



# PayLink-IP/232 Configuration Guide



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# PayLink-IP/232 Configuration Guide

This document describes the configuration features of the PayLink-IP/232. It covers:

1. Hardware connection
2. On-line connection
3. Network settings
4. Advanced network settings
5. Terminal side configuration
6. Host side configuration
7. Protocol configuration
8. Password configuration
9. Glossary
10. Appendix A: Message negotiation
11. Appendix B: Hardware status LEDs

## 1. Hardware connection

### **Hardware setup**

1. Connect the power supply to the PayLink-IP/232 and to AC power. The power (red) LED will light to indicate that the unit is receiving power.
2. Connect an Ethernet cross-over cable to the Ethernet RJ-45 jack of the PayLink-IP/232. Attach the other end of the crossover network cable to a host PC directly.

Network status is indicated by two LEDs as described in "Appendix B: Hardware status LEDs" on page 26.

3. Open a web browser to the IP address of the PayLink-IP/232 and configure the device as described in the following pages of this manual.
4. After configuring the PayLink-IP/232, attach it to your network and connect a payment terminal to its serial port.

Serial port activity is indicated by two status LEDs as described in "Appendix B: Hardware status LEDs" on page 26.

### **Cabling**

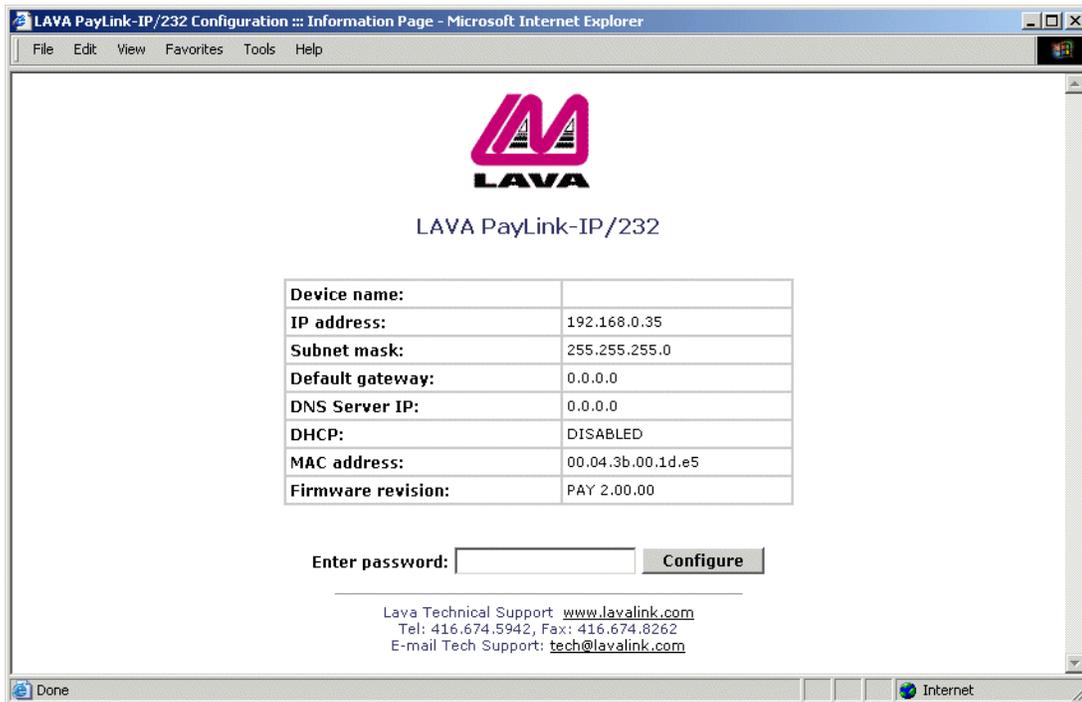
The PayLink-IP/232 looks exactly like the COM port of a PC from the point of view of the payment terminal, and should be hooked up in precisely the same fashion.

## 2. On-line connection

Configuration of the PayLink-IP/232 begins by entering the IP address of the PayLink-IP/232 (factory default is 192.168.0.35) into a web browser's location bar (Microsoft Internet Explorer recommended).

An embedded web server in the PayLink-IP/232 will present the entry screen to the PayLink-IP/232 configuration options, and show the current settings for the device being addressed:

**Figure 1: Opening Screen**



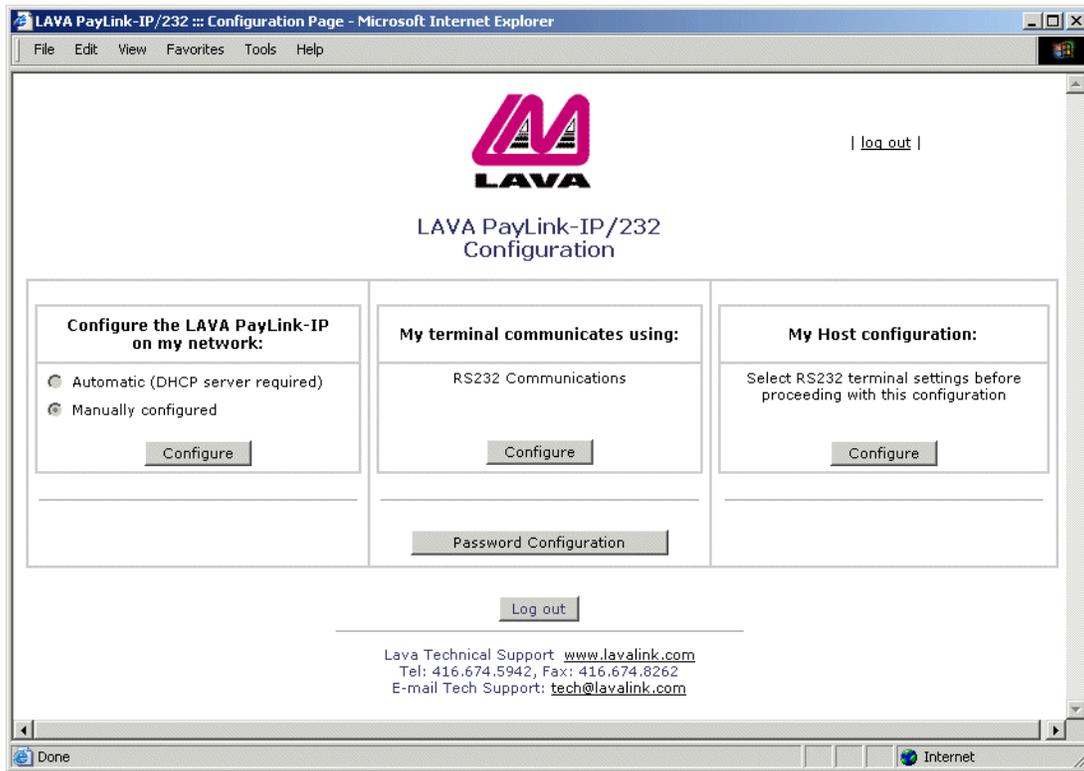
Log into the PayLink-IP/232 by entering the password into the "Enter password:" text entry box and click on the "Configure" button (hitting the Enter key on your keyboard will not work). By default, the PayLink-IP/232 ships with no password. To configure the PayLink-IP/232 when no password is set, **do not enter any characters into the password box;** simply click on the "Configure" button.

**NOTE:** As a security feature, after a user has made three consecutive failed attempts at entering a password, the PayLink-IP/232 will refuse further password attempts. At this point the PayLink-IP/232 will continue to operate as currently configured, but will not be available for configuration changes. The password dialog box will also disappear from the opening screen.

To unlock the PayLink-IP/232, it must be given the "unlock password" as described in "Password configuration" on page 13.

Once the password has been accepted, the PayLink-IP/232 will present the following Configuration Menu:

**Figure 2: Configuration Menu**

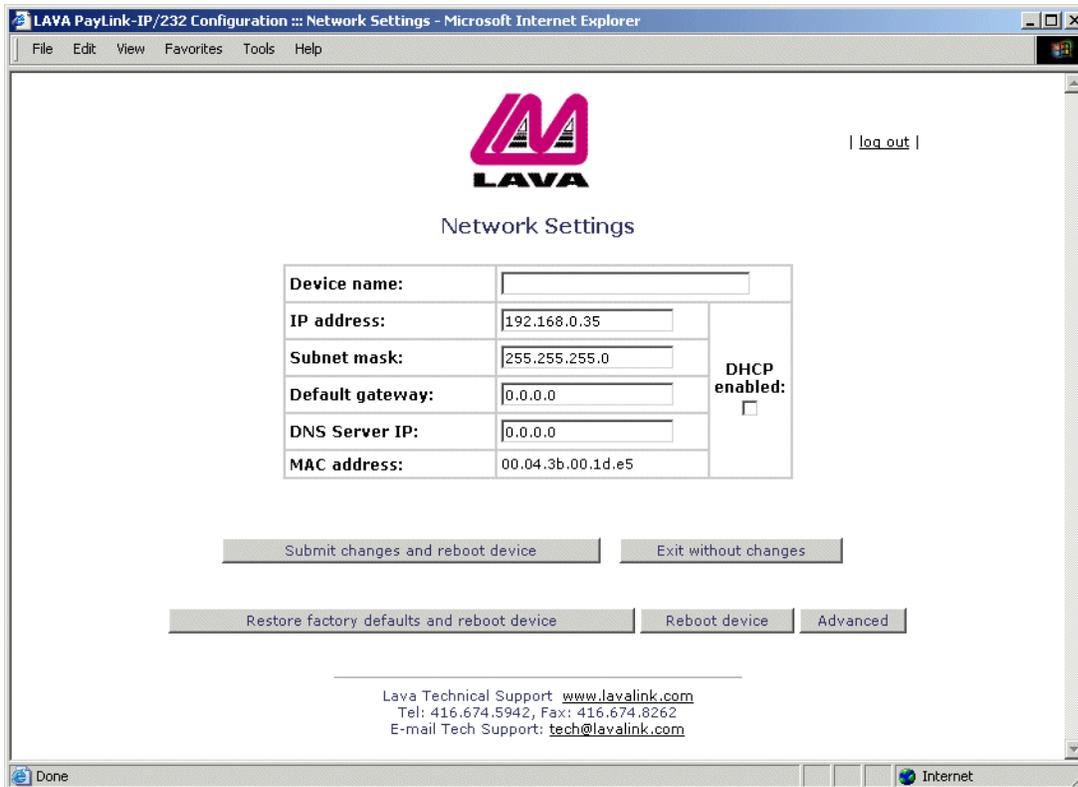


From the Configuration Menu you can open screens to view and modify network settings, payment terminal interface settings, host side interface settings, and passwords for the PayLink-IP/232. The radio buttons displayed on this screen indicate the current configuration of the PayLink-IP/232; changing these settings is done by clicking the relevant "Configure" button.

