Compact 2000 Printers

CP1048D/N/R
CP2200D/N/R
CP2300D/N/R

OPERATING MANUAL

Copyright

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Safety Information

WARNING!

Potential Shock Hazard

Always follow basic safety precautions when using this product to reduce risk of injury from fire or electric shock.

1. Use only a grounded electrical outlet when connecting the printer to a power source.
2. Unplug the printer from the wall outlet before cleaning.
3. Do not install or use this product near water.
4. Do not spill water or other liquid directly onto the printer.
5. The printer is not suitable for outdoor use without suitable protection.
6. Keep clear of moving parts while the printer is operating.
7. Do not operate the printer with any of the protective covers removed.
8. Refer servicing only to qualified personnel.
9. The printer is not explosion proof and is therefore not suitable for use in hazardous environments in proximity to flammable solvents or gases.

Operating Precautions

1. Clean the outside of the printer by wiping with a dry cloth or a cloth soaked in detergent solution and squeezed out thoroughly. Never use strong solvents.
2. Place the printer on a secure level surface. Avoid locations subject to vibration and direct sunlight.
3. Use only approved paper and ribbon supplies.
4. Do not store thermal paper supplies in locations with direct sunlight, high temperature, high humidity, or high dust or gas levels as this may cause degradation of print quality.
5. Do not probe the printer's operating parts with sharp or metallic objects.
6. Do not allow abrasive dust particles to enter the printing mechanism since this will lead to reduced head life.

Printing History

Issue 1, April 2000

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Compact 2000 Series Printers

Operating Manual

The Compact 2000 series of printers are designed and manufactured in the United Kingdom by:

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Blazeprint products are subject to continuous development and improvement, and consequently may incorporate minor changes from the information contained in this manual.

1 INTRODUCTION

Thank you for choosing a Compact 2000 Series Printer. This range of printers has been developed for high speed printing and issuing of all types of barcode together with associated text and graphics. These printers use the most up to date thermal printing technology, and incorporate long life parts to give reliable and trouble free service.

The Compact 2000 series includes a range of options as detailed in the table below.

CP1048	6in/sec 200 DPI
CP2200	9in/sec 200 DPI
CP2300	8in/sec 300 DPI
Option D	Direct thermal, peeler/internal rewind fitted
Option N	Direct/transfer, no peeler/internal rewind
Option R	Direct/transfer, peeler/internal rewind fitted

This Operating Manual contains information about the general setting up and operating procedures, so to obtain maximum benefit, please read this manual before using the printer for the first time. For information on programming please refer to the separate GPL2 Programming Manual, available on request.

2 INSTALLATION & CONNECTION

The printer can be installed in any normal office or factory environment. No special wiring or cooling is required, but a minimum 25mm (1 inch) clearance all round the printer is required for proper ventilation. Whilst the printer can be used in dusty environments this will reduce its operating life. Regular cleaning is recommended to ensure correct operation and maximum service life.

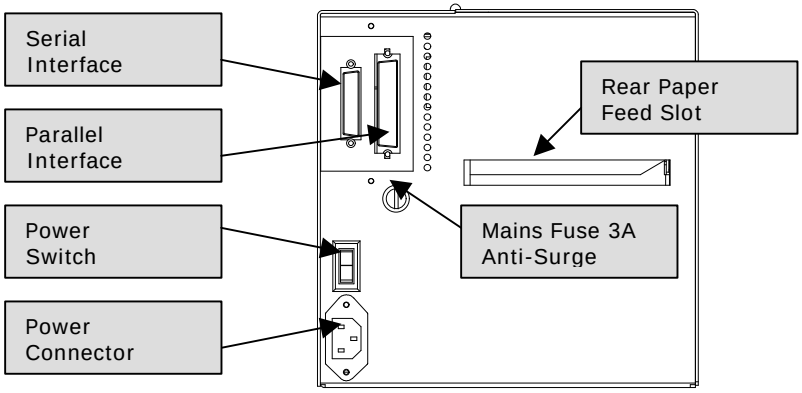


Figure 1 – Rear Panel

2.1 POWER SUPPLY

Line voltage is 230V ac 50Hz for European models or 110V ac 60Hz for USA models. Details are shown on the rating plate at the rear of the unit. After confirming supply requirement on the rating plate, connect the IEC socket end to the mating connector on the rear of the printer, Figure 1.

