Printer Protocol Interpreter MGL™

Programmer's Reference Manual for MGL,
a Monarch® MGL® Printer Protocol Interpreter

Thermal Series Printers

Printer Protocol Interpreter MGL

Programmer's Reference Manual for MGL,
a Monarch MGL Printer Protocol Interpreter

Thermal Series Printers

Trademark Acknowledgments

Monarch is a registered trademark of Paxar Corporation.

MPL, SL4M, T4M, SL5000r, T5000r, and SL/T5R Energy Star are trademarks of Printronix, Inc.

Printronix and PSA are registered trademarks of Printronix, Inc.

Table of Contents

1 *Introduction*

About This Manual

This manual explains the differences between the Printer Protocol Interpreter Monarch Graphic Language (MGL) Utility and the Monarch® Printer Control Language II (MPLC II).

If you have a SL5000r/T5000r printer use this manual with your *SL5000r/T5000r User's Manual* for complete printer-protocol operation. If you have a SL4M™/T4M™ printer use this manual with your *SL4M/T4M User's Manual*.

Printer Configuration

The printer has two ways of configuring operational parameters:

- use the LCD menu settings
- use the host supplied configuration packet.

The configuration packet modifies the current configuration values as if the user manually changed them on the front panel. However, the changes will not be saved to NOVRAM. It is the user's responsibility to save the appropriate configuration and the power-up configuration.

Front Panel Menu

Table 1 shows the menu structure of the Monarch 98xx printer series and the Printronix MGL equivalent (if applicable).

Table 1. Front Panel Menu

Main Menu →	**Description**	**Printronix Setting**
Cancel All	Cancels all host data.	Use the standard cancel option.
Print Mode	Puts the printer online.	Use the standard method to go online.
Batch Entry	Enters batch data during batch processing.	Not supported.
Repeat Batch	Repeats the last batch.	MGL Setup → Repeat Batch
Batch Options	Enters batch options for batch processing.	Not supported.
Setup	Enters the Setup submenu. (See Main Menu → Setup below).	
Scripts	Enters the Scripts submenu.	Not supported.
Diagnostics	Enters the Diagnostics submenu. Password is required.	Not supported.
Main Menu → Setup →	**Description**	**Printronix Setting**
Supply	Enters the Supply submenu. (See page 9.)	
Contrast	Sets LCD contrast.	SL4M/T4M printer: Printer Setup → Disp. Intensity

Table 1. Front Panel Menu

Defaults	Enters the Defaults submenu. See Main Menu → Setup → Defaults on page 10.	
Network	Enters the Network submenu.	Use the standard menus to set up network.
Port Settings	Enters the Port Settings submenu.	Use the standard menus to set up communication ports.
Flash Memory	Enters the Flash Memory submenu. See Main Menu → Setup → Flash Memory on page 11.	
Verifier	Enters the Verifier submenu.	Not supported.
RFID	Enters the RFID submenu. See Main Menu → Setup → RFID on page 11.	
Main Menu → Setup → Supply	**Description**	**Printronix Setting**
Supply Type	Sets the media supply type.	Media Control → Media Handling
Ribbon	Sets the ribbon type used.	Media Control → Print Mode
Speed	Sets the printer speed.	Media Control → Print Speed
Feed Mode	Sets the Feed mode, either continuous or on-demand.	Media Control → Media Handling
Backfeed	Sets backfeed to either Off, On, or Extended.	
Positioning	Enters the Positioning submenu. See Main Menu → Setup → Supply → Positioning on page 10.	
Separators	Sets separators either to No, Yes, or Long.	MGL Setup → Separators
Skip Index	Sets Skip Index to either No or Yes. **NOTE:** To emulate Skip Index On, set Gap Windowing to Enable and Page Clip to Disabled.	Media Control → Page Clip Sensor Setup → Gap Windowing
Knife Ctrl	Sets the Knife Control parameter.	Not supported.

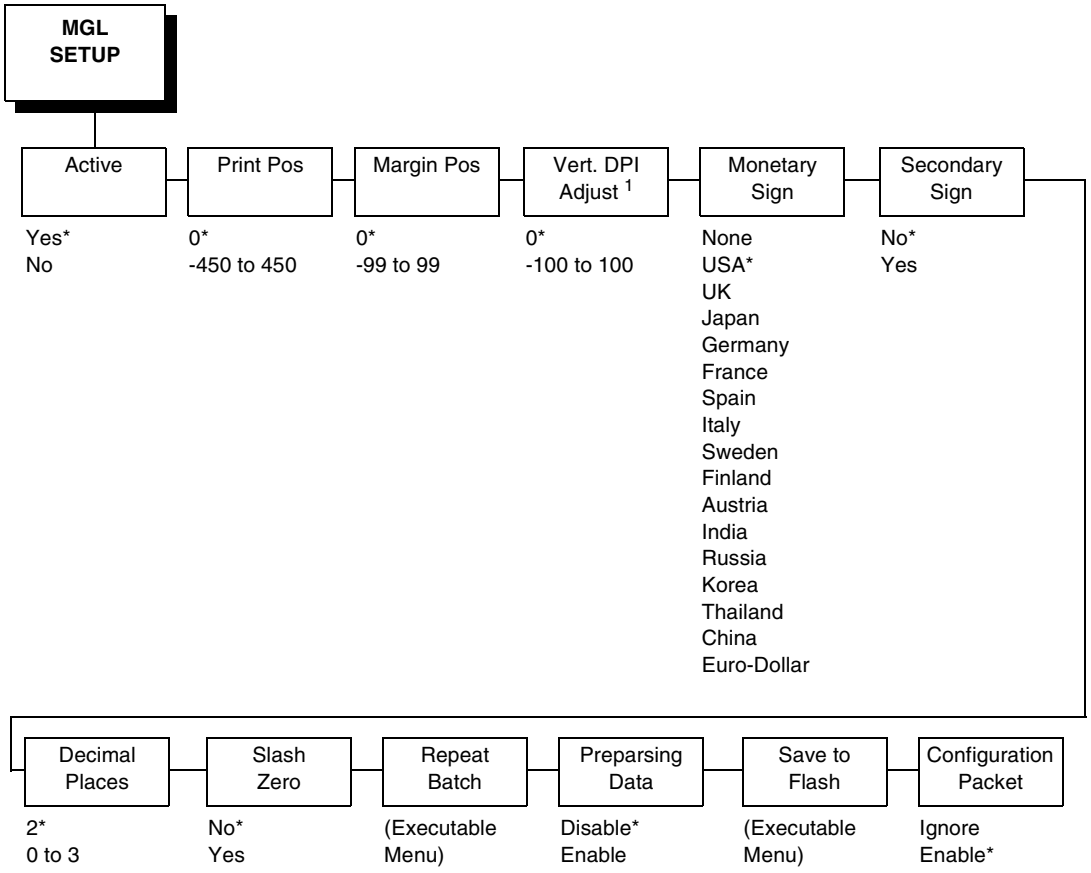
Table 1. Front Panel Menu

Error Action	Sets the action taken when there is a verifier error or RFID tag error.	Use the standard Printronix error handling.
Main Menu → Setup → Supply → Positioning	**Description**	**Printronix Setting**
Print Pos	Adjusts the print position -450 to 450.	MGL Setup → Print Pos
Supply Pos	Adjusts the supply position -300 to 300.	Media Control → TOF Adjust
Margin Pos	Adjusts the margin position -99 to 99.	MGL Setup → Margin Pos
Cut Position	Adjusts the cut position -300 to 300.	Media Control → Tear Off Adjust
Dispense Position	Adjusts the dispense position 50 to 200.	Media Control → Tear Off Adjust
Backfeed Distance	Adjusts the backfeed distance 10 to 200.	Media Control → Tear Off Adjust
Main Menu → Setup → Defaults	**Description**	**Printronix Setting**
Monetary Sign	Sets the monetary sign (price fields). Support depends on the availability of the sign in the fonts used.	MGL Setup → Monetary Sign
Secondary Signs	Sets the secondary sign (price fields). Support depends on the availability of the sign in the fonts used.	MGL Setup → Secondary Sign
Decimal Places	Sets the default number of decimal places (price fields). 0 to 3.	MGL Setup → Decimal Places
Slashed Zero	Turn on slash zero printing. Options: Yes, No.	MGL Setup → Slashed Zero
Powerup Mode	Sets the power up mode behavior.	Printer Control → Power-Up state
Prompt Set	Defines the prompt for the keypad.	Not supported.
Flash Storage	Sets Flash Storage to disabled or enabled.	Not supported.

