



## Selectable Gallonage ER Nozzles

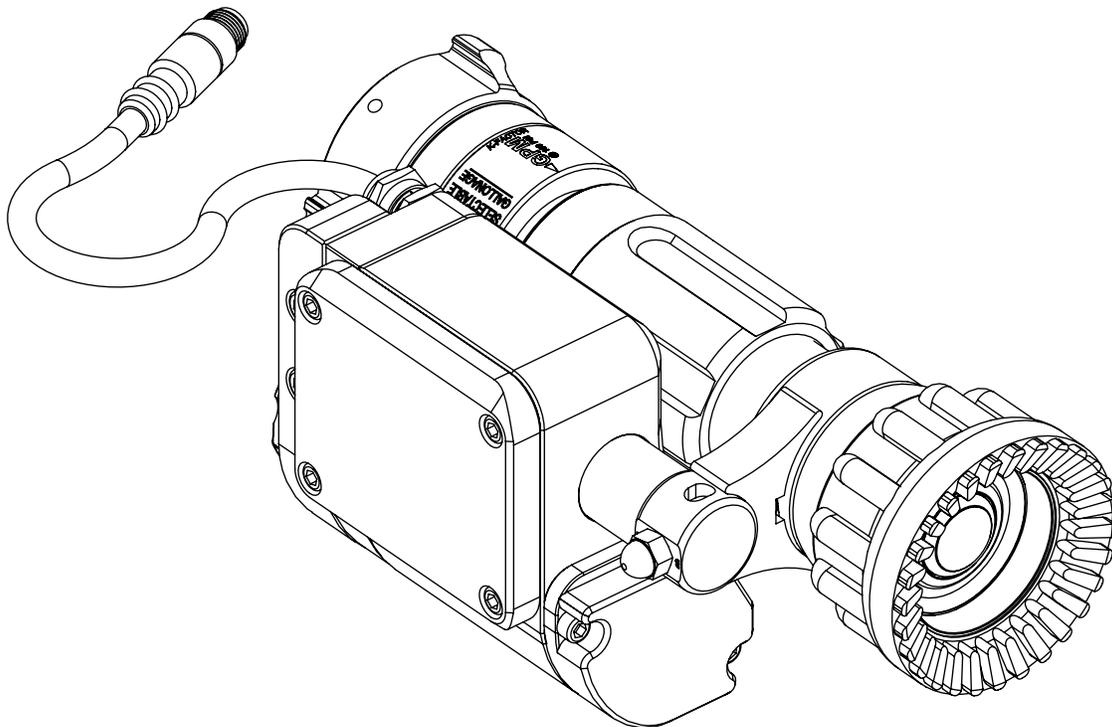
### INSTRUCTIONS FOR INSTALLATION, OPERATION, AND MAINTENANCE

#### **⚠ WARNING**

Understand manual before use. Operation of this device without understanding the manual and receiving proper training is a misuse of this equipment. Obtain safety information at [tft.com/serial-number](http://tft.com/serial-number).

This equipment is intended for use by trained and qualified emergency services personnel for firefighting. All personnel using this equipment shall have completed a course of education approved by the Authority Having Jurisdiction (AHJ).

This instruction manual is intended to familiarize firefighters and maintenance personnel with the operation, servicing, and safety procedures associated with this product. This manual should be kept available to all operating and maintenance personnel.



**TASK FORCE TIPS LLC**  
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# DANGER

## PERSONAL RESPONSIBILITY CODE

The member companies of FEMSA that provide emergency response equipment and services want responders to know and understand the following:

1. Firefighting and Emergency Response are inherently dangerous activities requiring proper training in their hazards and the use of extreme caution at all times.
2. **IT IS YOUR RESPONSIBILITY** to read and understand any user's instructions, including purpose and limitations, provided with any piece of equipment you may be called on to use.
3. **IT IS YOUR RESPONSIBILITY** to know that you have been properly trained in Firefighting and/or Emergency Response and in the use, precautions, and care of any equipment you may be called upon to use.
4. **IT IS YOUR RESPONSIBILITY** to be in proper physical condition and to maintain the personal skill level required to operate any equipment you may be called upon to use.
5. **IT IS YOUR RESPONSIBILITY** to know that your equipment is in operable condition and has been maintained in accordance with the manufacturer's instructions.
6. Failure to follow these guidelines may result in death, burns or other severe injury.



