



StopClock

Professional 500
f-Stop Enlarger Timer

Instructions for use



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CONTENTS OF THE PACKAGE

The StopClock package contains the following items: the timer itself, and a footswitch. If any of these items are missing or damaged contact your supplier immediately.

CAUTION

Please read these instructions carefully and fully before installing or using your StopClock.

WARNING: THIS VERSION OF THE STOPCLOCK IS FOR USE WITH ILFORD MULTIGRADE 500 SYSTEMS ONLY.

The unit takes its power supply from the Ilford 500 Power Pack and directly controls the enlarger lamps. Unlike the Ilford controller, exposure and contrast are controlled by a split-grade system in which two exposures are made using the green and blue lamps at full power in sequence. The total time controls exposure, and the ratio of blue to green times controls the contrast.

Repair service is available - return the unit to RH Designs if repairs become necessary. **Do not attempt to open the unit or to remove any covers. Doing so may expose dangerous voltages.** Do not drop the unit or subject it to mechanical shock or extremes of temperature or humidity.

Like other electronic equipment, StopClock can be damaged by water or chemical spillage. Do not install this equipment where it may be subject to water or chemical spillage or splashes. Should such spillage occur, disconnect the equipment from the mains supply before attempting to clean it.

This unit is designed to control the Ilford 500 enlargers and safelights only. Connection of any other type of equipment to this unit may present a safety hazard and will invalidate all warranties.

GUARANTEE

This equipment is guaranteed against faulty components or manufacture for a period of two years from the date of original purchase. Should a fault develop within this period, call RH Designs with a description of the fault. If the problem cannot be solved over the telephone we will repair or replace the equipment (at our option) at no charge. This guarantee does not affect your statutory rights. Damage due to misuse of the equipment, and any consequential loss arising out of the use of the equipment are not covered by this guarantee.



This product is designed and constructed in accordance with applicable European Standards





Installation Guide

Installation of the StopClock Professional 500 is simple. Switch off the Ilford 500S Power Pack and unplug any existing Ilford controller. Plug the StopClock's connector into the socket on the 500S as shown, making sure it is fully home.

Switch the 500S on. The StopClock's display should illuminate, run through some power-up checks and then settle at 16.0 seconds. If it does not light up, check that the 500S power pack is switched on and that its pilot light is illuminated. Check that the StopClock's connector is pushed fully home into the socket. If there is still no response contact us for advice.



Plug the StopClock 500 into this socket

Lamp Saver

The Ilford 500 head uses powerful lamps which produce a lot of heat, so the controller incorporates an automatic lamp saver function which switches the lamps off after a preset time. This cannot be disabled.

Safelight Control

The safelight switching is performed by the 500S Power Pack; the safelight is switched off whenever either enlarger lamp is illuminated. This is not under separate control of the StopClock.



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Introduction

Thank you for choosing StopClock Professional, the most versatile and useful enlarger timer designed *by* photographers *for* photographers. With the StopClock you will learn to think of exposure time in terms of linear changes in print density, making it much easier to previsualise the effects of exposure changes and to judge the amount of burning in that might be necessary. The StopClock can store a sequence of exposures so that once a printing sequence is set up, you can run off a number of copies of the print without having to reset the timer between prints or between exposures.

The StopClock Professional builds on the experience we've gained with the original StopClock, and adds a number of important new features. We've also incorporated features suggested by our customers, and are always open to suggestions from users to be incorporated into future upgrades.

Please spend a little time familiarising yourself with this manual and with the StopClock's controls before installing it in your darkroom, this will maximise your chances of early success with the product.

We have laid out this manual as a series of operations, beginning with the basic operation of the timer, and then progressing through making a test strip and making burn-in exposures to programming a complete printing sequence. Each operation is described diagrammatically, with detailed notes to accompany the basic description.

The following notation is used:

- Press the indicated key briefly and release

Ⓢ Press and hold the indicated key until the display responds, then release

F See note regarding this key

Following the operational description there is a reference section in which the operation of all the keys and indicators is defined.

