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The patented Vital Proximity Detection (VPD) system is an advanced design monitor developed for proximity sensors used in railroad signal detection. The vital detection system uses monitored proximity sensors that are continually checked for shorts, line resistance, or contacts not opening or closing. Designed with the maintainer in mind, this system is easy to set up, adjust, and troubleshoot.

- Interfaces easily with existing and/or new signal relay applications
- Requires less maintenance than conventional mechanical devices
- No mechanical parts or contacts to wear out
- Enhanced adjustment and troubleshooting through remote status indication
- Proximity sensors and monitoring system operate on 12 volts DC
- True Fail-Safe protection through redundant components and crosschecks
- Allows removal of high maintenance circuit controllers
- No need for non-vital PLC's



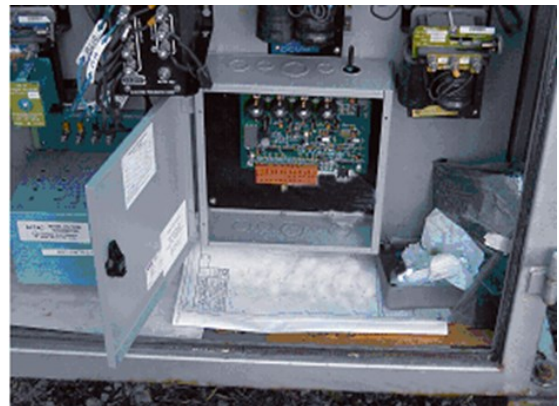
Sensor configuration for switch point detection. Both normal and reverse points are detected. Other applications include Bridge Signal and Dragging Equipment Detection



Remote status monitor provides sensor and relay information from up to 1,000 feet away



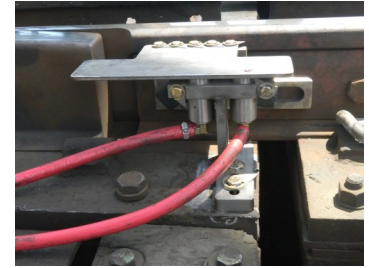
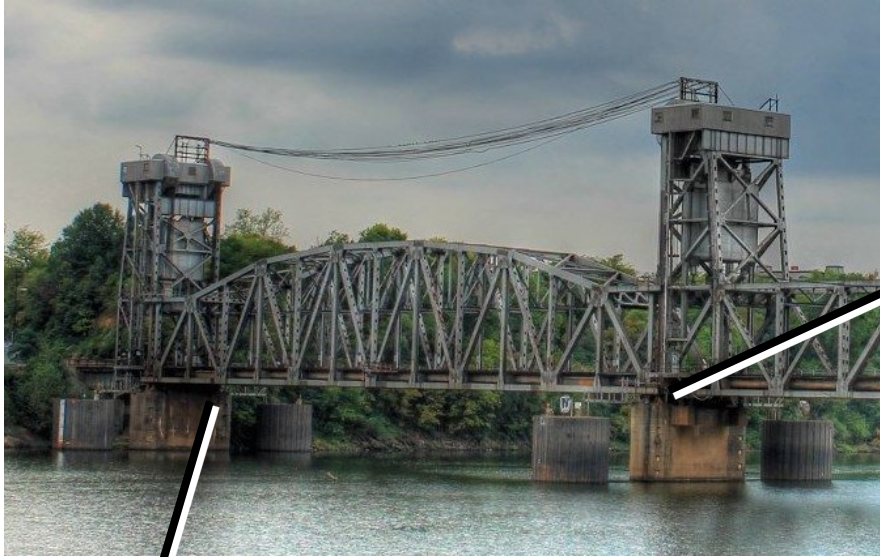
Concurrent test site installation in yard



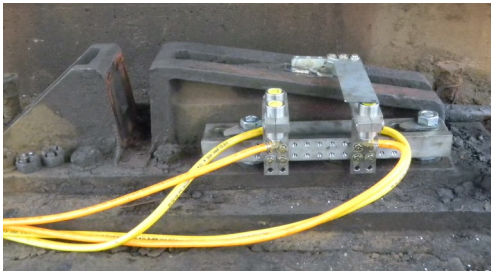
Easily mounts anywhere and uses 12V DC power

