



Bridging old technology with new technology creating exceptional experiences for those who fly with broken wings

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M2U Users Manual

General description of the Morse-2-USB controller.

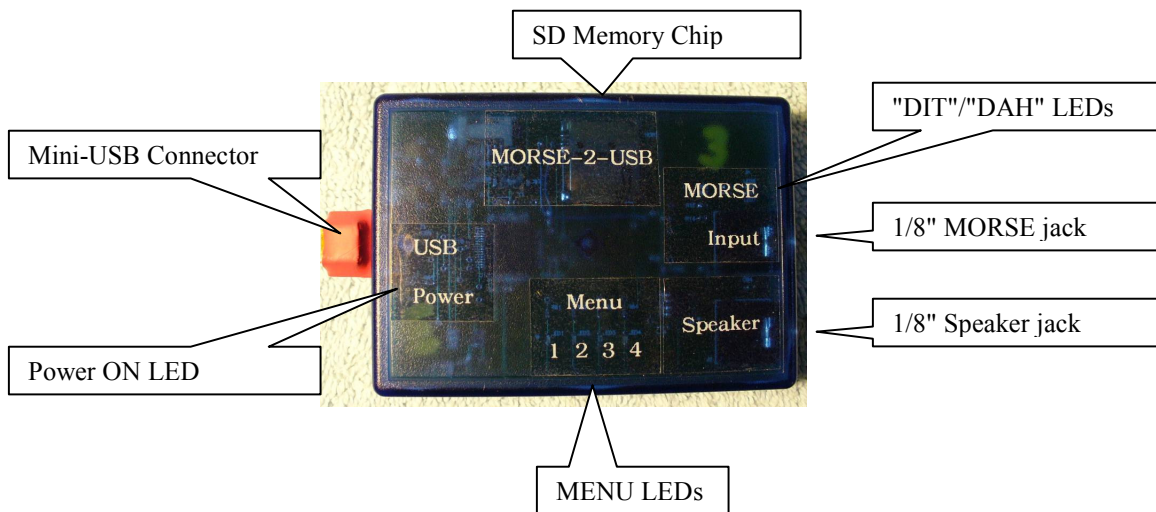
The Morse-2-USB (M2U) is a device that converts Morse Code Input to standard USB keyboard and mouse output. The M2U is compatible with Microsoft Window-XP, Window 2000 or newer operating systems and with Apple Macintosh operating systems.

The Morse-2-USB (M2U) measures 3 1/4" x 2 1/4" x 3/4" and weighs 1.7oz.

The M2U is powered from a single mini-USB 2.0 connector¹. It communicates with the PC² exclusively through this connector emulating a Keyboard and a Mouse and Removable Media (disk interface).

The M2U has a 1/8" (3mm) stereo jack for Morse input (centered on box) and another 1/8" (3mm) mono jack for an optional user feedback speaker with software volume control.

The M2U removable media (disk interface) stores a user modifiable file "MCONFIG.INI". The user modifies the MCONFIG.INI file to change the macros and Morse code assignments and to adjust commands and operating parameters such as the response speed, delay time, and repeat rates. The MCONFIG.INI file also contains the user vocabulary table used for word prediction.



The M2U controller becomes operational when the USB is connected to a PC and the Morse input switches are connected to the unit through the 1/8" Morse input jack.

General operation of the M2U:

Connect the M2U to the computer with the USB cable. When connected the PC will automatically detect new USB keyboard, USB mouse and USB Memory devices.

When the M2U is first connected to the computer, it receives power from the PC and initiates a powers-on sequence. The M2U will default to MENU1 and respond to Morse input as though it were a Keyboard. If you enter a valid Morse character, the character will be entered wherever the cursor is on the screen.

On power up, the M2U clears its buffers and counters. It then loads default settings from ROM (Read Only Memory) and checks to see if a configuration file named "MCONFIG.INI" can be read from the internal USB Memory device. This file is then scanned for new configuration commands. Any command in the configuration file will overwrite (but not erase) any command in ROM. If an error is detected while processing the configuration file an "Error tone" will be sounded. (See Appendix—Tones and Error Tones.)

¹ USB 2.0 Powered Port required.

² PC refers to either a PC or MAC.

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Note: If you are having problems, the base level or “default settings” can be easily restored by renaming the configuration file to something other than “Mconfig.ini” and then re-booting the unit.

Ex: MCONFIG old.INI, MCONFIG working.INI.

MENU 0..4:

There are 5 “menus” in the system. Each menu is a collection of Morse code patterns that are used to create a “functional group”.

Menu 0 codes are intended to be used for base commands, for example: volume, speed, menu selection, Reset of the M2U.

Menu 0 contains Morse patterns that are available no matter which menu you have selected. When you have selected Menu 1, for example, you also have available all of the commands stored in Menu 0, because Menu 0 commands are always available along with the commands in the currently selected menu. Menu 0 is not a selectable but it's commands can be edited by the user in the same way the commands in other menus can be edited and stored in the MCONFIG.INI file. More on this later.

Menus 1, 2, 3, and 4 are used to create functional groups of Morse code patterns that emulate input devices (such as a keyboard or mouse). By default, Menu 1 is configured to emulate a keyboard, and Menu 2 is configured to emulate a 2-button mouse. Menus 3 and 4 are empty.

The contents of Menu 0..4 are user definable, which allows the user to customize commands that perform certain functions.

Caution: If you change the definition of a standard character, the new definition will supersede or override the default character. This could lead to the loss of function of the default character. You can always restore the original definition by removing or commenting out the line in the “MCONFIG.INI” file that redefines the character code.

The default Menu 0 command codes are shown in the table below:

| | | |
|--------------|----------------------|--|
| code "....." | event "GoFaster" | #Special (Faster)- Morse engine responds faster |
| code "-----" | event "GoSlower" | #Special (Slower)- Morse engine responds slower |
| code "....." | event "GoLouder" | #Special (Beep tone louder) |
| code "....." | event "GoQuieter" | #Special (Beep tone quieter) |
| code "....." | event "GoKeyboard" | #Switch to MENU1 (KEYBOARD) |
| code "....." | event "GoMouse" | #Switch to MENU2 (MOUSE) |
| code "....." | event "GoMenu3" | #Switch to Menu3 |
| code "....." | event "GoMenu4" | #Switch to Menu4 |
| code "....." | event "GoMenuNext" | #Switch selected menu in sequence - switch to next menu 1→2→3→4→1... |
| code "....." | event "GoPredictOn" | #Enable Word Prediction |
| code "....." | event "GoPredictOff" | #Disable Word Prediction |
| code "....." | event ACCEPT" | #Accept predicted word |
| code "....." | event DN" | #Do NOT accept predicted word [Space] |
| code "....." | event "GoReset" | #Reset M2U (Writes M2U_Print0 to file, reloads MCONFIG.INI) |

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NOTE: The following four codes are used for debugging, and might not be implemented in future releases.

```
code ".•••••••" event "M2U_Print0" # print of M2U variables (Char "Good/bad counts)
code ".••••••-" event "M2U_Print1" # print of M2U variables (User Data Usage)
code ".•••••••" event "M2U_Print2" # print of M2U variables (MCONFIG file error)
code ".•••••••" event "M2U_Print3" # print of M2U variables (RFU)
```

Menu 1: Keyboard Menu

Menu 1 is the default menu selected when the device first boots. It is configured by default to include most of the standard keyboard functions and will respond to the default Morse code patterns if not overwritten by the MCONFIG.INI at boot-up. (See Appendix: "MCONFIG.INI" Menu 1)

Menu 2: Mouse Menu

The default Menu 2 codes are shown in the table below:

NOTE: mouse movements are followed by the number of "Mickey" to move. e.g. [mouse moveleft 4]

```
code ".••"          event "[mouse moveleft 4]" #Move Mouse Left    1 Mickey
code ".•••"        event "[mouse moveright 4]" #Move Mouse Right   1 Mickey
code "-"           event "[mouse movedown 4]" #Move Mouse Down    1 Mickey
code "--"          event "[mouse moveup 4]"   #Move Mouse Up      1 Mickey

#Mouse Diagonal Movement
code "--••"        event "[mouse moveleft 6]-[mouse moveup 6]" #Mouse Up Left
code "--•••"       event "[mouse moveright 6]-[mouse moveup 6]" #Mouse Up Right
code "---••"       event "[mouse moveleft 6]-[mouse movedown 6]" #Mouse Down Left
code "---•••"      event "[mouse moveright 6]-[mouse movedown 6]" #Mouse Down Right

#Mouse Repeat
code ".•"           event "[mouserepeat slow]" # Use "Pacing mouse" for mouse repeat rate
code "-"           event "[mouserepeat fast]" # Use "Pacing fmouse" for mouse repeat rate

#Mouse commands
code ".•••-"       event "[Enter]"           # (AA)
code "----•"       event "[ESC]"             # (OE)

#Mouse "Clicks"
code ".•-"         event "[mouse tap btnleft]" #LEFT BUTTON SINGLE-CLICK
code ".••-"        event "[mouse tap btnright]" #RIGHT BUTTON SINGLE-CLICK
code ".•••-"       event "[mouse doubletap btnleft]" #LEFT BUTTON DOUBLE-CLICK
code ".••••-"      event "[mouse doubletap btnright]" #RIGHT BUTTON DOUBLE-CLICK
```

Menu 3: Blank by default.

Menu 4: Blank by default.

Hint: If you wish to redefine keys for special functions in Menu1, you might make a test Morse table in Menu 3 or Menu 4 to use in the event you make an error in Menu 1 that might be difficult to correct without help.

MACROS

Macros are a very powerful feature of the M2U. These simple 3-character commands can automatically send out a command string, text string or whole pages of text as required. You might write a presentation and have it printed to the screen or voice synthesizer as you need it. You might use macros for quickly inputting personal information such as your name, address, contact information, "Help", doctor contact etc. As the Macros are part of the MCONFIG.INI file, you may edit these and reload them as required.

Macros are run by sending the macro meta-character, currently the "*" symbol followed by a 2-character label.

(e.g. *IH = "I am hungry.")

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The following are examples of permanently defined macros. They are defined in ROM and do not need to be included in the mconfig.ini" file. You may over-write any of these predefined macros by simply defining your own macro that uses the same 2 letters. For example, you could change "bg" from "Please put it in my bag behind me." to "Be gone knave!".

```
'ap' "Hello I have an appointment with ___"
'ay' "I really appreciate your assistance. "
'bd' "Hi! I need to deposit a check into checking, the check is in my purse. My account # is __. "
'bg' "Please put it in my bag behind me. "
'bs' "Hi! I need to withdraw $__ from my savings. My account #"
'bw' "Hi! I need to withdraw $__ from checking. My account #"
'cb' "I can understand everything you say and I can hear fine. "
'ch' "Can I help you? "
'cm' "I operate my communicator by sending Morse code with my head movements. "
'cp' "I have Cerebral Palsy; it affects my ability to control my movements. "
'cw' "My checkbook is in my wallet. "
'cy' "See ya! "
'dn' "Do you need anything else? "
'eb' "Could you please press the elevator buttons for me; I am "Going to the ___"
'gb' ""Good-bye "
'hm' "I have a hair in my mouth. "
'go' "Hi, I am "Going to __. Could you please let me off there or somewhere close to this address? "
'hu' "How are you? "
'hv' "I have to "
'ib' "I need to "Go to the bathroom. "
'ic' "I have to make a call. "
'ie' "I have a headache. "
'ih' "I am hungry. "
'it' "I am thirsty. "
'iu' "I have to hurry. "
'mw' "My money is in my wallet. "
'nc' "Nice to see you! "
'np' "No problem, anytime! "
'nt' "I need to "
'pe' "Please excuse me, I just started using this new communication system. I am not very
      proficient at operating it yet. Hopefully, I will be better in time. I apologize beforehand
      for my foreseeable errors that will most likely occur during our conversation. "
'pp' "Please put it in my purse. "
'rp' "Could you please repeat that? "
'sp' "I sign by a stamp; the stamp is in the zipper part in my purse. "
'tc' "Take care "
'tw' "Could you please tell me where _? "
'ty' "Thank you! "
'va' "My visa is in my wallet. "
'vf' "Very Funny! "
'wl' "I would like to "
'wn' "What's new?! "
'wr' "What is wrong? "
'ws' "What did you say? "
'wt' "What time is it? "
'ww' "I was wondering if "
```

Need More Macros?

Yes, you may define ANY two character set to be a macro. These are defined **by you** in the MCONFIG.INI file.

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Word Prediction:

Word prediction is a tool which helps the user enter text with minimal effort. The idea is straightforward, if a word is predicted, it can be auto-completed saving key strokes. So not only is your effort reduced, but accuracy increases because the correctly spelled word is entered automatically.

The word prediction software employs type-ahead technology that checks the first three characters entered and searches for words that begin with those three characters. The software first searches the user vocabulary and then the internal vocabulary tables for any matches. If there is a match to the entry, the match is highlighted and the predicted word can be selected by entering the "accept character" (--...--), and the entire word is inserted along with a space following the word. The cursor remains at the fourth character until the user accepts the matched word or types the next character in the word.

The user continues typing the word until the prediction software finds a match to auto-completes the entry or the the complete word has been entered.

If the predicted word is incorrect, the user can enter the "reject character" or the Do Not Accept code (DN = Do Not Accept) "-...-". Entering either of these codes causes the type-ahead function to stop. When stopped, the software inserts a space at the cursor position and positions the cursor to accept the next word. The user may backspace if necessary and enter the balance of the word to completion.

If the word predicted follows a period, the word beginning the new sentence will automatically be inserted with an initial capital letter.

Word prediction only starts predicting after 3 characters have been entered, because one- and two-character words are quick to enter. This also helps conserve space in the prediction table that would otherwise have to be expanded to include these short words.

For the same reasons, the prediction algorithm does not consider plurals. Simply backspace and add an "s" or "es" or "ies" to complete the word. These tradeoffs to improve software performance seem worthwhile.

NOTE: For the sake of clarity, and because we cannot display the highlighting correctly in this document, we will use underline to show highlighted text. For the sake of clarity, we will display spaces using the low line "_"

Exa: If we start with the word "History" enter "his" and word prediction predicts: "history". If this is correct, entering ACCEPT will rewrite the word as "History_". If the word did not follow a period or a [CR]³, it would be written "history_".

Exa: If we again start the word "his", the word "history" appears. If the REJECT character is entered, the word "his_" would be entered. The capitalization rules apply here as well.

Exa: If we start entering the word "internet" enter "int" and the word "interest" is predicted.
Entering the "e" predicts "interest"
Entering the "r" again predicts "interest".
Entering the "n" predicts "international".
Entering the "e" replaces "international" with "internet". This being the correct word, is ACCEPTED and the word "internet_" is inserted.

In this example, we entered "i","n","t","e","r","n" to get internet. That is not much of a savings. If, however, "internet" was entered in the **user vocabulary**, it would show up first and thus be found even before "interest"

Exa: If we start entering the word "internet" enter "int" and the word "internet" is now predicted.

That would be a huge time saver if you use "internet" often.

³ CR; Carriage Return or properly, CR-LF (Line Feed), the start of a new line.

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Vocabulary words are case sensitive. If a word is usually capitalized, it is stored with an initial capital letter and will not be found by the prediction software if you begin entering the word with a lower case character. The same is true of mixed-case words: "McGregor" must be entered as stored or it will not be recognized. The only exceptions are the first word following a period or [CR]: they may be started in lower case and will be corrected when accepted.

The MCONFIG.INI File. (Morse Configuration initialization)

The MCONFIG.INI file is the most powerful tool in the M2U.

