

Appendix B: ES&S AutoMARK VAT (Voter Assisted Terminal) Product Overview

ES&S AUTOMARK VAT SYSTEM OVERVIEW

The **ES&S AutoMARK Voter Assist Terminal** helps voters with vision and mobility impairments mark standard paper ballots without assistance. The terminal's robust audio ballot and support for multiple languages also assists voters who are more comfortable reading or hearing ballot contents in an alternative language to cast their vote independently.

The terminal's touch screen controls and keypad buttons are interconnected. Voters may use either system to navigate the ballot at any time. The touch-screen navigation options meet all applicable guidelines for text size and readability and the physical keypad has been designed and tested with significant contributions from special needs groups. The keys are arranged and shaped to provide an intuitive voting session. Braille and printed text labels describe each key's function.



Figure 1 ES&S AutoMARK Voter Assist Terminal (VAT)

- Arrow keys are used to indicate up, down, left, and right.
- The square key serves as an "enter" key.
- The diamond-shaped key turns the screen on and off for audio only voting.
- The round key repeats the last audio prompt.
- Two sets of long oval keys control the volume and tempo of audio files.

Voters can easily change ballot selections by navigating back to the appropriate contest and selecting the change.

ES&S AUTOMARK – HAVA COMPLIANCE FULL SUPPORT FOR VOTERS WITH DISABILITIES

The ES&S AutoMARK provides voters with vision and mobility disabilities the tools to privately cast a paper ballot.

The terminal's zoom and high-contrast display options, audio ballot and Braille-embossed keypad provide full support for voters with vision impairments. An available port for a sip-n-puff device, foot pedal, or other two-position switches facilitate unassisted voting for voters with mobility issues.



Figure 2 Sip and puff device



Figure 3 Two-position foot pedal

The ES&S AutoMARK records selections on the same paper ballot used by every voter at the polling place ensuring privacy and anonymity during ballot counting. The terminal is an assistive device that does not tabulate ballot selections.

SUPPORT FOR VOTERS WITH NO VISION/LOW VISION

The ES&S AutoMARK's zoom and high contrast display options provide assistance for voters with low vision. After a voter navigates a complete ballot, the terminal generates a summary of selections in display and audio formats that the voter must approve before marking the final ballot. This ballot summary provides the opportunity to review and edit selections before committing votes to paper.

Voters who use the ES&S AutoMARK's display ballot select their options behind a standard privacy screen to prevent onlookers from viewing the ballot display.

SCREEN AND VOLUME CONTROLS

Voters can touch the ZOOM In/Out button on any screen to increase and decrease the size of the displayed text. Selecting the HIGH CONTRAST option on any screen toggles the display between high contrast mode – white text on a black background – and normal contrast – color – mode.

ES&S AUTOMARK – PAPER AUDIT TRAIL

The ES&S AutoMARK seamlessly integrates with most commonly used paper ballot tabulation equipment and election management software. The system marks virtually any paper ballot used with any common ballot tabulation system.



Figure 4 Navigation and audio controls

ES&S AutoMARK

Technical Overview – Features, Functions and Benefits

The following table includes an overview of the ES&S AutoMARK system features and benefits.

