

SPELLMAN HIGH VOLTAGE STANDARD PRODUCT HIGH VOLTAGE CONNECTOR/CABLE TABULATION AND DATA SHEETS Rev3

Below is a listing of Spellman High Voltage standard products, the various output voltage groupings and the high voltage connector and/or high voltage cable used. After the listing are the manufacturers data sheets from the various high voltage cables used.

Type	Model	kV Grouping / HV Connector (HV Cable)
Module	MS	300V, 500V, 750V, 1kV, 1.5kV, 2kV, 2.5kV, 3kV / Solder pin only
Module	PMT	500V, 1kV, 2kV, 3kV, 5kV, 7.5kV / Fly wire only (RG59)
Module	UM	62.5V, 125V, 250V, 500V, 1kV, 2kV, 4kV, 6kV/ Solder pin only
Module	UM8-40	8kV, 10kV, 12kV, 15kV / Fly wire only (TV20)
Module	UM8-40	20kV, 25kV / Fly wire only (TV30)
Module	UM8-40	30kV, 35kV, 40kV / Fly wire only (TV40)
Module	MPS	1kV, 2kV, 2.5kV, 3kV, 5kV / Fly wire only (URM76)
Module	MPS	10kV, 15kV, 20kV / Fly wire only (HRG58 coaxial cable)
Module	MPS	30kV / Flywire only (RG58)
Module	MPD	2.5kV, 5kV, 10kV, 15kV, 20kV / Fly wire only (HRG58 coaxial cable)
Module	MPS20W	1kV, 2kV, 3kV, 5kV / Fly wire only (URM76)
Module	MPS20W	10kV, 15kV, 20kV / Fly wire only (HRG58 coaxial cable)
Module	EPM	1kV, 3kV, 5kV, 10kV, 15kV, 20kV, 25kV, 30kV / Fly wire only (TV40)
Module	V6	1kV, 1.5kV, 3kV, 5kV / SHV connector (RG59 cable)
Module	V6	10kV, 15kV, 20kV, 30kV / Alden 8101 connector (HV mating connector and cable)
Module	SMS	1kV, 3kV, 5kV, 10kV, 15kV, 20kV 30kV, 40kV / Fly wire only (TV40)
Module	SMS	50kV, 60kV / Fly wire only (60kV Caton white silicone wire)
Module	UMW	8kV, 10kV, 12kV, 15kV / LGH1 connector (HV mating connector and cable not provided, but for sale)
Module	UMW	20kV / LGH1L connector (HV mating connector and cable not provided, but for sale)
Module	PCM	1kV, 3kV, 5kV, 10kV / Spellman delrin connector (RG8U)
Module	PCM	15kV, 20kV, 30kV, 40kV, 50kV / Spellman delrin connector (DS 2124)
Module	PCM	60kV, 70kV / Spellman delrin connector (DS 2124)
Module	PTV	1kV, 3kV, 5kV, 10kV, 15kV, 20kV, 25kV, 30kV / Fly wire only (TV40)
Module	PTV	40kV / LGHI connector (mating connector and cable)

Module	PTV	50kV, 60kV, 70kV / Spellman delrin connector (DS 2124)
Module	SLM	1kV, 3kV, 5kV, 10kV / Spellman delrin connector (RG8U)
Module	SLM	15kV, 20kV, 30kV, 40kV, 50kV / Spellman delrin connector (DS 2124)
Module	SLM	60kV, 70kV / Spellman delrin connector (DS 2124)
Rack	SL	1kV, 2kV, 3kV, 6kV, 8kV / Spellman delrin connector (RG8U)
Rack	SL	10kV, 15kV, 20kV, 30kV, 40kV, 50kV, 60kV, 70kV / Spellman delrin connector (DS 2124)
Rack	SL	80kV, 100kV, 120kV, 130kV / Spellman delrin connector (DS 2121)
Rack	SL150KV	150kV / Spellman delrin connector (DS 2121)
Rack	SL2KW	0.5kV, 1kV, 2kV, 3kV, 6kV, 8kV / Spellman delrin connector (RG8U)
Rack	SL2KW	10kV, 15kV, 20kV, 30kV, 40kV, 50kV / Spellman delrin connector (DS 2124)
Rack	STA	1kV, 2kV, 3kV, 4kV, 6kV, 8kV, 10kV, 12kV, 15kV / Spellman delrin connector (RG8U)
Rack	STA	20kV, 30kV, 40kV, 50kV, 60kV / Spellman delrin connector (DS 2124)
Rack	STA	70kV / Spellman delrin connector (DS 2124)
Rack	STR	1kV, 2kV, 3kV, 4kV, 6kV, 8kV, 10kV / Spellman delrin connector (RG8U)
Rack	STR	12kV, 15kV, 20kV, 30kV, 40kV, 50kV / Spellman delrin connector (DS 2124)
Rack	STR	60kV, 70kV, 80kV, 100kV, 120kV / Spellman delrin connector (DS 2121)
Rack	STR	150kV / Spellman delrin connector (DS 2121)
Rack	ST	1kV, 2kV, 3kV, 4kV, 6kV, 8kV, 10kV / Spellman delrin connector (RG8U)
Rack	ST	12kV, 15kV, 20kV, 30kV, 40kV, 50kV / Spellman delrin connector (DS 2124)
Rack	ST	60kV, 70kV, 80kV, 100kV, 120kV / Spellman delrin connector (DS 2121)
Rack	ST	150kV / Spellman delrin connector (DS 2121)
Rack	ST	225kV / R28 connector (mating HV cable not provided)
X-Ray	XLG	30kV, 40kV, 50kV, 60kV, 70kV / Spellman delrin connector (DS 2124)
X-Ray	XLG	80kV, 100kV, 120kV, 130kV / Spellman delrin connector (DS 2121)
X-Ray	XMPF	10kV / Flywire only (Reynolds 18kV 178-8751 FEP insulated wire)
X-Ray	XMPG	10kV / Flywire only (URM76 coaxial cable)
X-Ray	MNX	50kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	MNX	50kV / Spellman delrin connector polyethylene w/XCC Option (DS 2124)
X-Ray	MNX	50kV / Spellman delrin connector (Mammoflex)

