Scorpion® RF L.E.D.

8294-07 Monitor
Installation, Operating, & Maintenance Instructions
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To view the most current parts list and drawings please visit [www.elkhartbrass.com](http://www.elkhartbrass.com)
PRODUCT SAFETY INFORMATION

- All personnel who may be expected to use this equipment must be thoroughly trained in its safe and proper use.

- Before flowing water from this device, check that all personnel (fire service and civilian) are out of the stream path. Also, check to make sure stream direction will not cause avoidable property damage.

- Become thoroughly familiar with the hydraulic characteristics of this equipment, and the pumping system used to supply it. To produce effective fire streams, operating personnel must be properly trained.

- Whenever possible, this equipment should be operated from a remote location. Do not needlessly expose personnel to dangerous fire conditions.

- Open water valves supplying this equipment slowly so that piping fills slowly, thus preventing possible water hammer occurrence.

- After each use, and on a scheduled basis, inspect equipment per instructions in the Maintenance section.

- Any modifications to the electrical enclosures will destroy the NEMA 4 rating and void warranty coverage of the enclosure and all components within.

**Important:** Before installing and operating provided equipment, read this manual thoroughly. Proper installation is essential to safe operation.

SYSTEM INFORMATION:

MONITOR SERIAL NUMBER: __________________________________________________________

MONITOR ACCESSORIES (NOZZLE GALLONAGE AND TYPE, TYPES OF TRANSMITTERS, WATER VALVE, ETC.):

________________________________________________________________________________________

________________________________________________________________________________________

________________________________________________________________________________________

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________________________________________________________________________________________
284A Stream Shaper

3.5” NHT Discharge

Fully Vaned Cast Aluminum Waterway

RF Receiver/Control Module

Sealed High-Torque Gearmotor

Absolute Position Feedback

4” 150# ANSI Flange

Manual Override

8294-07 Scorpion RF LED Monitor
**SYSTEM COMPONENTS**

**MONITOR**

**Scorpion RF LED Monitor – 8294-07**

The 8294-07 is a cast aluminum monitor with 4” waterway. The waterway contains a central vane to minimize large-scale turbulence and provide superior fire streams. Monitor water supply connection is a 4 inch 150 lb. ANSI pattern flange. The discharge nozzle connection is 3½” National Hose thread. Nozzle stream direction is controlled by two permanent magnet type planetary gear motors, one controlling rotation about the axis of the water inlet, and the other controlling nozzle elevation and depression. Right angle gear cases between the gear motor and the monitor allow for convenient manual override of the electric motors in the event of a power failure during firefighting operations. All gearing is enclosed within the monitor housings.

![Scorpion RF LED Monitor – 8294-07](image)

**Caution:** All monitor motors are 12VDC. If using a non-Elkhart nozzle, another 12VDC nozzle should be used, or nozzle control may not function properly.

**NOZZLE**

**Scorpion RF Nozzles –**

There are two standard nozzles available for the Scorpion RF.

**SM-1250E & SM-2000E**

The maximum monitor flow capacity is 2000 gallons per minute. Monitors can be supplied with the SM-1250E constant pressure (automatic) type master stream nozzle. This nozzle has a flow range of 300 to 1250 gallons per minute at 75 psi and has an electric drive mechanism for RF control of the spray pattern from a straight stream to wide fog.

A similar nozzle, the SM-2000E, provides a flow range of 500 to 2000 gallons per minute at 80 psi. For optimum straight stream performance, stream shapers are provided as part of the monitor and nozzle system. Solid stream nozzles are also available for use with these monitors.

