Data Acquisition Module and Data Retention Module Specifications

The Data Acquisition Module connects digital, analog, and SDI-12 sensors to a LI-COR eddy covariance system. The Data Retention Module provides data logging and smart system controls that prioritize sensors if the power supply is compromised. This document describes the specifications of the two modules.

Data Acquisition Module (DAqM)

- **Configuration interface:** Windows® and macOS graphical programming
- **Analog inputs:**
  - Single-ended inputs: Up to 18 or
  - Differential inputs: Up to 9 (each differential input occupies two single-ended inputs)
- **With built-in excitation voltage:** 2, 5 V, 25 mA
- **With selectable current or voltage:** 2
- **Resolution:** 24 bit
- **SDI-12 inputs**
- **Digital inputs/outputs:** 4
  - Output: 5 V logic
  - Input: 5 V or 3.3 V logic
- **Switched voltage outputs:** 3
  - Output voltage: 9 to 30 VDC
  - Output current: Up to 1 A, with current sensing
- **12V excitation voltage output:** 1
  - Up to 200 mA
- **Sampling rate:** 1 measurement per second
- **Communications protocol:** RS-485 input and output
- **Power requirements:** +9 to 32 VDC
- **Power consumption:** 0.7 to 1 W
- **Dimensions:** 17 cm × 10.9 cm × 7 cm (W × H × D)
- **Weight:** 0.52 kg

Data Retention Module (DRM)

- **Communication protocol:** RS-485 input and output
- **Configurable power outputs:** 4
  - Unregulated power output: 1 (power out equal to power supplied; 9 to 32 VDC)
  - Regulated power output: 3 (24 VDC maximum)
- **Power requirements:** +9 to 32 VDC
- **Data storage:** 32 MB; Over one month of backup biomet data collection, typically.
- **Dimensions:** 17 cm × 10.9 cm × 7 cm (W × H × D; not including battery)
- **Weight:** 0.52 kg (not including battery)
- **Backup Battery:**
  - **Type:** Lead Acid
  - **Output:** 12 VDC; 7.2 Amp Hour

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