Programmable Asynchronous Line System (PALS)

PRODUCT DESCRIPTION

The Interdata Programmable Asynchronous Line System (PALS) is an interface between 103/202-type data sets over switched network or leased lines, and can also accommodate local terminals which match RS232C specifications.

A Programmable Asynchronous Line System consists of an Asynchronous Line Module Controller (ALMC) and one or more Programmable Asynchronous Line Modules (PALM). Each PALM is capable of interfacing four full-duplex or half-duplex asynchronous lines; each controller can support 23 PALM's, for a total of 92 communication lines.

FEATURES

- High reliability inherent in LSI implementation.
- Low power consumption derived from MOS technology.
- Modular packaging facilitates future expansion from the initial configuration.
- Program control of character size, baud rate, parity, and stop bits on a per-line basis.
- Full-duplex or half-duplex operation.
- Double-character buffering.
- ECHOPLEX, a programmable mode of operation, reduces CPU overhead.
- Customer-specified baud rates available.

OPERATIONAL CHARACTERISTICS

The ALMC contains a crystal oscillator timing source which ensures baud rate accuracy. Eleven standard baud rates are available; any four may be selected at the time of order. In addition, four other customer-specified baud rates may be provided for special applications. Each line in the PALM system is program controlled to accommodate one of the four selected baud rates. In addition to timing and control functions, the ALMC generates a private bus for the PALM's.

Full or half-duplex mode of operation is selected at the time of order and is a strapping option in the PALM. The PALM is designed to interface four RS232C specification communication lines. Each line of a PALM has a unique address which allows independent program control of character size, baud rate, parity, and stop bits. In addition, the PALM contains double character buffers and features "false start" bit detection, permitting a timing delay (1/2 bit) before actual character timing commences on input from the data set. This "false start" bit detection requires a SPACE condition to be present. A programmable feature is the Transmit Line Break, which causes a SPACE to be transmitted.

A high tolerance to bit distortion enables the PALM to operate in the presence of bit distortion up to 43%. The PALM can also be operated in an interrupt environment with the double buffer allowing a full character period for data acquisition.

The PALS is housed in the M49-021 System Chassis. This chassis is capable of housing an ALMC and up to seven PALM's, or it may house eight PALM's. The first chassis must contain the ALMC.

Power for the PALS is provided by the M49-025 System Power Supply which supplies sufficient power for one chassis, or by the M49-050 which supplies the necessary power for two chassis.

The PALS chassis is normally the last 15-inch chassis in an Interdata system. A cable is provided with the PALM to connect the four communication lines to the I/O convenience panel in the system cabinet. Cable M10-054 is optional and is used to connect one communication line from the I/O convenience panel to a modem.

SPECIFICATIONS

Baud Rates
Standard Rates — 75, 110, 134.49, 150, 300, 600, 1200, 1800, 2400, 4800, 9600 (special baud rates available at no extra charge up to 19.2 K baud)

Character Format
(Programmable) — 5, 6, 7, or 8 data bits

Parity
(Programmable) — Odd, Even or None

Stop Bits
(Programmable) — 1 or 2

Data Set Control
(Programmable) — Data Terminal Ready
Reverse Channel Transmit
Request to Send
Data Terminal Busy

Other Status — Clear to Send
Carrier
Ring
Reverse Channel Receive
Data Set Ready

Data Set Status — Overflow
Parity Fail
Busy
Framing Error

Transmit Distortion — −2% measured at RS232C interface

Maximum Tolerable Receive Distortion — −43% bit distortion measured at RS232C interface

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The information contained herein is intended to be a general description and is subject to change with product enhancement.

