



PackOps ChArUco calibration board v1

Functional area: 1000 x 500 mm | 10 x 5 squares @ 100 mm | Markers 70 mm | DICT_4X4_50 | Board ID: packops-charuco-1000x500-v1 | Mini 2026-05-26

Print at 100% scale. Verify any square edge = 100 mm with a METRIC ruler. Do NOT use an inch ruler and convert.

- Lay flat on the floor (or capture table) coplanar with the base of the object being captured.
- Object footprint up to about 0.4 m: place board UNDER the object, chessboard visible around the object on all four sides.
- Object up to about 2 m (including 0.75 m and 1 m cubes): place board BESIDE the object, long axis parallel to one face, with a 20-30 cm clear floor gap.



CNC cut handle slot — 203 x 25 mm

- Walk around the object continuously. Board does NOT need to be in every frame — LIDAR + IMU + visual SLAM carry the camera pose; the board re-anchors when visible.
- Object larger than about 2 m in any dimension: a single 1 x 0.5 m board may be insufficient. Use multiple boards or a larger board.
- Optional 30 s session-start camera calibration: wave the phone over the board. PackOps Mobile solves intrinsics (focal length + distortion); 0.2-0.5% precision gain over factory defaults.

ChArUco demo board — sign-shop print + handling

Substrate

3 mm Dibond (aluminum composite). Don't compromise — foamcore warps under heat and pressure; coroplast surface waviness costs sub-pixel corner precision.

Print method

Direct flatbed UV print, matte finish. The matte UV ink IS the finish — not a coating on top of something else.

DO NOT LAMINATE

Do NOT laminate Dibond. The matte UV ink is already the finish. Adding laminate puts a refractive layer over the marker and introduces exactly the glare and corner-shift artifacts that the matte finish was bought to avoid.

The lamination rule (one line)

Any glossy layer reflects light back into the camera at predictable angles and either washes out the marker or creates double-edge artifacts that move the detected corner — exactly the precision you're trying to gain.

Cut + handle

Trim along the cut line on page 1 (use the corner crop marks). The trim corners are rounded –6 mm radius (5-10 mm is fine — match the artwork or use your standard). Then CNC-cut the recessed handle slot (rounded rectangle, 203 x 25 mm — see page 1 for the exact size + position). Alternative carry: a 1 m portfolio sleeve. Dibond at this size is ~1 kg — light enough to carry by handle for short walks.

Cleaning

Wipe with damp microfiber only. No solvents — UV ink is durable but solvents can haze the surface.

Metadata on the board

Board ID, dictionary, squares dimensions, marker length, and mint date are printed in the info strip on page 1. When three boards exist three months from now, this saves identification time + protects against board mix-ups in the field.