As delivered the M2U can take Standard Morse Code and convert it to corresponding text. It has limited (built-in) macros as described above. While this is a powerful tool, adding a way for you to change your environment and the meaning of the Morse characters opens whole new vistas. The MCONFIG.INI file allows you to change the meaning of ANY Morse character whether it is a single DIT or any combination of up to 8 DITs and DAHs. You may change, if you desire, any command in any menu (i.e. Menu 0 though 4).

Also, you may change the feel of the Morse Code engine. This means you may change the speed, DIT or DAH intervals etc. You may also change the pitch and duration of the tones.

But there is more. Included in this file is a user-defined vocabulary. This will allow you to add words that are specific to your usage. Your name, your kids names, city names, etc. The type-ahead function will help you auto-complete these words just as though they were included in the vocabulary that comes with the prediction software. In fact, these words will PRECEED the included vocabulary so they will be predicted first.

So, lets start looking at a typical (standard) MCONFIG.INI file.

Where to store files:

First, because your M2U is most likely connected to a computer with vast amounts of memory for storing data, whether in RAM or on your computer's hard disk, we suggest you copy your MCONFIG.INI file to a separate directory on your computer's hard disk to make recovery easier in case the working copy of the MCONFIG.INI on your M2U becomes corrupt. It is also wise to make backup copies of the edited MCONFIG.INI file on this same drive and copy them to the M2U when done editing.

You may work on the M2U, but file access is slower, because the M2U is emulating keyboard, mouse, and memory over a single USB port.

You may also store many files and file types on the M2U memory. There is approximately 1GB of M2U memory available. The MCONFIG.INI file is only a few hundred Kilobytes in size.

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Editing the MCONFIG.INI file:

The MCONFIG.INI file is a TEXT ONLY user file that may be changed by you, and stored in the M2U's internal memory. Use a text editor such as NOTEPAD to edit this file.

After changes are made to the file, you are ready to activate the new features. You reset the whole M2U by sending a RESET command⁴ ("•-•-•-•-•-"). This will reset the M2U and reload the MCONFIG.INI file.

Below each MENU , you may change or ADD any command. If you wish to define a whole set of commands you may add or replace them in any menu you wish. If you have commands that control external hardware devices via a IR controller, like a TV Remote, you may make up shortcut commands to control these devices and place them in Menu 3 or Menu 4.

The following table lists the various commands that may be used in the Morse configuration file (MCONFIG.INI).

"#" This character starts a comment line. It can follow any executable code as a comment. It can also "comment out" any code you don't wish to use. It also makes changes easy to spot.

Exa: #code ".-" event "a" #This code is commented out

"RATE" This command sets the keying rate for the M2U. The keying rate is the time the M2U expects a DIT or DAH to last when pressed to be considered a valid key-press and not a mistake. Time is in mS. The acceptable range is 50 to 6000. It is recommended that the "DAH" rate always be 3 times the "DIT" rate.

Exa: rate dit 80 #dit is 80ms
Exa: rate dah 240 #dah is 3 x dit

"MENU" Begins a block of "Code" commands to be used in that menu.
The format is: "Menu x" where x = 1 thru 4.

"CODE" This command adds a new pattern into the Morse code table for the currently selected menu. This proceeds the Morse pattern, and is followed by the event in quotes

Exa: code ".-" event "a"

"TONE" This command sets the pitch (in Hz) and duration (in milliseconds) for the specified sound. Valid tone types are "DIT", "DAH", "ERR".

COMMAND TYPE PITCH DURATION
Exa: tone dit 880 80

"VOL" This command sets the default volume for tones generated by the M2U. The range is 0 to 7. The same volume setting is used for all tones.

Exa: Vol 2 #Initial Volume Setting (0-7)

NOTE: The volume can be adjusted on-the-fly using the volume up and down commands.
Send "•••----" if you want to have your beep tones louder.
Send "•••---••" if you want to have your beep tones quieter.

⁴ See Users Quick Reference Guide at the end of this document.

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"PACING"

This command sets the macro playback speed. Smaller numbers are faster, larger are slower. Values smaller than 20 are not recommended as the text might overwhelm the PC input buffer.

Exa: `pacing 110 # mS; Rate Characters are sent to PC`

"MACROCHAR"

This command defines the macro lead-in character (Currently "*")

"MACRO" This command defines a new macro.

Exa: `Macro [gh] "It is time to "Go home"`

"VOCAB" This command adds a new word to the vocabulary of the module. These words are checked by the word prediction logic (and used first, if found).

Exa: `Vocab "Bellevue" #Adds "Bellevue" to the vocabulary list.`

MCONFIG.INI Limitations

RESTRICTIONS:

There is a combined RAM space for Vocabulary and Macros of 16 Kbytes. There are 1020 pointers to vocabulary words. Exceeding either of these limits will cause errors.

We provide 800 of the most common words built in to the ROM tables. You may add an additional 1020 words in the vocabulary table of the MCONFIG.INI file for a total of 1820 words.

ERRORS:

If there are more than 5 errors found in the MCONFIG.INI file, processing of the file will abort, and an error tone will sound. To help you troubleshoot the MCONFIG.INI file, you may print out the error table using the code `". . -- . . - ."`

TIME and SPACE:

The Morse code shown in Menu 1 is for reference only. You may change any of these to represent any new function as described above. However, if you were to "un-comment" all of the codes, this would unnecessarily add search time and reduce the amount of available M2U RAM space. The manufacturer advises against removing the comments from the Morse codes.

If building a generic Morse table in another menu is desired, keep the table short and concise. Use only the Morse values that you would commonly need (a-Z, 0-9, and punctuation and the commands like ENTER, ESC etc.) and leave off the infrequently used extended characters like F1-F12, "gray keys" etc.

APPENDIX

Standard Morse Code

Morse code consists of 36 characters; 26 letters and 10 numbers. After learning the 36 characters, you will be able to enter the codes for punctuation and ALL of the commands to operate a computer without any trouble.

| | | | |
|---------------|-----------|---------------|-----------|
| #code ".-" | event "a" | #code "..." | event "s" |
| #code "-..." | event "b" | #code "-" | event "t" |
| #code "--..." | event "c" | #code "...-" | event "u" |
| #code "-..." | event "d" | #code "...-" | event "v" |
| #code "·" | event "e" | #code "·--" | event "w" |
| #code "··-" | event "f" | #code "·-·-" | event "x" |
| #code "·-·" | event "g" | #code "-·-·" | event "y" |
| #code "····" | event "h" | #code "---·" | event "z" |
| #code "··" | event "i" | #code "·----" | event "1" |
| #code "·-·-" | event "j" | #code "··-·-" | event "2" |
| #code "-·-" | event "k" | #code "···-·" | event "3" |
| #code "·-···" | event "l" | #code "····-" | event "4" |
| #code "--" | event "m" | #code "·····" | event "5" |
| #code "-·" | event "n" | #code "-····" | event "6" |
| #code "---" | event "o" | #code "---··" | event "7" |
| #code "·-·-·" | event "p" | #code "----·" | event "8" |
| #code "--·-" | event "q" | #code "-----" | event "9" |
| #code "·-·" | event "r" | #code "-----" | event "0" |

Extended Morse Code

Punctuation and computer commands can be thought of as combinations of letters and numbers that are sent together in Morse code groups. These letter combinations (mnemonics), especially for longer codes and for the ones that are not often used, are easier to remember than a long sequence of mixed DITs and DAHs.

These mnemonics are shown in the MCONFIG.INI (see below). An example is the code for "shift". The mnemonic for SHIFT is "HN" which describes the two character set H (····) and N (-·) sent together.

Exa: code "····-·" event "[SH]" # (HN) (Hold Now)

Please see the Quick reference guide at the end of this document for a list of commands and their mnemonics.

