

# HP 82169A

## HP-IL/HP-IB Interface



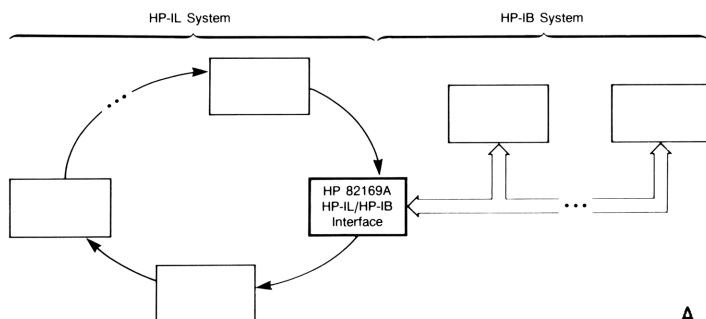
### Summary

The HP-IL/HP-IB Interface permits linkage of Hewlett-Packard Interface Loop (HP-IL) systems with HP-IB (IEEE 488, 1978) computers and lab equipment. Its key feature is its friendly, flexible two-mode operation.

In "Translator" mode, a controller and devices to be controlled may exist on one side (HP-IL or HP-IB) or both sides of the interface. Active control may be passed through the interface assuming the controllers involved are capable of passing it or relinquishing it. Only one controller may be active at a time with this configuration.

In "Mailbox" mode, controller systems exist on both sides of the interface. Information may be passed bidirectionally between the systems via two resident 110-byte buffers.

The HP-IL/HP-IB Interface responds to most HP-IL and HP-IB commands. An ac adapter accompanying the product supplies the power.

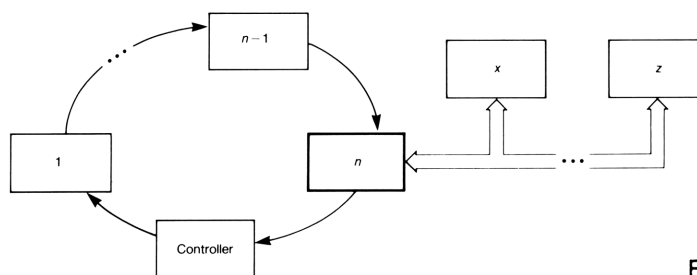


The HP-IL system can include a controller (such as a computer), one or more additional HP-IL devices, and the HP-IL/HP-IB Interface. The HP-IB system can include a controller, one or more additional HP-IB devices, and the HP-IL/HP-IB Interface. The interface links the two systems. The nature of the link is determined by the interface's operating mode.

### Operation

#### Translator Mode With Control On HP-IL

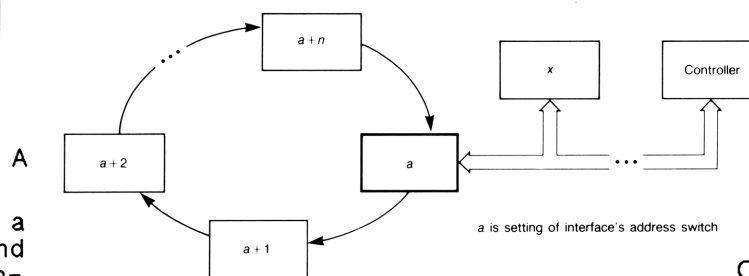
In the system shown in Diagram B, the active controller is on the HP-IL side.



The HP-IL controller accesses HP-IB devices using their HP-IB addresses; addresses of HP-IB devices are determined by their address switches. With this system, no HP-IB address may be the same as any HP-IL address.

#### Translator Mode With Control On HP-IB

In the system shown in Diagram C, the "active controller" is on the HP-IB side.

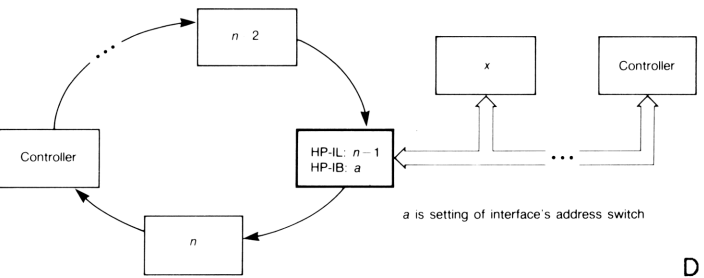


The HP-IB controller accesses HP-IL devices using their HP-IL addresses assigned by the interface. An HP-IL device's address is determined by adding its position (relative to the interface) to the interface's HP-IB address (as determined by its address switch). With this system, no HP-IL device's address may be the same as any HP-IB device's address.

Translator Mode With Controllers On HP-IL And HP-IB

To operate in Translator mode with controllers on both HP-IL and HP-IB sides of the interface, only one controller may be active at a time.

