

## 7413A Multi-Conductor - 600V FCC Control Cables for Moderate Flexing



### Description:

18 AWG stranded (16x30) bare copper conductors, PVC insulation, unshielded, oil- and abrasion-resistant PVC jacket.

### Physical Characteristics (Overall)

#### Conductor

##### AWG:

# Conductors	AWG	Stranding	Conductor Material
7	18	16x30	BC - Bare Copper

#### Insulation

##### Insulation Material:

Insulation Material	Wall Thickness (in.)
PVC - Polyvinyl Chloride	.022

##### Insulation Resistance:

6.1 Megaohms/1000 ft. minimum

#### Outer Shield

##### Outer Shield Material:

Outer Shield Material
Unshielded

#### Outer Jacket

##### Outer Jacket Material:

Outer Jacket Material	Nom. Wall Thickness (in.)
PVC - Polyvinyl Chloride	.040

#### Overall Cabling

##### Overall Nominal Diameter:

0.385 in.

### Mechanical Characteristics (Overall)

##### Operating Temperature Range:

-40°C To +90°C

##### Other Temperature Range:

Flexing: -5°C To +90°C

##### UL Temperature Rating:

90°C (UL AWM Style 2587)

##### Bulk Cable Weight:

90 lbs/1000 ft.

##### Max. Recommended Pulling Tension:

171 lbs.

##### Min. Bend Radius (Install)/Minor Axis:

3.900 in.

##### Min. Bend Radius (Continuous Flexing):

5.800 in.

##### Flex Cycle Rating:

1 Million Flexes

### Applicable Specifications and Agency Compliance (Overall)

#### Applicable Standards & Environmental Programs

##### AWM Specification:

UL Style 2587 (600 V 90°C)

##### CSA Specification:

AWM I A/B II A/B

##### EU Directive 2000/53/EC (ELV):

Yes

##### EU Directive 2002/95/EC (RoHS):

Yes

## 7413A Multi-Conductor - 600V FCC Control Cables for Moderate Flexing

EU RoHS Compliance Date (mm/dd/yyyy): 10/01/2005

EU Directive 2002/96/EC (WEEE): Yes

EU Directive 2003/11/EC (BFR): Yes

CA Prop 65 (CJ for Wire & Cable): Yes

MII Order #39 (China RoHS): Yes

### Flame Test

UL Flame Test: UL1685 UL Loading, VW-1

CSA Flame Test: FT1

### Suitability

Oil Resistance: Yes

### Plenum/Non-Plenum

Plenum (Y/N): No

## Electrical Characteristics (Overall)

### Nom. Conductor DC Resistance:

DCR @ 20°C (Ohm/1000 ft)

6.5

### Max. Operating Voltage - UL:

Voltage

600 V RMS (UL AWM Style 2587)

## Put Ups and Colors:

Item #	Putup	Ship Weight	Color	Notes	Item Desc
7413A 0081000	1,000 FT	120.000 LB	GRAY	C Z	7C 18 16/30 BC PVC PVC
7413A 008250	250 FT	26.250 LB	GRAY	C Z	7C 18 16/30 BC PVC PVC
7413A 008500	500 FT	46.000 LB	GRAY	C Z	7C 18 16/30 BC PVC PVC

### Notes:

C = CRATE REEL PUT-UP.

Z = FINAL PUT-UP LENGTH MAY VARY (+ OR -) 10% FOR SPOOLS OR REELS AND (+ OR -) 5% FOR UNREEL CARTONS FROM LENGTH SHOWN.

# Belden Infinity® Flexible Automation Cable

## Overview and Application Guide

Belden Infinity is a complete line of control, data, video, and power cables specifically designed to handle the rigorous speeds and near-constant motion encountered in automated equipment such as robots, pick and place machines, automatic handling systems, multi-axis machine tools, and conveyor systems.

When the application demands highly flexible cables offering exceptional cable life and performance, specify Belden Infinity.

