

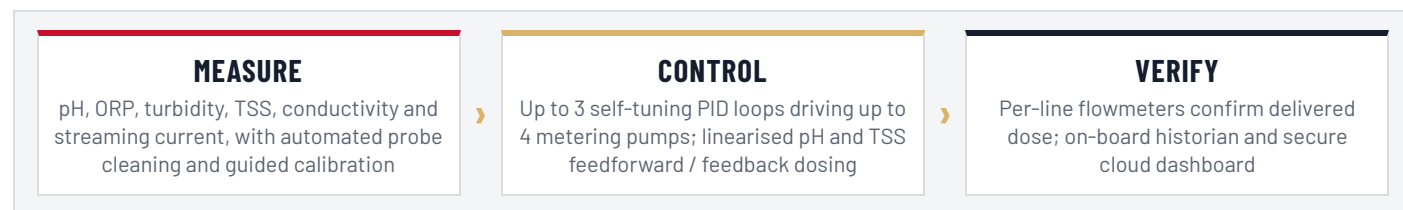
IIOT GATEWAY

DAF process and chemical dosing controller

TECHNICAL DATASHEET
ASI-DS-IIOTGW REV B · 08/2026

The Archer IIoT Gateway is a purpose-built controller for dissolved air flotation and chemical treatment systems. It combines multi-pump chemical metering control, closed-loop dosing strategies, integrated sensor and pump calibration and secure cloud connectivity in a single 7-inch touchscreen package. It replaces open-loop dosing and manually tuned loops with measured, verified, self-tuning automation, for plants where effluent quality and chemical consumption both matter.

HOW IT WORKS



KEY FEATURES

- Adaptive linearised pH control, stable across the full titration curve
- TSS-based polymer dosing: feedforward on influent load with underflow feedback trim, single or dual TSS probes
- Up to 4 chemical metering pump channels: organic or inorganic coagulant, polymer, acid, base
- Up to 3 independent PID loops with built-in autotune and suggested parameters
- Individual flowmeter input per chemical line for verified real-time ppm dosing
- Integrated calibration for dosing pumps, pH, ORP, turbidity, TSS and conductivity
- Automated sensor cleaning: solenoid outputs for air or water injection
- Streaming current analyser support for coagulant optimisation
- On-board historian with live parameter and historical trend screens
- Secure MQTT cloud streaming with remote dashboard visibility

CONTROL CAPABILITIES

Chemical pump channels	Up to 4 metering pumps: 4–20 mA speed reference or pulse output, run/enable relay, run and fault feedback per pump
Control modes	AUTO (closed-loop), MAN (manual speed %), fixed-dose ppm, dose control ON/OFF per pump
PID loops	Up to 3 independent loops, direct or reverse acting; per-loop autotune with process characterisation and operator-reviewed parameters
pH control	Adaptive linearised control across the full titration curve; suitable for acid and caustic neutralisation
Polymer control	Feedforward mass-loading term (influent TSS × flow) with underflow TSS feedback trim; single or dual probe
Coagulant optimisation	Streaming current based dosing with operator setpoint
Dose verification	Per-chemical flowmeter input closes the loop between commanded and actual dose (GPH / ppm)
Alarming	Configurable process alarms with local annunciation and remote notification



7-inch panel-mount faceplate, pump control screen shown.

HARDWARE SPECIFICATIONS

Controller platform	64-bit quad-core ARM Cortex-A72 industrial compute module at 1.5 GHz; 4 GB RAM (8 GB optional); industrial eMMC storage; hardened embedded Linux. No moving parts, no fans
Display / HMI	7-inch industrial TFT, LED backlit, 1024 × 600, HDMI; projected-capacitive multi-touch, usable with wet fingers and gloves; panel-mount faceplate
Sensor interfaces	Modbus RTU (RS-485); Modbus TCP/IP or EtherNet/IP over Ethernet; isolated 4–20 mA / 0–10 V analogue. Mixed configurations supported
Digital / pulse inputs	Dry-contact status inputs (pump run and fault); pulse or frequency inputs for chemical flowmeters
Outputs	4–20 mA analogue and relay outputs for pump speed, enable and alarm functions
Sensor cleaning outputs	Dedicated solenoid outputs for air or water injection; configurable cycle interval and duration with measurement hold during cleaning
I/O expansion	Modular remote I/O over Modbus TCP bus coupler; field-expandable terminal I/O
Power supply	24 VDC nominal (18–30 VDC), approx. 15 W typical
Environment	0 to 50 °C operating; IP65-rated front panel, panel-mounted

SUPPORTED INSTRUMENTATION

Water quality sensors	pH, ORP, turbidity, TSS, conductivity, over Modbus RTU, Modbus TCP/IP, EtherNet/IP or 4–20 mA
Special analysers	Streaming current detector (SCD) for charge-based coagulant control
Flow measurement	Individual chemical-line flowmeters (pulse or 4–20 mA); process feed flow input
Sensor cleaning	Solenoid-driven air or water injection keeps probes clean in high-fouling streams and reduces drift between calibrations
Calibration	Guided on-screen routines for all connected sensors and metering pumps, with buffer and standard workflows

COMMUNICATIONS AND DATA

Fieldbus	Modbus TCP/IP and EtherNet/IP over Ethernet; Modbus RTU (RS-485); master or slave operation
Cloud / telemetry	MQTT with TLS encryption; secure IIoT data streaming to cloud dashboard
Historian	On-board time-series historian; local trend screens (pH, SC, TSS, WQ) and historical data export
Remote access	Cloud dashboard for live parameters, trends and alarm status
Reporting	Automated daily performance reports (optional service)

ORDERING AND SUPPORT

Model	IIoT Gateway – DAF process controller
Configuration	Factory-configured to application: pump count, sensor suite, control strategy
Commissioning	Guided setup with per-loop autotune; remote commissioning support available
Warranty and service	Contact Archer Separation for warranty terms and service plans

Configure a Gateway for your application. Tell us the DAF or dosing duty, the chemicals, the pumps and the instruments already fitted, and Archer will configure and quote a Gateway for it. The scoping questionnaire in the product brochure collects what we need. Archer Separation Inc., 1150–1971 Broadway St., Port Coquitlam, BC V3C 0C9, Canada · toll-free (888) 588-0480 · info@archerseparation.com

Preliminary. Specifications are typical and subject to change without notice; final configuration is confirmed in Archer's scope of supply.