	2.0
SSS0511AFESD-F3(FG)	5x10.00	24.6**	1492	2.0
SSS0216AFESL-F3(FG)	2x16.00	24.1**	1306	1.3
SSS0316AFESP-F3(FG)	3x16.00	24.4**	1479	1.3
SSS0416AFESQ-F3(FG)	4x16.00	26.2**	1737	1.3
SSS0516AFESD-F3(FG)	5x16.00	28.3**	2022	1.3
SSS0227AFESL-F3(FG)	2x25.00	26.1**	1627	0.8
SSS0327AFESP-F3(FG)	3x25.00	26.5**	1888	0.8
SSS0427AFESQ-F3(FG)	4x25.00	28.8**	2266	0.8
SSS0527AFESD-F3(FG)	5x25.00	31.2**	2663	0.8

\* Cables certified by LPCB BRE GLOBAL

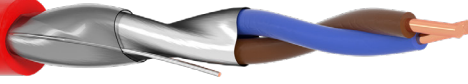
\*\* The Ramfirecro-F3 FIRE GROUND range with diameters greater than 20mm were tested in accordance with clause 17.4.2 annex L BS 7846:2015

\*\*\* If the cable SSS\_\_\_\_ACESL-F3(FG)

## EN 50200:2015 Class PH 120

Multi-Core, Solid or Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE MOON ENHANCED - EN 50200:2015 PH 120



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, solid and stranded

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- EN 50200:2015 (Class PH120)
- IEC 60754-1:2014
- EN 61034-2:2005+A1:2013

### IDENTIFICATION OF CORES

2 cores: ● ●

3 cores: ● ● ●

4 cores: ● ● ● ●

up/from 5 cores: Black Numbered

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO – F3 ENHANCED – FIRE MOON – LSZH - LPCB 568f/01 - EN 50200 PH120 0.6/1 kV - coresXsec mmq + E BATCH N. + MADE IN ITALY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

5000 V

**Test Voltage Core-Screen:**

5000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

600/1000 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Power Cable





## EN 50200:2015 Class PH 120

Multi-Core, Solid or Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

### Solid Version (Bare Copper Cl.1)

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0211IF-WFA10210	2x1.00*	8.0*	81	18.8
SAR0311IF-WFA10210	3x1.00	8.5	101	18.8
SAR0411IF-WFA10210	4x1.00	9.2	124	18.8
SAR0214IF-WFA10215	2x1.50*	8.7*	97	12.6
SAR0214IF-WFA10215	3x1.50	9.2	124	12.6
SAR0214IF-WFA10215	4x1.50	10.0	153	12.6
SAR0218IF-WFA10225	2x2.50*	9.7*	126	7.7
SAR0218IF-WFA10225	3x2.50	10.2	166	7.7
SAR0218IF-WFA10225	4x2.50	11.1	207	7.7

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_\_IC-WFA\_\_\_\_

### Stranded Version (Bare Copper Cl.2)

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210IF-WFA10210	2x1.00*	8.3*	84	18.8
SAS0310IF-WFA10210	3x1.00	8.8	106	18.8
SAS0410IF-WFA10210	4x1.00	9.5	129	18.8
SAS0215IF-WFA10215	2x1.50*	9.0*	102	12.6
SAS0215IF-WFA10215	3x1.50	9.5	130	12.6
SAS0215IF-WFA10215	4x1.50	10.4	161	12.6
SAS0225IF-WFA10225	2x2.50*	10.1*	133	7.7
SAS0225IF-WFA10225	3x2.50	10.7	174	7.7
SAS0225IF-WFA10225	4x2.50	11.7	218	7.7

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the RAMCRO CODE will change in: SAS\_\_\_\_IC-WFA\_\_\_\_

# LANFIRECRO-F3

LPCB 568g/01

EIA/TIA 568A, ISO/IEC 11801

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

LANFIRECRO-F3 - EIA/TIA 568A - ISO/IEC 11801



## CONSTRUCTION

### Formation:

Plain annealed copper wire, solid

### Insulation:

- Polyethylene - PE
- Fiber Glass Tape

### Wrapping:

at least 1 layer of plastic tape 0,023 mm

### Collective Screen:

0,026 mm Aluminium / PETP tape over copper drain wire

### Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

### Colour Outer Sheath:

Red

## STANDARD REFERENCES

- IEC 60331-21:1999
- IEC 60332-1-2:2004
- IEC 61034-2:2005
- EN 60754-1:2014

## IDENTIFICATION OF CORES

- 1 pair:
- 2 pair:
- 3 pair:
- 4 pair:

## TEMPERATURE RANGE

### During Operation:

-30° C up to +180°C

### During Installation:

-5° C up to +50°C



## CABLE PRINTING

LANFIRECRO-F3 IEC 60331 - FIRE RESISTANT Data Cable Cat. 6 - 4x2x22AWG + E - LPCB 568g/01 – LSZH 90 min. 750 - IEC 60331-21 - 300 V - BATCH N° + METER MARKING

## ELECTRICAL DATA

### Insulation Resistance @ 20°C:

> 200 MOhm\*Km

### Test Voltage Core-Core:

2000 V

### Test Voltage Core-Screen:

2000 V

### Mutual Capacitance:

< 150 nF/km

### Inductance:

< 1 mH/km

### Operating Voltage:

300 V

## CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Data LAN



## EIA/TIA 568A, ISO/IEC 11801

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAM0406HFEDX-F3CAT.6	4x2x22AWG*	11.0*	92	75.0

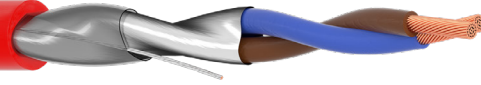
Frequency (MHz)	Max. Insetion Loss (dB/100 m)	Min. NEXT (dB)	Min. PSNEXT (dB)	Min. ACR (dB)	Min. PSACR (dB)	Min. ACFR (ELFEXT) (dB)	Min. PSACRF (PSELFEXT) (dB)	Nin.RL (Return Loss) (dB)
1	2	74.3	72.3	72.3	70.3	70	68	20
4	3.8	65.3	63.3	61.5	59.5	58	56	23
8	5.3	60.8	58.8	55.5	53.5	51.9	49.9	24.5
10	6	59.3	57.3	53.3	51.3	50	48	25
16	7.6	56.2	54.3	48.6	46.6	45.9	43.9	25
20	8.5	54.8	52.8	46.3	44.3	44	42	25
25	9.5	53.3	51.3	43.8	41.8	42	40	24.3
31.25	10.7	51.9	49.9	41.2	39.2	40.1	38.1	23.6
62.5	15.4	47.4	45.4	32	30	34.1	32.1	21.5
100	19.8	44.3	42.3	24.5	22.5	30	28	20.1
155	25.2	41.5	39.5	16.2	14.2	26.2	24.2	18.8
200	29	39.8	37.8	10.8	8.8	24	22	18
250	32.8	38.3	36.3	5.5	32.5	22	20	17.3
300	36.4	37.1	35.1	0.7	-	20.5	18.5	16.8

\* Cables certified by LPCB BRE GLOBAL

## EN 50200:2015 Class PH 30

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE COMET - EN 50200:2015 PH 30



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- EN 50200:2015 (Class PH30)
- EN 61034-2:2005+A1:2013
- EN 60754-1:2014

### IDENTIFICATION OF CORES

2 cores: ● ●

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO-F3 - FIRE COMET LSZH - EN 50200 PH30 - IEC 61034-2 - EN 60754-1 - 2x1.00 sqmm LPCB 568i/01 + BATCH + METER MARKING + MADE IN ITALY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## EN 50200:2015 Class PH 30

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210HFESL-F3FG4	2x1.00*	7.6*	67	19.9
SAS0215HFESL-F3FG4	2x1.50*	8.6*	88	13.6
SAS0225HFESL-F3FG4	2x2.50*	10.1*	129	8.1

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCESL-F3(IE)

## CEI 20-105 - FG4OHM1 PH30/90

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



### CONSTRUCTION

- Formation:**  
Plain annealed copper wire, Multistrand
- Insulation:**  
Special mix silicon rubber
- Wrapping:**  
at least 1 layer of plastic tape 0,023 mm
- Collective Screen:**  
0,026 mm Aluminium / PETP tape over copper drain wire
- Outer Sheath:**  
Thermoplastic Low Smoke, Halogen Free
- Colour Outer Sheath:**  
Red or Violet

### STANDARD REFERENCES

- CEI 20-105
- UNI 9795
- CEI 20-36 PH 30 / 90
- EN 50200 PH 30 / 90
- CEI EN 60332-3-25

### IDENTIFICATION OF CORES

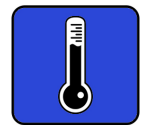
- 2 cores: ● ●
- 4 cores: ● ● ○ ●

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

- Fixed Installation:**  
-30° C up to +70° C
- During Installation:**  
-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO-F3 FIRE COMET CEI 20-105 FG4OHM1 2x1.00 mmq UNI9795 CEI 20-36/4-0 PH30/90  
CEI EN 60332-3-25 EN 50575:2014+A1:2016 CPR Class Cca - s1a, d0, a1 - 100/100 V Uo=400 V BATCH  
+ MM/YY

### ELECTRICAL DATA

- Insulation Resistance @ 20°C:**  
> 200 MOhm\*Km
- Test Voltage Core-Core:**  
2000 V
- Test Voltage Core-Screen:**  
2000 V
- Mutual Capacitance:**  
< 150 nF/km
- Inductance:**  
< 1 mH/km
- Operating Voltage:**  
100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



Italian Market



## CEI 20-105 - FG4OHM1 PH30/90

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HFEEH-F3FG4	2x0.50*	5.6*	44	39.8
SAS0450HFEEH-F3FG4	4x0.50*	6.2*	64	39.8
SAS0275HFEEH-F3FG4	2x0.75*	6.3*	54	26.5
SAS0475HFEEH-F3FG4	4x0.75*	7.0*	82	26.5
SAS0210HFEEH-F3FG4	2x1.00*	6.6*	60	19.9
SAS0410HFEEH-F3FG4	4x1.00*	7.2*	92	19.9
SAS0215HFEEH-F3FG4	2x1.50*	7.6*	79	13.6
SAS0415HFEEH-F3FG4	4x1.50*	8.7*	131	13.6
SAS0225HFEEH-F3FG4	2x2.50*	9.2*	119	8.1
SAS0425HFEEH-F3FG4	4x2.50*	10.5*	204	8.1

\* Cables certified by IMQ

## Cables for EVAC voice evacuation systems - Violet Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HXEEH-F3FG4	2x0.50*	5.6*	44	39.8
SAS0450HXEEH-F3FG4	4x0.50*	6.2*	64	39.8
SAS0275HXEEH-F3FG4	2x0.75*	6.3*	54	26.5
SAS0475HXEEH-F3FG4	4x0.75*	7.0*	82	26.5
SAS0210HXEEH-F3FG4	2x1.00*	6.6*	60	19.9
SAS0410HXEEH-F3FG4	4x1.00*	7.2*	92	19.9
SAS0215HXEEH-F3FG4	2x1.50*	7.6*	79	13.6
SAS0415HXEEH-F3FG4	4x1.50*	8.7*	131	13.6
SAS0225HXEEH-F3FG4	2x2.50*	9.2*	119	8.1
SAS0425HXEEH-F3FG4	4x2.50*	10.5*	204	8.1

\* Cables certified by IMQ

# FIRE COMET

## CEI 20-105 - FG4OHM1 PH120

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE COMET - CEI 20-105 - FG4OHM1



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or Violet

### STANDARD REFERENCES

- CEI 20-105
- UNI 9795
- CEI 20-36 PH 120
- EN 50200 PH 120
- CEI EN 60332-3-25

### IDENTIFICATION OF CORES

2 cores: ● ●

4 cores: ● ● ○ ●

### CPR CLASSIFICATION

EN 50575:2016 - C<sub>CA</sub> s1A, d0, a1

### TEMPERATURE RANGE

**Fixed Installation:**

-30° C up to +70° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMFIRECRO-F3 FIRE COMET CEI 20-105 FG4OHM1 2x1.00 mmq UNI9795 CEI 20-36/4-0 PH120  
CEI EN 60332-3-25 EN 50575:2014+A1:2016 CPR Class Cca - s1a, d0, a1 - 100/100 V U<sub>o</sub>= 400 V + MM/  
YY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



Italian Market





# FIRE COMET

## CEI 20-105 - FG4OHM1 PH120

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HFEEH-F3FG4120	2x0.50	5.6	44	39.8
SAS0450HFEEH-F3FG4120	4x0.50	6.2	64	39.8
SAS0275HFEEH-F3FG4120	2x0.75	6.3	54	26.5
SAS0475HFEEH-F3FG4120	4x0.75	7.0	82	26.5
SAS0210HFEEH-F3FG4120	2x1.00	7.6	73	19.9
SAS0410HFEEH-F3FG4120	4x1.00	8.4	115	19.9
SAS0215HFEEH-F3FG4120	2x1.50	8.6	95	13.6
SAS0415HFEEH-F3FG4120	4x1.50	9.6	150	13.6
SAS0225HFEEH-F3FG4120	2x2.50	10.1	137	8.1
SAS0425HFEEH-F3FG4120	4x2.50	11.2	221	8.1

## Cables for EVAC voice evacuation systems - Violet Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HFEEH-F3FG4120	2x0.50	5.6	44	39.8
SAS0450HFEEH-F3FG4120	4x0.50	6.2	64	39.8
SAS0275HFEEH-F3FG4120	2x0.75	6.3	54	26.5
SAS0475HFEEH-F3FG4120	4x0.75	7.0	82	26.5
SAS0210HFEEH-F3FG4120	2x1.00	7.6	73	19.9
SAS0410HFEEH-F3FG4120	4x1.00	8.4	115	19.9
SAS0215HFEEH-F3FG4120	2x1.50	8.6	95	13.6
SAS0415HFEEH-F3FG4120	4x1.50	9.6	150	13.6
SAS0225HFEEH-F3FG4120	2x2.50	10.1	137	8.1
SAS0425HFEEH-F3FG4120	4x2.50	11.2	221	8.1

# FIRE COMET

## CEI 20-105 - FTE4OHM1 PH30/90

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE COMET - CEI 20-105 - FTE4OHM1



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Mica Tape + Cross Liked Polyethylene - XLPE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or Violet

### STANDARD REFERENCES

- CEI 20-105
- UNI 9795
- CEI 20-36 PH 30 / 90
- EN 50200 PH 30 / 90
- CEI EN 60332-3-25

### IDENTIFICATION OF CORES

2 cores: ● ●  
4 cores: ● ● ○ ●

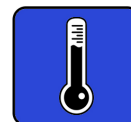
### TEMPERATURE RANGE

**Fixed Installation:**

-30° C up to +70°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 FIRE COMET CEI 20-105 FTE4OHM1 2x1.00 mmq UNI 9795 CEI 20-36/4-0 PH30/90  
CEI EN 60332-3-25 - 100/100 V - U<sub>0</sub>=400 V + BATCH + MM/YY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MΩ\*km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



Italian Market



# FIRE COMET

## CEI 20-105 - FTE4OHM1 PH30/90

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HFEOH-F3FTE	2x0.50	7.0	59	39.8
SAS0250HFEOH-F3FTE	4x0.50	7.8	88	39.8
SAS0275HFEOH-F3FTE	2x0.75	7.5	67	26.5
SAS0275HFEOH-F3FTE	4x0.75	8.4	102	26.5
SAS0210HFEOH-F3FTE	2x1.00	7.8	74	19.9
SAS0210HFEOH-F3FTE	4x1.00	8.8	120	19.9
SAS0215HFEOH-F3FTE	2x1.50	8.6	92	13.6
SAS0215HFEOH-F3FTE	4x1.50	9.6	145	13.6
SAS0225HFEOH-F3FTE	2x2.50	9.6	122	8.1
SAS0225HFEOH-F3FTE	4x2.50	11.0	209	8.1

## Cables for EVAC voice evacuation systems - Violet Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HXEOH-F3FTE	2x0.50	7.0	59	39.8
SAS0250HXEOH-F3FTE	4x0.50	7.8	88	39.8
SAS0275HXEOH-F3FTE	2x0.75	7.5	67	26.5
SAS0275HXEOH-F3FTE	4x0.75	8.4	102	26.5
SAS0210HXEOH-F3FTE	2x1.00	7.8	74	19.9
SAS0210HXEOH-F3FTE	4x1.00	8.8	120	19.9
SAS0215HXEOH-F3FTE	2x1.50	8.6	92	13.6
SAS0215HXEOH-F3FTE	4x1.50	9.6	145	13.6
SAS0225HXEOH-F3FTE	2x2.50	9.6	122	8.1
SAS0225HXEOH-F3FTE	4x2.50	11.0	209	8.1

# FIRE COMET

## CEI 20-105 - FTE4OHM1 PH120

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE COMET - CEI 20-105 - FTE4OHM1



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Mica Tape + Cross Liked Polyetilene - XLPE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or Violet

### STANDARD REFERENCES

- CEI 20-105
- UNI 9795
- CEI 20-36 PH 120
- EN 50200 PH 120
- CEI EN 60332-3-25

### IDENTIFICATION OF CORES

2 cores: ● ●  
4 cores: ● ● ○ ●

### TEMPERATURE RANGE

**Fixed Installation:**

-30° C up to +70°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 FIRE COMET CEI 20-105 FTE4OHM1 2x1.00 mmq UNI 9795 CEI 20-36/4-0 PH120  
CEI EN 60332-3-25 - 100/100 V - U<sub>o</sub>=400 V + BATCH + MM/YY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius

8 x cable diameter



Low Smoke Halogen Free



Italian Market



# FIRE COMET

## CEI 20-105 - FTE4OHM1 PH120

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HFEOH-F3FTE120	2x0.50	7.0	59	39.8
SAS0250HFEOH-F3FTE120	4x0.50	7.8	88	39.8
SAS0275HFEOH-F3FTE120	2x0.75	7.5	68	26.5
SAS0275HFEOH-F3FTE120	4x0.75	8.4	102	26.5
SAS0210HFEOH-F3FTE120	2x1.00	8.2	79	19.9
SAS0210HFEOH-F3FTE120	4x1.00	9.3	128	19.9
SAS0215HFEOH-F3FTE120	2x1.50	9.2	100	13.6
SAS0215HFEOH-F3FTE120	4x1.50	10.6	169	13.6
SAS0225HFEOH-F3FTE120	2x2.50	10.7	142	8.1
SAS0225HFEOH-F3FTE120	4x2.50	11.9	232	8.1

## Cables for EVAC voice evacuation systems - Violet Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0250HXEOH-F3FTE120	2x0.50	7.0	59	39.8
SAS0250HXEOH-F3FTE120	4x0.50	7.8	88	39.8
SAS0275HXEOH-F3FTE120	2x0.75	7.5	68	26.5
SAS0275HXEOH-F3FTE120	4x0.75	8.4	102	26.5
SAS0210HXEOH-F3FTE120	2x1.00	8.2	80	19.9
SAS0210HXEOH-F3FTE120	4x1.00	9.3	128	19.9
SAS0215HXEOH-F3FTE120	2x1.50	9.2	100	13.6
SAS0215HXEOH-F3FTE120	4x1.50	10.6	168	13.6
SAS0225HXEOH-F3FTE120	2x2.50	10.7	143	8.1
SAS0225HXEOH-F3FTE120	4x2.50	11.9	232	8.1

# TELRAMFEU

## NBN 713-020 CR1-C1

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

TELRAMFEU NBN 713-020 CR1-C1



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Special Mix Silicon Rubber

**Collective Screen:**

Aluminium / PETP tape over copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Orange

### STANDARD REFERENCES

- NBN 713-020
- NF C32-070 CAT. C1 & C2
- EN 50200
- NBN C 30-004 F2 FR2
- NF C32-310

### ON REQUEST

- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

### IDENTIFICATION OF CORES

- 1 Pair: ● ○
- 2 Pair: ● ●
- 3 Pair: ● ● ●

### TEMPERATURE RANGE

**Fixed Installation:**

-30° C up to +180°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 TELRAMFEU - 2PR 9/10 - CR1/C1 NF C 32-070 & IEC 60331 0.5 kV HALOGEN FREE + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius

