

SINDOH M402dn

34 PPM

Print • Scan • Copy • Fax



Reliability.....	Excellent
Multitasking.....	Good
Administrative Utilities	Very Good
Feedback to Workstations	Good
Ease of Network Setup.....	Very Good
Print Drivers.....	Very Good
Applications Compatibility.....	Excellent
Scan Functions	Very Good
Print Quality	Very Good
Copy Quality	Good
Print Productivity	Good
Copy Productivity	Good
Ease of Use.....	Good
Feature Set	Very Good
Security Features.....	Not Rated
Environmental Features	Not Rated
Toner Yield.....	Excellent
Cost per Page	1.750¢
Value	Excellent

BLI RECOMMENDATION

An affordable and highly reliable unit that produces very good print quality, the SINDOH M402dn offers excellent value. For a low purchase price and low supplies cost per page, the compact unit offers a strong feature set that includes the innovative ability to scan 11"-x-17" documents and automatically resize the image to a letter-size page. In addition to proving highly reliable, completing a 25,000-impression test with only a single misfeed, the unit delivers competitive speeds for a unit in this range. A number of "green" features further contribute to the value equation, including standard automatic duplexing to reduce paper waste, separate toner cartridge and longer-life drum, and a toner-save mode to extend the life of the cartridge.

While BLI technicians had a minor issue with adjusting the paper drawer for legal-size paper, the SINDOH M402dn was generally easy to use. From an IT standpoint, the M402dn was easy to install and manage on the network, thanks to SINDOH's included utilities. The Network Setup utility allows the admin to connect a USB cable

Test duration: Two months, including a 25,000-impression durability test.

Maximum monthly duty cycle: 50,000 impressions.

Manufacturer's recommended monthly volume:
Information not provided by vendor.

BLI's recommended monthly volume for optimum performance: Up to 2,500 impressions.

More information on the SINDOH M402dn is available through bliQ (www.buyerslab.com/bliQ).

and configure device settings via a laptop or PC rather than having to use the arrow keys on the control panel. And the Device Monitor utility can be used to discover and monitor a mixed fleet, as well as create groups and configure alerts. Overall, the unit is a solid performer and a very cost-effective choice. BLI highly recommends the M402dn for small workgroups, especially in environments that occasionally handle 11"-x-17" documents, for monthly print volumes of up to 2,500 impressions.

STRENGTHS

- Highly reliable
- Low purchase price and cost per page
- High standard RAM capacity
- Ability to scan and copy 11"-x-17" documents, enabling organizations with the occasional need to handle documents of this size to avoid having to purchase an A3 device, which would be significantly more expensive
- "Green" features include standard automatic duplexing to reduce paper waste and toner-save mode to extend the life of the cartridge; separate drum to reduce landfill waste
- Crisp text, consistent line art in print mode and dark solids in print and copy modes
- Fast running speed when printing the job stream using the PostScript driver
- Administrators can manage a fleet of mixed hardware via SINDOH Device Monitor, which allows for creating groups of devices, provides device and supplies status and offers quick and easy access to the monitored devices' embedded web utilities with a single click
- Much higher than average tested toner yield; average tested toner yield exceeded the declared specification
- Faster than average black scan speed

WEAKNESSES

- Users must be proactive in obtaining most device information from the feedback utility
- Consumables (toner/drum) have to be removed to access some misfeeds and the drum is exposed, making it susceptible to damage
- Visible banding in halftone output in copy mode

TEST RESULTS AND OBSERVATIONS

+, – and ○ represent positive, negative and neutral attributes, respectively.



RELIABILITY

EXCELLENT

- + The M402dn is certified highly reliable by BLI, producing 25,000 impressions with only one misfeed and no service required.

PMs/Malfunctions	Service Required	Meter Count (Impressions)
Starting Meter Count		0
Ending Meter Count		25,000
Total Misfeeds/Misfeed Rate	1/Not applicable	
Service Calls	0	



MULTITASKING

GOOD

- The M402dn offers the limited multitasking typical of devices in this class. Print jobs are downloaded to the device one at a time, while the others are held on the network queue. Unlike a few products in the class, users can't program copy or scan jobs while a copy/scan job is in progress and there's no interrupt function and jobs are processed on a first-in, first-out basis. Priority mode can't be changed. However, because the unit is designed for small workgroups, this is not likely to be much of an issue.

Primary Function	Secondary Function	Print	Scan	Copy
Print		Yes	No ¹	No ¹
Scan		Yes	No ²	No ¹
Copy		Yes	No ¹	No ¹

¹ Program ahead/copy reserves aren't supported.

² Document feeder is in use.

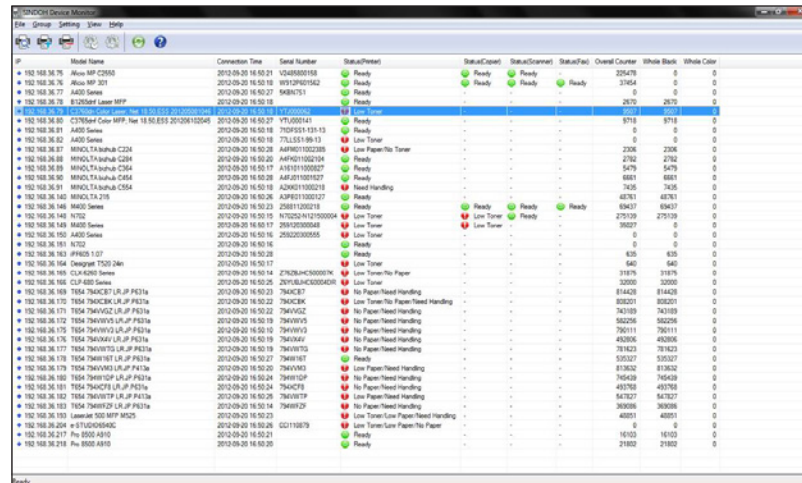
A "Yes" indicates that the user can initiate the secondary function while the primary function is taking place and that no further user intervention will be required for the secondary function to take place.



