



Cable Solutions for  
**BUILDING  
MANAGEMENT SYSTEMS**

Product Catalogue

Issue 3

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We value our relationships with long term approved suppliers. We not only run a strict Quality Assessment Process, but we also provide 100% pre-shipment inspections. To ensure that everything we do is to international industry standards we regularly invite Third Party experts to test our products and processes. By adopting a continuous improvement philosophy across our entire business and supply chain, it ensures that our customers can continue to rely upon superior quality optical fibre cables & systems and copper cabling products at every order. Certification Selsor optical fibre cabling & systems and copper cables meet the industry standards for RoHS, ISO 9001, LPCB, UL and CE marks.

### Selsor warranty

Our commitment is to take full responsibility regarding the performance of our products and we assure our customers that; if shipped and installed to the applicable standards and codes of practice, our cables will meet all requirements of the compatible equipment and devices. In coherence, Selsor guarantee that our optical fibre, copper cables and systems, or parts thereof, to be free from defects in manufacturing. We extend a product warranty period of 24 months throughout the entire range. For optical fibre cabling systems and structured copper cabling systems, when the entire network consists of Selsor components, is installed to industry standards and final test results are submitted to your local Selsor contact, then a performance warranty of 25 years is provided. Most importantly, we guarantee that our cables will meet or exceed the performance specified in our technical data sheets – "WE DO WHAT WE SAY".

Upon failure to meet the performance specification due to manufacturing default, we will guarantee replacement, at no cost to the customer.

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# SECTION - 1

## PAIRED CABLES



## SECTION - 1

# PAIRED CABLES

### PVC or HFFR sheathed cables for BUS and Interface systems

#### 1. Application

RS-232, RS-422, RS-485, KNX(EIB)-bus, LonWorks, ModBus, M-Bus, CAN-bus, BACnet or general interface systems.

#### 2. Basic Construction of the cables

**Wire** = Conductor with or without insulation. When with insulation sometimes also indicated as core.

**Conductor:** solid = one single rod, flexible = twisted bare or tinned copper strands, ranging from 12 to 24 AWG.

Conductor (AWG)	Configuration (n x AWG)	Configuration (n x mm)	DC Resistance (Ohm/km)
24	7 x 32	7 x 0.20	≤ 88
22	7 x 30	7 x 0.25	≤ 57.4
20	7 x 28	7 x 0.32	≤ 35.75
18	7 x 26	7 x 0.40	≤ 22.7
16	19 x 29	19 x 0.28	≤ 15.47
14	19 x 27	19 x 0.36	≤ 9.36
12	19 x 25	19 x 0.45	≤ 5.61

n = number of wires in strand

**Insulation:** Polyethylene (PE) or Foam PE (FPE) depending on the sheath material. All insulations are in accordance with BS EN 50290-2, good strippability and coloured. The colours are readily identifiable and are not interchangeable.

**Pair** = two twisted – colour coded – wires.

**Individually screened pair** (if applicable): one pair wrapped with an Aluminium/Polyester drain wire under the foil.

**Cable core:** two or more (individually screened) pairs stranded.  
Good twisting (lay-length < 30 – 40D) is necessary to ensure flexibility and avoid breaking conductors.

**Drain wire** (only in combination with a screen): stranded tinned copper wires. In order to avoid corrosion, it is recommended that drain wires are tinned.

**Screen** (if applicable): Helically applied (= as a spiral) Aluminium/Polyester (Alpet) foil. For the flexibility of a cable a helically applied foil is preferred as longitudinally applied foil is more difficult to bend.

**Braiding** (if applicable): tinned copper wires.

**Sheath:** grey PVC or purple HRRF, both in accordance with BS EN 50290-2

Cable Configuration	Cable Retardancy	Low Smoke	Halogen-free (non acid, non toxic)	RoHS compliant
PE, FPE or PVC insulation and PVC Sheath	according to IEC 60332-1	No	No	Yes
PE, FPE or HFFR insulation and HFFR sheath	according to IEC 60332-3-24	according to IEC 61034-1-2	according to IEC 60754-1& 2	Yes

**Operating temperature range:** -25 to +75 °C

**Rated Voltage:** 300 Vrms

## SECTION - 1

# PAIRED CABLES

**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.

**Selsor main part numbers for RS-485 see section 1.1**

**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.

**Selsor main part numbers for RS-422: see section 1.2**

**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.

**Selsor main part numbers for RS-232: see section 1.3**

**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), BatiBUS, and the European Installation Bus (EIB or Instabus).

**Selsor main part numbers for KNX cables: J3401 (quad – PVC) – J3402 (quad – HFFR) – J3403 (1 pair – PVC) – J3404 (1 pair – HFFR).**

**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.

**Selsor main part numbers for LonWorks: J3534 (PVC) - J3524 (PVC) – J3535 (HFFR) – J3525 (HFFR) – J3421 (HFFR) – J3422 (HFFR) – J3423 (HFFR) and J3424 (HFFR).**

**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.

**Selsor main part numbers for Modbus: J3464 (PVC) - J3521 (PVC) – J3465 (HFFR) – J3522 (HFFR).**

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

**Selsor main part number for M-bus: J2225 – J3521.**

**Controller–area network (CAN or CAN-bus)** is a vehicle bus standard designed specifically for automotive applications but now also used in other areas such as industrial automation and medical equipment. CAN bus utilize TIA/EIA-485 cables.

