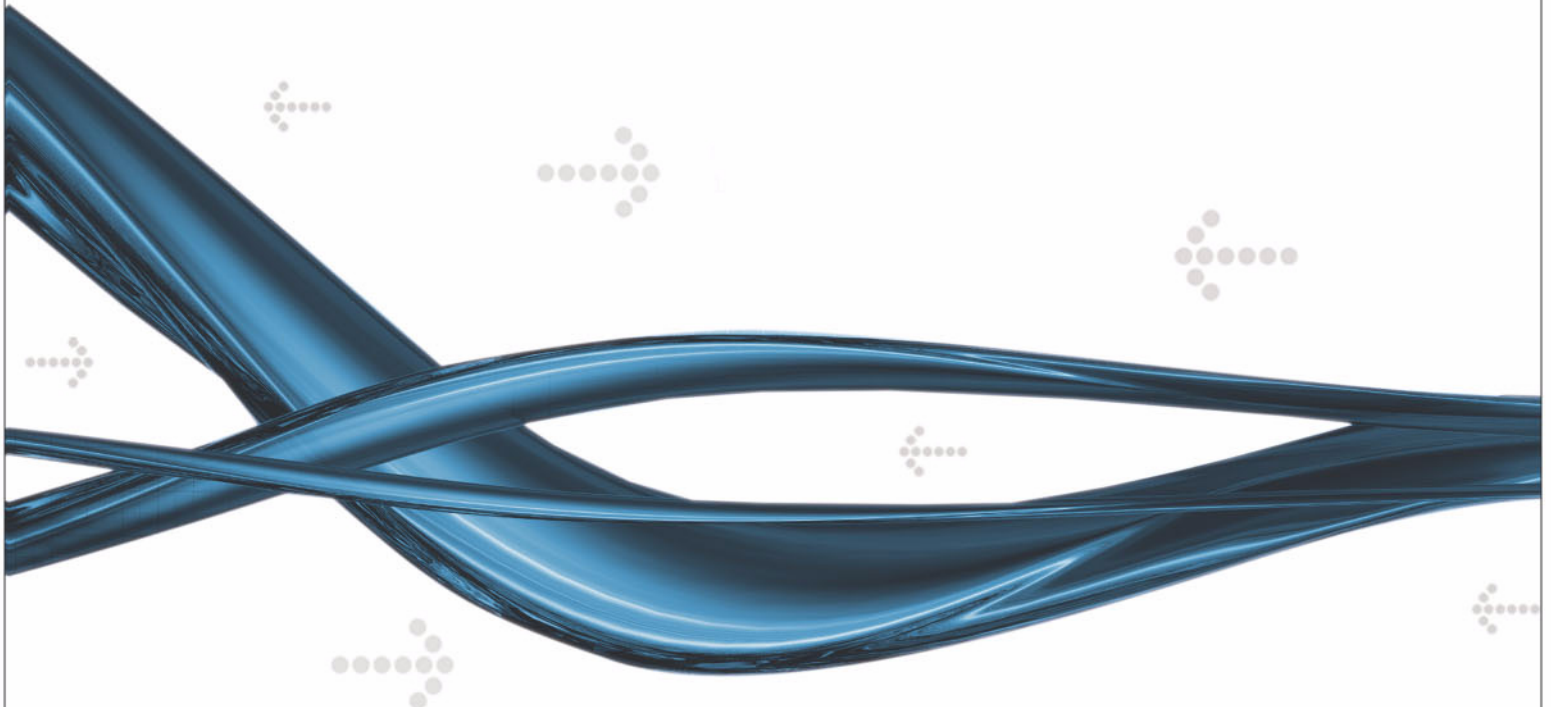


IN-*tact*™ 1201

Hardware Guide



Part Number: 940452-002

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Chapter 1: Introduction

Product Overview

The Hypercom[®] *IN-tact* 1201 is an IP gateway device that provides protocol conversion and secure managed connections for a Hypercom Point of Sale terminal. The product is used to convert dial transactions from the terminal to Internet Protocol (IP) transactions over Ethernet UTP. The *IN-tact* 1201 allows you to use your current dial POS terminal and take advantage of a DSL, cable modem, or VPN Ethernet connection to access a host interface using TCP/IP protocol.

