

This page is also available in **2 other languages** [Change language](#)

LANGUAGE

FUNCTIONS

VARIABLES

STRUCTURE

LIBRARIES

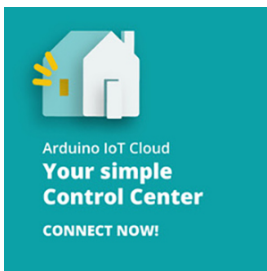
IOT CLOUD API

GLOSSARY

The Arduino Reference text is licensed under a [Creative Commons Attribution-Share Alike 3.0 License](#).

Find anything that can be improved? [Suggest corrections](#) and new documentation via [GitHub](#).

Doubts on how to use Github? Learn everything you need to know in [this tutorial](#).



Last Revision: 2019/09/03

Last Build: 2021/10/13

[EDIT THIS PAGE](#)

[Reference](#) > [Language](#) > [Functions](#) > [Communication](#) > [Serial](#) > [Write](#)

Serial.write()

Description

Writes binary data to the serial port. This data is sent as a byte or series of bytes; to send the characters representing the digits of a number use the [print\(\)](#) function instead.

Syntax

`Serial.write(val)`

`Serial.write(str)`

`Serial.write(buf, len)`

Parameters

Serial: serial port object. See the list of available serial ports for each board on the [Serial main page](#).

val: a value to send as a single byte.

str: a string to send as a series of bytes.

buf: an array to send as a series of bytes.

len: the number of bytes to be sent from the array.

Returns

`write()` will return the number of bytes written, though reading that number is optional. Data type: `size_t`

Example Code

```
void setup() {
  Serial.begin(9600);
}

void loop() {
  Serial.write(45); // send a byte with the value 45

  int bytesSent = Serial.write("hello"); //send the string "hello" and return the length of the string
}
```

Notes and Warnings

As of Arduino IDE 1.0, serial transmission is asynchronous. If there is enough empty space in the transmit buffer, `Serial.write()` will return before any characters are transmitted over serial. If the transmit buffer full then `Serial.write()` will block until there is enough space in the buffer. To avoid blocking calls to `Serial.write()`, you can first check the amount of free space in the transmit buffer using [availableForWrite\(\)](#).