Fire and Emergency Manufacturers and Service Association, Inc.  
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## SUPPORTING MATERIALS

The following document contains supporting safety and operating information pertaining to the equipment described in this manual.



**MANUAL: Remote Control (RC) Monitor Electrical Controls**

Supplemental Instructions for use with RC Monitor Manual

INSTRUCTIONS FOR INSTALLATION, SAFE OPERATION AND MAINTENANCE

**⚠ DANGER** Read manual before use. Operation of this device without understanding the manual and following proper training is a misuse of the equipment. Obtain safety information at www.tftips.com

<p><b>SECTION 3.0</b> General Information and Specifications</p> <p><b>SECTION 4.0</b> Electrical Controls Installation and Operation</p> <p><b>SECTION 4.1</b> Monitor Wireless Operator Station (VE-WO)</p> <p><b>SECTION 4.2</b> Panel Mount Operator Station (VE-SP)</p> <p><b>SECTION 4.3</b> Panel Mount With Display Operator Station (VE-SPD)</p> <p><b>SECTION 4.4</b> Remote Operator Station (VE-CT-MS)</p> <p><b>SECTION 4.5</b> Tethered Operator Station With Display (VE-CT-MSD)</p> <p><b>SECTION 4.6</b> Wireless Operator Station (VE-SP-W)</p> <p><b>SECTION 4.7</b> Wireless Operator Station With Display (VE-SP-WD)</p> <p><b>SECTION 4.8</b> Jury-Rig Operator Station (VE-CT)</p>	<p><b>SECTION 4.9</b> Truck Dash Mount Operator Station (VE-TR)</p> <p><b>SECTION 4.10</b> Monitor Communication With Data Control (VE-DCMS)</p> <p><b>SECTION 4.11</b> Monitor Position Display (VE-SDP)</p> <p><b>SECTION 4.12</b> Remote Control Function Interface Control (VE-REMIX)</p> <p><b>SECTION 4.13</b> Electrical Monitor Aerial Truck Installation</p> <p><b>SECTION 4.14</b> Multiple Interface Control (VE-CLMS)</p> <p><b>SECTION 4.15</b> Ethernet Interface Control</p> <p><b>SECTION 4.16</b> Electric Nozzle Actuator</p> <p><b>SECTION 4.17</b> Voice Kit (VE-VK-P)</p> <p><b>SECTION 5.0</b> Troubleshooting</p>
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LIY-500  
Remote Control (RC) Monitor  
Electrical Controls

## 1.0 MEANING OF SAFETY SIGNAL WORDS

A safety related message is identified by a safety alert symbol and a signal word to indicate the level of risk involved with a particular hazard. Per ANSI Z535.6, the definitions of the four signal words are as follows:



**DANGER** indicates a hazardous situation which, if not avoided, will result in death or serious injury.



**WARNING** indicates a hazardous situation which, if not avoided, could result in death or serious injury.



**CAUTION** indicates a potentially hazardous situation which, if not avoided, could result in minor or moderate injury.



**NOTICE** is used to address practices not related to physical injury.

## 2.0 SAFETY



An inadequate supply of pressure and/or flow will cause an ineffective stream and can result in injury or death. Choose operating conditions to deliver adequate fire suppression. See flow graphs.



This equipment is intended for use by trained personnel for firefighting. Use of this equipment for other purposes may involve hazards not addressed by this manual. Seek appropriate guidance and training to reduce risk of injury.



Injury or damage can occur from an inadequately supported monitor. The mounting must be capable of supporting the nozzle reaction force.



Equipment may be damaged if frozen while containing significant amounts of water. Such damage may be difficult to detect visually. Subsequent pressurization can lead to injury or death. Any time the equipment is subject to possible damage due to freezing, it must be tested and approved for use by qualified personnel before being considered safe for use.



Application of water or foam solutions on energized electrical equipment could cause electrocution. Serious injury or death could result. Assume circuits are energized until confirmed to be de-energized. Do not apply water or foam to energized electrical equipment.



