

# SerialTx

This is a CFunction module which can add up to 8 serial output ports to the Micromite MkII running MMBasic 4.6 or later. The SerialTx module has the following features:

- It is a transmit only function (a SerialRx function is separately available).
- Will transmit at any baudrate from 110 bps to 76800 bps.
- Will work with up to four I/O pins on the 28-pin Micromite and eight on the 44-pin device.
- Can switch from I/O pin to I/O pin with each call, so the one function can be used to drive many different serial outputs at different baudrates.

## Adding the Function to MMBasic

To add the SerialTx function to MMBasic you must insert the following code somewhere in your BASIC program (you can use copy and paste from this document). The exact spot is not important but at the end of the program is typical.

```
CFunction SerialTx 00000070
  00001021 40824800 40024800 0044102b 1440ffffd 00000000 03e00008 00000000
  3c03bf81 8c65f000 3c02003d 24420900 7ca51400 70a23002 8c63f000 3c040393
  34848700 7c6316c0 00c41021 00621007 3c03029f 24636300 50430003 3c0202dc
  03e00008 00000000 03e00008 24426c00 27bdfc0 afb70034 afb1001c afb00018
  00c0b821 afa50010 afbf003c afbe0038 afb60030 afb5002c afb40028 afb30024
  afb20020 00808021 0411FFDD 00000000 8fa50010 82e30000 8cb10000 00118840
  0051001b 022001f4 1860002e 00008812 24160001 3c14bf88 3c15bf88 24120001
  8e020000 02202021 00521004 ae826034 24020008 afa20010 241e0001 0411FFC0
  00000000 02f69821 1000000c 8fa20010 00721804 aea36038 02202021 afa20010
  0411FFB7 00000000 8fa20010 001ef040 2442ffff 10400009 33de00ff 82630000
  03c31824 1460fff2 8e030000 00721804 ae836034 1000fff1 02202021 8e020000
  02202021 00521004 aea26038 0411FFA4 00000000 82e20000 02c2102a 1440ffd8
  26d60001 8fbf003c 00001021 00001821 8fb0038 8fb70034 8fb60030 8fb5002c
  8fb40028 8fb30024 8fb20020 8fb1001c 8fb00018 03e00008 27bd0040
End CFunction
```

## Parameters

The SerialTx function (created by adding the above code) takes three parameters:

`r = SerialTx( port, baud-rate, string )`

Where *port* is a code for the I/O pin (see below for how to map this to an I/O pin)  
*baud-rate* is the desired transmit speed  
*string* is the string of characters to send

Note that the maximum workable *baud-rate* ranges from 76800 at 40MHz to 19200 at 10MHz. SerialTx always returns zero and this can be ignored although the returned value must still be assigned to a dummy variable.

The *port* argument is used to select the output pin for the data sent. Use this table to determine the value of *port*:

<i>port</i>	I/O pin on a 28-pin chip	I/O pin on a 44-pin chip
0	2	19
1	3	20
2	9	30
3	10	31
7		13
8		32
9		35
10		12

## Using the Function

To send a string out of a serial port using SerialTx you must first prepare the I/O pin that you will use (this example uses I/O pin 30 on the 44-pin Micromite):

```
pin(30) = 1      ' set the output of the pin high when it is enabled
setpin 30, dout  ' set the pin as an output
```

Once you have done this you can send data using the SerialTx function. For example:

```
r = SerialTx( 2, 19200, "Hello World" )
```

The function will not return until all of the characters in the string have been sent.

You can send data out of as many I/O pins as you want simply by changing *port* and *baud-rate* as required every time the function is used.