RespTrack

Respiration Tracking System

RespTrack is a system for measuring and monitoring respiratory movements using the Respiratory Inductance Plethysmogra phy (RIP) method [1]. Very briefly, the RIP method uses two elastic inductive belts placed around the rib cage and around the abdomen. Respiratory movements—inhalations and exhalations— alter the inductance of the belts. The belts are connected to electronics that convert the varying inductance into an analog signal with an amplitude that is proportional to the changes in lung volume. This signal can be digitized and recorded and/or displayed in real-time. There is general consensus that RIP is the most frequently used, established and accurate plethysmography method to monitor respiratory movements [1].

The *RespTrack* system is a recent incarnation of the RIP method developed in the Stockholm University Phonetics Laboratory by Peter Branderud and Johan Stark. RespTrack was commissioned by Mattias Heldner and it has been used extensively for research by Marcin Włodarczak and Mattias Heldner (with colleagues) for the last five years [1].

RespTrack systems are available for purchase from Columbi Computers AB, Stockholm SWEDEN (**www.columbi.se**). The company is run by the developers Johan Stark and Peter Branderud in collaboration with the Phonetics Laboratory at Stockholm University.

REFERENCES

[1] Mattias Heldner, Marcin Włodarczak, Peter Branderud, and Johan Stark (2019). The RespTrack System. *Phonetics Laboratory, Department of Linguistics, Stockholm University,*

Models	Description	Price
Model A	All analog version for two RIP belts. It features three output channels corresponding to AB (Abdomen), RC (Rib Cage) and SUM (weighted sum of AB and RC). The system comes with one electronic unit, two RIP belts and cable all delivered in a sturdy plastic case. This version is battery powered and requires two AA batteries. **Inputs:** 1 x XLR-mini for the RIP belts. **Outputs:** 3 x BNC connectors.	2150EUR/ 2400USD*
Model 16AD	This model features the same RIP belts and signals as model A but also adds a 16 bit multipurpose integrated A/D-converter and computer interface. The system is powered from the USB port. **Inputs:** 1 x XLR-mini for RIP belts, 1 x BNC for the analog input (Ai0), 2 x XLR-mini for mic/line and analog inputs. **Outputs:** 3 x BNC (analog RIP signals), 1 x BNC for a digital SYNC signal used for other external equipment + 1 x Beeper for an audible sync signal. The system can be ordered with 4 different recording applications for software configuration, monitoring and simultaneous hw synchronized recording of RIP data and sound. Audio and slow data may be simultaneously recorded to synchronized(!) .wav files for post session analysis.	3000EUR/ 3300USD* (exclusive of recording app. as of below)
Application 1	3 x RIP signals + 1 x slow analog input (+/- 2VDC) using 16bits @ 12.0 or 11.025KHz, 1 x Mic. using 16bits @ 48.0 or 44.1KHz.	
Application 2	3 x RIP signals + 3 x slow analog inputs (+/- 2VDC) using 16bits @ 12.0 or 11.025KHz, 1 x Mic. using 16bits @ 24.0 or 22.05KHz.	+200EUR/ 220USD* for each recording app.
Application 3	3 x RIP signals + 5 x slow analog inputs (+/- 2VDC) using 16bits @ 12.0 or 11.025KHz, no sound or hi speed channel.	
Application 4	3 x RIP signals and 1 x analog input using 16bits @ 12.0 or 11.025KHz, Mic. and line inputs using 2 x 16 bit @ 24.0 or 22KHz.	

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