The stream exiting a nozzle is powerful and capable of causing injury and property damage. Make sure the nozzle is securely attached and pointing in a safe direction before water is turned on. Do not direct water stream to cause injury or damage to persons or property.



To prevent mechanical damage, do not drop or throw equipment.

### 3.0 GENERAL INFORMATION

Task Force Tips Selectable Gallonage ER nozzles have a clean, far reaching, stream designed to provide excellent performance under most firefighting conditions. The rugged construction is compatible with the use of fresh water as well as fire fighting foam solutions.

### 3.1 VARIOUS MODELS AND TERMS

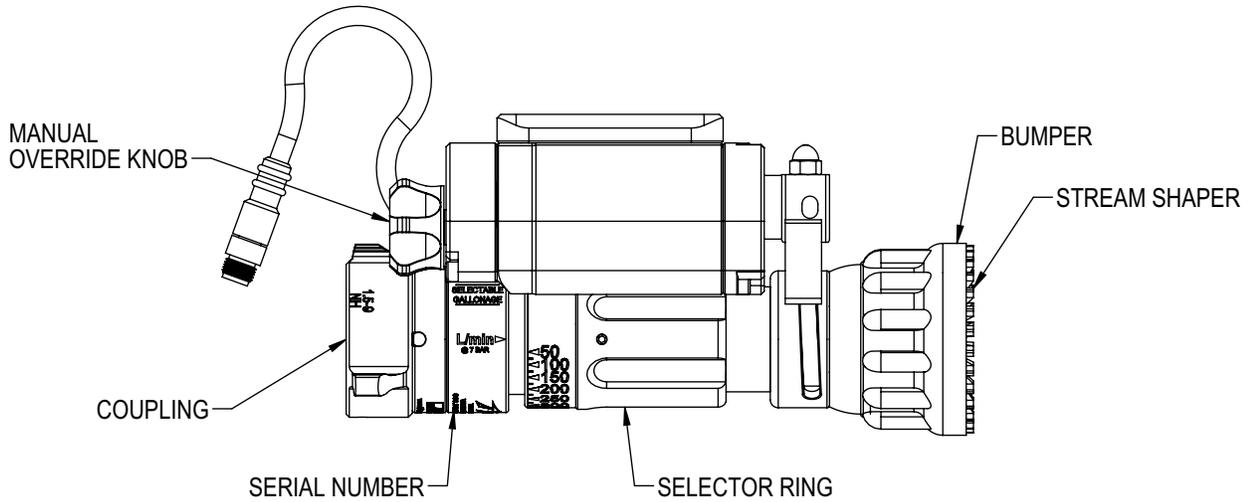


Figure 3.1

### 3.2 SPECIFICATIONS

MECHANICAL		
Weight	6.4 lbs	2.9 kg
Maximum operating pressure*	100 psi	7 bar
Hydrostatic Burst Pressure minimum	1200 psi	83 bar
Operating temperature of fluid	33 to 120°F	1 to 50°C
Storage temperature range	-40 to 150°F	-40 to 65°C
Speed Stream-Fog	3.4 sec.	3.4 sec.
Materials used	Aluminum 6000 series hard anodized MIL 8625 class 3 type 2, stainless steel 300 series, nylon 6-6, nitrile rubber	
*Consult factory for higher pressure applications		

ELECTRICAL				
Nominal Operating Voltage	12 or 24 VDC (auto sense)			
Motor Current	Nominal**		Limit	
	@ 12 VDC	@ 24 VDC	@ 12 VDC	@ 24 VDC
Nozzle Motor	1 amp	0.5 amps	5 amps	2.5 amps
**with rated pressure applied				
Environmental Rating	All components designed to meet minimum rating of IP67.			

Table 3.2

### 3.3 USE WITH SALT WATER

Use with salt water is permissible provided the equipment is thoroughly cleaned with fresh water after each use. The service life of the equipment may be shortened due to the effects of corrosion, and is not covered under warranty.

### 3.4 NOZZLE COUPLINGS

NH (National Hose) threads are standard on all nozzles. Other threads such as NPSH (National Pipe Straight Hose) may be specified at time of order.