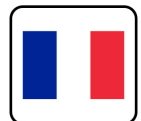
8 x cable diameter



Low Smoke Halogen Free



French Market



# TELRAMFEU

## NBN 713-020 CR1-C1

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
PYR1P09-R	1x2x0.90	5.7	44	29.7
PYR2P09-R	2x2x0.90	8.7	83	29.7
PYR3P09-R	3x2x0.90	9.3	109	29.7
PYR4P09-R	4x2x0.90	10.6	146	29.7
PYR5P09-R	5x2x0.90	11.6	174	29.7
PYR6P09-R	6x2x0.90	13.0	215	29.7
PYR8P09-R	8x2x0.90	14.7	283	29.7
PYR10P09-R	10x2x0.90	17.0	345	29.7
PYR12P09-R	12x2x0.90	17.5	395	29.7

# PUISSRAMFEU

## NBN 713-020 CR1-C1

Multi-Core, Solid CU, Silicon Rubber-Insulation, LSZH-Sheath

TELAMFEU NBN 713-020 CR1-C1



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Special Mix Silicon Rubber

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Orange

### STANDARD REFERENCES

- NBN 713-020
- NF C32-070 CAT. C1 & C2
- EN 50200
- NBN C 30-004 F2 FR2
- NF C32-310

### ON REQUEST

- Armor in Double Steel Tape (STA)
- Armor in Steel Wire Armour (SWA)
- Conductor Multistrand, Class 5

### IDENTIFICATION OF CORES

In acc. to HD 308

### TEMPERATURE RANGE

**Fixed Installation:**

-30° C up to +180°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 PUISSRAMFEU - 2x1.50 mm<sup>2</sup> - 300/500 V - CR1/C1 - week.prod./19 - BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MΩ\*km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

100/100 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius

8 x cable diameter



Low Smoke Halogen Free



French Market





# PUISSRAMFEU

## NBN 713-020

Multi-Core, Solid CU, Silicon Rubber-Insulation, LSZH-Sheath

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
PYR0215-R-100	2x1.50	6.6	88	12.1
PYR0215-R-100	3x1.50	7.4	115	12.1
PYR0215-R-100	4x1.50	8.3	139	12.1
PYR0215-R-100	5x1.50	9.1	183	12.1
PYR022 5-R-100	2x2.50	8.4	99	7.41
PYR0225-R-100	3x2.50	8.9	133	7.41
PYR0225-R-100	4x2.50	10.0	174	7.41
PYR0225-R-100	5x2.50	10.9	211	7.41
PYR0240-R-100	2x4.00	10.0	148	4.61
PYR0240-R-100	3x4.00	10.6	201	4.61
PYR0240-R-100	4x4.00	11.9	263	4.61
PYR0240-R-100	5x4.00	13.0	320	4.61
PYR0260-R-100	2x6.00	11.4	201	3.08
PYR0260-R-100	3x6.00	12.3	285	3.08
PYR0260-R-100	4x6.00	13.6	365	3.08
PYR0260-R-100	5x6.00	15.1	455	3.08
PYR0210-R-100	2x10.00	14.2	334	1.83
PYR0210-R-100	3x10.00	15.1	466	1.83
PYR0210-R-100	4x10.00	16.8	610	1.83
PYR0210-R-100	5x10.00	18.7	758	1.83

## BS 8434-2:2003+A2:2009 (120 min.)

Multi-Core, CU, Mica+XLPE+Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMFIRECRO-F3 - FIRE STAR - BS 8434-2:2003+A2:2009



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid or Stranded

**Insulation:**

- Mica Tape
- Cross Liked Polyetilene - XLPE
- Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinned copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

- BS 7629-1:2015 Enhanced 120
- EN 50200:2015 Annex E (30 mins)
- EN 50200:2015 (Class PH120)
- BS 8434-2:2003+A2:2009 (120 mins)
- EN 61034-2:2005+A1:2013
- EN 60754-1:2014

### IDENTIFICATION OF CORES

- 2 cores: ● ●  
3 cores: ● ● ●  
4 cores: ● ● ● ●  
up/from 5 cores: Black Numbered

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +180°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 FIRE STAR - FIRE RESISTANT ELECTRIC CABLE – LSZH - 300/500V - BS 7629-1:2015 ENHANCED 120 - 2x1,5 mmq + E - 2018 H - LPCB 568j/01 - MADE IN ITALY - BATCH N°

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 5000 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## BS 8434-2:2003+A2:2009 (120 min.)

Multi-Core, CU, Mica+XLPE+Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

### Solid Version (Bare Copper Cl.1)

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0211HFEOL-F3EN120	2x1.00*	8.9*	102	18.5
SAR0311HFEOP-F3EN120	3x1.00*	9.4*	131	18.5
SAR0411HFEQQ-F3EN120	4x1.00*	10.3*	189	18.5
SAR0214HFEOL-F3EN120	2x1.50*	9.4*	119	12.3
SAR0314HFEOP-F3EN120	3x1.50*	9.9*	183	12.3
SAR0414HFEQQ-F3EN120	4x1.50*	11.1*	194	12.3
SAR0218HFEOL-F3EN120	2x2.50*	10.1*	155	7.6
SAR0318HFEOP-F3EN120	3x2.50*	10.8*	201	7.6
SAR0418HFEQQ-F3EN120	4x2.50*	12.0*	253	7.6

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCESL-F3(IE)

### Stranded Version (Bare Copper Cl.2)

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAS0210HFEOL-F3EN120	2x1.00*	9.2*	105	18.5
SAS0310HFEOP-F3EN120	3x1.00*	9.7*	135	18.5
SAS0410HFEQQ-F3EN120	4x1.00*	10.7*	165	18.5
SAS0215HFEOL-F3EN120	2x1.50*	9.7*	126	12.3
SAS0315HFEOP-F3EN120	3x1.50*	10.3*	160	12.3
SAS0415HFEQQ-F3EN120	4x1.50*	11.5*	203	12.3
SAS0225HFEOL-F3EN120	2x2.50*	10.6*	161	7.6
SAS0325HFEOP-F3EN120	3x2.50*	11.5*	214	7.6
SAS0425HFEQQ-F3EN120	4x2.50*	12.6*	265	7.6
SAS0240HFEOL-F3EN120	2x4.00*	13.0*	246	4.7
SAS0340HFEOL-F3EN120	3x4.00*	13.9*	321	4.7
SAS0440HFEOL-F3EN120	4x4.00*	15.3*	398	4.7

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCESL-F3(IE)

## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath

**FIRE ALARM - FPLR - UL 1424**



### CONSTRUCTION

**Formation:**  
Plain annealed copper wire, Solid

**Insulation:**  
Hi Temperature Polyvinylchloride - PVC HT 105°C

**Wrapping:**  
at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**  
0,026 mm Aluminium / PETP tape over copper drain wire

**Outer Sheath:**  
High Performance Polyvinyl chloride - Hi-PVC

**Colour Outer Sheath:**  
Red

### STANDARD REFERENCES

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

### IDENTIFICATION OF CORES

2 cores: ● ●

### TEMPERATURE RANGE

**During Operation:**  
-30° C up to +105°C

**During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

**RAMCRO S.p.A. – (UL) Listed E475091 Type FPLR - 2 C 18AWG - Shielded - 105°C + BATCH + METER MARKING**

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**  
> 25 MOhm\*Km

**Test Voltage Core-Core:**  
2000 V

**Test Voltage Core-Screen:**  
2000 V

**Mutual Capacitance:**  
< 150 nF/km

**Inductance:**  
< 1 mH/km

**Operating Voltage:**  
300 V

### CHARACTERISTICS

**Fire Resistant**



**Min. Bending Radius**  
8 x cable diameter



**Low Smoke Halogen Free**



## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath

### Screened Version

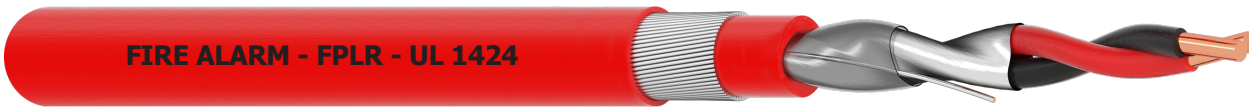
RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0204HFOCH-UL-FA	2x20AWG	3.3	20	34.0
SAR0203HFOCH-UL-FA	2x18AWG	3.8	27	21.4
SAR0202HFOCH-UL-FA	2x16AWG	4.1	38	13.5
SAR0201HFOCH-UL-FA	2x14AWG	5.7	70	8.5
SAR0251HFOCH-UL-FA	2x12AWG	6.5	90	5.3

### Unscreened Version

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SSR0204HFOCH-UL-FA	2x20AWG	3.5	22	34.0
SSR0203HFOCH-UL-FA	2x18AWG	3.9	29	21.4
SSR0202HFOCH-UL-FA	2x16AWG	4.2	35	13.5
SSR0201HFOCH-UL-FA	2x14AWG	5.8	75	8.5
SSR0251HFOCH-UL-FA	2x12AWG	6.6	92	5.3

## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Armoured, Hi-Performance PVC-Sheath



### CONSTRUCTION

**Formation:**  
Plain annealed copper wire, Solid

**Insulation:**  
Hi Temperature Polyvinylchloride - PVC HT 105°C

**Wrapping:**  
at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**  
0,026 mm Aluminium / PETP tape over copper drain wire

**Inner Sheath:**  
High Performance Polyvinyl chloride - Hi-PVC

**Armour:**  
Galvanized steel wire armour - SWA

**Outer Sheath:**  
High Performance Polyvinyl chloride - Hi-PVC

**Colour Outer Sheath:**  
Red

### STANDARD REFERENCES

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

### IDENTIFICATION OF CORES

2 cores: ● ●

### TEMPERATURE RANGE

**During Operation:**  
-30° C up to +105°C

**During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

RAMCRO S.p.A. – (UL) Listed E475091 Type FPLR - 2 C 18AWG - Shielded - 105°C + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**  
> 25 MOhm\*Km

**Test Voltage Core-Core:**  
2000 V

**Test Voltage Core-Screen:**  
2000 V

**Mutual Capacitance:**  
< 150 nF/km

**Inductance:**  
< 1 mH/km

**Operating Voltage:**  
300 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Armoured, Hi-Performance PVC-Sheath

### Screened Version

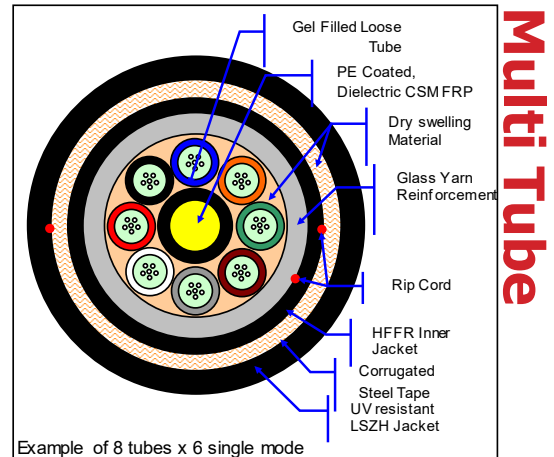
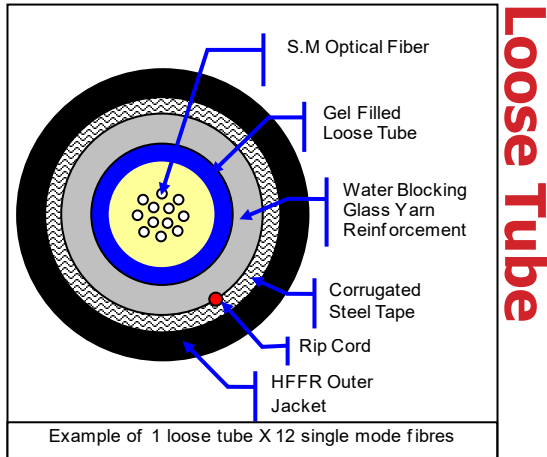
RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SAR0204AFOCH-UL-FA	2x20AWG	7.9	30	34.0
SAR0203AFOCH-UL-FA	2x18AWG	8.4	41	21.4
SAR0202AFOCH-UL-FA	2x16AWG	8.7	57	13.5
SAR0201AFOCH-UL-FA	2x14AWG	10.3	105	8.5
SAR0251AFOCH-UL-FA	2x12AWG	11.1	135	5.3

### Unscreened Version

RAMCRO CODE	FORMATION [n° x mm <sup>2</sup> ]	OUTER DIAMETER [mm]	WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SSR0204AFOCH-UL-FA	2x20AWG	8.1	33	34.0
SSR0203AFOCH-UL-FA	2x18AWG	8.5	44	21.4
SSR0202AFOCH-UL-FA	2x16AWG	8.8	52	13.5
SSR0201AFOCH-UL-FA	2x14AWG	10.4	113	8.5
SSR0251AFOCH-UL-FA	2x12AWG	11.2	138	5.3

## SINGLE MODE 9/125 $\mu\text{m}$

These Fiber Optic cables can incorporate up to 24 single mode fibers. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.



### CONSTRUCTION

**Fibres:**

Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications color coded for easy identification

**Tubes:**

PBT tube.

**Filling:**

The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

**Tubes Filled:**

Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

**Armouring:**

A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

**Sheath:**

A UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armor.

**Ripcords:**

laid under the steel tape to facilitate the jacket removal.

### IDENTIFICATION OF FIBER



### CONSTRUCTION

**Fibres:**

Up to 432 optical single mode fibers color coded for easy identification

**Tubes:**

PBT tube the tubes are SZ stranded around a dielectric central member

**Filling:**

The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

**Tubes Filled:**

Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

**Armouring:**

A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

**Sheath:**

A UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armor.

**Ripcords:**

laid under the steel tape to facilitate the jacket removal.

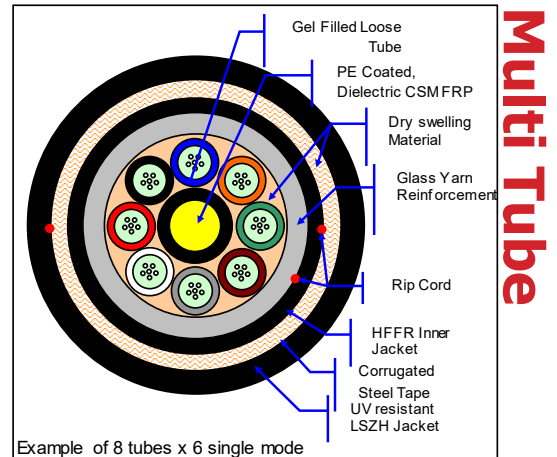
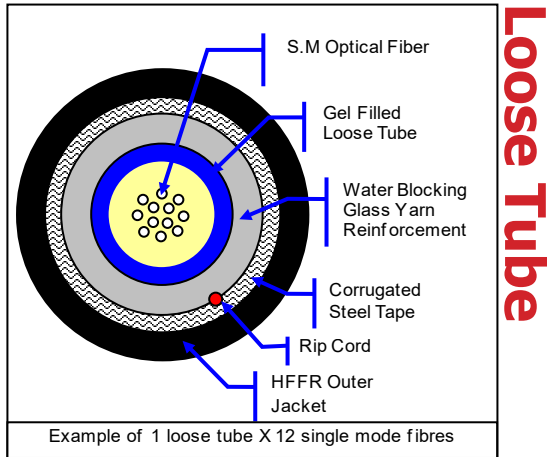
### STANDARD REFERENCES

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014



## MULTI MODE OM3 50/125 μm - 50/125 μm - 62.5/125 μm

These Fiber Optic cables can incorporate up to 24 single mode fibers. The cable is glass yarn reinforced and jacketed with Halogen Free Flame Retardant compound (HFFR). The cable is designed for indoor/outdoor applications in ducts, direct burial or latched installations. Comply with IEC 60332- 3 & IEC 60331-25 flammability test and with halogen-free according to IEC 60754-2 Corrosively.



### CONSTRUCTION

**Fibres:**

Up to Twenty-four single mode fibers, meeting or exceeding the ITU-T G.652/G.651 and/or IEC 60793 specifications color coded for easy identification

**Tubes:**

PBT tube.

**Filling:**

The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

**Tubes Filled:**

Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

**Armouring:**

A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

**Sheath:**

UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armouring.

**Ripcords:**

laid under the steel tape to facilitate the jacket removal.

### CONSTRUCTION

**Fibres:**

Up to 432 optical single mode fibers color coded for easy identification

**Tubes:**

PBT tube the tubes are SZ stranded around a dielectric central member

**Filling:**

The tube is filled with water blocking, thixotropic gel to prevent the ingress of water.

**Tubes Filled:**

Dry, water swelling glass yarn is laid over the tube to serve as peripheral strength members and to block the cable from water penetration. LSZH inner jacket is extruded over the yarn.

**Armouring:**

A corrugated steel armor tape is longitudinally applied over the yarn with an overlap.

**Sheath:**

UV resistant, Halogen Free, Flame-Retardant (HFFR) extruded over the armouring.

**Ripcords:**

laid under the steel tape to facilitate the jacket removal.

### IDENTIFICATION OF FIBER



### STANDARD REFERENCES

- IEC 60331-25:1999
- IEC 60332-1-2:2004
- EN 61034-2:2005
- EN 60754-1:2014

# CERTIFICATE

## PRODUCT APPROVAL



## BS 6387:2013 Cat. C-W-Z

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath


www.redbooklive.com

### Certificate of Product Approval

Certificate Number: 568a      Issue: 15

### RAMCRO S.p.A.

Via Marzorati 15  
20014 Nerviano  
Milan  
Italy



is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<p><b>Product(s)</b> Cable Types as listed below: Ramfirecro-F3 FIRE PLANET</p>	<p><b>Standard(s) (see Appendix for details)</b> BS 6387:2013 EN 60754-1:2014 EN 61034-2:2005 EN 50200:2015 (Class PH60 &amp; PH120)</p>
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This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
Signed for BRE Global Ltd.


Karen Coull      18 September 2018      27 October 2003  
Certification Scheme Manager      Date of Issue      Date of First Issue




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### Appendix to Certificate No: 568a

### RAMCRO S.p.A.

Product name

Ramfirecro-F3 FIRE PLANET

Nominal csa of conductor (mm <sup>2</sup> )	Core Construction	BS 6387	EN 60754-1
1.0 <sup>(1)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl
1.5 <sup>(1)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl
2.5 <sup>(1)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl
4 <sup>(1)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl

Product name

Ramfirecro-F3 FIRE PLANET

Nominal csa of conductor (mm <sup>2</sup> )	Core Construction	BS 6387	EN 60754-1	EN 61034-2	EN 50200
1.5 <sup>(2)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl	>60%	PH 120
2.5 <sup>(2)</sup>	2, 3 & 4	C, W, Z	<0.5% HCl	>60%	PH 120

**Uo/U 300/500V**



**Notes:**

1. Stranded conductors only.
2. Solid conductor only.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
Signed for BRE Global Ltd.