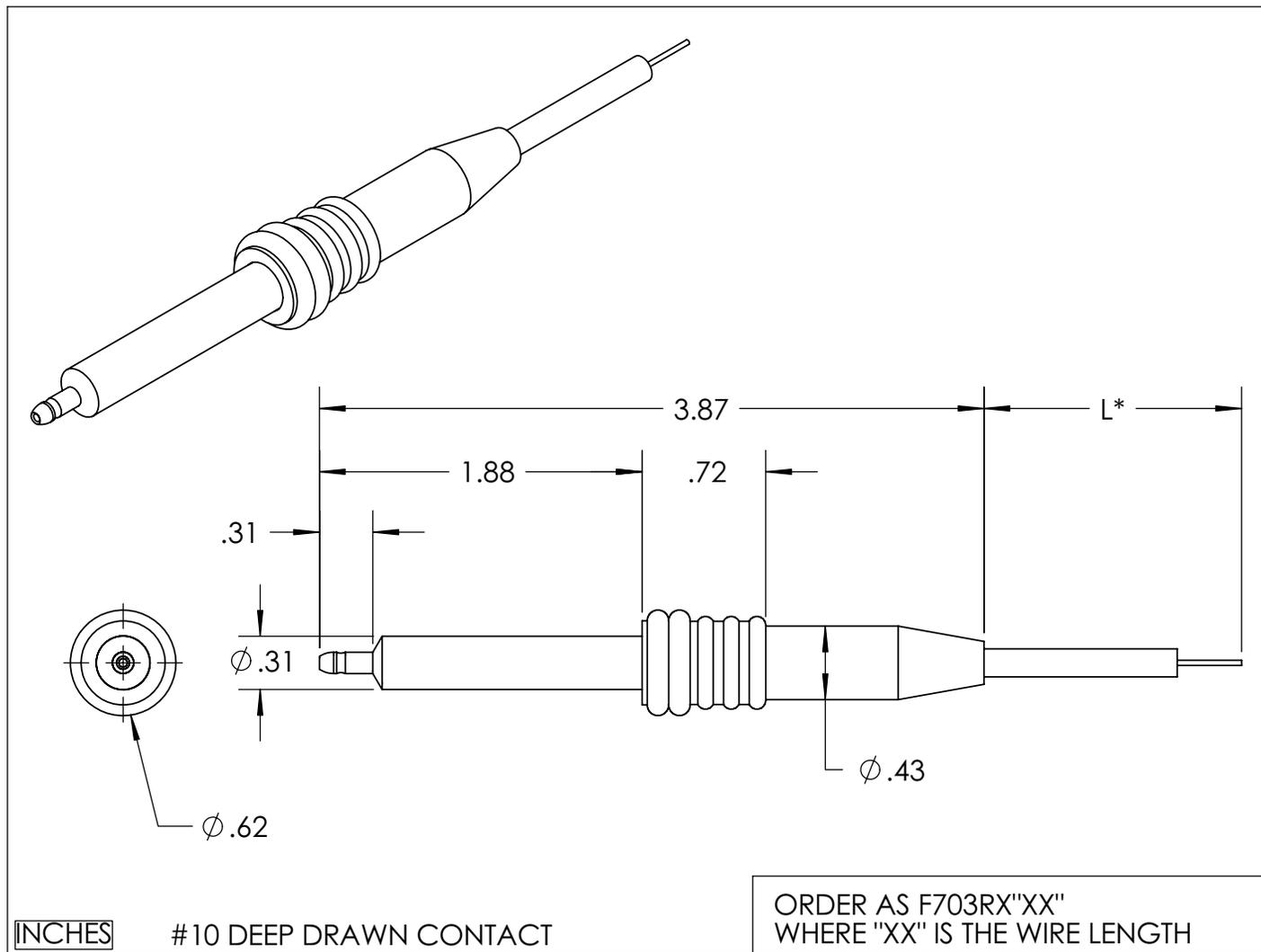
X-Ray	MNX	50kV / Spellman delrin connector (Mammoflex w/XCC Option)
X-Ray	MNX	65kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	MNX	65kV / Spellman delrin connector (Mammoflex)
X-Ray	uX	50kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	uX	50kV / Spellman delrin connector polyethylene w/XCC Option (DS 2124)
X-Ray	uX	50kV / Spellman delrin connector (Mammoflex)
X-Ray	uX	50kV / Spellman delrin connector (Mammoflex w/XCC Option)
X-Ray	uX	65kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	uX	65kV / Spellman delrin connector (Mammoflex)
X-Ray	MFX	50kV, 65kV / Claymount 4 pin mini Federal Standard connector (mating HV cable not provided)
X-Ray	XRF	160kV / R24 connector (mating HV cable not provided)
X-Ray	uXHP	50kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	uXHP	50kV / Spellman delrin connector polyethylene w/XCC Option (DS 2124)
X-Ray	uXHP	50kV / Spellman delrin connector (Mammoflex)
X-Ray	uXHP	50kV / Spellman delrin connector (Mammoflex w/XCC Option)
X-Ray	uXHP	65kV / Spellman delrin connector polyethylene (DS 2124)
X-Ray	uXHP	65kV / Spellman delrin connector (Mammoflex)
X-Ray	uXHP	80kV / Spellman delrin connector (DS 2124 with corona ball termination)
X-Ray	DXM	20kV, 30kV, 40kV, 50kV, 60kV, 70kV, 75kV Negative Polarity / Claymount CA11 mini 75kV connector (mating HV cable not provided)
X-Ray	DXM	160kV Negative Polarity / R24 Connector (mating HV cable not provided)
X-Ray	DXM	20kV, 30kV, 40kV, 50kV Positive Polarity / Spellman delrin connector (DS 2124)
X-Ray	DXM	60kV, 70kV, 75kV Positive Polarity / Spellman delrin connector: (DS 2124)
X-Ray	DXB	40kV, 60kV, 80kV, 100kV, 120kV, 140kV / Claymount CA11 mini 75kV connectors (mating HV cable not provided)
X-Ray	DXB	320kV / R24 connectors (mating HV cable not provided)
X-Ray	DXM100	100kV / CA10/R10 connector (mating HV cable not provided)
X-Ray	XLF	30kV, 40kV, 50kV, 60kV / 75kV Federal Standard connector (mating HV cable not provided)
X-Ray	XRV	160kV, 320kV / R24 connector (mating HV connector not provided unless SubSystem is ordered)
X-Ray	XRV	225kV, 450kV / R28 connector (mating HV connector not provided unless SubSystem is ordered)
X-Ray	DF/FF	60kV / 75kV Federal Standard connector (mating HV cable not provided)

X-Ray	VMX	40kV / Claymount CA-3 connector (mating HV cable not provided)
X-Ray	PMX	49kV / Claymount CA-3 connector (mating HV cable not provided)
App Specific	CCM1KW	1kV, 2kV, 4kV / Kings/Winchester SHV1707-1 connector (mating HV cable not provided)
App Specific	CCM	4kV / Kings KV-79-15, bulkhead mount connector (mating HV cable not provided)
App Specific	EVA	5kV, 10kV / Spellman delrin connector (RG8U)
App Specific	EBM	30kV / Claymount CA11 mini 75kV connector (mating HV cable not provided)
App Specific	EBM-FEG	30kV / Custom Spellman 4 pole connector (mating HV cable not provided)
App Specific	EBM20	20kV / Custom Spellman 3 pole connector (mating HV cable not provided, SHV p/n HVC/3IS/LL1650)
App Specific	VS100	100kV / Claymount 2050-073 (mating HV cable not provided)
App Specific	CZE1000R	30kV / Alden F303RX (Alden F703RX)
App Specific	CZE1000R	30kV / RPO - Rear Panel Output Option, Spellman delrin connector (RG8U)
App Specific	CZE2000	5kV, 10kV, 15kV, 20kV, 30kV / Alden F303RX (Alden F703RX)
App Specific	DGM935	30kV / See data sheet for connector information
App Specific	DGM945	30kV / See data sheet for connector information
App Specific	MCP	3kV / Fly wire only (URM76 coaxial HV cable)
App Specific	ML430	430 volts / Solder pins only
App Specific	ML1350	1350 volts / Solder pins only
App Specific	MX2.5	2.5kV / Solder pin only
App Specific	MX8 Plus	8kV / Alden F303D24 (mating HV cable not provided)
App Specific	MX10	10kV / Fly wire only (URM76 LSF coaxial cable)
App Specific	MX10 Plus	10kV / Alden A200 connector (mating HV cable not provided)
App Specific	MX20	20kV / Fly wire only (URM76 LSF coaxial cable)
App Specific	MXR	20kV, 30kV / GES HB30 receptacle (mating HV cable optional)
App Specific	TOF3000	30kV / Alden B102 (mating HV cable not provided)

AMPHENOL ALDEN PRODUCTS

25000 VOLTS DC
SINGLE CIRCUIT
IN-LINE CONNECTOR

PRODUCT DATA SHEET F703RX



MATERIAL: HDPE
COLOR: NATURAL
WIRE: RX; 104889-01; RD

MATES WITH: F SERIES

ELECTRICAL

TESTED TO: 34KVDC

RATINGS LISTED APPLY TO MATED PAIRS IN NORMAL OPERATING CONDITIONS. NO WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE IS MADE AND ALL CUSTOMERS MUST TEST EACH COMPONENT TO DETERMINE THAT IT MEETS THEIR OPERATING REQUIREMENTS. RATINGS REFLECT UPPER TEST LIMIT VALUES AND CUSTOMERS SHOULD ADD THE SAFETY FACTORS REQUIRED FOR THEIR SPECIFIC APPLICATIONS.

