Connectivity Solutions

Cable assemblies according to Allen-Bradley® standard 2090

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
Efficiency in Automation

Cable • Connectivity • Cabinet • Control
Welcome to LUTZE

LUTZE has been developing and manufacturing electronic and electrical engineering solutions for controls and installations for more than 50 years. Our basic concept as a system supplier for factory automation is to provide a comprehensive and well-matched product range.

LUTZE Servo cable assemblies according to ALLEN BRADLEY®.

LUTZE has a long standing reputation as a manufacturer of factory automation cables. These high performance cables are now available pre-assembled to connect your ALLEN BRADLEY® servo drive systems.

LUTZE servo cable assemblies are fully suitable with ALLEN BRADLEY® drive systems. As a special service LUTZE offers each cable assembly in custom lengths of 0.5 m increments. The product offering includes all power and feedback sizes. In addition, raw cable is available for field assembly. There is no minimum order amount, delivery times are short and there is a cost-effective price/performance ratio.

LUTZE systems comply with the highest industrial standards, LUTZE solutions mean improvement and innovation. Our solutions include components and concepts suitable for almost any automation application.

For more information on our solutions, please visit www.lutze.com
Standard Cable Assembly Solutions

LUTZE servo cable assemblies are fully compatible with respective ALLEN BRADLEY® systems.

Additionally LUTZE offers servo cable assemblies for SIEMENS 6FX and Bosch Rexroth systems. For servo motors, encoder and feedback cables, for C-track or fixed installation, LÜTZE offers lots of solutions for highest requirements.

Every system is different. Take advantage of our experience in cable assembly!
Advantages of LÜTZE Tamper-proof connector

LÜTZE covers the full range of connectors needed for the specific servo systems including power, feedback and single configurations.

Certain connectors provide integrated kink protection via spiral plastic sleeve. All connectors ensure proper 360° EMC shielding, thus meeting and exceeding requirements of the demanding industrial applications.

Other benefits:
- Tamper-proof: to avoid unauthorized opening of the connector housing and incorrect field terminations
- Fully compatible with respective servo systems
- Production of single unit available
- Short delivery times
- Protection class IP66/67
Applications

LUTZE Servo Cable Assemblies in action: Power- and Feedback assembly connected to motor jacks with SpeedTec connector!

Wiring inside and on the cabinet: LUTZE cable assemblies are always system compatible and offer great flexibility.
Servomotor Cable Assemblies for stationary applications

According to Allen-Bradley 2090 standard

Application
- For Allen-Bradley standard
- Connecting lead especially for frequency converters and servo drives in machine and plant construction, transport and conveyor technology
- Conform with NFPA79 for machine tool wiring
- Very suitable for extreme operating conditions and high interference signals
- In dry, moist and wet environment
- Especially for industrial environments in mechanical and system engineering

Properties
- High active and passive interference resistance (EMC)
- Easy installation
- Largely resistant to mineral and vegetable-based cutting oils
- UV-resistant
- Silicone and talcum free
- RoHS compliant

Technical data

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Allen-Bradley designation</th>
<th>Length</th>
<th>Number of strands/ cross-section</th>
<th>OD ( \varnothing ) ca. mm</th>
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UL approval and technical data shown apply to the cable used in the assemblies.

Part approval and technical data shown apply to the cable used in the assemblies.

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Usage guidelines and safety instructions are provided in the product documentation.
Servomotor Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard

**Application**
- Servo cables for Allen Bradley drives
- Through optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in machines and plants

**Properties**
- High active and passive interference resistance (EMC)
- Silicone free
- RoHS compliant

**Technical data**

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Allen-Bradley designation</th>
<th>Length m</th>
<th>Number of strands/ cross-section</th>
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**Construction**
- Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
- Special TPE/HGI conductor insulation
- Conductor marking: Power conductors black with numbered print, ULV1/QL+, V1L2, WHL3/DL-
- Ground conductor green/yellow according to DIN EN 50334
- Control pair color-coded (bw, wb) or numbered (5/6/7/8)
- Control pair with braided shield and foil taping
- Conductors twisted without mechanical stress, layer pitch optimised
- Non-woven material over cable core
- Braid from tinned copper wire, optical coverage ≥ 85 %
- Outer jacket Full polyurethane jacket, matte, adhesion-free surface
- Jacket color orange RAL 2003

