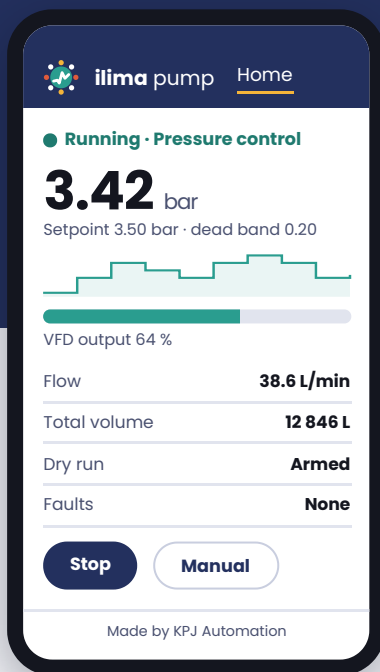


SMART CONTROLLERS · PRODUCT INFORMATION

ilima pump

Pressure and supply control for a single pump — with dry-run, overpressure and sensor-fault protection built in, and the whole thing on a web page.

**3**

protections built in: dry run,
overpressure, sensor fault

0–100 %

analogue output to drive a
VSD

1 page

to set and watch it, on any
phone on site

WHAT IT IS

A pump that holds pressure and tells you why it stopped

A pressure switch and a contactor will run a pump. They will not tell you why it tripped at two in the morning, they will not stop it running dry, and they will not hold a steady pressure while demand swings.

ilima pump does. It reads your pressure transmitter, drives a VSD with a 0–100 % analogue output, and holds the setpoint. It watches for dry running, overpressure and a failed sensor, and it latches the fault with the reason recorded rather than simply cycling until something breaks. Everything is set and monitored from a web page on your phone.

Signs you need one

The pump has been replaced more than once and nobody is sure why. Pressure at the far end of the system rises and falls through the day. There is a pressure switch doing the control and a person doing the monitoring. The borehole or sump occasionally runs dry and the pump keeps going.

BENEFITS

What it changes on the pump

◆ Pressure holds instead of swinging

Closed-loop control against a transmitter, with an adjustable dead band, rather than a switch snapping on and off.

◆ Faults are named and latched

Dry run, overpressure and sensor fault are distinct states — the operator sees which one, not just a dead pump.

◆ You can see it from anywhere on site

Web dashboard on any phone or laptop, with MQTT if you want it in a wider system.

◆ The pump stops before it cooks

Dry-run detection with a settable time, plus a float or level input, protects the pump when the source runs out.

◆ Controlled restart, not endless cycling

Restart delay and a limited number of auto-restart attempts, then it stays down and waits for someone.

◆ Measurement you can trust

4–20 mA or 0–10 V selected in software, two-point calibration, and flow metering by pulse input with a running total.

CONTROL AND PROTECTION

Two ways to run, four ways to protect

Pressure control

- ◆ Closed-loop against a pressure transmitter
- ◆ Adjustable setpoint and dead band
- ◆ Minimum-pressure limit
- ◆ 0–100 % analogue output to the VSD
- ◆ Pressure trend on the dashboard

Supply mode

- ◆ Float — fill on a level switch, stop when satisfied
- ◆ Timer — run for a set duration, a set number of times per day
- ◆ Volume — deliver a target volume per interval, measured by flow meter
- ◆ Next-run countdown on the dashboard

Protection & faults

- ◆ Dry-run detection with settable time
- ◆ Overpressure limit with settable time
- ◆ Sensor-fault detection on the analogue input
- ◆ Each protection individually enabled
- ◆ Faults latch with the cause recorded
- ◆ Limited auto-restart attempts, then hold
- ◆ Hard-wired reset input as well as the web button
- ◆ Fault state on a relay for a beacon or a PLC

Where this fits against a panel build. ilima pump is a single-pump unit with its own web interface. For a duty / assist / standby set holding constant pressure across two or three pumps with automatic duty rotation, ask for the KPJ Multi-Pump Control panel sheet instead — that is a PLC and VSD panel, not a smart controller.

SPECIFICATION

Technical specification

ITEM	DETAIL
Controller	Industrial ESP32 I/O board, DIN-rail mounted, with KPJ firmware
Relay outputs	4 × volt-free relay contacts, 10 A rated
Digital inputs	4 × NPN opto-isolated inputs
Analogue inputs	2 × 0–10 V and 2 × 4–20 mA
Analogue outputs	2 × 0–10 V or 4–20 mA, DIP-switch selectable
Serial	RS-485 bus
Supply	12 V or 24 V DC
Interface	Built-in web dashboard — any browser on the same network, no app to install
Network	Wi-Fi, with access-point fallback if the network is unavailable
Settings	Held in non-volatile memory — they survive a power failure
Remote	MQTT and Blynk cloud options; over-the-air firmware update
Pump output	Relay for pump run, plus 0–100 % analogue output for VSD speed
Process input	Pressure transmitter on 4–20 mA or 0–10 V, two-point calibrated
Other inputs	Float / level switch, flow meter pulse input, remote fault reset

Control modes	Pressure control, or Supply on float, timer or volume
Protections	Dry run, overpressure, sensor fault, float — each independently enabled

One board, several jobs. Every ilima controller runs on the same industrial ESP32 I/O board — DIN-rail mounted, 12/24 V DC, with four relay outputs, four opto-isolated inputs, analogue in and out, and an RS-485 port. What changes is the firmware written for it. That means a common spares holding, one wiring standard across your site, and a unit that can be re-tasked instead of replaced.

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

Borehole and well pumps	Building and estate pressure sets	Irrigation supply pumps
Tank and reservoir fill control	Transfer and sump duty	Process water supply

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

- ◆ Motor nameplate details — kW, voltage and full-load current — and whether there is already a VSD or a starter
- ◆ The pressure you need to hold, and what the system does today
- ◆ Where the water comes from: tank, sump, borehole or municipal main
- ◆ Whether there is a pressure transmitter fitted, or a tapping point for one
- ◆ Whether a dry-run or level device already exists at the source

Pump failed once too often?

We will look at what is controlling it now, and tell you honestly whether a controller fixes it or the problem is somewhere else.

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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