LoomKit

User Manual

Wiring looms and fluid systems — design, check and build

VERSION 1.20.1 · 6076 SPATIAL · 6076SPATIAL@PROTON.ME

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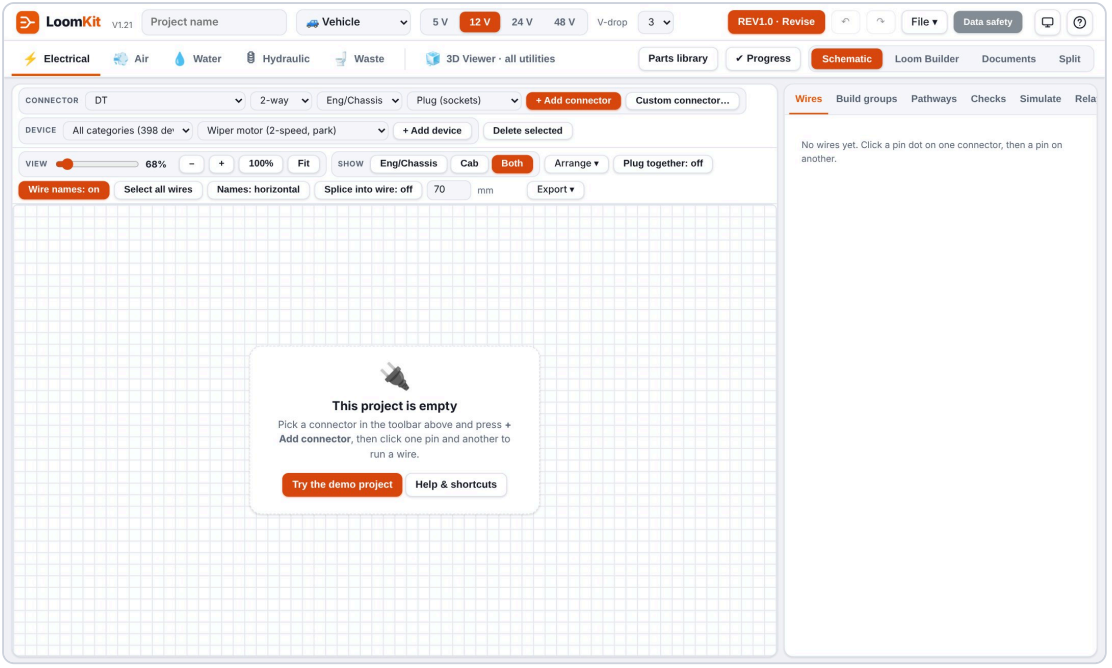
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> **Important.** LoomKit's checks are a guide, not a substitute for engineering judgement. Verify ratings, fuse sizes and lengths before building.

1. Welcome

LoomKit is a wiring loom tool. You draw the schematic, LoomKit groups the wires into bundles, you check the fit in 3D, and it produces the documents a loom maker needs: bill of materials, wiring table, cut list, labels and a full-size build board.

Everything works on one project, from the first connector to the finished build pack. Your project stays on your computer; nothing is uploaded.



A new, empty project. Use **Try the demo project** to explore a finished loom.

How the workflow fits together

Stage	Tab	What you do
1 Draw	Schematic	Add connectors and devices, run wires, set colour, gauge, load and fuse
2 Build	Loom Builder	Auto-route bundles, add junctions, set segment lengths and protection
3 Fit	3D Viewer	Check the loom on the vehicle model and set real lengths
4 Output	Documents	Export the PDF build pack and print the build board

2. Installing and activating LoomKit

Install

1. Download `LoomKit-Setup-1.20.1.exe` and run it.
2. Read and accept the End User Licence Agreement when it is shown.
3. Choose the install folder and finish. LoomKit appears in your Start menu.

Activate (annual licence)

LoomKit is licensed for 12 months on one computer.

1. Open LoomKit for the first time. The activation window shows your **machine code**.
2. Email the machine code to **Loomkitlicence@gmail.com** from the **same email address you used to buy**.
3. If the address matches your purchase, an **activation code** is emailed back automatically.
4. Paste the activation code into LoomKit and press Activate.

> If you receive no reply, check your spam folder and that you wrote from your purchase email address. You can also use the activation page on the 6076 Spatial website to paste your machine code and receive the code.

Moving to a new computer

A licence works on one computer at a time. To move it, open LoomKit on the old computer and press **Hand back licence**, then activate on the new computer as above. A licence can be moved up to **3 times per year**.

