

# **BELDEN**Cable<sup>®</sup>

# 9688 Paired - IBM Type 1A



For more information please call
1-800-Belden1

**See Put-ups and Colors** 

#### **Description:**

 $22~\mathrm{AWG}$  (solid) bare copper, 4 flame retardant polyethylene insulated conductors in 2 pairs parallel, each pair foil shielded, overall braid shield of tinned copper, pvc jacket with nylon ripcord.

## SUITABLE APPLICATIONS:

Suitable Applications Token Ring 4 & 16 Mbps, FDDI over Copper, and video

## PHYSICAL CHARACTERISTICS:

### **CONDUCTOR:**

| Number of Pairs            | 2                |
|----------------------------|------------------|
| Total Number of Conductors | 4                |
| AWG                        | 22               |
| Stranding                  | Solid            |
| Conductor Material         | BC - Bare Copper |

### **INSULATION:**

| Insulation Material   | FRFPE - Flame Retardant Foam Polyethylene |
|-----------------------|---|
| Insulation Resistance | > 16000 MOhms                             |

## Pair Color Code Chart:

| Number | Color          | Number | Color       |
|--------|----------------|--------|-------------|
| 1      | Black & Orange | 2      | Red & Green |

#### **INNER SHIELD:**

| Inner Shield Material Trade Name | Beldfoil®                    |
|----------------------------------|------------------------------|
| Inner Shield Type                | Tape                         |
| Inner Shield Material            | Aluminum Foil-Polyester Tape |
| Inner Shield % Coverage          | 100 %                        |

## **OUTER SHIELD:**

| Outer Shield Type      | Braid              |
|------------------------|--------------------|
| Outer Shield Material  | TC - Tinned Copper |
| Outer Shield %Coverage | 65 %               |

#### **OUTER JACKET:**

# Detailed Specifications & Technical Data



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| Outer Jacket Material | PVC - Polyvinyl Chloride |
|-----------------------|--------------------------|
| Outer Jacket Ripcord  | Yes                      |

### **OVERALL NOMINAL DIAMETER:**

Overall Nominal Diameter .296 x .431 in.

### **MECHANICAL CHARACTERISTICS:**

| Operating Temperature Range      | -40°C To +75°C  |  |
|----------------------------------|-----------------|--|
| Bulk Cable Weight                | 48 lbs/1000 ft. |  |
| Max. Recommended Pulling Tension | 83 lbs.         |  |
| Min. Bend Radius (Install)       | 4.5 in.         |  |

### APPLICABLE SPECIFICATIONS AND AGENCY COMPLIANCE:

#### APPLICABLE STANDARDS:

| NEC/(UL) Specification                       | MPG, CMG                  |
|--|---------------------------|
| CEC/C(UL) Specification                      | CMG                       |
| IEEE Specification                           | IEEE802.5 Token Ring      |
| TIA/EIA Specification                        | TIA/EIA-568-A             |
| Other Specification                          | ETL Verified              |
| Customer Part Number Reference Specification | IBM P/N: 4716748, 33G2772 |

## FLAME TEST:

| UL Flame Test  | UL1685 FT4 Loading |
|----------------|--------------------|
| CSA Flame Test | FT4                |

#### PLENUM/NON-PLENUM:

| Plenum (Y/N)  | N     |
|---------------|-------|
| Plenum Number | 82688 |

#### **ELECTRICAL CHARACTERISTICS:**

| Nom. Characteristic Impedance                   | 150 Ohms          |
|---|-------------------|
| Nom. Capacitance Conductor to Conductor @ 1 KHz | 8.5 pF/ft         |
| Maximum Capacitance Unbalance (pF/100 m)        | 100 pF/100 m      |
| Nominal Velocity of Propagation                 | 78 %              |
| Nom. Conductor DC Resistance @ 20 Deg. C        | 16.7 Ohms/1000 ft |
| Minimum NEXT:                                   |                   |



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| Description | Frequency (MHz) | Start Frequency (MHz) | Stop Frequency (MHz) | Minimum NEXT (dB) |
|-------------|-----------------|-----------------------|----------------------|-------------------|
|             | 4               |                       |                      | 58.0              |
|             | 16              |                       |                      | 50.4              |
|             | 31.25           |                       |                      | 46.1              |
|             | 62.5            |                       |                      | 41.5              |
|             | 100             |                       |                      | 38.5              |
|             | 200             |                       |                      | 34.0              |
|             | 300             |                       |                      | 31.3              |

### Max. Attenuation (dB/100 m):

| Description | Frequency (MHz) | Start Frequency (MHz) | Stop Frequency (MHz) | Max. Attenuation (dB/100 m) |
|-------------|-----------------|-----------------------|----------------------|-----------------------------|
|             | 4               |                       |                      | 2.2                         |
|             | 16              |                       |                      | 4.4                         |
|             | 31.25           |                       |                      | 6.9                         |
|             | 62.5            |                       |                      | 9.8                         |
|             | 100             |                       |                      | 12.3                        |
|             | 200             |                       |                      | 17.4                        |
|             | 300             |                       |                      | 21.4                        |

#### Common Mode Attenuation:

| Description | Frequency (MHz) | Start Frequency (MHz) | Stop Frequency (MHz) | Common Mode<br>Attenuation (dB/100 m) |
|-------------|-----------------|-----------------------|----------------------|---------------------------------------|
|             | 62.5            |                       |                      | 10.6                                  |
|             | 100             |                       |                      | 13.4                                  |
|             | 200             |                       |                      | 19.0                                  |
|             | 300             |                       |                      | 23.3                                  |
|             | 400             |                       |                      | 26.9                                  |
|             | 550             |                       |                      | 31.5                                  |
|             | 600             |                       |                      | 32.9                                  |

Max. Operating Voltage - UL

Max. Recommended Current

300 V RMS

2.3 Amps per conductor @ 25°C

#### NOTES:

Notes IBM qualified Type 1A media cable for use in IBM cabling system. For non-suffix "A" type IBM product, see 1634A

#### **PUT-UPS AND COLORS:**

|              | TOT OTO THE COLORD          |              |                    |              |       |  |  |  |
|--------------|-----------------------------|--------------|--------------------|--------------|-------|--|--|--|
| Item         | Description                 | Put-Up (ft.) | Ship Weight (lbs.) | Jacket Color | Notes |  |  |  |
| 9688 0101000 | 2PR#22FRFPE FRPE<br>BRD PVC | 1000         | 50                 | BLACK        | CZ    |  |  |  |
| 9688 0102000 | 2PR#22FRFPE FRPE<br>BRD PVC | 2000         | 102                | BLACK        | CZ    |  |  |  |
| 9688 0103600 | 2PR#22FRFPE FRPE<br>BRD PVC | 3600         | 190.8              | BLACK        | CZ    |  |  |  |
| 9688 010500  | 2PR#22FRFPE FRPE<br>BRD PVC | 500          | 26.5               | BLACK        | CZ    |  |  |  |

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C = CRATE REEL PUT-UP.

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

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