



Ramcro

special cables



**CONTROL &
AUTOMATION
CABLES**



Note: Information subject to confirmation

Ramcro was founded in 1979, as a family Company producing Special Cables. Family Croci owns 100% of Ramcro S.p.a.. In over 42 years Ramcro successfully expanded its presence in different countries and in a few different but important segments: Oil & Gas, Fire, Railway Signal & Control, BMS, and Optical Cables.

Ramcro production capacity is 4.000 Km/Month and 50.000 Km/Year. Production dpt is 18.000 sqm, of which 3.000 sqm on stock, allowing outstanding very high flexibility in delivery, with also 1.300 sqm of offices and 750 sqm for Laboratory.

Ramcro Laboratory provides any certificates of tests run following major international specifications and it is ready to be certified ISO 17025. It is also recognized by the international body as a "Third part Laboratory". Ramcro solves any kind of technical issue in the area of the cable, assuring the Client's satisfaction thanks to high quality and personalized solutions, improving the Client's efficiency and optimizing its processes. Ramcro offers extremely flexible solutions and a complete range of services, even tailor-made, based on outstanding worldwide experience

ABOUT COMPANY



Excellence You Can Trust: Ramcro Special Cables

At Ramcro, quality is not just a promise — it's a proven standard. With over 40 years of experience in the design and production of special cables, we are proud to be recognized as one of the few companies in the industry to operate an in-house laboratory accredited to ISO/IEC 17025.

This prestigious accreditation sets us apart. While many rely on third-party laboratories for compliance certificates, Ramcro is directly certified, ensuring the highest level of technical competence, precision, and reliability in every test we perform. Our laboratory doesn't just verify conformity — it defines it.

What does this mean for you?

- Unmatched Quality Control: Every cable is tested under the strictest international standards, guaranteeing performance, safety, and durability.
- Faster Time to Market: With internal testing capabilities, we reduce lead times and respond quickly to your needs.
- Full Traceability & Transparency: From raw materials to final product, every step is monitored and documented with certified accuracy.
- Innovation with Confidence: Our R&D team works hand-in-hand with our lab to develop cutting-edge solutions tailored to your most demanding applications.
- Choose Ramcro — where certified excellence meets engineering innovation.

A Laboratory Certified ISO 17025



ISO/IEC 17025:2017



APPLICATIONS



BMS AND COMMUNICATION CABLES

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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



RAMCRO BMS - Paired Cables

Application	Cond. - Size ↓	No. of pairs →		1	2	3	4	5
		SHIELD-ED	Sheath					
RS-485	24 AWG		PVC	R1189	R1190	R1191	R1192	
	24 AWG		LSZH	R1318	R1319	R1320	R1321	
	22 AWG		PVC	R1080	R1295	R1296	R1297	
	22 AWG		LSZH	R1401	R1402	R1403	R1404	
RS-422	24 AWG	every pair a foil	PVC		R1382	R1383	R1384	
G.P. Bus	22 AWG	every pair a foil	PVC		R1196	R1197	R1298	R1299
	22 AWG		LSZH		R1281	R1282		
RS-232	24 AWG	Foil	PVC	R1181	R1182	R1183	R1184	R1185
Lon Works	0.64 mm	Unshielded	LSZH	R1346	R1347			
	0.64 mm	every pair a foil	LSZH	R1348	R1349			
KNX	0.8 mm	Foil	PVC	R1219	R1217			
	0.8 mm		LSZH	R1220	R1218			
Security & Alarm	18 AWG	Foil	LSZH	R1171	R1172	R1173	R1174	R1175
		Foil +Braid	LSZH	R1418	R1419	R1420	R1421	R1422

Application	No. of pairs No. of pairs	AWG Conductor size		22	20	18	16	14
		SHIELD-ED ↓	Sheath ↓					
G.P.Bus	1	Yes	PVC	R1199	R1195	R1193	R1213	R1224
	1	Yes	LSZH	R1310	R1308	R1272	R1270	R1305
	1	No	PVC	R1301	R1300	R1203	R1198	R1222
	1	No	LSZH	R1311	R1309	R1271	R1307	R1306

RAMCRO BMS - Multi-Conductor Cables

Cond. Size AWG ↓	No. of conductors →		2	3	4	6	8
	Sheath	Shielded					
22	PVC	Yes	R1226	R1228	R1230	R1264	R1232
		No	R1227	R1278	R1231	R1265	R1233
	LSZH	Yes	R1741	R1743	R1745	R1747	R1749
		No	R1742	R1744	R1746	R1748	R1750
20	PVC	Yes	R1019	R1021	R1023	R1260	R1262
		No	R1020	R1022	R1024	R1261	R1263
	LSZH	Yes	R1731	R1733	R1735	R1737	R1739
		No	R1732	R1734	R1736	R1738	R1740
18	PVC	Yes	R1013	R1015	R1017	R1211	R1258
		No	R1014	R1016	R1018	R1212	R1259
	LSZH	Yes	R1721	R1723	R1725	R1727	R1729
		No	R1722	R1724	R1726	R1728	R1730
16	PVC	Yes	R1007	R1009	R1011	R1252	R1254
		No	R1008	R1010	R1012	R1253	R1255
	LSZH	Yes	R1711	R1713	R1715	R1717	R1719
		No	R1712	R1714	R1716	R1718	R1720
14	PVC	Yes	R1001	R1003	R1005	R1248	R1250
		No	R1002	R1004	R1006	R1249	R1251
	LSZH	Yes	R1701	R1703	R1705	R1707	R1709
		No	R1702	R1704	R1706	R1708	R1710
12	PVC	Yes	R1322	R1324	R1326	R1330	R1332
		No	R1323	R1325	R1327	R1331	R1333
	LSZH	Yes	R1334	R1336	R1338	R1342	R1344
		No	R1335	R1337	R1339	R1343	R1345

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



CONSTRUCTION

Formation:
Plain annealed copper wire,
Stranded
Insulation:
Polyolefine - PO
Cable twisting:
Two or more wire twisted
Outer Sheath:
Polyvinyl chloride - PVC
Colour Outer Sheath:
Grey

IDENTIFICATION OF CORES

- 2 Core: ● ●
- 3 Core: ● ● ○
- 4 Core: ● ● ○ ●
- 5 Core: ● ● ○ ● ●
- 6 Core: ● ● ○ ● ● ●
- 7 Core: ● ● ○ ● ● ● ●
- 8 Core: ● ● ○ ● ● ● ● ●

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> <MeterMarking>

ELECTRICAL DATA

Test Voltage Core-Core: 2000 V
Test Voltage Core-Screen: 2000 V
Inductance: < 1 mH/km
Operating Voltage: 300 V

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

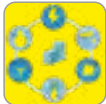
TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



MULTI-CONDUCTOR CABLE

PVC 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]
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

MULTI-CONDUCTOR CABLE

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



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 cop-
per drain wire
- Outer Sheath:**
Polyvinyl chloride - PVC Colour
- Outer Sheath:**
Grey

IDENTIFICATION OF CORES

- 2 Core: ● ●
- 3 Core: ● ● ○
- 4 Core: ● ● ○ ●
- 5 Core: ● ● ○ ● ●
- 6 Core: ● ● ○ ● ● ●
- 7 Core: ● ● ○ ● ● ● ●
- 8 Core: ● ● ○ ● ● ● ● ●

CABLE PRINTING

RAMCRO ITALY - R_____ - AUDIO CONTROL & IN-
STRUMENTATION CABLE 2C 22AWG
SCREENED PVC 300 V 75 C IEC 60332-1/UL 1581 - RAM-
CRO CODE - "PROD.WEEK/YEAR" - MADE IN ITALY
<Batch> <MeterMarking>

ELECTRICAL DATA

- Test Voltage Core-Core:** 2000 V
- Test Voltage Core-Screen:** 2000 V
- Inductance:** < 1 mH/km
- Operating Voltage:** 300 V

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

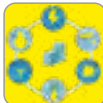
TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Building Manage-
ment Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



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

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



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

IDENTIFICATION OF CORES

2 Core: ● ●
 3 Core: ● ● ○
 4 Core: ● ● ○ ●
 5 Core: ● ● ○ ● ●
 6 Core: ● ● ○ ● ● ●
 7 Core: ● ● ○ ● ● ● ●
 8 Core: ● ● ○ ● ● ● ● ●

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> <MeterMarking>

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

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

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



MULTI-CONDUCTOR CABLE

LSZH(FRNC) 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]
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

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



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
- Outher Sheath:**
Thermoplastic low smoke, Halogen free - LSZH(FRNC)
- Colour Outher Sheath:**
Violet

IDENTIFICATION OF CORES

- 2 Core: ● ●
- 3 Core: ● ● ○
- 4 Core: ● ● ○ ●
- 5 Core: ● ● ○ ● ●
- 6 Core: ● ● ○ ● ● ●
- 7 Core: ● ● ○ ● ● ● ●
- 8 Core: ● ● ○ ● ● ● ● ●

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>
<MeterMarking>

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

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

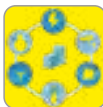
TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



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

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



CONSTRUCTION

- Formation:**
Plain annealed copper wire, Stranded
- Insulation:**
Polyolefine - PO
- Cable twisting:**
Two or more wire twisted
- Outer Sheath:**
Low Smoke Fume - PVC
- Colour Outer Sheath:**
Grey

IDENTIFICATION OF CORES

- 2 Core: ● ●
- 3 Core: ● ● ○
- 4 Core: ● ● ○ ●
- 5 Core: ● ● ○ ● ●
- 6 Core: ● ● ○ ● ● ●
- 7 Core: ● ● ○ ● ● ● ●
- 8 Core: ● ● ○ ● ● ● ● ●

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

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

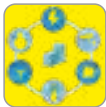
TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



MULTI-CONDUCTOR CABLE

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

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:**
Polyolefine - PO
- 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:**
Low Smoke Fume - LSF Colour Outer S
- Sheath:**
Grey

IDENTIFICATION OF CORES

- 2 Core: ● ●
- 3 Core: ● ● ○
- 4 Core: ● ● ○ ●
- 5 Core: ● ● ○ ● ●
- 6 Core: ● ● ○ ● ● ●
- 7 Core: ● ● ○ ● ● ● ●
- 8 Core: ● ● ○ ● ● ● ● ●

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

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

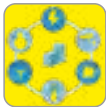
TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up length 305 mt



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

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:

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

Outher Sheath:

Polyvinyl Chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Colour Outher Sheath:

Grey - PVC

Violet - LSZH(FRNC)

IDENTIFICATION OF CORES

3 Core: ● ● ○

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

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



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

MULTI-CONDUCTOR CABLE

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

Cable with PO/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 PO/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

Note: Information subject to confirmation

Note: Information subject to confirmation

CONTROL CABLE



LIYY

These cables are used for power supply and control signal transmission in mechanical engineering for tooling machinery, for production lines and transport equipment, as well as in industrial installations. They meet the requirements of the EEC directive concerning electromagnetic compatibility (EMC), and ensure interference-free transmission providing protection against external pulses.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7001

CABLE PRINTING

RAMCRO - LIYY 2x0.14 mm² - 450/750V - VDE 0812 - IEC 60332 3
- EN 50575: 2014+A1:2016 CPR Class B2ca <Batch> <METER MARKING>

ELECTRICAL DATA

Insulation Resistance @ 20°C: > 25 MOhm*Km
Test Voltage Core-Core: 2000 V
Test Voltage Core-Screen: 2000 V
Mutual Capacitance: < 150 nF/km
Inductance: < 1 mH/km
Operating Voltage:
From 0,14 mm² to 0,75 mm²: 300/500 V
From 1,00 mm² to 4,00 mm²: 450/750 V

PACKAGE



STANDARD REFERENCES

- VDE 0812
- IEC 60332-1
- IEC 60332-3-24

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

- In according to DIN VDE 47100
- OZ: Black Numbered
- JZ: Black Numbered + Green/Yellow

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



European Market



ON REQUEST

Personalized colour code and outer sheath

LIYY

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SSS0214HBSAC	2x0.14	3.3	154.0
SSS0414HBSAC	4x0.14	3.6	154.0
SSS0814HBSAC	8x0.14	4.5	154.0
SSS1014HBSAC	10x0.14	5.3	154.0
SSS0226HBSAC	2x0.25	3.8	83.1
SSS0426HBSAC	4x0.25	4.1	83.1
SSS0826HBSAC	8x0.25	5.4	83.1
SSS1026HBSAC	10x0.25	6.4	83.1
SSS0234HBSAC	2x0.34	3.9	57.2
SSS0434HBSAC	4x0.34	4.3	57.2
SSS0834HBSAC	8x0.34	5.7	57.2
SSS1034HBSAC	10x0.34	6.6	57.2
SSS0250HBSAC	2x0.50	4.5	40.6
SSS0450HBSAC	4x0.50	5.0	40.6
SSS0850HBSAC	8x0.50	6.9	40.6
SSS1050HBSAC	10x0.50	7.8	40.6
SSS0275HBSAC	2x0.75	4.9	27.1
SSS0475HBSAC	4x0.75	5.6	27.1
SSS0875HBSAC	8x0.75	7.5	27.1
SSS1075HBSAC	10x0.75	9.0	27.1
SSS0210HBSAC	2x1.00	5.5	20.3
SSS0410HBSAC	4x1.00	6.3	20.3
SSS0810HBSAC	8x1.00	8.6	20.3
SSS1010HBSAC	10x1.00	9.8	20.3
SSS0215HBSAC	2x1.50	6.5	13.8
SSS0415HBSAC	4x1.50	7.2	13.8
SSS0815HBSAC	8x1.50	9.8	13.8
SSS1015HBSAC	10x1.50	11.6	13.8
SSS0225HBSAC	2x2.50	7.7	8.3
SSS0425HBSAC	4x2.50	9.0	8.3
SSS0825HBSAC	8x2.50	12.5	8.3
SSS1025HBSAC	10x2.50	14.4	8.3
SSS0240HBSAC	2x4.00	9.4	5.1
SSS0440HBSAC	4x4.00	10.8	5.1
SSS0840HBSAC	8x4.00	14.5	5.1
SSS1040HBSAC	10x4.00	16.7	5.1

FROR

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Outer Sheath:
Polyvinyl chloride - PVC
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROR 2x0.14 mm2 - 450/750V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class Eca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C

