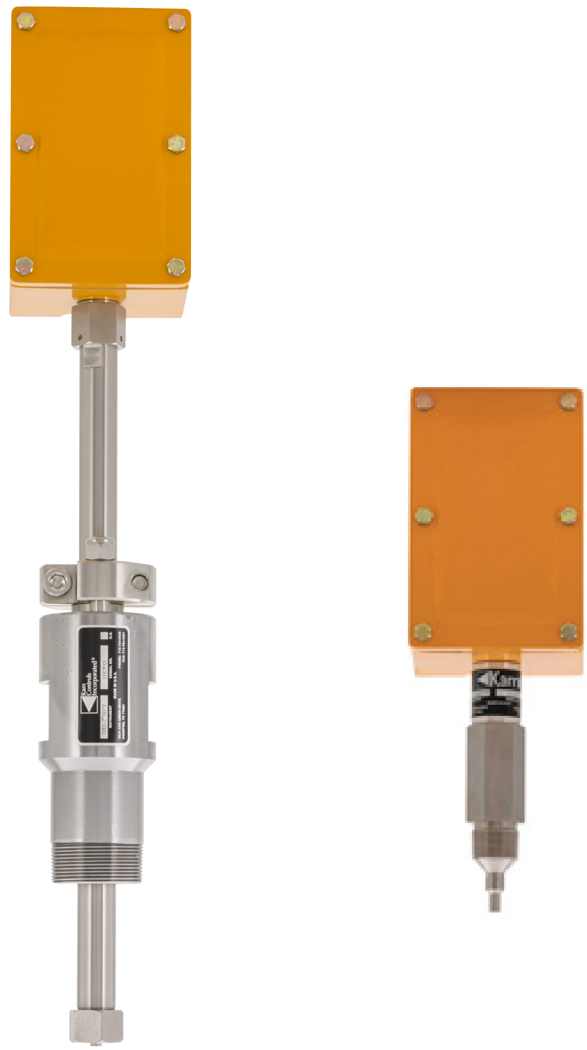
Simple Precision™



KAM® OID™
OPTICAL INTERFACE DETECTOR

PTB 08 ATEX 1027

User Manual

OIDMANUAL-0318

TEL +1 713 784 0000
FAX +1 713 784 0001
Email Sales@Kam.com
KAM CONTROLS, INC.
3939 Ann Arbor Drive
Houston, Texas 77063 USA
www.KAM.com

An ISO 9001 certified company

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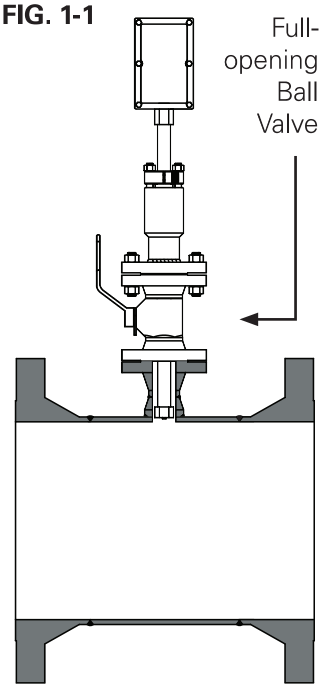
CAUTION:

When installing the OID™ sensor in a pipeline containing petroleum products, petrochemicals, waste waters with the presence of pressure & temperature, and high-pressure steam refer to the Pipeline Operators' "Health, Safety and Environmental Policy Procedures" to ensure safe installation.

INTRODUCTION

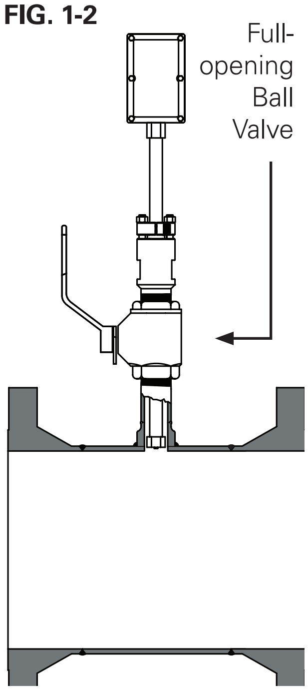
AVAILABLE MODELS and MOUNTING OPTIONS

FIG. 1-1



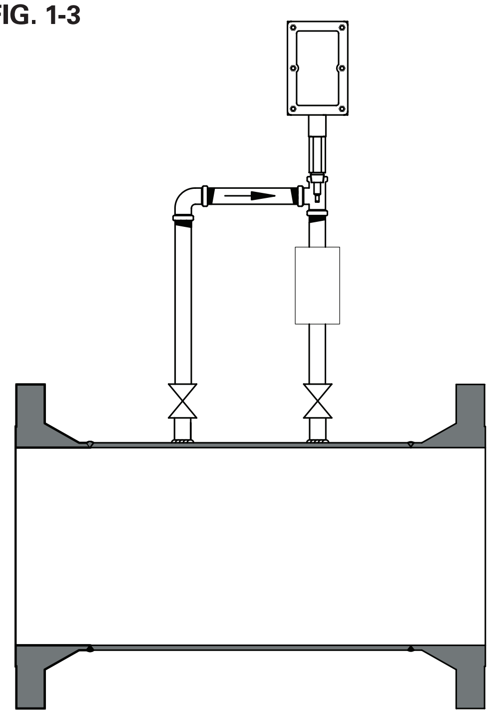
Rectractable OID™ on a main pipe, with 2", 3", or 4" flanged seal housing

FIG. 1-2



Rectractable OID™ on a main pipe, with 2" MNPT seal housing

FIG. 1-3



OID™ FT Flow Through on a densitometer loop with ¾" or 1" MNPT

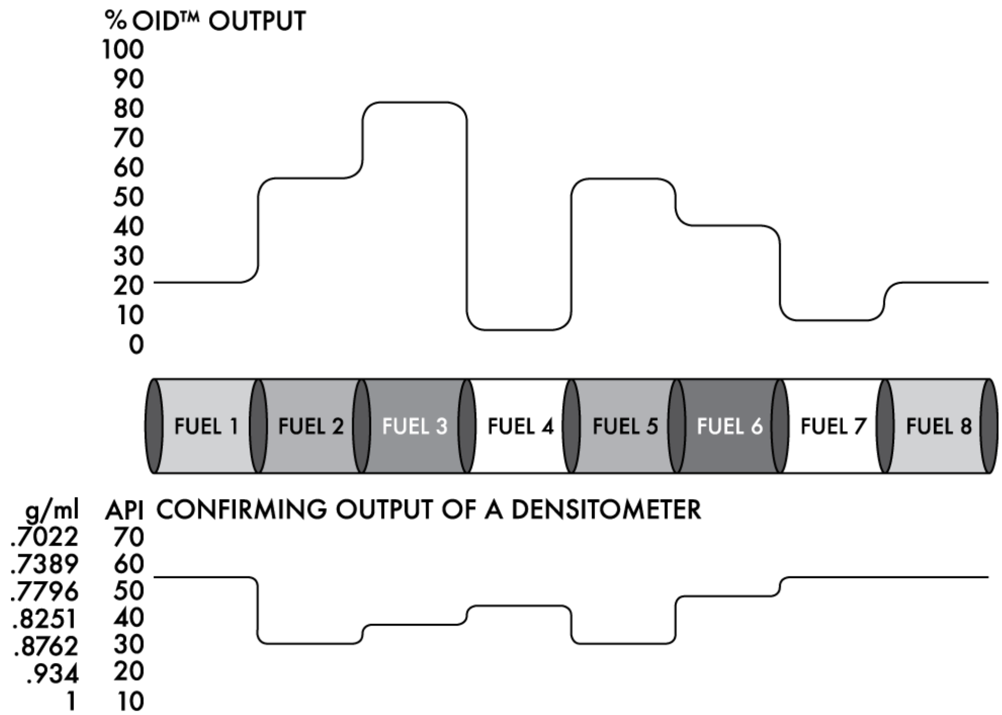
THEORY OF OPERATION

The KAM® OID™ Optical Interface Detector has been the preferred sensor for interface detection between refined products since its inception in 2000. Literally like eyes in the pipe, it provides **accurate, real-time data on product interface and quality.** That data allows operators to monitor interface in real time, making the most advantageous cut and significantly reducing product downgrade and/or transmix.

The simplicity of design and quality of engineering employed in the OID™ sensor mean there are no moving parts. The OID™ is comprised of an optical probe inserted into the fluid/flow and connected via fiber optic cable to the related transmit and receive electronics which are housed within an explosion-proof enclosure on the atmospheric end of the sensor. During operation, light from the light source in the explosion-proof enclosure travels via the fiber optics cable to the process fluid. Unabsorbed light returns via the fiber optics cable to a photo detector in the explosion-proof enclosure. The resulting information regarding the absorption, fluorescence, and refractive properties of the fluid is then turned into an analog signal or "optical signature." Measurement is fully automatic without the need for operator intervention or supervision. The output signal can be sent to a SCADA, PLCs, or to a Central Control Room for logging or display on chart recorders or monitors.

The KAM® OID™ sensor can be installed in an analyzer loop or in the main line. Because main-line models are mounted through a full-opening ball valve, you can insert or retract the probe without having to ever drain the pipe.

