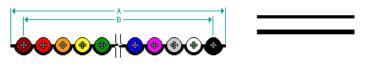
# **Detailed Specifications & Technical Data**



# 9R28020 Flat - Rainbow 9R280XX Series



For more Information please call

1-800-Belden1



#### **General Description:**

ENGLISH MEASUREMENT VERSION

Belden<sup>s</sup> .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.

Physical Chara	cteristics (C	Overall)	
Conductor		<b>,</b>	
AWG:			
		ng Conductor Material	
20	28 7x36	TC - Tinned Copper	
Total Number	of Conductors:		20
Conductor Spa	acing Center to	Center:	.050
Insulation			
Insulation Materi			
Insulation Ma		Thickness (in.)	
PVC - Polyviny	l Chloride 0.010	)	
Insulation Res	istance:		>10,000 Mega Ohms
Insulation Color	Code Chart:		
Number	Color		
1	Brown		
2	Red		
3	Orange		
4	Yellow		
5	Green		
6 7	Blue		
8	Purple		
9	Gray White		
10	Black		
	ictors Repeat as	required	
Outer Shield Outer Shield Mat Outer Shield I Unshielded			
Overall Cable			
Overall Nomin	al Thickness:		.036
Overall Nomin	al Width:		1.00
lechanical Cha	aracteristics	(Overall)	
	perature Range		-20°C To +105°C
Bulk Cable We	eight:		24 lbs/1000 ft.
Min. Bend Rad	lius/Minor Axis:		0.500 in.
Applicable Spe	cifications	and Agency Complian	ce (Qverall)
		onmental Programs	
UL Rating:			AWM 20932
EU Directive 2	011/65/EU (ROH	IS II):	Yes
EU CE Mark:			Yes
EU Directive 2	000/53/EC (ELV)	):	Yes
EU Directive 2	002/95/EC (RoH	S):	Yes