LTR	DESCRIPTION	DATE	APPR.
-	ORIGINAL ISSUE	2/21/07	DJM

F703RX

ELECTRICAL PERFORMANCE DATA

BREAKDOWN VOLTAGE

	MATED INTERFACE	WIRE EXIT
MINIMUM:	40 KVDC	70 KVDC
MEAN:	44 KVDC	80 KVDC

CORONA VOLTAGE

INCEPTION: EXTINCTION:

RESISTANCE: OHMS (MAXIMUM RATED)

MECHANICAL PERFORMANCE DATA

AVERAGE FORCE

INSERTION:
WITHDRAWAL:

OTHER TESTING PERFORMED

WIRE PULL-OUT THERMAL CYCLING
CABLE FLEXING HUMIDITY
VIBRATION H.V. @ ALTITUDE
OTHER

ENGINEERING DATA

DWG NO.: REVISION: DATE: SIZE:
CONTACT P/N: CONTACT SIZE/TYPE:
WIRE GROOVES:

MOLD INVENTORY

MOLD TYPE: No. OF CAVITIES: ID No.:
WIRE CLAMPS: LOCATION:
STUDS:
ACCESSORIES:
TOOLING:
CONDITION: DATE OF EVAL: ADS / PDS No.:

Product: [8240](#) 

Distributed Antenna Systems (DAS) 52 Ohm, RG58, 20 AWG, CMX



Product Description

Distributed Antenna Systems (DAS) Cable, RG-58A/U type, 20 AWG solid .033" bare copper conductor, polyethylene insulation, tinned copper braid shield (95% coverage), PVC jacket.

Technical Specifications

Physical Characteristics (Overall)

Conductor

AWG	Stranding	Material	Nominal Diameter	No. of Coax
20	Solid	BC - Bare Copper	0.033 in	1

Conductor Count:	1
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Insulation

Material	Nominal Diameter
PE - Polyethylene	0.116 in

Outer Shield Material

Type	Material	Coverage [%]
Braid	TC - Tinned Copper	95 %

Outer Jacket Material

Material	Nominal Diameter
PVC - Polyvinyl Chloride	0.193 in

Electrical Characteristics

Conductor DCR

Nominal Conductor DCR	Nominal Outer Shield DCR
10 Ohm/1000ft	4.1 Ohm/1000ft

Capacitance

Nom. Capacitance Conductor to Shield
28.5 pF/ft

Inductance

Nominal Inductance
0.08 μ H/ft

Impedance

Nominal Characteristic Impedance
52 Ohm

High Frequency (Nominal/Typical)

Frequency [MHz]	Nom. Insertion Loss
1 MHz	0.3 dB/100ft
10 MHz	1.1 dB/100ft

50 MHz	2.5 dB/100ft
100 MHz	3.8 dB/100ft
200 MHz	5.6 dB/100ft
400 MHz	8.4 dB/100ft
700 MHz	11.7 dB/100ft
900 MHz	13.7 dB/100ft
1000 MHz	14.5 dB/100ft

Delay

Nominal Delay	Nominal Velocity of Propagation (VP) [%]
1.54 ns/ft	66 %

Power Rating

Frequency [MHz]	Max. Power Rating [W]
50 MHz	530 W
100 MHz	350 W
400 MHz	160 W
1,000 MHz	90 W

Voltage

Non-UL Voltage Rating	UL Voltage Rating
1400 V RMS	300 V RMS (CMX), 30 V RMS (UL AWM Style 1354)
	30 V RMS (UL AWM Style 1354)

Electrical Characteristics Notes: Actual Impedance specification is 51.5 +/- 1.5 ohms.

Temperature Range

UL Temp Rating:	80°C (UL AWM Style 1354)
Operating Temp Range:	-40°C To +75°C

Mechanical Characteristics

UV Resistance:	Yes
Bulk Cable Weight:	26 lbs/1000ft
Max Recommended Pulling Tension:	47 lbs
Min Bend Radius/Minor Axis:	2 in

Standards

NEC/(UL) Specification:	CMX
CEC/C(UL) Specification:	CMX
UL AWM Style:	UL Style 1354
CPR Euroclass:	Eca
RG Type:	58A/U Type

Applicable Environmental and Other Programs

Environmental Space:	Outdoor - Aerial
EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2003/96/EC (BFR):	Yes
EU Directive 2011/65/EU (ROHS II):	Yes
EU Directive 2012/19/EU (WEEE):	Yes
EU Directive Compliance:	EU Directive 2003/11/EC (BFR)
EU CE Mark:	No
EU RoHS Compliance Date (yyyy-mm-dd):	2004-01-01
MII Order #39 (China RoHS):	Yes

Suitability

Suitability - Aerial:	Yes - Black only, when supported by messenger wire
Suitability - Burial:	No
Suitability - Hazardous Locations:	No
Suitability - Indoor:	Yes
Suitability - Outdoor:	Yes - Black only

Flammability, LS0H, Toxicity Testing

UL Flammability:	VW-1
ISO/IEC Flammability:	IEC 60332-1-2
UL voltage rating:	300 V RMS (CMX), 30 V RMS (UL AWM Style 1354)

Plenum/Non-Plenum

Plenum (Y/N):	No
Plenum Number:	88240, 82240

Part Number

Variants

Item #	Color	Putup Type	Length	UPC
8240 010100	Black	Reel	100 ft	612825196761
8240 010500	Black	Reel	500 ft	612825196785
8240 010U500	Black	UnReel	500 ft	612825358664
8240 0101000	Black	Reel	1,000 ft	612825196778
8240 010U1000	Black	UnReel	1,000 ft	612825196747
8240 0105000	Black	Reel	5,000 ft	612825196730

Footnote:	C - CRATE REEL PUT-UP.
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History

Update and Revision:	Revision Number: 0.291 Revision Date: 04-28-2020
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Product: [9224](#) 

Special Audio, Low Noise, RG59, #22 Coax



Product Description

Low Noise, RG-59/U type, 22 AWG solid .025" bare copper-covered steel conductor, polyethylene insulation, conductive PVC layer, bare copper braid shield (95% coverage), PVC jacket.

Technical Specifications

Product Overview

Environmental Space:	Indoor (Not Riser or Plenum)
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Physical Characteristics (Overall)

Conductor

AWG	Stranding	Material	Nominal Diameter	No. of Coax
22	Solid	BCCS - Bare Copper Covered Steel	0.025 in	1

Conductor Count: 1

Insulation

Layer	Material	Nominal Diameter
1	PE - Polyethylene	0.146 in
2	PVC (Conductive)	0.154 in

Outer Shield Material

Type	Material	Coverage [%]
Braid	BC - Bare Copper	95 %

Outer Jacket Material

Material	Nominal Diameter
PVC - Polyvinyl Chloride	0.242 in

Electrical Characteristics

Conductor DCR

Nominal Conductor DCR	Nominal Conductor DCR Conductor Resistance	Nominal Outer Shield DCR	Outer Conductor DCR
54 Ohm/1000ft	54 Ohm/1000ft	2.5 Ohm/1000ft	2.5 Ohm/1000ft

Capacitance

Nom. Capacitance Conductor to Shield
22 pF/ft

Inductance

Nominal Inductance
0.124 μ H/ft

Impedance

Nominal Characteristic Impedance
75 Ohm

Delay

Nominal Delay	Nominal Velocity of Propagation (VP) [%]
1.56 ns/ft	65 %

Voltage

Voltage Rating [V]
300 V RMS

Electrical Characteristics Notes: NBS Low Noise Test (Modified) MIL-C-17 Paragraph 4.8.14, 5 mV Peak to Peak Max