ADMINISTRATIVE UTILITIES

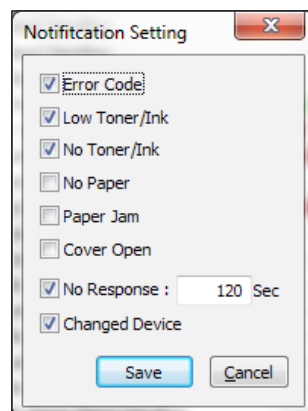
VERY GOOD

- + SINDOH Device Monitor allows for management of a fleet of mixed hardware. Administrators can configure and diagnose multiple devices, set up alert notifications, create groups, and establish alerts for selected error conditions.
- + BLI technicians were impressed with how easy the utility is to set up and use; adding devices to be monitored is very straightforward, and information provided for SINDOH devices and non-SINDOH devices is very accurate and detailed.



IP	Model Name	Connection Time	Serial Number	Status/Percent	Status/Counter	Status/Percent	Status/Counter	Overall Counter	White Sheet	White Color
192.168.36.76	Minolta MF C2500	2012-09-20 16:50:21	10480001018	Ready	Ready	Ready	Ready	225478	0	0
192.168.36.76	Minolta MF 301	2012-09-20 16:50:18	80732020542	Ready	Ready	Ready	Ready	31654	0	0
192.168.36.77	A400 Series	2012-09-20 16:50:27	9486751	Ready	Ready	Ready	Ready	0	0	0
192.168.36.78	8-C0500 Laser HP	2012-09-20 16:50:18		Ready	Ready	Ready	Ready	2670	2670	0
192.168.36.80	CP7000 Color HP, New 18.50.833 20104102048	2012-09-20 16:50:27	97500041	Ready	Ready	Ready	Ready	9718	9718	0
192.168.36.81	A400 Series	2012-09-20 16:50:18	710P051 131 13	Ready	Ready	Ready	Ready	0	0	0
192.168.36.82	A400 Series	2012-09-20 16:50:18	7ULLS1-B9-13	Low Toner	Low Toner	Low Toner	Low Toner	0	0	0
192.168.36.87	MINOLTA bizhub C224	2012-09-20 16:50:28	A4P001002208	Low Paper/No Toner	Low Paper/No Toner	Low Paper/No Toner	Low Paper/No Toner	2308	2308	0
192.168.36.88	MINOLTA bizhub C224	2012-09-20 16:50:28	A4P001002208	Ready	Ready	Ready	Ready	2762	2762	0
192.168.36.89	MINOLTA bizhub C224	2012-09-20 16:50:17	A4P001002207	Ready	Ready	Ready	Ready	5479	5479	0
192.168.36.90	MINOLTA bizhub C224	2012-09-20 16:50:28	A4P001002207	Ready	Ready	Ready	Ready	6881	6881	0
192.168.36.91	MINOLTA bizhub C224	2012-09-20 16:50:18	A4P001002208	Ready	Ready	Ready	Ready	7426	7426	0
192.168.36.92	MINOLTA bizhub C224	2012-09-20 16:50:28	A4P001002207	Ready	Ready	Ready	Ready	48761	48761	0
192.168.36.93	MINOLTA bizhub C224	2012-09-20 16:50:28	A4P001002207	Ready	Ready	Ready	Ready	59437	59437	0
192.168.36.94	MINOLTA bizhub C224	2012-09-20 16:50:18	A4P001002208	Low Toner	Low Toner	Low Toner	Low Toner	275109	275109	0
192.168.36.95	MINOLTA bizhub C224	2012-09-20 16:50:17	A4P001002208	Low Toner	Low Toner	Low Toner	Low Toner	38827	38827	0
192.168.36.96	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Low Toner	Low Toner	Low Toner	Low Toner	0	0	0
192.168.36.97	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	0	0	0
192.168.36.98	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	628	628	0
192.168.36.99	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	640	640	0
192.168.36.100	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	31876	31876	0
192.168.36.101	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	32000	32000	0
192.168.36.102	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	814428	814428	0
192.168.36.103	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	828201	828201	0
192.168.36.104	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	740109	740109	0
192.168.36.105	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	562296	562296	0
192.168.36.106	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	750111	750111	0
192.168.36.107	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	43006	43006	0
192.168.36.108	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	716223	716223	0
192.168.36.109	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	535227	535227	0
192.168.36.110	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	813632	813632	0
192.168.36.111	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	154428	154428	0
192.168.36.112	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	49798	49798	0
192.168.36.113	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	647227	647227	0
192.168.36.114	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	300096	300096	0
192.168.36.115	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	40851	40851	0
192.168.36.116	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	0	0	0
192.168.36.117	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	16103	16103	0
192.168.36.118	MINOLTA bizhub C224	2012-09-20 16:50:16	A4P001002208	Ready	Ready	Ready	Ready	21802	21802	0

SINDOH Device Monitor lists discovered devices on the network and presents general information (page counts, serial number and IP address) and status (via text and an icon); admins can access the embedded web server of any monitored device just by single-clicking the device in the list.

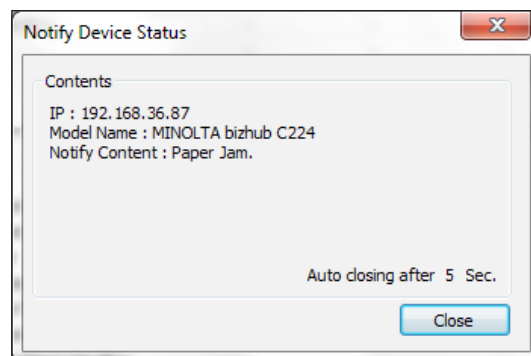


Notification Setting

- ☒ Error Code
- ☒ Low Toner/Ink
- ☒ No Toner/Ink
- ☐ No Paper
- ☐ Paper Jam
- ☐ Cover Open
- ☒ No Response : 120 Sec
- ☒ Changed Device

Save Cancel

Administrators can configure pop-up alerts for errors and warnings that will appear while Device Monitor is running on their PC.