FIG. 1-4 KAM® OID™ AND API GRAVITY/DENSITOMETER



FEATURES

- Detects the interface of specialty fuels such as ULSD
- No moving parts
- Measurement is fully automatic
- Lens cleans in place
- Insertable/retractable and flow-through models available
- Output signal can be sent to a SCADA, PLC's, or to a Central Control Room
- Insertable model installs without having to drain the pipe

APPLICATIONS

- Batching
- Interface detection
- Product transmix management
- Product downgrade management
- Pipeline automation
- Chemicals interface
- Clear oil interface
- Quality control

SPECIFICATIONS

Media:	Refined products
Material:	Wetted parts–316 stainless steel
Power:	12–24 VDC 15 Watts max (Max current is 1275 mA @ 12V and 637 mA @ 24V)
Output:	4-20 mA
Communication Port:	RS232 (diagnostics), RS485 (Modbus RTU)
Fluid temperature:	-40° to 176° F (-40° to 80° C)
Electronics temp.:	-4° to 140° F (-20° to 60° C)
Pressure ratings:	ANSI 150, 300, 600, 900
Hazardous area:	PTB04 ATEX 1027 (II 2 G EEx d IIB T6) NEMA4 (IP66 equivalent)
Mounting:	3/4" and 1" MNPT 2" MNPT Seal Housing 2", 3", or 4" Flanged Seal Housing
EX enclosure:	3" x 6" x 3" (76 mm x 152 mm x 76 mm)
Shaft length:	12" to 60" – Off-the-shelf lengths are 24", 30", 36", 48", and 60" (610 mm to 1524 mm) (Off-the-shelf 610 mm, 762 mm, 914.4 mm, 1219 mm, 1524 mm)
Pipe size:	3/4" to 48" (20 mm to 1200 mm)
Weight:	from 10 lbs. (4.5 kg)

DIMENSIONAL DRAWINGS

FIG. 2-1 OID™ SENSOR with FLANGED SEAL HOUSING

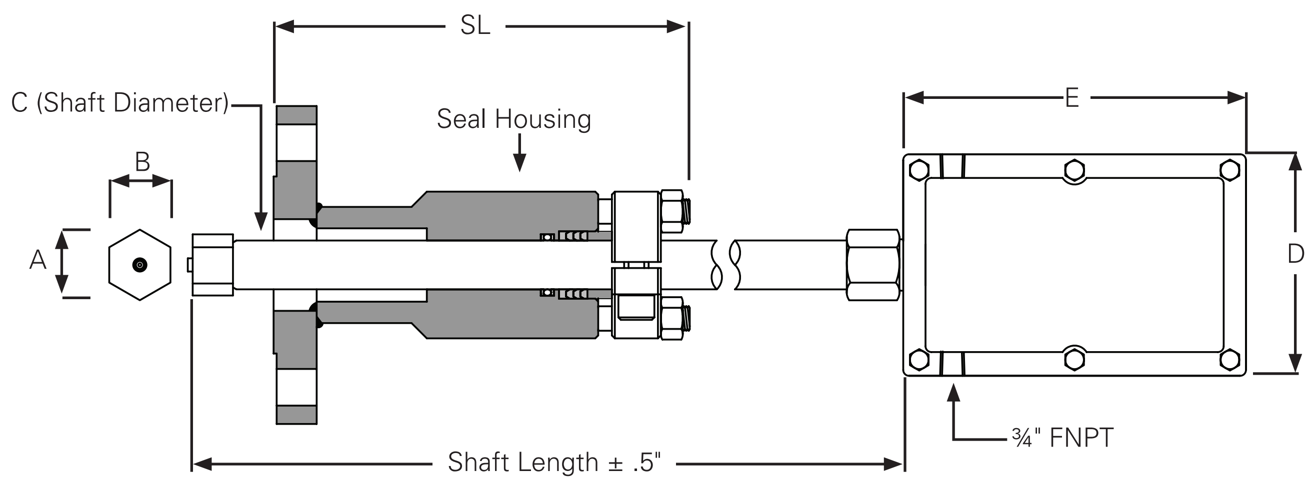


TABLE 2-2 FLANGE SIZE AND CLASS (SL)

	150		300		600		900	
"	INCHES	MM	INCHES	MM	INCHES	MM	INCHES	MM
2	8.40	213	8.50	216	8.90	226	9.40	240
3	8.60	218	8.75	222	9.15	232	9.40	240
4	8.60	218	8.90	226	9.40	240	9.65	245

TABLE 2-3 DIMENSIONS

	INCHES	MM
A	1.443	37
B	1.25	32
C	1	25
D	4.53	115
E	7	178

Shaft Lengths are available in .5" (12.7 mm) increments.

Standard sizes are 24", 30", 36", 48", and 60". (610 mm, 762 mm, 914.4 mm, 1219 mm, 1524 mm)

FIG. 2-4 FLOWTHROUGH OID™ for ANALYZER LOOP

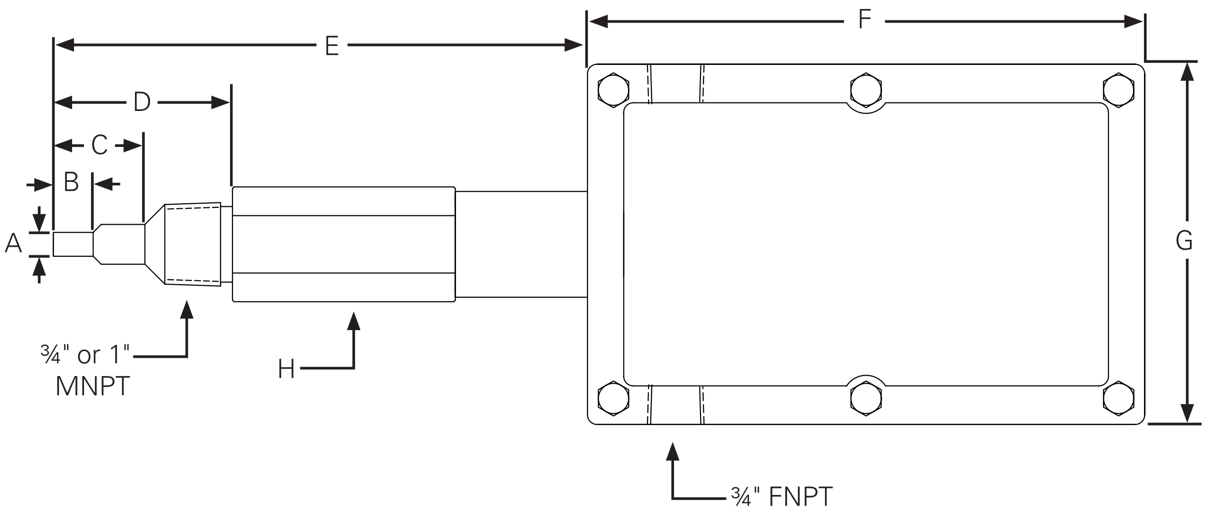


TABLE 2-5 ¾" MNPT DIMENSIONS

	INCHES	MM
A	.3	8
B	.5	13
C	1.4	36
D	2.25	57
E	6.75	171
F	7	178
G	4.53	115
H	1.2	30

TABLE 2-6 1" MNPT DIMENSIONS

	INCHES	MM
A	.3	8
B	.5	13
C	1.45	37
D	2.4	61
E	6.75	171
F	7	178
G	4.53	115
H	1.3	33

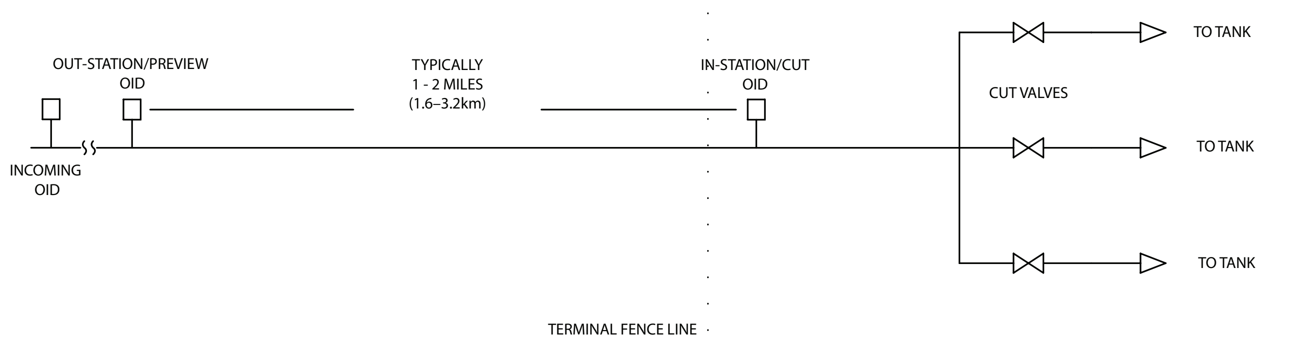
INSTALLATION

LOCATION

For optimal batch detection, KAM CONTROLS recommends that you install the in-station OID™ sensor at the first accessible pipeline location inside the terminal fence line — upstream of the interface cut valve(s). This allows the operator ample time to open/close the cut valves prior to the arrival of the product interface.

KAM CONTROLS also strongly recommends that you utilize a preview (or out-station) OID™ sensor. This lets the operator decide how to optimize each batch cut prior to actually making the batch cut at the in-station and gives the operator more confidence in their decisions as well as the time to identify and resolve any issues that may arise during a critical interface.

FIG. 3-1 RECOMMENDED OID™ LOCATIONS

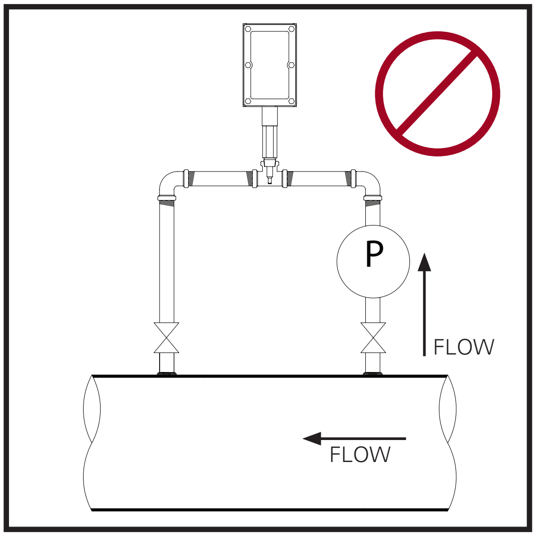


PRIOR TO INSTALLATION

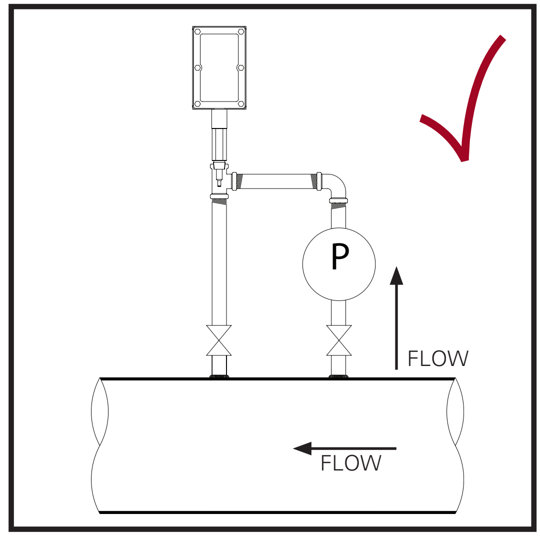
Remove all the protective packaging materials including the red cap placed at the tip of the sensor probe. Ensure that the OID™ sensor was not damaged during transit.

