# 370 LevelRay Mounting Hardware

## Installation Instructions


TELEDYNE | ISCO

Part #69-4874-002
Revision -, March, 2026

## Updated Information

The information contained in this document is subject to change without notice.

## Contact Teledyne ISCO

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## Foreword - Water and Wastewater Products

This installation guide is designed to help you gain a thorough understanding of the operation of the equipment. Teledyne ISCO recommends that you read this manual completely before placing the equipment in service.

Although Teledyne ISCO designs reliability into all equipment, there is always the possibility of a malfunction. This manual may help in diagnosing and repairing the malfunction.

If a problem persists, call or e-mail Teledyne ISCO technical support for assistance. Simple difficulties can often be diagnosed over the phone. For faster service, please have your serial number ready.

If it is necessary to return the equipment to the factory for service, please follow the shipping instructions provided by technical support, including the use of the Return Merchandise Authorization (RMA) specified. Be sure to include a note describing the malfunction. This will aid in the prompt repair and return of the equipment. **No item may be returned for service without a Return Merchandise Authorization (RMA) number issued by Teledyne.**

Teledyne ISCO welcomes suggestions that would improve the information presented in this manual or enhance the operation of the equipment itself.

**Teledyne ISCO is continually improving its products and reserves the right to change product specifications, replacement parts, schematics, and instructions without notice.**

### Contact Information


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| | | |
|---|---|---|
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**Warranty and Operation Manuals can be found on our website:**

www.teledyneisco.com

# Preface

## General Warnings

Before installing, operating, or maintaining this equipment, it is imperative that all hazards and preventive measures are fully understood. While specific hazards may vary according to location and application, take heed in the following general warnings:

**⚠ WARNING**

**This instrument and its hardware have NOT been certified for use in "hazardous locations" as defined by the National Electrical Code.**

**⚠ WARNING**

**Avoid hazardous practices! If you use this instrument and its hardware in any way not specified in this manual, the protection provided by the instrument may be impaired; this will increase your risk of injury.**

**⚠ AVERTISSEMENT**

**Éviter les usages périlleux! Si vous utilisez cet instrument et son matériel d'une manière autre que celles qui sont specifiées dans ce manuel, la protection fournie de l'instrument peut être affaiblie; cela augmentera votre risque de blessure.**

## Hazard Severity Levels

This manual applies Hazard Severity Levels to the safety alerts. These three levels are described in the sample alerts below.

**⚠ DANGER**

**DANGER – limited to the most extreme situations to identify an imminent hazard, which if not avoided, will result in death or serious injury.**

## ⚠ WARNING

**Warnings identify a potentially hazardous condition, which if not avoided, could result in death or serious injury.**

## ⚠ CAUTION

Cautions identify a potential hazard, which if not avoided, may result in minor or moderate injury. This category can also warn you of unsafe practices.

## CAUTION

When shown without the warning symbol (⚠), this category can also warn you of conditions that may cause property damage.

## *NOTICE*

Notices convey important information but do not indicate a credible possibility of physical injury.

## Hazard Symbols

This manual uses symbols used to warn of hazards. The symbols are explained below.

**The exclamation point within the triangle is a warning sign alerting you to important instructions in this manual.**

## Symboles de Sécurité

**Ce symbole signale l'existence d'instructions importantes relatives au produit dans ce manuel.**

## Warnungen und Vorsichtshinweise

**Das Ausrufezeichen in Dreieck ist ein Warnzeichen, das Sie darauf aufmerksam macht, daß wichtige Anleitungen zu diesem Handbuch gehören.**

## Advertencias y Precauciones

**Esta señal le advierte sobre la importancia de las instrucciones del manual que acompañan a este producto.**

# Product User Manual Name

## Table of Contents

# 370 LevelRay Mounting Hardware

## Chapter 1: Mounting Options and Requirements

### 1.1 Mounting Options

LevelRay Wall Mount ..... 60-4877-002

Floor Mount for horizontal surfaces ..... 60-4877-003

Scissor Mount (min 16") ..... 60-4877-004

Street Level Mount (min 12")..... 60-4877-005

Suspended Mount with cable straightener..... 60-4877-006

The sensor cable can be routed through user-provided conduit.

### 1.2 Tools Required to Mount the Sensor

- 11/32" nut driver (for included nylock nuts)
- #2 Phillips screwdriver (for included 8-32x3/4 316SS pan head screws)

Mount-specific tools are listed in each chapter of this guide.