Table 1. Front Panel Menu

Main Menu → Setup → Flash Memory	**Description**	**Printronix Setting**
Format Flash	Formats the flash memory.	Printer Control → Optimize&Reboot
Unused Flash	Displays the amount of unused flash.	Printer Control → Flash Avail
Pack Flash	Optimizes the flash memory.	Printer Control → Optimize&Reboot
Main Menu → Setup → RFID	**Description**	**Printronix Setting**
Read Tag	Executable menu to read tag.	RFID → Read Tag
Write Attempts	Sets the number of retries to write a tag.	RFID → Label Retry
Signal Adjust	Signal strength.	RFID → Custom Read Pwr
RF Power	Sets RF power.	RFID → Read Power
Write Power	Sets write power.	RFID → Write Power
Clear Data	Clears tag data.	Clear Tag Stat
Print Config	Executable menu to print RFID configuration settings.	Configuration → Print Config
Protocol	Sets write format protocol.	Tag Type

MGL SETUP Menu



Notes:

* = Default

For SL4M/T4M printers, the MGL Setup menu is available only when you enable Admin User in the PRINTER SETUP menu.

[1] Available for SL4M/T4M printers only.

MGL SETUP Submenus

Active

Indicates if the MGL parser will process all incoming data, or that all data will be passed to the bottom emulation.

- **Yes** (default). MGL is active, process MPCL II packets.
- **No**. MGL is inactive, data is processed by bottom emulation.

Print Pos.

Changes the vertical row offset for all subsequent jobs. See “Print Adjust” on page 64.

- **0** dots (default)
- **-450 to 450** dots

Margin Pos

Changes the horizontal column offset for all subsequent jobs. “Margin Adjust” on page 65.

- **0** dots (default)
- **-99 to 99** dots

Vert. DPI Adjust

NOTE: Applies to SL4M/T4M printers only.

Adjusts the vertical print position and the height and length of page elements such as lines and boxes. This setting does not affect images, font size, or barcode densities.

Monetary Sign

Selects the default sign used by price fields. All options found in the Monarch printers are available. However, setting support depends on the availability of the selected monetary sign in the selected font. If the sign is not available then the dash character will print.

- **USA** (default)
- Options: **None, USA, UK, Japan, Germany, France, Spain, Italy, Sweden, Finland, Austria, India, Russia, Korea, Thailand, China, Euro-Dollar**

Secondary Sign

Determines if the secondary sign is printed with price fields.

- **No** (default). No secondary sign is printed with price fields.
- **Yes**. Secondary sign is printed with text fields (if applicable).

Decimal Places

Determines the number of decimal places printed with price fields.

NOTE: The host supplied data must take this setting into account when providing data for a price field.

Example 1: Decimal places is 0, host sends “3000” then output is 3000

Example 2: Decimal places is 2, host sends “3000” then output is 30.00

- **2** (default)
- **0 to 3**

Slash Zero

Determines how the number “0” will print.

- **No** (default). Zero prints without a slash.
- **Yes**. Zero prints with a slash.

Repeat Batch

This executable menu repeats the last received batch. If no batch is received after power-up, no action is taken.

Preparsing Data

When the preparser is enabled, the host data will be scanned for the <ENQ> character to send status information back to the host. For more information see “Inquiry Request” on page 67.

Save to Flash

Restricts writes to flash, forms, CD schemes and graphics. These objects are not automatically saved to flash. This executable menu saves these objects to flash when its device is set to flash or NVM RAM.

Configuration Packet

Allows the printer to enable or ignore printer configuration settings changed by the host. When set to Enable, the configuration packets will be accepted. When set to Ignore, the configuration packet will be ignored.

2 Supported Commands

MPCL II Support

This chapter summarizes the MPCL II packet fields and the parameters that MGL supports.

Packet Control Characters

Table 2. Packet Control Characters

Character	Description	Support	Reference
{	Start of Header - when received, the MGL parser switches into Packet Parse mode.	Full	
}	End of Header - when received and MGL is in Packet Parse mode, the MGL parser will switch out of Packet Parse mode.	Full	
|	Field Separator - marks the end of a field in Packet Parse mode.	Full	
’	Param Separator - separates the field parameters in Packet Parse mode.	Full	
“ ”	Quoted String - in Packet Parse mode, characters between the double quotes are parsed as a quoted string. These strings are used to specify data for alpha or barcode fields but can also be used for other parameters.	Full	See “Fixed Versus Variable Data” on page 55.
~	Escape Character - enters non-printable data such as control characters and extended characters in quoted strings.	Full	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
{I,...} Example: {I,0,A,M,E | A,0,0,0,1,0 | B, 0,1,0,0,0,0 |}	**Configuration Packet** - I is a packet identifier ... denotes one or more optional fields and their parameters. The synopsis of these entries will be terminated with the field separator.			Partial	
#,a,d,u |	**Configuration Packet Parameters** (optional)			Partial	
	#	ID	0...TBD	Full	
Example: {I,0,A,M,E|} Adds a config to memory using English units.	a	Action	A= add configuration U=upload user configuration	Full	
	d	Device	M=memory N=non-volatile RAM R=volatile ram N will be saved to flash when the device is set to N. Saving to flash is only done when the executable menu Save to Flash is selected.	Partial	
	u	Units	E=English M=metric G=dots	Full	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
A,p,l,sp,sz,ss |	**System Setup Field** - A is the identifier for this field, the other parameters are listed below.			Partial	
Example: {I,A,0,0,0,1,0l}	p	Power-up mode	0=Online (default) 1=Offline	Full	
Sets power-up mode to online, uses no batch separator, uses slash zero and default symbol set.	1	Display Language	0..12 The display language must be choosen using the normal Printronix menu to select a language.	Ignored	
	sp	Batch Separators	0=No 1=Yes 2=Long Batch separators will be added based on customer request.	Full	
	sz	Slash Zero	0=Standard Zero 1=Slash Zero	Full	
	ss	Symbol Set	0..24	Full	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
B,t,r,f,p,c,s |	**Supply Setup** - B is the identifier for this field, the other parameters are listed below.			Partial	
Example: {I,B,0,1,0,0,0,0I} Uses black mark supply with ribbon in Continuous Feed mode with no adjustment for print and cut position, and with skip index disabled.	t	Type	0=Black Mark 1=Die Cut/edge aperture (default) 2=Continuous 3=Center Aperture	Full	
	r	Ribbon	0=No Ribbon 1=Ribbon (default) 2=High Energy Ribbon We only support ribbon or no ribbon, there is no difference between ribbon and high energy ribbon.	Partial	
	f	Feed Mode	0=Continuous 1=On Demand	Full	
	p	Position	-300 to 300	Full	
	c	Cut Position	-300 to 30 The printers will always cut in the same position.	Ignored	
	s	Skip Index	0=Disable (default) 1=Enable To use skip index (print across pages), select this option using the Printronix menus available.	Ignored	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
C,c,a,m,s,p |	**Print Control** - C is the identifier for this field, the other parameters are listed below.			Partial	
Example: {I,C,0,0,0,60,0, |} Uses default contrast, no adjustments for print and margin, sets print speed to 6 ips.	c	Contrast	-699 to 699 0 is the default. Contrast values are mapped to Printronix values, which will lead to loss of precision.	Partial	
	a	Print Adjust	-450 to 450	Full	"Print Adjust" on page 64.
	m	Margin Adjust	-99 to 99	Full	"Margin Adjust" on page 65.
	s	Speed Adjust	0=Auto, not supported maps to default ips. 20= 2 ips 25=2.5 ips, not supported maps to 3 ips (default) 40=4 ips 60=6 ips 80=8 ips 100=10 ips 120=12 ips	Partial	
	p	Printhead Width	Always use 0.	Ignored	
D,s,ss,d |	**Monetary Formatting** - D is the identifier for this field, the other parameters are listed below.			Partial	
Example: {I,D,16,1,2, |} Use Euro symbol, print secondary sign and use two decimals.	s	Symbol	0 to 16. Not all currency symbols are available in the fonts supported.	Partial	
	ss	Secondary Sign	0=No secondary sign 1=Print secondary sign	Full	
	d	Decimals	0=No digits 1=One digit 2=Two digits 3=Three digits	Full	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
E, “s1”, “s2”, “s3” Example: {I,E,“~123~044~034~124~125”,“”,“”|} Set { as start of header. “,” as param separator, “ as quoted string marker, | as field separator and } end of header. Disable the status terminator and job/upload terminator.	**Define Control Characters** - E is the identifier for this field, the other parameters are listed below.			Full	
	“s1”	Define Control Characters	A quoted string with up to three decimal values between 0 and 255 that defines the packet control chacters, and optional immediate command characters. These become active for the next package.	Full	
	“s2”	Status Terminator	A quoted string with up to three decimal values between 0 and 255. An empty string disables sending this terminator sequence.	Full	
	“s3”	Job request and upload terminator	A quoted string with up to three decimal values between 0 and 255. An empty string disables sending this terminator sequence.	Full	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
F,b,w,s,p,f |	**Communication Settings** - F is the identifier for this field, the other parameters are listed below.			Full	
Example: {I,F,3,1,0,0,1|} Uses 9600 baud, an 8 bit word length, one stop bit, no parity, and DTR mode.	b	Baud Rate	0=1200 1=2400 2=4800 3=9600 (default) 4=19200 5=38400 6=57600 7=115200	Full	
	w	Word Length	0=7 bit word length 1=8 bit word length (default)	Full	
	s	Stop Bits	0=1 stop bit (default) 1=2 stop bits	Full	
	p	Parity	0 None (default) 1 ODD parity 2 EVEN parity	Full	
	f	Flow Control	0=None 1=DTR (default) 2=CTS 3=XON/XOFF	Full	
G,a,p,d | Example: {I,G,0,0,0|}	**Backfeed Control** - G is the identifier for this field, the other parameters are listed below. Select Backfeed Control using options available on the printer.			Ignored	
	a	Action	0=disable backfeed (default) 1=enable backfeed 2=enable extended backfeed	Ignored	
	p	Dispense Position	Adjusts the stopping point of the label 50 to 200 dots (default is 65 dots.)	Ignored	
	d	Backfeed Distance	Amount to move label backwards. 10 to 200 dots (default is 65 dots).	Ignored	