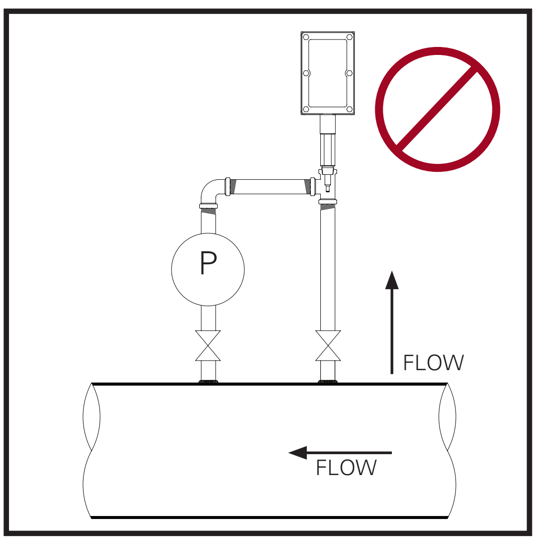
CAUTION: Do not stand the OID™ sensor on the probe end or allow the probe to hit the ground or any hard surface under any circumstances. This will damage the lens, and the OID™ sensor will not work properly.

INSTALLATION DO'S AND DON'TS

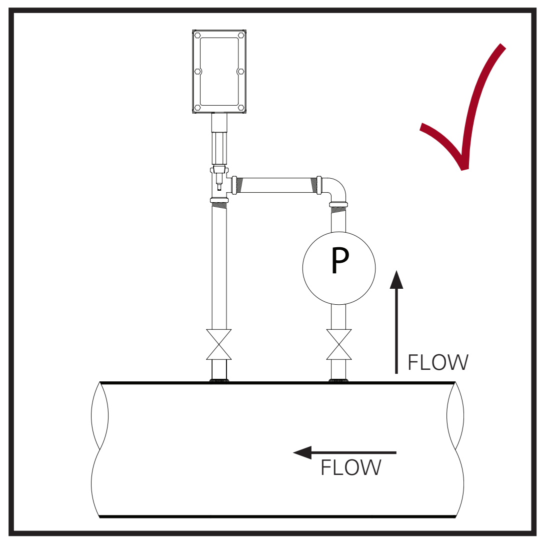


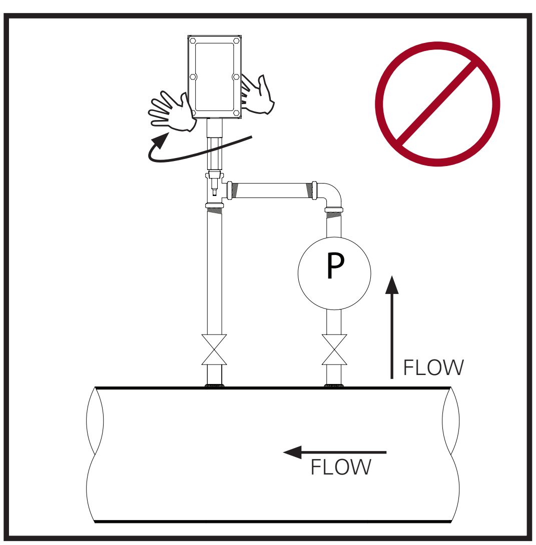
DO NOT install the fast loop OID™ sensor in a straight portion of pipe. It needs to be mounted off the bend opposite the pump.



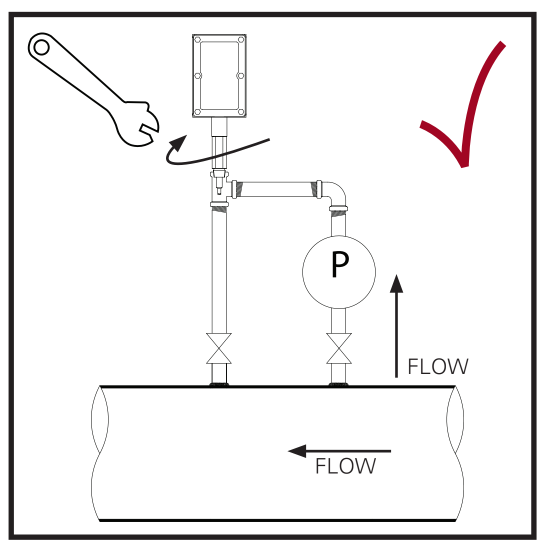


DO NOT install the OID™ sensor with the lens facing directly into the flow. If the product has particulate matter in the fluid, like sand, this will sandblast the lens and could cause premature failure.

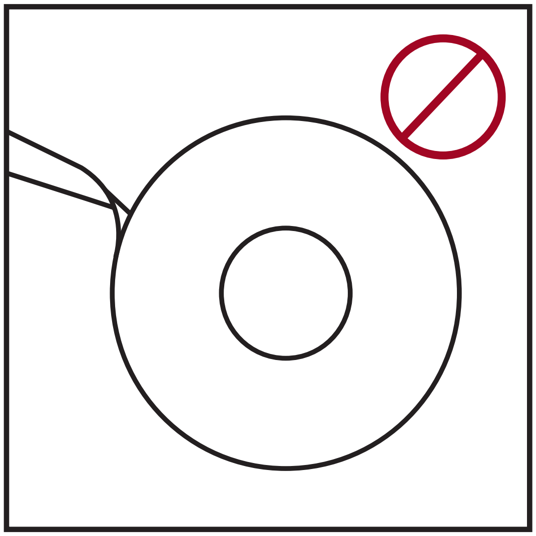




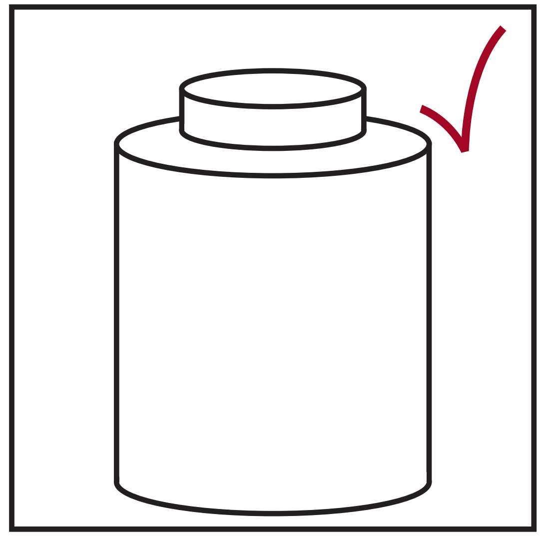
DO NOT attempt to screw the OID™ sensor either in or out by hand. Always use a 1 1/4" or 1 3/8" wrench on the wrench flat below the electronics enclosure.

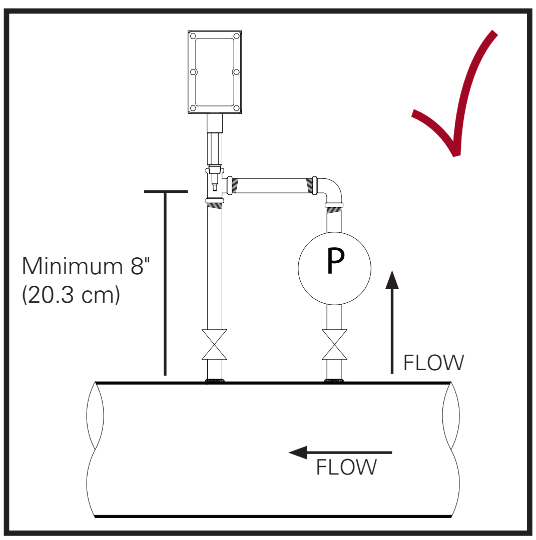


INSTALLATION DO'S AND DON'TS

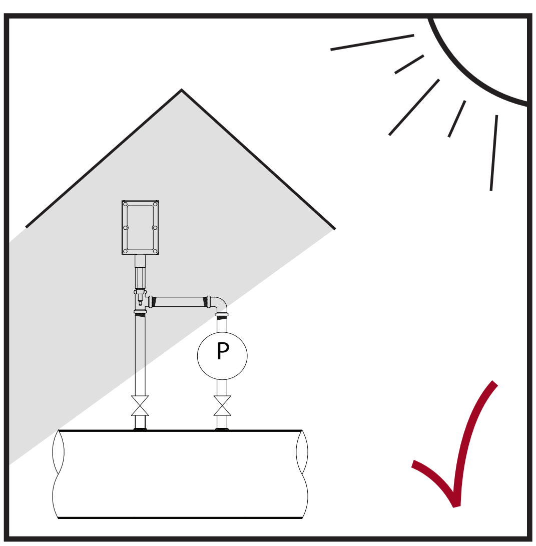


DO NOT use teflon tape on the OID™ sensor threads. DO use liquid thread sealant.





DO install the OID™ sensor with a minimum of 8" or 200mm between the lens and the nearest flat surface.



DO install the OID™ sensor with a sun shade if the electronics are directly exposed to sunlight.

PRIOR TO INSTALLATION

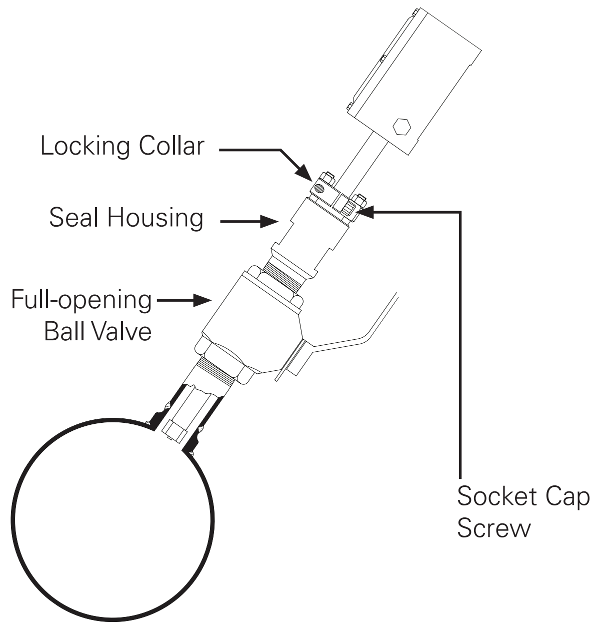
Remove all the protective packaging materials, and ensure that the OID™ sensor was not damaged during transit.