#### 1.2.1 Nylock nuts

Nylock nuts are locknuts. They are reusable, but their locking action decreases with each installation.

Orient the flat side of the nut, and not the nylon insert, against the plate.

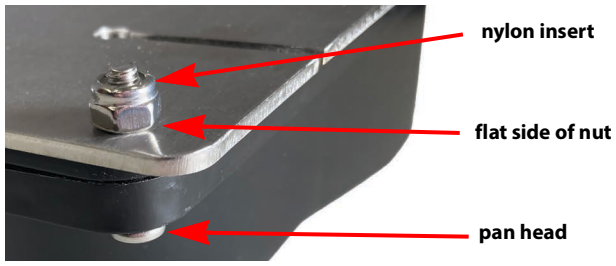



*Figure 1-1 Typical pan head screw and nylock nut installation.*

# Chapter 2: Level Ray Wall Mount (60-4877-002)

*Figure 2-1 Wall mount with the LevelRay sensor installed*


## 2.1 Wall Mounting the Sensor

### 2.1.1 Required Tools and Hardware

- 11/32" nut driver and #2 Phillips screwdriver (required for all mounts)
- 2 screws/anchors and required fasteners.

### 2.1.2 Assembly

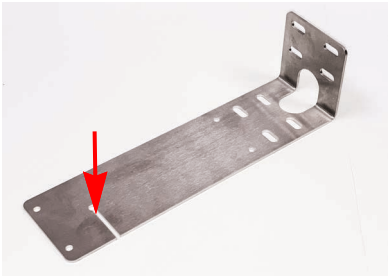
Mount the bracket at top of manhole ring if this can position the sensor over the flow below. This would eliminate the need to enter manhole.

The screws for the sensor are small, so it is a good idea to install the sensor to the wall bracket in an area where dropped hardware can be found:

1. Before installing the sensor, position the wall bracket and drill holes in the wall.

   Use the hole in the bracket to line the bracket up over the stream (Figure 2-2). A plumb bob can be used to ensure that the bracket is directly over the stream.

*Figure 2-2 Plumb bob hole in wall bracket.*



2. Send the wall bracket back out of manhole.

3. Screw the sensor to the wall bracket.

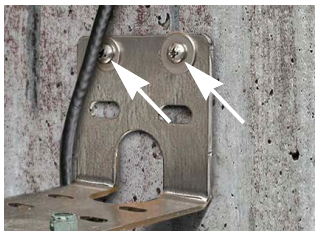
**NOTICE**

Do **not** route cable through the large hole in the bend of the bracket. This makes mounting the LevelRay to or removing it from the bracket less convenient, and the edges of the hole could chafe and damage the cable.

4. Mount the wall bracket and sensor assembly in the manhole.

   Mounting the wall bracket requires the use of only 2 screws/anchors (Figure 2-3).

*Figure 2-3 Cable routing.*



Use the bubble level included with the wall mount to aid in leveling the bracket. Shims may be required to achieve leveling the bracket to the substrate.

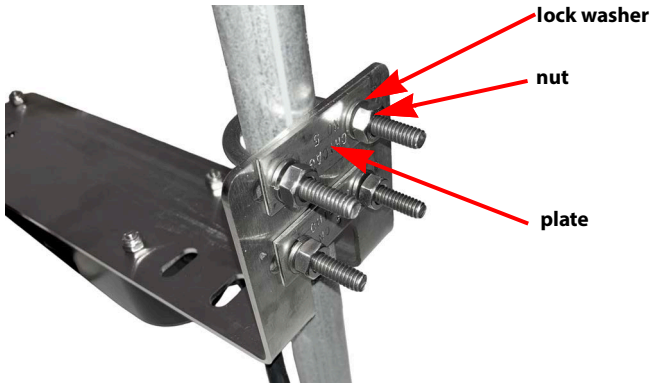
## 2.2 Mounting on a Pipe

The wall mount bracket can also be mounted either vertically or horizontally to 3/4" pipe with the included U-bolts.

A 7/16" wrench is required to attach the U-bolts to the pipe. The installation procedure is otherwise similar to that for wall mounting the sensor (section 2.1.2).

*Figure 2-4 Wall mount bracket attached to pipes.*

*Figure 2-5 Wall mount bracket attached to pipes.*



# 370 LevelRay Mounting Hardware

## Chapter 3: Floor Mount (60-4877-003)

### 3.1 Overview

The floor mount bracket is a floor mount for ultrasonic sensors that has been adapted to also support a LevelRay non-contact level sensor. The mount is a stand for permanent or temporary installations.