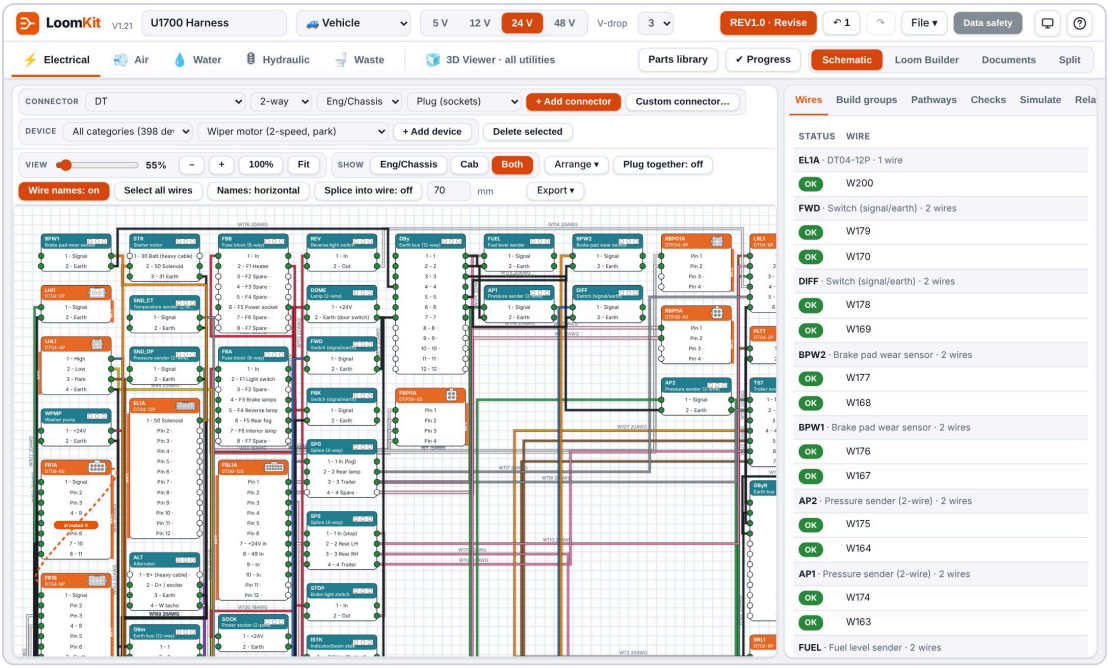
Renewing

Licences run for 12 months. Renew before the end date to keep working without interruption.

3. Quick start in six steps

1. **Start a project.** Type a name, choose the craft type, and set the system voltage (5, 12, 24 or 48 V) and the maximum voltage drop.
2. **Draw the schematic.** Add connectors and devices, then click one pin and another to run a wire.
3. **Set wire details.** Click a wire and use the Wires tab for colour, gauge, length, load and fuse. The Checks tab lists problems.
4. **Build the loom.** In Loom Builder, press Auto-route bundles, add junctions, set protection and run Check routes.
5. **Match the vehicle.** In the 3D Viewer press Set lengths from 3D.
6. **Output the pack.** In Documents press Export PDF for loom maker. Use Build board... for the full-size print.

> **Day one:** link a .dat file with **File ▾ → Save as...** so your work is always saved to a file you control (see section 11).

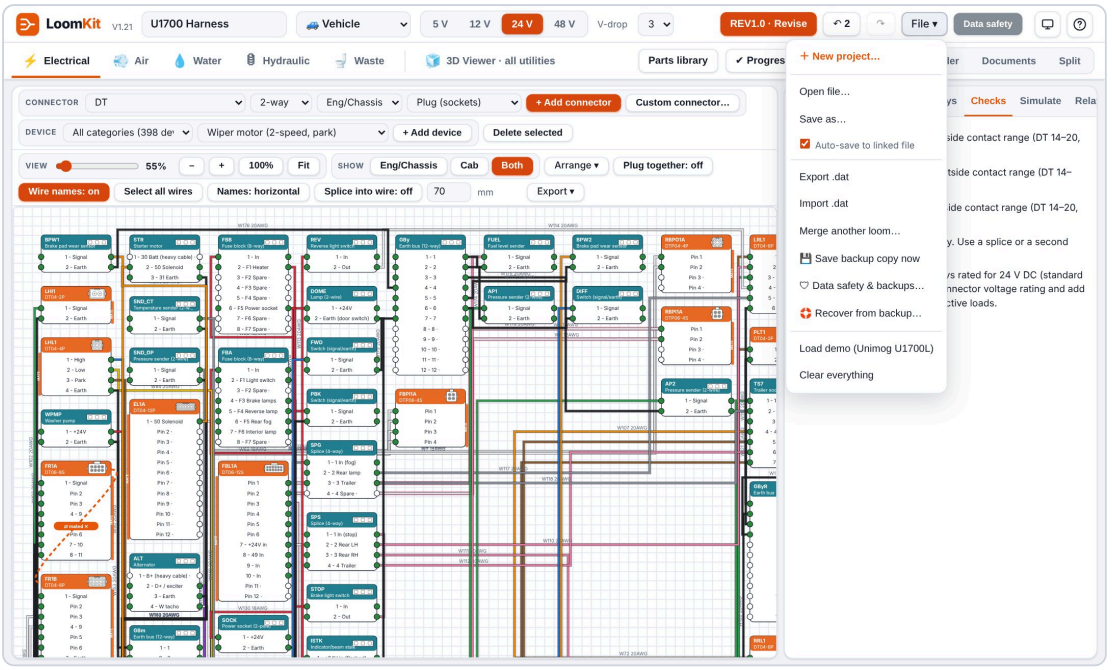


The demo project in the Schematic tab.