MAIN LINE INSTALLATION

The KAM® OID™ sensor should be installed according to FIG. 3-2. KAM CONTROLS recommends installing the OID™ sensor at a 2 or 10 o'clock position to ensure the tip of the probe remains in the fluid. A full opening ball valve is used to isolate the OID™ sensor from the pipeline during installation or removal. The seal housing of the OID™ sensor allows the optical probe to be inserted and removed from the pipe under pressure and flow conditions. It is the user's responsibility to ensure that the OID™ sensor is placed at the most representative point within the flow profile. The OID™ sensor should be inserted so that the tip of the probe is located 1/4" above the inner wall of the pipeline. This ensures that the probe is not damaged when pigging the pipeline.

NOTE: If line pressure exceeds 100 psi, use a KAM® IT Insertion Tool when installing/removing the KAM® OID™ sensor.

FIG. 3-2 KAM® OID™ INSTALLED ON A MAIN PIPE



Prior to mounting the OID™ sensor on the Full-opening Ball Valve, you must determine the insertion length required.

1. Lay the OID™ sensor on the ground or a table.
2. Loosen Socket Cap Screws on the locking collar. This will allow the OID™ shaft to slide through the seal housing.
3. Push the OID™ shaft though the seal housing until the OID™ probe sits flush with the end of the seal housing or seal housing flange. FIG. 3-3 and 3-4. (Remove red protection cap on the tip of the probe if it has not been removed.)
4. Place a mark with a sharpie or a permanent marker on the shaft at the edge of the locking collar. (Do not use anything sharp to mark the shaft as this will create grooves that will damage the O-rings in the seal housing.)

FIG. 3-3

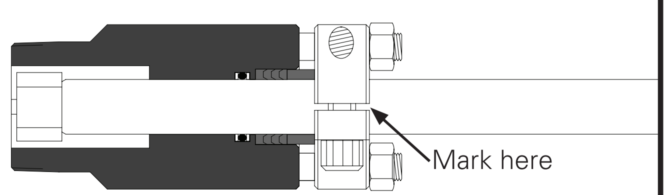
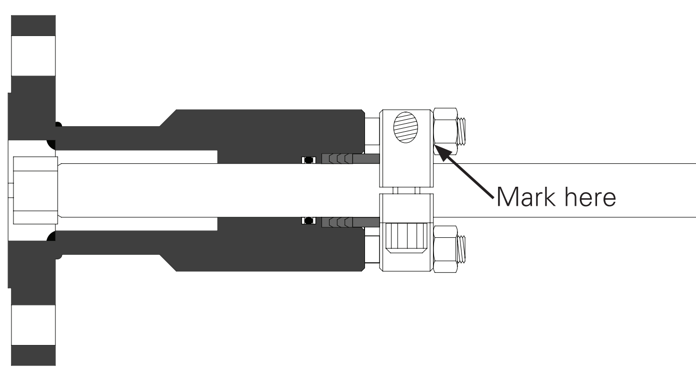


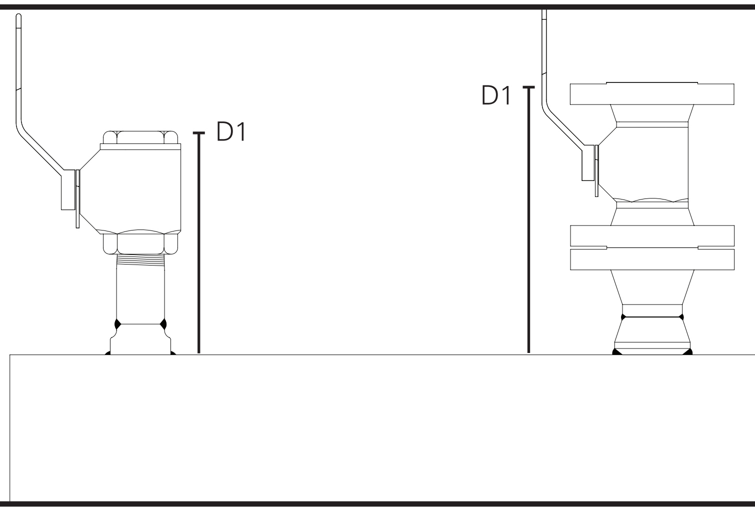
FIG. 3-4



5. Pull shaft back until the probe is all the way in the seal housing and tighten the Socket Cap Screws on the locking collar. This will prevent the OID™ shaft from sliding and the probe from getting damaged during mounting.

6. Measure the distance (D1) from the outside diameter of main pipe to the end of the connection where the OID™ sensor is going to be installed. FIG. 3-5.

FIG. 3-5



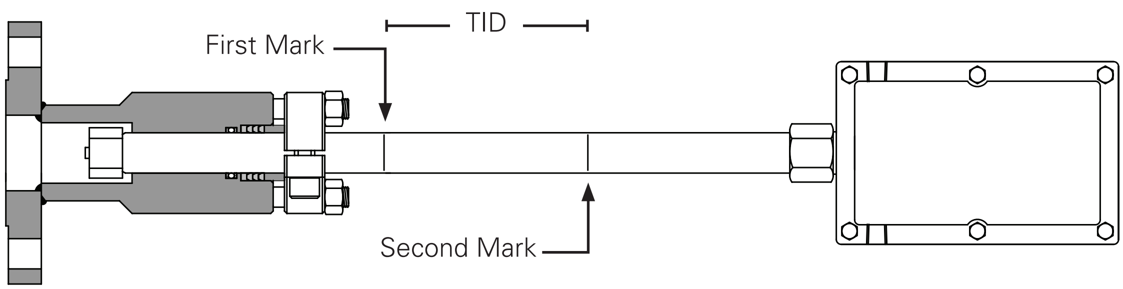
7. Calculate the insertion distance for **Flanged Seal Housing** (If you have a MNPT Seal Housing, proceed to step 9):

Total Insertion Distance (TID) = D1 + Pipe Wall Thickness + Seal Thickness-1/4"

Example for D1= 19", Pipe WT=3/8", and Seal Thickness is 1/8"
TID=19 + 3/8 + 1/8 – 1/4 or TID=19 + .375 + .125 – .25
TID= 19 1/4" or 19.25"

8. Use the calculated TID and mark a second line on the shaft, measuring from first mark. FIG. 3-6.

FIG. 3-6



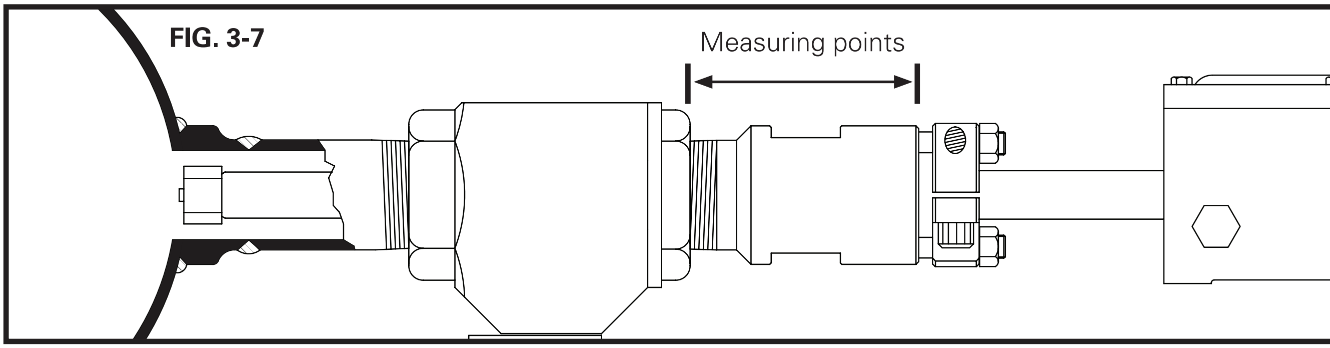
9. Bolt or screw the OID™ sensor to the valve or designated installation location.
(KAM CONTROLS recommends using thread sealant and not Teflon tape for the threaded OID™). Skip to Step 12 (OID with Flanged Seal Housing only).

10. Calculate the Insertion distance for **2" MNPT Seal Housing**:

TID cannot be calculated until the Seal Housing is screwed into place. If you have not already done so, please screw your OID™ sensor into place now.

You must then measure the Threaded Depth (TD) into the Valve or connection in order to calculate TID. You can do this by measuring the distance from the edge of the Valve or female connection to the top of the Seal Housing body and subtracting that distance from 5.25". FIG. 3-7.

FIG. 3-7



For example:

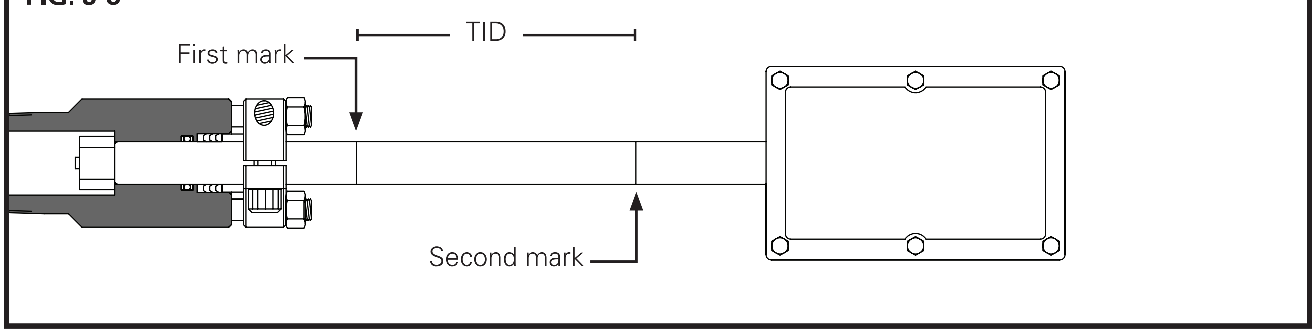
If the measured distance from the top of the valve to the top of the seal housing body is 4.75", you would calculate the threaded depth (TD) by subtracting 4.65" from 5.25". (5.25 – 4.65=0.6) In this case the threaded depth TD would be .6".

You are now ready to calculate TID.