2.2 DATA INTERFACE CONNECTIONS

The printer is fitted with an RS-232C serial port and a Centronics parallel port as standard. Both ports may be connected and the printer will select the active port automatically provided that they are not used simultaneously.

2.3 RS232C SERIAL DATA INTERFACE

The serial port is a standard 25-way DTE port. Printer-PC cables can be obtained from Matrix Developments (Part No 90189-A), or alternatively a standard 'null-modem' cable may be used.

Use the Printer Setup utility supplied with the printer to set the baud rate, parity, data and stop bits. These must all be set to match the values used by the host computer for the interface to operate correctly. Note that in order for PSUtil to communicate with the printer using the serial port, the standard settings of 9600,N,8,1 must be used. Switching the printer on whilst keeping the FEED and PAUSE buttons pressed will set these values until the printer is next powered on or reset.

Serial Port Pin Functions

Pin No	Name	Function
(2)	TXD	Data output from printer
(3)	RXD	Data input to printer
(4)	RTS	Printer busy handshake
(7) & (13)	GND	Signal Ground
(20)	DTR	Internally connected to RTS
(25)	+5V	5V Supply for DT32 (300mA max)

Matrix Developments Serial Cable (90189-A)

Printer Pin 25 way Female	PC-AT Pin 9 way female
2	2
3	3
4	8
7	5
	1, 4 and 6 *

* These three pins are connected together at the PC connector for use with MS-DOS programs.

2.4 CENTRONICS PARALLEL DATA INTERFACE

The Centronics connector is an Amphenol 36 way female type. The lead should be kept as short as possible and should not exceed 3 metres. The Centronics port is IEEE-1284 compliant and will work with any standard Centronics printer port. Check that the cable is pressed securely into the connector and locked with the wire loops.

2.5 PRINT SET UP

A small control panel, Figure 2, is located in the centreplate in front of the print head. The panel contains a bank of four switches, which set some of the basic functions of the printer. These controls are accessible without removing the cover. Also contained on the control panel, but hidden under the side cover, is the connector for attaching external accessories such as label-present sensor, cutter.

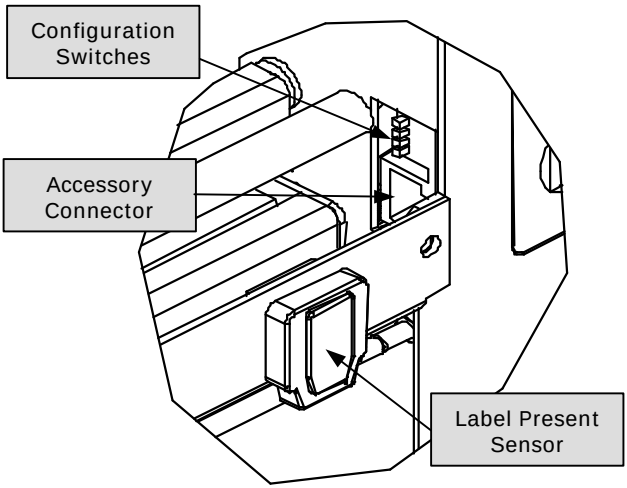


Figure 2 – Control Panel

Set the switches to select the appropriate function from the table below:

Switch	On	Off
1	Direct thermal printing	Thermal transfer printing
2	Labels/Tickets	Continuous media
3	Transmissive sensor (label gap)	Reflective sensor (black mark)
4	Label Present Sensor enabled	Label Present Sensor disabled

3 SOFTWARE AND DRIVERS

3.1 PRINTER SETUP UTILITY

The setup utility will run under Windows 95/98/ME or Windows NT4.0/2000. It allows the printer configuration to be set according to the application and installation requirements. In most cases the default settings will not need to be changed. Refer to the online help for details of the facilities available.

To install the printer setup utility, insert the disk or CD and use Windows Explorer to navigate to the PSUtil sub-directory. Double click on the PSUSetup.exe icon to start the install program and follow the instructions given.