# **Detailed Specifications & Technical Data**





# 9R28020 Flat - Rainbow 9R280XX Series

	ective 2002/96/EC (WEEE):	Yes	
EU Dire			
EU Dire	ective 2003/11/EC (BFR):	Yes	
CA Pro	p 65 (CJ for Wire & Cable):	Yes	
MII Ord	ler #39 (China RoHS):	Yes	
ame Tes	t		
UL Flar	me Test:	VW-1	
	on-Plenum		
Plenum	n (Y/N):	No	
ectrical	Characteristics (Overall)		
	cteristic Impedance:		
Descripti	ion Impedance (Ohm)		
(GS)	150		
(GSG)	105		
om. Induct	tance:		
Descripti			
@ 1 MHz			
-	: (GSG) .20		
-			
	itance Conductor to Conductor:		
Descripti			
-	(GSG) 18		
@ 1 MHz			
@ 1 MHZ	: (GSG) 15		
	locity of Propagation:		
Descripti	ion VP (%)		
Delay (ns 1.40 NS/F	s/ft) FT. (GSG)		
Delay (ns 1.40 NS/F om. Condu DCR @ 2	lay: s/ft)		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHM om. Attenu	lay: s/ft) FT. (GSG) uctor DC Resistance: 20°C (Ohm/1000 ft) A/S/1000 FT. MAX. uation:		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHM om. Attenu Freq. (MH	lay: s/ft) FT. (GSG) uctor DC Resistance: 10°C (Ohm/1000 ft) MS/1000 FT. MAX. Juation: Hz) Attenuation (dB/100 ft.)		
Delay (ns 1.40 NS/F m. Condu DCR @ 2 68.2 OHM m. Attenu Freq. (MH 10	lay: s/ft) FT. (GSG) uctor DC Resistance: 80°C (Ohm/1000 ft) A/S/1000 FT. MAX. Juation: Hz) Attenuation (dB/100 ft.) 2.8		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHM om. Attenu Freq. (MH 10 20	lay: s/ft) FT. (GSG) uctor DC Resistance: 20°C (Ohm/1000 ft) A/S/1000 FT. MAX. uation: Hz) Attenuation (dB/100 ft.) 2.8 4.8		
Delay (ns 1.40 NS/F m. Condu DCR @ 2 68.2 OHM m. Attenu Freq. (MH 10 20 30	lay: s/ft) FT. (GSG) Justor DC Resistance: 20°C (Ohm/1000 ft) A/S/1000 FT. MAX. Justion: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5		
Delay (ns       1.40 NS/F       m. Condu       DCR @ 2       68.2 OHIN       Freq. (MH       10       20       30       40	lay: s/ft) FT. (GSG) Justor DC Resistance: 20°C (Ohm/1000 ft) A/S/1000 FT. MAX. Justion: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHIN om. Attenu Freq. (Mi 10 20 30 40 50	lay:     s/ft)     FT. (GSG)     uctor DC Resistance:     0°°C (Ohm/1000 ft)     /dS/1000 FT. MAX.     uation:     Hz)     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHIN Treq. (MH 10 20 30 40 50 60	lay: s/ft) FT. (GSG) uctor DC Resistance: 10°C (Ohm/1000 ft) A/S/1000 FT. MAX. Jation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHIN Treq. (MH 10 20 30 40 50 60 70	lay: s/ft) FT. (GSG) uctor DC Resistance: 10°C (Ohm/1000 ft) AS/1000 FT. MAX. Juation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13		
Delay (ns 1.40 NS/F m. Condu DCR @ 2 68.2 OHI m. Attenu Freq. (MH 10 20 30 40 50 60 70 80	lay: s/ft) FT. (GSG) Justor DC Resistance: 10°C (Ohm/1000 ft) AS/1000 FT. MAX. Justion: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHIN Treq. (MH 10 20 30 40 50 60 70 80 90	lay: s/ft) FT. (GSG) Justor DC Resistance: 10°C (Ohm/1000 ft) AS/1000 FT. MAX. Justion: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHIN Treq. (MH 10 20 30 40 50 60 70 80 90 100	lay: s/ft) FT. (GSG) sctor DC Resistance: s0°C (Ohm/1000 ft) A/S/1000 FT. MAX. sation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8 17		
Delay (ns       1.40 NS/F       om. Condu       DCR @ 2       68.2 OHI       10       20       30       40       50       60       70       80       90       100	lay: s/ft) FT. (GSG) Justor DC Resistance: 10°C (Ohm/1000 ft) AS/1000 FT. MAX. Justion: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8		
Delay (ns       1.40 NS/F       om. Condu       DCR @ 2       68.2 OHI       10       20       30       40       50       60       70       80       90       100       ax. Operat       Voltage	lay: s/ft) FT. (GSG) Jector DC Resistance: 10°C (Ohm/1000 ft) A/S/1000 FT. MAX. Jation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8 17 ting Voltage - UL:		
Delay (ns       1.40 NS/F       om. Condu       DCR @ 2       68.2 OHI       10       20       30       40       50       60       70       80       90       100       ax. Operation	lay: s/ft) FT. (GSG) Jector DC Resistance: 10°C (Ohm/1000 ft) A/S/1000 FT. MAX. Jation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8 17 ting Voltage - UL:		
Delay (ns 1.40 NS/F om. Condu DCR @ 2 68.2 OHN Treq. (MH 10 20 30 40 50 60 70 80 90 100 ax. Operat Voltage 300 V RM	lay: s/ft) FT. (GSG) Jector DC Resistance: 10°C (Ohm/1000 ft) A/S/1000 FT. MAX. Jation: Hz) Attenuation (dB/100 ft.) 2.8 4.8 6.5 8.3 9.8 12 13 14 15.8 17 ting Voltage - UL:		
