Accurate and stress-free measurements for short and long term studies

Ultra small implantable loggers

STAR : ODDI

Logging Life Science

Advantages at a glance

Minimally invasive, simple to set up and to implant

Stress-free accurate measurements

Biocompatible and reusable

Long battery life

High performance, small size

Available parameters in each size

Physio loggers

Choose parameters:

Heart rate	Heart rate	Heart rate
Activity	Activity	Activity
Temperature	Temperature	Temperature

Activity and Temperature loggers

Choose parameters:

Activity	Activity	Activity	
Temperature	Temperature	Temperature	Temperature

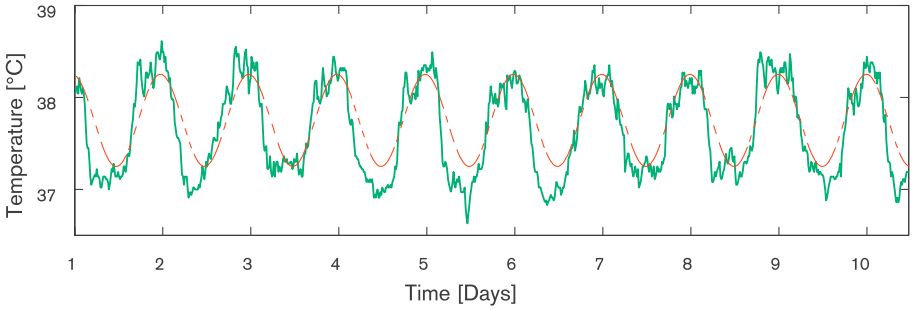
Temperature

Undisturbed core body temperature

Record core body temperature throughout your study with no disturbance to the study animal. Identify physiological changes for weeks to years in studies including circadian rhythm, hibernation/torpor and thermoregulation studies.

Suitable for animals from 20g

The temperature loggers come in four sizes, the smallest weighing 1.3g. This makes the loggers suitable for a wide range of animal sizes from as light as 20g.



Circadian rhythm recorded as core body temperature (green)

	DST nano-T	DST micro-T	DST milli-T	DST centi-T
Size	6 mm x 17 mm	8.3 mm x 25.4 mm	13 mm x 39.4 mm	15 mm x 46 mm
Weight	1.3g	3.3g	12g	19g
Battery life	14 months*	28 months*	5 years*	9 years*
Memory capacity per sensor	43,477 measurements	65.535 measurements	1.398.100 measurements	174.000 measurements
Minimum measurement interval	1 second	1 second	1 second	1 second
Temp range	5 to 45°C**	5 to 45°C**	5 to 45°C**	5 to 45°C**
Temp resolution	0.032°C (0.058°F)	0.032°C (0.058°F)	0.032°C (0.058°F)	0.032°C (0.058°F)
Temp accuracy	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)

* With sampling interval of 10 min at room temp
** Outside ranges available upon request

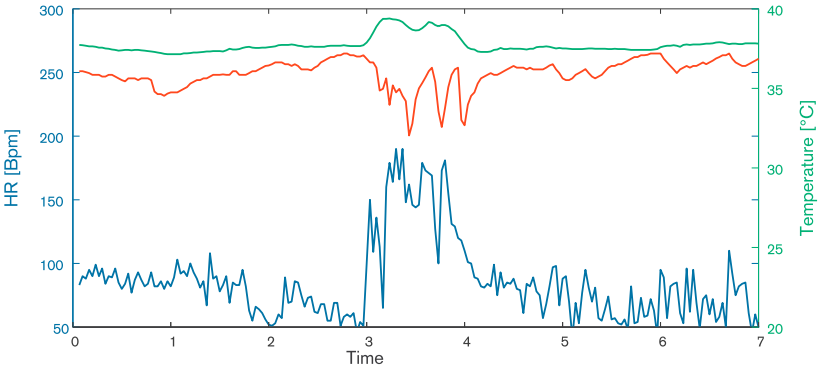
Heart Rate & Temperature

Long-term heart rate and body temperature

Measure heart rate and body temperature simultaneously. Apply to a variety of studies including circadian rhythm, stress response and baseline metabolic studies.

Suitable for measuring a wide range of heart rates

The heart rate measurements are derived from a leadless single channel ECG. The electrodes are part of the housing making the loggers easy to implant and explant. The loggers can measure heart rates ranging from 5 bpm to 1022 bpm and include an option to record extended ECG records for periods where slow heart rates are expected.



Stress response recorded through HR (blue), CB temperature (green) and SC temperature (red)

