



Printer Protocol Interpreter IEGL™  
*Programmer's Reference Manual for IER,*  
*Siège® Printer Protocol Interpreter*

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*Thermal Series Printers*

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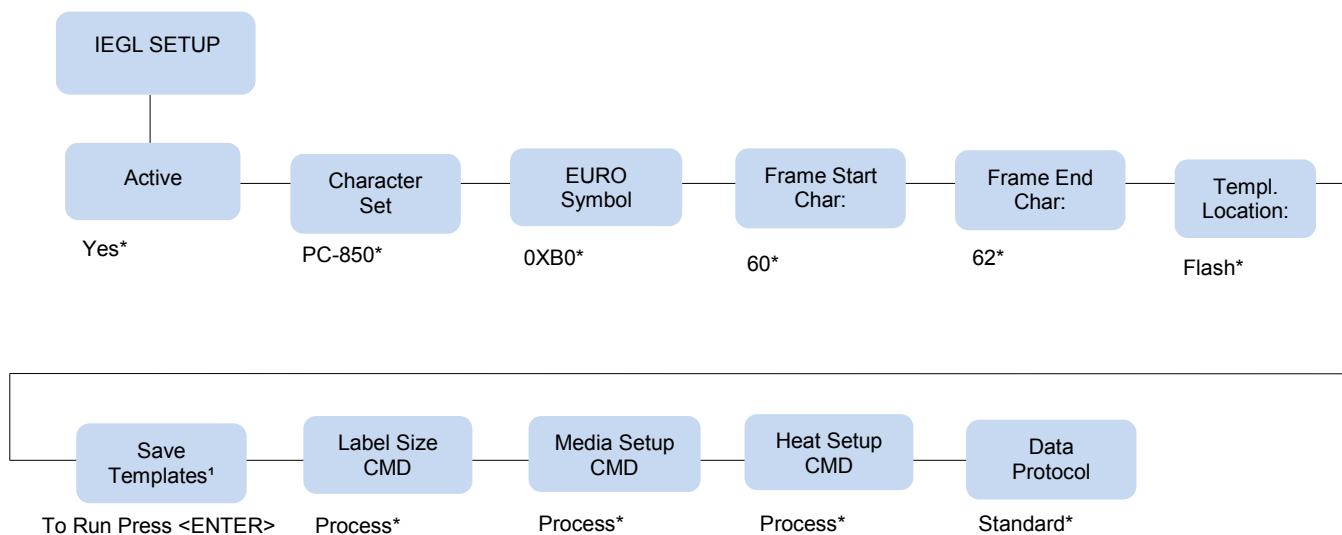
# 1 *Introduction*

## About This Manual

This manual explains the differences between Printer Protocol Interpreter IER Siège® Graphic Language (IEGL) Utility and the IER printer language. Use this manual with your *Administrator's Manual*.

## IEGL SETUP Menu

The IEGL Setup submenu is found by selecting the Application icon  within the Settings  section. The IEGL Setup submenu will only be present when the *Application > Control > Active IGP Emul* is set to IEGL.



**NOTE:** \* = Default

<sup>1</sup> This menu is only present when the 'Templ Location' menu has been set to RAM.

**IMPORTANT**

The IEGL Setup submenu will only be present when the Active IGP Emulation menu *Application > Control > Active IGP Emul* is set to IEGL.

Application > IEGL Setup > Active	
Indicates if the IEGL parser should process all incoming data, or that all data should be passed to the bottom emulation.	
Yes	IEGL is active; processes all IEGL commands.
No	IEGL is inactive; data is processed as pure text.
Factory Default	Yes

Application > IEGL Setup > Character Set		
Allows you to select the character set. See Appendix A on page 25 for supported character sets.		
Character Set	PC-850 Apple	Latin 1 Roman 8
Factory Default	PC-850	

Application > IEGL Setup > Euro Character	
Allows the operator to select the hexadecimal position of the Euro (€) symbol in the code page.	
Minimum	0x20
Maximum	0xFF
Factory Default	0xB0

Application > IEGL Setup > FrameStartChar	
Allows you to select the decimal code for the frame start character. The default value is 60, which is code for the '<' character.	
Minimum	0
Maximum	255
Factory Default	60
<b>IMPORTANT</b>	This value can also be changed through the <+ENT...> command. In both cases, the value is only preserved during power down after the configuration is saved manually.