TID= (D1) + (Pipe Wall Thickness) – (TD) – (.25")
Example for D1=19", Pipe WT=3/8", and TD=.6"
TID=(19)+(.375)-(.6)-(.25)
TID=18.525"

11. Use the calculated TID and mark a second line on the shaft, measuring from first mark. FIG. 3-8.

FIG. 3-8



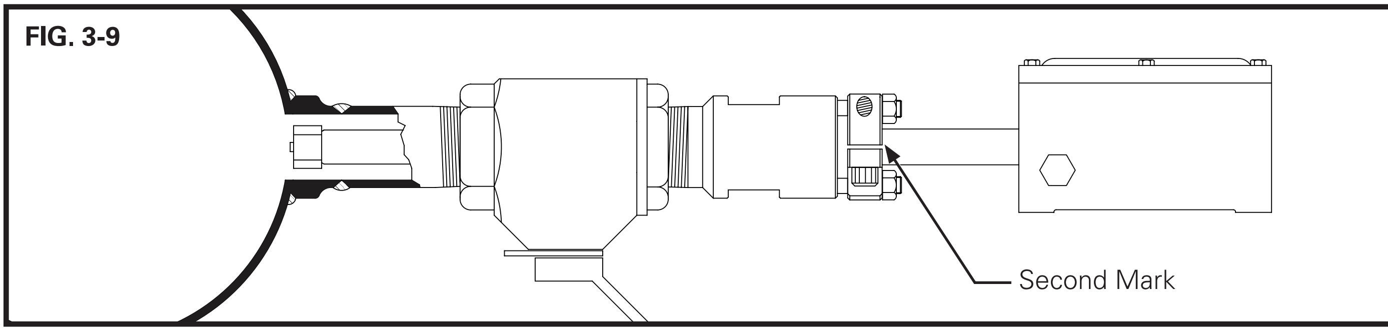
12. If you have an OID™ with a Flanged Seal Housing, you may now attach it to the valve on the pipeline.

13. Slowly open Full-opening Ball Valve and check for leaks.

14. Loosen Socket Cap Screw on the Locking Collar.

15. Push the OID™ in until the Second Mark is at the top edge of the Locking Collar. FIG. 3-9.

FIG. 3-9



16. Re-tighten the Socket Cap Screws.

17. Tighten the Hex Nuts on the top of the Locking Collar one half turn. These nuts should never be over tightened. Their major function is to apply light pressure on the chevron packing to ensure a seal between the seal housing body and the insertion shaft.

REMOVING THE OID™ SENSOR

1. To remove the OID™ sensor, first disconnect all electrical connections to the OID™ enclosure.

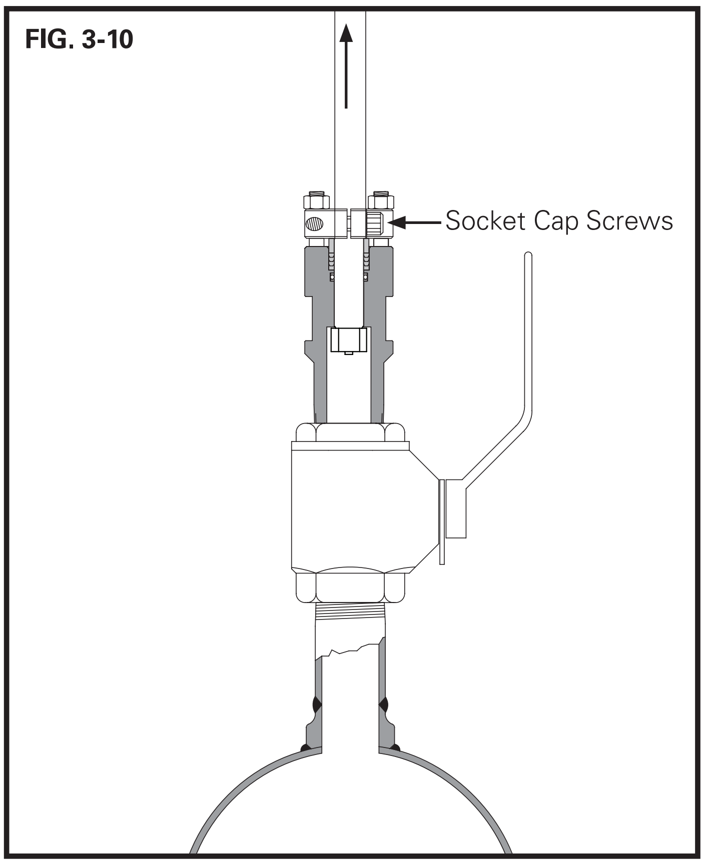
2. Make sure that the line pressure is below 100 psi. Then, slowly and with caution loosen the Socket Cap Screws on the Lock Down Collar.

CAUTION: Once the Socket Cap Screws have been loosened, the OID™ shaft may push out from the line. If pressure in the line is above 100 psi, it may do so with enough force to cause bodily injury or damage to the instrument.

3. Slide the OID™ sensor upward until it stops and the probe rests inside the seal housing. FIG. 3-10.

4. Next, close the Full-opening Ball Valve tightly. The OID™ sensor may now be unbolted from the system.

FIG. 3-10



ANALYZER LOOP INSTALLATION

KAM CONTROLS recommends this installation for 3/4" & 1" MNPT OID™ sensors.

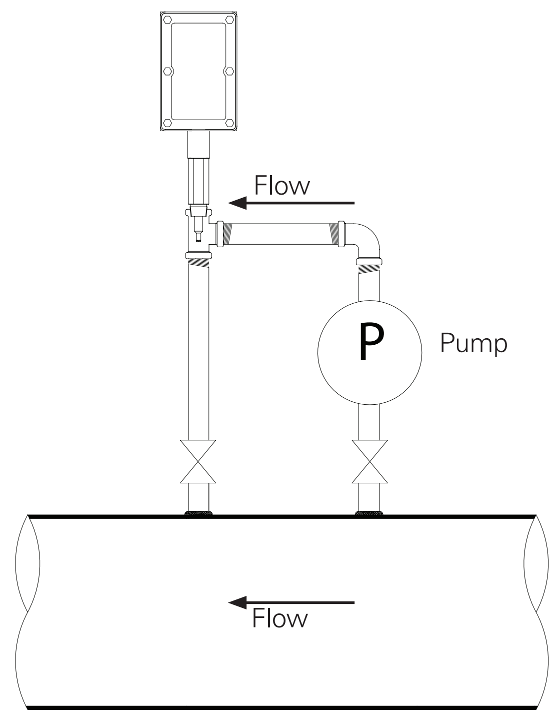
We recommend using thread sealant and not teflon tape for the OID™ sensor threads.

CAUTION: DO NOT USE THE ENCLOSURE TO TIGHTEN OR LOOSEN THE OID. THIS CAN CAUSE THE PROBE TO COME UNDONE AND THE FIBER CABLE TO BREAK. Please refer to "Do's and Don'ts" on pages 8-9.

KAM 3/4" and 1" MNPT OID™ sensors should be installed according to FIG. 3-11. The OID™ sensor should be installed in an analyzer loop in such a fashion that the flow sweeps across the probe lens rather than rushing directly at the probe. The reason for this is to:
1) obtain a credible reading of the product pipeline interface
2) keep the lens of the probe clean and abrasion free. If the OID™ is installed with the product rushing directly at the probe, particles in the pipeline can scratch the lens causing abrasions and resulting in a non-credible reading.

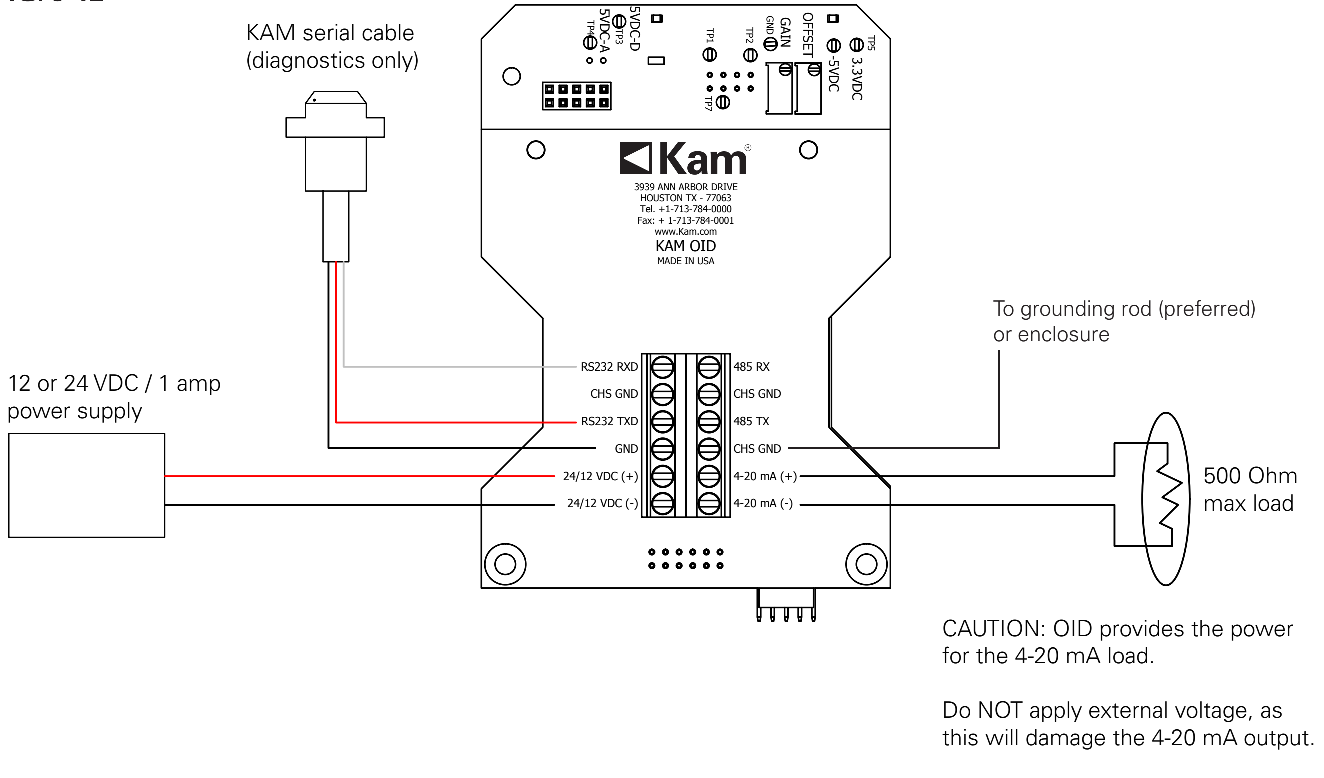
You do not need to measure for insertion distance on the fast loop models.

