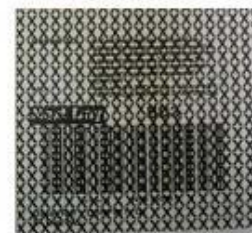
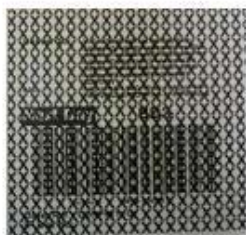


Bar Code Validation for Toshiba TEC B-SX Series Printers



Value Added Solution: Bar Code Validation

Consider the following:

Approximately 200,000 desktop thermal printers are now purchased each year in Europe. Approximately 90% are purchased to print a bar code label, tag or ticket of some description. Thermal printers vary between small desktop range, mid range and performance range. Print volumes also vary based on the range purchased.

Approximate Breakdown	Market Share	Printer Unit Sales	Labels Per Day	Labels Per Year
Desktop	45%	90,000	100	2,340,000,000
Mid Range	45%	90,000	300	7,020,000,000
Performance Range	10%	20,000	500	2,600,000,000
Total Number of Labels Per Year				11,960,000,000
Approximately 90% include a barcode				10,764,000,000

Laser or inkjet printers alert you on the printer's LCD panel and/or on screen software utility that the printer has low toner or ink that will effect print quality.

Thermal printers do not tell you that:

- that a print head element has blown
- that ribbon wrinkle has occurred
- that there is media mis-match
- that the printer settings are incorrect for the chosen media
- that the print head is dirty causing blemishes or spots
- etc etc, this list goes on!!

which all effect print quality, and will no doubt print unreadable bar codes.

As these issues occur every day it is plausible to assume that of the total number of labels printed each year that include bar codes, a percentage of them are not readable. Even if the percentage was only 0.1%, the number of unreadable barcodes printed per year would be 1,076,400.

The fact is that probably as many as just 1% of all bar codes labels fail (10,764,000), causing serious and significant bottle necks and manual intervention in automated systems designed to improve processes and gain return on investments by reading bar code data streams.

This volume has been fairly consistent and growing since Y2K and increased awareness and use of thermal printers with the new systems that were implemented at the time. This means that on average there are approximately over 50 million unreadable barcodes produced in Europe alone each year.

Problem example

A major parcel carrier has approximately 3000 customers, in which a low cost thermal printer is supplied to print the carriers bar coded label.

The label contains a bar code which is scanned by the fixed position scanners used in the HUB (central sorting depot) to read and send the parcel to the required delivery vehicle position. When the fixed position scanner can not read the label bar code, the parcel is automatically re-routed to a re-work area to be re-labelled with a good ("readable") bar code label.

Each night approximately 2000 labels are reprinted. Whilst some are re-printed because they are applied around corners of the parcel or are covered by packing straps making them unreadable, the vast majority are un-readable as the thermal printer printhead has blown elements, meaning that all bar code labels printed by the printer will be un-readable.

The re-work area contains 8 workstations, each workstation contains a PC and thermal printer to re-print un-readable labels. However, on one single day, 6 (75%) of the 8 printers had printhead errors, meaning that of the 2000 labels that had to be re-printed, 1500 came back to be re-worked. Subsequently 1200 of them came back, and so on until it was soon realised the nature of the problem, including the cost of recovering the problem.

Summary

Whilst users drive prices down for the cost of the thermal printer, the cost of recovering from the problem of un-readable bar codes does not justify the initial low cost of the required printer. Providing on-line bar code Validators such as Newbury Data's SecurPrint eliminates the associated problems of un-readable bar codes.

Toshiba TEC SecurPrint

Identify "No Read" Barcodes and Automatically "Reprint" Them!

Newbury Data's technical expertise in developing thermal printing applications has helped many of the UK's leading companies create "best of breed" solutions. SecurPrint is another "best of breed" solution and is designed for Citizen and Toshiba TEC thermal printers. If the need to identify and automatically reprint "No Read" or "incorrect data" bar codes at time of original print is required then SecurPrint is the answer.

If printing "unreadable bar codes" is acceptable to you, why spend a fortune installing an automated data capture solution in the first place? Newbury Data's SecurPrint System is a cost efficient system designed to ensure that "No Read" bar codes are identified and eliminated before being applied or accepted in to a client's application, applications that could cause:

- Incorrect identification and picking of parts and/or components
- Fines within compliance solutions
- Re-worked, Lost or Mis-routed parcels
- Production lines to stop
- Additional and/or expensive reworking via manual data entry.