Karen Coull      18 September 2018      27 October 2003  
Certification Scheme Manager      Date of Issue      Date of First Issue

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**568a/02  
issue 15**

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**Certificate of Product Approval**  
 Certificate Number: 568c Issue: 13

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**RAMCRO S.p.A.**  
 Via Marzorati 15  
 20014 Nerviano MI  
 Italy

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is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

**Product(s)**  
 Cable Types as listed below:  
 Ramfirecro-F3 Standard FIRE SUN

**Standard(s) (see Appendix for details)**  
 BS 7629-1:2008  
 BS 6387:2013 (CWZ)  
 EN 50200:2006 (Class PH30/PH1 20)  
 EN 50200:2006 Annex E (30 mins)  
 BS 5839-1:2013 (Clause 26.2d Standard)

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This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*K. Coull*  
 Signed for BRE Global Ltd. 6 December 2018 1 June 2006  
 Certification Scheme Manager Date of Issue Date of First Issue

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**Certificate No: 568c** **Issue: 13**

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LPCB Ref. No.  
568c/02

BS 7629-1	BS 6387	EN 50200	EN 50200 Annex E	BS 5839-1 Clause 26.2
Complies (a)	C, W, Z	PH120	30min (a)	Standard (a)
Complies (a)	C, W, Z	PH120	30min (a)	Standard (a)
Complies (a)	C, W, Z	PH120	30min (a)	Standard (a)
Complies (a)	C, W, Z	PH120	30min (a)	Standard (a)

1. Joint and junction connections.
2. Stranded conductor only.
3. In meeting the requirements of BS 7629-1:2008, the Ramfirecro-F3 Standard FIRE SUN cables listed met the requirements for smoke density of EN 61034-2: 2005, the fire resistance requirements in BS 6387:2013 Categories CWZ and achieved less than 0.5% HCl for the outer covering, binder tape & insulation when tested in accordance with EN 50267-2-1: 1999.
4. The duration of 30 min when tested in accordance with EN 50200: 2006 Annex E is achieved by 15 min for the fire and mechanical shock phase and an additional 15 min for the fire, mechanical shock and water phase.
5. The Ramfirecro-F3 Standard FIRE SUN cables listed conform to BS 7629-1:2008, met Class PH120 when tested in accordance with EN 50200:2006 and met the 30min duration when tested in accordance with EN 50200:2006 Annex E and hence met the requirements for a standard fire resistant cable as described in Clause 26.2 of BS 5839-1:2013.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*K. Coull*  
 Signed for BRE Global Ltd. 6 December 2018 1 June 2006  
 Certification Scheme Manager Date of Issue Date of First Issue

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**Certificate of Product Approval**  
 Certificate Number: 568d Issue: 06

**RAMCRO S.p.A**  
 Via Marzorati 15  
 20014 Nerviano MI  
 ITALY

**LOSS PREVENTION CERTIFICATION BOARD**  
**LPCB**

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<b>Product(s)</b> Cable Types as listed below: Ramfirecro-F3 FIRE SAFE See Certificate Appendix for details	<b>Standard(s) (see Appendix for details)</b> IEC 60331-21:1999 EN 50267-2-1:1999 EN 61034-2:2005
--	--

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd. Karen Coull  
Certification Scheme Manager 20 September 2017  
Date of Issue 01 August 2009  
Date of First Issue

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**ificate No: 568d** **Issue: 06**


LPCB Ref. No. 568d/01			
Construction (drain wire and earth)	IEC 60331-21	EN 50267-2-1	EN 61034-2
2, 3 & 4	Complies	<0.5% HCl	>60%
2, 3 & 4	Complies	<0.5% HCl	>60%
2, 3 & 4	Complies	<0.5% HCl	>60%



This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd. Karen Coull  
Certification Scheme Manager 20 September 2017  
Date of Issue 01 August 2009  
Date of First Issue

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## BS 6387:2013 Cat. C-W-Z

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath

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**Certificate of Product Approval**  
 Certificate Number: 568e      Issue: 06

**RAMCRO S.p.A.**  
 Via Marzorati  
 15 - 20014 Nerviano  
 Nerviano  
 Milan  
 20014  
 Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<b>Product(s)</b> Cable Types as listed below: Ramfirecro-F3 FIRE GROUND	<b>Standard(s) (see Appendix for details)</b> BS 6387:2013 (CWZ) EN 60754-1:2014 EN 61034-2:2005+A1:2013 EN 60754-2:2014 EN 60332-3-24:2009 EN 60332-1-2:2004
--	---

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd.      Karen Coull      Certification Scheme Manager      11 September 2018      Date of Issue      27 May 2016      Date of First Issue

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**Certificate No: 568e      Issue: 06**

LPCB Ref. No.					
568e/01					
BS 6387 (see note 2)	EN 60754-1	EN 61034-2	EN 60754-2	EN 60332-3-24	EN 60332-1-2
CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies
CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies
CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies
CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies
CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies

16 <sup>(1)</sup>	2,3,4 & 5	CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies
25 <sup>(1)</sup>	2,3,4 & 5	CWZ	<0.5% HCl	>60%	Complies <sup>(2)</sup>	Complies	Complies

**Uo/U 600/1000 V**

**Notes:**

- Class 5 stranded conductor only.
- The Ramfirecro-F3 FIRE GROUND range with diameters greater than 20mm were tested in accordance with clause 17.6.2 and annex I of BS 7846:2015.
- Tested to general method given in EN 60754-2:2014.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd.      Karen Coull      Certification Scheme Manager      11 September 2018      Date of Issue      27 May 2016      Date of First Issue

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**568e/01  
issue 06**

## EN 50200:2015 Class PH 120

Multi-Core, Solid or Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

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**Certificate of Product Approval**  
 Certificate Number: 568f Issue: 04

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 20015 Nerviano MI  
 Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<b>Product(s)</b> Cable Types as listed below: RAMFIRECRO-F3 ENHANCED FIRE MOON	<b>Standard(s) (see Appendix for details)</b> EN 50200:2015 (Class PH120) IEC 60754-1:2014 EN 61034-2:2005+A1:2013
---	---

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for LPCB Karen Coull 01 September 2017 10 January 2017  
 Certification Scheme Manager Date of Issue Date of First Issue

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**ificate No: 568f**

**Issue: 04**

	LPCB Ref. No. 568f/01		
Construction of drain wire and earth)	EN 50200	EN 61034-2	EN 60754-1
2	PH120	>60%	Complies <sup>2)</sup>
2	PH120	>60%	Complies <sup>2)</sup>
2	PH120	>60%	Complies <sup>2)</sup>




**568f/01  
issue 04**

...ductors.  
 2. The RAMFIRECRO F3 ENHANCED FIRE MOON cable listed met the requirements for smoke density of EN 61034-2:2005+A1:2013 and achieved less than 0.5% HCl for the insulation, binder tape and outer covering when tested in accordance with EN 60754-1:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for LPCB Karen Coull 01 September 2017 10 January 2017  
 Certification Scheme Manager Date of Issue Date of First Issue

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### Certificate of Product Approval

Certificate Number: 568g

Issue: 01

#### RAMCRO S.p.A.

Via Marzorati 15  
20014 Nerviano  
Milan  
Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

#### Product(s)

Cable Types as listed below:  
RAMFIRECRO-F3  
Data Cable Category 6  
See Certificate Appendix for details

#### Standard(s) (see Appendix for details)

IEC 60331-21:1999  
IEC 60332-1-2:2004  
EN 61034-2:2005  
EN 60754-1:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Tony Baker*  
Signed for LPCB

Tony Baker  
Certification Scheme Manager

26 July 2017  
Date of Issue

26 July 2017  
Date of First issue



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ificate No: 568g

Issue: 01

LPCB Ref. No.

568g/01

IEC 60331-21	IEC 60332-1-2	EN 61034-2	EN 60754-1
Complies	Complies	>60%	<0.5% HCl

et the requirements of IEC 60331-21:1999 when tested at a temperature of 750°C mins cooling time at a voltage rating of 300V.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Tony Baker*  
Signed for LPCB

Tony Baker  
Certification Scheme Manager

26 July 2017  
Date of Issue

26 July 2017  
Date of First issue



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568g/01  
issue 01



## EN 50200:2015 Class PH 30

Multi-Core, Mutlstrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

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---

**Certificate of Product Approval**  
 Certificate Number: 568i Issue: 02

---

**RAMCRO S.p.A.**  
 Via Marzorati 15  
 20014 Nerviano MI  
 Italy

LOSS PREVENTION CERTIFICATION BOARD  
**LPCB**

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<p><b>Product(s)</b>                  Cable Types as listed below:                  RAMFIRECRO-F3 FIRE COMET</p>	<p><b>Standard(s) (see Appendix for details)</b>                  EN 50200:2015 (Class PH30)                  EN 61034-2:2005+A1:2013                  EN 60754-1:2014</p>
--	--

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd. Karen Coull 27 April 2018 15 February 2018  
 Certification Scheme Manager Date of Issue Date of First Issue


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**Certificate No: 568i** **Issue: 02**

	LPCB Ref. No.			
	568i/01			
Fire Construction	EN 50200	EN 61034-2	EN 60754-1	
2	PH 30	>60%	<0.5% HCl	
2	PH 30	>60%	<0.5% HCl	
2	PH 30	>60%	<0.5% HCl	



**568i/01  
issue 02**

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*Karen Coull*  
 Signed for BRE Global Ltd. Karen Coull 27 April 2018 15 February 2018  
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## BS 8434-2:2003+A2:2009 (120 min.)

Multi-Core, Solid or Stranded CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

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**Certificate of Product Approval**  
 Certificate Number: 568j      Issue: 03

**RAMCRO S.p.A.**  
 Via Marzorati 15  
 20014 Nerviano  
 Milan  
 Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

**Product(s)**  
 Cable Types as listed below:  
 Ramfirecro-F3 FIRE STAR

**Standard(s) (see Appendix for details)**  
 BS 7629-1:2015  
 EN 50200:2006 (Class PH120)  
 BS 8434-2:2003+A2:2009 (120 mins)  
 EN 60332-1-2:2004  
 EN 61034-2:2005+A1:2013  
 EN 60754-2:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*  
 Signed for BRE Global Ltd.

Karen Coull  
 Certification Scheme Manager

2 August 2018  
 Date of Issue

12 April 2018  
 Date of First Issue

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Certificate No: 568j

Issue: 03

LPCB Ref. No.					
568j/01					
BS 7629-1	EN 61034-2	EN 50200	EN 50200 Annex E	BS 8434-2	EN 60754-1
Enhanced 120 <sup>(2)</sup>	>80%	PH 120	30 min <sup>(4)</sup>	120 min <sup>(5)</sup>	<0.5%
Enhanced 120 <sup>(2)</sup>	>80%	PH 120	30 min <sup>(4)</sup>	120 min <sup>(5)</sup>	<0.5%
Enhanced 120 <sup>(2)</sup>	>80%	PH 120	30 min <sup>(4)</sup>	120 min <sup>(5)</sup>	<0.5%
Enhanced 120 <sup>(2)</sup>	>80%	PH 120	30 min <sup>(4)</sup>	120 min <sup>(5)</sup>	<0.5%

3. In meeting the requirements of BS 7629-1:2015, the RAMFIRECRO-F3 FIRE STAR cables listed met the requirements for smoke density of EN 61034-2: 2005+A:2013 and achieved less than 0.5% HCl for the outer covering, binding tape & insulation when tested in accordance with EN 60754-1:2014.
4. The duration of 30 mins when tested in accordance with EN 50200: 2015 Annex E is achieved by 15 min for the fire and mechanical shock phase and an additional 15 min for the fire, mechanical shock and water phase.
5. The duration of 120 min when tested in accordance with BS 8434-2:2003+A2:2009 is achieved by 60 min for the fire and mechanical shock phase and an additional 60 min for the fire, mechanical shock phase and water phase.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

*Karen Coull*      Karen Coull      2 August 2018      12 April 2018  
 Signed for BRE Global Ltd.      Certification Scheme Manager      Date of Issue      Date of First Issue



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**568j/01  
issue 03**

## CEI 20-105 - FG4OHM1 PH30

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



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**CA01.00716**  
 SN.R000FQ

### Certificato di approvazione

Approval certificate

PID:  
01017100

CID:  
CN.R0004L

**IMQ, ente di certificazione accreditato, autorizza la ditta**

*IMQ, accredited certification body, grants to*

**RAMCRO SPA**  
**VIA MARZORATI 15**  
**20014 NERVIANO MI**  
**IT - Italy**

**CA01.00716**  
 SN.R000FQ

all'uso del marchio *the licence to use the mark*




per i seguenti prodotti *for the following products*

**Cavi resistenti al fuoco a bassa tossicità e corrosività (FG4OHM1)**  
*Cables resistant to fire with low toxicity and corrosivity (FG4OHM1)*

Emesso il / Issued on **2017-06-28**

Aggiornato il / Updated on ---

Sostituisce / Replaces ---

*This certificate is subjected to the conditions foreseen by Rules "IMQ MARKS - RULES for product certification" and is relevant to the products listed in the annex to this certificate.*

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 tel. fax 0250991500  
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**CA01.00716**  
 SN.R000FQ

Emesso il / Issued on 2017-06-28

Aggiornato il / Updated on ---

Sostituisce / Replaces ---

**Prodotto | Product**

**o fuoco a bassa tossicità e corrosività**  
**to fire with low toxicity and corrosivity**

**Holder**

**Marchio | Mark**




**Costruito a | Manufactured at**

MI Italy

*Copy of this certificate must be available at the manufacturing places listed above*

**Caratteristiche tecniche**

**Standards / Technical specifications**



**CA01.00716**

Emesso il / Issued on **2017-06-28**

Aggiornato il / Updated on ---

Sostituisce / Replaces ---

*This certificate is subjected to the conditions foreseen by Rules "IMQ MARKS - RULES for product certification" and is relevant to the products listed in the annex to this certificate.*

**Caratteristiche tecniche | Technical characteristics**

*Tipo di cavo / Type of cable* **Cavi elettrici resistenti al fuoco, isolati con mescola in gomma siliconica sotto guaina termoplastica, con schermo, non propaganti l'incendio, senza alogeni per applicazioni in sistemi fissi flame retardant insulated with silicone rubber compound with thermoplastic sheath, screened, halogen free cables for automatic fire detection and fire alarm system**

*Sigla di designazione / Type designation* **FG4OHM1**

*Tensione nominale / Rated voltage* **100/100 V**

**Articoli (con dettagli) | Articles (with details)**

RAMFIRECRO - F3 - Fire comet

## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath

### CERTIFICATE OF COMPLIANCE

**Certificate Number** 20150827-E475091  
**Report Reference** E475091-20150827  
**Issue Date** 2015-AUGUST-27

**Issued to:** RAMCRO SPA  
VIA MARZORATI 15  
20014 NERVIANO MILANO ITALY

**This is to certify that representative samples of** POWER-LIMITED FIRE ALARM CABLE  
Power-Limited Fire-Alarm Circuit Cable, Type FPLR

Have been investigated by UL in accordance with the Standard(s) indicated on this Certificate.

**Standard(s) for Safety:** UL 1424 STANDARD FOR CABLES FOR POWER-LIMITED FIRE-ALARM CIRCUITS

**Additional Information:** See the UL Online Certifications Directory at [www.ul.com/database](http://www.ul.com/database) for additional information

Only those products bearing the UL Certification Mark should be considered as being covered by UL's Certification and Follow-Up Service.

Look for the UL Certification Mark on the product.



Bruce Mahrenholz, Director North American Certification Program  
UL LLC

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Page 1 of 1



## E475091



## SINGLE MODE, MULTI MODE FIBER OPTIC

Fiber Optic Fire Resistant

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**Certificate of Product Approval**  
 Certificate Number: 568h Issue: 01

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 Milan  
 Italy

is authorised to use the LPCB mark in association with the product(s) listed in this certificate and appendix having complied with the requirements of the standard(s) detailed below:

<b>Product(s)</b>	<b>Standard(s) (see Appendix for details)</b>
Cable Types as listed below: 6 FO Single Mode 6 FO Multi Mode See Certificate Appendix for details	IEC 60331-25:1999 IEC 60332-1-2:2004 EN 61034-2:2005 EN 60754-1:2014

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Tony Baker  
 Certification Scheme Manager

26 July 2017  
 Date of Issue

26 July 2017  
 Date of First Issue

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<b>ificate No: 568h</b>			<b>Issue: 01</b>	
LPCB Ref. No. 568h/01				
IEC 60331-25	IEC 60332-1-2	EN 61034-2	EN 60754-1	
Complies	Complies	>60%	<0.5% HCl	
LPCB Ref. No. 568h/02				
IEC 60331-25	IEC 60332-1-2	EN 61034-2	EN 60754-1	
Complies	Complies	>60%	<0.5% HCl	

**Notes:**

- The 6 FO Single Mode & 6 FO Multi Mode cables met the requirements of IEC 60331-25:1999 when tested at a temperature of 750°C for a duration of 90mins + 15mins cooling time.

This Certificate is maintained and held in force through regular surveillance activities and subject to the corresponding ISO 9001 Certificate being maintained.

Tony Baker  
 Certification Scheme Manager

26 July 2017  
 Date of Issue

26 July 2017  
 Date of First Issue

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QD 06/01

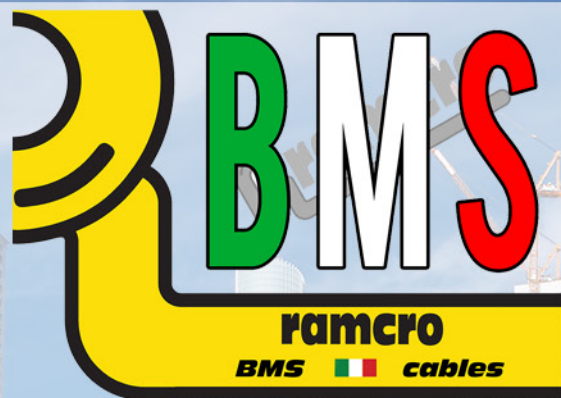
**Edited by Sales Director on April 2019**

Dr. Carlo Croci

Approved by AQ: PC







# CONTROL & BMS CABLE CATALOGUE



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# GENERAL INTRODUCTION

All PVC, LSZH(FRNC) and LSF sheathed multi-conductor cables are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation.

Where is needed to provide the solutions for the exchange and storage of information to keep businesses efficient, on top and performing, these include heating, ventilation, air conditioning as well as lighting, security systems and the operation of electric/electronic appliances.

These type of cable are suitable for a lot of installations:

- Industrial Use
- CCTV intrusion and access
- CATV Systems
- Audio and Video Systems
- Residential



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Unscreened multi-conductor cable with a PVC sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation

**RAMCRO BMS**



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polypropylene - PP

**Cable twisting:**

Two or more wire twisted

**Outer Sheath:**

Polyvinyl chloride - PVC

**Colour Outer Sheath:**

Grey

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG

UNSCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius

8 x cable diameter



Put up length 305 mt

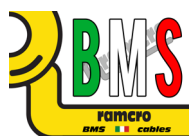


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

PVC sheathed, unshielded cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSS0207HBAXH-RB	R1227	2x22AWG	3.1	13	56.7	40.0
SSS0307HBAXX-RB	R1278	3x22AWG	3.3	17	56.7	35.0
SSS0407HBAXX-RB	R1231	4x22AWG	3.6	22	56.7	45.0
SSS0607HBAXX-RB	R1265	6x22AWG	4.2	30	56.7	45.0
SSS0807HBAXX-RB	R1233	8x22AWG	4.6	38	56.7	45.0
SSS0206HBAXH-RB	R1020	2x20AWG	3.5	18	37.2	46.0
SSS0306HBAXX-RB	R1022	3x20AWG	3.7	24	37.2	47.0
SSS0406HBAXX-RB	R1024	4x20AWG	4.0	30	37.2	47.0
SSS0606HBAXX-RB	R1261	6x20AWG	4.8	42	37.2	45.0
SSS0806HBAXX-RB	R1263	8x20AWG	5.3	54	37.2	45.0
SSS0205HBAXH-RB	R1014	2x18AWG	3.9	24	22.9	52.0
SSS0305HBAXX-RB	R1016	3x18AWG	4.1	33	22.9	55.0
SSS0405HBAXX-RB	R1018	4x18AWG	4.5	42	22.9	45.0
SSS0505HBAXX-RB	R1054	5x18AWG	4.8	61	22.9	45.0
SSS0605HBAXX-RB	R1212	6x18AWG	5.4	61	22.9	50.0
SSS0705HBAXX-RB	R1239	7x18AWG	5.8	80	22.9	50.0
SSS0805HBAXX-RB	R1259	8x18AWG	6.0	78	22.9	50.0
SSS0203HBAXH-RB	R1008	2x16AWG	4.6	34	15.5	53.0
SSS0303HBAXX-RB	R1010	3x16AWG	4.9	46	15.5	56.0
SSS0403HBAXX-RB	R1012	4x16AWG	5.4	59	15.5	55.0
SSS0603HBAXX-RB	R1253	6x16AWG	6.5	85	15.5	48.0
SSS0803HBAXX-RB	R1255	8x16AWG	7.1	111	15.5	45.0
SSS0201HBAXH-RB	R1002	2x14AWG	5.5	51	9.3	51.0
SSS0301HBAXX-RB	R1004	3x14AWG	5.9	72	9.3	55.0
SSS0401HBAXX-RB	R1006	4x14AWG	6.5	93	9.3	55.0
SSS0601HBAXX-RB	R1249	6x14AWG	7.8	135	9.3	50.0
SSS0801HBAXX-RB	R1251	8x14AWG	8.7	177	9.3	50.0
SSS0252HBAXH-RB	R1323	2x12AWG	6.7	79	5.7	60.0
SSS0352HBAXX-RB	R1325	3x12AWG	7.1	112	5.7	60.0
SSS0452HBAXX-RB	R1327	4x12AWG	7.9	146	5.7	60.0
SSS0552HBAXX-RB	R1329	5x12AWG	8.1	163	5.7	60.0
SSS0652HBAXX-RB	R1331	6x12AWG	8.7	180	5.7	60.0
SSS0852HBAXX-RB	R1333	8x12AWG	9.6	214	5.7	60.0



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Screened multi-conductor cable with a PVC sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polypropylene - PP

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

**Colour Outer Sheath:**

Grey

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG  
SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN  
ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Building Management Systems Cable****Min. Bending Radius**  
8 x cable diameter**Put up lenght 305 mt**

