NALCO
An Ecolab Company

TRASAR® 3
Pen Fluorometer
060-TSR3PENII.88

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Made in U.S.A.

OM-0256 – TRASAR 3 Pen Operation & Maintenance Manual

CE

RoHS COMPLIANT

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Principal uses for TRASAR 3 Pen fluorometer include:

- Boilers
- Process Applications

Please call the Equipment Help Desk at 630 305 CHEM to reactivate or for technical support.

Product Description

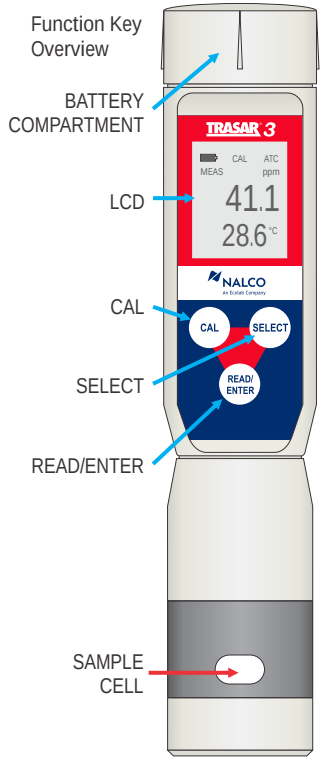
The Nalco Pen Fluorometer is an economical, battery-powered, handheld fluorometer for taking TRASAR® measurements on a water sample. It consists of a:

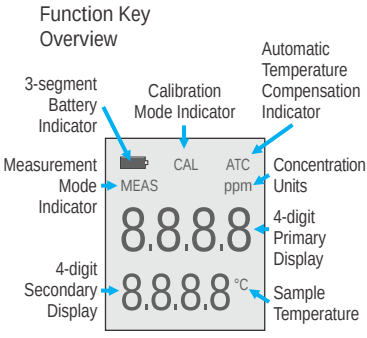
- Waterproof, Molded housing
- Three function keys
- Customized dual panel LCD display
- Permanently installed fluorometer probe tip

The probe tip is designed for measuring Nalco products containing TRASAR. It contains all the optics and electronics to induce and measure fluorescence. The user cannot replace the fluorometer tip.

The TRASAR 3 Pen can be used to monitor TRASAR 3 products only.

FLUOROMETER OVERVIEW





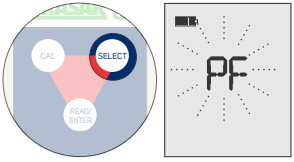
INITIAL SET UP PROCEDURE

Setting PF (Product factor) and % TRA Value (Background fluorescence value)

STEP 1:

Press 'SELECT'

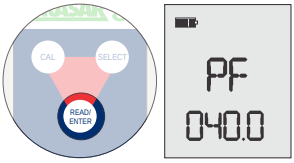
- "PF" will blink on the screen



STEP 2:

Press 'READ/ENTER'

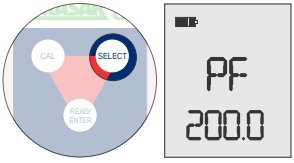
- Screen will show "40", since PF defaults to "40"



- PF can range from '0' TO '999' (Resolution 0.1)

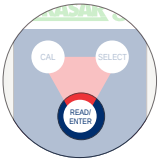
STEP 3:

Press 'SELECT' button to scroll through digits



- User needs to decide what "PF" value they set based on the product they are feeding
- For example: Screen will show "200".This will set "PF" to"200"

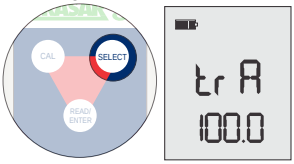
- Press "READ/ENT" which will save the current value and increment to the next digit



STEP 4:

When trA is flashing

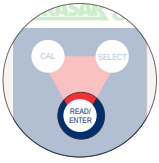
- Press SELECT to scroll through the digits



- Screen will change to 1, 2, 3 and so on.
- User needs to decide what "trA" value they set
- Please insert your trA value (typically less than 10, but can be higher with higher interference)
- trA can range from '0' to '100' (Resolution 0.1)

STEP 5:

Press 'READ/ENT' to save the value



- "trA" will indicate the user set value

STEP 6:

Pen fluorometer is now ready for calibrating/testing.

