

1-Basic Specification

(1)Basic Composition

- 8PPM ENGINE
- 600 DPI resolution realization
- Super Smoothing toner using Single Type Toner (7 micron)
- Support windows Printing System Mode
- Support Universal Cassette
- Auto power saving support (Sleep mode under 18W)
- One Cartridge Type Developer Assembly (Recyclable Toner)
- Roller electric charge method minimizes ozon development

(2) What is WPS(Windows Printing System)?

MI Series Print offers WPS Mode. It provides fast and excellent graphic display in the Windows environment. Especially, it informs the users the progress of printing through sound and animation effect. It is a multi-media type Printing System providing convenient User-interface.

1-(3) Specification

ML PRINTER SPECIFICATION

1.BASIC SPECIFICATION

ITEM	BASIC SPEC		REMARK
	ML-85	ML-85G	
Print Speed	8 PPM (5% pattern) 2~9 page		
Resolution	600 DPI	600 DPI(300DPI under PC memory 16M)	
Emulation	PCL5e,WPS	PCL4.0, WPS PCL4.0 is WINDOWS only	
Standard Font	45 scalable fonts +1 bitmap fonts		
Memory	Standard : 2MB Optional : 2/4/8/16MB SIMM These SIMMs are compatible with Computer's	Standard 0.5MB	
Interface	Standard IEEE1284 bidirectional parallel interface Optional serial interface : RS-232C(except ML-85G)		
Media Size	Cassette : A4/LETTER/LEGAL/EXECUTIVE Manual Feed : Min:90X145mm, Max:216X356mm		
Media Types	Cassette : Plain paper, Manual Feed : Transparencies,Envelopes,Card		
Media Capacity	One 250-sheet universal cassette. One sheet manual feed. One optional 250-sheet cassette.	One 150-sheet universal cassette. One sheet manual feed	
Paper Output Type	Face down & Face up		
Paper Output Capacity	Face down 125 sheets Face up 1 sheet		
Warm-up time	Up to 20 seconds(at room temperature:25±1℃)		
First print time	Less than 25 seconds		

ITEM	BASIC SPEC		REMARK
	ML-85	ML-85G	
Power consumption	Printing : 150Watts(average) Power save : 17Watts		
Power switch	None		
Noise level	Stand-by : Background level. Printing : Under 47dB		
Reliability	MTBF 30,000sheets MTBF 2250 hours		
Cartridge life	5,000sheets / kit with 5% pattern		
Printer life	100,000 sheets		
Operating temperature	Temperature : 10 ~ 30℃ Humidity : 20 ~ 80%RH		
Storage temperature	Temperature : -20 ~ 40℃ Humidity : 10 ~ 95%RH		
Weight	Net weight : 9.0kg Gross weight : 10.5kg		
Size	360(W)X367(D)X188(H)mm	360(W)X367(D)X176(H)mm	
Quality Density	More than 1.3 (20~25℃,40~65%) More than 1.0 (10~30℃,20~80%)		
Background	Less than 0.2		
Density uniformity	Less than 0.2(Including continuous printing)		
Fixing efficiency	More than 80% ('ALL BLACK' and '2BY2' pattern) More than 70% (for Envelope,OHP,and Post card(120g/m²))		
Start Position	Top : 4.3 ±0.2mm(TBD) Side : 4.3 ±0.2mm(TBD) 1/2 LEFT oriented		
Skew	Top ±0.15mm/203mm Side ±0.15mm/266mm		
Orthogonality	±0.10mm		
Horizontal	±0.6mm / 208mm		
Curl	Initial 10 sheets : Less than 16mm After paper cooled : Less than 12mm		
Jam rate	1 per 2500 sheets at standard paper, 75g/㎡		
Test Condition	Paper : Xerox 4024,4200 75g/㎡ Environmen : Temperature :10~30℃ / Humidity :20 ~ 80% RH		

