SOFTWARE | HARDWARE | SERVICE

UTC RETAIL

3100 Series
Touch Screen POS Workstation

USER GUIDE

Congratulations on your purchase of UTC RETAIL's innovative 3100 Series Touch Screen POS Workstation. The 3100 Series was designed to conserve counter space and it comes standard with a rich set of features. This guide will acquaint you with the 3100 Series Workstation's features and functionality.

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The 3100 Series Touch Screen POS Workstation complies with UL60950 requirements. 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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Table of Contents

PRODUCT INFORMATION....3
Product Components....3
Product Safety....3
Technical Specifications....4
Operating System and Drivers....4
Installing Customer-Specific Applications....4
Care and Cleaning....4

DIAGNOSTICS AND TROUBLESHOOTING....5
Error Messages and Symptoms....5

SERVICE AND TECHNICAL SUPPORT....5

TECHNICAL INFORMATION....6
UTC RETAIL 3100 Series Motherboard Jumpers....6
Serial Port Power Selection....8
Cash Drawer Port Power Selection....9

APPENDIX A PROGRAMMING GUIDE: 3100 SERIES REAR CUSTOMER DISPLAY....10

APPENDIX B PROGRAMMING GUIDE: 3100 SERIES CASH DRAWER DRIVER....16

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Product Information

The 3100 Series Touch Screen POS Workstation is designed for use in restaurants, convenience stores, cafeterias and other specialty retail establishments. It is highly configurable, has easy access to connectors, and a large selection of interface ports for connectivity to printers, cash drawers, scanners, keyboards, and other peripherals.

Product Components

The 3100 Series product includes:

- 3100 Series main unit
- AC Line Cord
- Installation Guide

Depending on the configuration you have purchased, the following optional components may also be provided:

- Magnetic Strip Reader (MSR) unit and Installation Guide
- Rear Customer Display (RCD) unit and Installation Guide
- PoweredUSB Kit
- CF Card Adapter Kit
- WLAN Kit (802.11 a/b/g)

Product Safety

DANGER: High Voltage

This unit contains high voltage. There is a risk of electrical shock if the case is opened. If service is required, contact an authorized service agent or UTC RETAIL.

WARNING: CMOS Battery Damage

Replace your system's battery only with CR-2032 (or equivalent) 3V Lithium-Ion coin cell battery to avoid risk of personal injury or physical damage to your equipment. Always dispose of used batteries according to local ordinance, where applicable. Any damage due to not following this warning will void your warranty

WARNING: Access to Internal Components

All access to internal components of the 3100 Series unit is restricted to Authorized Service Personnel only. Opening the case or service by anyone else will automatically void the warranty on this product.

WARNING: Laser Radiation (CD or DVD Drive)

Invisible or visible laser radiation may be present when Optical Devices are present. When open, do not stare into the beam or view directly with optical instruments.

WARNING: Electrical Shock

Use caution when connecting cables. To avoid electric shock, do not connect safety extra-low voltage (SELV) circuits to telephone-network voltage (TNV) circuits. Local Area Network (LAN) ports contain SELV circuits, and telephone ports contain TNV circuits. Some LAN ports and some telephone ports use RJ-45 connectors.

CAUTION:

Damage to the logic module components may occur if AC power is not removed from the product prior to attaching any accessories.

CAUTION:

Do not hot plug to the rear panel serial ports. Turn off the 3100 Series Unit before connecting serial port cables.

CAUTION:

Do not use the Magnetic Stripe Reader (MSR) unit as a handle when moving or carrying the 3100 Series.

