

## Appendix A: DS200 Pollsite Scanner Product Overview

### EQUIPMENT OVERVIEW DS200 POLLSITE SCANNER

The DS200 – ES&S' leading edge pollsite-based paper ballot scanner – combines the security, auditability and voter confidence of paper ballot voting with the increased accuracy and flexibility of a digital image scanner. The result of nearly 40 years experience designing pollsite-based scanning technology, the DS200's simple interface is supported by powerful digital image scan technology.

To cast an official ballot, voters simply insert marked paper ballots, in any orientation, into the DS200 input slot and follow the easy-to-read instructions displayed on the terminal's 12-inch LCD touch screen.

The terminal scans the entire ballot (front and back), interprets voter selections and either accepts the ballot, adding votes to the system tally; or identifies and alerts the voter to any exception condition (undervotes, overvotes, crossover votes or ballot mismarks) with large, easy-to-read system messages and audible alerts. The DS200 provides instructions for resolving any ballot issue, vastly improving voter oversight and accountability and dramatically reducing the number of invalid ballots cast during your election.



**Figure 1** DS200 Pollsite Scanner

### DS200 — ADVANCED DIGITAL SCAN TECHNOLOGY

After a voter inserts a ballot, precise sensors simultaneously scan both sides of the ballot paper for the voter's selection marks. As the DS200 tabulates ballot choices, the scanner stores a high-resolution image of the entire ballot to the inserted USB flash drive.

Collected ballot images can be transferred to another memory device and reviewed on a standard PC for required audits and ballot adjudication.

With the most accurate and reliable digital scan technology available, the DS200:

- ✓ **Safeguards voter intent** — The system captures and retains digital images of every scanned ballot for auditing and adjudication.
- ✓ **Ensures accurate results** — Patented scanning technology provides exceptional mark recognition capabilities.

- ✓ **Accommodates flexible ballot design** — Advanced image technology provides unprecedented freedom in ballot format supporting more length, width, ballot target and ballot graphic customization options than ever before.
- ✓ **Expands for future enhancements** — The high-resolution image scanner provides room for the system to grow with emerging technologies such as Intelligent Character Recognition (ICR) for write-in vote recognition, and signature verification technology for enhanced adjudication.

#### DS200 — SECURITY AND RELIABILITY

Like all ES&S ballot tabulation equipment, the DS200 is constructed using rugged, durable materials designed to withstand the wear and tear of frequent shipping to and from polling places. The terminal includes physical security features such as locking panels and security seals to secure sensitive components and election files, and a key locked case for transport and shipping.

From concept to construction, ES&S adheres to industry-leading standards for quality and security. Designed to meet the rigorous security standards of the 2005 Voluntary Voting System Guidelines, the DS200 operating system controls, limits and detects unauthorized access to all critical system components. The system also implements state-of-the-art safeguards against losses of system integrity, availability, confidentiality and accountability. In addition, ES&S encrypted all DS200 data and operating code to prevent malicious tampering.



Additional security features include:

- ✓ **Data and system validation** — The DS200 provides easy validation for all resident firmware against certified versions and generates detailed audit and event logs to support system vetting.
- ✓ **Strong physical access controls** — Uniquely shaped keyed locks, security seals, and security screws eliminate system tampering during storage, transport and use. The DS200 includes a counterfeit ballot detection feature to reject unauthorized ballots.
- ✓ **Cancelled ballot identification** — The system prints a cancellation stamp on valid, cast ballots, preventing poll workers from accidentally scanning the same ballot twice.

## DS200 — FEATURES, FUNCTIONS AND BENEFITS

Table 1, following, provides key features and benefits of the DS200.

Feature	Function	Benefits
<b>Proven technology</b>	<ul style="list-style-type: none"> <li>ES&amp;S based development of the DS200 on the Model 100 pollsite-based ballot counter platform – a system with a 12-year record of proven, reliable operation and more than 33,000 Model 100 units in use around the world.</li> </ul>	The DS200 is the best of breed in pollsite-based scanning technology, building on the proven technology and lessons learned over the development and testing of its predecessors.
<b>Security</b>	<ul style="list-style-type: none"> <li>Multiple locks and seals protect ballot compartments, the tabulator platform, ballot slot, USB memory stick and all other critical system components.</li> <li>Top section of ballot box doubles as a secure and easy-to-transport protective case.</li> <li>Passwords protect administration menu access.</li> <li>Lockable emergency ballot bin stores contested ballots for resolution board review.</li> <li>System can print a cancellation stamp on valid cast ballots to help prevent accidental double scanning.</li> </ul>	DS200 security features ensure that only authorized election personnel can access ballots and the unit's USB memory stick, which is <i>critical to the integrity of any voting system</i> .
<b>Second chance voting</b>	<ul style="list-style-type: none"> <li>Detects and identifies blank, crossover, mismarked, overvoted and undervoted ballots.</li> <li>Displays a warning message on the terminal's large text 12-inch LCD display and plays an audible alerts.</li> <li>Option to return ballot to voters when an error is detected is customizable during system configuration.</li> </ul>	The DS200 includes ballot review functions designed to drastically reduce invalid ballots and <i>ensure that every ballot represents the voter's intent</i> .
<b>Flexible ballot formatting</b>	<ul style="list-style-type: none"> <li>Supports standard ballot sizes.</li> <li>Grants complete control of all ballot elements including fonts, text size and alignment.</li> <li>Accepts ballots in portrait and landscape format</li> <li>DS200 ballot layout software develops camera-ready artwork directly from the application.</li> <li>Fully supports multiple ballot languages.</li> <li>Includes flexibility to support multiple ballot target types (ovals, arrows, boxes, etc.)</li> <li>Supports target placement on either the right or left of selection text.</li> </ul>	The DS200 offers unprecedented freedom for ballot customization and formatting.
<b>Extensive reporting capability</b>	<ul style="list-style-type: none"> <li>Produces a Zero Report at the opening of polls.</li> <li>Produces a custom Summary Report at the poll closing.</li> <li>Supports the option to suppress poll-closing reports.</li> </ul>	The DS200 <i>secures all vote totals</i> before opening the polls, and generates extensive printed records of all system activity on Election Day.

