

Tres-Ark Control Solution Modules

THE COMPLETE SOLUTION - ALL LEVELS OF CONTROL

Tres-Ark incorporates decades of semiconductor equipment and process expertise to provide component qualified products and platforms. Tres-Ark blending products are turn-key solutions for implementing real-time closed loop control and dispense of multi-variant chemical mixes to meet exacting requirements in advanced semiconductor wafer processes. The 200 and 300mm production qualified solution is Tres-Ark's complete hardware and software set including patented apparatus, method, and control. Tres-Ark offers the following levels of control technology:

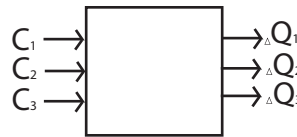
- Continuous feed-forward/feed-back control
- Batchwise and continuous feed-back control
- Feed-forward only control - to achieve Tres-Ark level of performance requires apparatus and method

Advantages -

- Ensures that well mixed and precisely blended solution is continuously available
- Patented solution resolves the problems associated with spiking, especially unconfirmed spiking or volumetric spiking
- Measures chemical flow rate and usage
- Chemical Management

FEED-FORWARD CONTROL MODULE

Ideal solution for Point-of-Use control for flowing systems.

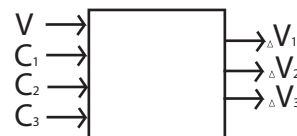


Advantages -

- Anticipates interactions between outputs and inputs
- Controls both flow and concentration simultaneously
- Model-based controller is tuned using easily measured quantities

FEED-BACK CONTROL MODULE

Ideal module for batch blending, static or vessel applications.

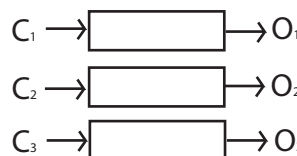


Advantages -

- Anticipates interactions between outputs and inputs
- Ideal for sparse-iteration systems such as spiking

STANDARD CONTROL - PID METHOD

Static Response - Response determined only by error magnitude and not by other relevant process variables.



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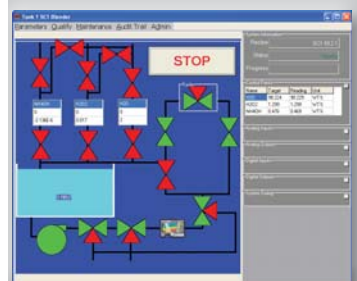
Footprint of the TAKLDM

depth - 31"
width - 34"
height - 63.43"

Intellectual Property Portfolio

4 US Patents Pending
3 Taiwan Patents Pending
1 Singapore App. Pending
1 Provis. Patent Pending
3 PCT Filings Finished
2 US Patents Awarded:
7,198,753 B1; 7,281,840 B2
2 US Patents Approved:
11/484,014; 11/484,020

Graphic User Interface



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