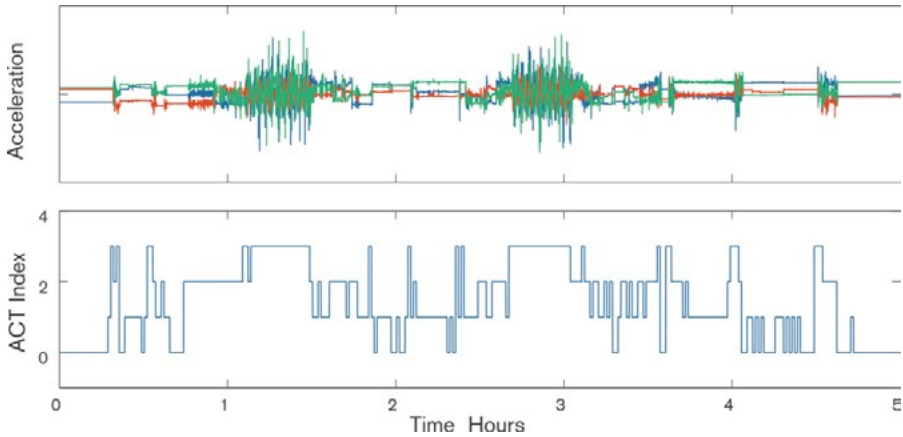
	DST micro-HRT	DST milli-HRT	DST centi-HRT
Size	8.3 mm x 25.4 mm	13 mm x 39.4 mm	15 mm x 46 mm
Weight	3.3g	12g	19g
Battery life	3 months*	8.5 months*	19 months*
Memory capacity per sensor	87.381 measurements, 349 ECG buffer measurements	699.051 measurements, 2785 ECG buffer measurements	699.051 measurements, 2785 ECG buffer measurements
Minimum measurement interval	30 seconds	30 seconds	30 seconds
Temp range	5 to 45°C**	5 to 45°C**	5 to 45°C**
Temp resolution	0.032°C (0.058°F)	0.032°C (0.058°F)	0.032°C (0.058°F)
Temp accuracy	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)
HR sampling frequency	80-800 Hz	80-800 Hz	80-800 Hz
Duration of HR measurement	600 or 1500 ECG sample	600 or 1500 ECG sample	600 or 1500 ECG sample

* With sampling interval of 10 min
** Outside ranges available upon request

Activity & Temperature

Overview of changes in activity over time

Measure acceleration derived activity in three dimensions, in addition to temperature. This provides an overview of changes in the study animals' activity over time, ranging from weeks to years.



(Top) Activity recorded through 3-axes accelerometer (Bottom) ACT index derived from the accelerometer data from 0 (low) to 3 (high)

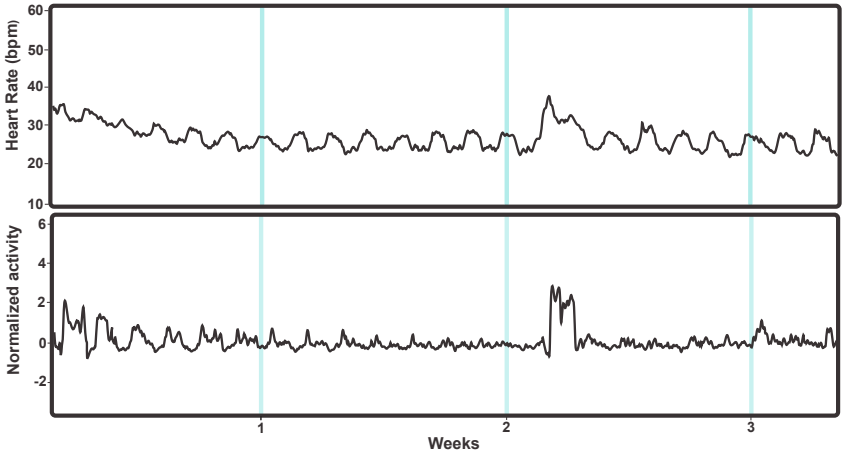
	DST micro-ACT	DST milli-ACT	DST centi-ACT
Size	8.3 mm x 25.4 mm	13 mm x 39.4 mm	15 mm x 46 mm
Weight	3.3g	12g	19g
Battery life	19 - 154 days*	2 - 17 months*	3 – 26.5 months*
Memory capacity per sensor	52.429 measurements***	104.856 measurements***	104.856 measurements***
Minimum measurement interval	2 minutes	2 minutes	2 minutes
Temp range	5 to 45°C**	5 to 45°C**	5 to 45°C**
Temp resolution	0.032°C (0.058°F)	0.032°C (0.058°F)	0.032°C (0.058°F)
Temp accuracy	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)	+/-0.2°C (+/-0.36°F)
Acceleration sampling interval	0.03Hz-10Hz	0.03Hz-10Hz	0.03Hz-10Hz
Acceleration resolution	2 mg	2 mg	2 mg
Duraton of ACT measurement	1 minute	1 minute	1 minute

* For 1Hz sampling requency over 1 min, sampling interval 1-20 min, activity and temperature recorded simultaneously
** Outside ranges available upon request
*** If all parameters are recorded simultaneously

Heart Rate & Activity & Temperature

Overview of changes in activity over time

Measuring three parameters in one device makes it easy to identify a correlation between heart rate, activity, and temperature. This makes the loggers ideal for variety of studies including stress response,



	DST milli-HRT-ACT	DST centi-HRT ACT
Size	13 mm x 39.4 mm	15 mm x 46 mm
Weight	12g	19g
Battery life	1 – 7,5 months*	2 - 17 months
Memory capacity per sensor	99.863 measurements***	99.863 measurements***
Minimum measurement interval	2 min (T+HR+ACT, T+HR, T+ACT)	2 min (T+HR+ACT, T+HR, T+ACT)
Temp range	5 to 45°C**	5 to 45°C**
Temp resolution	0.032°C (0.058°F)	0.032°C (0.058°F)
Temp accuracy	+/-0.2°C (+/-0.36°F)	
HR sampling frequency	80-800 Hz	80-800 Hz
Acceleration sampling interval	0.03Hz-10Hz	0.03Hz-10Hz
Acceleration resolution	2 mg	2 mg
Duraton of ACT measurement	1 minute	1 minute
Duraton of HR measurement	600 – 1500 ECG samples	600 – 1500 ECG samples

* For sampling interval of 2-20 minutes; ECG sampled at 600Hz, Activity 1Hz over 1 minute.
** Outside ranges available upon request
*** If all parameters are recorded simultaneously

STAR : ODDI

Skeidaras 12, 210 Gardabaer, Iceland
Tel: +354 533 6060
star-oddi@star-oddi.com
www.star-oddi.com