**Selsor main part numbers for CAN-bus: J3111 – J3011 – J3021 – J3031– J3041 – J3121 – J3131 – J3141 and HFFR cables J3012 – J3022 – J3032 – J3042.**

**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.**

**Selsor main part numbers for BACnet: J2111 (PVC) – J3011 (PVC) – J3021 (PVC) - J3012 (HFFR) and J3022 (HFFR).**

Non-standard cable constructions, colours, details and/or additional information are available on request. For more details, please see the respective detailed datasheet(s).

Please note that technical specifications are subject to change without notice.

SECTION - 1.1

**PAIRED CABLES, DUAL OVERALL SCREEN**

**24AWG and 22AWG conductors – PE or FPE insulation – PVC or HFFR sheath for TIA/EIA-485 = RS-485 applications**

Product Description

<b>1. Conductor</b> Flexible Tinned Copper	<b>5. Screen (if applicable)</b> Aluminium/Polyester > 100% Coverage	<b>Standard References</b> TIA/EIA 485 BS EN 50290-2 IEC 60332-1 (PVC sheath) or IEC 60332-3C and IEC 61034 (only HFFR cable) IEC 60754-1 & 2 (HFFR cable) RoHS directives
<b>2. Insulation</b> Polyethylene (PE)	<b>6. Braiding</b> Tinned Copper (TC) wires	
<b>3. Pair</b> Two twisted wires impedance 120 Ω	<b>7. Sheath Material</b> Grey PVC or Purple HFFR	
<b>4. Tinned Copper Drain Wire</b> 24AWG (7 x 32)	<b>Standard Put Up Length</b> 305 or 500 metres	

Cables with 24AWG conductors – PE insulation - PVC sheath

Sensor Part Number	No. of Pairs	Coverage Braiding (%)	Overall Diameter (mm)	Mutual Capacitance (pF/m)	Weight (kg/km)
J3011	1	90	5.9	41	49
J3021	2		8.5		80.5
J3031	3		9.0		92.6
J3041	4		9.9		114.4

Cables with 24AWG conductors – PE insulation - Halogen-free (HFFR) sheath

Sensor Part Number	No. of Pairs	Coverage Braiding (%)	Overall Diameter (mm)	Mutual Capacitance (pF/m)	Weight (kg/km)
J3012	1	90	5.9	41	49
J3022	2		8.5		80.5
J3032	3		9.0	42	92.6
J3042	4		9.9		114.4

Cables with 22AWG conductors – Foam PE insulation - PVC sheath

Sensor Part Number	No. of Pairs	Coverage Braiding (%)	Overall Diameter (mm)	Mutual Capacitance (pF/m)	Weight (kg/km)
J3111	1	65	6.1	36	63.7
J3121	2		9.1	37	75.6
J3131	3		10.5	38	97
J3141	4		11.4	38	119.1

Cables with 22AWG conductors – Foam PE insulation - HFFR sheath

Sensor Part Number	No. of Pairs	Coverage Braiding (%)	Overall Diameter (mm)	Mutual Capacitance (pF/m)	Weight (kg/km)
J3112	1	65	6.1	36	63.7
J3122	2		9.1	37	75.6
J3132	3		10.5	38	97
J3142	4		11.4	38	119.1

Colour scheme

Colour scheme	Pair 1	Pair 2	Pair 3	Pair 4
Wire a (insulation colour / colour of stripe)	WHITE / blue	WHITE / orange	WHITE / green	WHITE / brown
Wire b (insulation colour / colour of stripe)	BLUE / white	ORANGE / white	GREEN / white	BROWN / white



SECTION 1.2

**PAIRED CABLES**



**2 to 6 pairs with 24AWG conductors – FPE insulation – PVC sheath for RS-422 applications**

Product Description

<b>1. Conductor</b> Flexible Tinned Copper	<b>5. Screen (if applicable)</b> Aluminium/Polyester > Wrapped around each Pair >115% Coverage	<b>Standard References</b> ANSI/TIA/EIA-422-B BS EN 50290-2 IEC 60332-1 Rohs directives
<b>2. Insulation</b> Foam Polyethylene (FPE)	<b>6. Cable Core</b> 2 or more individually screened pairs stranded	
<b>3. Pair</b> Two twisted wires	<b>7. Sheath Material</b> Grey PVC	
<b>4. Drain Wire</b> Flexible Tinned Copper	<b>Standard Put Up Length</b> 305 or 500 metres	

Cables with 24AWG conductors – PE insulation - PVC sheath

Selsor Part Number	No. of Pairs	Conductor and Drain Wire (AWG)	No. of Strands x AWG	Nominal Overall Diameter (mm)	Max. DC Conductor Resistance ( $\Omega$ /km)	Capacitance (pF/m)	Nominal Impedance (Ohm)	Weight (kg/km)
J3202	2	24	7 x 32	6.7	88	41	100	41.8
J3203	3		7 x 32	8.4				59.4
J3204	4		7 x 32	9.2				75.5
J3206	6		7 x 32	10.6				104.8

Colour scheme

Pair Number	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6
Wire a	Black	Black	Black	Black	Black	Black
Wire b	Red	White	Green	Blue	Yellow	Brown

For more details, please see the respective detailed datasheet(s)