Mismatched or damaged waterway connections may cause equipment to leak or uncouple under pressure. Failure could result in injury. Equipment must be mated to matched connections.



Dissimilar metals coupled together can cause galvanic corrosion that can result in the inability to uncouple the connection, or complete loss of engagement over time. Failure could cause injury. Per NFPA 1930, if dissimilar metals are left coupled together, an anti-corrosive lubricant should be applied to the connection and the coupling should be disconnected and inspected at least quarterly.

### 4.0 ELECTRICAL INSTALLATION

For nozzle installation, refer to LIY-500 Remote Control (RC) Monitor Electrical Controls (shipped with TFT monitors or available at tft.com).



This device is not rated as ignition proof, explosion proof, or intrinsically safe. Use only in locations with adequate ventilation and no hazard of flammable vapor buildup.

### 5.0 FLOW CHARACTERISTICS

At each flow setting, the nozzle is set to a predetermined fixed orifice. Relationship of flow and nozzle pressure at each setting is shown below.

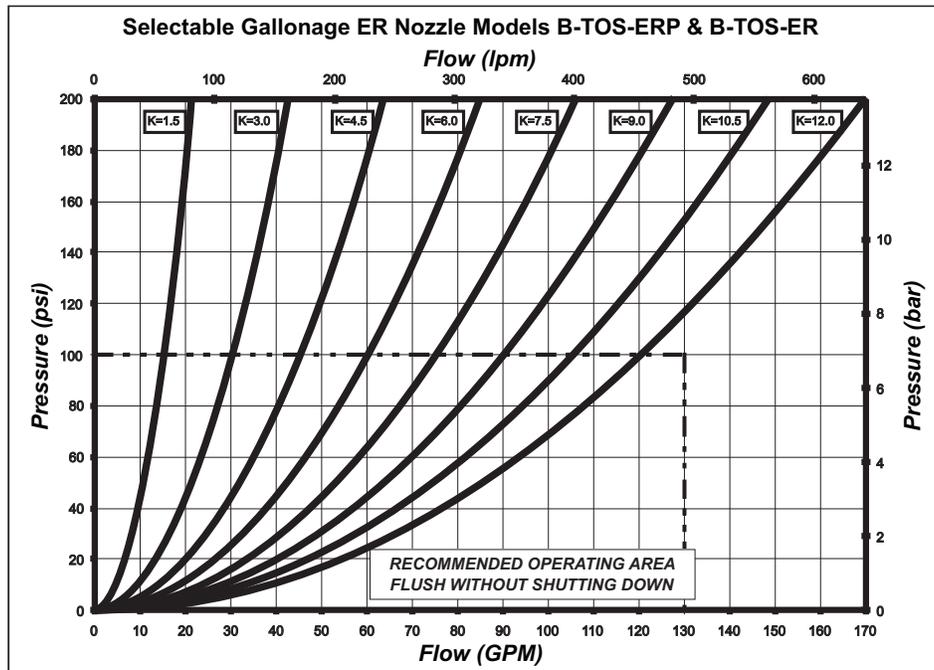


Figure 5.0

### 6.0 NOZZLE CONTROLS

#### 6.1 FLOW CONTROL

The selector ring is marked with various flow settings. To adjust the flow rate, twist the selector ring to align the desired setting with the arrow on the base, indicating GPM or L/min (see Figure 3.1). The desired setting may be locked by tightening one of the two set screws on the selector ring. To restore adjustability, loosen the set screw (see Figure 7.0). The nozzle will flow the indicated amount when the pressure at the nozzle is 100 PSI (7 bar). K-factors are provided on the selector ring to calculate flow at other nozzle pressures using the following formula:

$$\text{Flow} = K * \sqrt{(\text{Pressure})} \text{ — for flows in GPM and pressures in PSI.}$$

## 6.2 PATTERN CONTROL

### CAUTION

Dents or nicks in the nozzle tip can seriously affect the stream reach or pattern, which may increase the risk of injury due to exposure. Care must be taken to avoid dents or nicks in the nozzle tip.

Use the FOG and STRAIGHT STREAM buttons on the nozzle controller to move the shaper to the desired stream setting. Moving the shaper forward transitions to the straight stream position. Moving the shaper rearward will result in an increasingly wider pattern.