Notify Device Status

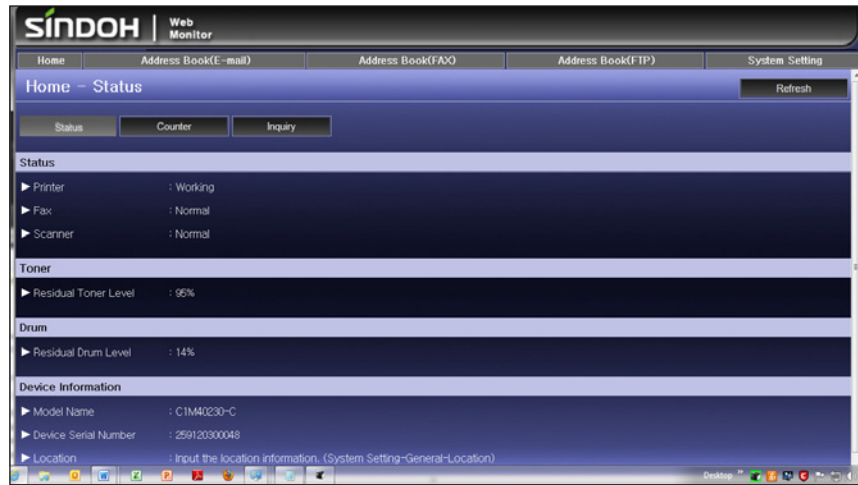
Contents

IP : 192.168.36.87
Model Name : MINOLTA bizhub C224
Notify Content : Paper Jam.

Auto closing after 5 Sec.

Close

Administrators will receive pop-up alerts for errors, which automatically close after a brief period.



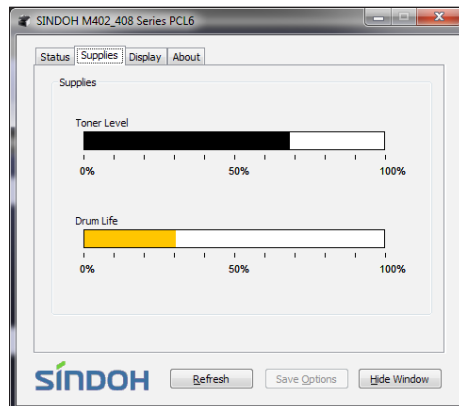
A “Location” field allows the admin to manually add information, which is helpful when a fleet of devices contains many of the same model. The “Status” field provides device status (power-save mode, working, cover open, normal, paper jam etc.).



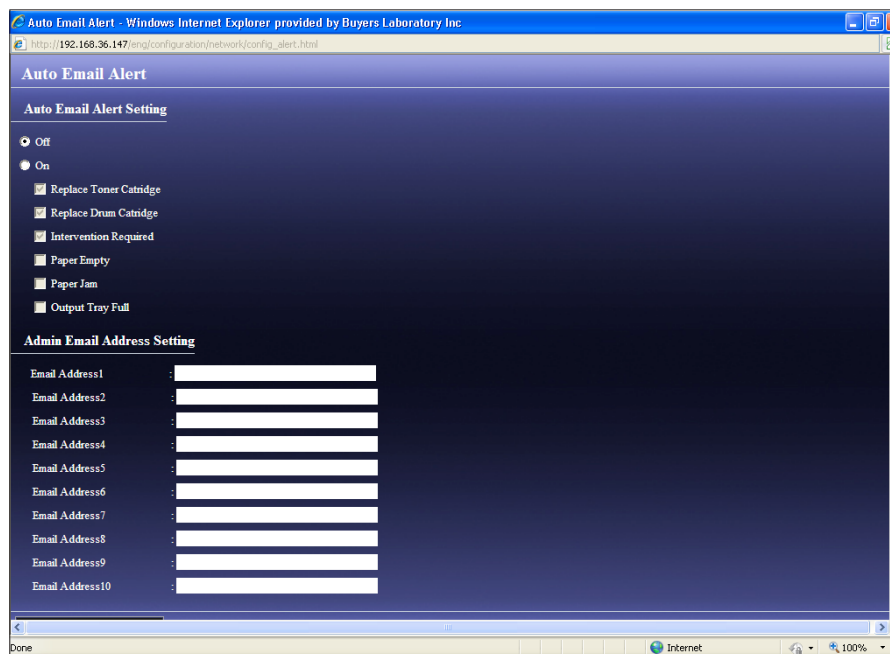
FEEDBACK TO WORKSTATIONS

GOOD

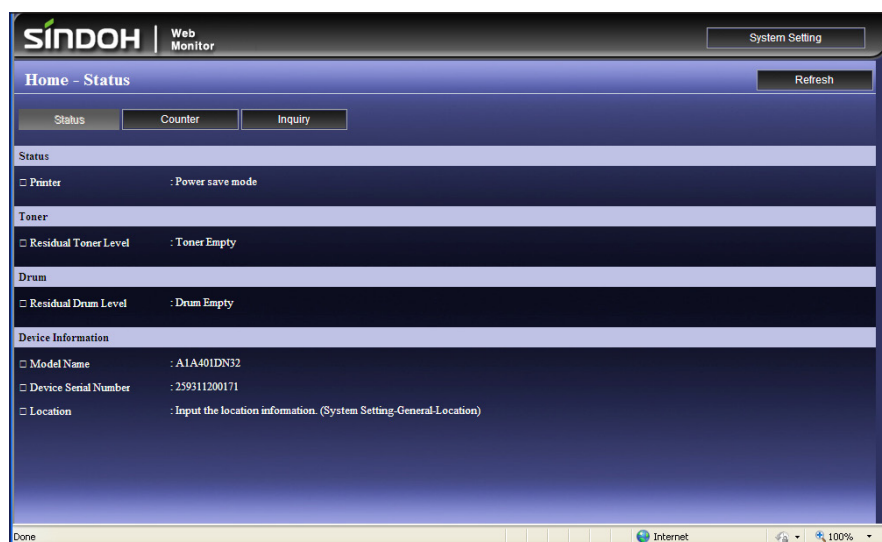
- The Status Monitor utility is the chief provider of feedback. The utility can be installed along with the drivers; however, users must restart the PC for the utility to function. Once the PC is rebooted, the utility autostarts.
- + The icon on the taskbar changes color to indicate changes in device status; users can double-click the icon to open the utility and obtain additional information.
- No pop-up messages are available to inform users of errors and warnings.



