

# ZooCADA<sup>TM</sup> - Store

## **Refrigeration & Food Storage Monitoring System**

ZooCADA-Store is a software program and hardware system designed to monitor the refrigerated and non refrigerated food storage rooms in animal food preparation kitchens at zoological facilities.

- ★ Automatic monitoring of freezer, fridge and pantry temperatures.
- ★ Alarms raised if temperatures deviate from normal range.
- ★ Record food storage data to support research and management.
- ★ Staff safety panic alarm if person trapped in a refrigerated room.



# ZooCADA-Store Program Features

## Data Logging

- Logs current temperature in walk-in freezer, fridge and pantry rooms every 10 minutes.
- Logs daily minimum, maximum and average temperature of each room at midnight.
- External max, min and average temperature and RH values logged daily. (Optional)
- Barometric pressure sensor with hourly logging. (Optional)
- Electricity use in kWh logged as hourly and daily totals.
- Event log of last 1000 alarm, and other system events.
- Datalogging memory in excess of 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.

## Food Storage Temperature Monitoring

- Monitors air temperature in walk-in freezer, fridge and pantry rooms.
- Temperature monitoring range -35 to +50 degrees C.
- Each room has individual monitoring to accommodate different operating temperatures.
- Each room has individual high and low temperature alarm set-points.

## Storage Room Door Monitoring

- Automatically monitors open/closed state for each food storage room door.
- When door(s) open in excess of two minutes a piezo alert chirps every two seconds to alert staff.
- When door(s) open in excess of five minutes piezo alert sounds continuously, and alarm email is sent.
- Piezo alert can be manually silenced if a door has to be kept open for maintenance such as cleaning.
- Piezo alert automatically silenced when all doors returned to closed state.

## Alarms

- Power failure. (The electricity supply to the enclosure has failed)
- Temperature too high. Separate alarms for Freezer, Fridge, and Pantry.
- Temperature too low. Separate alarms for Freezer, Fridge, and Pantry.
- Sensor failure. Separate alarms for Freezer, Fridge, and Pantry.
- Panic button in each room to trigger piezo and email alarms if someone is trapped by a jammed door.

## 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-Store 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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