FIREBIRD
PANEL NOTIFICATIONS, DELIVERED.

LoRa

thebuilding.cloud
ALPHA CONTROL ECOSYSTEM (ACE)

● FIREBIRD ENTERPRISE · FOR INSTALLERS AND PROJECT OWNERS

One bridge. Every building. No cable between.

Connect doors, gates, barriers and alarm inputs across a whole site to one FireBird bridge: cable inside each building, LoRa® radio between them, and cellular to the cloud. No trenches, no site network, no server.

See the scenarios →

Upgrading an old system?

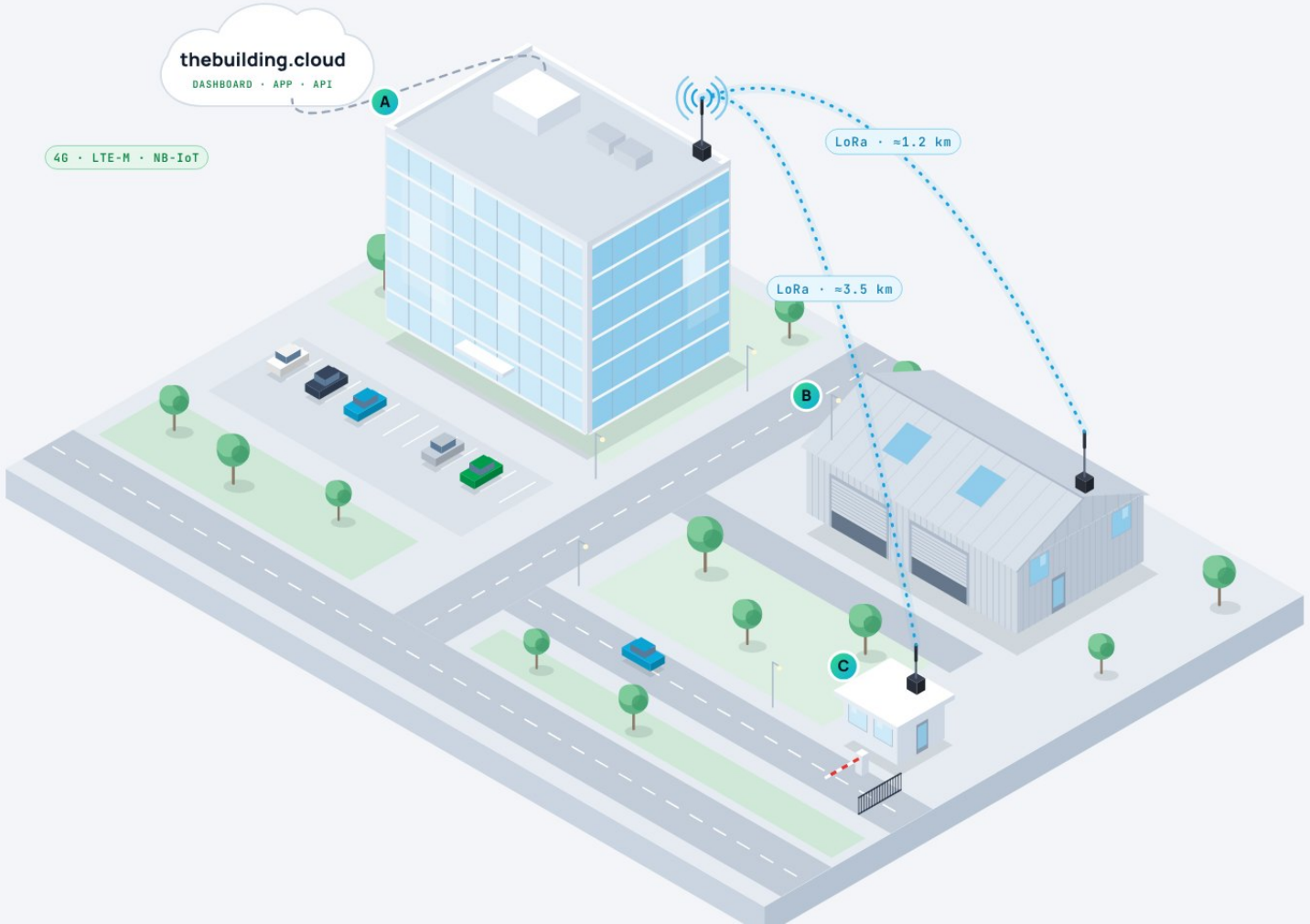


REAL HARDWARE · FIREBIRD BRIDGE AND I/O BOARD

Range up to about 10 km in open line of sight; less in built-up areas. LoRa® and the LoRa logo are trademarks of Semtech Corporation.

HOW IT FITS TOGETHER

One bridge talks to the cloud. Everything else talks to the bridge.



A — Office block
The FireBird bridge, with I/O boards and a tag reader on one RS-485 cable.

B — Workshop · ≈1.2 km
A LoRa unit and I/O boards. No SIM and no network of its own.

C — Gatehouse · ≈3.5 km
A LoRa unit with I/O boards and a tag reader for the gates.

thebuilding.cloud
Only the bridge connects, by cellular or Wi-Fi. Run it all from a browser, the app or the API.

FOR INSTALLERS AND PROJECT OWNERS

The costly part is the cabling. So we took it out.

On a multi-building site, the trench, the network and the server can cost more than the doors. FireBird replaces all three with a bridge, some boards and a radio link.

WHAT YOU NO LONGER NEED

- **Trenches and ducts**
  Between buildings, across car parks and yards
- **A network point at every door**
  Or a switch and patching in each building
- **Site Wi-Fi or Ethernet**
  Or sign-off from the tenant's IT team
- **A server or Windows PC**
  With its software, licences and updates
- **Broadband in each building**
  Or a phone line for the far gatehouse
- **Return visits to update it**
  Firmware updates go over the air

WHAT YOU DO INSTEAD

- **Fit one bridge**
  Cellular or Wi-Fi, on a DIN plate beside its supply.
- **Daisy-chain the boards**
  One RS-485 cable through each building.
- **Add LoRa where cable won't go**
  A radio at each end, mains powered.
- **Hand over a browser and an app**
  Your client runs the site from anywhere.

