

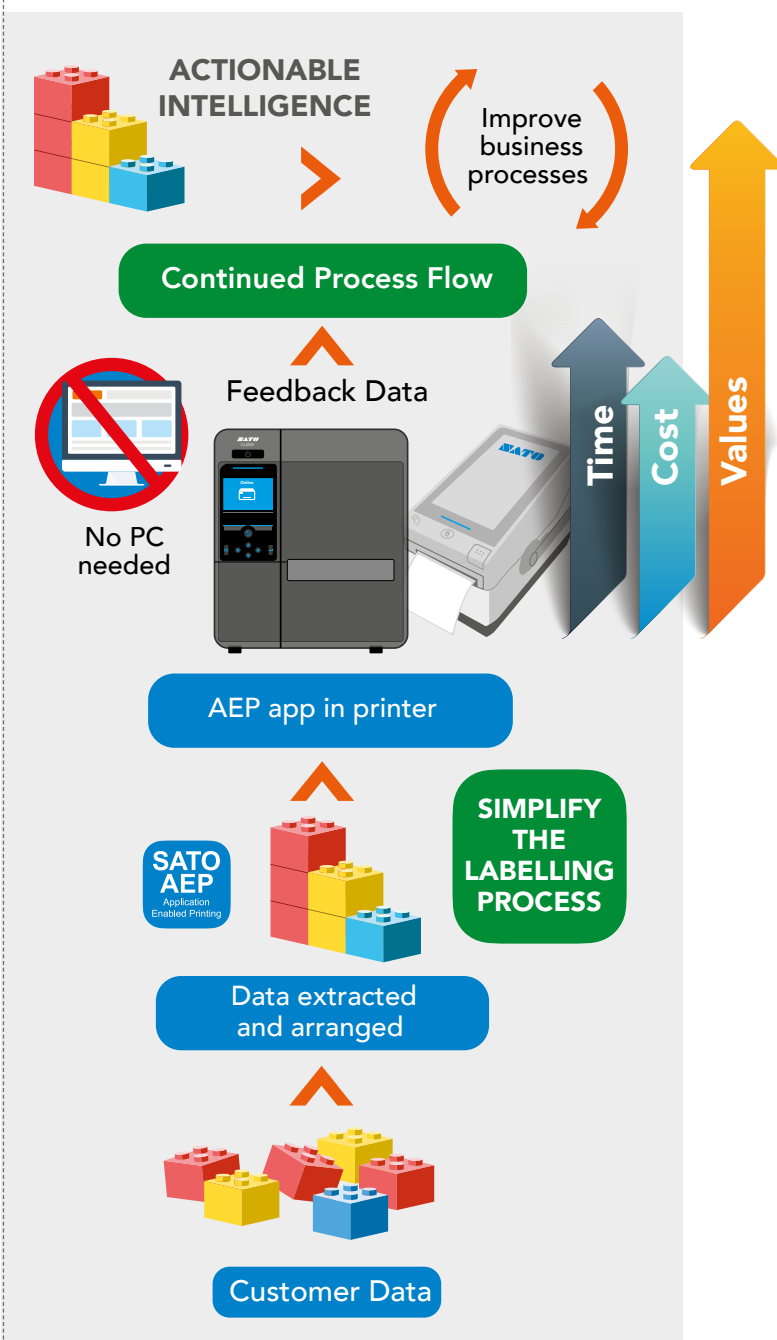


Application Enabled Printing

Powerful smart printing solutions



Typical customer tagging process



AEP Values

-  **Intuitive labelling process** through a tailored turnkey solution based on user's needs
-  **Distributed printing** - print when and where the labels are required
-  **Stable operation** due to less solution components
-  **Minimize risk for human errors** (database, peripheral device input, error checking)
-  **Actionable intelligence** through operational data fed to other systems
-  **Increased productivity** due to an efficient labelling process
-  **Implement new printing solutions** without having to modify the customer's system
-  **Legible labels and tags** for down stream use by supply chains and customers
-  **Lower TCO** due to less hardware, software and system maintenance
-  **Reduced environmental impact** Reduced environmental impact due to less hardware to power and recycle
-  **Future proof solution** that can be expanded upon when further needs arise



We give everything its own ID so it connects with the world

**SATO
AEP**
Application
Enabled Printing

As businesses today search for how big data can benefit them, at SATO, we focus on the more immediate question: "How can we make that 'thing' big data?" In a world where most things have yet to be digitized, our auto-identification solutions provide the answer.