### 3. Network settings

The Network Settings screen allows configuration of the network parameters for the PayLink-IP/232:

**Figure 3: Network Settings**



The following network settings can be configured:

#### **Device name**

Use this field to supply a “friendly” name for the PayLink-IP/232 device being configured. The friendly name is optional, and can be chosen to provide a conveniently-remembered name for the unit.

#### **IP address**

The IP address for the PayLink-IP/232 will identify the device on the LAN on which it is located. Any conventional IP address can be used. The PayLink-IP/232 ships with its default IP address as 192.168.0.35; ensure that this IP address is accessible on the LAN onto which the PayLink-IP/232 is being installed.

**NOTE:** When DHCP is enabled, any IP address value entered here will be overridden.

#### **Subnet mask**

A subnet mask can be configured for the PayLink-IP/232 in this dialog box; by default the PayLink-IP/232 is set with a subnet mask of 255.255.255.0.

**Note on subnet configuration with the PayLink-IP/232.** If the PayLink-IP/232 is on a different subnet from a client station that is attempting to access it, the PayLink-IP/232 will be visible in an instance of the management application running on the the client station, and its ports can be activated on that client station, but applications running on the client station will not be able to open a serial port on the PayLink-IP/232.

For example, if the IP address of the PayLink-IP/232 is 192.168.0.35 and the IP address of the client station is 192.168.1.1, the two devices are on different subnets (as indicated by the difference between the "0" and the "1" in the third portion of the two IP addresses).

Two solutions exist:

- change the subnet of the either the PayLink-IP/232 or the client station so that they are both on the same subnet or,

- change the subnet mask of the PayLink-IP/232 to encompass both subnets. By default, the PayLink-IP/232 has its subnet mask set to 255.255.255.0. This setting excludes all but the fourth portion of the IP address when assessing IP addresses. In the example above, a subnet mask of 255.255.0.0 will include the PayLink-IP/232 in both subnets.

### **Default gateway**

Configure the local IP address of the default gateway that the PayLink-IP/232 will use to communicate with devices outside its network segment.

### **DNS server IP**

If an external DNS server is being used to convert DNS names to IP addresses, the IP address of the DNS server is entered here. By default this field is blank.

### **DHCP enabled**

If installing the PayLink-IP/232 onto a network where IP addresses are to be assigned by a DHCP server, the “DHCP enabled” checkbox must be set. The PayLink-IP/232 will act as a DHCP client and obtain its IP address from the DHCP server/s on its LAN.

**NOTE:** When DHCP is enabled, any IP address value manually configured for the PayLink-IP/232 will be overridden.

**NOTE:** If no DNS server is running when DHCP is enabled, connection to the PayLink-IP/232 will be lost.

### **MAC address**

The MAC address of the PayLink-IP/232 is shown for reference. This address cannot be changed.

### **Implementing changes:**

After making changes to the network settings, five options exist:

#### **Submit changes and reboot device**

This option will register the changes you have entered into the dialog box and reboot the PayLink-IP/232, implementing the changes on reboot.

#### **Restore factory defaults and reboot device**

This option will restore factory defaults and reboot the PayLink-IP/232, implementing the changes on reboot.

#### **Exit without changes**

This option will discard changes entered into the dialog box and return you to the “Configuration Menu” screen.

#### **Reboot device**

This option will reboot the device with the settings currently implemented, and discard any changes.

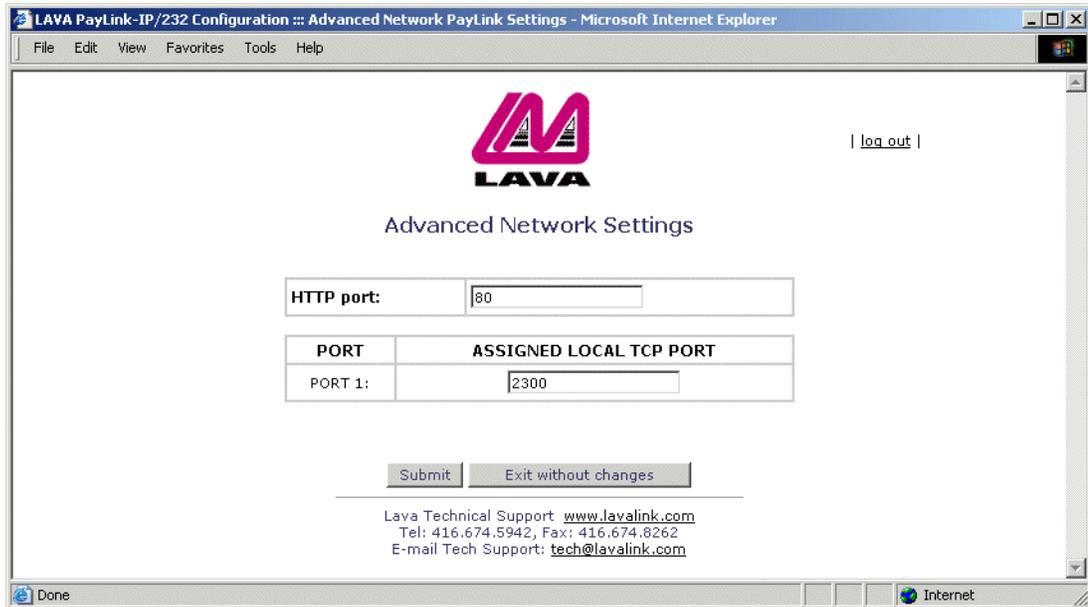
#### **Advanced**

This option opens the “Advanced Network Settings” dialog.

## 4. Advanced network settings

Available from the Network Settings page, the Advanced Network Settings page allows configuration of network port settings for the PayLink-IP/232.

**Figure 4: Advanced Network Settings**



The following advanced network settings can be configured:

### ***HTTP port***

By default, the PayLink-IP/232 communicates on port number 80. A measure of increased security may be obtained by changing this port number to a user-selected TCP port for HTTP communications.

### ***Assigned local TCP port***

Use this dialog box to change the TCP port number assigned to the PayLink-IP/232. By default the PayLink-IP/232 assigns TCP port 2300 to the PayLink-IP/232; if another device on the network is already using this TCP port number, reassign the PayLink-IP/232 to another TCP port.

### ***Implementing changes:***

After making changes to the advanced network settings, two options exist:

#### ***Submit***

This selection will register the changes you have entered into the dialog box and reboot the PayLink-IP/232, implementing the changes on reboot.

#### ***Exit without changes***

This selection will discard changes entered into the dialog box and return to the "Network Settings" screen.

## 5. Terminal side configuration

If you choose "Terminal Side Configuration" from the main Configuration Menu, a configuration screen will appear. Its form will depend on whether the terminal has been configured for asynchronous communications or SDLC communications in the main Configuration Menu.

Figure 5: Terminal side configuration

The screenshot shows a web browser window titled "LAVA PayLink-IP/232 Configuration :: Terminal Side Configuration Settings - Microsoft Internet Explorer". The page features the LAVA logo and a "log out" link. The main heading is "Terminal Side Configuration Settings" with a sub-heading: "These settings configure the communications link between your terminal and the PayLink-IP".

The configuration is divided into two main sections:

- Port Settings:** Includes dropdown menus for "Bits per second" (set to 2400), "Data bits" (8 data bits), "Stop bits" (1 stop bit), "Parity" (No parity), and "Flow Control" (None). There is also a text input field for "Terminal ID" with "(If Required)" next to it.
- Terminal Settings:** Includes a "Terminal Data Format" dropdown (set to "7 bits even parity (default)"), a "Set InterChar Delay" field (set to 20, with "Value 5-60ms" below it), and a "Transaction ended by" dropdown (set to "Server (default)").

At the bottom, there are "Submit" and "Exit without changes" buttons. Contact information for LAVA Technical Support is provided: [www.lavalink.com](http://www.lavalink.com), Tel: 416.674.5942, Fax: 416.674.8262, and E-mail Tech Support: [tech@lavalink.com](mailto:tech@lavalink.com).

This page presents configuration dialogs for the PayLink-IP/232's serial port, and for data formats for communication with your payment terminal.

### **Port Settings**

#### **Bits per second**

This parameter can be set from 110 to 115200 bps. Default is 9600 baud.

#### **Data bits**

This parameter can be set from 5 to 8.

#### **Stop bits**

This parameter can be set 1, 1.5, or 2.

#### **Parity**

This parameter can be set even, odd, none, mark, or space.

#### **Flow control**

This parameter can be set XON/XOFF, hardware, or none.

## **Terminal settings**

The PayLink-IP/232 can be configured to manage connecting to and from a terminal using a number of options, as outlined in the following pages.

### **Terminal Data Format**

- 7 bits even parity (default)
- 7 bits odd parity
- 7 bits no parity
- 8 bits

**NOTE:** "Terminal Data Format" refers to the organization of the actual data transmitted by the terminal. The parity settings indicated here are *not* the same as the modem parity settings.

