

The Alp Unit

Release 0.1.0



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ABSTRACT

The Alp unit is a new way to measure time. Its purpose is to not have any of the problems that current implementations have. The Gregorian calendar, for example, is based on how the Earth acts, which makes it unfit for galactic travel. The Alp unit, on the other hand, fits everything.

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Introduction

Do you ever find yourself annoyed at how we rely on the Earth's rotation? That we have to accept a year of about 365.24 days instead of something less inaccurate? That we use such strange time measurements as weeks and months? Have you thought to yourself that it ought to be changed? It has been now!

The Alp unit makes it easy to count time. It is even hoped that it will eventually become a galactic standard. Instead of years, month, days, hours, minutes and seconds, there is the Alp unit. One Alp is approximately 3.034 days. Its logical subunits are hexalps, qualps, salps, talps and seconds.

Galactic math

The Alp is a complex unit.

$$1 \text{ Alp} = \frac{\tau \cdot \dot{\tau}}{c^2}$$

where τ is a complex function in (t, x, y, z) , $\dot{\tau}$ is its time-derived function, and c is the speed of light in vacuum.

On Earth, 1 Alp has been measured to be

$$1 \text{ Alp}_{\text{Earth}} \approx T_{\text{Algol period}} \cdot \pi \cdot 10^{-\frac{4}{9}} \cdot \left(\frac{1 \text{ parsec}}{1 \text{ lightyear}} \right)^{-\frac{1}{18}} \approx 3.034 \text{ days}$$

1 Algol period is 2.87 days. Algol is a binary star (the first one discovered by humans), which means that it's a system of two stars orbiting around their common center. The duration of Algol's orbital period is 2.87 days.

Time on Earth

This is how the Alp unit behaves on Earth.

	Earth time	Alp time
1 Alp	3.034 days	1 Alp
1 hexalp	4.55 hours	$\frac{1}{16}$ Alp
1 qualp	1.14 hour	$\frac{1}{64}$ Alp
1 salp	4.3 minutes	$\frac{1}{1024}$ Alp
1 talp	16 seconds	$\frac{1}{16384}$ Alp
1 second	1 second	$\frac{1}{262144}$ Alp

The Alp Clock

No time unit is perfect without its very own clock. Normal clocks are simple, because they only need to take hours, minutes and seconds into account. Alp clocks must show both hexalps, qvalps, salps, talps and seconds, which naturally makes such clocks more complex. The creators of the unit ultimately decided on a design that would combine binary counting with human intuitiveness. Hexalps, qvalps, salps and talps were chosen to be counted in binary, while seconds were to be counted in this special system (1 is on, 0 is off, think of them as LEDs):

```

1: 0 | 0 | 0 | 0 | 0
2: 0 | 0 | 0 | 0 | 1
3: 0 | 0 | 0 | 1 | 0
4: 0 | 0 | 1 | 0 | 0
5: 0 | 1 | 0 | 0 | 0
6: 1 | 0 | 0 | 0 | 0
7: 1 | 0 | 0 | 0 | 1
8: 1 | 0 | 0 | 1 | 0
9: 1 | 0 | 1 | 0 | 0
10: 1 | 1 | 0 | 0 | 0
11: 1 | 1 | 0 | 0 | 1
12: 1 | 1 | 0 | 1 | 0
13: 1 | 1 | 1 | 0 | 0
14: 1 | 1 | 1 | 0 | 1
15: 1 | 1 | 1 | 1 | 0
16: 1 | 1 | 1 | 1 | 1

```

The layout was chosen to be like this (the most significant bit is to the right in hexalps, salps and talps, and at the bottom in qvalps):

```

o o o o (o = hexalps)
u o o o o (o = salps, u = qvalps)
u o o o o (o = talps, u = qvalps)
o o o o o (o = sekunder)

```

A virtual implementation of this clock has been made; it can be downloaded at <http://metanohi.org/projects/alp/>.

History

The Alp unit was conceived and developed by three people. They used it to create an Alp clock circuit board (which in the end did not work very well).

References

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