

CABLE ASSEMBLIES



LETTER	PART #	DEFINITION
D	663-242-CAT6-UTP	CAT6 WITH UTP FILLED
E	663-213-RG6-08	8 CONDUCTOR CABLE RG6
J	663-234-14	CABLE 14/5 COND. TRAY 600V
K	663-235-20	RG59 BELDEN 8281
N	663-227-00	CABLE 14/3 COND. TRAY 600V
P	663-241-CAT5E	CAT5E ETHERNET CABLE EXTREME COND
DE		CAT6 WITH 8 COND RG6 ANALOG CABLE
DN		CAT6 WITH 3 COND 14AWG POWER CABLE
EJ		8 COND RG6 WITH 5 COND 14AWG AUX CBLE
EP		CAT5E WITH 8 COND RG6 ANALOG CABLE
NP		CAT5E WITH 3 COND 14AWG POWER CABLE
P	663-241-CAT5E	CAT5E ETHERNET CABLE EXTREME COND

COMMENTS:

All cables are of High Performance, with outdoor rated jackets

The "E" cable is an 8 conductor cable and takes the place of the former "A", "B", "C", and "L". If additional conductors are needed, it can be paired with the "J" or "N" cables.

The "D" is an outdoor rated, high performance CAT6 cable.

The "P" is an outdoor rated, high performance CAT 5e cable.

Combination of different cables also available.

Specials are still available.

Features And Benefits

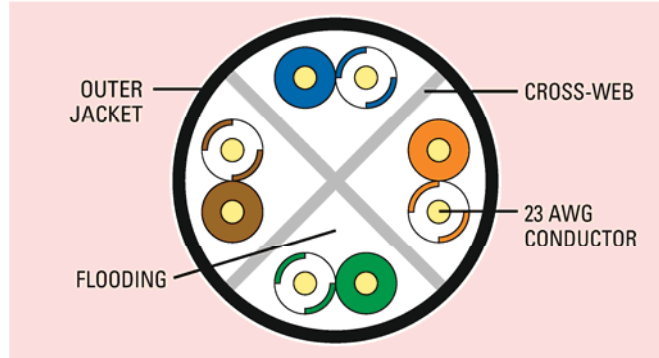
- Innovative cross-web design allowing for maximum pair separation, increasing key electrical performance parameters
- **Gel-filled construction to prevent moisture migration in underground and wet applications**
- Wide temperature range for extreme weather environments
- Made in U.S.A.

Applications

- Data transmission rates up to 2.4 Gb/s
- 1000 BASE-T (Gigabit Ethernet)
- 100/10 BASE-T (IEEE 802.3)
- 52/155 Mbps ATM
- Duct and outdoor conduit installations

Standard Compliances

- ANSI/TIA 568-C.2
- ISO 11801 (Category 6)
- ICEA S-102-700 (Category 6)
- Telcordia (Bellcore) Specification GR-421-CORE Water Penetration Requirement
- RoHS Compliant Directive 2002/95/EC



CONSTRUCTION

Conductors

- 23 AWG solid bare annealed copper

Insulation

- Polyolefin

Color Code

- Pair 1: Blue-White/Blue
- Pair 2: Orange-White/Orange
- Pair 3: Green-White/Green
- Pair 4: Brown-White/Brown

Separator

- Cross-web

Flooding Compound

- Waterproof gel

Jacket

- UV- and Abrasion-Resistant Polyethylenes

PHYSICAL DATA

Nominal Cable Diameter (in)	0.250
Nominal Cable Weight (lbs/1000)	25
Minimum Bend Radius (in)	1.0
Maximum Pulling Force (lbs)	32
Temperature Rating (°C)	
Installation:	-30 to +60
Operation:	-45 to +80

ELECTRICAL CHARACTERISTICS

DC Resistance (max) Ohms/100 m (328 ft) @ 20°C	8.9
DC Resistance Unbalance (max) Individual Pair %	3.0
Delay Skew (max) ns/100 m	45
Nom. Velocity of Propagation % Speed of Light	69
Characteristic Impedance Frequency (f): 1-250 MHz	Ohms 100 ± 15