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Servomotor Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard

Application
• Servo cables for Allen Bradley drives
• Through optimized cable construction optimally suited for continuous flexing applications in C-tracks
• Very good resistance against aggressive coolants and lubricants
• Especially for industrial environments in machines and plants

Properties
• High active and passive interference resistance (EMC)
• Silicone free
• RoHS compliant

Technical data

UL approval AWM 21223
Nominal voltage 1000 V 80 °C
Test voltage 4000 V
Temperature range
  moving -25 °C to +80 °C
  fixed -40 °C to +80 °C
Minimum bending radius
  moving D × 10
  fixed D × 6
Burning behavior Flame-retardant according to
  VDE 0482 T 265-2,
  IEC 60332-1,
  UL 1581 section 1080 VW-1,
  CSA FT 1
Halogens free according to DIN EN 50267-2-1

Construction
• Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
• Special TPE/HGI conductor insulation
• Conductor marking Power conductors black with numbered print U/L1/C/L+, V/L2, W/L3/D/L-
• Ground conductor green/yellow according to DIN EN 50334
• Control pair color-coded (bw, wb) or numbered (5/6/7/8)
• Control pair with braided shield and foil taping
• Conductors twisted without mechanical stress, layer pitch optimized
• Non-woven material over cable core
• Braid from tinned copper wire, optical coverage ≥ 85%
• Outer jacket Full polyurethane jacket, matte, adhesion-free surface
• Jacket color orange RAL 2003

<table>
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<tr>
<th>Part No.</th>
<th>Allen-Bradley designation</th>
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Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
Signal Cable Assemblies for stationary applications

According to Allen-Bradley 2090 standard

Application
- Feedback cables for Allen Bradley drives
- Conform with NFPA79 for machine tool wiring
- Very suitable for extreme operating conditions and high interference signals
- In dry, moist and wet environment
- Especially for industrial environments in mechanical and system engineering

Properties
- High active and passive interference resistance (EMC)
- Easy installation
- Specially developed TPE jacket for superior oil-resistance according to UL 1581
- Largely resistant to mineral and vegetable-based cutting oils
- UV-resistant
- Silicone and talcum-free
- RoHS compliant

Technical data
- Nominal voltage: 300 V UL PLTC-ER, 300 V UL CM, 600 V UL AWM 90 °C
- Test Voltage: 1.5 kV
- Temperature range: -30 °C to +105 °C (static -40 °C)
- Minimum bending radius: min. D × 6, static
- Burning behavior: Flame retardant per UL Vertical-Tray UL VW-1
- Oil resistance: UL1581
- 4 days in Oil at 100 °C, 60 days in Oil at 75 °C
- Approvals: A1410001, UL PLTC-ER, meets NEC 725 and Class I Div. 2, A1410002, UL CM, meets NEC 800. Both: UL AWM Style 20626, CE, RoHS, REACH

Construction
- AWG conductor
- Flexible fine wire stranded bare copper conductors IEC 60228 class 6
- Conductor insulation Special PVC
- Conductor marking Conductors color-coded for specific system
- Aluminium laminated film shield, braid made of tinned copper wires, optical coverage approx. 85 %, drain wire
- Outer jacket Extremely oil-resistant TPE jacket
- Jacket color green RAL 6018

Part No. | Allen-Bradley designation | Length m | Number of strands/cross-section | OD ∅ ca. mm
---|---|---|---|---
Base cable SpeedTec
193356.1000 | 2090-CFBM7DF-CEAxx* | 10.0 | (5×2×AWG22) | 9.9
193358.1000 | 2090-CFBM7DD-CEAxx* | 10.0 | (5×2×AWG22) | 9.9
DIN thread
193337.1000 | 2090-XXNFMF-Sxx* | 10.0 | (2×AWG16+2×AWG22+6×2×AWG26) | 13.6

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**Signal Cable Assemblies for C-tracks**

According to Allen-Bradley 2090 standard

**Application**
- Servo feedback cables for Allen Bradley drives
- Through optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in machines and plants

