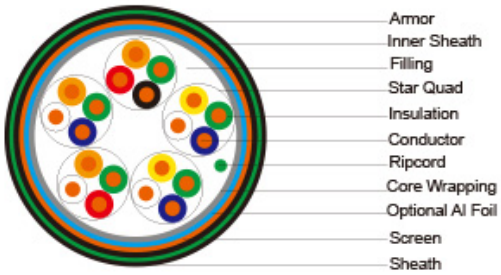
## PE Insulated Air Core/Jelly Filled Star Quad Railway Signalling Cables (RF 0.3)

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|---|---|
| **Application** | The cables are designed to give good protection to the core against inductive interference (RF=0.3).The cables are used for outdoor signaling equipment. |
| **Standards** | RENFE E.T. 03.365.051.6 |
| **Construction** | |
| **Conductors:** | Solid annealed bare copper 0.9/1.4mm as per ASTM B-3/class 1 of IEC 60228 |
| **Insulation:** | Solid polyethylene as per ASTM D 1248/IEC 60708 |
| **Cabling Element:** | Four insulated conductors are twisted together to form a quad |
| **Cable Core Assembly:** | The cores are cabled together in concentric layers to form the cable core. Units are identified by colour coded binders |
| **Core Wrapping:** | One or more non-hygroscopic polyester tapes are helically or longitudinally laid with an overlap |
| **Electrostatic Screen:** | Corrugated copper tape of 0.12mm is applied longitudinally with overlap |
| **Bedding:** | PE or LSZH |
| **Electrostatic Armour:** | Two steel tapes of 0.5mm are helically applied with gap. The outer tape will cover the gap left by the inner one |
| **Sheath:** | PE, PVC or LSZH |
| **Ripcord:** | Nylon ripcord may be placed parallel to the cores to facilitate sheath removal |

**Electrical Properties**

| | | | |
|---|---|---|---|
| **Nominal Conductor Diameter** | mm | 0.9 | 1.4 |
| **Conductor Size** | mm2 | 0.636 | 1.539 |
| **Maximum Conductor Resistance @20°C** | Ω/km | 28 | 12.1 |
| **Minimum Insulation Resistance @500V DC** | MΩ.km | 35000 | 5000 |
| **Reduction Factor Rk (50Hz) Induced Voltage Em 100V/Km** | | 0.3 | 0.3 |

| | | | |
|---|---|---|---|
| **Induced Voltage Em 500V/Km** | | 0.5 | 0.5 |
| **Maximum Resistance Unbalance** | % | 2.5 | 2.5 |
| **Maximum Mutual Capacitance @0.8Hz** | nF/km | 45 | 50 |
| **Maximum Capacitance Unbalance @1KHz pair-to-pair** | pF/500m | 250 | 250 |
| **Maximum Capacitance Unbalance @1KHz pair-to-ground** | pF/500m | 1200 | 1200 |
| **Maximum Average Attenuation @1KHz** | dB/km | 0.7 | 0.46 |
| **Maximum Average Attenuation @10KHz** | dB/km | 1.6 | 0.85 |
| **Maximum Average Attenuation @30KHz** | dB/km | 2.1 | 1.3 |
| **Dielectric Strength Conductor to Conductor 3secs** | V DC | 3000 | 3000 |
| **Conductor to Screen 3secs** | V DC | 3500 | 3500 |
| **Nominal Insulation Thickness** | mm | 0.45 | 0.65 |
| **Nominal Insulated Conductor Diameter** | mm | 1.8 | 2.7 |