Application > IEGL Setup > FrameEndChar	
Allows you to select the decimal code for the frame end character. The default value is 62, which is code for the '>' character.	
Minimum	0
Maximum	255
Factory Default	62
<b>IMPORTANT</b>	This value can also be changed through the <+ENT...> command. In both cases, the value is only preserved during power down after the configuration is saved manually.

Application > IEGL Setup > Templ. Location	
Allows you to select the location to which templates are saved. By default, templates are saved to flash memory. For applications that send templates repeatedly, the set RAM must be used to prevent flash file system overflows.	
Flash	Flash memory
RAM	DRAM memory. The templates will be lost when the printer is powered off. You have the option to manually move the templates in RAM to FLASH by using the <i>Application &gt; IEGL Setup &gt; Save Templates</i> menu.
Factory Default	Flash
<b>IMPORTANT</b>	Overwritten files are not deleted from the file system until optimize and reboot is performed.

Application > IEGL Setup > Save Templates	
Allows you to move the templates in RAM to FLASH memory. The menu is only present when 'RAM' is selected in the <i>Application &gt; IEGL Setup &gt; Templ. Location</i> menu. If no templates are saved and this menu is executed, the message 'Nothing to save Send Templ. First' will display on the printer front panel.	
Press ENTER	Moves the RAM files into FLASH.

<b>Application &gt; IEGL Setup &gt; Labelsize Cmd</b>	
Allows you to disable the set label size command.	
Process	The <+DL> command overrides the panel setting.
Ignore	The value set in the front panel configuration is used, and the <+DL> command is ignored.
Factory Default	Process

<b>Application &gt; IEGL Setup &gt; Media Setup Cmd</b>	
Allows you to disable the media handling command.	
Process	The <+CF> command overrides the panel setting.
Ignore	The media handling as set in the front panel configuration is used and the <+CF> command is ignored.
Factory Default	Process

<b>Application &gt; IEGL Setup &gt; Heat Setup Cmd</b>	
Allows you to disable the set heat command.	
Process	The <+C> command overrides the panel setting. The <+C> command range, 0 to 9, is mapped to the Printronix range, -15 to 15. For example, sending a value of 8 results in setting the intensity to +12.
Ignore	The value set in the front panel configuration is used, and the <+C> command is ignored.
Factory Default	Process

<b>Application &gt; IEGL Setup &gt; Data Protocol</b>	
Defines if the IER Ack/Nack communication protocol must be used.	
Standard	IER ACK/NACK protocol disabled. The communication protocol as defined in the interface setup menu is used.
Ack/Nack	IER Ack/Nack protocol enabled. IEGL acknowledges each received command with Ack. A Nack is sent in case of an error.
Factory Default	Standard



# 2 *Supported Commands*

## Label Programming Commands

Command	Command Description	Support	Reference
<I...>	Print Page	Full	
<F>	Erase Page Bitmap	Full	
<L...>	Print Line	Full	
<C...>	Print Box	Full	
<D...>	Print Oblique Line	Full	
<T...>	Print Text Direct	Full	
<B...>	Print Barcode Direct	Full	
<PDF...>	Print PDF417 Barcode Direct	Full	
<CD...>	Define Initial Counter Value	Full	
<CF...>	Delete Counter	Full	
<CI...>	Increment Counter After Printing	Full	
<CT...>	Create Text Counter	Full	
<CB...>	Create Barcode Counter	Full	
<ML...>	Request Template Status	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<MR...>	Erase Template	Full	
<MI...>	Start Template Create Mode	Full	
<MF...>	End Template Create Mode	Full	
<MT...>	Text Variable Create	Full	