**Properties**
- High active and passive interference resistance (EMC)
- Silicone free
- RoHS compliant

**Technical data**
- **Construction**
  - Bare copper wire, finest multi-strand according to DIN VDE 0295 class 6, IEC 60228 class 6
  - Special TPE
  - Conductor marking: Conductors color-coded for specific system
  - Ground conductor green/yellow according to DIN EN 50334, G = with green/yellow ground conductor, × = without ground conductor
  - Conductors twisted without mechanical stress, layer pitch optimized
  - Non-woven material over cable core
  - Braid from tinned copper wire, optical coverage ≥ 85 %
  - Outer jacket: Full polyurethane jacket, matte, adhesion-free surface
  - Jacket color green RAL 6018

<table>
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<tr>
<th>Part No.</th>
<th>Allen-Bradley designation</th>
<th>Length m</th>
<th>Number of strands/cross-section</th>
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Single Cable Assemblies for C-tracks

According to Allen-Bradley 2090 standard

Application
- Combined power supply cable with motor supply, brake and digital feedback especially for SERVO drives in machine and plant construction, transport and conveyor technology
- Through Full PUR jacket and TPE/HGI conductor insulation optimally suited for c-tracks, extremely harsh operating conditions and aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

Properties
- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, tear-propagation-resistant
- Hydrolysis-resistant, microbe-resistant, and rot-resistant
- Weathering, ozone and UV resistant (normal lighting conditions)
- Good resistance to use and salt water
- Excellent coolant and lubricant resistance
- Largely resistant to oils, greases, alcohol-free benzines and kerosene
- Halogen free
- Silicone and talcum free
- RoHS compliant

Technical data
- Bare copper braid, fine stranded according to DIN VDE 0295 class 6, IEC 60228 class 6
- Conductor insulation Polyolefin
- Conductor marking Power conductors black with numbered print U/L1/C1+, V/L2, W/L3/DL-
- Ground conductor green/yellow according to DIN EN 50334
- Copper/stranded Power conductors black with numbered print UL1/C1+, V/L2, W/L3/DL-
- Control pair color-coded (bw, wb), BUS element color-coded (bw, wb)
- Control pair and BUS element each with braided shield and foil taping
- Strands for the power supply, element brake and element BUS braided together
- Non-woven material over cable core
- Braid from tinned copper wire, optical coverage ≥ 85 %
- Jacket special PUR, matt, adhesion-free surface
- Jacket color orange RAL 2003

UL approval and technical data shown apply to the cable used in the assemblies

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Allen-Bradley designation</th>
<th>Length m</th>
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<td>193979.1000</td>
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</tbody>
</table>

Base cable with 2198-KITCON-DSL

Base cable for Kinetix 5500 Drives max. 50 m
Base cable for Kinetix 5700 Drives max. 90 m
Extension cable max. 30 m

Construction
- Bare copper braid, fine stranded according to DIN VDE 0295 class 6, IEC 60228 class 6
- Conductor insulation Polyolefin
- Conductor marking Power conductors black with numbered print UL1/C1+, V/L2, W/L3/DL-
- Ground conductor green/yellow according to DIN EN 50334
- Copper/stranded Power conductors black with numbered print UL1/C1+, V/L2, W/L3/DL-
- Conductor insulation Polyolefin
- Conductor marking Power conductors black with numbered print UL1/C1+, V/L2, W/L3/DL-
- Control pair color-coded (bw, wb), BUS element color-coded (bw, wb)
- Control pair and BUS element each with braided shield and foil taping
- Strands for the power supply, element brake and element BUS braided together
- Non-woven material over cable core
- Braid from tinned copper wire, optical coverage ≥ 85 %
- Jacket special PUR, matt, adhesion-free surface
- Jacket color orange RAL 2003

* Allen-Bradley article designations are registered trademarks of Rockwell Allen Bradley, and are for reference purposes only
The product photos are not to scale and do not represent detailed images of the respective products.
* UL approval and technical data shown apply to the cable used in the assemblies
LÜTZE SILFLEX® M (C) TPE POWER TRAY CABLE
Flexible Motor Cable for Allen-Bradley and other systems

Application
• Shielded multi-conductor cable for motor and servo motor applications
• Cable design for harsh industrial environments and operating conditions with high noise levels
• Improved insulation design with additional conductor stress relief layer as a power distortion suppressant
• Compliant with NFPA 79 for machine tool wiring
• TC-ER for use with cable trays without conduit, which can reduce material and labor costs
• UL Type 1000V Flexible Motor Supply Cable for Motor/Power applications
• Dry, damp and wet locations