### Belden Infinity Means More Performance And Longer Life

**Reduced Cable Memory** — Belden Infinity’s unique design and neutralized cabling, results in cables that are relaxed, with almost no memory.

**Greater Flex Life** — Belden Infinity cables offer superior flexibility and are able to handle the vigorous motions and high speeds encountered in automated equipment.

**Greater System Uptime** — Belden Infinity cables combine specialized manufacturing techniques with precision copper stranding and rugged insulation and jacketing compounds to maximize flex life and reliability.

**No Talc Problems** — Unlike the potentially harmful talc used in other cables, Belden’s non-toxic, non-irritating slipper compound facilitates flexing and also complies with OSHA regulations. It’s safer for employees and operators and is less likely to contaminate solder joints or mechanical compounds.

**CE Conformity** — All Belden Infinity cables are CE marked per the Conformité Européenne low voltage directive, allowing trade of product in Europe.

**Custom Designs** — Other designs available upon request.

### Product Series Descriptions

- **C-TC+** — The C-TC+ series is designed for C-track and extreme flex applications up to 9 million flex cycles\*. This series utilizes super fine stranding and some of the tightest lay lengths allowed by UL, providing outstanding flex life.
- **FCC** — The FCC series is a cost effective alternative for C-track and moderate flexing applications rated up to 1 million flex cycles\*.
- **Flex Data Cables** — Belden Infinity Flex Data cables are designed for industrial applications where precise data transmission is combined with high-flexing. These cables are ideal for effective operation of computer controlled equipment or other automated production processes, even in harsh environments.
- **Flex Vision** — Belden Infinity Vision cables are continuous flex video cables designed for machine vision applications. They are ideal for motion-controlled video and with inspection and measurement equipment.

### Application Guide

Belden Infinity Series	C-Track Systems	Multi-Axis Machining	Robotics	Automated Assembly Systems	Material Handling Systems	Pick & Place Systems	Automated Storage Retrieval	Gantry Systems	Machine Vision	Motion-Controlled Video	Inspection & Measure Equip.	Festooning	Servo	Power
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<b>FCC</b> Oil & abrasion resistant 600V UL & CSA rated Life Expectancy: Over 1 million flex cycles*	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>C-TC+</b> Oil & abrasion resistant 600V UL & CSA rated Life Expectancy: Over 9 million flex cycles*	★	★	●	★	★	★	★	★	★	★	★	★	★	★
<b>DATA</b> Oil & abrasion resistant 300V UL & CSA rated Life Expectancy: Over 1 million flex cycles*	●	●	●	●	●	●	●	●	●	●	●	●	●	●
<b>VISION</b> 30V UL & CSA rated Life Expectancy: Over 1 million flex cycles*	●	●	●	●	●	●	●	●	★	+	+	●	●	●

● Good    + Better    ★ Best

\*Based on proper installation techniques in a C-track cable guide.

# Belden Infinity® Flexible Automation Cable

600V FCC Control Cables for Moderate Flexing

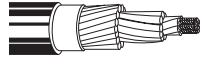
(1 Million Flex Cycles\*)

Description	Part No.	No. of Cond.	Standard Lengths		Standard Unit Weight		Insulation Thickness		Jacket Thickness		Nominal OD		Maximum Pull Tension	
			Ft.	m	Lbs.	kg	Inch	mm	Inch	mm	Inch	mm	Lbs.	N