Table 3. Configuration Packet

Synopsis	Description			Support	Reference
M,b,d,s |	**Memory Configuration** - M is the identifier for this field, the other parameters are listed below.			Partial	See "Memory" on page 63.
Example: {I,M,I,R,1530 |} Stores the image buffer in volatile RAM and allocates 153K for it.	b	Buffer	D=Downloadable fonts F=Format I=Image R=Receive T=Transmit V=Scalable Fonts Memory allocation for this section is not available. Use the flash available.	Partial	
	d	Device	N=Non-volatile RAM R=Volatile RAM F=Flash N will be saved to flash when the device is set to N. Saving to flash is only done when the executable menu Save to Flash is selected.	Partial	
	s	Size	Buffer size in 1/10K ranges	Full	

Font Packet

Table 4 lists support for the MPCL II font packet. This packet is used to upload True Type MPCL II configuration settings, and for downloading fonts.

Table 4. Font Packet Support

Synopsis	Description			Support	Reference
{W,#,a,d I} Example: {W,0,M,R I} Selects all fonts and uploads the font size information to the host.	**Font Packet** - W is the packet identifier followed by the packet parameters.			Partial	See "Fonts" on page 61.
	#	Font ID	0 to 9999	Full	
	a	Action	A=Add C=Clear All (except in ROM) H=Upload size information M=Upload font memory usage	Partial	
	d	Device	F=Flash R=Volatile RAM Z=All Devices (for upload only)	Partial	

Verifier Configuration Packet

Currently the verifier cannot be configured, this packet will be ignored.

Table 5. Font Packet Support

Synopsis	Description			Support
{V,#,a,d,n |…}	**Verifier Configuration Packet** - V is the packet identifier followed by the packet parameters.			Ignored
	#	Format ID	0 to 999	Ignored
	a	Action	A=Add	Ignored
	d	Device	F=Flash T=Temporary	Ignored
	n	Name	0 to 8 characters to name the verifier packet	Ignored
D, “cmd” |	**Verifier Commands** - D is the field identifier.			Ignored
	“cmd”	Verifier Commands	N/A	Ignored

Network Console Packet

This packet is ignored. Use the Printronix procedures to configure the network settings. See your User's Manual for network setup.

Table 6. Network Console Packet Support

Synopsis	Description			Support
{N,n,a,d,"n"|…| Example: {N,1,A,T,"NC1" | C,"init" | C,"exit" |}	**Network Console Packet** - N is the packet identifier followed by the packet parameters.			Ignored
	n	ID	0 to 999 Number identifies the network console packet.	Ignored
	a	Action	A=Add	Ignored
	d	Device	T=Network Card	Ignored
	"n"	Name	0 to 8 characters to name the console packet	Ignored
C,"cmd" | Example: C,"init" |	**Command Field** - C is the field identifier.			Ignored
	"cmd"	Console Commands	N/A	Ignored

Format Packet

Table 7 lists support for MPCL II Format packet. This packet defines the layout of a format.