## SECTION 1.3

# PAIRED CABLES

### 1 to 8 pairs with 24AWG conductors – PVC insulation – PVC sheath for TIA/EIA-232 = RS-232 applications

#### Product Description

<b>1. Conductor</b> Flexible Tinned Copper 24AWG (7x32)	<b>5. Tinned Copper Drain Wire</b> 24AWG (7 x 32)	<b>Standard References</b> ANSI/TIA/EIA-232-F BS EN 50290-2 IEC 60332-1 RoHS directives
<b>2. Insulation</b> PVC	<b>6. Screen</b> Aluminium/Polyester > 115% Coverage	
<b>3. Pair</b> Two twisted wires	<b>7. Sheath Material</b> Grey PVC	
<b>4. Cable Core</b> 2 or more pairs stranded	<b>Standard Put Up Length</b> 305 or 500 metres	

#### Cables with 24AWG conductors - PVC insulation - PVC sheath - PVC sheath

Sensor Part Number	No. of Pairs	Conductor and Drain Wire (AWG)	No. of Strands x AWG	Nominal Overall Diameter (mm)	Max. DC Conductor Resistance ( $\Omega$ /km)	Capacitance (pF/m)	Nominal Impedance ( $\Omega$ m)	Weight (kg/km)
J3301	1	24	7 x 32	4.0	88	76	75	18
J3302	2		7 x 32	5.6				28
J3303	3		7 x 32	5.9				39
J3304	4		7 x 32	6.7				48
J3305	5		7 x 32	7.3				57
J3306	6		7 x 32	7.4				65
J3307	7		7 x 32	7.5				73
J3308	8		7 x 32	8.3				85

#### Colour scheme

Pair Number	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6	Pair 7	Pair 8
Wire a	Black	Black	Black	Black	Black	Black	Black	Red
Wire b	Red	White	Green	Blue	Yellow	Brown	Orange	White

For more details, please see the respective detailed datasheet(s)

SECTION 1.4

**PAIRED CABLES**

**0.8 mm solid bare copper conductors – PE insulation – PVC or HFFR sheath for KNX (was EIB) or general bus applications**

Product Description

<p><b>1. Conductor</b> Solid Bare Copper 0.8 mm = 0.5 mm<sup>2</sup></p>	<p><b>5. Drain Wire</b> 0.4 mm Tinned Copper</p>	<p><b>Standard References</b> EN 50090 BS EN 50290-2 IEC 60332-1 (PVC sheath) or IEC 60332-3C (HFFR cable) IEC 61034 (only HFFR cable) IEC 60754-1 &amp; 2 (HFFR cable) RoHS directives</p>
<p><b>2. Insulation</b> Polyethylene (PE) (Black-Red-White-Green)</p>	<p><b>6. Screen</b> Aluminium/Polyester Foil &gt; 100% Coverage</p>	
<p><b>3. Cable Core</b> Quad or Pair</p>	<p><b>7. Sheath Material</b> Green PVC or Green HFFR</p>	
<p><b>4. Polyester Foil or Tape</b></p>	<p><b>Standard Put Up Length</b> 305 or 500 metres</p>	

Cables with 0.8 mm conductors - PE insulation - PVC or HFFR sheath

Selsor Part Number	No. of Pairs	Lay-Up	Sheath Material	Diameter Insulation (mm)	Overall Diameter (mm)	Max. DC Conductor Resistance (Ω/km)	Capacitance (pF/m)	Weight (kg/km)
J3401	1 x 4	quad	PVC	1.45	6.1	37	≤ 100	51
J3402			HFFR	1.45	6.1			53
J3403	1 x 2	pair	PVC	1.45	5.5			37
J3404			HFFR	1.45	5.5			39

Colour scheme

Pair Number	Wire a	Wire b	Wire c	Wire d
J3401	Black	White	Red	Green
J3402				
J3403			-	-
J3404				

For more details, please see the respective detailed datasheet(s)



SECTION 1.5

**PAIRED CABLES, INDIVIDUALLY SCREENED PAIRS**

**0.64 mm solid bare copper conductors one or two individually screened pairs or pairs with no screen – HFFR sheath for LonWorks bus applications**

Product Description

<p><b>1. Conductor</b> Solid Bare Copper 0.64 mm = 0.32 mm<sup>2</sup></p>	<p><b>4. Tinned Copper Drain Wire</b> two twisted wires plus drain wire wrapped with an Aluminium coated polyester foil</p>	<p><b>Standard References</b> EN 50090 BS EN 50290-2 IEC 60332-3C IEC 61034 IEC 60754-1 &amp; 2 RoHS directives</p>
<p><b>2. Insulation</b> Polyethylene (PE) or Foam Polyethylene (FPE)</p>	<p><b>5. Cable core</b> one pair or two pairs stranded</p>	
<p><b>3. Pairs with no screen</b> Two twisted wires</p>	<p><b>7. Sheath Material</b> Purple HFFR</p>	
<p><b>Standard Put Up Length</b> 305 or 500 metres</p>		

Cables with 0.64 mm conductor(s) - PE or FPE insulation - HFFR sheath

Sensor Part Number	No. of Pairs	Insulation Material	Individually Screened Pairs	Normal Overall Diameter (mm)	Max. DC Conductor Resistance (Ω/km)	Capacitance (pF/m)	Weight (kg/km)
J3421	1	PE	No	3.5	61	46	17.1
J3422	2			5.2			27.1
J3423	1		Yes	4.6			24.2
J3424	2			7.6			56.1



SECTION 1.6

**PAIRED CABLES, INDIVIDUALLY SCREENED PAIRS**



**2 to 6 pairs with 22AWG conductors – PE insulation + PVC sheath or HFFR insulation + HFFR sheath for general interface applications**