ELECTRICAL PERFORMANCE

Frequency MHz	PSACR* (min)	ACR* (min)	Insertion Loss (max)	PSNEXT (min)	NEXT (min)	PSACRF (min)	ACRF (min)	Return Loss (min)
1	70.3	72.3	2.0	72.3	74.3	64.8	67.8	20.0
4	59.3	61.5	3.8	63.3	65.3	52.8	55.7	23.0
10	51.3	53.3	6.0	57.3	59.3	44.8	47.8	25.0
16	46.7	48.7	7.6	54.2	56.2	40.7	43.7	25.0
20	44.3	46.3	8.5	52.8	54.8	38.8	41.7	25.0
31.25	39.2	41.2	10.7	49.9	51.9	34.9	37.9	23.6
62.5	29.9	32.0	15.4	45.4	47.4	28.9	31.8	21.5
100	22.5	24.5	19.8	42.3	44.3	24.8	27.8	20.1
200	8.8	10.8	29.0	37.8	39.8	18.8	21.8	18.0
250	3.5	5.5	32.8	36.3	38.3	16.8	19.8	17.3

Note: Values are expressed in dB per 100 m (328 ft.) length @ 20°C.

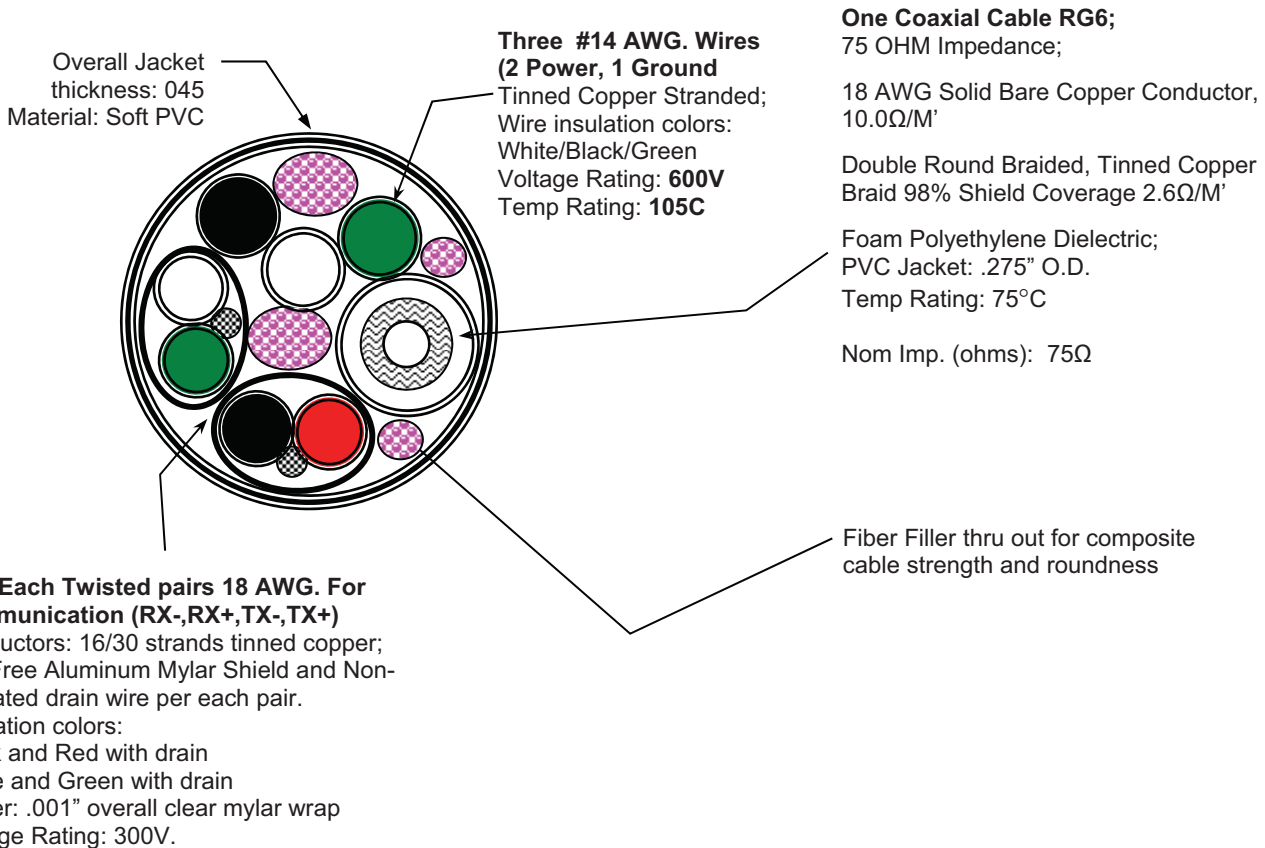
*PSACR & ACR not specified in ANSI/TIA 568-C.2

Composite Cable for **16HD-E** connector

"E" Composite Signal Cable (663-213-RG6-08) containing:

