



## BASIC Stamp<sup>®</sup> 2p24 / 2p40 Module Revision Details

This document contains details of hardware and firmware revisions made to the BASIC Stamp 2p24 and BASIC Stamp 2p40 module.

The hardware version is written on the module itself (usually on the top side) in the form “Rev A” where “A” is the revision identifier. The firmware version is a number in the form “#.#” shown during the Identification or Download process within the BASIC Stamp software. The hardware and firmware versions are not directly related to each other (they can each change with or without the other) though they may have a loose release relationship if noted below.

<b>Hardware Revision:</b> G	<b>Date Released:</b> 09/2015
<b>Firmware Revision:</b> 1.7 (unchanged)	<b>(BS2p24 only)</b>
<b>Required Software:</b> BASIC Stamp Windows Editor v2.3.4 (or higher)	
<b>Items Modified</b>	<b>Notes</b>
<p>The on-board 5-volt regulator circuit was replaced with a more robust circuit. The original regulator and output capacitor was replaced with a new regulator and output capacitor, and an input capacitor and PFET (for reverse polarity protection) was added. Existing support circuitry near the top edge of the module was moved left and down to accommodate the changes.</p> <p>This change results in better electrical and thermal behavior during user operation.</p> <p>No firmware change accompanies this revised hardware; firmware remains at v1.7 at this time.</p> <p>NOTE: Some modules may appear copper colored instead of yellow colored. This difference has no effect on the functionality.</p>	<p>Improves performance in adverse conditions.</p> <p>Changes module operating temperature range to -25 to +85 °C.</p>

<b>Hardware Revision:</b> E	<b>Date Released:</b> 05/2008
<b>Firmware Revision:</b> v1.7	
<b>Required Software:</b> BASIC Stamp Windows Editor v2.3.4 (or higher)	
<b>Items Modified</b>	<b>Notes</b>
<p>Adjusted firmware to disable internal brown-out detector (inside the interpreter) to instead use an external brown-out detector (outside the interpreter, but included on the module). This firmware change is in conjunction with the design of the BS2p24 Rev E module (which includes the additional brown-out detector on-board) in order to support the industrial temperature range specification.</p>	<p>Affects very few applications since only older modules in extreme temperatures (around -40C or +85C) are subject to problems.</p>

<b>Hardware Revision:</b> D	<b>Date Released:</b> 05/2007
<b>Firmware Revision:</b> v1.6	
<b>Required Software:</b> BASIC Stamp Windows Editor v2.3 (or higher)	
<b>Items Modified</b>	<b>Notes</b>
Updated firmware to adjust EEPROM access timing to better support the 1 MHz protocol speed for the Microchip 24FC128I.	Should not affect most applications, however, overall PBASIC execution speed is 2.5% slower than before since previous firmware was unintentionally overclocking the EEPROM.

<b>Firmware Revision:</b> v1.5	<b>Date Released:</b> 12/2005
<b>Required Software:</b> BASIC Stamp Windows Editor v2.1.5 Beta (or higher)	
<b>Items Modified</b>	<b>Notes</b>
Updated firmware to adjust 1-wire timing (OWIN/OWOUT) as per revised specifications from Maxim Semiconductor.	Only affects applications where a new generation 1-wire part is used.

<b>Firmware Revision:</b> v1.4	<b>Date Released:</b> 05/2004
<b>Required Software:</b> BASIC Stamp Windows Editor v2.1 (or higher)	
<b>Items Modified</b>	<b>Notes</b>
Fixed firmware error that caused the COUNT command to run endlessly if the pulse count exceeded 65535 in the designated time period.	Only affects applications where an incoming pulse train can exceed 65,535 cycles in the time period given to the COUNT command.
Fixed firmware error that caused the first loop iteration within the PULSOUT command to be 0.05 us shorter than the rest. This had the effect of making the PULSOUT resolution slightly smaller than 0.8 us. Now the resolution is 0.8 us across the entire range of the Duration argument.	Only affects applications where pulse duration timing is critical.
Fixed firmware error that caused I2CIN and I2COUT commands to modify the SlaveID value upon successive transmissions if the previous transmission did not result in a valid device response.	Only affects applications where multiple devices are connected to the same bus and existing devices may become disconnected without the BASIC Stamp module's knowledge.

<b>Firmware Revision:</b> v1.3	<b>Date Released:</b> 05/2002
<b>Required Software:</b> BASIC Stamp Windows Editor v1.32 (or higher)	
<b>Items Modified</b>	<b>Notes</b>
Fixed firmware error that caused Scratch Pad RAM (SPRAM) locations 110 and 111 to be modified when a STORE command was executed.	Only affects those applications that need to maintain SPRAM locations 110 and 111 while switching in-between program slots.
Fixed firmware error that caused BS2p module to wait for reprogramming when a RUN command is executed at the same time that the SIN pin is high.	This is an extremely rare occurrence; this issue does not affect most applications. Only those applications that use the RUN command <u>and</u> have serial data arriving on the built-in serial port (SIN) (at the same time) are affected.
Added support for optional Address argument in I2CIN and I2COUT commands. This allows communication with some products that only require a SlaveID. The syntax is now: I2CIN <i>Pin, SlaveID, {Address {\LowAddress}},</i> [InputData] —and— I2COUT <i>Pin, SlaveID, {Address {\LowAddress}},</i> [OutputData] in BASIC Stamp Windows Editor v1.32.	This item will only benefit applications that use products which don't require an Address value.
Added read-only SPRAM locations 134 and 135. Bit0 of SPRAM 134 indicates the current I/O bank (0=MainIO, 1=AuxIO). SPRAM 135 indicates the following Polled I/O settings: Bit0: Polled-output(s) (as set by POLLMODE). 0=Disabled, 1=Enabled. Bit1: Polled-input(s). 0=none defined, 1=at least one defined. Bit2: Polled-run (as set by POLLMODE). 0=Disabled, 1=Enabled. Bit3: Polled-output(s) states. 0=Not latched, 1=Latched. Bit4: Polled-input state alarm. 0=No alarm, 1=alarm. Bit5: Polled inputs/outputs. 0=Not active, 1=Active. Bit6: Poll-wait. 0=No event, 1=Event occurred. Cleared by PollMode. Bit7: Polling. 0=Not active, 1=Active.	This is an added feature that may be useful to some applications using the Polled Input/Output feature.