Product Description

<p><b>1. Conductor</b> Flexible Tinned Copper 22AWG(7 x 30)</p>	<p><b>5. Screen</b> Aluminium/Polyester foil wrapped around each pair &gt; 115% Coverage</p>	<p><b>Standard References</b> BS EN 50290-2 IEC 60332-1 (PVC sheath) or IEC 60332-3C (HFFR cable) IEC 61034 (HFFR cable) IEC 60754-1 &amp; 2 (HFFR cable) RoHS directives</p>
<p><b>2. Insulation</b> Polyethylene (PE) or Halogen-free (HFFR)</p>	<p><b>6. Cable Core</b> 2 or more individually screened pairs stranded</p>	
<p><b>3. Pair</b> Two twisted wires</p>	<p><b>7. Sheath Material</b> Grey PVC or Purple HFFR</p>	
<p><b>4. Tinned Copper Drain Wire</b> 24AWG (7 x 32)</p>	<p><b>Standard Put Up Length</b> 305 or 500 metres</p>	

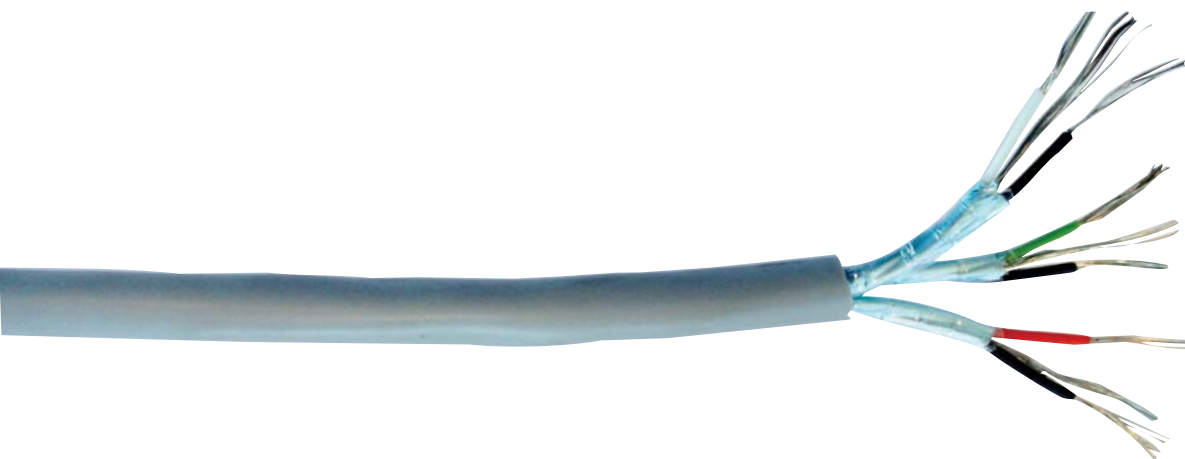
Cables with 22AWG conductors - PE or HFFR insulation - PVC or HFFR sheath

Selsor Part Number	No. of Pairs	Insulation Material	Sheath Material	Overall Diameter (mm)	Max. DC Conductor Resistance (Ω/km)	Capacitance (pF/m)	Weight (kg/km)
J3461	2	PE	PVC	6.0	57.4	90	49.9
J3462		HFFR	HFFR	6.5		90	50.8
J3464	3	PE	PVC	6.5		98	52.7
J3465		HFFR	HFFR	7.5		92	67.4
J3473	6	PE	PVC	8.9		99	104.2
J3474		HFFR	HFFR	9.5		92	115.6

Colour scheme

Part Number	Pair 1	Pair 2	Pair 3	Pair 4	Pair 5	Pair 6
J3461 and J3462	Black / Red	Green / White	-	-	-	-
J3464 and J3465		Black / White	Black / Green	-	-	-
J3473 and J3474		-	-	Black / Blue	Black / Yellow	Black / Brown

For more details, please see the respective detailed datasheet(s)



## SECTION 1.7 PAIRED CABLES

### One pair cables with 22 to 12AWG conductors; PE insulation – PVC sheath or HFFR insulation – HFFR sheath for general interface applications

#### Product Description

<b>1. Conductor</b> Flexible Tinned Copper	<b>5. Screen (if applicable)</b> Aluminium/Polyester > 115% Coverage	<b>Standard References</b> BS EN 50290-2 IEC 60332-1 (PVC sheath) IEC 60332-3c (HFFR cable) IEC 61034 (HFFR cable) IEC 60754-1 & 2 (HFFR cable) RoHS directives
<b>2. Insulation</b> Polyethylene (PE) or Halogen-free (HFFR)	<b>6. Sheath Material</b> Grey PVC or Purple HFFR	
<b>3. Pair</b> Two wires twisted	<b>Standard Put Up Length</b> 305 or 500 metres	
<b>4. Tinned Copper Drain Wire (only with screen)</b> 24AWG (7 x 32)		

#### DC Resistance 24 to 12AWG conductors

Conductor size	AWG	22	20	18	16	14	12	24
No. of strands x gauge	n x AWG	7 x 30	7 x 28	7 x 26	19 x 29	19 x 27	19 x 25	7 x 32
No. of strands x mm	n x mm	7 x 0.25	7 x 0.325	7 x 0.40	19 x 0.29	19 x 0.38	19 x 0.48	7 x 0.20
Max. DC Resistance conductor	Ω/km	57.4	35.75	22.7	15.47	9.36	5.61	88

n = number of wires in strand

#### One pair screened cables with PE insulation, PVC sheath

Sensor Part Number	Conductor (AWG)	Overall Diameter (mm)	Capacitance (pF/m)	Weight (kg/km)
J3501	22	4.4	75	25
J3511	20	5.0		36.4
J3521	18	5.6		43.2
J3531	16	7.9	60	75.7
J3541	14	9.0	76	104.9
J3551	12	10.2	77	124.7