**SM-1250E:** 350 GPM @ 50 PSI – 1250 GPM @ 75 PSI  
**SM-2000E:** 500 GPM @ 50 PSI – 2000 GPM @ 80 PSI  

![SM-1250E & SM-2000E](image)
Handheld RF Controller – 81282001
A sealed handheld RF transmitter contains all the controls necessary for operation of the monitor. The handheld remote allows the operator to direct the monitor from a significantly improved point of view. With the wireless remote, the operator can view the stream from the side and confirm that the stream is hitting its target. Separate push button switches are provided for up, down, left, right, fog, and stream functions. The handheld remote has user selectable frequency and security codes that allow multiple monitors to operate on the same fire ground at the same time. The remote has an automatic power down feature that will shut down the power after 5 minutes of no activity. As an additional power saving feature the radio signal is only transmitted while a button is pushed. The handheld remote case has a NEMA 4 rating.

Primary Panel Mount RF Controller – 81327101
The fixed RF transmitter sends signals to the monitor via an encoded radio signal, requiring no wires between the RF transmitter and the monitor. It is powered by a 12V or 24V vehicle electrical system. The faceplate is intended for a flush mount onto the pump or aerial ladder control panel. Separate sealed push button switches are provided for up, down, left, right, fog, and stream functions. This fixed RF transmitter provides two-button access to the Stow feature. It will override any low-priority controls, allowing the apparatus operator to retain ultimate control over the monitor.

Caution: Any modification of the Handheld Controller or Panel Mount enclosures will destroy the NEMA 4 rating to that piece of equipment and will void the warranty coverage.

MONITOR ACCESSORY

Position Feedback Display – 81584000
The Scorpion RF monitor comes with serial Position Feedback sensors. These sensors provide feedback to the monitors’ processor even when the monitor is moved via manual override. This information is then transmitted to the Position Feedback Display.

Caution: Any modification of the enclosure of the Position Feedback Display will destroy the NEMA 4 rating, and will void the warranty coverage.
Installation Overview:

- **Step 1 – Mount and Wire All System Components**
- **Step 2 – Communication Address Setup**
- **Step 3 – RF Settings Setup**
- **Step 4 – System Programming**

**Installation Step 1: Mount and Wire All System Components**

**Warning:** It is up to the system designer to appropriately handle the open circuit condition of the stow signal. In the open circuit mode there is no source to turn off the stow signal load, which may lead to erroneous signal indications if not handled properly. The stow signal is capable of sinking 250mA maximum. Exceeding this value may blow the internal fuse and the stow output will no longer be able to provide a ground.

**Important:** Most test lights draw in excess of 1A.

**Monitor Mounting –**

- **4”-150# Flat Faced Flange:** Attach 4”-150# ANSI pattern companion flange to water supply pipe so that the bolt pattern will allow the monitor to be installed in the straight ahead position. Alignment is correct when the straight ahead position is centered between adjacent flange holes. Attach monitor inlet flange to companion flange on water supply pipe with eight (8) 2½” 5/8-11 UNC grade 5, carbon steel or stainless steel bolts & nuts. Seal flange joint with gasket, or suitable flange sealant. Most wafer type butterfly valves have seats that serve as flange gaskets, and separate gaskets or sealant is not required. Apply Loctite 242 or equivalent to bolt threads before tightening nuts. Torque to 60-70 ft-lbs.

**Warning:** When installing the monitor on a raised face companion flange, it is critical that the bolts be tightened uniformly to prevent misalignment of the monitor relative to the flange or valve. If the monitor becomes misaligned, the base flange will fracture and fail when the bolts on the “high” side are tightened.
Monitor Wiring –

- Place a 10A fuse between the red lead (pin C) of the monitor and a switched positive power lead on the vehicle. Attach the black lead (pin A) from the monitor base to the vehicle ground.
- The white lead (pin B) is for an optional “Stow Indicator” which could be attached to a relay or LED supplied by the OEM. The circuit switches in a ground when the monitor is in a non-stowed position.
- All control functions are sent to the monitor via an encoded RF signal from the RF controller, and no control wiring is needed.
- The 8294-07 has a serial position feedback display. On the Deutsch DTM04-3P connector, the red wire supplies power, the black wire supplies ground, and the third pin is a plug. On the Deutsch DT04-2P connector, the blue wire is signal for the position feedback display, and the black wire is ground.

