

axovolt®

AXON' miniaturized high voltage interconnect

AXOVOLT[®], miniaturized high voltage interconnect

AXON' CABLE offers a new range of high voltage miniature cables and cable assemblies for severe environments. AXOVOLT[®] cables are designed to be used up to 20 kV DC and the cable assemblies to 12 kV DC from sea level to 21000 m. They are particularly well designed for defence onboard electronics including helmet mounted vision systems used by pilots. **Manufactured in France**, and therefore ITAR-free, the high voltage family benefits from AXON' expertise in interconnect solutions.

Advantages

- > ITAR-free
- > High voltage wires (by the reel) up to 20 kV DC
- > High voltage cable assemblies up to 12 kV DC
- > Temperature range: -55°C to +125°C
- > Designed for use in high voltage applications and reduced atmospheric pressure
- > Flame-retardant
- > AXOVOLT[®] connectors are compatible with most existing miniature high voltage connectors
- > Respecting REACH directives (n°1907/2006, 18th December 2006)
- > RoHS compliant (EC Directive n°2002/95/CE, 27th January 2003 and EC directive n°2011/65/UE, 8th June 2011)
- > All cable assemblies are 100% tested



Applications

- > Defence onboard electronics: helmet mounted vision systems
- > Travelling Wave Tubes (TWT)
- > Radars
- > Laser systems
- > Cathode Ray Tubes (CRT)
- > High energy physics research
- > Analytical instruments



Technical data

AXOVOLT[®] cable assemblies are made with FEP insulated wires or FEP/silicone coated wires and terminated with overmoulded high voltage connectors.

1// Connectors

- > Plug connector (female contact)
- > Receptacle connector (male contact / AXON' part number : P556392)

Plug cable assemblies and receptacle cable assemblies are available in right angle or straight versions. Connectors can be sold only pre-terminated with AXON' wires except panel mount receptacles.

2// Different configurations of wires are possible

- > FEP insulation with silicone coating
- > FEP insulation (natural)
- > FEP insulation with silicone coating and aromatic polyamide braid (natural colour: white)
- > FEP insulation (natural) and shielded braid
- > FEP insulation with silicone coating, shielded braid and FEP jacket (white only)
- > 22AWG (20 kV DC) or 24AWG (18 kV DC) for single wires
- > 26AWG (18 kV DC) for braided wires or for braided jacketed wires

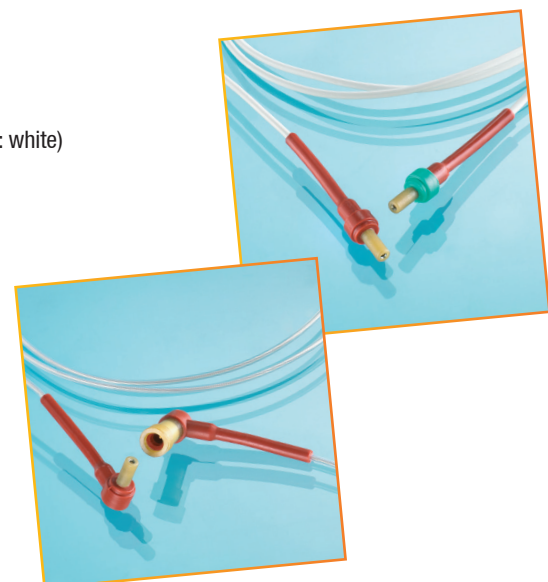
The wires can be purchased unterminated, by the reel.

All wires are partial discharge tested.

3// Overmoulding

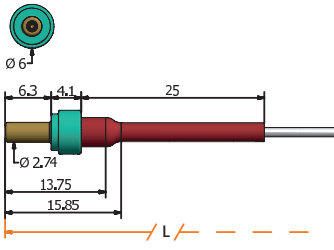
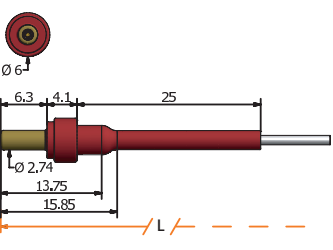
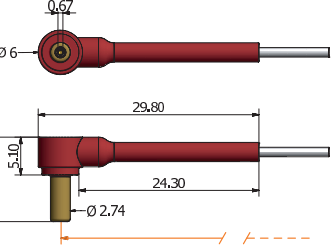
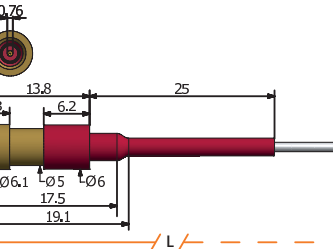
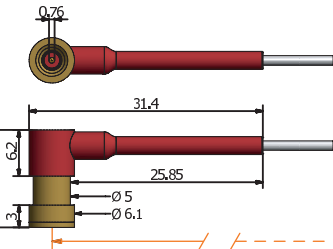
Different types of overmoulding are possible