Feature	Functionality	Benefit
HAVA-compliant paper ballot voting	<ul style="list-style-type: none"> Multiple ballot navigation and selection methods including touch screen, Braille-embossed keypad, sip and puff tube, foot pedal or any other two-position switch. Audio presentation in either synthesized speech or real voice .wav files. Tempo and volume controls for adjusting audio ballot presentation. Vibrant ballot display. Ballot zoom and high-contrast (white text on black background) display options. 	The ES&S AutoMARK enables voters with vision and mobility issues to vote a paper ballot without assistance.
Real-time paper trail	<ul style="list-style-type: none"> Marks conventional optical scan paper ballots. Processes ballots cast by disabled voters at the same time and in the same manner as all other ballots cast on Election Day. 	The ES&S AutoMARK is the only HAVA-compliant system that outputs the same paper ballots cast by hand at the polling place.
Privacy and accuracy	<ul style="list-style-type: none"> Option to blank the screen during audio voting clears the terminal display to prevent onlookers from viewing ballot selections. Physical privacy screen shields the ES&S AutoMARK display during voting. Optional ballot privacy sleeve may be used to transport the paper ballot from the ballot-marking terminal to the polling place tabulator or ballot box without revealing selections. Marked ballots inserted into the terminal generate an audio and display ballot summary to confirm that ballot selections were marked as intended prior to casting. 	The ES&S AutoMARK ensures private ballot casting for all voters.
Summary page verification	<ul style="list-style-type: none"> Audio and display ballot summary allows voters to review and modify ballot selections prior to marking a paper ballot. The ES&S AutoMARK ensures that voters cannot select more than the allowed number of candidates or ballot options for a contest. 	The ES&S AutoMARK eliminates overvoting and greatly reduces the risk of undervoting. The ballot summary prevents voters from mistakenly selecting unwanted candidates or ballot options.
Alternative language support	<ul style="list-style-type: none"> Multiple languages can be stored on a single machine for use with both audio and visual ballots. Audio presented in either synthesized speech or real voice .wav recordings. Synthesized speech supports five languages: English, Spanish, Chinese, Korean and Japanese. .wav files support all languages. 	The ES&S AutoMARK ensures that citizens in a diverse population are free to exercise their privilege to vote unassisted in their native language.

Feature	Functionality	Benefit
Absentee, early and provisional voting	<ul style="list-style-type: none"> Ballot program contains all ballots within a jurisdiction. Provisional voting is supported. Absentee or early voters can use the ES&S AutoMARK at pre-determined locations. 	The ES&S AutoMARK simplifies the process of providing HAVA-compliant advance, absentee and provisional voting jurisdiction-wide without changing existing optical scan equipment or procedures.
Poll opening and closing	<ul style="list-style-type: none"> No special procedures required for opening and closing polls. Audit logs provide operational information and time/date stamps for printed ballots. 	The ES&S AutoMARK is easily deployed at any standard polling station.

Table 1 ES&S AutoMARK features, functions and benefits

ES&S AUTOMARK

TECHNICAL OVERVIEW – AUDIO SUBSYSTEM

Type	<ul style="list-style-type: none"> Stereo
Cord Length	<ul style="list-style-type: none"> 6 feet
Connector	<ul style="list-style-type: none"> ¼" and ½" (3.5mm) headphone jack
Expected life	<ul style="list-style-type: none"> 10 years
Synthesized speech speed	<ul style="list-style-type: none"> 0 – 250 words per minute

Table 2 ES&S AutoMARK audio specifications

ES&S AUTOMARK

TECHNICAL OVERVIEW –SPEECH

Application	<ul style="list-style-type: none"> Eloquence speech synthesis program
Supported languages (synthesized)	<ul style="list-style-type: none"> English Spanish Chinese Korean Japanese
Supported language (Real voice .wav file)	<ul style="list-style-type: none"> Any

Table 3 ES&S AutoMARK speech specifications

ES&S AUTOMARK

COMPONENT OVERVIEW – TOUCH SCREEN

The ES&S AutoMARK touch screen is the main interface between the terminal and voter. The touch screen displays all ballot, language and font selections, system messages, instructions and terminal settings.

When a voter touches a candidate name or target box on the screen, the choice highlights to indicate a valid selection. Touching the same box or area a second time cancels the selection.

ES&S AUTOMARK

COMPONENT OVERVIEW – SYSTEM MEMORY

The ES&S AutoMARK's election configuration is stored to a standard flash memory card that is inserted behind a locking panel on the terminal's control panel. This card is removable, reusable and interchangeable with other ES&S AutoMARK terminals.

The terminal's memory card contains all of the election data – contests, candidates, choices and setup instructions – required to emulate the jurisdiction's ballot either on screen or with terminal audio files.

Because the ES&S AutoMARK does not tabulate election totals, no results are stored to the terminal's flash memory card.

ES&S AUTOMARK

COMPONENT OVERVIEW – PRIVACY SCREEN

The ES&S AutoMARK privacy screen ensures voter privacy while marking a display ballot.