Panel Mount RF Controllers –

- Using the Panel Mount RF Controller template in the Component Mounting Templates section, mark the panel cutout and mounting screw locations.
- Cut a rectangular clearance opening and drill four (4) 7/32” holes.
- Insert fixed RF controller case through the panel cutout. Secure the unit to the panel with four (4) #10-32 screws. The length of the screws should be the panel thickness plus 3/16”. The screws supplied are ¼” in length. Apply Loctite 242 or equivalent to screw threads before tightening them.
- Place a 1A fuse between the red lead of the RF controller and a switched positive power lead on the vehicle. Attach the black lead from the monitor base to the vehicle ground.
- All control functions are sent to the monitor via an encoded RF signal from the RF Controller.
**Installation Step 2: Communication Address Setup**

An RF Controller controls one 8294-07 monitor. The controller is digitally encoded with a security code ensuring that it does not accidentally control the wrong monitor. The receiver has a matching decoder and security code that instantly decodes and interprets commands. The security code is a 15-bit selectable code that is set on both the remote transmitter and receiver.

The 8294-07 monitor is tested and shipped with a security code based upon the monitor serial number, ensuring each monitor leaves the factory with a unique code assigned to it. The security settings will normally not need to be changed. In the case of a lost transmitter or replaced control board, contact Elkhart Brass.

**Danger:** Using two W.E.T. monitors with the same security code may cause the inadvertent control of the wrong monitor, resulting in possible property damage and injury to personnel. Using the factory specified codes will help prevent this.

**Caution:** Do NOT pinch wires when attaching back panel to front panel of the handheld enclosure. Ensure all O-rings and gaskets are properly installed when closing the receiver or transmitter enclosures.

**Important:** The RF Receiver/Control Module and all transmitter communication addresses have been factory set. They should not require any additional address setup.
Installation Step 3: RF Settings Setup

RF Receiver/Control Module Settings –
Remove the cover from the RF Receiver/Control Module. SW4 (see Figure 1) allows this board to be used in different product applications. The firmware has been programmed such that the SW4 rotary position has no effect on programming, so the dial should remain in position 1.

Handheld RF Controller Settings –
- Remove the battery cover from the handheld RF controller. Remove the four (4) screws holding the two halves of the cover together using a #1 size Pozidriv® screwdriver (use caution with a standard Philips screwdriver as it may strip the screw heads).
- Locate the security code switches on the circuit board (see Figure 2).
- Change the switches to match the settings of the RF Receiver/Control Module except switch A position 1. One incorrect setting will prevent the system from working properly.
- Ensure the battery lead connector is securely fastened to the transmitter circuit board.
- When reassembling the handheld controller, ensure that no wires will be pinched, close the cover halves, and replace the screws. Do not exceed 6 in-lbs. of torque. The screws should be just snug. Do not over tighten the screws or the plastic enclosure could strip.
- With the monitor power on, turn on the handheld controller. The PWR/XMIT light will flash. Once the flashing light stops (light will be off), turn the handheld on once again. This can take 3-5 minutes and is required to sync the handheld to the monitor. The handheld is now ready for use.

Figure 1: RF Receiver/Control Module Circuit Board

Figure 2: Handheld RF Controller Circuit Board
Caution: Do NOT change switch A position 1 on any transmitter. This switch is used to set the priority setting of the transmitter and changing this switch may remove override capabilities. In the event that switch A position 1 has been changed, off (down) is for the primary controller, and on (up) is for any secondary controller.

Panel Mount RF Controller –

- Disconnect the power connector to the panel mount controller at the back of the panel.
- Open the back cover of the controller after loosening the screws.
- Remove the red and black power leads from the power conversion board and place the cover to the side.
- Locate the security code switches on the circuit board (see Figure 2).
- Change the switches to the settings of the RF Receiver/Control Module except switch A position 1. One incorrect setting will prevent the system from working.
- Reconnect the power leads. The red lead is attached to the Positive (+) terminal, and the black lead is attached to the Negative (-) terminal.
- Close the cover and replace the screws.
- Reconnect the power connector.

