

MSUD double valve A-18mm with cable

PVC 4x0.75 bk 15m

Form A (18 mm) 24 V AC ±20% / DC ±25% LED and suppression Connection cable L = 110 mm Further cable lengths on request.

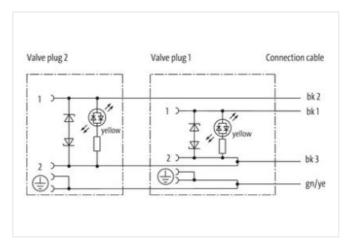
Plastic housings with good resistance against chemicals and oils.

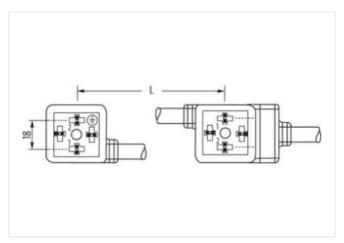
The resistance to aggressive media should be individually tested for your application. Further details on request.

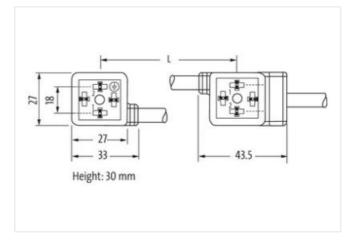
Link to Product

Illustration









Product may differ from Image



15 m Cable length

Side 1

0,4 Nm Tightening torque

The information in this Product-PDF has been compiled with the utmost care.
Liability for the correctness completeness and topicality of the information is restricted to gross negligence. Version: 2024-06-22