Technical Specifications

3100 Series Touch Screen POS Workstation	
Processor:	Intel® Celeron® 440 2.0GHz (Standard) Intel® Pentium® E2160 Dual Core (Optional)
Operating System:	Microsoft® Windows® Embedded POSReady 2009 Microsoft® Windows® Vista with XP Professional downgrade
Storage:	Hard disk drive (HDD), 160 GB Second HDD, 160 GB (Optional)
Memory:	Up to 4 GB DDR RAM (2 DIMM slots)
Input/Output:	(2) Cash drawer ports (+12VDC or +24VDC) (4) RS232 serial ports on rear I/O panel COM1 unpowered, COM2-4 powered (4) USB ports on rear I/O panel and (2) on front I/O panel (1) Multi-mode parallel port (1) SVGA port 10/100/1000 Base-T Ethernet port (1) PS/2 port (1) Audio Line-out jack (1) 24VDC power jack (Epson printer compatible)
Display:	Size/type: 15 in. (38 cm) TFT LCD flat panel Pixels/resolution: 1024 x 768 pixels
Touch Screen:	Touch screen: 7-wire resistive Connected to COM5 serial port
Mechanical Features:	Safety: UL60950 Listed Dimensions: 15 in. (38 cm) wide x 17 in. (43 cm) high x 15 in. (38 cm) deep Weight: 20 lb (9.1 kg)
Optional Features:	MSR: Three-track Rear Customer Display: 2x20 VFD, 10.5mm x 5.5mm character size PoweredUSB: Factory installed, one +12VDC and one +24VDC ports CF Card Adapter: Factory installed, IDE Wireless LAN: Factory installed, 802.11 a/b/g External Media Drives: DVD-ROM
Power Requirements:	110 VAC, 60 Hz 0.5A (typical)
RoHS	Compliant

Operating System and Drivers

The 3100 Series is typically shipped with the operating system and certain drivers installed. Individual video, audio, and network drivers can be accessed from the UTC RETAIL website at: www.utcretail.com. If you are installing UTC RETAIL-specific drivers, see the UTC RETAIL website or contact Technical Support at 1-800-349-0546 for assistance.

Installing Customer-Specific Applications

It is suggested that all applications be fully tested on the 3100 Series product to ensure that there are no hardware conflicts. This is typically done prior to store installation and within a technical environment.

Care and Cleaning

Never use pens, pencils, fingernails, or other sharp objects on the Touch Screen. **This will damage the screen and void the warranty.** Turn the unit OFF before cleaning the screen or case. Any standard glass cleaner can be used to clean the touchscreen, but avoid products containing ammonia. Always spray the glass cleaner on the cloth or towel and then clean the touchscreen. Glass cleaner sprayed directly on the monitor could possibly leak inside a non-sealed unit and cause damage.

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Diagnostics and Troubleshooting

WARNING: Unauthorized service will automatically void the warranty on the product(s). Contact UTC RETAIL Technical Support at 1.800.349.0546 or (585) 924.9500 if you have any questions.

Error Messages and Symptoms

During the power-on self test (POST), the BIOS either sounds a beep code or displays a message when it detects a correctable error. Additional messages and symptoms are specific to the operating system, application, and/or connected peripherals for that system.

Error Message	Explanation
BIOS ROM checksum error – System halted	The BIOS code may have become corrupt. Contact UTC RETAIL Technical Support.
CMOS battery failed	CMOS battery is no longer functional. Contact UTC RETAIL Technical Support.
CMOS checksum error – Defaults loaded	Checksum of CMOS is incorrect, so the system has loaded the default equipment configuration. May indicate that CMOS has become corrupt. A weak battery may have caused this error. Contact UTC RETAIL Technical Support.
Hard disk(s) diagnosis fail	The system may run specific disk diagnostic routines. This message appears if the hard drive returns an error when the diagnostics run. Contact UTC RETAIL Technical Support.
Override enabled - Defaults loaded	If the system cannot boot using the current CMOS configuration, the BIOS can override the current configuration with a set of BIOS defaults designed for the most stable, minimal-performance system operations. Contact UTC RETAIL Technical Support for BIOS settings.
Symptom	**Troubleshooting**
Touch screen accuracy is off	Recalibrate the touch screen using the Elo calibration utility in the Control Panel.
Touch screen will not work	Ensure that the touch screen driver is properly installed. Ensure that the touch screen is assigned to COM5. If touch screen still is not operational, contact UTC RETAIL Technical Support.

