Product overview

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Densitometer

By means of precise measurement of the optical density, the exposure and development of film and paper can quickly be optimised.

Additionally, the monitoring of technical processes during manufacturing of semi-transparent materials is very easy since thickness and optical density correlate. Measurements up to 6.5 logD (<1/1000000 transmittance) can be reliably determined with special models of our devices.

Usually our devices work monochromatically within the visual spectrum, but can be individually adjusted according to the task.

Benefits

- The quality of negatives will be greatly improved by targeted corrections of exposure and development
- Any film-developer combination will be optimised quickly and safely
- Examination of photographic paper and print processes is also possible
- Calibration of monochromatic inkjet printers for Fine Art prints is supported
- Precise and long-term stable measurements due to solid metal construction
- Low base price due to a modular equipment concept
- Optional device configuration allows adjustment for a large variety of tasks
- Compact design – ideal for mobile use

Models

The Standard aperture diameter is 3mm according to ISO standard. LEDs serve for illumination of the metering point, thus ensuring both - lifetime warranty of the light source and reproducible measurement.

All models look similar but are divided in two major groups:
- Transmission measurement only, order code starts with **TD**
- Combined reflection and transmission measurement, order code starts with **TRD**
The price difference is negligible, main reasons for offering the TD series are the capability of high density measurement and avoiding operation errors caused by a wrong measurement mode.

Within the TRD series there are three models available.

TRD-2 is the basic instrument for density measurement in terms of logD. It is useful for all standard B&W photographic processes.

TRD-Z is very useful for photographers dealing with the zone system. With a simple press a toggle switch the density is either displayed in terms of logD or zone values. For reflection mode the user has to set two reference points to white for Zone X and to black for Zone 0. For transmission mode the reference point for zone 0 has to be set. Also the intensity of the development process might be considered by selection of process n-2 …n+2 thus resulting in a display of zone values referenced to the object.

TRD-4 displays the density either in logD or percentage of dot value. It is useful for printing and technical processes.

Densitometer

Options and extras

All options might be supplied with the actual densitometer models. Some of the options cannot be combined with others. Depending on the year of manufacture and type of the instrument, options might be added also subsequently. Please contact Heiland electronic for details.

Exchangeable apertures
For transmission measurement the user might exchange the aperture, thus adjusting the diameter of the spot to the measurement task. The scope of supply includes a batch of apertures with diameters of 0.5 – 1 – 2 and 3 mm
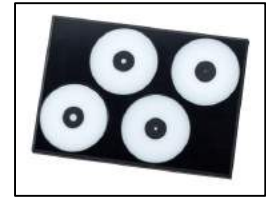
USB port
This option enables to transfer measurement results to a PC. With the optional program DensPC the data can be collected and transferred to PC applications like spreadsheet calculation..

Increased display resolution
In between the density range of -0.999 and +0.999 the resolution is increased automatically to 0.001 logD. Outside that border the resolution is 0.01 logD.

Extended measuring range to 5.5 or 6.5 logD
A high power LED light source is installed for transmission light. The extended density range is valid only for 3mm apertures, as smaller aperture diameters reduce the amount of available light.

Multicolour transmission light source
By means of a multicolour LED, the colour of transmission light might be selected between blue, green, red or white colour. The user can use that option to determine the density of films with stain, thus enabling to determine separated contrast and exposure values for Splitgrade printing. For further information please refer to the website www.moersch-photochemie.de or search for terms like 'pyro stain measurement' in the web. That option is also very useful for analysing technical processes.

