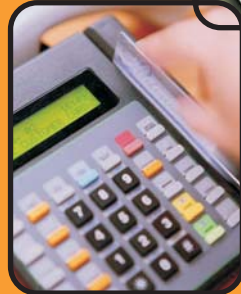# Adding Value to Cash Registers and Point-of-Sale Systems

- **Getting more out of your ECRs with serial-to-Ethernet network connectivity**

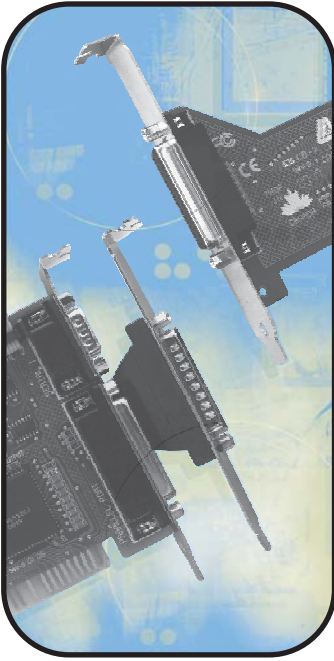# From the Authors
(Our message in a nutshell)

We'll be honest: Lava makes products that we would like you to resell. This booklet is meant to provide you, the ECR, kiosk, and POS system reseller, with some ideas on how to serve your customers more effectively by improving the efficiency of their cash register deployments – using Lava!

Most ECRs were originally designed as stand-alone units – connectivity capabilities were added as an afterthought. Networking ECRs to conduct IRC, polling, and ECR and printer clustering, has always been possible in theory, but you often needed a Ph.D. to figure out how to do it.

Lava Ether-Serial Links change all that. These products are simple to install, easy to configure, and reliable.

What do they do? Lava Ether-Serial Links take the serial port on the ECR (or POS printer, barcode scanner, scale, payment terminal, etc.) and Ethernet-enable it.

Where can you use that capability? Take a minute to flip through the pages in this booklet. We think you might be inspired …

Contents

LAVA

LIFETIME
WARRANTY

Local Polling (Networking ECRs)

Newer (expensive!) cash register models now ship with Ethernet network ports. But almost all old-style ECRs have RS-232 serial ports that can be easily programmed to transmit sales reports and receipt data to a back-office computer. In the past however, connecting more than one ECR this way was a problem – no more! Using a Lava Ether-Serial Link, users can now convert the RS-232 ports on their ECRs into network access points for polling. So, instead of spending huge amounts of money on network-enabled registers, users can consolidate their sales reports using their ECRs' existing serial ports.
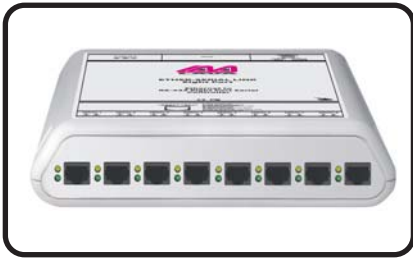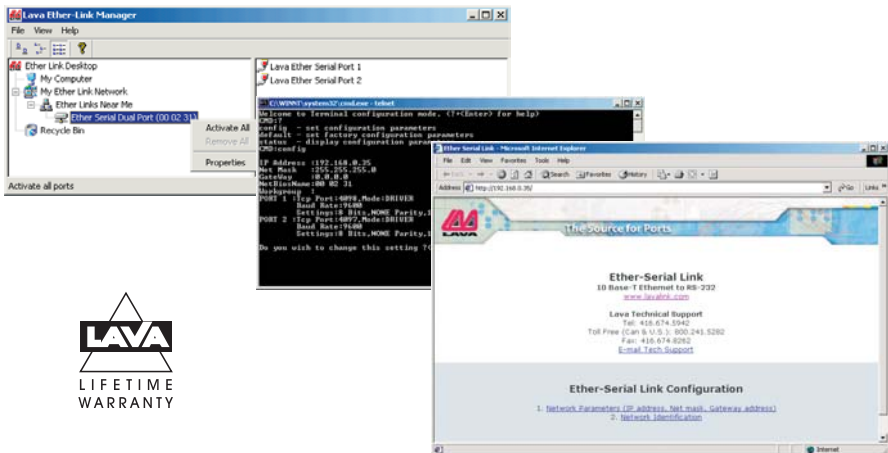
Ether-Serial Link 8-port RJ version

BENEFITS:

• centralized access to sales data
• maintains existing investment in ECRs
• easy installation and configuration
• inexpensive cables and devices

TIP:

Lava Ether-Serial Links configure easily with one IP address assigned to the unit – using DHCP, or manually, using the Lava Ether-Link Manager software application for Windows, or using Telnet, or using a web browser.

LAVA
LIFETIME
WARRANTY

Lava Ether-Serial Links are available in
1-port, 2-port, 4-port and 8-port versions

Ethernet
(up to
300 feet/
100 metres)

RS-232

ECR 1

…ECR 2

…ECR 3

ECR 4

polling PC

Ether-Serial Link
4-port
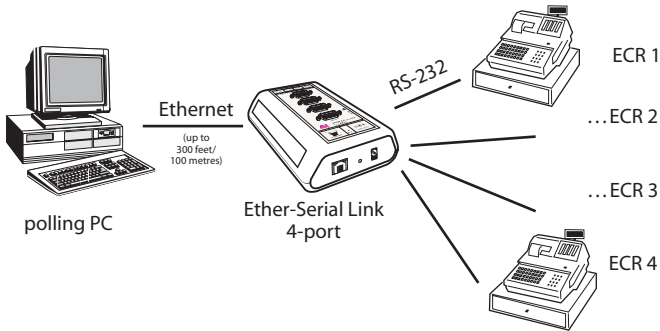
Local Polling (Networking ECRs)