Command	Command Description	Support	Reference
<MB...>	Barcode Variable Create	Full	
<MPDF...>	PDF417 Barcode Variable Create	Full	
<MD...>	Graphics Variable Create	Full	
<MC...>	Activate Template	Full	
<MA...>	Automatically Activate Template at Power-Up	Ignored	See "Ignored Configurations and Information Request Commands" on page 14
<MV...>	Download Variable Data	Full	
<LG...>	Download PRV or HEX logo	Partial	See "Data Compression" on page 10
<G...>	Print Logo Direct	Full	
<LPCX...>	Download PCX Logo	Full	
<GPCX...>	Print PCX Logo Direct	Full	
<LL...>	Send List of Stored Logo Names to Host	Ignored	See "Ignored Configurations and Information Request Commands" on page 14
<LR...>	Clear Indicated Logo (or all when num is 0)	Full	
<LC...>	Activate Logo	Full	

## Data Compression

The data compression mode for the the <LG...> command (bit b1 of the transmission mode byte set to 1) is not supported on IEGL.

# Configuration Commands

Command	Command Description	Support	Reference
<A...>	Print Test Pages	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<!V>	Request Configuration	Ignored	
<!L>	Request Sensor Status	Ignored	
<E>	Status Request	Ignored	
<+SERIE...>	Program Printer Serial Number	Ignored	
<%SERIE...>	Request Printer Serial Number	Ignored	
<V>	Request Printer Program Version Number	Ignored	
<!R>	Program Printhead Resistance	Ignored	
<!NL>	Query Print Counter	Ignored	
<!NI>	Reset the Print Counter	Ignored	
<+TT..>	Select Print Technology <Direct/Transfer>	Ignored	
<R>	Reset	Ignored	
<RCOLD>	Reboot	Ignored	
<CM>	Cut Once	Full	See “Cutter Commands” on page 18
<+U>	Unit Selection (dot or 1/10 mm)	Full	
<+CBR...>	Configure Memory Space	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<LM>	Request Available Ram Disk Space	Ignored	
<+CF...>	Configure Media Handling Option	Full	See “Media Setup Cmd” on page 8 and “Cutter Commands” on page 18

Command	Command Description	Support	Reference
<+D..>	Configure Sensor (gap, mark)	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<+DL...>	Set Label Size	Full	
<+O...>	Configure Synchronisation Shift	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<+OP...>	Vertical Image Shift	Ignored	
<+OX...>	Horizontal Image Shift	Ignored	
<LA...>	Language Selection for Config Print	Ignored	
<+DS...>	Eject Blank Document at Power Up	Ignored	
<S...>	Feed Command for Number of Labels Specified	Full	
<+TC...>	Heat Table Selection	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<+C...>	Intensity Setting	Full	
<+L...>	Adjust Sensor Treshold Value	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<+ENT...>	Select Framing Character	Full	See “Frame Start Char” and “Frame End Char” on page 6

Command	Command Description	Support	Reference
<%ENT>	Request Framing Character Value	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<MS...>	Change Separator Character	Full	

## Fonts and Character Set Commands

Command	Command Description	Support	Reference
<%N>	Request Number of Fonts Stored	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<%F>	Request Names and Numbers of Fonts Stored	Ignored	
<+TF...>	Select Character Set	Full	
<FF...>	Download Font	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<FL...>	Request List of Downloaded Fonts in RAM Disk	Ignored	See “Ignored Configurations and Information Request Commands” on page 14
<FR...>	Clear Specified Font in Ram Disk (0 for all)	Full	