≈10 km	≈10	4 + 4	150+
LoRa range in open line of sight	I/O boards on one RS-485 line	Inputs and outputs on every board	Countries with cellular coverage

• THE RANGE

Four parts.
Any site you can draw.

Every part shares the same RS-485 line. Start with one bridge and one board, then grow building by building.

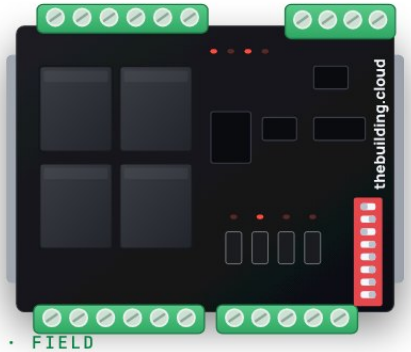


01 · BRIDGE

FireBird bridge

The only part that talks to the internet. A GSM model with 2G, LTE-M and NB-IoT, or a Wi-Fi model.

- RS-485 and RS-232
- 9–36 V DC supply
- Firmware updates over the air



02 · FIELD

I/O board

Four changeover relays and four inputs on a DIN rail, with its address set on a switch.

- NO · COM · NC outputs
- Opto-coupled inputs
- 12–30 V AC or DC supply



03 · LINK

LoRa® unit

One at the bridge and one at each far building. Together they carry the RS-485 line by radio.

- Up to ≈10 km line of sight
- Built-in mains supply
- External antenna



04 · FIELD

RS-485 tag reader

Reads tags and fobs at a door or gate, on the same cable as the boards.

- Shares the RS-485 line
- Wired, or over LoRa
- Mounts beside the door

thebuilding.cloud — Cellular / Wi-Fi — Bridge — RS-485 — Boards + readers — RS-485 — LoRa unit · · ≈10 km · · LoRa unit — RS-485 — Boards + readers

• THE FIREBIRD BRIDGE

Signal where Wi-Fi gives up.

The GSM bridge connects over mobile networks built for devices, which are designed to reach deep inside buildings: plant rooms, basements, risers and car parks.



NB-IoT
DEEPEST REACH
Made for devices in hard-to-reach places, such as below ground and behind concrete.

LTE-M
CAT-M1
Deep coverage with faster responses, on the 4G networks operators run today.

2G
FALLBACK
An extra route wherever operators still run a 2G network.

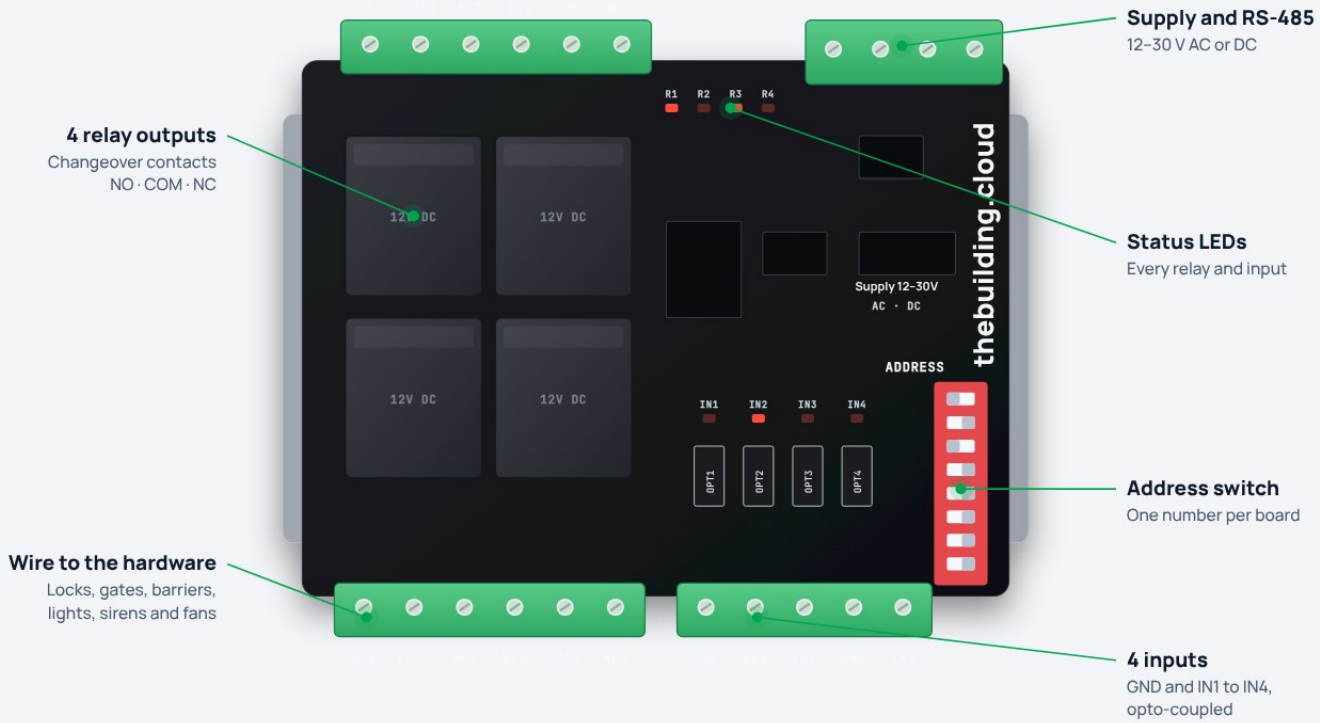
Wi-Fi
WI-FI MODEL
The FireBird Wi-Fi bridge joins the site Wi-Fi instead, where that suits better.



THE I/O BOARD

Four in. Four out.
About ten to a line.

Each board drives four changeover relays and reads four inputs. Wire it to the locks, gates and sensors already on site.

