ZooCADA®

Zoological Control And Data Acquisition System

The ZooCADA® system is a modular, networked, software and hardware solution designed to automatically monitor, record, and control animal enclosure environments, and back-of-house plant, at zoological parks.

★ Control enclosure climate and lighting with seasonal variation.

★ Collect enclosure climate data to support research and management.

★ Email enclosure temperature errors and other alarms to staff.

★ Enable staff to focus more on animal care and conservation tasks.

Meet The ZooCADA Family

ZooCADA-Log: Climate monitoring for exhibit enclosures.
- Monitor and log enclosure and external temperature and relative humidity measurements.
- Monitor and log enclosure soil moisture and temperature measurements. (Optional)
- Alarm email messages for enclosure temperature too high or too low, and other system events.
- Auxiliary sensors can be installed with adjustable logging interval and daily avg/min/max logged. (Optional)
- Datalogger web interface enables remote viewing of station measurements and other parameters.

ZooCADA-HVAC: Climate monitoring and control for exhibit enclosures.
- All ZooCADA-Log functions plus...
- Fully automated control of enclosure ventilation fan and air conditioning equipment.
- Enclosure climate maintained with automatic seasonal temperature variation using monthly setpoints.
- Run times of the ventilation fan and air conditioning logged as hourly and daily totals.
- Manual override controls.

ZooCADA-Life: Complete environment monitoring and control for nocturnal or diurnal exhibit enclosures.
- All ZooCADA-HVAC functions plus...
- Automatic four channel lighting controller designed for permanently installed, dimmable, lighting loads.
- Configurable channels for plant grow lights (Daylight lighting), and LED ribbon lights (Moonlight lighting).
- Gradual sunrise/sunset transitions between daylight and moonlight lighting scenes using dimmer crossfade.

ZooCADA-Lab: Environment monitoring and control for breeding labs and hospital rooms.
- All ZooCADA-HVAC functions, except soil sensors, plus...
- Lighting control designed for pluggable, non-dimmable, lighting loads.
- Lighting control user selectable for various diurnal and nocturnal operating modes.
- Auxiliary sensors preconfigured for nine portable temperature & RH sensors for microclimate monitoring.

ZooCADA-Store: Monitoring for food storage rooms.
- Monitor and log the temperatures of 3 food storage rooms, typically a walk-in Freezer, Fridge, and Pantry.
- Alarms for each room temperature too high or too low, power failure, and other system events.
- Door open too long alert sounder, and door left open alarm.
- Safety panic alarm to summon help if person trapped in a refrigerated room.
- Auxiliary sensors can be installed with adjustable logging interval and daily avg/min/max logged. (Optional)

ZooCADA-Met: Weather Station for climate monitoring.
- Monitor and log the air temperature, relative humidity, dew point, barometric pressure.
- Monitor and log solar radiation, rainfall and lightning strikes.
- Alarms for high wind speed, high rainfall, and high and low air temperature.
- Data shared via IP network to all ZooCADA stations on the network.

ZooCADA-Mod: Customisation Module.
- Add custom sensors, processing and/or data logging to ZooCADA stations for site specific applications.

ZooCADA is a modular, zoo-wide, networked, control and data acquisition system. Each station can operate standalone or as an integral part of a fully networked, zoo-wide, system with various stations performing different tasks. Using our modular approach, numerous stations, distributed over a wide geographic area, can be networked provided that network connectivity (typically the site's IP computer network) is available at each station.

Adena Scientific believes that accuracy and reliability are paramount requirements of any system used in applications that support animal welfare, so we purpose designed our ZooCADA software to meet zoological needs, and built it to run on dataloggers manufactured by Campbell Scientific Inc.

