

SERIES M750 POS KEYBOARD

PROGRAMMING GUIDE

Congratulations on your purchase of UTC RETAIL's innovative Series M750 POS Keyboard! The Series M750 is the most powerful, programmable and feature-rich keyboard on the market. With it, you have a limitless selection of configurations and capabilities. Fully Unified Point Of Sale (UPOS) compatible, the Series M750 features an on-board microcontroller, indicator lights, Annunciator and a 3-track magnetic stripe reader (MSR).

This guide is designed to acquaint you with the features and functionality of the UTC RETAIL Series M750 POS Keyboard.

Series M750 POS Keyboard Programming Guide

May 2011

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If a unit needs to be shipped to UTC RETAIL for repairs, please return it in the original packing material and shipping container. If you purchased the M750 POS Keyboard through a dealer, and the dealer is unable to answer your questions, please call UTC RETAIL Technical Support at 1.800.349.0546.

This equipment has been tested and found to comply with the limits for a Class "A" digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his/her own expense.

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PRODUCT INFORMATION

The Series M750 POS Keyboard is a point-of-sale (POS) keyboard designed for use with a PC, ASCII terminal, or network computer. The keyboard contains one RJ45 port for connection to the work station. The keyboard is fully compatible with OPOS and JavaPOS device drivers and has a built in 3-track MSR. The Series M750 POS Keyboard is programmable via a utility called ULAP, the UTC RETAIL Ultimate Layout And Programming Utility. ULAP is available on UTC RETAIL's web site, www.utcretail.com, in the POS Keyboard driver download section. This utility will run under Windows or Linux, and allows you to program every facet of your M750 Keyboard.

Series M750 POS Keyboard Components

You will find the following components inside the Series M750 POS Keyboard Box:

- Keyboard
- Cable

Series M750 POS Keyboard Features

- Full travel, standard ¾" key QWERTY layout – 121 keys
- All key locations are configurable
- All keys can be permanently printed or re-legendable. Relegendable keycaps have removable plastic covers for re-legending.
- Standard keyboard configurations, including QWERTY and typical POS layouts, are available. Custom configurations of any number of keys are also available.
- Remote Programming (from Host)
- All keys can be reprogrammed to output any code.
- Single wide and double wide keys can be placed anywhere on the keyboard.
- Fillers are available for most unused key locations.
- UPOS Keyboard drivers are available.

Magnetic Stripe Reader

- 3-track
- Programmable for prefix, suffix, separators, and audible annunciation

- UPOS drivers available

Three LED Indicators

- Programmable
- PC Controlled (Scroll, NUM and CAPS lock)

Built-in Annunciator

- Programmable
- Selectable tone and duration

General Specifications

NAME	SPECIFICATIONS
Dimensions	7.85" x 14.7" x 2.97"
Weight	3.5 lbs
Electrical	135 – 185mA at 5VDC (supplied from host)
Storage Temperature	- 40° to 60°C
Operating Temperature	0° to 50°C
Approvals	FCC Class A; UL recognized (USA and Canada)

Service and Warranty

The Series M750 POS Keyboard comes with a one-year parts and labor warranty. Assistance and customer service is always available from UTC RETAIL Technical Support. If your dealer or service provider cannot answer your questions or provide satisfactory service, please call UTC RETAIL Technical Support. When calling for assistance or service information, please be ready to provide the model number, part number and serial number of the keyboard. This information is found on a decal located on the bottom of the keyboard.

If the keyboard needs to be returned to a repair facility, please use the original packing material and shipping carton.

The address and telephone numbers to be used for assistance, service, and warranty information are:

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PROGRAMMING

The operating parameters of the keyboard must be configured (programmed) remotely from a host computer via its keyboard port. The Series M750 POS Keyboard is programmable via a utility called ULAP, the UTC RETAIL Layout And Programming Utility. ULAP is available on UTC RETAIL's web site, www.utcretail.com, in the M750 POS driver download section. This utility will run under Windows or Linux, and allows you to program every facet of your M750 Keyboard.

Note: All keyboards come from the factory programmed with a default set of parameters.

Run-time Commands

Certain commands can be used during keyboard operation to control specific devices. A summary of the commands and their assigned Function Codes (OP Codes) and mnemonic is as follows:

Note: OP Codes are single 8-bit entities in hexadecimal.