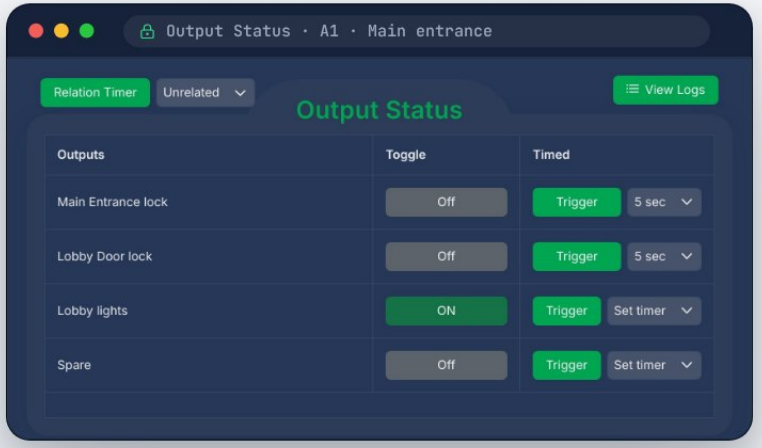


INPUTS

- Door contacts and exit buttons
- Vehicle loops and safety beams
- Gate limit switches
- PIRs, flood and plant alarms

OUTPUTS

- Maglocks and door strikes
- Gate motors and barriers
- Roller doors and lifts
- Lights, sounders and fans



• THE LORA® UNIT

The cable you don't have to dig.



LoRa

Fit one LoRa unit at the bridge and one at each far building. To the bridge, the boards behind the radio look like boards on its own cable.

Mains powered
Built-in supply, 100–480 V AC input

External antenna
Mount it high, with a clear view

RS-485 on the terminals
Boards and readers wire straight in

Manage Device Boards · boards over LoRa

Name	Status	Address	Polling Timer	Version	Action
B1 · Workshop roller door (LoRa)	Online	5	Default	v2	
B2 · Stores (LoRa)	Online	6	Default	v2	
C1 · Vehicle gate (LoRa)	Online	7	Default	v2	
C2 · Pedestrian gate (LoRa)	Online	8	Default	v2	
C3 · Yard and CCTV mast (LoRa)	Online	9	Default	v2	

• WHY LORA®

Made for long distances and noisy places.



Chirps
Each symbol sweeps across the channel

Noise
The receiver still picks the chirps out when they are weaker than the noise

Chirp spread spectrum

Each symbol sweeps across the channel, so a receiver can pick it out even when it's weaker than the background noise.

Sub-GHz, licence-free

Low frequencies travel further, and through more walls and trees, than 2.4 GHz Wi-Fi.

Your own private link

No SIM, contract or public network for the far building.

Watched from the cloud

Every board shows online or offline. A rule can call, text or email you if one drops.

≈10 km
In open line of sight

Sub-GHz
Licence-free radio band

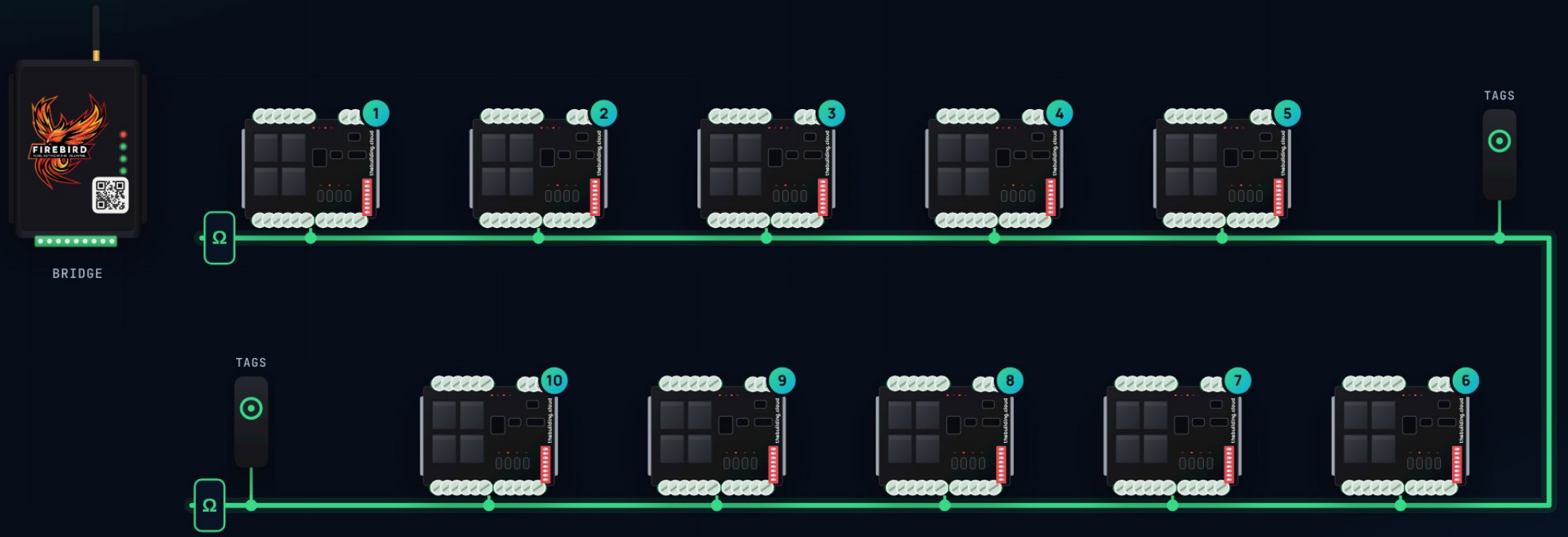
0
Cables, trenches or SIMs between buildings

Range depends on antennas, mounting height, terrain and buildings in the way. Survey each link before you commit. LoRa® is a trademark of Semtech Corporation.

• INSIDE A BUILDING

One cable through the building. Every board on it.

Boards and readers are daisy-chained on one RS-485 line from the bridge. Each board has its own address, and the bridge polls them in turn.



Daisy-chain, don't star

Run the cable from board to board and keep spurs short, as for any RS-485 installation.

One address per board

Set it on the address switch, then add the board in the cloud with the same number.

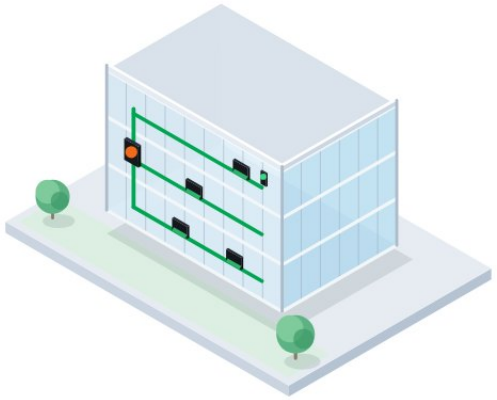
Terminate both ends

Fit 120 Ω termination at the two ends of the line, and nowhere in between.

