



Chemical solution temperature control

With Network Instrumentation Modules, better throughput & smaller footprint!

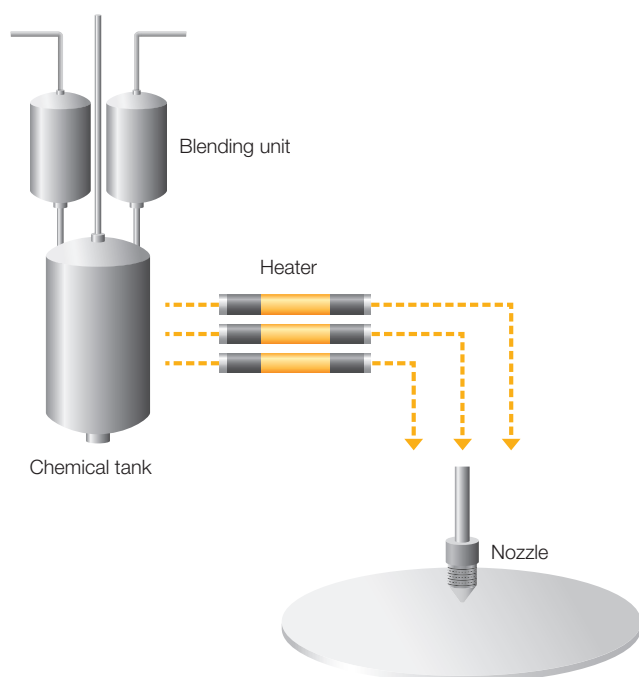


Product name	Controller Network Instrumentation Modules
Model No.	NX-____

Process and equipment name	Front-end process, single wafer cleaning equipment
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Current Situation

- The chemical solution used for SPM cleaning generates heat when blended, and the temperature takes a long time to stabilize in the chemical solution tank.
- Temperature is also adjusted in the piping to keep it consistent while the chemical solution is sent from the tank to the cleaning nozzle.



Current Issues

Problem 1

To improve throughput, we need to suppress overshoot caused by the heat of reaction in order to reduce the startup time when replacing the chemical solution.

Problem 2

We have many cleaning chambers and need to minimize the controller footprint and the wiring work, even though the number of temperature control points in the piping and heater wire break monitoring points are increasing.

Solution 1

High-speed settling logic of the Just-FiTTER algorithm

Azbil's unique algorithm suppresses overshoot, allowing significantly faster equipment startup.

Solution 2

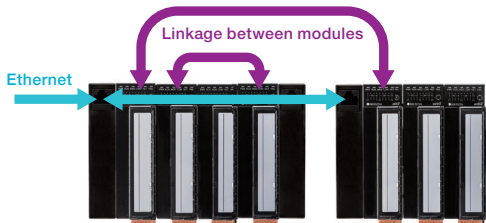
Four-channel current transformer input

A single module can supply PID control to four loops, and it is equipped with four current transformer inputs. The footprint of this compact module is just half that of the previous module.

Solution 3

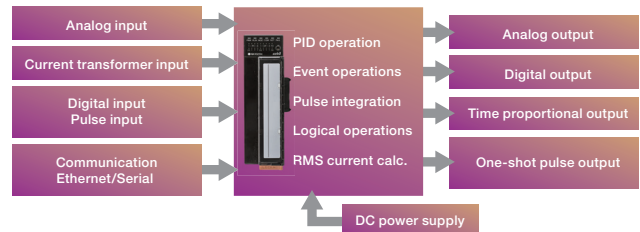
Standard Ethernet support allows for concatenated or distributed layout

Concatenated layout using Ethernet reduces communication wiring.



Concatenated operation and distributed layout

- Power supply, control, and communication are consolidated into a single module.
- I/O signals can be linked between modules.
- *Concatenated use with Ethernet reduces communication wiring and saves space.
- Even in a distributed layout, modules can be linked in the same way as when they are concatenated.

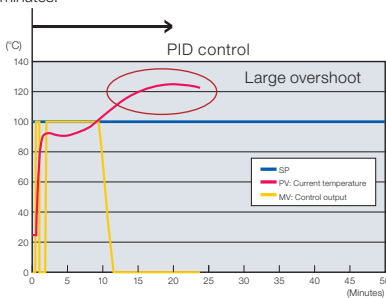


Single operation

- Power supply, control and communication are consolidated into a single module.
- In addition to PID control, a Network Instrumentation Module can provide analog value monitoring, flow rate pulse input totalization, and simple logical operations through digital I/O (available functions depend on the module type).
- Since modules are controlled only by setting their parameters, they are easier to handle than a PLC.

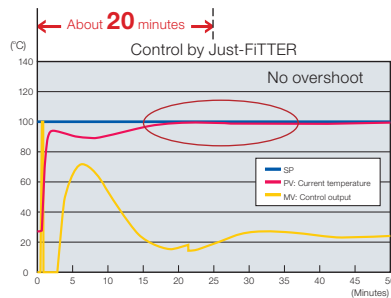
Conventional PID

Heat of reaction causes a large overshoot, so the actual temperature is very different from the SP even after 30 minutes.



Just-FiTTER

With Just-FiTTER suppressing the overshoot, the SP is reached in about 20 minutes.



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<https://www.azbil.com/products/factory/order.html>

Related product



Network Instrumentation Module Smart Device Gateway* Model NX-SVG

This multivendor IoT gateway establishes a data link between devices using Ethernet and devices using RS-485 without requiring a communication program.

* A communication gateway that allows the interchange of information between various kinds of control device without programming, enabling smarter development work.

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