BRIDGE ALIGNMENT

SOLID STATE MONITORING SYSTEM



Rail surface detection



Lock bar engagement

- Allows removal of high maintenance switch circuit controllers and switch machines
- Eliminate unnecessary trouble calls
- Reduce costly and time consuming mechanical repairs
- Fewer train stops and better traffic performance

The key components of the bridge alignment monitoring system operation are proximity sensors and the Vital Proximity Detection system. The proximity sensors are used to detect and monitor the physical and mechanical positions of the rail surface and the bridge locking system. The VPD circuit board is used to analyze data inputs from the proximity sensors and provide relay drive to the appropriate bridge relays. The VPD system checks, analyzes, and verifies that all proximity sensors are accurate and operate within the allowed time frame throughout the complete bridge operation cycle.

The bridge monitoring system ties directly to current signal relays. Non-vital PLC's requiring additional programming and special environmental precautions are completely removed from this system. Existing signal relay logic can be used, thereby requiring little or no additional signal design expense.

BRIDGE ALIGNMENT

SOLID STATE MONITORING SYSTEM



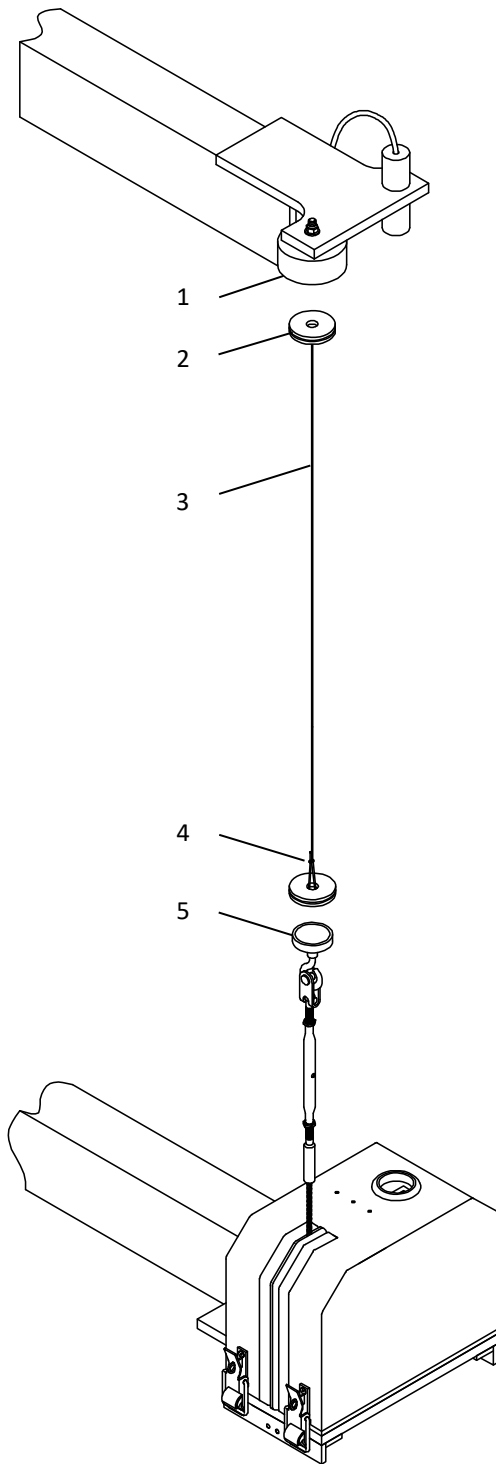
- A full service solution for bridge mechanical and signal maintenance problems
 - Project completion within 120 days after on-site evaluation*
1. On-site evaluation – will visit the bridge site to make a preliminary system analysis. Extensive photos and a video will be taken and later incorporated into the technical and owners manual.
 2. Mechanical Evaluation – The mechanical team will evaluate all aspects of required parts and mounting components for proximity sensor detection points.
 3. Signal and Circuitry Analysis – If the application requires, new logic circuits and programming will be designed. Preliminary circuitry and mechanical component locations will be identified using the photos. This will provide adequate information for conduit and wire installation by the customer.
 4. System Packaging – All components will be provided and shipped in stages to expedite the installation process.
 5. On-Site Final Installation – The installation team, consisting of a mechanical and signal specialist, will return to the site for the final installation. They will remain until the complete package is installed and through final cut over by the customer of the new solid state system. This may or may not require disabling parts of the current operating system but may be run simultaneously until the system is fully functional and cycle tested. All manuals and system documentation will follow installation.