The *IN-tact* 1201 is designed to require no programming by the end user. All configuration is accomplished via software prior to delivery at the point of installation. The *IN-tact* unit is shipped from the factory with a default software configuration. Further software configurations, such as unique IP addresses, are usually determined and loaded to flash memory by a deployment center or other customer support group. See the *IN-tact 1201 Software Configuration Guide* for complete information on programming. The unit is then sent to the point of installation where final installation consists of simply connecting the unit to power and to the existing network structure.

Product Features

Basic product features include:

- Support Hypercom TPDU multi-host concepts to route transactions via multiple TCP/IP sessions.
- Delivers redundant TCP/IP connection to backup host destinations.
- Provides 10/100 Mbps auto-sensing support for connection to existing DSL/cable modem routers.
- Supports industry-standard Secure Socket Layer (SSL) for secure transactions over the Internet.

- Easy-to-install procedure allows fully-configured devices to be delivered fully configured to customer locations.
- Supports SNMP services for use with existing customer-provided management systems.
- Includes integrated Web server for secure management via standard Web browser.

In This Document

This document provides detailed information about the *IN-tact* 1201 IP gateway device. In this document, you will find:

- Basic hardware information about the *IN-tact* 1201
- Technical specifications, such as operating ranges, power requirements, and connector/pin out assignments
- Compliance certification information and safety precautions

NOTE: The *IN-tact* 1201 is configured via software. There is no hardware configuration, such as setting switches, straps, or jumpers. Refer to the *IN-tact 1201 Software Configuration Guide* for complete information on configuring and programming the unit.

Chapter 1: Equipment Information

Terminal Compatibility

The design of the IN-*tact* 1201 provides support for the following modem standards:

NOTE: These standards are common to POS terminal devices.

- Bell 103 (300 bps)
- V.21 (300 bps CCITT)
- Bell 212A (1200 bps)
- V.22 (1200 bps)
- 1200 Fast Connect
- V.22bis (2400 bps)
- V.29 (9600 bps)
- V.34 (Up to 38.8 Kbps)

NOTE: MNP is supported only in the V.34 standard.

The IN-*tact* 1201 also supports the following protocol standards:

- SDLC
- VISA I and II
- Full Transparency (Host-driven protocol)
- Hypercom Download Protocol

It is also important to note that the IN-*tact* 1201 is not a multi-threaded device. In other words, it only handles one call at a time. Multiple terminals may be connected via a line splitter; nevertheless, calls are handled on a first-in, first-out basis, one at a time.

NOTE: Contact Hypercom Sales for more information or questions on terminal compatibility.

Compliance Certifications

NOTE: The user is cautioned that compliance-affecting changes or modifications made to product(s) identified here could restrict the user's authority to operate these products.

Certifications: UL (USA & Canada), FCC (USA), ICES (Canada), C-Tick (Australia), CB & CE.

United States

Safety

The IN-*tact* 1201 product is Listed by Underwriter's Laboratories and complies with the requirements of UL 60950-1 for Information Technology Equipment.EMC

This equipment has been tested and found to comply with the limits for a Class A digital device pursuant to part 15 of the FCC rules for unintentional radiators. These limits are designed to provide reasonable protection against harmful interference when this equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which the user will be required to correct the interference at his own expense.

Canada

Safety

The IN-*tact* 1201 product is c-Listed by Underwriter's Laboratories and complies with the requirements of CSA C.22 No. 60950-1-03 for Information Technology Equipment.

EMC

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

Australia

Safety

The IN-*tact* 1201 product has been formally evaluated and found to comply with IEC 60950-1 according to the CB Scheme by Underwriter's Laboratories for Information Technology Equipment. All of the Australian national deviations have been evaluated and addressed.

EMC

The IN-*tact* 1201 product has been tested to CISPR22:1998 and fully complies with the requirements of the Australian Communication Authority (ACA) for Information Technology Equipment and is authorized to display the C-Tick mark.

European Union

Under our sole responsibility, we declare that the following products conform to the requirements of the applicable directives and standards described below, which were in force at the time of manufacture.

