



**Product:** [9R28040](#)

Flat Rainbow Cable 9R280 Series, #28-40c, .050" Pitch

**Product Description**

Belden .050" pitch, color-coded PVC flat cable allows for quick identification and circuit tracing, along with easy breakouts for circuit routing, and is designed for mass-termination with standard IDC connectors.

**Technical Specifications**

**Physical Characteristics (Overall)**

**Conductor**

AWG	Stranding	Material	Construction n x D	No. of Conductors
28	7x36	TC - Tinned Copper	Stranded	40

Conductor Count:	40
------------------	----

**Insulation**

Material	Nominal Wall Thickness
PVC - Polyvinyl Chloride	0.01 in

**Color Chart**

Number	Color
1	Brown
2	Red
3	Orange
4	Yellow
5	Green
6	Blue
7	Purple
8	Gray
9	White
10	Black
Over 10 conductors	Brown
	Red
	Orange
	Yellow
	Green
	Blue
	Purple
	Gray
	White
	Black
	Brown
	Red
	Orange
	Yellow
	Green
	Blue
	Purple

	Gray
	White
	Black
	Brown
	Red
	Orange
	Yellow
	Green
	Blue
	Purple
	Gray
	White
	Black

#### Outer Shield Material

<b>Material</b>
No Shield

#### Outer Jacket Material

Material	Nominal Wall Thickness
PVC - Polyvinyl Chloride	0.036 in

### Construction and Dimensions

Cond Spacing Center-Center:	0.050 +/- .003 in
Cond Spacing Center-Center Outside:	1.950 +/- 0.011 in
OuterJacket1, Nominal Width:	2.000 in

### Electrical Characteristics

#### Conductor DCR

Nominal Conductor DCR	Nominal Conductor DCR Conductor Resistance
68.2 Ohm/1000ft	68.2 Ohm/1000ft

#### Capacitance

Element	Nom. Capacitance Conductor to Conductor
@ 1 kHz (GSG)	18 pF/ft
@ 1 MHz (GS)	10 pF/ft
@ 1 MHz (GSG)	15 pF/ft

#### Inductance

Element	Nominal Inductance
@ 1 MHz (GS)	0.29 µH/ft
@ 1 MHz (GSG)	0.2 µH/ft

#### Impedance

Nominal Balanced Characteristic Impedance Description	Nominal Characteristic Impedance	Nominal Characteristic Impedance Description
(GS)	150 Ohm	(GS)
(GSG)	105 Ohm	(GSG)

#### High Frequency (Nominal/Typical)

Frequency [MHz]	Nom. Insertion Loss
10 MHz	2.8 dB/100ft
20 MHz	4.8 dB/100ft
30 MHz	6.5 dB/100ft
40 MHz	8.3 dB/100ft
50 MHz	9.8 dB/100ft
60 MHz	12 dB/100ft
70 MHz	13 dB/100ft
80 MHz	14 dB/100ft
90 MHz	15.8 dB/100ft
100 MHz	17 dB/100ft

#### Delay

Nominal Delay	Nominal Velocity of Propagation (VP) [%]
1.40 ns/ft	72%

#### Unbalanced Crosstalk

Element	Typical Unbalanced NEXT %	Typical Unbalanced FEXT %	Typical Cross Talk Pulse Rise Time (ns)
10 ft. sample length	4.8	7	3 ns
10 ft. sample length	3.5	4.7	5 ns
10 ft. sample length	3	3	7 ns

#### High Freq

Frequency [MHz]
10 MHz
20 MHz
30 MHz
40 MHz
50 MHz
60 MHz
70 MHz
80 MHz
90 MHz
100 MHz

#### Current

Max. Recommended Current [A]
1 Amp per Conductor at 20°C

#### Voltage

Dielectric Withstand Voltage	UL Voltage Rating
2,000 V RMS	300 V RMS

#### Temperature Range

Operating Temp Range:	-20°C To +105°C
-----------------------	-----------------

#### Mechanical Characteristics

Bulk Cable Weight:	44 lbs/1000ft
Min Bend Radius/Minor Axis:	0.5 in

#### Standards

UL Rating:	AWM 20932
UL AWM Style Compliance:	20932

#### Applicable Environmental and Other Programs

EU Directive 2000/53/EC (ELV):	Yes
EU Directive 2003/11/EC (BFR):	Yes
EU Directive 2011/65/EU (ROHS II):	Yes
EU Directive 2012/19/EU (WEEE):	Yes
EU Directive 2015/863/EU:	Yes
EU Directive Compliance:	Yes
EU CE Mark:	Yes
EU RoHS Compliance Date (yyyy-mm-dd):	2005-10-01
MII Order #39 (China RoHS):	Yes

#### Flammability, LSOH, Toxicity Testing

UL Flammability:	VW-1
UL voltage rating:	300 V RMS

#### Plenum/Non-Plenum

Plenum (Y/N):	No
---------------	----

#### Part Number

## Variants

Item #	Color	Putup Type	Length	UPC
9R28040 000100	None	Reel	100 ft	612825222019

## Product Notes

Notes:	GS=Ground-Signal Mode; GSG=Ground-Signal-Ground Mode
--------	--

## History

Update and Revision:	Revision Number: 0.238 Revision Date: 06-24-2020
----------------------	--

© 2020 Belden, Inc

All Rights Reserved.

Although Belden makes every reasonable effort to ensure their accuracy at the time of this publication, information and specifications described here in are subject to error or omission and to change without notice, and the listing of such information and specifications does not ensure product availability.

Belden provides the information and specifications herein on an "ASIS" basis, with no representations or warranties, whether express, statutory or implied. In no event will Belden be liable for any damages (including consequential, indirect, incidental, special, punitive, or exemplary damages) whatsoever, even if Belden has been advised of the possibility of such damages, whether in an action under contract, negligence or any other theory, arising out of or in connection with the use, or inability to use, the information or specifications described herein.

All sales of Belden products are subject to Belden's standard terms and conditions of sale.

Belden believes this product to be in compliance with all applicable environmental programs as listed in the data sheet. The information provided is correct to the best of Belden's knowledge, information and belief at the date of its publication. This information is designed only as a general guide for the safe handling, storage, and any other operation of the product itself or the one that it becomes a part of. The Product Disclosure is not to be considered a warranty or quality specification. Regulatory information is for guidance purposes only. Product users are responsible for determining the applicability of legislation and regulations based on their individual usage of the product.