

ciSeries

CITRONIX INK JET
PRINTING SYSTEMS

HIGH SPEED
SMALL CHARACTER
NON-CONTACT
PRINTING



ciSeries^{PRODUCTS}

Citronix specializes in the design and manufacture of **Continuous Ink Jet (CIJ)** printing technology for applying identifying marks, sell-by dates and lot / date codes.

The Citronix ciSeries CIJ printing systems provide high speed, reliable, non-contact printing to almost any kind

of material or surface including metal, glass, plastic, paper, wood and more.

The ciSeries systems are offered in four different models in a variety of configurations with several optional components to meet individual application demands — locally and globally.



The **ci580** prints 1 or 2 lines of print and has the ability to print 1/2" (12mm) images. Text, Graphics and Bar codes are possible. A selection of MEK, Acetone or Ethanol based inks are available for immediate dry times and superior adhesion to a variety of substrates.

The **ci700** prints up to a 25 pixel image providing three lines of text, graphics and bar codes. Automatic ink viscosity control and large fluid capacities provide minimal user intervention and long term reliable operation. RS232 / RS485 offer flexible communication options.

The **ci1000** prints up to a 31 pixel image providing five lines of text, graphics and bar codes. Automatic ink viscosity control provides minimal user intervention and long term reliable operation. Ethernet with integrated internet web browser interface and RS232 / RS485 provide advanced communication options.



The **ci2000** IP65 (Nema 4) system is designed specifically to operate in extreme applications such as high dust or wash down production environments. With a positive air pressurized enclosure and printhead there are no entry points for dust or water. The ci2000 prints up to a 31 pixel image providing five lines of text, graphics and bar codes. Ethernet with integrated internet web browser interface and RS232 / RS485 provide advanced communication options.





INTUITIVE USER interface

True WYSIWYG message editing with drag and drop field based structure provide the user the most convenient and versatile message formatting available. A large quarter VGA graphical display with icon-based operation and full-size QWERTY style keyboard assure effortless operation. Store over 1000 messages for simple recall during product changeovers—remotely, locally or automatically.

Fast, single start and stop buttons provide the user an efficient startup and shutdown routine. Automatic self-diagnostics provide the user informative displays to indicate status of the system and any corrective actions required. Service reminders prompt the user with preventive maintenance tasks and on-line help screens provide the user assistance without having to refer to a manual.

Designed for a global market, the ciSeries systems feature multiple language formats. Print multi-national characters, custom graphics at the touch of a button.



FLEXIBLE connectivity

Integrated hardware as standard, Citronix systems have Ethernet, multiple RS232, multiple programmable inputs and multiple programmable outputs including a solid-state relay output providing unparalleled communication flexibility.

The systems can accomplish multiple communication tasks at the same time. Information can be delivered to/from the systems simultaneously, allowing communication to remote systems, remote interfaces as well as database connectivity. Scanners can be used for scan and shoot operation allowing messages to be recalled quickly. Inputs provide the ability for on-the-fly remote message selection, reverse message printing or product count resetting. Outputs provide methods to communicate warning or system fault conditions.



ciLink™

ci1000 and ci2000 systems feature ciLink™ providing enhanced remote connectivity via IP addressable Ethernet. Systems can be integrated into your network allowing administrators to control a single system or a group of systems.

ciLink™ features an embedded full web browser interface to allow complete control locally or remotely. Anything accomplished at the system keyboard can be accomplished via the virtual web browser keyboard/interface. Systems can send e-mail notifications for routine maintenance and critical situations.

Remote communication control is accomplished via an advanced set of operation commands with XML format for setting, retrieving and viewing messages, graphic images and system parameters.





printing

CAPABILITIES

Citronix printing systems are used in a wide range of industries including Food, Beverage, Paper, Household, Confectionary, Bakery, Pharmaceutical, Automotive, Lumber and Postal. The systems can print one to five lines of high quality text, graphics and bar codes.

A broad range of fast-drying inks with strong adhesion characteristics provide excellent print quality at high speeds. Inks are available for a variety of substrates or environmental conditions. Immediate dry or environmentally friendly quick dry inks suit any application.

GRADE AA JAN 16

Citronix offers **Specialty Systems and Inks** for engineered solutions to unique applications.

Specialty Systems are available in the ci1000 or ci2000 controller configuration:

The **Food Grade System** uses FDA compliant inks in red or blue color for printing directly to food products, eggs or permeable food packaging products.

The **Security System** meets the demand for hidden security and tracing applications. Printed codes are invisible and only visible when exposed to ultra-violet light.

