

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

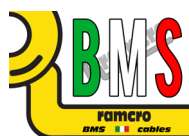


AUDIO, CONTROL & INSTRUMENTATION

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

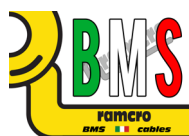


AUDIO, CONTROL & INSTRUMENTATION

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

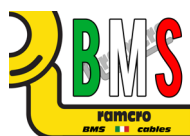


AUDIO, CONTROL & INSTRUMENTATION

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

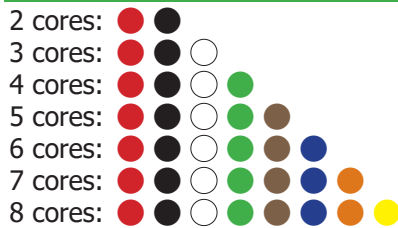
- IEC 60332-1 for PVC sheath

- 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

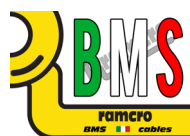


AUDIO, CONTROL & INSTRUMENTATION

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

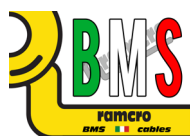
RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MAR0107HBADX-T-RB	R1080	1x2x22AWG	6.4	48	73.1	36.0
MAR0207HBADX-T-RB	R1295	2x2x22AWG	9.8	76	73.1	37.0
MAR0307HBADX-T-RB	R1296	3x2x22AWG	10.4	93	73.1	38.0
MAR0407HBADX-T-RB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

RAMCRO BMS



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

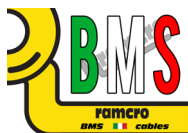


DATA LAN

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 tinned 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 length 305 mt**

DATA LAN

MODBUS APPLICATIONS

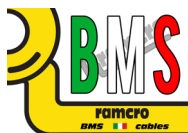
22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for MODBUS applications

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

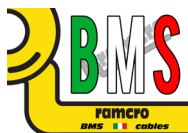
22AWG conductors – PE insulation – PVC or LSZH(FRNC) sheath for LONWORKS applications

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

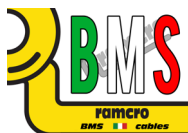
RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SAM0108HIADH-RB	R1219	1x2x24AWG	5.1	38	37.0	100.0
SAM4108HIADX-RB	R1217	1x4x24AWG	5.7	53	37.0	100.0

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

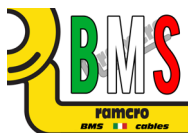
FTP UTP 5e

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

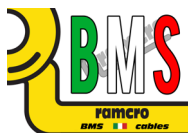
FTP UTP 6

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

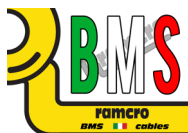
CAT 7

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

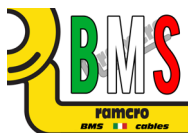
CAT 7a

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

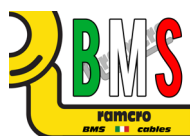
RAMCRO CODE	PART N°	CABLE TYPE	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-RB	R1028	RG59	3.7	95	PVC	6.0	47
RG59-ZA-RB	R1428	RG59	3.7	95	LSZH(FRNC)	6.0	49
RG6-RB	R1029	RG6	4.6	95	PVC	6.8	55
RG6-ZA-RB	R1429	RG6	4.6	95	LSZH(FRNC)	6.8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

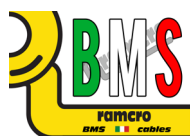
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	WEIGHT [kg/km]
RG59-FLEX-RB	R1275	RG59	TINNED COPPER	3.7	95	PVC	6.0	48
RG6-FLEX-RB	R1276	RG6	BARE COPPER	4.6	95	PVC	6.8	57
RG11-FLEX-RB	R1277	RG11	BARE COPPER	7.1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

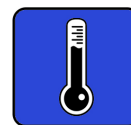
TEMPERATURE RANGE

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

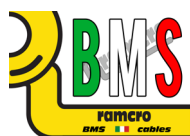
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-QS-RB	R1025	RG59	TINNED COPPER	3.7	54 + 46	PVC	6.7	39
RG6-QS-RB	R1026	RG6	BARE COPPER	4.6	60 + 40	PVC	7.5	49
RG11-QS-RB	R1027	RG11	BARE COPPER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