Directives	73/23/EC, Low Voltage Directive EN60950-1:2001 89/336/EEC, EMC Directive EN55022:1994 EN55024:1998 EN61000-3-2:1995, A14:2000 (not applicable) EN61000-3-3:1995
Product Product Type	IN- <i>tact</i> 1202 IP Gateway
Manufacturer	Hypercom Corporation 2851 West Kathleen Road Phoenix, Arizona 85023 USA
Year of First Issue	2005
European Authorized Representative	Hypercom Europe Ltd. Unit 2, Woking Eight Forsyth Road Surrey United Kingdom GU21 5SB

Other Certifications

Safety

The IN-*tact* 1201 product was formally evaluated and found to comply with IEC 60950-1 according to the CB Scheme by Underwriter's Laboratories for Information Technology Equipment. All national deviations have been evaluated and addressed.

EMC

The IN-*tact* 1201 product has been tested and is fully compliant with the requirements of CISPR22:1998 and CISPR24:1998 for Information Technology Equipment.

Safety Precautions

This section describes the precautions necessary to install Hypercom products safely and reliably.

General: The IN-*tact* 1200 Series is Safety Class III equipment that also requires connection to an earth-ground terminal. As such, an uninterrupted safety ground must be provided from an earthed AC main socket-outlet to which the IN-*tact* 1200 Series product is connected. The socket-outlet providing AC power to the equipment must be installed near the equipment and be easily accessible. If it is suspected that this earth-ground connection is impaired, turn OFF the equipment, secure it against any unintended operation, and then schedule replacement.

Electrical Safety: Observe all proper electrical safety practices when operating any equipment attached to an active power source.

Equipment Damage: Ensure that the correct cables are connected to the IN-*tact* 1200 Series product ports. Otherwise, equipment damage may occur.

Interconnectivity: Unless otherwise specified, the interfaces of the IN-*tact* 1200 Series products are not intended to directly connect to off-premise wiring.

Ventilation: Allow proper clearance for ventilation. Inadequate ventilation may produce undesired operation.

Authorized Service: Hypercom authorized service technicians are the only authorized personnel to perform maintenance of Hypercom products. Please refer all servicing to Hypercom service personnel.

Electrostatic Damage: Before performing any maintenance on the IN-*tact* 1200 Series product, ensure that service personnel wear a grounded static strap

Hardware Description

The IN-*tact* 1201 contains a single printed circuit board. The circuit board features the following;

- 50 MHz Motorola MPC852T PowerQUICC for communications control.
- A Conexant SC56D firmware modem to which a SLIC is connected. This combination controls the dial port for communications to a terminal.
- 64 Mb of Flash EPROM for non-volatile memory. Total Flash memory size is 8 Mb and the data path is 16 bits wide.
- 32 Mb of 66 MHz SDRAM with a data path of 32 bits for random access memory.
- A 16 Kb serial EEPROM that provides additional non-volatile memory for storing the assembly part number, serial number, and MAC address.

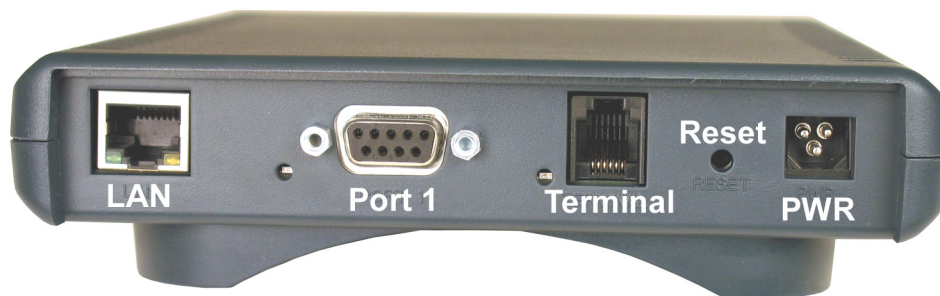
Serviceability

There are no user-serviceable parts such as fuses or batteries within IN-*tact* 1200 Series products. The unit is designed to be replaced as a whole unit upon failure. The estimated mean time between failures (MTBF) for the In-*tact* 1201 exceeds 100,000 hours (about 11 years).