The **HS 50 System** prints using a 50 micron drop at increased production line speed capabilities. Designed and targeted for use in high speed beverage and canning applications.



PIXEL PLUS™

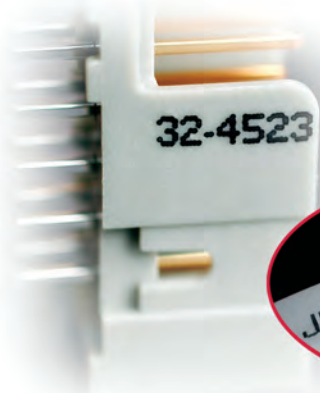


NORMAL



MACRO

ciSeries systems feature the proprietary PixelPlus™ print capability. Integrated intelligent pixel control offers selectable print drop size from 60, or 75 micron providing two print sizes and eliminating the need for dedicated coders for different coding requirements. Print heights are selectable between .06" (1.5mm) - .50" (12mm) providing the ability to print both small characters and large, bold characters.



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The **Micro System** prints very fine, micro characters at near letter quality output at increased ciSeries production line speeds while achieving exceptional ink throw distance. Designed and targeted for use in small product coding or high resolution printing applications.

The **Pigment System** prints with high contrast yellow pigment ink providing bright yellow, readable codes on dark surfaces. Unique micro-pigment formulation and ciSeries ink circulation system provide uniform colorant dispersion without complex fluid or stirring mechanisms.

The **Heavy Pigment System** prints with a Bright White, low VOC ink providing high contrast white codes on dark surfaces. Acetone based formulation provides immediate dry times with superior adhesion and abrasion resistance on a wide range of surfaces, while being specifically designed for wire and cable. Heavy Pigment designed pump system ensures long term reliable operation and the ciSeries ink circulation system ensures uniform colorant dispersion.



high speed

HIGH VOLUME

Integrated as standard all ciSeries systems feature **High Speed** capabilities. A single line of text can print at speeds exceeding 1500 feet/minute (470M/minute), two lines over 600 feet/minute (200M/minute), three or four lines above 300 feet/minute (100M/minute).

High Volume applications are achieved with minimal user intervention. Fluids are added easily via external fill adapters on the fly with no interruption to the printing process. Ink and Makeup reservoirs are 1.9 liter to ensure a large volume of fluid for demanding print applications that can operate weeks between fluid refills.




design

FEATURES

ciSeries systems are housed in rugged complete stainless steel enclosures for operation in the most extreme wet or dry applications. ciSeries systems feature an IP55 (NEMA 4) rated enclosure or optionally the ci2000 systems are available in an IP65 (NEMA 4) enclosure.

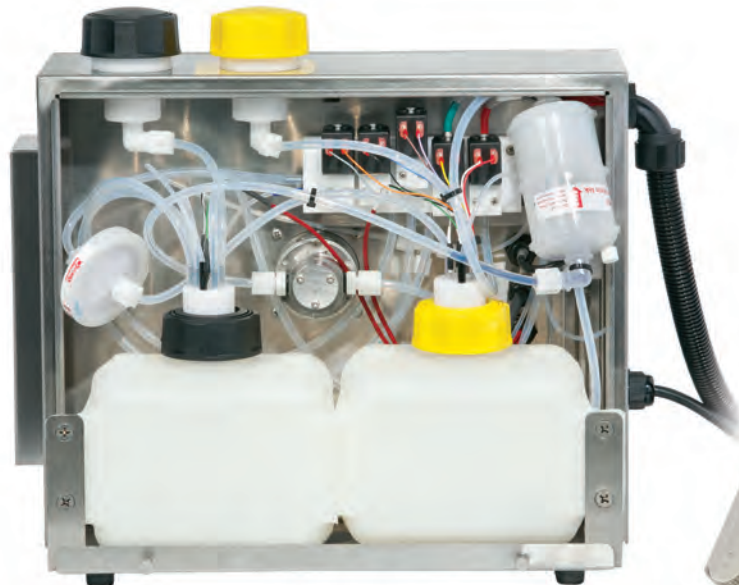
State-of-the-art single board surface mount electronics technology coupled with integrated smart printhead and ink system components monitor critical operating functions. Operating settings are automatically adjusted dependent on the environment to maintain optimum print quality.