Adena Scientific Ltd

PO Box 756, Hamilton, New Zealand. Tel: (07) 829-7063 Email: sales@adena.co.nz

ZooCADA Stations Feature Matrix

	Life	Lab	HVAC	Log	Store	Met
Lighting Control Functions						
Portable Pluggable Lighting (Switched Loads)	O	Y	-	-	-	-
Permanent Enclosure Lighting (Dimmable Loads)	Y	-	-	-	-	-
Seasonal Variation of Day Length Automatic	Y	Y	-	-	-	-
Switched Changes Of Lighting Scene Automatic	O	Y	-	-		
Dimmer Controlled Sunrise/Sunset Crossfades Automatic	Y	-	-	-	-	-
Selectable Diurnal or Nocturnal Lighting Mode	Y	Y	-	-	-	-
Supplementary Heat or UV Lamps (Switched Loads)	Y	Y	-	-	-	-
HVAC Control Functions						
Ventilation Fan Control Automatic	Y	Y	Y	-	-	-
Air Conditioning Control Automatic	Y	Y	Y	-	-	-
Dehumidifier Control Automatic	Y	Y	-	-	-	-
Humidifier Control Automatic	Y	Y	-	-	-	-
Seasonal Variation of Temperature Automatic	Y	Y	Y	-	-	-
Daily Temperature Variation Within Setpoints Automatic	Y	Y	Y	-	-	-
Temperature Setpoints User Adjustable	Y	Y	Y	-	-	-
Enclosure Data Logging						
Air Temperature and Relative Humidity	Y	Y	Y	Y	-	-
Air Dew Point Temperature	Y	Y	Y	Y	-	-
Air Vapour Pressure and Vapour Pressure Deficit	Y	Y	Y	Y	-	-
Volumetric Soil Water Content	Y	-	Y	Y	-	-
Soil Temperature,100 mm Deep	Y	-	Y	Y	-	-
Enclosure Alarm Functions						
Temperature Too High or Too Low	Y	Y	Y	Y	-	-
Relative Humidity Too High or Too Low	Y	Y	-	-	-	-
Temperature/RH Sensor Failure	Y	Y	Y	Y	-	-
External Weather Data Logging						
Air Temperature and Relative Humidity	Y	Y	Y	O	O	Y
Air Dew Point Temperature	Y	Y	Y	O	O	Y
Air Vapour Pressure and Vapour Pressure Deficit	Y	Y	Y	O	O	Y
Barometric Pressure	O	O	O	O	O	Y
Solar Radiation	-	-	-	-	-	Y
Precipitation (Rainfall, Dew)	-	-	-	-	-	Y
Wind Vector Direction and Speed	-	-	-	-	-	Y
Wind Max Gust Direction and Speed	-	-	-	-	-	Y
Grass Minimum Temperature	-	-	-	-	-	O
Volumetric Soil Water Content	-	-	-	-	-	O
Soil Temperature (100 mm Deep)	-	-	-	-	-	O
External Alarm Functions						
Extreme High or Low Air Temperature	-	-	-	-	-	Y
High Rainfall	-	-	-	-	-	Y
High Wind Speed	-	-	-	-	-	Y
All-In-One Weather Sensor Failure	-	-	-	-	-	Y
Temperature/RH Sensor Failure	Y	Y	Y	Y	Y	-
Barometric Pressure Sensor Failure	O	O	O	O	O	-
Power Failure	Y	Y	Y	Y	Y	-
Special Purpose Data Logging						
Food Storage Temperature (Refrigeration) Monitoring	-	-	-	-	Y	-
SDI-12 Wall Sockets For Portable Sensors	-	O	-	-	-	-
Customisable With Additional Sensors	Y	Y	Y	Y	Y	Y
Special Purpose Alarm Functions						
Freezer/Fridge/Pantry Temperature Too High or Too Low	-	-	-	-	Y	-
Refrigeration Circuit Breaker Tripped	-	-	-	-	Y	-
Refrigeration Door Left Open	-	-	-	-	Y	-
Safety Panic Button Inside Refrigerated Rooms	-	-	-	-	Y	-

Y = Yes, O = Optional, - = No