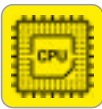


CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath

FROR

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SSS0214HAAAL	2x0.14	3.3	154.0
SSS0414HAAAG	4x0.14	3.6	154.0
SSS0814HAAAD	6x0.14	4.5	154.0
SSS1014HAAAD	10x0.14	5.3	154.0
SSS0226HAAAL	2x0.25	3.8	83.1
SSS0426HAAAG	4x0.25	4.1	83.1
SSS0826HAAAD	6x0.25	5.4	83.1
SSS1026HAAAD	10x0.25	6.4	83.1
SSS0234HAAAL	2x0.34	3.9	57.2
SSS0434HAAAG	4x0.34	4.3	57.2
SSS0834HAAAD	6x0.34	5.7	57.2
SSS1034HAAAD	10x0.34	6.6	57.2
SSS0250HAAAL	2x0.50	4.5	40.6
SSS0450HAAAG	4x0.50	5.0	40.6
SSS0850HAAAD	6x0.50	6.9	40.6
SSS1050HAAAD	10x0.50	7.8	40.6
SSS0275HAAAL	2x0.75	4.9	27.1
SSS0475HAAAG	4x0.75	5.6	27.1
SSS0875HAAAD	6x0.75	7.5	27.1
SSS1075HAAAD	10x0.75	9.0	27.1
SSS0210HAAAL	2x1.00	5.5	20.3
SSS0410HAAAG	4x1.00	6.3	20.3
SSS0810HAAAD	6x1.00	8.6	20.3
SSS1010HAAAD	10x1.00	9.8	20.3
SSS0215HAAAL	2x1.50	6.5	13.8
SSS0415HAAAG	4x1.50	7.2	13.8
SSS0815HAAAD	6x1.50	9.8	13.8
SSS1015HAAAD	10x1.50	11.6	13.8
SSS0225HAAAL	2x2.50	7.7	8.3
SSS0425HAAAG	4x2.50	9.0	8.3
SSS0825HAAAD	6x2.50	12.5	8.3
SSS1025HAAAD	10x2.50	14.4	8.3
SSS0240HAAAL	2x4.00	9.4	5.1
SSS0440HAAAG	4x4.00	10.8	5.1
SSS0840HAAAD	6x4.00	14.5	5.1
SSS1040HAAAD	10x4.00	16.7	5.1

FROR16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROR16 2x0.14 mm2 - 450/750V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class Cca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath

FROR16

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SSS0214HASAL-CPRC	2x0.14	3.3	154.0
SSS0414HASAG-CPRC	4x0.14	3.6	154.0
SSS0814HASAD-CPRC	6x0.14	4.5	154.0
SSS1014HASAD-CPRC	10x0.14	5.3	154.0
SSS0226HASAL-CPRC	2x0.25	3.8	83.1
SSS0426HASAG-CPRC	4x0.25	4.1	83.1
SSS0826HASAD-CPRC	6x0.25	5.4	83.1
SSS1026HASAD-CPRC	10x0.25	6.4	83.1
SSS0234HASAL-CPRC	2x0.34	3.9	57.2
SSS0434HASAG-CPRC	4x0.34	4.3	57.2
SSS0834HASAD-CPRC	6x0.34	5.7	57.2
SSS1034HASAD-CPRC	10x0.34	6.6	57.2
SSS0250HASAL-CPRC	2x0.50	4.5	40.6
SSS0450HASAG-CPRC	4x0.50	5.0	40.6
SSS0850HASAD-CPRC	6x0.50	6.9	40.6
SSS1050HASAD-CPRC	10x0.50	7.8	40.6
SSS0275HASAL-CPRC	2x0.75	4.9	27.1
SSS0475HASAG-CPRC	4x0.75	5.6	27.1
SSS0875HASAD-CPRC	6x0.75	7.5	27.1
SSS1075HASAD-CPRC	10x0.75	9.0	27.1
SSS0210HASAL-CPRC	2x1.00	5.5	20.3
SSS0410HASAG-CPRC	4x1.00	6.3	20.3
SSS0810HASAD-CPRC	6x1.00	8.6	20.3
SSS1010HASAD-CPRC	10x1.00	9.8	20.3
SSS0215HASAL-CPRC	2x1.50	6.5	13.8
SSS0415HASAG-CPRC	4x1.50	7.2	13.8
SSS0815HASAD-CPRC	6x1.50	9.8	13.8
SSS1015HASAD-CPRC	10x1.50	11.6	13.8
SSS0225HASAL-CPRC	2x2.50	7.7	8.3
SSS0425HASAG-CPRC	4x2.50	9.0	8.3
SSS0825HASAD-CPRC	6x2.50	12.5	8.3
SSS1025HASAD-CPRC	10x2.50	14.4	8.3
SSS0240HASAL-CPRC	2x4.00	9.4	5.1
SSS0440HASAG-CPRC	4x4.00	10.8	5.1
SSS0840HASAD-CPRC	6x4.00	14.5	5.1
SSS1040HASAD-CPRC	10x4.00	16.7	5.1

FROR16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROR16 2x0.14 mm² - 450/750V - VDE 0812
- IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class B2ca
<Batch> <MeterMarking>

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:
From 0,14 mm² to 0,75 mm²: 300/500 V
From 1,00 mm² to 4,00 mm²: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

**Min. Bending Ra-
dius**
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath

FROR16

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SSS0214HASAL	2x0.14	3.3	154.0
SSS0414HASAG	4x0.14	3.6	154.0
SSS0814HASAD	6x0.14	4.5	154.0
SSS1014HASAD	10x0.14	5.3	154.0
SSS0226HASAL	2x0.25	3.8	83.1
SSS0426HASAG	4x0.25	4.1	83.1
SSS0826HASAD	6x0.25	5.4	83.1
SSS1026HASAD	10x0.25	6.4	83.1
SSS0234HASAL	2x0.34	3.9	57.2
SSS0434HASAG	4x0.34	4.3	57.2
SSS0834HASAD	6x0.34	5.7	57.2
SSS1034HASAD	10x0.34	6.6	57.2
SSS0250HASAL	2x0.50	4.5	40.6
SSS0450HASAG	4x0.50	5.0	40.6
SSS0850HASAD	6x0.50	6.9	40.6
SSS1050HASAD	10x0.50	7.8	40.6
SSS0275HASAL	2x0.75	4.9	27.1
SSS0475HASAG	4x0.75	5.6	27.1
SSS0875HASAD	6x0.75	7.5	27.1
SSS1075HASAD	10x0.75	9.0	27.1
SSS0210HASAL	2x1.00	5.5	20.3
SSS0410HASAG	4x1.00	6.3	20.3
SSS0810HASAD	6x1.00	8.6	20.3
SSS1010HASAD	10x1.00	9.8	20.3
SSS0215HASAL	2x1.50	6.5	13.8
SSS0415HASAG	4x1.50	7.2	13.8
SSS0815HASAD	6x1.50	9.8	13.8
SSS1015HASAD	10x1.50	11.6	13.8
SSS0225HASAL	2x2.50	7.7	8.3
SSS0425HASAG	4x2.50	9.0	8.3
SSS0825HASAD	6x2.50	12.5	8.3
SSS1025HASAD	10x2.50	14.4	8.3
SSS0240HASAL	2x4.00	9.4	5.1
SSS0440HASAG	4x4.00	10.8	5.1
SSS0840HASAD	6x4.00	14.5	5.1
SSS1040HASAD	10x4.00	16.7	5.1

LIYCY

These cables are used for power supply and control signal transmission in mechanical engineering for tooling machinery, for production lines and transport equipment, as well as in industrial installations. They meet the requirements of the EEC directive concerning electromagnetic compatibility (EMC), and ensure interference-free transmission providing protection against external pulses.



CONSTRUCTION

- Formation:**
Plain annealed copper wire, Multistrand
- Insulation:**
Polyvinyl chloride - PVC
- Wrapping:**
at least 1 layer of plastic tape 0,023 mm
- Collective Screen:**
Tinned Copper Wire Braid
- Outher Sheath:**
Polyvinyl chloride Flame Retardant - PVC FR
- Colour Outher Sheath:**
Grey RAL 7001

CABLE PRINTING

RAMCRO - LIYCY 2x0,14 mm2 - 300/500V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class B2ca <Batch> <MeterMarking>

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:**
- From 0,14 mm2 to 0,75 mm2:** 300/500 V
- From 1,00 mm2 to 4,00 mm2:** 450/750 V

PACKAGE



STANDARD REFERENCES

- VDE 0812
- IEC 60332-1
- IEC 60332-3-24

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

- In according to DIN VDE 47100
- **OZ:** Black Numbered
- **JZ:** Black Numbered + Green/Yellow

TEMPERATURE RANGE

- During Operation:** -30° C up to +80°C
- During Installation:** -5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



European Market



ON REQUEST

Personalized colour code and outhter sheath

LIYCY

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
STS0214HBAAC	2x0.14	3.7	154.0
STS0414HBAAC	4x0.14	4.0	154.0
STS0814HBAAC	6x0.14	4.5	154.0
STS1014HBAAC	10x0.14	5.7	154.0
STS0226HBAAC	2x0.25	4.2	83.1
STS0426HBAAC	4x0.25	4.5	83.1
STS0826HBAAC	6x0.25	5.4	83.1
STS1026HBAAC	10x0.25	6.8	83.1
STS0226HBAAC	2x0.34	4.3	57.2
STS0426HBAAC	4x0.34	4.7	57.2
STS0826HBAAC	6x0.34	5.6	57.2
STS1026HBAAC	10x0.34	7.0	57.2
STS0250HBAAC	2x0.50	4.9	40.6
STS0450HBAAC	4x0.50	5.6	40.6
STS0850HBAAC	6x0.50	6.7	40.6
STS1050HBAAC	10x0.50	8.6	40.6
STS0275HBAAC	2x0.75	5.5	27.1
STS0475HBAAC	4x0.75	6.0	27.1
STS0875HBAAC	6x0.75	7.3	27.1
STS1075HBAAC	10x0.75	9.4	27.1
STS0210HBAAC	2x1.00	5.9	20.3
STS0410HBAAC	4x1.00	6.7	20.3
STS0810HBAAC	6x1.00	7.9	20.3
STS1010HBAAC	10x1.00	10.6	20.3
STS0215HBAAC	2x1.50	6.9	13.8
STS0415HBAAC	4x1.50	7.6	13.8
STS0815HBAAC	6x1.50	9.3	13.8
STS1015HBAAC	10x1.50	12.0	13.8
STS0225HBAAC	2x2.50	6.9	8.3
STS0425HBAAC	4x2.50	9.4	8.3
STS0825HBAAC	6x2.50	11.5	8.3
STS1025HBAAC	10x2.50	14.8	8.3
STS0240HBAAC	2x4.00	9.8	5.1
STS0440HBAAC	4x4.00	11.2	5.1
STS0840HBAAC	6x4.00	13.7	5.1
STS1040HBAAC	10x4.00	17.1	5.1

FROHR2

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

- Formation:**
Plain annealed copper wire, Multistrand
- Insulation:**
Polyvinyl chloride - PVC
- Wrapping:**
at least 1 layer of plastic tape 0,023 mm
- Collective Screen:**
Tinned Copper Wire Braid
- Outer Sheath:**
Polyvinyl chloride - PVC Colour
- Outer Sheath:**
Grey RAL 7032

CABLE PRINTING

RAMCRO - FR2OH2R 2x0,14 mm2 - 300/500V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class Eca <Batch> <MeterMarking>

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:**
- From 0,14 mm2 to 0,75 mm2:** 300/500 V
- From 1,00 mm2 to 4,00 mm2:** 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

- During Operation:** -30° C up to +80°C
- During Installation:** -5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

Note: Information subject to confirmation

FROHR2

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
FR60214HAAAL	2x0.14	3.7	154.0
FR60414HAAAG	4x0.14	4.0	154.0
FR60814HAAAD	6x0.14	4.5	154.0
FR61014HAAAD	10x0.14	5.7	154.0
FR60226HAAAL	2x0.25	4.2	83.1
FR60426HAAAG	4x0.25	4.5	83.1
FR60826HAAAD	6x0.25	5.4	83.1
FR61026HAAAD	10x0.25	6.8	83.1
FR60234HAAAL	2x0.34	4.3	57.2
FR60434HAAAG	4x0.34	4.7	57.2
FR60834HAAAD	6x0.34	5.6	57.2
FR61034HAAAD	10x0.34	7.0	57.2
FR60250HAAAL	2x0.50	4.9	40.6
FR60450HAAAG	4x0.50	5.6	40.6
FR60850HAAAD	6x0.50	6.7	40.6
FR61050HAAAD	10x0.50	8.6	40.6
FR60275HAAAL	2x0.75	5.5	27.1
FR60475HAAAG	4x0.75	6.0	27.1
FR60875HAAAD	6x0.75	7.3	27.1
FR61075HAAAD	6x0.75	9.4	27.1
FR60210HAAAL	2x1.00	5.9	20.3
FR60410HAAAG	4x1.00	6.7	20.3
FR60810HAAAD	6x1.00	7.9	20.3
FR61010HAAAD	10x1.00	10.6	20.3
FR60215HAAAL	2x1.50	6.9	13.8
FR60415HAAAG	4x1.50	7.6	13.8
FR60815HAAAD	6x1.50	9.3	13.8
FR61015HAAAD	10x1.50	12.0	13.8
FR60225HAAAL	2x2.50	6.9	8.3
FR60425HAAAG	4x2.50	9.4	8.3
FR60825HAAAD	6x2.50	11.5	8.3
FR61025HAAAD	10x2.50	14.8	8.3
FR60240HAAAL	2x4.00	9.8	5.1
FR60440HAAAG	4x4.00	11.2	5.1
FR60840HAAAD	6x4.00	13.7	5.1
FR61040HAAAD	10x4.00	17.1	5.1

Note: Information subject to confirmation

FROH2R16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
Tinned Copper Wire Braid
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROH2R16 2x0,14 mm2 - 300/500V - VDE
0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class
Cca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Ra-
dius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

FROH2R16

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm ²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
FR60214HASAL-CPRC	2x0.14	3.7	154.0
FR60414HASAG-CPRC	4x0.14	4.0	154.0
FR60814HASAD-CPRC	6x0.14	4.5	154.0
FR61014HASAD-CPRC	10x0.14	5.7	154.0
FR60226HASAL-CPRC	2x0.25	4.2	83.1
FR60426HASAG-CPRC	4x0.25	4.5	83.1
FR60826HASAD-CPRC	6x0.25	5.4	83.1
FR61026HASAD-CPRC	10x0.25	6.8	83.1
FR60234HASAL-CPRC	2x0.34	4.3	57.2
FR60434HASAG-CPRC	4x0.34	4.7	57.2
FR60834HASAD-CPRC	6x0.34	5.6	57.2
FR61034HASAD-CPRC	10x0.34	7.0	57.2
FR60250HASAL-CPRC	2x0.50	4.9	40.6
FR60450HASAG-CPRC	4x0.50	5.6	40.6
FR60850HASAD-CPRC	6x0.50	6.7	40.6
FR61050HASAD-CPRC	10x0.50	8.6	40.6
FR60275HASAL-CPRC	2x0.75	5.5	27.1
FR60475HASAG-CPRC	4x0.75	6.0	27.1
FR60875HASAD-CPRC	6x0.75	7.3	27.1
FR61075HASAD-CPRC	10x0.75	9.4	27.1
FR60210HASAL-CPRC	2x1.00	5.9	20.3
FR60410HASAG-CPRC	4x1.00	6.7	20.3
FR60810HASAD-CPRC	6x1.00	7.9	20.3
FR61010HASAD-CPRC	10x1.00	10.6	20.3
FR60215HASAL-CPRC	2x1.50	6.9	13.8
FR60415HASAG-CPRC	4x1.50	7.6	13.8
FR60815HASAD-CPRC	6x1.50	9.3	13.8
FR61015HASAD-CPRC	10x1.50	12.0	13.8
FR60225HASAL-CPRC	2x2.50	6.9	8.3
FR60425HASAG-CPRC	4x2.50	9.4	8.3
FR60825HASAD-CPRC	6x2.50	11.5	8.3
FR61025HASAD-CPRC	10x2.50	14.8	8.3
FR60240HASAL-CPRC	2x4.00	9.8	5.1
FR60440HASAG-CPRC	4x4.00	11.2	5.1
FR60840HASAD-CPRC	6x4.00	13.7	5.1
FR61040HASAD-CPRC	10x4.00	17.1	5.1

