



Accessible and Verifiable Voting Technology: Vision

The latest version of this chart appears at <http://www.verifiedvotingfoundation.org/accesscharts>

<u>Vendor</u>	Model	<u>Display Font Size</u>	<u>Display Contrast</u>	<u>Display Color Shift</u>	<u>Audio Device</u>	<u>Audio Speed</u>	<u>Audio Volume</u>	<u>Voice Type</u>	<u>VVPR Readback</u>	<u>Tactile Keypad</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
AccuPoll	AVS 1000 <u>1</u>	yes <u>2</u>	yes <u>1</u>	yes <u>1</u>	yes <u>1</u>	no <u>3</u>	yes <u>4</u>	human <u>4</u>	yes <u>1</u>	yes <u>1</u>	braille keypad, <u>1</u> navigable audio ballot <u>1</u>	yes	always
AutoMARK (ES&S)	ballot marking device <u>5</u>	yes <u>5</u>	yes <u>6</u>	yes <u>8</u>	yes <u>5</u>	yes <u>5</u>	yes <u>7</u>	synth <u>8</u>	yes <u>9</u>	yes <u>7</u>	instructions in braille, repeat key <u>6</u>	yes	always
Avante	Vote Trakker <u>10</u>	yes <u>11</u>	no <u>12</u>	yes <u>11</u>	yes <u>13</u>	yes <u>13</u>	no <u>12</u>	synth <u>12</u>	yes <u>14</u>	yes <u>11</u>	navigable audio ballot <u>15</u>	yes	always
Avante	Vote Trakker Full Face <u>16</u>	yes <u>17</u>	yes <u>16</u>	yes <u>16</u>	yes <u>16</u>	-	-	-	yes <u>16</u>	yes <u>16</u>	-	yes	always
Diebold	AccuVote TS <u>18</u>	yes <u>18</u>	no <u>19</u>	no <u>19</u>	optional <u>18</u>	no <u>12</u>	yes <u>20</u>	human <u>12</u>	-	no <u>21</u>	-	no	optional
Diebold	AccuVote TSX <u>22</u>	yes <u>22</u>	yes <u>23</u>	yes <u>23</u>	optional <u>22</u>	yes <u>24</u>	-	-	-	no <u>21</u>	-	no	optional
ES&S	iVotronic <u>25</u>	yes <u>2</u>	no <u>12</u>	-	yes <u>25</u>	no <u>26</u>	no <u>26</u>	human <u>12</u>	-	yes <u>27</u>	braille keypad <u>27</u>	no	optional

<u>Vendor</u>	Model	<u>Display Font Size</u>	<u>Display Contrast</u>	<u>Display Color Shift</u>	<u>Audio Device</u>	<u>Audio Speed</u>	<u>Audio Volume</u>	<u>Voice Type</u>	<u>VVPR Readback</u>	<u>Tactile Keypad</u>	<u>Additional Features</u>	<u>All Units Accessible</u>	<u>VVPR on All?</u>
<u>ES&S</u>	<u>iVotronic LS</u> ²⁸	yes ²⁸	yes ²⁸	-	yes ²⁸	-	-	-	-	-	-	no	optional
<u>Hart Intercivic</u>	<u>eSlate</u> ²⁹	yes ²	yes ³⁰	-	optional ³¹	no ¹²	yes ³²	human ¹²	-	yes ³⁰	-	no	optional
<u>Populex</u>	<u>Digital Paper Ballot</u> ³³	yes ³⁴	yes ³⁵	yes ³⁵	yes ³	no ³	yes ³⁵	synth ³	yes ³⁵	-	-	yes	optional
<u>Sequoia</u>	<u>AVC Edge</u> ³⁶	planned ³⁷	no ¹²	-	optional ³⁸	planned ³⁷	yes ³⁹	human ¹²	no ³⁹	optional ³⁸	braille keypad ⁴⁰ navigable audio ballot ³⁷	no	optional

Key to Vision Chart:

- A. "Display Font Size" = capability to enlarge font so that voters with limited vision can more easily read the text.
- B. "Display Contrast" = increase or change contrast so text stands out, for voters with color-blindness and/or limited vision.
- C. "Display Color Shift" varies the colors shown on the screen, for voters with color-blindness and/or limited vision.
- D. "Audio Device" refers to a feature which allows voters to hear the instructions and ballot choices read to them through headphones. Some systems use synthesized voice, while others use human voice.
- E. "Audio Speed" refers to a feature which allows voters to adjust the speed at which text is read to them through headphones.
- F. "Audio Volume" refers to a feature which allows voters to adjust the volume at which text is read to them through headphones.
- G. "Voice Type" refers to recorded human speech or synthesized computer speech.

H. "VVPR Readback" is an audio readback of the voter-verified paper record (VVPR) enabling the visually impaired voters to verify that their votes are recorded as intended and to make changes as necessary. In order to provide this feature, audio readback must be from the paper record itself and not from the voting machine's internal memory.