Important: While reassembling the controller or transmitter, ensure wires and antenna leads do not become pinched.
Installation Step 4: System Programming

Programming Travel Limits & Stow Position
The 8294-07 Scorpion RF LED with position display can be rotated 90° left or 90° right of straight ahead. Stops are mechanically fixed by a stop screw and milled slot in base. Stop screws must remain in place in monitor base.

Programming limits and stow position are completed during the same sequence of steps; not independently. This is a unique programming feature specific to the 8294-07 with position display.

- Move the monitor to the lower left position of the travel window with either the primary controller, or a secondary controller.
- Press and release the red programming switch (SW1). The setup LED DS6 will blink twice.
- Move the monitor to the upper right position of the travel window.
- Press and release the red programming switch. The setup LED will blink three times.
- Move the monitor to the stow position.
- Press and release the red programming switch. The setup LED will blink four times.
- Programming of travel limits and stow position are now set.

Figure 3: SW1 Programming Button

Caution: To prevent damage to the monitor controller, keep all metallic objects away from the receiver circuit board while it is energized. Ensure all O-rings and gaskets are properly installed when closing receiver enclosure.

Important: Limits must be programmed prior to use to avoid a collision between the monitor discharge and the horizontal position sensor.

To clear programmed limits and stow position:
- Press the RED program button (SW1). The LED DS6 will blink two (2) times.
- Press both FOG and STRAIGHT STREAM simultaneously on either a primary or secondary controller, and hold for 5 seconds.
- Position the monitor to the left lower limit of the travel window. Press the RED program button. The LED DS6 will blink three (3) times. Again, press the RED program button. The LED DS6 will blink four (4) times. This clears the previous limits and positions the monitor for the lower left travel limit.
• Press the RED program button (SW1). The LED DS6 will blink two (2) times.
• Press both FOG and STRAIGHT STREAM simultaneously on either a primary or secondary controller, and hold for 5 seconds.
• Position the monitor to the right upper limit of the travel window.
• Press the RED program button (SW1). The LED DS6 will blink three (3) times.
• Position the monitor to the desired stow position.
• Press the RED program button (SW1). The LED DS6 will blink four (4) times.
• Programming of the travel limits and stow position are now complete.
OPERATING INSTRUCTIONS

Normal Operation
The 8294-07 Scorpion RF LED with position display uses the standard Left/Right, Up/Down, and Fog/Stream commands to provide stream direction and pattern adjustments.

- To move the monitor left or right, press and hold the LEFT or RIGHT button until the monitor discharge is in the correct position, or a mechanical stop is reached.
- To move the monitor up or down, press and hold the UP or DOWN button until the monitor discharge is in the correct position, or a mechanical stop is reached.
- To adjust the stream pattern, press and hold the FOG or STREAM button until the desired stream pattern is reached.

Any combination of left or right, fog or stream, and up or down can be used to achieve motion horizontal, vertical, or nozzle commands simultaneously. If the LEFT and RIGHT buttons are pressed at the same time, the monitor will stop all motion. To continue motion, release both buttons and repress the desired direction button. This is also true for the up/down and fog/stream commands.

The handheld remote transmitter has a power saving feature that turns the transmitter power off if no signal is sent for 5 minutes. Press and hold the “ON/OFF” button until the Power LED illuminates to reactivate the transmitter. The “Low Battery” LED will flash slowly when the battery voltage drops below a predetermined level. When the low battery LED flashes rapidly, the batteries are nearly discharged and should be replaced immediately.

NOTE: The SM-1250E and SM-2000E nozzles have a unique ball screw drive that allows motor to “free wheel” at the end of pattern travel in either the straight stream or wide fog positions. No slip clutch or current limiting feature is used with these nozzle drives.