stay connected

Material	Thread	M3
Tightening torque 0,4 Nm Thread M3 Material PBT Commercial data PBT Commercial data PBT ECLASS 6.0 27279218 ECLASS 7.0 27279218 ECLASS 7.0 27279218 ECLASS 9.0 27279218 ECLASS 9.0 27279218 ECLASS 9.1 27060312 ECLASS 9.1 27060312 ECLASS 9.1.1 27060312 ECLASS 9.2.0 27060312 ECLASS 9.1.0 27060312 ECLASS 9.1.0 27060312 ECLASS 9.1.0 27060312 ECLASS 9.2.0 27070312 Eccharical data 3007 Electrical data Suppose to the s	Material	PBT
Treed	Side 2	
Treed	Tightening torque	0.4 Nm
Material PBT		
Commercial data ECLASS-6.0 27273218 ECLASS-7.0 27273218 ECLASS-7.0 27273218 ECLASS-8.0 27273218 ECLASS-9.0 27060312 ECLASS-10.1 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ECLASS-12.0 27060312 ECLASS-12.1 27060312 ECLASS-12.0 27070312 ECLASS-12.0 27070312 ECLASS-12.0 27060312 ECLASS-12.1 27070312 ECLASS-12.0 27080312 ECLASS-12.0 27080312 ECLASS-12.1 27070312 ECLASS-13.1 27080312 ECLASS-17.1 27070312 ECLASS-17.1 27070312 ECLASS-17.1 27070312 ECLASS-17.1 27070312 Electrical data 27070312 Dropo of London (State Lange Lan		
ECLASS-6.0 27279218 ECLASS-6.1 27279218 ECLASS-7.0 27279218 ECLASS-8.0 27279218 ECLASS-8.0 27060312 ECLASS-10.1 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ETM 5.0 ECO01855 oustorns staff number 55444290 GTN 404879632663 Packaging unit 1 Electrical data Electrical data Drop-out delay lime max. 20 ms Electrical data Supply Electrical data Supply Operating voltage AC 24 V Operating voltage AC max. 28.8 V Operating voltage AC max. 28.8 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC min. 20 M Current operating per contact max. 4 A Current operating per contact max. 4 A Degree of protection (EN EC 6052) PE7 Additional condition protection degree inserted, screwed		·
ECLASS-6.1 27279218 ECLASS-7.0 27279218 ECLASS-8.0 27279218 ECLASS-9.0 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ECLASS-17.0 ECOMBST ECLASS-17.0 ECOMBST ETM-5.0 ECOMBST customs tartiff number 85444290 GTN 4088798328683 Pockaging unit 1 Electrical data 1 Drop-out delay time max. 20 ms Electrical data Supply 1 Operating voltage AC 24 V Operating voltage AC max. 28,8 V Operating voltage AC max. 28,8 V Operating voltage DC max. 18 V Operating voltage DC max. 30 V Cut-off pask voltage max. 4 A Current operating per contact max. 4 A Current operating per contact max. 4 A Degree of protuction (EN ICC 6052) IP67 Additional condition protection degree inserted, screwed Pollution Degree </td <td></td> <td>07070040</td>		07070040
ECLASS-7.0 22729218 ECLASS-8.0 27778218 ECLASS-9.0 27060312 ECLASS-10.1 27060312 ECLASS-12.0 27060312 ETIMS-5.0 ECO01895 Laucisons farfil mumber 6844200 GTIN 404887832663 Packaging unt 1 Electrical data V Becrical data Supply V Operating voltage AC max 20 ms Perating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage DC min. 18 V Out-off peaks voltage max. 55 V Cut-off peaks voltage max. 12 mA Diagnostics 12 mA Status inclusion LEO yolkov Device protection (EN IEC 60529) IP67 Additional support collection degree inserted, screwed Pollution Deg		
ECLASS-8.0 27279218 ECLASS-9.0 27060312 ECLASS-10.1 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ETIM-5.0 ECO01855 customs tariff rumber 8544290 GTIN 404897883263 Packaging unit 1 Electrical data Very Control of Call and Supply Operating voltage May 2 ms Electrical data I Supply Very Coparating voltage AC min. Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage AC max. 28.8 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off uposak voltage max. 55 V Cut-off uposak voltage max. 12 mA Diagnostics Very Coparating voltage PC max. Diagnostics Very Coparating voltage PC max. Degree of protection (Electrical Very Coparating voltage PC max.		
ECLASS-9.0 27060312 ECLASS-10.1 27060312 ECLASS-11.1 27060312 ECLASS-12.0 27060312 ECLASS-12.0 EC001855 Cucustoms tariff member 85444290 GTIN 4048878833663 Packaging unit 1 Electrical data Supply Electrical data Supply Poperating voltage AC 24 V Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage DG min. 18 V Operating port contact max. 4 A Current consumption max. 12 mA Diegnostics 9 Status indication LED yellow Degree of protection Electrical 9 Degree of protection Electrical 9 Degree of protection Ele		
ECLASS-10.1 27060312 ECLASS-12.0 27060312 ECLASS-12.0 27060312 ETIM-5.0 EC001855 usatioms tariff number 85444290 GTIN 4048879832663 Packaging unit 1 Electrical data Drop-out delay time max. Drop-out delay time max. 20 ms Electrical data Supply Poperating voltage AC mx. Operating voltage AC mx. 28 8 V Operating voltage AC max. 28,8 V Operating voltage DC max. 30 V Operating voltage DC max. 30 V Cut off peak voltage max. 55 V Cutrent operating per contact max. 4 A Current operating per contact max. 12 mA		
ECLASS-1.1.1 27060312 ECLASS-12.0 27060312 ETIMS-0 ECO01855 customs tariff number 85444290 GTIN 4048879832663 Packaging unit 1 Electrical data Urgo ut delay time max. Electrical data Supply Operating voltage AC min. Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cutrent operating per contact max. 4 A Current operating per contact max. 4 A Current operating per contact max. 4 P Degree of protection [Electrical yellow Device of protection [Electrical yellow Degree of protection [Electrical yellow Degree of protection [Electrical yellow Degree of protection [Electrical yellow Additional condition protection degree		
ECLASS-12.0 27060312 ETIM-5.0 EC001855 customs taiff number 8544290 GTIN 4048879832663 Packaging unit 1 Electrical data ************************************		
ETIM 5.0 EC001855 customs tariff number 89444290 GTIN 404878932683 Packaging unit 1 Electrical data Verbrief of Units of State (State (
customs tariff number 85444290 GTIN 4048879832663 Packaging unit 1 Electrical data Valentification Prop-out delay time max. 20 ms Electrical data Supply Valentification Operating voltage AC 24 V Operating voltage AC max. 28.8 V Operating voltage AC max. 28.8 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Cut-off peak voltage max. 55 V Unique of consumption max. 12 mA Diagnostics Valor Status indication LED yellow Device protection [Electrical Polication Device in Electrical Degree of protection [Electrical Polication Degree Radid surge voltage 0.8 kV Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0.8 kV Material goup (EC 60664-1) 1 Additional suppressor Diode, 2-Diode </td <td></td> <td></td>		