Temperature Range

Non-UL Temp Rating:	75°C
Operating Temp Range:	-40°C To +75°C

Mechanical Characteristics

Bulk Cable Weight:	36 lbs/1000ft
Max Recommended Pulling Tension:	80 lbs
Min Bend Radius/Minor Axis:	2.4 in

Standards

RG Type:	59/U Type
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Applicable Environmental and Other Programs

EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2003/11/EC (BFR):	Yes
EU Directive 2011/65/EU (ROHS II):	Yes
EU Directive 2012/19/EU (WEEE):	Yes
EU Directive 2015/863/EU:	Yes
EU Directive Compliance:	EU Directive 2003/11/EC (BFR)
EU CE Mark:	Yes
EU RoHS Compliance Date (yyyy-mm-dd):	2004-01-01
MII Order #39 (China RoHS):	Yes

Suitability

Suitability - Aerial:	No
Suitability - Burial:	No
Suitability - Hazardous Locations:	No
Suitability - Indoor:	Yes
Suitability - Outdoor:	No
Suitability - Sunlight Resistance:	No

Plenum/Non-Plenum

Plenum (Y/N):	No
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Part Number

Variants

Item #	Color	UPC	Length
9224 0101000	Black	612825357810	1,000 ft
9224 010U500	Black	612825358145	500 ft

Product Notes

Notes: Not recommended for RF use. Nominal voltage breakdown conductor to shield: 30 kV rms. Nominal voltage breakdown jacket (shield to water): 30 kV rms.

History

Update and Revision:	Revision Number: 0.212 Revision Date: 04-08-2020
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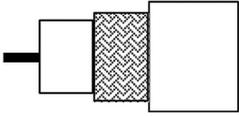
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Product: [URM76](#) 



COAX URM76 PVC

Product Description

COAX [0.95/2.95] URM76 STRANDED PVC

Technical Specifications

Product Overview

Environmental Space:	Indoor - Euroclass Eca
Suitable Applications:	Coaxial communication cable based on BS2316

Physical Characteristics (Overall)

Conductor

AWG	Stranding	Material	Construction n x D	Nominal Diameter	Diameter +/- Tolerance	No. of Coax
20	Stranded	TC - Tinned Copper	7x0.32 mm	0.96 mm	0.02 mm	1

Conductor Count:	1
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Insulation

Type	Material	Nominal Diameter	Diameter +/- Tolerance
Dielectric	PE - Polyethylene	2.95 mm	0.15 mm

Outer Shield Material

Type	Material	Coverage [%]	Nominal Diameter	Diameter +/- Tolerance	Coverage +/- Tolerance
Braid	BC - Bare Copper	91 %	3.63 mm	0.2 mm	4 %

Outer Jacket Material

Material	Nominal Diameter	Diameter +/- Tolerance
PVC - Polyvinyl Chloride	5 mm	0.25 mm

OuterJacket1, Table Note:	According to European Standard HD 624
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Construction and Dimensions

Min Elongation at Breakof Jacket:	150 %
Min Tensile Strength of Jacket:	12.5 MPa

Electrical Characteristics

Conductor DCR

Max. Conductor DCR
31.8 Ohm/km

Capacitance

Nom. Capacitance	Capacitance Tolerance
98 pF/m	5 pF/m

Impedance

Nominal Characteristic Impedance	Nominal Characteristic Tolerance	Regularity of Impedance
50 Ohm	2 Ohm	Min. 40 dB

High Frequency (Nominal/Typical)

Frequency [MHz]	Nom. Insertion Loss
100 MHz	15.5 dB/100m
200 MHz	22.2 dB/100m
600 MHz	39.8 dB/100m
1000 MHz	52.7 dB/100m

Delay

Nominal Velocity of Propagation (VP) [%]
66 %

High Freq

Frequency [MHz]	Min. RL (Return Loss) [dB]
5 - 30 MHz	20 dB
30 - 470 MHz	20 dB
470 - 1000 MHz	18 dB

High Freq Table Note: In each frequency band, 3 peak values up to 4 dB lower are allowed

Voltage

Voltage Rating [V]
4000 DC / 2000 V RMS

Temperature Range

Installation Temp Range:	-5°C To +50°C
Storage Temp Range:	-40°C To +70°C
Operating Temp Range:	-40°C To +70°C

Mechanical Characteristics

Min Bend Radius (W/o Pulling Strength):	25 mm
Crush Resistance:	Max. 1% (load of 700N) N

Standards

CPR Euroclass:	Eca
GENELEC Compliance:	EN 50289
Series Type:	UR Series
Other Specification:	BS2316

Applicable Environmental and Other Programs

EU RoHS Compliance Date (yyyy-mm-dd):	2005-11-07
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Flammability, LS0H, Toxicity Testing

ISO/IEC Flammability:	IEC 60332-1-2
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Part Number

Variants

Item #	Color	Length
URM76.00500	Black	500 m
URM76.01100	Black	100 m

History

Update and Revision:	Revision Number: 0.160 Revision Date: 04-08-2020
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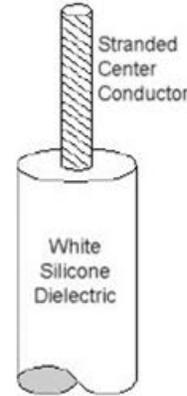
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UL STYLE 3239 High Voltage Silicone Wire

These designs have earned the UL approval only after successfully meeting stringent performance and manufacturing acceptance criteria. The silicone dielectric maintains excellent flexibility over an extreme temperature range and is resistant against radiation, moisture, and weathering. Being compatible with most silicone encapsulation material (RTV) makes this wire an excellent choice for most high or low voltage terminations.

Part Number	Operating Voltage		Conductor			O.D. in[mm]	lbs./1000' apx. net
	kVdc		AWG	Stranding (TC)	Dimension in[mm]		
36227	20		22	19/34	0.032[0.81]	0.140[3.56]	10.0
33163	15		20	19/32	0.040[1.02]	0.134[3.42]	10.5
33165	25		18	19/30	0.051[1.30]	0.171[4.35]	17.8
36225	25		16	19/28	0.058[1.47]	0.181[4.60]	21.2
36226	40		16	19/28	0.058[1.47]	0.331[8.41]	29.9
36220	25		14	41/30	0.078[1.98]	0.201[5.11]	28.3
36219	50		12	65/30	0.101[2.57]	0.307[7.80]	56.8
36185	20		10	37/25	0.117[2.97]	0.235[5.97]	53.8

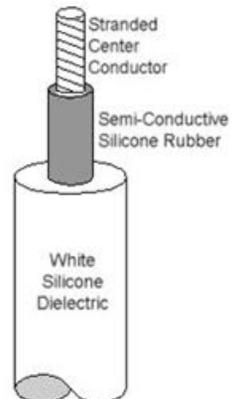


Notes:
1. Standard dielectric color is white. Custom colors available, contact Caton for details.
2. Operating temperature range is -55 to +150 C