*Requires customer pre-installation work completion.



SHIFTED LOAD DETECTOR

OUTSIDE DETECTION

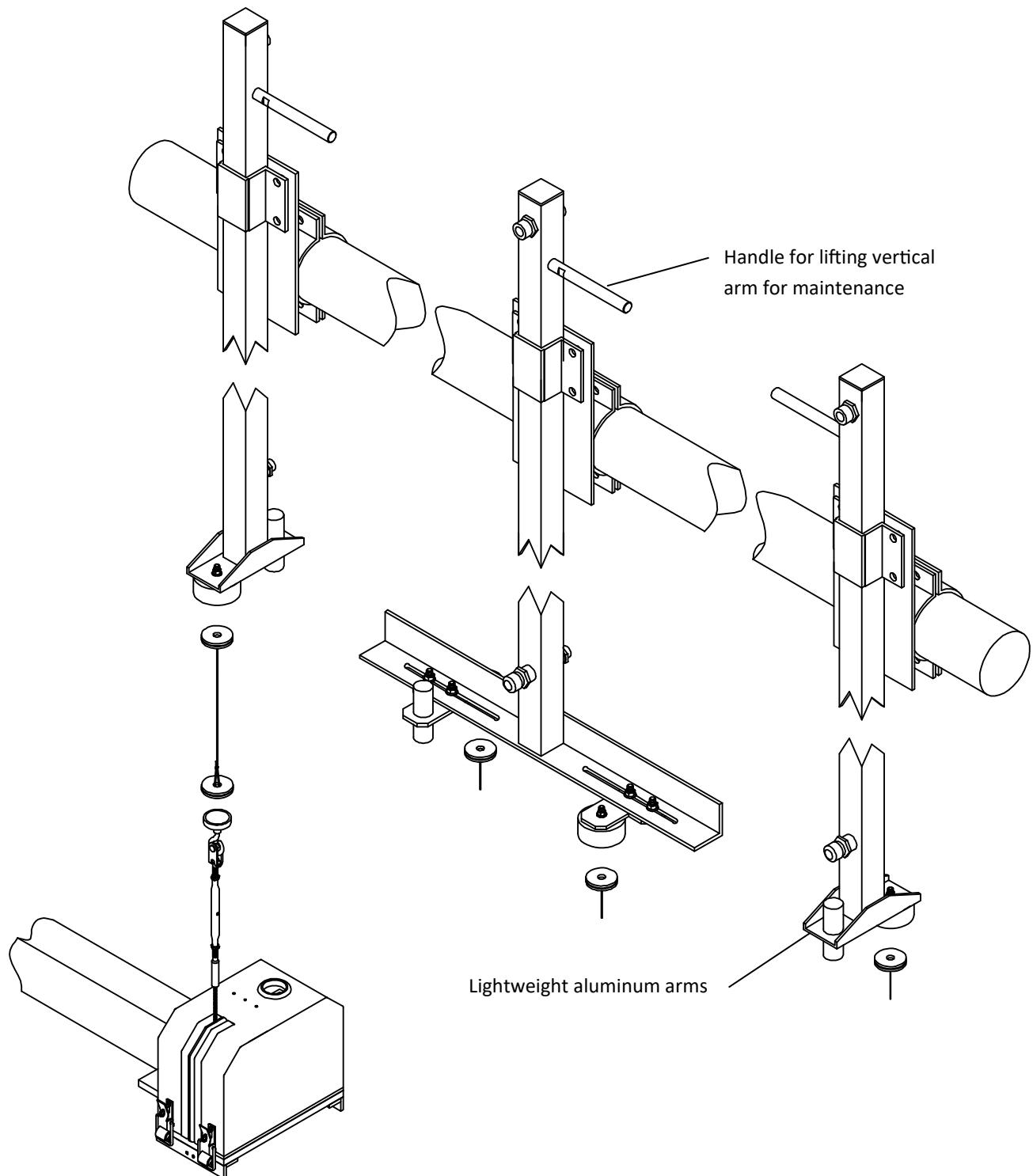
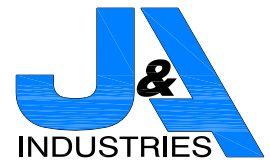