Service and Technical Support

Assistance and customer service are available from your dealer or authorized service provider. If your dealer or service provider cannot answer your questions or provide satisfactory service, call UTC RETAIL Technical Support. When calling for assistance or service information, please be ready to provide the serial number, which can be found on a label on the bottom of the 3100 Series. If the product needs to be returned to our repair facility, please use the original packing material and shipping carton.

For assistance, service and product information, contact:

UTC RETAIL
100 Rawson Road
Victor, NY 14564
Phone: 1.800.349.0546 or (585) 924.9500
Fax: (585) 924.1434
www.utcretail.com

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Technical Information

UTC RETAIL 3100 Series Motherboard Jumpers

Listed below are the motherboard jumpers. Only the first 5, JP3 – JP7, are user configurable. Do not change the settings of the other jumpers.

Terminal Block	Function
JP3	Cash Drawer 1 and Cash Drawer 2 Power
JP4	COM1
JP5	COM2
JP6	COM4
JP7	COM3
JP8	Boot Display Device
JP9	Power Mode
JP10	Second Display Power
JP11	CMOS Operation
JP13	System Indicator

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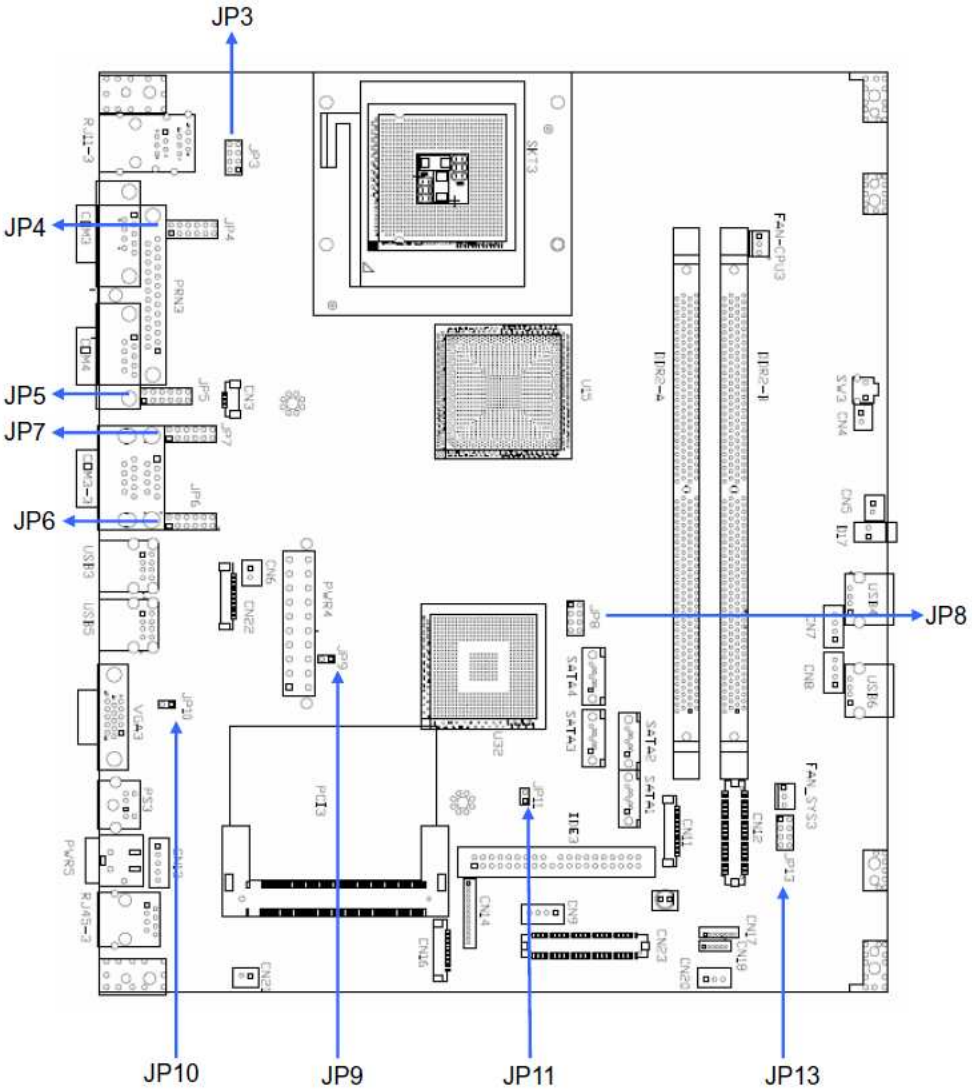