Properties
• Conductor stress relief layer prevents premature cable failure and reduces corona effects, increasing reliability and lifetime
• Flexible design with Nylon for crush impact resistance per UL 1277 and easy installation
• Very round cable with small diameter
• Specially formulated TPE jacket for superior oil resistance per Oil Res I and II
• Resistant to many mineral and vegetable based cutting oils
• Non-wicking fillers
• Sunlight resistant
• Direct burial

Technical data
Nominal voltage
1000 V Flexible Motor Supply
1000 V WTTC
600 V UL TC
600 V UL MTW
600 V UL AWM 105 °C
Temperature range
moving -5 °C to +90 °C
fixed -40 °C to +90 °C (105 °C)
Minimum bending radius
moving D × 15
fixed D × 6

Part No. No. of conductors incl. ground Outer Ø mm Outer Ø inches Weight Lbs/Mft Cu-Index Lbs/Mft
Construction without signal pair
A3161604 AWG 16 (16/30)
(4GAWG16)
10.5 0.410 124 50
A3161404 AWG 14 (41/30)
(4GAWG14)
11.6 0.455 159 71
A3161204 AWG 12 (65/30)
(4GAWG12)
13.1 0.510 214 107
A3161004 AWG 10 (105/30)
(4GAWG10)
16.5 0.650 321 161
A3160804 AWG 8 (168/30)
(4GAWG8)
21.0 0.825 490 267

Construction with one signal pair
A3171604 AWG 16 (16/30)
(4GAWG16+(2×AWG18))
12.1 0.477 161 72
A3171404 AWG 14 (41/30)
(4GAWG14+(2×AWG18))
12.8 0.505 196 92
A3171204 AWG 12 (65/30)
(4GAWG12+(2×AWG18))
15.0 0.581 263 128
A3171004 AWG 10 (105/30)
(4GAWG10+(2×AWG18))
18.1 0.716 380 191
A3170804 AWG 8 (168/30)
(4GAWG8+(2×AWG18))
22.5 0.890 568 285
A3170604 AWG 6 (266/30)
(4GAWG6+(2×AWG18))
25.5 1.000 786 417
A3170404 AWG 4 (413/30)
(4GAWG4+(2×AWG18))
29.5 1.162 1119 613
A3170204 AWG 2 (665/30)
(4GAWG2+(2×AWG18))
34.1 1.340 1543 983

Construction
• Bare E-copper wire, ASTM, AWG Class K
• PVC/Nylon insulation with conductor stress relief layer
• Strand color brown, black, blue, purple: black, white
• Outer jacket Special TPE according to UL 1581
• Jacket color orange RAL 1581

Allen-Bradley article designations are registered trademarks.
Specifications are subject to change without prior notice.
LÜTZE SUPERFLEX® PLUS M (C) PUR SERVO 0.6/1 kV
High Flexing Motor Cable for Siemens and other systems
For highest requirements

Application
- Connection cable motor or motor/brake especially for frequency converters and SERVO drives in machine and plant construction, transport and conveyor technology
- Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
- Very good resistance against aggressive coolants and lubricants
- Especially for industrial environments in mechanical and system engineering

Properties
- High active and passive interference resistance (EMC)
- Braided shield optimised for continuous flexible use
- Very good alternating bending strength
- Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
- Weatherproof, ozone and UV resistant (normal lighting conditions)
- Good ruggedness and salt water resistance
- Excellent coolant and lubricant resistance
- Resistant to most oils, greases, alcohol-free benzines and kerosene
- Silicone free
- RoHS compliant

Technical data
- UL style: AWM 21223
- Rated voltage UL: 1000 V
- Rated voltage U0/U: 600/1000 V
- Test voltage type: AC 4000 V
- Insulation resistance at 20°C: ≥ 500 MΩ×km
- Temperature according to UL: 80 °C
- Temperature range moving: -25 °C ... +80 °C
- Temperature range fixed: -40 °C ... +80 °C
- Minimum bending radius moving: 7.5×D ≤ 16 mm²
- Minimum bending radius fixed: 5×D
- Burning behavior: VDE 0482 Part 265-2, DIN EN 50265-2, IEC 60332-1, UL 1581 Part 1080 VW-1, CSA FT1
- Halogen free according to: IEC 60754-1, EN 50367-2-1

