ILFORD
DT600 INSTRUCTION MANUAL

ILFORD WEST 70 CENTURY RD.
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IMPORTANT SAFEGUARDS

When using your photographic equipment, basic safety precautions should always be followed, including the following:
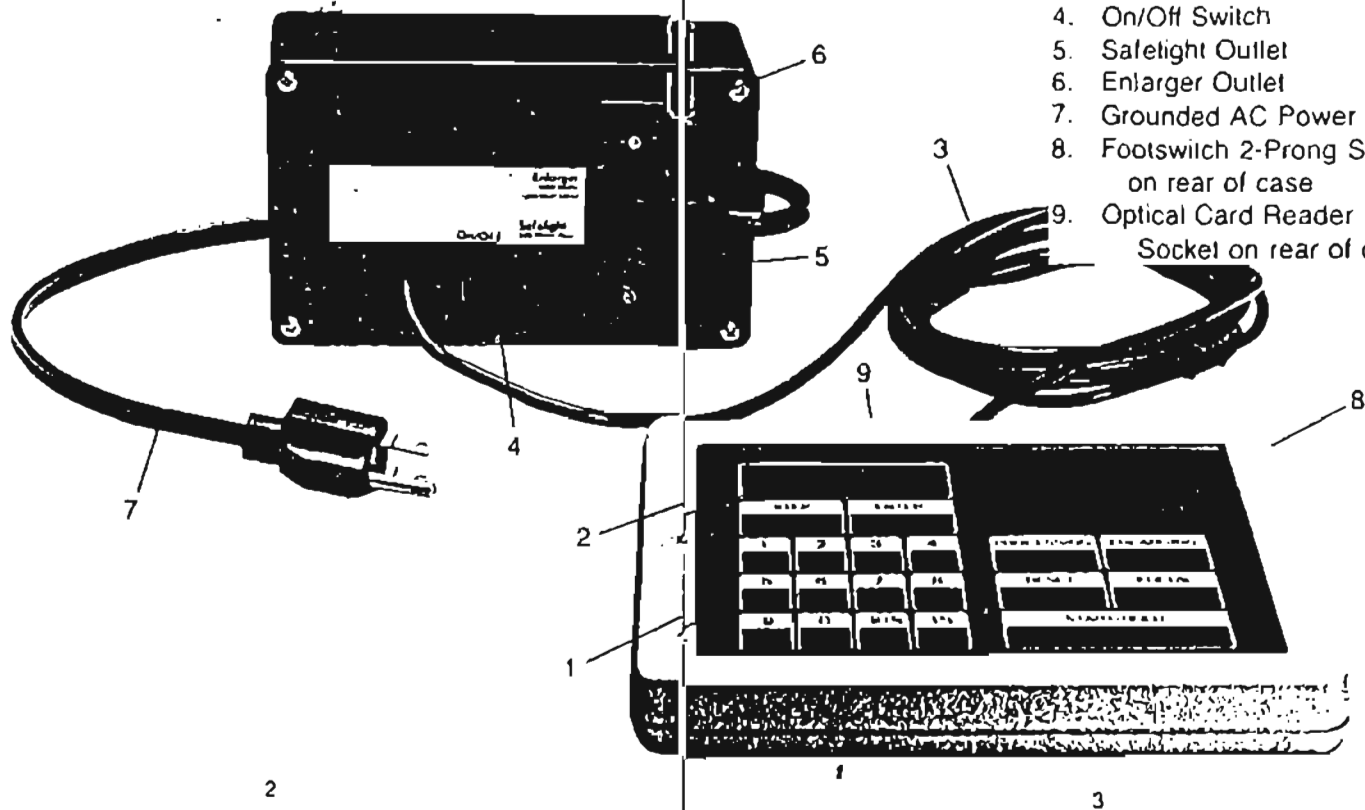
1. Read and understand all instructions.

2. Close supervision is necessary when any equipment is used by or near children. Do not leave unattended while in use.

3. Do not operate with a damaged cord or if the Timer has been dropped or damaged — until it has been examined by a qualified serviceman.

4. Do not let cord hang over edge of table or counter or touch hot surfaces.

5. If an extension cord is necessary, a cord with a suitable current rating should be used. Cords rated for less amperage than the Timer may overheat. Care should be taken to arrange the cord so that it will not be tripped over or pulled.