FROH2R16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
Tinned Copper Wire Braid
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROH2R16 2x0,14 mm2 - 300/500V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class B2ca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

FROH2R16

From 0,14 mm² to 4,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
FR60214HASAL	2x0.14	3.7	154.0
FR60414HASAG	4x0.14	4.0	154.0
FR60814HASAD	6x0.14	4.5	154.0
FR61014HASAD	10x0.14	5.7	154.0
FR60226HASAL	2x0.25	4.2	83.1
FR60426HASAG	4x0.25	4.5	83.1
FR60826HASAD	6x0.25	5.4	83.1
FR61026HASAD	10x0.25	6.8	83.1
FR60234HASAL	2x0.34	4.3	57.2
FR60434HASAG	4x0.34	4.7	57.2
FR60834HASAD	6x0.34	5.6	57.2
FR61034HASAD	10x0.34	7.0	57.2
FR60250HASAL	2x0.50	4.9	40.6
FR60450HASAG	4x0.50	5.6	40.6
FR60850HASAD	6x0.50	6.7	40.6
FR61050HASAD	10x0.50	8.6	40.6
FR60275HASAL	2x0.75	5.5	27.1
FR60475HASAG	4x0.75	6.0	27.1
FR60875HASAD	6x0.75	7.3	27.1
FR61075HASAD	10x0.75	9.4	27.1
FR60210HASAL	2x1.00	5.9	20.3
FR60410HASAG	4x1.00	6.7	20.3
FR60810HASAD	6x1.00	7.9	20.3
FR61010HASAD	10x1.00	10.6	20.3
FR60215HASAL	2x1.50	6.9	13.8
FR60415HASAG	4x1.50	7.6	13.8
FR60815HASAD	6x1.50	9.3	13.8
FR61015HASAD	10x1.50	12.0	13.8
FR60225HASAL	2x2.50	6.9	8.3
FR60425HASAG	4x2.50	9.4	8.3
FR60825HASAD	6x2.50	11.5	8.3
FR61025HASAD	10x2.50	14.8	8.3
FR60240HASAL	2x4.00	9.8	5.1
FR60440HASAG	4x4.00	11.2	5.1
FR60840HASAD	6x4.00	13.7	5.1
FR61040HASAD	10x4.00	17.1	5.1

FROHH2R

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
Aluminium / PETP + Tinned Copper Braid
Outer Sheath:
Polyvinyl chloride - PVC Colour
Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FR2OHH2R 2x0,14 mm2 - 300/500V - VDE
0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class
B2ca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

Note: Information subject to confirmation

FROHH2R

From 0,50 mm² to 6,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SMS0250HAAAL	2x0.50	5.0	40.6
SMS0350HAAAG	3x0.50	5.5	40.6
SMS0450HAAAF	4x0.50	5.9	40.6
SMS0550HAAAT	5x0.50	6.5	40.6
SMS0650HAAAD	6x0.50	7.0	40.6
SMS0275HAAAL	2x0.75	5.6	27.1
SMS0375HAAAG	3x0.75	5.9	27.1
SMS0475HAAAF	4x0.75	6.6	27.1
SMS0575HAAAT	5x0.75	7.1	27.1
SMS0675HAAAD	6x0.75	7.6	27.1
SMS0210HAAAL	2x1.00	6.0	20.3
SMS0310HAAAG	3x1.00	6.5	20.3
SMS0410HAAAF	4x1.00	7.0	20.3
SMS0510HAAAT	5x1.00	7.6	20.3
SMS0610HAAAD	6x1.00	8.6	20.3
SMS0215HAAAL	2x1.50	7.0	13.8
SMS0315HAAAG	3x1.50	7.3	13.8
SMS0415HAAAF	4x1.50	8.0	13.8
SMS0515HAAAT	5x1.50	9.0	13.8
SMS0615HAAAD	6x1.50	9.8	13.8
SMS0250HAAAL	2x2.50	8.6	8.3
SMS0350HAAAG	3x2.50	9.1	8.3
SMS0450HAAAF	4x2.50	9.9	8.3
SMS0550HAAAT	5x2.50	11.1	8.3
SMS0650HAAAD	6x2.50	12.0	8.3
SMS0250HAAAL	2x4.00	9.9	5.1
SMS0350HAAAG	3x4.00	10.8	5.1
SMS0450HAAAF	4x4.00	11.8	5.1
SMS0550HAAAT	5x4.00	13.2	5.1
SMS0650HAAAD	6x4.00	14.3	5.1
SMS0250HAAAL	2x6.00	11,8	3.4
SMS0350HAAAG	3x6.00	12.9	3.4
SMS0450HAAAF	4x6.00	14.0	3.4
SMS0550HAAAT	5x6.00	15.3	3.4
SMS0650HAAAD	6x6.00	16.6	3.4

Note: Information subject to confirmation

FROHH2R16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

- Formation:**
Plain annealed copper wire, Multistrand
- Insulation:**
Polyvinyl chloride - PVC
- Wrapping:**
at least 1 layer of plastic tape 0,023 mm
- Collective Screen:**
Aluminium / PETP + Tinned Copper Braid
- Outer Sheath:**
Polyvinyl chloride Flame Retardant - PVC FR
- Colour Outer Sheath:**
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROHH2R16 2x0,14 mm2 - 300/500V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class B2ca <Batch> <MeterMarking>

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:**
- From 0,14 mm2 to 0,75 mm2:** 300/500 V
- From 1,00 mm2 to 4,00 mm2:** 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

- During Operation:** -30° C up to +80°C
- During Installation:** -5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

FROHH2R16

From 0,50 mm² to 6,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SMS0250HASAL-CPRC	2x0.50	5.0	40.6
SMS0350HASAG-CPRC	3x0.50	5.5	40.6
SMS0450HASAF-CPRC	4x0.50	5.9	40.6
SMS0550HASAT-CPRC	5x0.50	6.5	40.6
SMS0650HASAD-CPRC	6x0.50	7.0	40.6
SMS0250HASAL-CPRC	2x0.75	5.6	27.1
SMS0350HASAG-CPRC	3x0.75	5.9	27.1
SMS0450HASAF-CPRC	4x0.75	6.6	27.1
SMS0550HASAT-CPRC	5x0.75	7.1	27.1
SMS0650HASAD-CPRC	6x0.75	7.6	27.1
SMS0250HASAL-CPRC	2x1.00	6.0	20.3
SMS0350HASAG-CPRC	3x1.00	6.5	20.3
SMS0450HASAF-CPRC	4x1.00	7.0	20.3
SMS0550HASAT-CPRC	5x1.00	7.6	20.3
SMS0650HASAD-CPRC	6x1.00	8.6	20.3
SMS0250HASAL-CPRC	2x1.50	7.0	13.8
SMS0350HASAG-CPRC	3x1.50	7.3	13.8
SMS0450HASAF-CPRC	4x1.50	8.0	13.8
SMS0550HASAT-CPRC	5x1.50	9.0	13.8
SMS0650HASAD-CPRC	6x1.50	9.8	13.8
SMS0250HASAL-CPRC	2x2.50	8.6	8.3
SMS0350HASAG-CPRC	3x2.50	9.1	8.3
SMS0450HASAF-CPRC	4x2.50	9.9	8.3
SMS0550HASAT-CPRC	5x2.50	11.1	8.3
SMS0650HASAD-CPRC	6x2.50	12.0	8.3
SMS0250HASAL-CPRC	2x4.00	9.9	5.1
SMS0350HASAG-CPRC	3x4.00	10.8	5.1
SMS0450HASAF-CPRC	4x4.00	11.8	5.1
SMS0550HASAT-CPRC	5x4.00	13.2	5.1
SMS0650HASAD-CPRC	6x4.00	14.3	5.1
SMS0250HASAL-CPRC	2x6.00	11,8	3.4
SMS0350HASAG-CPRC	3x6.00	12.9	3.4
SMS0450HASAF-CPRC	4x6.00	14.0	3.4
SMS0550HASAT-CPRC	5x6.00	15.3	3.4
SMS0650HASAD-CPRC	6x6.00	16.6	3.4

FROHH2R16

Suitable for connection of movable equipment or for fixed laying in areas with risk of fire.
To be used in dry or wet interiors and for occasional or temporary use outdoor. Not allowed for laying underground even if protected.



CONSTRUCTION

Formation:
Plain annealed copper wire, Multistrand
Insulation:
Polyvinyl chloride - PVC
Wrapping:
at least 1 layer of plastic tape 0,023 mm
Collective Screen:
Aluminium / PETP + Tinned Copper Braid
Outer Sheath:
Polyvinyl chloride Flame Retardant - PVC FR
Colour Outer Sheath:
Grey RAL 7032

CABLE PRINTING

RAMCRO - FROHH2R16 2x0,14 mm2 - 300/500V - VDE 0812 - IEC 60332-3 - EN 50575: 2014+A1:2016 CPR Class B2ca <Batch> <MeterMarking>

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:
From 0,14 mm2 to 0,75 mm2: 300/500 V
From 1,00 mm2 to 4,00 mm2: 450/750 V

PACKAGE



STANDARD REFERENCES

- EN 50414
- CEI EN 60332-1-2
- CEI 20-22 II
- CEI EN 50267-2

CPR CLASSIFICATION

Available in different CPR on request (B2ca, Cca,...)

IDENTIFICATION OF CORES

In according to HD 308

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Control Cable



Italian Market



ON REQUEST

Personalized colour code and outer sheath
Armour in steel wire braid

FROHH2R16

From 0,50 mm² to 6,00 mm²

RAMCRO CODE	FORMATION [n° x mm²]	OUTER DIAMETER [mm]	MAX RESISTANCE AT 20°C [Ohm/km]
SMS0250HASAL	2x0.50	5.0	40.6
SMS0350HASAG	3x0.50	5.5	40.6
SMS0450HASAF	4x0.50	5.9	40.6
SMS0550HASAT	5x0.50	6.5	40.6
SMS0650HASAD	6x0.50	7.0	40.6
SMS0250HASAL	2x0.75	5.6	27.1
SMS0350HASAG	3x0.75	5.9	27.1
SMS0450HASAF	4x0.75	6.6	27.1
SMS0550HASAT	5x0.75	7.1	27.1
SMS0650HASAD	6x0.75	7.6	27.1
SMS0250HASAL	2x1.00	6.0	20.3
SMS0350HASAG	3x1.00	6.5	20.3
SMS0450HASAF	4x1.00	7.0	20.3
SMS0550HASAT	5x1.00	7.6	20.3
SMS0650HASAD	6x1.00	8.6	20.3
SMS0250HASAL	2x1.50	7.0	13.8
SMS0350HASAG	3x1.50	7.3	13.8
SMS0450HASAF	4x1.50	8.0	13.8
SMS0550HASAT	5x1.50	9.0	13.8
SMS0650HASAD	6x1.50	9.8	13.8
SMS0250HASAL	2x2.50	8.6	8.3
SMS0350HASAG	3x2.50	9.1	8.3
SMS0450HASAF	4x2.50	9.9	8.3
SMS0550HASAT	5x2.50	11.1	8.3
SMS0650HASAD	6x2.50	12.0	8.3
SMS0250HASAL	2x4.00	9.9	5.1
SMS0350HASAG	3x4.00	10.8	5.1
SMS0450HASAF	4x4.00	11.8	5.1
SMS0550HASAT	5x4.00	13.2	5.1
SMS0650HASAD	6x4.00	14.3	5.1
SMS0250HASAL	2x6.00	11,8	3.4
SMS0350HASAG	3x6.00	12.9	3.4
SMS0450HASAF	4x6.00	14.0	3.4
SMS0550HASAT	5x6.00	15.3	3.4
SMS0650HASAD	6x6.00	16.6	3.4

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)

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.

BACNET

is a communications protocol for building automation and control networks. It 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.

ON REQUEST

Personalized colour code and outer sheath



ramcro.com

Note: Information subject to confirmation



DATA LAN CABLE

MULTI-CONDUCTOR CABLE



ramcro.com

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:

Polyolefine base - PO

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)

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> <MeterMarking>

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

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

- 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



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhter sheath



ramcro.com

Note: Information subject to confirmation

RS-485 APPLICATIONS

4AWG 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. CAPACIT. [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 PO/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. CAPACIT. [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. CAPACIT. [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 PO/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. CAPACIT. [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. CAPACIT. [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



ramcro.com

Note: Information subject to confirmation

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 no- des per bus. Cables used have mainly 24AWG conductors, two twisted pairs or multi-pair and Impedance of 100 Ohm



CONSTRUCTION

- Formation:** Tinned copper wire, Stranded
- Insulation:** Foam Polyetilene - 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
- Outther Sheath:** Polyvinyl Chloride - PVC
- Colour Outther Sheath:** Grey

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> <MeterMarking>

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

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

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

TEMPERATURE RANGE

- During Operation:** -30° C up to +80°C
- During Installation:** -5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outther sheath

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. CAPACIT. [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

Note: Information subject to confirmation

Note: Information subject to confirmation

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).



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

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> <MeterMarking>

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

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

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

TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhersheath

RS-232 APPLICATIONS

24AWG conductors – PVC/LSZH(FRNC) 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 DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [pF/m]
MAS0108HBAAH-T-RB	R1181	1x2x24AWG	3.7	21	88.0	135
MAS0208HBAAH-T-RB	R1182	2x2x24AWG	5.2	34	88.0	76
MAS0308HBAAH-T-RB	R1183	3x2x24AWG	5.5	41	88.0	76
MAS0408HBAAH-T-RB	R1184	4x2x24AWG	5.7	43	88.0	80
MAS0508HBAAH-T-RB	R1185	5x2x24AWG	6.5	52	88.0	80
MAS0608HBAAH-T-RB	R1186	6x2x24AWG	6.9	53	88.0	80
MAS0708HBAAH-T-RB	R1187	7x2x24AWG	6.9	59	88.0	80
MAS0808HBAAH-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. CAPACIT. [pF/m]
MAS0108HXEEH-T-RB	R1640	1x2x24AWG	3.7	16	88.0	135
MAS0208HXEEH-T-RB	R1641	2x2x24AWG	5.2	27	88.0	76
MAS0308HXEEH-T-RB	R1642	3x2x24AWG	5.5	33	88.0	76
MAS0408HXEEH-T-RB	R1643	4x2x24AWG	5.7	37	88.0	80
MAS0508HXEEH-T-RB	R1644	5x2x24AWG	6.5	45	88.0	80
MAS0608HXEEH-T-RB	R1645	6x2x24AWG	6.9	48	88.0	80
MAS0708HXEEH-T-RB	R1646	7x2x24AWG	6.9	54	88.0	80
MAS0808HXEEH-T-RB	R1647	8x2x24AWG	7.7	61	88.0	80

MODBUS APPLICATIONS

Modbus is a serial communications protocol published by Modicon in 1979 for use with its pro- gramma- ble logic controllers (PLCs). Simple and robust, its has since become one of the factor stan- dard commu- nications protocols in the industry.