THREE WAYS TO CONNECT

Cable where you can. Radio where you can't.

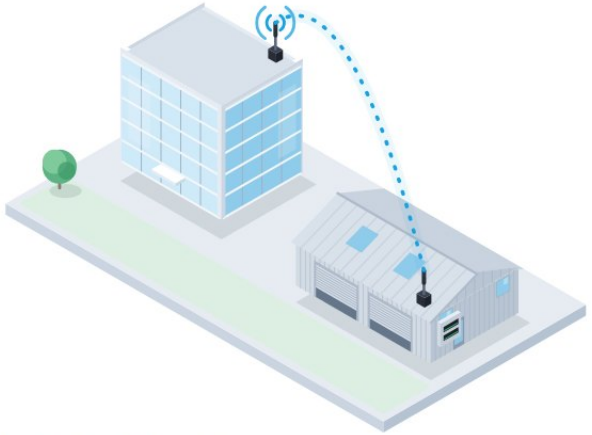
Mix all three on one bridge. The next three pages show each one on a real-world site.



A Wired building

The bridge, I/O boards and tag readers share one RS-485 cable.

- Best inside one building
- Up to about 10 boards per line
- Readers on the same cable



B LoRa®, I/O only

A LoRa pair carries the line to a building that only needs inputs and outputs.

- Doors, lights and alarms
- No cable between buildings
- Up to ≈10 km in line of sight



C LoRa®, I/O and readers

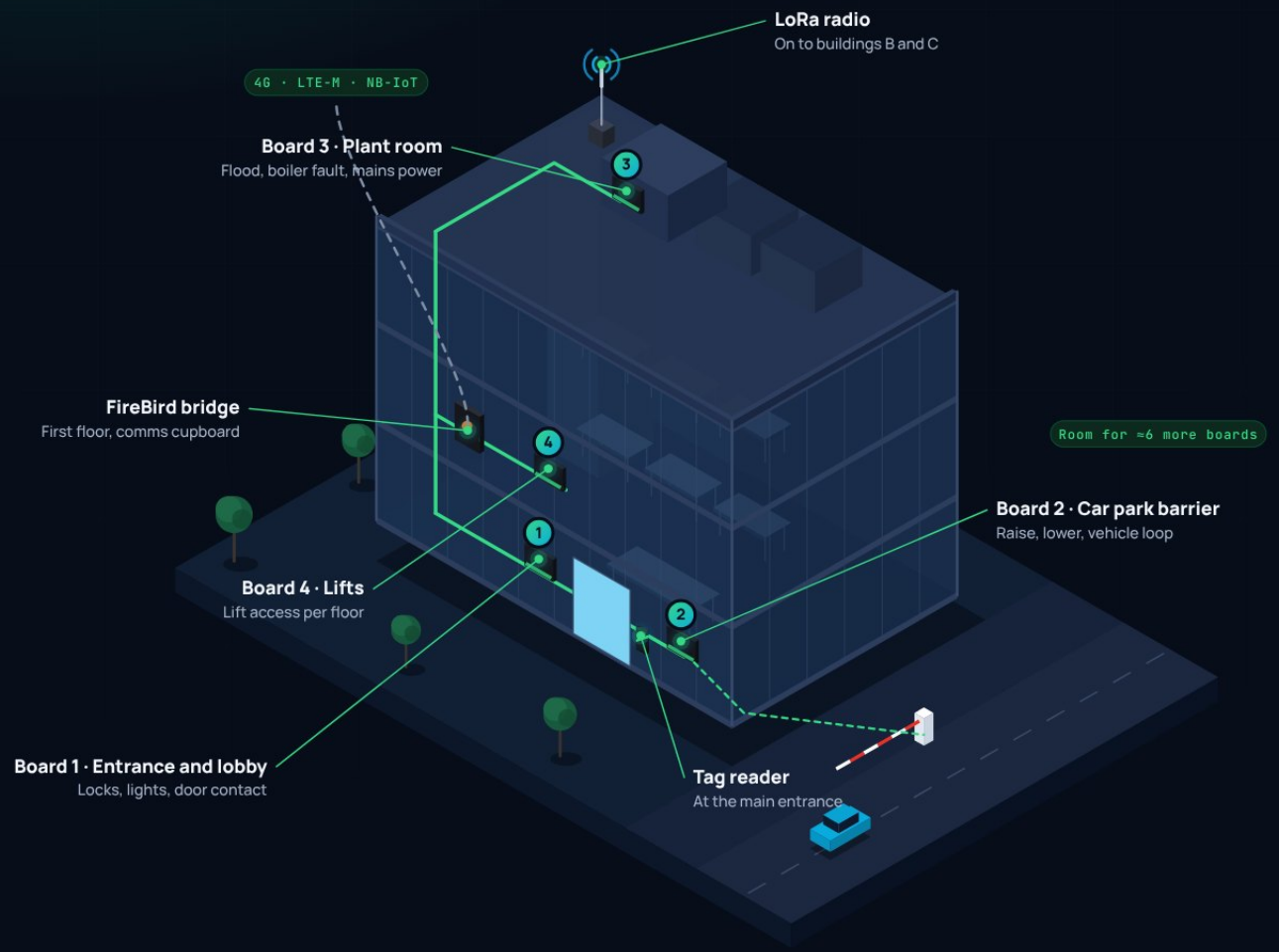
The far building has boards and tag readers together on its LoRa line.

- Tags at a remote gate
- Same cloud, same app
- Mix and match per building

● SCENARIO A · WIRED

An office block on one cable.

A GSM bridge in the first-floor comms cupboard. One RS-485 riser to four I/O boards and a tag reader, with a LoRa radio on the roof for buildings B and C.