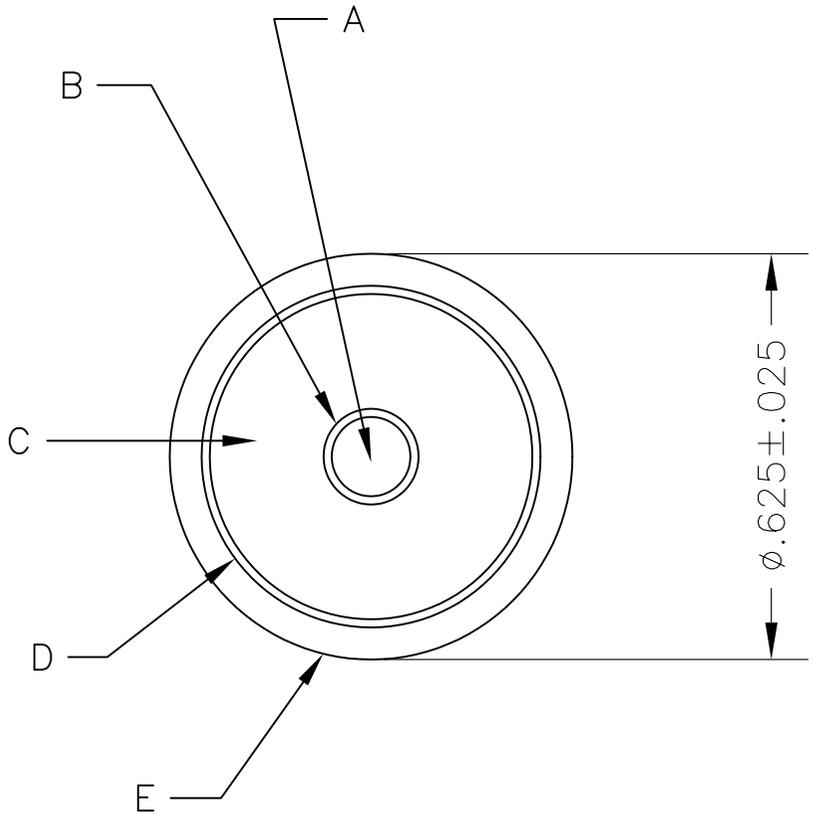
Dual Extruded

When applications require extremely low loss of power and cannot tolerate electrical noise, i.e. partial discharge, a layer of semi-conducting silicone is extruded around the stranded center conductor thereby bringing air inside the stranding to zero electrical stress.

Part Number	Operating Voltage		Conductor				Semi-conductive layer in[mm]	O.D. in[mm]	lbs./1000' apx. net
	kVac	kVdc	AWG	Stranding	Plating	Dimension in[mm]			
005639	10	30	22	19/34	Silver	0.032[0.81]	0.067[1.70]	0.180[4.57]	12.4
0A2841	15	40	18	19/30	Silver	0.051[1.30]	0.086[2.18]	0.236[5.99]	27.6
002841	18	50	14	19/27	Silver	0.071[1.80]	0.100[2.54]	0.300[7.62]	47.1
005640	20	60	12	19/25	Silver	0.092[2.34]	0.134[3.40]	0.360[9.14]	68.3
CC40415	15	40	10	105/30	Silver	0.126[3.20]	0.163[4.14]	0.415[10.54]	96.0
005641	30	80	8	133/29	Silver	0.150[3.81]	0.240[6.10]	0.650[16.51]	209.5



Notes:
1. Standard dielectric color is white. Custom colors available, contact Caton for details.
2. Operating temperature range is -55 to +150 C



LEGEND

- A. #12 AWG (19/25) T.C.
- B. SEMICON POLYETHYLENE TO $\phi.130$
- C. LDHMMW POLYETHYLENE: NATURAL TO $\phi.490 \pm 0.010$
- D. BRAIDED SHIELD, #34 AWG T.C., 90% COV
10 ENDS, 24 CARRIER
- E. JACKET: PVC: BLACK (1 MIL MYLAR SEPARATOR TAPE MAY BE USED UNDER JACKET IF REQD)

NOTES:

1. TEST VOLTAGE: 165KVDC— 10 MINUTES
2. JACKET SPARK TEST: 5KV

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REV	ECO NUMBER	APPD	DATE	UNLESS OTHERWISE SPECIFIED	DRAWN GPLAMBERT	DATE 15NOV00	DIELECTRIC SCIENCES, INC CHELMSFORD, MASSACHUSETTS 01824
-	RELEASE DRAWING				CHECKED DJ LEARY	DATE 15NOV00	
				DIMENSIONS ARE IN INCHES TOLERANCE ON DECIMALS ANGLES .XX ±.01 ± .XXX ±.005	APPROVED DJ LEARY	DATE 15NOV00	CABLE: PULSE
					CONCENTRICITY .005 TIR REMOVE BURRS & SHARP EDGES ALL MACHINE SURFACES 125✓	MATERIAL	
				DO NOT SCALE THIS DRAWING	FINISH		SIZE A
						FSCM NO. 50509	DWG NO. 2121
					SCALE		SHEET 1 OF 1

CABLE, SHIELDED H.V.

P/N:2121

Working Voltage: 750 KVDC

KVAC

Test Voltage: KVDC

KVAC

Dielectric: HMW Polyethylene

Jacket Material: PVC

Characteristic Impedance: 52 ohm

Capacitance: 29.6 pF/Ft.

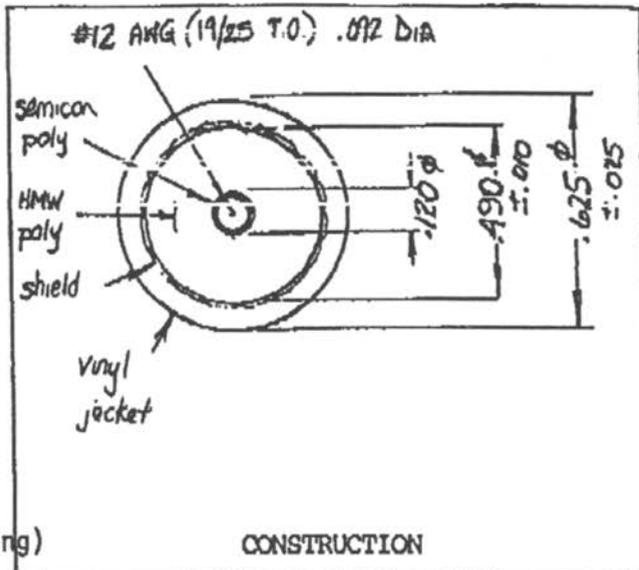
Minimum Bend Radius: 8.5 inches >

Minimum Ambient Temp: -60 °F -50°C

Maximum Conductor Temp: 140 °F 60°C

Maximum Relative Humidity 90%

Weight .17 lb/ft. .25 kg/m. (non-condensing)



CONDUCTORS

Main H.V. #12 (19/25)

AWG/MCM 3.1 mm²

Shield 90% coverage #34

AWG/MCM Equiv.

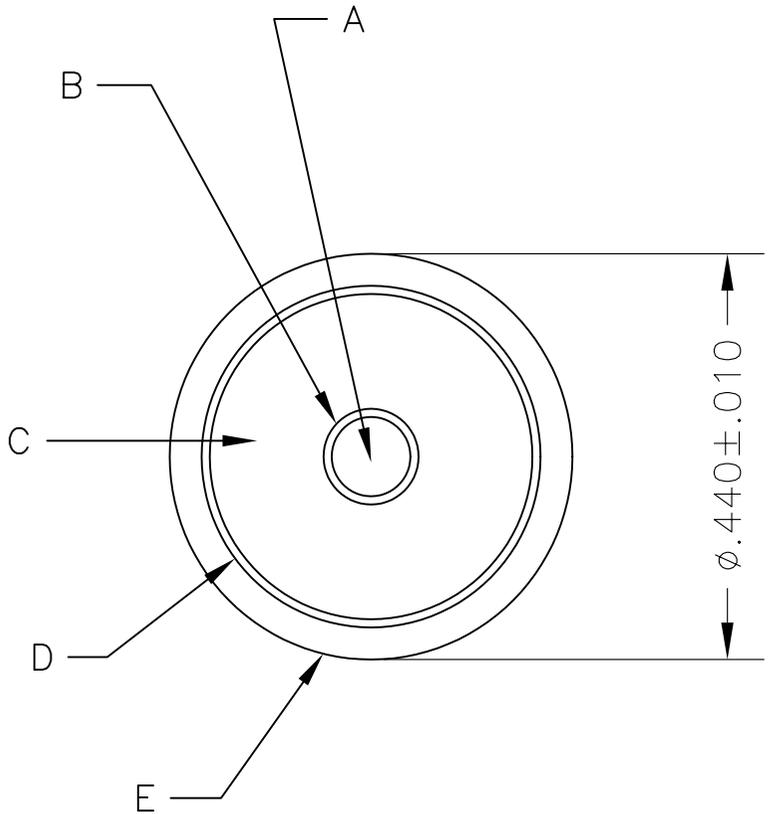
Auxiliary: -----

Number

Size (AWG)

