



STYLE 0120 HYDROFX FLOW INDICATOR OPERATING INSTRUCTIONS

The following is intended to provide the basic instructions for operating a HydroFX Flow Indicator. Read and understand these operating instructions before use.

PRODUCT RATINGS

Maximum Pressure: 230 psi/16 bar

PRODUCT WARNINGS

- ⚠ WARNING:** Charge all lines slowly to facilitate a controlled water pressure build-up during start-up. Open and close slowly. Rapid opening will produce a sudden thrust. Rapid opening or closing can cause water hammer. Have enough firefighters on the line to safely control the reaction force created by the stream.
- ⚠ WARNING:** At pressures below that indicated on the label, the nozzle will have reduced flow and reach. Be sure you have enough flow and pressure for the situation (See IFSTA and NFPA manuals for guidelines).
- ⚠ WARNING:** Not for use on electrical fires. May cause electrocution.
- ⚠ WARNING:** Ensure the Nozzle is aimed in a direction that is safe, prior to opening the shutoff bale.
- ⚠ WARNING:** Ensure the thread on the nozzle swivel is matched to the thread on the hose connection.
- ⚠ WARNING:** When operating at lower pressures the hose can kink more easily. A kink in the hose chokes off the flow, which may result in inadequate flow for the situation.
- ⚠ WARNING:** When operating the HydroFX Flow Indicator on a nozzle ensure the shut-off ball valve is fully open to produce accurate flow information. If the nozzle with a HydroFX Flow Indicator is operated with a partially open shut-off ball valve, flow and pressure will not be correlated accurately and a higher inlet pressure does not necessarily represent higher flow.

PRODUCT CAUTIONS

- ⚠ CAUTION:** If any tags or bands on the nozzle are worn or damaged and cannot be easily read, they should be replaced.
- ⚠ CAUTION:** For use with fresh water or standard firefighting foams only. Not recommended for use with salt water. After use with foam or salt water, flush with fresh water.
- ⚠ CAUTION:** For firefighting use only.
- ⚠ CAUTION:** If any changes or repairs are made to the flow path of the nozzle with a HydroFX Flow Indicator the unit should be recalibrated and tested before be placed back into operation.
- ⚠ CAUTION:** Do not over tighten the nozzle onto the hose connection.
- ⚠ CAUTION:** The HydroFX is configured for optimum performance. Do not alter in any manner.
- ⚠ CAUTION:** Do not expose the pistol grip or shutoff handle to Trichloretyhylene or Trichlorethane. These chemicals can weaken the parts and make the nozzle inoperable over time.
- ⚠ CAUTION:** The HydroFX is designed to operate with 2 AAA lithium batteries. Alkaline batteries will significantly reduce the flow indicator operation time.

- ⚠ CAUTION:** Your nozzle with HydroFX should be inspected prior and after each use, to ensure it is in good operating condition. Periodically, an unanticipated incident may occur where the HydroFX is used in a manner that is inconsistent with standard operating practices and those listed in IFSTA. A partial list of potential misuses follows:
- If water is allowed to freeze inside the HydroFX pressure chamber, please flow the nozzle at its highest flow for at least 5 min. to obtain accurate readings.
 - Operating above maximum rated pressure and flow.
 - Not draining, and allowing water to freeze inside the nozzle.
 - Dropping the nozzle from a height where damage is incurred.
 - Operating in a corrosive environment.
 - Other misuse that might be unique to your specific firefighting environment.
- There are many “telltale” signs that indicate nozzle repair is in order, such as:
- Controls are either inoperable or difficult to operate.
 - Excessive wear.
 - Poor discharge performance.
 - Water leaks.
 - Low battery indicator light flashes red

If any of the above situations are encountered, the nozzle should be taken out of service and repaired, plus tested by qualified nozzle technicians, prior to placing it back in service.

GENERAL OPERATING INSTRUCTIONS

SHUTOFF

- Open and close slowly.
- Nozzles with a built-in Shutoff.
To Open: Pull the handle toward the inlet.
To Close: Push the handle toward the outlet.

NOZZLE

- To change the spray angle rotate the pattern sleeve/bumper. Rotate it clockwise for straight stream and counterclockwise for wide fog.
- To flush the nozzle, rotate the pattern sleeve/bumper counterclockwise to the FLUSH setting. Rotate it slowly back to the required setting when obstruction is flushed.
- To determine the required engine pressures to achieve the flow setting, use the following formula:
Engine pressure (EP) = Friction Loss (FL) + Nozzle Pressure (NP) + pressure loss or gain due to elevation (1/2 psi per foot of height difference).

OPERATING INSTRUCTIONS

Pre-Operation (Pre-Check) of the unit:

HydroFX check should be completed when new batteries are installed and after the unit has been used for a fire suppression event.