CALIBRATION STEPS

STEP 1:

Ensure you have Distilled water (DI water), TRASAR 3 Calibration Solution (Part#: 460-S0980.75), TRASAR 3 Pen fluorometer, plugs, syringe and filter before starting the calibration steps.

STEP 2:

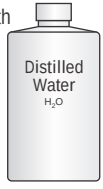
Lay the pen fluorometer horizontally on a flat surface and ensure the rubber plug is inserted in the bottom.

STEP 3:

Rinse and empty the cell '3' times with DI water.

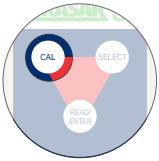
STEP 4:

Fill the sample cell with DI water.



STEP 5:

Press 'CAL' button – (Initiates a 2-Point calibration).



STEP 6:

The screen will read “2-Pt CAL.” After a few seconds, the screen will change and read “Add H2O”.

STEP 7:

Cover sample cell with your hand to block light. It is important to cover the sample, in order to avoid any error messages.

STEP 8:

Press 'READ/ENT'.

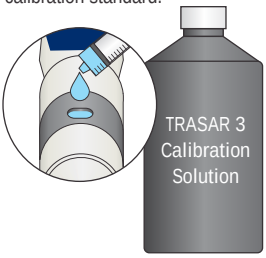
STEP 9: Screen will blink “MEAS” several times (for about 7 seconds) and then will read “Add Std”.

STEP 10:

Rinse and empty the sample cell '3 times' with TRASAR Calibration Standard –S0980. Keep your syringe ready with the calibration solution

STEP 11:

After Rinsing, fill the cell with S0980 calibration standard.



STEP 12:

Cover sample cell with your hand to block light.

STEP 13:

Press the 'READ/ENT' button within less than 60 seconds.

STEP 14:

Screen will blink “MEAS” several times (for about 7 seconds).

If calibration is successful, the display will show a reading for the calibration solution between 38-42 ppm. If calibration reads outside the range, please repeat the calibration procedure.

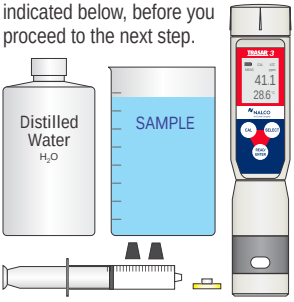
Note: To abort calibration mode, press the CAL button. The original calibration constants will be retained. During calibration, if the READ/ENTER button is not pressed when prompted, the unit will power down after 90 seconds and the original calibration constants will be retained.

As a best practice, we recommend to double check by discarding the sample and taking measurement of a new sample from the same batch. Basically, re-check to ensure you receive a product factor value that is the same or within a close range from the value previously obtained. If not, please repeat the entire calibration procedure.

MEASUREMENT STEPS

NOTE: If your sample turbidity range is greater than 80 NTU, please dilute or use a filter. The pen fluorometer does not check for turbidity. If you do not know the turbidity range, please use a filter. Using a filter is Best Practice

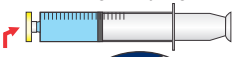
STEP 1:
Ensure you have all components indicated below, before you proceed to the next step.



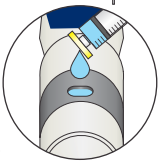
STEP 2:
The unit is normally powered down with LCD blank.

STEP 3:
Lay the pen fluorometer horizontally on a flat surface and ensure the rubber plug is inserted in the bottom.

STEP 4:
Fill the cell with the actual sample from the site, using the syringe.



Add filter to syringe after taking sample.

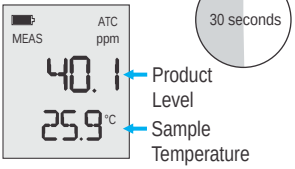


(Note: If your sample has high turbidity beyond the defined parameters, it is critical that you filter your sample. As show in the above picture, please attach the filter that shipped inside the package to your syringe, before filling the sample cell. Due to compatibility reasons, it is critical that you use only the filter sent in this package)

STEP 5:
Cover sample cell with your hand to block light.

