**floattostrf**

*Function of shaping string of specified format from variable with floating point.*

**Syntax:**

*str* **= floattostrf**(*x, type, par1, par2*)*;*

**Arguments:**

*x* – input variable, floating point number,

*type* – format of string being shaped,

*par1* – first parameter of format of string being shaped,

*par2* – second parameter of format of string being shaped.

**Description:**

*floattostrf(x, type, par1, par2)* – function shapes string of specified format from variable *x* of “floating point number” type. Variable *х* shall be of *double* type.

If the number of figures in the string being shaped is less that the number of figures of the original number, the number will be rounded off.

Variable *type* determines output format:

1. Automatic format (general).

type = 0

The number is being converted into the most possibly short decimal string using fixed or scientific format. Zeroes at the end of number shall be deleted. A decimal point shall be put only in case of necessity. The fixed format is used, when the quantity of figures in the number value standing to the left of a decimal point is either less than or equal to par1 or, when the number value is >=0.00001. Alternatively, a scientific format will be used, while parameter par2 determines a minimum number of figures in the exponent (0.. 4).

1. Scientific format.

type = 1

*par1* – quantity of significant figures of mantissa, minimum value – 2 figures;

*par2* – quantity of significant figures of exponent, minimum value – 1 figure.

The number is being converted into string of “-x.xxx…E+xxxx” format. The string begins from sign “-” (if the number is negative). The decimal point is always preceded by one figure. Parameter par1 determines a total quantity of decimal figures standing before the exponent symbol “E” (including figure to the left of decimal symbol). The exponent symbol is followed by plus or minus sign and up to 4 figures determining exponent degree. The minimum number of figures in the exponent is indicated in parameter par1.

1. Fixed format.

type = 2

*par1* – total quantity of significant figures, minimum value – 2 figures;

*par2* – quantity of figures after point.

The number is being converted into string of “-ххх.ххх...” type. If the number is negative, sign “-” will be placed ahead of the string. The decimal point is always preceded minimum by one figure. The quantity of significant figures after the decimal point (0…18) is indicated in parameter par2. If the quantity of digits to the left of symbol exceeds the value specified in parameter par1, the scientific format will be used for formatting (ffExponent).

**Result:**

*str –* shaped string.

**Example:**

|  |  |
| --- | --- |
|  | **var**  x1:**double** = 3.14159,  x2:**double** = 31.4159,  x3:**double** = 314.159;  //shaping string from variable in general format  s1 = **floattostrf**(x1, 0, 4, 0);// "3.142"  s2 = **floattostrf**(x2, 0, 2, 0); // "31"  s3 = **floattostrf**(x3, 0, 2, 0); // "3.1E2"  //shaping string from variable in scientific format  s4 = **floattostrf**(x3, 1, 3, 2); // "3.14E+02"  //shaping string from variable in fixed format  s5 = **floattostrf**(x3, 2, 4, 3); //"314.200"  s6 = **floattostrf**(x3, 2, 6, 3); //"314.159"  s7 = **floattostrf**(x3, 2, 1, 3); //"3.1E002" |

As a result, variable *s1* will comprise string “3.142”,

variable *s2* will comprise string “31”,

variable *s3* will comprise string “3.1E2”,

variable *s4* will comprise string “3.14E+02”,

variable *s5* will comprise string “314.200”,

variable *s6* will comprise string “314.159”,

variable *s7* will comprise string “3.1E002”.