Delay (ns       1.40 NS/F       pcm. Condu       pom. Attenu       pom. Attenu       pom. Attenu       pom. Conduction       pom. Attenu	lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     c0°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:		
Delay (ns       1.40 NS/F       pcm. Condu       pom. Attenu       product       pom. Attenu       pom. Attenu <td>lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     c0°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:</td> <td></td> <td></td>	lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     c0°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:		
Delay (ns       1.40 NS/F       DCR @ 2       68.2 OH       50       60       70       80       90       100       ax. Operat       Voltage       300 V RM       ax. Recom       Current       1 Amp per	lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     10°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     Mmended Current:     er conductor @ 20°C		
Delay (ns       1.40 NS/F       DCR @ 2       68.2 OH       om. Attenu       Freq. (MH       10       20       30       40       50       60       70       80       90       100       ax. Operat       Voltage       300 V RM       ax. Recom       Current       1 Amp pe       Dielect	lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     10°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     Jannended Current:     er conductor @ 20°C     ric Withstand Voltage:	2,000 V RMS	
Delay (ns       1.40 NS/F       DCR @ 2       68.2 OH       om. Attenu       Freq. (Mi       10       20       30       40       50       60       70       80       90       100       ax. Operat       Voltage       300 V RM       ax. Recom       Current       1 Amp pe       Dielect	lay:     s/ft)     FT. (GSG)     Jactor DC Resistance:     10°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     Inmended Current:     er conductor @ 20°C     ric Withstand Voltage:     alanced Crosstalk:		_
Delay (ns       1.40 NS/F       m. Condu       DCR @ 2       68.2 OH       om. Attenu       Freq. (Mi       10       20       30       40       50       60       70       80       90       100       ax. Operat       Voltage       300 V RM       ax. Recom       Current       1 Amp pe       Dielect       pical Unb       Descripti	lay:     s/ft)     FT. (GSG)     uctor DC Resistance:     0°C (Ohm/1000 ft)     //S/1000 FT. MAX.     uation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     Inmended Current:     er conductor @ 20°C     ric Withstand Voltage:     alanced Crosstalk:     ion   Pulse Rise Time (NS) (	MHz) Near End % (MHz) Far End % (MH	_
Delay (ns       1.40 NS/F       0.00 R       0.00 R       68.2 OH       0.00 R       30       40       50       60       70       80       90       100       ax. Operat       Voltage       300 V RM       ax. Recom       Dielect       pical Unb       Descripti       10 ft. sam	lay:     s/ft)     FT. (GSG)     Juctor DC Resistance:     10°C (Ohm/1000 ft)     AS/1000 FT. MAX.     Juation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     er conductor @ 20°C     ric Withstand Voltage:     alanced Crosstalk:     ion   Pulse Rise Time (NS) (     pple length   3	MHz) Near End % (MHz) Far End % (MH 4.8 7	_
1.40 NS/F DCR @ 2 68.2 OHM 000000000000000000000000000000000000	lay:     s/ft)     FT. (GSG)     Juctor DC Resistance:     t0°°C (Ohm/1000 ft)     //S/1000 FT. MAX.     Jation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ass     wmended Current:     er conductor @ 20°C     ric Withstand Voltage:     alanced Crosstalk:     ion   Pulse Rise Time (NS) (     uple length   3     19   13	MHz) Near End % (MHz) Far End % (MH	_
Delay (ns       1.40 NS/F       000000000000000000000000000000000000	lay:     s/ft)     FT. (GSG)     Juctor DC Resistance:     10°C (Ohm/1000 ft)     AS/1000 FT. MAX.     Juation:     H2     Attenuation (dB/100 ft.)     2.8     4.8     6.5     8.3     9.8     12     13     14     15.8     17     ting Voltage - UL:     Ms     er conductor @ 20°C     ric Withstand Voltage:     alanced Crosstalk:     ion   Pulse Rise Time (NS) (     pple length   3	MHz) Near End % (MHz) Far End % (MH 4.8 7	_

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

### Put Ups and Colors:

# **Detailed Specifications & Technical Data**



#### ENGLISH MEASUREMENT VERSION

### 9R28020 Flat - Rainbow 9R280XX Series

Item #	Putup	Ship Weight	Color	Notes	Item Desc
9R28020 000100	100 FT	2.600 LB	NONE		20 #28 PVC RAINBOW

Revision Number: 3 Revision Date: 10-02-2012

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