JP3
JP4
JP5
JP7
JP6
JP8
JP10
JP9
JP11
JP13

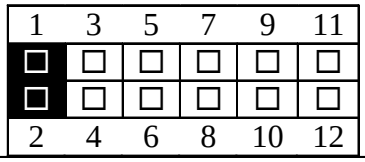
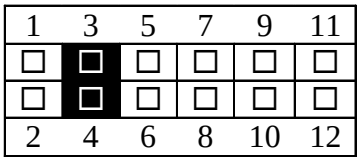
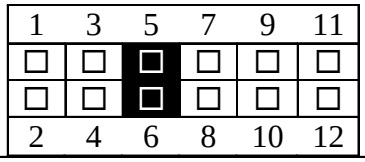
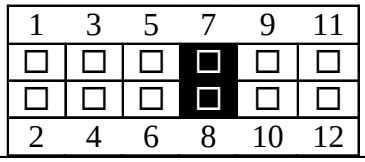
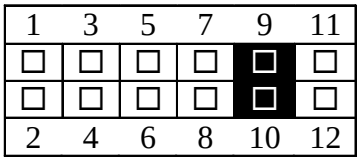
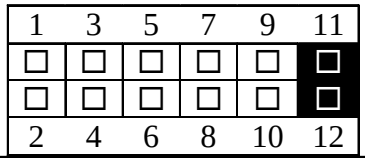
Serial Port Power Selection

The 3100 Series COM1 serial port is shipped factory set for modem operation. Pin 1 is for DCD (Data Carrier Detect), pin 9 for RI (Ring Indicator). Therefore, JP4 (COM1) has pins 1 and 2 jumpered, and pins 7 and 8 jumpered.

COM2, COM3 and COM4 are shipped factory set to provide +5VDC on Pin 9. Therefore, JP5, JP7 and JP6 have pins 1 and 2 jumpered, and pins 9 and 10 jumpered.

Each of these ports may be configured to provide +5V or +12V output to Pin 1 or Pin 9 to power your serial port peripherals. **They must not be setup to provide power to Pin 1 and Pin 9 simultaneously. Do not hot plug onto a COM port configured to provide power to pin 1 or pin 9. By default, COM2, COM3 and COM4 have +5VDC on pin 9. You run a risk of shorting the powered pin to the port's shield while hot plugging.**

COM1/COM2/COM3/COM4 Power Settings

Function	COM1 JP4 (1 – 2) (3 – 4) (5 – 6) (7 – 8) (9 – 10) (11 – 12)	COM2 JP5 (1 – 2) (3 – 4) (5 – 6) (7 – 8) (9 – 10) (11 – 12)	COM3 JP7 (1 – 2) (3 – 4) (5 – 6) (7 – 8) (9 – 10) (11 – 12)	COM4 JP6 (1 – 2) (3 – 4) (5 – 6) (7 – 8) (9 – 10) (11 – 12)
Pin 1 DCD				
Pin 1 +5VDC				
Pin 1 +12VDC				
Pin 9 RI				
Pin 9 +5VDC				
Pin 9 +12VDC				