1. Product Specifications

1.1 ML-80 Engine Specifications

1.1.1 General Specifications

Items		Specifications & Descriptions	Remarks
1. Engine		ML-80	
2. Type		Desktop Page printer	
3. Print Speed		8 PPM (A4 Size, 5% Character Pattern)	At Copy Mode
4. Resolution		600 X 600 DPI	
5. Source Of Light		LASER DIODE (LSU)	
6. Print Method		Non-impact Electrophotography, Laser Beam	
7. Feed Method		Cassette & Manual	
8. Feed Side		Side Loading	Left Adjust
9. Paper		Paper Size Normal Paper : A4, Letter, Legal, B5, Executive Envelope : Normal Envelope Length : 150 ~ 356 mm Width : 90 ~ 216 mm Weight : For Cassette, 60 ~ 90 g/Œ³ For Manual, 60 ~ 135 g/Œ³	Universal Type
* Recommendation Paper Xerox 4024, 4200			
## Cassette Capacity		150sheets 250sheets and 2nd Cassette optional	ML-84, ML-85G ML-85
## Output Tray Capacity		Face Down : 150sheets Face Up : 1sheet	
## Warming-up Time		Between 25seconds	
## First Printing Time		Between 25seconds	
## Power Rating		AC 110V/220V (Œ¼15%) 50Hz/60Hz (Œ¼3%)	
## Power Consumption		Max 720W During Printing : 150WH (Average)	
## Power Saving Consumption		During Sleeping : Max 17WH	
## Power Switch		None	
## Certification & Compliance		EC, TUV, SEMKO, NEMKO, DEMKO, C-tick FCC, UL, CSA, CDRH, CB, MEEI	
## Acoustic Noise	Standby	Less than 29dB	
	Operating	Less than 47dB	

(1.1)Spec.

1. Product Specifications

Items		Specifications & Descriptions	Remarks
## Reliability	MPBJ MPBF MTBF	2500sheets/75g Paper 30,000sheets 2250hours (MTBF=7.5hoursX20daysXMPBF/Monthly Use)	Jam Rate
## Toner Cartridge		SAMSUNG-Maded including Developer	
## Expected Life Span		100,000sheets	Printer
## Operating Environment		Temperature : 10 ~ 32.5 ºC Humidity : 20 ~ 80 %RH	Normal:22 ºC ± 65%
## Storage Environment		Temperature : -20 ~ 40 ºC Humidity : 10 ~ 95 %RH	
## Weight		Net : Max 8.5kg Gross : Max 10.5Kg	
## External Dimension		360(W) X 367(D) X 176(H) mm	
## Developer		. Life Span : 5% Pattern , Min 5,000sheets . Developing : Non-magnetic Contact Developing . Charging : Conductive Roller Charging . Density Adjustment : 3steps (Light, Medium, Dark) . Toner Supply Method : Exchanging The Developer . Toner Checking Sensor : None . Transfer System: Conductive Roller Transfer . Fusing System : Temperature & Pressure . Erasing Method: Light Using LED . OZONE Emission : Max 0.1PPM (8hours)	Negative(-) PWM Control Quenching Lamp
## Packing	Main Kit	. Printer 1 Set . Cassette 1 Piece . Developer Cartridge 1 Piece . Power Cord 1 Piece	

1. Product Specifications

1.1.2 Quality Specifications

Items		Specifications & Descriptions	Remarks
1. Conditions	Paper	Normal Paper	75g/Ŧ³
	Environment	Temperature : 20 ~ 25 ĩĒ Humidity : 40 ~ 65 %RH	
2. Print Quality	Image Density	Min 1.3 Min 1.0 (Temperature :10 ~ 20 ĩĒ)	
	Background	Max 1.0	
	Uniformity	Max 0.2 (Including Continuous Print)	
	Fusing	Min 80% ('All Black' & '2BY2 Pattern')	
	Start Position	Top : x +/-2 mm Side : y +/-2 mm	From left
	Skew	Top : Maximum ĩ¼1.5mm/203mm Side: Minimum ĩ¼1.5mm/266mm	
	Orthogonality	ĩ¼1.0mm	
	Horizontal Sca	ĩ¼0.6mm / 208mm (Bowed Lines Skew ; S600,0909 Pattern)	
	Special Paper Exception	Image Density : Minimum 1.0 (Envelop) Fusing : Minimum 70% (Envelop/OHP/Postcard; More than 120g/Ŧ±)	All Black
	Paper Jam	Less than 1/2,500 (75g/Ŧ± Paper)	
	Paper Curl	First : Less than 16mm (10sheets) After Cooling : less than 12mm (10sheets)	
3. Reliability	Insulation Resistance	Less than 10Mohm (at DC 500V)	
	Dielectric Strength	AC 1500V(DC 2100V), 10mA	
	Ground Continuous	Less than 0.1ŦŦ	
	Voltage DIP	Rated Voltage ĩ¼15%	
	AC Power Noise	AC 1000V, 100ns/400ns/1000ns	Rated Power
	Leakage Current	Less than 3.5mA	
	Impulse Noise	10, 100, 200, 400, 1K ns	
	Surge	0.5 ~ 4 KV, 0.25 ~ 2 KA	
	Ozone Emission	Less than 0.1ppm ĀİÇİ (8hours)	UL #1950
	Top Cover Open	Isolating the input power of the below parts LSU, High Voltage Part, and Fuser	
	Overcurrent Protect	Fuse inside the Engine Controller	