Key user benefits



Connectivity to surrounding IT systems ensuring process continuity and expansion



Major cost savings from reducing business downtime and decreasing system maintenance with less recurring costs

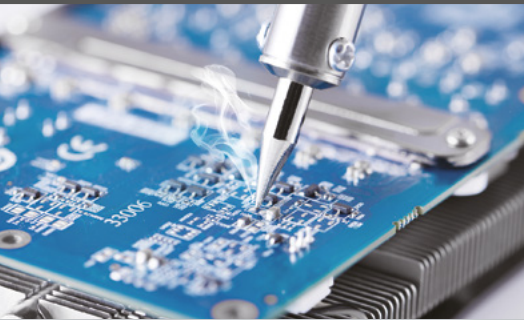


Mitigates human error by processing information internally through smart printer communication



Saves on space and reducing system complexity makes operations easier

Typical Customer AEP Case Studies



Manufacturing Industry

CHALLENGE: Admin staff in the office prints product description labels in bulk in advance and these labels are applied manually at the production line. Wrong labels are applied, and a large number of labels is wasted every day as label content becomes invalid when the production did not go as planned.

SOLUTION: A CT4-LX with AEP is installed at every production line where the required labels are printed on demand and without a PC. The label data and layouts can be updated anytime and the print history is sent to the server.

BENEFITS: On-demand distributed printing eliminates the need for manually matching labels and products which increases the accuracy. PC-less operation saves space and cost of devices, license and maintenance.



Food Industry

CHALLENGE: Managing ingredients manually at the central kitchen takes too much time and slows down productivity. In addition to great-tasting food, it is imperative to provide consumer full reassurance of food safety.

SOLUTION: With the FX3-LX with AEP programming, the operator can easily select the required ingredient on the 7 inch full color touch screen based on ingredient pictures and names. The labels will be printed after verifying the print preview on the screen. The product database including the date offset for every ingredient is stored on the printer which avoids any manual actions. The product database, lay-outs and print history are centrally managed in the cloud.

BENEFITS: The FX3-LX AEP solution is simple to use with its automatic date calculation and user-friendly app. It increases accuracy, save cost and assure food safety.



Retail Industry

CHALLENGE: Digital transformation accelerates the need for RFID. It enables real-time inventory visibility, omnichannel services and seamless shopping experience. But every item needs to be tagged with an RFID label.

SOLUTION: RFID labels can be easily printed on a CT4-LX or CL4NX Plus UHF RFID without a PC. Simply scan the SKU barcode (e.g. EAN13) of an existing price label with a barcode scanner connected directly to the printer and the corresponding RFID label will be printed. This can be a standalone solution where the SKU barcode is converted to EPC data on the printer. Or the printer can be directly connected to a cloud system which returns the EPC after sending the scanned barcode data. In the latter case, the print log including SKU, EPC and unique tag ID can be returned to the cloud system.

BENEFITS: The easy and intuitive labelling process allows anybody to print RFID labels. On-demand printing eliminates the need for manually matching RFID labels and products which increases the accuracy. And PC-less operation saves space and cost of devices, license and maintenance.



Thousands of operations worldwide are already using AEP applications and trust us to optimize their operations and solve their challenges.



Feature	CL4NX Plus	CL6NX Plus	FX3-LX	CT4-LX	PW2NX
Print Method	Direct Thermal / Thermal Transfer	Direct Thermal / Thermal Transfer	Direct Thermal	Direct Thermal / Thermal Transfer	Direct Thermal
Size (W x D x H)	271mm x 457mm x 321mm	338mm x 457mm x 321mm	178mm x 238mm x 214mm	132mm x 225mm x 161mm	85mm x 128mm x 68mm
Resolution	203 / 305 / 609dpi	203 / 305dpi	305dpi	203 / 305dpi	203dpi
Print Speed	14 ips / 8 ips / 6 ips	10 ips / 8 ips	6 ips	8 ips / 6 ips	6 ips
Print Width	104mm	167.5mm	80mm	104mm	55mm
Display Panel	3.5" TFT full colour LCD (320 x 240)	3.5" TFT full colour LCD (320 x 240)	7" TFT full colour touch screen LCD (480 x 800)	4.3 TFT full colour touchscreen LCD (480 x 272)	Organic electroluminescent display
Interfaces	USB A x 2, USB-B, LAN, NFC, RS232-C, Bluetooth (option), WLAN (option)	USB A x 2, USB-B, LAN, NFC, RS232-C, Bluetooth (option), WLAN (option)	USB A x 3, USB-B, LAN, NFC, Bluetooth (option), WLAN (option)	USB A x 2, USB B, LAN, RS232-C (option), NFC, Bluetooth (option), WLAN (option)	USB, NFC, Bluetooth, WLAN
Other Specifications	Optional HF and UHF RFID PDF Direct Print	Optional HF and UHF RFID PDF Direct Print	Anti-bacterial Optional wall mount kit	Optional HF and UHF RFID PDF Direct Print	PDF Direct Print
Adapted to user environment	Metal casing and die-cast aluminium construction for industrial environments	Metal casing and die-cast aluminium construction for industrial environments	Can be operated with gloves Space saving design Optional battery for portability Anti-bacterial casing Splash proof IPx2 & IK06 compliant	Can be operated with gloves Space saving design	Lightweight and sturdy Drop tested to 2.1m all faces. Wide range of optional accessories like charging cradle, cigarette lighter adaptor, etc.