Initial setting up

The StopClock Professional 500 is supplied with a cable fitted with a plug suitable for direct connection to the Ilford 500 Power Pack. **Ensure that the Ilford Power Pack is switched off**, then disconnect the existing Ilford Control Panel, and plug the StopClock's connector into the socket on the Power Pack and switch on. The display lights up, and after a short test sequence will show



Key / function reference chart

Mode / Key	Normal Mode	Program Mode	Set Compensation Mode	Set Grade Mode
Start/Stop	Print / pause / resume. Press & hold to change channels	Print the current step	n/a	Cancel set grade mode
Focus	Switch enlarger on/off manually. Press & hold to set User Options	Switch enlarger on/off manually	n/a	Cancel set grade mode
Store	Enter Program Mode. Press and hold to start a Test Strip	Advance to next program step	n/a	Cancel set grade mode
Exit	Exit from a stored sequence before its end. Clear program (press and hold), if any	Return to Normal mode	Return to Normal mode	Cancel set grade mode
Up	Increase time by one step. Press together with Down to set Coarse stepsize	Increase time by one step.	Increase compensation by 1%	Increase grade by 0.5 (coarse mode) or 0.1 (fine mode)
Down	Decrease time by one step	Decrease time by one step	Decrease compensation by 1%	Decrease grade by 0.5 (coarse mode) or 0.1 (fine mode)
Compensate	Switch compensation (dry-down) factor on/off. Press & hold to set factor	Switch between base and burn functions	n/a	Cancel set grade mode
Coarse/Fine Split Grade	Enter Set Grade mode	Enter set grade mode for current step	n/a	Press and hold to toggle coarse/fine setting



More about the Split-Grade Printing System

Split-Grade printing is a technique of printing on Variable Contrast black and white papers in which the highlights are printed using a very soft grade and the shadows printed in separately using a very hard grade. The technique allows the correct contrast to be established for the negative. There is absolutely no difference between using this technique and using the standard Ilford controller's method of dimming the lamps independently, in terms of the result on the paper.

However, the system does have some advantages and disadvantages when it comes to dodging and burning-in. Because the highlights and shadows are controlled independently, it becomes possible to dodge or burn areas of the image for all or part of each exposure, thereby controlling contrast locally. For example, if an area is held back during the green (soft) exposure, the highlights will be lightened without significantly affecting the shadows, resulting in an increase in contrast in that area. Similarly, if the area is held back during the blue exposure, the shadows will be lightened resulting in a reduction of contrast. By careful use of this technique it is possible to make multiple exposures with different contrast settings on the same print. Of course, the standard programming system allows you to set a different contrast for each burn-in step, but the separation of the hard and soft exposures offers even more control over the result.

The converse of this is that if you do not want to affect contrast when dodging or burning, it's important to make sure you burn in an area for the full green and blue exposure. Fortunately, the StopClock 500's programme memories make this much easier as the burn in exposure(s) are separate independently timed steps and you retain full control using the Start/Stop key or footswitch.



16.0, signifying 16.0 seconds. If the display does not come on, check the mains supply, and check that the StopClock's plug is pushed fully home into the socket on the Power Pack. If there is still no response, call RH Designs for advice.

Once you have read through this booklet and familiarised yourself with the StopClock Professional, refer to the Installation Guide at the end of the booklet for information on how to set up the product in your darkroom.

Features

The StopClock Professional has a rich set of features to help you create fine prints, all of which have been incorporated as a result of our own experiences in the darkroom. Given that you'll be working in darkness for much of the time, we've arranged the controls and their operation in a logical manner which once mastered is very easy to use.

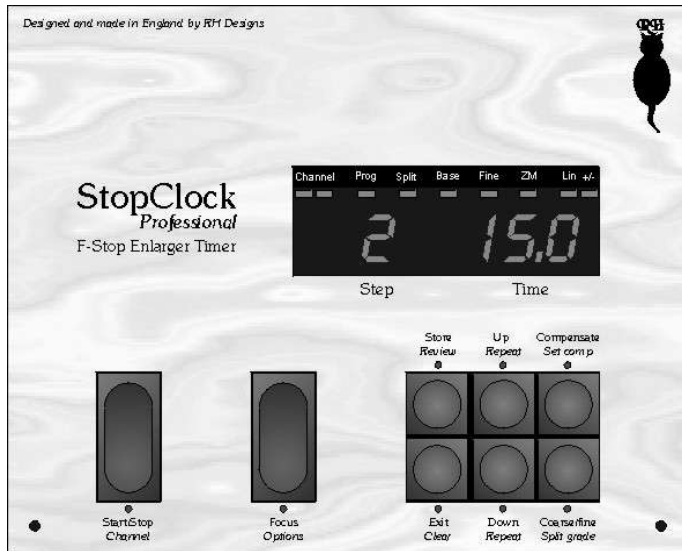
There are two separate timing channels. Each channel has a main exposure (called the Base Exposure) which will normally be the main exposure given to the print. Nine subsequent exposures can be set for each channel, for burning in purposes. If the Base Exposure is changed, the subsequent exposures are adjusted automatically to maintain the same density relationships between them - so you can proof at a small print size, then scale the Base Exposure for a bigger final paper size and StopClock will automatically adjust the remaining exposures. The two channels can be used independently.