FIG. 3-11



WIRING

FIG. 3-12



POWER

V (+)
GND

OUTPUTS

4-20 mA (–) Current output, source powered
4-20 mA (+)

COMMUNICATION INTERFACE

RS232 (diagnostics)
RS485 (Modbus RTU)

CAUTION: When electronics enclosure is open, be extremely careful to avoid any contact with interior fiber optic connections. Failure to do so could result in the OID malfunctioning.

INSTALLATION CONTINUED

CONNECTING THE OID

1. Proper Grounding of the OID™ sensor.

Grounding the OID™ sensor through the 4-20 mA signal out and power lines is not adequate to protect the OID™ sensor against power surges.

To ground the OID™ sensor, connect the chassis ground on the OID™ board (labeled CHS on the OID™ Terminal Block. FIG. 3-13) to the green grounding screw on the OID™ explosion-proof box using 16 AWG braided wire. Ensure that the box is connected to Earth ground either through the pipeline or appropriate low-impedance buried grounding structure.

NOTE: CHS is isolated from GND. Grounding CHS to pipeline through the grounding screw will not short OID™ GND to the pipeline.

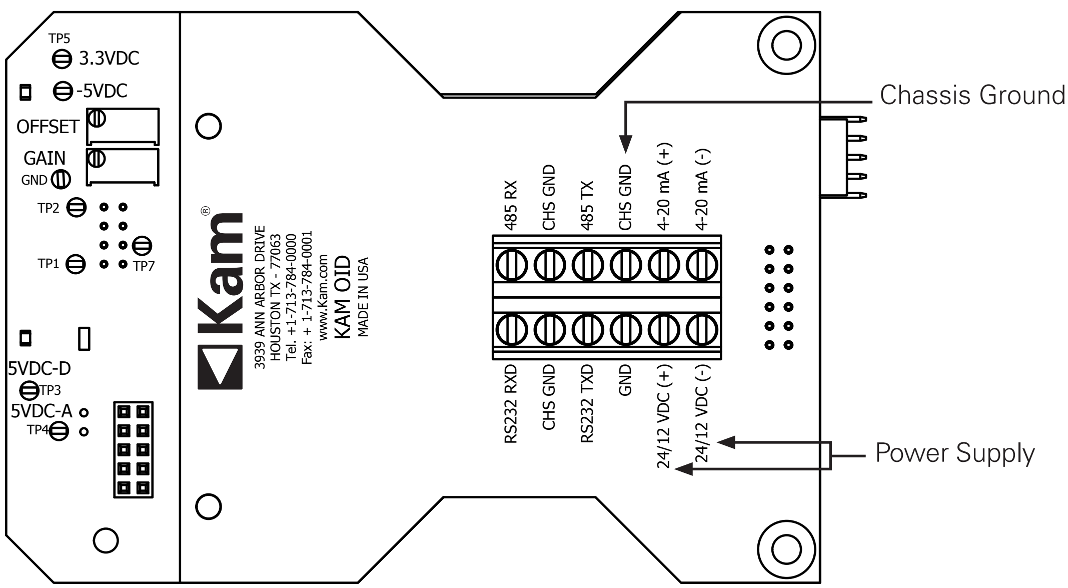
2. To connect the power for the OID™ sensor, first check both wires from the source for polarity and voltage, then label appropriately.*

3. Connect positive wire to 24/12 VDC (+). FIG. 3-13.

4. Connect negative wire to 24/12 VDC (-).** FIG. 3-13.

5. Check voltage and polarity at terminal block.

FIG. 3-13



EXTERNAL FUSES: Power Amp slow fuse, Current loop 750 mA

MAXIMUM CURRENT LOOP RESISTANCE: 500 Ohm

*Recommended Wire: Shielded twisted pair wire is recommended for both power and signal.

**WARNING: Connecting a power source to the 4-20 mA ports on the TB will damage the 4-20 mA ouput and result in failure of the unit.

FIELD CALIBRATION

Though the KAM® OID™ sensor is factory calibrated it should be calibrated in the field to suit specific application requirements and fuels. Increasing or decreasing the sensitivity will allow the instrument to maintain the highest resolution possible while detecting the interface of all possible fuels.

> INCREASE SENSITIVITY WHEN all readings are typically falling in the lower or middle portion of the KAM® OID™ output range. Increasing sensitivity elevates the output range to provide greater interface resolution.
>
> DECREASE SENSITIVITY WHEN some products exceed the maximum reading of the pre-calibrated settings. Products that exceed the pre-set calibration readings will produce an off-scale reading exceeding 20mA. Decreasing sensitivity lowers the output range of the KAM® OID™ sensor to allow all readings to fall within the 4-20 mA output ranges.

CAUTION: When multiple KAM® OID™ sensors are being used on the same system, each sensor should be calibrated equally. If unique calibration is applied to one unit, its output will vary from those of other units measuring or monitoring like products.

The calibration procedure consists of increasing the gain or reducing the gain as needed to increase or reduce sensitivity.

LED light output settings are pre-set at the factory and should not be adjusted.

REQUIRED TOOLS: VOLT METER, SMALL FLAT-HEAD SCREWDRIVER

CHANGING THE HIGH END OF OUTPUT RANGE

1. Determine which product produces the highest current output.

2. Connect a volt meter across 4-20 mA terminals. When the highest output product is flowing, increase the gain by turning GAIN. See FIG. 4-1 on page 18. counterclockwise or decrease by turning clockwise. As you are turning, look at your volt meter and stop when it reads 18.4 mA or 80% of scale.

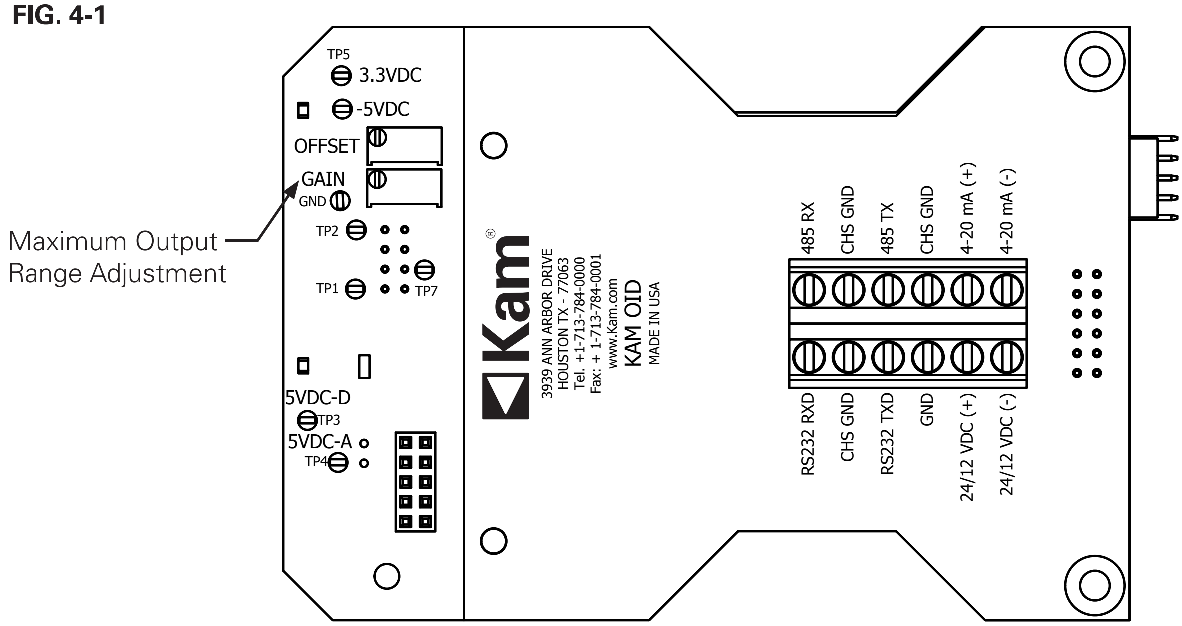
CHANGING THE LOW END OF OUTPUT RANGE

In most cases, products with the minimum current output are clear and readings will be consistent with factory calibration. Only recalibrate the low end of the range in situations when all products are producing an output greater than 40%.

Should the low end of the range require adjustment, please contact the KAM factory directly at +1 713 784 0000.

FOR ALL OTHER TYPES OF ADJUSTMENTS CALL KAM CONTROLS, INC. +1 713 784 0000.

FIG. 4-1


Maximum Output Range Adjustment
TP5
3.3VDC
-5VDC
OFFSET
GAIN
GND
TP2
TP1
TP7
5VDC-D
TP3
5VDC-A
TP4
Kam
3939 ANN ARBOR DRIVE
HOUSTON TX - 77063
Tel. +1-713-784-0000
Fax: + 1-713-784-0001
www.Kam.com
KAM OID
MADE IN USA
485 RX
CHS GND
485 TX
CHS GND
4-20 mA (+)
4-20 mA (-)
RS232 RXD
CHS GND
RS232 TXD
GND
24/12 VDC (+)
24/12 VDC (-)

MAINTENANCE

CLEANING AND INSPECTION

Under normal operation, the KAM OID should not require cleaning, unless pipeline usage is limited to a small number of products. Gasoline products or jet fuel in the pipeline will clean the OID without removal.

To remove any oil residues for visual inspection use a clean cloth with oil solvent or part washer.
Preferred solvents include, any petroleum solvent such as mineral spirits, isopropyl alcholhol, gasoline, or diesel. Do not use other chemicals.

If you have a question regarding cleaning solvents, please contact KAM CONTROLS directly at
+1 713 784-0000, or email: AskAnEngineer@Kam.com

DIAGNOSTICS VIA RS232

Connecting to the RS232 Serial Port using RealTerm

1. Install RealTerm if not installed on your PC.
   - RealTerm Software can be Downloaded at http://sourceforge.net/projects/realterm/files/Realterm/2.0.0.70/
   - Click on Realterm_2.0.0.70._setup.exe to install.

