

ZooCADATM - HVAC

Enclosure Climate Control & Monitoring System

ZooCADA-HVAC is a software program and hardware system designed to monitor, control, and record the climate and soil conditions of animal enclosures, typically indoor exhibits, at zoological facilities.

- ★ Automate the enclosure climate control system.
- ★ Maximise enclosure energy efficiency to reduce costs.
- ★ Record enclosure data to support research and management.
- ★ Enable staff to focus more on animal care and conservation tasks.



ZooCADA-HVAC Program Features

Data Logging

- Enclosure and external temperature and RH values logged every 10 minutes.
- Enclosure and external max, min and average temperature and RH values logged daily.
- Enclosure soil moisture content and soil temperature logged every hour. (Optional)
- Enclosure min, max and average soil moisture content and soil temperature logged daily. (Optional)
- Barometric pressure sensor with hourly logging. (Optional)
- Ventilation, air conditioning and dehumidifier run time each logged as hourly and daily totals.
- Electricity use in kWh logged as hourly and daily totals.
- Event log of last 1000 alarm and system control events.
- Datalogging memory of up to 1 year between downloads before memory overwrite.
- Data logged to ring memory so oldest data is overwritten first when memory full.
- Data files downloadable to Windows based PC using Campbell Scientific LoggerNet software.
- Data graphing from Windows based PC using Campbell Scientific LoggerNet software.

HVAC Control System

- Automatically controls ventilation and air conditioning.
- High and low temperature set-points for each month provide seasonal variation.
- External temperature and RH sensor values from local and/or networked remote stations.
- External temperature and RH averaging when two sensors available via stations on site.
- Enclosure temperature and RH averaging when two sensors installed in a single enclosure.
- When sensor averaging is used the system continues to run normally if one sensor fails.
- Alarm messages sent by email to staff if temperature is too high, too low, or if sensors fail.
- Manual override controls for ventilation fan and air conditioner.

Alarms

- Enclosure temperature too high or too low.
- Power failure. (The electricity supply to the enclosure has failed)
- Communications failure. (The station can't obtain data from another station)
- External Sensor Failure. (For stations with external air temperature and RH sensors)
- Enclosure sensor failure.

General

- Battery backup of datalogger 12V power so system keeps logging data during power failure.
- Alarms sent via email to staff if power fails, or if communications to a remote station fails.
- Communications to stations via LAN enables staff to monitor system operation.
- Communications to stations via LAN enables automated or manual collection of logged data.
- System maintenance from Windows based PC using Campbell Scientific LoggerNet software.

ZooCADA-HVAC is a station of our modular 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, up to 4000 stations, distributed over any 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 system to meet zoological needs, and built it to run on dataloggers manufactured by Campbell Scientific in the USA and available worldwide.

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