Common reasons why you are not guaranteed a perfect bar code every time:

- Incorrect media, do you have the correct labels? (Direct Thermal) or the correct label/ribbon combination? (Thermal Transfer)
- Incorrect media to printer & print head settings in the required operating environment (Print head life is significantly reduced when using UN-coated direct thermal media)
- Printer do not recognise and alert users when the printhead life has expired, therefore how will you know when to replace it?
- The print head is not cleaned with the correct cleaning solution and/or not in accordance with the manufacturers recommendations

B-SX Series

The TOSHIBA TEC B-SX series thermal transfer / direct thermal printer extend the tradition of technical innovation of the TOSHIBA TEC high-class industrial printers. Built to succeed the very popular B-x72 series machines, they provide superior performance and reliability in a variety of industries including manufacturing, chemicals, pharmaceuticals, textiles, electronics and telecoms.

Overview

Are you printing large volumes of barcode labels, tickets or tags? The B-SX Series provides superb reliability and performance at an incredibly low cost of ownership. Constructed from heavy-duty steel, the B-SX Series is ideally suited to any high output application. TOSHIBA TEC has retained proven reliability whilst providing the latest technical innovations in functionality and performance. With the touch of a button the B-SX Series will be turning out labels almost instantly at speeds up to 250 mm a second due to the continuing advances in processor capacity. TOSHIBA TEC's innovations in ribbon-motor control also produce 'REAL' on-the-fly ribbon save without affecting the print throughput. Access to printhead, platen, paper path and sensors are now easier with the development of a new wide opening mechanism, making paper loading and cleaning quicker than ever. Using the very latest printhead technology from Toshiba, the B-SX series increases the use of in-house components to ensure dazzling print clarity at 203 or 300 dpi.

B-SX SecurPrint Specifications

Printers	Thermal transfer / direct thermal
Print Head	Edge type
Resolution	BSX4: 203 dpi BSX5: 300 dpi BSX6: 305 dpi BSX8: 305 dpi
Print Width	BSX4: 104mm BSX5: 127.5mm BSX6: 170.6mm BSX8: 213.3mm
Print Speed	SecurPrint varies the max printing speed, based on height of barcode and number of positive scans required
Interface	2 serial ports, bi-directional port, Optional 10/100 Internal LAN I/F & USB
Barcodes	UPC/EAN/JAN, Code 39, Code 93, Code 128, EAN-128, Industrial 2 of 5
Ribbon Minder	This printer option is required by SecurPrint

SecurPrint Scanner	
Model	Datalogic DS1100
Interface	Serial
Scanner Mount	Metal Mount fixed to side of printer case Unmoveable cross bar hold scanner
Scanner Position	Mount optimised at correct distance and angle for scanning barcodes
Scan width	Suitable for full width scanning on 4 inch printers Restricted to 4 inch scan width on 5, 6 & 8 inch printers Alternative scanner can be supported for full width scanning on 5, 6 & 8 inch printers

SecurPrint Functional Description

The programme is loaded into a suitable printer and runs automatically on power up.

