MACTRA™ One

IP Camera

Physical Installation Guide | Field Installation Procedure

Purpose
Define a repeatable, safe process for physically installing a compatible Mactra IP camera, from site survey through mounting, cable protection and handover.

Intended users
Installers, field engineers, dealers and authorized service personnel.

Document control
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Important: This guide describes a typical IP camera/NVR installation. Actual menus, mounting parts, power ratings, supported protocols and app features vary by model. Always use the product label and model-specific manual as the controlling reference.

1. Purpose, Scope & Responsibilities

This document covers the physical installation of an IP camera, including site survey, positioning, mounting, cable routing, weather protection, connection and physical inspection. Network configuration, NVR setup and mobile viewing are covered in the separate Quick Start Guide.

Installer responsibilities

• Confirm site authorization, approved camera location and work-at-height requirements.

• Use the correct model-specific mounting accessories and power method.

• Protect the camera, cable and connectors from mechanical and environmental damage.

• Record installation details and capture completion photos as required by the job process.

2. Tools, Materials & PPE

Category	Typical requirement
Camera/accessories	Correct camera model, mounting base/bracket, supplied screws, mounting template and model-specific accessories.
Cable/materials	Suitable Ethernet cable, compatible RJ45/connectors, conduit/trunking, clips, glands or weatherproof junction box as required.
Tools	Measuring tape, marker, spirit level, suitable drill and bits, screwdriver set, cable preparation tools and cable tester.
Access equipment	Stable ladder or approved work platform; fall-protection equipment where required by site rules.
PPE	Safety helmet, eye protection, gloves, safety footwear and any additional site-mandated PPE.
Documentation	Approved layout, device schedule, camera ID, model manual, work permit and installation checklist.

3. Safety Requirements

Before work begins, complete the site’s required safety assessment and obtain permits where applicable.

• Check for concealed electrical wiring, plumbing, structural elements and other services before drilling.

• Use a suitable ladder/platform on firm, level ground. Do not overreach; maintain three points of contact on a ladder where applicable.

• Use fall protection and a spotter where required by the site risk assessment.

• Isolate power before making or changing connections. Never handle exposed conductors.

• Do not work in lightning, heavy rain, high winds or other unsafe conditions.

• Keep tools and materials secured when working at height; barricade the work area if required.

• Do not open the camera enclosure unless the model-specific procedure requires it.

4. Site Survey & Position Selection

1. **Confirm camera identity.** Match the camera ID, model and intended coverage area against the approved drawing or work order.
2. **Assess the field of view.** Identify the target area, expected subject movement, possible obstructions and potential blind spots. Confirm the view with the customer/site representative.
3. **Check lighting conditions.** Avoid pointing directly at strong light sources where possible. Consider glare, reflections, backlight and night illumination.
4. **Assess mounting structure.** Select a solid wall, ceiling, pole or approved support. Check for cracks, looseness, vibration and suitability for the camera and bracket load.

5. **Review environmental conditions.** Confirm that the camera's environmental rating is suitable for the location. Consider rain, dust, sunlight, temperature, corrosion and vibration.
6. **Plan cable route.** Choose a protected route to the approved switch, NVR or power point. Avoid sharp edges, moving machinery, water traps and unauthorized pathways.
7. **Confirm service access.** Ensure the camera can be safely reached for cleaning and maintenance without obstructing doors, walkways or equipment.

5. Marking & Drilling

1. **Position the template.** Use the model-supplied mounting template or bracket base. Confirm camera orientation and cable entry direction.
2. **Mark fixing points.** Mark screw holes and cable entry points. Recheck alignment and verify that the marks do not conflict with concealed services.
3. **Select the correct drill bit.** Use a bit and drilling method suitable for the wall/ceiling material and the specified anchor.
4. **Drill carefully.** Drill perpendicular to the surface where practical. Avoid excessive force and stop if unexpected resistance or concealed services are encountered.
5. **Fit anchors.** Install the specified anchors or approved fasteners for the mounting surface. For poles, use the correct pole-mount accessory and approved banding/fasteners.
6. **Prepare the entry.** Remove debris and protect the cable entry. Seal penetrations with compatible materials without blocking vents or drainage features.