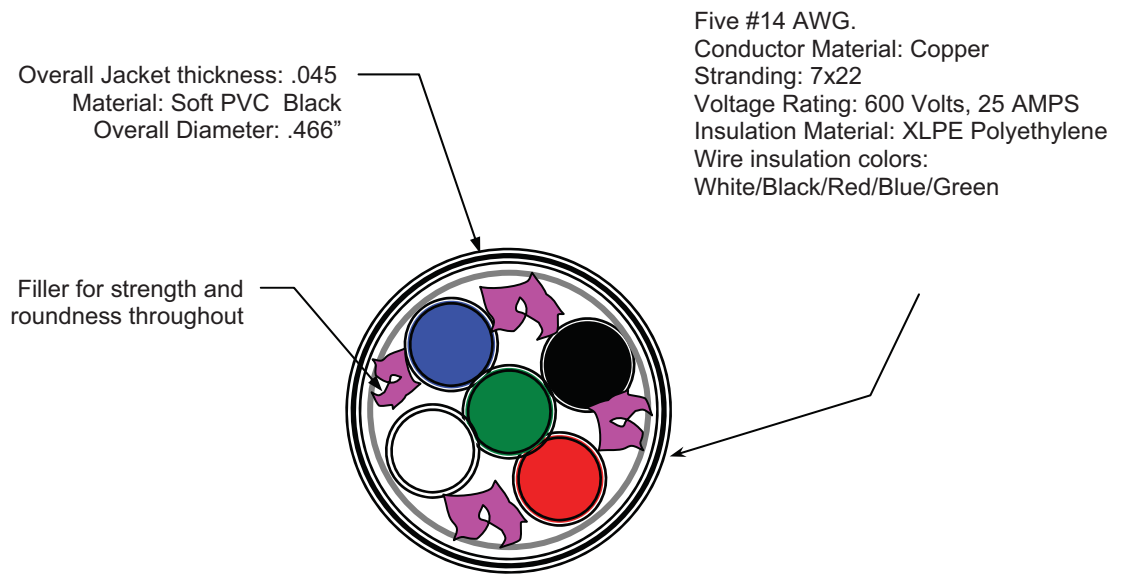
- 1-RG6 COAX with #18 AWG Solid Center Conductor
- 1-#18 AWG TWISTED PAIR WITH DRAIN IN FOIL SHIELD
- 1-#18 AWG TWISTED PAIR WITH DRAIN IN FOIL SHIELD
- 2-#14 AWG POWER CABLES
- 1-#14 AWG GROUND CABLE

CABLE LENGTH PER ASSEMBLY: **AS REQUESTED**



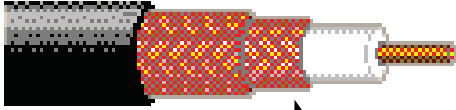
ADDITIONAL CABLE SPECS:

- VOLTAGE RATING FOR 14 AWG WIRE INSULATION: 600 V.
- **UL** and **CSA** approved cable.
- PART NUMBER '663-213-RG6-08', (PRINTED ON OUTSIDE OF JACKET).
- JACKET MATERIAL: .045 thick soft PVC
- FILLERS A MUST AND WRAPS AS REQUIRED.
- OVERALL JACKET DIAMETER OF "B" CABLE: .640"
- TEMPERATURE RATING: 105° C UL 1015



NOTES

- VOLTAGE RATING FOR 14 AWG WIRE INSULATION: 600 V.
- TEMPERATURE RATING: 80° C UL 1015



Coaxial Cable RG-59/U

Conductor:
20 AWG Stranded Copper

Braid Shield: Double round, tinned copper
1st Braid: 36 AWG TC, coverage 98%, Nom: 0.156”
2nd Braid: 36 AWG TC, coverage 98%, Nom: 0.185”

Insulation: Foam Polyethylene

Jacket: PVC, Wall: 0.033”, Nom: 0.242”, Color: Black

ADDITIONAL SPECS

- **TEMPERATURE RATING:** 80° C UL 1015
- **Nom. D.C.R.:** 7.5Ω/M', 24.6 Ω/M'
- **NOMINAL CAPACITANCE:** 17.3 pF/ft (56.7 pF/m)
- **VOLTAGE:** 300 V RMS
- **IMPEDENCE:** 75 OHM

Description:

20 AWG solid .031" bare copper conductor, polyethylene insulation, tinned copper/bare copper double braid shield (98% coverage), polyethylene jacket.