### **Message Negotiation**

Message negotiation settings are:

- Send ENQ to terminal to initiate transmission

This setting should be enabled when the payment terminal expects to receive an ENQ prior to sending out transaction data. Possible settings are:

Default operation — "Send ENQ," "Use SYN/SYN/SYN," "Send ACK" all disabled (see page 15)

Opening a connection — "Send ENQ" enabled (see page 16)

Opening a connection — "Send ENQ" disabled (see page 17)

- Use SYN/SYN/SYN preamble to establish connection

This setting should be enabled when the payment terminal looks for a synchronization string before the initial ENQ string.

- Send ACK to terminal after each received message

This setting should be enabled when the payment terminal expects to receive an ACK after each message received by the server. Possible settings are:

Data flow — "Send ACK" enabled (see page 18)

Data flow — "Send ACK" disabled (see page 19)

### **Set InterChar delay**

Inter-character delay specifies the maximum time that the PayLink-IP/232 will accumulate data before forwarding it to its destination. Inter-character delay is a variable that can be set in the range 5-60 ms. By default the inter-character delay is set to 20 ms.

### **Transaction ended by:**

The PayLink-IP/232 can be configured to end a transaction with a payment terminal under a number of conditions. Possible settings are:

Closing connections — "Server (default)" mode (see page 20)

Closing connections — "ACK from terminal, EOT to terminal" mode (see page 21)

Closing connections — "ACK from terminal, ACK to terminal" mode (see page 22)

Closing connections — "EOT from terminal, EOT to terminal" mode (see page 23)

Closing connections — "EOT to terminal when TCP/IP closed" mode (see page 24)

Closing connections — "ACK to terminal when TCP/IP closed" mode (see page 25)

## 6. Host side configuration

If you choose the “Host Side Configuration” option from the main Configuration Menu, a screen of the following form will appear:

**Figure 6: Host side configuration**

The screenshot shows a web browser window titled "LAVA PayLink-IP/232 Configuration :: HOST Side Configuration Settings - Microsoft Internet Explorer". The page features the LAVA logo and a "log out" link. The main content is titled "HOST Side Configuration Settings" and contains four sections for configuring host parameters:

- Primary Host parameters:** Includes fields for an activation string (#), IP address (selected), DNS name, IP port (443), and a Fallback IP Address (0.0.0.0) with its own IP port (0). A "Protocol Configuration" button is located to the right.
- Secondary Host parameters:** Includes fields for an activation string (#), IP address (selected), DNS name, IP port (0), and a Fallback IP Address (0.0.0.0) with its own IP port (0). A "Protocol Configuration" button is located to the right.
- Other Host parameters #1:** Includes fields for an activation string (#), IP address (selected), DNS name, IP port (0), and a Fallback IP Address (0.0.0.0) with its own IP port (0). A "Protocol Configuration" button is located to the right.
- Other Host parameters #2:** Includes fields for an activation string (#), IP address (selected), DNS name, IP port (0), and a Fallback IP Address (0.0.0.0) with its own IP port (0). A "Protocol Configuration" button is located to the right.

Below the sections, there is a note: "# - enter activation string". At the bottom of the form, there are "Submit" and "Exit without changes" buttons. Contact information for LAVA Technical Support is provided: [www.lavalink.com](http://www.lavalink.com), Tel: 416.674.5942, Fax: 416.674.8262, and E-mail Tech Support: [tech@lavalink.com](mailto:tech@lavalink.com).

This screen presents the host configuration settings for contacting payment processors. Settings can be independently configured for a primary host (such as a credit host), a secondary host (such as a debit host), and two additional user-defined hosts (such as charge, gift, or loyalty hosts). For any host that is being used, three parameters need to be supplied:

- Activation string
- IP address or fully qualified DNS name
- IP port (default: 443)

These three parameters identify an activation string with an IP address/IP port. The activation string can be any character-based string, but Lava recommends using activation strings patterned after the traditional Hayes “AT” modem command set.

**NOTE:** If more than one IP address/port number is mapped to a single activation string, the first IP address/port number will be used.

In addition to the parameters above, a “fallback” IP address and IP port can be supplied for each of the payment hosts configured. In the event that the PayLink-IP/232 cannot connect to the primary address for the host, the fallback address will be attempted.

## 7. Protocol configuration

If you choose any of the “Protocol Configuration” buttons from the Host Side Configuration page, a Protocol Configuration screen will appear. Each payment host set up on the Host Side Configuration page can be assigned its own protocol settings.

Figure 7: Protocol configuration

LAVA PayLink-IP/232 Configuration :: Protocol Configuration - Microsoft Internet Explorer

File Edit View Favorites Tools Help

LAVA

| log out |

### Protocol Configuration

These settings refer to the message format used when communicating with a remote server

Server Data Format: 7 bits even parity (default)

Message Format	Mode	Description and Additional Settings
Pass through	<input checked="" type="radio"/>	Data stream transmitted to host server in the same format as it is received from the terminal
DP3000	<input type="radio"/>	Packet with optional 4-byte header Header (HEX): [00] [00] [00] [00]
Merchant Link	<input type="radio"/>	Merchant Link siteNET M/2 Gateway Message Format: VISA-II
Visa 1/2 Standard framing	<input type="radio"/>	Data Packet framed with STX, ETX, LRC eg: STX data ETX LRC
Visa 1/2 Transparent framing	<input type="radio"/>	Data Packet framed with DLE, STX, ETX, CRC1, CRC2 eg: DLE STX data DLE ETX CRC1 CRC2
Length Prefix framing	<input type="radio"/>	Insert a 2 byte header that indicates the length of the packet eg: MSB LSB data ETX option <input type="checkbox"/> Append ETX
First Data framing	<input type="radio"/>	Insert a 2 byte header that indicates the length of the packet, and inserts STX, ETX, LRC eg: MSB LSB STX data ETX LRC

Send message as: SSL 3.0 encrypted data (default)

Submit Exit without changes

Lava Technical Support [www.lavalink.com](http://www.lavalink.com)  
Tel: 416.674.5942, Fax: 416.674.8262  
E-mail Tech Support: [tech@lavalink.com](mailto:tech@lavalink.com)

Done Internet

These pages present the protocol configuration settings for the any of the PayLink-IP/232's payment hosts. The following can be configured:

### Server Data Format

This setting allows configuration PayLink-IP/232 to match the data format of the server to which data is sent. Settings are:

- 7 bits even parity (default)
- 7 bits odd parity
- 7 bits none parity
- 8 bits

### Message formats

A selection of message formats are available for communicating with the remote server. The choice of format will depend on the requirements at the remote server. This information will be provided by the payment processor.

#### Pass through

Messages are passed between the PayLink-IP/232 and the server without additional framing or parsing. In pass-through mode, data is sent when the maximum packet size is reached or when the inter-character delay limit is exceeded. Use this message format when terminal and server are framing packets identically.

**Figure 8: Pass through message format**



**DP3000**

Data is sent as raw packets with a user-defined 4-byte header. Each byte is entered as a two-character hexadecimal value. The default header setting is 00 00 00 00. Data is passed through the PayLink-IP/232 to the server without framing or parsing. In DP3000 mode, data is sent when the maximum packet size is reached or when the inter-character delay limit is exceeded.

**Figure 9: DP3000 message format**



**Merchant Link**

Data is sent as packets with a header containing a user-defined element, the Gateway Message Format. The default Gateway Message Format used is VISA-II; other formats can be entered as character strings.

**Visa 1/2 standard framing**

Standard-mode Visa 1/2 frames packets with STX, ETX, and LRC framing elements as shown below:

**Figure 10: VISA 1/2 standard framing**



**Visa 1/2 transparent framing**

Transparent-mode Visa 1/2 frames packets with DLE, STX, DLE, ETX, CRC1, and CRC2 framing elements as shown below:

**Figure 11: VISA 1/2 transparent framing**



**Length prefix framing**

Includes a 2-byte header that indicates the total length of the data frame that follows, in Most Significant Bit, Least Significant Bit order. An ETX (End of TeXt) character can be optionally appended by checking the "Append ETX" checkbox.

**Figure 12: Length prefix framing**



**First Data framing**

Framing to suit the First Data Merchant Services protocol. Includes a 2-byte header that indicates the total length of the data in the frame that follows, in Most Significant Bit, Least Significant Bit order. Data is also framed with Start of TeXt and End of TeXt characters, and a Longitudinal Redundancy Check checksum is appended.

**Figure 13: First Data framing**



***Send message as:***

This dialog specifies encryption options for server connection used by the PayLink-IP/232. By default SSL is enabled. Options are:

- SSL 3.0 encrypted data (default)
- Data Only - SSL off (no encryption)

**NOTE:** SSL *must be enabled* for secure payment processing.

## 8. Password configuration

If you choose the “Passwords” option from the main Configuration Menu, a screen of the following form will appear:

**Figure 14: Password configuration**

The screenshot shows a web browser window titled "LAVA PayLink-IP/232 Configuration :: Passwords - Microsoft Internet Explorer". The page has a header with the LAVA logo and a "log out" link. Below the header, there are two main sections for password configuration:

- Admin:** A form with a "New Password" input field, a "Confirm" input field, and a "Submit" button.
- Unlock:** A form with a "New Password" input field, a "Confirm" input field, and a "Submit" button.

Below these sections, a note states: "This password is required if Admin password is locked out after 3 failed attempts". Below the note is an "Exit" button. At the bottom of the page, contact information is provided: "Lava Technical Support [www.lavalink.com](http://www.lavalink.com), Tel: 416.674.5942, Fax: 416.674.8262, E-mail Tech Support: [tech@lavalink.com](mailto:tech@lavalink.com)".

This dialog box allows a new administrator’s password to be set for the PayLink-IP/232. Enter the new password, confirm it by retyping it in the second entry box, and then click the “Submit” button. To configure the PayLink-IP/232 when no password is set, **do not enter any characters into the password box**; simply click on the “Configure” button.