4. The screen at a glance

Area	Purpose
Top bar	Project name, craft type, voltage, voltage drop, Undo/Redo, File menu, Data safety, theme and Help
Utility tabs	Electrical, Air, Water, Hydraulic, Waste and the 3D Viewer
Parts library	Terminal and connector parts with pictures, to check what you are ordering
Progress	The build checklist
View tabs	Schematic, Loom Builder, Documents and Split
Side panel	Wires, Build groups, Pathways, Checks, Simulate, Relays and BOM (Schematic); Pinout, Segments, Routes, Splits, Checks and BOM (Loom Builder)

The File menu starts a new project, opens or saves a linked .dat file, exports and imports .dat files, merges another loom and manages backups. The **Help** (?) button shows getting-started notes and every shortcut.



The File menu.

5. Schematic

Adding parts

- **Add connector:** choose the family, the number of ways, the section (Eng/Chassis or Cab) and plug or receptacle, then press **+ Add connector**.
- **Add device:** choose a category and a device, then press **+ Add device**. It arrives with its pins and labels set.
- **Name it:** click a device header and type the name.
- **Delete selected** removes the selection and its wires.

Running wires

- Click one pin dot, then another. Press `Esc` to cancel.
- Drag part of a wire line to move only that section.
- **Splice into wire:** click a pin, then click the wire to splice into.
- **Plug together** joins a plug to the receptacle it mates with, so circuits continue across the join.

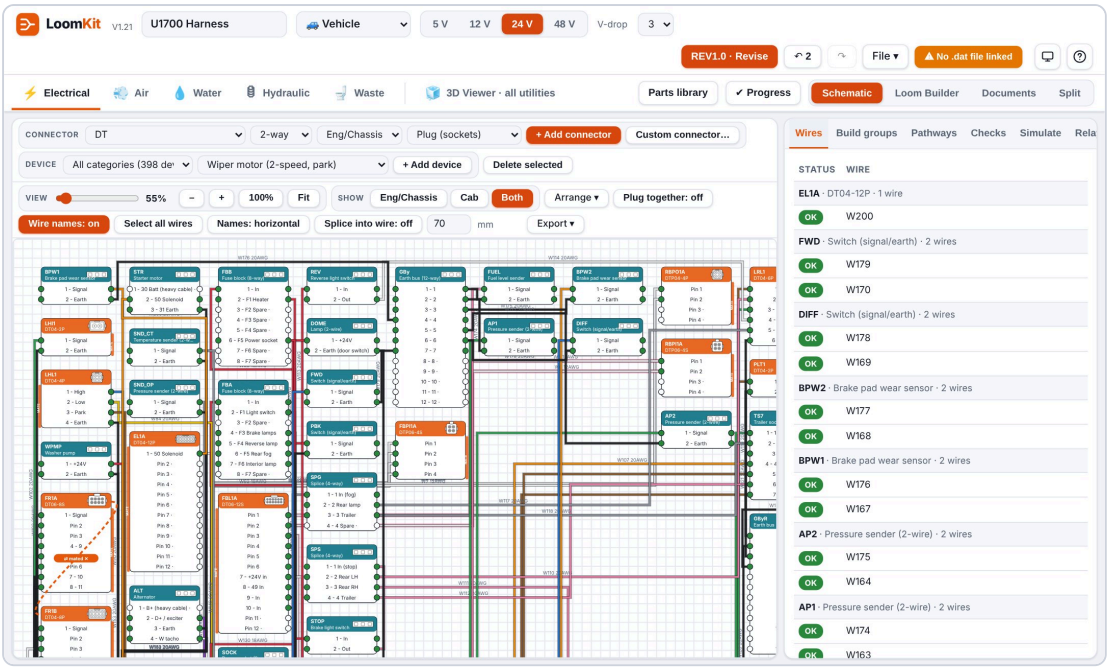
Tidying

- **Arrange ▾** offers Auto arrange, Undo arrange, Spread, Tighten and Arrange by vehicle position (front to rear, split at the bulkhead).
- **Show** filters by section: Eng/Chassis, Cab or Both.
- **Wire names** shows or hides names and sizes; Names: horizontal/along sets where they sit.
- **Fit** shows everything. The canvas is unlimited.