Physical Characteristics (Overall)

Conductor

AWG:

Coax AWG Stranding Conductor Material Dia. (mm)

1 20 Solid BC - Bare Copper 0.7874

Insulation

Insulation Material:

Insulation Material Dia. (mm)

PE - Polyethylene 5.0292

Outer Shield

Outer Shield Material:

Layer # Type Outer Shield Material Coverage (%)

1 Braid TC - Tinned Copper 98

2 Braid TC - Tinned Copper 98

Outer Jacket
Outer Jacket Material:
Outer Jacket Material
PE - Polyethylene
Overall Cabling
Overall Nominal Diameter: 7.747 mm
Mechanical Characteristics (Overall)
Operating Temperature Range: -55°C To +80°C
Non-UL Temperature Rating: 80°C
Bulk Cable Weight: 102.686 Kg/Km
Max. Recommended Pulling Tension: 515.991 N
Min. Bend Radius (Install)/Minor Axis: 76.200 mm
Min. Flexing Radius: 15.240 cm
Applicable Specifications and Agency Compliance (Overall)
Applicable Standards & Environmental Programs
EU CE Mark: No
EU Directive 2000/53/EC (ELV): Yes
EU Directive 2002/95/EC (RoHS): Yes
EU RoHS Compliance Date (mm/dd/yyyy): 01/01/2004
EU Directive 2002/96/EC (WEEE): Yes
EU Directive 2003/11/EC (BFR): Yes

Detailed Specifications & Technical Data
METRIC MEASUREMENT VERSION

CA Prop 65 (CJ for Wire & Cable): Yes
MII Order #39 (China RoHS): Yes
RG Type: 59/U
Suitability
Suitability - Indoor: Yes
Suitability - Outdoor: Yes
Suitability - Aerial: Yes - Black only, when supported by a messenger wire
Plenum/Non-Plenum
Plenum (Y/N): No
Plenum Number: 88281

Electrical Characteristics (Overall)

Nom. Characteristic Impedance:
Impedance (Ohm)
75
Nom. Inductance:
Inductance (µH/m)
0.429811
Nom. Capacitance Conductor to Shield:
Capacitance (pF/m)
68.901
Nominal Velocity of Propagation:
VP (%)
66
Nominal Delay:
Delay (ns/m)

5.05274
Nom. Conductor DC Resistance:
DCR @ 20°C (Ohm/km)
32.4819
Nominal Outer Shield DC Resistance:
DCR @ 20°C (Ohm/km)
3.6091
Nom. Attenuation:
Freq. (MHz) Attenuation (dB/100m)
1 0.9843
3.6 1.6405
10.0 2.6248
71.5 6.8901
135 9.843
270 14.1083
360 16.7331

540 20.6703
720 24.2794
750 24.9356
1000 30.1852

Max. Operating Voltage - Non-UL:

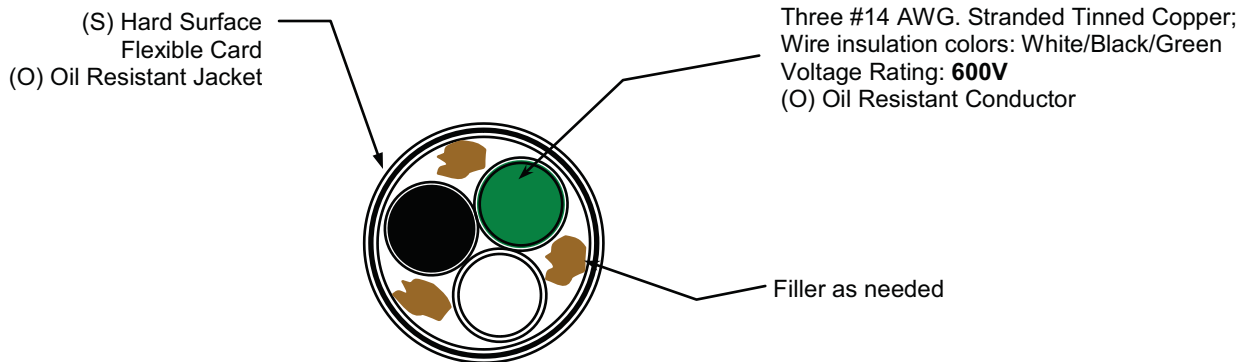
Voltage
2900 V RMS

Other Electrical Characteristic 1: Impedance tested in accordance with ASTM D-4566 paragraph 43.2, option 2 using a 75 Ohm fixed bridge and termination. 75 +/- 1.5 Ohms

Other Electrical Characteristic 2: Return Loss tested in accordance with ASTM D-4566 paragraph 45.3, using a 75 Ohm fixed bridge and termination.

Minimum Structural Return Loss:
Start Freq. (MHz) Stop Freq. (MHz) Min. SRL (dB)
5 216 27
217 850 23
Sweep Test
Sweep Testing: 100% Sweep tested 5MHz to 850MHz.