Because it is collapsible, the floor mount bracket can be easily lowered into a manhole as a compact, single-piece unit. Installation of the bracket requires entry into the manhole. The mount is made of heavy gauge anodized aluminum and stainless steel. Its swivel is CPVC. All hardware is made of stainless steel for corrosion resistance.

*Figure 3-1 Floor mount with the LevelRay sensor installed.*

### 3.2 Installing the Floor Mount

The floor mount provides a convenient, stable method of mounting the LevelRay.

In temporary installations, the LevelRay floor mount bracket may be secured by placing a weight, such as a brick or sandbag, over its base. Permanent installation is achieved by attaching the base to a floor or wall using studs or other fasteners.

#### 3.2.1 Tools required

- 11/32" nut driver and #2 Phillips screwdriver (required for all mounts)
- 7/16" open wrench
- 7/16" box wrench
- flat screwdriver
- channel lock pliers

## 3.3 Adjustment

Both the height and reach of the floor mount are adjustable for use over a wide range of channel sizes.

### 3.3.1 Height

The height of the mount fully collapsed is 1 foot (0.30 m). The fully extended height of the mount is 2 feet (0.61 m).

Adjust the height of the floor mount by pressing the metal button on the lower vertical pole section and sliding the upper pole section up or down to achieve the desired height. The pole is locked when the button snaps into one of the holes in the upper pole section. The holes are spaced 1 1/2 in. (3.81 cm) apart.

### 3.3.2 Horizontal Reach

The horizontal reach of the mount is from 1.83 feet (0.56 m) to 2.5 feet (0.76 m) away from the vertical bar. When fully extended, the horizontal bar allows installation over channel widths of up to 4 feet (1.22 m). Adjust the length of the horizontal bar by loosening the two clamps and sliding the two telescoping sections in or out until the desired length is reached.

## 3.4 Storage and Transport

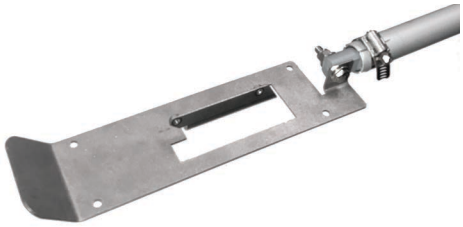
For storage or transport, the floor mount pole and bar are fully collapsible. Fold the bar over backward as shown.

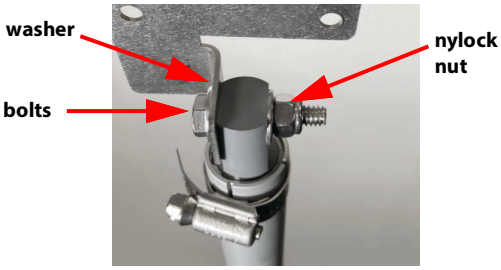
*Figure 3-2 Floor mount, collapsed.*

## 3.5 Adding the Bracket to the Floor Mount

1. Remove the UV sensor bracket using the 7/16" box end and open-end wrenches.
2. Attach the Level Ray mounting plate to the end of the horizontal bar (Figure 3-4).

*Figure 3-3 Mounting plate installation.*






3. Install the sensor below the mounting plate with four screws and nylock nuts (included)(Figure 3-4).

*Figure 3-4 Sensor installation.*

**NOTE**

The LevelRay sensor must be perpendicular to the surface of the flow stream before it is secured in place. To ensure perpendicularity of the mounting bracket, using a bubble level (included) is recommended.

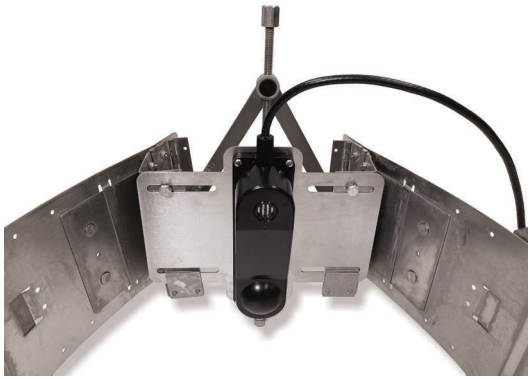
# Chapter 4: In-Pipe Installation: Scissor Mount (60-4877-004)

## 4.1 Overview

In-pipe installation requires the scissors mount bracket or the street level ring mount bracket.