- Eliminate false train stops
- Less than 12 month ROI for retrofit systems
- Trains keep moving with IR backup in place until system can be reset
- Very maintainer friendly design
- “Failsafe” technology monitors sensors and provides vital output
- Adjust easily and arms swing away for track maintenance
- Available as a retrofit to existing sites or as a new installation

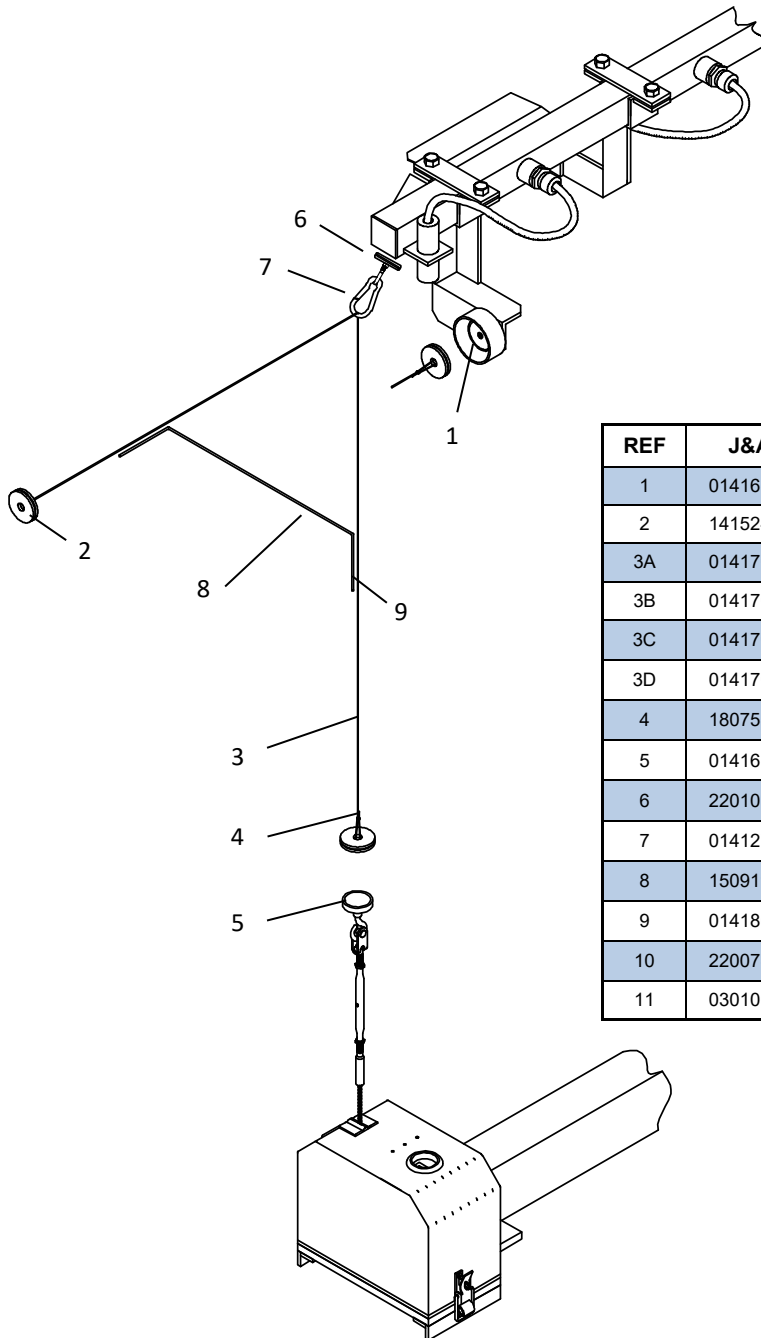
REF	J&A #	DESCRIPTION
1	014163-003	MAGNET, 1 3/4 DIA, 117 LBS, W/HOLE
2	141524-000	PUCK, CABLE END, SHIFTED LOAD DETECTOR
3A	014170-001	CABLE, COATED, 1/16-3/32 X 50 FT
3B	014170-002	CABLE, COATED, 1/16-3/32 X 60 FT
3C	014170-003	CABLE, COATED, 1/16-3/32 X 30 FT
3D	014170-004	CABLE, COATED, 1/16-3/32 X 75 FT
4	180758-000	KIT, CABLE ENDS, 1/16 (6 IN PACK)
5	014163-000	MAGNET, 1 3/4 DIA, 125 LBS, W/EYE
6	220078-001	SLEEVED SENSOR, -40 DEG POTTED (TURCK)
7	030100-001	CIRCUIT BOARD, VPD SYSTEM