UV transmission light source
An UV LED with approx. 400nm wave length replaces the standard white transmission light source. The main application is the density measurement in UV based alternative print processes. An eye protection glass is included.
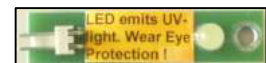
Software DENS PC for data transfer
Densitometers by Heiland electronic that are equipped with a USB port can transfer measurement results to a PC. The software DensPC enables the transfer of data into the clipboard and therefore to any PC application, particularly spreadsheet. If the densitometer measurement value is stable for 0.5s, the value is transferred automatically.
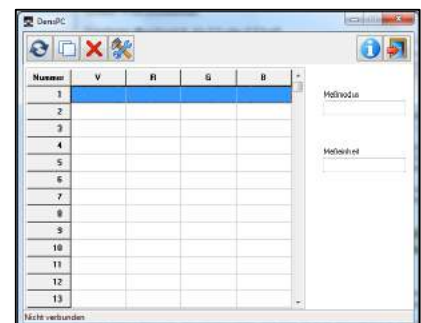
TAS film processor

That device gently agitates the film developing tank by simultaneously turning and tilting and adheres to the necessary phases of standstill.

This creates a movement similar to hand development. The process is however controlled much more precisely.

Together with the integrated calculator for temperature compensation your negatives will be developed reproducibly and conveniently.

Already determined film development parameters could be applied further on. The Programming only consists of entering the 6 data values.

Our TAS can be adapted to almost all available tanks.

Various development modes are supported by means of exchangeable memory sticks.
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Benefits

- Better acutance of the negatives due to a process of agitation with phases of standstill
- Cheaper than classic rotational film processors
- Developing tanks already at hand can be used
- Reproducible development results
- Development of 35mm film, roll film and 4x5" sheet film
- Small footprint, can be placed into a shelf when not needed
- Supports multiple users due to removable memory sticks
- Ideal for two-bath film development processes according to the zone system
- Compensates the development time depending on temperature
- Transportable – can also be used in campers with 12V supply
- Solid, long-living metal construction

Options and extras

All TAS film processors can be equipped with more than one tank adapter. For order codes and prices please contact Heiland electronic.

Also a converter for 12V car applications is available.

Memory sticks

The basic configuration of the TAS film processor offers the possibility to store two development processes.
With the help of inexpensive external memory sticks, multiple settings can be saved. To facilitate handling, each module stores one film-developer-combination. Thus, even several users can alternately use the TAS. Also an extensive number of film-developer-combinations can be managed easy by noting the combination on the stick.
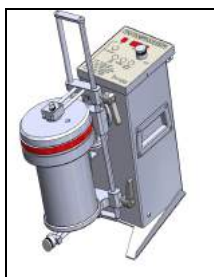
TAS film processor

Models

The basic instrument is always the same, only the adapters for the various tank systems are different. Thus a user can also equip the TAS with several tank adapters, optional pre or post to the order..

AP & Kaiser tank system

Enables use of Kaiser film developing tanks 'Standard' (#4296) or 'Universal' (#4297). Both tanks are suited for 35mm and 120 films. The company AP offers identically designed tanks with different item numbers.

Hewes & Kindermann tank system

Enables usage of stainless steel tanks supplied by Hewes or Kindermann. Tanks with a capacity of up to three 35mm films are supported. Upon request, we also supply a version for the 120 tank system.

BTZS tank system
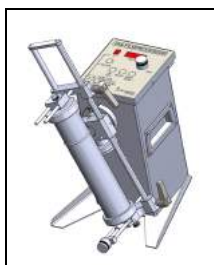
Takes existing BTZS tank systems. These tanks are particularly common in the US. With this tank system you can develop 35mm film and 120 film.
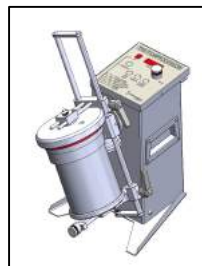
Jobo tank system

Designed for Jobo 15xx and 25xx tanks in varying film capacities. These tanks enable the development of 35mm, 120 and sheet films. Tanks of the type 25xx should be equipped with a magnet for perfect centring.

Combiplan tank system

Accepts Combiplan tanks used for 4x5 inch sheet films. The adapter consists of an upper and lower part. Latter one includes a ring to enable rotation of the rectangular tank.

