

PRE-RENTAL CHECKLIST

LiDAR scanner rental checklist

The pre-rental checklist that separates a smooth capture week from a wasted one. Seven sections, from scoping the deliverable to handing the kit back.

7

Checklist sections

2 days

Rental minimum

1

Business day to confirm availability

THE RENTAL AT A GLANCE

Week-by-week timeline

Most rental problems are booked in before the case is ever opened. Work backwards from your capture dates:

T-2 WEEKS

Scope and book. Define the deliverable, pick the device, request your dates (availability is confirmed within 1 business day). If this is your first SLAM rental, book onboarding now. It is scheduled around collection, not bolted on afterwards. Start the site-permission conversation with the building owner or main contractor; in Singapore this routinely takes longer than anything technical.

T-1 WEEK

Clear the path. Confirm access passes and escort arrangements for every capture day. Sketch the walk route. Confirm the laptop that will run LixelStudio and where the data will live. Accept the quote and arrange the deposit so collection day is a handover, not an admin session.

T-2 DAYS

Logistics lock. Confirm your pickup window (collection 9:00–11:00am at 59 Ubi Avenue 1, #03-02, Bizlink Centre, Singapore 408938) or delivery slot. Re-check the weather outlook if any capture is outdoors. Charge the laptop, clear the drives.

DAY 1

Collect and prove. Collect or receive the kit, run the handover check, then capture a short test loop on site and process it the same day. Do not start the full capture until the test loop looks right.

DAYS 2-5

Capture. Work scene by scene, back up every evening, process at least one scene per day so problems surface while you can still re-walk them.

HANDBACK

Return by 6:00pm. Accessories complete, data copied off, kit inspected, deposit released after inspection.

01 PLANNING

Before you book

- ☐ **Define the deliverable first.** Point cloud (.las/.laz), exchange format (.e57), Revit-ready ReCap project (.rcp), mesh, or 3DGS scene? The deliverable decides the device, not the other way round. Ask the person who will actually consume the data what they want to open; renting a scanner before that conversation is the single most common ordering error.
- ☐ **Accuracy tolerance.** Centimetre-class relative accuracy (handheld SLAM: Lixel K2, ≤ 1 cm relative / ≤ 3 cm RMSE absolute with RTK) covers most as-built, renovation and BIM-reference work. Millimetre-grade tolerance (4 mm @ 10 m) needs a tripod scanner: the Leica BLK360 G2. Check the spec or contract for a stated tolerance before assuming; "as accurate as possible" is not a tolerance and will steer you to the wrong (usually more expensive, slower) device.
- ☐ **Confirm your dates and duration.** Rentals run by the week (2-day minimum). Availability is confirmed within 1 business day. Build in one weather or access slip day if any capture is outdoors. A rental week with zero slack is a bet against Singapore's afternoon rain.
- ☐ **Experience check.** Dry rental is subject to experience approval. First time on SLAM LiDAR? Add onboarding: S\$250 at collection, or S\$400 with delivery and onboarding on site. The onboarding session covers the device, a supervised test loop and the processing workflow. It exists because first-timers who skip it typically lose their first capture day to avoidable mistakes.
- ☐ **Decide who processes.** Capture is half the job; someone still has to run LixelStudio, inspect the results and export deliverables. If nobody on your side will do this, plan it before the week starts, not after handback.

02 PLANNING

Site access & permissions

- ☐ **Written permission from the building owner or main contractor to scan.** Verbal is not enough: scanning captures the entire visible environment, and a permission dispute mid-week stops capture cold. An email confirmation naming the dates and floors is sufficient.
- ☐ **Security clearance / visitor passes arranged for every capture day.** Passes issued "on the day" reliably cost you the first working hour of each day. For MCST-managed or multi-tenant buildings, ask specifically whether contractors need separate lift access or after-hours permits.
- ☐ **Occupied space? Schedule around occupants.** Handheld SLAM captures while people move, but quieter windows give cleaner data and fewer awkward conversations. Early morning, lunch and after-hours slots are worth negotiating for open-plan offices.
- ☐ **Restricted areas identified** (server rooms, plant rooms, tenanted units). Get them either unlocked with an escort booked, or formally excluded from scope in writing. An undocumented gap in the cloud becomes "why is this room missing?" three weeks later.
- ☐ **Outdoor + RTK georeferencing planned? Check sky visibility.** Dense CBD canyons may need PPK or control points instead; RTK needs open sky to hold a fix. Walk the site (or check street view) and decide the method before capture day.