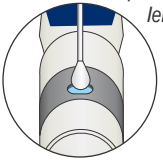
STEP 6:
Press the 'READ/ENT' button.

STEP 7:
A battery measurement is made and the battery icon segments are lit showing the battery strength. Product level and sample temperature is displayed.



The display is held for 30 seconds and the unit has powered down when the display is Blank.

For optimum maintenance, please clean the pen fluorometer with distilled water after every use. This reduces cell fouling. If high iron content is present, clean the lens with a Q-tip using 1:1 HCl solution.



REACTIVATION PROCEDURE

To prevent competitors from using the pen fluorometer to control their programs, a deactivation algorithm has been programmed into the device. The pen will operate normally for eighteen months. At the end of that period, the user will be required to enter a reactivation code, reactivating it for another eighteen months. Reactivation is accomplished by entering a password that is unique to each pen and unique to each renewal period. This password must be obtained from Nalco.

The Pen will become inoperable without reactivation.

Step 1:

Press 'READ/ENTER'

(After seventeen months, the unit will display '30 days' when you press the 'Read/Enter' key. Unit will countdown from '30 days' to '0 days'. If you press 'READ/ENTER' key the very next day, the unit will display '29 days'. If you selected 'READ/ENTER' key and no number is displayed then it is not time to reactivate the pen fluorometer.)

Step 2:

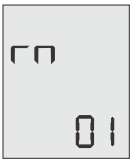
Press 'SELECT' within 5 seconds

(Unit will display the serial number for 30 seconds. Write down the serial number.)

Step 3:

Press 'SELECT' within 30 seconds

(Unit will display the reactivation number. Write down the reactivation number. If you are reactivating for the first time, reactivation number will be '1'.)



Step 4:

Call the Equipment Help Desk at (630) 305-CHEM with your serial number and reactivation number. NGES Help Desk will provide you with an alphanumeric password (4 characters in length).
Each character can range from (0 to 9) or from (a to f).

Step 5:

Repeat STEPS 1-3

Press 'SELECT' within 30 seconds when reactivation number is displayed.

(The leftmost digit of the lower row will flash indicating it may be changed.)

...Continued on next page.

Step 6:

Enter the 4-digit password

(Enter the numbers and letters in the same manner as you would enter the product factor.)

I. Press 'SELECT' to incrementally change the digit

II. Press 'READ/ENTER' to lock the number or letter desired

III. Press 'READ/ENTER' after entering the last number or letter of the password

Step 7:

Unit will display 'CodE PASS' if password entered is correct.

Congratulations! You have reactivated your pen fluorometer for another 18 months.

Step 8:

Unit will display 'CodE FAIL' if password entered is incorrect

(You will have 5 seconds to re-enter your password. Please follow Step 6 to re-enter the password.)

DIAGNOSTICS & TROUBLESHOOTING

Self-Diagnostic Messages

Low battery indicator

The Battery indicator will indicate different levels of battery life. Use fresh silver oxide batteries for replacement.

- 3 bars – battery is fully charged (100%).
- 2 bars – battery is at intermediate charge.
- 1 bar with flashing battery casing – the batteries should be replaced soon.

bAd bAtt	Batteries require replacement before a reading can be made.
HI conc	Measured fluorescence intensity too high or ppm value > 9999. Sample must be diluted or PF must be reduced.
too hot	Measured sample temperature exceeds 50°C. Cool sample.
HI LItE	High ambient light – above a threshold during dark measurements. Cover pen tip to exclude ambient light.
dEt1 FAIL	Main detector low – below a threshold during LED on measurements. Clean cell and retry. If error persists, pen must be replaced.
dEt2 FAIL	Ref detector low – below a threshold during LED on measurements. Clean cell and retry. If error persists, pen must be replaced.
LEd1 FAIL	LED 1 failure. Clean cell and retry. If error persists, pen must be replaced.
CAL FAIL	Calibration error. Make sure correct standards are used in the proper order. Zero standard first followed by calibration standard.
Unit FAIL	Elapsed time counter has failed. Repeat measurement a few times. If error persists, pen fluorometer must be replaced.