Voltage Rating

TERMINATIONS (DSI P/N)



LEGEND

- A. #16 AWG (19/29) T.C.
- B. SEMICON POLYETHYLENE TO $\phi.100$
- C. INSULATING POLYETHYLENE TO $\phi.360 \pm .010$
- D. BRAIDED SHIELD, #34 AWG T.C. , 90% COV
9 ENDS, 24 CARRIER
- E. JACKET: PVC: BLACK

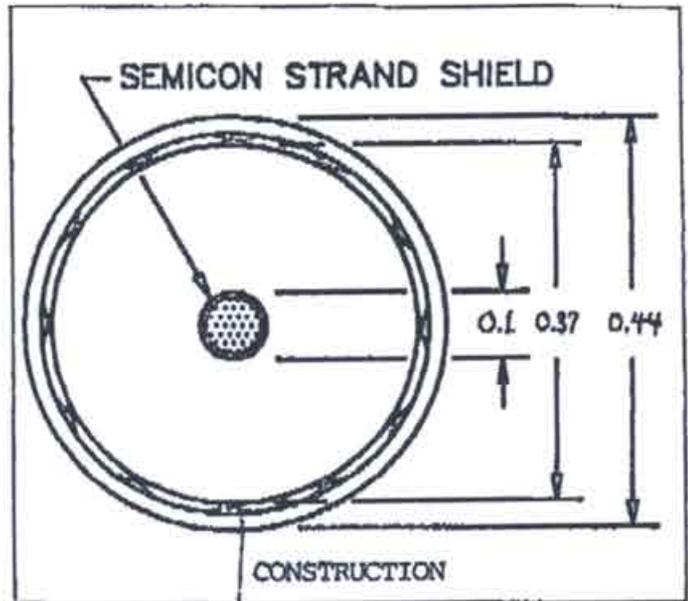
NOTES:

1. TEST VOLTAGE: 110KVDC— 10 MINUTES
2. JACKET SPARK TEST: 5KV

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REV	ECO NUMBER	APPD	DATE	UNLESS OTHERWISE SPECIFIED	DRAWN GPLAMBERT	DATE 15NOV00	DIELECTRIC SCIENCES, INC CHELMSFORD, MASSACHUSETTS 01824				
-	RELEASE DRAWING				CHECKED DJ LEARY	DATE 15NOV00					
				DIMENSIONS ARE IN INCHES TOLERANCE ON DECIMALS ANGLES .XX ±.01 ± .XXX ±.005	APPROVED DJ LEARY	DATE 15NOV00	CABLE: HV; 100KVDC, 16AWG				
					CONCENTRICITY .005 TIR REMOVE BURRS & SHARP EDGES ALL MACHINE SURFACES 125✓	MATERIAL					
				DO NOT SCALE THIS DRAWING	FINISH		<table border="1" style="width: 100%;"> <tr> <td>SIZE A</td> <td>FSCM NO. 50509</td> <td>DWG NO. 2124</td> <td>REV</td> </tr> </table>	SIZE A	FSCM NO. 50509	DWG NO. 2124	REV
SIZE A	FSCM NO. 50509	DWG NO. 2124	REV								
					SCALE		SHEET 1 OF 1				

CABLE, SHIELDED H.V.

P/N: 2124
 Working Voltage: 100 kVDC
 kVAC
 Test Voltage: kVDC
 kVAC
 Dielectric: HMW polyethylene
 Jacket Material: PVC
 Characteristic Impedance: 51.7 ohm
 Capacitance: 30 pF/Ft.
 Minimum Bend Radius: 6 inches
 Minimum Ambient Temp: -60° °F -50°C
 Maximum Conductor Temp: 140 °F 60°C
 Maximum Relative Humidity 90 %
 (non-condensing)
 Weight 0.1 lb/ft. 0.15 kg/m.



CONDUCTORS

Main H.V. #16 (19/29) T.C.
 Shield #34 T.C. 90% coverage
 Auxiliary ----

AWG/MCM
 AWG/MCM Equiv. *braided wire shield
 13awg equivalent
 2 Ω/k ft. (resistance)*

Number
 Size (AWG)
 Voltage Rating

Dielectric Sciences 2124
 Old Data Sheet

RG 8/U Type

Product Construction:

Conductors:

- Copper per ASTM B-3

Insulation/Core:

- Solid and cellular polyethylene designs

Shield:

- Tinned or bare copper braid
- Flexfoil® shield

Jacket:

- Premium PVC compound

Packaging:

- Please contact Customer Service for packaging and color options

Applications:

- Suitable for RF signal transmission
- Broadcast
- Citizen band antenna
- See Coax Connector Cross Reference, pages 188-195

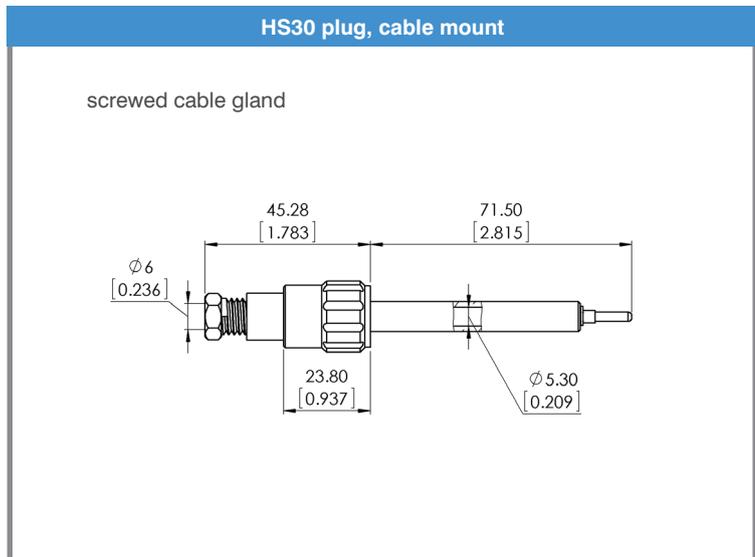
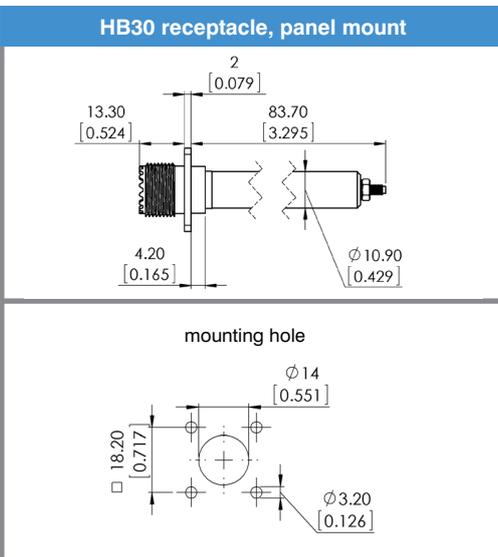
CATALOG NUMBER	AWG SIZE NOM. DCR	INSULATION MATERIAL		SHIELD COVERAGE NOM SHLD DCR	NOMINAL O.D.		NOMINAL CAPACITANCE		VELOCITY OF PROPAGATION, %	NOMINAL IMPEDANCE, Ω	NOMINAL ATTENUATION	
		INCHES	mm		INCHES	mm	pF/ft	pF/m			MHz	dB/100'
C1108 RG 8/U Mini Type UL CL2, CM CSA CMG 1354 	16 Ga. (19x28) Bare Copper 4.2 Ω/M	Cellular Polyethylene		95% Bare Copper Braid 3.3 Ω/M	Black PVC		25.30	83.01	80	50	1	0.26
		0.155	3.94		0.242	6.15					10	0.98
C1154 RG 8/U Type JAN-C-17A Type 1354 	13 Ga. (7x21) Bare Copper 1.9 Ω/M	Solid Polyethylene		95% Bare Copper Braid 1.2 Ω/M	Black PVC		29.50	96.79	66	52	1	0.16
		0.285	7.24		0.405	10.29					10	0.56
C1198 RG 8/U Type 1354 	11 Ga. (19x24) Bare Copper 1.9 Ω/M	Cellular Polyethylene		95% Bare Copper Braid 1.1 Ω/M	Black PVC		26.00	85.31	78	50	1	0.17
		0.285	7.24		0.405	10.29					10	0.57
C1197 RG 8/U Type CSA(US) CM CSA CM 1354 	11 Ga. (7x19) Bare Copper 1.2 Ω/M	Cellular Polyethylene		97% Bare Copper Braid 1.1 Ω/M	Black PVC		26.00	85.31	78	50	1	0.17
		0.285	7.24		0.405	10.29					10	0.57
C1180 RG 8/U Type 	9 1/2 Ga. Solid Bare Copper 0.90 Ω/M	Semi-Solid Polyethylene		100% Flexfoil® Bonded +88% Tinned Copper Braid 1.8 Ω/M	Black PVC		24.60	80.71	84	50	1	0.13
		0.285	7.24		0.405	10.29					10	0.40



