

Job Estimator

User Guide

Build a complete materials takeoff door by door — with wire schedules, voltage drop analysis, power supply sizing, and a professional PDF delivered to your Telegram.

Quick Reference

Command: /estimator

Access: Requires active subscription or trial

Standard: NEC Article 725 compliant, deterministic (no AI)

Output: Professional PDF with wiring, materials, costs, voltage drop

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1. Getting Started

The Job Estimator is a web-based materials takeoff tool. Type /estimator in the bot to get a one-time link that opens in your browser. Build your estimate door by door — select devices from the 362-device database, enter cable distances, and get NEC-compliant calculations with a professional PDF delivered to your Telegram.

To start:

- Type /estimator in the chat, or
- Tap Estimator on the home screen keyboard

The bot generates a unique link that expires in 30 minutes. The link is single-use — once opened, it cannot be shared. You can generate up to 5 links per hour.

Tip: The estimator works best on a tablet or desktop browser, but it's fully functional on mobile phones too.

2. The Web Interface

The estimator page has five main sections:

Job Information	Job name, client, address, project manager, your name, date, and notes.
Pricing	Optional — labor rate (\$/hr), hours per door, materials markup (%), and editable unit prices for all wire types, power supplies, batteries, conduit, and hardware. Prices persist between sessions via browser storage.
Panel Topology	Main controller, sub-panels (SIO modules), and antennas (wireless gateways). Each door connects to a specific panel or antenna.
Door Builder	Add doors, type or search for devices (readers, strikes, mag locks, REX, contacts, closers, intercoms, or custom "Other" devices with manual current draw), set distances, add per-door notes, and specify conduit requirements.
Additional Items	Add custom doors/frames, windows, or other line items with free-text descriptions, quantities, unit costs, and labor hours. These flow into the materials list and cost summary.
Results	Five tabs shown after generating: Wiring Schedule, Materials List (with editable unit prices), Voltage Drop, Summary with cost breakdown, and System Topology diagram.

Interface features:

- Sticky summary bar with live totals (doors, devices, wire, estimated cost)

- Progress indicator showing completion status for each section
- Recent Estimates panel with Edit, Clone, and Delete for up to 50 saved estimates
- Collapse/expand door cards to manage long lists
- Duplicate a door with all its devices in one click
- Bulk operations: set all distances, collapse/expand all doors
- Door templates: Standard Office, Secure Room, Parking/Gate, Server Room, Wireless Lock
- Auto-save job info to browser storage every 30 seconds
- Dark mode: follows your system preference automatically
- Print-friendly view for on-site use

3. Panel Topology

The estimator supports flexible panel configurations with three types of upstream devices:

Main Controller	The primary access control panel (e.g., Mercury LP4502, LNL-2220). Selected from the Controllers category in the device database.
Sub-Panels	Intermediate SIO modules or multiplexers (e.g., MR52-S3, MUX8) between the controller and doors. Each has a name, model, location, and distance from the controller. RS-485 bus + power wiring is auto-calculated.
Antennas	Wireless gateways (e.g., Allegion GWE, PIM400) that serve wireless locks. Each has a name, model, location, and distance from the controller. RS-485 bus + power wiring is auto-calculated.

Each door has a "Connected to" dropdown that lets you select which panel or antenna it connects to. The distance field adjusts its label to show the selected upstream device.

4. Building Doors

Click + Add Door to add a door card. Each door has:

- Label — a name for the door (e.g., "Main Entrance", "Server Room")
- Connected to — which panel or antenna this door connects to
- Distance — cable run in feet from the selected panel
- Conduit — whether conduit is required for this run
- Labor hours — optional override for per-door labor estimate
- Notes — installation notes for this door (included in the PDF)

Device checklist (check the ones you need):

Device	Options
Reader	Type or search model name (autocomplete from 362-device DB). Choose Wiegand or OSDP.
Electric Strike	Type or search model. Choose 12V or 24V.
Magnetic Lock	Type or search model. Choose 12V or 24V.
Door Contact	Generic — no model selection needed.
REX Sensor	Type or search model from database.
Push Button	Generic — dry contact, no model needed.
Door Closer	Type or search model. Mechanical — no wiring.
Intercom	Type or search model. Analog or PoE (Cat6).
Other	Custom device with free-text name and manual current draw (mA).

Tip: Device fields are searchable — start typing a model name and matching devices appear as suggestions. You can also type a custom name if the device isn't in the database. Use "Other" for devices not in any category.

5. Additional Items

The Additional Items section lets you add line items that aren't part of the wiring estimate — doors, frames, windows, hardware, or any custom component.

Three item types:

Door / Frame	Physical doors and frames with prep specs — e.g., "3070 HM Frame, 16ga, prep for cylindrical lock + closer".
Window	Windows, glazing, storefronts — e.g., "Aluminum storefront, 48x84, with transom".
Other Item	Any additional line item — hardware, specialty equipment, permits, subcontractor costs, etc.

Each item has:

- Name — description of the item
- Quantity — how many
- Components / Description — free text for specs, prep details, or notes
- Unit Cost (\$) — price per unit
- Labor Hours — labor time for this item

Custom items appear in the Materials tab results and are included in the PDF cost summary. Their costs and labor hours are rolled into the grand total.