Table 7. Format Packet Support

Char	Description			Support	Reference
{F,#,a,d,u,l,w,“n”l …l} Example: {F,1,A,R,E,300,200 ,”TEXTILES” l}	**Format Packet** - F is the packet identifier followed by the packet parameters. The ... following the first field separator denotes one or more format fields..			Partial	
	#	Format ID	0 to 999 to identify the format.	Full	
	a	Action	A=Add C=Clear H=Upload	Full	
	d	Device	F=Flash N=Non-volatile RAM R=Volatile RAM N will be saved to flash when the device is set to N. Saving to flash is only done when the executable menu Save to Flash is selected.	Partial	
	u	Unit of Measure	E=English M=Metric G=Graphic Dots	Full	
	l	Length	Range depends on selected unit of measure.	Full	
	w	Width	Range depends on selected unit of measure.	Full	
	“n”	Name	0 to 8 characters to name the format.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
T,#,w,m,r,c,g,f,hm, wm,cl,a,cr,fr,ss | Example: T,2,10,V,250,50,0, 1,1,1,B,C,0,0,0 | Defines a text field (field #2) with a variable length up to 10 characters. The field begins at row 250, column 50. There is no additional gap between characters, and the Standard font is used without additional magnification. The printing is black on white and centered. No field or character rotation is used. The internal symbol set is used.	**Text Field** - T is the field identifier followed by the field parameters.			Partial	
	#	Field ID	1 to 999 unique numbers to identify the field.	Full	
	w	Width	0 to 2710 maximum number of printed characters	Full	
	m	Mode	F=Fixed Length V=Variable Length	Full	
	r	Row	Range depends on unit of measuret and printhead density.	Full	
	c	Column	Range depends on unit of measure and printhead density.	Full	
	g	Gap	Number of dots between characters.	Full	
	f	Font	**1**: Standard, mono-spaced	Full	See “Fixed Versus Variable Data” on page 55.
			2: Reduced, mono-spaced	Full	
			3: Bold, mono-spaced	Full	
			4: OCRA, mono-spaced	Full	
			5: HR1, mono-spaced	Full	
			6: HR2, mono-spaced	Full	
			10: CG Triumvirate Bold, proportional	Full	
			11: CG Triumvirate 6 pt, proportional	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
T,#,w,m,r,c,g,f,hm, wm,cl,a,cr,fr,ss | (continued)	f	Font	**15**: CG Triumvirate 7 pt, proportional	Full	See "Fixed Versus Variable Data" on page 55.
			16: CG Triumvirate 9 pt, proportional	Full	
			17: CG Triumvirate 11 pt, proportional	Full	
			18: CG Triumvirate 15 pt, proportional	Full	
			50: EFF Swiss Bold, scalable	Full	
			70: Paxar 15 pt, proportional	Ignored	
			71: Paxar 18 pt, proportional	Ignored	
			72: NAFTA 15 pt, proportional	Ignored	
			73: NAFTA 18 pt, proportional	Ignored	
	hm	Height Magni-fication	1 to 7 or 4 to 255 for scalable/ downloaded truetype fonts.	Full	
	wm	Width Magni-fication	1 to 7 or 4 to 255 for scalable/ downloaded truetype fonts.	Full	
	cl	Color	B, D|R|W or O for standard printer fonts. A|N, B|O, D|W, E|R, or F|T for scalable fonts.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
T,#,w,m,r,c,g,f,hm, wm,cl,a,cr,fr,ss | (continued)	a	Alignment	L=Left C=Center (mono-spaced only) R=Right (mono-spaced only) B=Midpoint E=Endpoint	Full	
	cr	Character Rotation	0=Top of character points to top of field (Use for scalable font) 1=Top of character points to left of field 2=Top of character points to bottom of field 3=Top of character points to right of field	Full	
	fr	Field Rotation	0=Top of field points to top of supply 1=Top of field points to left of supply 2=Top of field points to bottom of supply 3=Top of field points to right of supply	Full	
	ss	Symbol Set	0 = Internal Symbol Set	Full	
			1 = ANSI Symbol Set		
			100 = Macintosh		
			101 = Wingdings Should only be used with wingdings downloaded truetype fonts.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
T,#,w,m,r,c,g,f,hm, wm,cl,a,cr,fr,ss | (continued)	ss	Symbol Set	102 = UNICODE (user input) for particular mapping	Ignored	
			103 = BIG5 (user input) for UNICODE mapping	Ignored	
			104 = GB2312 (user input) for UNICODE mapping	Ignored	
			105 = SJIS (user input) for UNICODE mapping Code Page 932 (Japanese Shift-JIS)	Ignored	
			106 = GB2312 (user input) for GB23212 mapping Code Page 936 (Simplified Chinese)	Ignored	
			107 = BIG5 (user input) for BIG5 mapping Code Page 950 (Traditional Chinese)	Ignored	
			437 = DOS Code Page 437 (Domestic)	Full	
			850 = DOS Code Page 850 (International)	Full	
			852 = DOS Code Page 852 (Latin 2)	Full	
			855 = DOS Code Page 855 (Russian)	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
T,#,w,m,r,c,g,f,hm, wm,cl,a,cr,fr,ss | (continued)	ss	Symbol Set	857 = DOS Code Page 857 (IBM Turkish)	Full	
			860 = DOS Code Page 860 (MS-DOS Portuguese)	Full	
			1250 = Code Page 1250 (Latin 2)	Full	
			1251 = Code Page 1251 (Cyrillic)	Full	
			1252 = Code Page 1252 (Latin 1)	Full	
			1253 = Code Page 1253 (Greek)	Full	
			1254 = Code Page 1254 (Turkish)	Full	
			1255 = Code Page 1255 (Hebrew)	Full	
			1256 = Code Page 1256 (Arabic)	Full	
			1257 = Code Page 1257 (Baltic)	Full	
			1258 = Code Page 1258 (Vietnamese)	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
B,#,w,m,r,c,t,d,h,t, a,fr | Example: B,3,12,V,150,40,1, 2,80,7,L,0 | Defines a bar code field (field #3) with 12 characters of variable length starting at row 150, column 40. A UPCA bar code with a density of 2 and a height of 80 is used. The check digit and number system are shown at the bottom. The bar code is left aligned without any field rotation.	**Barcode Field** - B is the field identifier followed by the field parameters.			Partial	
	#	Field ID	1 to 999 unique numbers to identify the field.	Full	
	w	Width	0 to 2710 maximum number of characters	Full	
	m	Mode	F=Fixed Length V=Variable Length	Full	
	r	Row	Range depends on unit of measure and printhead density.	Full	
	c	Column	Range depends on unit of measure and printhead density.	Full	
	t	Type	1 UPCA	Full	
			2 UPCE	Full	
			3 Interleaved 2 of 5	Full	
			4 Code 39 (no check digit)	Full	
			5 Codabar	Full	
			6 EAN8	Full	
			7 EAN13	Full	
			8 Code 128	Full	
			9 MSI The data length is limited to 14. Monarch allows more.	Full	
			10 UPCA +2	Full	
			11 UPCA +5	Full	
			12 UPCE +2	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
B,#,w,m,r,c,t,d,h,t, a,fr | (continued)	t	Type	13 UPCE +5	Full	
			14 EAN8 +2	Full	
			15 EAN8 +5	Full	
			16 EAN13 +2	Full	
			17 EAN13 +5	Full	
			22 POSTNET	Full	
			23 Code 93	Full	
			31 Code 16K This barcode is not supported.	Ignored	
			32 PDF417	Full	
			33 Maxi Code	Full	
			35 Data Matrix (ECC-200)	Full	
			36 Quick Response	Full	
			40 Code 39 (MOD 43 check digit)	Full	
			41 UPCA & Price CD	Full	
			44 EAN13 & Price CD	Full	
			50 Interleaved 2 of 5 with Barrier Bar	Full	
	d	Density	Bar code density. Valid value depends on the selected barcode.	Partial	
	h	Height	Bar code height. Valid value depends on selected unit of measure and installed printhead.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
B,#,w,m,r,c,t,d,h,t, a,fr |	t	Text	Appearance of text with barcodes.	Full	
(continued)	a	Alignment	Field alignment L=Left C=Center (mono-spaced only) R=Right (mono-spaced only) B=Midpoint E=Endpoint	Full	
	fr	Field Rotation	0=Top of field points to top of supply 1=Top of field points to left of supply 2=Top of field points to bottom of supply 3=top of field points to right of supply	Full	
D,#,n Example: D,4,20 | Defines a non-printable text field (field #4) with a maximum of 20 characters.	**Non-Printable Data Fields** - D is the field identifier followed by the field parameters.			Full	
	#	Field ID	0 to 999	Full	
	n	Number of Characters	0 to 2710	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
C,r,c,g,f,hm,wm,cl,a,cr,fr,“”,ss Example: C,30,10,0,1,1,1,B,L,0,0,"MADE IN USA",0 l Defines a constant text field starting at row 30, column 10. No additional intercharacter gap. Standard font without additional magnification. Printing is black on white and left justified. No field or character rotation and "MADE IN USA" is printed. The internal symbol set is used.	**Constant Text Fields** - C is the field identifier followed by the field parameters.			Full	
	r	Row	See Text Field on page 27.		
	c	Column			
	g	Gap			
	f	Font			
	hm	Height Magnifier			
	wm	Width Magnifier			
	cl	Color			
	a	Alignment			
	cr	Character Rotation			
	fr	Field Rotation			
	“”	Fixed Data	Fixed characters to appear in the field. Maximum 2710 characters.		
	ss	Symbol Set	See Text Field on page 27.		

Table 7. Format Packet Support

Char	Description			Support	Reference
L,t,r,c,a,l,w,“” | Example: L,S,110,30,110,150,10,"" | Defines a Horizontal line field as a segment starting at row 110, column 30 and ending at row 110, column 150. The line thickness is 10 dots.	**Line Fields** - L is the field identifier followed by the field parameters.			Full	
	t	Type	Type of line. Only vertical and horizontal lines are supported. Options: S = Segment. Choose starting point and ending point. V = Vector. Choose starting point, angle, and length.		
	r	Row	Distance from bottom of print area to the starting point. Value range depends on unit of measure and printhead density.		
	c	Column	Distance from left edge of the print area to line origin. Value range depends on unit of measure and printhead density.		

Table 7. Format Packet Support

Char	Description			Support	Reference
L,t,r,c,a,l,w,“” l (continued)	a	Angle/End Row	For segment type, it is the row location of end point. Measured from the bottom of the print area. Ranges are the same as the row ranges. For horizontal lines, this value must match the row parameter. For vector type, it is the angle of line. Options: 0, 90, 180, or 270.	Full	
	l	Length/End Col	For segment type, it is the column location of the end point, measured from the left edge of print area. The ranges are the same as the ranges for column. For vertical lines, this value must match the column parameter. For vector type, it is the length of the line in selected units.		
	w	Thickness	The desired line thickness (1 to 99) measured in dots.		
	“”	Pattern	Not used, always enter “”		

Table 7. Format Packet Support

Char	Description			Support	Reference
Q,r,c,er,ec,t,“” | Example: Q,240,30,270,150, 3,"" | Defines a box field starting at row 240, column 30. It ends at row 270, column 150 and has a thickness of 3 dots.	**Box Fields** - Q is the field identifier followed by the field parameters.			Full	
	r	Row	Distance from the bottom of the print area to the lower left corner of the box. Value range depends on the unit of measure and printhead density.		
	c	Column	Distance from the left edge of the print area to the lower left corner of the box. Value range depends on unit of measure and printhead density.		
	er	End Row	Distance from the bottom of the print area to the upper right corner of the box. Value range depends on the unit of measure and printhead density.		
	ec	End Column	Distance from the left edge of the print area to the upper right corner of the box. Value range depends on the unit of measure and printhead density.		
	t	Thickness	The desired line thickness (1 to 99) measured in dots.		
	“”	Pattern	Not used, always enter “”		