The scissor mount is for pipes having a diameter of 16" or more.

*Figure 4-1 Scissor mount with the LevelRay sensor installed.*



The adjustable scissors mount bracket installs in large diameter pipes and manhole inverts from 16 inches to 80 inches in diameter. The Scissors Ring consists of a base section, two or more extension sections (usually), and a scissors section at the top for the dual purpose of supporting the sensor over the stream and expanding the entire assembly to tighten it inside the pipe. The scissors section contains a long screw that increases the length of the section as it is tightened.

The sensor mount kit contains hardware for mounting the sensor on the scissor mechanism, including a scissor plate (see Figure 4-2). The standard base plate and extensions are sold separately.

*Figure 4-2 The scissor mount.*

## 4.2 Tools Required

- #2 Phillips screwdriver
- 1/2" socket wrench
- 5/16" socket wrench
- 5/8" socket wrench
- channel lock pliers
- bar ("torpedo") level

### 4.2.1 Personal Protective Equipment

- cut-resistant gloves
- eye protection

### 4.2.2 Additional Tools

- plumb bob
- a hammer or rubber mallet
- a flathead (slotted) screwdriver

**⚠ WARNING**

**Hazard of cuts and abrasions from ring hardware. Use cut-resistant gloves and eye protection when handling it.**

## 4.3 Assembly and installation

**NOTICE**

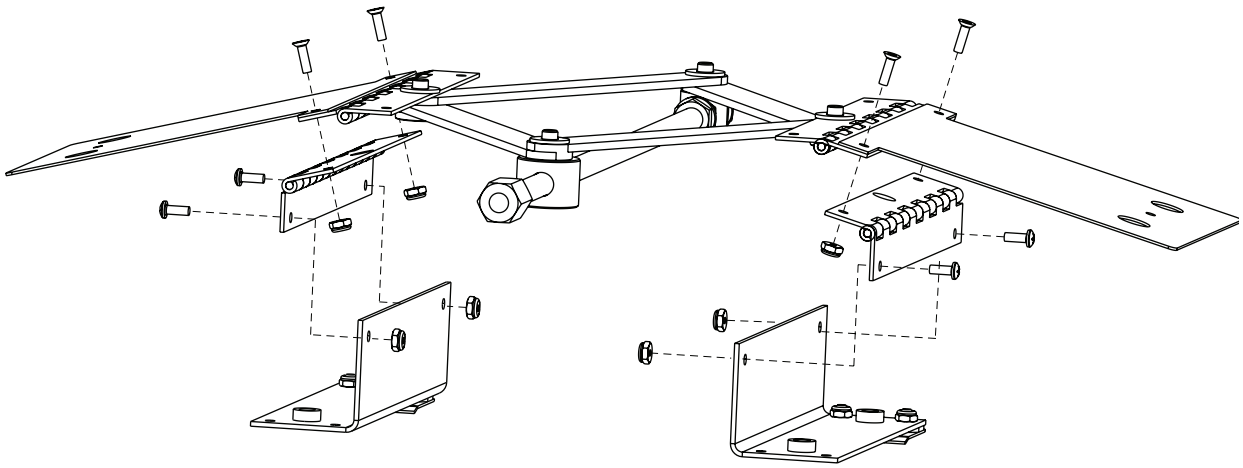
Consult the *Isco Mounting Rings Installation and Operation Guide* (P/N 60-3203-061) for complete instructions to fit and install scissor rings.

The following figures are a guide for assembly and installation of the sensor with a scissor ring.

**NOTE**

In the event that the scissors mechanism must be fully collapsed for the mounting ring to fit inside the pipe, the left and right sensor support brackets may be swapped straight across, facing outward (Figure 4-3), allowing more room. Both bracket clips MUST still point forward, away from the hex drive.

*Figure 4-3 Sensor mount assembly with sensor support brackets reversed.*



1. Wearing cut-resistant gloves, slide the tongue sections of the scissor mechanism into the slots and over the securing buttons on the base extensions (Figure 4-4) or at the ends of the base section (Figure 4-5).

**NOTE**

To engage the slots with the buttons on the base section and/or extension, slightly bend the metal so that the buttons do not catch on the tongue's edge (Figure 4-6). Sometimes, it may be necessary to pry the tongue up slightly to clear the buttons (Figure 4-5). It may also be necessary to use a hammer or rubber mallet to very gently tap the rear edge of the hinge assembly to get the tongue fully into its slots.

