UltimaTouch™ 1800 Series Touch Screen POS Workstation

USER GUIDE

Congratulations on your purchase of UTC RETAIL's innovative UltimaTouch™ 1800 Series Touch Screen POS Workstation. The UltimaTouch™ 1800 conserves counter space and allows quick access to internal components, making it easy to upgrade and service. This guide will acquaint you with UltimaTouch™ 1800 Workstation features and functionality.

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The UltimaTouch™ 1800 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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Product Information

The UltimaTouch™ 1800 Series Touch Screen POS Workstation is designed for use in restaurants, convenience stores, 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 UltimaTouch™ 1800 Series product includes:

- UltimaTouch™ 1800 main unit
- AC Line Cord
- Installation Guide

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

- Detachable Magnetic Strip Reader (MSR) unit and Installation Guide
- Customer Display unit and Installation Guide

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 Series 1800 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:
To reduce risk of fire when using a Modem, use only No. 26 AWG or larger telecommunications cord.

CAUTION:
Always disconnect all telephone lines from the wall outlet before servicing or disassembling this equipment.

Technical Specifications

UltimaTouch™ 1800 Series Touch Screen POS Workstation		
Processor:	Intel® Celeron® 1.2 GHz standard	
Operating System:	Microsoft® Windows®: 2000 Professional, XP Professional, XP Embedded, WEPOS, Novell SuSE® Linux	
Storage:	Hard disk drive (HDD), 40 GB or larger	
Memory:	Up to 1 GB DDR RAM (2 DIMM slots)	
Input/Output:	Cash drawer port (4) RS232 serial ports on I/O panel (4) USB ports on I/O panel and (1) on LCD bezel (1) Multi-mode parallel port (1) SVGA port 10/100 Base-T Ethernet port Keyboard port Mouse port Integrated audio ports	
Display:	Size/type: Pixels/resolution: Controller:	15 in. (38 cm) TFT LCD flat panel 1024 x 768 pixels VIA AGP UniChrome™ graphics CLE266
Touch Screen:	Touch screen: 7-wire resistive Connected to COM2 serial port	
Mechanical Features:	Safety: Dimensions: Weight:	UL60950 Listed 15 in. (38 cm) wide x 17 in. (43 cm) high x 15 in. (38 cm) deep 25 lb (17.3 kg)
Optional Features:	MSR: Speakers: Customer Display: Removable Media Drives:	Optional three-track or two-track Factory installed, stereo, 1 Watt per channel 2 x 20 character VFD (Vacuum Fluorescent Display) Connected to COM6 serial port CD-ROM DVD-ROM
Power Requirements:	110 VAC, 60 Hz 0.6 AMP	

Operating System and Drivers

UltimaTouch™ 1800 Series products are 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 for assistance.

Installing Customer-Specific Applications

It is suggested that all applications be fully tested on the UltimaTouch™ Series 1800 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. Use only UTC RETAIL-approved cleaning agents. For best results, spray the cleaning agent on a soft cloth or paper towel, then gently wipe the screen and case. Avoid getting cleaning agents in the space between the screen and the case. Do not spray cleaning agents directly onto the screen. Approved cleaning agents: Fantastik®, Formula 409®, Windex®.

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 calibration utility.
Touch screen will not work	Ensure that the touch screen driver is properly installed. Ensure that the touch screen is assigned to COM2. 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 model number and serial number, which can be found on a decal on the main unit. If the product needs to be returned to a repair facility, please use the original packing material and shipping carton.

For assistance, service and product information, contact:

UTC RETAIL
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Victor, NY 14564
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Fax: (585) 924.1434
www.utcretail.com

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Appendix A
Programming Guide: UltimaTouch™ 1800 Customer Line Display

Note: If you are using the line 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 UT1800 Customer Line Display operates by converting recognized data, supplied by serial communication (default COM6), into a display message. The supplied data may also contain commands that control the display.

The UT1800 Customer Line Display uses a limited command structure for display control, requiring minimal programming effort. The table below lists the display control features of the UT1800 Customer Display 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 UT1800 Customer Display 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

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.

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 UT1800 Customer Display, refer to the ASCII Character Set in the table on the next page.

Serial Operating Parameters Selection

The UT1800 Customer Display 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 florescent 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

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: UltimaTouch™ 1800 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.

Linux

If you purchased your UltimaTouch™ 1800 with Linux pre-installed on it, the kernel driver for the cash drawer should have already been installed. If you setup Linux yourself, you will need to download the Linux kernel driver (p.n.: 11473039) from the UTC RETAIL web site. When the driver is installed a device node called "/dev/UTC RETAIL1800Cashdrawer" will be created. This is the file that all communications with the driver will go though.