Table 7. Format Packet Support

Char	Description			Support	Reference
V,#	**Verifier Fields** - V is the field identifier followed by the field parameters.			Ignored	
	#	Verifier Config ID	1 to 999 to identifiy verifier configuration packet.		
X,#,w,t | Example: X,5,24,0 | Defines an RFID Data Field (field #5) with exactly 24 ASCII Hex characters for a 96-bit RFID tag.	**RFID Fields** - V is the field identifier followed by the field parameters.			Ignored	
	#	Field ID	1 to 999 Unique numbers to identify the field.		
	w	Number of Characters	Range depends on the tag type used.		
	t	Data Type	Options: 0 ASCII Hex - default (ASCII representation of Hex) 1 ASCII 2 ASCII Binary (ASCII representation of binary) 3 Hex	Ignored	
R,#,…| Example: R,1,"MONARCH" | "MONARCH" appears as fixed data in the field immediately defined before this option.	**Format Options** - R is the field identifier followed by the option type identifier. Depending on the option type, **…** denotes one or more option parameters. Options must be defined immediately after the field to which they apply.			Partial	See “Options” on page 67.
	#	Option Type	1 **Fixed Data** Syntax: R,1,“”| “” = 0 to 2710 characters to insert. Some characters have special meaning. See the Monarch manual for details.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…l (continued)	#	Option Type	2 **Data Type Restrictions** Syntax: R,2,t l t = Restriction Type Options: 1 Numeric only (0…9) 2 Letters only (A…Z, a…z) 3 Symbols only (printable characters other than letters or numbers) 4 Letters and numbers only 5 Numbers and symbols only 6 Letters and symbols only	Full	
			3 **Data Entry Templates** Syntax: R,3,c “” l c = Data Types “” = Template enclosed in double quotes	Ignored	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…| (continued)	#	Option Type	4 **Copy Data** Syntax: R,4,#,s,c,d,m | # = 0 to 999, field number from which the data is copied. s = 1 to 2710, left index of the first character to be copied from the source field. c = 1 to 2710, number of characters to copy. d = 1 to 2710, left index of the destination where data should be copied. m = Copy Method Options: 1 Copy field as is (including price symbols, check digits, etc.) 2 Copy unformatted data.	Full	
			5 **Define Data Entry** Source Syntax: R,5,c | c = Input Source Options: H Host K Keypad N None R RFID	Ignored	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…l (continued)	#	Option Type	6 **Upload Field Data** Syntax: R,6,d d = Device Options: H = Host The timing used to send the data back to the host is different because we send the data when we queue the pages or job to the engine. Monarch sends this information after a page or job prints.	Ignored	
			20 **Define Data Entry Prompt** Syntax: R,20,“” l “” = Prompt phrase	Ignored	
			30 **Pad Data** Syntax: R,30,“” l l = Location Options: L - Pad data to the left of the field. R - Pad data to the right of the field. “” = Pad character (0 to 255) enclosed in double quotes.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…| (continued)	#	Option Type	31 **Calculate Check Digit** Syntax: R,31,g,s | g = Enter “G” to generate the check digit. s = 1 to 10 check digit scheme.	Full	See “Option 31 - Check Digits” on page 67.
			42 **Price Field** Syntax: R,42,c | c = Enter 1 to print the price field as defined by the monetary format field from the configuration packet.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…l (continued)	#	Option Type	50 **Barcode Density** - use only with barcode fields. Syntax: R,50,n,w,g,ns,ws l n = dot width of narrow element w = dot width of wide element g = 1 to 99, additional dot space between characters. ns = 1 to 99, additional dot space for the narrow barcode space. ws = 1 to 99, additional dot space for the barcode space.	Full	
			51 **PDF417 Security/ Truncation** - use only with PDF417 barcode. Syntax: R,51,s,t l s = 0 to 8, Security t = Truncation Options: S - Standard T - Truncated	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…| (continued)	#	Option Type	52 **PDF417 Width/ Length** - use only with PDF417 barcode. Syntax R,52,rc,d | rc = indicates if defining rows or columns. Options: R - Row C - Column d = dimension, the number of rows or columns defined for the barcode. 3 to 90 for rows and 1 to 30 for columns.	Full	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…l (continued)	#	Option Type	60 **Increment/ Decrement** Syntax: R,60,o,a,l,r l o = Operation Options: I = Increment D = Decrement a = amount to increase or decrease (0 to 999) l = 0 to 2710, left most position of the field to include in the operation. If omitted, operation starts at index 0. r = 0 to 2710, right most position or field to include in the operation. If omitted, then the entire field is included.	Full	
			61 **Re-image Field** - use to redraw a constant field that may be damaged by a dynamic field. Syntax: R,61 l	Full	
			62 **Bypass Barcode** - omits barcode from verifier scan. Syntax: R, 62 l	Ignored	

Table 7. Format Packet Support

Char	Description			Support	Reference
R,#,…| (continued)	#	Option Type	63 **Lock Tag** - prevents the data from an RFID tab to be reprogrammed. Syntax: R,63,c | c = Code, one ASCII character within 0 to 255.	Ignored	
G,#,r,c,m,o | Example: G,57,0,0,0,0 | Defines a graphic field that is identified by number 57. The image begins at 0,0. The imaging mode is 0 and there is no rotation.	**Graphic Field** - G is the field identifier followed by the field parameters.			Full	
	#	Graphic ID	1 to 999, identifies the graphic to use.		
	r	Row	Distance between the bottom of the print area on the supply to the bottom of the graphic image. Value depends on selected unit of measure and printhead used.		
	c	Column	Distance between the left edge of the print area on the supply and the left edge of the graphic. Value depends on selected unit of measure and printhead used.		
	m	Imaging Mode	0 to TBD		
	fr	Orientation	0 to TBD		

Check Digit Scheme Packet

Table 8. Check Digit Scheme Support

Synopsis	Description			Support	Reference
{A,#,a,d,m,w,al,“” l} Example: {A,1,A,R,10,5,P, "65432" l } Adds check digit scheme number 1 to the printer’s memory. The modulus is 10, the maximum number of characters in the field is 5. The check digit is calculated by using the Sum of Products; the string of digits used in the calculation is "65432."	**Check Digit Scheme Packet** - A is the packet identifier followed by the packet parameters.			Full	
	#	Scheme ID	1 to 10, the scheme identifier used by the check digit option to select a scheme.		
	a	Action	A=Add		
	d	Device	F=Flash R=Volatile RAM Saving to flash is only done when the executable menu Save to Flash is selected.		
	m	Modulus	Used to divide the sum of products or the sum of digits.		
	w	Width	0 to 2710, maximum number of characters the field will contain.		
	al	Algorithm	D=Sum of Digits P=Sum of Products		
	“”	Weights	0 to 2710, string of digits used for calculation. A weight string is a group of two or more numbers that is applied to a field. The number of digits in this string should equal the number in width parameter.		

Graphic Packet

Table 9 lists MPCL II graphic packet support. Once defined, a graphic can be used in a format using the graphic field.

Table 9. Graphic Packet Support

Synopsis	Description			Support	Reference
{G,#,a,d,u,r,c,m,"" | … |} Example: {G,99,A,R,G,0,0,0," 99Wire" | Adds a graphic image identified by number 99 to volatile RAM. The graphic uses dot measurement. The image will be placed according to the row and column parameters in the graphic field. The imaging mode is 0 and the image is called 99 Wire.	**Graphic Packet** - G is the packet identifier followed by the packet parameters. The ... represents one or more fields to define the grapic.			Partial	See "Images" on page 62.
	#	Graphic	1 to 999, unique number to identify the graphic.	Full	
	a	Action	A=Add	Full	
	d	Device	F=Flash N=Non Volatile RAM R=Volatile RAM T=Temporary Storage N will be saved to flash when the device is set to N. Saving to flash is only done when the executable menu Save to Flash is selected.	Partial	
	u	Unit of Measure	G (Graphic Dots) is the only valid option for Graphics.	Full	
	r	Row	Distance between the bottom of the graphic image area and the first bitmap line.	Full	
	c	Column	Distance between the left edge of the graphic image area and the left edge of the first bitmap line.	Full	

Table 9. Graphic Packet Support

Synopsis	Description			Support	Reference
	m	Mode	Enter 0.	Full	See "Images" on page 62.
	" "	Name	0 to 8 characters enclosed in double quotes.	Full	
B,r,c,a,"" | Example: B,39,56,H,"3FFFFFF0" | Defines a bitmap graphic line. The line begins 39 dots from the bottom, and 56 dots from the left edge of the graphic area. Hex representation is used.	**Bitmap Field** - B is the field identifier followed by the field parameters.			Full	
	r	Row	Distance (in dots) from the graphic image's bottom margin to the bitmap line.		
	c	Column	Distance (in dots) from the graphic image's left edge to the bitmap line.		
	a	Algorithm	H=Hex Representation R=Run Length Encoding		
	" "	Data	0 to 2710, character string made up of hex or run length encoding. Do not put spaces or other characters between the numbers.		