TYPICAL USERS:

· mid-sized retailers
· quick service restaurants
· amusement parks

WHAT YOU'LL NEED TO SET THIS UP:

· Lava 4-port Ether-Serial Link (for 4 ECRs)
· 4 RS-232 null-modem cables (one for each ECR)
· 1 Windows-based PC with Ethernet port
· 1 Cat5 Ethernet cross-over cable if connecting a PC that is less than 300 feet/100 metres away from the Lava Ether-Serial Link, or 2 standard Cat5 cables if using a hub.
· Windows-compatible ECR polling software such as PC/Poll, 4PM Solutions, SAMPOS, One Step Solutions, or Labtronics Collect

Clustering Cash Registers

Think of a football stadium, or an amusement park. Cash registers, kiosks, and POS stations are scattered throughout various locations – often at significant distances from one another. Interconnecting all of these Point-of-Sale stations can be a configuration and wiring nightmare! But with Lava Ether-Serial Links, networking diverse ECRs and POS systems becomes a breeze: simply connect each of their serial ports to a port on a Lava Ether-Serial Link, and use standard Cat5 cable to link the Lava units together. Instant Ethernet! (NB: use hubs for links that are longer than 300 feet/100 metres.)

Ether-Serial Link - 4-port version

BENEFITS:

- easy Ethernet connectivity without the headaches of network software overhead
- no inter-register incompatibilities
- easy connection to kiosks, POS stations, LED signage, and ticket/entry systems
- inexpensive cables and devices

TIP:

Lava Ether-Serial Link configurations can be password protected using Lava's easy-to-use embedded web server. In addition to password protecting the Ether-Serial Link unit, each serial port can be password protected individually.

Clustering Cash Registers & Serial Devices
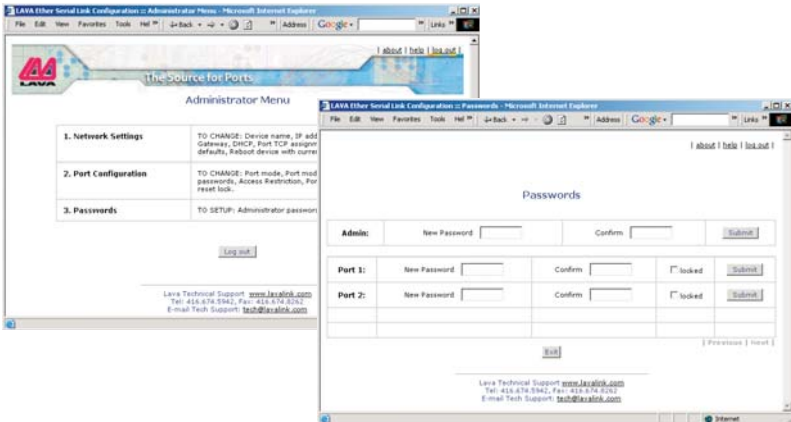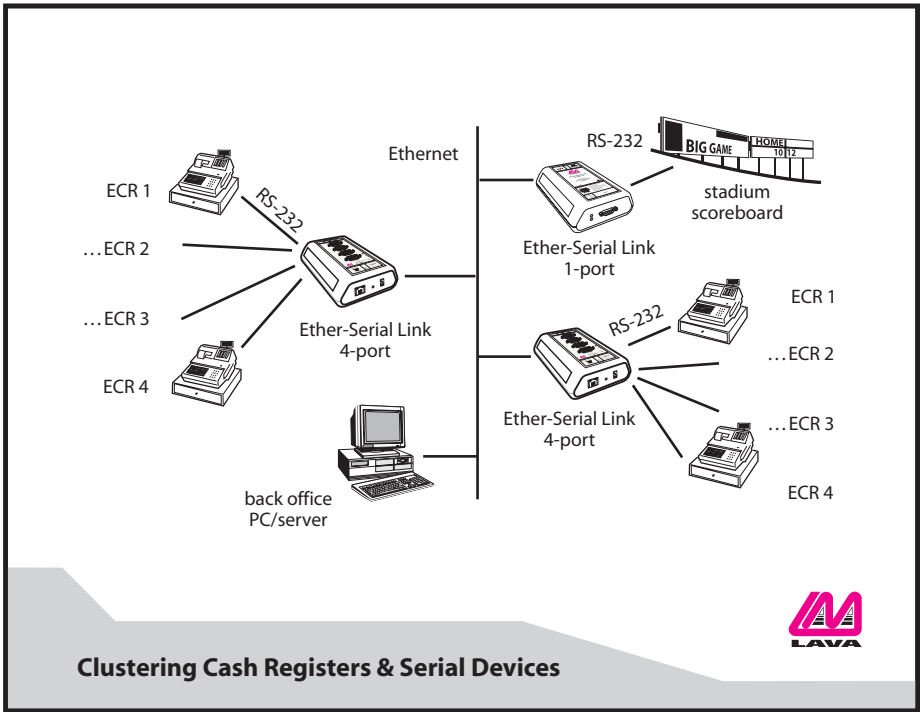
TYPICAL USERS:
- amusement parks
- football & baseball stadiums
- large retailers

WHAT YOU'LL NEED TO SET THIS UP:
- Lava Ether-Serial Links (number of ports depends on number of peripherals in cluster)
- RS-232 straight-through/null modem cables (depending on peripheral)
- 1 Windows-based PC with Ethernet port
- 1 Cat5 Ethernet cross-over cable if connecting a PC that is less than 300 feet/100 metres away from the Lava Ether-Serial Link, or 2 standard Cat5 cables if using a hub

Remote Polling using the Internet

It used to be that if you wanted to poll your register from a remote location such as a home office, you would connect your ECR at the store to a modem set in auto-answer mode, and you'd have to tie up a phone line while you dialed in. Today, most shopping malls provide retailers with access to the Internet, and maintaining a phone line just for ECR polling is often more expensive than it's worth. Besides, tying up a retail phone line that could be used for credit card processing is just not an option.

