AS-330R Datasheet

Next Generation Real-time Embedded Combustion Dynamics Monitoring System

NEXT GENERATION COMBUSTION MONITORING

The AS-330R CombustionGuard™ system is a product of over a decade of operational experience monitoring combustion dynamics in gas turbine engines. The system brings sophisticated monitoring algorithms, multiple control outputs, and instrument grade signal processing to a robust embedded platform that is highly configurable, but easy to maintain.

PROVEN INDUSTRY LEADER

Alta Solutions CDMS systems have logged over 10 million operational hours and the lessons learned through the deployment of these systems have been incorporated in the AS-330R CombustionGuard™.

RUGGED AND SCALABLE DESIGN

The system is designed to provide years of operation through an entirely solid state design. The system can be coupled with a traditional AS-250 monitor for local and remote display, archiving, and remote communication, while providing a scalable platform that gives the user the embedded protection features needed.

TRUE EMBEDDED PROCESSING

Monitoring is truly real-time and events that drive alarms, control outputs, warnings, etc. are immediate. The system can monitor a rich set of parameters related to combustion pressures, engine state, emissions, fuel parameters, and power production. The system is capable for integration with logic included in the engine controls.   Engine parameter set points can be improved continuously as data is accumulated.

SUPPORTS WIDE RANGE OF SENSORS

The AS-330R CombustionGuard™ system easily pairs with a variety of sensor types and incorporates sensor quality metrics to help ensure that the measured parameters used for monitoring and control decisions are accurate.

EASE OF SETUP AND USE

Setup of the system is accomplished with a simple application that can be used to program and read the settings for the system. The ease of setup, ease of use, reliable operation, and real-time processing of the AS-330R CombustionGuard™ make the system the best solution for combustion dynamics protection and monitoring available today.

ANALOG INPUTS

Number of Analog Inputs	10, 12, 14, 16, 18, 20
A/D Resolution	24 Bits
Sampling	All inputs simultaneously sampled
Dynamic Range	110 dB (typical)
Signal-to-Noise Ratio	110 dB (typical)
Input Voltage	-24 V to +24 V
Input Impedance	100 KOhm
Frequency Spans	10, 20, 40, 50, 100, 200, 400, 500, 1000, 2000, 4000, 5000
Amplitude Error	Less than 1%
Phase Error	± 1° between channels
Connector Type	BNC or Terminal Strip
Input Circuit	Single ended
Programmable Coupling	AC, DC, and IEPE
Sensor Quality Detection	Upper and Lower IEPE Voltage Bias Limits
IEPE Power	3.5 mA, from 24 VDC
AC Coupled Cutoff Frequency	Variable - Frequency Span / 6400

DIGITAL INPUTS

Connector Type	2-Pin Terminal Plug Isolated contact closure sensing Biased internally
Actions	Inhibit Reset Alarm Latch
Activation	<1k Ohm (shorted)
De-activation	>10k Ohm (open)
Isolation	Common mode (2500Vpeak)

DIGITAL OUTPUTS

Connector Type	3-Pin Terminal Plug Normally Open (N.O.) Common (COM) Normally Closed (N.C.)
Trigger On	Danger and Alert Alarms Diagnosis
Relay Type	1 Form C, SPDT
Contact Rating	6A @ 28 Vdc or 300 Vac
Operating Time	5 msec typical
Release Time	2 msec typical
Max Switched Power	180 W or 1800 VA
Max Switched Current	6A
Max Switched Voltage	150 Vdc or 300 VAC

4-20mA ANALOG INPUTS

Connector Type	3-Pin Terminal Plug (+, -, E) + = 4-20mA Loop Input - = 4-20mA Loop Output E = Chassis ground
Type	Isolated input
Isolation	Common mode (2500 Vpeak)
Resolution	10 uA
Sampling Rate	100 Hz
Resistance	160 Ohm

4-20mA ANALOG OUTPUTS

Connector Type	3-Pin Terminal Plug (+, -, E) + = 4-20mA Loop Source - = 4-20mA Loop Return E = Chassis ground
Type	Non-isolated output, All outputs share common
Resolution	10 uA
Update Rate	Typical 10 msec (process loading dependent)
Loop Supply Voltage	24 Vdc supplied internally
Loop Resistance (external load)	800 Ohm maximum

ALARM SETTINGS

Alarm Types	Danger Alert
Alarming Signals	Dynamic Channels Current Inputs
Criteria	Overall Spectrum Window Energy Band Current Input Threshold
Boolean Logic	AND, OR, NOT
# of Diagnoses	25 Boolean Expressions
Threshold Types	Upper Lower In-Range Out-Of-Range
Latch Types	Latching and Non-Latching
Alarm Delay Time	0 to 600 seconds

DATA STREAM AND CONFIGURATION PORT

Configuration Protocol	Ethernet 100 Base-TX, IEEE 802.3u
Configuration Connector	Option EC = RJ45 (CAT 5/6 cable) Option EF = Fiber Optic LC receptacle (62.5/125um multimode fiber)

MODBUS PORT

Control Interface Protocol	Modbus RTU (RS-232)
Control Interface Connector	DB-9
Baud Rate	9600, 19200
Output Data	208 Holding Registers 236 Coils
Input Actions	Inhibit Reset Latch
Output Status	Health OK Alarms Diagnosis Heartbeat Sensor Quality Relay Status

ENVIRONMENTAL

Operating Temperature	0 °C to 60 °C (32 °F to 140 °F)
Storage Temperature	-55 °C to 80 °C (-67 °F to 176 °F)
Relative Humidity	10 to 85%

POWER INPUT

Voltage Range	90-250 VAC 50-60 Hz

PHYSICAL SPECIFICATIONS

Dimensions (Width)	49.53 cm [19 in]
Dimensions (Depth)	37.3 cm [14.7 in]
Dimensions (Height)	8.9 cm [3.5 in]
Weight	4 Kg [8.6 Lb]
Construction	Steel face plate and aluminum body

ORDERING INFORMATION

Ordering Model Number Format: AS-330-CXX-P0-IX-EX-IO1-SD-PAC-MRM

Analog Channels Inputs	C10, C12, C14, C16, C18, C20
Input Type	IT = Terminal Strips IB = BNC Connectors
Ethernet Connector Type	EC = Copper EF = Fiber Optic
I/O	IO1 = Ten 4-20 mA Inputs, Ten 4-20 mA Outputs, Four Digital Inputs, and Four Relays
Streaming	SD = Streaming Option
Power Input	PAC = AC Inlet Module
Mounting	MRM = 17" Rackmount

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