#### One pair screened cables with HFFR insulation and HFFR sheath

Sensor Part Number	Conductor (AWG)	Overall Diameter (mm)	Capacitance (pF/m)	Weight (kg/km)
J3502	22	4.5	140	27.1
J3512	20	5.3	120	37.2
J3522	18	6.0		48.4
J3532	16	7.8	110	74.3
J3542	14	8.8		97.9
J3552	12	9.9		132.6

#### One pair unscreened cables with PVC insulation and PVC sheath

Sensor Part Number	Conductor (AWG)	Overall Diameter (mm)	Capacitance (pF/m)	Weight (kg/km)
J3504	22	4.0	70	19.5
J3514	20	4.3		23
J3524	18	5.1		38.6
J3534	16	6.9	50	63.3
J3544	14	8.6	108	91.8
J3554	12	9.8	115	115

#### One pair unscreened cables with HFFR insulation and HFFR sheath

Sensor Part Number	Conductor (AWG)	Overall Diameter (mm)	Capacitance (pF/m)	Weight (kg/km)
J3505	22	4.4	85	24.7
J3515	20	5.2	80	34.7
J3525	18	5.9		45.9
J3535	16	7.7	75	71.8
J3545	14	8.7		95.3
J3555	12	9.8		128.2

For more details, please see the respective detailed datasheet(s)



## SECTION - 2

# MULTI-CONDUCTOR CABLES



## SECTION - 2

# MULTI-CONDUCTOR CABLES

### Application and Construction

#### 1. Application

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

#### 2. Basic Construction of the cables

**Wire** = Conductor with or without insulation. When with insulation sometimes also indicated as core.

**Conductor:** flexible = twisted bare or tinned copper strands, ranging from 12 to 22AWG.

Conductor (AWG)	Configuration (n x AWG)	Configuration (n x mm)	DC Resistance (Ohm/km)
22	7 x 30	7 x 0.25	≤ 57.4
20	7 x 28	7 x 0.32	≤ 35.75
18	7 x 26	7 x 0.40	≤ 22.7
16	19 x 29	19 x 0.28	≤ 15.47
14	19 x 27	19 x 0.36	≤ 9.36
12	19 x 25	19 x 0.45	≤ 5.61

n = number of wires in strand

**Insulation:** Polypropylene (PP) for PVC (Polyvinyl Chloride) sheathed cables and Halogen-Free (HFFR) for HFFR sheathed cables. Both insulations are in accordance with BS EN 50290-2. Good strippability and coloured insulation. The colours are readily identifiable and are not interchangeable.

#### Colour scheme of wires with 12 or 14AWG conductors:

black-white-red-green-brown-blue-orange-yellow-purple-grey-pink-tan.

#### Colour scheme of wires with ≥ 16AWG conductors:

black-red-white-green-brown-blue-orange-yellow-purple-grey-pink-tan.

**Cable core:** two or more wires, twisted. Good twisting (lay-length < 30 – 40D) is necessary to ensure flexibility and avoid breaking conductors.

**Drain wire** (only in combination with a screen): stranded tinned copper wires. In order to avoid corrosion, it is recommended that drain wires are tinned.

**Screen** (if applicable): Helically applied (= as a spiral) Aluminium/Polyester (Alpet) foil. For the flexibility of a cable a helically applied foil is preferred as longitudinally applied foil is more difficult to bend.

**Sheath:** grey PVC or purple HFFR or black UV-resistant HFFR, all in accordance with BS EN 50290-2.

Cable Configuration	Cables with PVC sheath	Halogen-Free cables
Insulation	PP acc. to BS EN 50290-2	HFFR acc. to BS EN 50290-2
Sheath	HFFR acc. to BS EN 50290-2	
Retardancy	Flame Retardant	Fire Retardant
Retardant acc. to	IEC 60332-1 / UL1581	IEC 60332-3-24 / UL1685
Low Smoke emission acc. to	Not Applicable	IEC 61034
Halogen-Free acc. to	Not Applicable	IEC 60754
RoHS compliant	Yes	Yes

**Operating temperature range:** -25 to +75 °C

**Rated Voltage:** 300 Vrms

Non-standard cable constructions, colours, details and/or additional information are available on request.

For more details, please see the respective detailed datasheet(s).

Please note that technical specifications are subject to change without notice.



SECTION - 2.1

**MULTI-CONDUCTOR CABLES**



**PVC sheathed cables with 22AWG to 12AWG conductors for Audio, Control, Instrumentation and Building Management Systems (BMS)**

Product Description

<b>1. Conductor</b> Stranded Bare Copper	<b>4. Drain Wire</b> (only with screen) 24AWG (7 x 32) Tinned Copper	<b>Standard Put Up Length</b> 305 or 500 metres
<b>2. Insulation</b> Polypropylene (PP)	<b>5. Screen (if applicable)</b> Aluminium/Polyester > 100% Coverage	<b>Standard References</b> BS EN 50290-2 IEC 60332-1 RoHS directives
<b>3. Cable core</b> Two or more wires stranded	<b>7. Sheath Material</b> Grey PVC	