*Figure 4-4 Connecting the scissor mechanism to a base extension.*

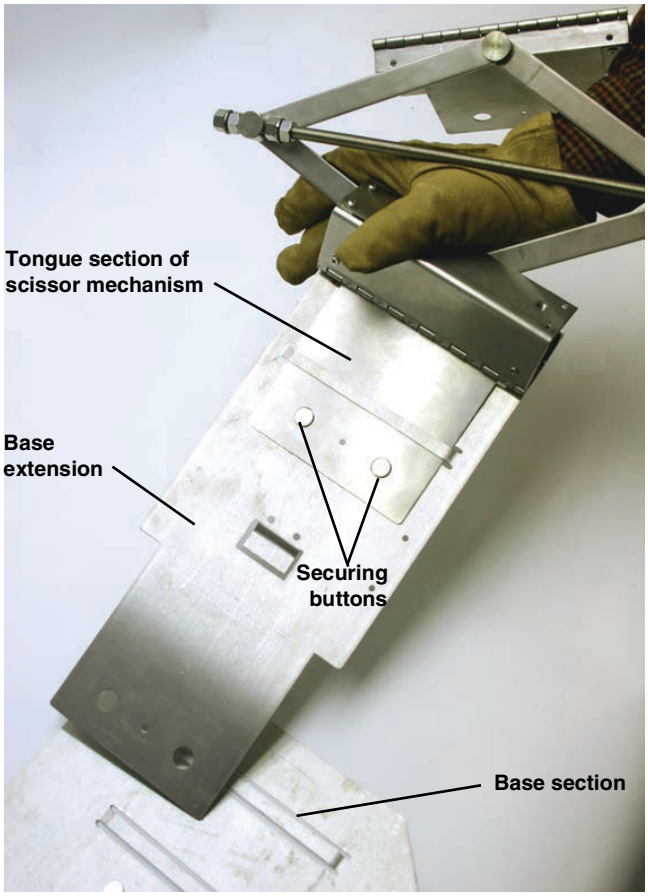



*Figure 4-5 Prying the tongue to clear the buttons*

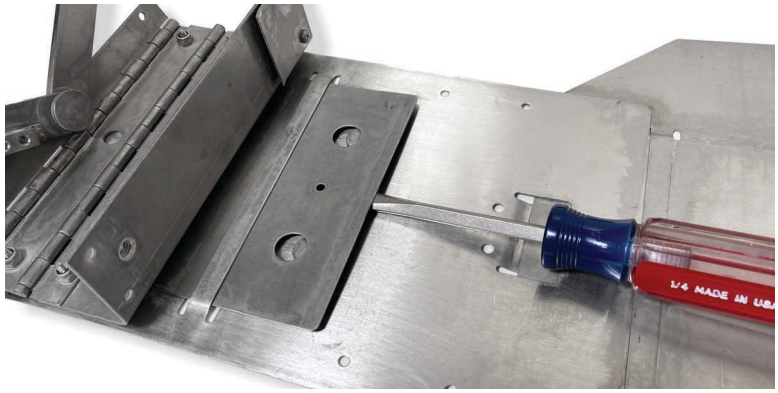


*Figure 4-6 Bend the base and/or extension to fully engage the buttons.*

*Figure 4-7* Fit the edge under the tab.