Paterson tank system

Adapts the TAS to the Paterson Multi-reel 3 and 5 tank system.
With this tank systems you can develop 35mm and 120 film.

Jobo Expert Drum tank system

This version serves to develop 8x10 inch films in Jobo Expert Drum tanks.
With this adapter the tank is rotated only, not tilted.

For Stearman Press SP445 tank system

This tank and our TAS adapter are perfectly suited for 4x5 inch film development. The tank adapter enables both – rotating and tilting the rectangular tank.

Splitgrade System

This unique system facilitates and accelerates creation of high-quality black-and-white photographs on multigrade or VC-paper.

By measuring areas of light and shadow of the projected negative, the user determines contrast and brightness on the easel.

Based on over 30 default paper calibrations immediately a first suggestion for the correct exposure is calculated with an accuracy of 1/10 f-stop and 1/10 paper grade.

Via the unique motorised filter control with shutter function or our LED cold light source these measurements will automatically be transformed into a split exposure.

Furthermore, there is no limit to any manual correction, dodging and burning in. Prints are created much faster and creative working is encouraged, not limited.

Benefits

- Your wet print is typically created in 3 minutes on a RC paper or 4-5 minutes on a FB paper
- Convenient working due to automatic filter or colour change
- Quick and easy determination of exposure time and gradation
- Precise exposure times control due to an integrated shutter or the ultra stable LED cold light source
- No prior calibration necessary
- Intuitive control due to illuminated buttons and plain-text display
- Manual overwrites allow creative working
- Exposure in 2 phases with soft and hard light allows dodging and burning in either of the exposure phases - the hard or the soft one
- Free firmware updates for new paper calibration and functions
- In the event of changing the enlarger later on, the Splitgrade basic unit can be further used

Models

The Splitgrade system is available for a wide range of famous enlarger types and cold light sources. Adaptions are available for brands like Aristo, Beseler, DeVere, Dunco, Durst, Heiland, Jobo, Kaiser, Kienzle, Leitz, LPL, Meopta, Omega, Saunders and Zone VI.

The Splitgrade Controller is always the same and can be set up to control all types of filter modules. Thus enables to add a second enlarger or to change the enlarger later on.

If your enlarger is not listed in our pricelist or you do not like to modify the light source, you might operate the Splitgrade with manual filter exchange. In that case the shutter is missing. Our LED cold light source is also an option in that case.

Installation of the automatic filter or colour changer

Depending on the enlarger or light source, there are 3 typical installation procedures.

1. Heiland electronic delivers the filter module together with the Splitgrade. The user plugs the filter module into the enlarger by himself. This system is available e.g. for Dunco, LPL 4x5", Kienzle C69 or Leitz V35. The picture shows a filter module for the LPL 4x5 enlarger.

Splitgrade System

2. The user installs an electronic interface circuit supplied by Heiland electronic which connects to one of the follwing cold light sources: Aristo, Ilford or Zone VI. Also the innovative Heiland LED cold light source is operated that way. The picture shows an interface for a Zone VI cold light source.

3. The user sends a tungsten halogen light source to Heiland electronic for modification. All filters and the filter control are replaced by a motorised filter changer. Heiland electronic then returns the modified light source to the user. The light characteristic remains unaffected. This is the typical procedure for e.g. DeVere, Durst, Meopta and Omega enlargers. The picture shows a motorised filter module installed to the front panel of a DeVere507 enlarger.

A complete list of enlarger types including details about modifications and needed components is presented in our price list.

Splitgrade Comfort operating unit
This unit serves as an add-on for the Splitgrade just to control the most important functions even faster.

Exposure time, paper contrast and burn in exposures are conveniently adjusted through rotary knobs and large red numerical displays.
Pushbutton functions enable quick control of the focus light and exposure sequences.

The integrated grey scale print tone indicator shows the tonal range of the print, so you can place important tones prior to printing by manipulating exposure settings. This is a powerful tool especially for portrait and high/low key prints.
The comprehensive menu control of the Splitgrade controller can of course further be used for extended tasks.