1 Main entrance and lobby

OUT Entrance and lobby locks, lobby lights
IN Door contact, exit button, fire alarm relay

2 Car park barrier

OUT Raise, lower, car park lights
IN Vehicle loop, up limit, barrier fault

3 Plant room

OUT Plant room lock, alarm sounder
IN Door contact, flood, boiler fault, mains

4 Lifts

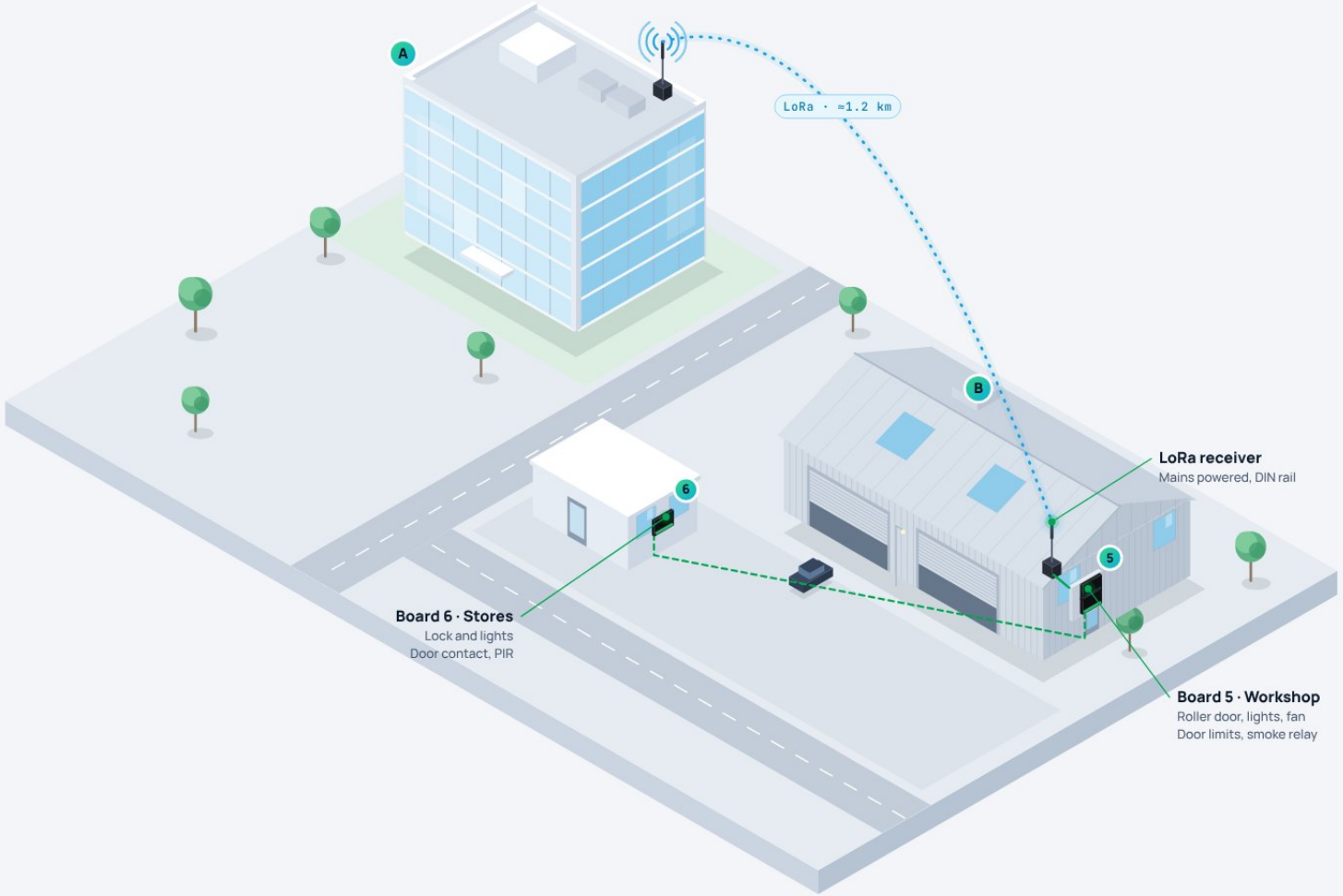
OUT Lift access, floors 1–3 and roof
IN Lift fault, lift in service

BOARD NAMES, INPUTS AND OUTPUTS FROM THE DEMO SITE IN THEBUILDING.CLOUD

● SCENARIO B · LORA® · I/O ONLY

A workshop 1.2 km away.
No cable in between.

A LoRa unit on the office roof and another on the workshop carry the RS-485 line across the site. The workshop and stores have I/O boards only.



5 **Workshop roller door**

OUT Open, close, workshop lights, extractor fan

IN Open and closed limits, smoke detector relay

6 **Stores**

OUT Stores lock, stores lights

IN Door contact, PIR

On the same bridge

Boards 5 and 6 sit on the office bridge, so the workshop needs no SIM, router or broadband.

