

## The Dozenal Watch

A subscript  $z$  indicates the dozenal base,  $d$  the decimal base.

In 2016<sub>d</sub> I produced a programmable dozenal wristwatch face that tracks time of day, calendar date, and weather. If unfamiliar with dozenal timekeeping, please look at the *About* files on this site, for basic information about the [clock](#) and the [calendar](#).

The primary goal for the watch was to increase options for dozenal timekeeping of both the day and the year on one wearable device. The result was achieved after the clock on this site was created, and after it was ported to Apple's mobile devices (iPhone and iPad) in late 2015<sub>d</sub>.

The watch hardware was made by Pebble, which went out of business the day the watch face was completed (Dec. 7, 2016<sub>d</sub>). The timekeeping continues to work, although the weather functions do not.

In 2021<sub>d</sub> I recreated and improved the timekeeping displays of the earlier watch for the Bangle.js watch, now renamed Bangle.js 1. On it and Bangle.js 2, from later in 2021<sub>d</sub>, the calendar date and the time of day are displayed as indicated below.

In 2022<sub>d</sub>, I adapted a watch face by Andreas Rozek to indicate dozenal time with hands, like a traditional analog clock. Details about that are also below.

### **BANGLE.JS 1 Calendar date**

yyyy-mm-dd and yyyy-m-s-d

Holocene Seasonal ordinal and cardinal

Button 5 toggles between them; the default is ordinal

In both versions of the calendar, the year count is cardinal. Year 0 starts on the December solstice, -9564<sub>d</sub> (9565<sub>d</sub> BCE). Significantly, in -9563<sub>d</sub> the perihelion coincided with the June solstice, which happens only every 21,000 years, approximately. That is in the start of the Holocene epoch, the end of the last ice age, before any known written records.

The year has 12<sub>d</sub> months, each month has 5 stretches, and each stretch has 6 days. (The term *stretch* is used, to indicate a notable change from the traditional equivalent, the 7-day week.) Additional days, called *S-days*, are placed between certain months to bring the year's total to 365<sub>d</sub> or 366<sub>d</sub>. They do not belong to a month or stretch.

The ordinal notation is similar to that of the Gregorian calendar in the sequence year-month-day. The cardinal notation trades the ordinal months and days (1<sup>st</sup>, 2<sup>nd</sup>, etc.) for elapsed months, stretches, and days. The ordinal date 07-23<sub>z</sub> is cardinal 9-4-2, because on the 23<sub>z</sub><sup>rd</sup> day of the 7<sup>th</sup> month, 9 months, 4 stretches,

and 2 days have gone by. Likewise, the ordinal last day of the year, 10<sub>z</sub>-26<sub>z</sub>, is cardinal Ɛ-4-5, and the ordinal first day, 1-1, is cardinal 0-0-0.

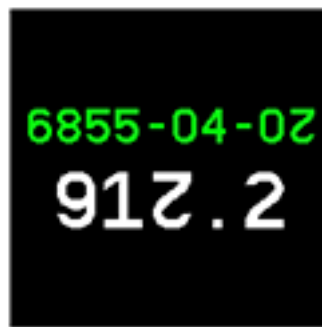
For practicality, the S-days are notated as if at the end of a month. After the 7<sup>th</sup> month, for example, comes S7, which in cardinal notation is 6-5-0.

The days of the stretch are the Latin words for the primary and secondary colours: *Ruber* (red), *Arantius* (orange), *Flāvus* (yellow), *Viridis* (green), *Cæruleus* (blue), *Purpureus* (violet). *Diēs*, the Latin word for *day* or *days*, is appended to each of the colours: *Ruber diēs*, *Arantius diēs*, etc. The English terms work as well.

An S-day is *Super diēs*, meaning *beyond the days*. Its colour is magenta, between violet and red. On the watch all the days of the stretch are displayed in the appropriate colour, obviating the need to designate them by the initials *R*, *A*, etc.

### **BANGLE.JS 2 DIGITAL and ANALOG Calendar date**

As above, with the following exception. Touching anywhere on the right side of the digital watch face toggles between ordinal and cardinal dates; the default is ordinal.



On the analog face, the same touch both activates and toggles the date display, which by default is not shown.



### **BANGLE.JS 1 Time of day**

nnn.n and nnn.nn

Button 4 toggles between them; the default is nnn.n.

The time is diurnal. The day is divided by successive powers of a dozen. The first digit changes every 2 hours. The entire set of digits is the following:

<u>Digit</u>	<u>Frequency of change</u>
1	2 hours
2	10 <sub>d</sub> minutes
3	50 <sub>d</sub> seconds
4	4 1/6 seconds
5	25 <sub>d</sub> /72 <sub>d</sub> second

The day begins at midnight, time 000.0(0).

### **BANGLE.JS 2 DIGITAL Time of day**

As above, except that touching anywhere on the left side of the watch face toggles between nnn.n and nnn.nn time; the default is nnn.n.

### **BANGLE.JS 2 ANALOG Time of day**

Touching anywhere on the left side of the watch face alternately shows and hides the fastest hand. The default is that it is shown.

The slowest, red hand circles the watch face once a day. Similar to the above chart:

<u>Hand</u>	<u>Moves from one numeral to the next</u>
(shortest, thickest) red	once every 2 hours
yellow	once every 10 <sub>d</sub> minutes
green	once every 50 <sub>d</sub> seconds
(longest, thinnest) white	once every 4 1/6 seconds

The fastest, white hand moves from one mark on the circumference to the next once every 1 1/24<sub>d</sub> second, viz. every quarter of 4 1/6 seconds. At midnight all the hands point to zero, at the bottom of the watch face.

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adaptation for Bangle.js 2 digital watch by Paul Rapoport  
Bangle.js 2 analog watch developed by Paul Rapoport