This dialog box also has fields for entering a new “unlock password.” This second password is used when the PayLink-IP/232 has locked itself against three failed attempts being made to supply an administrator’s password, as described below. Enter the new password, confirm it by retyping it in the second entry box, and then click the “Submit” button. To unlock the PayLink-IP/232 when no password is set, **do not enter any characters into the password box**; simply click on the “Configure” button.

**NOTE:** As a security feature, after a user has made three consecutive failed attempts at entering an administrator’s password, the PayLink-IP/232 will refuse further password attempts. The password dialog box will also disappear from the opening screen.

To unlock the PayLink-IP/232, it must be given the “unlock password.” To do so, direct a web browser to the address “xxx.xxx.xxx.xxx/unlock.htm”, where “xxx.xxx.xxx.xxx” is the IP address of the unit. At this point the “unlock password” can be entered. Should six consecutive failed attempts at entering an unlock password be made, the PayLink-IP/232 will be locked against configuration changes or further password attempts until it has been rebooted. On rebooting, the user will again need to supply the unlock password to configure the device. If the unlock password is unknown, contact Lava Technical Support for assistance.

Whether under administrative lockout or after rebooting, the PayLink-IP/232 will continue to operate as currently configured, but will not be available for configuration changes until a proper password has been supplied.

## 9. Glossary

**ACK.** ACKnowledge character (HEX 06). A flow control character send from a receiver of a transmission to the sender of the transmission to indicate data has been received.

**CRC.** Cyclic Redundancy Check. An error-checking method that computes a value based on a block of data to be transmitted. The data and the computed value are then transmitted together. The receiver checks the CRC value against the data block to ensure the transmission was not corrupted.

**DLE.** Data Link Escape character (HEX 10). A transmission control character used to modify the meaning of characters immediately following it.

**ENQ.** ENquire character (HEX 05). A flow control/poll character used to enquire whether a remote device is ready for communication.

**EOT.** End Of Transmission character (HEX 04). A flow control character used to indicate a cessation of communication between a sender and a receiver.

**ETX.** End of TeXt character (HEX 03). A flow control character used to delimit the end of a data block or frame.

**LRC.** Longitudinal Redundancy Check. An error-checking method that computes a parity value based on a block of data.

**LSB.** Least Significant Bit. The least significant bit is the lowest bit in a series of numbers in a binary number's representation. The LSB is located at the far right of a string.

**MSB.** Most Significant Bit. The most significant bit is the highest bit in a series of numbers in a binary number's representation. The MSB is located at the far left of a string.

**STX.** Start of TeXt character (HEX 02). A flow control character used to delimit the start of a data block or frame.

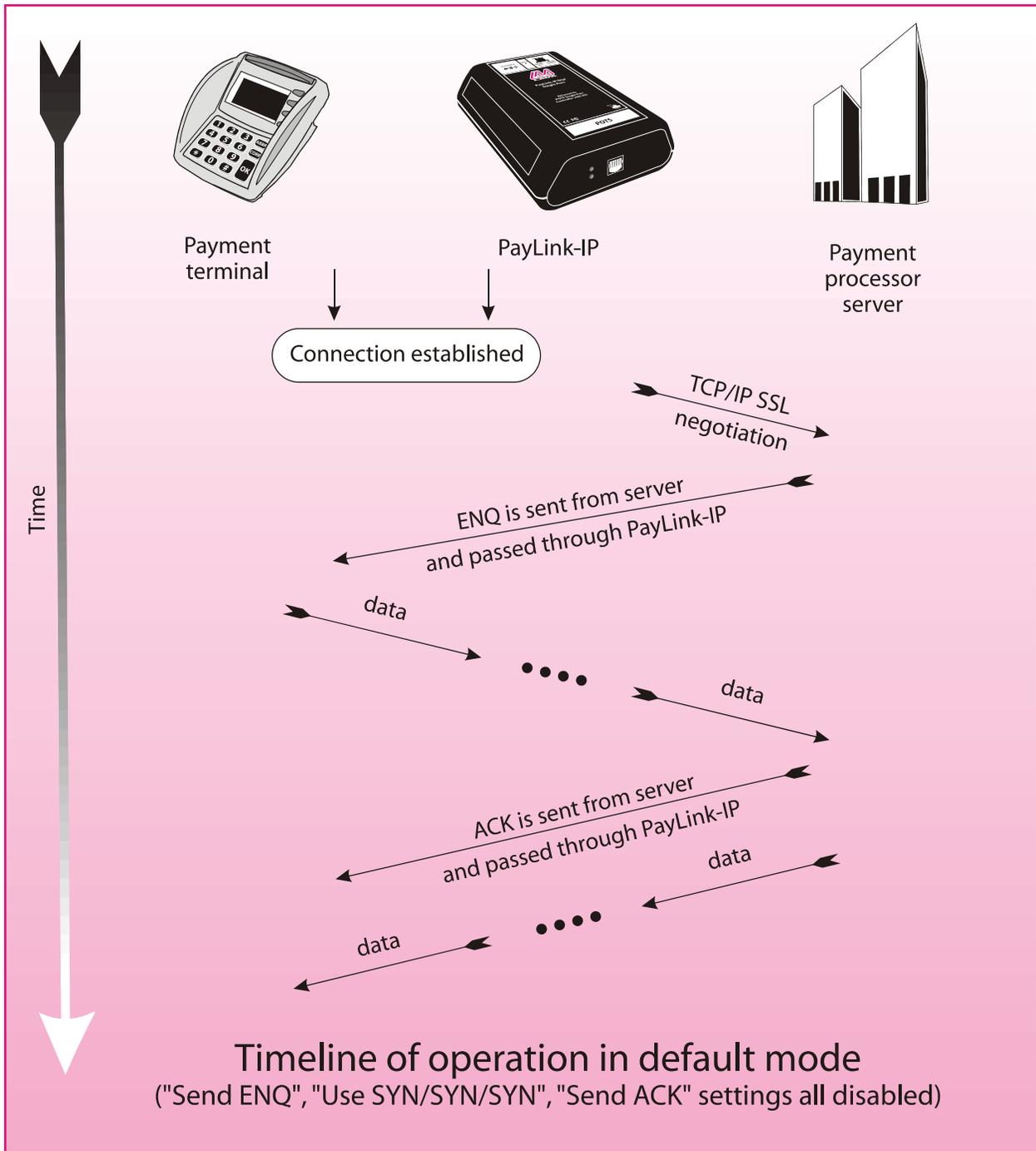
**SYN.** SYNchronize character. A flow control character sometimes used as part of a setup string in terminal-server negotiation.

## 10. Appendix A: Message negotiation

### *"Send ENQ"; "Use SYN/SYN/SYN"; "Send ACK" all disabled*

By default, the three settings covered under this topic ("Send ENQ to terminal to initiate transmission"; "Use SYN/SYN/SYN preamble to establish connection"; and "Send ACK to terminal after each received message") are disabled. This means that by default the PayLink-IP/232 operates transparently, passing all negotiation messages directly between the terminal and the payment server.

**Figure 15: Default operation**  
**"Send ENQ"; "Use SYN/SYN/SYN"; "Send ACK" all disabled**



### Send ENQ to Terminal to initiate transmission

This setting should be enabled in two general situations:

- where the payment terminal expects an ENQ string to precede the transmission of data, and the payment processing server does not send that string,
- where delays in transmission time (possibly resulting from SSL negotiation) would lead to the payment processing server's ENQ string being received late by the terminal, causing the terminal to time out.