5. Schematic (continued)

Editing wires

Click a wire to see its settings in the **Wires** tab: colour, gauge, length, load and fuse. To edit many at once press **Select all wires** or Shift/Ctrl+click wires; the panel asks you to confirm before it applies a change.



The Wires tab lists every wire and its status.

Other side-panel tabs

Tab	Use
Build groups / Pathways	Organise the loom into groups and paths
Checks	Warns about problems before you build. Click one to jump to it
Simulate	Shows current flowing through the circuits; click pins for multimeter probes
Relays / BOM	Relay list and the full bill of materials

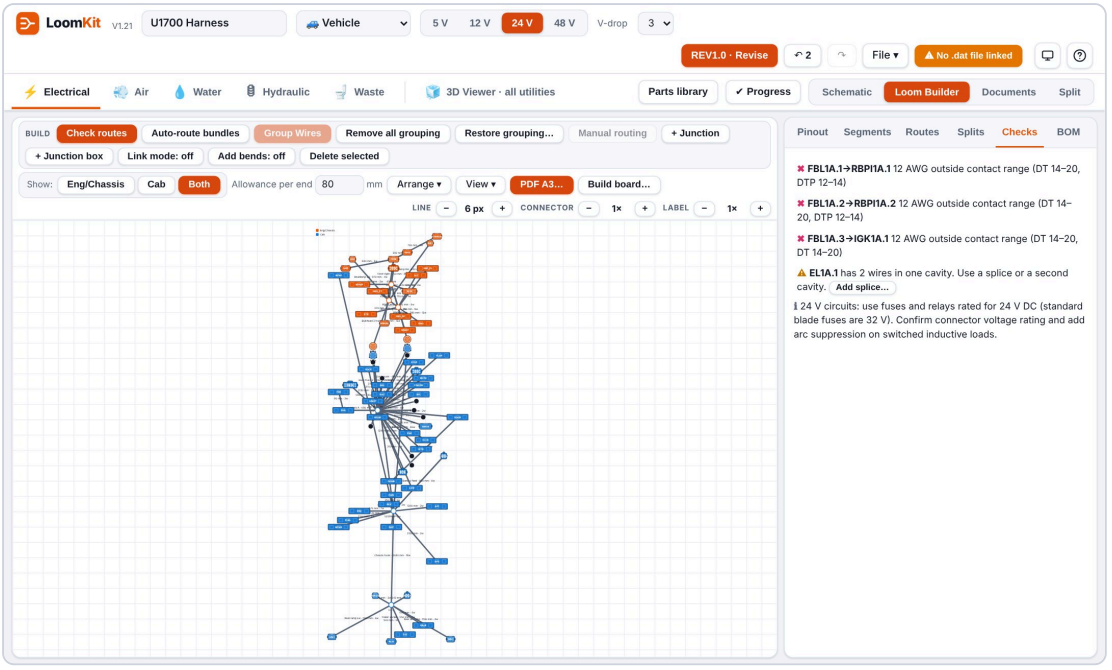
Exporting the schematic

The **Export** menu produces an A3 PDF drawing, or an SVG or PNG image.

6. Loom Builder

Loom Builder turns schematic wires into physical bundles and runs.

1. **Auto-route bundles** groups every connector and routes every wire. You can also draw bundles by hand.
2. **+ Junction** splits a bundle where a branch leaves. **+ Junction box**, **Link mode** and **Add bends** help you shape the loom.
3. Set each **segment length** on the Segments tab. Wire lengths follow the route, so fix segment lengths first.
4. Choose **protection** per segment, or for all: braided sleeving, heat-shrink, corrugated conduit or tape.
5. Press **Check routes**. It finds wires with no route and connectors with no run.