CONSTRUCTION

Formation:

Tinned copper wire, Stranded

Insulation:

Polyolefine base - PO

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

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

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

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Ra-
dius
8 x cable diameter



Put up lenght 305
mt



ON REQUEST

Personalized colour code and outhers sheath

MODBUS APPLICATIONS

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

Cable with 22AWG CONDUCTORS - PO/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [pF/m]
MAP0207HBADH-T-RB	R1196	2x2x22AWG	5.8	36	57.4	100
MAP0307HBADX-T-RB	R1197	3x2x22AWG	6.3	50	57.4	100
MAP0607HBADX-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 DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [pF/m]
MAS0108HXEEH-T-RB	R1281	2x2x24AWG	6.3	47	57.4	150
MAS0208HXEEH-T-RB	R1282	3x2x24AWG	6.8	63	57.4	155
MAS0508HXEEH-T-RB	R1314	6x2x24AWG	9.3	110	57.4	155

CABLE PRINTING

RAMCRO ITALY - R_____ - DATA LAN CABLE - MOD-
BUS - 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

M-BUS APPLICATIONS

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



CONSTRUCTION

- Formation:**
Tinned copper wire, Stranded
- Insulation:**
Thermoplastic Low Smoke, Halogen Free - LSZH(-FRNC)
Polyolefine base - PO
- Wrapping:**
at least 1 layer of plastic tape 0,023 mm
- Outer Sheath:**
Polyvinyl chloride - PVC
Thermoplastic low smoke, Halogen free - LSZH(-FRNC)
Polyolefine base - PO
- Colour Outer Sheath:**
Grey for PVC
Violet for LSZH (FRNC)
Black for LDPE

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> <MeterMarking>

ELECTRICAL DATA

- Test Voltage Core-Core:** 2000 V
- Test Voltage Core-Screen:** 2000 V
- Inductance:** < 1 mH/km
- Operating Voltage:** 300 V

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

Pair 1: ● ○

TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhersheath



Note: Information subject to confirmation

M-BUS APPLICATIONS

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

Cable with PO/UNSCREENED/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 PO/UNSCREENED/LDPE

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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



Note: Information subject to confirmation

M-BUS APPLICATIONS

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



CONSTRUCTION

Formation:

Tinned copper wire, Stranded

Insulation:

Polyolefine base - PO

Wrapping:

at least 1 layer of plastic tape 0,023 mm

Collective Screen:

0,026 mm Aluminium / PETP tape over tinne cop-
per drain wire

Outer Sheath:

Thermoplastic low smoke, Halogen free - LSZH(-
FRNC)

Colour Outer Sheath:

Violet

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> <MeterMarking>

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

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

Pair 1: ● ○

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outer sheath

M-BUS APPLICATIONS

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

Cable with 24AWG CONDUCTORS - PO/SCREENED/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 - PO/SCREENED/LDPE

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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

LONWORKS APPLICATIONS

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



CONSTRUCTION

Formation:

Tinned copper wire, Solid

Insulation:

Polyolefine base - 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

Braiding:

Tinned copper wire braid

Outer Sheath:

Thermoplastic low smoke, Halogen free - LSZH(-FRNC)

Colour Outer Sheath:

Violet

CABLE PRINTING

RAMCRO ITALY - R_____ - DATA LAN CABLE - LON-
WORKS - 1PR 22AWG SCREENED PVC 300 V 75 C
IEC

60332-1/UL 1581 - RAMCRO CODE - "PROD.WEEK/
YEAR" - MADE IN ITALY <Batch> <MeterMarking>

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

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

Pair 1: ● ●

Pair 2: ● ●

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius

8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outer sheath

LONWORKS APPLICATIONS

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

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

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 - PO/SCREENED/LSZH(FRNC)

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

Note: Information subject to confirmation

Note: Information subject to confirmation

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:

Polyolefine base - 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:

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 CORES

- Pair 1: ●
Pair 2: ●
Pair 3: ○
Pair 4: ●

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> <MeterMark-
ing>

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



ON REQUEST

Personalized colour code and outer sheath

KNX OR GENERAL BUS APPLICATIONS

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

Cable with 24AWG CONDUCTORS - PO/SCREEN/PVC - CERTIFIED KNX REG. N. 566/16623/20

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 - PO/SCREEN/LSZH(FRNC) - CERTIFIED KNX REG. N. 566/16624/20

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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 - PO/SCREEN/PE

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [pF/m]
SAM0108HIDDH-RB	R1901	1x2x24AWG	5.1	48	37.0	100.0
SAM4108HIDDX-RB	R1900	1x4x24AWG	5.7	33	37.0	100.0

CAT3

CAT3



CONSTRUCTION

Formation:

Plain annealed copper wire, Solid

Insulation:

Polyolefine base - PO

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 CORES

Pair 1:

Pair 2:

Pair 3:

Pair 4:

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Ra-
dius

8 x cable diameter



Put up lenght 305
mt



ON REQUEST

Personalized colour code and outer sheath



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Note: Information subject to confirmation

CAT3

CAT3

Cable with 24AWG CONDUCTORS - PO/SCREEN/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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



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Note: Information subject to confirmation

FTP UTP 5E

FTP UTP 5e



CONSTRUCTION

Formation:

Plain annealed copper wire, Solid

Insulation:

Polyolefine base - 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:

Polyvinyl chloride - PVC or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Colour Outer Sheath:

Violet

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> <MeterMarking>

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

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

Pair 1: 

Pair 2: 

Pair 3: 

Pair 4: 

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outer sheath

FTP UTP 5E

FTP / UTP 5e

Cable with 24AWG CONDUCTORS - PO/SCREEN/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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

Cable with 24AWG CONDUCTORS - PO/SCREEN/PVC

FREQUENCY [MHz]	MIN.RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB]	MIN. NEXT [dB]	MAX. TIME DELAY [ns/100m]	MAX. PS-NEXT [dB]	MIN. ELF-EXT [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

FTP UTP 6

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



CONSTRUCTION

Formation:

Plain annealed copper wire, 7 Strand

Insulation:

Polyolefine base - 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:

Polyvinyl chloride - PVC or

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Colour Outer Sheath:

Violet

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> <MeterMarking>

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

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

Pair 1:

Pair 2:

Pair 3:

Pair 4:

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outer sheath

FTP UTP 6

FTP / UTP 6

Cable with 24AWG CONDUCTORS - PO/SCREEN/PVC

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [pF/m]
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	R1038	U-FTP	PVC	7.4	56	93.8
FTPLEVEL64X2X0.22ZA-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. PS-NEXT [dB]	MIN. ELF-EXT [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

FTP UTP 6A

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



CONSTRUCTION

Formation:
Plain annealed copper wire, 7 Strand

Insulation:
Polyolefine base - 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

Outher Sheath:
Polyvinyl chloride - PVC or
Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Colour Outher Sheath:
Violet

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> <MeterMarking>

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

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

- Pair 1: 
- Pair 2: 
- Pair 3: 
- Pair 4: 

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C

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



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhersheath

FTP UTP 6A

FTP / UTP 6A

RAMCRO CODE	PART N°	FORMATION [n° x AWG]	NOM. OUTER DIAM. [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACIT. [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. PS-NEXT [dB]	MIN. ELF-EXT [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



Note: Information subject to confirmation



Note: Information subject to confirmation

CAT 7

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



CONSTRUCTION

- Formation:**
Plain annealed copper wire, 7 Strand
- Insulation:**
Polyolefine base - 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:**
Polyvinyl chloride - PVC or
Thermoplastic low smoke, Halogen free - LSZH(-FRNC)
- Colour Outer Sheath:**
Violet

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> <MeterMarking>

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

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

- Pair 1:
- Pair 2:
- Pair 3:
- Pair 4:

TEMPERATURE RANGE

- During Operation:**
-30° C up to +80°C
- During Installation:**
-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius
8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhter sheath

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]	MIN.RETURN LOSS [dB/100m]	MAX. ATTENUATION [dB]	MIN. NEXT [dB]	MAX. TIME DELAY [ns/100m]	MAX. PS-NEXT [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



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Note: Information subject to confirmation



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Note: Information subject to confirmation

CAT 7A

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



CONSTRUCTION

Formation:

Plain annealed copper wire, 7 Strand

Insulation:

Polyolefine base - 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:

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 CORES

Pair 1:

Pair 2:

Pair 3:

Pair 4:

TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +50°C



CHARACTERISTICS

Min. Bending Radius

8 x cable diameter



Put up lenght 305 mt



ON REQUEST

Personalized colour code and outhers sheath

CAT 7A

Cat 7

RAMCRO CODE	PART N°	TYPE	SHEATH	NOM. OUTER DIAMETER [mm]	NOM. WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [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]	MAX. TIME DELAY [ns/100m]	MIN. NEXT [dB]	MIN. PS-NEXT [dB]
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

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> <MeterMarking>

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

DEFENCE STANDARD 61-12 PART 4 CABLE

These Multi-Core flexible cables are designed for high density wiring between components within instruments and electronic equipment. They are extensively used in aircraft, process control systems, computers, data processors, military vehicles and military equipment.



CONSTRUCTION

Voltage Rating
Cores with 7/0.2 mm conductors:
440V r.m.s. at frequencies up to 1.6 kHz
Maximum Resistance of Conductor at 20°C
7/0.2 mm: 92 ohms/km
Temperature Rating
Fixed: -30°C to + 70°C
Flexed: -15°C to +70°C
Minimum Bending Radius
Fixed: 7.5 x overall diameter

CONSTRUCTION

Conductor
Stranded tinned copper conductor; 0.22mm² (7/0.2mm)
Insulation
PVC (Polyvinyl Chloride)
Screen
TCWB (Tinned Copper Wire Braid)
Sheath
PVC (Polyvinyl Chloride)
Sheath Colour
Black

Circular Conductor, PVC Insulated, PVC Sheathed, Def Stan 61/12 Part 4

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.45	3.35	13
3	0.45	3.35	16
4	0.45	3.85	20
6	0.45	4.55	30
12	0.55	6.1	53
18	0.65	7.4	80
25	0.65	8.7	100
36	0.65	9.8	140
50	0.75	11.6	200

Circular Conductor, PVC Insulated, Collectively Screened Cores, PVC Sheathed, Def Stan 61/12 Part 4

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.45	3.85	23
3	0.45	3.95	27
4	0.45	4.35	32
6	0.55	5.6	55
8	0.55	5.6	60
12	0.55	6.9	83
18	0.65	8.2	110
25	0.65	9.5	150
36	0.75	10.8	200
50	0.75	12.6	270

DEFENCE STANDARD 61-12 PART 4 CABLE

These Multi-Core flexible cables are designed for high density wiring between components within instruments and electronic equipment. They are extensively used in aircraft, process control systems, computers, data processors, military vehicles and military equipment.

Circular Conductor, PVC Insulated, Individually Screened Cores, PVC Sheathed, Def Stan 61/12 Part 4

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.45	4.25	22
3	0.45	4.55	29
4	0.55	5.1	40
6	0.55	6.1	58
12	0.65	8.2	110
18	0.65	9.6	150
25	0.75	11.65	210
36	0.75	13.1	290
50	0.9	15.6	410



Note: Information subject to confirmation



Note: Information subject to confirmation

DEFENCE STANDARD 61-12 PART 4 LSZH CABLE

These multi-core flexible cables are designed for high density wiring between components within instruments and electronic equipment. They are extensively used in aircraft, process control systems, computers, data processors, military vehicles and military equipment. The LSZH construction ensures enhanced performance in the event of fire reducing the emmissions of smoke and toxic fumes making them a perfect solution for sensitive equipment areas. For installations where fire, smoke emissions and toxic fumes create a potential threat to life and equipment.



CONSTRUCTION

Voltage Rating
440V r.m.s. at frequencies up to 1.6kHz
Maximum Resistance of Conductor at 20°C
7/0.2: 92ohms/km
Temperature Rating
Fixed: -30°C to +60°C
Flexed: -15°C to +60°C
Minimum Bending Radius
Fixed: 7.5 x overall diameter

NO. OF CORES	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	3.7	23
3	4	27
4	4.3	32
6	5.1	60
12	6.6	83
18	7.8	110
25	9.2	150

NO. OF CORES	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	3.9	23
3	4.1	27
4	4.4	32
6	5.6	53
8	5.9	61
12	6.9	62
18	8.2	144
25	9.5	148

STANDARDS

Defence Standard 61-12 Part 4, UL 1581, BS EN IEC 60574-1 BS EN IEC 60574-2, BS EN/IEC 61034-2

CONSTRUCTION

Conductor
Class 2 Stranded tinned copper conductor
Insulation
LSZH (Low Smoke Zero Halogen)
Tape
Mylar
Drain Wire
Stranded tinned copper
Screen
Al-foil (Aluminium foil)
Tape
Mylar
Rip Cord
Nylon
Sheath
LSZH (Low Smoke Zero Halogen)
Sheath Colour
Black

DEFENCE STANDARD 61-12 PART 5 CABLE

These Multi-Core flexible cables are designed for high density wiring between components and within instruments and electronic equipment. They are extensively used in aircraft, process control systems, computers, data processors, military vehicles and military equipment.



CONSTRUCTION

Voltage Rating
440V r.m.s. at frequencies up to 1.6kHz
Maximum Resistance of Conductor at 20°C
16/0.2 : 40.1 ohms/km
Current Carrying Capacity
2.5 Amps
Temperature Rating
Fixed: -30°C to +70°C
Flexed: -15°C to +70°C
Minimum Bending Radius
Fixed: 7.5 x overall diameter

Circular Conductor, PVC Insulated, PVC Sheathed, Def Stan 61/12 Part 4

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.9	5.5	34
3	0.9	5.8	42
4	0.9	6.3	54
6	0.9	7.3	75
8	0.9	8.5	96
12	0.9	9.5	120
18	0.9	11	180
25	0.9	13.1	230

Circular Conductor, PVC Insulated, Collectively Screened Cores, PVC Sheathed, Def Stan 61/12 Part 5

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.9	6.5	69
3	0.9	6.8	79
4	0.9	7.3	92
6	0.9	8.3	120
8	0.9	8.9	140
10	0.9	9.3	165
12	0.9	10.6	190
18	0.9	12	250
25	0.9	14	320

CONSTRUCTION

Conductor
Class 5 flexible tinned copper conductor
Insulation
PVC (Polyvinyl Chloride)
Screen
TCWB (Tinned Copper Wire Braid)
Sheath
PVC (Polyvinyl Chloride)
Sheath Colour
Black

DEFENCE STANDARD 61-12 PART 5 CABLE

Circular Conductor, PVC Insulated, Individually Screened Cores, PVC Sheathed, Def Stan 61/12 Part 5

NO. OF CORES	NOMINAL THICKNESS OF SHEATH mm	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	0.9	6	47
3	0.9	6.8	60
4	0.9	7.4	75
6	0.9	8.7	110
7	0.9	8.7	120
12	0.9	11.3	190
18	0.9	13.3	270
25	0.9	15.9	360

DEFENCE STANDARD 61-12 PART 5 LSZH CABLE

These multicore flexible cables are designed for high density wiring between components within instruments and electronic equipment. They are extensively used in aircraft, process control systems, computers, data processors, military vehicles and military equipment. For installations where fire, smoke emissions and toxic fumes create a potential risk to life and equipment.