GTIN 4048879832663 Packaging unit 1 Electrical data Valority Drop-out delay time max. 20 ms Electrical data Supply Valority Operating voltage AC min. 19.2 V Operating voltage AC min. 19.2 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating voltage max. 55 V Current operating per contact max. 4 A Current operating per contact max. 4 A User protection Electrical Per Degree of protection Electrical Per Degree of protection Electrical Per Additional condition protection degree 3 Retact surge voltage 0.8 kV Material group (EC 60664-1) 1 Additional suppressor Diode, Z-Diode Mechanical data Material data PuR Color housing black Material gasket PuR Locking material Steel Mechanical data		
Packaging unit 1 1		
Electrical data 20 ms Electrical data Supply 24 V Operating voltage AC 24 V Operating voltage AC max. 28.8 V Operating voltage DC max. 28.8 V Operating voltage DC min. 18 V Operating voltage DC min. 18 V Operating postage DC max. 30 V Cut-off peak voltage max. 55 V Current operating per contact max. 4 A Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics V Status indication LED yellow Degree of protection [EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rate dauge voltage 0,8 kV Material group (IEC 60664-1) 1 Additional continue to the protection of the		
Drop-out delay time max. 20 ms		
Pectating voltage AC		
Operating voltage AC 24 V Operating voltage AC min. 19,2 V Operating voltage AC max. 28,8 V Operating voltage DC 24 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Current consumption max. 12 mA Diagnostics Status indication LED period Degree of protection Electrical Degree of protection Electrical Degree of protection (EN IEC 60529) Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) 1 Additional suppressor Diode, Z-Diode Mechanical data Material data Color housing black Material gasket PUR Coking locking atterial Steel Mechanical data Mounting data Mounting method inserted, screwed Environmenta	Drop-out delay time max.	20 ms
Operating voltage AC min. 19,2 V Operating voltage AC max. 28,8 V Operating voltage DC 24 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-oft peak voltage max. 55 V Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) 1 Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics C	Electrical data Supply	
Operating voltage AC max. 28.8 V Operating voltage DC min. 24 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Verzinkt Coating locking verzinkt Color housing black Material gasket PUR Locking material steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25	Operating voltage AC	24 V
Operating voltage DC 24 V Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25 °C Operating temperature max. 85 °C	Operating voltage AC min.	19,2 V
Operating voltage DC min. 18 V Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60684-1) 1 Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material See! Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25 °C Operating temperature max. 85 °C	Operating voltage AC max.	28,8 V
Operating voltage DC max. 30 V Cut-off peak voltage max. 55 V Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics Status indication LED yellow Degree of protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25 °C Operating temperature max. 85 °C	Operating voltage DC	24 V
Cut-off peak voltage max. 55 V Current operating per contact max. 4 A Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection [Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25 °C Operating temperature max. 85 °C		18 V
Current operating per contact max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 6064-1) I Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Operating voltage DC max.	30 V
Current consumption max. 12 mA Diagnostics Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C		55 V
Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C		4 A
Status indication LED yellow Device protection Electrical Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Current consumption max.	12 mA
Device protection Electrical Degree of protection (EN IEC 60529)	Diagnostics	
Degree of protection (EN IEC 60529) IP67 Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 6064-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material steel Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Status indication LED	yellow
Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Device protection Electrical	
Additional condition protection degree inserted, screwed Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Degree of protection (EN IEC 60529)	IP67
Pollution Degree 3 Rated surge voltage 0,8 kV Material group (IEC 60664-1) I Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C		inserted, screwed
Rated surge voltage 0,8 kV Material group (IEC 60664-1) 1 Additional suppressor Diode, Z-Diode Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C		
Additional suppressor Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min. -25 °C Operating temperature max. Biologe, Z-Diode verzinkt Diode, Z-Diode verzinkt verzinkt PUR Steel PUR Inserted, screwed Environmental characteristics Climatic Operating temperature max. 85 °C	Rated surge voltage	0,8 kV
Mechanical data Material data Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Material group (IEC 60664-1)	I
Coating locking verzinkt Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Additional suppressor	Diode, Z-Diode
Color housing black Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Mechanical data Material data	
Material gasket PUR Locking material Steel Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Coating locking	verzinkt
Locking material Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Color housing	black
Mechanical data Mounting data Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Material gasket	PUR
Mounting method inserted, screwed Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Locking material	Steel
Environmental characteristics Climatic Operating temperature min25 °C Operating temperature max. 85 °C	Mechanical data Mounting data	
Operating temperature min25 °C Operating temperature max. 85 °C	Mounting method	inserted, screwed
Operating temperature max. 85 °C	Environmental characteristics Climatic	;
	Operating temperature min.	-25 °C
Additional condition temperature range depending on cable quality	Operating temperature max.	
		depending on cable quality