1. Product Specifications

Items		Specifications & Descriptions	Remarks
4. Fusing System	Trouble Sensing	. The temperature doesn't rise to the specific temperature in the specific time . The temperature is too high.	Indicate the Fuser error
	Overheat Sensing	240 ~ 250 °C (The thermostat cuts off the Fuser from the power.)	
	Thermister Open Sensing : Without the initial temperature change of the Fuser		

1.1.3 Maintenance

Items		Specifications & Descriptions		Remarks
1. Saving Toner		Using the DRAFT printing (1/2, 1/4, 1/6, 1/8 selectable)		
2. Density Adjustment		LIGHT, MEDIUM, DARK selectable		
3. Power Save Time		OFF, 15, 30, 45, 60 minutes selectable		
4. Setting up the Printer		•ç Unpack the unpacking procedure •è Remove the new Developer Cartridge From the its Bag. And then remove the Plastic strip from the Cartridge •é Insert the Developer into the Printer •ê Load the paper into the cassette •ë Connect the POWER CORD •ì At the Ready state after POWER ON, Print Self Test Pattern using TEST PRINTING key (Check the Basic Print state) •í check the Print quality		
5. Environment		•ç you can not operate the OP panel key, after only setting the Engine board. •è Do not Power off at the place that Temperature or humidity changes abruptly (It will be keep the inner air temperature) •é Do not disconnect the power cord while the humidity is 70% above. •ê Remove the paper from the cassette if you do not use the Printer for a long time at the high humidity		
6. Shipping & Storage Environment		•ç Temperature	Typical High Low	0 ~ 35 °C 35 ~ 40 °C -20 ~ 0 °C
		•è Humidity	Typical High Low	35 ~ 85 % RH 85 ~ 95 % RH 10 ~ 35 % RH

1. Product Specifications

1.2 Video Controller Board Specifications

1.2.1 ML-84 Specifications

Items	Specifications & Descriptions	Remarks
1. Interface Engine	SAMSUNG ML-80	
2. Resolution	WPS : 600 X 600 dpi PCL4.5 : 300 X 300 dpi	
3. Emulation Including the driver	PCL4.5 (Compatible with HP LaserJet IIP) Microsoft WPS(Windows Printing System)	
4. Font	7 bitmaps	
5. CPU	Motorola MC68322-20MHz	
6. RAM MEMORY	Standard : 1M or 1.5M bytes Option SIMM Module : For 1M Standard : 4, 16 Mbytes For 1.5M Standard : 4, 16 Mbytes * These SIMMs are compatible with the Computer's.	
7. ROM	1Mbyte (Font + Program)	
8. EEPROM	512bytes	NVRAM
9. Front Control Panel	4LEDs & 1key	
## Interface	. Bidirectional Parallel Standard - IEEE1284 COMPATIBLE MODE - IEEE1284 NIBBLE MODE - IEEE1284 BYTE MODE - IEEE1284 ECP WITHOUT RLE - IEEE1284 ECP WITH RLE . Serial Interface Optional - 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps - XON/XOFF, DTR/DSR Protocol - Robust XON for XON/XOFF	Centronics Use ECP cable RS232C
## Copy Capacity	Enable up to 999	
## Interface Switching	Automatic (Serial & Parallel)	
## Interface Time Out	1 step is 1 second from 20 seconds to 5 minutes. (Zero is disable)	