Table 9. Graphic Packet Support

Synopsis	Description			Support	Reference
N,d,c,a,“” | Example: B,39,56,H,"3FFFFFF0" | N,0,1,H,"000000E00000" | Defines a next bitmap graphic field beginning on row 40. The row count increments by 1. Hex representation is used.	**Next Bitmap Field** - N is the field identifier followed by the field parameters.			Full	
	d	Direction	Insert bitmap line before or after the current row. 0=Insert After 1=Insert Before		
	c	Amount	Amount of new row adjustments in dots. Using 0 overwrites the same line.		
	a	Algorithm	H = Hex Representation R = Run Length Encoding		
	“”	Data	0 to 2710 Character string made up of hex or run length encoding. Do not put spaces or any other character between the numbers.		
D,d,a,c | Example: B,117,24,H, “03FFFFFFFFFFFFFFFFFC” | D,0,1,2 | Defines a duplicate field that is imaged after the bitmap line. This field duplicates the preceding bitmap line twice (at row 118 and 119).	**Duplicate Bitmap Field** - D is the field identifier followed by the field parameters.			Full	
	d	Direction	Inserts duplicate before or after the current row. 0 = Insert After 1 = Insert Before		
	a	Amount	0 to 999 Amount of row adjustments in dots. Using 0 overwrites the same line ‘c’ times.		
	c	Count	Number of times to duplicate the line.		

Table 9. Graphic Packet Support

Synopsis	Description	Support	Reference
	Compliance Graphic Packet - You can use constant text, line, or box fields in a graphic packet to create a compliance label overlay. See page 26 for more information.	Full	

Batch Packet

Table 10 lists MPCL II batch packet support. Use this packet to print one or more copies of a format, and to supply data for that format.

Table 10. Batch Packet Support

Synopsis	Description			Support
{B,#,i,q | ….|} Example: {B,1,N,1 | } Defines a batch header that uses format #1 and reimages all fields using the online data. One label is printed with this batch.	**Batch Packet** - B is the packet identifier followed by the packet parameters. The ... represents one or more optional fields to control the batch.			Full
	#	Format ID	Format number to print.	
	c	Imaging	N=New reimage all fields. U=update only fields that get new data. Other fields remain the same.	
	q	Quantity	0 to 32000	

Table 10. Batch Packet Support

Synopsis	Description			Support
E,f,s,cc,p,ct,ci,vm,cd | Example: E,0,1,4,2,1,4,1,2 | Defines a batch control field. Continuous feed mode is used and a separator prints between batches. Four tags have the same image with two identical parts on one tag. The knife cuts after every four tags. A verifier is enabled and the printer detects when the I/O or data cables are disconnected.	**Batch Control Field** - E is the field identifier followed by the field parameters.			Partial
	f	Feed Mode	0=Continues 1=On Demand	Full
	s	Separator	0=No Separator 1=Single Length Seperator 2=Double Length Separator	Full
	c	Copies	0 to 999, number of labels with the same image.	Full
	p	Parts	0 to 5, number of identical parts on one label. This option will only be added based on customer request.	Ignored

Table 10. Batch Packet Support

Synopsis	Description			Support
E,f,s,cc,p,ct,ci,vm,cd l (continued)	ct	Cut Type	0 Does not cut (default). 1 Cuts before, during, and after the last tag (printed tags left between the printhead and knife). 2 Cuts in strips, not each tag (printed tags left between the printhead and knife). 3 Cuts before, during, and after the last tag (no printed tags left between between printhead and knife). 4 Does not cut before the first tag, cuts each tag and after the last tag (printed tags left between the printhead and knife). 5 Cuts in strips, not each tag (no printed tags left between the printhead and knife).	Full
	ci	Cut Interval	0 to 32000, number of labels to print before cutting. Multiple quantity.	Full
	vm	Verifier Mode	0=Disable 1=Enable	Ignored
	cd	Cable Detect	0=Off 1=I/O Cable Detect 2=I/O and Data Detect	Ignored

Table 10. Batch Packet Support

Synopsis	Description			Support
#,“” | Example: 1,"Size 12" | "Size 12" prints in field #1	**Batch Data Field** - provides data for selected field.			Full
	#	Field ID	1 to 999, identifies the field in which the data should be inserted.	
	“”	Data	0 to 2710 characters. The data to appear in the field.	
C,“” | Example: 3,"Blue" | C,", my favorite color." | "Blue, my favorite color." prints in field #3.	**Continuation Data Field** - C is the identifier for this field.			Full
	“”	Data	The data to be appended to the currently selected field.	Full

Packet Description

MPCL II fields and their parameters are enclosed in packets. A packet is defined as parameters between the start of header ({), and the end of header (}). The packet type is determined by the first letter following the start of header. Packets can have several fields, separated by the field separator (|). These fields can have several parameters separated by the parameter separator (,). Some parameters are optional. If a field has five optional parameters and the user only wants to use the fifth parameter, the user must supply all parameters but leave the unused parameters empty.
For example ;{I, A,,,,,15|}

All white space is ignored when parsing packet data, except when data is within double quotes.

Default Parameter Settings

If parameters are omitted, MPCL II will provide default values for these parameters. MGL will also provide the same default values.

Fixed Versus Variable Data

When a fixed variable field specifies that 20 characters are expected, but less than 20 characters are provided, an error is generated. This is not true for variable text fields. When more than the expected data is provided, both cases generate an error.

Binary Data

Binary data is entered using the escape character (~) inside a double quoted string. Non-digits immediately following the ~ character is always inserted in the data. E.g. to insert a double quote character use ~", in this case it will not be seen as a quoted string end marker.

When followed by one to three digits, binary data will be parsed as a decimal ASCII code. The value of the code may not exceed 255. E.g. if '~662' is sent, the sequence will be ignored. The sequence '~7' or '~07' or '~007', will be replaced with the <BEL> character. Use this method to insert function codes or extended characters.

3 Immediate Commands

Immediate commands only work if the immediate command character is set using the Define Control Characters field of the configuration packet. In Table 11, the immedate command character is set to ^. Setting this command character installs the preparser that handles the immediate commands.

Table 11 lists MPCL II immediate command support.

Table 11. Immediate Command Support

Command	Description	Support
^CA	Cancels all batches in the queue.	Full
^CB	Cancels the current batch.	Partial
^DD	Disables the MPCL data escape character (~) and inhibits MPCL from acting on any data escape sequence from the host.	Full
^DCd	Sets the MPCL data escape character to the ASCII value given by the d parameter. The value can be any ASCII character.	Full
^EA	Aborts an error condition.	Full
^ER	Resets the error.	Full
^FD	Feeds a label when the printer is idle.	Full
^FF1	Formats Flash Memory	Ignored
^FF2	Returns the amount in bytes of available flash memory.	Full
^GD	Disables conversion of formats designed in 203 dpi density dot units to 300 dpi density.	Ignored
^GE	Enables the conversion of formats designed in 203 dpi dot units (not English or Metric) to 300 dpi.	Ignored
^ID	Disables the Immediate Command feature by turning off the Immediate Command escape character.	Full