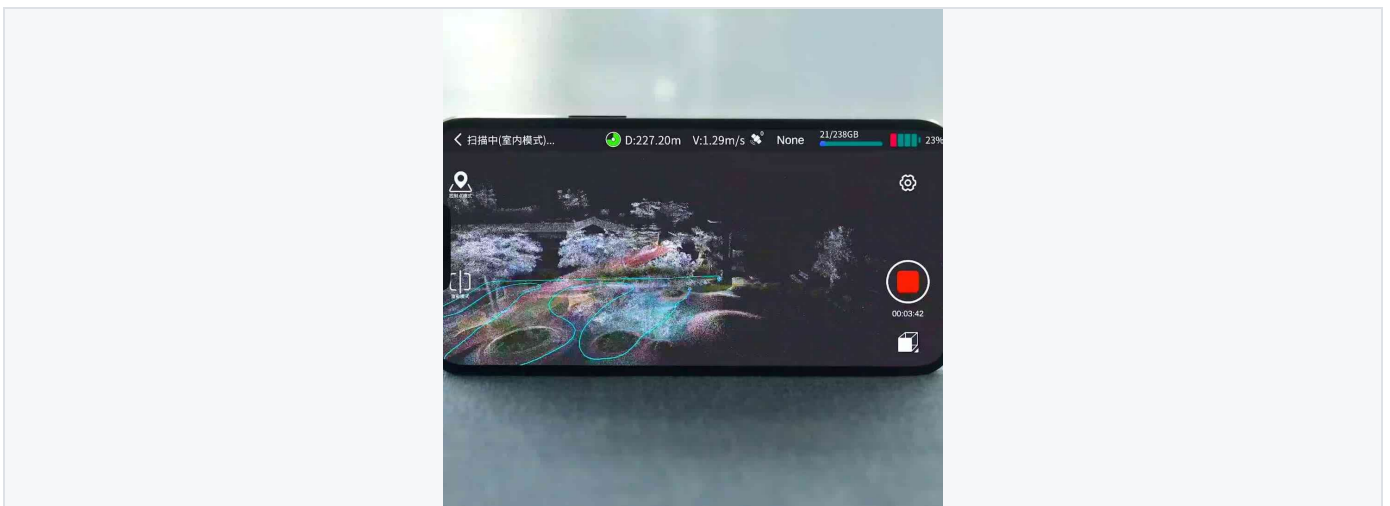
Site-risk sub-checklist

- ☐ **Dust.** Active construction dust degrades both the LiDAR returns and the colourisation cameras. Schedule capture after wet trades or heavy cutting where possible; wipe lenses between scenes.
- ☐ **Rain.** The scanners are not for use in rain, and wet surfaces produce noisy, low-return data even after it stops. Have an indoor scene queued as the wet-weather fallback so a downpour costs you nothing.
- ☐ **Height.** Anything captured from ladders, scaffolds or MEWPs needs the same work-at-height controls as any other tool, and a wrist strap. Plan high-level capture (soffits, roof edges) as its own supervised scene rather than improvising.
- ☐ **Confined or low-light spaces.** Risers, ceiling voids and plant rooms: confirm entry permits where required, bring lighting (colourisation needs light; the LiDAR itself does not), and never scan alone in a confined space.
- ☐ **Live works.** Coordinate with the site programme: you cannot loop-close through a corridor that hoarding closed at lunchtime. Get tomorrow's work areas from the site team each evening.