Construction
- Conductor: CU-wire bare
- Conductor category: IEC 60228, Class 6
- Conductor insulation: Special TPE
- Conductor marking: black, with white print, UL1/C/L+, V/L2, W/3/L/D/L, green/yellow
- Conductor marking standard: DIN EN 50334
- Overall stranding: Conductors twisted without mechanical stress
- Overall wrapping: Non-woven material
- Overall shield: Braid shield, Tinned copper wires, optical cover approx. 85%
- Ground conductor: green/yellow according to DIN EN 50334
- Jacket material: PUR
- Surface: adhesion-free, matt
- Jacket color: orange RAL 2003

Part No. | Number of conductors/cross-section | Outer Ø | Weight | Cu-Index
--- | --- | --- | --- | ---
Construction without signal pair
111879 | (4G1.0) | 7.4 | 10.8 | 6.5
111460 | (4G1.5) | 8.6 | 11.7 | 8.3
111461 | (4G2.5) | 10.8 | 17.3 | 13.0
111462 | (4G4) | 12.2 | 24.5 | 19.3
111463 | (4G6) | 14.0 | 36.5 | 27.5
111464 | (4G10) | 17.6 | 54.9 | 45.0
111465 | (4G16) | 21.2 | 84.9 | 72.0
111466 | (4G25) | 25.0 | 129.9 | 108.0
111467 | (4G35) | 28.8 | 169.2 | 152.4
111468 | (4G50) | 33.9 | 244.2 | 216.8

Construction with one signal pair
111420 | (4G1.5+(2×1.5)) | 11.4 | 21.0 | 14.9
111421 | (4G2.5+(2×1.5)) | 12.9 | 23.5 | 19.3
111422 | (4G4+(2×1.5)) | 14.5 | 32.0 | 25.5
111423 | (4G6+(2×1.5)) | 16.1 | 43.0 | 33.9
111424 | (4G10+(2×1.5)) | 19.5 | 68.0 | 52.6
111425 | (4G16+(2×1.5)) | 23.6 | 95.6 | 77.3
111426 | (4G25+(2×1.5)) | 28.5 | 136.5 | 113.0
111427 | (4G35+(2×1.5)) | 31.0 | 274.6 | 159.0
111428 | (4G50+(2×1.5)) | 34.5 | 373.7 | 224.0

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU
*Siemens article designations are registered trademarks of Siemens AG
* UL approval and technical data shown apply to the cable used in the assemblies

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
Feedback cables for Allen-Bradley and other Systems

Application
- Incremental encoder cable and resolver cable for tacho sensor, brake sensor, speed sensor
- Cable design for harsh industrial environments and operating conditions with high noise level
- UL listed and NFPA 79 compliant
- Dry, damp and wet locations

Properties
- High active and passive interference resistance (EMC)
- Flexible for easy installation
- Specially formulated TPE jacket for superior oil resistance according to UL1581
- Resistant to many mineral & vegetable based cutting oils
- Non-wicking fillers
- Extended temperature range and premium durability
- Sunlight resistant
- Talc and Silicone free

Technical data
Nominal voltage 600 V UL AWM 90 °C
Test voltage 1500 V
Temperature range
    moving -5 °C to +90 °C
    fixed -40 °C to +90 °C (105 °C)
Minimum bending radius
    moving D × 15
    fixed D × 6
Approvals
    UL AWM Style 20626
    UL CM, meets NEC 800
    Oil Res I and II
    CE
    RoHS
    REACH
    A1410001: UL PLTC-ER, meets NEC 725 and Class I Div. 2

Construction
- Bare E-copper wire, ASTM, AWG Class K
- Conductor insulation Special-PVC
- Color coded wires
- Shielded with foil tape, drain wire and tinned copper braid shield, optical coverage 85%
- Special TPE jacket Bio oil resistant
- Jacket color green RAL 6018

Part No. Number of strands/cross-section/ strand colors    OD Ø ca. mm    OD Ø inches    Weight Lbs/Mft    Cu-Index Lbs/Mft
A1410001 (5×2×AWG22) black, black/white, red, red/white, green, green/white, yellow, yellow/white, orange, orange/white 9.9 0.390 102.0 40
A1410002 (1×2×AWG16+1×2×AWG22+6×2×AWG26) 1×2×AWG16 green/yellow/white, yellow/white 1×2×AWG22 orange, orange/white 6×2×AWG26 black, black/white, red, red/white, green, green/white, blue, blue/white, brown, brown/white, yellow, yellow/white 13.6 0.537 143.0 54

Allen-Bradley article designations are registered trademarks. Specifications are subject to change without prior notice.

