

# Package ‘actiread’

August 21, 2026

**Type** Package

**Title** Baseline Package for Reading Actigraphy and Activity Data

**Version** 0.5.0

**Description** Provides baseline functions for reading actigraphy and activity data, relying on baseline functions from 'actibase'. Reads data from 'Axivity' 'CWA' <<https://axivity.com/>>, ActiGraph 'GT3X' <<https://ametris.com/actigraph-wgt3x-bt>>, 'SensorLog' <<https://sensorlog.berndthomas.net/>>, and 'SensorLogger' <<https://www.tszheichoi.com/sensorlogger>> zipped CSV files.

**License** GPL-3

**Depends** R (>= 4.1.0)

**Suggests** testthat (>= 3.0.0), utils, covr, knitr, rmarkdown, reticulate, arrow

**Encoding** UTF-8

**VignetteBuilder** knitr

**Imports** actibase, GGIRread, read.gt3x (>= 0.2.0), R.utils, magrittr, dplyr, lubridate, assertthat, cli, tibble, janitor, purrr, readr, methods

**URL** <https://jhuwit.github.io/actiread/>

**BugReports** <https://github.com/jhuwit/actiread/issues>

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**Repository** CRAN

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|                                           |
|-------------------------------------------|
| acti_convert_sensorlogger_time            |
| <i>Convert vectors ensuring no new NA</i> |

---

Description

Convert vectors ensuring no new NA

Usage

acti\_convert\_sensorlogger\_time(x)

Arguments

x                      a vector

Value

A converted ‘vector‘ the same length as ‘x‘ or errors if there are introduced NAs.

---

acti\_decompress\_file    *Decompress an Activity-data File*

---

### Description

Decompresses .bz2, .gz, and .xz files to a temporary file. If extension is NULL, the destination extension is inferred after removing the compression extension from path.

### Usage

```
acti_decompress_file(path, extension = NULL)
```

### Arguments

|           |                                                                                                                         |
|-----------|-------------------------------------------------------------------------------------------------------------------------|
| path      | Path to an activity-data file, optionally compressed.                                                                   |
| extension | Output file extension. Defaults to NULL, which infers the extension from path after removing its compression extension. |

### Value

A list with path, the usable file path, and temporary, which is TRUE when a temporary decompressed file was created. Callers should delete path when temporary is TRUE.

### Examples

```
file = acti_decompress_file(acti_example_cwa())
if (file$temporary) {
  unlink(file$path)
}
```

---

acti\_example\_gt3x    *Activity/Actigraphy Example Data*

---

### Description

Activity/Actigraphy Example Data

### Usage

```
acti_example_gt3x()

acti_example_cwa()

acti_example_geneactiv()

acti_example_sensorlog_file()
```

```
acti_example_sensorlogger_file()
```

```
acti_example_sensorlogger_location_file()
```

### Value

A file path

### Examples

```
library(actiread)
acti_example_gt3x()
acti_example_cwa()
acti_example_sensorlogger_file()
```

---

|                  |                                  |
|------------------|----------------------------------|
| acti_py_read_cwa | <i>Read CWA File with actipy</i> |
|------------------|----------------------------------|

---

### Description

Read CWA File with actipy

### Usage

```
acti_py_read_cwa(
  path,
  lowpass_hz = FALSE,
  calibrate_gravity = FALSE,
  detect_nonwear = FALSE,
  resample_hz = FALSE,
  ...,
  tz = "UTC",
  apply_tz = TRUE,
  verbose = TRUE
)
```

### Arguments

|                   |                                                                                                                                                                                                                                              |
|-------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| path              | Path to cwa file                                                                                                                                                                                                                             |
| lowpass_hz        | Frequency of low pass filter                                                                                                                                                                                                                 |
| calibrate_gravity | perform gravity calibration method of van Hees et al. 2014 <a href="https://doi.org/10.1152/jappphysiol.00421.2014">doi:10.1152/jappphysiol.00421.2014</a>                                                                                   |
| detect_nonwear    | Flag nonwear episodes in the data by setting them to NA. Non-wear episodes are inferred from long periods of no movement. 90 minute munte windows based on 10-second rolling windows with a threshold of 0.015g standard deviation tolerance |

|             |                                                                                                                                                               |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| resample_hz | Target frequency (Hz) to resample the signal. If "uniform", uses the device's sample rate to fix sampling errors. Pass FALSE to disable.                      |
| ...         | additional arguments to pass to <code>actipy.read_device</code>                                                                                               |
| tz          | time zone for the data time, passed to <code>desiredtz</code> argument in <a href="#">GGIRread::readActivity</a> . If NULL or "", no time conversion is done. |
| apply_tz    | turn the time column into a POSIXct and apply the timezone                                                                                                    |
| verbose     | print diagnostic messages, higher values = more verbosity.                                                                                                    |