03 PLANNING

Capture planning

- ☐ **Walk route sketched: continuous loops, closing back on the start point.** Loop closure keeps SLAM drift down; an out-and-back route gives the software nothing to correct against. Ten minutes with a floor plan and a highlighter saves hours of re-walking.
- ☐ **Short scenes, planned overlap: split large sites at natural boundaries.** XGRIDS' map-fusion rules: keep each scene under 20 minutes, overlap adjacent scenes by at least 15 m of feature-rich ground (a lift lobby or link corridor works; an empty yard does not), and plan for at most 10 scenes per merge in LixelStudio. Batteries hot-swap, so scene length is a data decision, not a power one.
- ☐ **Control / check points marked if the deliverable needs absolute coordinates** (SVY21 for Singapore survey work). At least 3 points, spread in a triangle or polygon (never a straight line), spaced under 50 m apart on the K1/K2 or 100 m on the L2 Pro. Control points fix the cloud to real coordinates; keep one or two extra as independent check points so you can prove the accuracy rather than assert it.
- ☐ **Doors propped or keyed access arranged along the route.** A locked door mid-loop forces an out-and-back dead end, the worst geometry for SLAM. Walk the route physically the day before if you can.
- ☐ **Lighting adequate for colourised capture.** The K2's three cameras colourise the cloud in real time; a geometrically perfect but pitch-black cloud disappoints every stakeholder who expected to "see" the space. Arrange temporary lighting for dark zones, or agree up front that those areas ship geometry-only.



Live trajectory on the capture app: the walk route looping back on itself before the scan is closed

04 PLANNING

Data & processing

- ☐ **Laptop spec for LixelStudio processing confirmed.** LixelStudio is Windows-only (Windows 10/11); XGRIDS' recommended configuration is an i9-class CPU, RTX 3070 or better, 64 GB RAM and a 1 TB SSD. Less will work, but an underpowered machine is slow enough to break the process-same-day rule that catches capture errors in time. No Windows machine at all? Say so when booking.
- ☐ **~50–200 GB free storage per capture day.** Raw SLAM data is large and you will hold raw plus processed plus exports simultaneously. Check free space before the week, not on day 2.
- ☐ **Deliverable format agreed with whoever consumes the data.** BIM modeller wants .rcp/.e57; GIS wants .las with coordinates; media wants 3DGS via LCC CyberColor. Confirm in writing (a one-line email), because re-exporting after the rental ends means doing it on your own processing setup.
- ☐ **You keep every dataset captured during the rental, so plan where it lives.** Device storage is wiped after return, so "it's still on the scanner" is not a plan.

Data-management plan sub-checklist

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|---|--|
| ☐ Working drive: one fast external SSD (1 TB comfortable for a typical week) that travels with the laptop. | ☐ A scene log (a note on your phone is fine): scene name, floor, start/end time, anything odd. Two minutes per scene; invaluable at processing time. |
| ☐ Backup drive: a second drive that receives a copy every evening and does not travel in the same bag as the first. | ☐ Off-site copy (office NAS or cloud upload) started before handback day for anything you cannot afford to lose. |
| ☐ Naming convention agreed before day 1: e.g. SITE_L03_scene02_2026-08-12. Future-you cannot tell <code>scan_final_v2</code> apart from <code>scan_final</code> . | ☐ Wipe check on handback day: confirm every scene is copied and opens on your machine <i>before</i> the device goes back. |

05 THE WEEK ITSELF

Paperwork

- ☐ **Quote accepted** (weekly rate + onboarding if needed, GST-exclusive). The quotation PDF arrives within minutes of enquiry; approving it early is what locks your dates.
- ☐ **Security deposit ready.** The deposit is taken at handover and returned after inspection on handback. Have the payment method sorted before collection morning.
- ☐ **Insurance confirmed if required for your rental.** Some corporate and site policies require equipment cover on hired-in plant; check yours before the week, not after an incident.
- ☐ **Pickup or delivery window agreed (Singapore-wide).** Collection runs 9:00–11:00am at 59 Ubi Avenue 1, #03-02, Bizlink Centre, Singapore 408938; delivery can be arranged island-wide. Missing the window compresses your first capture day.

06 THE WEEK ITSELF

During the rental week

- ☐ **Handover check: scanner, batteries, charger, phone mount, storage, verified both ways.** Photograph the case contents at handover; it protects both sides at deposit time and doubles as your packing checklist all week.
- ☐ **First scan: short test loop, process it same-day, confirm quality before committing to the full site.** Five minutes of capture and one processing run verifies the device, your technique, the laptop and the export chain in a single pass.
- ☐ **Batteries cycled and charged nightly** (hot-swap keeps capture continuous). Assign the charging job to a named person; "someone was charging them" is how day 3 starts at 40%.
- ☐ **Raw data backed up every evening.** Every evening, because a capture day exists in exactly one place until you copy it, and re-walking a site because a drive died is the most expensive failure a rental week can have.
- ☐ **Process at least one scene per day.** Drift, missed rooms and merge problems are cheap to fix while you are still on site and holding the scanner.

