sizeof()

[Utilities]

Description

The sizeof operator returns the number of bytes in a variable type, or the number of bytes occupied by an array.

Syntax

sizeof(variable)

Parameters

variable: The thing to get the size of. Allowed data types: any variable type or array (e.g. [int](https://www.arduino.cc/reference/en/language/variables/data-types/int), [float](https://www.arduino.cc/reference/en/language/variables/data-types/float), [byte](https://www.arduino.cc/reference/en/language/variables/data-types/byte)).

Returns

The number of bytes in a variable or bytes occupied in an array. Data type: [size\_t](https://www.arduino.cc/reference/en/language/variables/data-types/size_t).

Example Code

The sizeof operator is useful for dealing with arrays (such as strings) where it is convenient to be able to change the size of the array without breaking other parts of the program.

This program prints out a text string one character at a time. Try changing the text phrase.

char myStr[] = "this is a test";

void setup() {

Serial.begin(9600);

}

void loop() {

for (byte i = 0; i < sizeof(myStr) - 1; i++) {

Serial.print(i, DEC);

Serial.print(" = ");

Serial.write(myStr[i]);

Serial.println();

}

delay(5000); // slow down the program

}

Notes and Warnings

Note that sizeof returns the total number of bytes. So for arrays of larger variable types such as [int](https://www.arduino.cc/reference/en/language/variables/data-types/int)s, the for loop would look something like this.

int myValues[] = {123, 456, 789};

// this for loop works correctly with an array of any type or size

for (byte i = 0; i < (sizeof(myValues) / sizeof(myValues[0])); i++) {

// do something with myValues[i]

}

Note that a properly formatted string ends with the NULL symbol, which has ASCII value 0.