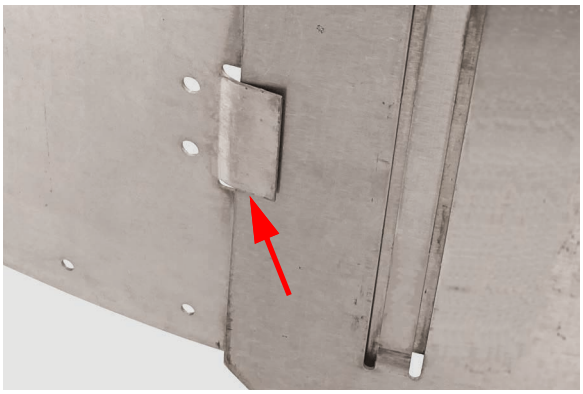


*Figure 4-8 Attaching the scissor mechanism to the mounting ring.*

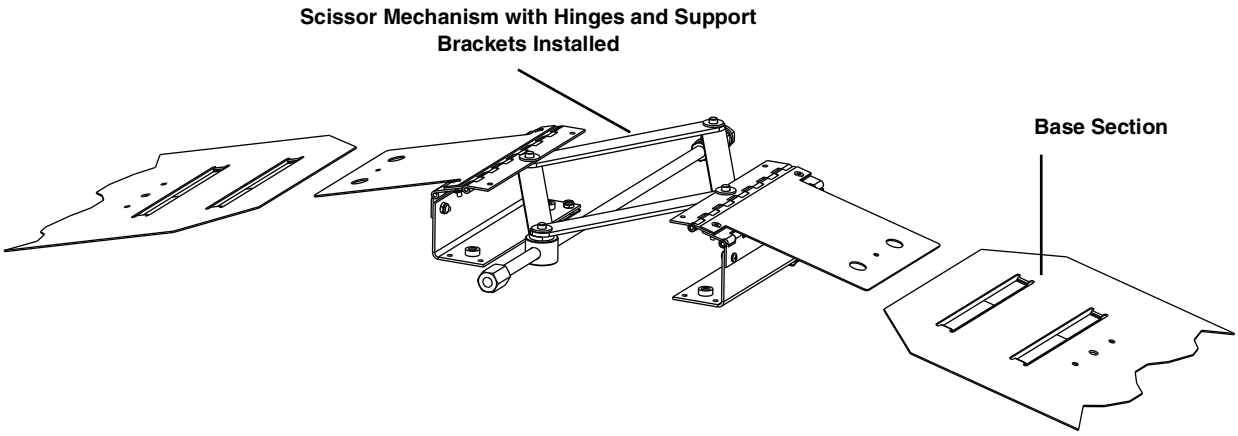
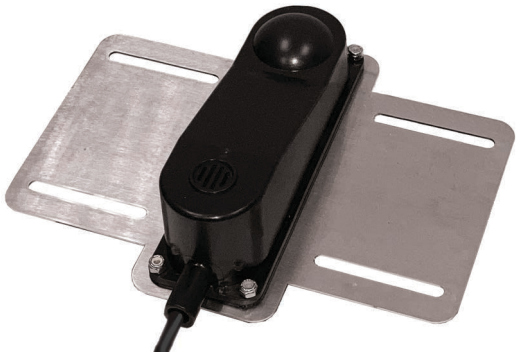



*Figure 4-9 Scissors mechanism connected with extension and base.*

2. Attach the sensor to the scissor mount (Figure 4-10).

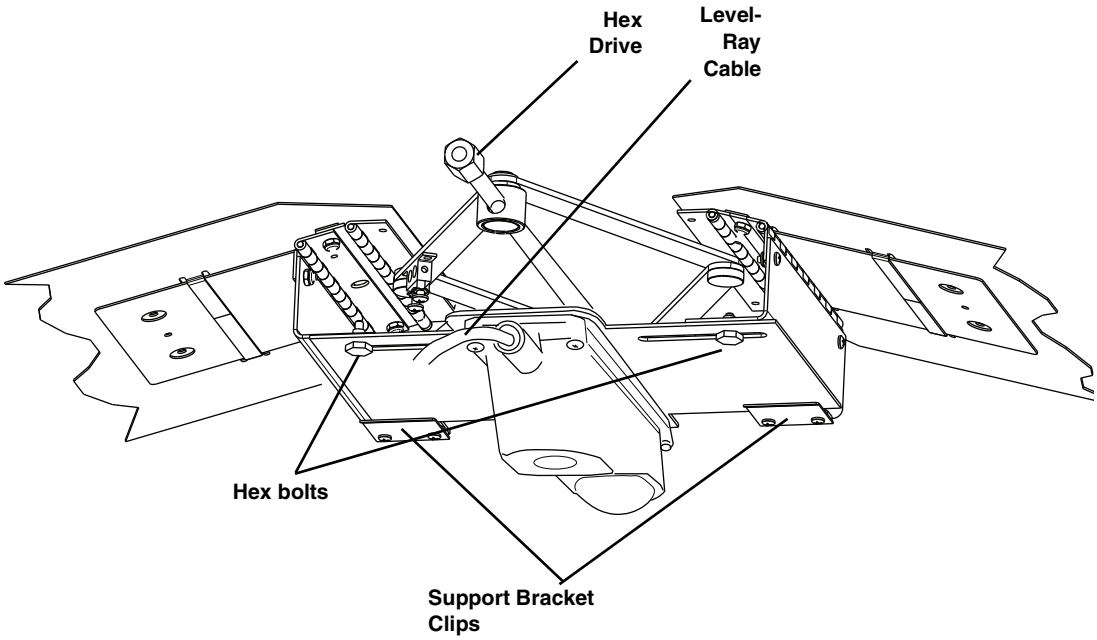
*Figure 4-10 The LevelRay attached to the scissor plate.*