CONSTRUCTION

Voltage Rating
440V r.m.s. at frequencies up to 1.6kHz
Maximum Resistance of Conductor at 20°C
16/0.2: 40.1ohms/km
Current Carrying Capacity
2.5 Amps
Temperature Rating
Fixed: -30°C to +60°C
Flexed: -15°C to +60°C
Minimum Bending Radius
Fixed: 7.5 x overall diameter
LSZH Insulated, Foil Screen, LSZH Sheath

NO. OF CORES	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	4.8	45
4	6.2	60
6	7.2	81
8	8.2	104
12	9.7	132
18	12.6	198

LSZH Insulated, TCWB (Tinned Copper Wire Braid), LSZHLSZH Insulated, TCWB (Tinned Copper Wire Braid), LSZH Sheath

NO. OF CORES	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	6.5	66
3	6.8	76
4	7.3	90
6	8.3	114
8	8.9	135
5 Pair	11.3	179
12	10.5	183
18	12.5	256
25	14.1	321

STANDARDS

Defence Standard 61-12 Part 5, UL 1581, BS EN IEC 60574-1/2, BS EN/IEC 61034-2

CONSTRUCTION

Conductor
Class 5 flexible Stranded tinned copper conductor
Sizes
16 strands/0.2 mm
Insulation
LSZH (Low Smoke Zero Halogen)
Tape
Mylar
Drain Wire
Stranded tinned copper
Screen
Al-foil (Aluminium foil)
Tape
Mylar
Rip Cord
Nylon
Sheath
LSZH (Low Smoke Zero Halogen)
Sheath Colour
Black

LSZH Insulated, TCWB (Tinned Copper Wire Braid), LSZHLSZH Insulated, TCWB (Tinned Copper Wire Braid), LSZH Sheath

NO. OF CORES	NOMINAL OVERALL DIAMETER mm	NOMINAL WEIGHT kg/km
2	5.5	35
3	5.8	45
4	6.5	73
6	7.3	128
8	9.5	178
10	11	247
12	13.4	345
18	15.1	463
25	17.6	543



INDUSTRIAL & AUTOMOTIVE



PROFIBUS DPType

ProfiBus DP cables are suitable for communication between masters and slaves in a ProfiBus system, cyclical exchange data with all of the slaves assigned to a master, one at a time, according to its list of assigned slaves taken from the master record. Suitable for fast and cyclical exchange data with Master and its Slaves, where the class 1 master uses the bandwidth by realizing asynchronous data exchanges with the Slaves using both confirmed (read inputs, read outputs) and/or not confirmed services (freeze, sync).



CONSTRUCTION

Formation:

Bare copper solid or flexible

Insulation:

Foam polyolefin - FPE

1st overall shield:

overlapped shielding tape aluminium/polyester tape

- Coverage $\geq 100\%$

2nd overall shield:

braid shield tinned copper - Coverage $\geq 65\%$

Outer Sheath:

Polyvinyl Chloride - PVC

Thermoplastic low smoke, Halogen free - LSZH(FRNC)

Colour Outer Sheath:

Violet - PVC

Violet - LSZH(FRNC)

IDENTIFICATION OF CORES

2 Cores: ● ●

ELECTRICAL DATA

Nominal Impedance:	150 $\pm$ 10% ohm
Capacitance:	≤ 30 pF/m
Transmission speed:	Up to 12Mbit/s
Insulation Resistance @ 20°C:	> 25 MOhm*Km
Test Voltage Core-Core:	2000 V
Test Voltage Core-Screen:	2000 V
Operating Voltage:	300 V

Cable with FPE/DoubleSCREEN/PVC

RAMCRO CODE	Copper Class	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MRT0122HXA4X-DP	Solid	1x2x22AWG	8	65	55,4	30,0
SDS0107HXA4X-DP	Flexible	1x2x22AWG	8	65	55,4	30,0

Cable with FPE/DoubleSCREEN/LSZH(FRNC)

RAMCRO CODE	Copper Class	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MRT0122HXA4X-DP	Solid	1x2x22AWG	8	65	55,4	30,0
SDS0107HXA4X-DP	Flexible	1x2x22AWG	8	65	55,4	30,0

STANDARD REFERENCES

- DIN EN 61784-1
- DIN EN 61158
- NETBUS L2/F.I.P.(Factor,Instrumentation,Protocol)
- PROFIBUS® DP (DIN 19245)
- RS 485
- IEC 60332-1-2 for PVC sheath
- IEC 60754-1&2 for LSZH(FRNC) sheath
- IEC 61034 for LSZH(FRNC) sheath

CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
10 x cable diameter



Put up length 305 mt



TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +50°C



ON REQUEST

Personalized colour code and outer sheath
Note: Information subject to confirmation

ETHER CAT.Type

This range of cables accommodates any application, including drag-chain applications involving up to 20 million alternating bending cycles. Not only that, but EtherCAT and fieldbus cables also enable secure data transmission that is optimized for industrial applications and harsh environmental conditions. Fully tested, the cables feature a high-quality 360° shield connection for optimum electromagnetic compatibility.



CONSTRUCTION

Formation:

Bare copper solid

Tinned copper flexible

Insulation:

Polyolefin - PE

1st overall shield:

Overlapped shielding tape aluminium tape

- Coverage 2nd overall shield:

Braid shield tinned copper - Coverage $\geq 85\%$

Outer Sheath:

Polyvinyl Chloride - PVC

Colour Outer Sheath:

Green

IDENTIFICATION OF CORES

4 Cores: ○ ● ● ●

ELECTRICAL DATA

Nominal Impedance:	100 $\pm$ 15% ohm
Capacitance:	≤ 60 pF/m
Transmission speed:	Up to 100Mbit/s
Insulation Resistance @ 20°C:	> 25 MOhm*Km
Test Voltage Core-Core:	3000 V
Test Voltage Core-Screen:	3000 V
Operating Voltage:	1000 V

Cable with PE/DoubleSCREEN/PVC

RAMCRO CODE	Copper Class	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
SDS4107HIADX-T-ETC	Tinned / Flexible	1x4x22AWG	6,5	63	55,4	< 60,0
MRT4122HIADX-ETC	Bare / Solid	1x4x22AWG	6,5	63	55,4	< 60,0

STANDARD REFERENCES

- DIN VDE 0295, IEC 60228 or CEI 20-29
- 1581, 758(UL); C22.2 n° 210(CSA)
- IEC 61156-3(EU);
- CEI EN 50288-2-1(EU); EIA/TIA 568-B.2
- ISO/IEC 11801-1 (CL. D)

CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
10 x cable diameter



Put up length 305 mt



TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +80°C



Note: Information subject to confirmation

ETHERNETType

Ethernet cables are standard wires that connect computers to a network. These cables are specifically designed to facilitate easy communication between disparate electronic equipment. These electronic devices can either be fax machines, printers, scanners, or personal computers. An Ethernet cable facilitates communication between the internet servers and your personal computer. The cable provides stable internet connection. This means that you can work all day and download and upload your files without stress.



CONSTRUCTION

Formation:

Bare copper solid or flexible

Insulation:

Foam polyolefin - FPE

1st overall shield:

Overlapped shielding tape aluminium/polyester tape

- Coverage $\geq 100\%$

2nd overall shield:

Braid shield tinned copper - Coverage $\geq 85\%$

Outer Sheath:

Polyvinyl Chloride - PVC

Colour Outer Sheath:

Green

STANDARD REFERENCES

- DIN VDE 0295, IEC 60228 or CEI 20-29
- 1581, 444, 758(UL); C22.2 n° 210(CSA); ANSI/TIA/EIA 568-B.2-1;
- IEC EN 61156-5(EU); ISO/IEC 11801-1 (CL.F)
- 1581, 758(UL); C22.2 n° 210(CSA); IEC 61156-3(EU); CEI EN
- 50288-2-1(EU); EIA/TIA 568-B.2; ISO/IEC 11801-1 (CL.D)

CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
10 x cable diameter



Put up lenght 305 mt



TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +80°C



IDENTIFICATION OF CORES

2 Cores: ○ ● ○ ●

ELECTRICAL DATA

Nominal Impedance:

100±15% ohm

Capacitance:

≤ 44 pF/m, ≤ 50 pF/m

Transmission speed:

Up to 10Gbit/s

Insulation Resistance @ 20°C:

> 25 MOhm*Km

Test Voltage Core-Core:

500 V / 2000 V

Test Voltage Core-Screen:

500 V / 2000 V

Operating Voltage:

30 V / 300 V

RAMCRO CODE	Copper Class	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MRT0408HIA4X-ETN	Solid	4x2x24AWG	6,3	54	90	< 44,0

Cable with FPE/DoubleSCREEN/PVC - 300 V

RAMCRO CODE	Copper Class	FORMATION [n° x AWG]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MRT0208HIA4X-ETN	Solid	2x2x24AWG	5,8	42	90	< 44,0

ON REQUEST

Personalized colour code and outer sheath
Note: Information subject to confirmation

CANOPENType

The CANopen has been standardized since late 2002 as CENELEC EN 50325-4. It is now well established in a various industrial communication areas including manufacturing, transport systems, maritime electronics, medical devices, and building automation. CANopen enables communications between devices from different manufacturers and ensures compatibility between and interchangeability of these devices.



CONSTRUCTION

Formation:

Bare copper solid or flexible

Insulation:

Foam polyolefin - FPE / Polyolefin - PE

1st overall shield:

Overlapped shielding tape aluminium/polyester tape

- Coverage $\geq 100\%$

2nd overall shield:

braid shield tinned copper - Coverage $\geq 85\%$ (+ drain wire if required)

Outer Sheath:

Polyvinyl Chloride - PVC

Colour Outer Sheath:

Violet

STANDARD REFERENCES

- DIN VDE 0295, IEC 60228 or CEI 20-29
- 1581, 758(UL); C22.2 n° 210(CSA); ISO 11898; RS 485

CHARACTERISTICS

Building Management Systems Cable



Min. Bending Radius
10 x cable diameter



Put up lenght 305 mt



TEMPERATURE RANGE

During Operation:

-30° C up to +80°C

During Installation:

-5° C up to +80°C



IDENTIFICATION OF CORES

DIN 47100

ELECTRICAL DATA

Nominal Impedance:

120±15% ohm

Capacitance:

≤ 50 pF/m

Transmission speed:

Up to 1Mbit/s

Insulation Resistance @ 20°C:

> 25 MOhm*Km

Test Voltage Core-Core:

500 V

Test Voltage Core-Screen:

2000 V

Operating Voltage:

30 V or 300 V

Cable with PE/SCREEN/PVC - 30 V

RAMCRO CODE	Copper Class	FORMATION [n° x Sec.]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSS0106HXADC-COP	Solid	1x2x20AWG	6,7	65	43,6	<50
STS0334HXADC-COP	Flexible	1x2x0,34+1x0,34	6,9	70	55,4	<50
MSS4134HXADC-COP	Flexible	1x4x0,34	6,8	66	55,4	<50
MSS0234HXADC-COP	Flexible	2x2x0,34	7	71	55,4	<50

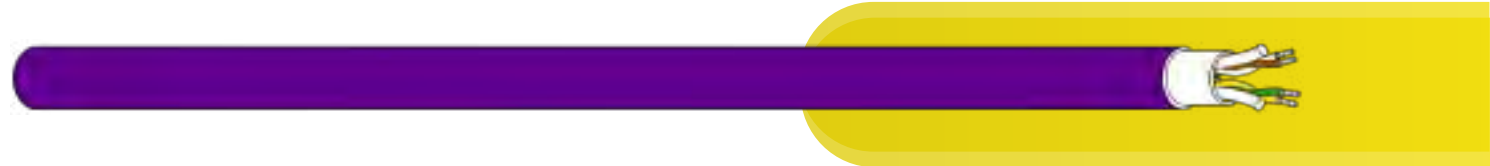
Cable with FPE/SCREEN/PVC - 300 V

RAMCRO CODE	Copper Class	FORMATION [n° x mm2]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSS0122HXA4C-COP	Flexible	1x2x0,22	5,9	44	90	<50

Note: Information subject to confirmation

CANBUSType

Controller Area Network Cables are suitable for a complete support for automotive and industrial applications. These cables help the combination straightforward intuitive CAN API with support for an extensible range of external and on-chip CAN controllers.



CONSTRUCTION

Formation:
Bare copper solid or flexible
Insulation:
Foam polyolefin - FPE
Outther Sheath:
Polyvinyl Chloride - PVC
Colour Outther Sheath:
Violet

STANDARD REFERENCES

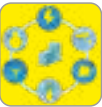
- DIN VDE 0295, IEC 60228 or CEI 20-29
- 1581, 758(UL); C22.2 n° 210(CSA); ISO 11898; RS 485

IDENTIFICATION OF CORES

DIN 47100

CHARACTERISTICS

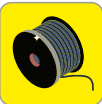
Building Manage-
ment Systems Cable



Min. Bending Radius
10 x cable diameter



Put up lenght 305 mt



ELECTRICAL DATA

Nominal Impedance: 100±15% ohm
Capacitance: ≤ 50 pF/m
Transmission speed: Up to 1Mbit/s
Insulation Resistance @ 20°C: > 25 MOhm*Km
Test Voltage Core-Core: 500 V / 2000 V
Operating Voltage: 30 V / 300 V

TEMPERATURE RANGE

During Operation:
-30° C up to +80°C
During Installation:
-5° C up to +80°C



Cable with PE/PVC - 30 V

RAMCRO CODE	Copper Class	FORMATION [n° x Sec.]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSE0106HXADC-COP	Solid	1x2x20AWG	6,3	65	43,6	<50
SSS0334HXADC-COP	Flexible	1x2x0,34+1x0,34	6,5	70	55,4	<50
MSE4134HXADC-COP	Flexible	1x4x0,34	6,4	66	55,4	<50
MSE0234HXADC-COP	Flexible	2x2x0,34	6,6	71	55,4	<50

Cable with FPE/PVC - 300 V

RAMCRO CODE	Copper Class	FORMATION [n° x mm2]	NOM. OUTER DIAMETER [mm]	NOM WEIGHT [kg/km]	MAX RESISTANCE AT 20°C [Ohm/km]	NOM. CAPACITANCE [pF/m]
MSE0122HXA4C-COP	Flexible	1x2x0,22	5,5	44	90	<50

ON REQUEST

Personalized colour code and outther sheath
Note: Information subject to confirmation

Note: Information subject to confirmation



UL CABLES

UL 444 - COMMUNICATION

Note: Information subject to confirmation



UL 444 (PVC)

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.