**18 AWG** Stranded (16x30) Bare Copper Conductors • Unshielded • Color Code: Black w/numbers + Green/Yellow ground

**PVC Insulation • Gray Oil- and Abrasion-resistant PVC Jacket**

UL AWM Style 2587 (600V 90°C)  
CSA AWM I/II A/B



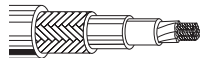
<b>7409A</b>	2	250 †	76.2	13.3	6.0	.022	.56	.040	1.02	.264	6.71	50	222
		500 †	152.4	26.5	12.0								
		1000 †	304.8	51.0	23.2								
<b>7410A</b>	3	250 †	76.2	16.3	7.4	.022	.56	.040	1.02	.280	7.11	74	329
		500 †	152.4	25.0	11.4								
		1000 †	304.8	48.0	21.8								
<b>7411A</b>	4	250 †	76.2	18.8	8.5	.022	.56	.040	1.02	.305	7.75	98	436
		500 †	152.4	31.0	14.1								
		1000 †	304.8	58.0	26.3								
<b>7412A</b>	5	250 †	76.2	21.8	9.9	.022	.56	.040	1.02	.330	8.38	122	542
		500 †	152.4	36.0	16.3								
		1000 †	304.8	69.0	31.3								
<b>7413A</b>	7	250 †	76.2	27.5	12.5	.022	.56	.040	1.02	.385	9.78	171	760
		500 †	152.4	46.0	20.9								
		1000 †	304.8	120.0	54.5								
<b>7414A</b>	9	250 †	76.2	36.5	16.6	.022	.56	.050	1.27	.452	11.48	220	978
		500 †	152.4	87.0	39.5								
		1000 †	304.8	174.0	79.0								
<b>7415A</b>	12	250 †	76.2	40.0	18.2	.022	.56	.050	1.27	.475	12.07	292	1298
		500 †	152.4	75.5	34.3								
		1000 †	304.8	161.0	73.1								
<b>7416A</b>	18	250 †	76.2	55.8	25.3	.022	.56	.050	1.27	.560	14.22	440	1957
		500 †	152.4	112.5	51.1								
<b>7417A</b>	25	250 †	76.2	74.3	33.7	.022	.56	.072	1.83	.696	17.68	520	2313
		500 †	152.4	149.0	67.6								
<b>7418A</b>	34	250 †	76.2	111.3	50.5	.022	.56	.072	1.83	.788	20.02	830	3692
		500 †	152.4	215.5	97.8								
<b>7419A</b>	41	500 †	152.4	295.0	133.9	.022	.56	.075	1.91	.860	21.84	1001	4453
<b>7420A</b>	50	250 †	76.2	186.5	84.7	.022	.56	.083	2.11	.940	23.88	1220	5427

Temp Rating: -40° to 90°C  
(-5° to 90°C flexing)

**18 AWG** Stranded (16x30) BC Conductors • TC Braid Shield (85% Coverage) • Color Code: Black w/numbers + Green/Yellow ground

**PVC Insulation • PVC Inner Jacket • Gray Oil- and Abrasion-resistant PVC Outer Jacket**

UL AWM Style 2587 (600V 90°C)  
CSA AWM I/II A/B



<b>7411AS</b>	4	250 †	76.2	29.0	13.2	.022	.56	Inner: .025	.64	.365	9.27	83	369
		500 †	152.4	56.5	25.7			Outer: .032	.81				
<b>7413AS</b>	7	250 †	76.2	37.5	17.0	.022	.56	Inner: .025	.64	.450	11.43	145	645
		500 †	152.4	74.0	33.6			Outer: .035	.89				
<b>7415AS</b>	12	250 †	76.2	61.5	27.9	.022	.56	Inner: .025	.64	.550	13.97	230	1023
		500 †	152.4	124.0	56.3			Outer: .045	1.14				
<b>7416AS</b>	18	250 †	76.2	83.3	37.8	.022	.56	Inner: .025	.64	.650	16.51	374	1663
		500 †	152.4	169.0	76.7			Outer: .055	1.40				
<b>7417AS</b>	25	250 †	76.2	113.8	51.6	.022	.56	Inner: .025	.64	.765	19.43	520	2313
		500 †	152.4	228.0	103.5			Outer: .060	1.52				

Temp Rating: -40° to 90°C  
(-5° to 90°C flexing)

BC = Bare Copper • TC = Tinned Copper

\*Based on proper installation techniques in a C-track cable guide.

†Final put-up length may vary ±10% from length shown.