Oscillation Function
The 8294-07 Scorpion RD LED with position display supports oscillation in either a square or sine wave pattern (both motors moving at the same time). The first pin of switch block A on the monitor receiver board designates whether the monitor will oscillate in a square or sine wave pattern. Selecting ‘up’ will oscillate in a square pattern, while selecting ‘down’ will oscillate in a sine wave pattern. The oscillation limits are set using the handheld or truck mount RF transmitters.

- Position the monitor at either the left or the right limit of oscillation.
  - For sine wave pattern, position at the lower left or upper right limit of oscillation.
- Press and release the OSCILLATE button.
- Move the monitor to the other limit of oscillation.
  - For sine wave pattern, position at the alternate upper or lower limit of oscillation.
- Press and release the OSCILLATE button.
- The monitor will oscillate between the limits until the oscillation button is pressed again. Pressing the left or right button on one of the controllers will also stop the oscillation.
For safety reasons, once oscillation has stopped the oscillation limits need to be reprogrammed before it can be re-engaged. The nozzle fog, stream, and discharge elevation functions can be operated while the monitor is oscillating.

**Manual Override**
In the event of power failure to the monitor, the motors may be actuated manually. To operate a function manually, simply apply a ¾” ratcheting type wrench (either socket type or ratcheting box end type) to the hex fitting on the motor shaft.

- **Important:** Using the horizontal override nut when the power to the receiver is off or the horizontal motor is disconnected will move stow position from its original programmed position. See Installation Step 4 to realign stow position even if stow feature is not utilized.

- **Warning:** Do NOT use impact drivers to operate the manual override nuts. Serious damage to motor gear heads will occur.

**Storing the Monitor**
Elkhart Brass recommends that a stow position be set and the stow routine be utilized to place the monitor in its stowed position after each use.

These monitors have a user selectable stow position (see **Installation Step 4** section for instructions). After the water supply to the monitor has been turned off, simultaneously press the STOW and FOG buttons on the primary panel mount RF transmitter (**buttons must be held down for a minimum of 3 seconds**). The monitor will automatically rotate horizontally to the stow position previously programmed, and either lower or raise the discharge to its mechanical stop (depending on the position of switch A position 1 on the receiver board). Prior to stowing the monitor, the stow signal output provides a ground signal.

Any directional command (left, right, up, down, fog or straight stream) will cancel the stow command, and the stow output signal will continue to provide a ground. To stow the monitor, the stow command must be reactivated.

- **Warning:** Never activate the stow feature while water is flowing. Serious injury to personnel and damage to apparatus could result.

- **Warning:** It is up to the system designer to appropriately handle the open circuit condition of the stow signal. In the open circuit mode there is no source to turn off the stow signal load, which may lead to erroneous signal indications if not handled properly. The stow signal is capable of sinking 250mA maximum. Exceeding this value may blow the internal fuse and the stow output will no longer be able to provide a ground.

- **Important:** Most test lights draw in excess of 1A.
Preventive Maintenance
The complete monitor and control system should be inspected during each apparatus check. Careful inspection for damage to the monitor or nozzle is especially important after use of the Scorpion RF monitor in emergency operations.

- Operate all possible functions to ensure that each works normally.
- Flow water to check the nozzle pattern.
  - If the pattern is disrupted, remove the nozzle and check for debris lodged between the nozzle stem and body, or in the stream shaper inlet. Remove debris.
- During nozzle flow test, inspect monitor swivel joints for leaks.
- With the water off, operate the stow function, looking for any possible obstructions and check the final stow position.
- Inspect all exposed wiring for signs of damage.

Note: Although grease fittings are provided for the up-down and left-right gear cases, routine greasing should not be necessary. If the monitor is exposed to high level of radiant heat for a prolonged period, it may be possible for the factory grease to thin and run out of the gear cases. In such an event, fresh grease should be applied. It is recommended that Mobilith AW2 grease be used to lubricate the monitor gearing.

