

GENEAcore Data Dictionary 21Nov2025
ActivInsights 2025

Name	Units / Format	Technical Description	Algorithm	Identifier
GENEActiv				
TimeUTC	s	The timestamp of a measurement or page in UTC as seconds from 01-Jan-1970.		TimeUTC
x	g	The instantaneous acceleration on the x axis (transverse when wrist-worn).		x
y	g	The instantaneous acceleration on the y axis (longitudinal when wrist-worn).		y
z	g	The instantaneous acceleration on the z axis (sagittal when wrist-worn).		z
Light	lux	The instantaneous environmental light measurement.		Light
Button	boolean	The instantaneous near-body temperature measurement.		Button
Temp	°C	The instantaneous button status (1 = pressed, 0 = unpressed).		Temp
Volts	V	The battery voltage recorded at the end of every 300 measurements.		Volts

GENEAcore MPI				
file_history	array	Timestamped log of GENEAcCore processes completed during a run of the pre-processing pipeline.		file_history
errors	array	Log of any errors produced during a run of the pre-processing pipeline.		errors
line_numbers	array	Line numbers of bin file content as a pointer for indexing of bin file sections.		line_numbers
measurement_numbers	array	Index of measurements, offset from the first measurement of the file, of the first second, minute, hour, UTC day and local day.		measurement_numbers
file_info	array	Summary of the bin file data size and format.		file_info
file_data	array	Summary of meta data derived from the bin file header and pre-processing.		file_data
factory_calibration	array	Calibration values for x, y, z, and light configured during manufacturing.		factory_calibration
auto_calibration	array	Calibration values for x, y, z, and light configured during auto-calibration using recored data.		auto_calibration
still_bouts	s	The start time and duration of non-movement events that do not meet the non-wear criteria.		still_bouts
non_wear	s	The start time and duration of non-movement events that meet the non-wear criteria.		non_wear
transitions	s	The timestamps of transitions in acceleration mean and variance calculated from 1s downsample data using changepoint detection.		transitions

GENEAcore 1s Downsample				
TimeUTC	s	The timestamp of the 1 second sample in UTC as seconds from 01-Jan-1970.		TimeUTC
x	g	The x axis acceleration (transverse when wrist-worn) sampled at each second elapse.		x
y	g	The y axis acceleration (longitudinal when wrist-worn) sampled at each second elapse.		y
z	g	The z axis acceleration (sagittal when wrist-worn) sampled at each second elapse.		z
Light	lux	The light measurement sampled at each second elapse.		Light
Button	boolean	The button status (1 = pressed, 0 = unpressed) at each second elapse.		Button
Temp	°C	The tempature at each second.		Temp
Volts	V	The battery voltage at each second.		Volts

GENEAcore Bout/Epoch				
Duration	s	The duration of an epoch/event.		Duration
xMean	g	The mean of x axis acceleration of an epoch/event.		xMean
xSD	g	The standard deviation of x axis acceleration of an epoch/event.		xSD
yMean	g	The mean of y axis acceleration of an epoch/event.		yMean
ySD	g	The standard deviation of y axis acceleration of an epoch/event.		ySD
zMean	g	The mean of z axis acceleration of an epoch/event.		zMean
zSD	g	The standard deviation of z axis acceleration of an epoch/event.		zSD
LightMean	lx	The mean light exposure of an epoch/event.		LightMean
LightMax	lx	The maximum light exposure of an epoch/event.		LightMax
TempMean	°C	The mean near-body temperature of an epoch/event.		TempMean
TempSD	°C	The standard deviation of near-body temperature of an epoch/event.		TempSD
AGSAMean	g	The mean Absolute Gravity-Subtracted Acceleration of an epoch/event.	$AGSA = \sqrt{(x^2+y^2+z^2)} -1 $	AGSAMean
ENMOMean	g	The mean Euclidean Norm Minus One of an epoch/event.	$ENMO = \sqrt{(x^2+y^2+z^2)}-1$ If ENMO < 0, ENMO = 0	ENMOMean
UpDownMean	degrees	The mean lower arm elevation of an epoch/event.	$UpDown = -\text{acos}(y/\sqrt{(x^2+y^2+z^2)})180/\pi+90$	UpDownMean
UpDownSD	degrees	The standard deviation of lower arm elevation of an epoch/event.		UpDownSD
DegreesMean	degrees	The mean wrist rotational angle of an epoch/event.	$\text{magnitude} = \sqrt{(x^2+z^2)}$ $\text{Degrees} = \text{sign}(-x)(180/\pi)\text{acos}(-z/\text{magnitude})+180$ $\text{Degrees} = \text{floor}(361*\text{Degrees}/360)-45$ If Degrees < 0, Degrees = Degrees + 360	DegreesMean
DegreesSD	degrees	The standard deviation of the wrist rotational angle of an epoch/event.		DegreesSD
DayNumber	count	The day number of the recording starting at a defined Start Hour (default 3pm).		DayNumber
StepCount	steps	The number of steps in an epoch/event.	Count of negative-going negative hystersis crossings and positive-going positive hystersis crossings of 0.5 - 5 Hz band-pass filtered y axis acceleration (hystersis default = 100mg)	StepCount
StepMean	steps per minute	The mean stepping rate (cadence) of an epoch/event.	60/mean(step intervals)	StepMean
StepSD	steps per minute	The standard deviation of stepping rate (cadence) of an epoch/event.	60/sd(step intervals)	StepSD
StepDiff	s	The mean of the absolute difference between successive step intervals.	mean(abs(diff(step intervals)))	StepDiff