Figure 16: Opening a connection — "Send ENQ" enabled

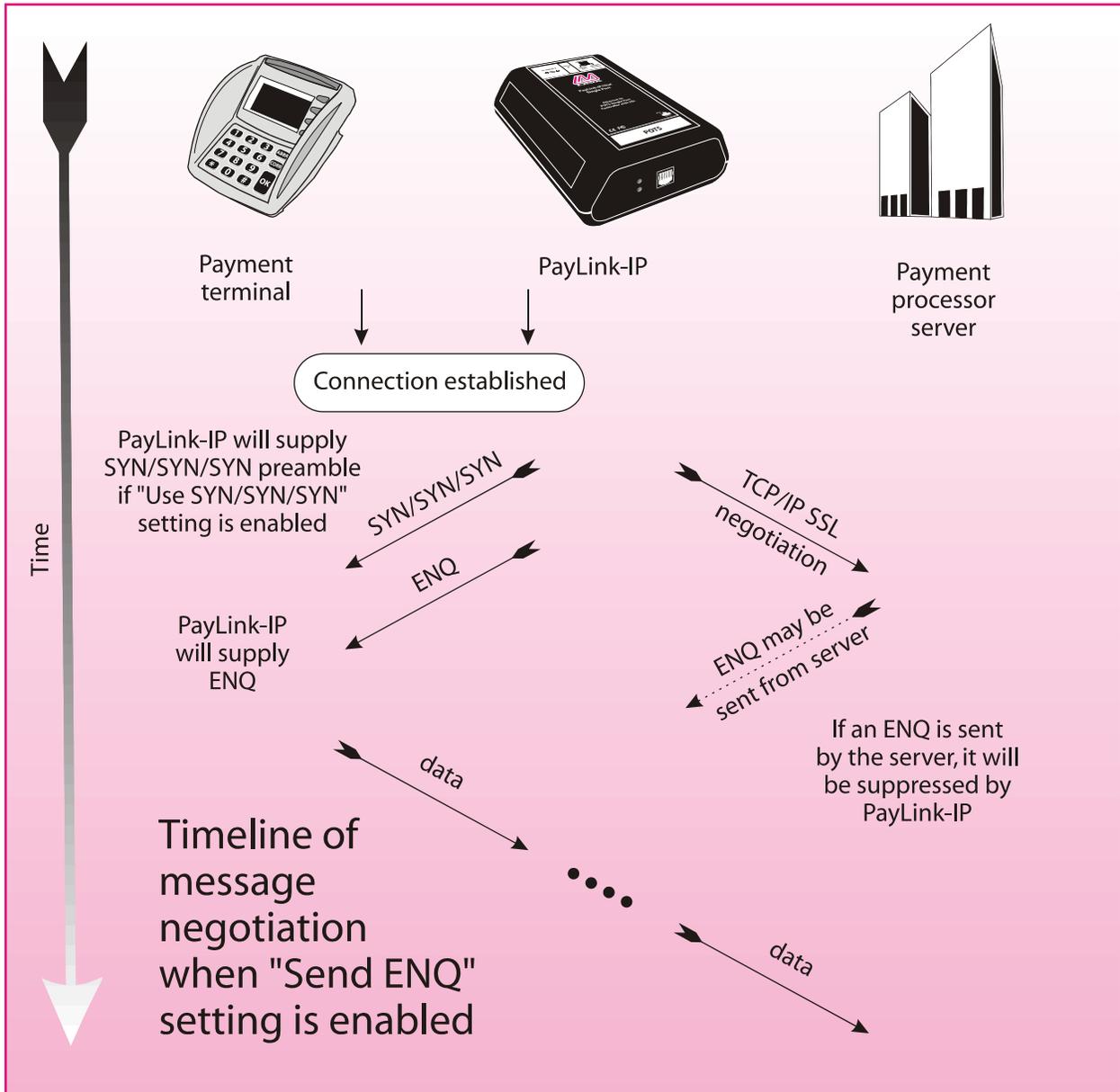
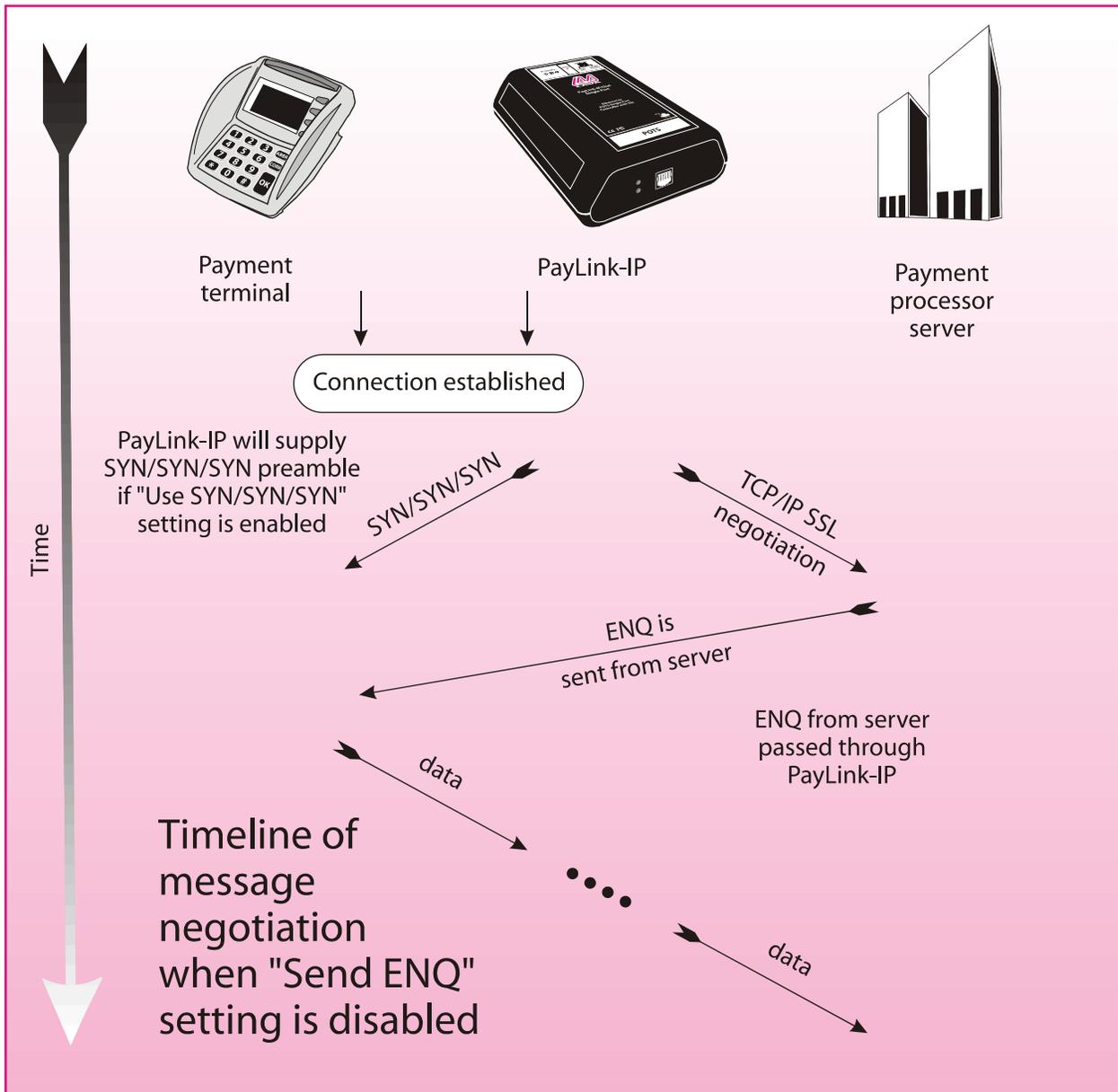


Figure 17: Opening a connection — "Send ENQ" disabled



**Send ACK to terminal after each received message**

This setting should be enabled in two general situations:

- where the payment terminal expects an ACK string to follow the transmission of data, and the payment processing server does not send that string or,
- where delays in transmission time would lead to the payment processing server's ACK string being received late by the terminal, causing the terminal to time out.

**Figure 18: Data flow — "Send ACK" enabled**

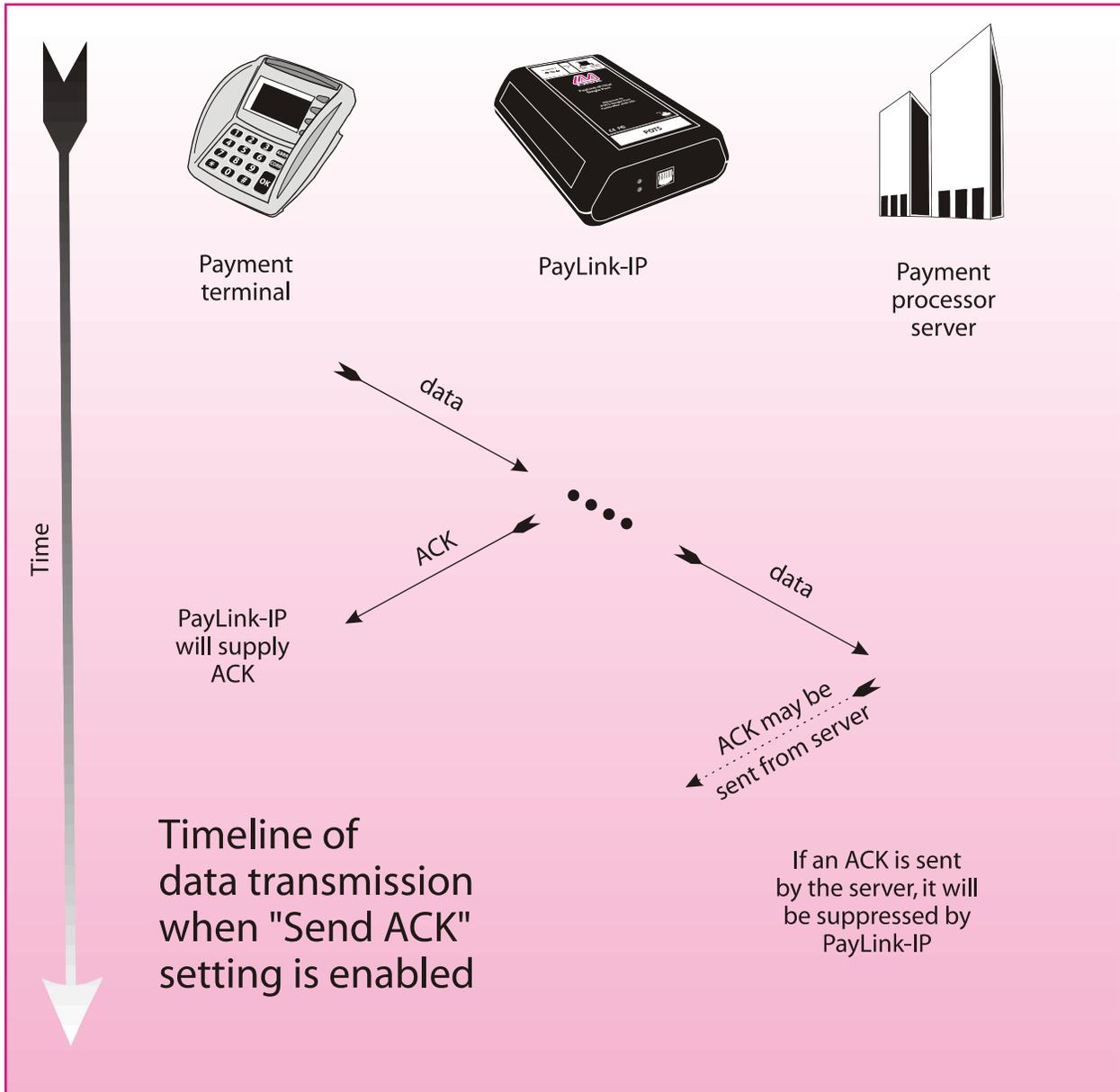
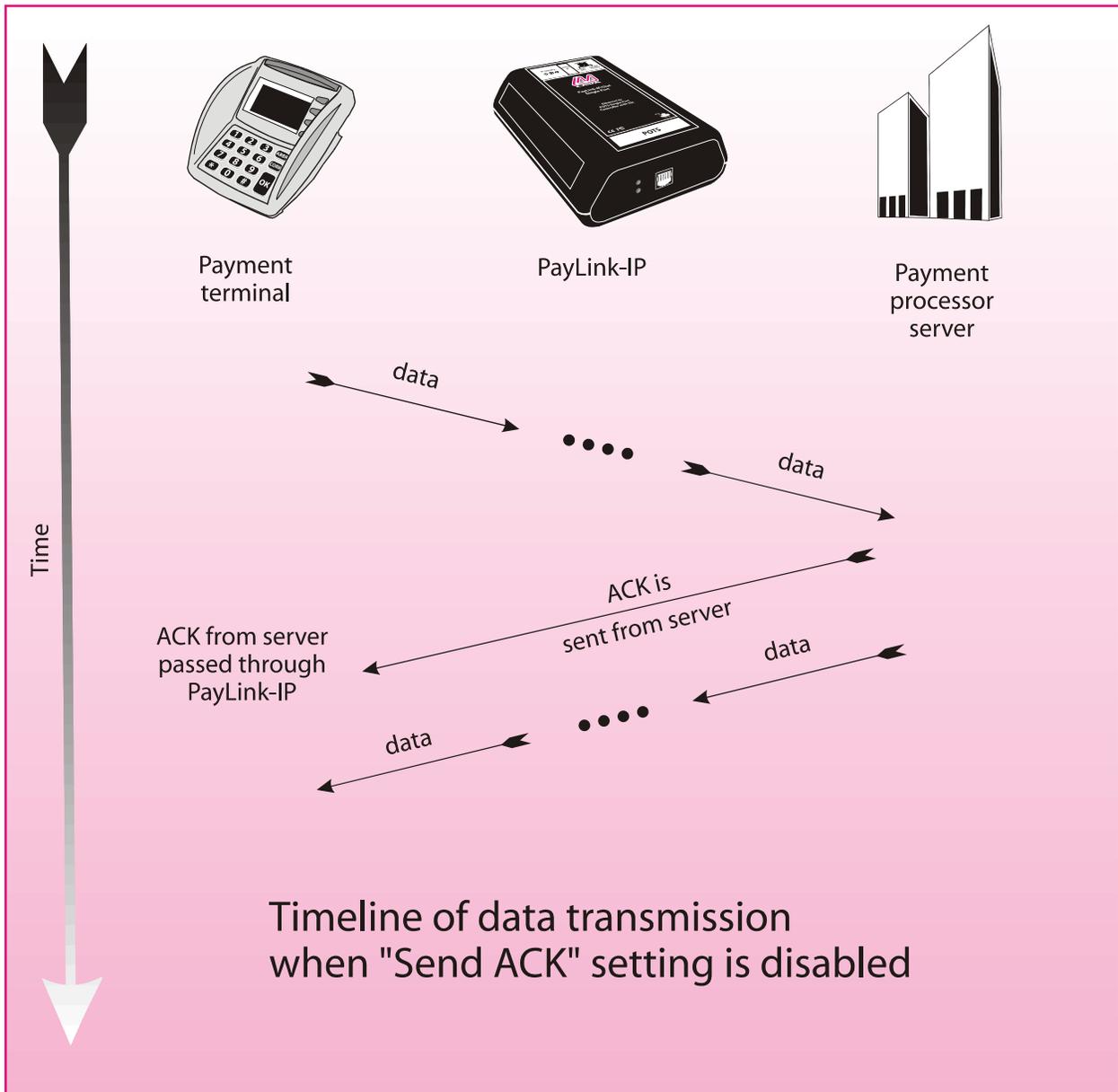