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The Morse Input Switches:

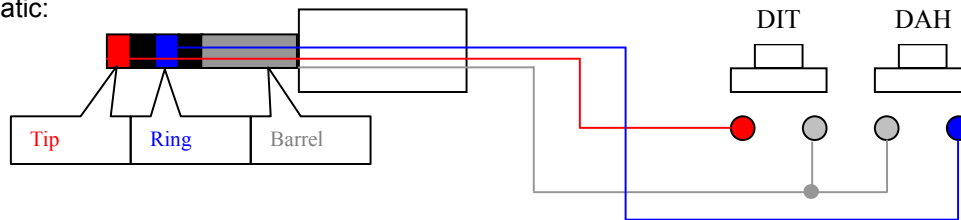
The Morse input jack accepts a stereo plug that establishes two connections, one that carries the DITs and another that carries the DAHs—the dots and dashes used in Morse code. The M2U is not set up for single-switch Morse code.

The Morse switches consist of any normally-open switch pair connected to the 1/8" plug as shown.

Note: One side of the DIT switch connected to the TIP terminal of the 1/8" plug and the other side connected to the common barrel of the plug.

One side of the DAH switch is connected to the RING terminal of the 1/8" plug and the other side to the common barrel of the plug. The switch commons may be connected at the plug or a "Y" connector or in the switch housing, wherever it is convenient.

The simple schematic:



Switch troubleshooting is made easy by observing the Morse input (DIT/DAH) LEDs.

Under normal operation, when the DIT switch is closed, the RED LED lights, and when the DAH switch is closed, the GREEN LED lights.

If the wrong LED is illuminated, simply swap the switch input wires.

If neither LED is illuminated when you send a dit or dah, the switch wiring is open.

If either LED or both LEDs glow steadily, your switch wiring is shorted.

WARNING: Do not connect the Morse Input Switches to active (powered) switches⁵. Damage to the M2U will occur. This is a non-warranty situation. Please consult the factory for further information if required.

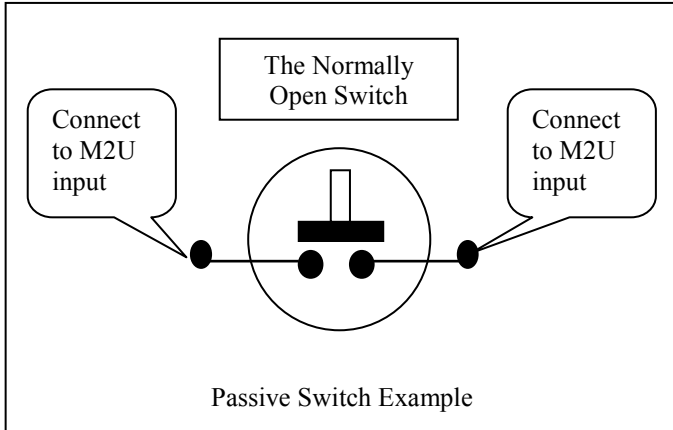
⁵ See Appendix for a technical description of "active" switching.

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Active Switches

There are two types of switches that can be used in any electronic device namely, passive and active switches.

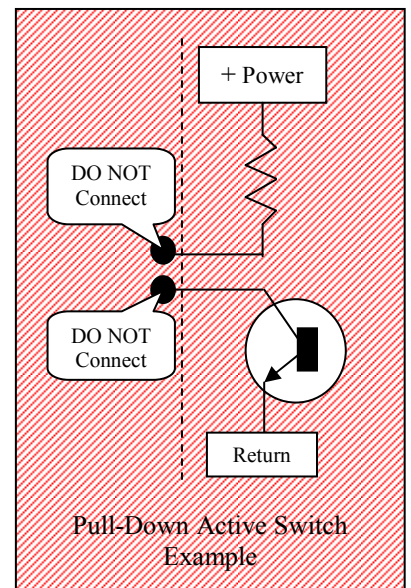
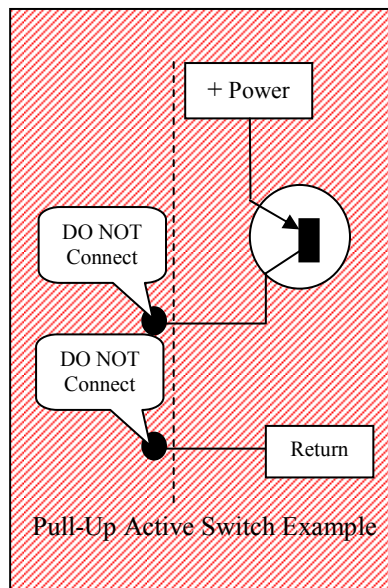
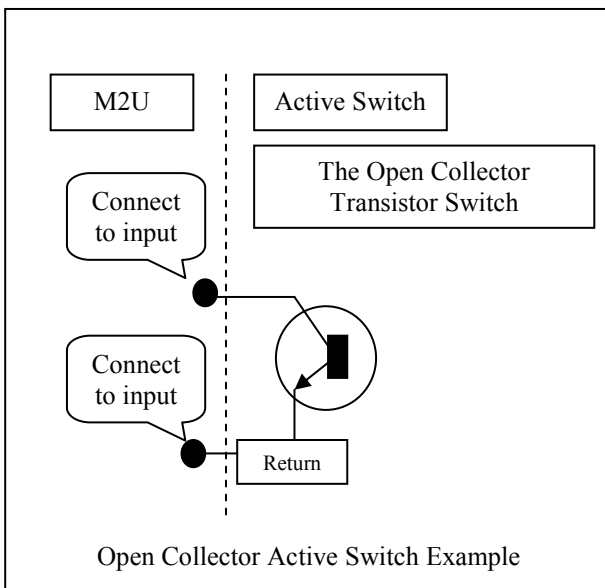
Passive switches also called "dry" contacts, have no electrical connection except to the switch input connections. These are electro-mechanical switches and do not produce any electrical signal by themselves. These are what are desired on the M2U. Where the M2U "sees" what the position of the switch is and responds accordingly.



Active switches on the other hand, are electrical devices which generate electrical signals. These devices may be battery operated, or have another power source, but require power on their own to operate. These may have transistorized outputs which are classified PULL-UP or PULL-DOWN or OPEN COLLECTOR.

The only safe active switch is the Open Collector.

WARNING: If you are uncertain about the type of active switch you have, please do not connect the M2U to it. Damage to the M2U could occur.



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MCONFIG.INI

The following code is an actual "mconfig.ini" file.

```
#This is a comment line
#M2U Configuration file
#Revision 1.05 April 16, 2009

Rate dit 80 # mS
Rate dah 240 # dit Rate * 3 = 240mS

Tone dit 880 80 #Hz, mS
Tone dah 500 140 #Hz, mS
Tone err 176 350 #Hz, mS error tone

Vol 4 #Default volume, range is 0 to 7.
Gain 2 #Number of Steps to change volume for each
      # increment or decrement, range is 1 to 8.

Autolog on #Stores user statistics in Data0.log - Data4.log
           # files stored in the M2U memory when the user has
           # typed 500 characters and the M2U is idle for
           # 30 seconds. Range ON/OFF

#The "PACING" commands set the repeat intervals
# in milliseconds for each of the iterative
# functions: Macro playback, Keyboard repeat,
# mouse move slow rate, and mouse move fast rate.

pacing MACRO 10 #Macro playback speed in mS (Macros to Host)
pacing KEYBD 35 #Keyboard repeat rate in mS
pacing MOUSE 48 #Slow mouse repeat rate in mS
pacing FMOUSE 12 #Fast mouse repeat rate in mS

#The "TUNING" command sets the amount (in percent) by
# which the ""GoFaster" and ""GoSlower" commands will
# change the keying speed.

TUNING 10

#The "MAXBITS" command sets the maximum number of
# DITs and DHAs that can be used to assemble a character.
# If you attempt to assemble a character with more than
# this number of bits, the input engine will stop making
# dit or dah tones and discard the current pattern in progress.
# This is a handy way to abort a character entry if you have
# a keying error, and it avoids having to undo or erase a
# bad character.

MAXBITS 8 #maximum size of a Morse char, range is 5 to 8
```