6. Calculations

Click Generate Estimate to run all engineering calculations and produce the PDF in one step. All calculations are deterministic — no AI involved. Results appear inline in four tabs:

Wiring Schedule	Every wire run: door, device, wire type, gauge, conductors, footage (with 15% waste), and notes.
Materials List	All materials grouped by category: wire & cable (with spool optimization), power supplies, batteries, conduit, hardware, and panel equipment. Includes unit prices and totals.
Voltage Drop	Per-run analysis: source voltage, current draw, distance, wire gauge, voltage drop (V and %), and pass/fail status. Red = fail (>10%), yellow = marginal (5-10%), green = OK (<5%).
Summary	Totals: doors, devices, wire footage, current draw, longest run, and cost breakdown (materials + markup + labor).

Note: Wire gauge follows NEC Article 725. Power supply sizing includes 25% headroom. Battery backup sized for 4 hours. Conduit fill per NEC Chapter 9 Table 1.

7. The PDF Report

The Generate Estimate button calculates everything and produces a professional PDF takeoff sheet, automatically sent to your Telegram chat.

PDF pages:

- Page 1 — Cover: ArklyTech logo, job details, door/device counts
- Page 2 — Wiring Schedule: full table, one row per wire run per door
- Page 3 — Materials List: all materials by category with quantities
- Page 4 — Voltage Drop: color-coded analysis with pass/fail per run
- Page 5 — Panel Equipment: controller, SIO modules, power supply sizing
- Page 6 — Cost Summary: itemized material costs, markup, labor, grand total (only included when pricing fields are filled in)
- Page 7 — Notes & Warnings: flagged items, summary, disclaimer

Tip: The PDF is ready to attach to a bid, send to your distributor, or print for the job file.

8. Pricing & Costs

The Pricing section is optional. Fill it in to include cost estimates on the materials list and in the summary.

Labor Rate	Hourly rate in dollars (default \$85/hr). Used to calculate labor cost per door.
Hours per Door	Default labor hours per door (default 2.0). Can be overridden per door in the door card.
Markup	Materials markup percentage (default 15%). Applied to the materials subtotal in the cost summary.

The Material Unit Prices panel (click to expand) lets you set prices for all wire types, power supplies, batteries, conduit, and hardware. Your prices are saved automatically in your browser — they persist between sessions so you don't have to re-enter them each time.

In the Materials tab results, each item shows the unit price you set. The Summary tab shows a full cost breakdown: materials + additional items, markup, labor (including custom item labor hours), and estimated total.

9. Estimate History

Your estimates are saved automatically and can be edited, cloned, or deleted.

Accessing estimates:

- In the estimator: the Recent Estimates panel at the top shows up to 50 saved estimates with job name, date, door count, and status
- In Telegram: type /estimates to see your recent estimates

Managing estimates:

- Edit: opens the estimate for modification — saves update the same record
- Clone: loads a copy with "(copy)" appended — saves as a new estimate
- Delete: removes the estimate and its PDF permanently (with confirmation)
- Save Draft: saves your current work without generating a PDF
- New: clears all fields to start a fresh estimate
- Auto-save: basic job info is saved to your browser every 30 seconds

10. Tips for Accuracy

- Measure actual cable runs — walk the route, don't estimate from floor plans. Account for vertical runs, ceiling routing, and conduit bends.
- Select the right panel — if doors connect to an SIO module or antenna rather than the main controller, add it as a sub-panel and set the correct distance.
- Check voltage drop results — red warnings mean the run is too long for the wire gauge. The estimator suggests upgrading to the next gauge.
- Round up distances — the 15% waste factor covers terminations and routing, but add extra for complex runs with many bends.
- Verify unit prices — default prices are approximate. Edit them in the Materials tab to match your distributor's pricing.

Note: This is an estimate based on device specifications and distances provided. Always verify against local code, manufacturer specs, and actual field conditions.

11. Quick Reference

Action	How
Open estimator	Type /estimator or tap Estimator on home screen
Start fresh	Click New in the header to clear all fields
Add a door	Click + Add Door or select a template from the dropdown
Duplicate a door	Click the copy button (■) on any door card
Collapse/expand door	Click the arrow (▼/■) on any door header
Bulk set distances	Bulk toolbar > Set All Distances (shows with 2+ doors)
Select devices	Check device checkboxes, type or search model name
Add sub-panel	Panel Topology > + Add Sub-Panel
Add antenna	Panel Topology > + Add Antenna
Set door panel	Connected to dropdown on each door card
Generate estimate	Click Generate Estimate — calculates + sends PDF to Telegram
Save draft	Click Save Draft (updates in place when editing)
Edit past estimate	Recent Estimates > Edit button
Clone past estimate	Recent Estimates > Clone button
Delete estimate	Recent Estimates > button (with confirmation)
Add custom item	Additional Items > + Door/Frame, + Window, or + Other Item
Set pricing	Pricing section (optional, saved between sessions)
Print estimate	Click Print in the header for a clean printout