07 THE WEEK ITSELF

Handback

- ☐ **All accessories returned as received.** Check against your handover photo: batteries, charger, mounts, cables, the case itself.
- ☐ **Equipment in original condition** (deposit returns after inspection). Report any knock or fault honestly at handback. Undisclosed damage found at inspection is a worse conversation.
- ☐ **Datasets copied off the device: storage is wiped after return.** Verify the copies open on your machine, not just that the files transferred. Return by 6:00pm.

APPENDIX A

Common first-rental mistakes

- 1 **Booking the scanner before defining the deliverable.** Then discovering the BIM team wanted .rcp, or the tolerance actually required a tripod scanner. Fix: section 1, first item, in writing.
- 2 **Skipping the test loop.** The full-site capture starts at 9am on day 1 and a settings or technique problem surfaces at 8pm, after the whole day is unusable. The test loop costs 30 minutes and catches nearly everything.
- 3 **No same-day backup.** One drive, in the same bag as the laptop, all week. This is fine right up until it isn't.
- 4 **Underestimating access friction.** Passes, escorts, locked rooms and lift permissions consume more first-timer capture hours than any technical issue.
- 5 **Scanning fast because SLAM allows walking.** It allows *walking pace*, not *touring pace*. Rushed capture reads fine on the preview and shows smearing at QA.
- 6 **Leaving processing for "after the rental".** Problems found after handback can only be fixed by renting again.
- 7 **Forgetting the wipe.** Device storage is cleared after return. Copy, verify, then hand back, in that order.

APPENDIX B

Industry-specific preparation notes

The checklist above applies to every rental. These notes add what each industry typically needs to prepare on top of it.

Construction & main contractors (progress / QA scanning)

- ☐ Get the current federated model or design cloud from the BIM coordinator before capture week: progress verification is a comparison, and without the baseline you are just collecting pictures.
- ☐ Fix the scan dates to the programme, not the calendar: the valuable captures are immediately before concealment (pre-pour, pre-ceiling-close, pre-wall-lining), and those windows move with the trades.
- ☐ Agree with the site manager which zones will be active during capture and get the permit-to-work or SWMS paperwork moving early: site inductions routinely cost half a day.
- ☐ If slab QA (flatness/levelness) is in scope, confirm the acceptance standard and reporting format with the engineer before scanning, and scan slabs as their own dedicated scenes.

Renovation, fit-out & interior design

- ☐ Decide the above-ceiling question in writing before booking: no tiles, selected tiles lifted (agree how many and where), or full grid. A return visit for missed services is a second mobilisation.
- ☐ Ask the landlord or building management for any existing drawings, not to trust them, but to plan the walk route and spot where reality is likely to disagree.
- ☐ Confirm furniture state for capture day: as-occupied is fine for SLAM, but cleared rooms give cleaner wall lines if joinery will be designed against the cloud.

Facilities management & building owners

- ☐ Bring the room/space naming convention (floor codes, room numbers) to capture week and log scenes against it. An FM dataset nobody can search by room name loses most of its value.
- ☐ Decide up front whether the deliverable is a navigable tour (Matterport Pro3, subscription needed), a measurable cloud (K2), or both. They are different rentals.
- ☐ Schedule plant rooms, risers and roof access with the building's own escort and permit process; these spaces are the reason FM scans exist and the first ones access friction removes.

Heritage & conservation

- ☐ Confirm any consent or documentation requirements with the relevant authority (in Singapore, URA conservation guidelines for conserved shophouses and monuments) before capture, and whether the record must meet a stated standard.
- ☐ Fragile fabric changes the plan: no touching, no propping against surfaces, and agree tripod positions (BLK360 G2) with the conservator where floors or finishes are delicate.
- ☐ Plan for mixed capture: millimetre-grade TLS on significant elements, SLAM coverage of the whole volume, photography alongside, and archive everything, since the scan may become the only record.