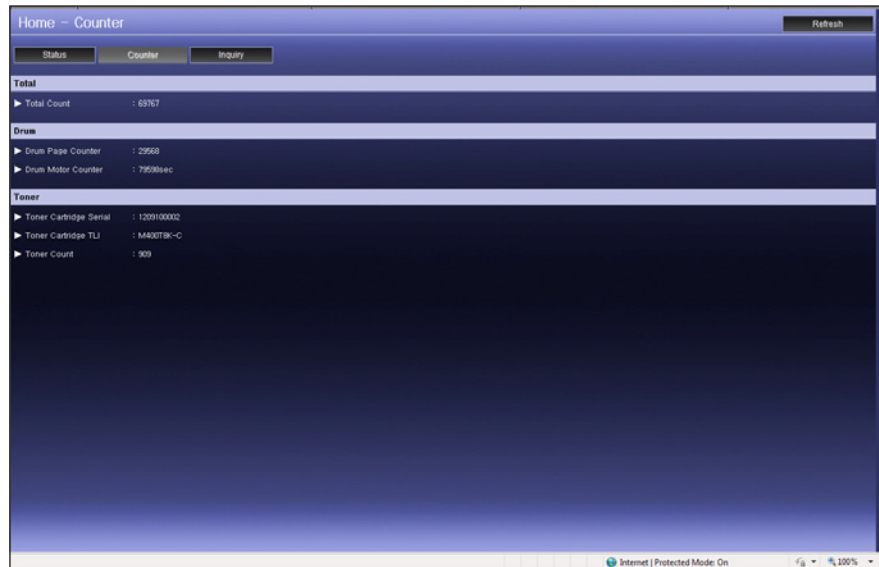
When accessed from the taskbar, the utility provides device and consumables status. Drum life and toner levels are indicated by percentage gauges; paper information is not provided.



Administrators can configure a variety of email alerts to be sent to up to 10 addresses for warnings (toner, drum or paper need replacing) and errors (output tray full, paper jam or intervention required).



Users can proactively access the embedded web server—if they know the IP address, as there's no link in the driver—to view device and toner status, which is presented in text representing the approximate percentage remaining.



Total counter information is very straightforward, but the additional information including drum page counter and drum motor counter, as well as toner count and toner cartridge TLI, is more information than a user needs; BLI recommends hiding this information from the user.

- Similar status information is available in Device Monitor, which can be used by administrators to establish email alerts and pop-ups for warnings and errors (pop-ups will only appear when the fleet management utility is running on the PC).



EASE OF NETWORK SETUP

VERY GOOD

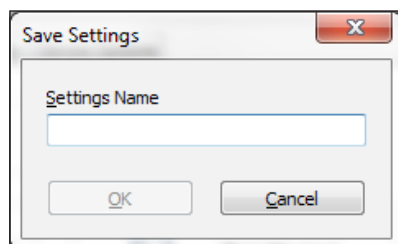
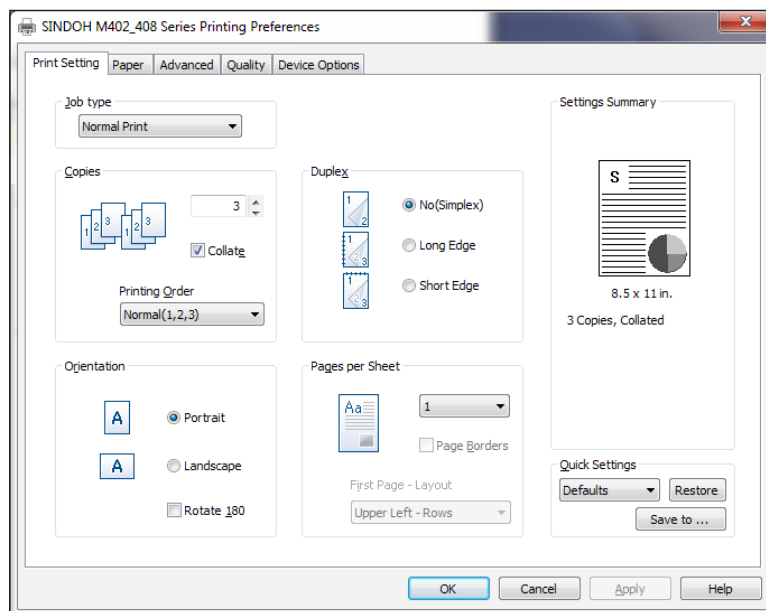
- Physical setup is straightforward, as the unit, which is light enough to be lifted from the box by a single person, comes preassembled. Packaging materials aren't excessive. A standard-yield cartridge (rated at 2,500 pages) is preinstalled; users must take it out to remove the protective seal.
- + The Network Setup utility allows the administrator to configure settings, such as the IP address, by connecting a USB cable to the printer and selecting the settings on the PC. This eliminates the need to program settings by scrolling through menus at the panel and using the navigation keys for selections.
- + The disc launches when inserted in the drive, and the port is created automatically. Via the default routine, it takes 10 clicks to install all drivers and software on the disc (host-based, PCL5e/6 and PostScript drivers, plus the feedback utility).
- + One-to-one and one-to-many cloning are achieved through the embedded web server and fleet management utility, respectively; this function is possible only with devices in the same family.