Power Requirements

Voltage	ALMC	PALM
+ 5 VDC	2.5A	2.5A
+15 VDC	—	0.11A
−15 VDC	—	0.15A

Operating Environment
0 to 50° C
10 to 90% relative humidity (no condensation)

	ALMC	PALM
Weight	1.5 lbs. (.75Kg)	1.5 lbs. (.75Kg)
Dimensions	15" x 15"	15" x 15"
	(38.1 cm x 38.1 cm)	(38.1 cm x 38.1 cm)

INTERDATA Product Numbers: *

M47-100   Asynchronous Line Module Controller

M47-101   Programmable Asynchronous Line Module

M10-054   Data Set Cable, 50 feet

M49-021   System Chassis capable of housing one ALMC and 7 PALM or 8 PALM

M49-025   System Power Supply:
25A @ 5V, 3A @ +15V, 3A @ −15V

M49-050   Bulk Power Supply:
50A @ 5V, 3A @ +15V, 3A @ −15V

When ordering the M47-100 ALMC, specify the four baud rates desired. In the absence of this designation, the ALMC will be strapped for 110, 150, 300 and 1200.

When ordering the M47-101 PALM, specify HDX or FDX per line. In the absence of this designation, the PALM lines will be strapped for HDX.
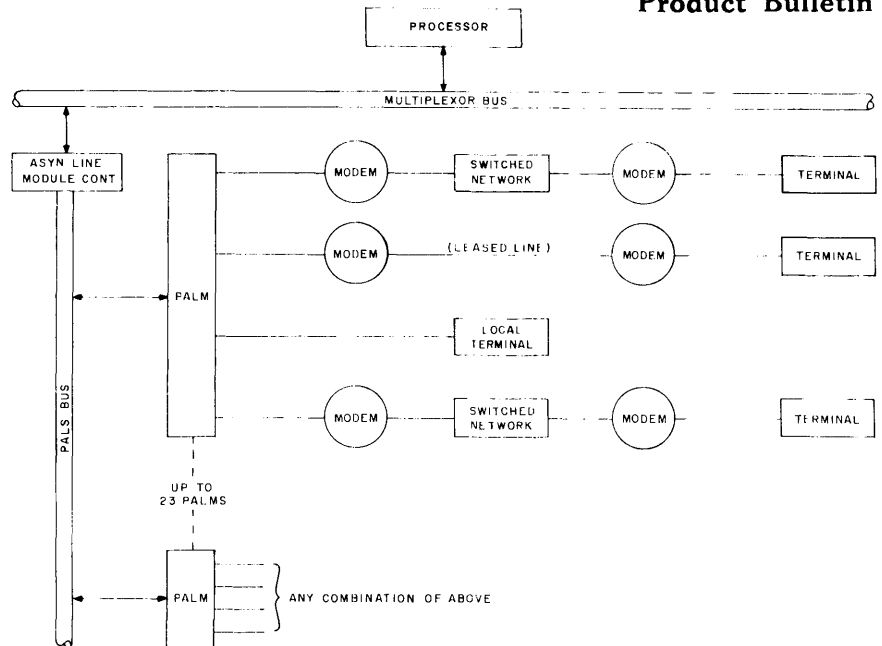
For additional information, see the following Interdata Publications:

29-276   Programmable Asynchronous Line System Instruction Manual

29-528   Programmable Asynchronous Line System Programming Manual

* There are various options and models available on Western Electric or equivalent 103/202 Type Data Sets. The user should ensure that the options or model selected are compatible with the selected Interdata Adapter and that the programming ramifications, if any, are understood. The user may obtain information regarding the data set and network from his local telephone company representative or from the appropriate manuals supplied by the Bell System or the Data Set Manufacturer.

Programmable Asynchronous Line System (PALS)

GENERAL DESCRIPTION

The INTERDATA PROGRAMMABLE ASYNCHRONOUS LINE SYSTEM provides an interface between 103/202 type data sets over the switched network or leased lines and can also accommodate local terminals which match RS-232C specification. PALS utilizes the latest MOS-LSI technology which results in the following benefits:

- **High reliability**
- **Low Power consumption**
- **Lower cost**
- **Modular packaging**

Program control is provided for key parameters such as character format, baud rate and various line control functions. This control is available on a per line basis, providing a high degree of flexibility.

A PROGRAMMABLE ASYNCHRONOUS LINE SYSTEM consists of an Asynchronous Line Module Controller (ALMC) and one or more Programmable Asynchronous Line Modules (PALM). Each PALM is capable of interfacing four Half or Full Duplex asynchronous lines; each controller can support 23 PALMs, a total of 92 communications lines.