Here is a short product comparison between Splitgrade and classic analysers

| Feature	Splitgrade	Analyser
Enlarger filter setting	Automatic	Manual
Enlarger white light setting	Automatic	Manual
Shutter	Yes	No
Paper channels	Approx. 30	Up to 8
Film channels	8 for all silver halide films, various C41 films and 3 stained films	None
Software update	Free of cost, user operated	Charged, manufacturer operated
Calibrated out of the box	Yes	No
Measurement modes	• Multiple dots to determine paper grade and exposure time • Continuous to determine paper grade and exposure time • Multiple dots to determine exposure time only	Integral or single dot measurement is used to determine the exposure time approximate. Some analysers also offer a contrast measurement.
User prompts / Display	Plain language / LCD	Usually by abbreviations / LED
Keyboard	Membrane type, full illuminated	Single keys indicated by LED dots
Resolution in terms of grade	0,1G	Usually 0,5 G
No. of burn in times	7	Usually 1
Test strip modes	Grade and time, asymmetric or symmetric to measurement.	Time only

LED cold light source

Replace the current light source of your enlarger with a long-term stable and modern LED panel light. Individual adaptation is supplied by Heiland electronic.

Using LEDs with the primary colours red, green and blue allows controlling white light for focusing, as well as controlling any colour separately. Even mixed light consisting of green and blue is available. The luminous colours are well adjusted and deviate at most +/- 2 nanometre from the wavelength specified by Heiland electronic. Fixed grade papers as well as colour papers (RA4 and Ilfochrome process) can be exposed also. Precise switching on and off within 1/100 of a second is possible, so no shutter is necessary. Thus reproducible printing is enabled.

Benefits

- Full contrast control from grade 00 to grade 5
- No light drift: stable light from 0.1 seconds on guarantees reproducible enlargement
- No fan necessary up to 8x10 inch light source size: The enlargement procedure takes place without vibration, noise, or dispersion of dust
- No heating of the negative which prevents focus shift
- Easy paper placement and simple tool handling during dodging due to the integrated red safelight.
- Variable exposure intensity for different magnification scales
- Replacing lamps is no longer necessary
- White light facilitates focusing
- Even illumination up to the corners through to several hundred LEDs. Light drop off caused by the lens can be compensated by an optional center filter
- Best solution for archives – no thermal strain of glass-plate negatives
- Long-lasting, solid metal construction
- A stabilised 24V DC power supply avoids light drift during mains fluctuations.
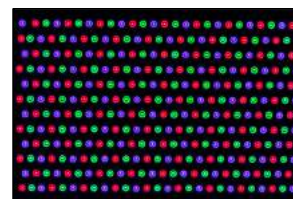
Models and range of light source sizes

The LED cold light source is available for almost all famous enlarger types, equipped with diffused or condenser light systems.

Adapters are available for brands Agfa, Ahel, Aristo, Beseler, DeVere, Dunco, Durst, Fujimoto, Homrich, IFF, Jobo, Kaiser, Kienzle, Leitz, Linhof, LPL, Meopta, Omega, Saunders, Teufel and Zone VI.

The necessary adapter is designed and manufactured by Heiland electronic. Typically the user installs the LED cold light source himself within some minutes.

On demand the customer might purchase also generic LED cold light sources without an adapter to create his own design or to build up a unique enlarger.

The range of negative sizes covered by our LED cold light sources is 35mm up to 20x24 inch. Individual formats are possible, we await your challenge.

LED cold light source

Control panels

The LED cold light source is operated by means of a control unit combined with either any usual timer or analyser or the unique Split-grade system or by a wireless remote control for smart phones and tablet based on Android OS.
One control unit is available to expose RA4 or Ilfochrome papers.
To achieve flexibility Heiland electronic offers various types of control units

The left picture shows the Splitgrade version – no knobs are necessary as all settings are done at the Splitgrade system. This version is the most convenient one.