Why not connect a Lava Ether-Serial Link to the RS-232 port on your register, and then poll the ECR over the Internet? Simply connect the Ethernet port on the Lava Ether-Serial Link to your network switch, router, or DSL modem, and load Lava's software on your remote computer. Type in the IP address and gateway, and "voila!" Your ECR will look to your software as if you are directly connected to the register's RS-232 port, when in fact, you might be half a world away …

BENEFITS:

- easy installation and configuration
- eliminate dedicated POTS telephone lines
- IP-based remote ECR programming and report collection

Ether-Serial Link Single Port

TIP:

Serial ports on Lava Ether-Serial Links are seen as true COM ports by Windows. They appear in Window's Device Manager as COM ports, just like the internal COM ports in your PC. That means that ANY Windows software that communicates with a COM port (and even DOS applications running in Windows) can communicate with the COM ports of a Lava Ether-Serial Link - even over the Internet!

Remote Polling using the Internet
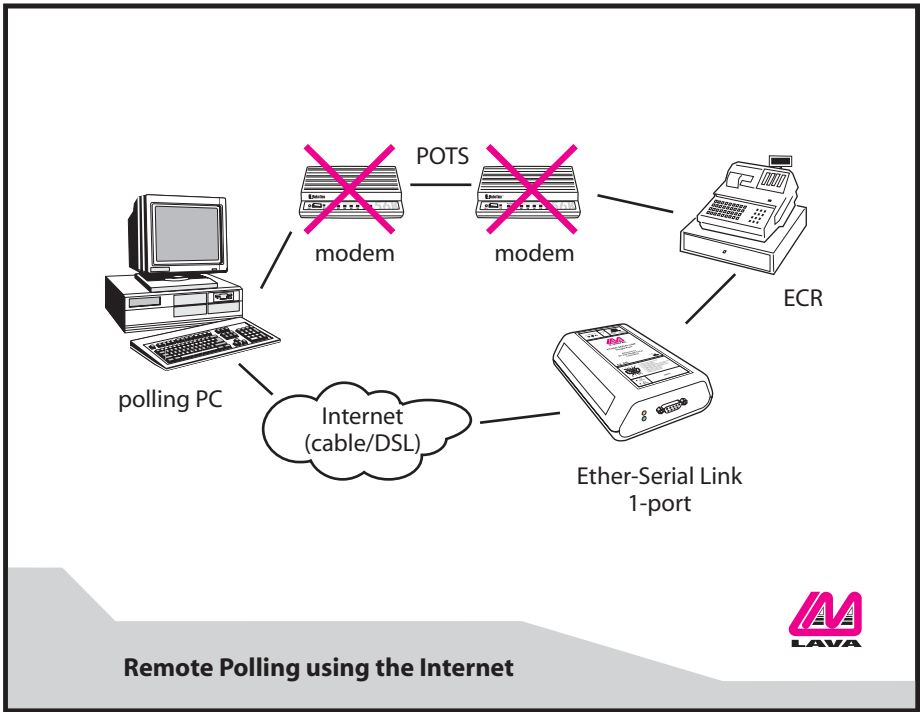
TYPICAL USERS:

- small retailers
- specialty restaurants
- bakery/cafes

WHAT YOU'LL NEED TO SET THIS UP:

- Lava 1-port Ether-Serial Link
- 1 RS-232 null-modem cable (for connecting ECR)
- IP-based switch or gateway (e.g. DSL) connected to Internet Service Provider
- 1 standard Cat5 Ethernet cable (for connecting Lava Ether-Serial Link to switch/gateway)
- 1 Windows-based PC with Ethernet port (at remote location) running ECR polling software such as PC/Poll, 4PM Solutions, Logivision,, SAMPOS, One Step Solutions, or Labtronics Collect

IP-Enabling Credit Card Payment Terminals

Many stores are still conducting their credit and debit card validations through a modem link to the payment processing company. This method has a number of drawbacks, including slow transaction processing while the modems dial and connect, the overhead cost of supplying a phone line for the terminal to use, and possibly also long distance connection charges. IP-enabling your credit card payment terminals using an Ether-Serial Link is the solution to all these problems.

The Lava Ether-Serial Link eliminates the drawbacks of dialup modem use by eliminating the modems. It's simple to set up, and operates completely transparently to both the card terminal and any application software involved. Why spend money month after month for a phone line, when Internet access is available and can carry transaction information to your payment processing company?

BENEFITS:
- Eliminates slow modem connections
- Saves money on long distance charges
- Frees or eliminates a dialup phone line

TIP:
The Lava Ether-Serial Link is easily configured for operation across a gateway and over the Internet with its intuitive WAN port configuration.

Lava Ether-Serial Links and Lava IP-PayLinks

LAVA IP-PAYLINKS:
The Lava Ether-Serial Link technology is the basis for Lava's newest product innovation: the Lava IP-Paylink

Lava IP-Paylinks allow serial-based credit card terminals to connect securely over the Internet using SSL encryption.