Do not rely on adhesive alone unless the product and installation design explicitly permit it. Do not substitute undersized or incompatible fasteners.

6. Camera Mounting Procedure

1. **Prepare the cable path.** Route the cable through the bracket or entry as directed by the model manual. Avoid sharp bends and excessive pulling force.
2. **Position the mounting base.** Align the base with the drilled holes and cable entry. Ensure the base sits flat against the surface or specified gasket.
3. **Secure the base.** Fit the specified screws/fasteners and tighten evenly. Do not overtighten or damage the threads, housing or gasket.
4. **Attach the camera.** Fit the camera to the bracket using its specified locking mechanism or screws. Confirm that all retaining features are engaged.
5. **Set the viewing direction.** Adjust pan, tilt and rotation as supported. Frame the intended scene and confirm that the housing does not obstruct the lens or IR illumination.
6. **Lock the adjustment.** Tighten adjustment locks according to the product instructions. Check that the camera does not sag or move under light handling.
7. **Inspect the finish.** Confirm the camera is level/oriented as intended, the lens is clean, and no cable is pinched between mating surfaces.

7. Cable Routing & Protection

1. **Use a suitable cable.** Select cable type and length appropriate for the installation and site requirements. Observe applicable Ethernet distance and environmental limits.
2. **Route in a protected path.** Use conduit, trunking or suitable clips. Keep cable away from sharp edges, heat sources, moving parts and locations where it can be crushed.
3. **Maintain bend radius.** Avoid tight bends, kinks, crushing or pulling the cable by its connector. Follow the cable manufacturer’s bend-radius guidance.
4. **Provide strain relief.** Secure the cable so its weight and movement do not load the camera connector. Provide a service loop where the design allows.
5. **Protect outdoor connectors.** Use the camera’s waterproof connector cover or a suitable weatherproof junction box. Ensure seals and glands are correctly assembled.
6. **Prevent water ingress.** Follow the model’s cable-entry orientation and drip-loop instructions. Do not leave connectors or cable joints exposed to rain or standing water.
7. **Seal wall penetrations.** Use materials compatible with the building surface and environment. Do not block camera ventilation, drainage or service openings.
8. **Label the cable.** Label both ends with the camera ID and destination port in line with the site labeling convention.

8. Power & Physical Connection

1. **Confirm power specification.** Read the camera label/manual and confirm whether it uses PoE or a specified DC supply. Never guess voltage or polarity.
2. **Check PoE compatibility if used.** Confirm the switch/NVR supports the camera’s PoE requirement and has adequate available power budget.
3. **Inspect the cable and connector.** Check for bent contacts, damaged insulation, moisture or loose fittings before connecting.
4. **Connect the camera.** Connect Ethernet to the camera. For non-PoE models, connect the specified power supply as directed by the manual.
5. **Energize safely.** Restore power and allow the camera to boot. Observe status indicators if provided.
6. **Check for abnormal conditions.** If there is smoke, unusual smell, abnormal heat, noise or visible damage, isolate power safely and report the issue.

9. Physical Quality Inspection

Inspection point	Acceptance check
Location & orientation	Matches approved location and intended field of view.
Mounting	Bracket and camera are secure; no visible movement, sagging or damaged fasteners.
Lens & housing	Lens clean and unobstructed; housing has no visible damage.
Cable route	Cable supported, protected, not pinched or sharply bent, and correctly labeled.
Weather protection	Outdoor glands, covers, junction box and penetrations fitted/sealed as specified.
Power	Correct power method and rating confirmed; connectors fully seated.
Work area	Drilling debris and packaging removed; area left safe and tidy.
Evidence	Required overview, mounting and cable-route photos captured.

Next activity: Complete network configuration, add the camera to the NVR, verify live view and recording, and test any required mobile/remote viewing using the separate Quick Start Guide.

Document control note: This is a general field procedure and does not replace the model-specific installation manual, site safety rules, electrical codes or approved project drawings. Where requirements differ, follow the applicable approved requirements.