NOTE: The In-*tact* 1201 is a software-loaded device. New or updated software can be downloaded to the unit, should the initial load become unusable for any reason. However, the unit should always be returned to the deployment center or customer support group to determine whether the failure is hardware or software related.

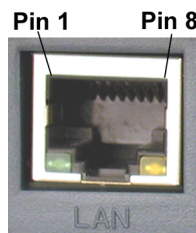
Connectors/Pin Out

The following graphic provides the location of each connector on the In-*tact* 1201 unit. Use the tables provided in this section to determine pin locations and signals present for each connector.



LAN Connector

Description: RJ-45 Ethernet 10/100T 8-pin module labeled “LAN.” If DHCP is enabled, both the LEDs on the LAN port will flash in unison while the device attempts to acquire an IP address.



	PIN NUMBER	COMMENTS
TX (+)	1	-
TX (-)	2	-
RX (+)	3	-
RX (-)	6	-
N/C	4	Terminated to Ground
N/C	5	Terminated to Ground
N/C	7	Terminated to Ground
N/C	8	Terminated to Ground
Green LED	Left Side	Link
Yellow LED	Right Side	Activity

Power Connector

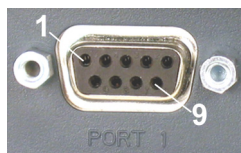
Description: 3-pin power inlet connector labeled “PWR.”



SIGNAL NAME	PIN NUMBER
Earth Ground	1
0V DC Ground	2
Power: 7V to 30V	3

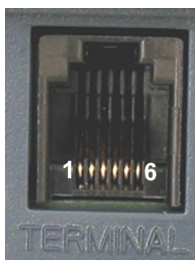
Port 1

Description: Standard female DB-9 serial port labeled “Port 1”. It is reserved for future use.



Terminal

Description: This is a standard 6-pin RJ-11 labeled “TERMINAL”. It is used to connect the POS terminal.



SIGNAL NAME	PIN NUMBER
RING	3
TIP	4

Cables

This section describes the connecting cables that should be used with the IN-*tact* 1201, including pin out specifications, and examples of how each cable is used. The Hypercom IN-*tact* 1201 is designed to be an IP gateway device for a directly-connected single dial POS terminal. There are no cables shipped with the IN-*tact* 1201. Cables must be ordered and shipped separately for the IN-*tact* device. Compatible cables can also be purchased from a local source. Any RJ-11 cable provided with the POS terminal to connect to the modem can be used to connect to the Terminal port of the IN-*tact* device.

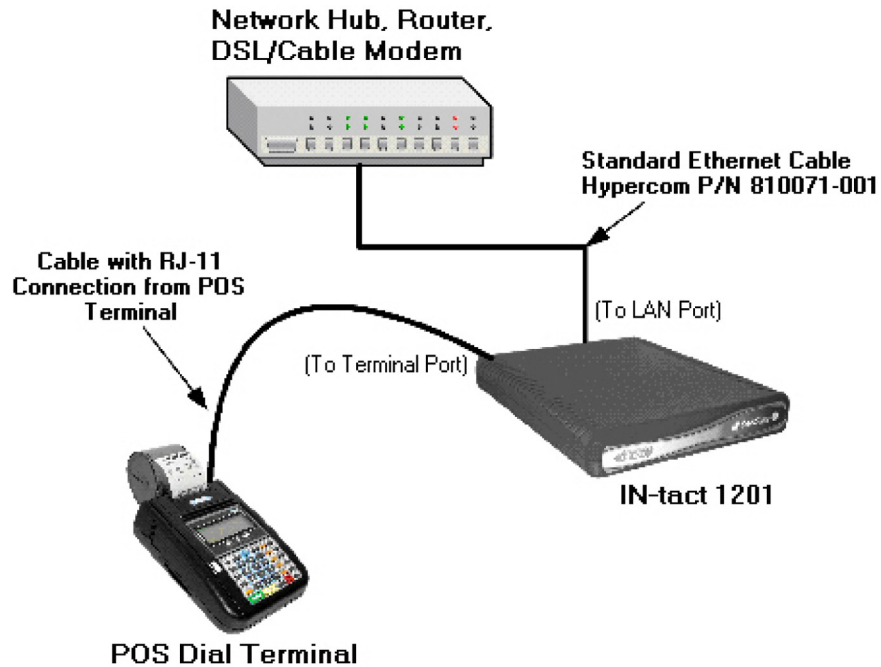
Quick Reference Table

The following table provides the part number of each cable that can be used with the IN-*tact* 1201, a description of the cable, and how the cable is used.

