Multi-Conductor Flexible Control Cable

Multi-conductor flexible control cable from AutomationDirect is available in sizes from 18AWG to 10AWG with 3 to 41 unshielded and shielded conductors. Individual conductors are bare copper and stranded for flexibility, with black PVC/Nylon insulation and marked with numbers for easy identification. A convenient ground conductor is included in the conductor count of each cable and has insulation that is green with a yellow stripe. Shielded versions include both an overall aluminum mylar foil tape with drain wire and tinned copper braid for maximum effectiveness against external electrical noise interference. The cable’s outer jacket is a flexible, premium grade Thermoplastic Elastomer (TPE) that is resistant to sunlight, oil, and moisture penetration, making these cables suitable for wet and dry locations as well as outdoors. Although not suitable for continuous flexing applications, these cables are ideal for both stationary and flexible applications with limited mechanical stress and free movement without any tensile stress, loads or forced movements.

With multiple ratings and approvals, AutomationDirect flexible multi-conductor control cable has the versatility to meet a wide range of industrial applications. Given its Tray Cable Exposed Run rating, UL Type TC-ER, our cable can be installed between a cable tray and the utilization equipment or device without the need for metal conduit and/or armor resulting in installation and maintenance savings. With the Machine Tool Wire rating, UL Type MTW, these cables meet NFPA 79, Electrical Standard for Industrial Machinery. Other ratings and approvals include Wind Turbine Tray Cable UL Type WTTC, Class 1 Division 2 Hazardous Locations and Direct Burial.

When combined with AutomationDirect ZIPport multi-wire connectors, our flexible multi-conductor cables provide an economical way to organize and simplify control wiring in facilities and during assembly of machinery. Cut to length in 1 foot increments with a 20 foot minimum length.

**Features**
- 18AWG to 10AWG, 3 to 41 conductors including a ground
- Unshielded and shielded constructions
- Individual conductors have black PVC/Nylon insulation and are marked with identification numbers
- Rugged Thermoplastic Elastomer (TPE) outer jacket
- Green/yellow ground wire included
- Multiple ratings and approvals include Type TC-ER (eliminates need for conduit/armor), Type MTW (meets NFPA 79), WTTC, Class 1 Division 2, Direct Burial, Wet and Dry Location, Oil Resistant, Sunlight Resistant
- Flexibility for easy installation
- Cut to length in 1 foot increments
- Low 20 foot minimum length
- Made in the USA
- Ideal for use with ZIPport multi-wire connectors (as shown below)

**Cable Use Examples***:

* Cables shown using AutomationDirect’s ZIPport multi-wire connectors. See Terminal Blocks & Wiring Solutions section for further information.
### 18 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

**Conductor Gauge & Stranding**
- 18AWG 16/30 bare copper, Class K

**Voltage Rating**
- 600V (Type TC-ER)
- 1000V (Type WTTC)
- 1000V (UL/CSA AWM)

**Capacitance**
- 28.2 pF/ft Nom. Conductor to Conductor

**Resistance**
- 6.53 Ω/ft*

**Impedance**
- 55.0 Ω

**Operating Temperature**
- -40°C to 90°C (-40°F to 194°F)

**Jacket Material**
- Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant

**Conductor Insulation**
- 0.015 Inch, PVC + 0.005 Inch, NYLON

**Conductor Markings**
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

**Temperature Rating**
- 75°C (167°F) Wet, 90°C (194°F) Dry

**Cold Impact**
- -40°C (-40°F) per UL 1277

**Min. Bend Radius**
- 4x diameter

**Flame Rating**
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

**Oil Resistance**
- Oil Res I & II

**Applications**
- ASTM B3, B172, B174
- UL 1277 - Type TC-ER
- UL 2277 - Type WTTC
- UL 1063 - Machine Tool Wiring (MTW)
- UL 1690 - Data Processing Cable (DP-1)
- UL 758 - AWM Style 20886
- C22.2 No. 230 - c(UL) Type TC
- CSA C22.2 No. 239 - c(UL) Type CIC
- Class 1 Division II per NEC 336, 501, 502