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
LÜTZE SUPERFLEX® PLUS (C) PUR FEEDBACK
Feedback cables for Allen-Bradley and other systems
For highest requirements in drive technology

Application
• Incremental encoder cable, connection cable for tacho sensor, brake sensor, speed sensor
• Due to optimized cable construction optimally suited for continuous flexing applications in C-tracks
• Very good resistance against aggressive coolants and lubricants
• Especially for industrial environments in mechanical and system engineering

Properties
• High active and passive interference resistance (EMC)
• Braided shield optimised for continuous flexible use
• Very good alternating bending strength
• Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
• Hydrolysis-resistant, microbe-resistant, and rot-resistant
• Weatherproof, ozone and UV resistant (normal lighting conditions)
• Good ruggedness and salt water resistance
• Excellent coolant and lubricant resistance
• Resistant to most oils, greases, alcohol-free benzines and kerosene
• Silicone free
• RoHS compliant

Technical data
UL style AWM 21223
Rated voltage UL 1000 V
Test voltage type AC 2000 V
Insulation resistance at 20°C ≥ 200 MΩ/km
Temperature according to UL 80 °C
Temperature range moving -25 °C ... +80 °C
Temperature range fixed -40 °C ... +80 °C
Minimum bending radius moving 12×D
Minimum bending radius fixed 6×D
Burning behavior VDE 0482 Part 265-2
Conductor: CU-wire bare
Conductor category: IEC 60228, Class 6, DIN EN 13602, Superfi
nely stranded DIN VDE 0295
Conductor insulation: Special TPE
Conductor marking: Colour coded
Overall stranding: Elements stranded together
Overall wrapping: Non-woven material
Overall shield: Braided shield, Tinned copper wires, optical cover approx. 85%
Jacket material: PUR
Surface: adhesion-free, matt
Jacket color: green RAL 6018

CE These products are in conformity with the EU Low Voltage Directive 2014/35/EU

For Allen Bradley system (and similar)

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Number of strands/cross-section/ strand colors</th>
<th>Outer Ø mm</th>
<th>Weight kg/100 m</th>
<th>Cu-Index kg/100 m</th>
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<td>111489</td>
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<td>18.0</td>
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<td></td>
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<tr>
<td></td>
<td>white/grey, grey</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2×AWG22</td>
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<td></td>
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<td></td>
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<td></td>
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<td>111488</td>
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<td>10.7</td>
<td>5.4</td>
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<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
PUR servo cables · C-track compatible · shielded

LÜTZE SUPERFLEX® PLUS M (C) PUR HYBRID SERVO 0,6/1 kV
combined power supply cable for servo motors with Hiperface DSL® interface
For the highest of standards

Application
• Combined power supply cable with motor supply, brake and digital feedback especially for SERVO drives in machine and plant construction, transport and conveyor technology
• Due to Full PUR jacket and TPE / HGI conductor insulation optimally suited for c-tracks, extremely rough operating conditions and aggressive coolants and lubricants
• Especially for industrial environments in mechanical and system engineering

Properties
• High active and passive interference resistance (EMC)
• Braided shield optimised for continuous flexible use
• Very good alternating bending strength
• Low adhesion, abrasion-resistant, nick-resistant, tear-propagation-resistant
• Hydrolysis-resistant, microbe-resistant, and rot-resistant
• Weatherproof, ozone and UV resistant (normal lighting conditions)
• Good ruggedness and salt water resistance
• Excellent coolant and lubricant resistance
• Resistant to most oils, greases, alcohol-free benzines and kerosene
• Silicone free
• RoHS compliant