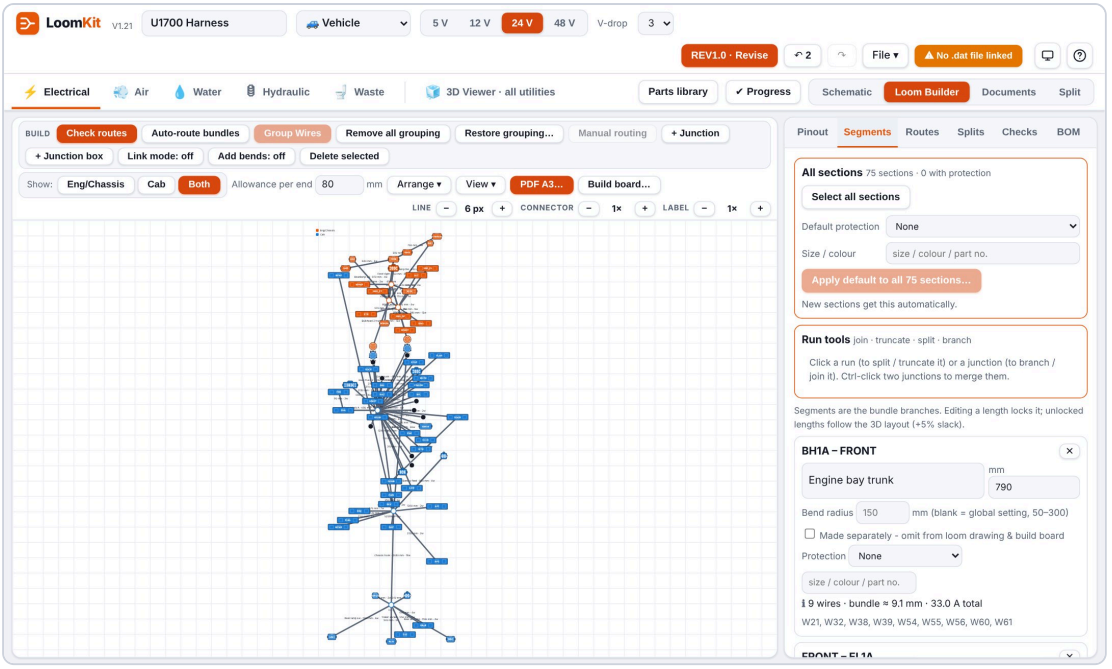


The Loom Builder with the sample loom.

Side panel

Pinout for every connector, **Segments** with lengths, **Routes** the path each wire takes, **Splits**, **Checks** and **BOM**.

6. Loom Builder (continued)



The Segments tab: run lengths and protection.

View and output controls

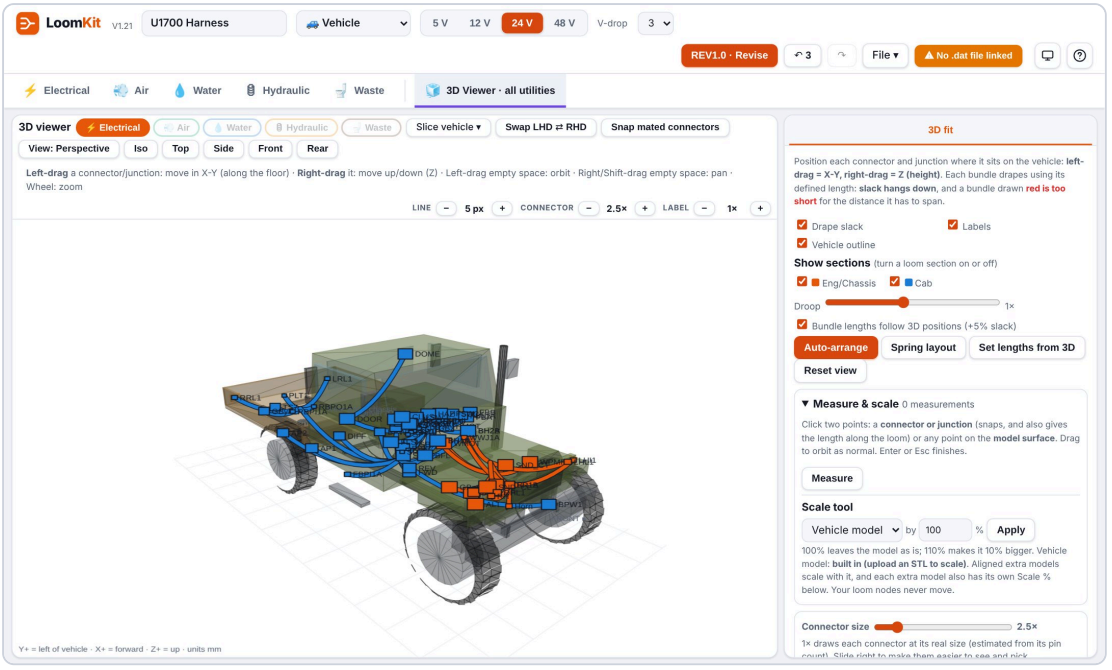
- **View ▾** rotates in 90° steps and shows the **Vehicle plan** shadow behind the loom.
- **Line, Connector and Label** sliders scale how things are drawn.
- **PDF A3…** exports the loom diagram. **Build board…** prints the loom full size across tiled sheets so you can build on top of it.

Grouping safety

Remove all grouping deletes every section, junction and bundle run (schematic wires are untouched). You must type REMOVE to confirm and a safety copy is saved first. **Restore grouping…** brings back a saved snapshot.

7. 3D Viewer

- **Move:** left-drag orbits, right-drag pans, the wheel zooms.
- **Views:** Top, Side, Front, Rear, Iso, and Perspective / Orthographic.
- **Layers, Show sections and Droop** control what is visible and how much slack bundles hang with. A bundle drawn red is too short for the distance it has to span.
- **Slice vehicle** cuts the model open. **Swap LHD ⇄ RHD** mirrors the loom.
- **Measure** reads the distance between two connectors or any point on the model. **Scale** resizes the vehicle model to match your real vehicle.
- Load several STL models (cab, chassis, trailer) and switch each on and off. The **Connector size** slider shrinks connectors to their real size.



