

Thursday, January 3, 2008

## What does 1U, 2U or 3U mean?

Many rack-mounted power systems are specified as being 1U, 2U, 3U, etc. What does this mean? For electronic equipment racks (e.g., 19 or 23 inches wide), the term 1U is used to define one rack unit of height.

1U equals 1.75-inches (44.45mm) of rack height. Therefore, a 2U rack mount height would be  $2 \times 1.75"$ , which equals 3.5-inches high. A 3U height would be  $3 \times 1.75" = 5.25$ -inches.

It should be noted that the 1U, 2U, 3U, etc., heights are maximum dimensions. In order to allow for mechanical tolerances and to provide some space between panels, typically, for each 1U of height manufacturers may deduct about 0.03" (see Photo #1). For example, a 2U panel, which has a nominal height of 3.50" may be only 3.44" high [ $3.50" - (2 \times 0.03") = 3.44"$ ].

Individual power supplies are sometimes mounted within rack-mounted enclosures that require integral power. In these cases, the power supply needs to be a bit shorter than the equipment's overall height to allow for the top and bottom covers. So a 1U high enclosure-mountable power supply needs to be shorter than 1.75-inches; a 2U enclosure-mountable supply needs to be shorter than 3.5-inches, and so forth (see Photo #2).

### Examples



Photo #1: This 19" rack-mountable power system can hold up to 3 plug-in, hot-swap and redundant power supplies. The enclosure with mounting ears is 1.72" high (= 1.75" minus 0.03") and is therefore considered 1U high.



Photo #2: This 1000-watt switch-mode power supply is 3.25" high and, therefore, can be mounted in a 2U rack-mountable enclosure, which can vary between 3.44" to 3.50" high.

Since we still live in an English and Metric measurement world, here are a couple of handy conversion factors: 1 inch = 25.4 millimeters (mm), 1 mm = 0.03937 inch

As a side note, Lambda ran a clever ad campaign that those who understand what "1U" or "2U" really means would appreciate. Here is a copy of that ad, which hopefully you will find humorous.

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