No water pressure at the inlet and the unit is in sleep mode press and hold the button for 2 seconds then release. The unit will run a set of diagnostic checks:

1. Three LED's will turn on in sequence RED, YELLOW, GREEN to check the lights are working properly.
2. 1 second pause then one of the LED's will turn on again for 5 seconds this is the condition of the battery
 - a. Green fully charged
 - b. Yellow battery partially charged
 - c. Red batteries should be replaced as soon as possible
3. A sensor check is conducted after the battery check if the unit is functioning properly no error code will be indicated but if the sensor is not functioning properly an error code of two short RED flashes followed by a long pause will be repeatedly displayed for 15 seconds and the unit will return to sleep mode. If this error occurs after new batteries are inserted contact Akron Brass Technical Support for more information.
4. The final information displayed when the pre-check is performed is the software version information. The unit will flash the current software version.

IMPORTANT

After the checks above are completed and the software version displayed, the unit will automatically return to sleep mode. Pressing the button a second time during LED and battery check will not interfere with the checks.

NORMAL OPERATION - MONITORING MODE

The chart below shows the factory settings for various pressures.

COLOR	FLOW CONDITION	FACTORY SETTING			
		OPERATING PRESSURE AT INLET psi(bar)			
		50 psi (3.5 bar)	75 psi (5.3 bar)	86 psi (6.0 bar)	100 psi (7.0 bar)
FLASHING RED	EXTREMELY LOW FLOW	20 -35 (1.4-2.5)	20 – 40 (1.4-2.8)	20-43 (1.4-3.0)	20 – 50 (1.4-3.5)
SOLID RED	LOW FLOW	35 – 40 (2.5-2.8)	40 -50 (2.8-3.5)	43-58 (3.0-4.0)	50 – 75 (3.5-5.3)
SOLID YELLOW	MEDIUM FLOW	40 – 50 (2.8-3.5)	50 – 75 (3.5-5.3)	58-87 (4.0-6.0)	75 – 100 (5.3-7.0)
SOLID GREEN	NOMINAL FLOW	> 50 (3.5)	> 75 (5.3)	> 87 (6.0)	> 100 (7.0)

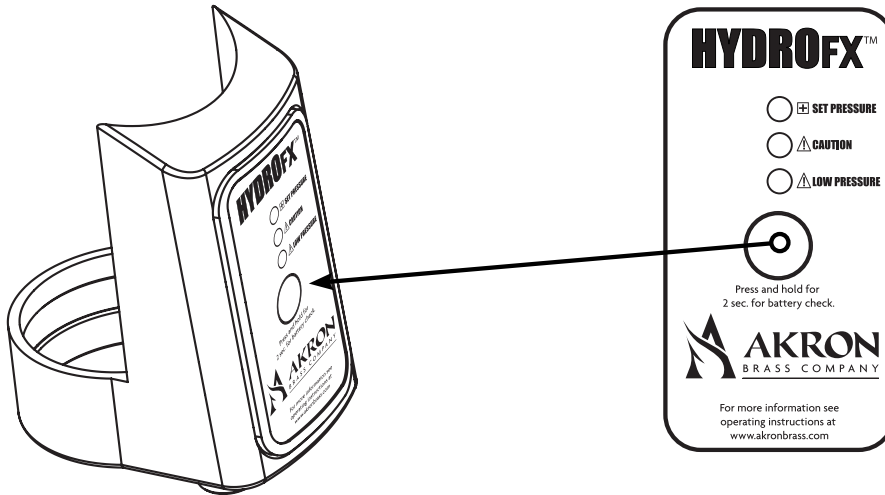
IMPORTANT

1. Upon battery check (refer to Pre-Operation section), if the batteries need to be replaced – RED LED on, the unit will not transition into normal operation in monitoring mode under any circumstances. The battery condition can also be checked during operation by pressing the button for 2 seconds. The battery condition is then displayed for 5 seconds and the unit will go back to normal operation in monitoring mode. When the batteries need to be replaced and the unit is operating, it will turn on the three LEDs in succession 3 times through in 2 min increments. Each LED will be on for 1 seconds.
2. If the pressure is above 20 psi the unit cannot be put into sleep mode. Once the inlet pressure is lower than 20 psi (1.4 bar), pressing the button for 2 seconds or waiting for 10 minutes will put the unit into sleep mode.
3. If in normal operation in monitoring mode one of the batteries is accidentally disconnected and reconnected, the unit will display an error code of two short RED flashes followed by a long pause for 15 seconds and will return to sleep mode. The unit will not display any flow condition once this error occurs in normal operation and will remain in sleep mode until the error is cleared. This is the same error code for a damaged pressure sensor described in the Pre-Operation section. In this case however, it indicates that the unit needs to be reset for proper operation. To reset the unit, at least one of the batteries needs to be disconnected for 30 seconds and then reconnected. Once these steps are completed the unit will be able to operate normally in monitoring mode indicating the desired flow conditions.
4. Unit will not monitor pressure less than 20 psi.

CALIBRATION PROCEDURE

The factory pressure thresholds described previously can be reprogrammed by the user according to the procedure described below.