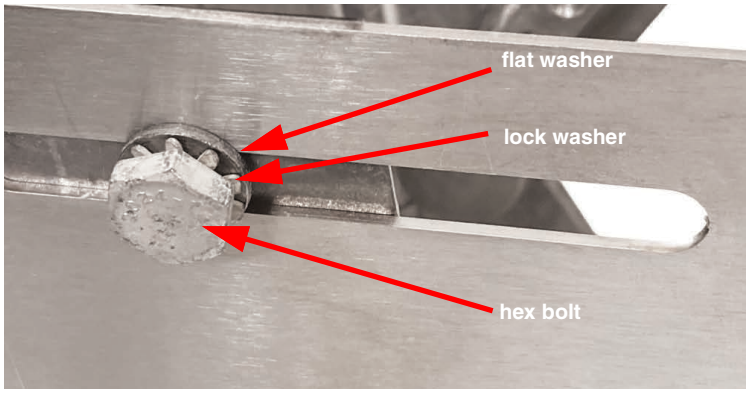


3. Slide the scissor mount assembly forward into the support bracket clips (Figure 4-11) so that the cable is on the same side as the hex drive.

   Install the two hex bolts and two lock washers through the slotted underside of the scissor mount assembly and into the threaded inserts on top of the support brackets.

*Figure 4-11 Installing the sensor mount assembly on the scissors ring assembly.*






4. Use a bar level to adjust the LevelRay alignment, then finger-tighten the adjustment hex bolts.
5. Secure the sensor cable to the scissor mechanism using the cable ties provided in the sensor mount kit.

**NOTE**

The LevelRay must be perpendicular to the surface of the flow stream before the sensor is secured in place. To ensure perpendicularity of the wall bracket, a user-supplied bar ("torpedo") bubble level is recommended.

6. Secure the ring in place by tightening the scissors mechanism with a 5/8" socket wrench. Do not overtighten.
7. Tighten the adjustment hex bolts to secure the sensor mount assembly.

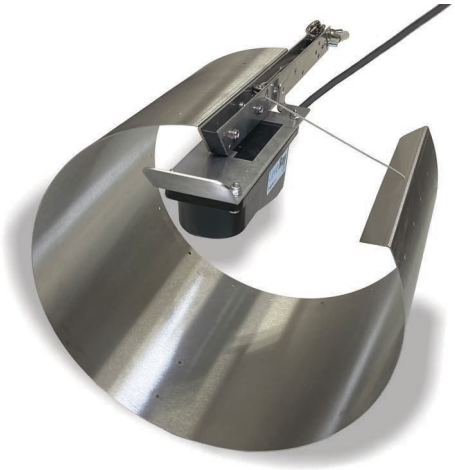
# Chapter 5: In-Pipe Installation: Street Level Mount (60-4877-005)

In-pipe installation requires the scissors mount bracket or the street level ring mount bracket. The street level mount is for pipes having a diameter of 12" and 15".

The street level mount bracket installs the LevelRay in a street level mounting ring. The mounting ring kit is sold separately. Refer to the *Street Level Installation System, Installation and Operation Guide* (P/N 60-3203-041). Detailed hardware information can also be found in the *Isco Mounting Rings Installation and Operation Guide* (P/N 60-3203-061).

*Figure 5-1 LevelRay street level mount bracket.*

*Figure 5-2 Streel level mount bracket with the LevelRay sensor installed in a mounting ring.*



## 5.1 Attaching the Sensor to the Ring

**NOTICE**

Refer to the Street Level Installation System, Installation and Operation Guide (P/N 60-3203-041) and *Isco Mounting Rings Installation and Operation Guide* (P/N 60-3203-061).