3.2 WINDOWS DRIVERS

The Windows driver enables the Compact 2000 range of printers to be used directly with any software application running under Windows 95/98/ME and Windows NT4.0/2000. This includes a variety of labelling programs as well as the usual range of word processing and desktop publishing packages, spreadsheets, databases, etc. The driver supports the following features:

- A range of commonly used label sizes
- Portrait and Landscape modes
- Print speed and heat control
- Graphics compression for maximum download speed
- Support for printer built-in fonts
- High-speed repeat printing
- Uses standard Windows printer driver dialogs and help

To install the driver, click on Start▶Settings▶Printers then double click on the Add Printer icon. When you are prompted to select the printer type from a list, insert the driver disk/CD and click on *Have Disk* then *Browse*. Navigate to the appropriate Windows version sub-directory and click on OK. Check the ReadMe.txt file for detailed instructions.

3.3 LABEL DESIGN SOFTWARE

Label 2000 Silver is a very basic Windows label design program which works using the Compact 2000 command language. This program is free and does not require the Windows driver.

Label-IT is a fuller featured label design program, which uses Windows drivers and works with any type of printer. It is supplied on a trial basis and can be evaluated free for 15 days. After that period you must purchase an unlock key to continue using it.

To install these programs, insert the disk/CD and use Windows Explorer to navigate to the appropriate sub-directory. Double click on the Setup icon to start the install program and follow the instructions given.

4 MEDIA LOADING

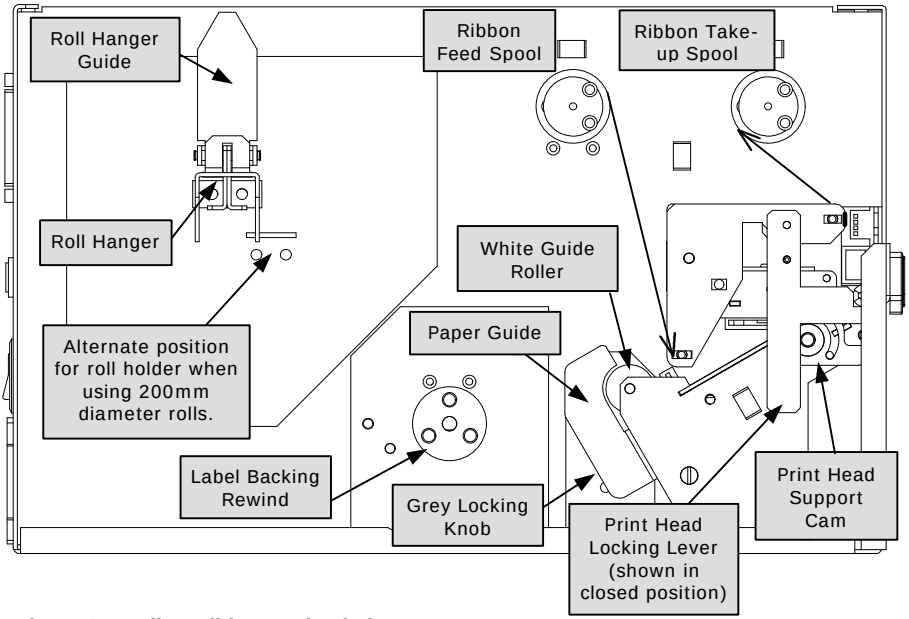


Figure 3 Loading Ribbon and Labels

4.1 LOADING LABELS

Remove and discard the old roll core and place the new roll on the roll hanger. Ensure the labels are on the outside of the roll and unwinding from the top. Slide the roll hanger guide up to the roll edge.

Swing the print head locking lever back and upwards to the head open position. Feed labels under the white label guide roller, between the print head and the platen drive roller and out through the front of the printer. Slide the label guide so it is against the outside edge of the labels and check that the inside of the label is against the inner guide. Tighten the grey locking knob to secure the paper guide. If the paper is less than 80mm wide then rotate the print head support cam through 90 degrees clockwise so that the projecting finger lever is pointing downwards.

4.2 LOADING RIBBON

Ensure that the ribbon is wound with the coating on the inside surface.

Swing the print head locking lever back and upwards to the head open position. Remove the core of spent ribbon from the ribbon take-up spool and discard it. Take the empty ribbon core from the ribbon feed spool and push it onto the take-up spool, ready to collect spent ribbon.