No. of wires	Conductor (AWG)	Screened			Unscreened		
		Selsor Part Number	Diameter (mm)	Weight (kg/km)	Selsor Part Number	Diameter (mm)	Weight (kg/km)
2	22	J2101	3.3	16.5	J2105	3.3	14.6
3		J2111	3.5	21.4	J2115	3.5	19.7
4		J2121	3.8	26.0	J2125	3.8	23.9
6		J2141	4.5	35.7	J2145	4.5	33.6
8		J2161	4.9	45.1	J2165	4.9	43
2	20	J2221	3.5	22.0	J2225	3.4	19.7
3		J2231	3.7	28.5	J2235	3.6	26.2
4		J2241	4.1	35.4	J2245	4.0	33.1
6		J2261	5.0	49.9	J2265	4.9	47.9
8		J2281	5.4	62.9	J2285	5.3	60.6
2	18	J2301	4.0	29.6	J2305	3.9	27.3
3		J2311	4.2	39.2	J2315	4.1	36.9
4		J2321	4.6	49.4	J2325	4.55	47.2
6		J2341	5.75	70.9	J2345	5.7	68.2
8		J2361	6.0	89.5	J2365	5.9	87
2	16	J2421	4.6	37.3	J2425	4.5	35
3		J2431	4.9	50.0	J2435	4.75	47.7
4		J2441	5.3	63.5	J2445	5.25	61.1
6		J2461	6.8	91.6	J2465	6.7	89
8		J2481	7.6	120.8	J2485	7.5	118.1
2	14	J2541	6.0	57.0	J2545	5.75	53.3
3		J2551	6.5	77.9	J2555	6.35	72.5
4		J2561	6.9	102.5	J2565	6.75	97.1
6		J2581	8.6	151.0	J2585	8.4	148.2
8		J2601	9.8	197.3	J2605	9.7	194.5
2	12	J2661	6.9	85.7	J2665	6.7	79.8
3		J2671	7.4	118.1	J2675	7.2	112.1
4		J2681	8.2	151.1	J2685	8.0	145.3
6		J2701	9.8	215.5	J2705	9.6	209.7
8		J2721	10.7	279.5	J2725	10.5	273.7

For more details, please see the respective detailed datasheet(s)



SECTION - 2.2

# MULTI-CONDUCTOR CABLES

## Halogen-Free (HFFR) cables with 22AWG to 12AWG conductors for Audio, Control, Instrumentation and Building Management Systems (BMS)

Product Description

<b>1. Conductor</b> Stranded Bare Copper	<b>4. Screen (if applicable)</b> Aluminium/Polyester > 100% Coverage	<b>Standard Put Up Length</b> 305 or 500 metres
<b>2. Insulation</b> HFFR	<b>5. Ripcord</b>	<b>Standard References</b> BS EN 50290-2 IEC 60332-3C IEC 61034 IEC 60754-1 & 2 RoHS directives
<b>3. Pair</b> (only with screen) 24AWG (7 x 32) Tinned Copper	<b>6. Sheath Material</b> Purple HFFR	

		Screened			Unscreened		
No. of wires	Conductor (AWG)	Sensor Part Number	Diameter (mm)	Weight (kg/km)	Sensor Part Number	Diameter (mm)	Weight (kg/km)
2	22	J2102	3.9	22.4	J2106	3.9	20.5
3		J2112	4.1	27.6	J2116	4.1	26
4		J2122	4.4	33.7	J2126	4.4	31.7
6		J2142	5.2	45.8	J2146	5.2	43.9
8		J2162	5.6	56.4	J2166	5.6	54.4
2	20	J2222	4.7	32.6	J2226	4.6	30.1
3		J2232	4.9	40.2	J2236	4.8	37.7
4		J2242	5.3	48.7	J2246	5.2	46.2
6		J2262	6.2	66.2	J2266	6.1	63.7
8		J2282	6.7	81.9	J2286	6.6	79.4
2	18	J2302	5.1	41	J2306	5	38.5
3		J2312	5.4	52.3	J2316	5.3	49.8
4		J2322	5.8	64.1	J2326	5.7	61.6
6		J2342	6.8	88.6	J2346	6.7	86.1
8		J2362	7.3	110.8	J2366	7.2	108.2
2	16	J2422	5.4	49.3	J2426	5.4	46.8
3		J2432	5.7	63.8	J2436	5.7	61.3
4		J2442	6.2	79.3	J2446	6.2	78.2
6		J2462	7.3	108.2	J2466	7.3	107
8		J2482	7.9	137	J2486	7.9	135.9
2	14	J2542	6.5	67.7	J2546	6.4	65.2
3		J2552	6.9	92.8	J2556	6.8	89.1
4		J2562	7.5	115.4	J2566	7.4	112.9
6		J2582	8.9	163.7	J2586	8.8	162.8
8		J2602	9.6	210.8	J2606	9.5	208.3
2	12	J2662	7.7	102.2	J2666	7.5	97
3		J2672	8.1	135	J2676	7.9	129.7
4		J2682	8.9	170.9	J2686	8.7	165.7
6		J2702	10.6	243.3	J2706	10.4	237.1
8		J2722	11.6	314.6	J2726	11.4	306.2

For more details, please see the respective detailed datasheet(s)



## SECTION - 3

# FIRE DETECTION AND ALARM SYSTEM CABLES



## SECTION - 5

# COAX CABLES



## SECTION - 5

# COAX CABLES

### Application and Construction of Coax Cables for 75 Ohm Video Systems

#### Applications.

**CCTV:** Closed Circuit Television uses video cameras to transmit a signal to a specific place, on a limited set of monitors

**SMATV:** Satellite Master Antenna Television used to deliver signals to multiple dwelling units (e.g., apartment buildings and trailer parks).