A single electronic pump, thick walled Teflon tubing with a revolutionary venturi design minimize evaporation points and optimize the ink return vacuum resulting in lower consumption rates. Minimizing fluid evaporation provides affordable operation and a safer working area.

ciSeries continuous ink jet technology allows the printhead to mount in any orientation or environment. A heating mechanism allows operation in cold areas. An integrated printhead valve provides clean starts and stops even when power is lost.


A selection of **Specialty Inks** have been developed for use with ci700, ci1000 and ci2000 systems. These inks include multiple colors and solvent bases—MEK, Acetone and Ethanol. Available inks include thermal sensitive color change inks, wet glass ink, caustic washable inks, steam-sterilisable inks, alcohol resistant inks and many others to meet the demands of any marking requirement.



SmartFlush™

ciSeries systems feature the proprietary **SmartFlush™** printhead maintenance operation. Makeup Solvent is used to clean the printhead, nozzle and gutter at shutdown providing a consistent, reliable daily startup.

SmartFlush™ is designed to provide clean and effortless start-up of a printer ensuring immediate high quality print and significantly reduced downtime by eliminating the daily requirement for manual printhead cleaning. The system operates by activating the makeup solvent vacuum valve delivering makeup to the printhead. The makeup solvent is controlled with the printhead valve and vacuum valve to ensure the nozzle and gutter are clean of ink residue that could potentially alter a successful start-up sequence.



ciSERIES specifications

Controller

Hardware

Single Printhead Control Dual Processor: Motorola ColdFire / DSP Speed: 66 Mhz
Memory: 8 MByte Flash 16 MByte RAM

Machine Interface

ci580	ci700	ci1000/ci2000
I RS232*	I RS232*	I RS232*
*I200 up to 115.2KB		I Ethernet with Internet Browser Interface

Inputs (Opto Isolated, Open Collector or TTL Type)

ci580	ci700	ci1000/ci2000
I Photocell*	2 Photocell*	2 Photocell*
I Shaft Encoder	I Shaft Encoder	I Shaft Encoder
	6 Programmable**	6 Programmable**

*Field programmable input. **Remote message selection option—64 possible selections.

Outputs

Three Programmable Alarms—Warning and Failure (Open Collector, 150mA sinking)
Programmable Dry Contact Relay
External Power (+24VDC 500mA)
Printhead Umbilical (options available upon request): 9 Feet (3 Meter) or 15 Feet (4.5 Meter)

User Interface

Full-Size QWERTY Keyboard	Download Graphics and Integrated Editor
Quarter VGA Backlit Graphical Display	Optional keyboards available: Greek, Korean, Arabic,
Intuitive Icon Based Operation	Japanese, Russian, Hebrew
WYSIWYG Message Editing	Automatic Diagnostics
Drag/Drop Field Based Formatting	Error and Activity Logs
Dynamic Message Storage (over 1000 Messages)	Service Reminders
Single Button Start and Stop Operation	Continuous Print Capability
Programmable Password Security	Backup / Restore Functions
Real and Expiration Time and Date	Multiple Operator Languages
Shift and Rollover Functions	Multi-National Character Printing
Product and Batch Counting	Downloadable Software Updates
	Tower Printing Functions

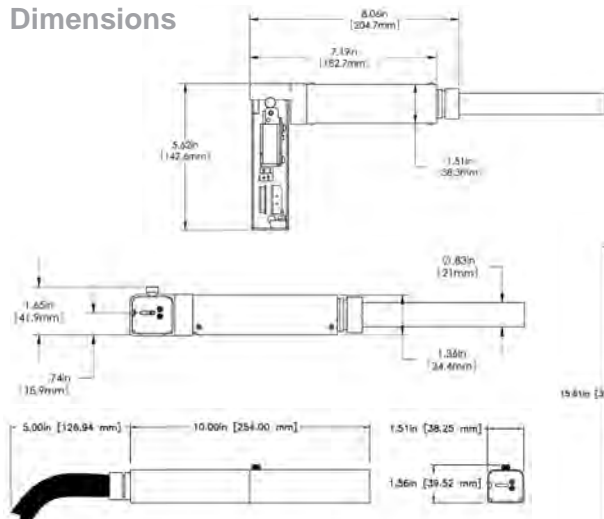
Operating Environment

Temperature: 35° - 113° F (5° - 45° C) % Relative Humidity: 10- 90% (non condensing)

Electrical Requirements

Auto Ranging: 100 - 240 VAC, (3 Amp) Frequency: 50 - 60Hz

Dimensions



Printhead

Technology: Continuous Ink Jet (CIJ) **Printhead Orientation:** Omni Directional
Lines of Print: ci580: 1 or 2 lines (16 pixel) ci580 Print Fonts: 5, 7, 9, 12, 16
ci700: 3 lines (25 pixel) ci700 Print Fonts: 5, 7, 9, 12, 16, 25
ci1000/ci2000: 5 lines (31 pixel) ci1000/ci2000 Print Fonts: 5, 7, 9, 12, 16, 25, 31
Drop Size: ci580—Macro (75 micron) ci700/ci1000/ci2000—Normal (60 micron) and Macro (75 micron)
ciSeries systems feature SmartFlush™ automatic printhead maintenance.