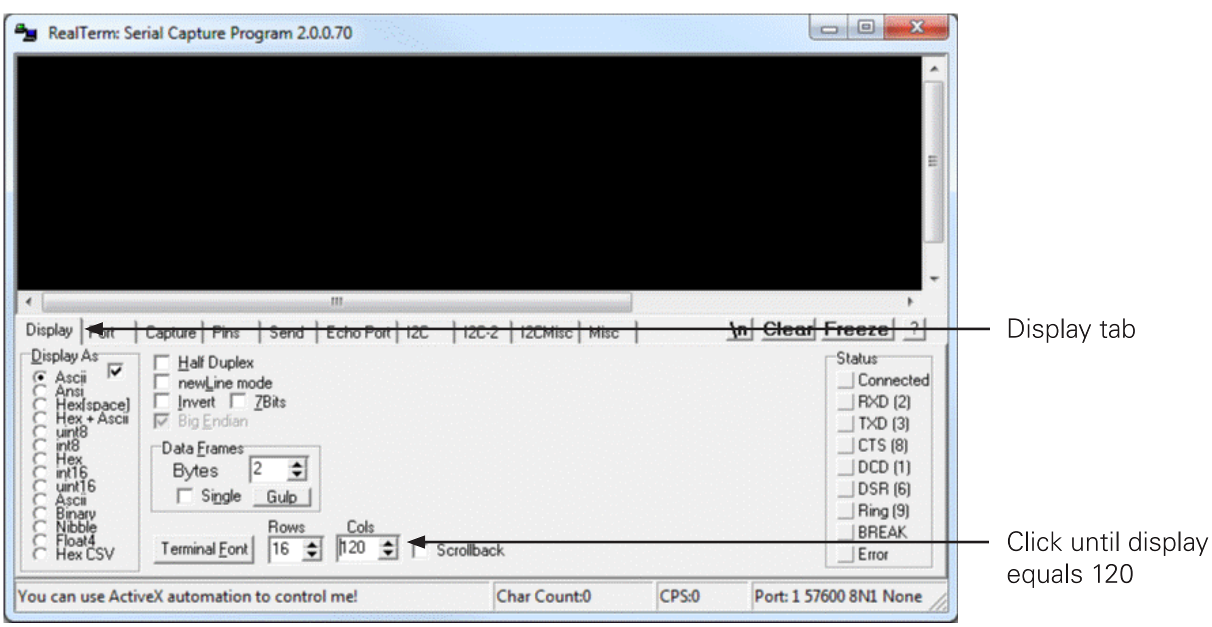
2. Connect the RS232 cable to the OID as shown in the wiring diagram. FIG. 3-12 on page 15.

3. Connect the other end of the RS232 Cable to your computer serial port or to USB with the provided serial converter.

4. Open RealTerm. A window will open up as shown in Fig. 5-1.

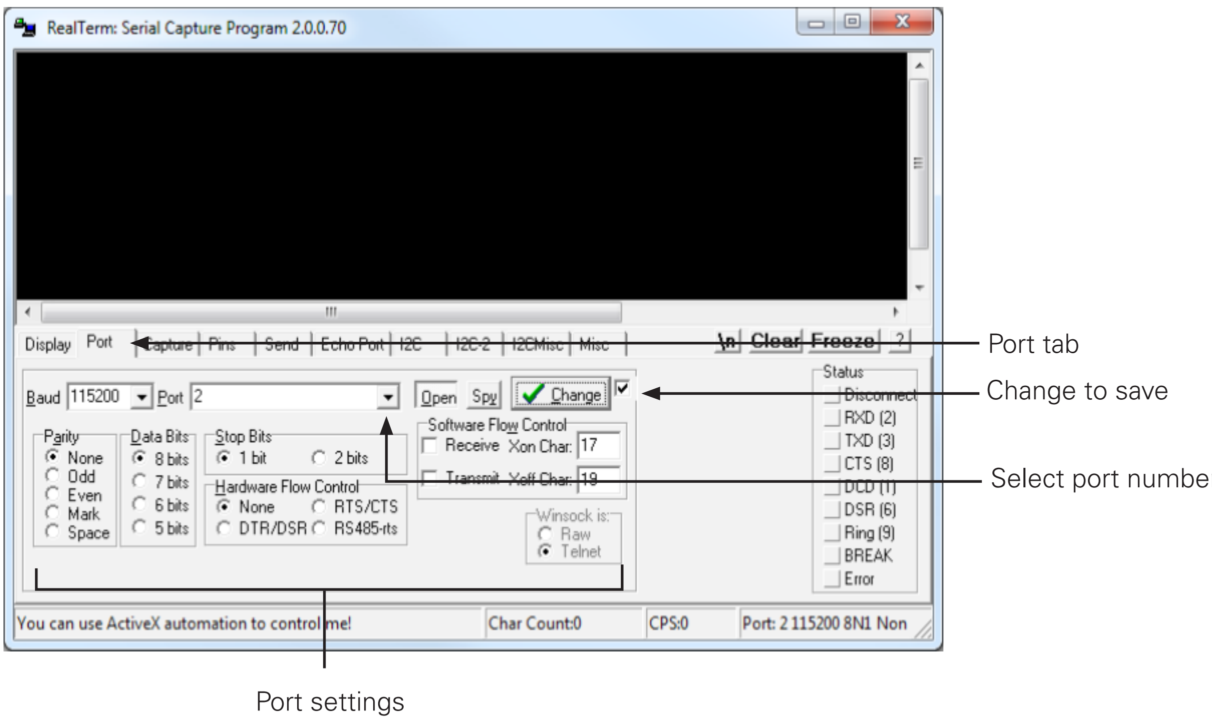
5. The program will open on the "Display" tab. Click on the up arrow of the "Cols" window until it reaches 120. Do not try to type the number in the window as it will result in an error. If you do this, you must close the program and start again.

FIG. 5-1



6. Click on the "Port" Tab (See FIG. 5-2), and change the settings as follows:
a. Baud = 115200
b. Parity = None
c. Data Bits = 8
d. Stop Bits = 1
e. Hardware Flow Control = None
f. Port = Select Port number assigned to your serial port or USB to serial converter
g. Click on the Change button to save these settings.

FIG. 5-2

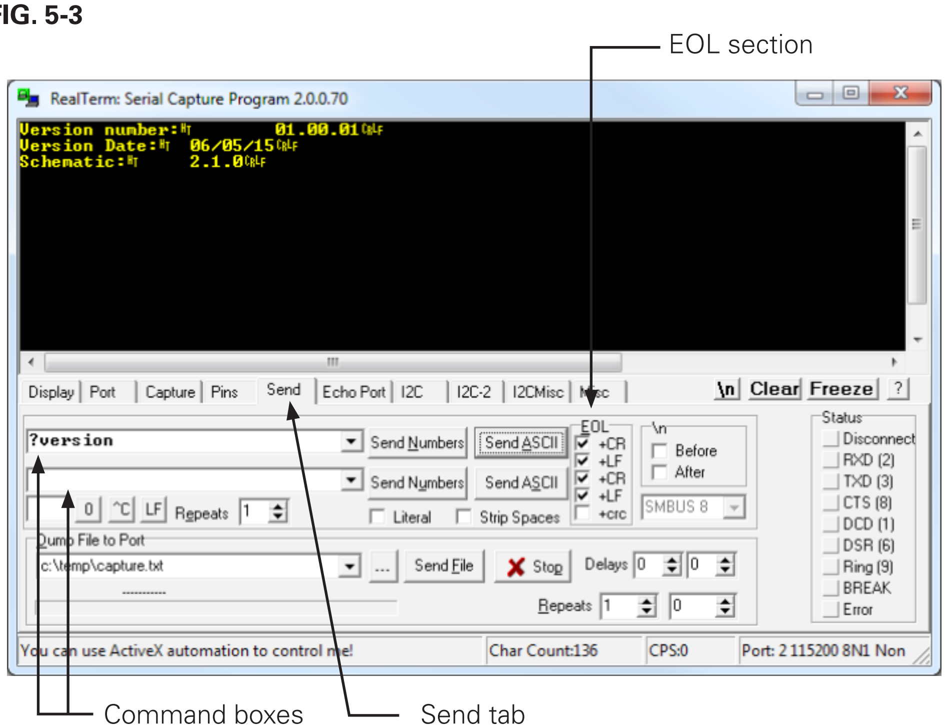


7. Click on the "Send" tab.

8. Check the first 4 boxes in the "EOL" section.

9. Type "?version" in either of the command boxes and click the "Send ASCII" button. You will a see message on the window displaying the software version number, the version date and the schematic version of the board.

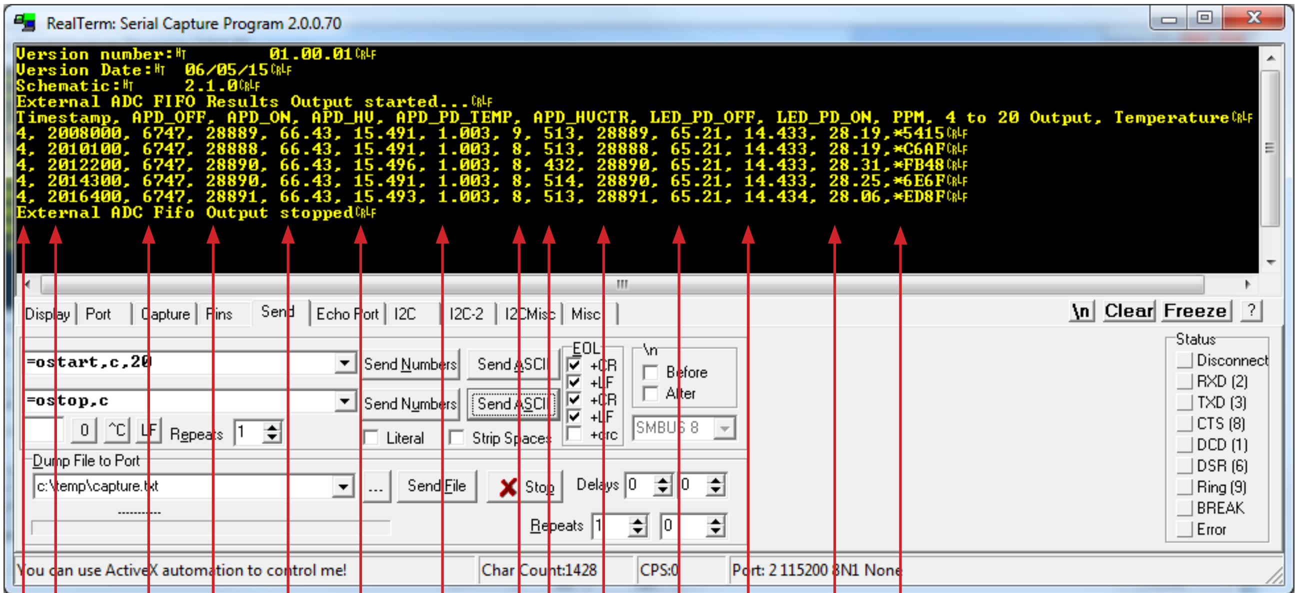
FIG. 5-3



10. To view output data, type the command "=ostart,c,20" and click on Send ASCII. See FIG. 5-4 on page 22.

11. Type the command "=ostop,c" to stop the data. Always do this before disconnecting.

FIG. 5-4 (output data OID models serial numbers OID-15-1045 to OID-15-1061)



Column 14 - CRC Cyclic Redundancy check for information only

Column 13 – Electronics temperature

Column 12 – OID output on a 4-20mA range

Column 11 – OID output on a 0-100% range

Column 10 – Signal in counts after any compensations such as compensation for temperature.