Technical data

<table>
<thead>
<tr>
<th>Part No.</th>
<th>Number of conductors/cross-section</th>
<th>Outer Ø mm</th>
<th>Weight kg/100 m</th>
<th>Cu-Index kg/100 m</th>
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</thead>
<tbody>
<tr>
<td>111598</td>
<td>(4G0.75+(2×0.34)+(2×AWG22))</td>
<td>11.4</td>
<td>21.1</td>
<td>13.3</td>
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<tr>
<td>111599</td>
<td>(4G1.0+(2×0.75)+(2×AWG22))</td>
<td>11.8</td>
<td>19.0</td>
<td>11.2</td>
</tr>
<tr>
<td>111600</td>
<td>(4G1.5+(2×0.75)+(2×AWG22))</td>
<td>13.2</td>
<td>25.2</td>
<td>16.0</td>
</tr>
<tr>
<td>111601</td>
<td>(4G2.5+(2×1.0)+(2×AWG22))</td>
<td>14.0</td>
<td>31.4</td>
<td>21.5</td>
</tr>
<tr>
<td>111602</td>
<td>(4G4+(2×1.0)+(2×AWG22))</td>
<td>15.8</td>
<td>40.8</td>
<td>28.8</td>
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<tr>
<td>111603</td>
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<td>111604</td>
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<td>21.0</td>
<td>77.9</td>
<td>57.3</td>
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<tr>
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<td>26.0</td>
<td>119.8</td>
<td>87.0</td>
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</tbody>
</table>

UL style AWM 21223
Rated voltage UL 1000 V
Rated voltage U0/U 600/1000 V
Test voltage type AC 3000 V
Insulation resistance at 20 °C ≥ 500 MΩ⋅km
Temperature according to UL 80 °C
Temperature range moving -25 °C ... +80 °C
Temperature range fixed -40 °C ... +80 °C
Minimum bending radius 7×D
Minimum bending radius fixed 5×D
Burning behavior VDE 0482 Part 265-2 DIN EN 50265-2 IEC 60332-1 UL 1581 Part 1080 VW-1 CSA FT1
Halogen free according to EN 50267-2-1 IEC 60754-1

Construction
• Conductor: CU-wire bare
• Conductor category: IEC 60228, Class 6, DIN EN 13602, Superfi-
  nely stranded DIN VDE 0295
• Conductor insulation: TPE-O
• Conductor marking: U/L1/C6.4. + V/L2, W/L3/D/L, green/yellow
• Conductor marking standard: DIN EN 50334, DIN VDE 0293
• Overall stranding: Elements stranded together
• Overall wrapping: Non-woven material
• Overall shield: Braided shield, Tinned copper wires, optical cover
  approx. 85%
• Ground conductor: green/yellow according to DIN EN 50334
  G = with green/yellow ground conductor, * = without ground con-
  ductor
• Jacket material: PUR
• Jacket color: orange RAL 2003

CE These products are in conformity with the EU Low Voltage Direc-
tive 2014/35/EU

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
Proper handling and installation of static cables

Installing the cable assembly:

1. The minimum bend radius for the utilized LÜTZE cable is 6 x cable OD.
   NEC requirements may require a greater bend radius, see NEC article 300.34

2. Bending shall not occur within the static area (relaxation zone) in order to avoid strain on the connector or terminals.
   Do not bend the cable within the static area.

Use of O-ring: Standard thread vs. SpeedTec

Remove O-ring on the motor receptacle when using a cable with a SpeedTec connector.

The connector type on the cable determines whether an O-ring is required on the receptacle.

Always use O-ring with threaded connectors to ensure stable and secure connection against vibration. No O-Ring is required with SpeedTec connectors.
**Key to LÜTZE Partnumber**

The LÜTZE Partnumber consists of two blocks:

<table>
<thead>
<tr>
<th>Key to Lüze Cable Assembly Part Numbers:</th>
<th>Cable Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technical design</td>
<td>2090-CPBM4DF-16AFxx</td>
</tr>
<tr>
<td>Cable length in cm</td>
<td>193985.xxxx</td>
</tr>
<tr>
<td>For example, 193985.0500 corresponds to a cable length of 5 m / 500 cm</td>
<td></td>
</tr>
</tbody>
</table>

LÜTZE cable assemblies are fully compatible with Rockwell Allen-Bradley systems. Further information and downloads available at www.lutze.com

### Feedback

<table>
<thead>
<tr>
<th>Speed Tec</th>
<th>Allen Bradley Part No.</th>
<th>LÜTZE Part No.</th>
<th>LÜTZE Cable</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN thread</td>
<td>2090-XXNFMF-Sxx</td>
<td>193337.xxxx</td>
<td>A1410002</td>
<td>(2XAWG16+2XAWG22+6X2XAWG26)</td>
</tr>
<tr>
<td>Motor</td>
<td>2090-CPWM7DF-7DF-08Afxx</td>
<td>193385.xxxx</td>
<td>A1410001</td>
<td>(5x2xAWG16)</td>
</tr>
</tbody>
</table>