Table 11. Immediate Command Support

Command	Description	Support
^ICd	Sets the Immediate Command escape character to ASCII values given by the ‘d’ parameter. This value can be any ASCII character.	Full
^MC	Returns the customer ID or RPQ version to the host. (00 to 99)	Full
^MD	Returns the printhead dot density to the host. 00 = 203 dpi 01 = 300 dpi	Full
^MI	Returns the customer ID or RPQ revision level to the the host. (00 to 99)	Full
^MM	Returns the model number to the host. 11 = M9403, 16 = M9850, 17 = 9825, 18 = 9855, 19 = 9860	Full
^MP	Returns the prototype number to the host. (00 to 99)	Full
^MR	Returns the revision number to the host. (00 to 99)	Full
^MV	Returns the version number to the host. (00 to 99)	Full
^PR	Resets the printer. This command takes five seconds to complete, and then the printer is ready to receive data. It is the same as powering the printer off then on again. **NOTE:** The command should be used only when the printer is not printing data.	Full
^RB	Repeats the last printed batch, printing the same number of labels as specified in the original batch. **NOTE:** The printer ignores this command if printing or processing data.	Full
^RS	Resynchronizes supply when the supply roll is changed. **NOTE:** The printer ignores this command if printing data.	Ignored

Table 11. Immediate Command Support

Command	Description	Support
^SD	Disables the status polling feature by turning off the status polling control character.	Full
^SCd	Sets the status polling control character to the ASCII value given by the ‘d’ parameter. The value of ‘d’ can be any ASCII character.	Full
^SFa	Loads script with host response.	Ignored
^SFb	Loads script without host response.	Ignored
^SFc	Enables script.	Ignored
^SFd	Disables script.	Ignored
^SFe	Uploads script version information.	Ignored
^SFf	Deletes script.	Ignored
^SFg	Turns on ENQ status polling before it reaches the script.	Ignored
^SFh	Turns off ENQ status polling before it reaches the script (9825/985x/9860).	Ignored
^SFi	Turns on immediate commands beore it reaches the script.	Ignored
^SFj	Turns off immediate commands before it reaches the script.	Ignored
^TP	Prints a test label set. **NOTE:** Printer ignores this command if printing or processing data.	Ignored

4 Fonts And Images

Fonts

Standard MGL uses scalable fonts to replace resident fonts. To emulate fixed-pitch fonts, MGL prints scalable fonts in fixed-pitch mode. Some of the proprietary fonts are not supported.

Table 12. Font Substitution Table

ID	Description	Agfa Typeface
1	Standard, monospaced	Courier
2	Reduced, monospaced	Gothic
3	Bold, monospaced	Triumvirate Bold
4	OCRA, monospaced	OCRA
5	HR1, monospaced	OCRB
6	HR2, monospaced	OCRB
10	CG Triumvirate Bold, proportional	Triumvirate
11	CG Triumvirate 6 pt, proportional	Triumvirate
15	CG Triumvirate 7 pt, proportional	Triumvirate
16	CG Triumvirate 9 pt, proportional	Triumvirate
17	CG Triumvirate 11 pt, proportional	Triumvirate
18	CG Triumvirate 15 pt, proportional	Triumvirate
50	EFF Swiss Bold, scalable	Triumvirate
70	Paxar 15 pt, proportional (icon glyphs)	Not Supported
71	Paxar 18 pt, proportinoal (icon glyphs)	Not Supported
72	NAFTA 15 pt., proportional (icon glyphs)	Not Supported
73	NAFTA 18 pt., proportional (icon glyphs)	Not Supported

Downloaded Fonts

MPCL II supports downloading of true type fonts. Special tools support the user in managing printer downloaded fonts.

Images

Images are created using the graphic packet. This packet does not define the dimensions of the image, it only provides information for a graphic ID to identify an image, the origin of the image on the page, and where to store it.

MPCL II only supports one custom bitmap image format, which MGL fully supports. The bitmap image data is either sent in ASCII hex format or by using run length encoding. These bitmap fields contain information such as where a line of dots should be plotted using a starting row and column, and the plot data in a selected format. An image is created using several of these plot field lines.

The graphic package is also used to design overlays, called compliance labels by Monarch. Constant fields used in format packets (lines, boxes and constant text field) define the image.

IMPORTANT **Do not use bitmap fields in compliance labels or an error will generate.**

Monarch printers support several devices to store an image. MGL will only support RAM, temporary, and Flash devices.

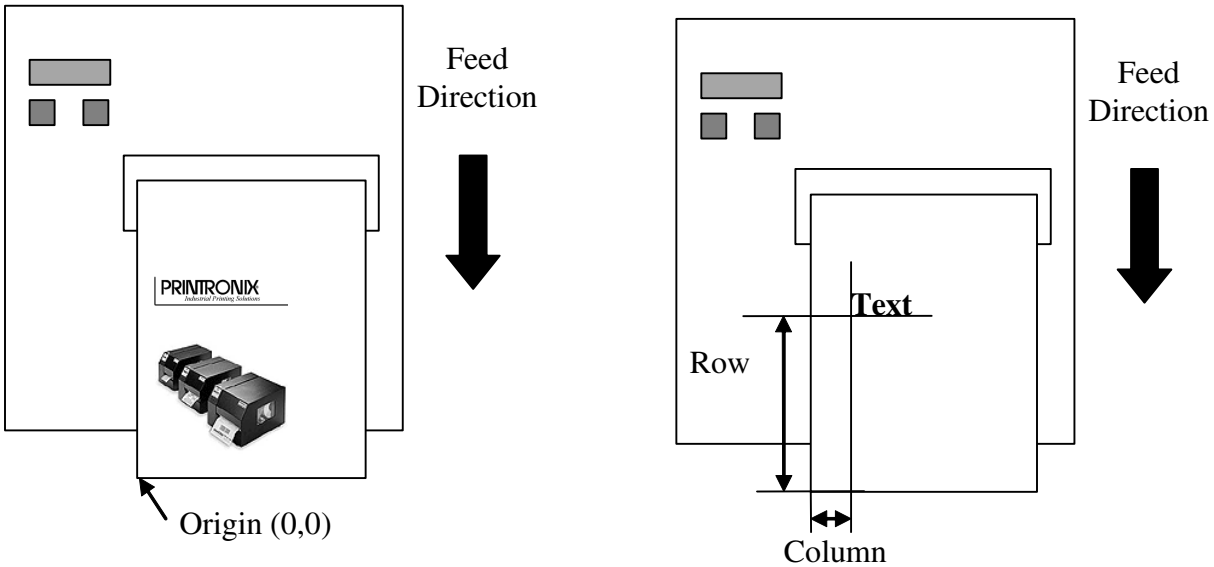
5 *Memory And Print Area*

Memory

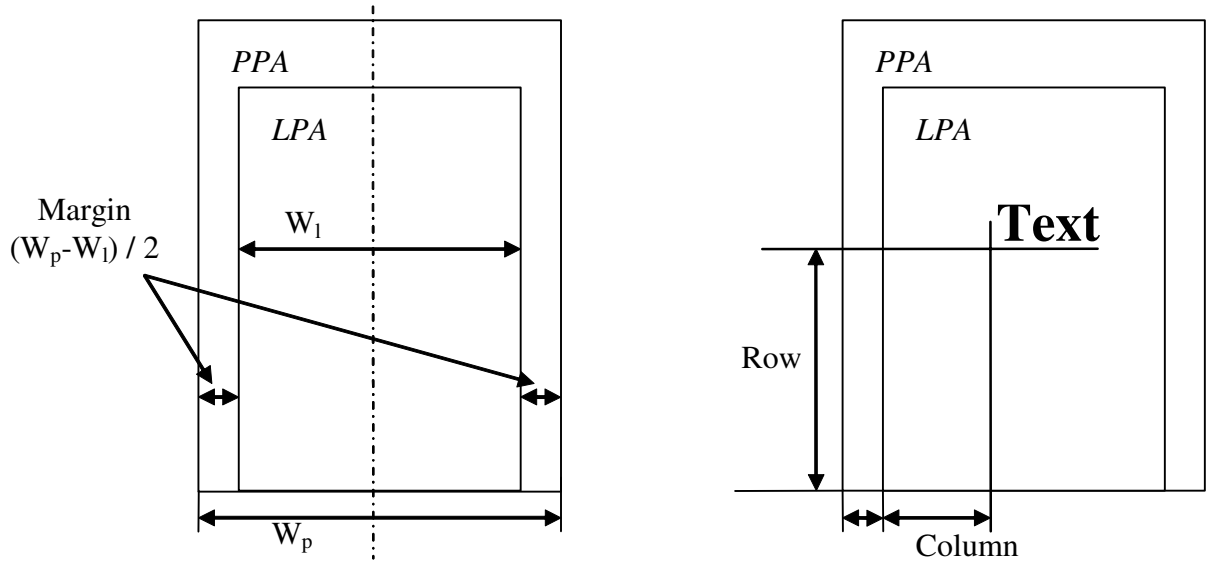
Monarch printers reserve memory for fonts, formats, images, host receive buffer, host transmit buffer, and vector fonts. This memory can be reserved in RAM or in Flash. MGL does not support this memory allocation scheme due to differences in memory management. MGL does allow downloading of fonts and images to these memory devices until the memory is full. The only exception is the receive buffer; MGL ensures that the printers are capable of receiving this amount of data. The maximum value for the receive buffer is 128K, the default is 64K. This buffer can only be reserved in RAM.