Included in the driver package is sample source code showing how to communicate with the cash drawer port on the UltimaTouch™ 1800. Any application that you write to use the cash drawer must have the following include line:

```
#include "1800cashdrawer_ioctl.h"
```

The 1800cashdrawer_ioctl.h file defines the IO Controls (ioctls) for using the cash drawer port. The following ioctls are defined:

```
IOCTL_FIRE_1 Fire drawer 1

IOCTL_FIRE_2 Fire drawer 2

IOCTL_STATUS Get drawer open status
```

Note: Although two cash drawers are supported; there is only one status line. If either of the two drawers is open, the status will be open. If both drawers are closed, the status will be closed.

Below is a code snipit that shows how to open drawer 1:

```
...SNIP...
printf("Firing 1\n");
dev = fopen("/dev/UTC RETAIL1800Cashdrawer","r");
if( dev == NULL){
    perror("Failed to open /dev/UTC RETAIL1800Cashdrawer ");
    exit(1);
}
if(ioctl(fileno(dev),IOCTL_FIRE_1) == -1){
    perror("Error with ioctl ");
}
fclose(dev);
...SNIP...
```

Below is a code snipit that shows how to get the status of the cash drawer

```
...SNIP...
printf("Status : ");
opendev();
if(ioctl(fileno(dev),IOCTL_STATUS, &retval) == -1){
    perror("Error with ioctl ");
}
printf("%s\n",(retval?"Open":"Closed"));
fclose(dev);
...SNIP...
```

Windows 2000/XP

If you purchased your UltimaTouch™ 1800 with Windows XP or 2000 pre-installed on it, the kernel driver for the cash drawer should have already been installed. If you installed Windows yourself, you will need to download the kernel driver (p.n.: 11473038) from the UTC RETAIL web site. When the driver is installed, the cash drawer will show up in the device manager under "UTC RETAIL POS Devices".

Included in the driver package is sample source code showing how to communicate with the cash drawer port on the UltimaTouch™ 1800. Any application that you write to use the cash drawer must have the following include line:

```
#include "cashdrawer_ioctl.h"
```

The cashdrawer_ioctl.h file defines the IO Controls (ioctls) for using the cashdrawer port. The following ioctls are defined:

```
IOCTL_UTC RETAIL_CASHDRAWER_FIRE_1          Fire drawer 1

IOCTL_UTC RETAIL_CASHDRAWER_FIRE_2          Fire drawer 2

IOCTL_UTC RETAIL_CASHDRAWER_STATUS          Get drawer open status

IOCTL_UTC RETAIL_CASHDRAWER_REGISTER_EVENT  Register for status change events
```

Note: Although two cash drawers are supported; there is only one status line. If either of the two drawers is open, the status will be open. If both drawers are closed, the status will be closed.

Below is a code snipit that shows how to open drawer 1:

```
...SNIP...
HANDEL hDev;
hDev = CreateFile("\\\\.\\Cashdrawer",

                  GENERIC_READ|GENERIC_WRITE,
                  0, 0, OPEN_EXISTING, FILE_FLAG_OVERLAPPED,

                  0);


if (hDev == INVALID_HANDLE_VALUE)
{
    printf("CreateFile failed with error 0x%x\n", GetLastError());

    printf("Press any key to continue.\n");
    return FALSE;
}
printf("Attempting to fire drawer 1\n");
if (!DeviceIoControl(hDev,
                     IOCTL_UTC RETAIL_CASHDRAWER_FIRE_1,
                     NULL, 0, NULL, 0, &ulRetLen, 0))

{
    code = GetLastError();
    printf("DeviceIoControl failed with error 0x%x\n", code);
}
...SNIP...
```

Below is a code snipit that shows how to get the status of the cash drawer
(assuming hDev is already open as shown above):

```
...SNIP...
BOOLEAN boolReadBuffer;
ULONG ulRetLen;


if (!DeviceIoControl(hDev,
                     IOCTL_UTC RETAIL_CASHDRAWER_STATUS,
                     NULL, 0, &boolReadBuffer,

                     sizeof(boolReadBuffer), &ulRetLen, 0))
{
    printf("DeviceIoControl failed with error 0x%x\n", GetLastError());
    return;
}
printf("Status = %s\n",(boolReadBuffer==STATUS_OPEN?"Open":"Closed"));
...SNIP...
```

The following code snipit shows how to register for and monitor status change
events (assuming hDev is already open as shown above):

```
...SNIP...
hEvent = CreateEvent(NULL, TRUE, FALSE, NULL);
if ( !hEvent ) {
    printf("CreateEvent error = %d\n", GetLastError() );
    return;
}
bStatus = DeviceIoControl(
                         hDev, // Handle to device
                         IOCTL_UTC RETAIL_CASHDRAWER_REGISTER_EVENT,

                         &hEvent, sizeof(PHANDLE), NULL,

                         0, &ulRetLen, NULL);

if ( !bStatus ) {
    printf("Ioctl failed with code %d\n", GetLastError() );
} else {
    printf("Waiting for event, open or close drawer...\n");

    WaitForSingleObject(hEvent, INFINITE);
    printf("status: %s\n",getStatusString(hDev));

    // If we want to keep receiving events, uncomment ResetEvent()
    //ResetEvent( hEvent);
}
CloseHandle(hEvent);
...SNIP...
```