Exposure time is adjustable in steps corresponding to fractions of an f-stop. The same keys are used for both (Up and Down). The step size can be set to your choice of 1/2, 1/3, 1/4, 1/6 or 1/12th f-stop at any time.

Contrast grade is adjustable in coarse (half a grade) or fine (tenth of a grade) steps. Pressing the "Grade" button allows you to adjust contrast using the Up and Down keys, after which the Up and Down keys revert to controlling exposure time.

The Compensation feature allows the exposure time to be scaled by a factor which you can set anywhere between -20% and +20%. This is designed primarily for "dry-down" compensation - you can assess a wet test print and then press the Compensate key to adjust the time to compensate for the increase in density as the print dries. This is a real time saver! The feature can also be used to compensate for subsequent toning processes - many of these processes require print density to be adjusted prior to toning to avoid loss of highlight or shadow detail.

Other features include an audible tick, dimmable display, alternative test-strip modes, and a selectable pause between the two exposures.



The Keypad and Display

The front panel of the StopClock is illustrated above. There are eight keys which will be referred to throughout this booklet by the names in **Roman** script on the panel. The names in *Italic* script indicate secondary functions of each key.

The display comprises 4 LED digits, the leftmost indicates the step number in a multi-step exposure sequence. The three rightmost digits indicate the time, or the contrast grade when in grade setting mode. Depending on the total time set, this display will be in seconds, tenths or hundredths of seconds. Grade is displayed in 0.5 (coarse) or 0.1 (fine) grade intervals.

Additionally there are six indicator LEDs as follows:

Channel	(Two LEDs) One LED lit indicates Channel 1 is in use, both lit indicates Channel 2
Prog	The unit is in Program mode
Base	The current program step is a Base exposure
Fine	Contrast Grade is being set in Fine (0.1 grade) steps
+/-	(Flashes) Compensation is active

How to calculate the dry-down factor

Select a negative with a good range of tones and make a straight print with no burning and dodging which, when wet, shows the highlight as you wish it to be in the final dried print. Make a second identical print. Identify them with a number 1 and 2 on the back. Make a note of the exposure time.

Ensure that the correct exposure time is set on the StopClock. Press the compensate key to activate the dry down function. Set the compensation factor to -08 and make a straight print. Mark 8% on the back of the print. Follow this procedure using 9, 10, 11, and 12% and remember to mark each print with the dry down factor used. After fixing wash as normal. Dry all prints except the one marked number 1, which should be left in a holding tray of fresh water. I use a microwave in the kitchen to speed up the drying process.

Assessing the results

Compare the dried prints with the print left in the holding tray. Comparison of the wet number 1 print with the dry number 2 print will illustrate the extent of the dry down. The dry down factor for the paper tested is the percentage shown on the back of the dried print that matches the wet print in the holding tray. Thereafter, when using this paper, dial into the StopClock this percentage and switch the compensation on **ONLY** when making the exposure for the final print.

A few tips

It is not necessary to make large prints for this test, I cut a 10" x 8" sheet of paper into 4 and make small prints. The dry down factor does not change with paper size. In the 25 years that I've been making prints I have found that the dry down factor for fibre papers is likely to fall between 8 and 12%. (RC papers are often less than this.) I test all papers I use every 12 months as paper characteristics can change.

Remember that the final print will look lighter than the test strip when wet. It will dry down to the chosen density so don't be tempted to make a second, slightly darker, print. My final prints have no tone at all in the highlights when wet.

Have faith and print well. A correctly exposed and processed black and white print should glow with clean delicate highlights and rich luminous shadows which show just a hint of separation in the darkest part.