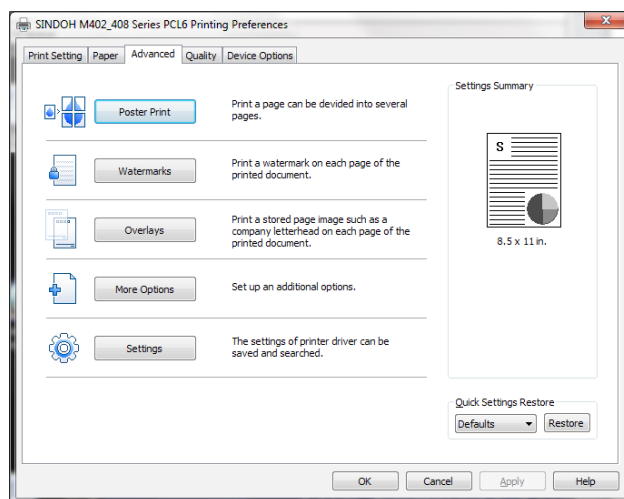
PRINT DRIVERS

VERY GOOD

- + The unit comes with host-based, PCL 5e/6 and PostScript 3 drivers that support various Windows, Mac and Linux operating systems. The drivers are graphical and show changes to the page icons when various settings are selected. The feature-rich drivers include settings/functions not commonly found in this class of device, such as overlays, watermarks and cover mode to name a few.



The main screen of the driver lets users select from a list of saved jobs, and access commonly used settings. Duplex, quantity, orientation and N-up printing can be programmed from this screen; users must navigate to the Paper tab to choose paper size, source and type. Users can also save settings for commonly used job types via the “Save to...” button.



On the Advanced tab, users can access additional options, such as poster printing, watermarks and overlays.

+ File size doesn't increase when selecting collate in the application.

SINDOH M402dn Print Driver Features

	PCL 5e	PCL 6	PostScript 3
Auto Feature/Device Detection	No	No	No
Booklet Layout	Yes	Yes	Yes
Collate	Yes	Yes	Yes
Max Paper Sources per Job	2	2	2
Mirror Image	No	No	No
Negative Image	No	No	No
N-up Printing	2 to 16	2 to 16	2 to 16
Overlay	Yes	Yes	Yes
Paper Gauge	No	No	No
Print and Hold	No	No	No
Proof Print	No	No	No
Quantity Selection	999	999	999
Reduction/Enlargement	25% to 400%	25% to 400%	25% to 400%
Resolution Modes	600 dpi, 1200 dpi	600 dpi, 1200 dpi	600 dpi, 1200 dpi
Save Settings	Yes	Yes	Yes
Secure Print	No	No	No
Watermarks/Custom Watermarks	Yes	Yes	Yes
Cover Mode	Yes (front/back)	Yes (front/back)	Yes (front/back)
Poster Mode	Yes	Yes	Yes
Separator Pages	No	No	No
Toner Gauge	No	No	No
Toner Save	Yes	Yes	Yes
Print All Text as Black	Yes	Yes	Yes



APPLICATIONS COMPATIBILITY

EXCELLENT

- + No problems were experienced with any of the files used in the applications compatibility tests. Units are tested for compatibility on Windows XP and 7 platforms with Microsoft Word 2000, PowerPoint 2000 and Excel 2000, as well as Adobe PageMaker 7.0, Photoshop 6.0 and Acrobat 8.0, using 25 application test files that contain text, graphics, halftone images, tables, etc. that enable BLI technicians to evaluate memory usage, file processing, font rendering and grayscale capability.



SCAN FUNCTIONS

VERY GOOD

- + The legal-size M402dn has the groundbreaking capability to scan an 11"-x-17" page via a letter-size platen. Users place an 11"-x-17" document lengthwise (with the top edge of the page at the back of the glass near the hinges of the platen cover, aligning the paper to the guide marks on the edge of the glass), close the platen cover and then press the "A3/11" x 17" START" button. The unit then scans the first 8.5 inches of the document and then rollers in the lid move the page back to scan the next 8.5 inches; the image is joined together in memory and reduced to fit on letter-size paper. Any required settings should be made before placing the page on the glass, because the larger paper covers the control panel. This feature functioned well in BLI's test.



A unique feature of the M402dn lets users copy an 11"-x-17" page by placing it on the platen and pressing the A3/11 x 17 START button (rather than the start key, which is covered by the page) to initiate the copy.



The page is scanned in two halves (grey rollers, shown above, in the platen cover automatically move the page so no user intervention is required) and then digitally combined in the device memory; output is automatically resized to a letter-size page. Though 11" x 17" isn't frequently used, this innovative device gives users the ability to scan and copy these larger pages on a compact and affordable device.

- + Users can scan to email or network folders at 75, 100, 150, 200, 300 or 600 dpi in color or grayscale. Supported file formats include JPEG, PDF and TIFF. TWAIN scanning is also supported. Scan to USB is standard. Supported file formats and resolution modes are the same as listed above.
- To program a scan job, users press the scan key, use arrow keys to make selections for job settings (color, resolution, etc.) and select OK to confirm the settings. From this menu, users can select email or FTP for the scan destination, and then select the address before pressing the start key to begin scanning.
- The one-touch key is for fax destinations; some competitive devices allow for one-touch keys to be shared between scan and fax menus.
- Programming email addresses to the address book via the web utility is simple; three separate address books are available (one each for e-mail, FTP and fax destinations). Users can enter address on the fly at the control panel via alphanumeric keypad; this is more time consuming as users may have to press each key multiple times to select the desired letter/number. The "@" symbol and "." are accessed by pressing the "1" button.
- + While scan speed in black mode is faster than average compared with legal-size monochrome laser/LED printer MFPs in this class tested to date, speed in color mode is competitive.

Scan Speed in IPM | Competitive Average

Full Color 1:1	8.4	8.9
Black 1:1	23.8	20.3

Files are scanned at 300 dpi in PDF format.

Scan-File Size in KB

	Low Quality	Medium Quality	High Quality
Full Color	492	746	3,635.2
Black	1024	1024	1024

No compression is offered. Testing is conducted with single-page files scanned at 300 dpi in PDF format.