The center picture shows the model for classic B&W applications. The modes 'Focus', 'Safelight' or 'Exposure" using blue and green light as well as the intensity of light are selected by 3 knobs. The settings are represented in a red illuminated display.

The version to expose colour papers is shown on the right side. The intensity of the 3 LED colours is set by knobs while a yellow low luminance display indicates the filter equivalent values. A white light setting is implemented.

The latter two versions use a classic timer or analyser for time control. The timer and the LED control unit are coupled by an interface equipped with a suitable mains connector, like shown in the picture to the right side.

The picture to the left shows a typical display for exposing multigrade paper. The value 2.4 indicates the desired paper contrast while -07 refers to a dimmer setting of -0.7 f-stops.

In addition we offer a wireless remote control which is affected by a small receiver connected to the control box.

The app enables the user to control the LED cold light source wireless, e.g. while standing in front of the vacuum wall. All necessary functions including burn in times can be accessed by a few touches.
Of course, the smartphone or tablet should be set to flight mode while using it in the darkroom.

Further products

LED based comfortable darkroom safe light

Motivated by customer requests we have designed a novel kind of darkroom light. A shapely designed luminaire with a total length of one meter enables even illumination of the darkroom.
A dimmer and a rocker switch enables to operate the intensity and light colour.

The standard version includes red and white light and is designed for classic B&W darkroom.
The combination out of red and yellow light serves for both, B&W and colour darkroom. Whereas the combination out of yellow and white light is designed for working with colour paper only.
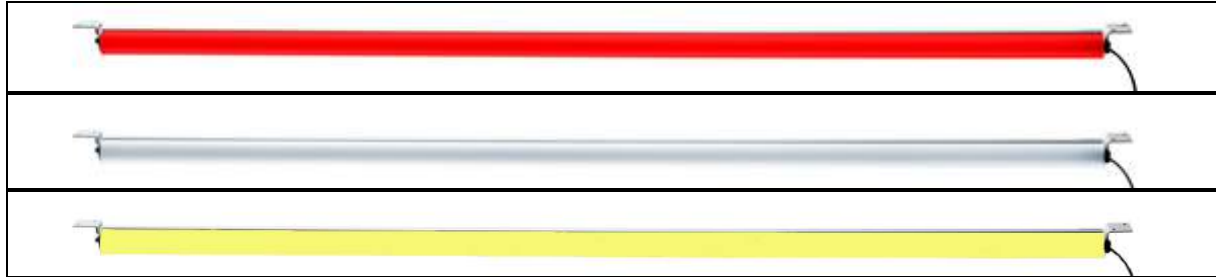
Benefits
- Homogeneous light propagation due to a tubular design.
- The safelight can be tilted, thus enabling wall and ceiling mounting.
- No need for lamp replacement.
- Secure and bright red light at 630nm wavelength for B&W processes.
- Dimmed yellow light at 590nm enables handling of colour papers.
- White light with approx. 5000 Kelvin enables fast check of fixed prints.
- Adjustable intensity according to your application needs.
- LEDs guarantee immediate switching on and off and a long term stable light output.
- A 12V DC power supply ensures electrical safe work also in damp climate.

StopClock Professional

This f-stop exposure timer includes an automatic test strip generator and ten exposure memories per channel. So you can set up a complete printing sequence quickly and easily, often with reference to just a single test strip. The two channels enable splitgrade printing. A special mode alters exposure times to allows compensation for the effects of "dry-down".

AnalyserPro

This enlarging meter-timer combo features a grey scale print tone indicator which shows the tonal range of the print. So you can place important tones and preview the look of the print without the need for endless test strips. It includes a spot-metering probe with densitometer function, a timer which can work in intervals of 1/2, 1/3, 1/4, 1/6 or 1/12 f-stops and a storage for the characteristics of eight different papers which has to be calibrated by the user.