6. Always unplug the Timer from electrical outlet when not in use. Never yank cord to pull plug from outlet. Grasp plug and pull to disconnect.

7. The Remote Power Pack should be kept away from wet areas. Very low voltage is channeled to the Timer, hence there is no danger if touched with wet hands.

8. To protect against electrical shock hazards, do not immerse the Timer in water or other liquids.

9. To avoid electrical shock hazard, do not disassemble the Timer, but take it to a qualified serviceman when some service or repair work is required. Incorrect reassembly can cause electric shock hazard when the Timer is subsequently used.

SAVE THESE INSTRUCTIONS

CONTENTS

1. Control Panel
2. Display Area
3. Control Cord
4. On/Off Switch
5. Safelight Outlet
6. Enlarger Outlet
7. Grounded AC Power Cord
8. Footswitch 2-Prong Socket
   on rear of case
9. Optical Card Reader 10-Pin
   Socket on rear of case

The DT600 Timer offers both Enlarging and Processing time control. The DT600 Timer is uniquely easy to program, simple to use, and accurate to = .01 second. It is designed to allow optimum ease in timing all of your darkroom work. It's features include:

- Enlarging timing range 0 - 99.9 sec.
- Process timing range 0 - 9 min. and 59 secs. for each of 10 Steps, thus a total time of over 100 minutes
- Punched Card Program Storage
- Easy Card Reader Program Entry
- Audio tones for End of Step, 1 second tone for burning and dodging and film processing
- Large digit display with variable brightness control
- Backlighted Touch Control Panel
- Remote Power Source included

SET-UP

- Plug remote power source into conventional 110V AC outlet.
- Place Power source so that Enlarger and Safelight can be plugged into outlets marked "ENLARGER" and "SAFELIGHT".
- Place Timer near enlarger and processing area so that it is within convenient reach of both.
- Plug Card Reader into 10 pin socket on back of timer.
- Turn entire unit on with "on/off" switch on Remote Power Pack.
- Optional footswitch is plugged into 2-prong socket on back of timer.

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BASIC PROGRAMMING PROCEDURE

Set up Timer and turn Power ON, Then . . .

In order to:	You touch:
Select Mode ex: Enlarging (decimal point will light for seconds and tenth of second indication)	"ENLARGING"
Put Timer in Entry Mode	"ENTER"
Enter time ex: 12.5 seconds	"1"
	"2"
	"5"
Look at time displayed—if it is correct, enter it into Memory. If incorrect simply touch numbers until correct time is displayed then enter	"ENTER"
Switch to Processing Mode (Colon will light for a minute & second indication)	"PROCESSING"
Put Timer in Time Entry Mode	"ENTER"
Enter time desired for Step 1 ex: 2 minutes	"2"
	"0"
NOTE: Fill all 3 digit spaces with a number	"0"
Look at time displayed—if it is correct, enter it into Memory. If incorrect simply touch numbers until correct time is displayed then enter	"ENTER"
Timer is automatically ready to accept the time for the next step.	

Enter the
 desired numbers.
 ex: 4 minutes
Put in memory

"4"
"0"
"0"
"ENTER"

Continue entering times as
 above—up to
 10 steps. When complete, cancel the
 Entry Mode—Timer resets to Step 1.

"RESET"

Timer is ready for usage: Select
 desired Mode/Operation

"ENLARGING"
or
"PROCESSING"

To begin countdown   "START/HOLD"

To hold countdown (Pause)   "START/HOLD"

To resume countdown   "START/HOLD"

NOTE: Timer will continue to countdown from one step to
      the next unless interrupted by touching "START/
      HOLD."

KEY PAD FUNCTIONS

Key Pad	Functions
START/HOLD:	Touch to Start countdown Touch to Hold countdown Touch to restart
RESET	1. To stop any countdown, touch "START/HOLD" then touch "RESET". The timer will cycle back to Step 1 in the Processing mode or to the time in the Enlarging mode.

2. Touch "RESET" to cancel the
   programming mode.

FOCUS: Touch to turn enlarger on. Touch
                 again to turn enlarger off. NOTE:
                 THE ENLARGER CAN BE TURNED
                 ON TO COMPOSE AND FOCUS
                 THE NEXT PRINT WHILE IN
                 PROCESSING MODE. A
                 PROCESSING STEP
                 COUNTDOWN WILL NOT BE
                 INTERRUPTED OR AFFECTED.

