

# *Series Four*

**V21/V23, V22, V22 bis Data Modems**



** Pace Micro Technology**

# Series Four

## The last word in mic

As the well-informed businessman will be aware, the range of dial-up information services and the facilities available which they offer has increased dramatically in recent years. Now, the *Series Four* range of modems are available to cater for almost every possible requirement for accessing remote information services.

### Multistandard

*Series Four* is designed to cater for medium and high speed applications at 1200 baud and 2400 baud full duplex (V22 and V22bis). Moreover, all models include as standard V21 and V23 operation for use with 300/300 and 1200/75 split rate hosts respectively. The basic model 2123S is sold without the high speed option fitted but can easily be upgraded at any time to include the same high speed capability as the 1200S or 2400S models.

Type 431 Modular Telephone Socket

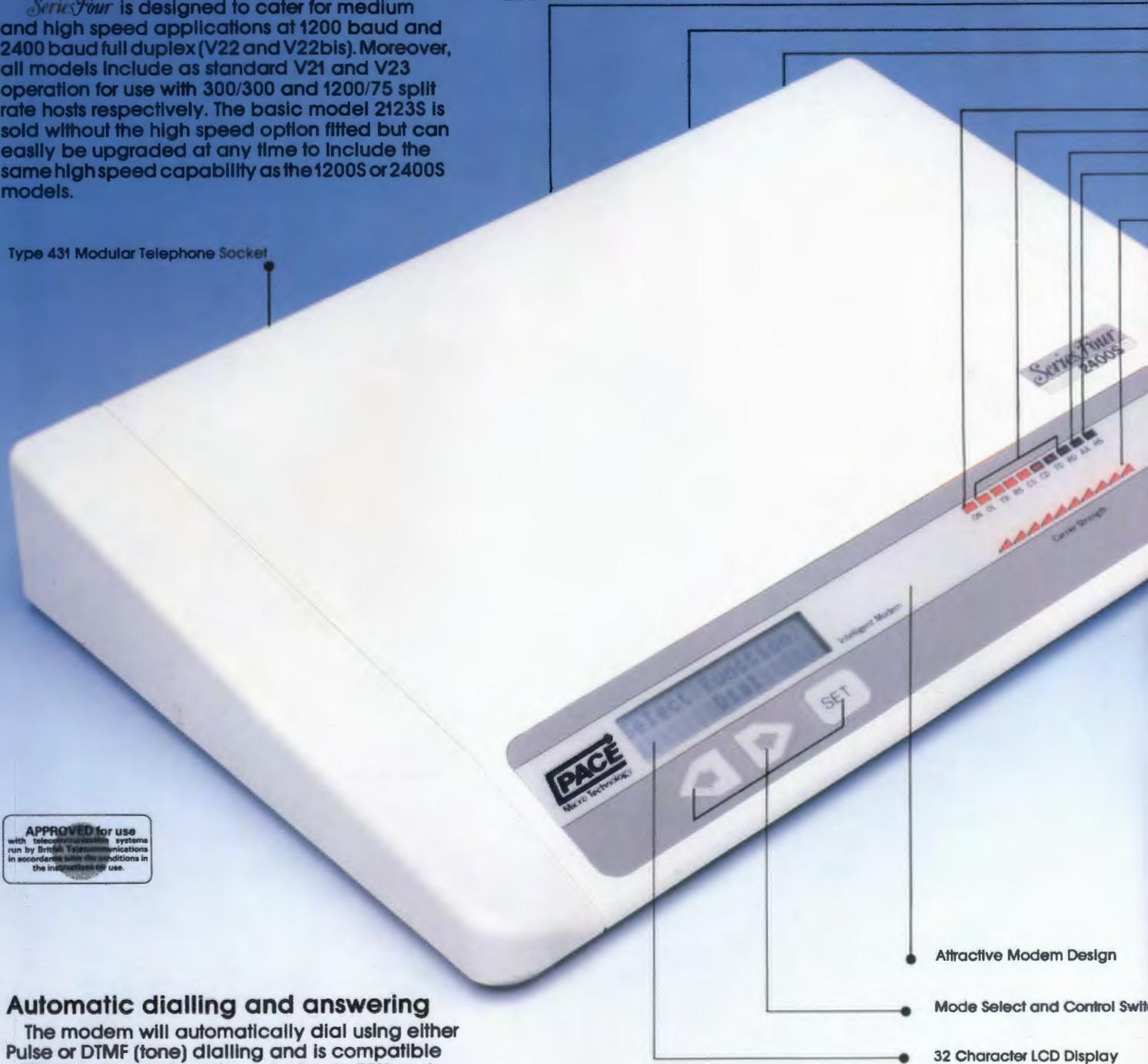
### Microprocessor Control

All *Series Four* models are equipped with a microprocessor giving them the ability to make intelligent decisions about the way they operate. Many of the sophisticated features available on the modem are looked after automatically by the internal control software leaving the user to concentrate on the information he is trying to access.

APPROVED for use with telecommunication systems run by British Telecommunications in accordance with the conditions in the instructions for use.

### Automatic dialling and answering

The modem will automatically dial using either Pulse or DTMF (tone) dialling and is compatible with even the most modern electronic PBX and PABX equipment. Dialling can be initiated from the terminal/micro under software control using standard Hayes AT commands or from front panel controls. A user defined telephone directory incorporating the description and number of up to 64 remote information services can be stored internally and edited, dialled or displayed instantly.



Attractive Modem Design

Mode Select and Control Switch

32 Character LCD Display

# ro-communications

- RS232 Port
- Printer Port
- Reset Switch
- Power On Indicator
- RS232 Status Indicator
- Auto Answer Indicator
- High Speed Indicator
- Visual Line Condition Indication

Some of the features of Series Four include:

- Multiple baud rates (upgradeable)
- Auto dial/auto answer
- Microprocessor control
- Inbuilt date/time clock
- Automatic speed buffering
- Automatic baud rate detection
- Hayes compatibility
- Auto re-dial
- Dial tone detect
- 64 number/service store
- Call progress monitoring
- Unattended printing of incoming data
- Tone dialling
- Comprehensive 'help' command pages

## Call Progress Monitoring

During dialling, continuous call progress monitoring ensures efficient use of line and operator time. For instance, should the modem detect an Engaged tone from the remote system, it will automatically redial in an attempt to establish a connection. Similarly, *SeriesFour* is able to detect No dialtone and Number unobtainable situations and inform the operator accordingly.

