

Application Note – How hot is a broody emu?

Customer Requirements

Male emus are devoted parents. They do all the incubation of their partner's eggs. Given they neither eat nor drink while on duty, the client's research was into the physiological consequences of this dedicated eight-week fast. Also incubation often begins before the last couple of eggs are laid, these last laid eggs must develop 3-6 days faster than the others. A clutch of 9-11 eggs are laid over approximately 27-30 days. The client required accurate data from 54 recording channels and easy computer connection.



Equipment

DT500
Channel Expansion Module (CEM)
Radio transmitter
Radio Receiver
Anemometer

Sensors

Voltage sensors, Current sensors, Type 'T' thermocouples, Solar Radiation Sensor, Humidity sensor

Datataker Solution

Captured male emus were anaesthetized and implanted with miniature transmitters to monitor temperature and heart rate. One egg in their clutch was also fitted with a transmitter for the continuous recording of incubation temperature.

A receiver connected to the *dataTaker* data logger picked up radio signals from the transmitters. Environmental conditions were logged at the same time and all data downloaded to a computer every eight hours.

Voltage inputs were used for solar radiation and total radiation, current inputs for temperature and heart rate, and type 'T' thermocouples for air and dew point temperatures.

A high-speed counter channel was coupled with the square-wave voltage output from a cup anemometer to directly sum the number of revolutions per recording period, providing a convenient way of measuring wind speed. A voltage output channel pulsed the radio receiver each minute, switching it to receive data from the next transmitter.

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