SHIFTED LOAD DETECTOR

2 TRACK DETECTION



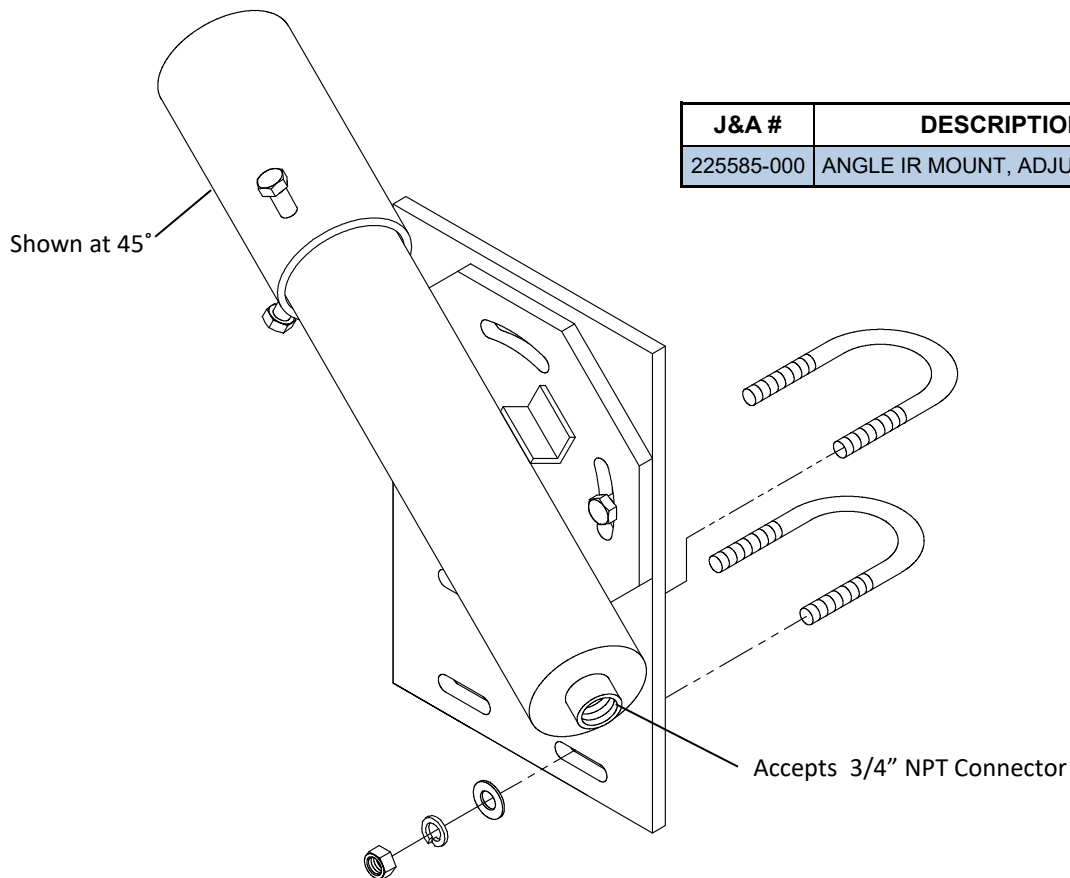
HIGH - WIDE DETECTOR



REF	J&A #	DESCRIPTION
1	014163-003	MAGNET, 1 3/4 DIA, 117 LBS, W/HOLE
2	141524-000	PUCK, CABLE END, SHIFTED LOAD DETECTOR
3A	014170-001	CABLE, COATED, 1/16-3/32 X 50 FT
3B	014170-002	CABLE, COATED, 1/16-3/32 X 60 FT
3C	014170-003	CABLE, COATED, 1/16-3/32 X 30 FT
3D	014170-004	CABLE, COATED, 1/16-3/32 X 75 FT
4	180758-000	KIT, CABLE ENDS, 1/16 (6 IN PACK)
5	014163-000	MAGNET, 1 3/4 DIA, 125 LBS, W/EYE
6	220103-000	PUCK, EYEBOLT, HIGH-WIDE
7	014127-000	SNAP, PEAR SHAPED, 5/16, SS
8	150919-000	ROD, ANGLE, HIGH-WIDE (CORNER PROTECTION)
9	014186-000	WIRE ROPE CLIP, 3/32"
10	220078-001	SLEEVED SENSOR, -40 DEG POTTED (TURCK)
11	030100-001	CIRCUIT BOARD, VPD SYSTEM

HIGH-WIDE DETECTOR

IR MOUNT & IR SENSORS



J&A #	DESCRIPTION
225585-000	ANGLE IR MOUNT, ADJUSTABLE

J&A #	DESCRIPTION
007226-000	IR SENSOR, EMMITER, BANNER, FREQ "A" 6.5' CABLE (AC/DC)
007226-001	IR SENSOR, EMMITER, BANNER, FREQ "B" 6.5' CABLE (AC/DC)