Place the new ribbon core on the ribbon feed spool. Pass the ribbon down and round the steel ribbon guide roller, under the print head and back over the top of the print

mechanism to the take-up spool. Attach the end of the ribbon to the spool using the self-adhesive leader tape, turning the spool clockwise to wind the ribbon on.

4.3 RESTARTING

Swing the head-locking lever down to the vertical position until it clicks into place to lock the head. Press the FEED button to inform the printer that loading is complete. Press the FEED button again as required to feed further tickets/labels. Check print quality.

4.4 SENSOR ADJUSTMENTS

To adjust the label sensor lateral position, undo the black lock nut below the print roller and move the sensor to the left or right, then tighten the lock nut. Unless you need to sense a black mark or cutout close to the edge of a ticket, it is recommended that the sensor be positioned towards the centre of the print media.

Fit the required label/ticket roll as described in section 4.1. Position the label gap/black mark/ticket cutout, just to the rear of the white roller. Lock the print head. Press and hold the PAUSE button for 3 seconds to start the calibration. This will also measure and align the labels.

5 OPERATION

Operation of the printer is controlled automatically from the computer terminal or control system. However a number of indicators and controls are fitted to the printer front panel to control basic operations and indicate status and fault conditions. Refer to Figure 4.

Figure 4
Front Panel

Indicator	Meaning
READY	Illuminated when printer is switched on. Flashes when processing commands.
PAUSE	Illuminated when printing is suspended via the PAUSE button or label-present sensor.
ERROR	During fault conditions this shows the type of fault using a series of flashes. Head open — Continuous flashing Paper out — Two flashes (repeat) Ribbon out — Three flashes (repeat) Rewind full — Four flashes (repeat) Cutter jammed — Five flashes (repeat) Printer Failure — On continuously Printer Failure indicates that service is required. Switch the printer off.

Control Button	Action
FEED	Used to feed one label at a time, or in continuous mode feeds until released. Also used to reset from a fault condition. If held during power on, a 'self test' label is printed (5.1).
PAUSE	Used to suspend printing temporarily. Press once to suspend, press again to resume operation. If pressed and held for 3 seconds, a sensor recalibration and label measurement sequence is initiated. If held during power on, hex-dump mode is entered (5.2).
CANCEL	This control is achieved by pressing PAUSE and FEED simultaneously. It is used to cancel a batch print and any other currently executing command. If both buttons are held during power-on, the serial interface is set to 9600 baud.

5.1 SELF TEST

The printer has an in-built self-test feature, which can be used to check whether the printer is working correctly. The self-test also provides a summary of the current DIP switch and configuration settings, the firmware version, the size of RAM and the maximum label length which can be printed based upon the installed RAM.

The self-test is initiated by turning the printer on whilst holding down the feed button. Continue to hold the button until the printer performs the initial paper feed. After a short pause the printer will produce a report similar to the illustration below.

Gazelle 2000 Series
MA70 Version 1.51
GPL2 Version 3.18

Print head: C1S/GC12F
8 dots/mm, 104 mm, 800 ohms
9600,N,8,1, 2K buffer
Control codes
Transfer print, Label mode
Cutter not fitted
256K RAM, max height 267 mm
Label sensor: Gap (DIP switch)
Label count: 1597
Media used: 97m
Total Cuts: 0

5.2 HEX DUMP MODE

The printer has a built in hex-dump mode which allows the communications to be tested. Hex-dump is initiated by turning the printer on whilst holding down the PAUSE button. All data sent to the printer will be printed out in ASCII and hex instead of being interpreted. Press FEED to print out all data received so far. Press CANCEL to exit hex-dump mode.

6 CLEANING AND MAINTENANCE

For maximum operating life and best print quality the printer should be regularly cleaned. All loose paper particles should be blown away and the print head, print rollers, label sensor and label guides cleaned of adhesive and paper residues. Cleaning should be carried out after every 2km of printing, 10,000 labels, or weekly, whichever is the most frequent.

6.1 GENERAL CLEANING

The external casing of the printer can be cleaned with a cloth soaked in soapy water and squeezed out thoroughly. The printer must be switched off during any cleaning operation. Take care not to allow any liquid to penetrate the internal parts.

