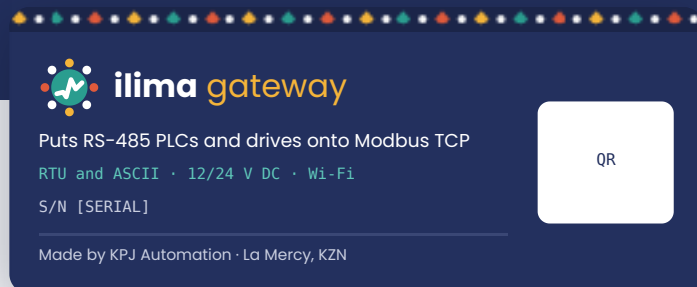
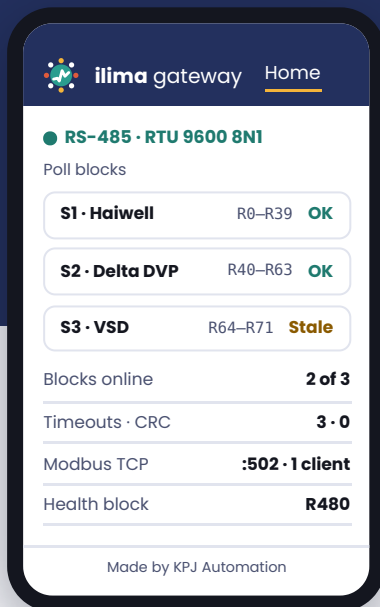


SMART CONTROLLERS · PRODUCT INFORMATION

ilima gateway

The answer to “this PLC has no Ethernet”. Puts RS-485 Modbus PLCs and drives onto your network as an ordinary Modbus TCP device — RTU or ASCII.



RTU + ASCII

both spoken, so the PLC is never reconfigured to suit the gateway

78

protocol, baud and format combinations swept by auto-detect

2

PLC families verified on real hardware: Haiwell and Delta

WHAT IT IS

A polling concentrator, not a wire

ilima gateway polls the RS-485 bus on its own schedule, keeps everything in a register image, and serves that image to your SCADA as an ordinary Modbus TCP slave on port 502.

So the SCADA reads at network speed while the bus plods at 9600 baud, and a dead slave becomes a stale block with a quality flag instead of stalling the dashboard. The cost is that values are up to one poll interval old — right for supervision, wrong for a control loop.

Speaks both dialects

Haiwell and most VSDs talk Modbus RTU; Delta DVP ships Modbus ASCII 7E1. The gateway speaks both, so a customer never has to reconfigure a working PLC before the gateway will talk to it.

BENEFITS

What it changes

◆ Old PLCs join the plant network

Serial-only controllers and drives show up in ilima scada, or any Modbus TCP SCADA, like any other device.

◆ It tells you when it is stale

Health registers at the top of the image report blocks online, timeouts, checksum and exception counts — worth alarming on at every site.

◆ Alarms on the unit itself

Up to 12 rules with on-delay and deadband can drive the relays and post a webhook.

◆ A dead slave stalls nothing

Each block is polled and cached on its own; one silent device becomes a flagged stale block, not a frozen screen.

◆ Commissioning without guesswork

Bus scan, auto-detect and a wire monitor show whether a silent bus is wiring or settings.

◆ Monitor-only if that is all you need

The same unit is available without the Modbus TCP side, as an RS-485 monitor with its own dashboard and alarms.

THE THREE COMMISSIONING TOOLS

Between them they cover almost every “it will not talk”

Bus scan

- ◆ Probes each slave ID and reports what answered
- ◆ An “illegal address” reply counts as found — the device is there, it just has no register 0
- ◆ Results kept across a reboot

Auto-detect

- ◆ Sweeps 78 protocol × baud × format combinations against one slave in about 15 s
- ◆ Saves the one that works
- ◆ A no means wiring, not parameters

Wire monitor

- ◆ Raw hex of the last exchange
- ◆ Bytes sent, nothing back: wiring, polarity, ground
- ◆ Bytes back that still fail: framing or address

Reads as if it were transparent

Register image

- ◆ 512 registers and 512 coils
- ◆ Polled data starts at register 0, so addresses match the PLC's own
- ◆ 32 health registers and coils at a relocatable base, default 480
- ◆ Writable blocks for ON/OFF and value writes from the SCADA