POTS

modem   modem

credit/debit
terminal

payment
processing

Internet
(cable/DSL)

Ether-Serial Link
1-port
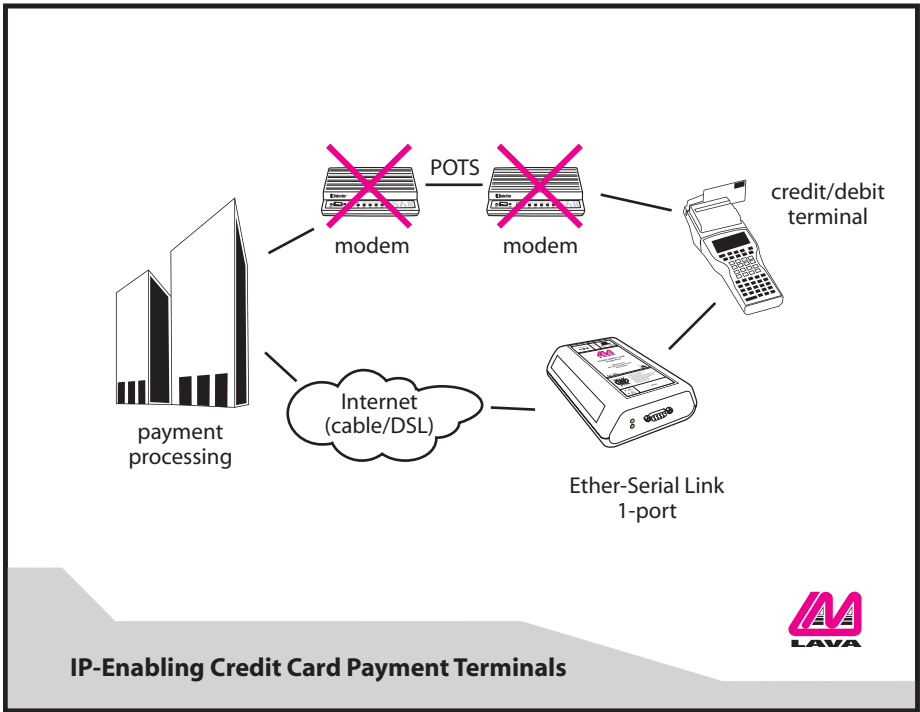
IP-Enabling Credit Card Payment Terminals

TYPICAL USERS:

- retail stores
- small and medium-sized restaurants

WHAT YOU'LL NEED TO SET THIS UP:

- Lava 1-port Ether-Serial Link or Lava IP-Paylink (includes SSL encryption)
- 1 RS-232 cable (for connecting card terminal)
- IP-based switch or gateway (e.g. DSL) connected to Internet Service Provider
- 1 standard Cat5 Ethernet cable (for connecting Lava Ether-Serial Link or IP-Paylink to switch/gateway)
- payment processing company accepting Internet transaction processing

Network Printing (e.g. kitchen printers)

How often do you find your ECRs don't have the interface your kitchen printer requires? If your ECRs have only got serial ports, and you have a LAN capable kitchen printer, no problem. A Lava Ether-Serial Link can let those ECRs print just as if you had a network-enabled ECR, but without the cost. Moreover multiple ECRs can use one printer, and any particular ECR can print to multiple printers. Cost savings and increased versatility in one package – a Lava Ether-Serial Link!

And here's another bonus – your serial port ECRs don't need to be within 50 feet/15 metres of the printer (the maximum distance of a reliable serial connection)– the Ether-Serial Link makes long distance printing a breeze. And, depending on the configuration, you can substantially reduce the number of cables involved – the ECRs now don't need a one-to-one cable connection to a printer!

BENEFITS:

- multiple ECRs can share one (or multiple) printers
- serial ECRs can access a network printer without adding expensive LAN modules
- printers can be located farther than serial cabling will allow
- eliminate multiple serial cable runs

TIP:

This configuration can be switched around as well – if you have a serial-only printer and Ethernet-enabled ECRs, the ECRs can share the serial printer because the Lava Ether-Serial Link can make that printer a network device.

| Order/ticket printer | RS-232 | Ether-Serial Link 1-port | Ethernet (up to 300 feet/ 100 metres) |

Network Printing (e.g. kitchen printers)

Diagram labels: ECR 1, …ECR 2, …ECR 3, ECR 4, RS-232, Ether-Serial Link 4-port, Ethernet (up to 300 feet/ 100 metres), kitchen printer
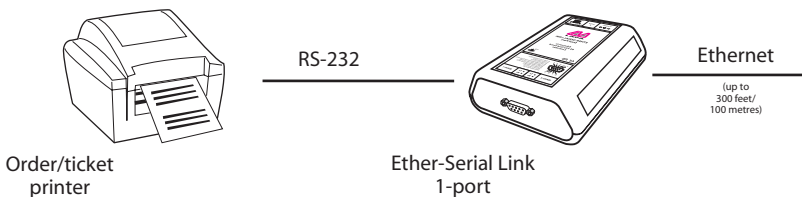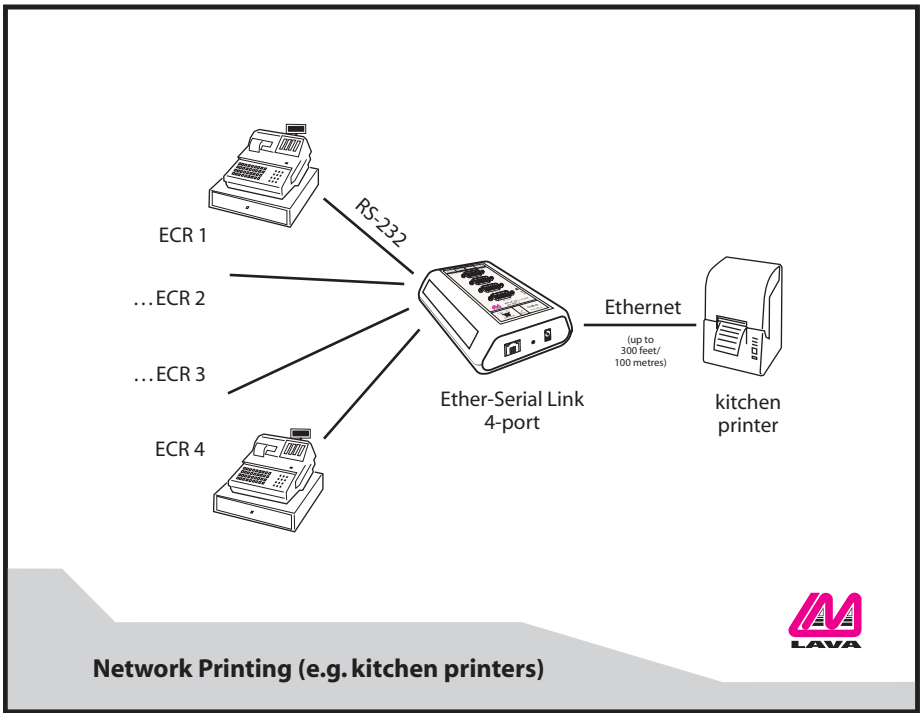
TYPICAL USERS:

- restaurants and fast-food outlets
- ticketing agents
- users of serial-port-only ECRs wishing to access a network printer

WHAT YOU'LL NEED TO SET THIS UP:

- Lava 4-port Ether-Serial Link (for 4 ECRs)
- 4 RS-232 null-modem cables (one for each ECR)
- 1 Cat5 Ethernet cross-over cable if connecting a PC that is less than 300 feet/100 metres away from the Lava Ether-Serial Link, or 2 standard Cat5 cables if using a hub.
- network printer

Computerless Networked Checkout Stations

Traditionally, Point-of-Sale terminals have required a computer at the checkout station. Whether it was a traditional ECR, or a PC-based POS station, you still needed an expensive CPU unit to which you would then connect a barcode scanner, receipt printer, cash drawer, scale, and display. But most of the computing power of such a checkout terminal is actually used to produce a video output onto a monitor, and not all checkouts need a full-screen video display …

If you want to build an inexpensive checkout terminal, why not connect a barcode scanner, pole display, receipt printer (with cash drawer port), and a serial keyboard (with card swipe) to a 4-port Lava Ether-Serial Link? Then connect the Lava unit's Ethernet port to a backroom server, and process the transactions from there. You'll likely find that this setup will save a typical retailer about $500 per checkout!

BENEFITS:

- centralized transaction processing (no need to synchronize individual POS stations with server)
- very inexpensive way to build a customer-friendly checkout station
- reduced space requirement at the checkout (no need for a PC/ECR workstation)

TIP:

Lava Ether-Serial Links can be assigned a "friendly name", as well as an IP address. For networked checkouts, this name can be used to easily identify a given checkout station with a name such as "Back door" or "Susan's checkout counter".

Computerless Networked Checkout Stations
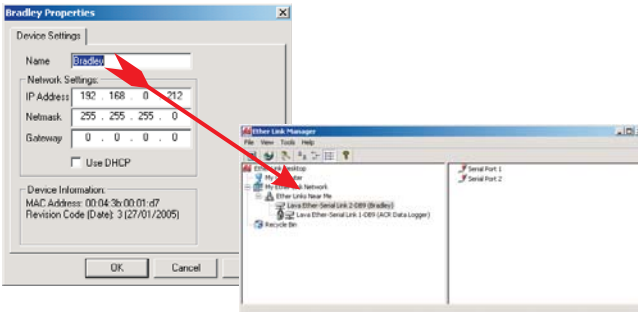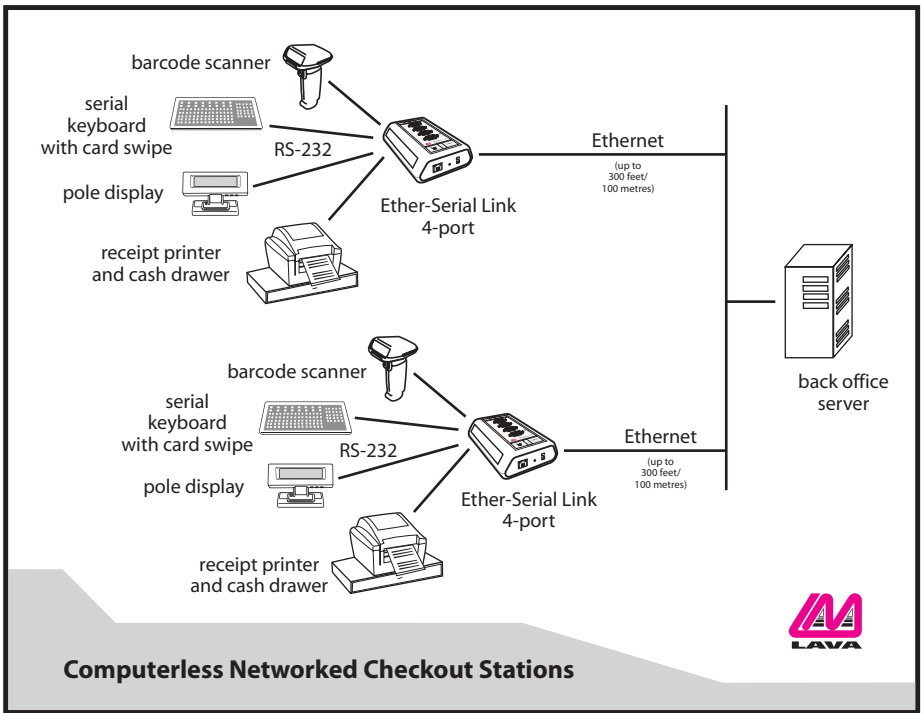
TYPICAL USERS:

- quick service restaurants
- multi-lane retailers (e.g. DIY stores)
- multi-lane ticket sellers (e.g. movie theatres, amusement parks)

WHAT YOU'LL NEED TO SET THIS UP:

- Lava 4-port Ether-Serial Link (for 4 checkout peripherals)
- 4 RS-232 cables (one each for printer, keyboard, pole display, and scanner)
- 1 Windows-based PC/server with Ethernet port
- 1 Cat5 Ethernet cross-over cable if connecting a PC that is less than 300 feet/100 metres away from the Lava Ether-Serial Link, or 2 standard Cat5 cables if using a hub
- Appropriate POS software running on the back-office server

Warehouse Connections

Lava Ether-Serial Links are ideal for connectivity in the warehouse. In order to fully integrate inventory and ordering systems, activity in the warehouse needs to be coordinated with sales recorded by the front-end POS/ECR system. But warehouses pose connectivity problems of distance and environment that can make this type of integration difficult or expensive.