For more details, please refer to the respective printer's catalogues

What SATO do:

We offer auto-ID solutions that involve tagging information at sites where people live and do business to collect accurate information of things and people in real time, converting the data into actionable intelligence for core IT systems and big data analytics platforms so as to contribute to a better and more livable world.

AEP Technical Specifications

Application concepts

AEP and Web AEP.

App development tools

AEP Works 3, JavaScript frontend frameworks like Vue.js, React, Angular etc.

Application languages supported in printer

JavaScript, HTML5, CSS, Lua.

Utility tools

AEP Utility 3, AEP Downloader.

Printer Simulation tool

AEP PSim.

Printing Modes

Smart Stand-Alone printing mode, online printing mode.

Application categories and scenarios

Simple Stand-Alone printing - no connection to a host

Input data via printer's display/keyboard and print, select from predefined formats and print, search in internal database and print. Scale connection. Weigh and send data to printer and print. Input data from external NFC reader or BLE thermometer and print. Run web apps written in JavaScript on printer.

Intelligent Stand-Alone - a smart network printer client

Input or scan, get data directly from internal server or cloud and print. Run web apps written in JavaScript on printer. Access external cloud web apps from printer and print. Access external database using http/https directly from the printer. Access external database (SQL, ODBC) from printer via middleware. Log printed data to internal server/PC or to cloud server. Send e-mails from printer. PDF Direct printing. PDF's pulled by printer from server without middleware.

Online printing - direct printing without middleware software

Print using predefined standard protocols like SBPL, SZPL, SDPL, SIPL etc. Protocol conversion. PLC, receive any print data, printing and status via EXT I/O interface. Send print data to one printer, extract data and send to a second printer. Fetch data from FTP server. "Push" - cloud printing - push print data to printer via WebSocket Secure. "Pull" - cloud printing - pull print data via HTTPS. "Pull or Push" PDF labels from cloud via HTTPS or WebSocket Secure. Browser print - Printer hosts the web app. Print from a external browser. Browser print - PC/Mobile hosts the web app.

Other applications that will work with AEP

SATO App Storage. PDF Direct Print. SATO Online Services (SOS). SOTI Connect.

Data communication protocols

RS232 Serial, USB serial com, TCP/IP, HTTP, HTTPS. WebSocket, WebSocket Secure, FTP, MQTT, LDP.

Security

TLS 1.2, ECDHE ciphers.

Data communication formats

JSON, CSV, XLSX, XML, text, binary data.

I/O devices connected to the printer

USB scanners, Bluetooth scanners (SPP and HID), external PC Keyboard (USB host or Bluetooth HID), USB memory drive, weighing scales (RS232, USB, LAN/Wi-Fi, Bluetooth), thermometer (BLE), USB NFC reader, mouse.

Printer GUI - user interface

Non touch (physical keyboard), touch display, design your own user screens, preview of print image on LCD, custom training videos with sound, customize online screen, customize boot-up screen with logo, colours and text, play sound files.

Installation, updating of printer application

Install from USB memory. Install from AEP Utility tools. Install from printer web configuration page, install from in-premise or cloud servers. Install from SATO App storage, SATO Online Services, SOTI.

Database access

Internal database in printer (proprietary format), internal database in printer (SQL Lite), internal text and CSV files, access external databases directly with HTTP/HTTPS, access external databases (SQL and ODBC) via middleware.

Data logging of e.g. printed labels, products etc.

Log as text file, XML file, CSV file, JSON file, log to internal server or cloud server

Data logging of e.g. printed labels, products etc.

Log to USB memory drive, log to FTP server, log directly to any cloud server/database, send log via e-mail from printer

Useful utility AEP applications

Easy kitting application: kit a printer by inserting a USB memory, AEP application licensing system, network diagnostic tool.

Note: Most features are supported across all AEP enabled printers. Some features are supported only on specific printer models based on hardware. Please consult with SATO for details.