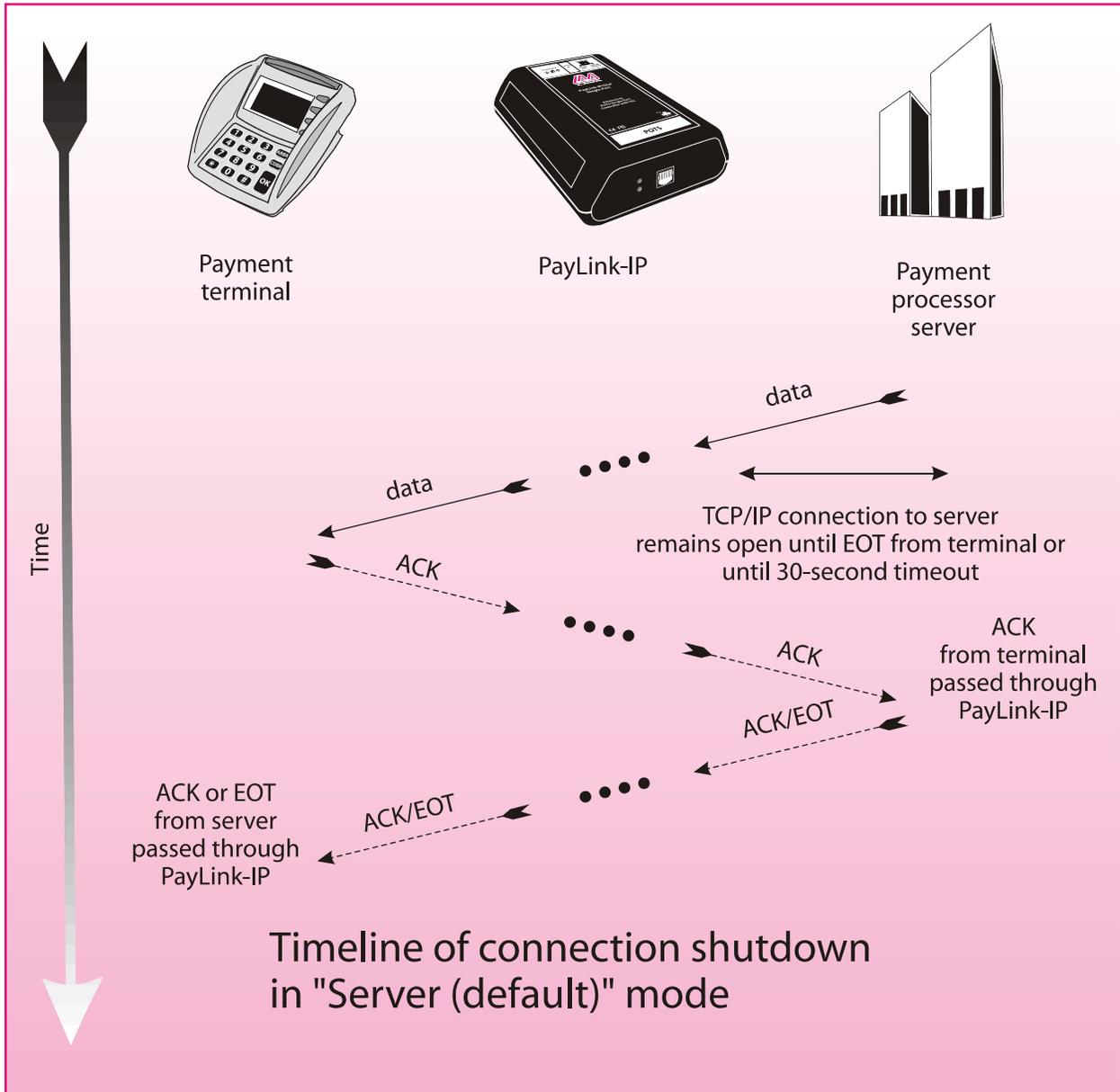
Figure 19: Data flow — "Send ACK" disabled



**Transaction ended by Server (default):**

In "Server (default)" mode, the PayLink-IP/232 operates transparently between the terminal and the server and ends a transaction by passing closing commands between the server and the terminal on the assumption that those two devices are able to understand each other's command structures. The PayLink-IP/232 keeps a connection open until one side closes the connection or until a 30-second no activity timeout has elapsed.

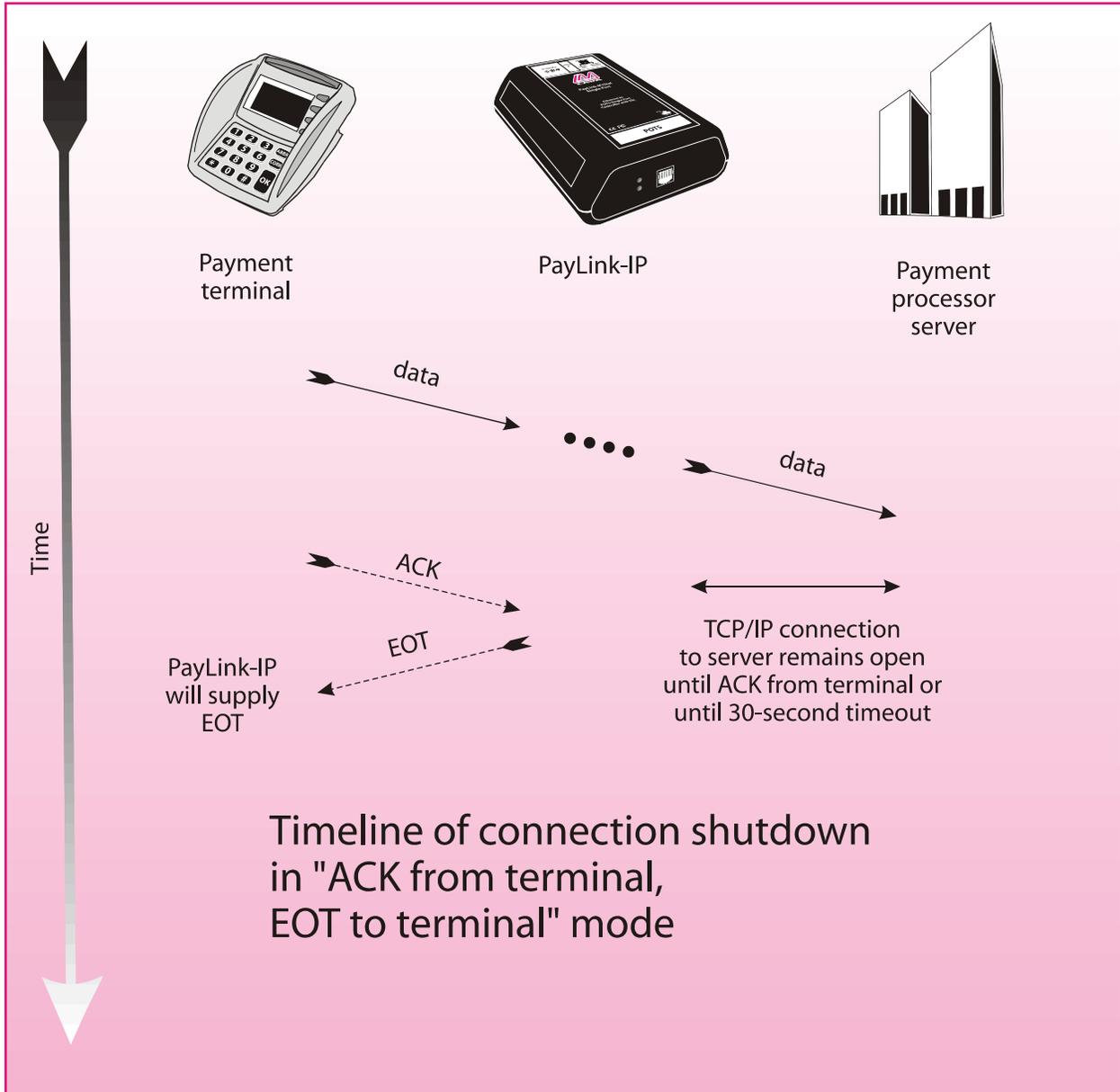
**Figure 20: Closing connections — "Server (default)" mode**