Electrical values	
Operating voltage (DC)	30 kV
Test voltage (DC)	45 kV
Rated current	30 A
Maximum operating current	40 A
Pulse current	3000 A
Characteristics	
Insulation material	PTFE
Mounting type receptacle	4-hole flange
Contact plating	silver (Ag) or gold (Au)



HB30 receptacle, panel mount HS30 plug, cable mount



drawing - dimensions in mm [inch]

Part No.	Description	Plug, cable mount	Receptacle, panel mount	Contact silver plated	Contact gold plated
7331050	HS30 PTFE	•		•	
7331051	HB30 PTFE		•	•	
7331150	HS30/Au PTFE	•			•
7331151	HB30/Au PTFE		•		•

Suitable HV cable, shielded

Part No.	Operating Voltage	Wire size	Outer diameter	Min. bend radius	Temperature range
3330007	30 kVDC	AWG22 (0.35 mm ²)	5.40 mm [.213"]	54 mm [2.126"]	-25 °C / +90 °C

➔ For more information please see page 26

20kV_{DC} - 0.50mm² - PE-X DIELECTRIC COAXIAL HIGH VOLTAGE CABLE

PRODUCT DESCRIPTION

20kV_{DC} coaxial high voltage cable suitable to replace standard 50Ω RG58 coaxial cable in high voltage applications.

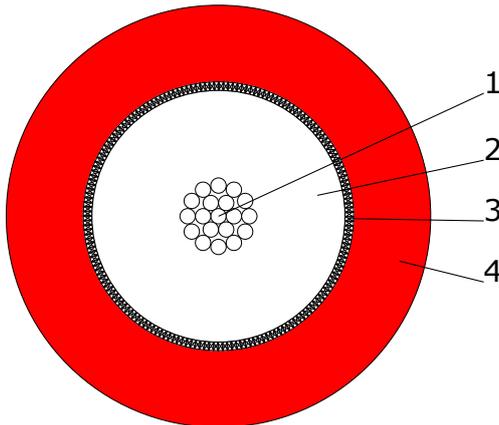
It is fully compatible with SHV, MHV and Kings® type coaxial connectors.

Halogen free, flame retardant, low smoke (LSZH). RoHS / REACH compliant.

The jacket is resistant against oil, hydrolysis and microbes.

The cable is available on cardboard reels (150m) and wooden reels (1000m).

CONSTRUCTION



1. Conductor	Cu/Sn (19xAWG33 t.p.c.)	0.50mm ² Ø 0.95mm
2. Dielectric	PE-X	Ø 2.95mm ± 0.05mm
3. Braid	Cu/Sn (0.10mm t.p.c.) 85% Coverage	Ø 3.35mm ± 0.1mm
4. Jacket	TPE-U (PUR)	Ø 4.95mm ± 0.15mm

TECHNICAL DATA

Rated Voltage	20kV _{DC}
Test Voltage	41kV _{DC} / 60s (conductor / braid) 15kV _{AC} (Spark Test, core)
Conductor Resistance @ 20°C	≤ 40Ω/km
Impedance	typ. 50Ω
Capacitance	typ. 102pF/m
min. Bend Radius	74mm (moving), 37mm (fixed)
Operating Temperature	-20°C - +105°C
Flame Retardance	according to DIN EN 60332-2-1 (60s) and DIN EN 60332-2-2 (20s)
Halogen-free	Yes (LSZH)
Weight	ca. 0.032kg/m
Cu-Weight	ca. 0.014kg/m
Color	red
RoHS Compliant	Yes
Status	P (Preferred)

Intended for fixed installation; suitable for flexible wiring to a limited extent.

Disclaimer

The information given in this data sheet is technical data, not assured product characteristics. It has been carefully checked and is believed to be accurate; however, no responsibility is assumed for inaccuracies. The user has to ensure by adequate tests that the product is suitable for his application regarding safety and technical aspects. hivolt.de GmbH & Co. KG does not assume any liability arising out of the application or use of any product described.

Safety Advice

Design, installation and inspection of machinery and devices carrying high voltage require accordingly trained and qualified personnel. Appropriate safety rules and directives must be complied with.

Improper handling of high voltage can mean severe injuries or death and may cause serious collateral damage!

Flexrad HV™ (105°C XLPE)