- > 100% silicone (*identification code: S*)
- > DAP + silicone (*identification code: D*)
- > No overmoulding for the panel-mount receptacle connector



AXOVOLT® CONNECTORS

The selection guide below gives detailed information about the high voltage connectors offered by AXON' CABLE. The different versions and overmoulding types are shown to help you choose the most appropriate version. DAP (Diallyl Phthalate) is a thermoset. The connectors are part of the AXOVOLT® cable assemblies, they cannot be sold unterminated except for the panel-mount receptacle.

	DAP & silicone straight overmoulding	100% silicone straight overmoulding	100% silicone right angle overmoulding	Panel-mount
Female connectors (plug)	 <p>PSD</p>	 <p>PSS</p>	 <p>PRS</p>	
Male connectors (receptacle)		 <p>RSS</p>	 <p>RRS</p>	P556392

Dimensions are in mm // Drawings are to scale // L: Length

PSD: DAP & silicone overmoulded straight plug connector (female contact)
 PSS: Silicone overmoulded straight plug connector (female contact)
 PRS: Silicone overmoulded right angle plug connector (female contact)


RSS: Silicone overmoulded straight receptacle connector (male contact)
 RRS: Silicone overmoulded right angle receptacle connector (male contact)

AXOVOLT® WIRES RANGE

The following selection guide gives detailed information about wires of the AXOVOLT® range. From single wires to shielded and jacketed wires, AXON' offers the miniature wires suited to your application. We recommend the FEP insulated wires with silicone coating as the adherence with a silicone overmoulding is much better than with a FEP wire. The high voltage wires can be sold without the connectors.


AXOVOLT® Single wires

K: FEP INSULATED WIRES



CONSTRUCTION
 1 - SPC Conductor
 2 - FEP insulation (natural)

KSI: SILICONE COATED FEP INSULATED WIRES



CONSTRUCTION
 1 - SPC Conductor
 2 - FEP insulation (natural)
 3 - Silicone coating (according to wire color code)

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. OUTER Ø mm
		AWG	CONSTRUCTION (nb x Ø mm)	
K18HV2419 SPC	18	24	19x0.127	1.28
K20HV2219 SPC	20	22	19x0.160	1.52

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. OUTER Ø mm
		AWG	CONSTRUCTION (nb x Ø mm)	
KSI18HV2419 SPC	18	24	19x0.127	1.52
KSI20HV2219 SPC	20	22	19x0.160	1.78

AXOVOLT® Shielded & jacketed wires

KN: AROMATIC POLYAMIDE BRAIDED FEP INSULATED WIRES



1 2 3

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - Aromatic polyamide braid (natural)

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm	
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	OUTER
KN18HV2619 SPC	18	26	19x0.102	1.28	1.90

KS: SPC BRAIDED FEP INSULATED WIRES



1 2 3

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - SPC braided shield

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm	
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	OUTER
KS18HV2619 SPC	18	26	19x0.102	1.28	1.73

KK: FEP JACKETED, SPC BRAIDED FEP INSULATED WIRES



1 2 3 4

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - SPC braided shield
- 4 - FEP jacket (white)

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm		
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	BRAID	OUTER
KK18HV2619 SPC	18	26	19x0.102	1.28	1.73	2.30

KSIN: AROMATIC POLYAMIDE BRAIDED, SILICONE COATED FEP INSULATED WIRES



1 2 3 4

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - Silicone coating (white)
- 4 - Aromatic polyamide braid (natural)

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm	
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	OUTER
KSIN18HV2619 SPC	18	26	19x0.102	1.52	2.15

KSIS: SPC BRAIDED, SILICONE COATED FEP INSULATED WIRES



1 2 3 4

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - Silicone coating (white)
- 4 - SPC braided shield

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm	
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	OUTER
KSIS18HV2619 SPC	18	26	19x0.102	1.52	1.97

KSIK: FEP JACKETED, SPC BRAIDED, SILICONE COATED, FEP INSULATED WIRES



1 2 3 4 5

CONSTRUCTION

- 1 - SPC Conductor
- 2 - FEP insulation (natural)
- 3 - Silicone coating (white)
- 4 - SPC braided shield
- 5 - FEP jacket (white)

AXON' REFERENCE	OPERATING VOLTAGE kV DC	CONDUCTOR		NOM. Ø mm		
		AWG	CONSTRUCTION (nb x Ø mm)	WIRE	BRAID	OUTER
KSIK18HV2619 SPC	18	26	19x0.102	1.52	1.97	2.50

Custom Designs

This brochure presents the most common high voltage cable assemblies offered by AXON. For other requests, please contact us.