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

**HDTV:** High-definition television refers to video having resolution substantially higher than traditional television systems.

**Telecom and networking:** a number of special cable constructions.

#### Basic Cable Design.

Coaxial cables are designed to carry radio frequency signals of a much higher frequency than the 50 or 60 Hz used in low voltage cables. This requires special construction to prevent power losses. If an ordinary wire is used to carry high frequency signals, the wire acts as an antenna, and the high frequency signals radiate off the wire as radio waves, causing power losses. To prevent this, in coaxial cable one of the conductors is formed into a tube and encloses the other conductor. This confines the radio waves from the central conductor to the space inside the tube. To prevent the outer conductor, or shield, from radiating, it is connected to electrical ground, keeping it at a constant potential.

The dimensions and spacing of the conductors must be uniform throughout the length of the cable. Any abrupt change in the spacing of the two conductors along the cable tends to reflect radio frequency power back toward the source.

This acts as a bottleneck, reducing the amount of power reaching the destination end of the cable.

#### Choosing the correct 75 ohm coax cable.

Most coaxial cables for video applications have a nominal impedance of 75 ohms. Their differing electrical and physical characteristics make it important to select the correct type of cable to suit the application.

Analogue TV	RG59	Acceptable performance on cable runs < 225 metres
	RG6	Gives superior performance on cable runs < 225 metres. Used for cable runs > 225 metres but < 545 metres.
	RG11	For cable runs greater than 545 metres.
CCTV	RG59	Acceptable performance on cable runs < 225 metres
	RG6	Gives for superior performance on cable runs < 225 metres. Used for cable runs > 225 metres but < 545 metres.
	RG11	For cable runs greater than 545 metres.

This table is reference only.

#### Summary of Selsor Part Numbers.

Application	Tested	Speciality	RG-59	RG-6	RG-11
CCTV – PVC sheath	1000 MHz	Solid conductor	J4013	J4113	J4213
CCTV – HFFR sheath	1000 MHz	Solid conductor	J4014	J4114	J4214
CCTV	1000 MHz	Flexible conductor	J4015	J4115	J4215
CATV / SMATV	3000 MHz	Dual screen	J4011	J4111	J4211
CATV / SMATV	3000 MHz	Quad screen	J4012	J4112	J4212
HDTV – PVC sheath	4500 MHz	Dual Screen 95%	J4016	J4116	J4216
HDTV – HFFR sheath	4500 MHz	Dual Screen 95%	J4017	J4117	J4217

**Operating temperature range:** - 25 to +75 °C

**Rated Voltage:** 300 Vrms

Non-standard cable constructions, colours, details and/or additional information are available on request. For more details, please see the respective detailed datasheet(s). Please note that technical specifications are subject to change without notice.

SECTION - 5.1  
**75 OHM COAX CABLES**

**CCTV and Video Applications, sweep tested 1 to 1000 MHz**

**Product Description**

<b>1. Conductor</b> Solid or Flexible Bare Copper	<b>4. Sheath Material</b> Polyvinyl Chloride (PVC) or Halogen-Free (HFFR)	<b>Standard References</b> IEC 61196 BS EN 50117 BS EN 50290-2 IEC 60332-1 (PVC sheath) or IEC 60332-3-24 (HFFR cable) IEC 61034 (only HFFR cable) IEC 60754-1 & 2 (HFFR cable) RoHS directives
<b>2. Dielectric</b> Foamed Polyethylene (FPE)	<b>5. Standard Put Up Length</b> 305 or 500 metres	
<b>3. Braid</b> Bare Copper		

**Physical Characteristics**

Selsor Part Number	RG-Type	Conductor (mm)	Diameter over Dielectric (mm)	Coverage braid (%)	Sheath Material	Overall Diameter (mm)	Weight (kg/km)
J4013	RG-59	0.81	3.71	95	PVC	6.0	47.12
J4014					HFFR		48.5
J4015		19 x 0.18TC			PVC		47.12
J4113	RG-6	1.02	4.60		HFFR	6.8	55.5
J4114					PVC		58.2
J4115		19 x 0.22			PVC		54.66
J4213	RG-11	1.63	7.11	90	HFFR	10.0	115.9
J4214					PVC		120
J4215		190 x 0.34			PVC		115.9

**Electrical and Physical Characteristics (at 20°C)**

Selsor Part Number	RG-Type	Impedance (Ω)	Max. DC Conductor Resistance (Ω/km)	Max. DC Screen Resistance (Ω/km)	Nominal Capacitance (pF/m)	Min. Return Loss 1 to 1000 MHz (dB)
J4013	RG-59	75 ± 3	33.5	10.1	53.5	20
J4014			40			
J4015			21.5			
J4113	RG-6		30	10.8		
J4114			8.8		6.5	
J4115			52.8			
J4213	RG-11	8.8	6.5	52.8		
J4214						
J4215						

**Nominal Attenuation in dB/100m**

MHz	5	10	50	100	200	300	400	450	550	700	750	870	1000
RG-59	1.9	2.95	6.23	8.53	11.81	15.3	16.41	18.92	21.03	22.97	24.8	26.84	27.89
RG-6	1.78	2.36	4.92	6.56	9.51	12.43	13.78	15.14	17.15	18.37	19.73	20.26	21.96
RG-11	0.99	1.51	2.96	4.27	6.23	8.27	9.51	10.31	11.51	13.45	13.95	14.87	17.06

For more details, please see the respective detailed datasheet(s)