PRINT QUALITY

VERY GOOD

- + Text exhibited above-average darkness, sharpness of characters and smoothness of curves/serifs. Production of closely spaced fine lines was above average, as was consistency of line thickness, while diagonal lines showed some evidence of stair-stepping. No overspray was noticed around text or line art. Grayscale was visible over a smaller than average range and the top end of the scale, from 80 to 100%, appeared solid black, though there was distinct separation between most levels; halftone coverage exhibited average smoothness and minimal banding. Solids displayed above-average darkness and smoothness of coverage.

Text	Very Good
Line Art	Very Good
Halftone Pattern	Good
Halftone Range	Good
Solids	Excellent

Print Density

SINDOH M402dn	1.46 to 1.48
Density for devices in this class tested to date	1.15 to 1.62

Measurements are based on four readings corresponding to four different solid black locations on the output. The higher the density reading, the darker the image.

Visible Halftone Range

SINDOH M402dn	1% to 80%
Typical range for competitive units	3% to 96%

The halftone test target contains blocks of increasing halftone dot-fill levels (1% to 100% in 1% increments).

COPY QUALITY

GOOD

- Darkness and sharpness of characters, as well as the smoothness of curves/serifs., were average. Production of closely spaced fine lines was also average, as was consistency of line thickness, while diagonal lines showed some evidence of stair-stepping. No overspray

was noticed around text or line art. Grayscale was visible over a smaller than average range, though there was distinct separation between most levels (though the 15% dot-fill area was blank and the 91% and 95% dot-fill areas looked the same); halftone coverage exhibited average smoothness but had more than an average amount of visible banding. Solids displayed above-average darkness and smoothness of coverage.

Text	Good
Line Art	Good
Halftone Pattern	Fair
Halftone Range	Fair
Solids	Excellent

Copy Density

Original	1.69 to 1.74
SINDOH M402dn	1.46 to 1.49
Density for devices in this class tested to date	1.03 to 1.70

Measurements are based on two readings corresponding to two different solid black locations on the output. The higher the density, the darker the image.

Visible Halftone Range

SINDOH M402dn	29% to 91%
Halftone increments on test original	15%, 29%, 53%, 77%, 83%, 91%, 95%, 100%

The halftone range test original consists of eight blocks of increasing dot-fill levels.



PRINT PRODUCTIVITY

GOOD

- First-print time from overnight sleep is slower than average compared with legal-size monochrome laser/LED printer MFPs in this class tested to date.
- First-print times for all three file types tested are competitive.
- + Running speed when printing BLI's job stream, which simulates typical traffic in a busy workgroup, is competitive when using the PCL 5e and 6 drivers and faster than average when using PostScript driver.
- Running speed is competitive when printing sets in simplex and duplex modes.

First-Page Time from Overnight Sleep

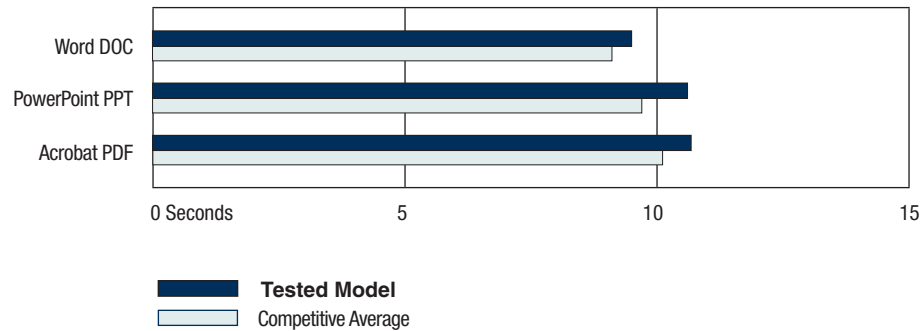
SINDOH M402dn	24.09
Tested Competitive Average	18.87

Device sits idle overnight. Time in seconds includes RIPping, imaging and delivering a single-page test file to the tray.

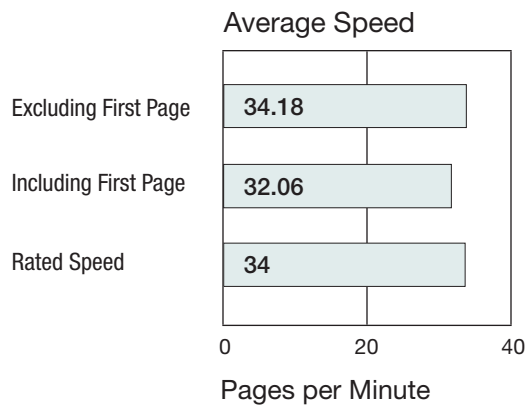
First-Page Times by File Types | Competitive Average

Windows XP		Pre- / Post-Raster File Size		Time in Seconds	
Word DOC	Black Text	114	50.5	9.50	9.11
PowerPoint PPT	Color Graphic/Text	99	908	10.60	9.71
Acrobat PDF	Black Graphic/Text	426	723	10.60	10.13

Speeds tested with the PCL driver at 600 dpi. Time in seconds includes RIPping, imaging and delivering a single-page test file to the tray. File size in KB.



BLI's Tested Print Speeds versus Manufacturer's Rated Speed



Print speed is tested using BLI's Monochrome Test Original with 6% page coverage. The test page is printed in a quantity equal to double the vendor's rated print speed for the device in each mode tested (e.g., if the vendor's rated print speed is 20 ppm, 40 pages are printed). The unit's print speeds were tested using the PCL driver.

Job Stream | Competitive Average

	SPEED IN PPM		PERCENT OF RATED SPEED	
PCL 5e	23.0	23.8	67.7	72.5
PCL 6	22.8	23.8	67.1	72.5
POSTSCRIPT	19.0	13.2	55.7	38.6

BLI's job stream includes Word documents, Outlook e-mail messages, Excel spreadsheets, PowerPoint, HTML and Acrobat PDF files, totaling 19 pages. This test simulates the type of traffic a typical device might experience in a real-world, multi-user environment. All of the files are sent to the device as a group, at which time the stopwatch begins; timing ends when the last page of the last file exits the device. Job stream efficiency is determined by the percentage of the rated speed at which the device operates when producing real-world jobs. The closer the rate is to 100%, or if it exceeds 100%, the more efficient the device.