CONSTRUCTION

Formation:

Plained Annealed Copper Wire, Stranded from 30 to 6 AWG

Fire Protection Tape (Optional)

Insulation:

High-Temperature Polyvinyl Chloride (PVC)

Fillers (Optional)

Wrapping (Optional):

at least 1 layer of plastic tape (Optional)

Screen:

Aluminium/PETP tape over copper drain wire

Braid (optional):

Tinned or bare copper or aluminum braid

Armouring Protection (optional):

Steel Wire Armouring (SWA)

Outer sheath:

High-Temperature Polyvinyl Chloride (PVC)

Colour Outer Sheath:

Any color

ELECTRICAL DATA

Operating Voltage: 300 V

Impedance: 100 Ω (typical for data cables)

Capacitance: ≤ 50 pF/ft (for twisted pair data cables)

IDENTIFICATION OF CORES

Black and White Numbered ● ○

STANDARD REFERENCES

- UL 444
- ASTM B3/B33
- CSA 22.2 No. 214
- NEC art. 800
- UL 1581 (Sun. Res; VW1)
- UL 910

ON REQUEST

- Sunlight Resistant
- UL 1666 (Rizer Test)
- UL 1685
- VW-1
- Armouring and/or Braid

TEMPERATURE RANGE

Fixed Installation:

- 30°C up to +105°C

During Installation:

- 5°C up to +50°C

Insulation Operation:

- 30°C up to +105°C



CHARACTERISTICS

- High Flexibility
- Flame retardant characteristics
- Multiple Conductors
- Sunlight & Moisture Resistant
- Common in **structured cabling systems**, such as **Category 5e, 6, 6A** cables used in LANs, telephone wiring, and building automation systems



ON REQUEST

Personalized colour code and outer sheath

Note: Information subject to confirmation

UL 444 (PVC)

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.

Part Number	Formation [n° x AWG]	Nominal Out. Diameter [mm]	Max Resistance at 20°C [Ohm/km]"	Nominal Weight [kg/km]
MAS0107HEOCN-UL444	1x2x22AWG	4,50	69,4	35
MAS0207HEOCN-UL444	2x2x22AWG	5,80	69,4	53
MAS0407HEOCN-UL444	4x2x22AWG	6,50	69,4	77
MAS0607HEOCN-UL444	6x2x22AWG	7,50	69,4	103
MAS1207HEOCN-UL444	12x2x22AWG	9,60	69,4	175
MAS2407HEOCN-UL444	24x2x22AWG	13,30	34	330
MAS0106HEOCN-UL444	1x2x20AWG	4,90	34	41
MAS0206HEOCN-UL444	2x2x20AWG	6,30	34	64
MAS0406HEOCN-UL444	4x2x20AWG	7,10	34	97
MAS0606HEOCN-UL444	6x2x20AWG	8,30	34	132
MAS1206HEOCN-UL444	12x2x20AWG	10,90	34	238
MAS2406HEOCN-UL444	24x2x20AWG	14,80	34	440
MAS0105HEOCN-UL444	1x2x18AWG	5,30	23,4	52
MAS0205HEOCN-UL444	2x2x18AWG	7,00	23,4	84
MAS0405HEOCN-UL444	4x2x18AWG	8,00	23,4	131
MAS0605HEOCN-UL444	6x2x18AWG	9,40	23,4	183
MAS1205HEOCN-UL444	12x2x18AWG	12,70	23,4	342
MAS2405HEOCN-UL444	24x2x18AWG	17,10	23,4	629
MAS0103HEOCN-UL444	1x2x16AWG	5,90	14,6	66
MAS0203HEOCN-UL444	2x2x16AWG	8,00	14,6	111
MAS0403HEOCN-UL444	4x2x16AWG	9,10	14,6	183
MAS0603HEOCN-UL444	6x2x16AWG	11,00	14,6	264
MAS1203HEOCN-UL444	12x2x16AWG	14,60	14,6	491
MAS2403HEOCN-UL444	24x2x16AWG	19,80	14,6	915

Note: Information subject to confirmation

UL 444 (PO)

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR, CMG)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.



CONSTRUCTION

Formation:

Plained Annealed Copper Wire, Stranded from 30 to 6 AWG

Fire Protection Tape (Optional)

Insulation:

Cross-lynked Poliolefine (XLPE)

Fillers (Optional)

Wrapping (Optional):

at least 1 layer of plastic tape

Screen:

Aluminium/PETP tape over copper train wire

Braid (optional):

Tinned or bare copper or aluminum braid

Armouring Protection (optional):

Steel Wire Armouring (SWA)

Outer sheath:

Low Smoke Zero Halogen Poliolefine (LSZH)

Colour Outer Sheath:

Any color

ELECTRICAL DATA

Operating Voltage: 300 V

Impedance: 100 Ω (typical for data cables)

Capacitance: ≤ 50 pF/ft (for twisted pair data cables)

IDENTIFICATION OF CORES

Black and
White Numbered ● ○

STANDARD REFERENCES

- UL 444
- ASTM B3/B33
- CSA 22.2 No. 214
- NEC art. 800
- UL 1581
- UL 910

ON REQUEST

- Sunlight Resistant
- UL 1666 (Rizer Test)
- UL 1685
- VW-1
- Armouring and/or Braid

TEMPERATURE RANGE

Fixed Installation:

- 30°C up to +105°C

During Installation:

- 5°C up to +50°C

Insulation Operation:

- 30°C up to +105°C



CHARACTERISTICS

- High Flexibility
- Flame retardant characteristics
- Multiple Conductors
- Sunlight & Moisture Resistant
- Common in **structured cabling systems**, such as **Category 5e, 6, 6A** cables used in LANs, telephone wiring, and building automation systems



ON REQUEST

Personalized colour code and outer sheath

UL 444 (PO)

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.

Part Number	Formation [n° x AWG]	Nominal Out. Diameter [mm]	Max Resistance at 20°C [Ohm/km]"	Nominal Weight [kg/km]
MAS0107HEEXN-UL444	1x2x22AWG	6,30	69,4	56
MAS0207HEEXN-UL444	2x2x22AWG	8,30	69,4	86
MAS0407HEEXN-UL444	4x2x22AWG	9,40	69,4	118
MAS0607HEEXN-UL444	6x2x22AWG	10,90	69,4	153
MAS0106HEEXN-UL444	1x2x20AWG	6,70	34	63
MAS0206HEEXN-UL444	2x2x20AWG	8,90	34	99
MAS0406HEEXN-UL444	4x2x20AWG	10,10	34	140
MAS0606HEEXN-UL444	6x2x20AWG	11,70	34	186
MAS0105HEEXN-UL444	1x2x18AWG	7,10	23,4	75
MAS0205HEEXN-UL444	2x2x18AWG	9,70	23,4	120
MAS0405HEEXN-UL444	4x2x18AWG	11,00	23,4	178
MAS0605HEEXN-UL444	6x2x18AWG	12,90	23,4	241
MAS0103HEEXN-UL444	1x2x16AWG	7,70	14,6	91
MAS0203HEEXN-UL444	2x2x16AWG	10,70	14,6	152
MAS0403HEEXN-UL444	4x2x16AWG	12,20	14,6	234
MAS0603HEEXN-UL444	6x2x16AWG	14,40	14,6	321

UL 444 - BUS PROTOCOL

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR, CMG)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.



CONSTRUCTION

Formation:

Plained Annealed Copper Wire, Stranded from 18 to 16 AWG

Insulation:

Cross-linked Polyolefine (XLPE)

Fillers (Optional)

Wrapping (Optional):

at least 1 layer of plastic tape

Screen:

Aluminium/PETP tape

Braid:

Tinned copper braid

Armouring Protection (optional):

Steel Wire Armouring (SWA)

Outer sheath:

Low Smoke Zero Halogen Polyolefine (LSZH)

Colour Outer Sheath:

Any color

STANDARD REFERENCES

- UL 444
- ASTM B3/B33
- CSA 22.2 No. 214
- NEC art. 800
- UL 1581
- UL 910

ON REQUEST

- Sunlight Resistant
- UL 1666 (Rizer Test)
- UL 1685
- VW-1
- Armouring and/or Braid

TEMPERATURE RANGE

Fixed Installation:

- 30°C up to +105°C

During Installation:

- 5°C up to +50°C

Insulation Operation:

- 30°C up to +105°C



ELECTRICAL DATA

Operating Voltage: 300 V

Impedance: 120 Ω (typical for data cables)

Capacitance: ≤ 50 pF/ft (for twisted pair data cables)

IDENTIFICATION OF CORES

Black and Blue Numbered ●●

CHARACTERISTICS

- High Flexibility
- Flame retardant characteristics
- Multiple Conductors
- Sunlight & Moisture Resistant
- Common in **structured cabling systems**, such as **Category 5e, 6, 6A** cables used in LANs, telephone wiring, and building automation systems



ON REQUEST

Personalized colour code and outer sheath



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Note: Information subject to confirmation

UL 444 - BUS PROTOCOL

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.

Part Number	Formation [n° x AWG]	Nominal Out. Diameter [mm]	Max Resistance at 20°C [Ohm/km]"	Nominal Weight [kg/km]
MAS0107HEEXN-UL444	1x2x22AWG	6,30	69,4	56
MAS0207HEEXN-UL444	2x2x22AWG	8,30	69,4	86
MAS0407HEEXN-UL444	4x2x22AWG	9,40	69,4	118
MAS0607HEEXN-UL444	6x2x22AWG	10,90	69,4	153
MAS0106HEEXN-UL444	1x2x20AWG	6,70	34	63
MAS0206HEEXN-UL444	2x2x20AWG	8,90	34	99
MAS0406HEEXN-UL444	4x2x20AWG	10,10	34	140
MAS0606HEEXN-UL444	6x2x20AWG	11,70	34	186
MAS0105HEEXN-UL444	1x2x18AWG	7,10	23,4	75
MAS0205HEEXN-UL444	2x2x18AWG	9,70	23,4	120
MAS0405HEEXN-UL444	4x2x18AWG	11,00	23,4	178
MAS0605HEEXN-UL444	6x2x18AWG	12,90	23,4	241
MAS0103HEEXN-UL444	1x2x16AWG	7,70	14,6	91
MAS0203HEEXN-UL444	2x2x16AWG	10,70	14,6	152
MAS0403HEEXN-UL444	4x2x16AWG	12,20	14,6	234
MAS0603HEEXN-UL444	6x2x16AWG	14,40	14,6	321



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Note: Information subject to confirmation

UL 444 - FIELDBUS FOUNDATION

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR, CMG)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.



CONSTRUCTION

Formation:

Plained Annealed Copper Wire, Stranded from 18 to 16 AWG

Insulation:

Cross-linked Polyolefine (XLPE)

Fillers (Optional)**Wrapping (Optional):**

at least 1 layer of plastic tape

Individual Screen:

Aluminium/PETP tape + Drain Wire

Collective Screen:

Aluminium/PETP tape + Tinned copper braid

Armouring Protection (optional):

Steel Wire Armouring (SWA)

Outer sheath:

Low Smoke Zero Halogen Polyolefine (LSZH)

Colour Outer Sheath:

Any color

ELECTRICAL DATA

Operating Voltage: 300 V

Impedance: 100 Ω (typical for data cables)

Capacitance: ≤ 50 pF/ft (for twisted pair data cables)

IDENTIFICATION OF CORES

Orange and Blue ●●

STANDARD REFERENCES

- UL 444
- ASTM B3/B33
- CSA 22.2 No. 214
- NEC art. 800
- UL 1581
- UL 910

ON REQUEST

- Sunlight Resistant
- UL 1666 (Rizer Test)
- UL 1685
- VW-1
- Armouring and/or Braid

TEMPERATURE RANGE

Fixed Installation:

- 30°C up to +105°C

During Installation:

- 5°C up to +50°C

Insulation Operation:

- 30°C up to +105°C



CHARACTERISTICS

- High Flexibility
- Flame retardant characteristics
- Multiple Conductors
- Sunlight & Moisture Resistant
- Common in **structured cabling systems**, such as **Category 5e, 6, 6A** cables used in LANs, telephone wiring, and building automation systems



ON REQUEST

Personalized colour code and outer sheath

UL 444 - FIELDBUS FOUNDATION

Communication Cable (CM, CMR, CMX, CMX OUTDOOR, CMX OUTDOOR – CMR)

Designed for use in telecommunications and data transmission systems, including voice, video, and signal control applications in commercial and residential environments.

Part Number	Formation [n° x AWG]	Nominal Out. Diameter [mm]	Max Resistance at 20°C [Ohm/km]"	Nominal Weight [kg/km]
SDS0105HUEXX-T-FB444	1x2x18AWG	10,20	23,8	127
SDS0205HUEXX-T-FB444	2x2x18AWG	14,70	23,8	229
SDS0405HUEXX-T-FB444	4x2x18AWG	17,00	23,8	345
SDS0605HUEXX-T-FB444	6x2x18AWG	20,20	23,8	474
SDS0103HUEXX-T-FB444	1x2x16AWG	11,90	15,5	174
SDS0203HUEXX-T-FB444	2x2x16AWG	17,60	15,5	307
SDS0403HUEXX-T-FB444	4x2x16AWG	20,50	15,5	484
SDS0603HUEXX-T-FB444	6x2x16AWG	24,60	15,5	668

FIRE RESISTANT TEST INFORMATIONS



FIRE RESISTANT TEST INFORMATION

In case of fire risk or to maintain circuits integrity, the Ramcro Fire special cables prevent smoke risks and other collateral problems to sensitive equipments, avoiding damage from gases. Ramcro Fire cables are produced according with all major international standards.

Product range under sub-brand RAMFIRECRO-F3 Manufactured according to:

- International Electro-technical Commission IEC 60331-21
- British Standard BS 6387 Cat. C-W-Z
- British Standard BS 7629
- European Norms EN 50200

FIRE SUN CABLE	FIRE STAR CABLE	FLAME TEMPERATURE	TEST ENVIRONMENT	Time	10'	20'	30'	40'	50'	60'	70'	80'	90'	100'	110'	120'		180'
✓	✓	 950°C		BS 6387:2013 Cat. C														180 Min.
✓	✓	 650°C	 	BS 6387:2013 Cat. W			30 Min. 15 Min.											
✓	✓	 950°C	 	BS 6387:2013 Cat. Z			15 Min. 15 Min. (1 impact / 30 sec.)											
✓	✓	 830°C	 	BS EN 50200:2015						PH 60			PH 90			PH 120	15/30/60/90/120 Min. 15/30/60/90/120 Min. (1 impact / 5 Min)	
✓	✓	 830°C	 	BS EN 50200:2015 + Annex E			30 Min. 30 Min. (1 Impact / 5min) 15 Min.											
	✓	 930°C	 	BS 8434-2:2003 + A2:2009													120 Min. 120 Min. (1 impact / 5 Min) 60 Min.	

Fire Water Machnical Shock

RAMCRO IN THE VERY HEART OF GREAT JOBS.

FIRE RESISTANT TEST INFORMATION

- Fire Performance Classification:
- Basic Type: IEC 60331-21
 - Standard Type: BS 6387 Cat. C-W-Z and BS 7629
 - Enhanced Type: EN 50200 PHI20 - BS 8434-2



FIRE RESISTANT TEST INFORMATION



FIRE RESISTANCE (Cat. C)
The cable is exposed to fire at the 950°C for 180 minutes



FIRE AND WATER RESISTANCE (Cat. W)
The cable is exposed for 15 minutes to flame at 650°C and for additional 15 minutes to fire and water spray



FIRE RESISTANCE WITH MECHANICAL SHOCKS (Cat. Z)
The cable is mounted on a vertical panel and shocked with a steel bar for 15 minutes while submitted to the action of a flame.