Mailbox Mode



Mailbox mode permits two active controllers to transfer data between their respective systems.

The interface behaves like a single HP-IL device on the HP-IL side and a single HP-IB device on the HP-IB side. The HP-IL address of the interface is its assigned auto-address; the HP-IB address is set by the switch on the rear panel.

The interface contains two 110-byte buffers for full-duplex operation. Both controllers can make the interface a talker or listener (make it send or receive data).

HP-IB Options And Instruction Set

The HP-IL/HP-IB Interface permits translation of HP-IB secondary commands to HP-IL DDL/DDT messages and the acquisition of HP-IL device and accessory IDs from HP-IB.

Instruction	Meaning
A1	Add HP-IB address 1 to address table.
⋮	⋮
A30	Add HP-IB address 30 to address table.
C0,0	Send HP-IL message 000 00000000 (Data Byte 0).
⋮	⋮
C7,255	Send HP-IL message 111 11111111 (Identify—Service Request 255).
D1	Disable LF→EOT option.*
D2	Disable DDL/DDT ↔ SAD option.
D3	Disable SAI on ATN false option.
D4	Disable SDI on ATN false option.
D5	Disable configured option.*
D6	Disable general addressing.*
D7	Disable HP-IB parallel poll option.*
E1	Enable LF→EOT option.*
E2	Enable DDL/DDT ↔ SAD option.
E3	Enable SAI on ATN false option.
E4	Enable SDI on ATN false option.
E5	Enable configured option.*
E6	Enable general addressing.*
E7	Enable HP-IB parallel poll option.*
I	Disable all options and clear address table, enable status register, and excess status registers.
SA	Send addresses from HP-IB address table.
SC	Send message returned.
SE	Send enable status byte.
SS	Send excess status bytes.

\* Can be enabled from HP-IB, but has effect only when control is on HP-IL.

The HP-IL/HP-IB interface responds to a set of ASCII-coded instructions. The "D" and "E" instructions disable and enable several options that determine how the interface operates. After startup, keyboard reset, or receipt of the "I" instruction, these options are disabled.

## HP-IL Options And Instruction Set

The interface permits termination of HP-IB transmissions after line feed transferral from the HP-IB device. It allows translation of HP-IL DDT/DDL messages to HP-IB secondary command messages, as well as override of most automatic ("friendly") functions.

Instruction	Meaning
A1	Add HP-IB address 1 to address table.
⋮	⋮
A30	Add HP-IB address 30 to address table.
D1	Disable LF → EOT option.
D2	Disable DDL/DDT ↔ SAD option.
D3	Disable SAI on ATN false option.*
D4	Disable SDI on ATN false option.*
D5	Disable configured option.
D6	Disable general addressing.
D7	Disable HP-IB parallel poll option.
E1	Enable LF → EOT option.
E2	Enable DDL/DDT ↔ SAD option.
E3	Enable SAI on ATN false option.*
E4	Enable SDI on ATN false option.*
E5	Enable configured option.
E6	Enable general addressing.
E7	Enable HP-IB parallel poll option.
I	Disable all options and clear address table, enable status register, and excess status registers.
SA	Send addresses from HP-IB address table.
SE	Send enable status byte.
SS	Send excess status bytes.*

\* Can be enabled from HP-IL, but has effect only when control is on HP-IB.

The HP-IL/HP-IB Interface responds to a set of ASCII-coded instructions. The "D" and "E" instructions disable and enable several options that determine how the interface operates. After startup, keyboard reset, or receipt of the "I" instruction, these options are disabled.

## Specifications

### Peak Transfer Rates

	Translator	Mailbox
HP-IB → HP-IL	~3.0K bytes/sec*	~1.7K bytes/sec

HP-IL → HP-IB	~1.8K bytes/sec*	~1.9K bytes/sec
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HP-IB Buffer Load	~6.0K bytes/sec
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### Physical Dimensions

Length: 16.0 cm (6.3 in.)

Width: 11.9 cm (4.7 in.)

Height: 2.8 cm (1.1 in.)

Weight: 278 g (9.8 oz.)

### Power Requirements

Primary source: ac adapter

Maximum operating current: 130 mA at 8.5 Vdc

Typical operating current: 80 mA at 8.5 Vdc

### Environmental Limits

Operating temperatures: 0 to 65° C (32 to 149° F)

Storage temperature: -40 to 75° C (-40 to 167° F)

Operating and storage humidity limits: 10% to 90%RH (noncondensing)

### What's In The Box

The HP 82169A HP-IL/HP-IB Interface comes with manual, ac adapter, and .5m HP-IL cable. An HP-IB cable is not included.

\* infinitely fast listener