Figure 5 ES&S AutoMARK privacy screen

ES&S AutoMARK

MEASURABLE SUCCESS – ADVOCACY GROUPS’ ENDORSEMENTS

ES&S has demonstrated the ES&S AutoMARK for disability advocacy groups in every state in the U.S. The California Council of the Blind, the National Federation of the Blind and the California Center for Independent Living endorse the terminal, along with other organizations including the California Common Cause.

ES&S receives constant input from disability groups around the country regarding our products and services. This feedback – along with direction from our internal usability experts and outside counsel, such as Disability Relations Group (DRG) – directly influences our product development.

ES&S partnered with Doug Towne of DRG for direct consultation on the ES&S AutoMARK. After more than 30 years of advocacy for the disability community, DRG has applied their experience and resources to the election industry. DRG provides ES&S product enhancement guidance and universal design vision.

ES&S welcomes any and all customer feedback and suggestions for product changes and improvements. We analyze all input from customers and external groups. ES&S continues to be involved in usability and accessibility studies. We are currently working with NIST laboratories to develop industry standards for usability testing, allowing NIST to use ES&S equipment for usability studies.

“I would say that the ES&S AutoMARK system provides nonvisual access to the voting process and I would highly recommend its use in all elections: local, state, and national.”

~ Curtis Chong, President – National Federation of the Blind in Computer Science

November

DISABLED MAN CASTS 1ST BALLOT
David Madrid, The Arizona Republic

For Phoenix resident Matthew Wangeman, Election Day was his Independence Day.

Tuesday marked the first time that Wangeman, a 39-year-old disabled man, was able to cast his ballot independently. He called it a proud first for both himself and the state.

“My experience today is a story I will tell my grandkids many

Wangeman can’t due to cerebral palsy. He uses a power and he communicates with a head pointer to find words on a 1 his wheelchair’s

Wangeman, with Tanya, and son, wheeled into his

Blind Voters Test Machine
They recommend the AutoMARK to Fresno County Clerk Salazar
 By Doug Hoadland *The Fresno Bee*
 September 8, 2005

Tom Randall, blind and full of opinions, came to vote Wednesday in Fresno. He was testing a voting machine with a computer voice that could help him vote like everyone else — in private and with no one’s help at a polling place.

A federal law says that people who are disabled must have equal access to voting at polling places by Jan. 1. The 39-year-old Randall is satisfied the AutoMARK machine he used Wednesday will do nicely.

“I think it’s absolutely outstanding,” he said after the test at the Valley Center for the Blind in east-central Fresno. “They’ve needed


Figure 6 ES&S AutoMARK testimonials



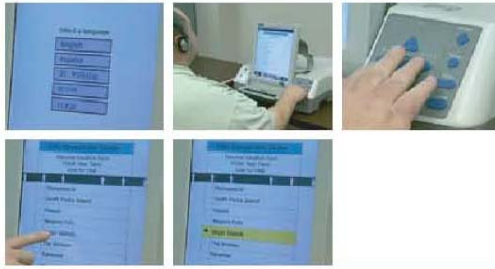
ES&S AutoMARK FUNCTIONAL OVERVIEW – MARKING A BALLOT

Quick Guide for Voters

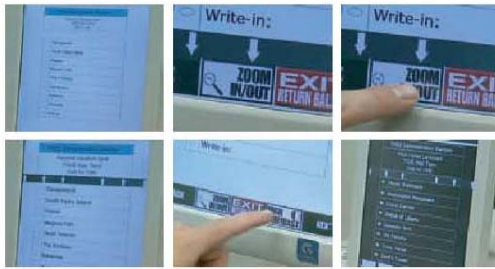
Step 1
Insert your ballot, and put on the headphones.



Step 2
Select your preferred language, and then make ballot selections using the Braille keypad or the touch screen.



Additional Features
If helpful, use the zoom in, zoom out, or high contrast features to make the ballot easier to read.



Step 3
Review your selections and, when complete, press "Mark Ballot" to complete the voting procedure and to print the ballot. Then insert the marked ballot into the feeder slot of the ballot tabulator.




Figure 7 ES&S AutoMARK ballot marking procedure