On the unit's own pages

- ◆ Home: live values, controls, buses and diagnostics
- ◆ Poll Map: blocks, live values and a read/write test
- ◆ RS485: protocol, baud, format, timing, scan, auto-detect, raw send
- ◆ Address Reference for common PLC brands
- ◆ Installable to a phone home screen

IN DETAIL

PLC address library

BRAND	WHAT IS KNOWN	
Haiwell	Verified	Map taken from ilima scada's own resolver; proven over RTU
Delta DVP	Verified on hardware	DVP-12SA, ASCII 9600 7E1
Wecon LX3V	Documented default	FX-compatible — check the manual
Kinco	Documented per model	The VSD map matters more than the PLC one
Mitsubishi FX	No fixed map	Assigned by the programmer
Siemens · Omron	Guidance only	LOGO! 8 is Modbus TCP — connect it direct; S7 and Omron need a user-written slave block

No address table was invented. Where a map is configurable, the unit's own reference page says how to find it instead.

Supervision, not control. Values are up to one poll interval old. That is right for a dashboard, history and alarms, and wrong for a control loop — keep control in the PLC.

SPECIFICATION

Technical specification

ITEM	DETAIL
Controller	Industrial ESP32 I/O board, DIN-rail mounted, with KPJ firmware
Serial side	RS-485, Modbus RTU and Modbus ASCII, 12 serial formats
Network side	Modbus TCP slave on port 502, over Wi-Fi
Register image	512 registers, 512 coils; health block at a relocatable base (default 480)
Writes	Single coil and register writes to writable blocks
Alarms	Up to 12 rules with on-delay and deadband; relay outputs; plain-HTTP webhook
Relay outputs	4 × volt-free relay contacts, 10 A rated
Digital inputs	4 × NPN opto-isolated, published in the health block

Supply	12 V or 24 V DC
Interface	Built-in web pages, installable to a phone home screen
Updates	Over-the-air firmware update
Versions	Gateway (Modbus TCP) or RS-485 monitor (no TCP side), one firmware

THE ILIMA RANGE

Start with one unit. Grow the whole plant.

ilima count Counts, rates, batches and lots on one machine	ilima gateway Puts RS-485 PLCs and drives on the network	ilima pump Pressure and supply control for one pump	ilima irrigate Four zones, schedules and rain inhibit
ilima scada The whole plant on one screen, with alarms	ilima master count Orders, stock, recipes and lot traceability	ilima maint Job cards, machine files, spares and shifts	by KPJ Designed, built and supported in La Mercy, KwaZulu-Natal

WHERE IT FITS

Typical applications

Serial PLCs with no Ethernet port	VSDs and drives on an RS-485 bus	Older panels being brought into a SCADA
Remote pump and plant rooms	Mixed Haiwell and Delta sites	Any RS-485 device worth watching

HOW IT IS SUPPLIED

Configured, wired and commissioned

- ◆ Supplied configured for your application, not as a blank board
- ◆ Wired into an enclosure with terminals, fusing and isolator where required
- ◆ Field wiring terminated and labelled to a drawing
- ◆ Commissioned on the real process, with setpoints proven under load
- ◆ Operator walkthrough and a written record of the configuration

What we need to quote it

- ◆ The make and model of each PLC or drive on the bus, and their slave IDs if known
- ◆ Whether the RS-485 port is free, and how far the bus runs
- ◆ What you want to read — the registers or the PLC program, or time for KPJ to find them
- ◆ Which SCADA will read it: ilima scada or another Modbus TCP master
- ◆ Whether the unit can reach your Wi-Fi where it will be mounted

Got a PLC nobody can see?

Tell us what is on the bus. We will tell you whether the gateway will talk to it, and prove it on site before you pay for a SCADA.

067 630 5732 · kpjmachines@gmail.com



About KPJ Automation

KPJ Automation is an independent industrial controls and automation house in La Mercy, KwaZulu-Natal, and the maker of the ilima range. Stephan Roets brings more than ten years of hands-on plant experience to every job: design, panel build, installation, commissioning and breakdown support. KPJ designs, builds and supports every ilima product itself, so the person who wrote the firmware is the person who answers the phone.

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