For auto-answering purposes, the modem need not even be attached to a terminal or computer. Incoming data calls can be answered with a request for the Name and details of the caller and their message. These are then dumped directly via the parallel port to a printer along with a Date and Time stamp generated by a built-in Real-time calendar/clock.

## Full Range Speed buffering

One of the problems with many of today's multi-standard modems however, is that they leave most of the work in selecting operating modes to the often inexperienced user. In Speed buffering mode, which the modem uses by default, the user simply sets his micro/terminal to operate at the highest speed he is likely to use. *SeriesFour* will then communicate with any compatible host (including 300 baud systems, unlike many other speed buffering modems), and buffer the data to the correct speed for the terminal. The user need not continuously reconfigure his terminal software.

## Automatic mode detection

*SeriesFour* will analyse the received carrier signal and automatically configure itself to the correct baud rate setting for use with that particular host.

## Three level configuration

All programmable settings can be altered either from the attached terminal/computer or via the front panel controls and there are three levels of configuration to simplify operation:

The Factory default set include the most common requirements for communications within the UK and Europe. These settings are stored permanently in ROM and can be recalled at any time.

The User default set are those settings which the user finds most convenient for his particular application. Initially these will be the same as the Factory default set. Users may alter these as necessary and store them as the new User default set in battery backed RAM ready to use on power-up.

The Active configuration settings are those currently in use by the user. Most of these will be the same as the User default set but others will have been altered during the terminal session and not saved to the non-volatile memory.

## Hayes compatibility

*SeriesFour* will interpret and execute the Hayes AT command set which is widely used and recognised by the world's leading communications software writers. Enhancements to the standard command set allow even the simplest terminals to make full use of the modem's unique combination of hardware facilities. The command set is specifically designed for use by non-technical staff. For example, to dial a number entered at the keyboard simply type:  
ATD1234567<CR>

'AT' grabs the modems Attention, 'D' tells it to dial and '1234567' is the telephone number. The entire line is entered and executed by pressing Carriage Return.

Similarly, the command 'ATDN5' would dial the fifth telephone number from the internal store of 64.