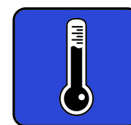
TEMPERATURE RANGE

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

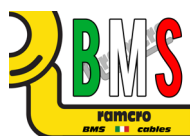
RAMCRO CODE	PART N°	CABLE TYPE	CONDUCTOR MATERIAL	NOM.DIELECTRIC DIAMETER [mm]	COVERAGE BRAID [%]	MATERIAL SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]
RG59-FTC-RB	R1229	RG59	BARE COPPER	3.7	95	PVC	6.0	46
RG59-ZA-FTC-RB	R1279	RG59	BARE COPPER	3.7	95	LSZH(FRNC)	6.0	48
RG6-FTC-RB	R1280	RG6	BARE 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:

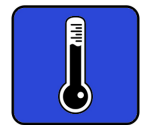
- BS 6387:2013 Cat. C-W-Z
 - IEC 60754-1:2011
 - IEC 60754-2:2011
 - BS EN 61034-2:2005+A1:2013
 - EN 50200:2015 (Class PH60)
- Applicable Standard:
- BS EN 60228:2005
 - BS 7655 6.1:1997
 - IEC 60331-21
 - IEC 60332-3-24C

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

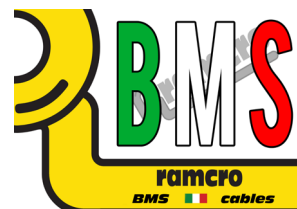


BS 6387:2013 Cat. C-W-Z

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

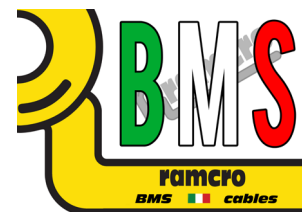


CABLE CODE	PART N°	BELDEN	PAGE
SAS0201HBAXH-RB	R1001	5100FE	9
SSS0201HBAXH-RB	R1002	5100UE	7
SAS0301HBAXX-RB	R1003	5101FE	9
SSS0301HBAXX-RB	R1004	5101UE	7
SAS0401HBAXX-RB	R1005	5102FE	9
SSS0401HBAXX-RB	R1006	5102UE	7
SAS0203HBAXH-RB	R1007	5200FE	9
SSS0203HBAXH-RB	R1008	5200UE	7
SAS0303HBAXX-RB	R1009	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

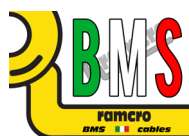


PART NUMBER INDEX

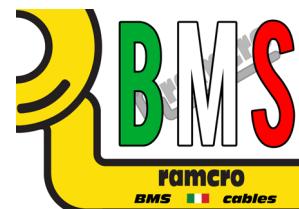


CABLE CODE	PART N°	BELDEN	PAGE
SAS0225HFESL-F3(IE)-RB	R1142	-	69
SAS0310HFESP-F3(IE)-RB	R1150	-	69
SAS0315HFESP-F3(IE)-RB	R1151	-	69
SAS0325HFESP-F3(IE)-RB	R1152	-	69
SAR0311HFESP-F3(IE)-RB	R1160	-	69
SAR0314HFESP-F3(IE)-RB	R1161	-	69
SAR0318HFESP-F3(IE)-RB	R1162	-	69
SAS0340HFESP-F3(IE)-RB	R1163	-	69
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

CABLE CODE	PART N°	BELDEN	PAGE
SAM4108HIEDX-RB	R1218	YE00906	37
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
SSS0805HBAXX-RB	R1259	5306UE	7
SAS0606HBAXX-RB	R1260	5404FE	9
SSS0606HBAXX-RB	R1261	5404UE	7
SAS0806HBAXX-RB	R1262	5406FE	9



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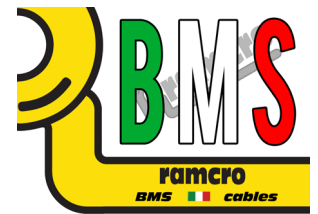


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SAS0607HBAXX-RB	R1264	5504FE	9
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CAT3-6P-RB	R1266	-	39
CAT3-12P-RB	R1267	-	39
CAT3-150P-RB	R1268	-	39
CAT3-200P-RB	R1269	-	39
MAS0103HXEEN-T-RB	R1270	8719NH	33
MSE0105HXEEN-T-RB	R1271	9740NH	31
MAS0105HXEEN-T-RB	R1272	8760NH	33
RG59-FLEX-RB	R1275	-	55
RG6-FLEX-RB	R1276	-	55
RG11-FLEX-RB	R1277	-	55
SSS0307HBAXX-RB	R1278	5501UE	7
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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MAS0101HXEEN-T-RB	R1305	8720NH	33
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
MSE0107HXEEN-T-RB	R1311	8442NH	31
MAS0152HBADN-T-RB	R1313	-	33
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
SAS0252HBAXH-RB	R1322	5000FE	9
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SAS0452HBAXX-RB	R1326	-	9
SSS0452HBAXX-RB	R1327	-	7
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SSS0652HBAXX-RB	R1331	-	7
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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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SAS0652HXEDX-RB	R1342	-	13
SSS0652HXEDX-RB	R1343	-	11
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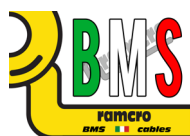