Column 9 – Value of the photodiode monitoring the LED when it is ON. This value is shown in counts and should be between 400 & 600. If the LED is damaged and not turning on this value will be the same as in column 8.

Column 8 – Value of the photodiode monitoring the LED when it is OFF. This value is shown in counts and should be less than 100.

Column 7 – Reference Voltage that controls the High Voltage supply. This value should be between .980 to 1.100 VDC

Column 6 – MPPC Photodiode Temperature, controlled by a thermoelectric cooler inside the photodiode. The factory temperature is between 14C and 16C.

Column 5 – High Voltage supply going to the MPPC Photo diode. The range is from 63VDC to 69VDC.

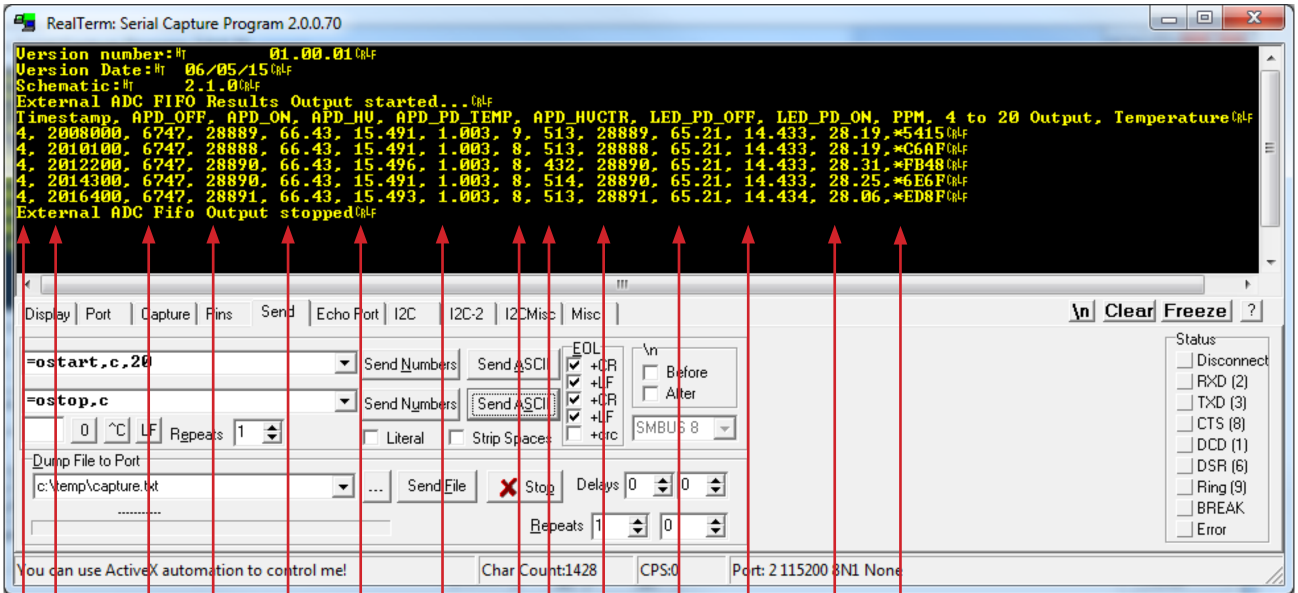
Column 4 – Signal value from the MPPC photodiode. This value is also in counts. It has range from 6553 ± 500 to 58982 (0.5Vto 4.5V) depending on the product that the probe is seeing.

Column 3 – Offset value in counts. The factory offset should be around 6553 ±500. To convert the value to volts divide the value shown by 13107.

Column 2 – Time Code (for information only)

Column 1 – Command number (for information only)

FIG. 5-5 (output data OID models serial numbers OID-15-1062 or higher))



Column 14 - CRC Cyclic Redundancy check for information only

Column 13 – Electronics temperature

Column 12 – OID output on a 4-20mA range

Column 11 – OID output on a 0-100% range

Column 10 – Signal in counts after any compensations such as compensation for temperature.

Column 9 – Value of the photodiode monitoring the LED when it is ON. This value is shown in counts and should be between 400 & 600. If the LED is damaged and not turning on this value will be the same as in column 8.

Column 8 – Value of the photodiode monitoring the LED when it is OFF. This value is shown in counts and should be less than 100.

Column 7 – Reference Voltage that controls the High Voltage supply. This value should be between .720 to .880VDC

Column 6 – MPPC Photodiode Temperature, controlled by a thermoelectric cooler inside the photodiode. The factory temperature is between 14C and 16C.

Column 5 – High Voltage supply going to the MPPC Photo diode. The range is from 46.5VDC to 58.0VDC.

Column 4 – Signal value from the MPPC photodiode. This value is also in counts. It has range from 6553 ± 500 to 58982 (0.5Vto 4.5V) depending on the product that the probe is seeing.

Column 3 – Offset value in counts. The factory offset should be around 6553 ±500. To convert the value to volts divide the value shown by 13107.

Column 2 –Time Code (for information only)

Column 1 – Command number (for information only)

APPENDIX A

MODBUS REGISTER

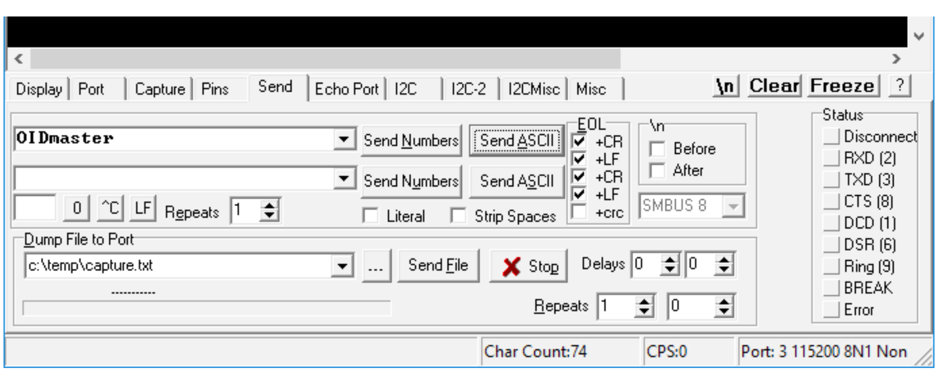
SETTINGS	
MODE	RTU
BAUD RATE	9600
DATA BITS	8
STOP BITS	1
PARITY	NONE
SLAVE ID	1
OFFSET	0

OID Holding Modbus Registers		
Register No	Type	Description
42000	32bit Float	Signal Offset
42001	32bit Float	Sinal In from Photodiode
42002	32bit Float	LED OFF status
42003	32bit Float	LED ON Status
42004	32bit Float	Electronics Temperature in Celsius
42005	32bit Float	0-100 Output
42006	32bit Float	4-20mA Output

CHANGING THE MODBUS ADDRESS

1. Connect the Serial cable to the OID per Figure 3-12 on pg.15
2. Follow the instructions on pg. 19 "Diagnostics vis RS232" Steps 1 to 9.
3. Type the command "OIDmaster" and click on Send ASCII. FIG. A-1. You will get a confirmation that you have entered

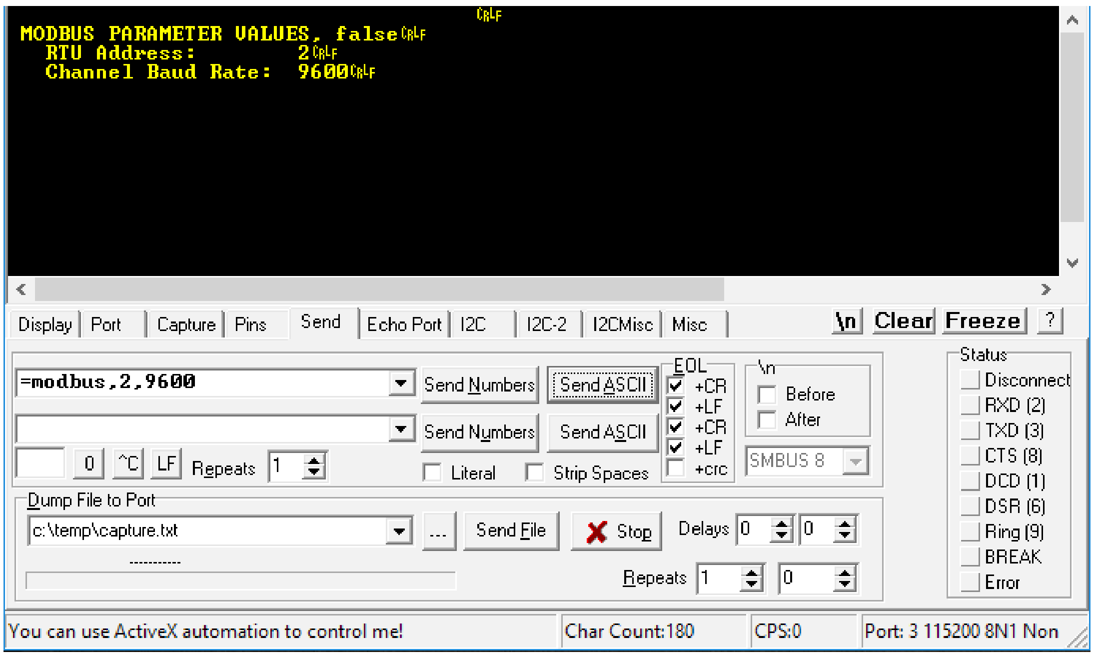
FIG. A-1



CHANGING THE MODBUS ADDRESS continuedFIG. A-2

4. Type the command =modbus,2,9600 and click on Send ASCII. *The red #2 represents the new address. That number can be any number from 1 to 247.

FIG. A-2



5. To complete the change turn the OID power off, wait a couple of seconds and turn it back on.