	DESCRIPTION	APPLICATION/NOTES
810071-001	Standard Ethernet cable; male RJ-45 to male RJ-45; 10 ft. length (3 meters)	Connect LAN port to router, hub, DSL, or cable modem (1 for 1, not crossover)

Cabling Example #1

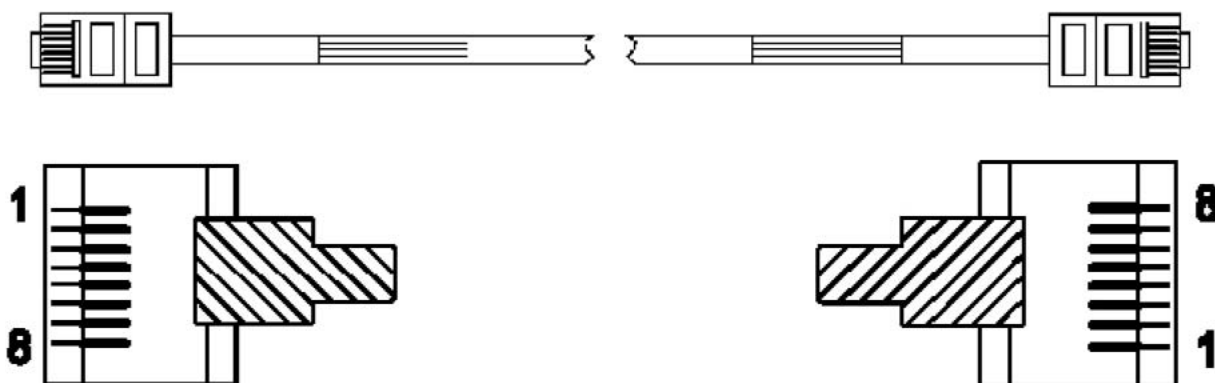
Direct connection to a dial POS terminal.



Cable Descriptions

P/N 810071-001— Ethernet Cable

- Purpose: Connect LAN port to router, hub, DSL, or cable modem
- Description: 24 gauge solid conductors unshielded PVC jacketed CAT5 twisted pair data cable (Belden 1583A-NEC CM CSA PCC FT1)
- Length: 10 ft. (3 meters)
- Connectors: RJ-45 to RJ-45, 8-position flat oval solid line standard modular plug (AMP 554720-1)



P1 8P8C Male						
SIGNAL	PIN	COMMENT	COLOR	COMMENT	PIN	SIGNAL
TX+	1		WHT/ORN		1	TX+
TX-	2		ORN		2	TX-
RX+	3		WHT/ORN		3	RX+
	4		BLU		4	
	5		WHT/BLU		5	
RX-	6		GRN		6	RX-
	7		WHT/BRN		7	
	8		BRN		8	

LED Status Indicators

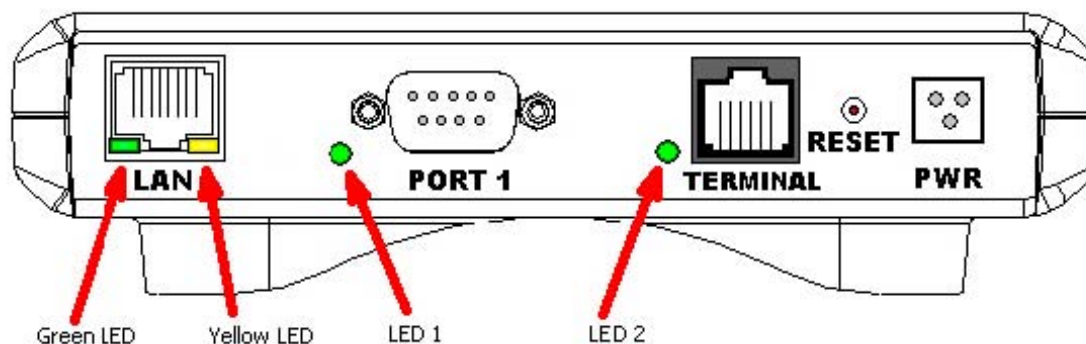
There are two green LED indicators located on the back panel of the IN-*tact* 1201. Additionally, there are two small LEDs (one green and one yellow) located on the LAN jack of the IN-*tact* 1201 unit. During normal operation, the LEDs indicate communications activity on their respective ports. Refer to the diagram below to determine the location of the LEDs. Use the provided table to determine the activity being indicated by the LEDs.