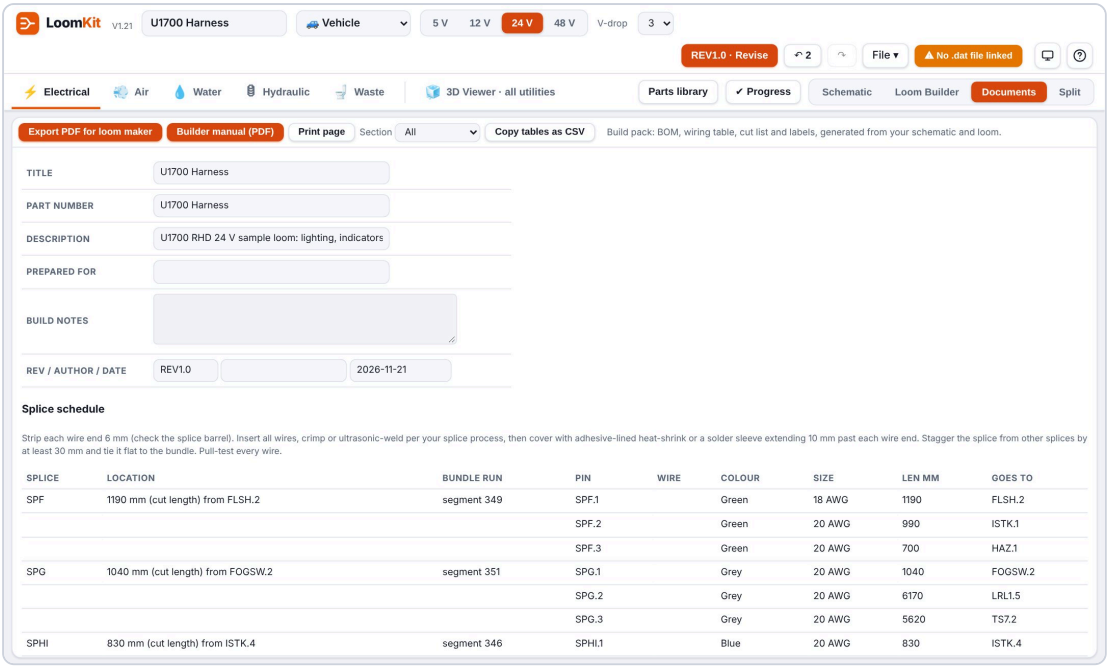
The loom on the vehicle model.

> **Set lengths from 3D** sets every bundle length from the model plus 5 % slack, so the cut list comes from real geometry. Check the Segments tab afterwards.

8. Documents

The Documents tab is the build pack, generated from your design: bill of materials, wiring table, cut list, splice schedule and labels.

- **Export PDF for loom maker** builds the full pack.
- **Builder manual (PDF)** writes a step-by-step instruction manual for whoever builds the loom.
- **Copy tables as CSV** sends the tables to a spreadsheet.
- Fill in title, part number, description, prepared for, build notes and revision before exporting.



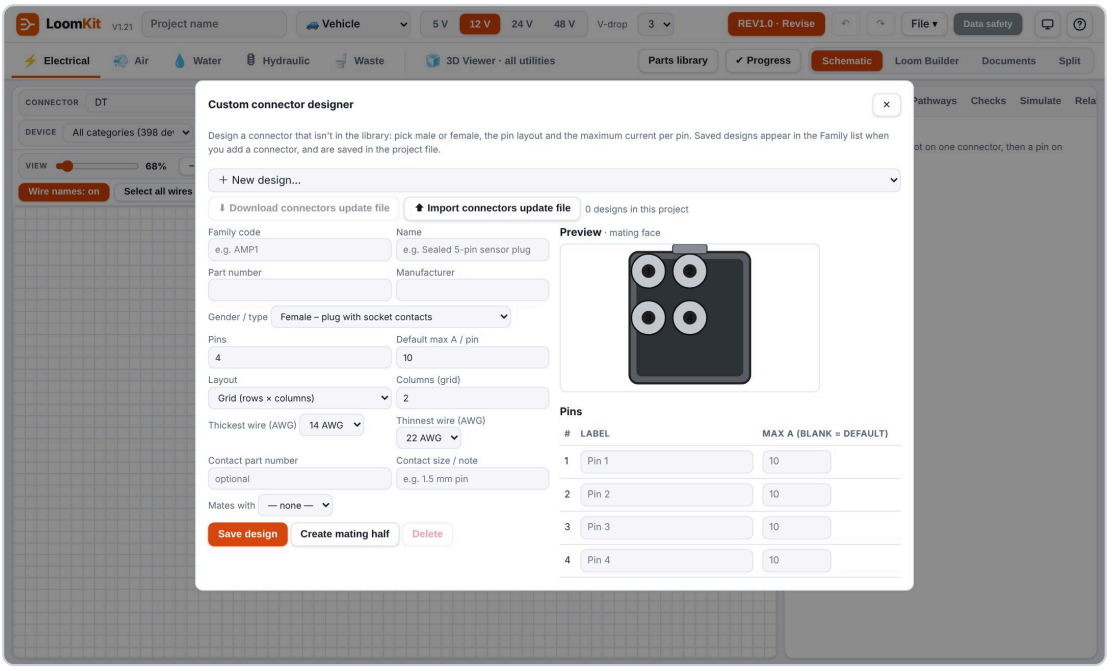
The Documents tab.