6.2 SENSOR CLEANING

Using a small brush or the plastic nozzle of a vacuum cleaner, remove all paper dust and debris from the label present sensor and the label/paper sensors. Take care not to bend the optical sensor elements out of alignment.

6.3 PRINTHEAD CLEANING

Deterioration in print quality may be due to the accumulation of dirt on the printhead. To clean the printhead proceed as follows:

The active print element is the thin black line on the printhead, which reflects light if viewed under a bright light source. Using a soft clean, lint-free cloth and thermal head cleaner (isopropyl alcohol), wipe the print element 4 or 5 times and allow the solvent to evaporate. Re-examine the printhead and repeat as necessary.

Stubborn deposits may be removed using light duty metal polish. Remove polish residue using a soft clean, lint-free cloth, and clean the head again using isopropyl alcohol.

Repeat the cleaning process as necessary until the reflection is even along the entire length of the print element.

7 TROUBLE SHOOTING

SYMPTOM	CHECK	REFERENCE
No READY indication.	Printer plugged in. Mains fuse on rear panel.	2.1 Fig. 1
No response to communications.	Serial port settings. Cable connections. Try hex-dump mode.	2.3, 3.1 5.2
ERROR light on.	Check appropriate error condition.	5
Paper Empty error when paper is loaded.	Press FEED. Paper correctly loaded. Sensor positioned & calibrated.	4.3 4.1 4.4
PAUSE light on.	Press PAUSE to release. Label present sensor enabled.	5 2.5
Printing blank labels.	Using plain paper labels with no transfer ribbon. Ribbon coated on inside surface. Using appropriate heat settings for media. Serial port settings.	8 8 3.2 2.3, 3.1
Poor print quality.	DIP switch set for correct media type. Using correct media. Print head is clean. Using appropriate speed/heat settings for media. Print head support cam in correct position.	2.5 8 6.3 3.2 4.1

8 PAPER AND RIBBON COMPATIBILITY

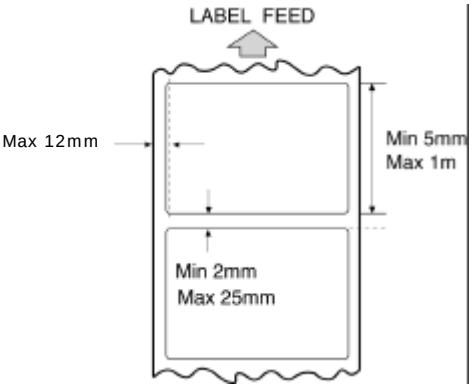
Print quality is dependent not only on the COMPACT printer but significantly on the quality of the print media. It is very important to select the correct combination of paper and ribbon to ensure that both print quality and head life are optimised. Factors such as reflectivity and print contrast ratio are important for barcode scanning applications. Ribbon abrasion characteristics and sensitivity are important factors in obtaining maximum printhead life.

A wide range of supplies can be obtained from COMPACT Printer distributors and it is recommended to use these for best results. Contact Matrix Developments or your printer distributor for further information on the range of labels, tickets and ribbons which are approved for use with the Compact 2000 printers.

8.1 STOCK CONVERSION SPECIFICATIONS

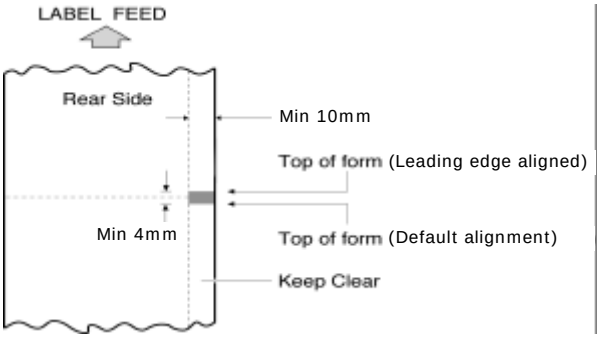
The roll hanger is designed to hold stock wound print-surface outwards onto a 44mm inside diameter core. Larger cores can also be accommodated, but will hold less stock.

Label Conversion



The limit of 12mm from the edge of the backing sheet is a maximum dimension. It is recommended that this distance be kept within 1-3 mm for best results.