**To operate the nozzle manually:** Turn the MANUAL OVERRIDE KNOB in either direction to change the stream position.

Since the stream trim point varies with the flow, the stream should be 'trimmed' after changing the flow to obtain the straightest and furthest reaching stream. The nozzle reaction is greatest when the shaper is in the straight-stream position.

To properly trim a stream, first open the pattern to a narrow fog. Then close the stream to parallel to give maximum reach.

### NOTICE

Turning the shaper further forward will cause stream crossover and reduce the reach of the nozzle.

## 7.0 FLUSHING DEBRIS

### WARNING

Large amounts or pieces of debris may be unflushable and can reduce the flow of the nozzle resulting in an ineffective flow. In the event of a blockage, it may be necessary to retreat to a safe area, uncouple the nozzle and remove debris.

Debris in the water may get caught inside the nozzle. This trapped material will cause poor stream quality, shortened reach, and reduced flow. Debris can be flushed as follows:

1. While flowing water, move the shaper rearward past the full fog position until it stops traveling. \*This will open the nozzle allowing debris to pass through.
2. Move the shaper forward, out of flush position to resume normal operation.

\*When used with a TFT RC Monitor equipped with Smart Stream technology, the FOG button must be pressed and held a second time to reach the FLUSH position. Doing this prevents unintentional flushing of the nozzle, which causes reduced reach and increased flow rate, potentially depleting the water supply more quickly.

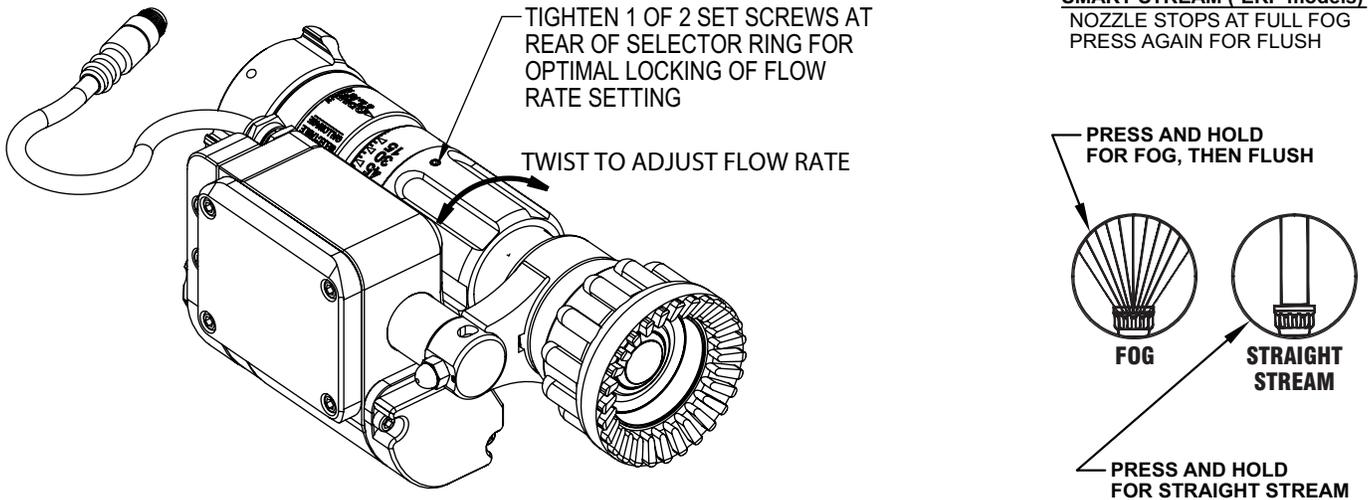


Figure 7.0

## 8.0 WARRANTY

Go to [tft.com](http://tft.com) for all warranty information.

## 9.0 MAINTENANCE

TFT products are designed and manufactured to be damage resistant and require minimal maintenance. However, as the primary firefighting tool upon which your life depends, it should be treated accordingly. To help prevent mechanical damage, do not drop or throw equipment.

### 9.1 FIELD LUBRICATION

All Task Force Tips nozzles are factory lubricated with high quality silicone grease. This lubricant has excellent wash out resistance, providing long term performance. If your agency has unusually hard or sandy water, the moving parts of the nozzle may be affected. Foam agents and water additives contain soaps and chemicals that may break down the factory lubrication.