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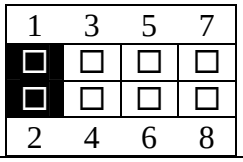
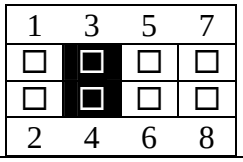
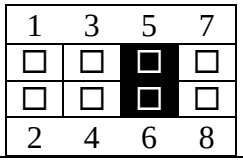
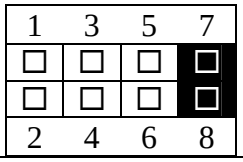
Cash Drawer Port Power Selection

The two 3100 Series Cash Drawer ports are shipped factory set for +24VDC output. Therefore, JP3 has pins 3 and 4 jumpered and pins 7 and 8 jumpered.

Cash Drawer Port 1 and 2 Power Settings

Function	**JP3** (1 – 2) (3 – 4) (5 – 6) (7 – 8)
Cash Drawer 1 +12VDC	
Cash Drawer 1 +24VDC	
Cash Drawer 2 +12VDC	
Cash Drawer 2 +24VDC	

Audio Line-out Jack

The 3100 Series line-out jack will provide an audio output signal to an external pair of computer speakers. These speakers must be powered by a user supplied external power source.

+24VDC Power Jack

The 3100 Series +24VDC power jack will provide power to operate Epson POS printers. Contact UTC RETAIL for custom cable part number 11029567.

Appendix A
Programming Guide: 3100 Series Rear Customer Display

Note: If you are using the customer display with an OPOS, JavaPOS, or POS for .Net application, this document does not apply to you. You will need to use the correct driver available on the UTC RETAIL web site at www.utcretail.com.

The 3100 Series Rear Customer Display (RCD) operates by converting recognized data, supplied by serial communication, into a display message. The supplied data may also contain commands that control the display.

The 3100 Series RCD uses a limited command structure for display control, requiring minimal programming effort. The table below lists the display control features of the 3100 Series RCD and control codes (in ASCII, DEC, and HEX expression). The display control command structure, with examples, is described in this section.

Display Control Features and Commands

The following table outlines the 3100 Series RCD control features and commands:

Feature	ASCII	DEC	HEX
Dimming	<EOT>x	04, x	04, x
Back Space	<BS>	08	08
Horizontal Tab	<HT>	09	09
Line Feed	<LF>	10	0A
Carriage Return	<CR>	13	0D
Display Position	<DLE>p	16, p	10, p
Normal Display	<DC1>	17	11
Vertical Scrolling	<DC2>	18	12
Reset	<US>	31	1F
Flashing Text Start	<FS>	28	1C
Flashing Text Stop	<GS>	29	1D
Clear to End of Line	<CAN>	24	18
Clear to End of Display	<EM>	25	19
Home and Clear Display	<RS>	30	1E

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Display Control

The following describes all display control features along with an example of their command and data sequence.

Dimming Feature

<EOT>x 04 DEC 04 HEX

Brightness can be controlled to four levels by using this function. After writing 04h to the display, the next byte sent will set the brightness. The table below lists the display dimming commands in ASCII, DEC and HEX expression.

Dimming Level	ASCII	DEC	HEX
100 %	-	255	FF
60 %	‘	96	60
40 %	@	64	40
20 %	Space	32	20

Back Spacing Feature

<BS> 08 DEC 08 HEX

When the backspace command is executed, the write-in position is shifted to the left one position, erasing the character, if any, in that position. When the write-in position is in the first (read from left to right) position of the first row, the write-in moves to the last position of the second row. When the write-in is in the first position of the second row, the write-in moves to the last position of the first row.

Horizontal Tab Feature

<HT> 09 DEC 09 HEX

DC1 Mode (Normal Display Mode)
The write-in position is shifted to the right one position. When the write-in is in the last position of the first row, the write-in moves to the first position of the second row. When the write-in is in the last position of the second row, the write-in moves to the first position of the first row.

DC2 Mode (Vertical Scroll Mode)
When the write-in is in the last position of the second row, the characters displayed in the second row are shifted up to the first row and the write-in moves to the first position of the second row. This action clears the second row.