## Ignored Configurations and Information Request Commands

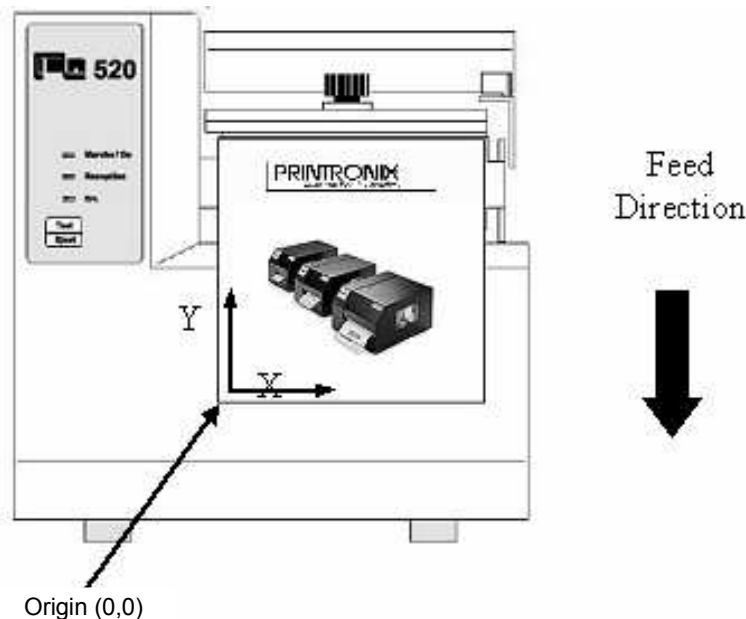
Ignored configuration commands are used to configure or request IER-520 specific parameters such as sensor threshold voltages. Some of these settings are not available on Printronix printers, or different ranges for the settings are used. Since most of the ignored commands are one-time adjustments, use the printer's front panel menus to configure these settings. For commands that initiate features such as printing test pages, select the *Tools > Print Tests > Run Tests* menu. For information request commands, use the Printronix PNE suite. See "Configuration Compatibility" on page 19.

## Command Descriptions

### Print Area

When looking at the front of the printer, the origin of the label is positioned at the bottom left of the label and extends up and to the right. The label length for continuous labels can be set in the menu or with the `<+DL...>` command.

Physical page rotation is not available on IER printers. When rotation is required, each object should be rotated individually. See Figure below for a graphical representation of the print area, and the coordinate system used by the IER language.



## Unit Selection

By default, positioning of page elements (text, barcodes etc.) is in dots. The unit can be changed to 1/10mm using the <+U...> command. If the 1/10mm unit is selected, positioning is independent of the printhead used.

## Text Fields

Text fields are printed using the <T...> or <MT...> commands. These commands require parameters to:

- set the field origin
- select the font number to be used (0 to 3 for resident fonts)
- select the field rotation (four directions, 0, 90, 180 or 270, either left aligned or centered)
- select the color. The color parameter ranges from 0 to 3. Table 1 describes how text will print for each value.

Parameter Value	Text Colors
0	White text on black background (reverse).
1	Black text on white background (normal)
2	Black text on see thru background (OR Mode)
3	Text inverts the background (XOR Mode)

## Resident Fonts

Table lists the resident fonts for the IER 520 printer. The font size is represented by two numbers: the first is the dot size for the 300 dpi version, and the second is the dot size for the 200 dpi version. IEGL uses Agfa scalable fonts shown in the table to replace the IER fonts. Property tables are used to fine tune the fonts sizes to closely match the IER fonts.

IER Font ID	Font Replacements	Agfa Replacement
0	Bitmap Arial Bold, size 24/16	92244
1	Bitmap Arial Bold, size 36/24	92248
2	Bector Arial Bold, size 50/50	92248
3	Vector arial Bold, size 100/100	92248

## Downloaded Fonts

The IER-520 printer (program version 3.00 or higher) supports downloading of TrueType fonts to font ID locations starting after the resident fonts (4 to 99). The fonts is stored in the Ram Disk. Commands used for downloaded fonts are <FF...> for download, <FL...> to request status (not supported on IEGL), and <FR...> to delete downloaded fonts. The downloaded data is in a proprietary format.

## Character Sets

The four character sets available on the IER-520 printer is also supported by the IEGL emulation. Select the sets using the <+TF..> command, or through the Character Set option under the IEGL Setup menu. See Appendix A on page 23 for an overview of characters in each of the sets.