The information in this Product-PDF has been compiled with the utmost care. Liability for the correctness completeness and topicality of the information is restricted to gross negligence. Version: 2024-06-22



stay connected

Note on strain relief	Protect the connectors by suitable measures from mechanical loads, e.g. by the usage of cable ties.
Note on bending radius	Attention: Observe the permissible bending radii when laying cables, as the IP protection class can be endangered by excessive bending forces.
Installation Cable	
wire arrangement	black 1, black 2, black 3, green-yellow
Cable identification	617
Cable Type	1
Printing color of wire insulation	white (isolation black)
Jacket Color	black
Amount stranding	1
Stranding	4 wires twisted
wire arrangement	black 1, black 2, black 3, green-yellow
Cable weigth	77,66 g/m
Material jacket	PVC
Shore hardness jacket	80 ± 5 Shore A
Freedom from ingredients (jacket)	lead-free, cadmium-free, CFC-free, silicone-free
Outer-diameter (jacket)	6.5 mm
Tolerance outer diameter (sheath)	± 5 %
Material wire insulation	PVC
Amount wires	4
Outer diameter insulation	1,8 mm
Outer diameter tolerance core insulation	± 5 %
Shore hardness wire insulation	43 ± 5 Shore D
Material properties wire insulation	good machinability
Ingredient freeness wire insulation	lead-free, cadmium-free, CFC-free, silicone-free
Printing color of wire insulation	white (isolation black)
Amount strands (wire)	24
Diameter of single wires	0.2 mm
Conductor crosssection (wire)	0.75 mm ²
Material conductor wire	Stranded copper wire, bare
Conductor type (wire)	Strand class 5
Max. rated voltage (conductor - conductor)	500 V
Max. rated voltage (conductor - ground)	300 V
	to DIN VDE 0298-4
Current load capacity (standard) Current load capacity min. wire	9,6 A
Electrical resistance line constant wire	9,6 A 26 Ω/km @ 20 °C
AC withstand voltage (wire - wire)	3 kV @ 60 s
Power frequency withstand voltage (wire - acket)	3 kV @ 60 s
Min. operating temperature (static)	-30 °C
Max. operating temperature (state)	70 °C
Operating temperature (ince)	-5 °C
Operating temperature max. (dynamic)	70 °C
UV resistance	DIN EN ISO 4892-2 A
Flame resistance	IEC 60332-2-2 UL 1581 § 1090 UL 1581 § 1100 FT2
chemical resistance	Good, application-related testing
Gasoline resistance	Good, application-related testing
Oil resistance	DIN EN 60811-404 Good, application-related testing
Bending radius (fixed)	5 x Outer diameter
Bending radius (dynamic)	10 x Outer diameter