Caution: DO NOT use high pressure spray to clean the monitor system. Using high pressure spray can damage seals and lead to serious damage of electrical components.

Caution: Always check the stow position after any repairs to the monitor. It is possible that during repair work the stow position could be moved or lost, and will need to be reprogrammed. If necessary, reprogram the stow position by following the instructions in Installation Step 4.
**Understanding System LEDs**

- **LED Notations**
  - DS1 – Lights when either nozzle direction is engaged.
  - DS2 – Lights when either of the AUX buttons are pushed.
  - DS3 – Comes on when the UP or DOWN button is pressed.
  - DS4 – Comes on with any horizontal movement.
  - DS5 – See DS5 Status Indicator Table below.
  - DS6 – Lights when power is applied.

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**Figure 5: System LED Notations**

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**Table 6: DS5 Status Indicator LED Table**

<table>
<thead>
<tr>
<th>Reference</th>
<th>Indication</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Blinks 6 times rapidly during startup</td>
<td>Visual indication that the controller is initializing – normal operation.</td>
</tr>
<tr>
<td>2</td>
<td>Blinks at ½ second rate</td>
<td>Truck battery voltage &lt;8 volts – light will blink until power is lost or restored.</td>
</tr>
</tbody>
</table>
Handheld Controller

Battery Type
The Scorpion handheld controller uses two AA Lithium batteries. The low battery light will illuminate with approximately two hours of transmission time remaining before the batteries are completely discharged. Due to the time-voltage characteristics of rechargeable batteries, this time could be drastically reduced if rechargeable batteries are used.

Battery Replacement
The batteries can be replaced with any standard fresh AA Lithium batteries.

- Turn the controller power off.
- Remove the battery cover.
- Remove both of the old AA batteries.
- Wait 5 minutes, and then install new AA Lithium batteries.
- Replace the battery cover.
### System Specifications

#### Panel Mount Controller
- **Input power**: 12/24 VDC (11 VDC to 27 VDC)
- **RF power output**: Meets FCC part 15 requirements for license free operation
- **Transmitter dimensions**: 7 5/8” x 3 7/8” x 2 3/8”
- **Operating temperature range**: -40°C to +65°C, -40°F to +150°F
- **Environmental Rating**: NEMA 4
- **FCC ID**: QT8PTSS2003

#### Handheld Controller
- **Input power**: 2 AA Batteries (Lithium Recommended)
- **RF power output**: Meets FCC part 15 requirements for license free operation
- **Transmitter dimensions**: 6” x 3 1/4” x 1 3/8”
- **Transmitter weight**: 10 ½ oz.
- **Operating temperature range**: -40°C to +65°C, -40°F to +150°F
- **Environmental Rating**: NEMA 4
- **FCC ID**: QT8PTSS2003

#### Receiver
- **Power requirements**
  - Without Converter Assembly: 12VDC (11-14VDC)
  - With Converter Assembly: (11-30VDC) at the controller under full load
- **Electrical Load**: See Table 7 Below
- **Control current**: 0.07 A (12V)
- **Operating temperature range**: -40°C to +65°C, -40°F to +150°F
- **Environmental Rating**: NEMA 4

#### Monitor

<table>
<thead>
<tr>
<th></th>
<th>Left/Right</th>
<th>Up/Down</th>
<th>Nozzle</th>
</tr>
</thead>
<tbody>
<tr>
<td>Run Current*</td>
<td>1 – 1.5 A @ 200 psi</td>
<td>1 A @ 200 psi</td>
<td>0.5 A</td>
</tr>
<tr>
<td>Stall Current*</td>
<td>33.3 A</td>
<td>33.3 A</td>
<td>NA</td>
</tr>
<tr>
<td>Current Trip Point*</td>
<td>13 A</td>
<td>10 A</td>
<td>4 A</td>
</tr>
</tbody>
</table>

*Table 7: Motor Current Specifications*
*All current ratings are at 12V*

#### Shock
- 30 G’s (55 Hz. @ .2” double amplitude)

#### Vibration
- 15.5 G’s (55 Hz. @ .05” double amplitude) continuous operation

#### Drop Test
- The handheld controller must meet operating specifications after drop from 1m height onto concrete surface.