PROCESSING: Touch to enter the Processing time
                 mode. Colon will light. Time will be
                 displayed in minutes and seconds.
                 (EX 1:25). NOTE: The unit will not
                 allow you to accidentally go to
                 enlarging mode while in procsesing
                 sequence—nor could you do the
                 reverse.

ENLARGING: Touch to enter Enlarging time mode.
                 Decimal point will light. Time will be
                 displayed in seconds and tenths of a
                 second. (11.5).

ENTER: Touch to put timer into number Entry
                 mode. To enter numbers into timer
                 memory, touch enter pad.

STEP: Is used ONLY to recall a specific
                 processing step by number. Ex: If
                 you have two separate programs in
                 the memory, one beginning with Step

6

7

1 an the other with Step 5, you may
go directly to the second program by
touching "Step" "5".

NUMBERS

1-0:
When entering time, the numbers are
brought into the display by touching
the numbered pads.

30S:
In Processing mode, touch to turn on
the 30 second tone; touch again to
turn off the tone. The tone is heard at
the minute and half-minute points in a
countdown

1S:
In Enlarging mode, touch to turn on 1
second metronome. Touch again to
turn off 1 second metronome.

NOTE: 30S and 1 tones can be turned "on" or "off" as desired
during countdown without disturbing the count.

NOTE: When active key pads are touched a tone will be heard.
The timer is designed to inactivate particular keys during
certain functions. No tone will be heard when an
inactivated pad is touched. This will prevent accidental
entry of numbers and assist you in programming During a
countdown the only active pads are "1S", "30S",
"FOCUS" and "START/HOLD". When in hold, the
"RESET" pad becomes active.

OPTICAL CARD READER INSTRUCTIONS

OPTICAL CARD READER PROGRAMMING PROCEDURE

The Optical Card Reader supplied with the DT600 Timer allows
the user to record often-used processing sequences on plastic
program cards (2 supplied). The cards are easily programmed
using the hole punch supplied with the units and can be entered in
seconds. Additional program cards can be purchased from your
photo dealer.

PROGRAM CARDS

Programs of up to 10 Steps can be punched into the Program
Cards. A space has been provided at the top of each card for
program identification. If desired, a nail hole can be punched for
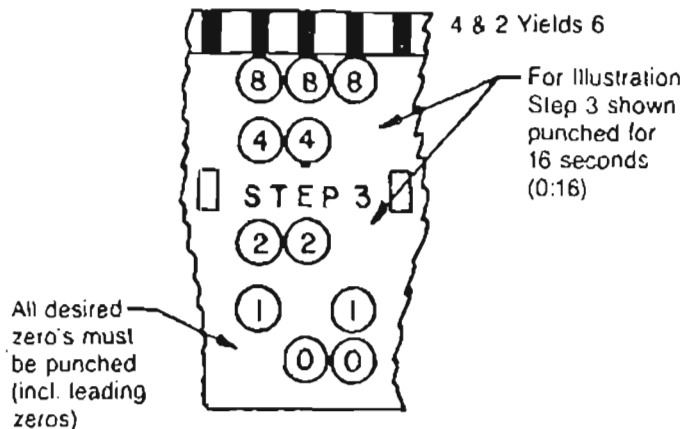easy storage.

The white circles on the cards provide an easy guide for
punching. It is not necessary to remove all the circle, although the
punched hole should stay within each white circle.

The number system is called BCD (Binary Coded Decimal). The
presence or absence of a hole tells the timer what number is
desired by its weighted position on the card, 0,1,2,4, or 8, or a
combination of 1,2,4, and/or 8 (ie: 8 + 1 = 9).

SOME DO'S AND DONT'S

1. At least one hole should be punched for each digit, (ie: M
(min.), 10 S (10's of seconds), and S (Seconds) for each
step of the program.

2. Punch a 0:00 step at the end of the program so the timer
will know when to stop. The remaining steps can either be
left unpunched or punched with all the 0's.

3. To punch a number other than 1, 2, 4, or 8, simply punch a combination of holes whose sum equals the number desired. (ie: 3 = 1 + 2 or 7 = 4 + 2 + 1, etc.).

4. Do not punch a "0" and a number.

5. The card should not be marked except in the spaces provided or punched (except in the white circles and nail hole), especially along the entire edge with the black stripes.