## Barcode Fields

All barcodes fields, except PDF417 are printed using the <B...> or <MB...> command. These commands require parameters to:

- set the field origin
- select the barcode type
- select the field rotation (four directions, 0, 90, 180 or 270, either left aligned or centered)
- set the ratio (enlargement factor)
- set readable fields.

Barcode PDF417 is printed using the <PDF...> or <MPDF ...> command. This 2-D barcode type requires other parameters: width and height of the window, number of rows, number of columns, column width, row height, rotation and error correction level.

The barcode types supported by IER printers.

Type ID	Barcode Symbolologies	Compatibility
0	Code 3 of 9	Full
1	Interleaved 2 of 5 without checksum calculation	Full
2	Standard 2 of 5	Full
3	EAN-8	Full
4	EAN-13	Full
5	UPCA	Full



Type ID	Barcode Symbologies	Compatibility
6	MONARCH (=Codabar)	Full
7	Code 128 C without checksum calculation	Full
8	Code 128 A,B,C without checksum calculation	Full
9	Automatic Code 128 C without checksum calculation	Full
101	Same as 1, but with checksum calculation	Full
108	Same as 8, but with checksum calculation	Full
109	Same as 9, but with checksum calculation	Full
(Separate Command)	PDF417	Full

## Barcode Positioning

The barcode origin is at the bottom of the leftmost bar as shown in the figure below.



## Logos

Logos can be printed directly on the page bitmap using the <G...> or <GPCX...> command. Or, logos can be downloaded using the <LG...> or <LPCX...> command, and then loaded onto the page bitmap using the <LC...> command. For downloaded logos, IEGL saves the logo in the flash file system to emulate the battery backed-up Ram Disk supported on the IER-520 printer.

## Graphics

The following IER-520 graphic functions are supported by the IEGL emulation.

- Lines (using the <L...> command)
- Boxes (using the <C...> command)
- Oblique lines (using the <D...> command)

## Cutter Commands

The cutter on IER printers can be activated manually by using the <CM> command, or automatically after each page with the <+CF...> command. Both commands are supported by IEGL. However, since Printronix printers support more media handling options, the <+CF...> command cannot be used to select all options. In such cases, the <+CF...> command can be ignored via the *Application > IEGL Setup > Media Setup Cmd* menu on page 8 and the *Media > Handling > Media Handling* value as selected in the front panel will be used.

# 3 Configuration Compatibility

Since the IER-520 printer does not have a control panel with LCD the printer can only be configured by commands. The below lists the IER-520 configuration commands, a description, and the corresponding Printronix menus that can be used to perform the equivalent configuration. The table also lists commands to request printer information or status. For those commands, equivalents available in the Printronix printer menu and equivalent functions in the PNE suite are listed.

IER-520 Command	Font Replacement	PTX Setting
<A...>	Print Test Pages	<i>Tools &gt; Printer Tests &gt; Run Tests</i>
<+CBR...>	Configure Memory Space	N/A – the printer is configured for optimal memory configuration
<+CF...>	Configure Media Handling Option	<i>Media &gt; Handling &gt; Media Handling</i>
<+D...>	Selects the top of form (TOF) sensing method for the media. Gap, Mark, etc.	<i>Sensors &gt; Control &gt; Gap/Mark Sensor</i>
<FL...>	Request list of downloaded fonts in RAM Disk	<i>System &gt; Flash File Edit &gt; Print File List</i> <b>PNE:</b> Flash File Manager