The report totals the length needed for each wire type, so you can order cable by type.

9. Custom connectors

If a connector is not in the library, press **Custom connector…** in the Schematic toolbar.

1. Enter the code and name, the gender/type, number of pins and the default maximum amps per pin.
2. Choose the layout and set each pin's label and rating.
3. Press **Save design**. It appears in the Family list. **Create mating half** builds the matching connector.



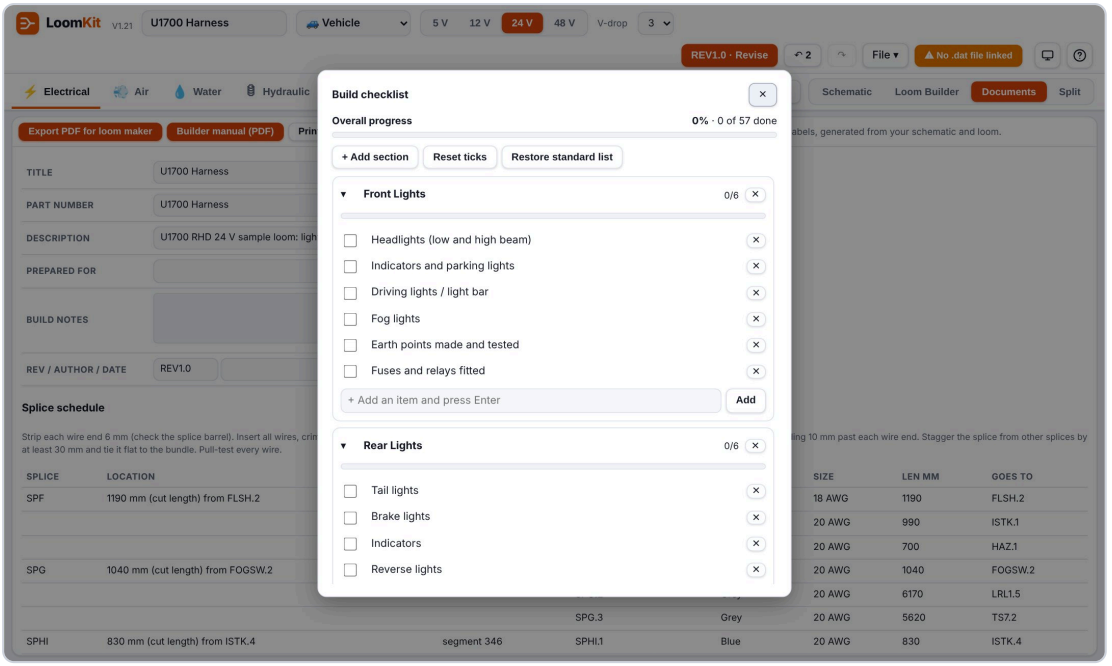
The Custom connector designer.

Connectors update file

When you add new connectors, press **Download connectors update file** to save every custom design in the project as a `.lkc.json` file. On another computer press **Import connectors update file**: new designs are added and changed ones are updated.

10. Progress checklist

Press **Progress** for an editable checklist that tracks how far the build has got. It is split into the major parts of a loom, and you can tick, edit and add items. Ticks are not part of undo history.