TECHNICAL SPECIFICATIONS:

Measurement

TRASAR Product Measuring Range	0-9999 ppm
Resolution	0.1 ppm product
Relative accuracy	±5 % of reading
Calibration	Two-point calibration – DI Water and calibration solution
Temperature Measurement Range	5.0 to 50.0 °C (41.0 to 122.0 °F)
Resolution	0.1 °C
Temperature Compensation	Automatic Temperature Compensation (ATC)

Mechanical Specifications

Enclosure Rating	Waterproof (IP 67)
Dimensions	Fluorometer: 18 cm length x 4 cm diameter Boxed: 22cm x 6cm x 5cm
Weight	Fluorometer: 149 g (5.25 oz) Boxed: 170g

Power Supply

Power Requirement	4 x 1.55V Silver Oxide battery (Duracell 357 Silver Oxide [303/357B] or Energizer Silver Oxide [357/303])
Battery Life	Approximately 1000 Readings

Display

LCD	Dual Panel with 4 digits for each Panel.

Electromagnetic Compliance (EMC) Specifications

Emitted Interference	EN 61326
Immunity to Interference	EN 61326

Environmental Conditions

Ambient Temperature operating range	5 to 50 °C (41 to 122 °F)
Altitude	Up to 2000m
Indoor/Outdoor Use	Yes
Maximum Relative Humidity	95%, non-condensing
Certifications	CE, RoHS, WEEE, BD

REPLACEMENT/ ACCESSORIES:

Product Description	*Part Number*
TRASAR 3 Pen Fluorometer	060-TSR3PENII.88
Silver Oxide battery Qty 1 (4 Batteries Required)	6017888
TRASAR 3 Calibration Solution (1L)	460-S0980.75
Cleaning Solution – 1:1 HCl (500ml)	460-S0726.74
Cleaning Solution – 10% Sulfuric Acid (500ml)	460-S0800.74
Distilled Water (500ml)	460-S0700.74
TRASAR Cleaning Brush 6mm Flow Cell Brushes (3 ea)	111-P01047.88
TRASAR Pen Special Calibration Plugs	500-P1692.88
Beaker, plastic, 250ml	500-P0118.88
Syringe, disposable plastic (10cc)	500-P2166.88
Filter, syringe cartridge (25mm) 0.45 micron, CA, 50 /pkg	500-P1424.88
TRASAR 3 Pen Operating Manual	060-T3PENOM.88

CHANGING BATTERIES

1. Open battery compartment by unscrewing cap.

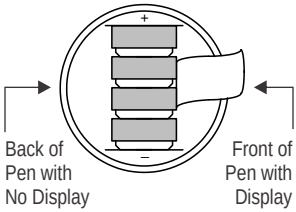
2. Remove and replace old batteries. Note polarity (shown in diagram below).

3. For maximum battery life, use silver oxide batteries, not alkaline or zinc-air types.
Example:
Duracell D303/357B,
Energizer 357/303,
Energizer 357/303H 1.55V silver oxide button style.

4. Screw cap securely in place.

Note: All calibration and setup parameters in the unit are maintained when batteries are replaced.

Battery Compartment as Viewed from the Top of the Pen Fluorometer



GENERAL INFORMATION

Packaging / Scope of delivery

The instrument is packaged in a plastic box with an instruction manual.

Return of goods

Before returning goods for any reason whatsoever, Customer Service Dept. has to be informed in advance. Items must be carefully packed to prevent damage during shipment.

Warning: Shipping damage as a result of inadequate packaging is the user's/distributor's responsibility, whoever applicable. Please follow the guidelines below before shipment.

Maintenance and Cleaning

Maintenance

The Pen Fluorometer contains no user repairable components. Please contact Nalco if there is any problem with the unit.

Cleaning

To remove dust, dirt and spots, the external surfaces of the pen fluorometer may be wiped with a damp, lint-free cloth. A mild household cleaner can also be used if necessary.