### 5.1.1 Required Tools and Hardware

- 11/32" nut driver and #2 Phillips screwdriver (required for all mounts)

### 5.1.2 Personal Protective Equipment

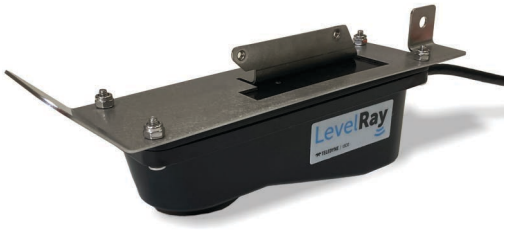
- cut-resistant gloves
- eye protection

**⚠ WARNING**

**Hazard of cuts and abrasions from scissor ring hardware. Use cut-resistant gloves and eye protection when handling it.**

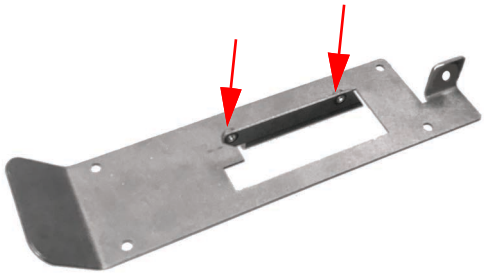
## 5.2 Assembly

1. Attach the sensor to the sole mounting plate using the supplied pan head screws and nylock nuts. Note the orientation of the cord to the plate.

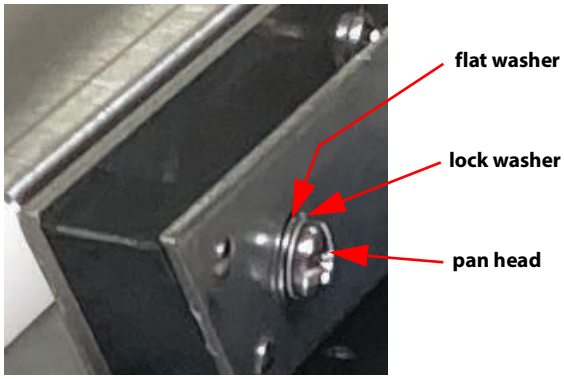


2. Secure the sole plate to the mounting ring using the included screws, flat washers, and lock washers.

*Figure 5-3 Street level mount bracket attachment points.*



**Note the location of this bracket: it is outside the mounting ring mechanism.**



# Chapter 6: Suspended Mount (60-4877-006)

## 6.1 Overview

In a stable indoor environment, the sensor may be suspended over the flow stream from a stable location with the suspended mount (P/N 60-4877-006). The sensor cable must be routed and secured without strain or pinching. The weighted cable straightener tube (P/N 60-2003-611; included) forces the sensor to hang plumb.

*Figure 6-1 Suspended mount with the LevelRay sensor installed.*


*Figure 6-2 LevelRay sole mounting plate.*

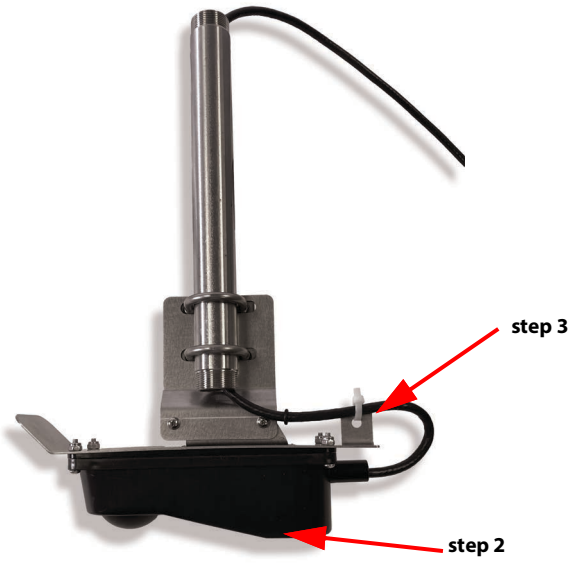
## 6.2 Required Tools

- 11/32" nut driver and #2 Phillips screwdriver (required for all mounts)
- Sidecutter (to trim zip ties)
- 1/2" wrench.
- Carpenter square.

## 6.3 Assembly

1. Route cable through cable straightener tube.
   a. If the cable is terminated with a TIENet or other connector, temporarily loosen the U-bolt nuts with a 1/2" wrench, then adjust the straightener tube to provide clearance between the tube and mounting plate. Afterward, be sure to reposition the tube and re-tighten the U-bolts.

2. Attach the sensor to the sole mounting plate.
3. Zip tie the cable to the back of the sole mounting plate. Leave enough slack to avoid pinching the cable.



4. Pull cable slightly tight at top of tube and install a zip tie at the top of the tube. Make sure it is tight, as this will be used as a strain relief.

5. Put the cap, plate, and grommet onto the cable and tighten just above the zip tie.

**Tip:** The apparatus can be checked for plumb by using a carpenter's square or similar tool.