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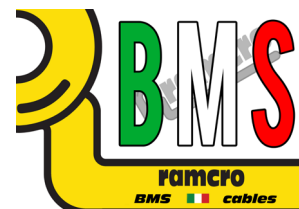


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SAM0107HXEDX-RB	R1348	7703NH	35
SAM0207HXEDX-RB	R1349	7704NH	35
RG6-ZA-FTC-RB	R1378	-	61
RG11-FTC-RB	R1379	-	61
RG11-ZA-FTC-RB	R1380	-	61
MAP0208HBADX-T-RB	R1382	-	25
MAP0308HBADX-T-RB	R1383	-	25
MAP0408HBADX-T-RB	R1384	-	25
MAP0608HBADX-T-RB	R1386	-	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
RG59-ZA-RB	R1428	-	53
RG6-ZA-RB	R1429	-	53
RG11-ZA-RB	R1430	-	53
MAS0108HXEEH-T-RB	R1640	-	27
MAS0208HXEEX-T-RB	R1641	-	27
MAS0308HXEEX-T-RB	R1642	-	27
MAS0408HXEEX-T-RB	R1643	-	27

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MAS0708HXEEX-T-RB	R1646	-	27
MAS0808HXEEX-T-RB	R1647	-	27
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SAS0301HXEDX-RB	R1703	4101FE	13
SSS0301HXEDX-RB	R1704	4101UE	11
SAS0401HXEDX-RB	R1705	4102FE	13
SSS0401HXEDX-RB	R1706	4102UE	11
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SAS0805HXEDX-RB	R1729	4306FE	13
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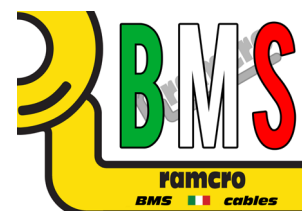


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SAS0207HXEDH-RB	R1741	4500FE	13
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SAS0307HXEDX-RB	R1743	4501FE	13
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MSE0103HEDDN-T-RB	R1872	-	31
MAS0152HEDDN-T-RB	R1873	-	33
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MSE0101HEDDN-T-RB	R1876	-	31
MAS0106HEDDN-T-RB	R1877	-	33
MSE0106HEDDN-T-RB	R1878	-	31
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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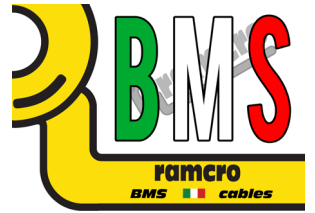


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SAS0252HBSXH-RB	R4123	-	17
SAS0352HBSXX-RB	R4124	-	17
SAS0452HBSXX-RB	R4125	-	17
SAS0652HBSXX-RB	R4127	-	17
SAS0852HBSXX-RB	R4128	-	17
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SAS0303HBSXX-RB	R4173	-	17
SAS0403HBSXX-RB	R4175	-	17
SAS0603HBSXX-RB	R4177	-	17
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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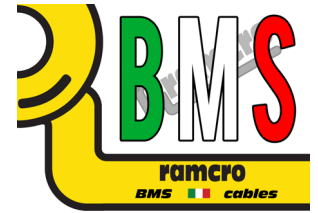
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SAS0525AFESD-F3(FG)-RB	R7861	-	75
SAS0240AFESL-F3(FG)-RB	R7862	-	75
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SAS0440AFESQ-F3(FG)-RB	R7864	-	75
SAS0540AFESD-F3(FG)-RB	R7865	-	75
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SAS0540AFESD-F3(FG)-RB	R7869	-	75
SAS0440AFESQ-F3(FG)-RB	R7868	-	65
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NOTE



NOTE



Assessed to ISO 9001:2015
LPCB Cert. No 988



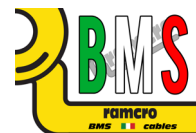
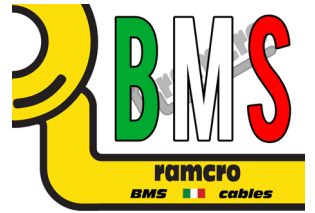
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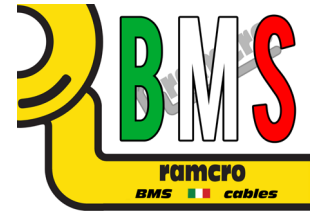
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ISO 14001



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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