OPERATING MANUAL
K. C. Kew Electronics
Athletics Timing Processor
ATP-201D

1.0 ATP-201D OVERVIEW

1) The ATP-201D is a microprocessor based timing system, used for multiple input processing, data display, computer interfacing and print out of correlated information. The unit consists of 1 carry case, 1 timing unit (ATP-210D), 1 24 column serial printer, 1 timing system charger, 1 timing button and a printer cable.

2) It is powered by an internal 12 volt 2 ampere sealed lead acid battery (optional 2 batteries), which should be charged by the supplied power pack or equivalent only, to the manufacturers specifications. Charging times should not exceed 16 hours.

3) The timing system can be operated in 4 modes: -

- Lane [nominal 8] (optional 10 or 12)
- Multi Button [max 50]
- Single Button [max 50]
- Split Single [max 2 x 25 ea.]

4) Timing can be in 100th or 10th of a second. Print header on/off. Button tones on/off. Printer with/without spaces. Heat counter automatically incremented on/off. Race counter automatically incremented on/off. Starting gun input on/off.

5) Multiple header options include: -

- Age groups between U7b - OPEN boys and girls.
- Events 60 M Hurdles - 800 M Relay.
- Counters H1 - H10 and F1 - F4.
- Printer options

6) The ATP-201D can display information directly on 2 line 16 character Liquid Crystal Display (LCD) and 24 column serial printer or computer terminal.

7) Battery voltage is displayed on LCD display and a warning tone is audible when battery voltage falls below 11 volts.

8) RS232 serial port (9 pin D Male).

2.0. TIMING MODES

2.1 LANE MODE

CTK (Chief Time Keeper) or Gun input (if enabled) will start the race and an audible tone will be heard from the internal speaker. It must at this point be noted that whichever button is pushed first will start the timing system. Buttons or gates labeled 1 to 8 (optional 10 or 12) are pressed or activated when that numbered **lane** competitor crosses the finish line. CTK button is pressed for 1st place only. When all competitors have finished the PRINT or UP/DOWN is pressed to view results. Times collected are automatically sorted and displayed in place order starting with CTK time. This therefore will display two times for first place; the faster of these times should be crossed out.

2.2 MULTI MODE

CTK or Gun (if enabled) will start the race and an audible tone will be heard from the internal speaker. It must at this point be noted that whichever button is pushed first will start the timing system. Buttons labeled 1 to 8 (optional 10 or 12) are pressed when that numbered **place** competitor crosses the finish line. CTK button is pressed for 1st place and any additional places after 8 (optional 10 or 12) (maximum 50). When all competitors have finished the PRINT or UP/DOWN is pressed to view results. Times collected are **not** sorted and are displayed in order of button number with CTK time first. This therefore will display two times for first place; the faster of these times should be crossed out.

2.3 SINGLE BUTTON MODE

CTK button or Gun (if enabled) will start the race and an audible tone will be heard from the internal speaker. It must at this point be noted that whichever button is pushed first will start the timing system. CTK button is used to time all competitors in the mode to maximum of 50. When all competitors have finished the PRINT or UP/DOWN is pressed to view results.

2.4 SPLIT SINGLE MODE

Buttons 1, CTK button or Gun (if enabled) will start the race and an audible tone will be heard from the internal speaker. It must at this point be noted that whichever button is pushed first will start the timing system. CTK button is used to time boys (max 25) in finish order and button 1 to time girls (max 25) in finish order. When all competitors have finished the PRINT or UP/DOWN is pressed to view results. Times collected are automatically sorted and displayed in two blocks, boys 1st to 25th then girls 1st to 25th (or the number competing).

3.0 BUTTON FUNCTIONS

3.1 RESET

The RESET button is pressed to: -

- Clear all times stored in memory within the ATP-201D. Once this has been pressed all times and places are deleted permanently.
- To clear times after false start.
- To return to starting point after changes made or viewing of mode menu. This must be done prior to start of race timing.
- *The reset action occurs only after 2 seconds of continual pressure on the reset switch. During this time an audible alert is sounded to alert the user of the pending reset. This is done to prevent accidental erasure of accumulated data.*

3.2 MENU

The MENU button is pressed to: -

- Enter the options menu.
- Select menu groups. E.g. ages events, counters, header options and timing divisions.

3.3 DISPLAY UP/DOWN

The DISPLAY button is switched to: -

- Change modes (see section 2.0).
- Change options within groups selected by menu button. e.g. U13B, 100M, H2 under (13 boys 100 metres heat 2)

3.4 PRINT

The PRINT button is pressed to: -

- To produce a hard copy or copies of a timed event.
- To line feed paper after insertion of new paper roll or to advance paper two lines.

3.5 POWER ON/OFF

The POWER switch is used to turn the ATP-201D on or off. Unit must be in OFF position for internal battery charging *except* when configured for Timing gate use.