Ticket Conversion (black mark or cut-out)



Tickets are normally aligned using a cutout or a black mark printed on the reverse side, to be detected by the reflective sensor. In either case they must conform to the dimensional limits shown. These are minimum dimensions and for optimum sensor performance, it is recommended that the black mark extends as a band across the full width of the ticket.

Where tickets are perforated for fan-folded presentation, it is convenient to bisect the reference mark as shown.

9 WARRANTY & SERVICING

9.1 SERVICING

There are no user serviceable parts inside the printer. Personnel authorised by Blazeprint Ltd. should carry out all servicing and repair.

If extended on-site cover for the printer is required, please contact Matrix Developments Ltd or your printer distributor for details of third party maintenance contract options available.

9.2 WARRANTY

The printers are covered by a comprehensive 12-month return-to-base warranty. This warranty excludes the thermal printhead, which is generally considered to be a consumable item.

The printhead is limited to a 1 month unconditional warranty or 10km of printing onto approved paper subject to a maximum period of 6 months provided the printhead is returned, and that it does not exhibit signs of misuse and is accompanied by documentary evidence of its usage.

10 OPTIONS & ACCESSORIES

A number of options are available for the COMPACT printer, which extends the use of the printer for different applications. A summary of some of the products available is given below:

10.1 DT32 TERMINAL

The DT32 provides the means of controlling the printer in a stand-alone configuration. The terminal has a full alphanumeric keyboard and display to allow entry of variable information at print time. The label formats are designed and transferred to a memory card in the terminal using the label design software.

10.2 PAPER/LABEL CUTTER

The cutter option is attached to the front of the printer and provides automatic cutting of labels or tickets.

10.3 PEEL AND PRESENT (Option R)

The peel and present option comprises an internal rewind assembly, peeler support bar, label present sensor and backing guide roller. This is normally supplied as a factory fitted item (option R) but can be fitted as upgrade.

10.4 EXTERNAL REWINDER

The external rewinder provides the facility to bulk rewind labels after printing. It is attached to the front of the printer and controlled by the printing sequence.

SPECIFICATION

- Easy Paper Loading
- Rugged metal construction
- Print speeds to 225mm/sec (9 in/sec)
- PC setup utility for simple configuration
- Optional internal rewinder for peel & present
- Fast first label print
- Label counter

Print Technology	Direct & Transfer
Print Width	4in - 104mm
Label Width	4.6in - 120mm down to 1in - 25mm
Print Resolution	203dpi - 8 dot/mm (CP1048, CP2200) 300dpi - 12 dot/mm (CP2300)
Max Print Speed	6in/sec - 150mm/sec (CP1048) 8in/sec - 200mm/sec (CP2300) 9in/sec - 225mm/sec (CP2200)
Memory	256kb RAM+512kb FLASH (CP1048, CP2200) 512kb RAM + 512kb FLASH (CP2300)
Memory Expansion	Additional 256kb RAM (fitted as standard on CP2300)
Max Roll Capacity	6in - 150mm (with internal rewinder) 8in - 200mm (without internal rewinder)
Ribbon capacity	450metres (80mm OD)
Fonts	6 Bitstream Scaleable Fonts - Swiss 721, Swiss 721 Bold, News 701, Impress, Monospace 821, OCR B
Barcodes	EAN/UPC, Code 39, Code 128, Codabar, Code93, EAN128, Interleaved 2of5, HIBC, ITF14, EAN/UPC 2+5 digit addenda
Line Graphics	Area fill, line & box, white to black via 10 shades of grey
2 Dimensional Codes	PDF417, Datamatrix
Field Rotation	Text, Graphics & Barcodes 0, 90, 180, 270 degrees
Media Sensors	Reflective & Transmissive Sensors with automatic calibration to different printing materials. Label Present Sensor with internal rewinder
Cutter	Option: CPT-IC100
Peel & Present	Option: R models
Print & Rewind	Option: CPT-RW100
Controls	Paper Feed, Pause, Cancel
Interfaces	RS232C 1200-115200 baud, Centronics Parallel
Case construction	Steel & Aluminium
Dimensions	223(w) x 224(h) x 359(d) mm
Weight	10kg
Environment	Temperature 0-40ºC (32-104ºF) Humidity 95% non-condensing

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