FIRE RESISTANCE (EN 50200 PH 1 5-30-60-90-120)
IEC 60331-2:2018 (Diam <20mm)
IEC 60331-1:2018 (Diam >20mm)

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

CLASSIFICATION	
EN 50200 PH 15	Flame exposure for 15 min
EN 50200 PH 30	Flame exposure for 30 min
EN 50200 PH 60	Flame exposure for 60 min
EN 50200 PH 90	Flame exposure for 90 min
EN 50200 PH 120	Flame exposure for 120 min



FIRE RESISTANT TEST INFORMATION

FIRE RESISTANCE
BS EN 50200 annex E



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

FIRE RESISTANCE
(BS 8434-2)



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



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



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

FIRE RESISTANT TEST INFORMATION

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



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

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

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

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



Samples of cables 3,5 m long in quantities required by standard are installed on a ladder inside a metallic cabinet.

They are subjected to the action of a flame at 750°C for a specific time (20 or 40 minutes).

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

"Ramcro S.p.A Lab have all the above test facilities"

PRODUCT CERTIFICATES

"Few of our **PRODUCTS**
APPROVAL CERTIFICATES..."



Certificate of Product Approval 568a



Certificate of Product Approval 568c

PRODUCT CERTIFICATES

Certificates of PRODUCTS APPROVAL



Certificate of Product Approval 568j

"Few of our PRODUCTS APPROVAL CERTIFICATES..."



FPLR UL



Certificate of Product Approval 568h

COMPANY CERTIFICATES

Certificates of COMPANY QUALITY SYSTEM



ISO/IEC 17025:2017



ISO 9001:2015



ISO 14001:2015



ISO 45001:2018

CPR REGULATION

CPR Cables (Construction Products Regulation) are essential for ensuring safety in buildings. Regulated by the European Regulation 305/2011, these cables must meet specific fire reaction requirements, reducing the risk of flame propagation and the emission of toxic smoke in the event of a fire.

The CPR classification allows for the selection of the most suitable type of cable based on the installation environment, enhancing the protection of people and property.

Using cables that comply with CPR standards is therefore not only a legal obligation but also a responsible choice for designers, installers, and clients.

RAMCRO has a wide variety of CPR products developed in almost 10 years. In addition, RAMCRO is proud to communicate that it's been among the first movers (2020) in owning a CPR Test Equipment in-house in order to develop our products and fit perfectly your needs

Advantages of High rated CPR Cables

High Rated classified cables offer numerous benefits, especially in environments where fire safety is a top priority. Here are the main advantages:

Reduced emission of toxic gases

This protects both people and electronic equipment, especially in sensitive environments like hospitals, schools, public offices, and critical infrastructure.

Low smoke emission

They produce very little smoke when burning, improving visibility during evacuation and reducing the risk of inhaling toxic substances.

Regulatory compliance

These cables are often legally required in public or high-occupancy buildings, ensuring compliance with European fire safety regulations.

No flaming droplets

They do not release burning droplets that could further fuel the fire or cause burns.



CPR Machine @ RAMCRO

US-AMERICAN AND BRITISH UNITS

Conversion of usual measuring units
Units for cables and wires

In the US the measurements are mainly used in AWG-numbers (AWG = American Wire Gauge). The AWG-numbers conform the british B&S-numbers (B&S = Brown & Sharp)

AWG No.	Cross-section mm²	Diameter mm	Cond. Res. Ohm/km	AWG No.	Cross-section mm²	Diameter mm	Cond. Res. Ohm/km
1000 MCM*	507	25,4	0,035	14	2,08	1,63	8,79
750	380	22,0	0,047	15	1,65	1,45	11,20
600	304	19,7	0,059	16	1,31	1,29	14,70
500	254	20,7	0,07	17	1,04	1,15	17,80
400	203	18,9	0,09	18	0,8230	10,240	23,0
350	178	17,3	0,10	19	0,6530	0,9120	28,3
300	152	16,0	0,12	20	0,5190	0,8120	34,5
250	127	14,6	0,14	21	0,4120	0,7230	44,0
4/0	107,20	11,68	0,18	22	0,3250	0,6440	54,8
3/0	85,00	10,40	0,23	23	0,2590	0,5730	70,1
2/0	67,50	9,27	0,29	24	0,2050	0,5110	89,2
0	53,40	8,25	0,37	25	0,1630	0,4550	111,0
1	42,40	7,35	0,47	26	0,1280	0,4050	146,0
2	33,60	6,54	0,57	27	0,1020	0,3610	176,0
3	26,70	5,83	0,71	28	0,0804	0,3210	232,0
4	21,20	5,19	0,91	29	0,0646	0,2860	282,0
5	16,80	4,62	1,12	30	0,0503	0,2550	350,0
6	13,30	4,11	1,44	31	0,0400	0,2270	446,0
7	10,60	3,67	1,78	32	0,0320	0,2020	578,0
8	8,366	3,26	2,36	33	0,0252	0,1800	710,0
9	6,63	2,91	2,77	34	0,0200	0,1600	899,0
10	5,26	2,59	3,64	35	0,0161	0,1430	1125,0
11	4,15	2,30	4,44	36	0,0123	0,1270	1426,0
12	3,30	2,05	5,41	37	0,0100	0,1130	1800,0
13	2,62	1,83	7,02	38	0,00795	0,1010	2255,0
				39	0,00632	0,0897	2860,0

4/0 is also stated: 0000; 1 mil = 0,001 inch = 0,0254 mm
* for bigger cross-section the sizes in MCM (circular mils)

1 CM = 1 Circ. mil. = 0,0005067 mm2
1 MCM = 1000 Circ. mils = 0,5067 mm2

General measuring units
Lengths

1 mil	= 0,0254 mm	1 oz (ounce)	= 28,35 g	Pressure		Electrical units	
1 in (inch)	= 25,4 mm	1 lb (pound)	= 0,4536 Kp	1 psi (lb/sq.)	= 68,95 mbar	1 ohm/1000 yd	= 1,0936 /km
1 ft (foot)	= 0,3048 m	1 stone	= 6,35 Kp	1 lb/sq. ft.	= 6,895 · 10 ⁻³ Nmm ²	1 ohm/1000 ft	= 3,28 /km
1 yd (yard)	= 0,9144 m	1 qu (quarter)	= 12,7 Kp	1 pdl/sq. ft.	= 0,478 mbar	1 μF/mile	= 0,62 μF/km
1 ch (chain)	= 20,1 m	1 US-cwt		1 in Hg	= 1,489 N/m ²	1 megohm/mile	= 1,61 M/km
1 mile (land mile)	= 1,609 km	(hundredweight)	= 45,36 Kp	1 in Hg	= 33,86 mbar	1 μF/foot	= 3,28 pF/m
	= 1760 yards	1 US ton (short ton)	= 0,907 t	1 ft H2 O	= 29,89 mbar	1 decibel/mile	= 71,5 mN/m
1 mile (nautic mile)	= 1,852 km	1 brit. ton (long ton)	= 1,016 t	1 in H2 O	= 2,491 mbar		
1 mm	= 0,039370 inches			1 N/mm2	= 145 psi	Power rate	
1 m	= 39,370079 inches	Force		1 kp/mm2	= 10 bar	1 PS	= 0,736 kW
Area		1 lb	= 4,448 N	1 at	= 1422 psi	1 kW	= 1,36 PS
1 CM (circ. mil)	= 0,507 · 10 ⁻³ mm ²	1 brit. ton	= 9954 N		= 736 Torr		
1 MCM	= 0,5067 mm ²	1 pdl (Poundal)	= 0,1383 N		= 1 kp/cm ²		
1 sq. inch (sq. inch)	= 645,16 mm ²	1 kp	= 9,81 N	1 Torr	= 1 mm Hg		
1 sq. ft. (sq. foot)	= 0,0929 m ²	1 N	= 0,102 kp	1 bar	= 0,1 H Pa		
1 square yard	= 0,836 m ²	Velocity		1 Pa	= 1 N/m ²		
1 acre	= 4047 m ²	1 mile/h	= 1,609 km/h				
1 square mile	= 2,59 km ²	1 Knoten	= 1,852 km/h	Density			
1 cu. in. (cubic inch)	= 16,39 cm ³	1 ft/s	= 0,305 m/s	1 lb/cu. ft.	= 16,02 kg/m ³		
1 cu. ft. (cubic foot)	= 0,0283 m ³	1 ft/min	= 5,08 · 10 ⁻³ m/s	1 lb/cu. in.	= 27,68 t/m ³		
1 cu. yd. (cubic yard)	= 0,7646 m ³	Energy		Horse power			
1 gal. (US gallon)	= 3,785 l	1 lb/mile	= 0,282 kg/m	1 hp · h	= 1,0139 PS · h		
1 gal. (brit. gallon)	= 4,546 l	1 lb/yd	= 0,496 kg/m		= 2,684 · 10 ⁶ Joule		
1 US pint	= 0,473 l	1 lb/foot	= 1,488 kg/m	1 BTU (brit. therm. unit)	= 1055 Joule		
1 US quart	= 0,946 l	Radiation absorbed dose		1 hp	= 0,7457 kW		
1 US barrel	= 158,8 l	1 Gray	= 1 J/kg	1 kW	= 1,31 hp		
Temperature		1 rad	= 10 ⁻² J/kg = 1 Centi Gy				
F (Fahrenheit)	= (1,8 · C) + 3°	1 Centi	= 0,01 Gy				
C (Celsius)	= 0,5556 · (F-32°)	1 rad	= 100 Joule				
		1 Mrad	= cJ/kg = 0,01Gy				
			= 1 · 10 ⁶ cJ/kg				
Weight							
1 grain	= 64,8 mg						
1 dram	= 1,77 g						

Note: Information subject to confirmation

Note: Information subject to confirmation

CODE-DESIGNATION

Explanations for Cables and Insulated Wires

A-	Outdoor cable	(N)	in adapted to VDE standard
A	approved national design	NC	non-corrosiv, smoke-gase
AB	Outdoor cable with lighting protection	NF	natural colour
AD	Outdoor cable with differential protection	-O	cabl without green-yellow earth core
AJ-	Outdoor cable with induction protection	-OZ	cabl without green-yellow earth core and cores with
ASLH	self-supporting communication cables for high voltage		imprinted numbers
	overhead lines	ö	oil-resistant
B	armouring	02Y	Foam-PE, insulation (cellular PE)
B	spinning of textile yarn	Q	Steel wire braiding
b	armouring	(R...)	round wire, diameter in mm
(1B...)	one layer of steel tape... thickness of the steel tape in mm	RAGL-	Compensating cable for thermocoupling
(2B...)	two layers of steel tape... thickness of the steel tape in mm	RD-	Rhenomatic cable
BD	unit-type stranding	RE	Computer cable
BLK	bare copper-conductor without insulation	RG-	Coaxial cable according MIL specification
BZ	bronze conductor	re	round, single wire
C	screen of copper wire braiding	rm	round, multiwire
C	screen of copper wire spinning	RS-	computer switchboard cable
C	outer protection of jute and viscous compound	S	silk whipping
Cu	copper wire	S	signal cables for railways
(-Cu)	total cross-section of copper screens (mm2)	(S...)	nominal value of mutual capacitance (nF /km)
D	screen of copper wires	-S	signal cable for German Railway
(D)	screen of helically applied copper wires	S-	Switchboard cable
DM	Dieselhorst-Martin quad	SL	flexible sheathed cable
Dreier	three cores in triple stranded	2S	two layers of silk whipping
E	copper drain wire	St	star quad for phantom circuits
E(e)	protective covering of viscous compound with	St I	star quad in telephone cables for lager distance
	embedded layer of plastic tape	St III	star quad in local cables
e	single wire, solid	(St)	static screen
F	cable cores assembly with petrol-jelly	Staku	copper clad steel wire
F	foil wrapping	Staku-Li	copper clad steel stranded wires
F	Flat cable	...t	termite protection
F	star quad for railway cable	T	supporting element for overhead cable
F	star quad for phantom circuits	T-	fan out cable
(F...)	flat wire armouring... thickness in mm	TF	carrier frequency of pairs or quads triple
OF	jelly lled cable core, lling compound of hard substances	TiC	triple in copper wire braid
FR	flame retardant	TiMF	triple in metal foil
f	exible, fine wire stranding	U	braiding of textile fibres
ff	extra fine wire stranding	VGD	gold-plated
G	insulation or sheath material of rubber (NR) or (SBR)	VN	ickel-plated VS silver-plated
G-	Mining cable	VZK	galvanized VZN tinned
GJ	Mining cable with induction protection	W	corrugated steel sheath
GS	glass fibre whipping or braiding	W	high heat resistant
2G	insulation or jacket of silicone rubber, (SIR)	W	corrugated steel sheath
3G	insulation or jacket of ethylene propylene rubber, (EPR)	X	cross-linked polyvinylchlorid (X-PVC) or other materials
4G	insulation or jacket of ethylene vinylacetate rubber (EVA)	XPE	cross-linked polyethylene (X-PE)
5G	insulation or jacket of chloroprene rubber (CR)	2X	cross-linked polyethylene
6G	insulation or jacket of chlorosulphonated polyethylene	7X	cross-linked Ethylentetrafluorethylen (X-ETFE)
(CSM),	Hypalon	10X	cross-linked Polyvinylidenfluorid (X-PVDF)
7G	insulation or jacket of Flouoroelastomer (FKM)	Y	PVC, polyvinylchloride
8G	insulation or jacket of Nitrile rubber (NBR)	Yu	PVC, polyvinylchloride, non-flammable, flame-retardant
9G	PE-C rubber (CM)	Yv	PVC, polyvinylchloride, with reinforced sheath
53G	CM, chlorinated Polyethylene	YV	Equipment wires with tinned conductor
H	insulation or jacket of halogen-free compound	Yw	PVC, polyvinylchlorid, heat resistant upto 90°C
H	Harmonized Documents	2Y	Polyethylene (PE)
(H...)	maximal value of mutual capacitance (nF /km)	2Yv	Polyethylene, reinforced sheath
(HS)	semi-conducting tape of layer	02Y	Cellular polyethylene
HX	cross-linked, halogen-free polymer compound	02YS	insulation of cellular polyethylene with outer PE-skin
...IMF	individual stranding element (pairs or single cores etc.)	2YHO	insulation of air-spaced polyethylene
	in metal foil and drain wire	3Y	insulation polystyrene (PS), Styroflex
IMF	several stranding elements in metalfoil and drain wire	4Y	insulation or jacket of polyamide (PA)
-J	cable with green-yellow earth core	5Y	insulation or jacket of polytetrafluorethylene (PTFE)
-JZ	cable with green-yellow earth core and cores with	5YX	Perfluoralkoxy (PFA)
	inprinted numbers	6Y	Perfluoroethylene-propylene (FEP)
K	copper-tape	7Y	insulation or jacket of ethylentetrafluorethylen (ETFE)
(K)	inner sheath and longitudinally folded copper tape	8Y	insulation of polyimid (PI)
LA	tinsel conductor (flat copper wire stranded over the	9Y	polypropylen (PP)
	thread of synthetic fibres)	10Y	PVDF, Polyvinylidene fluoride
LD	corrugated aluminium sheath	11Y	polyurethan (PUR)
Lg	in layers stranding	12Y	TPE-E, TPE
Li	stranded wires conductor	13Y	TPE-EE, TPE on base of Polyester-Ester
(L)Y	laminated sheath Al-tape and PVC-jacket	31Y	TPE-S, TPE on base of Polystyrol
(L)2Y	laminated sheath Al-tape and PE-jacketl	41Y	TPE-A, TPE on base of Polyamide
2L	double enamel coating as insulation	51Y	PFA, Per uor-Alkoxylalkane
M	plastic-sheath cable	71Y	ECTFE, Monochlorotrifluorethylene
M	lead sheath	91Y	TPE-O, TPE on base of Polyester-Ester
Mz	alloyed lead sheath	-Z	core imprinted with numbers
(mS)	magnetic shield	Z	twin cable
N	VDE standard	(Z)	high-tensile braid of steel wires
		(ZG)	high-tensile element of glass fibre yarn
		(ZN)	high-tensile of non-metallic elements