**Approvals**
- UL (E75755), CSA (90458)

**Sample Print Legend**
- Southwire XXAWG (XX/mm2) XX/C PVC/Nylon Type TC-ER
- E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - L19458 CSA AWM I/I A/B 105°C 1000V -40°C FT4 -- CE

* Per ASTM B174
** To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number’s web page at [www. AutomationDirect.com](http://www. AutomationDirect.com)

### 18 Gauge Multi-Conductor Flexible Control Cable Specifications (Unshielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (Inches)*</th>
<th>Minimum Cut Length (ft)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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</tbody>
</table>

* Installed bend radius ≥ 4x diameter
** * See web store for maximum cut lengths

Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.
16 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (inches)*</th>
<th>Minimum Cut Length (ft)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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</table>

* Installed bend radius ≥ 4x diameter  
** See web store for maximum cut lengths

** Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

For the latest prices, please check AutomationDirect.com.
## 14 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

### 14 Gauge Multi-Conductor Flexible Control Cable Specifications (Unshielded)

<table>
<thead>
<tr>
<th>Conductor Gauge &amp; Stranding</th>
<th>14WG 41/30 bare copper, Class K</th>
<th>Applicable Standards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage Rating</td>
<td>600V (Type TC-ER)</td>
<td>ASTM B3, B172, B174</td>
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<tr>
<td></td>
<td>1000V (Type WTTC)</td>
<td>UL 1277 - Type TC-ER</td>
</tr>
<tr>
<td></td>
<td>1000V (UL/CSA AWM)</td>
<td>UL 2277 - Type WTTC</td>
</tr>
<tr>
<td>Capacitance</td>
<td>37.09 pF/ft Nom. Conductor to Conductor</td>
<td>UL 1063 - Machine Tool Wiring (MTW)</td>
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<tr>
<td>Resistance</td>
<td>2.57 Ω/kft*</td>
<td>UL 1690 - Data Processing Cable (DP-1)</td>
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<tr>
<td>Impedance</td>
<td>40.0 Ω</td>
<td>UL 758 - AWM Style 20886</td>
</tr>
<tr>
<td>Operating Temperature</td>
<td>-40°C to 90°C (-40°F to 194°F)</td>
<td>C22.2 NO. 230 - c(UL) Type TC</td>
</tr>
<tr>
<td>Jacket Material</td>
<td>Flexible Gray Thermoplastic Elastomer (TPE) - sunlight &amp; oil resistant</td>
<td>CSA C22.2 No. 239 - c(UL) Type CIC</td>
</tr>
<tr>
<td>Conductor Insulation</td>
<td>0.015 Inch, PVC + 0.005 Inch, NYLON</td>
<td>Class 1 Division II per NEC 336, 501, 502</td>
</tr>
<tr>
<td>Temperature Rating</td>
<td>75°C (167°F) Wet, 90°C (194°F) Dry</td>
<td>Approvals**</td>
</tr>
<tr>
<td>Cold Impact</td>
<td>-40°C (-40°F) per UL 1277</td>
<td>UL (E75755), CSA (90458)</td>
</tr>
<tr>
<td>Min. Bend Radius</td>
<td>4x diameter</td>
<td>Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B-105°C 1000V -40°C FT4 -- CE</td>
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<tr>
<td>Flame Rating</td>
<td>FT4, IEEE 1202/383, ICEA T-29-520</td>
<td>Oil Res I &amp; II</td>
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<tr>
<td>Oil Resistance</td>
<td>Oil Res I &amp; II</td>
<td>Sample Print Legend</td>
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</table>

### 14 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand (includes Ground)</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Cut Length (inches)**</th>
<th>Minimum Cut Length (inches)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
<th>Price per foot</th>
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<td>$1.93</td>
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</tbody>
</table>

* Installed bend radius ≥ 4x diameter
** See web store for maximum cut lengths

** To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at www.AutomationDirect.com

Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.
## 12 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