1. Product Specifications

Items	Specifications & Descriptions	Remarks
## Jam Recovery	Jam 0, 1, 2 according to the Jam position The recopy of Jam 0, 1 is default. The recopy of Jam2 is optional. (Don't use Jam2 recovery under WPS status.)	
## AEP	Emulation switching according to Emulation code.	
## Engine Interface Error	All LEDs blink when communication is error	
## Status Monitor	Bidirectional Status Feedback Animation for printing	WPS only
## PRS Buffer	755Kbytes	
## Top Margin	4.23 ± 0.2 mm	PCL Pattern

1. Product Specifications

1.2.2 ML-85 Specifications

Items	Specifications & Descriptions	Remarks
1. Interface Engine	SAMSUNG ML-80	
2. Resolution	WPS : 600 X 600 dpi	
3. Emulation Including the driver	PCL5e (Compatible with HP LaserJet 5P) Microsoft WPS(Windows Printing System)	
4. Font	1 bitmap 45 scalable (35 intelligent, 10 truetype)	
5. CPU	Motorola MC68322-20MHz	
6. RAM MEMORY	Standard : 2Mbytes Option SIMM Module : 1, 2, 4, 8, 16 Mbytes * These SIMMs are compatible with the Computer's.	
7. ROM	2Mbyte (Font + Program)	
8. EEPROM	512bytes	NVRAM
9. Front Control Panel	4LEDs & 1key	
## Interface	Bidirectional Parallel Standard - IEEE1284 COMPATIBLE MODE - IEEE1284 NIBBLE MODE - IEEE1284 BYTE MODE - IEEE1284 ECP WITHOUT RLE - IEEE1284 ECP WITH RLE Serial Interface Optional - 300, 600, 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps - XON/XOFF, DTR/DSR Protocol - Robust XON for XON/XOFF	Centronics Use ECP cable RS232C
## Copy Capacity	Enable up to 999	
## Interface Switching	Automatic (Serial & Parallel)	
## Interface Time Out	1 step is 1 second from 20 seconds to 5 minutes. (Zero is disable)	
## Jam Recovery	Jam 0, 1, 2 according to the Jam position The recopy of Jam 0, 1 is default. The recopy of Jam2 is optional. (Don't use Jam2 recovery under WPS status.)	
## AEP	Emulation switching according to Emulation code.	

1. Product Specifications

Items	Specifications & Descriptions	Remarks
## Engine Interface Error	All LEDs blink when communication is error	
## Status Monitor	Bidirectional Status Feedback Animation for printing	WPS only
## PRS Buffer	755Kbytes	
## Top Margin	4.23 ± 2.0 mm	PCL Pattern

1.2.3 ML-85G Specifications

Items	Specifications & Descriptions	Remarks
1. Interface Engine	SAMSUNG ML-80	
2. Resolution	WPS : 600 X 600 dpi Computer 16Mbytes RAM : 300 X 300 dpi	
3. Emulation Including the driver	PCL4 (Compatible with HP LaserJet II) Microsoft WPS(Windows Printing System)	S/W Driver
4. Font	Download	
5. CPU	ASIC	
6. RAM MEMORY	Standard : 0.5Mbytes Option : None	
7. ROM	None	
8. EEPROM	None	NVRAM
9. Front Control Panel	4LEDs & 1key	
## Interface	Bidirectional Parallel Standard - IEEE1284 COMPATIBLE MODE - IEEE1284 NIBBLE MODE - IEEE1284 BYTE MODE - IEEE1284 ECP WITHOUT RLE - IEEE1284 ECP WITH RLE Serial Interface : None	Centronics Use ECP cable
## Copy Capacity	Enable up to 999	
## Jam Recovery	Jam 0, 1, 2 according to the Jam position The recopy of Jam 0, 1 is default. The recopy of Jam2 is optional. (Don't use Jam2 recovery under WPS status.)	
## Engine Interface Error	All LEDs blink when communication is error	
## Status Monitor	Bidirectional Status Feedback Animation for printing	WPS only
## PRS Buffer	755Kbytes	