**Mechanical and Thermal Properties**

**Temperature range during operation (fixed state):** -30°C – +70°C

**Temperature range during installation (mobile state):** -20°C – +50°C

**Minimum bending radius:** 15 x Overall Diameter

**Colour Code**

| Layer | Quad Position | Colour of conductors | | | |
|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 |
| Centre and even layers | First | ORANGE | GREEN | RED | WHITE |
| | Even | YELLOW | GREEN | BLUE | WHITE |
| | Odd | YELLOW | GREEN | RED | WHITE |
| | Last | ORANGE | GREEN | BLUE | WHITE |
| Odd Layers | First | ORANGE | GREEN | RED | BLACK |
| | Even | YELLOW | GREEN | BLUE | BLACK |
| | Odd | YELLOW | GREEN | RED | BLACK |
| | Last | ORANGE | GREEN | BLUE | BLACK |

**Dimensions And Weight**

| Cable Code | Number of Quads | Nominal Bedding/Sheath Thickness mm | Nominal Overall Diameter mm | Nominal Weight kg/km |
|---|---|---|---|---|
| 0.9mm Conductor, 1.8mm Insulated Wire | | | | |
| TP365-2Y(CTS)2Y(DSTA)Y1Q09-RF03 | 1 | 1.5/1.6 | 18.3 | 1300 |
| TP365-2Y(CTS)2Y(DSTA)Y3Q09-RF03 | 3 | 1.5/1.6 | 21.7 | 1425 |
| TP365-2Y(CTS)2Y(DSTA)Y5Q09-RF03 | 5 | 1.5/1.6 | 25.2 | 1650 |
| TP365-2Y(CTS)2Y(DSTA)Y7Q09-RF03 | 7 | 1.5/1.6 | 26.7 | 1800 |
| TP365-2Y(CTS)2Y(DSTA)Y10Q09-RF03 | 10 | 1.5/1.6 | 29.2 | 2275 |
| TP365-2Y(CTS)2Y(DSTA)Y14Q09-RF03 | 14 | 1.6/1.8 | 32.3 | 2450 |
| TP365-2Y(CTS)2Y(DSTA)Y19Q09-RF03 | 19 | 1.7/1.8 | 36.0 | 2895 |
| TP365-2Y(CTS)2Y(DSTA)Y27Q09-RF03 | 27 | 1.7/1.8 | 40.5 | 3275 |
| TP365-2Y(CTS)2Y(DSTA)Y37Q09-RF03 | 37 | 1.8/2.0 | 45.6 | 3775 |
| TP365-2Y(CTS)2Y(DSTA)Y48Q09-RF03 | 48 | 1.9/2.0 | 49.8 | 4275 |
| 1.4mm Conductor, 2.7mm Insulated Wire | | | | |
| TP365-2Y(CTS)2Y(DSTA)Y1Q14-RF03 | 1 | 1.5/1.6 | 20.2 | 1615 |
| TP365-2Y(CTS)2Y(DSTA)Y3Q14-RF03 | 3 | 1.5/1.6 | 25.7 | 1775 |
| TP365-2Y(CTS)2Y(DSTA)Y5Q14-RF03 | 5 | 1.6/1.8 | 30.8 | 2200 |
| TP365-2Y(CTS)2Y(DSTA)Y7Q14-RF03 | 7 | 1.6/1.8 | 32.8 | 2525 |

| | | | | |
|---|---|---|---|---|
| TP365-2Y(CTS)2Y(DSTA)Y10Q14-RF03 | 10 | 1.7/1.8 | 36.5 | 2975 |
| TP365-2Y(CTS)2Y(DSTA)Y14Q14-RF03 | 14 | 1.7/1.8 | 40.5 | 3150 |
| TP365-2Y(CTS)2Y(DSTA)Y19Q14-RF03 | 19 | 1.8/2.0 | 45.6 | 3695 |
| TP365-2Y(CTS)2Y(DSTA)Y27Q14-RF03 | 27 | 2.0/2.2 | 52.3 | 3975 |
| TP365-2Y(CTS)2Y(DSTA)Y37Q14-RF03 | 37 | 2.1/2.2 | 59.1 | 4475 |
| TP365-2Y(CTS)2Y(DSTA)Y48Q14-RF03 | 48 | 2.2/2.3 | 66.0 | 4975 |