

Industrial & Inverter RJ45 Plugs

# Industrial 10P10C RJ50 UTP Unshielded Modular Plug Connector for High-Density Data & Automation Cables



Key specifications

|                              |                                                  |
|------------------------------|--------------------------------------------------|
| Connector Standard           | 10P10C (RJ50) Modular Plug                       |
| Shielding Style              | Unshielded Twisted Pair (UTP)                    |
| Compatible Conductor Types   | 24 AWG, 26 AWG, 28 AWG (Solid & Stranded Copper) |
| Max Insulation Diameter (OD) | 0.95mm – 1.05mm                                  |

## Product summary

- 10-Pin High-Density Configuration:** Standard 10P10C (RJ50) footprint offering 10 full conductor positions for proprietary, multi-line, and complex serial communication protocols.
- Unshielded (UTP) High-Precision Housing:** Manufactured from durable, flame-retardant polycarbonate (UL 94V-0) optimized for flexible cable entry and lightweight industrial wiring.
- 50µ" Gold-Plated 3-Prong Contacts:** Precision phosphor bronze contact blades engineered to penetrate both solid and stranded copper conductors, preventing surface oxidation over long service life.
- High First-Pass Assembly Yield:** Features a precision-molded internal wire loading channel to ensure fast, aligned conductor insertion and minimal field crimping errors.
- OEM Customization Options:** Supporting customizable gold plating thickness (flash to 50µ"), specific wire insulation diameters, color boots, and tailored factory packaging.

**Product page:**  
<https://www.cnplugs.com/product/10p10c-rj50-connector-utp-unshielded-modular-plug/>  
**Category:** Industrial & Inverter RJ45 Plugs

## Contact & technical support

|                 |                                                                              |
|-----------------|------------------------------------------------------------------------------|
| Email           | <a href="mailto:austin@cnplugs.com">austin@cnplugs.com</a>                   |
| Call / WhatsApp | <a href="tel:+8613428509915">+86 134 2850 9915</a>                           |
| Business hours  | Monday-Saturday, 08:30-18:00 (UTC+8)                                         |
| Contact page    | <a href="http://www.cnplugs.com/contact-us/">www.cnplugs.com/contact-us/</a> |

## Product details

# High-Performance 10P10C RJ50 UTP Unshielded Modular Plug Connectors

In complex industrial automation, point-of-sale (POS) equipment, multi-channel serial hardware, and specialized telecommunications, standard 8-pin Ethernet connectors often lack the required conductor density. Our **10P10C RJ50 UTP Unshielded Modular Plug Connector** delivers ten full contact positions within a compact modular profile. Designed specifically for equipment manufacturers, cable assembly factories, and system integrators, this high-density plug ensures stable multi-line data transmission and long-term mechanical reliability.

Manufactured in ISO 9001 and ISO 14001 certified production facilities, every 10P10C connector is molded from high-impact clear polycarbonate to withstand mechanical strain, thermal fluctuations, and repeated insertion cycles. Whether deployed in barcode scanners, laboratory test equipment, or proprietary PLC bus channels, our RJ50 UTP plugs offer high first-pass termination yields and pristine electrical performance.

## Key Features & Engineering Advantages

### 1. 10P10C High-Density Pin Architecture

Unlike standard 8P8C (RJ45) modular plugs, the 10P10C layout (commonly referred to as RJ50) houses 10 pin channels in a specialized housing width. This allows design engineers to route extra power, grounding lines, or auxiliary control signals through a single cable assembly. You can explore our full collection of [pass-through RJ45 connectors](#) and modular plug accessories to compare various pin configurations for your custom harnesses.

### 2. High-Grade Clear Polycarbonate Housing

Structural durability begins with raw material selection. Our 10P10C UTP connectors utilize optical-grade, flame-retardant polycarbonate rated to UL 94V-0 standards. The clear transparent shell enables assembly line operators to perform instant visual checks of wire seating and pinout alignment prior to crimping, drastically lowering factory scrap rates.

### 3. Universal 3-Prong Contacts with 50µ" Gold Plating

Electrical contact integrity is critical when transferring multi-channel signals. We feature high-purity phosphor bronze contact blades with a universal **3-Prong Geometry** that securely clamps both stranded wire leads and solid copper conductors. To eliminate signal noise and contact oxidation, pins are coated with up to 50 micro-inches (50µ") of pure gold over a nickel sub-layer, strictly adhering to [Wikipedia's Modular Connector Specifications](#).

## Target Industry Applications

Our 10P10C UTP modular plugs are used extensively across specialized commercial and industrial cabling setups:

- **Point of Sale (POS) & Retail Terminals:** Connecting receipt printers, cash drawers, customer displays, and barcode scanners using proprietary multi-conductor cables.
- **Industrial Automation & Robotics:** Transmitting multi-channel sensor signals, encoder feedback, and controller inputs. View our full lineup of [industrial Ethernet connectors](#) for rugged hardware solutions.
- **Uninterruptible Power Supplies (UPS):** Interfacing data monitoring cables and control units for APC and enterprise UPS backup systems.
- **Telecommunications & Test Instrumentation:** High-density serial communications compliant with [Wikipedia's Registered Jack Standards](#).

## Quality Assurance & Factory Testing Standards

To ensure consistent quality across large OEM production runs, our quality control team enforces stringent testing procedures:

1. **Optical Dimension & Pin Pitch Verification:** Automated vision systems inspect housing tolerances,

latch flex fatigue, and contact height consistency.

- 2. **Electrical Continuity & Resistance Test:** 100% testing on sample crimp lots to verify pin-to-wire electrical contact resistance stays below 20 mΩ.
- 3. **Latch Stress & Tensile Pull Test:** Testing the retention force of the plug latch and wire strain relief clamp to ensure connection stability under pulling forces exceeding 89N (20 lbs).
- 4. **Salt Spray Corrosion Testing:** Gold-plated contacts undergo 24-to-48-hour salt spray testing to guarantee long-term corrosion resistance in humid marine or factory environments.

Technical specifications

| Specification                   | Published value                                   |
|---------------------------------|---------------------------------------------------|
| Connector Standard              | 10P10C (RJ50) Modular Plug                        |
| Shielding Style                 | Unshielded Twisted Pair (UTP)                     |
| Compatible Conductor Types      | 24 AWG, 26 AWG, 28 AWG (Solid & Stranded Copper)  |
| Max Insulation Diameter (OD)    | 0.95mm – 1.05mm                                   |
| Housing Material                | Transparent polycarbonate (PC)                    |
| Contact Blade Type              | Universal 3-Prong Phosphor Bronze Blade           |
| Gold Plating Thickness          | Flash / 3μ" / 15μ" / 30μ" / 50μ" Gold over Nickel |
| Voltage & Current Rating        | 125V AC RMS, 1.5 Amps                             |
| Dielectric Withstanding Voltage | 1000V AC RMS @ 50/60Hz for 1 Minute               |
| Insulation Resistance           | ≥ 500 MΩ                                          |
| Mating/Unmating Cycles          | ≥ 1,200 Insertion Cycles                          |
| Operating Temperature Range     | -20°C to +75°C (-4°F to 167°F)                    |
| Compliance & Certifications     | RoHS, REACH, CE, TIA/EIA-568 Standards            |