The moving parts of the nozzle should be checked on a regular basis for smooth and free operation, and for signs of damage. **IF THE NOZZLE IS OPERATING CORRECTLY, THEN NO ADDITIONAL LUBRICANT IS NEEDED.** Any nozzle that is not operating correctly should be immediately removed from service. The nozzle can be returned to the factory at any time for a complete checkup and re-lubrication with silicone grease.

The field use of Break Free CLP (spray or liquid) lubricant will help to temporarily restore the smooth and free operation of the nozzle. These lubricants do not have the washout resistance and long-term performance of the silicone grease. Once Break Free CLP is applied, re-application will be needed on a regular basis until the nozzle can be returned to the factory for a complete checkup and re-lubrication with silicone grease.



**Aerosol lubricants contain solvents that can swell O-Rings if applied in excess. The swelling can inhibit smooth operation of the moving parts. When used in moderation, as directed, the solvents quickly evaporate without adversely swelling the O-Rings.**

### 9.2 SERVICE TESTING

In accordance with NFPA 1930, equipment must be tested a minimum of annually. Units failing any part of this test must be removed from service, repaired and retested upon completion of the repair.

### 9.3 REPAIR

Factory service is available. Factory serviced equipment is repaired by experienced technicians, wet tested to original specifications, and promptly returned. Call TFT service department at 1-800-348-2686 to troubleshoot and, if needed, directions for return. A return for service form can also be obtained at [tft.com/Support/Returning-an-Item-for-Service](http://tft.com/Support/Returning-an-Item-for-Service).

Repair parts and service procedures are available for those wishing to perform their own repairs. Task Force Tips assumes no liability for damage to equipment or injury to personnel that is a result of user service. Contact the factory or visit the web site at [tft.com](http://tft.com) for parts lists, exploded views, test procedures and troubleshooting guides.

Performance tests shall be conducted on the equipment after a repair, or anytime a problem is reported to verify operation in accordance with TFT test procedures. Consult factory for the procedure that corresponds to the model and serial number of the equipment. Any equipment which fails the related test criteria should be removed from service immediately. Troubleshooting guides are available with each test procedure or equipment can be returned to the factory for service and testing.



**It is the responsibility of service technicians to ensure the use of appropriate protective clothing and equipment. The chosen protective clothing and equipment must provide protection from potential hazards users may encounter while servicing equipment. Requirements for protective clothing and equipment are determined by the Authority Having Jurisdiction (AHJ).**



**Any alterations to the product or its markings could diminish safety and constitutes a misuse of this product.**



**All replacement parts must be obtained from the manufacturer to assure proper performance and operation of the device.**

## 10.0 EXPLODED VIEWS AND PARTS LISTS

Exploded views and parts lists are available at [tft.com/serial-number](http://tft.com/serial-number).

## 11.0 OPERATION AND INSPECTION CHECKLIST

**BEFORE EACH USE**, the nozzle must be inspected to this checklist:

1. There is no obvious damage such as missing, broken or loose parts, damaged labels etc.
2. Waterway is clear of obstructions
3. Coupling is tight and leak free
4. Nozzle flow is adequate as indicated by pump pressure and nozzle reaction
5. Shaper turns freely and adjusts pattern through full range
6. Shaper detent (if so equipped) operates smoothly and positively.

**BEFORE BEING PLACED BACK IN SERVICE**, nozzles must be inspected to this checklist:

1. *All controls and adjustments are operational*
2. *Shut off valve (if so equipped) closes off the flow completely*
3. *There are no broken or missing parts*
4. *There is no damage to the nozzle that could impair safe operation (e.g. dents, cracks, corrosion or other defects)*
5. *The thread gasket is in good condition*
6. *The waterway is clear of obstructions*
7. *Nozzle is clean and markings are legible*
8. *Coupling is retightened properly*
9. *Shaper is set to desired pattern*



**WARNING** Equipment failing any part of the checklist is unsafe for use and must have the problem corrected before use or being placed back into service. Operating equipment that has failed the checklist is a misuse of this equipment.