HOW TO ORDER AXOVOLT® CABLE ASSEMBLIES

Please select the right wire (type, voltage, colour) and connectors to order the cable assembly you need.

IDENTIFICATION CODE KSI 1824 D PSD RSS 1580

WIRE TYPES

K: FEP insulated wires
KSI: Silicone coated FEP insulated wires
KN: Aromatic polyamide braided* FEP insulated wires
KS: SPC braided FEP insulated wires
KK: FEP jacketed*, SPC braided FEP insulated wires
KSIN: Aromatic polyamide braided*, silicone coated** FEP insulated wires
KSIS: SPC braided, silicone coated** FEP insulated wires
KSIK: FEP jacketed**, SPC braided, silicone coated** FEP insulated wires

WIRE VOLTAGE & AWG

1824: 18kV DC / 24AWG / 19 strands (only for K and KSI wires)
1826: 18kV DC / 26AWG / 19 strands (only for KN, KS, KK, KSIN, KSIS and KSIK wires)
2022: 20kV DC / 22AWG / 19 strands
 (only for K and KSI wires / not for PRS and RRS connectors)

WIRE COLOUR

A: Natural (mandatory for K wires)
C: Brown (only for KSI wires)
E: Orange (only for KSI wires)
G: Green (only for KSI wires)
J: Purple (only for KSI wires)
B: Black (only for KSI wires)
D: Red (only for KSI wires)
F: Yellow (only for KSI wires)
H: Blue (only for KSI wires)
K: Grey (only for KSI wires)
M: Pink (only for KSI wires)
L: White (for KSI wires, mandatory for KSIN, KSIS & KSIK wires)

CONNECTOR 1

PSD: DAP & silicone overmoulded straight plug connector (female contact)
PSS: Silicone overmoulded straight plug connector (female contact)
PRS*:** Silicone overmoulded right angle plug connector (female contact)
RSS: Silicone overmoulded straight receptacle connector (male contact)
RRS*:** Silicone overmoulded right angle receptacle connector (male contact)

CONNECTOR 2

PSD: DAP & silicone overmoulded straight plug connector (female contact)
PSS: Silicone overmoulded straight plug connector (female contact)
PRS*:** Silicone overmoulded right angle plug connector (female contact)
RSS: Silicone overmoulded straight receptacle connector (male contact)
RRS*:** Silicone overmoulded right angle receptacle connector (male contact)
NOT: No second connector

Cable length tolerance:

0 < L < 499 mm	± 15 mm
500 < L < 999 mm	± 20 mm
1000 < L < 2999 mm	± 30 mm
3000 < L < 4999 mm	± 35 mm
5000 < L	± 50 mm

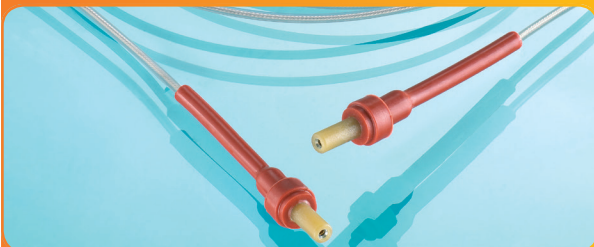
CABLE LENGTH

XXXX: Length in mm (Dimension L in the AXOVOLT® connector plans opposite)

* = natural white // ** = white colour // *** = only with 1824 and 1826 wires // SPC = Silver Plated Copper

Examples of AXOVOLT® cable assemblies.

K 1824 A PSS PSS 2000



K: FEP insulated wires
1824: 18kV DC / AWG24 / 19 strands
A: Natural
PSS: Silicone overmoulded straight plug connector (female contact)
PSS: Silicone overmoulded straight plug connector (female contact)
2000: Length in mm

KSI 2022 H RSS NOT 1100



KSI: Silicone coated FEP insulated wires
2022: 20kV DC / AWG22 / 19 strands
H: Blue
RSS: Silicone overmoulded straight receptacle connector (male contact)
NOT: No second connector
1100: Length in mm

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