Industrial plant, marine & offshore retrofit

- ☐ Confirm hot-work/permit requirements, ATEX-style zone restrictions and escort rules with the plant or vessel operator: process areas and engine rooms run on permits, not goodwill.
- ☐ Get the shutdown or dry-dock window in writing and plan capture within it with slack; these windows do not move for a rental week.
- ☐ Ask the engineering consumer which plant-design or CAD system the cloud feeds (e57 is the safe interchange) and whether they need scanner positions/imagery preserved.
- ☐ Expect shiny pipework, gratings and confined spaces: budget slower coverage rates and bring lighting for colourisation.

Surveying, stockpiles & earthworks

- ☐ Establish the georeferencing plan before booking: RTK sky view on site, or surveyor-provided control in SVY21. A volume report in floating coordinates cannot be reconciled against anything.
- ☐ Agree the base-surface convention for volume calculations (toe-line, original ground survey, or design surface) with whoever consumes the numbers; the pile is easy, the base is the argument.
- ☐ Time capture for when the yard is static. Material moving mid-scan is the stockpile equivalent of a person standing next to the scanner.

Real estate & marketing

- ☐ Matterport Pro3 renters need an active Matterport subscription before capture day: processing and hosting run through your account, not the rental.
- ☐ Style the property before scanning, not after: the tour shows the space exactly as captured, and re-shooting after staging is a second rental.
- ☐ Plan capture for consistent lighting (curtains, lights on/off decided once) and quiet windows. Station-based capture is less tolerant of people than SLAM.

Media, XR & 3DGS capture

- ☐ Lock the scene's lighting state before capture: 3DGS bakes lighting in, so a venue captured half-lit stays half-lit in every render.
- ☐ Confirm the delivery target early (web viewer, Unreal, Unity). It decides processing settings and file handling, and re-processing after the week costs your own GPU time.
- ☐ For active sets and events, schedule capture when the space is dressed but empty; moving people degrade splat quality far more than they degrade a point cloud.



Open case at handover: scanner, batteries, charger, phone mount, targets, cables and storage

WORKED EXAMPLE

A 4-storey office as-built in one rental week

A renovation design team needs existing conditions of a ~4,000 m² four-storey office (occupied, cellular plus open-plan) as a Revit-ready cloud. Device: **Lixel K2**, one week, with onboarding.

MONDAY	Collect + prove. Collect 9:00–11:00am at Ubi with onboarding (S\$250). On site by early afternoon. Test loop of the ground-floor lobby; process same-day on the project laptop; confirm colourisation, density and export to .e57. Sketch and confirm walk routes for all four floors with the building manager.
TUESDAY	Levels 1 and 2. Each floor as one looped scene starting and ending at the lift lobby, one battery per floor, overlap into the stair core. Evening: back up both floors, process Level 1, spot-check door widths against tape.
WEDNESDAY	Levels 3 and 4, same pattern. Evening: process remaining scenes, flag two meeting rooms that were locked on Level 3.
THURSDAY	Mop-up. Re-capture the two missed rooms as a small bridge scene overlapping the Level 3 corridor; capture the stair cores top-to-bottom in continuous passes to tie the floors together; capture plant room with escort. Evening: merge all scenes in LixelStudio, inspect residuals.
FRIDAY	Deliver + handback. Export .rcp via ReCap plus .e57 master and a decimated viewing copy; QA measurements on each floor recorded against tape; copy everything to two drives plus office NAS; verify; return the kit to Ubi by 6:00pm.

Total cost: S\$2,300 + S\$250 onboarding (GST-excl.) plus deposit, against a dataset the design team owns outright.

RATES

2026 weekly rental rates

Singapore dollars, GST-exclusive. Two-day minimum, deposit required.

DEVICE	BEST FOR	FROM
XGRIDS Lixel K2 (flagship)	Interiors, construction, mixed indoor–outdoor	S\$2,300/week
XGRIDS Lixel K1	Compact interiors, single floors	S\$2,200/week
XGRIDS Lixel L2 Pro	Large outdoor sites, corridors, infrastructure	S\$3,500/week
XGRIDS PortalCam	Photoreal 3DGS venue capture	S\$1,200/week
Matterport Pro3	Virtual tours, real estate	S\$2,000/week
Leica BLK360 G2	Survey-grade tripod scanning	S\$2,800/week

Book your dates

Availability confirmed within 1 business day. Quotation PDF lands in your inbox within minutes.

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