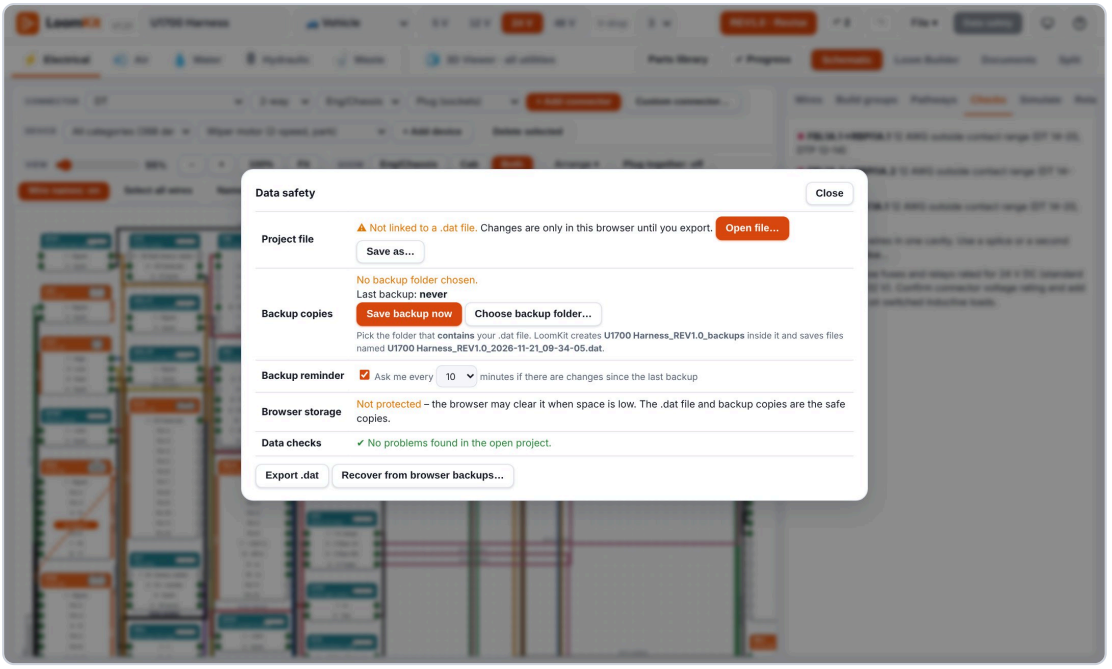


The build checklist.

11. Saving, backups and recovery

1. **Link a .dat file** with File ▾ → Save as… In Chrome or Edge every change is then written to that file. In other browsers use Export .dat after each session.
2. **Keep dated backups.** LoomKit reminds you every 10 minutes (if there are changes) to save a dated backup into a folder next to your .dat.
3. **Safety nets:** the browser keeps rolling snapshots (File ▾ → Recover from backup…) and loom grouping has its own snapshots.
4. **Undo** with Ctrl+Z, up to 50 steps.

11. Data safety



File ▾ → Data safety & backups...

This window shows the project file status, the backup folder and reminder, whether browser storage is protected, and the result of data checks. From here you can **Save backup now**, **Export .dat** or **Recover from browser backups...**.

> If a loom ever looks wrong or empty, do not keep editing. Open Recover from backup... first, or reopen your last .dat file.

12. Air, Water, Hydraulic and Waste

These utility tabs work the same way as Electrical, for pipes and hoses. Each has its own parts, schedules and 3D view, and all of them appear together in the 3D Viewer.

13. Keyboard and mouse

Action	Keys
Undo	Ctrl+Z
Redo	Ctrl+Y or Ctrl+Shift+Z
Cancel tool, close menus	Esc
Delete selected item	Del
Open help	?
Zoom	Mouse wheel
Pan	Drag empty space
Add to selection	Ctrl+click
Box select	Shift+drag
Reset the view	Double-click empty space

14. Troubleshooting

Problem	What to do
Screen looks empty after opening a file	Press Fit, or double-click empty space to reset the view
Wires bunch or overlap	Use Arrange ▾ → Auto arrange, or drag a single wire section
Loom bundles are missing	Restore grouping... in Loom Builder, or File ▾ → Recover from backup...
A wire has no route	Press Check routes and follow the flagged items
3D view feels slow	Orbit freely: the mesh simplifies while you move and returns to full detail when you stop
Cannot save to a file	Use File ▾ → Export .dat and keep dated copies
Activation code not received	Check spam, and that you wrote from your purchase email address
Moving to a new computer	Press Hand back licence on the old computer, then activate on the new one

15. Training videos

The training pack includes 16 videos, in the **Videos** folder. Start with 00 for the whole process, then use the short videos for single functions.

No.	Video	Length
00	Start to Finish — Trailer Loom	3:08
01	Draw Your First Schematic	1:54
02	Build the Loom	1:48
03	3D Fit and Real Lengths	1:43
04	Build Pack and Custom Connectors	1:39
05	Quick — Project Setup and Voltage	0:34
06	Quick — Add Connectors and Devices	0:32
07	Quick — Auto-route and Check Routes	0:32
08	Quick — Segments and Protection	0:32
09	Quick — The 3D Viewer	0:38
10	Quick — Real Lengths from 3D	0:30
11	Quick — Custom Connector Designer	0:27
12	Quick — Connectors Update File	0:35
13	Quick — Data Safety and Backups	0:21
14	Quick — Export the Build Pack	0:24
15	Tool Catalogue — Every Tool	7:26

16. Licence and support

LoomKit is licensed under the End User Licence Agreement shown during installation. Licences are annual (12 months, one computer).

Licensing: Loomkitlicence@gmail.com
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