Les McLean

January 2000



Test Strip mode. StopClock offers two alternative test strip sequences. As standard, test strip mode is set to ‘Incremental’ which operates as described in ‘Making a Test Strip’. In ‘Separate’ mode, StopClock will time a sequence of complete exposures so that complete prints can be made with gradually increasing exposure. Users of the Quadro proofing easel and similar techniques will find this mode more useful than Incremental Mode.

At the completion of each exposure in a test strip sequence, the total exposure for the next step is displayed briefly, followed by the time of the next step only.

Default switch-on time and stepsize. As shipped from the factory, the StopClock is set up with a switch-on time of 16.0 seconds and a stepsize of 1/4th stop. In User Mode you can change either or both of these settings. Using the Up and Down buttons, set the desired time and stepsize in the usual way; when User mode is exited, these settings will be stored and set automatically when the StopClock is next switched on. Note that there is only one setting for stepsize at switch-on; both channels will initially use this setting.

Default switch-on Contrast setting. As shipped from the factory the StopClock is set up with a switch-on contrast setting of grade 2.0. In User Mode you can change this setting. Set the desired contrast in the usual way; when User mode is exited, the setting will be stored and set automatically when the StopClock is next switched on. Note that there is only one setting for contrast at switch-on; both channels will initially use this setting.

Between-exposure Pause. As shipped from the factory the StopClock will time the green and blue exposures one immediately following the other. If you wish, you can set a pause between the two exposures, for example to give you time to pick up a dodging mask. Press the Up or Down keys to toggle this pause on and off.

Exiting User Mode. Press Exit to save your settings and return to normal mode.

Dry-Down Compensation

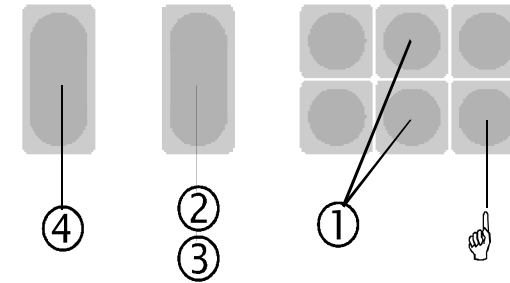
by Les McLean.

What is Dry-Down?

Dry down is the phenomenon responsible for many prints being confined to the darkroom wastebasket. The wet print looks bright and glows, but the following morning the highlights in the dried print are dull and the image lacks the contrast and bite of the previous evening. This is the demon dry down at work. It will affect all papers but is likely to affect fibre more than RC. All papers dry down differently therefore it is advisable to carry out the following simple test on each paper to determine the correct factor.



Basic Operation



- Set the time: Press Up to increase the time by one step, press Down to decrease the time by one step. The stepsize is 1/4 stop, or the currently set coarse stepsize (See Changing the Stepsize)
- F Press Split Grade to adjust the Contrast Grade. Adjust contrast in half grade steps using the Up/Down keys. Press and hold Split Grade to switch between coarse and fine (0.1 grade) contrast adjustment; in fine mode the Fine indicator lights up. The timer remains in Contrast setting mode for four seconds or until Clear is pressed.
- , Press Focus to switch on the enlarger. Compose and focus the image.
- f Press Focus to switch off the enlarger. Place your paper on the easel.
- „ Press Start/Stop to begin the exposure for the indicated time.

Notes

The Up and Down keys have auto-repeat. Holding the key down causes the time to change continuously until the key is released.

The Start/Stop key has a pause and resume function. While an exposure is in progress, press Start/Stop to pause; the enlarger is switched off. Press Start/Stop again to resume. This feature can be used repeatedly if required.

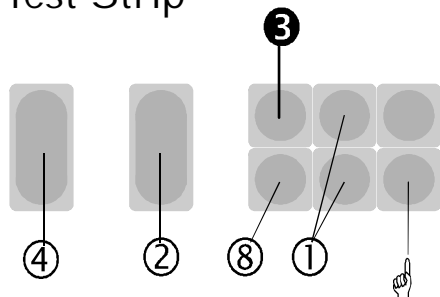
During an exposure, or while an exposure is paused, press any key other than Start/Stop and Focus to abort.

The footswitch exactly replicates the operation of the Start/Stop key; either may be used in place of the other at any time. Do not plug in or unplug the footswitch if the unit is switched on, this may start an unwanted exposure.

While an exposure sequence is paused, pressing Focus toggles the enlarger on and off. This can be useful for positioning dodgers etc.