Warranty and Responsibility for Safe Delivery

Nalco Global Equipment Solutions warrants its standard equipment and related installation services to the original purchaser to be free of defects in material or workmanship for one year from the date of shipment, unless otherwise specified.

Key Features Include:

- Simplified claims processing-warranty assistance is just a toll free call away. Most claims can be handled by making a single phone call
- 12-month coverage of all standard part-numbered Nalco equipment offerings (excepting consumable items and products with shelf lives of less than 12 months.)
- 12-month coverage of Nalco equipment installation.
- Repair and on-site warranty assistance now available in selected areas.

Limitations

Warranty does not cover damage caused by misuse, neglect, accident (including a force majeure event), improper installation or improper maintenance or repair. Nalco's liability under this warranty is limited to repair or replacement of defective items, or, refund of or credit for the product price excluding shipping.

Nalco DISCLAIMS ALL OTHER WARRANTIES INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. In no event shall Nalco be liable for any consequential or indirect damages.

Non-Warranty Equipment Returns

If you wish to return a standard, part-numbered Nalco Equipment Solutions product for credit or repair, please follow the guidelines below:

Credit: Products purchased from Equipment Solutions may be returned for credit within three (3) months of purchase if they have never been placed in service and they are returned in the original packaging complete with all accessories, component with all accessories, component parts, and manuals.

Repairs: Products eligible for billable repair include standard items that were purchased within the past five (5) years.

Responsibility for Safe Delivery

Nalco Company has done everything possible to protect this equipment from damage due to normal transportation hazards. After the product leaves the manufacturing site, the transportation company assumes the responsibility for safe handling and delivery of the equipment.

It the crated unit shows evidence of rough handling, you must request that the person making the delivery writes "Received in Damaged Condition" on the delivery receipt. If concealed damage is revealed after the shipment is unpacked, contact that transportation company and request that a "Damaged Goods" report be completed.

In either event, the transportation company should be notified immediately of any damage to the shipment to protect your rights or recovery.

Disposable requirements for EAME

Nalco can provide recycling services on request at an additional cost. Please contact your nearest Nalco contact or EquipmentCompliance EAME@nalco.com"

Safety Measures

- Please ensure appropriate safety procedure for calibration solutions is been followed. Refer to the respective MSDS regarding product detail. If ever in doubt, please check with Nalco product safety specialist.
- Operate the unit only with the battery type specified in “Technical Specifications”.
- Use the unit within a temperature range of 5°C to 50°C (41°F to 122°F). If it is used in temperatures lower or higher than this range, displayed information can be wrong or show irregularities.
- Avoid exposure to extreme temperatures, excessive moisture, sand, or mechanical shock.

TRASAR® License

Nalco has one or more patents and related know-how, which pertain to either TRASAR or 3D TRASAR method of use or practice of technology (“Tracer Technology”). Buyer's purchase of equipment, software and chemicals from Nalco conveys to Buyer a non-assignable and non-transferable express license to practice Tracer Technology that correlates with equipment, software and chemicals that Buyer chooses to purchase for its water treatment facilities needs for the practice of Tracer Technology; and all or some of the royalty for such license is included in the payments made by Buyer for certain equipment, chemicals and software it has agreed to purchase from Nalco. Nalco, however, does not prohibit Buyer from using purchased equipment and software for non-proprietary technologies. Nalco grants no other rights expressly, by implication, or by estoppel, or under any other patent rights owned or licensable. If Buyer is not willing to accept the limitations of this limited use statement, then Buyer shall promptly advise Nalco of such, and Nalco will accept return of the equipment and software in its original, new condition for a full refund.

Nalco will, on request, license to Buyer at its standard royalty rate to practice the Tracer Technology, using constituents purchased from any non-Nalco source whatever. Any warranties or performance guarantees granted by Nalco relating to the Tracer Technology shall be nullified in the event that Buyer purchases chemicals, equipment or software from vendors other than Nalco. Persons wishing a copy of Nalco‘s standard license should write to Nalco at the below-mentioned address. Nalco will also sell constituents ex-royalty to Buyer who advises that the constituents are being purchased for a use other than for practicing Tracer Technology.

Nalco an Ecolab Company
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