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Menu 1 # Keyboard

```
#Entry Event "Entering Menu 1[Enter] " #This command is executed every
# time you enter this menu. It can be any command, macro etc.
# For instance, un-commenting this would print:
# "Entering Menu 1" and the Enter key, right where your cursor is every
# time you enter Menu 1.
```

```
#Exit Event "Exiting Menu 1 [Enter]" #This command is executed every
# time you exit this menu
```

Predict On #Enables or disables word predict for this menu. Range ON/OFF

```
#Note: You may replace a code where it appears in the table below or
# at the beginning of the table - which is scanned first. It is "Good practice
# to comment out code you are changing and place the replacement code below
# that commented code so you may see what is changed.
```

#

```
# Below are examples of code which replace the word prediction "DN" command with
# the "/" character and the "ACCEPT" command with the "[SP]" (space) character.
```

```
code ".••--" event "[ACCEPT]" #Accept word prediction (Replaces[SP])
code "-••••" event "[DN]" #Reject word prediction, "Don't need" (Replaces "/")
```

```
#Note: In the examples above, the [SP] character is still available as the effect
# of ACCEPT is to enter a space. The "/" character is replaced with DN and is no
# longer available.
```

```
#Below are STANDARD Morse Codes which are commented out unless
# otherwise shown.
```

```
#code ".•-" event "a"
#code "-••••" event "b"
#code "-••••" event "c"
#code "-•••" event "d"
#code ".•" event "e"
#code ".••••" event "f"
#code "--•" event "g"
#code "•••••" event "h"
#code "••" event "i"
#code ".••••" event "j"
#code "-•••" event "k"
#code ".••••" event "l"
#code "--" event "m"
#code "-•" event "n"
#code "••••" event "o"
#code ".••••" event "p"
#code "--•••" event "q"
#code ".•••" event "r"
#code "••••" event "s"
#code "-•" event "t"
#code ".••••" event "u"
#code "•••••" event "v"
#code ".••••" event "w"
#code "-••••" event "x"
#code "-••••" event "y"
#code "--•••" event "z"
#code ".•••••" event "1"
#code "••••••" event "2"
#code "••••••" event "3"
#code "••••••" event "4"
#code "••••••" event "5"
```

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```
#code "-....." event "6"
#code "--...." event "7"
#code "----.." event "8"
#code "-----" event "9"
#code "-----" event "0"
#code ".....-" event "[sh+^+gl]"

#code "-----" event "[CADEL]" #Ctrl+Alt+Delete, If used will reassign "_"
code ".....-" event "[SH]" # (HN) (Hold Now)
code "-....." event "[^]" # (KS)
code ".....-" event "[ALT]" # (UU)
code "-....." event "[CAPLOCK]" # (DM) (Do More)
code ".....-" event "[SCRLOCK]" # (SK)
code "-....." event "[NUMLOCK]" # (BN)
code ".....-" event "[sentence]" # (AAA) This capitalizes places a period,
# 2 spaces and capitalizes the next word•

code "....." event "[BREAK]" # (IB)
code "....." event "[PAUSE]" # (SD)
code ".....-" event "[KEYREPEAT]" # (HM) (Hold More)
#code "....." event "[SP]" # (IM) Reassigned to [ACCEPT]
code "----" event "[BS]"
code "....." event "[QUOTE]" # (RM) This is the '"' character
code "....." event "[BOX]" # (WI) This is the "[" character
code "....." event "]" # (WA)

# PC-104 specific keys
code "----" event "[GU]" # (GM) Gray UP arrow key
code "----" event "[GD]" # (MU) Gray Down arrow key
code "----" event "[GL]" # (BCKSP A) Gray Left arrow key
code "----" event "[GR]" # (MF) Gray Right arrow key
code "....." event "[GHOME]" # (WW) Gray HOME key
code "....." event "[GEND]" # (WS) Gray END key
code "....." event "[GPGU]" # (WR) Gray Page Up key
code "....." event "[GPGD]" # (WU) Gray Page Down key
code "----" event "[ENTER]" # (AA) Gray Enter key
code "----" event "[ESC]" # (OE) Gray ESCape key
code "....." event "[GDEL]" # (DD) Gray Delete key
code "----" event "[GINS]" # (GG) Gray Insert key
code "....." event "[TAB]" # (KU) Gray Tab key
code "....." event "[BTAB]" # (YA) Gray Back Tab key

# Standard Function Keys
code "-----" event "[F1]" # (GBCKSP)
code "-----" event "[F2]" # (ZO)
code "-----" event "[F3]" # (7M)
code "-----" event "[F4]" # (MHT)
code "-----" event "[F5]" # (M5)
code "-----" event "[F6]" # (OH)
code "-----" event "[F7]" # (BCKSP S)
code "-----" event "[F8]" # (OI)
code "-----" event "[F9]" # (6DAHS E)
code "-----" event "[F10]" # (E0)
code "-----" event "[F11]" # (I BCKSP)
code "....." event "[F12]" # (SO)

# Punctuation
code "....." event "-" # (THT)
code "....." event "+" # (AS)
code "....." event "*" # (SN)
code "....." event "\" # (KA)
#code "....." event "/" # Reassigned to [DN]
```

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```
code "----." event "%" # (OA)
code "-...." event "=" # (BT)
code ".----" event "(" # (IG)
code "....-" event ")" # (IK)
code "-....-" event "{" # (KW)
code "-....." event "}" # (DO)
code "-...." event "<" # (NG)
code "-...." event ">" # (NO)
code "....." event "^" # (6DITS)
code ".----." event "~" # (JI)
code ".----." event "'" # (E9)
code "-....-" event "`" # (DK)
code "--...." event "#" # (MR)
code ".----." event "$" # (AR)
code ".----." event "@" # (JE)
code "-...." event "&" # (KI)
code "--...." event "|" # (QA)
code "-----" event "_" # (6DAHS)
code ".----." event "!" # (AU)
code ".----." event "?" # (IMI)
code "-....-" event ";" # (NNN)
code ".----." event "." # (AAA)
code "--...." event ":" # (OS)
code "-....-" event "," # (MIM)
code "....." event "[^c]" # (HBACKSP) cut
code "-----" event "[^v]" # (BCKSPH) paste
```

Menu 2 # Mouse

```
#Entry Event "Entering Menu 2 "
#Exit Event "Exiting Menu 2 "
```

Predict Off

```
#code ".#" event "[mouserepeat slow]"
#code "-#" event "[mouserepeat fast]"
code "-#" event "[mouserepeat slow]"
code ".#" event "[mouserepeat fast]"

code "..." event "[mouse moveleft 2]"
code "...." event "[mouse moveright 2]"
code "--" event "[mouse moveup 2]"
code "---" event "[mouse movedown 2]"

code "-." event "[mouse hold btnleft]" #Mouse Left button Down
code ".-" event "[mouse release btnleft]" #Mouse Left button UP
code "-.." event "[mouse tap btnleft]" #Mouse Left button click
code "--.." event "[mouse doubletap btnleft]" #Mouse Left button double-click

code "--." event "[mouse hold btnright]" #Mouse Right Button Down
code ".-." event "[mouse release btnright]" #Mouse Right Button UP
code "...-" event "[mouse tap btnright]" #Mouse Right Button click
code "...." event "[mouse doubletap btnright]" #Mouse Right Button double-click

code ".-.-" event "[Enter]" # (AA)
code "-.-." event "[ESC]" # (OE)
```


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Menu 3 #Example: Numeric Shortcuts

```
#Entry Event "Entering Menu 3 [ENTER]=[Keyrepeat]"
#Exit Event "Exiting Menu 3 "
```