That's where Lava Ether-Serial Links can help. They can replace dedicated PCs whose sole purpose is to connect warehouse barcode printers, scanners, and scales to a back office. A Lava Ether-Serial Link provides a much less expensive and more robust means of connecting these devices to a back office inventory management system. A single Ethernet cable can replace multiple serial cable runs, and allow distances not possible with RS-232 direct connections. In addition, multiple stations can access these peripherals – they are no longer isolated in the warehouse!

Ether-Serial Link Dual Port

BENEFITS:

- multiple users can access warehouse devices
- dedicated PC device servers can be replaced with low-cost, more reliable Ether-Serial Links
- long or multiple serial cable runs can be replaced with more reliable and cost-effective Ethernet

TIP:.
Lava Ether-Serial Links are available with optional wall mount (DIN rail) brackets. This versatility makes warehouse setup a breeze!

Warehouse Connections
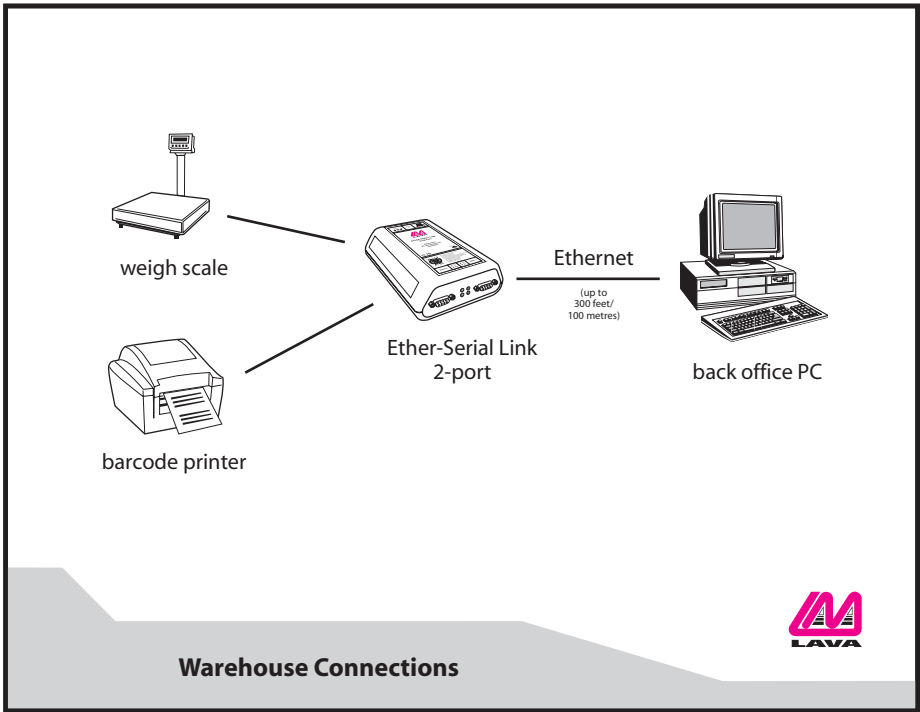
TYPICAL USERS:
- warehouse operators
- inventory system resellers/integrators
- logistics companies

WHAT YOU'LL NEED TO SET THIS UP:
- 1 Lava Ether-Serial Link 2-port (number of ports depends on number of peripherals in cluster)
- RS-232 straight-through/null modem cables (depending on peripheral)
- 1 Windows-based PC with Ethernet port for inventory system
- 1 Cat5 Ethernet cross-over cable if connecting a PC that is less than 300 feet/100 metres away from the Lava Ether-Serial Link, or 2 standard Cat5 cables if using a hub

Lava Ether-Serial Link Nitty-Gritty

Lava Ether-Serial Links are among the most versatile of network devices. Using them, you can access and control serial devices across a network, or even across the Internet, just as if they were attached directly to your PC.

Ether-Serial Links make it possible for a single PC to control many serial devices, for many PCs to access a particular serial device, or for the distance limitations of serial cabling to be easily overcome. The 50-foot/15-metre cable limitation of RS-232 no longer exists!

Moreover, serial ports in a Lava Ether-Serial Link are true COM ports. They appear in Windows Device Manager as COM ports, just like the internal COM ports in your PC now. ANY software that needs to communicate with a COM port can communicate with the COM ports of a Lava Ether-Serial Link. This includes, for instance, even software running in a DOS window in Windows. Few if any other serial-to-Ethernet devices can make that claim.

Lava's Ether-Serial Links are simple to install, configure, and control. Your computer sees Ether-Serial Link ports precisely as if they were internal ports in your computer. In addition, Lava's unique port binding technique keeps Lava Ether-Serial Link ports connected, even on networks with non-static IP addresses. Ether-Serial Links come in RS-232, RS-422, RS-485, and TTL configurations, with DB-9 or RJ-45 serial connectors.