Line Feeding

<LF> 10 DEC 0A HEX

DC1 Mode (Normal Display Mode)
The write-in moves up or down to another row, staying in the same horizontal position.

DC2 Mode (Vertical Scroll Mode)
When the write-in is in the second row, the characters displayed there are shifted up to the first row, leaving the write-in at its present position. This action clears the second row. When the write-in is in the first row, the write-in moves down to the second row.

Carriage Return Feature

<CR> 13 DEC 0D HEX

The write-in moves to the first position of the same row.

Display Position Feature

<DLE> 16 DEC 10 HEX

Use the display positioning function to specify the write-in starting position.

After writing a 10h to the display, enter a position byte from the following Character Position Chart (HEX):

Row	Position Bytes																			
1	00	01	02	03	04	05	06	07	08	09	0A	0B	0C	0D	0E	0F	10	11	12	13
2	14	15	16	17	18	19	1A	1B	1C	1D	1E	1F	20	21	22	23	24	25	26	27

Normal Display Mode Feature

<DC1> *17* DEC 11 HEX

After writing a character, the write-in is shifted automatically to the right one position. When the write-in is in the last position of the first row, the write-in moves to the first position of the second row. When the write-in is in the last position of the second row, the write-in moves to the first position of the first row.

Vertical Scroll Mode Feature

<DC2> 18 DEC 12 HEX

After writing the characters up to the last position of the second row, all characters displayed in the second row are shifted to the upper row (first row), clearing the second row.

Reset

<US> 31 DEC 1F HEX

All characters displayed are erased, and the write-in position (cursor position) is set in the first position of the first row. The display mode returns to the power-on default set-up.

Flashing Text Start

<FS> 28 DEC 1C HEX

After receipt of this command, all subsequent data received will flash, until a <GS> command is received. Flashing will be terminated with the flashing text stop command.

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Flashing Text Stop

<GS> 29 DEC 1D HEX

After receipt of this command, the characters following will not flash.

Clear to End of Line Feature

<CAN> 24 DEC 18 HEX

This command will clear out the display from the current write-in position to the end of the current line. The current write-in position will not change.

Clear to End of Display Feature

<EM> 25 DEC 19 HEX

This command will clear out the display from the current write-in position to the end of the second line. The current write-in position will not change.

Home and Clear Display Feature

<RS> 30 DEC 1E HEX

This command will clear the display and move the write-in position to the first position of the first row.

Display Character Codes

For a full listing of the display character codes used by the 3100 Series RCD, refer to the ASCII Character Set in the table on the following pages.

Serial Operating Parameters Selection

The 3100 Series RCD ships factory set for 9600 baud, 8 data bits, and no parity. If desired, the baud and parity can be changed with a few simple steps.

Remove the lens cover by depressing the 2 tabs on the bottom of the display. While the tabs are depressed, carefully rotate the lens cover off of the display, starting at the bottom of the display. Once the lens is removed, the headers used to select the baud rate and parity will be visible. They are located on the printed circuit board to the right of the vacuum fluorescent display. The shorting jumpers (supplied with unit) can be added to change both the baud rate and/or parity.

The diagram below shows positions of the shorting jumpers needed for different baud rates and parities. Up to 4 shorting jumpers may be needed.

BAUD RATE

9600 Baud	2400 Baud	4800 Baud	19.2K Baud
. . 7	. . 7	. . 7	. . 7
DEFAULT . . 6	. . 6	. . 6	. . 6
. . 5	. . 5	. . 5	. . 5
. . 4	. . 4	. . 4	. . 4
. . 3	. . 3	. . 3	. . 3
. . 2	. . 2	. . 2	. . 2
. . 1	. . 1	. . 1	. . 1

PARITY

No Parity	Odd Parity	Even Parity
. . 7	. . 7	. . 7
DEFAULT . . 6	. . 6	. . 6
. . 5	. . 5	. . 5
. . 4	. . 4	. . 4
. . 3	. . 3	. . 3
. . 2	. . 2	. . 2
. . 1	. . 1	. . 1