007226-002	IR SENSOR, EMMITER, BANNER, FREQ "C" 6.5' CABLE (AC/DC)
007226-010	IR SENSOR, EMMITER, BANNER, FREQ "A" 30' CABLE (AC/DC)
007226-011	IR SENSOR, EMMITER, BANNER, FREQ "B" 30' CABLE (AC/DC)
007226-012	IR SENSOR, EMMITER, BANNER, FREQ "C" 30' CABLE (AC/DC)
007227-000	IR SENSOR, RECEIVER, BANNER, FRQ "A" 6.5' CABLE (AC/DC)
007227-001	IR SENSOR, RECEIVER, BANNER, FRQ "B" 6.5' CABLE (AC/DC)
007227-002	IR SENSOR, RECEIVER, BANNER, FRQ "C" 6.5' CABLE (AC/DC)
007227-010	IR SENSOR, RECEIVER, BANNER, FRQ "A" 30' CABLE (AC/DC)
007227-011	IR SENSOR, RECEIVER, BANNER, FRQ "B" 30' CABLE (AC/DC)
007227-012	IR SENSOR, RECEIVER, BANNER, FRQ "C" 30' CABLE (AC/DC)
007228-000	IR SENSOR, EMMITER, BANNER, FRQ "A" 3 PIN QUICK DISCONNECT (AC/DC)
007229-000	IR SENSOR, RECEIVER, BANNER, FRQ "A" DC - 4 PIN QUICK DISCONNECT

- Can be mounted at 45° or Horizontal, with a 30° range of adjustment
- Kit includes U-bolts for mounting to both 2 1/2" and 4" pipe
- IR Sensors also available (see table)