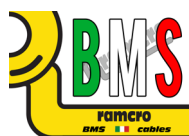


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

PVC sheathed, screened cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0207HBAXH-RB	R1226	2x22AWG	3.2	16	56.7	78.0
SAS0307HBAXX-RB	R1228	3x22AWG	3.4	20	56.7	75.0
SAS0407HBAXX-RB	R1230	4x22AWG	3.6	24	56.7	70.0
SAS0607HBAXX-RB	R1264	6x22AWG	4.3	33	56.7	64.0
SAS0807HBAXX-RB	R1232	8x22AWG	4.7	41	56.7	60.0
SAS0206HBAXH-RB	R1019	2x20AWG	3.6	21	37.2	100.0
SAS0306HBAXX-RB	R1021	3x20AWG	3.8	26	37.2	90.0
SAS0406HBAXX-RB	R1023	4x20AWG	4.1	32	37.2	90.0
SAS0406HBAXX-RB	R1023	4x20AWG	4.1	32	37.2	90.0
SAS0606HBAXX-RB	R1260	6x20AWG	4.9	45	37.2	90.0
SAS0806HBAXX-RB	R1262	8x20AWG	5.4	57	37.2	75.0
SAS0205HBAXH-RB	R1013	2x18AWG	4.0	27	22.9	95.0
SAS0305HBAXX-RB	R1015	3x18AWG	4.2	36	22.9	90.0
SAS0405HBAXX-RB	R1017	4x18AWG	4.6	45	22.9	75.0
SAS0605HBAXX-RB	R1211	6x18AWG	5.5	64	22.9	75.0
SAS0705HBAXX-RB	R1239	7x18AWG	5.8	75	22.9	75.0
SAS0805HBAXX-RB	R1258	8x18AWG	6.0	72	22.9	75.0
SAS0203HBAXH-RB	R1007	2x16AWG	4.7	81	15.5	105.0
SAS0303HBAXX-RB	R1009	3x16AWG	5.0	49	15.5	105.0
SAS0403HBAXX-RB	R1011	4x16AWG	5.4	62	15.5	90.0
SAS0603HBAXX-RB	R1252	6x16AWG	6.5	88	15.5	80.0
SAS0803HBAXX-RB	R1254	8x16AWG	7.2	114	15.5	80.0
SAS0201HBAXH-RB	R1001	2x14AWG	5.6	54	9.3	105.0
SAS0301HBAXX-RB	R1003	3x14AWG	5.9	75	9.3	100.0
SAS0401HBAXX-RB	R1005	4x14AWG	6.5	96	9.3	98.0
SAS0501HBAXX-RB	R1209	5x14AWG	6.8	111	9.3	98.0
SAS0601HBAXX-RB	R1248	6x14AWG	7.9	139	9.3	96.0
SAS0801HBAXX-RB	R1250	8x14AWG	8.7	180	9.3	95.0
SAS0252HBAXH-RB	R1322	2x12AWG	6.8	82	5.7	105.0
SAS0352HBAXX-RB	R1324	3x12AWG	7.2	115	5.7	105.0
SAS0452HBAXX-RB	R1326	4x12AWG	8.0	149	5.7	100.0
SAS0552HBAXX-RB	R1328	5x12AWG	8.2	161	5.7	100.0
SAS0652HBAXX-RB	R1330	6x12AWG	9.7	217	5.7	100.0
SAS0852HBAXX-RB	R1332	8x12AWG	10.8	284	5.7	100.0



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Unscreened multi-conductor cable with a LSZH(FRNC) sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation

**RAMCRO BMS**



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polyolefine - PO

**Cable twisting:**

Two or more wire twisted

**Outer Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R \_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG SCREENED LSZH(FRNC) 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 25 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius  
8 x cable diameter



Put up length 305 mt

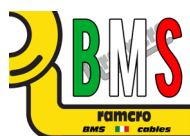


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

LSZH(FRNC) sheathed, unshielded cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSS0207HXEDH-RB	R1742	2x22AWG	3.3	14	56.7	65.0
SSS0307HXEDX-RB	R1744	3x22AWG	3.5	18	56.7	70.0
SSS0407HXEDX-RB	R1746	4x22AWG	3.8	22	56.7	72.0
SSS0607HXEDX-RB	R1748	6x22AWG	4.5	31	56.7	75.0
SSS0807HXEDX-RB	R1750	8x22AWG	4.9	40	56.7	75.0
SSS0206HXEDH-RB	R1732	2x20AWG	3.5	17	37.2	65.0
SSS0306HXEDX-RB	R1734	3x20AWG	3.7	23	37.2	65.0
SSS0406HXEDX-RB	R1736	4x20AWG	4.0	29	37.2	68.0
SSS0506HXEDX-RB	R1753	5x20AWG	4.2	35	37.2	68.0
SSS0606HXEDX-RB	R1738	6x20AWG	4.8	41	37.2	70.0
SSS0806HXEDX-RB	R1740	8x20AWG	5.3	52	37.2	70.0
SSS0205HXEDH-RB	R1722	2x18AWG	3.9	24	22.9	65.0
SSS0305HXEDX-RB	R1724	3x18AWG	4.1	33	22.9	70.0
SSS0405HXEDX-RB	R1726	4x18AWG	4.5	42	22.9	72.0
SSS0605HXEDX-RB	R1728	6x18AWG	5.4	60	22.9	75.0
SSS0805HXEDX-RB	R1730	8x18AWG	6.0	77	22.9	75.0
SSS0203HXEDH-RB	R1712	2x16AWG	4.6	33	15.5	65.0
SSS0303HXEDX-RB	R1714	3x16AWG	4.9	45	15.5	72.0
SSS0403HXEDX-RB	R1716	4x16AWG	5.4	58	15.5	72.0
SSS0603HXEDX-RB	R1718	6x16AWG	6.5	85	15.5	74.0
SSS0803HXEDX-RB	R1720	8x16AWG	7.1	110	15.5	75.0
SSS0201HXEDH-RB	R1702	2x14AWG	5.5	51	9.3	75.0
SSS0301HXEDX-RB	R1704	3x14AWG	5.9	71	9.3	75.0
SSS0401HXEDX-RB	R1706	4x14AWG	6.5	92	9.3	77.0
SSS0601HXEDX-RB	R1708	6x14AWG	7.8	134	9.3	80.0
SSS0801HXEDX-RB	R1710	8x14AWG	8.7	176	9.3	80.0
SSS0252HXEDH-RB	R1335	2x12AWG	6.7	78	5.7	75.0
SSS0352HXEDX-RB	R1337	3x12AWG	7.1	110	5.7	76.0
SSS0452HXEDX-RB	R1339	4x12AWG	7.9	144	5.7	80.0
SSS0552HXEDX-RB	R1341	5x12AWG	8.1	151	5.7	80.0
SSS0652HXEDX-RB	R1343	6x12AWG	9.6	211	5.7	80.0
SSS0852HXEDX-RB	R1345	8x12AWG	10.7	277	5.7	80.0



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Screened multi-conductor cable with a LSZH(FRNC) sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation

**RAMCRO BMS**



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polyolefine - PO

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG UNSCREENED LSZH(FRNC) 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 25 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius

8 x cable diameter



Put up lenght 305 mt

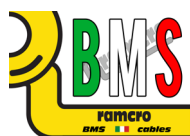


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

LSZH(FRNC) sheathed, screened cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0207HXEDH-RB	R1741	2x22AWG	3.4	16	56.7	115.0
SAS0307HXEDX-RB	R1743	3x22AWG	3.6	21	56.7	110.0
SAS0407HXEDX-RB	R1745	4x22AWG	3.9	25	56.7	110.0
SAS0607HXEDX-RB	R1747	6x22AWG	4.6	35	56.7	105.0
SAS0807HXEDX-RB	R1749	8x22AWG	5.0	43	56.7	100.0
SAS1207HXEDX-RB	R1752	12x22AWG	6.1	73	56.7	100.0
SAS0206HXEDH-RB	R1731	2x20AWG	3.6	20	37.2	138.0
SAS0306HXEDX-RB	R1733	3x20AWG	3.8	26	37.2	140.0
SAS0406HXEDX-RB	R1735	4x20AWG	4.1	32	37.2	120.0
SAS0606HXEDX-RB	R1737	6x20AWG	4.9	44	37.2	115.0
SAS0806HXEDX-RB	R1739	8x20AWG	5.4	56	37.2	115.0
SAS0205HXEDH-RB	R1721	2x18AWG	4.0	27	22.9	150.0
SAS0305HXEDX-RB	R1723	3x18AWG	4.2	35	22.9	150.0
SAS0405HXEDX-RB	R1725	4x18AWG	4.6	45	22.9	150.0
SAS0605HXEDX-RB	R1727	6x18AWG	5.5	63	22.9	140.0
SAS0805HXEDX-RB	R1729	8x18AWG	6.0	81	22.9	135.0
SAS0203HXEDH-RB	R1711	2x16AWG	4.7	36	15.5	170.0
SAS0303HXEDX-RB	R1713	3x16AWG	5.0	48	15.5	168.0
SAS0403HXEDX-RB	R1715	4x16AWG	5.4	62	15.5	165.0
SAS0603HXEDX-RB	R1717	6x16AWG	6.5	88	15.5	150.0
SAS0803HXEDX-RB	R1719	8x16AWG	7.2	113	15.5	146.0
SAS0201HXEDH-RB	R1701	2x14AWG	5.6	54	9.3	190.0
SAS0301HXEDX-RB	R1703	3x14AWG	5.9	74	9.3	185.0
SAS0401HXEDX-RB	R1705	4x14AWG	6.5	95	9.3	183.0
SAS0601HXEDX-RB	R1707	6x14AWG	7.9	118	9.3	178.0
SAS0801HXEDX-RB	R1709	8x14AWG	8.7	140	9.3	173.0
SAS0252HXEDH-RB	R1334	2x12AWG	6.8	81	5.7	190.0
SAS0352HXEDX-RB	R1336	3x12AWG	7.2	114	5.7	190.0
SAS0452HXEDX-RB	R1338	4x12AWG	8.0	147	5.7	190.0
SAS0552HXEDX-RB	R1340	5x12AWG	8.3	165	5.7	190.0
SAS0652HXEDX-RB	R1342	6x12AWG	9.7	215	5.7	180.0
SAS0852HXEDX-RB	R1344	8x12AWG	10.8	281	5.7	176.0

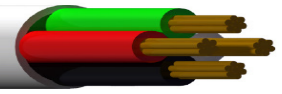


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Unscreened multi-conductor cable with a LSF sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation

**RAMCRO BMS**



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polypropylene - PP

**Cable twisting:**

Two or more wire twisted

**Outer Sheath:**

Low Smoke Fume - PVC

**Colour Outer Sheath:**

Grey

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

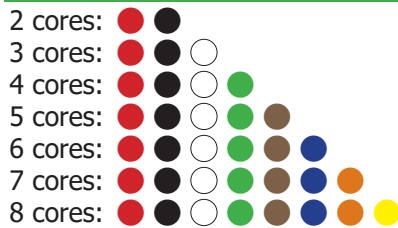
- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG UNSCREENED LSF 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 25 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius  
8 x cable diameter



Put up length 305 mt

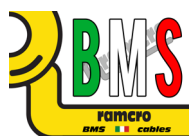


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

LSF sheathed, Unscreened cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSS0207HBSXH-RB	R4060	2x22AWG	3.1	13	56.7	40.0
SSS0307HBSXX-RB	R4061	3x22AWG	3.3	17	56.7	35.0
SSS0407HBSXX-RB	R4062	4x22AWG	3.6	22	56.7	45.0
SSS0607HBSXX-RB	R4063	6x22AWG	4.2	30	56.7	45.0
SSS0807HBSXX-RB	R4064	8x22AWG	4.6	38	56.7	45.0
SSS0206HBSXH-RB	R4084	2x20AWG	3.5	18	37.2	46.0
SSS0306HBSXX-RB	R4085	3x20AWG	3.7	24	37.2	47.0
SSS0406HBSXX-RB	R4086	4x20AWG	4.0	30	37.2	47.0
SSS0606HBSXX-RB	R4087	6x20AWG	4.8	42	37.2	45.0
SSS0806HBSXX-RB	R4088	8x20AWG	5.3	54	37.2	45.0
SSS0205HBSXH-RB	R4028	2x18AWG	3.9	24	22.9	52.0
SSS0305HBSXX-RB	R4029	3x18AWG	4.1	33	22.9	55.0
SSS0405HBSXX-RB	R4030	4x18AWG	4.5	42	22.9	45.0
SSS0505HBSXX-RB	R4031	5x18AWG	4.7	53	22.9	45.0
SSS0605HBSXX-RB	R4032	6x18AWG	5.4	61	22.9	50.0
SSS0605HBSXX-RB	R4033	7x18AWG	5.7	75	22.9	50.0
SSS0805HBSXX-RB	R4034	8x18AWG	6.0	78	22.9	50.0
SSS1205HBSXX-RB	R4035	12x18AWG	7.0	95	22.9	50.0
SSS0203HBSXH-RB	R4023	2x16AWG	4.6	34	15.5	53.0
SSS0303HBSXX-RB	R4024	3x16AWG	4.9	46	15.5	56.0
SSS0403HBSXX-RB	R4025	4x16AWG	5.4	59	15.5	55.0
SSS0603HBSXX-RB	R4026	6x16AWG	6.5	85	15.5	48.0
SSS0803HBSXX-RB	R4027	8x16AWG	7.1	111	15.5	45.0
SSS0201HBSXH-RB	R4080	2x14AWG	5.5	51	9.3	51.0
SSS0301HBSXX-RB	R4082	3x14AWG	5.9	72	9.3	55.0
SSS0401HBSXX-RB	R4084	4x14AWG	6.5	93	9.3	55.0
SSS0601HBSXX-RB	R4086	6x14AWG	7.8	135	9.3	50.0
SSS0801HBSXX-RB	R4088	8x14AWG	8.7	177	9.3	50.0
SSS0252HBSXH-RB	R4052	2x12AWG	6.7	79	5.7	60.0
SSS0352HBSXX-RB	R4054	3x12AWG	7.1	112	5.7	60.0
SSS0452HBSXX-RB	R4056	4x12AWG	7.9	146	5.7	60.0
SSS0652HBSXX-RB	R4058	6x12AWG	8.7	180	5.7	60.0
SSS0852HBSXX-RB	R4057	8x12AWG	9.6	214	5.7	60.0



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Screened multi-conductor cable with a LSF sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Stranded

**Insulation:**

Polypropylene - PP

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Low Smoke Fume - LSF

**Colour Outer Sheath:**

Grey

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES



### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 2C 22AWG SCREENED LSF 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 25 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius

8 x cable diameter



Put up lenght 305 mt



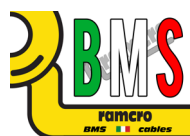


# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

LSF sheathed, Unscreened cables with 22AWG to 12AWG conductors

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0207HBSXH-RB	R4133	2x22AWG	3.2	16	56.7	78.0
SAS0307HBSXX-RB	R4135	3x22AWG	3.4	20	56.7	75.0
SAS0407HBSXX-RB	R4137	4x22AWG	3.6	24	56.7	70.0
SAS0607HBSXX-RB	R4138	6x22AWG	4.3	33	56.7	64.0
SAS0807HBSXX-RB	R4139	8x22AWG	4.7	41	56.7	60.0
SAS0206HBSXH-RB	R4115	2x20AWG	3.6	21	37.2	100.0
SAS0306HBSXX-RB	R4116	3x20AWG	3.8	26	37.2	90.0
SAS0406HBSXX-RB	R4117	4x20AWG	4.1	32	37.2	90.0
SAS0606HBSXX-RB	R4118	6x20AWG	4.9	45	37.2	90.0
SAS0806HBSXX-RB	R4119	8x20AWG	5.4	57	37.2	75.0
SAS0205HBSXH-RB	R4016	2x18AWG	4.0	27	22.9	95.0
SAS0305HBSXX-RB	R4017	3x18AWG	4.2	36	22.9	90.0
SAS0405HBSXX-RB	R4018	4x18AWG	4.6	45	22.9	75.0
SAS0505HBSXX-RB	R4019	5x18AWG	4.8	45	22.9	75.0
SAS0705HBSXX-RB	R4021	6x18AWG	5.0	55	22.9	75.0
SAS0605HBSXX-RB	R4020	6x18AWG	5.5	64	22.9	75.0
SAS0805HBSXX-RB	R4022	8x18AWG	6.0	72	22.9	75.0
SAS0203HBSXH-RB	R4171	2x16AWG	4.7	81	15.5	105.0
SAS0303HBSXX-RB	R4173	3x16AWG	5.0	49	15.5	105.0
SAS0403HBSXX-RB	R4175	4x16AWG	5.4	62	15.5	90.0
SAS0603HBSXX-RB	R4177	6x16AWG	6.5	88	15.5	80.0
SAS0803HBSXX-RB	R4179	8x16AWG	7.2	114	15.5	80.0
SAS0201HBSXH-RB	R4161	2x14AWG	5.6	54	9.3	105.0
SAS0301HBSXX-RB	R4163	3x14AWG	5.9	75	9.3	100.0
SAS0401HBSXX-RB	R4165	4x14AWG	6.5	96	9.3	98.0
SAS0601HBSXX-RB	R4167	6x14AWG	7.9	139	9.3	96.0
SAS0801HBSXX-RB	R4169	8x14AWG	8.7	180	9.3	95.0
SAS0252HBSXH-RB	R4123	2x12AWG	6.8	82	5.7	105.0
SAS0352HBSXX-RB	R4124	3x12AWG	7.2	115	5.7	105.0
SAS0452HBSXX-RB	R4125	4x12AWG	8.0	149	5.7	100.0
SAS0652HBSXX-RB	R4127	6x12AWG	9.7	217	5.7	100.0
SAS0852HBSXX-RB	R4128	8x12AWG	10.8	284	5.7	100.0



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

Screened multi-conductor cable with a PVC or LSZH(FRNC) sheath are suitable for Building Management Systems (BMS), Sound, Audio, Security, Safety, Control and Instrumentation



### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outher Sheath:**

Polyvinyl Chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outher Sheath:**

Grey - PVC

Violet - LSZH(FRNC)

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF CORES

3 cores: ● ● ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

**RAMCRO ITALY - R\_\_\_\_\_ - AUDIO CONTROL & INSTRUMENTATION CABLE 3C 22AWG SCREENED LSF 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING**

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 25 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Building Management Systems Cable**



**Min. Bending Radius**

8 x cable diameter



**Put up lenght 305 mt**



# AUDIO, CONTROL & INSTRUMENTATION

## MULTI-CONDUCTOR CABLE

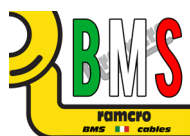
Multi Conductor Cables 22 to 18 AWG Screened PVC or LSZH(FRNC) Sheath 3 Cores

### Cable with PE/SCREEN/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0305HBADX-T-RB	R1225	3x18AWG	6.0	56	23.2	75.0
SAS0306HBADX-T-RB	R1245	3x20AWG	4.9	39	38.5	75.0
SAS0307HBADX-T-RB	R1215	3x22AWG	4.7	32	57.4	75.0

### Cable with PE/SCREEN/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0305HXEDX-T-RB	R1410	3x18AWG	6.0	36	23.2	80.0
SAS0306HXEDX-T-RB	R1411	3x20AWG	4.9	57	38.5	80.0
SAS0307HXEDX-T-RB	R1412	3x22AWG	4.7	83	57.4	80.0



## **RS-232**

Hand shake interface used for low data rates. Computer to printer or to modem or to other device. Max. speed 19.2 kbit/sec. Max. distance acc. to standard 15 m. Cables used are 6 to 25 conductors. Long distance transmission requires low capacitance (standard calls for 2500 pF link), No impedance specified.

## **RS-422**

Balanced digital circuit. Medium speed data exchange. Long line modems and Daisy chain configuration. Maximum transmission speed 10 Mbit/second (normal use under 1Mbit/sec). Max. transmission distance is 1200 metres. Ten nodes per bus. Cables used have mainly 24AWG conductors, two twisted pairs or multi-pair and Impedance of 100 Ohm.

## **RS-485**

Balanced digital circuit. Medium speed fieldbus interfaces. Maximum transmission speed 35 Mbit/second (normal use 1 or 0.5 Mbit/sec). Max. transmission distance is 1200 metres, 32 nodes per bus. Cables used have mainly 24AWG conductors, one twisted pair or multi-pair and impedance of 120 Ohm.