Feature	Function	Benefits
<b>Internal thermal printer</b>	<ul style="list-style-type: none"> <li>• Integrated printer generates system printouts on 3.15-inch wide paper.</li> <li>• Drop-in paper rolls allow poll workers to change paper rolls in seconds.</li> <li>• Thermal printing technology eliminates ink/ribbon costs, maintenance and downtime.</li> </ul>	The DS200 prints terminal-level vote totals and system audit reports directly from the terminal, enabling election officials to quickly report results to election central.
<b>Instant results availability</b>	<ul style="list-style-type: none"> <li>• Results from the system USB flash drive are quickly and easily transferred from remote counting sites to a central count site.</li> <li>• Fully encrypts all transmitted data.</li> </ul>	The DS200 enables <i>quick and secure</i> results transmission from each of your polling places to election headquarters
<b>Reliability</b>	<ul style="list-style-type: none"> <li>• Internal battery supplies a minimum of 2 hours continuous use in the event of power failure.</li> <li>• Environmentally friendly, internal lithium ion battery requires no special maintenance.</li> <li>• Seamless transition from AC to DC power.</li> <li>• Check and charge batteries without turning the unit on.</li> <li>• Stores all votes and election configuration files to an external USB flash drive (up to 8 GB). If a terminal fails, poll workers simply transfer the stick to a back up unit and seamlessly continue voting.</li> </ul>	<p>The DS200 backup memory and power supply ensure that <i>no votes are ever lost</i> due to power loss or equipment failure. The battery obtains its charge automatically from the system's power supply with no poll worker intervention required to switch from AC to DC power.</p> <p>Results storage to an external solid-state flash memory device (USB flash drive) prevents power surges or terminal malfunctions from effecting recorded results.</p>
<b>Enhancements – scalable technology</b>	<ul style="list-style-type: none"> <li>• Automatic write-in vote recognition.</li> <li>• Virtual ballot bins.</li> <li>• On-screen ballot display.</li> <li>• Integrated help.</li> <li>• Extended functionality for accessible voting.</li> </ul>	The DS200 expands with your needs. ES&S constructs tabulation equipment with an extended design life, ensuring that your equipment remains current and reliable well into the future.

Table 2 DS200 features, functions and benefits

**DS200 — FLEXIBLE BALLOT – BALLOT SIZE AND TARGET CAPABILITIES**

Unlike other pollsite-based paper ballot counters, the DS200 supports a wide range of ballot styles and designs — allowing you to dictate the size and format of your ballot rather than your ballot scanning equipment. The following chart illustrates the benefits the DS200’s flexible ballot features.

DS200 flexible ballot — supported features	
•	Supports paper widths of 4.5 and 8.5 inches
•	Supports page lengths from 11 to 19 inches.
•	Accepts ballots formatted in portrait or landscape orientation.
•	Flexibility to support a wide variety of voter response marks including ovals, boxes and arrows.

**Table 3 DS200 flexible ballot support details**

**DS200 — PHYSICAL DIMENSIONS**

<b>DS200 unit dimensions</b>	5.5" H (stowed) x 14" W x 16" D 23 pounds with internal battery
<b>Storage &amp; transport case dimensions</b>	10.5" H x 24" W x 26" D 29 pounds
<b>Ballot box dimensions (operational)</b>	41.5"H x 24" W x 26" D 34 pounds
<b>Screen dimensions</b>	<b>Diagonal size</b> – 12.1 inches <b>Screen resolution</b> – 800 x 600

**Table 4 DS200 physical features**

**DS200 — BATTERY SPECIFICATIONS**

The DS200 uses an environmentally friendly, internal lithium ion battery that requires no special maintenance. Batteries can be checked and charged without turning the unit on. The battery obtains its charge automatically from the system’s power supply, and no poll worker intervention required to switch from AC to DC power.

The DS200’s internal battery supplies a minimum of two hours of continuous use in the event of power failure. The unit’s backup memory and power supply ensure that no votes are ever lost due to power loss or equipment failure.



**Figure 2 DS200 backup battery**