- OP Code A4 – User notes storage (NOTES)
- OP Code A6 – Keyboard click (CLICKED)
- OP Code AD – Send row/column position (RAWED)
- OP Code AE – Secure Keyboard (SECURE)
- OP Code B0 – Indicator Light Command (LIGHT)
- OP Code B1 – Beeper Activation Command (BEEPON)
- OP Code B5 – Reset Keyboard (RESET)
- OP Code B6 – Not Used on M750
- OP Code B7 – Not Used on M750
- OP Code B8 – MSR sending options (MSRSND)
- OP Code B9 - Enable/Disable Card Reader Command (CARDED)
- OP Code BD – Not Used

- OP Code BE – Send Version Information Command (VERSION)

Remote Programming Mode Commands

OP CODE (HEX)	MNEMONIC DESCRIPTION	COMMAND/ACKNOWLEDGEMENT
A4	<p>NOTES</p> <p>Used to store up to 40 characters in the M750 keyboard. Useful for keyboard programming versions.</p>	<p>COMMAND: A4xxx-xxxxx<CR></p> <p>A4 = Op Code</p> <p>x = user data</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGEMENT: NONE</p>
A6	<p>CLICKED</p> <p>Used to enable/disable keyboard click. Outputs a beep for each key press.</p>	<p>COMMAND: A6x<CR></p> <p>A6 = Op Code</p> <p>x 0 = Off (30 hex)</p> <p>1 = On (31 hex)</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGEMENT: NONE</p>
AD	<p>RAWED</p> <p>Used for testing, overrides preprogrammed macros, send actual row/column for each key. EG upper left corner = 1A (2 ASCII characters)</p>	<p>COMMAND: ADx<CR></p> <p>AD = Op Code</p> <p>x 0 = user codes (30 hex)</p> <p>1 = row column (31 hex)</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGEMENT: NONE</p>

OP CODE (HEX)	MNEMONIC DESCRIPTION	COMMAND/ACKNOWLEDGEMENT
AE	<p>SECURE</p> <p>Used to lock keyboard input.</p>	<p>COMMAND: AEx<CR></p> <p>AE = Op Code</p> <p>X 0 = unsecured (30 hex)</p> <p>1 = secured (31 hex)</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGEMENT: NONE</p> <p>NOTE: Value is stored in NVRAM, power cycle does not clear mode.</p>
B0	<p>LIGHT</p> <p>Provides on/off control for keyboard light emitting diode (LED) indicators. PC mode for NUM, CAP, and SCROLL lights are the default.</p>	<p>COMMAND: B0Lx<CR></p> <p>B0 = Op Code</p> <p>L = lamp (see below)</p> <p>x 0 = lamp off (30 hex)</p> <p>1 = lamp on (31 hex)</p> <p><CR> = terminate command (0D hex)</p> <p>L: 0, 1, 2, 3, P in ASCII, where 0 = all. P is used for PC emulation of NUM, CAPS and SCROLL Lock</p> <p>ACKNOWLEDGEMENT: NONE</p>

OP CODE (HEX)	MNEMONIC DESCRIPTION	COMMAND/ACKNOWLEDGEMENT																				
B1	<p>BEEPON</p> <p>Controls pitch and duration of beep.</p>	<p>COMMAND: B1pd<CR></p> <p>B1 = Op Code p = pitch in Hz d = duration in milliseconds <CR> = terminate command (0D hex)</p> <p>pitch (Hz) in ASCII</p> <table data-bbox="787 766 1193 997"> <tr> <td>0 = 500</td> <td>5 = 880</td> </tr> <tr> <td>1 = 2000</td> <td>6 = 1320</td> </tr> <tr> <td>2 = 220</td> <td>7 = 1760</td> </tr> <tr> <td>3 = 440</td> <td>8 = 2640</td> </tr> <tr> <td>4 = 660</td> <td>9 = 3520</td> </tr> </table> <p>duration (mS) in ASCII</p> <table data-bbox="787 1060 1193 1291"> <tr> <td>0 = 1000</td> <td>5 = 500</td> </tr> <tr> <td>1 = 100</td> <td>6 = 600</td> </tr> <tr> <td>2 = 200</td> <td>7 = 700</td> </tr> <tr> <td>3 = 300</td> <td>8 = 800</td> </tr> <tr> <td>4 = 400</td> <td>9 = 900</td> </tr> </table> <p>ACKNOWLEDGEMENT: NONE</p>	0 = 500	5 = 880	1 = 2000	6 = 1320	2 = 220	7 = 1760	3 = 440	8 = 2640	4 = 660	9 = 3520	0 = 1000	5 = 500	1 = 100	6 = 600	2 = 200	7 = 700	3 = 300	8 = 800	4 = 400	9 = 900
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OP CODE (HEX)	MNEMONIC DESCRIPTION	COMMAND/ACKNOWLEDGEMENT
B5	RESET Used to re-boot keyboard via host.	COMMAND: B5<CR> <CR> = terminate command (0D hex)
B6	KSSND¹ Set reporting of key switch to solicited (command B7) or unsolicited (on change).	Not Used on M750
B7	KSSTATUS¹ Send key switch MAKE code for current keyswitch position.	Not Used on M750
B8	MSRSND Send only if all tracks are good or any good track.	COMMAND: B8x<CR> x = function A = send any good track (41 Hex) B = send only if all tracks are good (42 Hex) <CR> = terminate command (0D hex)

¹ Key switch and/or key(s) presence is dependent on the keyboard's manufactured configuration