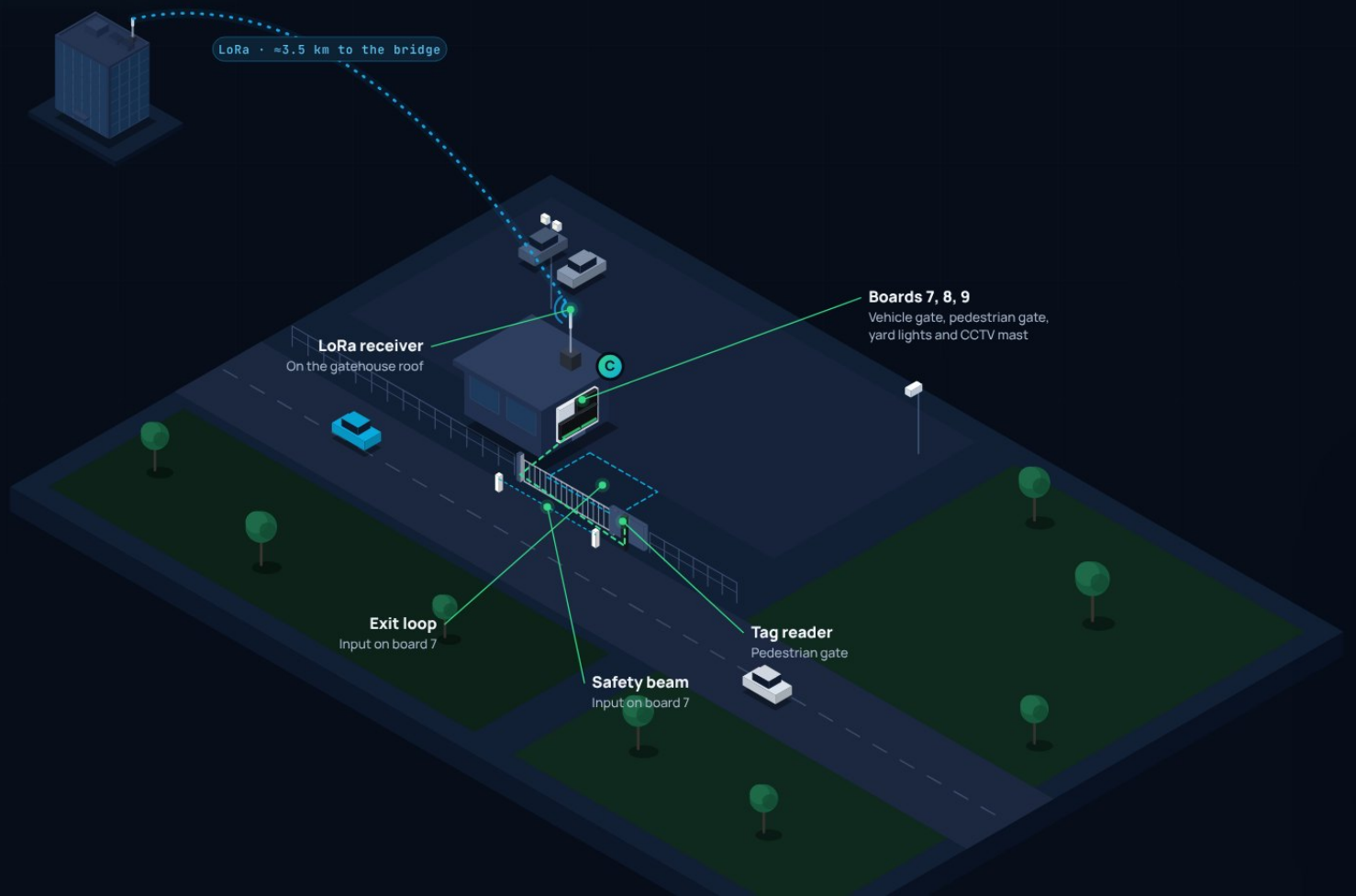
≈1.2 km
Radio to radio

0 m
Of cable between buildings

● SCENARIO C · LORA® · I/O AND READERS

A gatehouse 3.5 km away. Tags at the gate.

The gatehouse LoRa unit feeds three I/O boards and a tag reader. Staff tag in at the pedestrian gate; the exit loop opens the vehicle gate.



7 Vehicle gate

OUT Gate open, gate close, gate lights

IN Open and closed limits, safety beam, exit loop

8 Pedestrian gate

OUT Gate lock, gate sounder

IN Gate contact, exit button, tamper

9 Yard and CCTV mast

OUT Yard floodlights, CCTV mast power

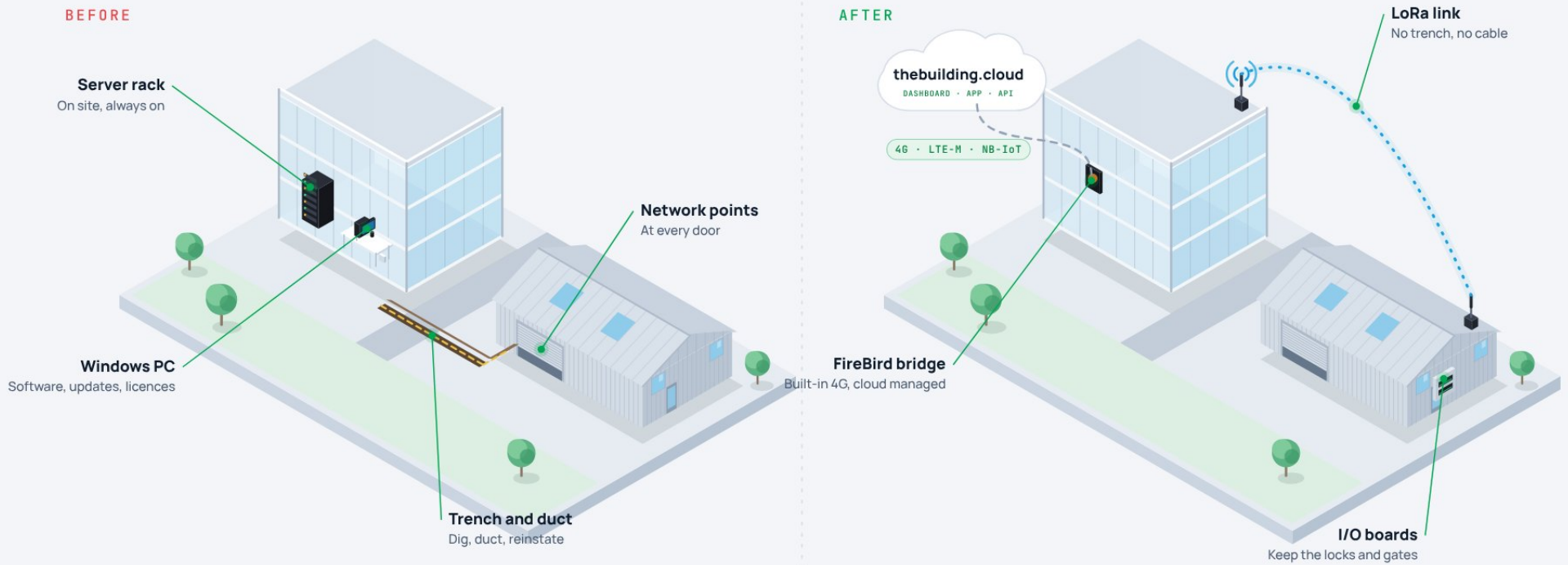
IN Yard PIR, mast door tamper



● UPGRADING AN OLD SYSTEM

Replace the server.
Keep the doors and gates.

Many sites still run access control from a server or a Windows PC in a cupboard, with cable or network runs between buildings. FireBird replaces the head end and the links, and keeps the hardware at the door.