PixelPlus™

Image Height:

Normal Drop Setting .05" (1.5mm) — .50" (12mm)
Macro Drop Setting .25" (6mm) — .50" (12mm)
Micro System .025" (.6mm) — .25" (6mm)
HS 50 System .06" (1.5mm) — .50" (12mm)

Throw Distance:

Normal Drop Setting .5" (12mm)
Macro Drop Setting 1.5" (38mm)
Micro system .5" (12mm)
HS 50 System .5" (12mm)

Line Speed ci700/ci1000/ci2000:

Normal Drop (60 micron)

1 Line 7x5—1500 ft/min (470 M/min)
2 Line 7x5—600 ft/min (196 M/min)
3 Line 7x5—350 ft/min (107 M/min)
4 Line 7x5—308 ft/min (94 M/min)

Macro Drop (75 micron)

1 Line 7x5—1093 ft/min (333 M/min)
2 Line 7x5—455 ft/min (139 M/min)
3 Line 7x5—248 ft/min (76 M/min)
4 Line 7x5—219 ft/min (67 M/min)

Micro (40 micron drop)

1 Line 7x5—1618 ft/min (493 M/min)
2 Line 7x5—674 ft/min (205 M/min)
3 Line 7x5—368 ft/min (112 M/min)
4 Line 7x5—324 ft/min (99 M/min)

HS 50 System (50 micron drop)

1 Line 7x5—1685 ft/min (513 M/min)
2 Line 7x5—702 ft/min (213 M/min)
3 Line 7x5—383 ft/min (116 M/min)
4 Line 7x5—337 ft/min (103 M/min)

Line Speed ci580:

Macro Drop (75 micron)

1 Line 7x5—1000 ft/min (333 M/min)
2 Line 7x5—400 ft/min (139 M/min)

Consumable & Delivery

Ink Types: Full Range—MEK, Ethanol, Acetone, FDA Compliant
Ink Colors: Black, Red, Blue, Green, Yellow, White, Invisible (UV Readable),
Steam Color Changeable (Black to Red, Black to Blue)
Ink Dry Time: Quick Dry to Immediate
Ink Bottles: 16oz (473ml)
Makeup Bottles: 16oz (473ml)
Fluid Capacities: 64oz (1.9L)

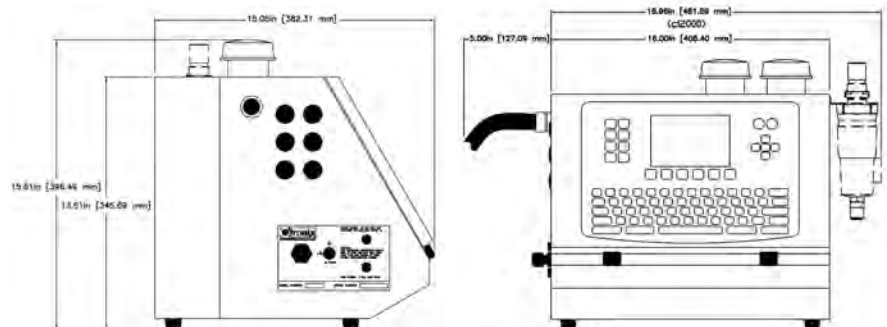
Physical Characteristics

	ci580	ci700/ci1000	ci2000
Enclosure:	Painted Steel	Stainless Steel	Stainless Steel
Environmental:	Nema 4 (IP55)	Nema 4 (IP55)	Nema 4 (IP65)
Weight Controller:	43 lbs (18kg)	43 lbs (19kg)	45 lbs (19kg)
Weight Printhead:	2 lbs (.90kg)	2 lbs (.90kg)	2 lbs (.90kg)

Optional Accessories

Alarm Beacons	Photocells	Printhead Wash Station
Bench Mountings	Shaft Encoders	
Floor Mountings	Positive Air Kit (dusty environments)	

By request, Citronix can adapt hardware and software to meet specific application demands.



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Designed and manufactured in the USA

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