Predict Off

```
code "."          event "1"
code ".."         event "2"
code "..."      event "3"
code ".-"        event "4"
code "..-"       event "5"
code "-."        event "6"
code "-.."       event "7"
code "---"       event "8"
code "----"      event "9"
code "-"         event "0"
code "--"        event "[BS]"
code ".---"      event "[Enter]" # (AA)
code "---"      event "[GU]" # (GM)
code ".---"     event "[GD]" # (MU)
code "----"     event "[GL]" # (BCKSP A)
code ".---"     event "[GR]" # (MF)
code ".---"     event "[GHOME]" # (WW)
code ".---"     event "[GEND]" # (WS)
code ".---"     event "[GPGU]" # (WR)
code ".---"     event "[GPGD]" # (WU)
code ".---"     event "[GDEL]" # (DD)
code ".---"     event "[GINS]" # (GG)
code ".---"     event "[TAB]" # (E0)
code ".---"     event "[BTAB]" # (IBCKSP)
code ".---"     event "[ALT-TAB]" # (SO)
code ".---"     event "[^ -TAB]" # (OS)
code ".---"     event "[^ -C]" # (BCKSPI)
code ".---"     event "[^ -Y]" # (OE)
code ".---"     event "." # (AAA)
code ".---"     event "," # (GW)
code ".---"     event "/" # (DN)
code ".---"     event "+" # (AS)
code ".---"     event "-" # (6T)
code ".---"     event "=" # (BT)
code ".---"     event "[F1]" # (GBCKSP)
```

Menu 4 #Example: Keyboard Arrows

```
#Entry Event "Entering Menu 4 [ENTER]"
#Exit Event "Exiting Menu 4 "
```

```
code "..." event "[left]"
code "--" event "[right]"
code "..." event "[down]"
code "-" event "[up]"
code ".-" event "[Enter]"
code "." event "[Keyrepeat]"
```

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```
MACROCHAR "*" #You may reassign the macro entry character here
                # default is the "*" character.

Macro [bt] "BITE ME! "
Macro [gb] "Hello, I am "Going to Bellevue Transit center. "
Macro [gh] "Hi, I need to be let off by evergreen hospital. "
Macro [gs] "Hi, I would like to be let off by Kingsgate Safeway "
Macro [hs] "Hello, I am here to see ___"
Macro [im] "Leave me alone; I have PMS "
Macro [io] "I love you Michael "
Macro [ma] "12345 678st Ave NE Anywhere, WA. 98000"
Macro [mb] "June 5, 2009"
Macro [me] "My.Name@yourmail.com"
Macro [mf] "425-555-1234"
Macro [mn] "My name is Tania Finlayson"
Macro [ms] "My SSI # is xxx-yy-zzzz "
Macro [va] "My visa is in my purse in the front zipper pocket. "
Macro [wd] "Whatcha doing? "

# This vocabulary table may hold up to 1020 entries.
Vocab "Firstname"
Vocab "Lastname"
Vocab "Bellevue"
Vocab "Seattle"
Vocab "Kirkland"
Vocab "Washington"
Vocab "Safeway"
```

#END of MCONFIG.INI

Tones and Error Tones

1. DIT is a short tone initially set up at 880 Hz
2. DAH is a longer tone (3 times DIT tone time) initially set up at 440Hz
3. Menu Change is a 800mS low tone.
4. Error Tone 250mS. This error tone is used for many errors including situations when a MACRO is not recognized or when you enter a "*" immediately followed by any 2 or more characters that are not a MACRO.
5. There is a double-tone to signify when a limit (upper or lower) has been reached while increasing or decreasing volume or speed. Double Beep 350mS
6. A triple tone is sounded if MCONFIG.INI file is not found. Triple Beep 90mS

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Quick Reference Guide

Commonly Used Commands and Mnemonics.

```

# Menu 0 commands:
code "....." event "GoFaster" # 7 DITs - Morse engine responds faster
code "-----" event "GoSlower" # 7 DAHs - Morse engine responds slower
code "....." event "GoLouder" # (Beep tone louder)
code "....." event "GoQuieter" # (Beep tone quieter)
code "....." event "GoKeyboard" # Switch to MENU1 (KEYBOARD)
code "....." event "GoMouse" # Switch to MENU2 (MOUSE)
code "....." event "GoMenu3" # Switch to Menu3
code "....." event "GoMenu4" # Switch to Menu4
code "....." event "GoMenuNext" # Switch selected menu in sequence - switch to
# next menu 1→2→3→4→1...

code "....." event "GoPredictOn" #Enable Word Prediction
code "....." event "GoPredictOff" #Disable Word Prediction
code "....." event "ACCEPT" # Accept predicted word
code "....." event "DN" # Do NOT accept predicted word [Space]
code "....." event "GoReset" # Reset M2U (Writes M2U_Print0 to file,
# reloads MCONFIG.INI)

# Menu 1 commands:

# Note: The command below reassigns the SPACE command to ACCEPT. Because the net
# effect of ACCEPT is to produce a SPACE the SPACE is not lost, but
# now has a dual function!

code "....." event "[ACCEPT]" # (IM) Accept word prediction (Replaces[SP])

#code "-----" event "[CADEL]" #Ctrl+Alt+Delete, If used will reassign "_"
code "....." event "[SH]" # (HN) (Hold Now)
code "....." event "[^]" # (KS)
code "....." event "[ALT]" # (UU)
code "....." event "[CAPLOCK]" # (DM) (Do More)
code "....." event "[SCRLOCK]" # (SK)
code "....." event "[NUMLOCK]" # (BN)
code "....." event "[sentence]" # (AAA) This places a period, 2 spaces
# and capitalizes the next word.

code "....." event "[BREAK]" # (IB)
code "....." event "[PAUSE]" # (SD)
code "....." event "[KEYREPEAT]" # (HM) (Hold More)
#code "....." event "[SP]" # (IM) Reassigned to [ACCEPT] (which produces a
# space so it is not lost, but has dual
# function!)

code "....." event "[BS]" # Back Space
code "....." event "[QUOTE]" # (RM) This is the '"' character
code "....." event "[BOX]" # (WI) This is the "[" character
code "....." event "]" # (WA)

# PC-104 specific keys
code "....." event "[GU]" # (GM) Gray UP arrow key
code "....." event "[GD]" # (MU) Gray Down arrow key
code "....." event "[GL]" # (BCKSP A) Gray Left arrow key
code "....." event "[GR]" # (MF) Gray Right arrow key
code "....." event "[GHOME]" # (WW) Gray HOME key
code "....." event "[GEND]" # (WS) Gray END key
code "....." event "[GPGU]" # (WR) Gray Page Up key
code "....." event "[GPGD]" # (WU) Gray Page Down key
code "....." event "[ENTER]" # (AA) Gray Enter key
code "....." event "[ESC]" # (OE) Gray ESCape key

```

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```
code "-. . . . ." event "[GDEL]"          # (DD) Gray Delete key
code "--. . . ." event "[GINS]"          # (GG) Gray Insert key
code "-. . . . ." event "[TAB]"          # (KU) Gray Tab key
code "-. . . . ." event "[BTAB]"         # (YA) Gray Back Tab key
```

Standard Function Keys

```
code "--. . . . ." event "[F1]"          # (GBCKSP)
code "--. . . . ." event "[F2]"          # (ZO)
code "--. . . . ." event "[F3]"          # (7M)
code "--. . . . ." event "[F4]"          # (MHT)
code "--. . . . ." event "[F5]"          # (M5)
code "---. . . . ." event "[F6]"          # (OH)
code "----. . . ." event "[F7]"          # (BCKSP S)
code "-----. . ." event "[F8]"          # (OI)
code "-----. . ." event "[F9]"          # (6DAHS E)
code ".-----" event "[F10]"            # (E0)
code ". . . . ." event "[F11]"           # (I BCKSP)
code ". . . . ." event "[F12]"           # (SO)
```