KEEP

- Locks and strikes
- Gate motors
- Barriers
- Door contacts
- Exit buttons
- Loops and beams

RETIRE

- Server or PC
- Windows software
- Licence renewals
- Network runs
- Phone lines

GAIN

- Browser and app
- Automation rules
- API and webhooks
- Updates over the air
- Alerts by text and call

AUTOMATION RULES

Every input can make something happen.

Build rules in the browser: pick a trigger on any board, then add up to five actions. No scripting, and every rule keeps a log of when it ran.

TRIGGERS

- An input opens or closes
- A board goes offline
- A bridge goes offline or online
- Fire and fault events

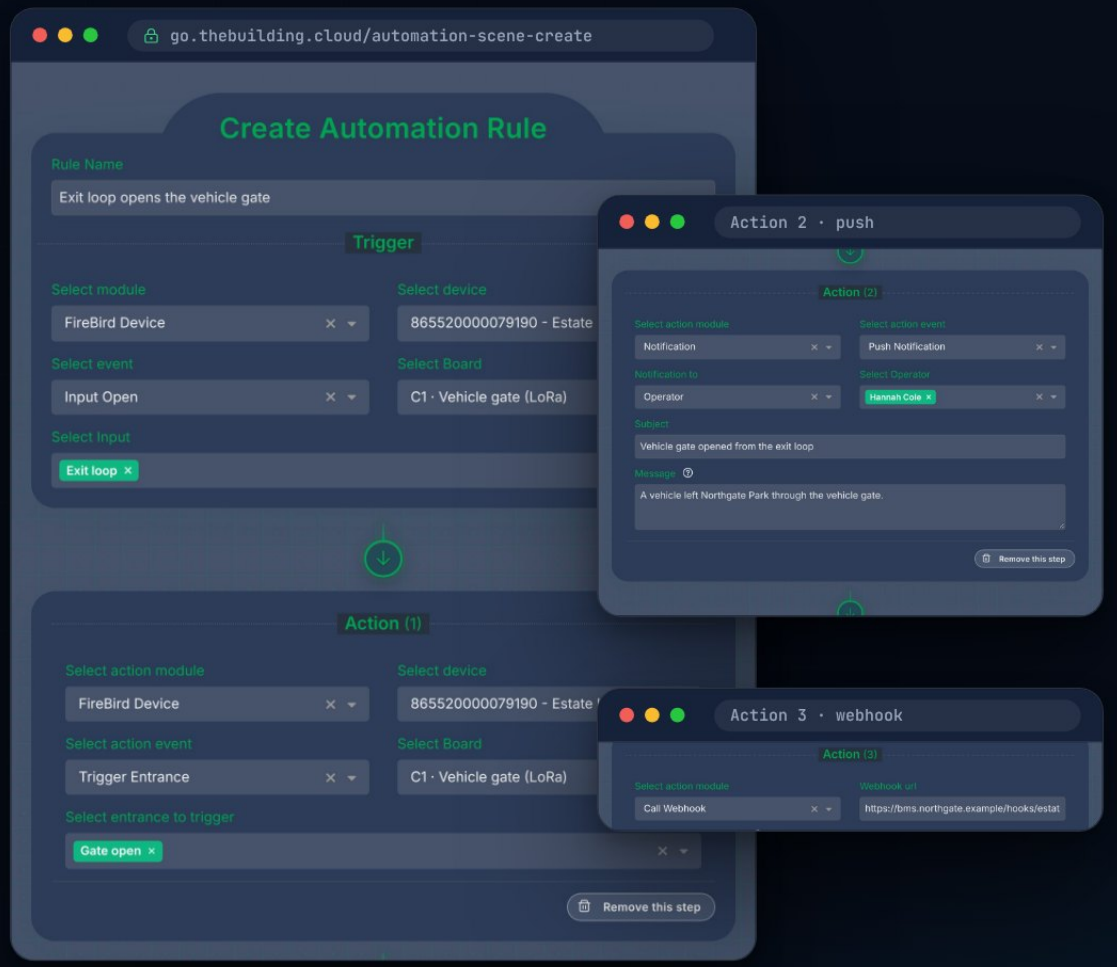
ACTIONS

- Pulse, open or close an output
- Email
- SMS
- Voice call
- Push
- Telegram
- Slack
- Call a webhook
- Open a CCTV camera
- Smart devices

IF Exit loop at the vehicle gate THEN Pulse “Gate open” and notify the site manager

IF Flood sensor in the plant room THEN Sound the alarm, text and call the engineer

IF A LoRa board goes offline THEN Email the installer and post to Slack



A REAL RULE IN THEBUILDING.CLOUD: THE EXIT LOOP OPENS THE VEHICLE GATE, TELLS THE SITE MANAGER AND CALLS THE CLIENT’S BMS

● API · WEBHOOKS · MCP · AI

Plug the estate into everything else.

Connect a BMS, a CAFM tool, a gatehouse app or your own dashboards. Or just ask the AI assistant.

REST API

On every plan, documented in OpenAPI 3.0. Switch outputs, open entrances, pull I/O logs.

Webhooks

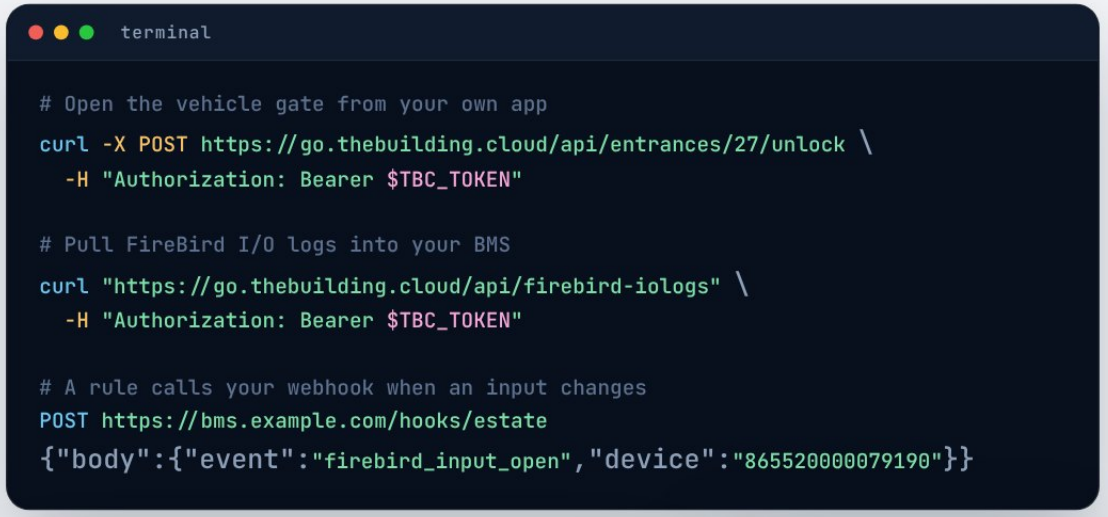
Any automation rule can call your endpoint when an input changes.