## **KNX**

Is a standardised (EN 50090, ISO/IEC 14543), OSI-based network communications protocol for intelligent buildings. KNX is the successor to, and convergence of, three previous standards: the European Home Systems Protocol (EHS), Bati-BUS, and the European Installation Bus (EIB or Instabus).

## **Category LAN**

Ethernet cables are grouped into sequentially numbered categories ("cat") based on different specifications; sometimes the category is updated with further clarification or testing standards LonWorks is a networking platform specifically created to address the needs of control applications. The platform is built on a protocol created by Echelon Corporation for networking devices over media such as twisted pair, power lines, fibre optics, and RF. It is used for the automation of various functions within buildings such as lighting and HVAC.

## **M-Bus (Meter-Bus)**

is a European standard (EN 13757-2 physical and link layer, EN 13757-3 application layer) for the remote reading of gas or electricity meters. M-Bus is also usable for other types of consumption meters.

## **BACnet**

is a communications protocol for building automation and control networks. It is was designed to allow communication of building automation and control systems for applications such as heating, ventilation, air-conditioning, lighting, access, and fire detection systems and their associated equipment. BACnet over IP can utilize Cat 6.

## **Modbus**

is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). Simple and robust, it has since become one of the de facto standard communications protocols in the industry.

# DATA LAN CABLE

## MULTI-CONDUCTOR CABLE

# DATA LAN

## RS-485 APPLICATIONS

Balanced digital circuit. Medium speed fieldbus interfaces. Maximum transmission speed 35 Mbit/second (normal use 1 or 0.5 Mbit/sec). Max. transmission distance is 1200 metres, 32 nodes per bus. Cables used have mainly 24AWG conductors, one twisted pair or multi-pair and impedance of 120 Ohm



### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Solid Polyetilene - PE

Foam Polyetilene - FPE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Braiding:**

Tinned copper wire braid

**Outer Sheath:**

Polyvinyl Chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Grey - PVC

Violet - LSZH(FRNC)

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair:

2 pair:

3 pair:

4 pair:

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - DATA LAN CABLE - RS 485 - 1PR 24AWG SCREENED PVC

300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt



## RS-485 APPLICATIONS

24AWG conductors, one twisted pair or multi-pair and impedance of 120 Ohm

### Cable with 24AWG CONDUCTORS - FOAM PE/SCREEN (CAM+TCWB)/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0108HBADX-T-RB	R1189	1x2x24AWG	5.7	38	15.46	41.0
MAR0208HBADX-T-RB	R1190	2x2x24AWG	8.4	60	15.46	41.0
MAR0308HBADX-T-RB	R1191	3x2x24AWG	8.9	73	15.46	41.0
MAR0408HBADX-T-RB	R1192	4x2x24AWG	9.7	87	15.46	41.0

### Cable with 24AWG CONDUCTORS - SOLID PE/SCREEN (CAM+TCWB)/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0108HXEDX-T-RB	R1318	1x2x24AWG	5.6	36	15.46	41.0
MAR0208HXEDX-T-RB	R1319	2x2x24AWG	8.2	57	15.46	42.0
MAR0308HXEDX-T-RB	R1320	3x2x24AWG	8.7	69	15.46	42.0
MAR0408HXEDX-T-RB	R1321	4x2x24AWG	9.5	83	15.46	42.0

### Cable with 22AWG CONDUCTORS - FOAM PE/SCREEN (CAM+TCWB)/PVC

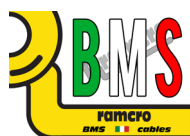
RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0107HBADX-T-RB	R1080	1x2x22AWG	6.4	48	73.1	36.0
MAR0207HBADX-T-RB	R1295	2x2x22AWG	9.8	76	73.1	37.0
MAR0307HBADX-T-RB	R1296	3x2x22AWG	10.4	93	73.1	38.0
MAR0407HBADX-T-RB	R1297	4x2x22AWG	11.4	113	73.1	38.0

### Cable with 22AWG CONDUCTORS - SOLID PE/SCREEN (CAM+TCWB)/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0107HXEDX-T-RB	R1401	1x2x22AWG	6.0	40	73.1	36.0
MAR0207HXEDX-T-RB	R1402	2x2x22AWG	9.1	66	73.1	37.0
MAR0307HXEDX-T-RB	R1403	3x2x22AWG	10.1	83	73.1	38.0
MAR0407HXEDX-T-RB	R1404	4x2x22AWG	11.0	100	73.1	38.0

### Cable with 18AWG CONDUCTORS - SOLID PE/SCREEN (CAM+TCWB)/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0105HXEDX-T-RB	R1405	1x2x18AWG	8.9	75	90.0	32.0
MAR0205HXEDX-T-RB	R1406	2x2x18AWG	11.5	111	90.0	35.0
MAR0305HXEDX-T-RB	R1407	3x2x18AWG	13.5	138	90.0	38.0
MAR0405HXEDX-T-RB	R1408	4x2x18AWG	14.8	194	90.0	38.0



# DATA LAN

## RS-422 APPLICATIONS

Balanced digital circuit. Medium speed data exchange. Long line modems and Daisy chain configuration. Maximum transmission speed 10 Mbit/second (normal use under 1Mbit/sec). Max. transmission distance is 1200 metres. Ten nodes per bus. Cables used have mainly 24AWG conductors, two twisted pairs or multi-pair and Impedance of 100 Ohm.



### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Foam Polyethylene - FPE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Individual Screen:**

0,026 mm Aluminium / PETP tape over tinned copper drain wire

**Outer Sheath:**

Polyvinyl Chloride - PVC

**Colour Outer Sheath:**

Grey

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1: ●●●● Pair 4: ●●●●  
Pair 2: ●●●● Pair 5: ●●●●  
Pair 3: ●●●● Pair 6: ●●●●

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - DATA LAN CABLE - RS 422 - 2PR 24AWG IND. SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up length 305 mt**

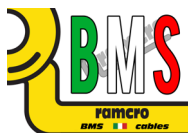


# DATA LAN

## RS-422 APPLICATIONS

24AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-422 applications

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAP0208HBADX-T-RB	R1382	2x2x24AWG	7.2	42	88.0	41.0
MAP0308HBADX-T-RB	R1383	3x2x24AWG	8.3	61	88.0	41.0
MAP0408HBADX-T-RB	R1384	4x2x24AWG	9.2	76	88.0	41.0
MAP0608HBADX-T-RB	R1386	6x2x24AWG	10.5	105	88.0	41.0



# DATA LAN

## RS-232 APPLICATIONS

Hand shake interface used for low data rates. Computer to printer or modem or to the other device. Cables used are 4 to 25 conductors. Long distance transmission requires low capacitance (standard calls for 2500 pF link).

**RAMCRO BMS**



### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Polyvinyl Chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outher Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outher Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1: ●●●● Pair 5: ●●●●  
Pair 2: ●●●● Pair 6: ●●●●  
Pair 3: ●●●● Pair 7: ●●●●  
Pair 4: ●●●● Pair 8: ●●●●

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - DATA LAN CABLE - RS 232 - 1PR 24AWG SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt



## RS-232 APPLICATIONS

24AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-232 applications

### Cable with 24AWG CONDUCTORS - PVC/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAS0108HBAAH-T-RB	R1181	1x2x24AWG	3.7	21	88.0	135
MAS0208HBAAX-T-RB	R1182	2x2x24AWG	5.2	34	88.0	76
MAS0308HBAAX-T-RB	R1183	3x2x24AWG	5.5	41	88.0	76
MAS0408HBAAX-T-RB	R1184	4x2x24AWG	5.7	43	88.0	80
MAS0508HBAAX-T-RB	R1185	5x2x24AWG	6.5	52	88.0	80
MAS0608HBAAX-T-RB	R1186	6x2x24AWG	6.9	53	88.0	80
MAS0708HBAAX-T-RB	R1187	7x2x24AWG	6.9	59	88.0	80
MAS0808HBAAX-T-RB	R1188	8x2x24AWG	7.7	66	88.0	80

### Cable with 24AWG CONDUCTORS - LSZH(FRNC)/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAS0108HXEEH-T-RB	R1640	1x2x24AWG	3.7	16	88.0	135
MAS0208HXEEX-T-RB	R1641	2x2x24AWG	5.2	27	88.0	76
MAS0308HXEEX-T-RB	R1642	3x2x24AWG	5.5	33	88.0	76
MAS0408HXEEX-T-RB	R1643	4x2x24AWG	5.7	37	88.0	80
MAS0508HXEEX-T-RB	R1644	5x2x24AWG	6.5	45	88.0	80
MAS0608HXEEX-T-RB	R1645	6x2x24AWG	6.9	48	88.0	80
MAS0708HXEEX-T-RB	R1646	7x2x24AWG	6.9	54	88.0	80
MAS0808HXEEX-T-RB	R1647	8x2x24AWG	7.7	61	88.0	80

# DATA LAN

## MODBUS APPLICATIONS

Modbus is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). Simple and robust, it has since become one of the factor standard communications protocols in the industry

**RAMCRO BMS**

### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Polyethylene - PE

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Braiding:**

Tinned copper wire braid

**Outer Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1: ●●●● Pair 5: ●●●●  
Pair 2: ●●●● Pair 6: ●●●●  
Pair 3: ●●●● Pair 7: ●●●●  
Pair 4: ●●●● Pair 8: ●●●●

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE - MODBUS - 2PR 22AWG IND. SCREENED PVC 300 V 75 C  
IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

## MODBUS APPLICATIONS

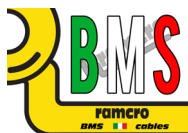
22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for MODBUS applications

### Cable with 24AWG CONDUCTORS - PE/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAP0207HBADH-T-RB	R1196	2x2x22AWG	5.8	36	57.4	100
MAP0308HBADX-T-RB	R1197	3x2x22AWG	6.3	50	57.4	100
MAP0608HBADX-T-RB	R1214	6x2x22AWG	8.0	83	57.4	100

### Cable with 24AWG CONDUCTORS - LSZH(FRNC)/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAS0108HXEEH-T-RB	R1281	2x2x22AWG	6.3	47	57.4	150
MAS0208HXEEX-T-RB	R1282	3x2x22AWG	6.8	63	57.4	155
MAS0508HXEEX-T-RB	R1314	6x2x22AWG	9.3	110	57.4	155



# DATA LAN

## M-BUS APPLICATIONS

M-BUS (Meter-Bus) is a european standard (EN 13757-2) physical and lnk layer, EN 13757-3 application layer) for the remote reading of gas or electricity meters. M-Bus is also suitable for other types of consumption meters.

**RAMCRO BMS**

### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Polyvinyl chloride - PVC

Thermoplastic Low Smoke, Halogen Free - LSZH(FRNC)

Polyetilene - LDPE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Outer Sheath:**

Polyvinyl chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Low Density Polyetilene - LDPE

**Colour Outer Sheath:**

Grey for PVC

Violet for LSZH (FRNC)

Black for LDPE

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1: ● ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE - M-BUS - 1PR 22AWG SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

## M-BUS APPLICATIONS

24AWG and 12AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for M-BUS applications

### Cable with PVC/UNSCREENED/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSE0107HBADN-T-RB	R1301	1x2x22AWG	3.9	19	57.40	70
MSE0106HBADN-T-RB	R1300	1x2x20AWG	4.2	24	35.75	70
MSE0105HBADN-T-RB	R1203	1x2x18AWG	4.8	32	22.70	70
MSE0103HBADN-T-RB	R1198	1x2x16AWG	6.6	58	15.47	50
MSE0101HBADN-T-RB	R1222	1x2x14AWG	8.4	91	9.3	108
MSE0152HBADN-T-RB	R1302	1x2x12AWG	9.5	110	5.9	115

### Cable with LSZH/UNSCREENED/LSZH

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSE0107HXEEN-T-RB	R1311	1x2x22AWG	3.3	14	57.40	85
MSE0106HXEEN-T-RB	R1309	1x2x20AWG	3.5	17	35.75	80
MSE0105HXEEN-T-RB	R1271	1x2x18AWG	3.9	24	22.70	80
MSE0103HXEEN-T-RB	R1307	1x2x16AWG	4.6	33	15.47	75
MSE0101HXEEN-T-RB	R1306	1x2x14AWG	5.5	51	9.3	75
MSE0152HXEEN-T-RB	R1304	1x2x12AWG	6.7	78	5.9	75

### Cable with PE/UNSCREENED/LDPE

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSE0107HEDDN-T-RB	R1879	1x2x22AWG	4.2	14	57.40	70
MSE0106HEDDN-T-RB	R1878	1x2x20AWG	5.0	19	35.75	70
MSE0105HEDDN-T-RB	R1874	1x2x18AWG	5.5	25	22.70	70
MSE0103HEDDN-T-RB	R1872	1x2x16AWG	7.3	45	15.47	50
MSE0101HEDDN-T-RB	R1876	1x2x14AWG	8.4	66	9.3	108
MSE0152HEDDN-T-RB	R1880	1x2x12AWG	9.5	94	5.9	115

# DATA LAN

## M-BUS APPLICATIONS

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for M-BUS applications



### CONSTRUCTION

**Formation:**

Tinned copper wire, Stranded

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Braiding:**

Tinned copper wire braid

**Outer Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1: ● ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - DATA LAN CABLE - M-BUS - 1PR 22AWG UNSCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**



## M-BUS APPLICATION

24AWG and 12AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for M-BUS applications

### Cable with 24AWG CONDUCTORS - PE/SCREENED/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAS0107HBADN-T-RB	R1199	1x2x22AWG	4.3	25	57.40	75.0
MAS0106HBADN-T-RB	R1195	1x2x20AWG	5.1	31	35.75	75.0
MAS0105HBADN-T-RB	R1193	1x2x18AWG	5.5	42	22.70	75.0
MAS0103HBADN-T-RB	R1213	1x2x16AWG	7.5	69	15.47	60.0
MAS0101HBADN-T-RB	R1224	1x2x14AWG	8.5	94	9.3	76.0
MAS0152HBADN-T-RB	R1313	1x2x12AWG	9.3	115	5.9	77.0

### Cable with 24AWG CONDUCTORS - LSZH/SCREENED/LSZH

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAS0107HXEEN-T-RB	R1310	1x2x22AWG	3.4	17	57.40	130.0
MAS0106HXEEN-T-RB	R1308	1x2x20AWG	3.6	20	35.75	128.0
MAS0105HXEEN-T-RB	R1272	1x2x18AWG	4.0	27	22.70	125.0
MAS0103HXEEN-T-RB	R1270	1x2x16AWG	4.7	36	15.47	120.0
MAS0101HXEEN-T-RB	R1305	1x2x14AWG	5.6	54	9.3	120.0
MAS0152HXEEN-T-RB	R1303	1x2x12AWG	6.8	81	5.9	120.0

### Cable with 24AWG CONDUCTORS - PE/SCREENED/LDPE

RAMRRO RODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANRE AT 20°R [Ohm/km]	NOM. RAPARITANRE [pF/m]
MAS0107HEDDN-T-RB	R1881	1x2x22AWG	4.3	19	57.40	75.0
MAS0106HEDDN-T-RB	R1877	1x2x20AWG	5.1	25	35.75	75.0
MAS0105HEDDN-T-RB	R1875	1x2x18AWG	5.5	36	22.70	75.0
MAS0103HEDDN-T-RB	R1870	1x2x16AWG	7.5	58	15.47	60.0
MAS0101HEDDN-T-RB	R1871	1x2x14AWG	8.5	78	9.3	76.0
MAS0152HEDDN-T-RB	R1873	1x2x12AWG	9.3	105	5.9	77.0

# DATA LAN

## LONWORKS APPLICATIONS

22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for LONWORKS applications



### CONSTRUCTION

**Formation:**

Tinned copper wire, Solid

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Braiding:**

Tinned copper wire braid

**Outer Sheath:**

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

Pair 1:

Pair 2:

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - DATA LAN CABLE - LONWORKS - 1PR 22AWG SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

## LONWORKS APPLICATIONS

22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for LONWORKS applications

### Cable with 24AWG CONDUCTORS - PE/UNSCREENED/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSR0107HXEDX-RB	R1346	1x2x22AWG	3.2	13	57.4	46.0
SSR0107HXEDX-RB	R1347	2x2x22AWG	5.0	24	57.4	46.0

### Cable with 24AWG CONDUCTORS - PE/SCREENED/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAM0107HXEDX-RB	R1348	1x2x22AWG	4.9	33	57.4	46.0
SAM0207HXEDX-RB	R1349	2x2x22AWG	8.0	72	57.4	46.0



# DATA LAN

## KNX or GENERAL BUS APPLICATIONS

0.8 mm conductors – PE insulation – PVC or LSZH(FRNC) sheath for EIB applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 Core: ●

2 Core: ●

3 Core: ○

4 Core: ●

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - EIB CABLE 4x0.8mm SCREENED LSZH (FRNC) - - RAMCRO CODE - "PROD. WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

## KNX or GENERAL BUS APPLICATIONS

0.8 mm conductors – PE insulation – PVC or LSZH(FRNC) sheath for EIB applications

### Cable with 24AWG CONDUCTORS - PE/SCREEN/PVC

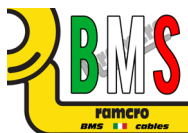
RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAM0108HIADH-RB	R1219	1x2x24AWG	5.1	38	37.0	100.0
SAM4108HIADX-RB	R1217	1x4x24AWG	5.7	53	37.0	100.0

### Cable with 24AWG CONDUCTORS - PE/SCREEN/LSZH(FRNC)

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAM0108HIEDH-RB	R1220	1x2x24AWG	5.1	36	37.0	100.0
SAM4108HIEDX-RB	R1218	1x4x24AWG	5.7	51	37.0	100.0

### Cable with 24AWG CONDUCTORS - PE/SCREEN/PE

RAMRRO RODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANRE AT 20°R [Ohm/km]	NOM. RAPARITANRE [pF/m]
SAM0108HIDDH-RB	R1901	1x2x24AWG	5.1	48	37.0	100.0
SAM4108HIDDX-RB	R1900	1x4x24AWG	5.7	33	37.0	100.0



# DATA LAN

Cat. 3

CAT3



## CONSTRUCTION

### Formation:

Plain annealed copper wire, Solid

### Insulation:

Polyethylene - PE

### Wrapping:

at least 1 layer of plastic tape 0,023 mm

### Outer Sheath:

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

### Colour Outer Sheath:

Violet

## STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

## IDENTIFICATION OF PAIR

1 pair: 

2 pair: 

3 pair: 

4 pair: 

## TEMPERATURE RANGE

### During Operation:

-30° C up to +80° C

### During Installation:

-5° C up to +50° C



## CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS UTP CAT 3 RAMCRO CODE - "PROD.WEEK/YEAR" -  
MADE IN ITALY + BATCH + METER MARKING

## ELECTRICAL DATA

### Insulation Resistance @ 20°C:

> 200 MOhm\*Km

### Test Voltage Core-Core:

2000 V

### Test Voltage Core-Screen:

2000 V

### Mutual Capacitance:

< 150 nF/km

### Inductance:

< 1 mH/km

### Operating Voltage:

300 V

## CHARACTERISTICS

### Min. Bending Radius

8 x cable diameter



### Put up lenght 305 mt



# DATA LAN

## Cat3

CAT3

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
CAT3-2P-RB	R1031	2x2x24AWG	3.6	16	96.0	66
CAT3-6P-RB	R1266	6x2x24AWG	5.5	39	96.0	66
CAT3-12P-RB	R1267	12x2x24AWG	7.4	73	96.0	66
CAT3-25P-RB	R1032	25x2x24AWG	11.8	154	96.0	66
CAT3-50P-RB	R1033	50x2x24AWG	15.5	280	96.0	66
CAT3-100P-RB	R1034	100x2x24AWG	21.6	530	96.0	66
CAT3-150P-RB	R1268	150x2x24AWG	26.8	800	96.0	66
CAT3-200P-RB	R1269	200x2x24AWG	29.4	1040	96.0	66

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	MAX. ATTENUATION [dB/100m]	MAX. NEXT [dB]	MIN. RETURN LOSS [dB]	IMPEDANCE [Ohm]
1	2.6	41.3	12.0	100 ± 15
4	5.6	32.3	12.0	100 ± 15
8	8.5	27.8	12.0	100 ± 15
10	9.7	26.3	12.0	100 ± 15
16	13.1	23.3	12.0	100 ± 15