Punctuation

```
code "-. . . . ." event "-"              # (THT)
code ".- . . . ." event "+"              # (AS)
code ". . . . ." event "*"              # (SN)
code "-. . . . ." event "\"             # (KA)
#code "-. . . . ." event "/"            #Reassigned to [DN]
code "----. . ." event "%"              # (OA)
code "-. . . . ." event "="             # (BT)
code ". . . . ." event "("              # (IG)
code ". . . . ." event ")"              # (IK)
code "-. . . . ." event "{"             # (KW)
code "-. . . . ." event "}"            # (DO)
code "-. . . . ." event "<"            # (NG)
code "-. . . . ." event ">"            # (NO)
code ". . . . ." event "^"              # (6DITS)
code ".-----" event "~"              # (JI)
code ".-----" event "'"              # (E9)
code "-. . . . ." event "`"            # (DK)
code "-. . . . ." event "#"            # (MR)
code ". . . . ." event "$"              # (AR)
code ". . . . ." event "@"              # (JE)
code "-. . . . ." event "&"            # (KI)
code "--. . . . ." event "|"            # (QA)
code "-----" event "_"                # (6DAHS)
code ". . . . ." event "!"              # (AU)
code ". . . . ." event "?"              # (IMI)
code "-. . . . ." event ";"             # (NNN)
code ". . . . ." event "."              # (AAA)
code "----. . . ." event ":"            # (OS)
code "-. . . . ." event ","            # (MIM)
code ". . . . .----" event "[^~c]"      # (HBCKSP) cut
code "-----. . . ." event "[^~v]"     # (BCKSPH) paste
```

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```
Menu 3 #Example: Numeric Shortcuts
code ". ." event "1"
code ". ." event "2"
code ". ." event "3"
code ".-" event "4"
code ". ." event "5"
code "- ." event "6"
code "- ." event "7"
code "-- ." event "8"
code "---" event "9"
code "-" event "0"
code "--" event "[BS]"
code ".-.-" event "[Enter]" # (AA)
code "-.-.-" event "[GU]" # (GM)
code "-.-.-" event "[GD]" # (MU)
code "-.-.-.-" event "[GL]" # (BCKSP A)
code "-.-.-.-" event "[GR]" # (MF)
code ".-.-.-" event "[GHOME]" # (WW)
code ".-.-.-" event "[GEND]" # (WS)
code ".-.-.-" event "[GPGU]" # (WR)
code ".-.-.-" event "[GPGD]" # (WU)
code "-.-.-.-" event "[GDEL]" # (DD)
code "-.-.-.-" event "[GINS]" # (GG)
code ".-.-.-.-" event "[TAB]" # (E0)
code ".-.-.-.-" event "[BTAB]" # (IBCKSP)
code ".-.-.-.-" event "[ALT-TAB]" # (SO)
code "-.-.-.-" event "[^-TAB]" # (OS)
code "-.-.-.-" event "[^-C]" # (BCKSPI)
code "-.-.-.-" event "[^-Y]" # (OE)
code ".-.-.-.-" event "." # (AAA)
code "-.-.-.-" event "," # (GW)
code ".-.-.-.-" event "/" # (DN)
code ".-.-.-.-" event "+" # (AS)
code "-.-.-.-" event "-" # (6T)
code "-.-.-.-" event "=" # (BT)
code "-.-.-.-" event "[F1]" # (GBCKSP)
```

NOTE: The following four codes are used for debugging, and may not be implemented in future releases.