6. Do not Bend or Fold the card.

7. If desired, two short programs can be punched into the same card. Always punch a 0:00 step between programs so the timer will stop at the end of the First Program.

4 & 2 Yields 6

For Illustration Step 3 shown punched for 16 seconds (0:16)

All desired zero's must be punched (incl. leading zeros)

READER OPERATION

When ready to LOAD a program with a programmed card:

1. Push the "Processing" Key on the timer (always push this key before inserting card to set the timer into Step 1.)

2. Insert card in the direction to match the arrows on the card and reader, (with the numbers on the card readable).

3. Pull the card through the reader SLOWLY in order to read each number as it enters the display. If you can read each number the speed is correct. With experience, you can listen to the "beeps" and tell the correct speed. The number sequence should be checked after entry until the user is confident.

4. Pull the card SLOWLY and SMOOTHLY completely through the reader.

5. After the card is removed, push the "Reset" Key on the timer to return to Step 1 and the timer is ready for processing.

6. To load a short program starting a step other than "1", simply push "Processing", then "Step", and then the number you wish your short program to start, i.e. to load a card punched with 2:00, 4:00, 3:00, 3:00 into steps 7, 8, 9, & 10

   1. Push the "Processing" Key
   2. Push the "Step" Key
   3. Push the "7" Key
   4. Pull the card through the reader slowly
   5. Push "Reset"

Then to use this sequence just loaded push "Step", "7", and "Start".

Unit will display zero until numbers are entered. Put timer in "ENTER" mode then touch desired number pads. Numbers will appear in the extreme right position of display area, (0 . 1). then move left a space when the next number is entered. (1 . 2), and left again for a 3 digit display (1 2 . 5). In the Enlarging mode, the left digit is blank if '0" (0 . 0).

While in Entry mode the numbers can be changed by simply touching new sets of numbers. If you wish to enter the numbers displayed into memory touch "ENTER".

The numbers entered into memory will remain in the unit as long as the power is left on. If unit is turned "off" then "on", memory will be erased.

If all ten Steps are not utilized in Processing mode, program the Step beyond the last step in a time sequence as 0:00. When the timer hits all zeros it will automatically cycle back to Step 1 and wait to be restarted. NOTE: If all ten steps are used in sequence, it automatically recycles back to Step 1

A. REVIEW PROGRAMMED TIMES

Method 1.

Reset timer .... Touch "RESET"
(Step 1 time will appear in display)

Indicate Step to be checked .... Touch "STEP"
and its' number   "1"
ex: Step 1 time will appear in display

To continue to Step 2 .... Touch "STEP"
                                                              "2"

Step 2 time will appear in display

Continue on through Step 10 and Remember for
Step 10 .... Touch "STEP"
                                                         "0"

Method 2:

Reset timer .... Touch "RESET"
(Step 1 time will appear in display)

By touching the "ENTER" pad, the
series of time will appear in
display therefore .... Touch "ENTER"
.... (Step 1 time will appear again).

                                      Touch "ENTER"
.... (Step 2 time will appear).

                                      Touch "ENTER"
.... (Step 3 time will appear).

· Continue on to Step 10

If you continue to touch the "ENTER" pad past 10 times, Step 10 will continually reappear in display. When you are finished checking the sequence of Step times, to go back to Step 1 touch "RESET".

IF A CHANGE IN A STEP IS REQUIRED, RETURN TO THE STEP BY TOUCHING "STEP" AND THE NUMBER. TOUCH "ENTER", TOUCH IN NEW TIME DESIRED. TOUCH "ENTER" AGAIN, THEN "RESET".

B. AUDIO TONES

Selective Audio tones

In the Enlarging mode a 1 second metronome tone during countdown can be turned on at any time by touching the "1S" pad. It can be turned off by touching "1S" pad again.

In the Processing mode, a tone for every 30 second signal can be turned on. The tone is for 1 full second at the half minute and full minute marks in a countdown. This tone can be turned on anytime by touching "30S" and turned off by touching "30S" again. The primary use of this feature is to remind you when to agitate film.

Automatic Audio tones

In Enlarging there will be a tone the last full second of the exposure time.