BATTERY CHARGER MUST BE DISCONNECTED
WHEN NOT IN USE

4.0 PRINTER

The 1000 series serial 24-column printer is used to produce a hard copy of timed events. It is connected to the ATP-201D via a 25 pin and 9 pin D series cable. The printer is independently powered by it's own internal nicad battery pack and charged at the same time as the ATP-201D. Charging must be done by supplied charger or equivalent, to the manufacturer specification. Charging should not exceed 14 hours. The printer is preprogrammed for use with ATP-201D, the program parameters are:

- Data bits 8
- Parity None
- Baud-rate 1200
- Country U.S.A.
- Print mode Text
- Auto-off 5 Min.
- Emulation Standard
- DTR Normal

The printer has its own power ON button [1], OFF button [0] and paper feed button.
The printer is programmed to turn itself off after 5 minutes of inactivity. This can be changed by consulting the printer 1000 SERIES USER GUIDE. A printer charger protection fuse (1 Amp 2 AG) is fitted to ATP-201D.

5.0 COMPUTER INTERFACING

To export data from ATP-201D to computer terminal, connect appropriate RS232 series cable from timer to COM port of the terminal. The ATP-201D automatically senses that it is connected to a computer and sends modified data to terminal on press of print button in ASCII format.

6.0 MAINTENANCE

Unit is not moisture proof and should be kept as dry as possible. Cleaning should be done with a moist cloth and spray polish. Printer should also be kept dry and free of dust and sand.
The ATP-201D and printer should be regularly charged and occasionally fully discharged. It should be done monthly during the off season or prolonged non-use. Buttons and cords should be wiped with a moist cloth and regularly untwisted. When packing away, cables should be folded not` rolled to minimise twisting. Do not overcharge the batteries, maximum charging time for ATP-201D is 14 hours.

6.1 FUSES

There are two panel mount fuses holders on the ATP-201D. They are located on the right side face between the charger and data socket. The first (F1) nearest to the charger socket is protection for the timing gate power input and the timing processor; it is rated at 500mA M205 style. The second (F2) nearest the data or printer connector is protection for the printer charging circuit and is rated at 3 amp also M205 style.

7.0 OPTIONS

7.01 TIMING GATE

When Timing Gate option has been fitted, power for the gates is protected by a 500mA 2AG fuse, located near the charger socket. Battery charging circuit is also altered to allow the battery to be charged while the unit is switched on.

7.02 TIMING INHIBIT

The TIMING INHIBIT connector (Gold RCA socket) is located below the gate input connectors. If this input is left open circuit then there is no change to timer operation. If this input is short circuit when a race is started, then finish gates or buttons are inhibited until the short circuit is removed. The front panel display will indicate which mode the system is in after a race has been started.

Notes:

Text shown in *green italics* represent recent updates to system operation.

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PRINTER 1000 SERIES USER GUIDE

The 1000 series printers are dispatched from the factory with no charge in the batteries for safety and storage reasons.

RS232 INTERFACE

Printers with an RS232 serial interface are fitted with a D25 socket. Connections to this socket are as follows: -

Function	Pin	Direction
TX	2	OUT
RX	3	IN
CTS	5	IN
GND	7	
DTR	20	OUT

Note that RTS is not implemented but pin 4 is pulled up to +10v via a 1K resistor.

Power Supply

Internal NICAD batteries. A supply of 9 – 15 V D.C. unregulated or 12v regulated at 0.6A (nominal) is sufficient to recharge the batteries. Following an initial charge of approximately 20 minutes this supply will be sufficient both to operate the printer and charge the batteries. The maximum on-load terminal 'voltage supplied to the printer must be limited to 12V. A full battery charge will take approximately 14 hours. The printer incorporates a power saving feature that turns the printer off after 1 or 5 minutes inactivity (user selectable). This feature may be disabled if desired.

Power On Procedure

Check the batteries are sufficiently charged or that the power supply is correctly fitted and operational. Open the lid and ensure that paper and a ribbon are present and that there are no foreign objects inside the paper well or mechanism. Close the lid, ensuring that the paper passes through the paper exit slot. Switch on the printer by pressing the "1" on the switch panel. The power-on indicator will light and the mechanism will reset.

Paper Loading

If the paper roll needs replacing open the lid and remove the remaining paper using the feed switch - do not pull paper out of the rear of the mechanism. Reel off a few centimeters from a new paper roll and check that the end is square. Sit the new roll in the paper well with the paper emerging from the bottom of the roll. Make sure the printer is on and offer the paper into the back of the mechanism whilst pressing the teed switch. Keep the teed switch depressed until enough paper is fed out of the mechanism to pass through the exit slot in the lid. Feed the paper through this slot and close the lid.

Ribbon Change

The ribbon cassette will clip off on one side and may be easily removed. After checking that the ribbon is taut, clip it into position making sure that the paper still reeds between the ribbon and the cassette body correctly. Wind the knob as shown to take up any slack in the ribbon. Close the lid ensuring that the paper passes through its exit slot.
Ribbon type Epson ERC09 or equivalent.