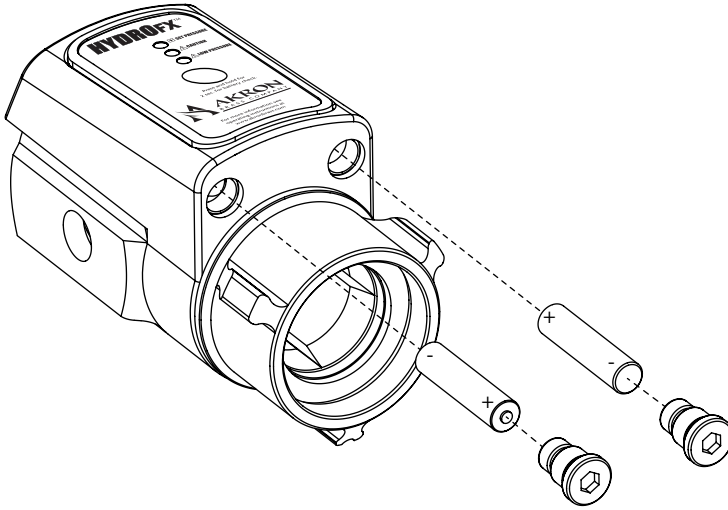
1. Make sure the unit has no water pressure at the inlet and the unit is in sleep mode.



2. Disconnect one battery and reconnect then press the button for at least 25 seconds. Once in Calibration Mode, all three LEDs will then flash sequentially for five 1 second cycles alerting the user that the unit has entered calibration mode.
3. Once in calibration mode, the RED LED light will begin flashing. The unit must then be pressurized to the user's desired level (to pressurize the unit attached the hose to the inlet and flow water through the hose). Using a pressure gauge or flow meter you can see the pressure and flow. RED LED light will continue to flash until the pressure is at least 25 psi (1.7 bar). At this point, the RED LED will become solid; you can now press the button for 2 seconds at the flow you would like to set. It will store this pressure as the "LOW FLOW" condition. If the button is pressed longer than 15 seconds, calibration mode is aborted and the unit will return to sleep mode leaving all previous thresholds undisturbed.
4. Once the "LOW FLOW" condition has been established, the YELLOW LED will begin flashing as described above. The YELLOW LED will continue to flash until the pressure is at least 5 psi (0.4 bar) higher than previous threshold. The YELLOW LED will stop flashing once the unit has seen an acceptable difference in flow condition. Once the unit is constant YELLOW press the button for 2 seconds when you have reached the desired MEDIUM Flow threshold. The value is stored upon release of the button. Pressing the button longer than 15 seconds, will abort calibration mode and the unit will return to sleep mode leaving all previous thresholds undisturbed.
5. Once the "MEDIUM FLOW" state has been established, the GREEN LED will begin flashing as described above. The GREEN LED will stop flashing once the unit has seen an acceptable difference in flow condition. At this point, the GREEN LED will become solid awaiting confirmation of the "NOMINAL FLOW" condition. Once you have established the acceptable flow or inlet pressure press the button for 2 seconds. The value is stored upon release of the button. Pressing the button longer than 15 seconds, will abort calibration mode and the unit will return to sleep mode leaving all previous thresholds undisturbed.
6. Once the "NOMINAL FLOW" condition has been established, all three LEDs will begin flashing sequentially indicating a successful calibration. The LEDs will continue to flash sequentially until the pressure has dropped below the 20 psi (1.4 bar) threshold. At this point, the unit will return to sleep mode and can be pressurized into normal operation in monitoring mode.
7. Reflow the nozzle to verify the appropriate flow indicating settings are established appropriately.

BATTERY REPLACEMENT

The HYDRO FX is shipped with pre-installed 2 AAA lithium batteries. Akron Brass recommends the use of lithium AAA batteries to maximize battery life. Please refer to the Technical Service Parts document attached. To replace the batteries remove the battery cap (Item #3) from the back of the unit with a ¼-in hexagonal wrench. When the battery cap is removed the batteries will slide out of the unit. 2 ½" inlet will require removal of swivel inlet for battery replacement.



MAINTENANCE

- Under normal conditions, periodically flushing the nozzle with clean water, cleaning grit and dirt from around exterior moving parts will allow the nozzle to operate as designed. We recommend low-temperature lubriplate as the lubricant.
- Over time the seals and turbine teeth may need to be replaced. This can be accomplished by purchasing the appropriate Akron repair kit. Use qualified maintenance mechanics or return the nozzle to Akron Brass for repair.
- Regularly check the baffle screw to be sure it is tight.
- Use Low-temp Lubriplate on metal parts and Parker O-Ring lubricant on O-Rings

REPAIR

The HYDRO FX used as an integral part of a new nozzle, is assembled onto the nozzle shut-off body and secured onto it by a special swivel adapter. If any of the above situations are encountered, the nozzle should be taken out of service and repaired, plus tested prior to placing it back in service.