IN PROCESSING, THERE WILL BE A SET OF GRADUATED END-OF-STEP TONES AS FOLLOWS:

15 SECONDS BEFORE END-OF-STEP—3 TONES WILL BE HEARD
10 SECONDS BEFORE END-OF-STEP—2 TONES WILL BE HEARD

1 FULL SECOND TONE WILL BE HEARD THE LAST SECOND OF A STEP.

C. DISPLAY BRIGHTNESS CONTROL

A 9-step range of display brightness can be selected by touching the following keypads

1. To select the dimmest level, touch "0" and at the same time touch "1"

2. To select the brightest level, touch "0" and at the same time touch "9"

Level of brightness between 1 and 9 can be selected by touching "0" and "2" or "0" and "3", etc.
1 is the dimmest
9 is the brightest

D. TO BEGIN A PROCESSING SEQUENCE AT ANY STEP:

To restart Process sequence at any particular step, stop countdown, touch reset, then return to the desired Step by touching "STEP" and the appropriate number—ex: "2".

To select Step 10, touch "STEP" and "0"

E. ALTER A TIME FOR SINGLE USE.

The time of the 1st step in a sequence or the enlarging time can be altered for a single usage without changing the memory.

In Processing mode . . . . Touch "ENTER"
Touch in time desired

But DO NOT enter time into memory by touching "ENTER" again—simply begin countdown. At the completion of the programmed sequence, timer will cycle back to Step 1 with original time

But DO NOT touch "ENTER" again—simply start the countdown. At the completion of the exposure, timer will display original time in memory.

F. PROGRAMMING MORE THAN 1 PROCESSING SEQUENCE

The 10 Processing Steps can be programmed for 1 or more Processing time sequences. For example: Step 1 - 4 can be programmed for a 4 Step process, Steps 5 - 10 can be set up for a 6 Step process or any other combination.

Suggestion: Timer will cycle through all 10 Steps automatically unless interrupted. When it finishes the countdown in Step 10, it will cycle back to Step 1. Remember to begin the sequence at Step 5—touch "STEP" "5", then "START".

To automatically recycle the first program, it must be followed by a "000" Step

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ex: Step  1 - 5:00 ⎫
          2 - 1:00 ⎬  First Program
          3 - 4:00 ⎭

          4 - 0:00     Timer notes end of first program—
                         recycles to Step 1

          5 - 4:30 ⎫
          6 - 1:00 ⎪
          7 - 3:00 ⎬  Second Program
          8 - 1:00 ⎪
          9 - 2:00 ⎪
         10 - 1:00 ⎭
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- Timer case is constructed of durable ABS plastic.

- The Control Panel can be easily wiped clean with damp cloth. When it's necessary to clean unit, do it before programming timer for use so that you do not alter memory while wiping the touch panel.

- Remote Power Supply should if possible, be kept away from wet area. Very low voltage is channeled to the timer, hence there is no danger when touched with wet hands.

- If the unit ever appears to not function properly, turn the "on/off" switch to "off" and then back to "on" to restart the microprocessor and normal operation should resume.

Type:	Enlarging and Processing Timer
Display:	3 LED displays (.43) with variable brightness control
Memory Capacity:	Remembers enlarging time and 10 processing times.
Circuitry:	Advanced microprocessor design
Time Range:	Enlarging Mode: 0 - 99.9 sec. Processing Mode: 0 - 9 min., 59 sec. for each of 10 steps for a total of over 100 mins.
Time Entry Method:	Manual entry via backlighted touch control panel or optical card reader
Audio Signals:	Enlarging Mode — 1 sec. end of exposure — 1 sec. tone (optional use)
	Processing Mode— Graduated end of step signals 3 tones at 15 sec. 2 tones at 10 sec. 1 tone at end-of-step
	Signals every 30 sec. for film agitation (optional use)
Accuracy:	± .01 sec.
Resolution:	0.1 sec. in enlarging mode 1 sec. in processing mode

Dimensions:	Timer—7.2 × 5.5 × 1 inches (182.9 × 139.7 × 25.4 mm)
	Remote Power Source—5.0 × 3.5 × 2.25 inches (127 × 88.9 × 57.2 mm)
Power Requirements:	110 volts/60 Hz
Power Pack Outlet Capacity:	Enlarger 1,000 watts max. (300 watts, 115v lamp)
	Safelight 300 watts max.
Optional Accessories:	Footswitch—Start/Stop/Restart Program Cards (Supplied in 5 packs)