OP CODE (HEX)	MNEMONIC DESCRIPTION	COMMAND/ACKNOWLEDGEMENT
B9	<p>CARDED</p> <p>Enable/disable magnetic card reader</p> <p>Using this command allows you to enable or disable tracks on the mag card reader; see table.</p>	<p>COMMAND: B9c<CR></p> <p>B9 = Op Code</p> <p>c = function (In ASCII)</p> <p>A = track 1 on</p> <p>B = track 2 on</p> <p>C = track 3 on</p> <p>D = track 1,2 on</p> <p>E = track 2,3 on</p> <p>F = all tracks off</p> <p>G = track 1,2,3 on</p> <p>H = track 1,3 on</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGMENT: NONE</p>
BD	<p>PORTE</p> <p>Enable/Disable Aux serial port</p>	<p>Not Used on M750</p>
BE	<p>VERSION</p> <p>Sends software version, engineering number, and keyboard type parameters.</p>	<p>COMMAND: BE<CR></p> <p>BE = Op Code</p> <p><CR> = terminate command (0D hex)</p> <p>ACKNOWLEDGEMENT:</p> <p>BEnnnnnvvvvkkkkx-x<CR></p> <p>BE = Op Code</p> <p>nnnn = engineering number</p> <p>vvvv = software version</p> <p>kkkk = keyboard type installed</p> <p>x-x = notes (maximum of 40 characters)</p>

KEY LEGEND CHANGE

Three-quarter Inch Full Travel Keyboards

There are two methods for changing the key legends of full travel keyboards:

- For keys with permanently-printed legends, each keycap can be changed by placing a flat head screwdriver under the existing key and applying upward pressure to remove the key top. The new key can then be pushed on.
- For keys with changeable key tops, remove the clear top portion of the key, replace the existing legend tab with a new one, and then replace the clear top.

Note: Keycaps and legend tabs are available for purchase from UTC RETAIL in a variety of colors, with legends customized to meet the customer's specifications. You can contact UTC RETAIL at:

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MAINTENANCE

The Series M750 POS Keyboard requires minimal routine maintenance. However, reasonable care of the keyboard will extend its life. The precautions and routine maintenance actions that follow are recommended.

Precautions

- Do not drop keyboard or allow it to be subjected to impact.
- Keep liquids away from the keyboard.
- Thin liquids, such as water, spilled into the keyboard may cause permanent damage. If you spill a thin liquid into the keyboard, disconnect it from the system. Turn it over and allow it to drain. Allow it to dry for 24 hours, and then reconnect it to the system. If it does not work, consult a qualified service technician. The keyboard may need to be repaired or replaced.
- If you spill heavy or thick liquids into the keyboard, consult a qualified service technician. The keyboard may need to be repaired or replaced.

Cleaning

The frequency of needing to clean the keyboard is dependent upon the environment.

- Wipe the exterior with a soft cloth as needed. Do not use cleaning products, as they may discolor or damage the finish.
- Use a can of computer-servicing compressed air to remove any dust that has accumulated on the keyboard or between the keys.

APPENDIX A: Series M750 POS Standard Keyboard Layout

QWERTY Keyboard Default Layout

ESC													↑	PAUSE	INSERT	HOME	PAGE UP
F1	F2	F3	F4	F5	F6	F7	F8	F9	F10	F11	F12	←	↓	→	DELETE	END	PAGE DOWN

~ `	! 1	@ 2	# 3	\$ 4	% 5	^ 6	& 7	' 8	(9) 0	BACK SPACE	+	-	*	/	
⌊ [Q	W	E	R	T	Y	U	I	O	P	 \	7	8	9		
CAPS LOCK	A	S	D	F	G	H	J	K	L	RETURN	4	5	6			
SHIFT	Z	X	C	V	B	N	M	< ,	> .	SHIFT	1	2	3	E	N	
CTRL	:	-						+ =	? /	ALT	0	00	.	T	E	R

Figure 1: Qwerty Keyboard, default layout

APPENDIX B: Keyboard Cable Connector Data

Keyboard Pinout (RJ45 Connector)

1. DATA
2. CASH DRAWER STATUS
3. GND
4. +5VDC IN
5. CLOCK
6. GND
7. NC
8. NC
9. GND
10. GND

GLOSSARY

TERM	DEFINITION
MSR	Magnetic Stripe Reader
ULAP	The UTC RETAIL Layout And Programming Utility. ULAP is available on UTC RETAIL's web site, www.utcretail.com , in the M750 POS driver download section. This utility will run under Windows or Linux, and allows you to program every facet of your M750 Keyboard. ULAP will also allow you to create a custom keyboard layout via an intuitive, graphical interface.
UPOS	UnifiedPOS. The UnifiedPOS is a standard developed by the Association for Retail Technical Standards (ARTS) as a method of achieving device independence in the POS Application. Different implementations of the UnifiedPOS standard include OPOS, JavaPOS, and OPOS for .NET.