NOTE: The LEDs 1 and 2 also work in conjunction with the **Reset** switch and are used primarily by the customer support group or deployment center when configuring the unit. See the *IN-tact 1201 Software Configuration Guide* for information on using the **Reset** switch and the LED indications displayed during configuration or firmware upgrades. LED Status Indicators

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	LED INDICATION	STATUS
Yellow LED	Normally Off, Flashes Occasionally	Flashes when communication traffic to IN-tact is detected.
Green LED	Normally On, Flashes Occasionally	Connected to Ethernet Device (hub or switch), flashes when communication traffic on the LAN is detected.
	Both LEDs Flashing in Unison	Acquiring IP address from DHCP; occurs when power is applied and continues until IP address is received.

LED 1	LED INDICATION	STATUS
Port 1	Reserved for future use.	Not used

LED 2	LED INDICATION	STATUS
Terminal Port	Off	No Activity
	On, Solid	Modem Disconnecting
	On, Slow Flash (1 sec. on/off)	Modem Training
	On, Fast Flash (.25 sec on/off)	Data Transfer, processing transaction

Chapter 3: Technical Specifications

Physical Dimensions

The basic dimensions of the IN-*tact* 1201 unit are: 6" wide x 8" deep x 1.5" high (15.24 cm x 20.32 cm x 3.81 cm).

Weight

The IN-*tact* 1201 unit weighs less than one pound. (0.90 lb. / 0.40 Kg)

Environmental Requirements

Cooling

The IN-*tact* 1201 is cooled by natural airflow through vents in the plastic case and has no fans or forced air cooling. Allow proper clearance for ventilation. Inadequate ventilation may affect operation. Refer to "Safety Precautions" section on page 5 for additional details.

Operating Range

The IN-*tact* 1201 has been designed to operate within the following conditions:

- Temperature Range: 0–40 °C (32–104 °F)
- Humidity: 0–95% RH (non-condensing)
- Altitude: 0–3048 m (0–10,000 ft.)
- Vibration: 0.03 in. maximum displacement to 0.5G sine peak, 3 orthogonal axes, 5-500-5 Hz

Power Requirements

Electrical Safety

Observe all proper electrical safety practices when operating any equipment attached to an active power source.

External Power Supply

- Input: 100/240V, 50/60Hz, 1.2 AMP
- Output: 24 VDC/1 AMP—Safety rated as a Limited Power Source (LPS)

Hypercom Part Number: 870003-001.

NOTE: The external power supply is standard for all *IN-tact* 1200 Series units. The power cord provided with the power supply varies according to the country in which the unit will be installed.

Power Cords

The *IN-tact* 1201 power supply accepts a power cord with a standard IEC60320-C13 plug. The lengths of the standard power cords shipped with the *IN-tact* 1201 unit are:

- Integral DC power cord of power supply to *IN-tact* 1201 unit—6 ft. (91.4 cm)
- United States - AC power cord from wall plug to power supply—6 ft. (91.4 cm)
- International - AC power cord from wall plug to power supply—2.5 meters (8.2 ft.)

Chapter 4: Network Specifications

LAN: Ethernet

The Ethernet port complies with all requirements of IEEE 802.3 and allows simple connection to a standard router, hub, or switch. It supports both 100Base-TX and 10Base-T in half or full duplex operation. Auto-negotiation is also supported.

Terminal

This is a standard RJ-11 connection for a dial POS terminal.

NOTE: This RJ-11 operation is limited to a direct connection, and is **not** designed for use with a PSTN telephone line connection.

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