Average Print Productivity | Competitive Average

	SPEED IN PPM		PERCENT OF RATED SPEED	
1:1	26.1	28.2	76.7	87.5
1:2	16.0	15.0	47.2	46.1

Efficiency is tested using a 10-page full-color document and a 10-page black document. BLI obtains the overall efficiency for each mode by averaging the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length (1, 5, 10 and 20 sets). The unit's efficiency was tested using the PCL driver.

BLACK COPY PRODUCTIVITY

GOOD

- First-copy times from the platen and document feeder are competitive compared with those of legal-size monochrome laser/LED printer MFPs in this class tested to date.
- Running speed when copying sets in all modes is competitive.

First-Copy Time in Seconds | Competitive Average

Platen	9.14	9.27
Document Feeder	11.82	11.06

Average Copy Productivity | Competitive Average

	SPEED IN PPM		PERCENT OF RATED SPEED	
1:1	26.8	28.7	78.7	81.7
1:2	15.9	15.8	46.7	45.1

Efficiency is tested using a 10-page black document. BLI obtains the overall efficiency for each mode by averaging the efficiency ratings (derived by dividing the tested speed of the device by the rated speed and then multiplying by 100) for each run length (1, 5, 10 and 20 sets).



EASE OF USE

GOOD

The control panel consists of a two-line 32-character display, dedicated hard keys for each mode (copy, scan, fax), as well as navigation keys, an alphanumeric keypad, a red cancel key and a blue start button. The A3/DLT button lets users scan an 11"-x-17" page and resize it to 8.5" x 11".

- The control panel is generally intuitive to use. The A3/11" x 17" START lets users copy or scan ledger-size pages via the letter-size platen. The red cancel key clears settings and cancels jobs when pressed. Though many competitive devices have a green start button, the M402dn's is blue. Under the Original Type menu, users can select Text, Text/Photo or Photo; under the Copy Type menu, users find selections for Normal, ID Copy, 2-up and 4-up.
- Adjusting the tray for different-size media is relatively straightforward. The length guide slides, as do the width guides, once the tabs have been pressed. To accommodate legal-size paper, users draw the length guide all the way to the rear of the drawer, unlock the grey sliding lock and slide the back wall of the drawer to the legal position. BLI technicians noted that the lock does not keep the drawer guide in the legal position; if users are not careful, they could compress the legal tray extension and wrinkle the paper. Labels in the drawer provide instructions to assist the user. All guides and locks are grey plastic; they are green on competitive devices to let the user more easily find them.



Loading media is easy, though first-time users might have difficulty finding the access points to open the drawers, which are located on the sides, rather than the front, of the drawers. The bypass tray folds down from the front of the device and there is a slight depression in the center of the panel to allow users to pull the tab forward and fold out the tray.

- The spring-loaded ramp automatically locks down when the drawer is opened and there are no corner separators or other impediments to hinder access. After paper is inserted, users must set the new size on the LCD.
- There are five misfeed access areas. The cartridge has to be removed if the jam occurs in the front, and users have to turn the unit around to clear misfeeds in the rear. When the cartridge is removed, the drum is exposed, making it susceptible to damage. An alert on the display notifies users that a jam has occurred. Also, the area under the document feeder is very narrow and there is no wheel to manually advance the page should a mis-feed occur in the document feeder.
- + Replacing the toner cartridge is clean and simple. The toner cartridge locks into the photoconductor unit; users should note that the drum assembly must be removed to replace the toner cartridge. Once the assembly is removed from the device, users can press the grey button on the drum to unlock the spent cartridge. The new toner cartridge easily slides and locks into place.



FEATURE SET

VERY GOOD

- + Standard automatic duplexing contributes to less paper waste.
- + Non-upgradeable RAM of 256 MB is above average for models in this class; however, some legal-size monochrome laser/LED printers in this class offer higher maximum memory capacities.
- Including the unit's bypass tray, which has a competitive capacity of 50 sheets, the unit has standard and maximum paper capacities are 300 and 550 sheets, respectively. While the standard capacity is competitive, some models offer higher maximum capacities.
- The drawers and bypass can accommodate up to 28-lb. and 90-lb. bond, respectively; some models in this class can accommodate heavier media.
- Output capacity is 150 sheets.
- Users can print from a USB thumb drive (located on the left side of the device; some competitive units have the port located in a more visible location, such as the front of the device). While the menu does not automatically appear when a USB drive is inserted, users can browse folders to select files (PDF or JPG) to print; only a single copy of one file can be printed at a time.



SECURITY FEATURES

NOT RATED

AUTHENTICATION	
Administrator password length (characters)	NA
Authenticated printing	No
Network user authentication	No
Windows	No
Novell NetWare NDPS	No
LDAP	No
Kerberos protocol	No
802.1x wireless	Std
Biometric	No
ID card	No
HID	No
Common Access	No
Other	NA
Department or user ID codes	No
Number	NA
Restrict access to specific functions	No
What functions	NA
HARD DRIVE	
Encryption	NA
Maximum level	NA
Overwrite	NA
Maximum number after a job	NA
Number at end of life/lease	NA
Lock	NA
Removable	NA
OTHER	
Common Criteria Certification	No
EAL level	NA
For which capabilities	NA
Control panel lock/disablement	No
Digital signature	No
Verify document came from device	NA
Verify document came from specific user	NA
Encrypted PDF mode/encrypted scanning	No
Maximum level	NA
Encrypted secure print	No
FIPS 140-2	No
Level	NA
IEEE 2600-compliant	No
IP address filtering	No
MAC address filtering	No
IPsec	No
IPv6	Yes
Password-protected mailboxes	No
Password-protected embedded web server	No