I. "Tactile Keypad" refers to manual controls which may include Braille, specially raised or shaped buttons, etc., to facilitate the selection of choices as the voter goes through the ballot.

Footnotes for Vision Chart:

1. <http://www.accupoll.com/TheAccuPollAdvantage/Brochures/accessibility.pdf>
2. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf p.7
3. Missouri Assistive Technology Council (<http://www.at.mo.gov/>) accessibility comparison table created by Diane Cordry Golden, Spring 2005.
4. <http://www.accupoll.com/TheAccuPollAdvantage/WhitePapers/Accessible.pdf>
5. <http://www.essvote.com/HTML/docs/AutoMark.pdf> (Note: Some people maintain that ballot-marking devices are not accessible to mobility-impaired individuals and dexterity-impaired individuals because many of them are not able to move the paper ballot from the ballot-marking device to a secure ballot box. However, the AutoMARK ballot-marking device can release the marked ballot into a [privacy sleeve \(mirror\)](#) to maintain the secrecy of the vote during handling by a poll worker. A voter may also request a "visually impaired ballot" which has no plain text on it (Lou Dedier of Automark, San Francisco mock election, August 10, 2005). Many dexterity-impaired individuals use a gripper jaw to move paper ballots. Volume 1, Section 2.2.7.2.2.5, of the Election Assistance Commission's draft Voluntary Voting System Guidelines, states that voting technology vendors should make provisions for voters who are blind to submit the ballot themselves without the help of an election administrator.)
6. http://www.solidworks.com/pages/popups/viewrelease.html?prfile=11_01_2004.html
7. <http://www.automarkts.com/> under tutorial under navigation
8. <http://www.johnson-county.com/auditor/min/050502vote.htm>
9. <http://vote.nist.gov/NISTEACResaultest.pdf> under ?ensuring access to voting?
10. <http://www.vote-trakker.com/White%20Papers/ACCESSIBLE%20VOTING%20with%20voter%20verifiable%20paper%20records%20in%20DRE%20Voting%20System.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html

11. http://www.uhavavote.org/vendorfair/survey_results/avante_4.5.doc
12. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.32 of the document and p.42 of the PDF file.
13. <http://www.afb.org/afbpress/pub.asp?DocID=aw050404&select=1#1> under Voting Machines: Vote-Trakker
14. <http://www.votersunite.org/info/ElectronicVotingInBrief.pdf> p. 3
15. http://www.verifiedvoting.org/downloads/Avante_AccessibleVVPB.pdf p.4
16. <http://www.vote-trakker.com/White%20Papers/fullfaceballottouchscreensystem.pdf> and http://www.vote-trakker.com/accessible_optical_voting.html
17. <http://www.vote-trakker.com/evc308sprff.html>
18. http://www6.diebold.com/dieboldes/accuvote_ts.htm
19. [Email letter from Carrie Frank at Diebold Corporation](#), July 5, 2005 (with attached chart).
20. <http://www.cs.umd.edu/~bederson/voting/umd-dre-report.pdf>
21. Diebold claims that their machines have a tactile keyboard, but in their letters they describe it as a telephone keypad with a dotted five key, which is a regular telephone keypad.
22. http://www6.diebold.com/dieboldes/accuvote_tsx.htm
23. [Email letter from Buck Jones at Diebold Corporation](#), July 3, 2005.
24. http://www.tbpc.state.tx.us/cat_page/578-N1DieboldAccuVoteTSX.pdf p. 3
25. <http://www.essvote.com/HTML/docs/iVotronic.pdf>
26. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.12 of the document and p.22 of the PDF file

27. <http://www.essvote.com/HTML/products/ivotronic.html> right column
28. http://www.essvote.com/HTML/docs/ESS_iVotronic_LS.pdf
29. http://www.hartintercivic.com/files/accessible_DLA_12_rev.pdf
30. http://www.uhavavote.org/vendorfair/survey_results/hart_4.5.doc p.1
31. <http://www.hartintercivic.com/innerpage.php?pageid=26> DAU section
32. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.17 of the document and p.27 of the PDF file
33. http://www.populex.com/DPB_Intro.htm
34. <http://www.advocacyla.org/whatsnew.html>
35. http://www.populex.com/DPB_Features.htm in "Allows blind and visually impaired voting" section
36. <http://www.sequoiavote.com/docs/AVCEdge.pdf>
37. Sequoia presentation by Sheree Noell at a mock election sponsored by San Francisco Department of Elections, August 10, 2005.
38. http://www.dcboee.org/pdf_files/AVC_Edge_Web_Instructions.pdf p.5
39. <http://www.cvfieldsmbp.org/Voting%20Technology%20for%20People%20With%20Disabilities.pdf> p.33
40. http://www.capc.umd.edu/rpts/md_evote_ContempVotingMach.pdf

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