**Value**

A tibble with attributes of a header, sample rate, and transformations

**Examples**

```
if (requireNamespace("reticulate", quietly = TRUE) &&
    requireNamespace("arrow", quietly = TRUE)) {
  if (reticulate::py_module_available("actipy") &&
      reticulate::py_module_available("pyarrow")) {
    data = acti_py_read_cwa(acti_example_cwa())
  }
}
```

---

acti\_read\_cwa

*Read CWA File*


---

**Description**

Read CWA File

**Usage**

```
acti_read_cwa(
  path,
  start = 0,
  end = Inf,
  tz = "UTC",
  ...,
  apply_tz = TRUE,
  verbose = TRUE
)

acti_read_cwa_header(path)
```

**Arguments**

|          |                                                                                                                                                               |
|----------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|
| path     | Path to cwa file                                                                                                                                              |
| start    | where to start in the file, passed to <code>GGIRread::readActivity</code>                                                                                     |
| end      | where to end in the file, passed to <code>GGIRread::readActivity</code>                                                                                       |
| tz       | time zone for the data time, passed to <code>desiredtz</code> argument in <code>GGIRread::readActivity</code> .<br>If NULL or "", no time conversion is done. |
| ...      | additional arguments to pass to <code>GGIRread::readActivity()</code>                                                                                         |
| apply_tz | turn the time column into a POSIXct and apply the timezone                                                                                                    |
| verbose  | print diagnostic messages, higher values = more verbosity.                                                                                                    |

**Value**

A tibble with attributes of a header, sample rate, and transformations

**Examples**

```
data = acti_read_cwa(acti_example_cwa())
data = acti_read_cwa(
  acti_example_cwa(),
  tz = NULL,
  apply_tz = FALSE,
  verbose = FALSE
)
```

---

acti\_read\_geneactiv     *Read GENEActiv Binary File*

---

**Description**

Read GENEActiv Binary File

**Usage**

```
acti_read_geneactiv(
  path,
  start = 0,
  end = Inf,
  tz = "UTC",
  ...,
  verbose = TRUE
)

acti_read_geneactiv_header(path)
```

**Arguments**

|         |                                                                                                                                                   |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| path    | Path to geneactiv binary file                                                                                                                     |
| start   | where to start in the file, passed to <a href="#">GGIRread::readGENEActiv</a>                                                                     |
| end     | where to end in the file, passed to <a href="#">GGIRread::readGENEActiv</a>                                                                       |
| tz      | time zone for the data time, passed to desiredtz argument in <a href="#">GGIRread::readGENEActiv</a> . If NULL or "", no time conversion is done. |
| ...     | additional arguments to pass to <a href="#">GGIRread::readGENEActiv()</a>                                                                         |
| verbose | print diagnostic messages, higher values = more verbosity.                                                                                        |

**Value**

A tibble with attributes of a header, sample rate, and transformations

**Examples**

```
data = acti_read_cwa(acti_example_cwa())
data = acti_read_cwa(
  acti_example_cwa(),
  tz = NULL,
  apply_tz = FALSE,
  verbose = FALSE
)
```

---

|                |                       |
|----------------|-----------------------|
| acti_read_gt3x | <i>Read GT3X file</i> |
|----------------|-----------------------|

---

**Description**

Read GT3X file

**Usage**

```
acti_read_gt3x(
  path,
  asDataFrame = TRUE,
  imputeZeroes = TRUE,
  verbose = TRUE,
  ...,
  fill_zeroes = TRUE,
  apply_tz = FALSE,
  check_attributes = TRUE,
  tz = "GMT"
)

acti_info_gt3x(path, ...)
```

**Arguments**

|                  |                                                                                                                                                                                                                                                                                                                 |
|------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| path             | Path to gt3x file                                                                                                                                                                                                                                                                                               |
| asDataFrame      | convert to an activity_df, see <code>as.data.frame.activity</code>                                                                                                                                                                                                                                              |
| imputeZeroes     | Impute zeros in case there are missingness? Default is FALSE, in which case the time series will be incomplete in case there is missingness.                                                                                                                                                                    |
| verbose          | print diagnostic messages, higher values = more verbosity.                                                                                                                                                                                                                                                      |
| ...              | additional arguments to pass to <code>read.gt3x::read.gt3x()</code>                                                                                                                                                                                                                                             |
| fill_zeroes      | Rows with all zeros will be filled in with the last observation carried forward as is done with ActiLife. Recommended                                                                                                                                                                                           |
| apply_tz         | Apply the timezone from the header TimeZone attribute, if available                                                                                                                                                                                                                                             |
| check_attributes | Check that the attributes are included This is a sanity check, including checking that sample_rate is in the attributes.                                                                                                                                                                                        |
| tz               | timezone to project the data into. The data read in via <code>read.gt3x::read.gt3x()</code> says the timezone is GMT, but the time values is in the native timezone. So this data is projected into the correct time zone and then forced into the timezone given by tz. Set to NULL to not apply this forcing. |