IER-520 Command	Font Replacement	PTX Setting
<LA...>	Language Selection for Config Print	<i>System &gt; Control &gt; Display Language</i> <b>PNE:</b> Configuration Editor
<LM>	Request Available Memory Space	<i>System &gt; Flash File Edit &gt; Available Space</i>
<!NL>	Query Print Counter	<i>Configs &gt; Control &gt; Print Config</i> <b>PNE:</b> Information Capture, Configuration Editor
<+OP...>	Vertical Image Shift	<i>Media &gt; Image &gt; Vertical Shift</i>
<+OX...>	Horizontal Image Shift	<i>Media &gt; Image &gt; Horizontal Shift</i>
<+TT...>	Select Print Technology, DIRECT THERMAL, *THERMAL TRANSFER	<i>Media &gt; Handling &gt; Print Mode</i>
<!V...>	Request Configuration	<i>Configs &gt; Control &gt; Print Config</i> <b>PNE:</b> Information Capture, Configuration Editor
<V>	Request Program Version Number	<i>Tools &gt; About &gt; Printer F/W</i>

## Error Reporting

IEGL will not report errors through the host interface as supported on the IER520 printer. Instead, IEGL will use the error reporting option as supported on the other IGP emulation. If the menu is set to “Print”, the label will print with the best possible quality, followed by a page which lists the errors.

If the menu is set to “Debug”, the label will print with the best possible quality, and the errors will be sent through the printer debug port.

# Templates

The IER-520 printer supports templates, referenced by number or by name. On the IER printers, templates are stored in the battery backed up memory.

In IEGL, by default, the templates are stored in flash memory. However, for specific applications that send templates repeatedly, templates can also be saved to RAM. See *Application > IEGL Setup > Templ. Location* and *Application > IEGL Setup > Save Templates* on page 7 for details.

The ID number ranges from 0 to 100, and the maximum length for the name is 16 characters. The template contents are saved to a flash file with the following format:

ierxxx\_n...n.tpl

where xxx is a fixed three digit template number as supplied in the start template create command <MI...>. For instance, if the number supplied is three, then the filename will display as 003. "n...n" is the name of the template. The maximum length is 16 characters. If the supplied number is 12, and the name is MyTemplate, the file stored by IEGL is named:

ier012\_MyTemplate.tpl

The file is saved after receiving the end template created command <MF>. The printer LCD shows the template number being saved and the free flash memory remaining.

## Constraints

### Non-Volatile Page Memory

In the IER-520 printer, the page bitmap is saved in the battery backed up memory. The content of this memory is preserved when the printer is turned off, and the page can be recalled after the printer is turned on again. The Printronix printers do not support battery backed up memory. Since saving to flash is slow and the number of times flash can be written to is limited, IEGL does not support page memory preservation when the power is turned off.

### LoadTemplateatPowerUp

The IER-520 printer supports automatic loading of a template at power-up. The name or number of the template to be loaded can be set by using the <MA...> command. IEGL does not support this feature.

### Changing Frame Start and End Characters

When the frame start and end characters are changed on the IER-520 printer, the changes are automatically saved in battery backed-up RAM. Since Printronix printers do not support battery backed-up RAM, these settings are saved with the configuration. See *Application > IEGL Setup > Frame Start Char* and *Application > IEGL Setup > Frame End Char* on page 6 for details.



# A *Character Sets*

## PC850 Character Set

Decimal	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hexa	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0			0	@	P	`	p	Ç	É	á		Ł	ø	Ó	-
1	1		!	1	A	Q	a	q	ü	æ	í		±	Ð	ß	±
2	2		"	2	B	R	b	r	é	Æ	ó		¬	Ê	Ô	—
3	3		#	3	C	S	c	s	â	ô	ú		†	Ë	Õ	¾
4	4		\$	4	D	T	d	t	ä	ö	ñ	‡	—	È	ö	¶
5	5		%	5	E	U	e	u	à	ò	Ñ	À	+	ı	Ö	§
6	6		&	6	F	V	f	v	á	û	ª	Â	ã	ì	µ	÷
7	7		'	7	G	W	g	w	ç	ù	º	Ã	Ä	í	þ	˘
8	8		(	8	H	X	h	x	ê	ÿ	¿	©	ℓ	ï	þ	°
9	9		)	9	I	Y	i	y	ë	Ö	®	≠	℥		Ú	²
10	A		*	:	J	Z	j	z	è	Ü	¬		≡	ƒ	Û	•
11	B		+	;	K	[	k	{	ï	ø	½	¶	≡	■	Ü	¹
12	C		,	<	L	\	l		î	£	¼	»	¶	■	Ý	³
13	D		-	=	M	]	m	}	ï	Ø	ı	Ç	=	ı	Ÿ	²
14	E		.	>	N	^	n	~	Ä	x	«	¥	≡	ı	—	■
15	F		/	?	O	_	o		Å	f	»	¬	€	■	·	