```
code ".-.-.-.-" event "M2U_Print0" # print of M2U variables (Char "Good/bad counts)
code ".-.-.-.-" event "M2U_Print1" # print of M2U variables (User Data Usage)
code ".-.-.-.-" event "M2U_Print2" # print of M2U variables (MCONFIG file error)
code ".-.-.-.-" event "M2U_Print3" # print of M2U variables (RFU)
```

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The Built-in Macro Table

These are preceded by the macro meta-character which is currently "*"

ap, "Hello I have an appointment with __"
ay, "I really appreciate your assistance."
bd, "Hi! I need to deposit a check into checking, the check is in my purse. My account #
is __. "
bg, "Please put it in my bag in the back of me. "
bs, "Hi! I need to withdraw \$__ from my savings. My account #"
bw, "Hi! I need to withdraw \$__ from checking. My account #"
cb, "I can understand everything you say and I can hear fine. "
ch, "Can I help you? "
cm, "I operate my communicator by sending Morse code with my head movements. "
cp, "I have Cerebral Palsy; it affects my ability to control my movements. "
cw, "My checkbook is in my wallet. "
cy, "See ya! "
dn, "Do you need anything else? "
eb, "Could you please press the elevator buttons for me; I am going to the __"
gb, "Good-bye "
hm, "I have a hair in my mouth. "
go, "Hi, I am going to . Could you please let me off there or somewhere close to this
address? "
hu, "How are you? "
hv, "I have to "
ib, "I need to go to the bathroom. "
ic, "I have to make a call. "
ie, "I have a headache. "
ih, "I am hungry. "
it, "I am thirsty. "
iu, "I have to hurry. "
mw, "My money is in my wallet. "
nc, "Nice to see you! "
np, "No problem, anytime! "
nt, "I need to "
pe, "Please excuse me, I just started using this new communication system. I am not very
proficient at operating it yet. Hopefully, I will be better in time. I apologize
beforehand for my foreseeable errors that will most likely occur during our
conversation."
pp, "Please put it in my purse. "
rp, "Could you please repeat that? "
sp, "I sign by a stamp; the stamp is in the zipper part in my purse. "
tc, "Take care "
tw, "Could you please tell me where _? "
ty, "Thank you! "
va, "My visa is in my wallet. "
vf, "Very Funny! "
wl, "I would like to "
wn, "What's new?! "
wr, "What is wrong? "
ws, "What did you say? "
wt, "What time is it? "
ww, "I was wondering if "
end of ROM Macro Table

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The Built-in Vocabulary Table

| | | | | |
|------------------|---------------|--------------|---------------|---------------|
| "January", | "approach" | "cases" | "dead" | "especially" |
| "February", | "area" | "cause" | "deal" | "established" |
| "March", | "areas" | "center" | "death" | "Europe" |
| "April", | "arms" | "central" | "decided" | "even" |
| "May", | "army" | "century" | "decision" | "evening" |
| "June", | "around" | "certain" | "deep" | "ever" |
| "July", | "asked" | "certainly" | "defense" | "everything" |
| "August", | "association" | "chance" | "degree" | "evidence" |
| "September", | "attack" | "change" | "democratic" | "example" |
| "October", | "attention" | "character" | "department" | "except" |
| "November", | "audience" | "charge" | "described" | "existence" |
| "December", | "available" | "chief" | "design" | "expect" |
| //----- | "average" | "child" | "designed" | "expected" |
| "Sunday", | "away" | "children" | "determined" | "experience" |
| "Monday", | "back" | "choice" | "developed" | "extent" |
| "Tuesday", | "ball" | "Christian" | "development" | "eyes" |
| "Wednesday", | "based" | "church" | "dictionary" | "face" |
| "Thursday", | "basic" | "city" | "didn't" | "fact" |
| "Friday", | "basis" | "class" | "difference" | "faith" |
| "Saturday" | "beautiful" | "clear" | "different" | "fall" |
| //----- | "became" | "clearly" | "difficult" | "family" |
| "able" | "because" | "close" | "digital" | "farm" |
| "about" | "become" | "club" | "direct" | "fast" |
| "above" | "been" | "cold" | "direction" | "father" |
| "according" | "before" | "college" | "directly" | "fear" |
| "account" | "began" | "color" | "distance" | "federal" |
| "across" | "beginning" | "come" | "district" | "feed" |
| "action" | "behind" | "coming" | "does" | "feel" |
| "activities" | "being" | "committee" | "doing" | "feeling" |
| "activity" | "believe" | "common" | "done" | "feet" |
| "actually" | "below" | "communist" | "don't" | "felt" |
| "added" | "best" | "community" | "door" | "field" |
| "addition" | "better" | "company" | "doubt" | "figure" |
| "additional" | "between" | "complete" | "down" | "filled" |
| "administration" | "beyond" | "completely" | "drive" | "final" |
| "after" | "black" | "computer" | "during" | "finally" |
| "afternoon" | "blood" | "concerned" | "each" | "find" |
| "again" | "blue" | "conditions" | "earlier" | "fine" |
| "against" | "board" | "congress" | "early" | "fire" |
| "ahead" | "body" | "consider" | "earth" | "firm" |
| "almost" | "book" | "continue" | "east" | "first" |
| "alone" | "born" | "control" | "easy" | "fiscal" |
| "along" | "both" | "corner" | "economic" | "five" |
| "already" | "boys" | "corps" | "education" | "floor" |
| "also" | "bring" | "cost" | "effect" | "followed" |
| "although" | "British" | "costs" | "effective" | "following" |
| "always" | "brought" | "could" | "effects" | "food" |
| "America" | "brown" | "couldn't" | "effort" | "foot" |
| "American" | "building" | "countries" | "efforts" | "force" |
| "among" | "built" | "country" | "eight" | "foreign" |
| "amount" | "business" | "county" | "either" | "form" |
| "analysis" | "call" | "couple" | "elements" | "former" |
| "another" | "came" | "course" | "else" | "forward" |
| "answer" | "can't" | "court" | "email" | "found" |
| "anticipate" | "cannot" | "covered" | "England" | "four" |
| "anyone" | "care" | "daily" | "English" | "free" |
| "anything" | "carried" | "dark" | "enough" | "freedom" |
| "apparently" | "cars" | "data" | "entire" | "French" |
| "appear" | "case" | "days" | "equipment" | "friend" |

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|--------------|-----------------|------------|----------------|--------------|
| "from" | "image" | "little" | "must" | "place" |
| "front" | "immediately" | "live" | "myself" | "placed" |
| "full" | "important" | "living" | "name" | "plan" |
| "function" | "include" | "local" | "nation" | "planning" |
| "further" | "including" | "long" | "national" | "play" |
| "future" | "income" | "longer" | "natural" | "please" |
| "game" | "increase" | "look" | "nature" | "point" |
| "gave" | "indeed" | "looking" | "near" | "police" |
| "general" | "individual" | "lost" | "nearly" | "political" |
| "generally" | "industrial" | "love" | "necessary" | "pool" |
| "getting" | "industry" | "lower" | "need" | "population" |
| "girl" | "influence" | "made" | "needs" | "position" |
| "give" | "information" | "main" | "negro" | "possible" |
| "given" | "inside" | "major" | "neither" | "post" |
| "gives" | "instead" | "make" | "nerd" | "power" |
| "glass" | "interest" | "making" | "never" | "predict" |
| "going" | "international" | "manner" | "next" | "prediction" |
| "gone" | "internet" | "many" | "night" | "present" |
| "good" | "into" | "march" | "normal" | "president" |
| "government" | "involved" | "market" | "north" | "press" |
| "great" | "island" | "married" | "note" | "pressure" |
| "green" | "issue" | "mass" | "nothing" | "price" |
| "ground" | "itself" | "material" | "nuclear" | "principle" |
| "group" | "jack" | "matter" | "number" | "private" |
| "growing" | "just" | "maybe" | "numbers" | "probably" |
| "growth" | "justice" | "mean" | "obtained" | "problem" |
| "hair" | "keep" | "meaning" | "obviously" | "process" |
| "half" | "kept" | "means" | "office" | "production" |
| "hall" | "keyboard" | "medical" | "often" | "products" |
| "hand" | "kind" | "meet" | "once" | "program" |
| "happened" | "knew" | "meeting" | "ones" | "progress" |
| "hard" | "know" | "member" | "only" | "property" |
| "have" | "knowledge" | "merely" | "open" | "provide" |
| "having" | "known" | "method" | "opened" | "public" |
| "head" | "labor" | "methods" | "operation" | "purpose" |
| "hear" | "lack" | "middle" | "opportunity" | "quality" |
| "heart" | "land" | "might" | "order" | "question" |
| "heavy" | "language" | "miles" | "organization" | "quite" |
| "held" | "large" | "military" | "other" | "race" |
| "hello" | "larger" | "million" | "outside" | "radio" |
| "help" | "last" | "mind" | "over" | "range" |
| "here" | "late" | "minutes" | "paid" | "rate" |
| "herself" | "latter" | "miss" | "paper" | "rather" |
| "high" | "lead" | "modern" | "part" | "reached" |
| "higher" | "leaders" | "moment" | "particular" | "reaction" |
| "himself" | "learned" | "money" | "particularly" | "read" |
| "history" | "least" | "month" | "parts" | "reading" |
| "hold" | "leave" | "moral" | "passed" | "real" |
| "home" | "left" | "more" | "past" | "really" |
| "hope" | "length" | "morning" | "pattern" | "reason" |
| "horse" | "less" | "most" | "peace" | "received" |
| "hospital" | "letter" | "mother" | "people" | "recent" |
| "hotel" | "level" | "mouse" | "performance" | "recently" |
| "hour" | "life" | "move" | "perhaps" | "record" |
| "house" | "light" | "moved" | "period" | "religion" |
| "however" | "like" | "movement" | "person" | "religious" |
| "human" | "likely" | "movie" | "personal" | "remember" |
| "hundred" | "line" | "moving" | "physical" | "report" |
| "husband" | "list" | "much" | "picture" | "required" |
| "idea" | "literature" | "music" | "piece" | "research" |

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|------------------|--------------|---------------|-----------------|------------|
| "respect" | "situation" | "subject" | "told" | "week" |
| "responsibility" | "size" | "such" | "took" | "well" |
| "rest" | "slowly" | "suddenly" | "total" | "went" |
| "result" | "small" | "summer" | "toward" | "were" |
| "return" | "social" | "support" | "town" | "west" |
| "returned" | "society" | "sure" | "trade" | "western" |
| "right" | "some" | "surface" | "training" | "what" |
| "river" | "something" | "system" | "treatment" | "whatever" |
| "road" | "sometimes" | "systems" | "trial" | "when" |
| "room" | "somewhat" | "table" | "tried" | "where" |
| "running" | "soon" | "take" | "trouble" | "whether" |
| "said" | "sort" | "taking" | "true" | "which" |
| "sales" | "sound" | "talk" | "truth" | "while" |
| "same" | "south" | "technical" | "trying" | "white" |
| "saying" | "southern" | "tell" | "turn" | "whole" |
| "says" | "soviet" | "temperature" | "turned" | "whom" |
| "school" | "space" | "term" | "twenty" | "whose" |
| "science" | "speak" | "test" | "type" | "wide" |
| "season" | "special" | "than" | "under" | "wife" |
| "second" | "specific" | "that" | "understand" | "will" |
| "secretary" | "spirit" | "their" | "understanding" | "window" |
| "section" | "spring" | "them" | "union" | "wish" |
| "seem" | "square" | "themselves" | "united" | "with" |
| "seemed" | "staff" | "then" | "university" | "within" |
| "seen" | "stage" | "theory" | "until" | "without" |
| "self" | "stand" | "there" | "upon" | "woman" |
| "sense" | "standard" | "therefore" | "used" | "women" |
| "sent" | "start" | "there's" | "using" | "word" |
| "series" | "started" | "these" | "usually" | "work" |
| "serious" | "state" | "they" | "value" | "worked" |
| "served" | "statements" | "thing" | "values" | "working" |
| "service" | "stay" | "think" | "various" | "works" |
| "setup" | "step" | "thinking" | "very" | "world" |
| "seven" | "still" | "third" | "view" | "would" |
| "several" | "stock" | "thirty" | "voice" | "wouldn't" |
| "shall" | "stood" | "this" | "volume" | "writing" |
| "short" | "stop" | "those" | "waiting" | "written" |
| "shot" | "stopped" | "thought" | "walked" | "wrong" |
| "should" | "story" | "three" | "wall" | "wrote" |
| "show" | "straight" | "through" | "want" | "year" |
| "side" | "street" | "throughout" | "wanted" | "York" |
| "similar" | "strength" | "thus" | "Washington" | "young" |
| "simple" | "strong" | "time" | "wasn't" | "you're" |
| "since" | "student" | "today" | "water" | |
| "single" | "study" | "together" | "ways" | |

Word Count = 816

End of ROM Vocab Table

End of file