### Specifications (Unshielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (Inches)</th>
<th>Minimum Cut Length (ft) **</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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</thead>
<tbody>
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<td>20</td>
<td>0.15</td>
<td>$1.81</td>
</tr>
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</table>

* Installed bend radius ≥ 4x diameter

** See web store for maximum cut lengths

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### Conductor Gauge & Stranding

12AWG 65/30 bare copper, Class K

### Voltage Rating

- 600V (Type TC-ER)
- 1000V (Type WTTC)
- 1000V (UL/CSA AWM)

### Capacitance

40.4 pF/ft Nom. Conductor to Conductor

### Resistance

1.62 Ω/kft*

### Impedance

36.1 Ω

### Operating Temperature

-40°C to 90°C (-40°F to 194°F)

### Jacket Material

Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant

### Conductor Insulation

0.015 Inch, PVC + 0.005 Inch, NYLON

### Conductor Markings

“#1-ONE”, “2-TWO”, “3-THREE”, etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating

75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact

-40°C (-40°F) per UL 1277

### Min. Bend Radius

4x diameter

### Flame Rating

FT4, IEEE 1202/383, ICEA T-29-520
UL1685, UL MTW NFPA 79 2007

### Oil Resistance

Oil Res I & II

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### Applicable Standards

- ASTM B3, B172, B174
- UL 1277 - Type TC-ER
- UL 2277 - Type WTTC
- UL 1063 - Machine Tool Wiring (MTW)
- UL 1690 - Data Processing Cable (DP-1)
- UL 758 - AWM Style 20886
- C22.2 NO. 230 - c(UL) Type TC
- CSA C22.2 No. 239 - c(UL) Type CIC
- Class 1 Division II per NEC 336, 501, 502
- UL (E75755), CSA (90458)

### Approvals**

- UL 1063 - Machine Tool Wiring (MTW)
- CSA 22.2 No. 210 - CSA AWM VII A/B
- CSA 22.2 No. 239 - CSA AWM VII A/B

### Sample Print Legend

Southwire XXAWG (XXmm²) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/II A/B 105°C 1000V -40°C FT4 -- CE

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### Important Notes

* Per ASTM B174
** To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number’s web page at www.AutomationDirect.com

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Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.
10 Gauge Multi-Conductor Flexible Control Cable (Unshielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (inches)*</th>
<th>Minimum Cut Length (ft)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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* Installed bend radius ≥ 4x diameter
** See web store for maximum cut lengths

Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.
### 18 Gauge Multi-Conductor Flexible Control Cable (Shielded)

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<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (Inches)</th>
<th>Minimum Cut Length (ft)</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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</thead>
<tbody>
<tr>
<td>MCTC-18-3S-1</td>
<td>3</td>
<td>18</td>
<td>16</td>
<td>20</td>
<td>47</td>
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<td>0.07</td>
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<td>MCTC-18-7S-1</td>
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<td>18</td>
<td>16</td>
<td>20</td>
<td>47</td>
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<tr>
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<td>0.31</td>
<td>0.31</td>
<td>$3.53</td>
</tr>
</tbody>
</table>