DIN 47100

- Core 1:  White
 - Core 2:  Brown
 - Core 3:  Green
 - Core 4:  Yellow
 - Core 5:  Grey
 - Core 6:  Pink
 - Core 7:  Blue
 - Core 8:  Red
 - Core 9:  Black
 - Core 10:  Violet
 - Core 11:  Grey/Pink
 - Core 12:  Red/Blue
 - Core 13:  White/Green
 - Core 14:  Brown/Green
 - Core 15:  White/Yellow
 - Core 16:  Yellow/Brown
 - Core 17:  White/Grey
 - Core 18:  Grey/Brown
 - Core 19:  White/Pink
 - Core 20:  Pink/Brown
 - Core 21:  White/Blue
 - Core 22:  Brown/Blue
 - Core 23:  White/Red
 - Core 24:  Brown/Red
 - Core 25:  White/Black
- Core 26:  Brown/Black
 - Core 27:  Grey/Green
 - Core 28:  Yellow/Grey
 - Core 29:  Pink/Green
 - Core 30:  Yellow/Pink
 - Core 31:  Green/Blue
 - Core 32:  Yellow/Blue
 - Core 33:  Green/Red
 - Core 34:  Yellow/Red
 - Core 35:  Green/Black
 - Core 36:  Yellow/Black
 - Core 37:  Grey/Blue
 - Core 38:  Pink/Blue
 - Core 39:  Grey/Red
 - Core 40:  Pink/Red
 - Core 41:  Grey/Black
 - Core 42:  Pink/Black
 - Core 43:  Blue/Black
 - Core 44:  Red/Black
 - Core 45*:  White/Brown/Black
 - Core 46*:  Yellow/Green/Black
 - Core 47*:  Grey/Pink/Black
 - Core 48*:  Red/Blue/Black
 - Core 49*:  White/Green/Black
 - Core 50*:  Brown/Green/Black
- * Starting from conductor No. 45, it is possible to request either the version where the color sequence restarts from No. 1, or the two-tone + black option. If no specific request is made, Option 1 will be applied by default.

HANDLING, STORAGE AND LAYING OF CABLES

Great care is taken in the manufacturing of cables to ensure quality at every stage.

- Handling is the next important factor to ensure that by poor workmanship and mishandling the quality does not deteriorate.
- Of course laying is generally carried out by unskilled or semi-skilled men, strict supervision should be maintained so that this material, which can be very easily damaged, is handled with great care.
- If great care during installation is observed in the handling of cables on site the life of the cables is extended.

A. CABLE INSPECTION

1. Inspect every cable reel for damage before accepting the shipment. Be particularly alert for cable damage if:
 2. A reel is lying flat on its side
 3. Several reels are stacked one over the other
 4. Other freight is stacked on a reel
 5. Cable drums are without planks or broken
 6. Nails have been driven into reel flanges to secure shipping blocks
 7. A reel flange is damaged
 8. A cable covering is removed, stained or damaged
 9. A cable end seal is removed or damaged. A reel has been dropped (hidden damage likely)

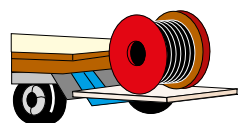
B. CABLE HANDLING & STORAGE

Damage to cables can occur due to the incorrect handling to which the drums and cables may be subjected; causing breakdown of the drum flanges and in exceptional cases, movement of the drum barrel takes place. Once this breakdown of the drum occurs, the cable is immediately exposed to damage. Cables damaged during handling & storage can cause service failures when the subject cable is put to use.

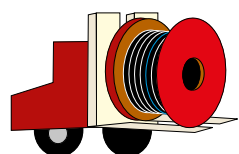
Thus the following is a list of Do's and Don'ts that should be followed while handling and storing the cables before it is put to use.



DO's



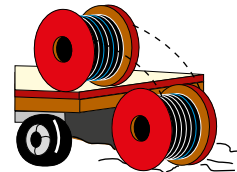
When off loading reels from a truck, lower reels carefully using a hydraulic gate, hoist or forklift truck.



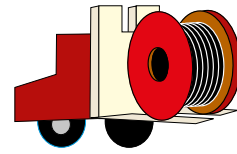
If a fork lift is used, approach the reel from the flange side. Position the forks such that the reel is lifted by both reel flanges. Also Consideration should be given to, Traffic patterns during off-loading & damage during the time in storage.



DON'ts



Never drop reels. If reels must be rolled, roll in opposite direction of the cable wraps to keep cable from loosening on the reel.

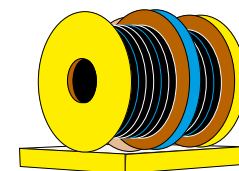


Do not allow the lift forks to contact the cable. Care must be taken by the fork lift operator not to make sudden turns or stops.

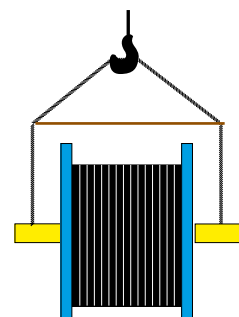
HANDLING, STORAGE AND LAYING OF CABLES



DO's



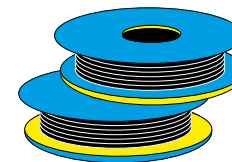
Cable reels should be stored on hard surfaces resting on the flanges edge (flanges vertical). Align reels flange to flange and, if possible, arrange so that first in is first out.



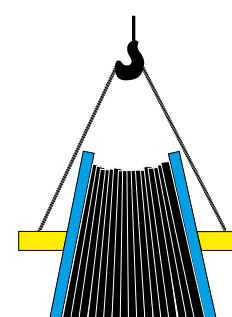
When using a hoist, install a mandrel through the reel arbor holes and attach a sling. Use a spreader bar approximately 6 inches longer than the overall reel width placed between the sling ends just above the reel flanges.



DON'ts



Multiple reels stacked on top of each other ("Pancake" storage) is not recommended for cable drums. The weight of the stack can total thousands of Kgs. creating an enormous load on the bottom reel. Also, damage to the reel and/or cable will likely occur when the reel is flipped for transit. A concentration of stress on the reel flange may cause it to break and subsequently damage the cable.



This may lead to the bending of the reel flanges and mashing the cable.

C. RECOMMENDED MINIMUM BENDING RADIUS FOR LV CABLES

Single Core: $15 \times D$

Multicore : $12 \times D$

Where D= Diameter of cable in mm

D. INSTALLATION & LAYING

Mechanical stresses during installation are generally more severe than those encountered while in service. Thus care should be taken as regards to the following while installation and laying of cables.

1. Care shall be taken during laying to avoid sharp bending, and twisting.
2. Cable shall be unwound from the drum by lifting the drum on the center.
3. Shaft supported both ends with suitable jacks / stands.
4. Under no circumstances the cable winding shall be lifted off a coil or drum lying flat at the flanges. This would cause serious twist and damages.
5. Suitable protection shall be provided to the cables against mechanical damages, it includes covers, pipes etc.

E. PRE- INSTALLATION

To ensure safety during cable installation, following shall be checked prior to installation.

1. The cable selected is proper for designed application.
2. The cable has not been damaged in transit or storage.

Review all applicable state and national codes to verify that the cable chosen is appropriate for the job. Also consult your local electricity authority. Next, you must identify any existing cable damage and prevent any further damaged from occurring. This is done through proper cable inspection, handling and storage.

HANDLING, STORAGE AND LAYING OF CABLES

F. RECOMMENDED SAFE PULLING FORCE WHENPULLED WITH PULLING EYE:

- a) For Aluminum Conductors : 30 N/mm2
- b) For Copper Conductor :50 N/mm2

G. RECOMMENDED SAFE PULLING FORCE WITH STOCKINGS:

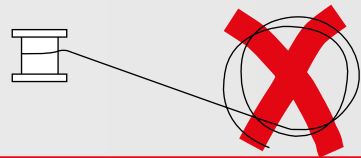
- a) For Unarmoured Cable : $P=5 D^2$
Where P= Pulling Force
- b) For Armoured Cable : $P=9 D^2$
Where D= Diameter of cable inmm

SPECIAL PRECAUTIONS FOR HANDLING / INSTALLATION OFLOW SMOKE SHEATHED CABLES

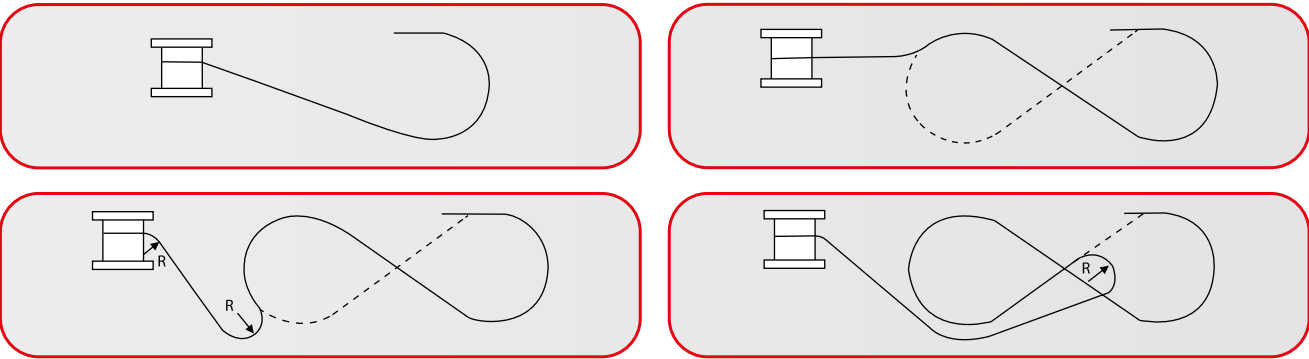
Cables like LSF sheath needs to be handled with care during installation. While special additives are used in formulation of LSF compound to give the typical flame retardant characteristics of Zero Halogen Polymers some me-
chanical properties deteriorate. The following basic precautions are necessary.
Cables should not be exposed to sunlight for consider able period before installation i.e. the temp of
cables sheath should be below 45°C.
Preferably installation is done during morning hours when the ambient temperature is low.
Wire/ropes should not be used directly on the cable sheath for pulling.
When pulled on cable trays/or any uneven surface, special attentions is needed to welding or unusually
rough terrains.
Rollers and bends should not have any sharpness which may damage sheath.

NOTE

DO NOT ATTEMPT "COILING" OF CABLE ON THE GROUND



ON THE GROUND CABLE CAN BE FLAKED IN A FIGURE OF EIGHT FORMATION



Note: R Minimum Permissible bending radius of
cable.

QD 06/01

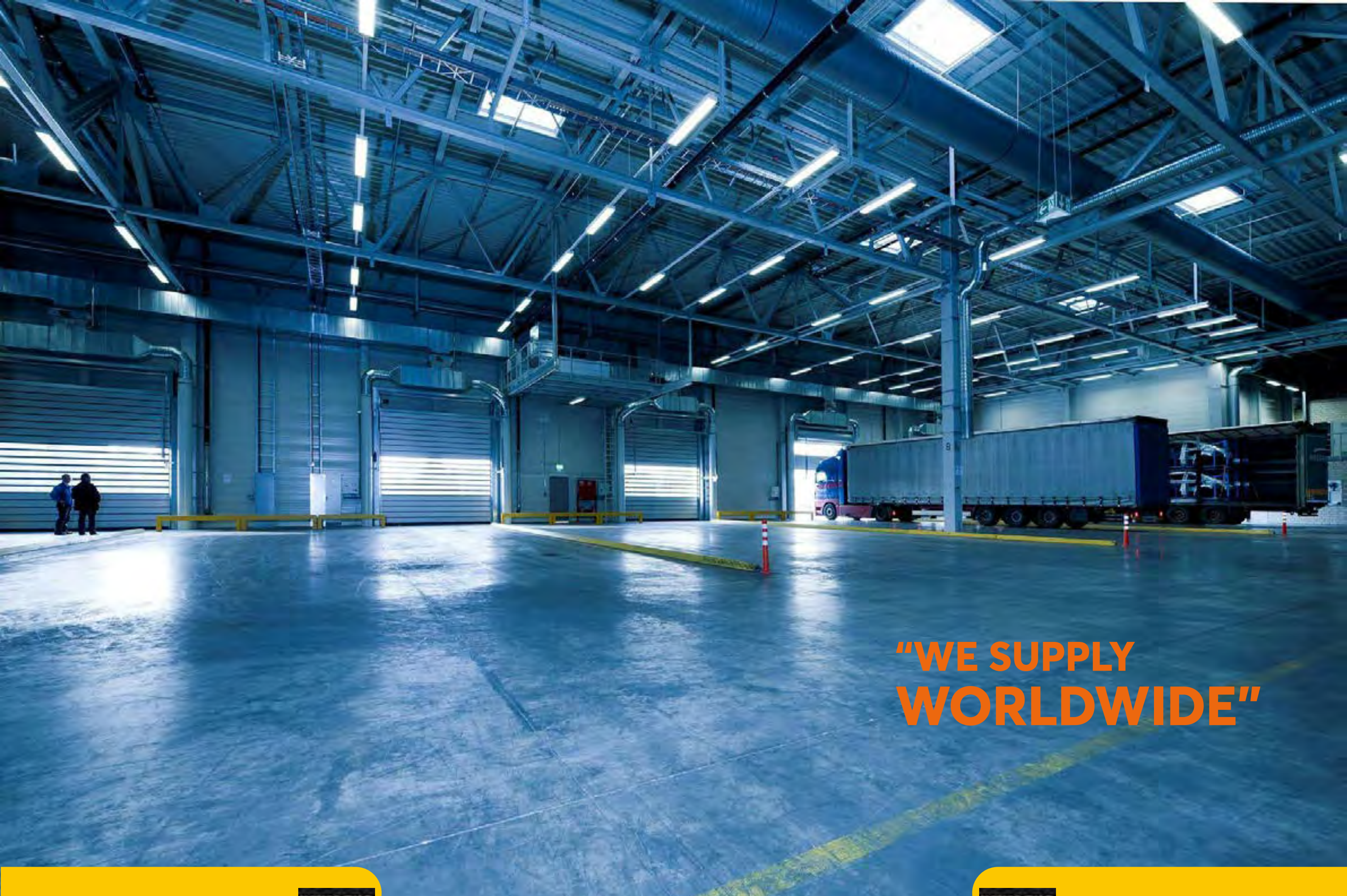
Edited by RAMCRO S.p.A. on January
2023



Note: Information subject to confirmation



Note: Information subject to confirmation



**"WE SUPPLY
WORLDWIDE"**





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