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ESD Sensing & Process Monitoring

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Multi-channel Field Voltage Detection

NOVX SERIES 3350/3360/3370/3390

ION Systems series of Novx Multi-channel Field Voltage Detection Systems provides the capability to simultaneously detect, measure, record and monitor electrostatic field voltages in multiple locations, The versatile antennas used with these systems allow their use in a variety of applications including monitoring sensitive workstations, in-tool voltages, or ionizer performance with the option of closed-loop control to select ionizer products. Up to 3 sensors can be connected to an individual instrument. This multi-channel capability provides a cost-effective monitoring solution for multiple areas or ionizers. Data input is actively monitored and logged with time stamps using Calibrator Reader. The instruments have user settable thresholds and alarm levels that provide a proactive safeguard for critical areas when interfaced to an alarm output. Out of range conditions can trigger a remote alarm light or audible alarms, shut down a critical process, or make adjustments to an ionizing fan.

Features & Benefits

- Digital, microprocessor-based controllers, multi-channel, digital I/O, auxiliary I/O, local addressability, RS-485, and Modbus data output
- Multiple antenna configurations including passive, active, and high speed electrometer
- Precision resolution
- Programmable closed-loop control
- Programmable alarm set-points with tool shutdown option
- Voltage/polarity displays, local red/green LEDs each channel
- Provides easy integration, cost/performance advantages over other monitoring solutions, direct communication to other Novx instruments, a tool controller, or PEMS
- Detect field voltage in a wide variety of applications: Monitor field voltage at distances, monitor ionizer balance, and perform In Situ decay testing without the added expense of a CPM
- Measure and record field voltage down to 0.1V
- Enable closed-loop feedback control to select ionizers based on balance or decay test results for up to 3 SSDC ionizer fans or a 3 fan blower
- Reduce process variations, decrease scrap/rework, and improve process yields
- Visual indicators at the instrument

Specifications

	3350	3360	3370	3390
Capacity	---------- 1, 2, or 3 fans (3350/3360 only) ----------			
Reporting Range	0 to ±100V	0 to ±30,000V	0 to ±30,000V	
Accuracy	±0.1V	±0.1V to 39V range dependent		
Audible Alarm Set-points	±0.5V, min	±0.5V, min	±39V, min	
LEDs each Channel	---------- Red/green, voltage polarity ----------			
Set-point Adjustments	Programmable	Programmable	Programmable	Programmable
Zero Balance Pots	Programmable	Programmable	Programmable	Programmable
Aux Out	---------- Relay Contact Closure ----------			
Output Signals	Digital	Digital	Digital	Digital
Antennas	up to 3 channels	up to 3 channels	up to 3 channels	up to 3 channels
Decay Testing		up to 3 channels		Channel 2 only
Communication	---------- Novx Com RS-485, Ethernet, Wireless ----------			
Digital Display	4-Digit	4-Digit	4-Digit	4-Digit
External Power Supply				
Input	---------- 100V-240V, 50/60 Hz ----------			
Output	---------- ±12 VDC, +5 VDC ----------			
Dimensions	1.75W x 6.5D x 6H in. (4.4W x 16.5D x 15.2H cm)			
Weight	1.8 lb (.82 kg)	1.8 lb (.82 kg)	1.8 lb (.82 kg)	1.8 lb (.82 kg)
Enclosure	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

Special Features

These instruments incorporate 3 channels which include 3 real-time voltage displays and 3 sets of red/green LEDs to indicate the status of each channel. Each system interfaces with the Novx Calibrator Reader for full setup, visual monitoring, and logging capability. Files can be exported for Excel graphing and analysis. These instruments can operate as stand-alone systems, interface to the process for initiated response, or be connected to the DART2 and PEMS for factory wide monitoring and statistical process control. PEMS software interfaces to any mix of up to 1,024 Novx instruments, providing remote monitoring and control capabilities.

Calibration

Instruments are shipped calibrated and certified. Calibration must be validated annually to meet ISO certification compliance requirements.

Customer Support

Technical support, customer training, and optional extended Service Agreements are all available. Contact your sales representative for details.

Applications

The **Novx Passive Detection System, Series 3350** connects with passive antennas to detect low level field voltage change and ion current (≤400V) with sensitivity down to 1V. Antenna connection configurations:

- Monitor field voltages on moving targets
- Monitor ionizer balance
- Provide closed-loop control to ionizer fans
- Distinguish the proximity of field voltages from steady state DC ionizer signals

The **Novx Active Detection System, Series 3360** connects to active antennas, providing the same field voltage and ion current detection capability as the 3350 with the addition of decay tests. The powered antenna acts as a charged plate monitor (CPM) to periodically measure ionizer discharge times at programmable frequencies.

Antenna connection configurations:

- Monitor field voltages on moving targets
- Monitor ionizer balance
- Provide closed-loop control to ionizer fans
- Distinguish the proximity of field from steady state DC ionizer signals
- Perform decay testing automatically or on demand

The **Novx Remote Voltage Detection System, Series 3370** connects to the Remote Voltage Sensor (RVS), a very small, high speed electrometer designed to directly measure changes in free space potential. The RVS can measure field voltage change at distances from 3 inches to >10 feet, making it a flexible sensor for a wide variety of applications, The sensor's can detect voltage changes at very fast process speeds and through non-attenuating materials, enabling it to be used for detection of voltages in difficult applications. Antenna connection configurations:

- Detect the field voltage change when a charged object enters an area, for wide-area room or local workstation monitoring where sensitive products may be present.
- Embed into process tools to monitor process voltage through Teflon chambers or vacuum viewports
- Monitor field voltage on targets in fast moving auto-mated processes.

The **Novx Multi-function Detection System, Series 3390** dedicates 1 channel to passive detection, 1 to active detection, and 1 channel to RVS; providing the user with a comprehensive system for design work or applications where all 3 types of detection may be required.

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ION Systems
1750 North Loop Road
Alameda, CA 94502
Tel: 800.367.2452 (in USA)
Tel: 510.217.0600
info@ion.com

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