### COLOR CODE

PAIR N°	PAIR COLOR	PAIR N°	PAIR COLOR	PAIR N°	PAIR COLOR
1	WHITE/BLUE	10	RED/GREY	19	YELLOW/BROWN
2	WHITE/ORANGE	11	BLACK/BLUE	20	YELLOW/GREY
3	WHITE/GREEN	12	BLACK/ORANGE	21	PURPLE/BLUE
4	WHITE/BROWN	13	BLACK/GREEN	22	PURPLE/ORANGE
5	WHITE/GREY	14	BLACK/BROWN	23	PURPLE/GREEN
6	RED/BLUE	15	BLACK/GREY	24	PURPLE/BROWN
7	RED/ORANGE	16	YELLOW/BLUE	25	PURPLE/GREY
8	RED/GREEN	17	YELLOW/ORANGE		
9	RED/BROWN	18	YELLOW/GREEN		

\* Each group of 25 pairs, have a different color of numbered tapes



# DATA LAN

## FTP UTP 5e

FTP UTP 5e



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair:

2 pair:

3 pair:

4 pair:

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS UTP CAT.5 24AWG PVC 500 MHz ISO/IEC 11801 ANSI/TIA/EIA-568 C2 IEC 60332-1/UL 1685 - RAMCRO CODE - "PROD.WEEK/YEAR" + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**



# DATA LAN

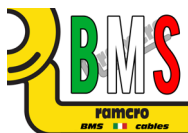
## FTP UTP 5e

FTP / UTP 5e

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
UTPLEVEL5-4X2X0.22-RB	R1035	U-UTP	PVC	5.0	30	93.8
UTPLEVEL5-4X2X0.22ZA-RB	R1235	U-UTP	PVC	5.0	29	93.8
FTPLEVEL54X2X0.22-RB	R1036	U-FTP	LSZH(FRNC)	6.3	42	93.8
FTPLEVEL54X2X0.22ZA-RB	R1236	U-FTP	LSZH(FRNC)	6.3	43	93.8

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	MIN.RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB]	MIN. NEXT [dB]	MAX. TIME DELAY [ns/100m]	MAX. PSNEXT [dB]	MIN. ELFEXT [dB]	MIN. PSELFEXT [dB]
1	20.0	2.0	65.3	570.00	62.3	64.0	61.0
4	23.0	4.1	56.3	552.00	53.3	52.0	49.0
8	24.5	5.8	51.8	546.73	48.8	45.9	42.9
10	25.0	6.5	50.3	545.38	47.3	44.0	41.0
16	25.0	8.2	47.2	543.00	44.4	39.9	36.9
20	25.0	9.3	45.8	542.05	42.8	38.0	35.0
25	24.3	10.4	44.3	541.20	41.3	35.8	33.0
31.25	23.6	11.7	42.9	540.44	39.9	34.1	31.1
62.5	21.5	17.0	38.4	538.55	35.4	28.1	25.1
100	20.1	22.0	35.3	537.60	32.3	24.0	21.0



# DATA LAN

## FTP UTP 6

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath


- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair: 

2 pair: 

3 pair: 

4 pair: 

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS UTP CAT.6 23AWG PVC 500 MHz ISO/IEC 11801 ANSI/TIA/EIA-568 C2 IEC 60332-1/UL 1685 - RAMCRO CODE - "PROD.WEEK/YEAR" + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

## FTP UTP 6

FTP / UTP 6

RAMCRO CODE	PART N°	TYPE	SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
UTPLEVEL6-4X2X0.22-RB	R1037	U-UTP	PVC	6.2	42	93.8
UTPLEVEL6-4X2X0.22ZA-RB	R1237	U-UTP	LSZH(FRNC)	6.2	42	93.8
FTPLEVEL64X2X0.22-RB-RB	R1038	U-FTP	PVC	7.4	56	93.8
FTPLEVEL64X2X0.22ZA-RB-RB	R1238	U-FTP	LSZH(FRNC)	7.4	54	93.8

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	MIN.RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB]	MIN. NEXT [dB]	MAX. TIME DELAY [ns/100m]	MAX. PSNEXT [dB]	MIN. ELFEXT [dB]	MIN. PSELFEXT [dB]
1	20.0	2.0	74.3	570.00	72.3	67.8	64.8
4	23.0	3.8	65.3	552.00	63.3	55.8	52.8
8	24.5	5.3	60.8	546.73	58.8	49.7	46.7
10	25.0	6.0	59.3	545.38	57.3	47.8	44.8
16	25.0	7.6	56.2	543.00	54.2	43.7	40.7
20	25.0	8.5	54.8	542.05	52.8	41.8	38.8
25	24.3	9.5	53.3	541.20	51.3	39.8	36.8
31.25	23.6	10.7	51.9	540.44	49.9	37.9	34.9
62.5	21.5	15.4	47.4	538.55	45.4	31.9	28.9
100	20.1	19.8	44.3	537.80	42.3	27.8	24.8
200	18.0	29.0	39.8	536.54	37.8	21.8	18.8
250	17.3	32.8	38.3	536.27	36.3	19.8	16.8



# DATA LAN

## FTP UTP 6A

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair: 

2 pair: 

3 pair: 

4 pair: 

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS UTP CAT.6A 23AWG PVC 500 MHz ISO/IEC 11801 ANSI/TIA/EIA-568 C2 IEC 60332-1/UL 1685 - RAMCRO CODE - "PROD.WEEK/YEAR" + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

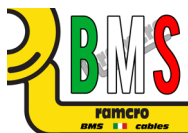
## FTP UTP 6A

FTP / UTP 6A

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
UTPLEVEL6A4X2X0.22-RB	R1055	U-UTP	PVR	7.0	160	93.8
UTPLEVEL6A4X2X0.22ZA-RB	R1200	U-UTP	LSZH(FRNR)	7.0	155	93.8
FTPLEVEL6A4X2X0.22-RB	R1056	F-UTP	PVR	7.2	200	76.9
FTPLEVEL6A4X2X0.22ZA-RB	R1052	F-UTP	LSZH(FRNR)	7.2	196	76.9
UFTPLEVEL6A4X2X0.22-RB	R1057	U-FTP	PVR	7.8	210	76.9
UFTPLEVEL6A4X2X0.22ZA-RB	R1053	U-FTP	LSZH(FRNR)	7.8	206	76.9

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	MIN.RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB]	MIN. NEXT [dB]	MAX. TIME DELAY [ns/100m]	MAX. PSNEXT [dB]	MIN. ELFEXT [dB]	MIN. PSELFEXT [dB]
1	20.0	3.7	74.3	72.3	55.9	100 ± 15	61.0
10	25.0	5.8	59.3	57.3	47.8	100 ± 15	49.0
31.25	23.6	10.4	51.9	49.9	37.9	100 ± 15	42.9
100	20.1	19.0	44.3	42.3	27.8	100 ± 15	41.0
300	17.3	34.2	37.1	35.1	18.1	100 ± 25	36.9
500	17.3	45.2	33.8	31.8	14.0	100 ± 15	35.0



# DATA LAN

## CAT 7

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath


- IEC 60754-1&2 for LSZH(FRNC) sheath


- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair: 

2 pair: 

3 pair: 

4 pair: 

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS S/FTP CAT.7 23AWG PVC 500 MHz ISO/IEC 11801 ANSI/TIA/EIA-568 C2 IEC 60332-1/UL 1685 - RAMCRO CODE - "PROD.WEEK/YEAR" + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# DATA LAN

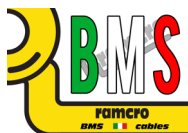
## CAT 7

Cat 7

RAMCRO CODE	PART N°	TYPE	SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]
SFTPLEVEL7-RB	R1039	S-FTP	LSZH(FRNC)	7.8	68	57.9

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	IMPEDANCE [OHM]	MIN. RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB/100m]	MIN. NEXT [dB]	MIN. PSNEXT [dB]	MIN. ELFEXT [dB]	MIN. PSELFEXT [dB]
1	100 ± 15	20.0	2.0	80	75	78	75
4	100 ± 15	23.0	3.7	80	75	78	75
10	100 ± 15	25.0	5.9	80	75	74	71
16	100 ± 15	25.0	7.4	80	75	70	67
20	100 ± 15	25.0	8.3	80	75	68	65
31.25	100 ± 15	23.6	10.4	80	75	64	61
62.5	100 ± 15	21.5	14.9	75.5	72.5	58	55
100	100 ± 15	20.1	19.0	72.4	69.4	64	51
200	100 ± 25	17.3	27.5	67.9	64.9	48	45
250	100 ± 25	17.3	31.0	66.5	63.5	46	43
300	100 ± 25	17.3	34.2	61.9	62.2	40	37
600	100 ± 25	17.3	50.1	60.8	57.7	38	35



# DATA LAN

## CAT 7a

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- (BS) EN 50290-2

- IEC 60228

- IEC 60332-1 for PVC sheath

- IEC 60332-3-24 for LSZH(FRNC) sheath

- IEC 60754-1&2 for LSZH(FRNC) sheath

- IEC 61034 for LSZH(FRNC) sheath

### IDENTIFICATION OF PAIR

1 pair: 

2 pair: 

3 pair: 

4 pair: 

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - DATA LAN CABLE 4 PAIRS S/FTP CAT.7A 23AWG PVC 500 MHz ISO/IEC 11801 ANSI/TIA/EIA-568 C2 IEC 60332-1/UL 1685 - RAMCRO CODE - "PROD.WEEK/YEAR" + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**



# DATA LAN

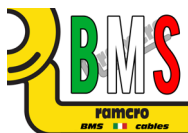
## CAT 7a

Cat 7a

RAMCRO CODE	PART N°	TYPE	SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANRE AT 20°R [Ohm/km]
SFTPLEVEL7A-RB	R1201	S-FTP	LSZH(FRNR)	7.8	68	

### TECHNICAL PERFORMANCE

FREQUENCY [MHz]	IMPEDANCE [OHM]	MIN. RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB/100m]	MIN. NEXT [dB]	MIN. PSNEXT [dB]	ACFR
4	100 ± 15	23.0	3.7	80.0	77.0	78.0
10	100 ± 15	25.0	5.9	80.0	77.0	74.3
16	100 ± 15	25.0	7.3	80.0	77.0	72.8
20	100 ± 15	25.0	8.2	80.0	77.0	71.9
31.25	100 ± 15	23.6	10.3	80.0	77.0	69.9
62.5	100 ± 15	21.5	14.6	80.0	77.0	60.6
100	100 ± 15	20.1	18.5	78.4	75.4	53.9
300	100 ± 15	17.3	32.7	71.2	68.2	38.6
600	100 ± 25	17.3	47.1	66.7	63.7	19.6
800	100 ± 25	17.3	54.9	64.9	61.9	9.93
1000	100 ± 25	16.0	61.9	63.4	60.4	1.47



Coaxial cables are designed to carry radio frequency signals of a much higher frequency than the 50 or 60 Hz used in low voltage cables. This requires special construction to prevent power losses. If an ordinary wire is used to carry high frequency signals, the wire acts as an antenna, and the high frequency signals radiate off the wire as radio waves, causing power losses. To prevent this, in coaxial cable one of the conductors is formed into a tube and encloses the other conductor. This confines the radio waves from the central conductor to the space inside the tube. To prevent the outer conductor, or shield, from radiating, it is connected to electrical ground, keeping it at a constant potential. The dimensions and spacing of the conductors must be uniform throughout the length of the cable. Any abrupt change in the spacing of the two conductors along the cable tends to reflect radio frequency power back toward the source. This acts as a bottleneck, reducing the amount of power reaching the destination end of the cable.

Most coaxial cables for video applications have a nominal impedance of 75 ohms.

Their differing electrical and physical characteristics make it important to select the correct type of cable to suit the application.

# COAXIAL CABLE

RG59 - RG6 - RG11

# COAXIAL CABLE

## RG59 - RG6 - RG11

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- IEC 61196
- (BS) EN 50117
- IEC 61034 (Low Smoke)
- IEC 60754-1&2 (Halogen Free)
- IEC 60332-3-24 LSZH(FRNC)
- (BS) EN 50290-2
- RoHS directives

### IDENTIFICATION OF CORE

1 Core: ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# COAXIAL CABLE

## RG59 - RG6 - RG11

Coaxial Cable

### PHYSICAL CHARACTERISTICS

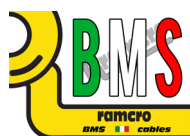
RAMCRO CODE	PART N°	CABLE TYPE	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-RB	R1028	RG59	3.7	95	PVC	6.0	47
RG59-ZA-RB	R1428	RG59	3.7	95	LSZH(FRNC)	6.0	49
RG6-RB	R1029	RG6	4.6	95	PVC	6.8	55
RG6-ZA-RB	R1429	RG6	4.6	95	LSZH(FRNC)	6.8	58
RG11-RB	R1030	RG11	7.1	90	PVC	10.0	115
RG11-ZA-RB	R1430	RG11	7.1	90	LSZH(FRNC)	10.0	120

### GENERAL CHARACTERISTICS

CABLE TYPE	CONDUCTOR SIZE [mm]	MAX RESISTANCE AT 20°C [Ohm/km]	MAX RESISTANCE AT 20°C SCREEN [Ohm/km]	MIN.RETURN LOSS 1 TO 1000 MHz [dB]	IMPEDANCE [OHM]	CAPACITANCE [pF/m]
RG59	0.81	33.5	10.1	20	75 ± 3	53.5
RG6	1.02	21.5	10.8			53.5
RG11	1.63	8.8	6.5			52.8

### NOMINAL ATTENUATION IN dB/100 m

MHz	5	10	50	100	200	300	400	450	550	700	750	870	1000
RG59	1.9	2.95	6.23	8.53	11.81	15.3	16.41	18.92	21.03	22.97	24.8	26.84	27.89
RG6	1.78	2.36	4.92	6.56	9.51	12.43	13.78	15.14	17.15	18.37	19.73	20.26	21.96
RG11	0.99	1.51	2.96	4.27	6.23	8.27	9.51	10.31	11.51	13.45	13.95	14.87	17.06



# COAXIAL CABLE

## RG59 - RG6 - RG11 FLEXIBLE

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- IEC 61196
- (BS) EN 50117
- IEC 61034 (Low Smoke)
- IEC 60754-1&2 (Halogen Free)
- IEC 60332-3-24 LSZH(FRNC)
- (BS) EN 50290-2
- RoHS directives

### IDENTIFICATION OF CORE

1 Core: ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter

**Put up lenght 305 mt**

# COAXIAL CABLE

## RG59 - RG6 - RG11 FLEXIBLE

Coaxial Cable

### PHYSICAL CHARACTERISTICS

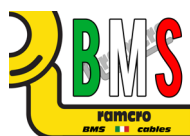
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	WEIGHT [kg/km]
RG59-FLEX-RB	R1275	RG59	TINNED COPPER	3.7	95	PVC	6.0	48
RG6-FLEX-RB	R1276	RG6	BARE COPPER	4.6	95	PVC	6.8	57
RG11-FLEX-RB	R1277	RG11	BARE COPPER	7.1	90	PVC	10.0	118

### GENERAL CHARACTERISTICS

CABLE TYPE	CONDUCTOR SIZE [mm]	MAX RESISTANCE AT 20°C [Ohm/km]	MAX RESISTANCE AT 20°C SCREEN [Ohm/km]	MIN.RETURN LOSS 1 TO 1000 MHz [dB]	IMPEDANCE [OHM]	NOM. CAPACITANCE [pF/m]
RG59	19x0.18	40.0	10.1	20	75 ± 3	53.5
RG6	19x0.22	30.0	10.8			53.5
RG11	19x0.34	8.8	6.2			52.8

### NOMINAL ATTENUATION IN dB/100 m

MHz	5	10	50	100	200	300	400	450	550	700	750	870	1000
RG59	1.9	2.95	6.23	8.53	11.81	15.3	16.41	18.92	21.03	22.97	24.8	26.84	27.89
RG6	1.78	2.36	4.92	6.56	9.51	12.43	13.78	15.14	17.15	18.37	19.73	20.26	21.96
RG11	0.99	1.51	2.96	4.27	6.23	8.27	9.51	10.31	11.51	13.45	13.95	14.87	17.06



# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

24AWG and 22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for RS-485 applications



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- IEC 61196
- (BS) EN 50117
- IEC 61034 (Low Smoke)
- IEC 60754-1&2 (Halogen Free)
- IEC 60332-3-24 LSZH(FRNC)
- (BS) EN 50290-2
- RoHS directives

### IDENTIFICATION OF CORE

1 Core: ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt





# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

Coaxial Cable

### PHYSICAL CHARACTERISTICS

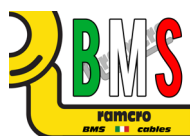
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-QS-RB	R1025	RG59	TINNED COPPER	3.7	54 + 46	PVC	6.7	39
RG6-QS-RB	R1026	RG6	BARE COPPER	4.6	60 + 40	PVC	7.5	49
RG11-QS-RB	R1027	RG11	BARE COPPER	7.1	60 + 40	PVC	10.3	91

### GENERAL CHARACTERISTICS

CABLE TYPE	CONDUCTOR SIZE [mm]	MAX RESISTANCE AT 20°C [Ohm/km]	MAX RESISTANCE AT 20°C SCREEN [Ohm/km]	MIN.RETURN LOSS 1 TO 1000 MHz [dB]	IMPEDANCE [OHM]	NOM. CAPACITANCE [pF/m]
RG59	0.81	146.5	10.1	20	75 ± 3	53.0
RG6	1.02	92.2	10.8			53.0
RG11	1.63	36.5	6.2			53.0

### NOMINAL ATTENUATION IN dB/100 m

MHz	5	10	50	100	200	400	550	870	1250	1750	2150	2500	3000
RG59	2.92	3.45	5.40	8.21	12.56	16.01	19.36	24.74	30.62	36.71	40.82	44.72	48.64
RG6	2.2	2.48	5.15	6.6	9.56	13.12	15.45	19.69	24.25	29.26	32.88	35.88	39.83
RG11	1.25	2.03	3.75	5.01	6.85	8.10	9.65	12.6	16.66	20.28	22.93	25.12	28.08



# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

CATV: Central Antenna Television, Cable television is a system of providing television to consumers via radio frequency signals transmitted to televisions. Nowadays also used for internet and telephone.