ProcessMaster II

This fully programmable process timer enables the setup of eight programmable sequences with up to nine time steps each. The ProcessMaster II has a built-in thermometer probe to monitor chemical temperatures during processing and automatically adjust the processing time if the temperature changes. The probe can be placed directly in the developing tank or tray. Should the temperature fall the process time will be increased to compensate. Similarly, if the temperature rises the time will be decreased appropriately.

Further products

PaperFlasher II

The PaperFlasher makes it easy to flash and fog photographic materials to control contrast and add tone to otherwise blank areas and can breathe new life into blocked-up highlights on prints. It comprises a tiny, lightweight, electronically stabilised light source and a battery-operated control box and timer. The light source can be mounted on the darkroom ceiling, on the enlarger lensboard or in any other convenient position.

SafeTorch B&W und Color

This handy torch (flashlight) comes in two flavours - red LED, bright and safe for black and white papers, and yellow LED (590nm) optimised for colour materials. The b/w version produces a bright beam or safe red light ideal for print inspection during development or for locating that dropped dodging tool! The colour version is useful for general orientation in the darkroom. It should not be used for direct illumination of colour materials although the wavelength of the LED light matches the minimum sensitivity of colour papers.

The Parallel

This is the 'real deal' in enlarger alignment. Beautiful photography requires precision. Never again wonder if your enlarger or copy stand is aligned properly, find out instantly!
There are many ways to verify alignment but only one stands out as the most convenient to use. The PARALLEL is a small, battery powered, very carefully aligned laser beam projector. Used with the supplied reflectors, it is a clear and easy-to-understand alignment indicating system. Accuracy of alignment is determined by the position of the red reflected laser dot. If everything is parallel, the red dot is reflected back to the center of the target. Misalignment becomes obvious if the dot is anywhere other than the center of the target. The progress of corrective adjustment is easily followed by watching the position of the dot as it moves in response to the changing alignment.
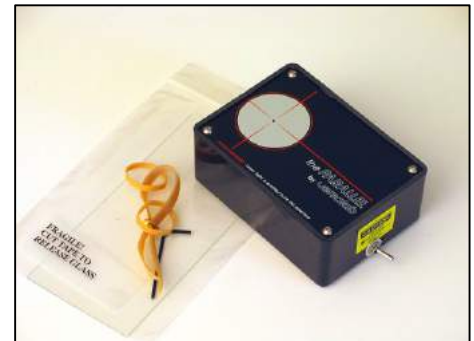
Two Flash Mask – useful for digital photography

Layer masks help you to quickly and easily create substitute backgrounds when you want to change the background colour or look. You'll even be able to stock different backgrounds for the same foreground subject! Using studio flash for your photography, you can now instantly "paste-in" the exact vector shape of the foreground subject (its silhouette) as an in-camera layer mask.
You'll save tons of time on background separation in your post production editing just by using a simple sequential flash operation during the shooting. Almost any studio flash brand or type can be used. Have a look to the principal of function.

First shot

Second shot
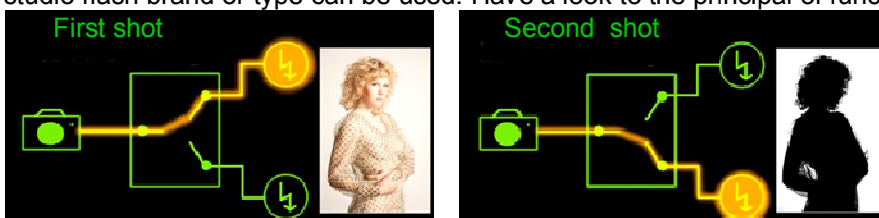
Heiland electronic GmbH
Schulstrasse 8
D-35579 Wetzlar
Germany

Phone: ++49 6441 26978
Fax: ++49 6441 26988
E-Mail: info@heilandelectronic.de
Internet: www.heilandelectronic.de