

DFD

Dynamic Fault Detection

DETECT ●
ANALYZE ●
PREDICT ●
ADAPT ●

Next-Generation Fault Detection Offers Full Trace Analysis Overcoming the Limitations of Legacy FDC Systems

To realize the full potential of smart manufacturing, customers can no longer afford to count on legacy FDC systems alone for accurate fault detection. Traditional FDC relies solely on summary trace data from sensors for fault detection. As a result, small changes in sensor behavior can go undetected, resulting in a potentially catastrophic impact on yield. In addition, modeling FDC systems is a highly time-consuming proposition. BISTel's new Dynamic Fault Detection (DFD) system overcomes these challenges by offering full trace data coverage and increases productivity by eliminating the need for timely and costly modeling. DFD is a bridge to smart factory manufacturing because it can also integrate seamlessly to legacy FDC systems.

Accurate Fault Detection

Sensor trace data contains a wealth of information that helps manufacturers quickly identify potential yield issues, including ramp rate changes, spikes, glitches, shift, and drift. Recognizing the importance of sensor trace data, BISTel's first of its kind, online Dynamic Fault Detection (DFD) system, lowers these risks by offering manufacturers the only real-time monitoring and detection of full sensor trace data. Customers can now quickly detect yield impacting events by monitoring 100 percent of the data, 100 percent of the time.

Intelligent Manufacturing

BISTel's intelligent manufacturing solutions are shaping the factory of the future, improving costs, operational efficiencies, and quality across factories by connecting the manufacturing ecosystem to better detect, analyze, predict, and adapt real-time to changing manufacturing conditions. BISTel solutions collect, manage, and analyze data, monitor the health of machines and equipment, optimize process flows, and identify root cause failures to mitigate risk in manufacturing. The release of BISTel's intelligent manufacturing solution includes advanced machine learning, industry leading analytics, predictive, and continuous improvement applications that accelerate the road to smart manufacturing.

Markets Served

- Semiconductor Manufacturing
- Semiconductor Equipment Manufacturers
- Printed Circuit Board (PCB) Manufacturing
- Flat Panel Display Manufacturing
- LED Manufacturing

Key Benefits

- Real-time monitoring improves product quality and yield
- The elimination of SPC modeling increases engineering productivity
- Reduce risk of yield impacting events
- Shorten production ramp-up time for new products

Key Features

- Dynamic modeling adapts to natural system changes
- Full sensor trace analysis captures all abnormal signals
- Intelligent alarming reduces overall alarms
- Data behavior analytics enables system drift detection
- Flexible system deployment options: on premise or on cloud



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Comparison : Traditional FDC vs Dynamic Fault Detection

Traditional FDC

- ✗ Limited to monitoring summary data
- ✗ Long time to set up
- ✗ High rate of false and nuisance alarms

DFD for Best-in-Class Fault Detection

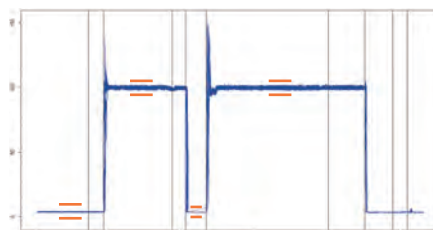
- ✓ Analysis done on the full trace data
- ✓ No modeling or limits are required
- ✓ False alarms are reduced by 10X

	Traditional FDC	Dynamic Fault Detection
Model Creation, Validation & Deployment	7-10 weeks	< 1 week
Model Maintenance	Ongoing	None Required
Typical Alarms Rate	100-500/chamber-day	<50/chamber-day
% of Number of Sensors Coverage	50-60%	100% as default
Trace Segment Coverage	20-40%	100%

Per Recipe/Tool Type

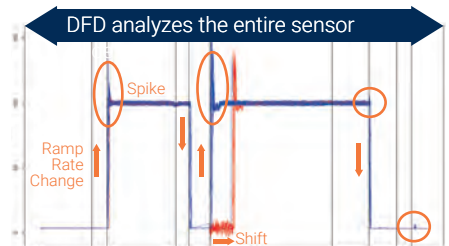
Traditional FDC

Trace data is summarized and monitored only at certain recipe step(s) - subtle trace details are not captured



BISTel DFD Solution

DFD captures information on the entire trace - all details are captured including spikes, shifts, and ramp rate changes



Use Case

Traditional FDC



BISTel DFD Solution