* * Installed bend radius ≥ 4x diameter

** Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

---

### 18 Gauge Multi-Conductor Flexible Control Cable Specifications (Shielded)

**Conductor Gauge & Stranding:**
18AWG 16/30 bare copper, Class K

**Voltage Rating:**
- 600V (Type TC-ER)
- 1000V (Type WITC)
- 1000V (UL/CSA AWM)

**Capacitance:**
- 72.02 pF/ft Nom. Conductor to Shield
- 40.01 pF/ft Nom. Conductor to Conductor

**Resistance:**
6.53 Ω/kft*

**Impedance:**
53.8 Ω

**Operating Temperature:**
-40°C to 90°C (-40°F to 194°F)

**Jacket Material:**
Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant

**Shield:**
Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 20 AWG drain

**Conductor Insulation:**
0.015 Inch, PVC + 0.005 Inch, NYLON

**Conductor Markings:**
A1-ONE", "2-TWO", "3-THREE", etc., @ 4.5 inch intervals, ICEA Method 4

**Temperature Rating:**
75°C (167°F) Wet, 90°C (194°F) Dry

**Cold Impact:**
-40°C (-40°F) per UL 1277

**Min. Bend Radius:**
12x diameter

**Flame Rating:**
FT4, IEEE 1202/383, ICEA T-29-520
UL1685, UL MTW NFPA 79 2007

**Oil Resistance:**
Oil Res I & II

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* Per ASTM B174

**To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number’s web page at www.AutomationDirect.com

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For the latest prices, please check AutomationDirect.com.
## 16 Gauge Multi-Conductor Flexible Control Cable (Shielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (Inches) *</th>
<th>Minimum Cut Length (ft) **</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCTC-16-3S-1</td>
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<td>26</td>
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<td>3.96</td>
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<td>$1.09</td>
</tr>
<tr>
<td>MCTC-16-4S-1</td>
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</tr>
<tr>
<td>MCTC-16-9S-1</td>
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<td>$2.00</td>
</tr>
<tr>
<td>MCTC-16-12S-1</td>
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<td></td>
<td></td>
<td></td>
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<td>6.72</td>
<td>0.28</td>
<td>$2.73</td>
</tr>
<tr>
<td>MCTC-16-25S-1</td>
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<td></td>
<td></td>
<td>0.75</td>
<td>9.00</td>
<td>0.41</td>
<td>$4.69</td>
</tr>
</tbody>
</table>

* Installed bend radius: ≥ 4x diameter

** See web store for maximum cut lengths

---

** Please Note:** Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

---

**Applicable Standards**

- **Conductor Gauge & Stranding**
  - 16AWG 26/30 bare copper, Class K
  - ASTM B3, B172, B174

- **Voltage Rating**
  - 600V (Type TC-ER)
  - UL 1277 - Type TC-ER
  - UL 2277 - Type WTTC
  - UL 1063 - Machine Tool Wiring (MTW)
  - UL 1690 - Data Processing Cable (DP-1)
  - UL 758 - AWM Style 20886

- **Capacitance**
  - 85.59 pF/ft Nom. Conductor to Shield
  - 47.55 pF/ft Nom. Conductor to Conductor
  - UL 1690 - Data Processing Cable (DP-1)
  - UL 758 - AWM Style 20886

- **Resistance**
  - 4.10 Ω/kft*
  - C22.2 No. 230 - c(UL) Type TC
  - CSA C22.2 No. 239 - c(UL) Type CIC

- **Impedance**
  - 45.3 Ω
  - CSA C22.2 No. 210 - CSA AWM I/I A/B

- **Operating Temperature**
  - -40°C to 90°C (-40°F to 194°F)
  - Class 1 Division II per NEC 336, 501, 502

- **Jacket Material**
  - Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant
  - UL (E75755), CSA (90458)

- **Shield**
  - Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 18 AWG drain
  - UL (E75755), CSA (90458)

- **Conductor Insulation**
  - 0.015 Inch, PVC + 0.005 Inch, NYLON
  - Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/I DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/I A/B 105°C 1000V -40°C FT4 -- CE

- **Conductor Markings**
  - #1-ONE", "2-TWO", "3-THREE", etc...
  - @ 4.5 inch intervals, ICEA Method 4

- **Temperature Rating**
  - 75°C (167°F) Wet, 90°C (194°F) Dry
  - UL MTW NFPA 79 2007

- **Cold Impact**
  - -40°C (-40°F) per UL 1277

- **Min. Bend Radius**
  - 12x diameter

- **Flame Rating**
  - FT4, IEEE 1202/383, ICEA T-29-520
  - UL1685, UL MTW NFPA 79 2007

- **Oil Resistance**
  - Oil Res I & II

---

**Sample Print Legend**

- Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/I DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC FT4 - LL90458 CSA AWM I/I A/B 105°C 1000V -40°C FT4 -- CE

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# 14 Gauge Multi-Conductor Flexible Control Cable (Shielded)