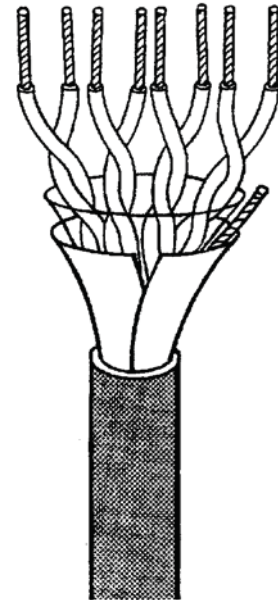
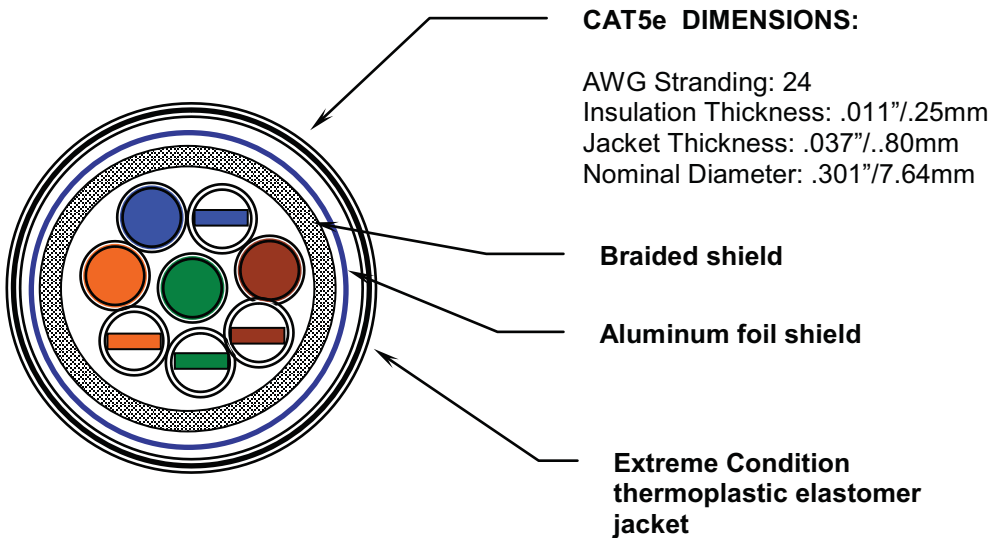
N-Composite Cord Specifications:
3-#14 AWG POWER CABLES (Green, White, Black)
Voltage Rating: 600V.
Water & Sunlight Resistant
Temp. Rating: 105c
U.L. Ampacity Rating for 14 AWG Flexible Cord: 18



APPLICATION:

Shielded (F/UTP) flexible patch/jumper cable for production of durable Category 5e Industrial Ethernet cords with exceptional flex-life. Jacket provides excellent mechanical and chemical resistance, fire, UV, and low temperature performance. May be terminated with encapsulated RJ-45 or cylindrical M12 connectors to achieve IP-67 rating. RoHS compliant

**INDUSTRIAL ETHERNET CABLE
FR-TPE FOIL SHIELDED CABLE**



CONSTRUCTION:

- **CONDUCTOR:** Stranded 24 AWG 7/32 tinned copper
- **INSULATION:** High Density Polyethylene, .011" Nom. Wall Thickness.
- **PAIRS:** Color coded singles twisted into pairs.
- **CABLE:** (4) Twisted Pairs twisted together and wrapped with a Foam Polypropylene Tape to form a Cable core.
- **SHIELDS:** Overall shield of 38 AWG tinned copper Braid (75% Minimum Coverage), shall be applied over the cable core. A second shield of Aluminized Polyester Foil (Foil in, 100% Coverage) shall be applied over the Braid.
- **JACKET:** A pressured flame resistant thermoplastic elastomer, .037" nom. Wall
- **COLOR CODE:** white/blue x blue, white/brown x brown, white/green x green, white/orange x orange
- **OVERALL CABLE DIAMETER:** .301"

LISTING/RATINGS:

- Cat 5e plug-to-plug channel Max. 80 meters
- Temperature rating: 75 °C Max., -40 °C Min.
- Nom. Impedance 1 - 100 MHz: 100 +/- 15
- Ohms Mutual Capacitance 13.5 pF/ft Nom. @ 1 MHz
- RoHS Compliant Materials
- Type (UL) C(UL) CMX OUTDOOR - CM, sunlight resistant, 75 °C Article 800