![Image](https://example.com/image.png)

<table>
<thead>
<tr>
<th>Speed Tec</th>
<th>Allen Bradley Part No.</th>
<th>LÜTZE Part No.</th>
<th>LÜTZE Cable</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>DIN thread</td>
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<td>193990.xxxx</td>
<td>A3161004</td>
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<tr>
<td>Motor</td>
<td>2090-CPBM7DF-7DF-08Afxx</td>
<td>193385.xxxx</td>
<td>A1410001</td>
<td>(5x2xAWG16)</td>
</tr>
</tbody>
</table>

* SIEMENS article designations are registered trademarks of SIEMENS AG, and are for reference purposes only.

Courtesy of Steven Engineering, Inc - (800) 258-9200 - sales@steveneng.com - www.stevenengineering.com
Cable Installation of flexing cables

Proper handling and installation of flexing cables

Continuous flexing cables require special handling and installation techniques. To ensure the longest possible life span for your cable assembly, it is important to follow installation procedures precisely.

1. Do not flex cable against original bend. If needed, let cable relax before installation.
2. Refrain from twisting the cable during installation and check that the cable is laying straight in the drag chain.
3. Allow for balanced weight distribution in the drag chain.
4. Use horizontal/vertical dividers to split the drag chain into separate cavities to avoid tangling of the cables.
5. Observe minimum bend radius for optimal performance.
6. Ensure proper strain relief at both ends of the drag chain. Observe minimum Static Area lengths.

Use of O-ring: Standard thread vs. SpeedTec

Remove O-ring on the motor receptacle when using a cable with a SpeedTec connector.

The connector type on the cable determines whether an O-ring is required on the receptacle.

Always use O-ring with threaded connectors to ensure stable and secure connection against vibration. No O-Ring is required with SpeedTec connectors.
The LÜTZE Partnumber consists of two blocks:

1. Technical design
2. Cable length in cm

For example, 193985.0500 corresponds to a cable length of 5 m/500 cm

LÜTZE cable assemblies are fully compatible with Rockwell Allen-Bradley systems. Further information and downloads available at www.lutze.com

### Feedback

<table>
<thead>
<tr>
<th>Speed Tec</th>
<th>Allen Bradley Part. No.</th>
<th>LÜTZE Part. No.</th>
<th>LÜTZE Cable</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extension</td>
<td>2090-CPBM7E7-CDAFxx</td>
<td>193978.xxxx</td>
<td>111489</td>
<td>Type</td>
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<tr>
<td></td>
<td>2090-CPBM7E7-CDAFxx</td>
<td>193979.xxxx</td>
<td>111488</td>
<td>Type</td>
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### Motor

<table>
<thead>
<tr>
<th>Speed Tec</th>
<th>Allen Bradley Part. No.</th>
<th>LÜTZE Part. No.</th>
<th>LÜTZE Cable</th>
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<tbody>
<tr>
<td>Extension</td>
<td>2090-CPBM7E7-CDAFxx</td>
<td>193978.xxxx</td>
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### DIN thread

<table>
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<tr>
<th>Speed Tec</th>
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### Technical design

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<tr>
<th>Cable Length</th>
<th>2090-CPBM4DF-16AFxx</th>
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<tr>
<td>10 = 10m</td>
<td>193996.xxxx</td>
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<tr>
<td>.1000 = 1000 cm</td>
<td>193979.xxxx</td>
</tr>
<tr>
<td>01 = 1m</td>
<td>193996.xxxx</td>
</tr>
<tr>
<td>.0100 = 100 cm</td>
<td>193979.xxxx</td>
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### Hybrid

<table>
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<tr>
<th>Allen Bradley Part. No.</th>
<th>LÜTZE Part. No.</th>
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### Base cable with 2198-KITCON-DSL

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<th>Allen Bradley Part. No.</th>
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<tbody>
<tr>
<td>2090-CPBM1DE-18AFxx</td>
<td>193985.xxxx</td>
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<td>2090-CPBM1DE-10AFxx</td>
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### Extension

<table>
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<th>LÜTZE Cable</th>
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<tbody>
<tr>
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<td>193374.xxxx</td>
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<tr>
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