Making a Test Strip



- Set the time: Press Up to increase the time by one step, press Down to decrease the time by one step. The test strip interval is 1/4 stop, or the currently set coarse (or fine) stepsize (See Changing the Stepsize)
- F** Press Split Grade to adjust the Contrast Grade. Adjust contrast in half grade steps using the Up/Down keys. Press and hold Split Grade to switch between coarse and fine (0.1 grade) contrast adjustment; in fine mode the Fine indicator lights up. The timer remains in Contrast setting mode for four seconds or until Clear is pressed.
- ,** Press Focus to switch on the enlarger. Compose and focus the image
- f** Press and hold Store to enter Test Strip mode
- "** Press Start/Stop to begin the first exposure - expose the whole of the paper for the indicated time.
- ...** Cover a strip of the paper. Press Start/Stop to begin the first incremental test strip exposure.
- †** Cover another strip of the paper. Press Start/Stop to begin the next incremental exposure.
- ‡** Repeat † until either the whole of the paper is covered or you have made the desired number of exposures.
- ^** Press Exit to exit the sequence at any time; the total number of exposures will be displayed for a short period.

Notes

The test strip interval is the same as the stepsize. Set this to the desired value if required before starting the sequence (see Changing the Stepsize). Always progressively cover the paper. Progressively *uncovering* it will not give the desired result. For an alternative test strip sequence see p.18, User Options.



Press Compensate to tell the StopClock that this is now the Base Exposure. Enter any further burn-in times in the usual way. When you make the print, the first exposure will be for the whole of the paper. The second exposure should be given to the whole of the paper except the area to be dodged. Only one dodging exposure can be set up in this manner - it is often easier to regard the shortest exposure as the Base Exposure and all subsequent exposures as burning in. Your dodge is then really a burn-in of the whole image except the area to be dodged.

Display indications during programming

When you first press Store, the display briefly shows 0. Prg, followed by a reminder of the stepsize in use. It then settles to show 1 0.00, i.e. step 1, time zero. If you now press Up, the display shows c and a number - this number is the length of the step in 1/12ths of a stop. If the stepsize is 1/4th, the number will be 03. Release the Up key and the display shows the equivalent in seconds. Press SplitGrade to adjust the contrast setting for this step if required. While in Contrast Setting mode the grade display shows 'G' and the time display shows the grade to within 0.1 grade.

Editing and clearing a program

If a program is already stored, pressing Store will sequence through it, displaying the length of each step. (While in this mode, you can also press Start/Stop to switch on the enlarger for the currently displayed time.) The step can be altered in length using Up and Down. A step cannot be deleted once entered; setting it to zero length will be interpreted as the end of the sequence and subsequent steps if any will be ignored.

Press Exit to return to normal mode. If the unit is in normal mode, press and hold Exit to erase the program completely.

More about User Options

There are a number of optional features in the StopClock which can be set by the user and which will be stored when the unit is switched off. This allows you to set up your StopClock to cater for your preferences. To enter User Options mode, press and hold the Focus key until the display shows USER. Press Focus again to setp through the options, and Up or Down to select the settings for each option.

Display Dimming. The display can be set to any of three brightness levels.

Audible Beep. Switches the seconds beep on or off. When switched on, a tick will sound every second during an exposure.

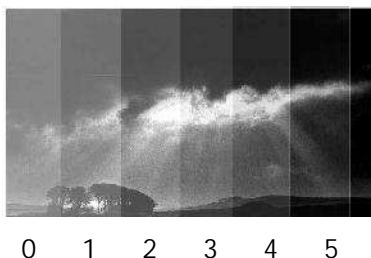


Program steps are all calculated relative to the Base Exposure and so can be judged independently of one another. For example, if you wanted to give a 1/4th stop edge burn to a print, you can set up four program steps each of 1/4th stop. As an alternative, you can make the base exposure and then enter Store mode, set a time of +1/4th stop, and then press Start/Stop to make the exposure and repeat as necessary. Each step can have its own grade setting as well as time - adjust the contrast when programming the respective time step.

The Base/Burn function

A slightly different situation arises when you want to burn in a smaller part of an area that has already received a burn-in exposure. You need to tell the StopClock that the next burn-in will be relative to the total exposure for this area and not to the Base. To do this, press Compensate once the step has been programmed. The Base indicator illuminates, and subsequent steps will be calculated relative to the sum of the base exposure and the current burn-in.