**Value**

A data.frame

**Examples**

```
library(actiread)
data = acti_read_gt3x(acti_example_gt3x())
data = acti_read_gt3x(
  acti_example_gt3x(),
  tz = NULL,
  apply_tz = FALSE,
  verbose = FALSE,
  fill_zeroes = FALSE
)
info = acti_info_gt3x(acti_example_gt3x())
```

---

|                     |                            |
|---------------------|----------------------------|
| acti_read_sensorlog | <i>Read SensorLog Data</i> |
|---------------------|----------------------------|

---

**Description**

Read SensorLog Data



**Usage**

```
acti_read_sensorlog(file, verbose = FALSE, robust = FALSE)
```

```
acti_sensorlog_csv_spec()
```

```
acti_sensorlog_csv_colnames_mapping()
```

**Arguments**

|         |                                                                                                                    |
|---------|--------------------------------------------------------------------------------------------------------------------|
| file    | A character vector of SensorLog files, usually from unzipping the file                                             |
| verbose | print diagnostic messages. Either logical or integer, where higher values are higher levels of verbosity.          |
| robust  | if TRUE then <a href="#">acti_rewrite_sensorlog_csv</a> is run on the data to try to fix any shifts with the data. |

**Value**

A data.frame of data

**Examples**

```
library(actiread)
file = acti_example_sensorlog_file()
df = acti_read_sensorlog(file)
head(df)
```

---

acti\_require\_actipy     *Require actipy for reticulate*

---

**Description**

Require actipy for reticulate

**Usage**

```
acti_require_actipy(..., python_version = "3.9")
```

**Arguments**

|                |                                                                        |
|----------------|------------------------------------------------------------------------|
| ...            | additional arguments to pass to <a href="#">reticulate::py_require</a> |
| python_version | version of python passed to <a href="#">reticulate::py_require</a>     |

**Value**

invisible NULL

`acti_rewrite_sensorlog_csv`*Rewrite a CSV that may have issues with export from SensorLog*

---

**Description**

Rewrite a CSV that may have issues with export from SensorLog

**Usage**

```
acti_rewrite_sensorlog_csv(  
  file,  
  outfile = tempfile(fileext = ".csv"),  
  verbose = FALSE  
)
```

**Arguments**

|                      |                           |
|----------------------|---------------------------|
| <code>file</code>    | Input CSV file            |
| <code>outfile</code> | Output CSV file           |
| <code>verbose</code> | Print Diagnostic messages |

**Value**

A file path to the new CSV

**Examples**

```
sl_file = actiread::acti_example_sensorlog_file()  
tfile = tempfile()  
files = utils::unzip(sl_file, exdir = tfile)  
result = actiread::acti_rewrite_sensorlog_csv(files)
```

---

`acti_sensorlogger_location_colnames_mapping`*Read SensorLogger Data*

---

**Description**

Read SensorLogger Data

**Usage**

```
acti_sensorlogger_location_colnames_mapping()

acti_sensorlogger_location_spec()

acti_read_sensorlogger_location(file, ...)

acti_read_sensorlogger(file, verbose = FALSE, ...)

acti_read_sensorlogger_general(file, ..., verbose = FALSE)
```

**Arguments**

|         |                                                                                                                                                                                                             |
|---------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| file    | A character vector of SensorLogger files, usually from unzipping the file, or a zip file of SensorLogger files                                                                                              |
| ...     | additional arguments to pass to <code>readr::read_csv()</code> . If <code>verbose = FALSE</code> , then <code>progress = FALSE</code> and <code>show_col_types = FALSE</code> , unless otherwise overridden |
| verbose | print diagnostic messages. Either logical or integer, where higher values are higher levels of verbosity.                                                                                                   |

**Value**

A data.frame of data

---

|                |                                              |
|----------------|----------------------------------------------|
| tzoffset_to_tz | <i>Transform timezone offset to timezone</i> |
|----------------|----------------------------------------------|

---

**Description**

Transform timezone offset to timezone

**Usage**

```
tzoffset_to_tz(x)
```

**Arguments**

|   |                    |
|---|--------------------|
| x | A character vector |
|---|--------------------|

**Value**

A character vector

**Examples**

```
tzoffset_to_tz(c("+00:00", "-05:00", "+01:00"))
```

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