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
5kV UL 3239, CSA TV-6				
24	Solid	.062	1.575	V0505001
24	7/32 TOP	.066	1.676	V0505002
24	7/32 TOC	.066	1.676	V0505003
22	Solid	.068	1.727	V0505004
22	7/30 TOP	.072	1.829	V0505005
22	7/30 TOC	.072	1.829	V0505006
20	Solid	.074	1.880	V0505007
20	7/28 TOP	.080	2.032	V0505008
20	7/28 TOC	.080	2.032	V0505028
18	Solid	.083	2.108	V0505011
18	7/26 TOP	.092	2.337	V0505032
18	7/26 TOC	.092	2.337	V0505033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
10kV UL 3239, CSA TV-10				
24	Solid	.082	2.083	V0510001
24	7/32 TOP	.086	2.184	V0510002
24	7/32 TOC	.086	2.184	V0510003
22	Solid	.088	2.235	V0510004
22	7/30 TOP	.092	2.337	V0510005
22	7/30 TOC	.092	2.337	V0510006
20	Solid	.094	2.388	V0510007
20	7/28 TOP	.100	2.540	V0510008
20	7/28 TOC	.100	2.540	V0510010
18	Solid	.103	2.616	V0510011
18	7/26 TOP	.110	2.794	V0510032
18	7/26 TOC	.110	2.794	V0510033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
15kV UL 3239, CSA TV-15				
24	Solid	.096	2.438	V0515001
24	7/32 TOP	.100	2.540	V0515002
24	7/32 TOC	.100	2.540	V0515003
22	Solid	.102	2.591	V0515004
22	7/30 TOP	.103	2.618	V0515005
22	7/30 TOC	.103	2.616	V0515013
20	Solid	.108	2.743	V0515007
20	7/28 TOP	.114	2.896	V0515008
20	7/28 TOC	.114	2.896	V0515025
18	Solid	.116	2.946	V0515011
18	7/26 TOP	.124	3.150	V0515032
18	7/26 TOC	.124	3.150	V0515033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
20kV UL 3239, CSA TV-20				
24	Solid	.126	3.200	V0520001
24	7/32 TOP	.130	3.302	V0520002
24	7/32 TOC	.130	3.302	V0520003
22	Solid	.131	3.327	V0520004
22	7/30 TOP	.136	3.454	V0520005
22	7/30 TOC	.136	3.454	V0520016
20	Solid	.138	3.505	V0520007
20	7/28 TOP	.144	3.658	V0520008
20	7/28 TOC	.144	3.658	V0520010
18	Solid	.146	3.708	V0520011
18	7/26 TOP	.154	3.912	V0520032
18	7/26 TOC	.154	3.912	V0520033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
25kV UL 3239, CSA TV-20				
24	Solid	.136	3.454	V0525001
24	7/32 TOP	.140	3.556	V0525002
24	7/32 TOC	.140	3.556	V0525003
22	Solid	.141	3.581	V0525004
22	7/30 TOP	.146	3.708	V0525005
22	7/30 TOC	.146	3.708	V0525016
20	Solid	.148	3.759	V0525007
20	7/28 TOP	.154	3.912	V0525008
20	7/28 TOC	.154	3.912	V0525010
18	Solid	.156	3.962	V0525011
18	7/26 TOP	.164	4.166	V0525032
18	7/26 TOC	.164	4.166	V0525033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
30kV UL 3239, CSA TV-30				
24	Solid	.148	3.759	V0530001
24	7/32 TOP	.152	3.861	V0530002
24	7/32 TOC	.152	3.861	V0530003
22	Solid	.153	3.886	V0530004
22	7/30 TOP	.158	4.013	V0530005
22	7/30 TOC	.158	4.013	V0530006
20	Solid	.160	4.064	V0530007
20	7/28 TOP	.166	4.216	V0530008
20	7/28 TOC	.166	4.216	V0530010
18	Solid	.168	4.267	V0530011
18	7/26 TOP	.176	4.470	V0530032
18	7/26 TOC	.176	4.470	V0530033

AWG Sizes	Stranding	Nominal Inches	Diameter mm	JUDD Part No.
40kV UL 3239, CSA TV-40				
24	Solid	.168	4.267	V0540001
24	7/32 TOP	.172	4.369	V0540002
24	7/32 TOC	.172	4.369	V0540003
22	Solid	.173	4.394	V0540004
22	7/30 TOP	.178	4.521	V0540005
22	7/30 TOC	.178	4.521	V0540014
20	Solid	.180	4.572	V0540007
20	7/28 TOP	.186	4.724	V0540008
20	7/28 TOC	.186	4.724	V0540013
18	Solid	.188	4.775	V0540011
18	7/26 TOP	.196	4.978	V0540032
18	7/26 TOC	.196	4.978	V0540033



M1-type (Mammoflex) 60 kVDC rated High Voltage Cable

Highly flexible, small diameter, 1-conductor, 60kVDC rated rubber insulated high voltage cable.

Features

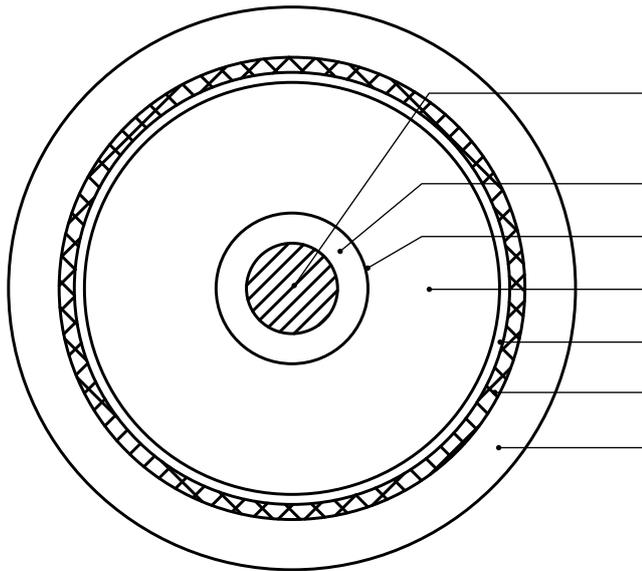
- High flexibility.
- Small diameter.
- 95% shielding braid coverage.

Description

This 1-conductor, rubber insulated high voltage cable's typical applications are:

- Medical mammography and other scientific X-ray, electron beam or laser equipment.
- Low power high voltage test- en measuring equipment.

Construction



Bare conductor, 2 mm² (37 x Ø 0.26 mm), stranded tinned copper wires.

Semi-conducting tape.

Semi-conducting EP rubber.

High voltage insulation, EP rubber, black.

Semi-conducting tape.

Shielding braid, > 95 % coverage, tinned copper wires.

PVC jacket, color: light gray, MAMMOFLEX imprinted.

Technical data

Number of conductors	1
Rated voltage	60 kVDC
Routine test voltage (high voltage insulation)	90 kVDC / 10 min.
Conductor current rating	31 A
Nominal outside diameter	11.1 mm / 0.437 in / ±0.5 mm / ±0.020 in
Thickness of PVC jacket	1 mm / 0.039 in
Thickness of high voltage insulation	2.6 mm / 0.102 in
Diameter of core-assembly	1.8 mm / 0.071 in
Insulation resistance core-shield @ 20 °C	≥1x10 ¹² Ω·m / ≥3x10 ¹² Ω·ft
Conductor resistance @ 20 °C	8.82 mΩ/m / 2.9 mΩ/ft / ±5%
Shield resistance @ 20 °C	7.22 mΩ/m / 2.37 mΩ/ft / ±5%
Capacitance between conductor and shield	171 pF/m / 56 pF/ft / ±10%
Cable min. bending radius (static installation)	22 mm / 0.9 in
Cable min. bending radius (dynamic installation)	45 mm / 1.8 in
Operating temperature	-10/+70 °C / +14/+158 °F
Storage temperature	-40/+70 °C / -40/+158 °F
Net weight	180 kg/km



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 1001 Knox Street.
 Torrance, California
 90502
 TEL: (310) 823-5491 • FAX #1: (310) 822-8046
 FAX #2: (310) 822-6815 • tri_techsupport@teledyne.com

Part Number 178-8751, FEP High Voltage Wire

Extruded FEP insulated high voltage wire and cable offers exceptional dielectric strength without the disadvantages common to equally rated silicone rubber insulated cables. As a result, cable assemblies or cable bundles are of smaller diameter and therefore take up substantially less volume and have a smaller bend radius which allows the designer to better utilize the space within the system. It has good corona inception qualities and its construction gives it excellent durability and

[+ more](#)



[Specifications](#) | [Cable / Wire Properties](#)

Specifications

Conductor Gauge	28 AWG
Conductor Strands	19/40
Insulator Material	FEP
Conductor Diameter	0.015 in 0.40 mm
Diameter Over Insulation	0.050 in 1.20 mm
Overall Diameter	0.050 in
Default Color¹	Natural
Operating Temperature	-55 to 125 °C
Conductor Plating	Silver Plated
Conductor Material	Copper
Standard/Non-Standard²	Standard Part
Voltage Rating	18 kVDC

Cable / Wire Properties

Jacketed	No
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Silicone Coated	No
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Twisted Pair	No
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Twisted Shielded Pair	No
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¹ Other colors available upon request.

² Non-standard parts will have longer lead times and potentially higher pricing. Please contact Teledyne Reynolds Engineering department to determine feasibility for use in your application.