**Transaction ended by ACK from terminal, EOT to terminal:**

In "ACK from terminal, EOT to terminal" mode, the PayLink-IP/232 receives an ACK character from the terminal and responds to the terminal with an EOT character. This shutdown mode is typically used when the terminal requires an EOT to close the connection, but the server is not programmed to send an EOT.

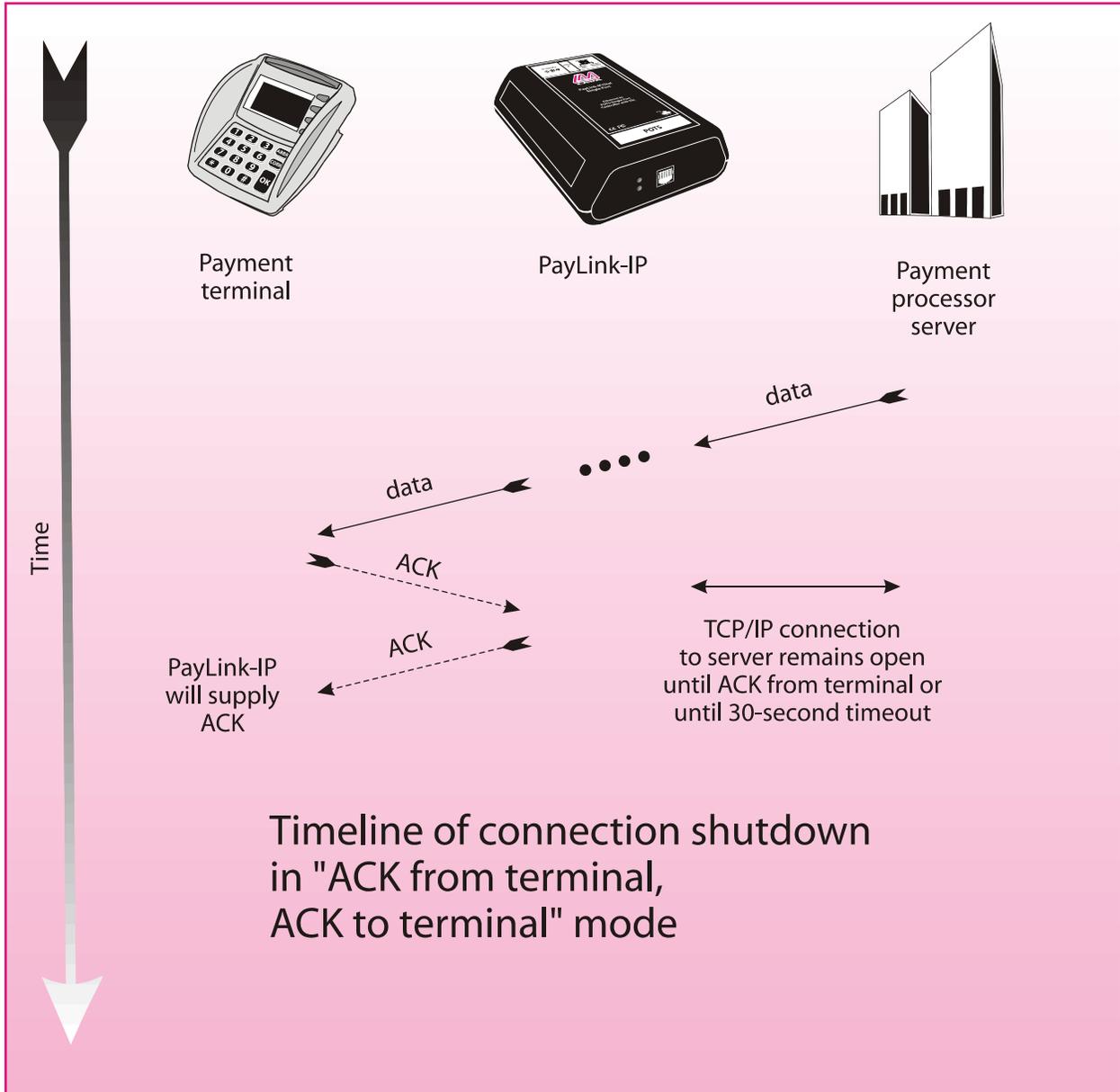
**Figure 21: Closing connections — "ACK from terminal, EOT to terminal" mode**



**Transaction ended by ACK from terminal, ACK to terminal:**

In "ACK from terminal, ACK to terminal" mode, the PayLink-IP/232 receives an ACK character from the terminal and responds to the terminal with an ACK character. This setting is used for terminals that end connections after receiving an ACK rather than an EOT (usually supplied by a server).

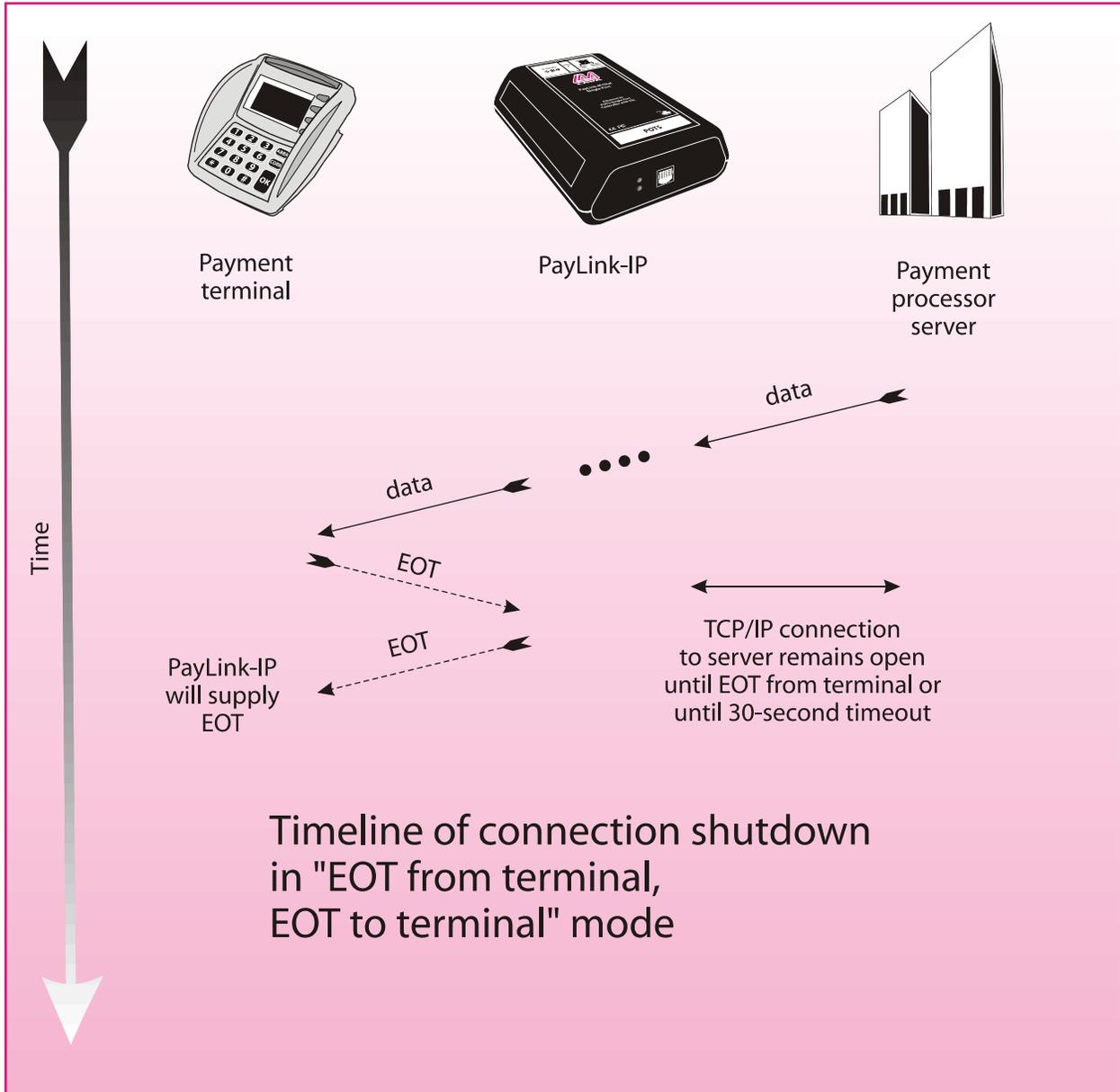
**Figure 22: Closing connections — "ACK from terminal, ACK to terminal" mode**



**Transaction ended by EOT from terminal, EOT to terminal:**

In "EOT from terminal, EOT to terminal" mode, the PayLink-IP/232 receives an EOT character from the terminal and responds to the terminal with an EOT character. This shutdown mode is typically used when you want the terminal to close the connection (as when the terminal is performing a batch operation).