LAVA
LIFETIME
WARRANTY

Serial Port Operating Modes

Ether-Serial Links convert serial data streams to and from TCP/IP packets over Ethernet. Each Ether-Serial Link port exchanges TCP/IP packets on its own unique TCP port (called the "Local Port" in the Properties dialog box). Each serial port on an Ether-Serial Link device can be configured independently to perform this conversion in one of seven modes, depending on your need. In the default mode, the serial port operates precisely like any other serial port. The other serial port modes are useful with particular operating system and hardware requirements as described below:

Serial Port Mode	Description
Driver (default)	Serial port is enumerated on the host computer as a local COM port. Software on the PC can access the remote ports as normal com ports. **Applications**: General serial port access from software running on a PC.
Raw Server	Raw TCP connection to a remote serial port. The physical port on the Remote Ethernet Serial device becomes a network resource with an IP address and port number. **Applications**: Remote monitoring, security systems.
Raw Client	Raw TCP connection to a remote serial port. The physical port on the Remote Ethernet Serial device is configured to initiate a connection to a pre-defined IP address and port number. **Application**: Remote device control, remote polled monitoring.
Data Connect	Combines Raw Client and Raw Server modes. The Remote Ethernet Serial device will either initiate a TCP connection when activity is detected at the serial port, or it will receive TCP packetized serial data from the network port when an outside client connects to it. **Applications**: Provides a serial-to-serial communication link; can extend serial cables with an Ethernet connection.
RFC 2217	Remote Ethernet Serial device port allows port configuration commands and serial data to be sent to the Remote Ethernet Serial device using RFC 2217 framework for serial port control over Telnet. **Applications**: UNIX systems and other platforms that have RFC 2217 Telnet capability can access and control the serial COM port of the Remote Ethernet Serial.
Ethernet Modem	Provides a standard "AT" command interface for communicating with devices over Ethernet, as well as control commands for the Remote Ethernet Serial. A Remote Ethernet Serial device can "dial" an IP address and TCP port; incoming TCP connections are handled under AT command set rules. **Applications**: Remote console management, POS modem replacement.
RAS Server	The serial port of the RAS client device is attached to the serial port of the Remote Ethernet Serial device. An IP address (configured by user) is assigned to RAS client. **Applications**: Windows CE embedded systems, Palm type units, or other portable data acquisition devices that may need access to a TCP/IP-Ethernet environment, and have PPP capability, but do not have a Ethernet port.

Building Kiosks with Lava Boards

Eight-Port Serial Boards

The Lava Octopus-550 lets users connect eight serial peripherals using one PCI slot with the help of a fan-out (octopus) cable, which is included with the board. Its 16550 UARTs give each of the ports of the Lava Octopus-550 data throughput rates up to 115.2 kbps.

As a Plug and Play card, the Octopus-550 installs in minutes, and automatically configures I/O addresses. The Octopus-550 makes efficient use of system resources, using just one IRQ for all eight ports. It is a versatile complement to systems needing additional serial ports.

The Lava Octopus-550 comes with the Lava COM Port Redirect utility for renaming COM ports, making these boards backward compatible with older software.

Five-Port Ether-Serial Link

The 5-port Lava Ether-Serial Link is an embedded solution ideal for builders of kiosk systems who do not want to use a full-fledged computer inside their kiosks. Whenever full video is not needed, an Ether-Serial Link can provide a cost effective alternative to a dedicated PC. And, without fans or a hard disk, it has the added benefit of robust dependability in the most demanding applications.
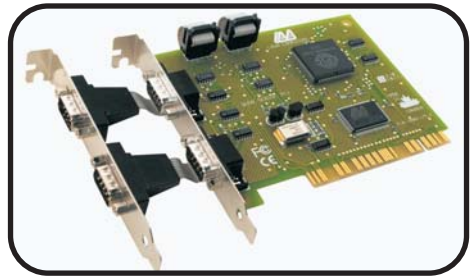
Four-Port Serial Boards

Lava's four-port PCI bus serial boards set the industry standard for reliability, compatibility, and cost-effectiveness. The Quattro-PCI, Quattro-PCI 3.3 Volt, Quattro-PCI/Powered (12 VDC and 5VDC available on the serial ports), and Quattro-PCI/LP (low profile), each with 16550 UARTs, are capable of throughputs up to 115.2 kbps per port. The LavaPort-Quad, with 16650 UARTs, offers speeds up to 460.8 kbps. All four-port boards use just a single PCI IRQ, even when all ports are being accessed simultaneously.

Quattro-PCI

These multi-port serial cards are ideal for connecting bar-code readers, magnetic stripe readers, cash drawers, receipt printers, pole displays, or other serial port devices. With four ports per card, they make efficient use of motherboard PCI slots.


**Quattro-PCI/LP
Low Profile 4-port card**

Two-Port Serial Boards

DSerial-PCI

Lava's two-port serial card lineup has eight cards. The standard-setting DSerial-PCI, with 16550 UARTs, comes in 5-volt versions for both low-profile PCI and regular-height PCI, as well as in a 3.3 volt version for the newest PCI and PCI-X motherboard slots. There is also a version with 5VDC and 12 VDC available on the serial ports, for directly powering peripherals off the ports. The LavaPort-PCI has 16650 UARTs for ultra high-speed serial transmissions up to 460.8 kbps. The DSerial-550 is an ISA-bus card ideal for those building POS or kiosk systems using ISA equipped motherboards, or for those wishing the control of jumpered settings for COM and IRQ addresses. RS-422 cards for both ISA and PCI complete the two-port group.

About Lava
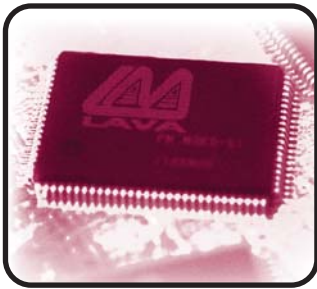
Since 1984, Lava Computer MFG Inc. has been supplying the world with the best in high-reliability parallel and serial I/O devices.

Lava has always engineered its products the same way – to install and perform flawlessly. We engineer all Lava products to be so simple, reliable, and configurable that they become invisible.