Paper Feed

For a single paper line feed, press and release the feed switch. For continuous line feed keep the switch depressed. The power indicator turns off when the feed switch is depressed.

Default Settings

The standard 1000 printer is supplied with the following default settings:

Data bits	: 8	
Parity	: None (Serial units only)	
Baud Rate	: 9600 (Serial units only)	(set to 1200)
Character Set	: UK	(set to US)
Print Mode	: Text	
Auto-Off	: 5 min	
Interface	: As applicable	
Mechanism	: as applicable	
Emulation	: Standard	

Note: These settings may vary on units modified for specific customers.

Self Test

To initiate self test press the power and feed switch together until the test starts. This will check all the mechanics and a large proportion of the software and hardware (except that dealing with the data interface) without the need for connection to a host. The software version is printed in double height, double width text, followed by the character set in normal text and a list of the current settings of the user selectable options. If the settings are correct for your host you are ready to connect the printer to your system; otherwise you will need to reprogram the printer. The self-test is repeated until the power is switched off. Power on again for normal operation.

Program Mode

The front of the unit displays a power-on indicator and four switches which are labeled on the panel from left to right as shown above. The program switch is hidden under the □. Press the program and power-on switch together to initiate the set-up mode. The power-on indicator will flash every second until set-up mode is turned off. The current parameter status will then be printed.

Press and release the feed switch to print each parameter status.

Example:	Data bits: 8. Pressing the program switch will change the status of a parameter. Each parameter table rotates so "no parity" follows on from "even parity"; 300 baud follows on from "19200 baud" and so on.
Example:	Baud Rate: 300,600, 1200, 2400, 4800, 9600, 300... Parity: No parity, Odd parity, Even parity and No parity...

When all the necessary changes to the parameters have been made press the program and the feed switch together to update the status of the printer. If no switches are pressed for 15 seconds the set-up mode is terminated without changing the original parameters.

Diagnostic Mode

This mode allows the user to reveal the control codes and characters that are being sent to the printer. To enter diagnostic mode initiate self test and keep the feed switch pressed until "DIAGNOSTIC MODE" is printed. The power-on indicator should flash every two seconds. Characters 00H to 1FH are translated to characters 40H - 5FH, the control characters being indicated by an underline. Normal characters are not underlined.

GENERAL SAFETY POINTS FOR THE PRINTER

This equipment has been designed and tested to meet strict international safety requirements. Attention to the following general guidelines will ensure its continued safe operation.

- Always exercise care in moving/positioning equipment.
- Always site equipment on a surface suitable for its weight.
- Always connect mains equipment to a properly grounded power socket, and ensure that the socket installation complies with local regulations.

For protection against electric shock, certain parts of equipment, including the interface connections, are designed such that the voltage is limited to a safe value. In order to maintain this protection it is essential that any equipment connected to the printer has interface connections that are similarly protected. It is recommended that assurance be obtained from manufacturers / suppliers of such equipment that interfaces comply with the requirements of PELV circuits in accordance with local regulations.

In some cases where equipment is supplied with a molded mains plug which is not compatible with local sockets the molded plug should be cut off and destroyed. **MOULDED MAINS PLUGS WITCH HAVE BEEN CUT OFF ARE POTENTIALLY DANGEROUS AND MUST BE DESTROYED.**

Unless equipment is designed to be used without an earth, e.g. battery powered or double insulated equipment; the equipment must be earthed.

Do not remove plates, covers or guards that are secured in place by screws or clips. There are no user serviceable areas within such covers and their removal will invalidate the warranty and may pose a safety risk.

Do not override or defeat mechanical or electrical interlock devices.

Do not allow hair, jewelry or clothing to hang into the equipment (particularly whilst changing consumables) since this poses a serious safety risk.

Always use the correct consumables (e.g. paper and ribbons). Else of incorrect consumables will invalidate the warranty and may result in degraded performance/reduced equipment life.

Do not operate the equipment if unusual smells or noises are noticed. Turn the equipment off and contact your supplier for advice.

Battery powered equipment may be shipped in a discharged state. **ALL BATTERY POWERED EQUIPMENT SHOULD BE FULLY CHARGED PRIOR TO USE.**

Due to the storage characteristics of batteries in any equipment, they should not be subjected to prolonged storage without being recharged. FAILURE **TO RECHARGE SUCH EQUIPMENT** AT REGULAR INTERVALS **(9 MONTHS MAXIMUM) MAY RESULT IN SEVERELY DEGRADED BATTERY PERFORMANCE.**

If equipment is returned for service the contents of any data or program stores are likely to be lost -users are advised to retain copies of their data and programs.

The batteries used in battery powered equipment must be disposed of safely in line with local legislation. **UNDER NO CIRCUMSTANCES SHOULD THEY BE INCINERATED.**