

# Alarm System Feature Application Note

July 2007, Revision - A

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## Alarm System Deviation Feature

The Alarm System has been enhanced with the addition of deviation checks and programmable delays. The alarm system monitors process variables and provides alerts through application status messages and/or Fax/Email Alerts. The Alarm System is separate and independent from any chamber, controller or external alarm systems.

The alarm system screens have been changed due to the addition of deviation checking along with programmable delays. The main screen as shown in the graphic below has four tabs labeled 'Control', 'Limits', 'Deviations', and 'Alarm Status Summary'.

In general, the alarms (limits) can be set (value dependent on specific controller ranges) to monitor high limit, low limit or both conditions on both channels with a delay from 1 to 9999 seconds each. The deviation checks (-999.9 to 999.9) can be set to monitor high, low or both conditions on both channels with a delay from 1 to 9999 seconds each. These settings are saved so they can be recalled when the chamber window is later restarted.

LinkTenn32 displays a message in the chamber window status message area when an alarm activates or clears. An option is available to display alarm activation and clearing times on the chamber window graph tab. The 'Alarm Status Summary' page displays alarms that are enabled (if any) and their activation and clearing times.

Please refer to latest LinkTenn32 User Manual for detailed instructions on using this new feature.

### Alarm / Deviation feature

VERSATENN 3 TEST CHAMBER

CON DIS ON - 1 OFF - 1

Status: Hold Mode

Alarms Setup

Control Limits Deviations Alarm Status Summary

Enable Limit Alarm  
 Enable Deviation Alarm  
 Enable Fax / Email Alert  
 Show Alarms on Graph

Channel 1 °F		Channel 2 %RH	
Set Point	Actual	Set Point	Actual
48.3	88.5	0.0	88.0
CH1 HIGH ALARM	DELAY	CH2 HIGH ALARM	DELAY
CH1 LOW ALARM	DELAY	CH2 LOW ALARM	DELAY
CH1 HIGH DEV	DELAY	CH2 HIGH DEV	DELAY
CH1 LOW DEV	DELAY	CH2 LOW DEV	DELAY

Process Data Graph Alarms Logging Events Profiles Msgs Info

Status Messages Elapsed Time 00:00:09:58

88.5 °F | 48.3 °F < Ch 1 Chamber 1 : Temp - Humidity Ch 2 > 88.0 % | 0.0 %

RS232 : Connected

Alarms and alert messages appear here.

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## The Alarms Calculation

The formulas used to calculate Alarm or limits alerts for channel 1 or channel 2 are as follows:

Alarm High = CHANNEL ACTUAL > ALARM HIGH SET and (DELAY = 0)

Alarm Low = CHANNEL ACTUAL < ALARM LOW SET and (DELAY = 0)

Where 'CHANNEL ACTUAL' is the measured channel value (C1 or C2). ALARM HIGH SET or ALARM LOW SET values are user settable limits whose values are limited to controller channel range limits. DELAY is a user settable value from 1 to 9999 seconds.

## The Deviations Calculation

The formulas used to calculate a deviation alert for channel 1 or channel 2 are as follows:

Deviation High = CHANNEL ACTUAL > (DEVIATION HIGH SET + CHANNEL SET POINT) and (DELAY = 0)

Deviation Low = CHANNEL ACTUAL < (CHANNEL SET POINT - DEVIATION LOW SET) and (DELAY = 0)

Where 'CHANNEL ACTUAL' is the measured channel value (C1 or C2). DEVIATION HIGH SET or DEVIATION LOW SET values are user settable limits whose values are limited to -999.9 TO 999.9. DELAY is a user settable value from 1 to 9999 seconds.

## About Tidal Engineering

Headquartered in Randolph, NJ, Tidal Engineering Corporation has been designing and building award winning embedded hardware and software for test and measurement and data acquisition applications since 1992. The company further provides product development services together with engineering support, and is recognized for technical expertise in such areas as Embedded IEEE 488, and turnkey SCADA (Supervisory Control and Data Acquisition) systems. Tidal's products are available exclusively through ADI American Distributors Inc., an ISO-9002 certified distributor of electronic and electromechanical components and assemblies.

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