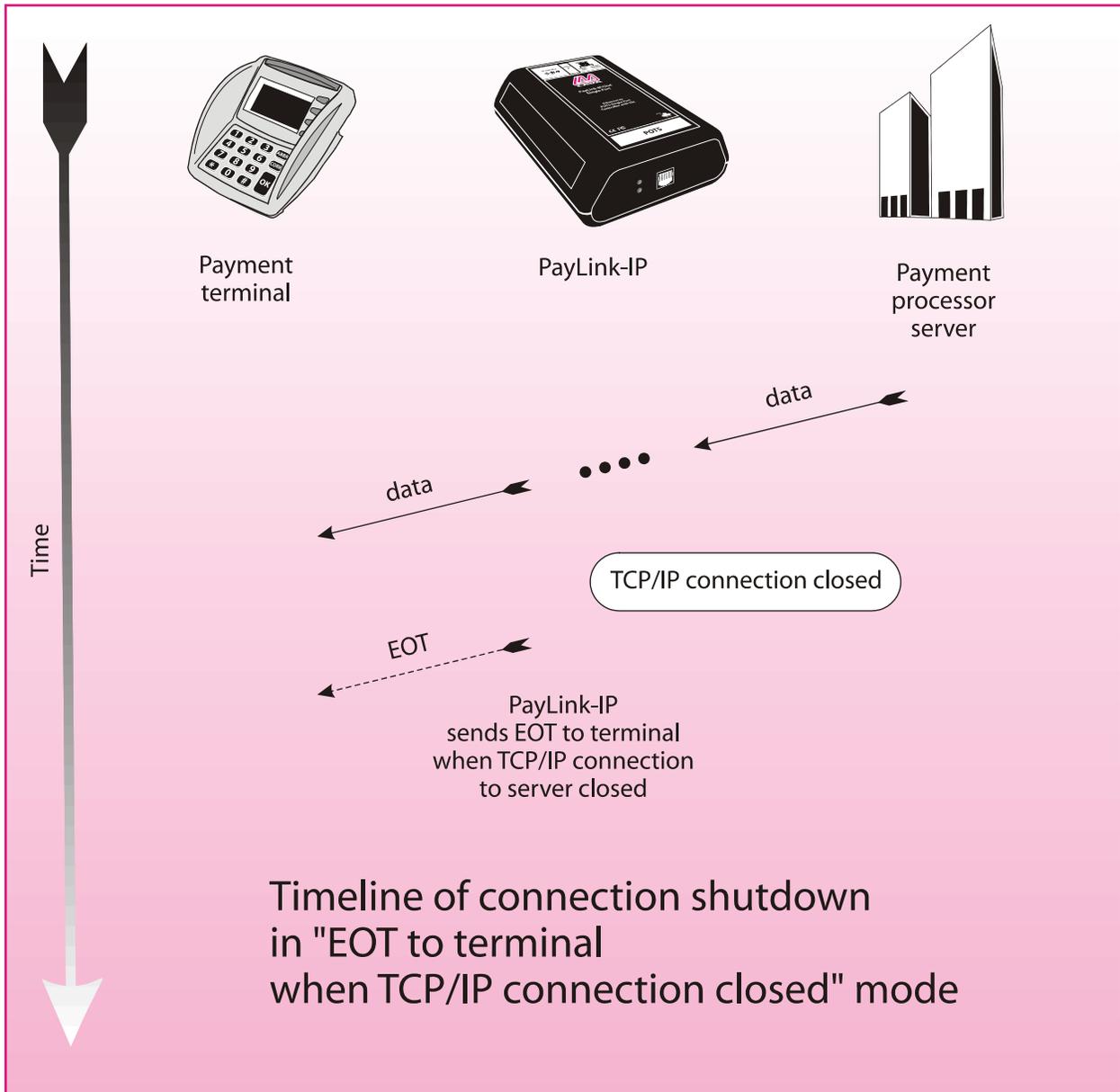
**Figure 23: Closing connections — "EOT from terminal, EOT to terminal" mode**



**Transaction ended by EOT to terminal when TCP/IP closed:**

In "EOT to terminal when TCP/IP closed" mode, the PayLink-IP/232 sends an EOT character to the terminal if the TCP/IP connection is closed by the server.

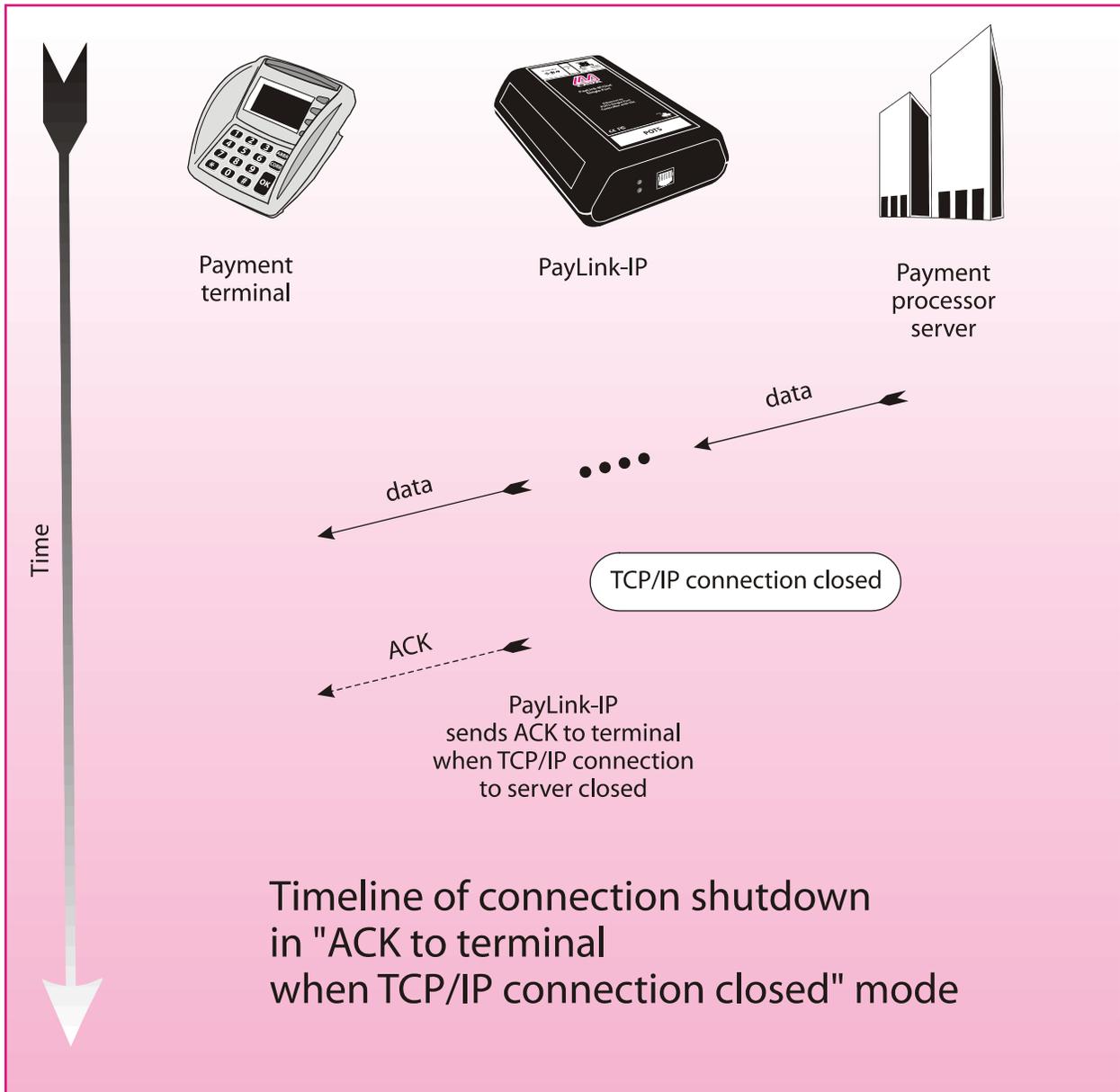
**Figure 24: Closing connections — "EOT to terminal when TCP/IP closed" mode**



**Transaction ended by ACK to terminal when TCP/IP closed:**

In "ACK to terminal when TCP/IP closed" mode, the PayLink-IP/232 sends an ACK character to the terminal if the TCP/IP connection is closed by the server.

**Figure 25: Closing connections — "ACK to terminal when TCP/IP closed" mode**



## 11. Appendix B: Hardware status LEDs

Hardware Status LEDs	
<b>Power</b>	
<i>RED - Power connection status</i>	
ON	Power is being received by the PayLink-IP/232
OFF	Power is not being received by the PayLink-IP/232
<b>Ethernet</b>	
<i>Green - LAN connection status</i>	
ON	PayLink-IP/232 is connected to LAN
OFF	PayLink-IP/232 is not connected to the LAN, or the PayLink-IP/232 is in the process of being reset
<i>Amber - Data communications activity status</i>	
ON-OFF-ON (Flickering)	Packets are being seen by the PayLink-IP/232
STEADY	No data activity is being seen by the PayLink-IP/232
<b>Serial DB-9</b>	
<i>Green - Transmit status</i>	
ON	Data is being transmitted on the serial port
OFF	Data is not being transmitted on the serial port
<i>Yellow - Receive status</i>	
ON	Data is being received on the serial port
OFF	Data is not being received on the serial port