## Apple Character Set

Decimal	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hexa	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0			0	@	P	`	p	Ä	ê			¿			
1	1		!	1	A	Q	a	q	Å	ë	°	±	ì		.	Ò
2	2		"	2	B	R	b	r	Ç	í	¢		¬		,	Ù
3	3		#	3	C	S	c	s	É	î	£					Û
4	4		\$	4	D	T	d	t	Ñ	ï	§	¥	f			Ü
5	5		%	5	E	U	e	u	Ö	ï	•	µ			Å	
6	6		&	6	F	V	f	v	Ü	ñ	¶			+	Ê	
7	7		'	7	G	W	g	w	á	ó	ß		«		Á	
8	8		(	8	H	X	h	x	à	ò	®		»	ÿ	Ë	
9	9		)	9	I	Y	i	y	â	ô	©				È	
10	A		*	:	J	Z	j	z	ä	ö				/	Í	
11	B		+	;	K	[	k		å	õ	·	ª	À	€	Î	
12	C		,	<	L	\	l		ä	ú	¨	º	Ã		Ï	
13	D		-	=	M	]	m		ç	û			Ö		Ì	
14	E		.	>	N	^	n		é	û	Æ	æ			Ó	
15	F		/	?	O	_	o		è	ü	Ø	ø			Ô	

## Latin1 Character Set

Decimal	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hexa	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0			0	@	P	`	p				°	À	Ð	à	ð
1	1		!	1	A	Q	a	q			í	±	Á	Ñ	á	ñ
2	2		"	2	B	R	b	r			¢	²	Â	Ò	â	ò
3	3		#	3	C	S	c	s			£	³	Ã	Ó	ã	ó
4	4		\$	4	D	T	d	t			€	´	Ä	Ô	ä	ô
5	5		%	5	E	U	e	u			¥	µ	Å	Õ	å	õ
6	6		&	6	F	V	f	v				¶	Æ	Ö	æ	ö
7	7		'	7	G	W	g	w			§	·	Ç	×	ç	+
8	8		(	8	H	X	h	x			¨	¸	È	Ø	è	ø
9	9		)	9	I	Y	i	y			©	¹	É	Ù	é	ù
10	A		*	:	J	Z	j	z			ª	º	Ê	Ú	ê	ú
11	B		+	;	K	[	k	{			«	»	Ë	Û	ë	û
12	C		,	<	L	\	l				¬	¼	Ì	Ü	ì	ü
13	D		-	=	M	]	m	}			¬	½	Í	Ý	í	ý
14	E		.	>	N	^	n	~			®	¾	Î	Þ	î	þ
15	F		/	?	O	_	o				¯	¿	Ï	ß	ï	ÿ



## Roman 8 Character Set

Decimal ▼	0	16	32	48	64	80	96	112	128	144	160	176	192	208	224	240
Hexa ▶	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
0	0			0	@	P	`	p				—	â	À	Á	Þ
1	1		!	1	A	Q	a	q			À	Ý	ê	î	Ā	þ
2	2		"	2	B	R	b	r			Â	ý	ô	ø	ā	•
3	3		#	3	C	S	c	s			È	°	û	Æ	Ð	μ
4	4		\$	4	D	T	d	t			Ê	Ç	á	â	ð	¶
5	5		%	5	E	U	e	u			Ë	ç	é	í	í	¾
6	6		&	6	F	V	f	v			Î	Ñ	ó	ø	ì	—
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# **B**     ***Contact Information***

## **Printronix Auto ID Customer Support**

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