Enhancements to the standard AT set include HELP commands which summarise all AT and associated commands in simple tabular form, commands for setting and reading the time and date from the internal Calendar/Clock etc.

## Automatic Fault diagnostics & Line condition indication

On power up the modem always carries out a set of diagnostic routines. In addition the analogue loop-back self-test facility checks for correct data transmission and receipt. When on-line, a visual Carrier strength indicator allows rapid detection of poor line/equipment conditions and minimises wasted call time.

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## TECHNICALLY SPEAKING

<b>CASE DIMENSIONS:</b>	Width 300mm    Depth 222mm    Height 50mm
<b>OPERATING STANDARDS:</b>	<i>Model Standards</i> 2123S - CCITT V21, V23 (upgradeable to V22, V22bis) 1200S - V21, V22, V23 (upgradeable to V22bis) 2400S - V21, V22, V22bis, V23.
<b>BAUD RATES:</b>	2123S - 300 full duplex, 600, 1200 and 1200/75, 75/1200 full duplex 1200S - As 2123S but also with 1200 full duplex 2400S - As 1200S but also with 2400 full duplex
<b>POWER REQUIREMENTS:</b>	External power supply
<b>WORKING CONDITIONS:</b>	Ambient temp when operational 2°C to 36°C.
<b>MODULATION:</b>	Binary phase coherent F.S.K. (voice band) for V21 & V23 operation. 4 point synchronous DPSK for V22 operation. 16 point synchronous DPSK for V22bis.
<b>LINE REQUIREMENTS:</b>	2 wire (S models - P.S.T.N./SL Models - leased line)
<b>LINE IMPEDANCE:</b>	Terminating Impedance 600 ohms
<b>LINE CONNECTION:</b>	Standard BT Type 600 series modular plug (type 431A) or spade terminals on SL Models
<b>AUTO DIAL METHOD:</b>	Pulse dialling or DTMF tone dialling using Hayes 'AT' commands. Storage facility within modem for up to 64 names and telephone numbers. Auto-redialling is automatic on detection of Engaged tone.
<b>AUTO ANSWER:</b>	Using CCITT V25 protocols
<b>INTERFACE:</b>	Fully buffered asynchronous serial RS 232C interface using 25 pin female socket
<b>GUARD TONE:</b>	1800 Hz.
<b>TERMINAL INTERFACE</b>	Depending on Model, Intelligent speed buffering allows terminal operation at 2400 bps full duplex for modem operation at 2400, 1200, 300. Terminal may also operate at split baud rates i.e. 1200/75, 75/1200.
<b>SPEED RANGE:</b>	
<b>PRINTER PORT:</b>	26 way port permits use of Parallel Printer allowing remote data logging.
<b>RS232 INTERFACE:</b>	

Pin No.	Designation	CCITT Circuit
1	Modem frame ground	101
2	Transmit Data (TD)	103
3	Received Data (RD)	104
4	Request to Send (RTS)	105
5	Clear to Send (CTS)	106
6	Data Set Ready (DSR)	107
7	Signal Ground	102
8	Data Carrier Detect (DCD)	109
9	Test (+12vdc)	—
10	Test (-12vdc)	—
20	Data Terminal Ready (DTR)	108
22	Ring Indicator	125
25	Test (+ 5 vdc)	—

<b>LED SIGNAL INDICATORS:</b>	(ON) Power On	(CD) Carrier Detect	(RS) Request to Send
	(OL) On Line	(TD) Transmit Data	(CS) Clear to Send
	(TR) Terminal Ready	(RD) Receive Data	(AA) Auto Answer
			(HS) High Speed

**LCD DISPLAY:** Carrier strength: Ten position indicator denoting strength of received signal.  
32 character LCD display providing useful status and control information during modem operation including

- i) Date and time (real and elapsed)
- ii) Viewing of stored numbers and names
- iii) Call progress monitoring
- iv) Self test and diagnostic messages

**SAFETY:** Designed to comply with BS415, 6301, 6305, 6320, 6328

### Enhancements

It is Pace policy to continually review and improve product specifications and provide comprehensive upgrade service to existing owners. At the time of printing there are several planned enhancements to future versions of the control software including:

- \* Error correction & detection protocols
- \* Password security
- \* Comprehensive macro interpretation for automatic logon and data retrieval.

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