1. A Datalogic scanner is connected to the printer, providing bi-directional communication and +5VDC to power the scanner. It is positioned so as to be able to read the labels as they exit the printer. It can read 1-D barcodes printed in 'picket fence' orientation.
2. On initialisation, the program checks the printer parameters – e.g. label length, print speed, printer model etc.
3. Commands are then sent by the programme to the scanner to set it up for the application as required e.g. barcode types / lengths, horizontal combinations.
4. If the scanner is not connected or not communicating with the printer, then a label is printed out with a message – 'Scanner not responding' – and the printer reverts to un-scanned operation.
5. During normal initialisation, the scanner is switched on for a few seconds. This shows the user the scanner is operational, also allows a quick check that it is aligned correctly with the position at which it will read the barcode(s) as the label exits from the printer. The printer is then ready for operation.
6. The incoming data can be in any reasonable format. Any barcode instructions must be sent in ASCII, so that the programme can recognise the barcode data.
7. The label printed can be defined (See notes below): -
 - Either by extracting the required data from the incoming data stream and entering it into one (or more) label formats preloaded into the printer;
 - Or possibly by converting the incoming data into the programming instructions for the printer to handle directly.
 - In either case, the programme checks for and stores any barcode data. The label format is stored. When complete, the label is printed out.
 - If the label does not have a barcode, then the label prints with no action by the scanner.
 - Otherwise, as the label starts to print, the scanner is switched on and remains activated for the time of the label printing. The scanner checks the label as it is printed.
8. The scanner is interrogated at the completion of the label printing. The barcode data as read by the scanner is compared with the barcode data stored. If the data matches, then all is OK and proceed to the next label.
9. If there is a mismatch or missing data then the label is identified as faulty. The printer will automatically retract the faulty label, then over print the faulty label with oversized XXX's, ensuring that the label is clearly marked as un-usable. The label is then reprinted from the stored input and rechecked as above.
10. If repeated bad reads of the same label happen then – If Direct Thermal, allow a second reprint, then lock into 'Pause'; - If Thermal Transfer, then repeat print to approx. 0.5 metre of labels (to allow a ribbon wrinkle to pass). Then lock into 'Pause'.
11. The lock-out is to indicate that there is a need for some servicing action to be taken to regain the barcode quality e.g. clean or replace the print head, check media pressure or darkness settings (especially when using new media for the first time).
12. The recovery from the lock is to cycle the power to the printer.
13. The printer is programmed to attempt the Reprint before locking the printer. If requiring to be locked, the printer will print a "Call Support" label with the customer contact details

Notes

1. In order to commission the programme, suitable files containing the actual data that will be sent to the printer are required. These are normally obtained as printed hexdumps from a printer connected to the system in the same way as the SecurPrint printer will be.
2. The hexdumps should contain runs of at least three labels of each variation. These files will be used to define and commission the programme.
3. In the case of the label format(s) being preloaded into the printer, we will need to know the maximum field lengths, so we can design the format(s) accordingly.
4. Label designs, or actual printouts will be needed to ensure we are providing the expected output.
5. For further details regarding suitable file please contact Peter Williams on 0870 224 8225 or email: peterw@newburydata.co.uk

Toshiba TEC B-SX Series SecurPrint Price List

Model / Item	Part Number	Manufacturer	Description	List Price
B-SX4	B-SX4T-GS29-QM-R	TOSHIBA TEC	4" head std 8 dot/mm (203dpi)	£1,199.00
	B-9904-R2-QM-R	TOSHIBA TEC	Ribbon Save module	£ 56.00
	B-9700-LAN-QM-R	TOSHIBA TEC	LAN Interface board for B-SX4 & 5	£ 70.00
B-SX5	B-SX5T-TS22-QM-R	TOSHIBA TEC	5" head std 12 dot/mm (300dpi)	£2,086.00
	B-9700-LAN-QM-R	TOSHIBA TEC	LAN Interface board for B-SX4 & 5	£ 70.00
B-SX6	B-SX6T-TS12-QM-R	TOSHIBA TEC	6.7" head std 12 dot/mm (305dpi)	£2,925.00
	B-SX908-R-QM-R	TOSHIBA TEC	Ribbon Save module	£ 139.00
B-SX8	B-SX8T-TS12-QM-R	TOSHIBA TEC	8.3" head std 12 dot/mm (305 dpi)	£3,621.00
B-SX Series	SPBSX4	NEWBURY DATA	BARCODE VALIDATION SYSTEM (Factory Fitted only)	£1,149.00
PROFESSIONAL SERVICES	BCIFILE	NEWBURY DATA	Toshiba TEC Basic Command Interpreter (BCI) Toshiba's ranges of industrial and semi-industrial printers are equipped with Basic Command Interpreter (BCI). This powerful feature allows printer firmware to manipulate incoming data to generate label formats, enabling Toshiba printers to be compatible with non-Toshiba data streams or apply add on solutions such as external bar code Validators, keyboards and weigh scales etc.	£ 750.00 per file £ POA for multiple files
	L3INSTALL	NEWBURY DATA	Level 4 (BCI INSTALLATION) APPROXIMATE time on-site: 4 hours. Installation and Commissioning of BCI file application	£ 500.00

Notes:

1. All prices exclude delivery & VAT
2. Specifications, part numbers and prices are subject to change without prior notice
3. BSX-4 & 6 requires ribbon minder to support SecurPrint
4. Ribbon minder supplied standard on B-SX-5 and 8
5. Ethernet interface standard on B-SX6 & 8
6. SecurPrint must be installed by Newbury Data engineer if installed at customer site