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ASCII Character Set

DEC	HEX	ASCII	DEC	HEX	ASCII	DEC	HEX	ASCII	DEC	HEX	ASCII
0	00	Ctrl-@ (NUL)	32	20	Space	64	40	@	96	60	`
1	01	Ctrl-A (SOH)	33	21	!	65	41	A	97	61	a
2	02	Ctrl-B (STX)	34	22	“	66	42	B	98	62	b
3	03	Ctrl-C (ETX)	35	23	#	67	43	C	99	63	c
4	04	Ctrl-D (EOT)	36	24	$	68	44	D	100	64	d
5	05	Ctrl-E (ENQ)	37	25	%	69	45	E	101	65	e
6	06	Ctrl-F (ACK)	38	26	&	70	46	F	102	66	f
7	07	Ctrl-G (BEL)	39	27	‘	71	47	G	103	67	g
8	08	Ctrl-H (BS)	40	28	(	72	48	H	104	68	h
9	09	Ctrl-I (HT)	41	29	)	73	49	I	105	69	i
10	0A	Ctrl-J (LF)	42	2A	*	74	4A	J	106	6A	j
11	0B	Ctrl-K (VT)	43	2B	+	75	4B	K	107	6B	k
12	0C	Ctrl-L (FF)	44	2C	,	76	4C	L	108	6C	l
13	0D	Ctrl-M (CR)	45	2D	-	77	4D	M	109	6D	m
14	0E	Ctrl-N (SO)	46	2E	.	78	4E	N	110	6E	n
15	0F	Ctrl-O (SI)	47	2F	/	79	4F	O	111	6F	o
16	10	Ctrl-P (DLE)	48	30	0	80	50	P	112	70	p
17	11	Ctrl-Q (DC1)	49	31	1	81	51	Q	113	71	q
18	12	Ctrl-R (DC2)	50	32	2	82	52	R	114	72	r
19	13	Ctrl-S (DC3)	51	33	3	83	53	S	115	73	s
20	14	Ctrl-T (DC4)	52	34	4	84	54	T	116	74	t
21	15	Ctrl-U (NAK)	53	35	5	85	55	U	117	75	u
22	16	Ctrl-V (SYN)	54	36	6	86	56	V	118	76	v
23	17	Ctrl-W (ETB)	55	37	7	87	57	W	119	77	w
24	18	Ctrl-X (CAN)	56	38	8	88	58	X	120	78	x
25	19	Ctrl-Y (EM)	57	39	9	89	59	Y	121	79	y
26	1A	Ctrl-Z (SUB)	58	3A	:	90	5A	Z	122	7A	z
27	1B	Ctrl-[(ESC)	59	3B	;	91	5B	[	123	7B	{
28	1C	Ctrl-\ (FS)	60	3C	<	92	5C	\	124	7C	|
29	1D	Ctrl-] (GS)	61	3D	=	93	5D	]	125	7D	}
30	1E	Ctrl-^ (RS)	62	3E	>	94	5E	^	126	7E	~
31	1F	Ctrl-_ (US)	63	3F	?	95	5F	_	127	7F	DEL

Appendix B
Programming Guide: 3100 Series Cash Drawer Driver

Note: If you are using the cash drawer with an OPOS, JavaPOS, or POS for .Net application, this document does not apply to you. You will need to use the correct driver available on the UTC RETAIL web site at www.utcretail.com.

Windows XP and POSReady 2009

If you purchased your 3100 Series with Windows Vista with XP downgrade or POSReady 2009 pre-installed on it, you will find a Cash Drawer Utility folder within the Drivers folder on the hard drive. In the Cash Drawer Utility folder there are two additional folders. In cdbox48C there exists both source code and executables for DOS and Windows environments. In the UTC3100 Cash Drawer folder, there is Visual Studio source code and an executable.

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