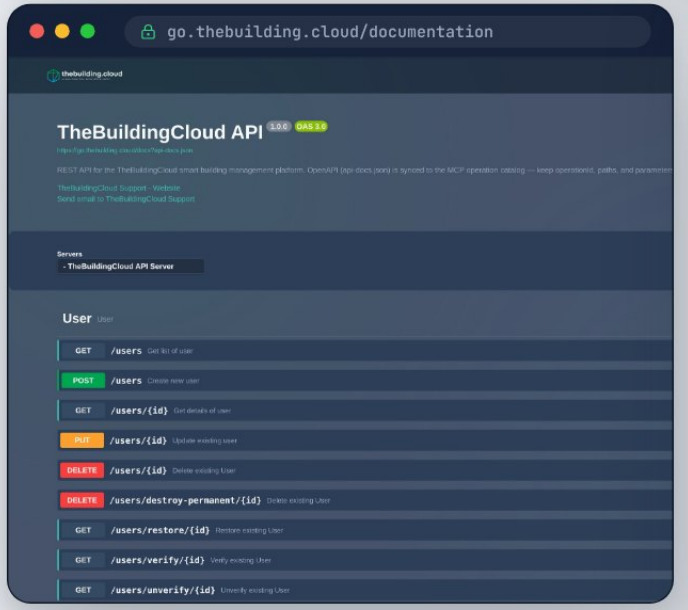
MCP server

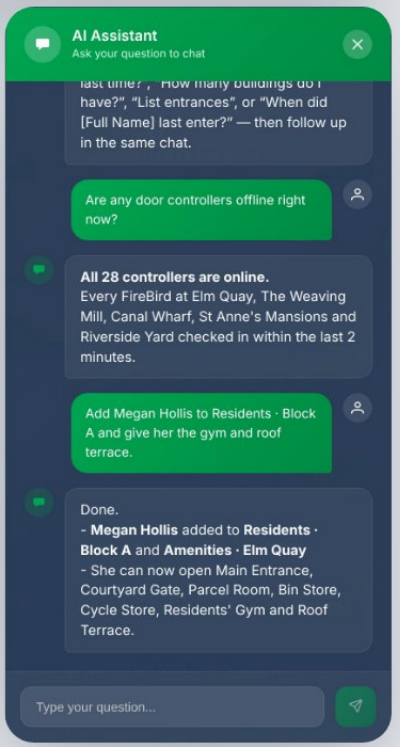
Connect Claude, ChatGPT or Cursor to your sites with secure sign-in.

AI assistant

Ask in plain English: what's offline, what happened at the gate, who came in.







WHERE IT FITS

Anywhere a cable run would cost too much.

Business and industrial parks

Barriers, estate gates and unit doors across the park on one bridge. Tenants tag in at the gate.

SCENARIOS A + C

Farms and rural estates

Yard gates, barn doors and pump alarms kilometres apart, with no cable and no broadband.

SCENARIO B

Car parks and depots

Barriers, loops and lights at every entrance, controlled and logged in one place.

SCENARIOS A + C

Utilities and pump stations

Alarm inputs at remote kiosks become events, texts and calls the moment they change.

SCENARIO B

Campuses and schools

Perimeter gates, outbuildings and sports halls run from the main building's bridge.

SCENARIOS A + B + C

Logistics and storage

Roller doors, dock lights and yard gates, with inputs that show what's open right now.

SCENARIOS A + B

Not sure which layout fits your site?

Send us a site plan with rough distances, and we'll suggest one. See the last page.



• FOR INSTALLERS

From site plan to handover.

The key facts, and the six steps from survey to a working system.

BRIDGE	FireBird GSM (2G, LTE-M, NB-IoT) or FireBird Wi-Fi
BRIDGE TERMINALS	RS-485 (B, A), RS-232 (TX, RX, GND), reset, 9–36 V DC
I/O BOARD	4 changeover relays (NO, COM, NC), 4 opto-coupled inputs, address switch
BOARD SUPPLY	12–30 V AC or DC
BOARDS PER LINE	Up to about 10 on one RS-485 line
TAG READERS	RS-485, on the same line as the boards
LORA® UNIT	Built-in mains supply (100–480 V AC), external antenna, DIN rail
LORA® RANGE	Up to ≈10 km in open line of sight; less in built-up areas
MANAGED FROM	thebuilding.cloud: browser, app, API, webhooks and MCP

01 Survey the site
Count inputs and outputs per building, check cellular signal and walk each radio path.

02 Mount the hardware
Bridge, boards and LoRa units on DIN rail in standard enclosures.

03 Wire one RS-485 run per building
Daisy-chained and terminated at both ends.

04 Fit the LoRa pairs
Antennas high, with the clearest view between buildings.

05 Address every board
A unique number across the bridge, including boards behind LoRa.

06 Add it in the cloud and hand over
Add the bridge by its IMEI, then each board. Name the inputs and outputs, and set up the rules.

Specifications shown for planning; check the product datasheet before you install. LoRa® is a trademark of Semtech Corporation.

FIREBIRD
PANEL NOTIFICATIONS, DELIVERED

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ALPHA CONTROL ECOSYSTEM [ACE]

• NEXT STEP

Send us your site plan. We'll draw your system.

A sketch is enough: the buildings, the rough distances between them, and the doors, gates and alarms in each. We'll come back with a FireBird layout and a parts list.

- Site plan, with rough distances
- Doors, gates and barriers per building
- Any existing system you'd like to replace

Lifetime warranty, while you subscribe*

In cloud mode for as long as your subscription is active, worldwide. 12 months in standalone mode. *Exclusions apply.

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