

Avian ECG Analysis Using the LabScribe ECG Analysis Module

The LabScribe ECG Analysis Module uses cycle-detection algorithms that rely on identifying the R point of each ECG cycle. In avian species—particularly hummingbirds—an upright R-wave may be absent. In these cases, the software cannot correctly determine cycle boundaries using the default detection method.

To address this, LabScribe includes the **Inverted QRS** option. When enabled, this allows the software to detect cycles using a **negative-going QRS complex** in place of a traditional R-wave. The most prominent negative deflection is then used as the reference point for cycle detection.

Waveform Landmarks & Marker Interpretation

Definition: “The separation between the end of QRS and beginning of J wave is defined by convention: the point where the S wave or its positive counterpart (the r wave) intersects the isoelectric baseline.”

This corresponds closely with how LabScribe assigns markers:

The point where the QRS complex returns to the isoelectric baseline is currently labeled as S (and Tb).

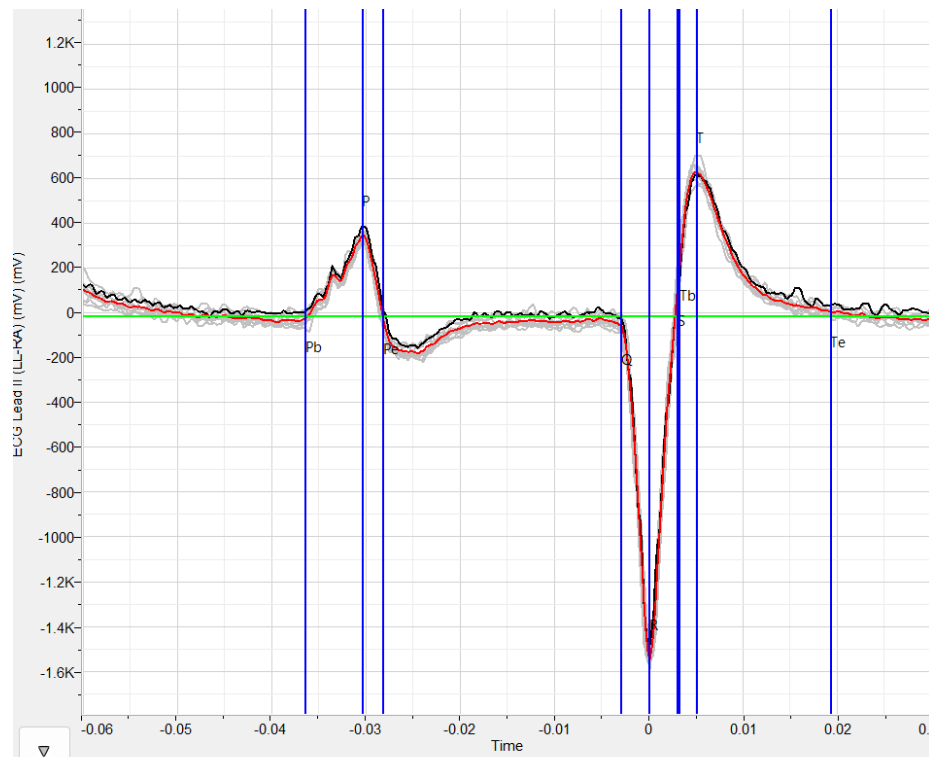
The defined J wave corresponds to where the software places the T wave marker in this configuration.

With the current software modification:

The QRS complex is detected as the primary negative deflection.

The S marker is placed at the intersection with the isoelectric baseline (defined onset of the J wave).

The T marker is placed at the point corresponding to the defined J wave.



Implications for J-Wave Measurements

With this alignment, the LabScribe S and T markers correspond to the defined J onset and J peak. This allows J-wave measurements to be performed directly using these markers within the ECG Analysis Module.

This approach supports consistent extraction of:

- J-wave amplitude
- J-wave duration
- J-point elevation relative to baseline
- Cycle-averaged measurements

Naming Conventions in LabScribe

The labeling system used in LabScribe (P, QRS, T) follows standard ECG nomenclature that is familiar to most users. Changing these labels globally in the software would likely lead to confusion across many workflows.

Exported points, however, can be renamed freely once outside the software—for example, exported P-wave points can be relabeled as “A” if that better matches the intended terminology.

Additional ECG Measurements Available in LabScribe

The LabScribe ECG Analysis Module includes a wide set of predefined measurements that can assist with comprehensive cardiac cycle analysis. These include:

- Heart rate
- RR interval
- ST height
- P-wave and T-wave durations and amplitudes
- PR interval
- QRS duration
- Area-based measurements for P, QRS, and T waves

A full list of available measurements is provided on the ECG Analysis Module product page:

<https://iworx.com/products/software/labscribe-ecg-analysis-module/?v=0b3b97fa6688>

Accessing the Complete LabScribe Manual

The complete LabScribe manual is built into the software and can be accessed through the toolbar:

LabScribe toolbar → Help → Help (Manual)