## 14 Gauge Multi-Conductor Flexible Control Cable Specifications (Shielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (inches ±10%)</th>
<th>Minimum Installed Bend Radius (inches)*</th>
<th>Minimum Cut Length (ft)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCTC-14-3S-1</td>
<td>3</td>
<td>14</td>
<td>41</td>
<td>20</td>
<td>47</td>
<td>0.36</td>
<td>4.32</td>
<td>20</td>
<td>0.10</td>
<td>$1.38</td>
</tr>
<tr>
<td>MCTC-14-4S-1</td>
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<td>14</td>
<td>41</td>
<td>20</td>
<td>47</td>
<td>0.40</td>
<td>4.80</td>
<td>20</td>
<td>0.13</td>
<td>$1.65</td>
</tr>
<tr>
<td>MCTC-14-7S-1</td>
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<td>14</td>
<td>41</td>
<td>20</td>
<td>47</td>
<td>0.47</td>
<td>5.64</td>
<td>20</td>
<td>0.20</td>
<td>$2.43</td>
</tr>
</tbody>
</table>

* Installed bend radius ≥ 4x diameter  
** See web store for maximum cut lengths

### Conductor Gauge & Stranding
- 14 AWG 41/30 bare copper, Class K

### Voltage Rating
- 600V (Type TC-ER)
- 1000V (Type WTTC)
- 1000V (UL/CSA AWM)

### Capacitance
- 99.09 pF/ft Nom. Conductor to Shield
- 55.05 pF/ft Nom. Conductor to Conductor

### Resistance
- 2.57 Ω/kft*

### Impedance
- 39.1 Ω

### Operating Temperature
- -40°C to 90°C (-40°F to 194°F)

### Jacket Material
- Flexible Gray Thermoplastic Elastomer (TPE) - sunlight & oil resistant

### Shield
- Overall aluminized polyester foil shield 100% coverage & tinned copper braid 85% coverage with 16 AWG drain

### Conductor Insulation
- 0.015 Inch, PVC + 0.005 Inch, NYLON

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Applicable Standards
- ASTM B3, B172, B174
- UL 1277 - Type TC-ER
- UL 2277 - Type WTTC
- UL 1063 - Machine Tool Wiring (MTW)
- UL 1690 - Data Processing Cable (DP-1)
- UL 758 - AWM Style 20886
- C22.2 No. 210 - CSA AWM I/I A/B

### Approvals
- UL (E75755), CSA (90458)

### Sample Print Legend
- Southwire XXAWG (XXmm2) XX/C PVC/Nylon Type TC-ER
- E75755 (UL) 600V 90°C Dry 75°C Wet Sun Res Oil Res I/II DIR BUR - 40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 20886 105°C 1000V OR c(UL) CIC/TC
- FT4 - LL90458 CSA AWM I/I A/B 105°C 1000V -40°C
- FT4 — CE

