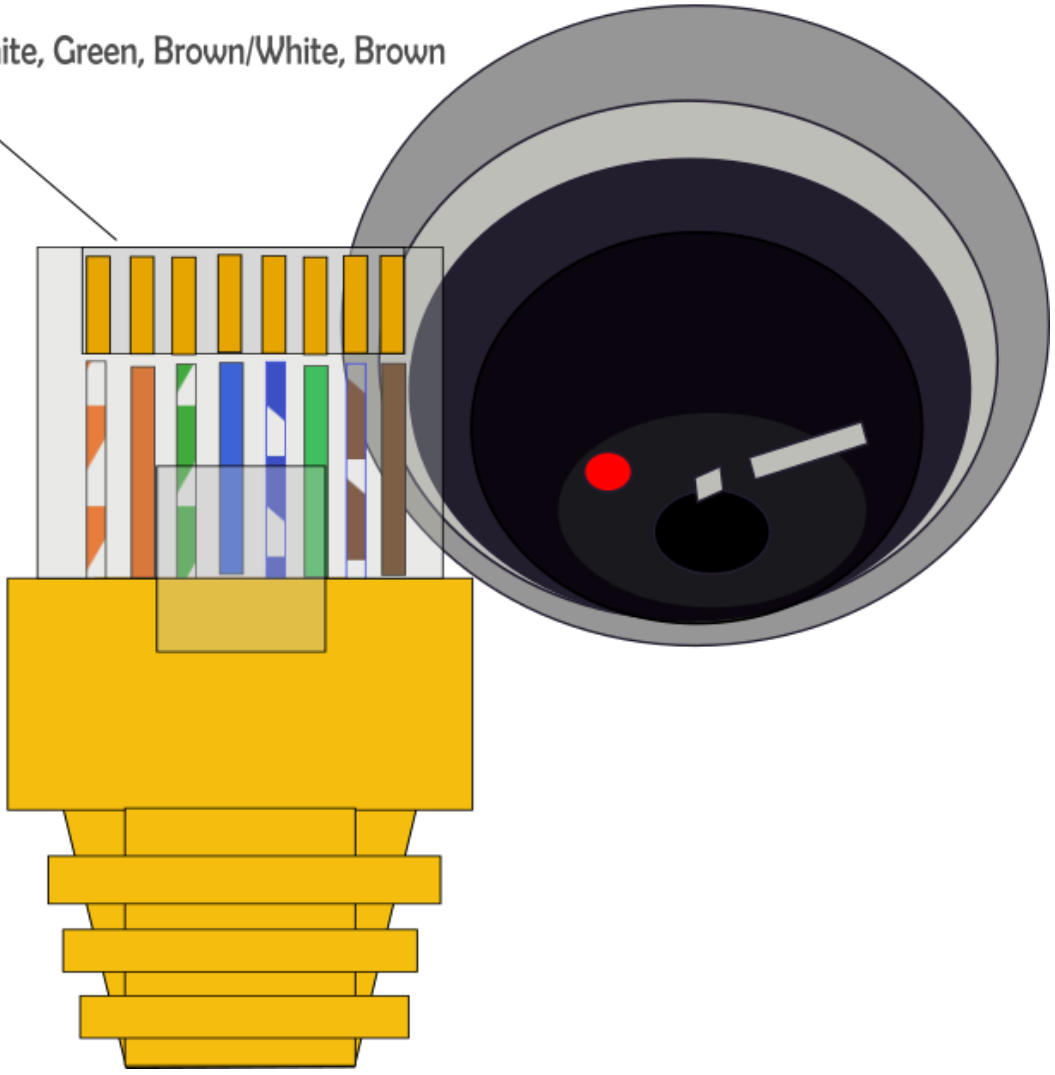
Cat-6 Camera System Installation

With RJ45 Teeth facing up and

towards you the order is shown

Orange/White, Orange, Green/White,

Blue, Blue/White, Green, Brown/White, Brown



Instruction Manual: Running CAT-6 Cable for a Camera System

Purpose

To guide the installation of CAT-6 cable for an IP-based surveillance camera system, ensuring efficient signal transmission and power (if using Power over Ethernet - PoE).

Materials & Tools Needed

- CAT-6 Ethernet cable (CMR or CMP rated depending on install environment)
    - CMR: Riser Rated Cable- Suitable for Warehouse Risers.
    - CMP: Plenum Rated Cable- Suitable for above ceiling installation with open air return systems.
- IP cameras (PoE or standard)
- Network Video Recorder (NVR) or switch
- PoE switch (if cameras support PoE and NVR doesn't provide PoE)
- RJ-45 connectors or Jacks and Biscuit Boxes
- Crimping tool
- Cable tester
- Fish tape or pull rods
- Drill and bits
- J-Hooks, Beam Clamps, Bat-Wing Clips, and Conduit. (depending on route)
- Ladder or Lift (if mounting high)
    - Proper fall protection
- Velcro and Scissors
- Label maker or tape and marker

Planning the Installation

1. **Decide Camera Locations**
    - Read through dedicated prints to find the general area for each camera location.
    - Cover key entry points, large open areas, and any blind spots.
    - Consider lighting and obstructions.
2. **Locate Central Hub Location**
    - Usually where your NVR or network switch will live (often in a closet, office, or utility room).
3. **Measure Cable Runs**
    - Keep each run under 328 feet (100 meters).
    - Avoid running parallel to electrical lines to reduce interference.

Running the Cable

1. Drill Access Holes

- Drill holes from inside to outside or between floors as needed.
- Use grommets for clean cable entry points and to protect the cable.

2. Route the Cable

- Use attic space, basement, crawlspace, J-hooks, or conduit.
- If going outdoors, use Outdoor-rated CAT-6 or run cable inside PVC or Rigid conduit.

3. Pull Cable to Each Camera Location

- Label each end (e.g., “Front Door Camera”).
- Use fish tape or pull rods through walls and ceilings.
- Avoid sharp bends (keep bend radius gentle).

4. Secure the Cable

- Secure cable with velcro straps.
- Bundle cables neatly for organization.

Terminating the Cable

Option 1: Direct RJ-45 Plug

- Strip about 2 inches of jacket.
- Untwist and align wires using **T568B** wiring standard:
    1. Orange/White
    2. Orange
    3. Green/White
    4. Blue
    5. Blue/White
    6. Green
    7. Brown/White
    8. Brown
- Insert into RJ-45 plug and crimp.

Option 2: Jack and Biscuit Box

- Use a Cat-6 jack and a Biscuit Box.
- Punch down wires using a wire punch down tool or if utilizing a Panduit Jack utilize the designated tool for securing connections. Ensure cables go to designated locations.
- Use a short patch cable from jack to camera or switch.

Testing

- Use a cable tester to ensure continuity and correct pinout.
- Check for proper camera connectivity with your NVR or PoE switch.

Connecting Devices

1. **Camera to Network**
    - Connect each camera to PoE switch or directly to NVR if PoE ports are included.
2. **PoE Switch to NVR**
    - If cameras go through a PoE switch, connect switch to the NVR or your local network.
3. **Power Up**
    - Power cameras via PoE or with separate power adapters if needed.
    - Verify video feed appears on NVR or monitoring software.

Final Touches

- Label everything (cable ends, jacks, switch ports).
- Tidy up cabling with Velcro straps or cable management solutions.
- Backup and document your camera layout and wiring map.

Tips

- Always leave a bit of extra cable at each end (1–2 feet) in case of mistakes.
- Avoid outdoor splices if possible. Use weatherproof boxes if absolutely necessary.
- Consider surge protectors or grounding if cameras are mounted on exposed metal.