SMATV: Satellite Master Antenna Television used to deliver signals to multiple dw

**RAMCRO BMS**

### CONSTRUCTION

**Formation:**

Plain annealed copper wire, 7 Strand

**Insulation:**

Polyethylene - PE

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Polyvinyl chloride - PVC

or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Violet

### STANDARD REFERENCES

- IEC 61196
- (BS) EN 50117
- IEC 61034 (Low Smoke)
- IEC 60754-1&2 (Halogen Free)
- IEC 60332-3-24 LSZH(FRNC)
- (BS) EN 50290-2
- RoHS directives

### IDENTIFICATION OF CORE

1 Core: ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80° C

**During Installation:**

-5° C up to +50° C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt



# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

Coaxial Cable

### PHYSICAL CHARACTERISTICS

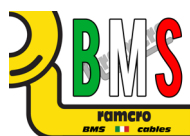
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-QS-RB	R1256	RG59	TINNED COPPER	3.7	54 + 46	PVC	6.7	39
RG6-QS-RB	R1257	RG6	BARE COPPER	4.6	60 + 40	PVC	7.5	49
RG11-QS-RB	R1241	RG11	BARE COPPER	7.1	60 + 40	PVC	10.3	91

### GENERAL CHARACTERISTICS

CABLE TYPE	CONDUCTOR SIZE [mm]	MAX RESISTANCE AT 20°C [Ohm/km]	MAX RESISTANCE AT 20°C SCREEN [Ohm/km]	MIN.RETURN LOSS 1 TO 1000 MHz [dB]	IMPEDANCE [OHM]	NOM. CAPACITANCE [pF/m]
RG59	0.81	146.5	10.1	20	75 ± 3	53.0
RG6	1.02	92.2	10.8			53.0
RG11	1.63	36.5	6.2			53.0

### NOMINAL ATTENUATION IN dB/100 m

MHz	5	10	50	100	300	550	750	1000	2000	3000	4500
RG59	2.92	3.45	5.40	8.21	12.56	16.01	19.36	24.74	30.62	36.71	40.82
RG6	2.2	2.48	5.15	6.6	9.56	13.12	15.45	19.69	24.25	29.26	32.88
RG11	1.25	2.03	3.75	5.01	6.85	8.10	9.65	12.6	16.66	20.28	22.93



# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

High-definition television refers to video having resolution substantially higher than traditional television systems



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Foam Polyethylene - FPE

**Collective Screen:**

Bonded Aluminium/Aluminium-PETP tape

**Outer Sheath:**

Polyvinyl chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

**Colour Outer Sheath:**

Orange

### STANDARD REFERENCES

- IEC 61196
- (BS) EN 50117
- IEC 61034 (Low Smoke)
- IEC 60754-1&2 (Halogen Free)
- IEC 60332-3-24 LSZH(FRNC)
- (BS) EN 50290-2
- RoHS directives

### IDENTIFICATION OF CORE

1 Core: ○

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - RAMCRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY + BATCH + METER MARKING

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt



# COAXIAL CABLE

## RG59 - RG6 - RG11 QUAD SCREEN

Coaxial Cable

### PHYSICAL CHARACTERISTICS

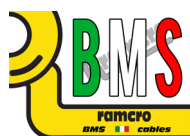
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-FTC-RB	R1229	RG59	BARE COPPER	3.7	95	PVC	6.0	46
RG59-ZA-FTC-RB	R1279	RG59	BARE COPPER	3.7	95	LSZH(FRNC)	6.0	48
RG6-FTC-RB	R1280	RG6	BARE COPPER	4.6	95	PVC	6.8	56
RG6-ZA-FTC-RB	R1378	RG6	BARE COPPER	4.6	95	LSZH(FRNC)	6.8	59
RG11-FTC-RB	R1379	RG11	BARE COPPER	7.1	95	PVC	10.0	114
RG11-ZA-FTC-RB	R1380	RG11	BARE COPPER	7.1	95	LSZH(FRNC)	10.0	117

### GENERAL CHARACTERISTICS

CABLE TYPE	CONDUCTOR SIZE [mm]	MAX RESISTANCE AT 20°C [Ohm/km]	MIN.RETURN LOSS 1 TO 1000 MHz [dB]				IMPEDANCE [OHM]	NOM. CAPACITANCE [pF/m]
			1 to 1000 MHz	1000 to 2000 MHz	2000 to 3000 MHz	3000 to 4500 MHz		
RG59	0.81	33.5	23	22	16	15	10.1	53.0
RG6	1.02	21.5	23	22	16	15	10.8	53.0
RG11	1.63	8.8	23	22	16	15	6.2	53.0

### NOMINAL ATTENUATION IN dB/100 m

MHz	5	10	50	100	300	550	750	1000	2000	3000	4500
RG59	2.07	2.95	6.23	7.55	13.68	18.83	22.23	25.96	38.24	46.13	56.50
RG6	1.71	2.33	4.57	6.40	11.96	15.76	18.08	21.36	31.44	39.76	50.46
RG11	1.12	1.51	2.96	4.20	7.49	10.41	12.38	14.57	21.84	27.93	35.89



## Power-limited Fire Alarm Cable

Power-limited circuits have relatively low voltage and current, which prevents them from producing damaging amounts of fault energy. As a result, power-limited circuits may have different and less stringent requirements concerning over-current protection, insulation, installation, and materials than non-power-limited circuits.

There are three types of power-limited fire alarm cables commonly used today.

These include FPLP, FPL, and FPLR cables. Respectively, these are plenum-rated, non-plenum rated, and riser-rated cables.

## FPLR (Riser)

FPLR cables are rated for use in riser applications. This means they can be used in cable pathways that run vertically from floor to floor. These cables are listed by the National Electric Code as having fire-resistant characteristics which help prevent fire from spreading to multiple floors of the building. They also must pass UL test 1424 and the UL vertical riser test 1666.

This cable consists of a 22 to 12 AWG fully annealed, solid bare copper conductor, and premium-grade PVC insulation and jacketing. It is rated to 300 volts and has a temperature range of -20° C to 75° C. Common applications for this cable include fire alarm wiring, smoke alarms, voice communications, burglar alarms, and fire protective circuits. A polyester and aluminum foil shield with a stranded tinned copper drain wire is also an option for applications that require shielding.

# FIRE ALARM CABLE

UL 1424

## UL 1424

Multi-Core, PVC HT 105-Insulation, unscreened or with collective screen, Hi-Performance PVC-Sheath



### CONSTRUCTION

**Formation:**  
Plain annealed copper wire, Solid

**Insulation:**  
Hi Temperature Polyvinylchloride - PVC HT 105°C

**Wrapping:**  
at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**  
0,026 mm Aluminium / PETP tape over copper drain wire

**Inner Sheath:**  
High Performance Polyvinyl chloride - Hi-PVC

**Armour:**  
Galvanized steel wire armour - SWA

**Outer Sheath:**  
High Performance Polyvinyl chloride - Hi-PVC

**Colour Outer Sheath:**  
Red

### STANDARD REFERENCES

- UL 1424 (FPRL Type)
- NEC Article 760
- NEC Article 725
- UL 1666
- ASTM D 1329
- NF C 32-020
- IRAM IAP
- EN 50266-2
- IEC 60332-1
- IEC 60332-3

### IDENTIFICATION OF CORES

2 cores: ● ●

### TEMPERATURE RANGE

**During Operation:**  
-30° C up to +180°C

**During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_ - E475091 (UL)FPLR - 2C 18AWG SHIELDED - FIRE ALARM CABLE 105°C  
RAMCRO CODE + BATCH + METER MARKING - - - UL 1424 - UL 1666 - IEC 60332-1-3 - MADE IN ITALY

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**  
> 25 MOhm\*Km

**Test Voltage Core-Core:**  
2000 V

**Test Voltage Core-Screen:**  
2000 V

**Mutual Capacitance:**  
< 150 nF/km

**Inductance:**  
< 1 mH/km

**Operating Voltage:**  
300/500 V

### CHARACTERISTICS

**Min. Bending Radius**  
8 x cable diameter



**Put up lenght 305 mt**





## UL 1424

FPLR

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAR0203HFOCH-UL-FA-RB	R1040	2x18AWG	3.3	20	34.0	150.0
SAR0202HFOCH-UL-FA-RB	R1041	2x16AWG	3.8	27	21.4	150.0
SAR0201HFOCH-UL-FA-RB	R1042	2x14AWG	4.1	38	13.5	150.0
SAR0252HFOCH-UL-FA-RB	R1043	2x12AWG	5.7	70	8.5	150.0

RAMRRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANRE AT 20°R [Ohm/km]	NOM. RAPARITANRE [pF/m]
SSR0203HFOCH-UL-FA-RB	R1136	2x18AWG	3.8	27	21.4	150.0
SSR0202HFOCH-UL-FA-RB	R1137	2x16AWG	4.1	38	13.5	150.0
SSR0201HFOCH-UL-FA-RB	R1138	2x14AWG	5.7	70	8.5	150.0
SSR0251HFOCH-UL-FA-RB	R1138	2x12AWG	6.5	90	5.3	150.0

## Plenum Fire Alarm Cable (NEC Type FPLP)

NEC FPLP Plenum Fire Alarm Cable is available from Allied Wire in Cable in both shielded fire alarm cable and unshielded fire alarm cable versions. In our collection, we offer PVC and PVDF jacketed cables and mid-capacitance cables. All meet NEC Article 760 and FPLP standards. They are rated to 75°C and 300 volts. Our unshielded fire alarm cable may be consistently relied upon. Our shielded alarm cables are excellent products as well, as they offer protection against noise and other outside variables. Whether you choose a shielded or unshielded fire alarm cable, all are approved for plenum installation.

## FPLP

FPLP shielded and unshielded fire alarm cable may be used for many applications, including the wiring of fire alarms, smoke detectors, voice communications, burglar alarms, fire protective circuits, pull boxes, addressable fire alarm systems and more. FPLP Alarm Cable features an abrasion, chemical and water resistant jacket. Sequentially marked footage is included to facilitate installation. For safer cable options, Allied Wire carries Plenum Fire Alarm Cable designed to meet NFPA 262 and CSA FT-6 Steiner Tunnel Fire Tests for Plenum Applications. All Plenum Fire Alarm Cable is also California State Fire Marshall approved.

# PLENUM FIRE ALARM CABLE

Fire Protection, Alarm, Signal Cable

# PLENUM FIRE ALARM CABLE

## Fire Protection, Alarm, Signal Cable

Multi-Core, Fire Retardant PVC LS, unscreened or with collective screen, Fire Retardant PVC LS-Sheath



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Solid

**Insulation:**

Low Smoke Polyvinylchloride - LS PVC

**Cable twisting:**

Two or more wire twisted

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinne copper drain wire

**Outer Sheath:**

Low Smoke Polyvinylchloride - LS PVC

**Colour Outer Sheath:**

Red

### STANDARD REFERENCES

- UL 1666
- NEC Article 760
- NFPA 262 (UL 910)
- CMP

### IDENTIFICATION OF CORES

2 cores: ● ●

### TEMPERATURE RANGE

**During Operation:**

-30° C up to +80°C

**During Installation:**

-5° C up to +50°C



### CABLE PRINTING

RAMCRO ITALY - R\_\_\_\_\_ - FIRE ALARM CABLE PLENUM - FPLP - UL 1666 2C 16AWG + BATCH + METER MARKING

### ELECTRICAL DATA

**Test Voltage Core-Core:**

2000 V

**Test Voltage Core-Screen:**

2000 V

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300 V

### CHARACTERISTICS

**Min. Bending Radius**

8 x cable diameter



Put up lenght 305 mt



# PLENUM FIRE ALARM CABLE

## Fire Protection, Alarm, Signal Cable

Multi-Core, Fire Retardant PVC LS, unscreened or with collective screen, Fire Retardant PVC LS-Sheath

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAR0203HESNX-UL-FA-RB	R9040	2x16AWG	4.4	54	21.4	150.0
SAR0202HESNX-UL-FA-RB	R9041	3x16AWG	4.7	73	21.4	150.0
SAR0201HESNX-UL-FA-RB	R9042	4x16AWG	5.2	111	21.4	150.0

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAR0205HESNX-UL-FA-RB	R9043	2x18AWG	3.8	36	34.0	150.0
SAR0205HESNX-UL-FA-RB	R9044	3x18AWG	4.1	127	34.0	150.0
SAR0205HESNX-UL-FA-RB	R9045	4x18AWG	4.6	133	34.0	150.0

## Unscreened Version

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSR0203HESNX-UL-FA-RB	R9046	2x16AWG	4.3	48	21.4	150.0
SSR0202HESNX-UL-FA-RB	R9047	3x16AWG	4.5	66	21.4	150.0
SSR0201HESNX-UL-FA-RB	R9048	4x16AWG	5.0	96	21.4	150.0

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SSR0205HESNX-UL-FA-RB	R9049	2x18AWG	3.6	28	34.0	150.0
SSR0205HESNX-UL-FA-RB	R9050	3x18AWG	4.0	101	34.0	150.0
SSR0205HESNX-UL-FA-RB	R9051	4x18AWG	4.5	123	34.0	150.0



These special multicore cables are used for fire resistant and circuit integrity, and essentially to prevent life from smoke and noxious fumes, and where sensitive equipment may be damaged by acid forming gases.

Materials and structure used for this type of cables depends on performance required:

Fire Time Exposition, Fire Temperature, Extra Burning Events.

These type of cables can be manufactured in according to:

- International Electro-Technical Commission IEC 60331
- British Standard BS 6387 C-W-Z
- British Standard BS 7629
- FireGround Cable BS 6387 C-W-Z - BS 7846

One of the major requirement of the Metro system concerns fire prevention.

Minimization of the combustible materials in tunnels and stations is an ever-developing topic as it indirectly dictates the time available for responding safely to a fire incident. Reduction of the combustible materials, development of fire resistant materials, development of materials that even when burned do not produce toxic fumes and other dangerous products may provide the additional critical time to safely evacuate the people/passengers involved in an incident.

Within this framework, arise the need that the cables installed in a Tunnel or Metro Network must have have the proper fire behavior and do not let the fire spread. Within this framework, Ramfirecro FIREGROUND have been designed.

All the cables can be order with a white sheath.

# FIRE RESISTANT CABLE

## MULTI-CONDUCTOR CABLE

# FIRE RESISTANT CABLE

LPCB 568a/02

BS 6387:2013 Cat. C-W-Z

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



## CONSTRUCTION

### Formation:

Plain annealed copper wire, solid and stranded

### Insulation:

Special mix silicon rubber

### Wrapping:

at least 1 layer of plastic tape 0,023 mm

### Collective Screen:

0,026 mm Aluminium / PETP tape over copper drain wire

### Outer Sheath:

Thermoplastic Low Smoke, Halogen Free

### Colour Outer Sheath:

Red or White

## STANDARD REFERENCES

Major References Certified:

- BS 6387:2013 Cat. C-W-Z
  - IEC 60754-1:2011
  - IEC 60754-2:2011
  - BS EN 61034-2:2005+A1:2013
  - EN 50200:2015 (Class PH60)
- Applicable Standard:
- BS EN 60228:2005
  - BS 7655 6.1:1997
  - IEC 60331-21
  - IEC 60332-3-24C

## IDENTIFICATION OF CORES

2 cores: ● ●  
3 cores: ● ● ●  
4 cores: ● ● ● ●  
up/from 5 cores: Black Numbered

## TEMPERATURE RANGE

**During Operation:**  
-30° C up to +180°C  
**During Installation:**  
-5° C up to +50°C



## CABLE PRINTING

RAMFIRECRO-F3 - R\_\_\_\_\_ - FIRE RESISTANT - LSZH - LPCB 568a/02 - BS EN 50267-2-1 - BS 6387 C-W-Z - EN 50200 PH 120 - 300/500V -2x1,5 mmq + E + batch n° + MADE IN ITALY - RAMCRO B3 ITALY + metrica

## ELECTRICAL DATA

### Insulation Resistance @ 20°C:

> 200 MOhm\*Km

### Test Voltage Core-Core:

2000 V

### Test Voltage Core-Screen:

2000 V

### Mutual Capacitance:

< 150 nF/km

### Inductance:

< 1 mH/km

### Operating Voltage:

300/500 V

## CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free





## BS 6387:2013 Cat. C-W-Z

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAR0211HFESL-F3(IE)-RB	R1283	2x1.00 (Cl.1)	6.4	60	18.5	150.0
SAS0210HFESL-F3(IE)-RB	R1140	2x1.00 (Cl.2)	7.1	63	18.5	150.0
SAR0311HFESP-F3(IE)-RB	R1160	3x1.00 (Cl.1)	6.8	78	18.5	150.0
SAS0310HFESP-F3(IE)-RB	R1150	3x1.00 (Cl.2)	7.1	81	18.5	150.0
SAR0214HFESL-F3(IE)-RB	R1044	2x1.50 (Cl.1)	7.3	77	12.3	150.0
SAS0215HFESL-F3(IE)-RB	R1141	2x1.50 (Cl.2)	7.6	81	12.3	150.0
SAR0314HFESP-F3(IE)-RB	R1161	3x1.50 (Cl.1)	7.7	100	12.3	150.0
SAS0315HFESP-F3(IE)-RB	R1151	3x1.50 (Cl.2)	8.1	107	12.3	150.0
SAR0218HFESL-F3(IE)-RB	R1045	2x2.50 (Cl.1)	8.5	106	7.6	150.0
SAS0225HFESL-F3(IE)-RB	R1142	2x2.50 (Cl.2)	8.9	112	7.6	150.0
SAR0318HFESP-F3(IE)-RB	R1162	3x2.50 (Cl.1)	9.0	142	7.6	150.0
SAS0325HFESP-F3(IE)-RB	R1152	3x2.50 (Cl.2)	9.5	150	7.6	150.0
SAS0240HFESL-F3(IE)-RB	R1289	2x4.00 (Cl.2)	10.0	149	4.7	150.0
SAS0340HFESP-F3(IE)-RB	R1163	3x4.00 (Cl.2)	10.6	205	4.7	150.0

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCESL-F3(IE)

## BS 7629-1:2008

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, solid

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Collective Screen:**

0,026 mm Aluminium / PETP tape over tinned copper drain wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red or White

### STANDARD REFERENCES

Major References Certified:

- BS 7629-1:2008
  - IEC 60754-1:2011
  - IEC 60754-2:2011
  - BS EN 61034-2:2005+A1:2013
  - EN 50200:2015 (Class PH120)
- Applicable Standard:
- BS EN 60228:2005
  - BS 7655 6.1:1997
  - IEC 60331-21
  - IEC 60332-3-24C

### IDENTIFICATION OF CORES

- 2 cores: ● ●
- 3 cores: ● ● ●
- 4 cores: ● ● ● ●
- up/from 5 cores: Black Numbered

### TEMPERATURE RANGE

- During Operation:**  
-30° C up to +180°C
- During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 - R\_\_\_\_ - FIRE RESISTANT ELECTRIC CABLE – LSZH - 300/500V - BS 7629-1:2008 - BS EN50200 PH30/120 - BS 6387 CWZ - 2x1,5 mmq + E - LPCB 568c/02 - MADE IN ITALY - BATCH N°

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**  
> 200 MOhm\*Km

**Test Voltage Core-Core:**  
2000 V

**Test Voltage Core-Screen:**  
2000 V

**Mutual Capacitance:**  
< 150 nF/km

**Inductance:**  
< 1 mH/km

**Operating Voltage:**  
300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Low Smoke Halogen Free



## BS 7629-1:2008

Multi-Core, Solid CU, Silicon Rubber-Insulation, Collective Screen, LSZH-Sheath

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAR0211HFESL-F3PH120-RB	R1285	2x1.00 (Cl.1)	6.6	68	18.5	150.0
SAS0210HFESL-F3PH120-RB	R1046	2x1.00 (Cl.2)	6.9	71	18.5	150.0
SAR0311HFESP-F3PH120-RB	R1064	3x1.00 (Cl.1)	7.0	85	18.5	150.0
SAS0310HFESP-F3PH120-RB	R1065	3x1.00 (Cl.2)	7.3	88	18.5	150.0
SAR0214HFESL-F3PH120-RB	R1286	2x1.50 (Cl.1)	7.5	89	12.3	150.0
SAS0215HFESL-F3PH120-RB	R1047	2x1.50 (Cl.2)	8.0	98	12.3	150.0
SAR0314HFESP-F3PH120-RB	R1066	3x1.50 (Cl.1)	8.1	117	12.3	150.0
SAS0315HFESP-F3PH120-RB	R1067	3x1.50 (Cl.2)	8.5	123	12.3	150.0
SAR0218HFESL-F3PH120-RB	R1287	2x2.50 (Cl.1)	9.0	135	7.6	150.0
SAS0225HFESL-F3PH120-RB	R1048	2x2.50 (Cl.2)	9.4	141	7.6	150.0
SAR0318HFESP-F3PH120-RB	R1068	3x2.50 (Cl.1)	9.5	173	7.6	150.0
SAS0325HFESP-F3PH120-RB	R1069	3x2.50 (Cl.2)	10.0	180	7.6	150.0
SAS0240HFESL-F3PH120-RB	R1288	2x4.00 (Cl.2)	10.6	195	4.7	150.0
SAS0340HFESP-F3PH120-RB	R1070	3x4.00 (Cl.2)	11.2	251	4.7	150.0

\* Cables certified by LPCB BRE GLOBAL

\* if the cables are with a WHITE outer sheath the part RAMCRO CODE will change in: SAR\_\_\_HCESL-F3PH120

## BS 6387:2013 Cat. C-W-Z

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath



### CONSTRUCTION

**Formation:**

Plain annealed copper wire, Multistrand

**Insulation:**

Special mix silicon rubber

**Wrapping:**

at least 1 layer of plastic tape 0,023 mm

**Inner Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Armour:**

Galvanized steel wire

**Outer Sheath:**

Thermoplastic Low Smoke, Halogen Free

**Colour Outer Sheath:**

Red

### STANDARD REFERENCES

Major References Certified:

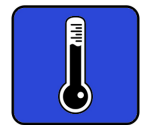
- BS 6387:2013 Cat. C-W-Z
  - IEC 60754-1:2011
  - IEC 60754-2:2011
  - BS EN 61034-2:2005+A1:2013
  - EN 50200:2015 (Class PH60)
- Applicable Standard:
- BS EN 60228:2005
  - BS 7655 6.1:1997
  - IEC 60331-21
  - IEC 60332-3-24C

### IDENTIFICATION OF CORES

- 2 cores: ● ●
- 3 cores: ● ● ●
- 4 cores: ● ● ● ●
- 5 cores: ● ● ● ● ●

### TEMPERATURE RANGE

- During Operation:**  
-30° C up to +180°C
- During Installation:**  
-5° C up to +50°C