As an example, consider the test strip shown. We'll give the foreground the base exposure, the middle sky area +2, and the upper sky area +5. The first program step is easy, it's simply +2. The second one however is +3 relative to the previous step, or +5 over Base. You could burn in the two areas separately for +2 and +5, but you'd risk the appearance of a join - it would be better to burn in the top part of the sky on top of the burn-in already given to it. This is +3, but it's relative to a total exposure of Base+2, not Base alone. So set the program up as follows:



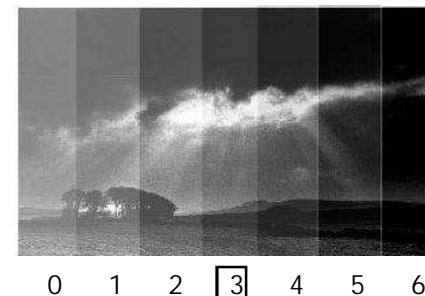
Press Store, then Up twice for the first burn-in. This exposure is to be used as a new base for the second burn-in so press Compensate; the Base indicator illuminates. Press Store, then Up three times. Press Exit to return to normal mode. To make the print, expose the whole of the paper for the Base exposure. Mask off the foreground and burn in the whole of the sky for step 1. Now mask off all but the top of the sky and burn in for step 2.

Dodging

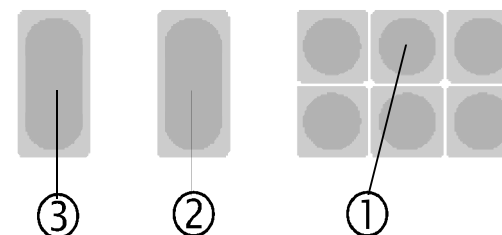
To set a dodging exposure time, proceed as follows. Reduce the Base Exposure by the desired dodge time (e.g. 1/2 stop). Press Store to enter Program Mode, and press Up to set a time equal to the dodge (1/2 stop again in this example).



Assessing the Test Strip and choosing a Base Exposure



Choose the optimum exposure and count the number of increments from the Base that it represents. In this example, the third increment is adjudged the best. To make a print, proceed as follows:



- Press Up the number of times that you determined from the test strip. In the example, this would be three times.
- Press Focus to switch on the enlarger. Compose and focus the image. Press again to switch off the enlarger. Place your paper on the easel
- f Press Start/Stop to begin the exposure.

Notes

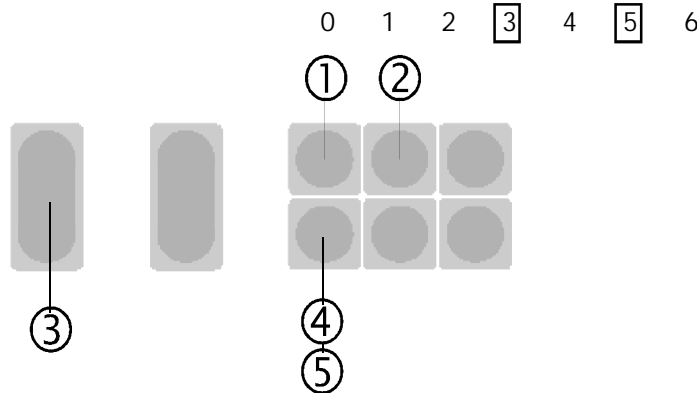
Because the StopClock operates in constant density intervals, there is a direct relationship between the test strip and the Time Set keys. You will have noticed from the test strip that the changes in density across it are consistent, so you can learn to predict density changes and relate them to keypresses.

A complete test strip sequence starts with the Base Exposure and comprises any number of exposures (subject to a maximum of 200sec for any one step) each one being one stepsize longer than the previous one. To abort the test strip sequence, press Exit at any time when the sequence is paused between exposures. The number of test exposures made will be displayed for two seconds.



Burning in an area

In the example based on the test strip made earlier, we'll choose exposure 3 for the main exposure, and exposure 5 for the sky area to add impact. The instructions below assume the time has been set for the main print as before, i.e. to the time corresponding to 3 on the test strip.