## SECTION - 5.2

# 75 OHM COAX CABLES - SWEPT TO 3 GHz

## SMATV - CATV and Video applications, sweep tested 1 to 3000 MHz

### Product Description

<b>1. Conductor</b> Solid Copper Covered Steel (CCS)	<b>4. Braid 1</b> Aluminium	<b>Standard Put Up Length</b> 305 or 500 metres
<b>2. Dielectric</b> Foamed Polyethylene (FPE)	<b>5. Braid 2 (Quad scrn only)</b> Aluminium/Polyester foil 100% coverage	<b>Standard References</b> IEC 61196 BS EN 50117 BS EN 50290-2
<b>3. Screen 1</b> Bonded Aluminium/ Polyester foil 100% coverage	<b>6. Screen 2 (Quad scrn only)</b> Aluminium	IEC 60332-1 RoHS directives
	<b>7. Braid 2 (Quad scrn only)</b> Polyvinyl Chloride (PVC)	

### Physical Characteristics

Sensor Part Number	RG-Type	Conductor (mm)	Diameter over Dielectric (mm)	Type of Screen	Coverage braid (%)	Sheath Material	Overall Diameter (mm)	Weight (kg/km)
J4011	RG-59	0.81	3.71	Dual	54	PVC	6.0	34.42
J4012				Quard	54 + 46		6.73	39.4
J4111	RG-6	1.02	4.60	Dual	60		6.8	41.32
J4112				Quard	60 + 40		7.52	49.5
J4211	RG-11	1.63	7.11	Dual	61		10.0	86.6
J4212				Quard	60 + 40		10.3	90.6

Dual Screen = Screen 1 + Braid 1

Quad Screen = Screen 1 + Braid 1 + Screen 2 + Braid 2

### Electrical and Physical Characteristics (at 20°C)

Sensor Part Number	RG-Type	Impedance (Ω)	Max. DC Conductor Resistance (Ω/km)	Max. DC Screen Resistance (Ω/km)	Nominal Capacitance (pF/m)	Min. Return Loss (dB)		
						< 1000 MHz	< 2000 MHz	< 3000 MHz
J4011	RG-59	75 ± 3	146.5	52	53	20	18	16
J4012				26				
J4111	RG-6		92.2	30				
J4112				17				
J4211	RG-11		36.5	25				
J4212				12				

### Nominal Attenuation in dB/100m

MHz	5	10	50	100	200	400	550	870	1250	1750	2150	2500	3000
RG-59	2.92	3.45	5.40	8.21	12.56	16.01	19.36	24.74	30.62	36.71	40.82	44.72	48.64
RG-6	2.2	2.48	5.15	6.6	9.56	13.12	15.45	19.69	24.25	29.26	32.88	35.88	39.83
RG-11	1.25	2.03	3.75	5.01	6.85	7.05	9.65	12.6	16.66	20.28	22.93	25.12	28.08

For more details, please see the respective detailed datasheet(s)



### HDTV and HD Video applications, sweep tested 1 to 4500 MHz

#### Product Description

<b>1. Conductor</b> Solid Bare Copper	<b>4. Braid</b> Tinned Copper	<b>Standard References</b> IEC 61196 BS EN 50117 BS EN 50290-2 IEC 60332-1(PVC sheath) or IEC 60332-3C (HFFR cable) IEC 61034 (HFFR cable) IEC 60754-1 & 2 (HFFR cable) RoHS directives
<b>2. Dielectric</b> Foamed Polyethylene	<b>5. Sheath Material</b> Polyvinyl Chloride (PVC) or Halogen-free (HFFR) Colour: Orange	
<b>3. Screen</b> Bonded Aluminium/ Polyester foil 100% coverage	<b>Standard Put Up Length</b> 305 or 500 metres	

#### Physical Characteristics

Selsor Part Number	RG-Type	Conductor (mm)	Diameter over Dielectric (mm)	Coverage braid (%)	Sheath Material	Overall Diameter (mm)	Weight (kg/km)
J4016	RG-59	0.81	3.71	95	PVC	6.0	46.72
J4017					HFFR		48.2
J4116	RG-6	1.02	4.60		PVC	6.8	56.2
J4117					HFFR		59
J4216	RG-11	1.63	7.11		PVC	10.0	114.5
J4217					HFFR		117

#### Electrical and Physical Characteristics (at 20°C)

Selsor Part Number	RG-Type	Impedance (Ω)	Max. DC Conductor Resistance (Ω/km)	Max. DC Screen Resistance (Ω/km)	Nominal Capacitance (pF/m)	Min. Return Loss (dB)			
						< 1000 MHz	< 2000 MHz	< 3000 MHz	< 4500 MHz
J4016	RG-59	75 ± 3	33.5	12.5	53	23	22	16	15
J4017									
J4116	RG-6		21.5	10.6	53				
J4117									
J4216	RG-11		8.8	6.6	53				
J4217									

#### Nominal Attenuation in dB/100m

MHz	1	5	10	50	100	300	550	750	1000	2000	3000	4500
RG-59	0.98	2.07	2.95	6.23	7.55	13.68	18.83	22.23	25.96	38.24	46.13	56.50
RG-6	0.79	1.71	2.33	4.57	6.40	11.96	15.76	18.05	21.36	31.44	39.76	50.46
RG-11	0.53	1.12	1.51	2.96	4.20	7.49	10.41	12.38	14.57	21.84	27.93	35.98

For more details, please see the respective detailed datasheet(s)







## SECTION - 6

# CATEGORY LAN CABLES