### CABLE PRINTING

RAMFIRECRO-F3 - R\_\_\_\_ - LSZH – BS 6387 C-W-Z – IEC60332-3-24 – IEC 60332-1-2 – IEC 60502 - 0.6/1 kV 2x2.50 sqmm – CU/SIL/LSZH/SWA/LSZH – ARMoured - MADE IN ITALY + BATCH N°

### ELECTRICAL DATA

**Insulation Resistance @ 20°C:**

> 200 MOhm\*Km

**Test Voltage Core-Core:**

5000 V

**Mutual Capacitance:**

< 150 nF/km

**Inductance:**

< 1 mH/km

**Operating Voltage:**

300/500 V

### CHARACTERISTICS

Fire Resistant



Min. Bending Radius  
8 x cable diameter



Power Cable

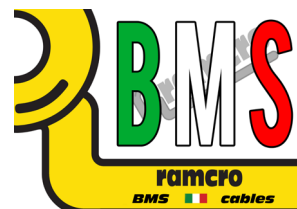


## BS 6387:2013 Cat. C-W-Z

Multi-Core, Multistrand CU, Silicon Rubber-Insulation, Steel Wire Armour, LSZH-Sheath

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAS0225AFESH-F3(FG)-RB	R7846	2x2.50	16.2*	521	8.1	150.0
SAS0375AFESP-F3(FG)-RB	R7847	3x2.50	16.8*	571	8.1	150.0
SAS0475AFESQ-F3(FG)-RB	R7848	4x2.50	17.8*	640	8.1	150.0
SAS0575AFESD-F3(FG)-RB	R7849	5x2.50	18.8*	714	8.1	150.0
SAS0210AFESL-F3(FG)-RB	R7850	2x4.00	17.1*	582	5.0	150.0
SAS0310AFESP-F3(FG)-RB	R7851	3x4.00	17.7*	644	5.0	150.0
SAS0410AFESQ-F3(FG)-RB	R7852	4x4.00	18.7*	728	5.0	150.0
SAS0510AFESD-F3(FG)-RB	R7853	5x4.00	19.9*	819	5.0	150.0
SAS0215AFESL-F3(FG)-RB	R7854	2x6.00	18.6*	703	3.4	150.0
SAS0315AFESP-F3(FG)-RB	R7855	3x6.00	19.4*	789	3.4	150.0
SAS0415AFESQ-F3(FG)-RB	R7856	4x6.00	20.6**	905	3.4	150.0
SAS0515AFESD-F3(FG)-RB	R7857	5x6.00	22.7**	1137	3.4	150.0
SAS0225AFESL-F3(FG)-RB	R7858	2x10.00	20.6**	891	1.9	150.0
SAS0325AFESP-F3(FG)-RB	R7859	3x10.00	22.2**	1130	1.9	150.0
SAS0425AFESQ-F3(FG)-RB	R7860	4x10.00	23.8**	1307	1.9	150.0
SAS0525AFESD-F3(FG)-RB	R7861	5x10.00	25.4**	1492	1.9	150.0
SAS0240AFESL-F3(FG)-RB	R7862	2x16.00	24.1**	1280	1.2	150.0
SAS0340AFESP-F3(FG)-RB	R7863	3x16.00	25.5**	1481	1.2	150.0
SAS0440AFESQ-F3(FG)-RB	R7864	4x16.00	27.1**	1737	1.2	150.0
SAS0540AFESD-F3(FG)-RB	R7865	5x16.00	29.3**	2021	1.2	150.0
SAS0240AFESL-F3(FG)-RB	R7866	2x25.00	26.1**	1593	0.9	150.0
SAS0340AFESP-F3(FG)-RB	R7867	3x25.00	27.4**	1886	0.9	150.0
SAS0440AFESQ-F3(FG)-RB	R7868	4x25.00	29.8**	2261	0.9	150.0
SAS0540AFESD-F3(FG)-RB	R7869	5x25.00	33.1**	2843	0.9	150.0

# PART NUMBER INDEX

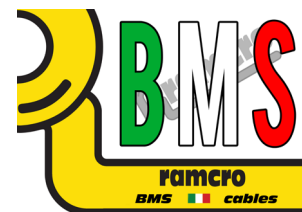


CABLE CODE	PART N°	BELDEN	PAGE
SAS0201HBAXH-RB	R1001	5100FE	9
SSS0201HBAXH-RB	R1002	5100UE	7
SAS0301HBAXX-RB	R1003	5101FE	9
SSS0301HBAXX-RB	R1004	5101UE	7
SAS0401HBAXX-RB	R1005	5102FE	9
SSS0401HBAXX-RB	R1006	5102UE	7
SAS0203HBAXH-RB	R1007	5200FE	9
SSS0203HBAXH-RB	R1008	5200UE	7
SAS0303HBAXX-RB	R1009	5201FE	9
SSS0303HBAXX-RB	R1010	5201UE	7
SAS0403HBAXX-RB	R1011	5202FE	9
SSS0403HBAXX-RB	R1012	5202UE	7
SAS0205HBAXH-RB	R1013	5300FE	9
SSS0205HBAXH-RB	R1014	5300UE	7
SAS0305HBAXX-RB	R1015	5301FE	9
SSS0305HBAXX-RB	R1016	5301UE	7
SAS0405HBAXX-RB	R1017	5302FE	9
SSS0405HBAXX-RB	R1018	5302UE	7
SAS0206HBAXH-RB	R1019	5400FE	9
SSS0206HBAXH-RB	R1020	5400UE	7
SAS0306HBAXX-RB	R1021	5401FE	9
SSS0306HBAXX-RB	R1022	5401UE	7
SAS0406HBAXX-RB	R1023	5402FE	9
SSS0406HBAXX-RB	R1024	5402UE	7
RG59-QS-RB	R1025	-	57
RG6-QS-RB	R1026	9116	57
RG11-QS-RB	R1027	1523A	57
RG59-RB	R1028	543945	53
RG6-RB	R1029	533945	53
RG11-RB	R1030	513945	53
CAT3-2P-RB	R1031	1227A1	39
CAT3-25P-RB	R1032	1232A1	39
CAT3-50P-RB	R1033	-	39
CAT3-100P-RB	R1034	-	39
UTPLEVEL5-4X2X0.22-RB	R1035	-	41

CABLE CODE	PART N°	BELDEN	PAGE
FTPLEVEL54X2X0.22-RB	R1036	-	41
UTPLEVEL6-4X2X0.22-RB	R1037	7965E	43
FTPLEVEL64X2X0.22-RB-RB	R1038	7860E	43
SFTPLEVEL7-RB	R1039	1885ENH	47
SAR0203HFOCH-UL-FA-RB	R1040	9574	65
SAR0202HFOCH-UL-FA-RB	R1041	9575	65
SAR0201HFOCH-UL-FA-RB	R1042	9581	65
SAR0252HFOCH-UL-FA-RB	R1043	9583	65
SAR0214HFESL-F3(IE)-RB	R1044	-	69
SAR0218HFESL-F3(IE)-RB	R1045	-	69
SAS0210HFESL-F3PH120-RB	R1046	-	71
SAS0215HFESL-F3PH120-RB	R1047	-	71
SAS0225HFESL-F3PH120-RB	R1048	-	71
SAR0211HFEEL-F3-RB	R1050	-	73
SAR0214HFEEL-F3-RB	R1051	-	73
FTPLEVEL6A4X2X0.22ZA-RB	R1052	-	45
SAR0218HFEEL-F3-RB	R1052	-	73
UFTPLEVEL6A4X2X0.22ZA-RB	R1053	-	45
UTPLEVEL6A4X2X0.22-RB	R1055	-	45
FTPLEVEL6A4X2X0.22-RB	R1056	-	45
UFTPLEVEL6A4X2X0.22-RB	R1057	-	45
SAR0311HFESP-F3PH120-RB	R1064	-	71
SAS0310HFESP-F3PH120-RB	R1065	-	71
SAR0314HFESP-F3PH120-RB	R1066	-	71
SAS0315HFESP-F3PH120-RB	R1067	-	71
SAR0318HFESP-F3PH120-RB	R1068	-	71
SAS0325HFESP-F3PH120-RB	R1069	-	71
SAS0340HFESP-F3PH120-RB	R1070	-	71
MAR0107HBADX-T-RB	R1080	3105A	23
SSR0203HFOCH-UL-FA-RB	R1136	9572	65
SSR0202HFOCH-UL-FA-RB	R1137	9580	65
SSR0201HFOCH-UL-FA-RB	R1138	9582	65
SSR0251HFOCH-UL-FA-RB	R1138	-	65
SAS0210HFESL-F3(IE)-RB	R1140	-	69
SAS0215HFESL-F3(IE)-RB	R1141	-	69

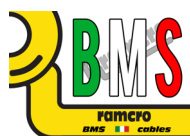


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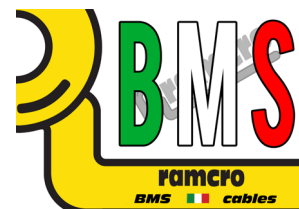


CABLE CODE	PART N°	BELDEN	PAGE
SAS0225HFESL-F3(IE)-RB	R1142	-	69
SAS0310HFESP-F3(IE)-RB	R1150	-	69
SAS0315HFESP-F3(IE)-RB	R1151	-	69
SAS0325HFESP-F3(IE)-RB	R1152	-	69
SAR0311HFESP-F3(IE)-RB	R1160	-	69
SAR0314HFESP-F3(IE)-RB	R1161	-	69
SAR0318HFESP-F3(IE)-RB	R1162	-	69
SAS0340HFESP-F3(IE)-RB	R1163	-	69
MAS0108HBAAH-T-RB	R1181	9501	27
MAS0208HBAAX-T-RB	R1182	9502	27
MAS0308HBAAX-T-RB	R1183	9503	27
MAS0408HBAAX-T-RB	R1184	9504	27
MAS0508HBAAX-T-RB	R1185	9505	27
MAS0608HBAAX-T-RB	R1186	9506	27
MAS0708HBAAX-T-RB	R1187	9507	27
MAS0808HBAAX-T-RB	R1188	9508	27
MAR0108HBADX-T-RB	R1189	9841	23
MAR0208HBADX-T-RB	R1190	9842	23
MAR0308HBADX-T-RB	R1191	9843	23
MAR0408HBADX-T-RB	R1192	9844	23
MAS0105HBADN-T-RB	R1193	8760	33
MAS0106HBADN-T-RB	R1195	8762	33
MAP0207HBADH-T-RB	R1196	8723	29
MAP0308HBADX-T-RB	R1197	8777	29
MSE0103HBADN-T-RB	R1198	8471	31
MAS0107HBADN-T-RB	R1199	8761	33
UTPLEVEL6A4X2X0.22ZA-RB	R1200	-	45
SFTPLEVEL7A-RB	R1201	-	49
MSE0105HBADN-T-RB	R1203	9740	31
SAS0605HBAXX-RB	R1211	5304FE	9
SSS0605HBAXX-RB	R1212	5304UE	7
MAS0103HBADN-T-RB	R1213	8719	33
MAP0608HBADX-T-RB	R1214	8778	29
SAS0307HBADX-T-RB	R1215	-	19
SAM4108HIADX-RB	R1217	YE00820	37

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SAM0108HIADH-RB	R1219	YE00819	37
SAM0108HIEDH-RB	R1220	YE00905	37
MSE0101HBADN-T-RB	R1222	8473	31
MAS0101HBADN-T-RB	R1224	8720	33
SAS0305HBADX-T-RB	R1225	-	19
SAS0207HBAXH-RB	R1226	5500FE	9
SSS0207HBAXH-RB	R1227	5500UE	7
SAS0307HBAXX-RB	R1228	5501FE	9
RG59-FTC-RB	R1229	-	61
SAS0407HBAXX-RB	R1230	5502FE	9
SSS0407HBAXX-RB	R1231	5502UE	7
SAS0807HBAXX-RB	R1232	5506FE	9
SSS0807HBAXX-RB	R1233	5506UE	7
UTPLEVEL5-4X2X0.22ZA-RB	R1235	-	41
FTPLEVEL54X2X0.22ZA-RB	R1236	-	41
UTPLEVEL6-4X2X0.22ZA-RB	R1237	-	43
FTPLEVEL64X2X0.22ZA-RB-RB	R1238	-	43
RG11-QS-RB	R1241	-	59
SAS0306HBADX-T-RB	R1245	-	19
SAS0601HBAXX-RB	R1248	5104FE	9
SSS0601HBAXX-RB	R1249	5104UE	7
SAS0801HBAXX-RB	R1250	5106FE	9
SSS0801HBAXX-RB	R1251	5106UE	7
SAS0603HBAXX-RB	R1252	5204FE	9
SSS0603HBAXX-RB	R1253	5204UE	7
SAS0803HBAXX-RB	R1254	5206FE	9
SSS0803HBAXX-RB	R1255	5206UE	7
RG59-QS-RB	R1256	-	59
RG6-QS-RB	R1257	-	59
SAS0805HBAXX-RB	R1258	5306FE	9
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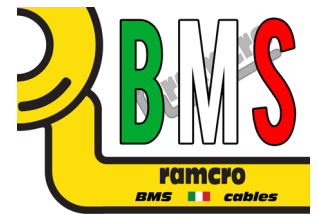
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CAT3-12P-RB	R1267	-	39
CAT3-150P-RB	R1268	-	39
CAT3-200P-RB	R1269	-	39
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MAS0105HXEEN-T-RB	R1272	8760NH	33
RG59-FLEX-RB	R1275	-	55
RG6-FLEX-RB	R1276	-	55
RG11-FLEX-RB	R1277	-	55
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RG59-ZA-FTC-RB	R1279	-	61
RG6-FTC-RB	R1280	-	61
MAS0108HXEEH-T-RB	R1281	8723NH	29
MAS0208HXEEX-T-RB	R1282	8777NH	29
SAR0211HFESL-F3(IE)-RB	R1283	-	69
SAR0211HFESL-F3PH120-RB	R1285	-	71
SAR0214HFESL-F3PH120-RB	R1286	-	71
SAR0218HFESL-F3PH120-RB	R1287	-	71
SAS0240HFESL-F3PH120-RB	R1288	-	71
SAS0240HFESL-F3(IE)-RB	R1289	-	69
SAS0210HFEEL-F3-RB	R1290	-	73
SAS0215HFEEL-F3-RB	R1291	-	73
SAS0225HFEEL-F3-RB	R1292	-	73
SAS0240HFEEL-F3-RB	R1293	-	73
MAR0207HBADX-T-RB	R1295	3107A	23
MAR0307HBADX-T-RB	R1296	3108A	23
MAR0407HBADX-T-RB	R1297	3109A	23
MSE0106HBADN-T-RB	R1300	8205	31
MSE0107HBADN-T-RB	R1301	8442	31
MSE0152HBADN-T-RB	R1302	8477	31
MAS0152HXEEN-T-RB	R1303	8718NH	33

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MSE0101HXEEN-T-RB	R1306	8473NH	31
MSE0103HXEEN-T-RB	R1307	8471NH	31
MAS0106HXEEN-T-RB	R1308	8762NH	33
MSE0106HXEEN-T-RB	R1309	8205NH	31
MAS0107HXEEN-T-RB	R1310	8761NH	33
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MAS0508HXEEX-T-RB	R1314	8778NH	29
MAR0108HXEDX-T-RB	R1318	9841NH	23
MAR0208HXEDX-T-RB	R1319	9842NH	23
MAR0308HXEDX-T-RB	R1320	9843NH	23
MAR0408HXEDX-T-RB	R1321	9844NH	23
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SSS0852HBAXX-RB	R1333	-	7
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SAS0352HXEDX-RB	R1336	-	13
SSS0352HXEDX-RB	R1337	-	11
SAS0452HXEDX-RB	R1338	-	13
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SSS0652HXEDX-RB	R1343	-	11
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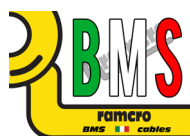


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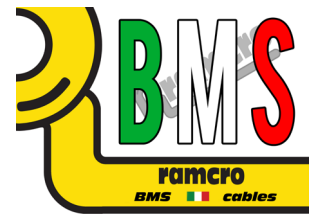


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SAM0107HXEDX-RB	R1348	7703NH	35
SAM0207HXEDX-RB	R1349	7704NH	35
RG6-ZA-FTC-RB	R1378	-	61
RG11-FTC-RB	R1379	-	61
RG11-ZA-FTC-RB	R1380	-	61
MAP0208HBADX-T-RB	R1382	-	25
MAP0308HBADX-T-RB	R1383	-	25
MAP0408HBADX-T-RB	R1384	-	25
MAP0608HBADX-T-RB	R1386	-	25
MAR0107HXEDX-T-RB	R1401	-	23
MAR0207HXEDX-T-RB	R1402	-	23
MAR0307HXEDX-T-RB	R1403	-	23
MAR0407HXEDX-T-RB	R1404	-	23
SAR0311HFEEP-F3-RB	R1404	-	73
MAR0105HXEDX-T-RB	R1405	-	23
SAS0310HFEEP-F3-RB	R1405	-	73
MAR0205HXEDX-T-RB	R1406	-	23
SAR0314HFEEP-F3-RB	R1406	-	73
MAR0305HXEDX-T-RB	R1407	-	23
MAR0405HXEDX-T-RB	R1408	-	23
SAR0318HFEEP-F3-RB	R1408	-	73
SAS0315HFEEP-F3-RB	R1409	-	73
SAS0325HFEEP-F3-RB	R1409	-	73
SAS0305HXEDX-T-RB	R1410	-	19
SAS0306HXEDX-T-RB	R1411	-	19
SAS0340HFEEP-F3-RB	R1411	-	73
SAS0307HXEDX-T-RB	R1412	-	19
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RG6-ZA-RB	R1429	-	53
RG11-ZA-RB	R1430	-	53
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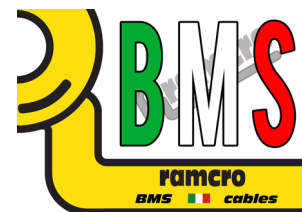


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MAS0106HEDDN-T-RB	R1877	-	33
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MSE0107HEDDN-T-RB	R1879	-	31
MSE0152HEDDN-T-RB	R1880	-	31
MAS0107HEDDN-T-RB	R1881	-	33
SAM4108HIDDX-RB	R1900	-	37
SAM0108HIDDH-RB	R1901	-	37
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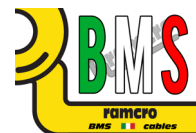
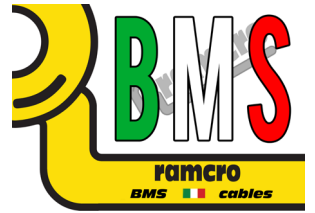


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SAS0803HBSXX-RB	R4179	-	17
SAS0225AFESH-F3(FG)-RB	R7846	-	75
SAS0375AFESP-F3(FG)-RB	R7847	-	75
SAS0475AFESQ-F3(FG)-RB	R7848	-	75
SAS0575AFESD-F3(FG)-RB	R7849	-	75
SAS0210AFESL-F3(FG)-RB	R7850	-	75
SAS0310AFESP-F3(FG)-RB	R7851	-	75
SAS0410AFESQ-F3(FG)-RB	R7852	-	75
SAS0510AFESD-F3(FG)-RB	R7853	-	75
SAS0215AFESL-F3(FG)-RB	R7854	-	75
SAS0315AFESP-F3(FG)-RB	R7855	-	75
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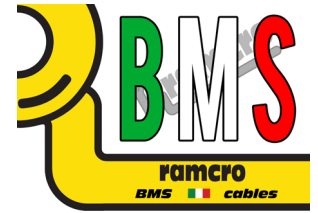
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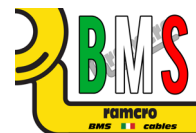
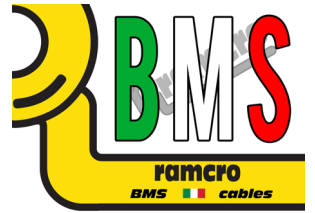
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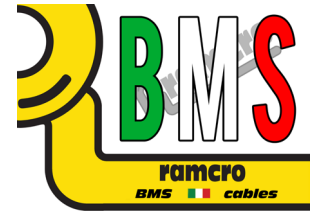
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# NOTE



# NOTE



Assessed to ISO 9001:2015  
LPCB Cert. No 988



CERTIFIED MANAGEMENT SYSTEM  
BS OHSAS 18001



CERTIFIED MANAGEMENT SYSTEM  
ISO 14001





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Approved by AQ: PC