- Make the main exposure as before. Press Store. The Prog lamp lights.
- , The burn-in time is equivalent to an increase from test strip 3 to test strip 5, i.e. two increments, so press Up twice. The display shows the time difference between 3 and 5.
- f Mask off the area not to be burned in and press Start/Stop to begin the burn-in exposure.
- „ Press Exit to return to Base Exposure.
- ... Press and hold Exit to clear.

Notes

After you've made the burn-in exposure, the display's Step digit will show 1. At this point, you have actually entered a program into the StopClock's memory. You can retain this program and make a second print. Don't follow step ...; the Step digit shows 0 and the time shows the Base Exposure once more. Press Start/Stop to make the Base Exposure; when complete, press it again to make the burn-in exposure. You can repeat this as often as necessary. Press and hold Exit to clear the program (step ... above) when you've finished with it.



Up or Down key is equivalent to one step on the test strip. With practice, you will find that you can judge finer changes than those shown on the test strip - for example, say you have a test strip in 1/4th stop intervals, and the correct exposure looks to be part way between steps 4 and 5. Press Up 4 times; this will set the time for step 4 on the test strip. Now switch to 1/12th stop. There are three 12ths in 1/4th, so press Up another one or two times to set a time part way between steps 4 and 5 on your test strip. No need to even think about how many seconds are required - just the density you want on the final print.

Setting the Contrast Grade

The StopClock Professional 500 offers the traditional half-grade steps between grades 00 and 5, and the settings are correct for Ilford Multigrade IV RC with the standard 500 head. There is no attempt to equalise exposures for highlights or shadows as the changes required differ from one paper to another. To adjust contrast, press the SplitGrade key and then use the time up/down keys to set the grade required. For fine adjustment (1/10 grade steps) press and hold the SplitGrade key until the Fine indicator lights. The unit remains in contrast setting mode for four seconds or until Clear is pressed.

Changing channels

To change channels, press and hold Start/Stop until the display shows Ch 1 or Ch 2 as appropriate, then release the key. StopClock also beeps once on entry to Channel 1 and twice on entry to Channel 2, as an audible reminder. Each channel has completely independent base and burn-in exposures. A program stored in one channel is retained while the other is being used. The two channels can have different step sizes.

More about Programming

The ability to store a sequence of exposures is one of StopClock's most powerful features. A print can be built up from several exposures and these will be stored and executed in sequence. As a consequence, once a complex print sequence is stored in the timer, a number of copies of the print can be produced without the need to reset the timer either between exposures or between complete prints. If a proof print is made at a small paper size, a larger one with identical density relationships can be made simply by adjusting the base exposure - the timer recalculates all the burn-in exposures automatically.

The amount of burning-in required is judged from the test strip as usual, and again if you think in terms of by how many intervals on the test strip the exposure needs to be increased, that is the number of times you need to press Up when programming the step.



Reference Section

This section contains fuller descriptions of certain aspects of the StopClock Professional 500's operation, together with detailed information about programming, split grade printing and dry-down compensation.

The display indicators

Channel

Two LEDs are used to indicate which channel is in use. One illuminates for Channel One and both for Channel Two, so you can tell at a quick glance which is in use.

Prog

Illuminates whenever the StopClock is in Program mode - i.e. when you are storing a program or stepping through it using the Store key. It does not illuminate when executing a program.

Base

During programming, this indicates that the current step is to be regarded as a new Base Exposure (see More about Programming)

Fine

Illuminates when the Fine contrast step size of 1/10 grade is in use.

+/-

Flashes when a compensation factor is in use.

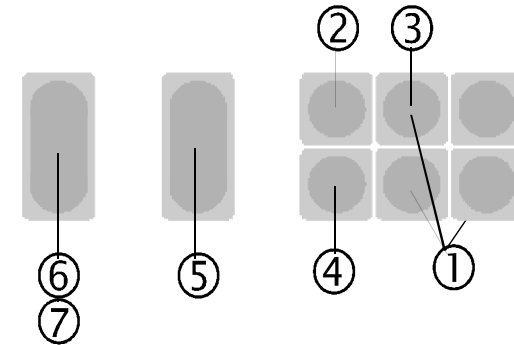
More about setting the time and contrast

For large changes to the time setting, it's convenient to change the stepsize to say 1/2 or 1/3 stops. At 1/2 stop for example, the entire time range can be covered in 15 steps. Once the approximate time has been reached, change back to a finer stepsize. After a bit of practice you will find yourself thinking purely in density steps and forgetting about the actual seconds equivalent altogether! Once this happens you will really start to benefit from the control the StopClock offers over your printing.