Engineering a product to be out of mind is not easy, but our products are at their most successful when they are installed and never seen again until a system is being cannibalized for parts at the end of its life. At that point, many users simply smile, take the Lava card out, and install it into their next system.

Over the years, Lava has enjoyed a number of firsts in our field: the first lifetime warranty, the first IRQ-selectable multi-function boards, the first True Colour graphics adapter, the first 460.8 kbps serial communications accelerator, and the first PCI-based enhanced parallel port. Now we're turning our attention to running serial communications directly over Ethernet.

All of our products are designed and manufactured in Canada and each product undergoes rigorous testing and hand-inspection before we are satisfied.

Lava's competitive advantage comes from our specialized focus on I/O board products, superior technological expertise, the industry-leading Lava Lifetime Warranty, and our unparalleled commitment to customer service.

The Lava Advantage

Specialized focus: Experience since 1984 designing and manufacturing top quality parallel and serial I/O devices.

100% product testing: Lava purchases high-quality components, uses them to manufacture reliable I/O solutions, and subjects every final product to comprehensive testing and hand inspection before it leaves the factory.

Real-time technical support: Lava is only a phone call away!

Standards-based design: Lava products stringently conform to industry standards and protocols, ensuring compatibility and interoperability with other manufacturers' hardware.

Lava Lifetime Warranty: Any Lava product that fails to perform its intended purpose will be repaired or replaced free of charge.

Product Summary

Ether-Serial Link – Serial Device Servers

ESL1-232-RJ	1 X RS232 IP-enabled 10-pin RJ serial port, power on pin10
ESL1-422-DB9	1 X RS422 IP-enabled 9-pin (F) serial port
ESL1-485-DB9	1 X RS485 IP-enabled 9-pin (F) serial port
ESL2-232-DB9	2 X RS232 IP-enabled 9-pin serial ports
ESL2-232-RJ	2 X RS232 IP-enabled 10pin RJ serial ports, power on pin10
ESL2-422-DB9	2 X RS422 IP-enabled 9-pin (F) serial ports
ESL4-232-DB9	4 X RS232 IP-enabled 9-pin serial ports
ESL4-232-RJ	4 X RS232 IP-enabled 10pin RJ serial ports, power on pin10
ESL4-232-CBL	4 X RS232 IP-enabled 9-pin serial ports, fanout cable
ESL5-232-EMB	5 X RS232 IP-enabled 9-pin serial ports, kiosk version
ESL8-232	8 X RS232 IP-enabled 9-pin serial ports, fanout cable

Serial Port Boards (PCI bus)

SSerial-PCI	Single 9-pin serial, 16550 UART
SSerial-PCI/LP	Single 25-pin serial, 16550 UART, low profile
DSerial-PCI	Dual 9-pin serial, 16550 UARTs
DSerial-PCI Pwr	Dual 9-pin serial, 16550 UARTs, powered 5 & 12 VDC serial ports
DSerial-PCI 3.3 V	Dual 9-pin serial, 16550 UARTs, for 3.3 volt PCI
DSerial-PCI/LP	Dual 9-pin serial, 16550 UARTs, low profile
Quattro-PCI	Four-port 9-pin serial, 16550 UARTs
Quattro-PCI Pwr	Four-port 9-pin serial, 16550 UARTs, powered 5 & 12 VDC serial ports
Quattro-PCI 3.3 V	Four-port 9-pin serial, 16550 UARTs, for 3.3 volt PCI
Octopus-550	Eight-port 9-pin serial, 16550 UARTs
LavaPort-650	Single 9-pin serial, 16650 UART, 460.8 kbps capable
LavaPort-PCI	Dual 9-pin serial, 16650 UARTs, 460.8 kbps capable
LavaPort-Quad	4-port 9-pin serial, 16650 UARTs, 460.8 kbps capable

Parallel Port Boards

Parallel-PCI	Single EPP parallel, PCI
Parallel-PCI 3.3 V	Single EPP parallel, for 3.3 volt PCI
Parallel-PCI/LP	Single EPP parallel, low profile, PCI
Dual Parallel-PCI	Dual EPP parallel, PCI
Par. Bi-directional	Single bi-dir. parallel port, LPT 1/2/3, IRQ 5/7, ISA
Parallel-ECP/EPP	Single ECP/EPP, LPT 1-6, IRQ 2/3/4/5/7/10/11/12, ISA

Combo Serial & Parallel Port Boards

SP-PCI	Single 9-pin serial, 16550 UART + single parallel
2SP-PCI	Dual serial (9 & 25-pin), 16550 UARTs + single EPP parallel
LavaPort-Plus	Dual serial (9 & 25 pin), 16650 UARTs + single EPP parallel
2SP-550	Dual 9-pin serial, Com 1-4, 16550 UARTs + single bi-dir. parallel, LPT 1-2, ISA

Specialty & Legacy I/O Boards

8255-PIO	8255 PIO interface card, PCI bus
RS422 SS-PCI	Single 9-pin serial, 16550 UART, RS-422 pinout, PCI bus
RS422-550	Dual 9-pin serial, 16550 UARTs, RS-422 pinouts, ISA bus
SSerial-550	Single 25-pin serial, Com 1-4, 16550 UART, IRQ 3/4/5/7, ISA
DSerial-550	Dual 9-pin serial, Com 1-4, 16550 UARTs, IRQ 2/3/4/5/7/10/11/12/15, ISA bus
LavaPort-ISA	Single 9-pin serial, Com 1-4 16650 UART, IRQ 2/3/4/5/10/11/12/15, ISA bus, 460.8k bps capable
FireHost	Dual IEEE 1394 host adapter, PCI bus
FireWire-IDE	Single IEEE 1394 to-IDE interface controller

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