OPERATIONAL CHARACTERISTICS

The ALMC contains a crystal oscillator timing source which insures baud rate accuracy. Eight standard baud rates are available. In addition, four other customer-specified baud rates may be provided for special appli-

cations. Each line in the PALM system is program controlled to accommodate one of the four selected baud rates. In addition to timing and control functions, the ALMC generates a private bus for the PALMs.

Full or Half Duplex mode of operation is selected at the time of order and is a strapping option in the PALM. The PALM is designed to interface four RS-232C specification communications lines. Each line of a PALM has a unique address which allows independent program control of character size, baud rate, parity and stop bits. In addition, the PALM contains double character buffers and features "false start" bit detection, permitting a timing delay before actual character timing commences on input from the data set.

A high tolerance to bit distortion enables the PALM to operate in the presence of bit distortion up to 43%. The PALM may also be operated in an interrupt environment with the double buffer allowing a full character period for data acquisition.

The PALS is housed in M49-021 System Chassis. This chassis is capable of housing an ALMC and up to seven PALMs, or it may be used to house eight PALMs. The first chassis always contains the ALMC.

Power for the PALS is provided by an M49-002 System Power Supply which can supply sufficient power for one chassis, or an M49-022 Bulk Power Supply which supplies the necessary power for two chassis.

The PALS chassis is normally the last 15-inch chassis in an INTERDATA system. A cable is provided with the PALM to connect the four lines to the I/O convenience panel in the system cabinet. Cable M10-054 is optional and is used to connect one communications line from the I/O convenience panel to a modem.

SPECIFICATIONS

Baud Rates
Standard Rates —
    75, 110, 134.49, 150, 300, 600, 1200, 1800

Character Format (Programmable) —
    5, 6, 7, or 8 data bits

Parity (Programmable) — Odd, Even or None

Stop Bits (Programmable) — 1 or 2

Data Set Control *(Programmable)*	— Data Terminal Ready Reverse Channel Transmit Request to Send Data Terminal Busy
Other Status	— Clear to Send Carrier Ring Reverse Channel Receive Data Set Ready
Data Set Status	— Overflow Parity Fail Busy Framing Error

Transmit Distortion —
    $\leqslant 2\%$ measured at RS-232C interface

Maximum Tolerable Receive Distortion —
    $\leqslant 43\%$ bit distortion measured at RS-232C
    interface

Additional Features — ECHOPLEX —
    Programmable feature to allow received data to
    be retransmitted to the data set.

Transmit Line Break —
    A programmable feature which causes a SPACE
    to be transmitted to the data set.

False Start Bit Detect —
    Requires a SPACE condition to be present for
    ½ bit time before character assembly commences.

POWER REQUIREMENTS

Voltage	*ALMC*	*PALM*
+ 5 vdc	2.5A	2.5A
+15 vdc	—	0.11A
—15 vdc	—	0.15A

Operating Environment —
    0 - 50° C
    10 - 90% relative humidity (no condensation)

	ALMC	*PALM*
Weight	1.5 lbs.	1.5 lbs.
Dimensions	15″ x 15″	15″ x 15″

INTERDATA Product Numbers: *

M47-100 — Asynchronous Line Module Controller
M47-101 — Programmable Asynchronous Line Module
M10-054 — Data Set Cable, 50 feet
M49-021 — System Chassis capable of housing one ALMC
    and 7 PALM or 8 PALM
M49-002 — System Power Supply: 24A ⁽ᵃ⁾ 5V, 3A ⁽ᵃ⁾
    +15V, 3A ⁽ᵃ⁾ —15V
M49-022 — Bulk Power Supply: 50A ⁽ᵃ⁾ 5V, 3A ⁽ᵃ⁾ +15V,
    3A ⁽ᵃ⁾ —15V

For additional information, see the following INTERDATA Publication:

29-276 — Programmable Asynchronous Line System
    Instruction Manual

* There are various options and models available on Western Electric or equivalent 103/202 Type Data Sets. The user should insure that the options or model he selects are compatible with the selected INTERDATA Adapter and that he understands the programming ramifications, if any. The user may obtain information regarding the data set and network from his local telephone company representative or from the appropriate manuals supplied by the Bell System or the Data Set Manufacturer.