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II

### Conductor Markings
- #1-ONE", "2-TWO", "3-THREE", etc... @ 4.5 inch intervals, ICEA Method 4

### Temperature Rating
- 75°C (167°F) Wet, 90°C (194°F) Dry

### Cold Impact
- -40°C (-40°F) per UL 1277

### Min. Bend Radius
- 12x diameter

### Flame Rating
- FT4, IEEE 1202/383, ICEA T-29-520
- UL1685, UL MTW NFPA 79 2007

### Oil Resistance
- Oil Res I & II
# 12 Gauge Multi-Conductor Flexible Control Cable (Shielded)

## 12 Gauge Multi-Conductor Flexible Control Cable Specifications (Shielded)

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conductor Gauge &amp; Stranding</strong></td>
<td>12AWG 65/30 bare copper, Class K</td>
</tr>
<tr>
<td><strong>Voltage Rating</strong></td>
<td>600V (Type TC-ER)</td>
</tr>
<tr>
<td></td>
<td>1000V (Type WITC)</td>
</tr>
<tr>
<td></td>
<td>1000V (UL/CSA AWM)</td>
</tr>
<tr>
<td><strong>Capacitance</strong></td>
<td>109.85 pF/ft Nom. Conductor to Shield</td>
</tr>
<tr>
<td></td>
<td>61.03 pF/ft Nom. Conductor to Conductor</td>
</tr>
<tr>
<td><strong>Resistance</strong></td>
<td>1.02 Ω/kit*</td>
</tr>
<tr>
<td><strong>Impedance</strong></td>
<td>35.5 Ω</td>
</tr>
<tr>
<td><strong>Operating Temperature</strong></td>
<td>-40°C to 90°C (-40°F to 194°F)</td>
</tr>
<tr>
<td><strong>Jacket Material</strong></td>
<td>Flexible Gray Thermoplastic Elastomer (TPE) - sunlight &amp; oil resistant</td>
</tr>
<tr>
<td></td>
<td>Overall aluminized polyester foil shield</td>
</tr>
<tr>
<td></td>
<td>100% coverage &amp; tinned copper braid 85% coverage with 14 AWG drain</td>
</tr>
<tr>
<td><strong>Conductor Insulation</strong></td>
<td>0.015 Inch, PVC + 0.005 Inch, NYLON</td>
</tr>
<tr>
<td><strong>Conductor Markings</strong></td>
<td>#1-ONE&quot;, &quot;2-TWO&quot;, &quot;3-THREE&quot;, etc... @ 4.5 inch intervals, ICEA Method 4</td>
</tr>
<tr>
<td><strong>Temperature Rating</strong></td>
<td>75°C (167°F) Wet, 90°C (194°F) Dry</td>
</tr>
<tr>
<td><strong>Cold Impact</strong></td>
<td>-40°C (-40°F) per UL 1277</td>
</tr>
<tr>
<td><strong>Min. Bend Radius</strong></td>
<td>12x diameter</td>
</tr>
<tr>
<td><strong>Flame Rating</strong></td>
<td>FT4, IEEE 1202/383, ICEA T-29-320</td>
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<td></td>
<td>UL1685, UL MTW NFPA 79 2007</td>
</tr>
<tr>
<td><strong>Oil Resistance</strong></td>
<td>Oil Res I &amp; II</td>
</tr>
</tbody>
</table>

* Per ASTM B174
** To obtain the most current agency approval information, see Agency Approval Checklist section on the specific part number's web page at [www.automationdirect.com](http://www.automationdirect.com)

## Part Number and Specifications

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Strand</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (Inches)*</th>
<th>Minimum Cut Length (ft)**</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCTC-12-4S-1</td>
<td>4</td>
<td>12</td>
<td>65</td>
<td>25</td>
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<td>0.44</td>
<td>5.28</td>
<td>20</td>
<td>0.18</td>
<td>$1.96</td>
</tr>
</tbody>
</table>

* Installed bend radius ≥ 4x diameter
** See web store for maximum cut lengths

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Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.
10 Gauge Multi-Conductor Flexible Control Cable (Shielded)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>Number of Conductors (includes ground)</th>
<th>AWG</th>
<th>Overall Conductor Insulation Thickness (Mils)</th>
<th>Overall Jacket Thickness (Mils)</th>
<th>Nominal O.D. (Inches ±10%)</th>
<th>Minimum Installed Bend Radius (inches)</th>
<th>Minimum Cut Length (ft)</th>
<th>Approximate Weight (lb/ft)</th>
<th>Price per foot</th>
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</thead>
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<tr>
<td>MCTC-10-4S-1</td>
<td>4</td>
<td>10</td>
<td>105</td>
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<td>0.56</td>
<td>6.72</td>
<td>20</td>
<td>0.32</td>
<td>$3.13</td>
</tr>
</tbody>
</table>

* Installed bend radius ≥ 4x diameter
** * See web store for maximum cut lengths

Please Note: Our prices on flexible control cable are closely tied to the market price for copper. This allows us to offer the best savings possible if conditions are favorable; however, it also means that our prices may increase if market conditions warrant.

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