A fundamental advantage of the StopClock is the relationship between test strip intervals and the time setting keys. If the stepsize isn't changed between making a test strip and setting the new exposure time based on it, then one press of the



Programming a complete printing sequence



- Set the Base Exposure time.
 - , Press Store to enter the Program mode. The Prog indicator illuminates.
 - f* Set the desired burn-in exposure time.
- If you want to enter more than one burn-in exposure, repeat , and *f* .
- " Press Exit to exit Program mode.
 - ... Compose and focus the image
 - † Press Start/Stop to make the Base exposure.
 - ‡ Mask all but the first area to be burned in and press Start/Stop to begin the first burn-in exposure. If you have programmed more than one burn-in time, repeat this step as necessary until the end of the sequence. The Step indicator then reads 0, ready for a repeat sequence if required.

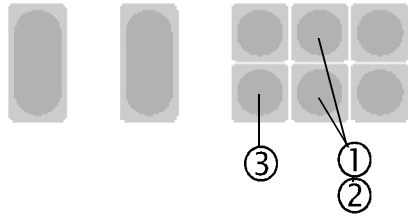
Notes

Each burn-in can be at the same or a different grade. Adjust the contrast grade when setting the time for the specific burn-in step if required. If the base exposure is subsequently changed, the programmed times will be recalculated to maintain the f-stop relationships. Changing the base exposure's grade changes the grade of the programmed steps as well **unless** they have been programmed with a different grade setting.

When Program mode is entered, the display briefly shows PrG followed by the currently set stepsize as a reminder. While the Up and Down keys are depressed, the display shows the burn-in time in 1/12 stop increments. For example a display of C 04 indicates a burn-in time of 4/12, or 1/3 stop.



Changing the Time Stepsize

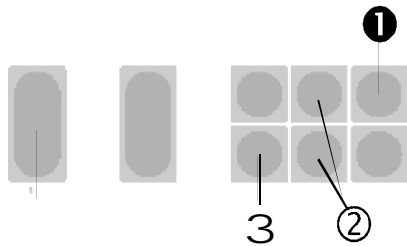


- Press Up and Down simultaneously. The display shows the currently set stepsize (e.g. 4 th).
- , Press Up to increase the stepsize; press Down to decrease the stepsize. The sequence is 12th, 6th, 4th, 3rd, 2nd.
- f* Press Exit to store the new stepsize and return to normal mode.

Notes

Changes made as above are temporary and will be lost when the StopClock is switched off. For a permanent change which will be stored, see User Options.

Setting and using Compensation



As shipped from the factory, the compensation is set to zero. To set a compensation factor:

- ⌘ Press and hold the Compensate key until the display shows c 00. Release the key. (If a compensation has already been set, the display will show the current value in place of 00)
- , Use the Up and Down keys to set the desired compensation in percent. A suggested starting point for dry-down is -09%. See the reference section for more information.



f Press Exit to save the settings and return to normal mode.

To apply the compensation factor to an exposure, press Compensate briefly. The +/- indicator flashes. Press the key again to return to normal. The compensation settings are saved when the StopClock is switched off.

Setting User Options

Various aspects of the StopClock's operation can be changed and your preferences stored permanently as User Options. Such options include the default coarse stepsize, the time set at switch-on, the test strip mode and so on. Full details of these options are to be found in the reference section.

To set the User Options press and hold the Focus key until the display shows USER. Release the key. Pressing Focus again steps through the available options in the sequence below. Press Up or Down to change the setting:

Display shows: Options:

DISP	sets the display brightness to one of three levels
BEEP	toggles the seconds tick OFF and ON
TEST	sets INCremental or SEParate test strip exposures
<STEP SIZE>	sets the step size at switch-on (factory setting "4th")
SECS	sets the exposure time at switch-on (factory setting 16.0 sec)
G 2.0	sets the contrast grade at switch-on (factory setting 2.0)
PSE	toggles the pause between green and blue exposures
<Exit>	press Exit at any time to save your changes and exit

To clear all the User Options back to the factory settings, switch off the StopClock, then hold down the Start/Stop key and switch the unit on again. Keep the Start/Stop key pressed until the row of indicators at the top of the display go out. Now press Exit. The factory settings will be restored.