

## Three Digits Trinary Digital Number System Batch

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### ABSTRACT

In, digital number system mainly contains binary number system based on two digits 0 and 1. Binary digital system based on DC voltage level on (1) stage and off stage (0). But there is need to be introduction of one more digit (-1) into it via AC voltage (0,1,0,-1,0) in one complete cycle, provides ease in calculation of various functions, more data storage facilities and faster data calculation than tradition 2-digits binary system.

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### Let's have an overview on two digits digital number system.

In binary number system, DC voltage plays a major role for data encryption and functions wise data processing activities. Two stage (level 0, level 1) of DC voltages provides two digits at low level digit (0) and at high level digit (1). By this basic binary digit system, another number system like octal number system, Hexa decimal number system, could be derived.

Table no 1 Number system based on Binary digit

Number system	Base	Digits/Letters used
Binary	2	0,1
Octal	8	0,1,2,3,4,5,6,7
Hexa decimal	16	0 to 9, A to F

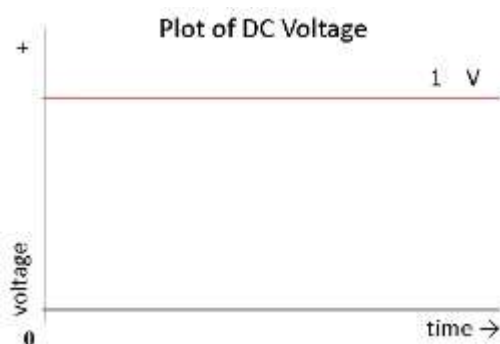


Figure 1: DC Voltage wave form

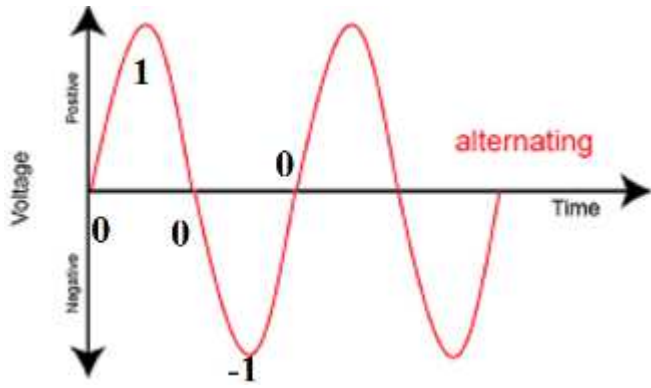
So, from basic binary number system functions like addition, subtraction, multiplication and division functions could be derived not only for base 2 abut also for base 8 and base 16 system.

### Let's have an overview on three digits trinary digital number system.

In three digits (-1,0,1) digital number system, small or high range AC voltage plays a major role for data encryption and functions wise data processing activities. Major five stages (level 1(0), level 2(1), Level 3(0), Level 4(-1), Level 5(0)) of AC voltages from one complete cycle, provides three digits at mid-level digit (0) and at high level digit (1), at low level digit (-1). By these basic three digits trinary digit system, many other systems could be derived.

Table no:2 Number system based on trinary digit

Number system	Base	Digits/Letters used
Trinary	3	-1,0,1
Nona	9	-1,0,1,2,3,4,5,6,7 or -4, -3, -2, -1,0,1,2,3,4



**Figure 2: AC voltage wave form**

So, from basic Trinary number system functions like addition, subtraction, multiplication and division

functions could be derived not only for base 3 abut also for base 9 and base 27 system and so on counting.....

**Conclusion:**

The main reason of three digits trinary digital number system batch is that provides ease in coding, less errors, fewer computations, economical, suitable for both numerical and non-numerical functions, more precise and accurate functions, less errors than analog system, ease in designing ICs.

**References:**

- [1] BOOK: DIGITAL LOGIC GATES, MORRIS MANO