Port disablement	No
Protocol disablement	No
Secure print	No
Secure Sockets Layer (SSL)	Std
Secure watermark	No
S/MIME encryption	No
SNMPv3 support	Std
Transport Layer Security (TLS)	Std
Trusted Platform Module (TPM)	No
Unauthorized scan/copy protection block	No
USB block	No
Additional features	No
Third-party features	No

INA: The vendor declined to provide this information

NA: Not applicable



ENVIRONMENTAL FEATURES

NOT RATED

Specified capable of running 30% post-consumer recycled paper	Yes
Specified capable of running 50% post-consumer recycled paper	Yes
Specified capable of running 100% post-consumer recycled paper	Yes
Instant/Quick Fusing	No
Duplexing	Yes
Toner-save mode	Yes
RoHS compliant	Yes
Percent of product made from previous devices	20% maximum
Percent of product made from post-consumer materials	No
Percent of product made from pre-consumer materials	No
Percent of product made from bio-based materials	No
Product designed for recycling (easily disassembled, no binding agents)	Yes
Items that can be recycled	Exterior covers; internal molded parts; molded frame
Hardware remanufacturing program for this product	Yes
Cartridge recycling program for this product	Yes
Prepaid label for return of cartridges/bottles for this unit	Yes
Toner recycling system	No
Ability to program features such as duplexing and auto shut-off over entire fleet	No
What tool can be used to do this?	NA
Green packaging materials for the product	Yes
Green packaging materials for its consumables	Yes
Packaging materials used	Paper box
Eco-Label Certifications	
ENERGY STAR	Yes
Other	ECMA-370/The Eco Declaration; Japan Eco Mark; Korea Eco Label; Korea Energy Mark; CEL

Tested energy consumption levels of the device (watts)	
Ready/Idle	100
Energy-save	NA
Sleep mode	6
During Printing	650
How fast can this product be programmed to go into the following modes (seconds)	
Ready/Idle	NA
Energy-Save	NA
Sleep mode	60
Can the above settings be programmed by a walkup user?	Yes
First-print time out of sleep mode (seconds)	15.8
Emissions output from this device for the following substances (mg/h)	
Ozone	
Styrene	0.047
Benzene	0.014
TVOC	3.853
Dust	1.951
Other	

NA: Not applicable



TONER YIELD

EXCELLENT

- + The average tested yield is much higher than the average for legal-size monochrome laser/LED printers tested to date.
- + The average tested yield surpassed the declared specification.
- Tested impressions-per-gram yield is competitive.

Tested Toner Yield | Competitive Average

Tested Impressions	9,230	7,605
Tested Impressions per Gram	38.23	41.39
Rated Toner Yield	8,000	6,679
Rated Drum Yield	30,000	16,377

Tested yield is based on an average of two cartridges using the ISO 19752 toner yield test original. Some devices in the competitive group employ a cartridge that includes the toner and drum in a single component. In those cases, the rated yield for that single component cartridge is used in calculating the average.



VALUE

EXCELLENT

- + While offering a very good feature set, including the unique ability to scan and copy 11" x 17" pages onto letter-size paper, the M402dn is priced lower than average and also has a lower than average supplies cost per page, making it an excellent value.

Tested Supplies Cost per Page

Toner Cost per Page	1.445¢
Supplies Cost per Page	1.750¢
COMPETITIVE AVERAGE	2.151¢

Toner cost per page is based on SINDOH's web pricing for the cartridge and BLI's tested yields. Supplies cost per page add the price and rated yield of the drum.

SUPPORTING TEST DATA

Test Environment: This product was tested in BLI's 10,000-square-foot U.S. test lab, in an environment monitored by an Extech RH S20 Digital RH/Temperature Recorder and Honeywell Model 61 Seven-Day Temperature/Relative Humidity Chart Recorder. All products lab tested by BLI are powered by dedicated circuits that are protected by ESP (Electronic Systems Protection, Inc.) surge protectors to prevent transient power and communication disturbances from affecting equipment under test.

Test Equipment: BLI's dedicated test network, consisting of Windows 2003 servers, Windows XP and 7 workstations, 10/100BaseTX network switches and CAT5 cabling.

Test Duration: Products are tested for two months, a portion of which consists of a durability test during which the product is run at half of its manufacturer-rated maximum monthly volume, with varying daily test volumes designed to replicate real-world use over an eight-hour workday. This variable schedule includes a mix of various-size documents, simplex and duplex modes, and a mix of short, moderate and long run lengths, and on/off cycles, throughout the day.

Tested Configuration: SINDOH M402dn base unit.

Test Procedures: The test methods and procedures employed by BLI in its lab testing include BLI's proprietary procedures and industry-standard test procedures, which include a BLI-developed variation of ASTM's 1318-90 Test Method for Determination of Productivity using Electrostatic Copy Machines. In addition to a number of proprietary test documents, BLI uses an industry-standard KATUN test original for evaluating black image quality and test suites from Quality Logic to evaluate applications compatibility. In addition to a visual observation under a Graphiclith D5000 Standard Viewer, color print quality is tested using a color test target, which is read using the X-Rite Eye-One/iO Color Spectrophotometer, and samples are analyzed using the CIE XY Chromaticity Diagram. In addition, density of black and color output is measured using an X-Rite 500 Series Densitometer. Georgia-Pacific Spectrum Multi-Use 20-lb. bond is used in the tests, 10 percent of which is recycled paper containing 30 percent post-consumer content. Image quality is tested using Georgia-Pacific Printing Paper (96 brightness, 22-lb. bond).

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CERTIFICATE OF RELIABILITY

Awarded to

SINDOH

for the performance of the
SINDOH M402dn
in BLI's in-house durability test.



NOVEMBER 2012

DATE

ANTHONY F. POLIERONE
MANAGING DIRECTOR

This is to certify that when subjected to a 25,000-impression Buyers Lab durability test,
the SINDOH M402dn proved to be a highly reliable product.

BUYERS LABORATORY LLC

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