Print Area

Monarch does not use the same orientation as Printronix printers. The origin of the physical print area (PPA) is located at the bottom left corner of the label. In default rotation, text fields are readable as they exit the printer. The dimension of the PPA depends on the density and width of the printer. Fields are offset from the origin using a row and column parameter.

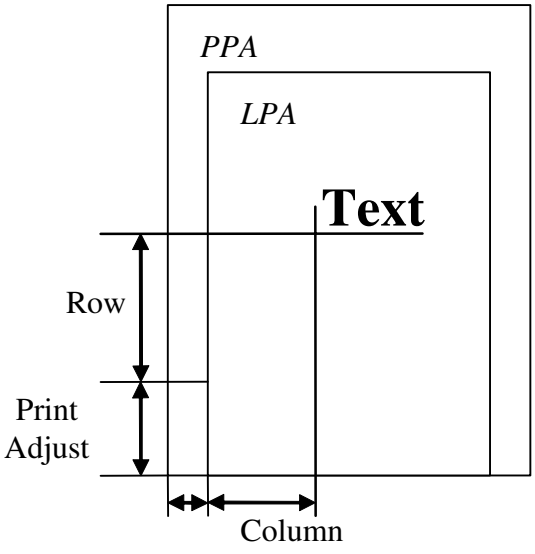


The format packet is used to design the layout of a format. The format contains parameters to set the logical print area (LPA). The LPA may not exceed the dimensions of the PPA, otherwise an error will generate. The column origin of the LPA will be offset from the center of the PPA. The row origin will not change due to the LPA definition.



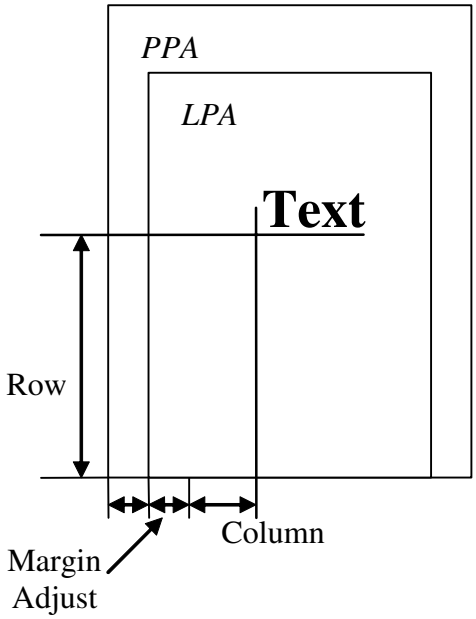
Print Adjust

The print adjust setting is used to move the row origin as shown below.



Margin Adjust

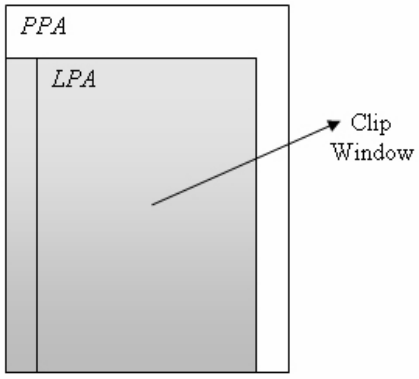
The margin adjust setting is used to move the origin of the column, not the margin of the LPA. This difference is apparent when the clipping window is described (see page 65).



Clip Window

MPCL II uses a strict layout policy. If one field draws outside the clip window, an error generates and the printer will not print the label unless the error has been acknowledged (by pressing any of the three control buttons). This does not depend on the origin of the field. If any part of a field falls outside the clip window an error will generate. When the error is acknowledged, using the enter or cancel button, the format will still print. The areas of a field that fall outside the clip window will not print.

The clip window is defined by the left and bottom edge of the PPA and the right and top edge of the LPA.



6 *Options And Status Protocols*

Options

Options added to a field are performed in the order they are added. The result of one option can overwrite the data of a previous option. Options that are not valid for a field will generate an error.

Option 31 - Check Digits

This option can either be assigned to a variable text field or a barcode. The calculated check digit will be appended to the data for the field. For example, if a field has a width of 10 digits, and 9 digits are given for the field, the check digit will be appended as the 10th digit. If 10 digits are already given, the check digit will be calculated on the first 9 digits, and the 10th digit will be overwritten by the check digit. If less then 9 digits are given, for instance, four, the check digit is calculated over the four digits and the check digit will be added as the 5th digit.

NOTE: For this option to work, the selected check digit scheme needs to be defined first. See “Check Digit Scheme Packet” on page 48.

Protocols

MGL supports two status protocols supported by MPCL II: inquiry request and job request.

Inquiry Request

This protocol is enabled when immedate commands are enabled. The preparser will scan for the defined <ENQ> character in the data stream. <ENQ> is defined using the define control character field of the configuration packet. 0x05 is the default setting.

If <ENQ> is found, a three byte response will be sent to the host. The first byte will be the defined <ENQ> character. Table 13 on page 68 describes the bits of the second status byte.

Table 13. Second Status Byte

Bit	Description	Support
0	Online	Full
1	Active	Full
2	Busy	Full
3	Online Data Error	Full
4	Operator Correctable Error	Full
5	Hardware Failure	Full
6	Always ON	Full
7	Always OFF	Full

Table 14 describes the bits of the third status byte.

Table 14. Third Status Byte

Bit	Description	Support
0	Online Error	Full
1	Stock Error	Full
2	Ribbon Error	Full
3	Waiting to Dispense Label	Full
4	Format Error	Full
5	Low Battery	Ignored
6	Always ON	Full
7	Always OFF	Full

Preparser Considerations

When the preparser is enabled, problems may arise with other Printronix protocols such as PTX setup or CT.

IMPORTANT **Only activate the preparser if none of these protocols are used in conjunction with MGL.**

A Contact Information

Printronix Customer Support Center

IMPORTANT **Please have the following information available prior to calling the Printronix Customer Support Center:**

- Model number
- Serial number (located on the back of the printer)
- Installed options (i.e., interface and host type if applicable to the problem)
- Configuration printout:

  Thermal Printer
  See “Printing A Configuration” in the *Quick Setup Guide*.

  Line Matrix Printer
  Press PRT CONFIG on the control panel, then press Enter.
- Is the problem with a new install or an existing printer?
- Description of the problem (be specific)
- Good and bad samples that clearly show the problem (faxing of these samples may be required)

Americas	(714) 368-2686
Europe, Middle East, and Africa	(31) 24 6489 410
Asia Pacific	(65) 6548 4114
China	(86) 800-999-6836

http://www.printronix.com/support.aspx

Printronix Supplies Department

Contact the Printronix Supplies Department for genuine Printronix supplies.

Americas	(800) 733-1900
Europe, Middle East, and Africa	33 (0) 1 46 25 19 07
Asia Pacific	(65) 6548 4116 or (65) 6548 4182
China	(86) 400-886-5598

http://www.printronix.com/supplies-parts.aspx

Corporate Offices

Printronix, Inc.
14600 Myford Road
P.O. Box 19559
Irvine, CA 92623-9559
Phone: (714) 368-2300
Fax: (714) 368-2600

Printronix, Inc.
Nederland BV
P.O. Box 163, Nieuweweg 283
NL-6600 Ad Wijchen
The Netherlands
Phone: (31) 24 6489489
Fax: (31) 24 6489499

Printronix Schweiz GmbH
42 Changi South Street 1
Changi South Industrial Estate
Singapore 486763
Phone: (65) 6542 0110
Fax: (65) 6546 1588

Printronix Commercial (Shanghai) Co. Ltd
22F, Eton Building East
No.555, Pudong Av.
Shanghai City, 200120, P R China
Phone: (86) 400 886 5598
Fax: (86-21) 5138 0564

Visit the Printronix web site at www.printronix.com

253832-001B