#### Environmental
- All enclosures have a NEMA 4 rating (must withstand a 1” stream of water at 65 GPM from a distance to 10ft. for five minutes with no water entering the enclosure).
Interpreting Flow Data
The following graphs offer the pressure losses for the monitor (and other devices) in terms of Total Static Pressure Drop. This Total Static Pressure Drop can be found by measuring the difference between the static inlet pressure and the static outlet pressure. The static pressure at either of these points can be found using a simple pressure gauge. An illustration of this method can be seen below.

In mathematical terms, the Total Static Pressure Drop is the change in Velocity Pressure plus Friction Loss. The change in Velocity Pressure results from the change in velocity of water caused by the change in the cross section of a waterway. Friction Loss results from the drag and sidewall interference of the water through a device. A simple equation can be seen below.

\[ \Delta P_S = H_F + \Delta P_V \]

- \( \Delta P_S \) = Total Static Pressure Drop
- \( H_F \) = Friction Loss
- \( \Delta P_V \) = Velocity Pressure Loss

In the firefighting industry, the terms Total Static Pressure Drop and Friction Loss tend to be used interchangeably. However, these are significantly different measurements. This misconception could ultimately lead to lower than anticipated performance from equipment. When designing a system and determining performance, Total Static Pressure Drop is the value that should always be used. The Friction Loss curve is also supplied in order to make a comparison with competitor products that may only supply Friction Loss curves. If there are any further questions regarding this matter, please contact Elkhart Brass.
Scorpion RF Monitor
4.0” Inlet and 3.5” Outlet

Flow Rate (GPM) vs Pressure (PSI)

Total Static Pressure Drop
Friction Loss

NOZZLE DISCHARGE U.S. GPM

<table>
<thead>
<tr>
<th>CATALOG NO.</th>
<th>INLET SIZE</th>
<th>STREAM SETTING</th>
<th>NOZZLE PRESSURE PSI</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>50  60  65  70  75  80</td>
</tr>
<tr>
<td>SM-1250E</td>
<td>3.5</td>
<td>SS</td>
<td>385  655  875  1100 1250</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NARROW FOG</td>
<td>110  140  172  220  229</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WIDE FOG</td>
<td>100  129  132  136  140</td>
</tr>
<tr>
<td>SM-2000E</td>
<td>3.5</td>
<td>SS</td>
<td>56   62   68   72   82</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NARROW FOG</td>
<td>-     -     -     -     -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>WIDE FOG</td>
<td>-     -     -     -     -</td>
</tr>
</tbody>
</table>

EFFECTIVE REACH in FEET

<table>
<thead>
<tr>
<th>CATALOG NO.</th>
<th>INLET SIZE</th>
<th>STREAM SETTING</th>
<th>NOZZLE PRESSURE PSI</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>50  60  65  70  75  80</td>
</tr>
<tr>
<td>SM-1250E</td>
<td>3.5</td>
<td>SS</td>
<td>-     -     -     -     -</td>
</tr>
<tr>
<td></td>
<td></td>
<td>NARROW FOG</td>
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</tr>
<tr>
<td></td>
<td></td>
<td>WIDE FOG</td>
<td>-     -     -     -     -</td>
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COMPONENT MOUNTING TEMPLATES

NOTE: Pages must **NOT** be scaled during printing or template size will be scaled incorrectly.

Panel Mount Controller Mounting Template

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+ 0.300 +
<table>
<thead>
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<td>6.400</td>
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<td>3.250</td>
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<tr>
<td></td>
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<tr>
<td>R0.250 TYP</td>
</tr>
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INSTALLATION, OPERATION, AND MAINTENANCE INSTRUCTIONS
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