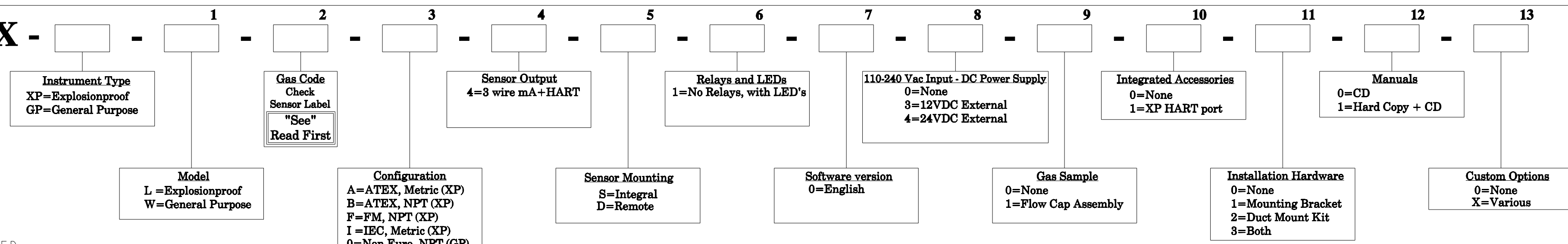
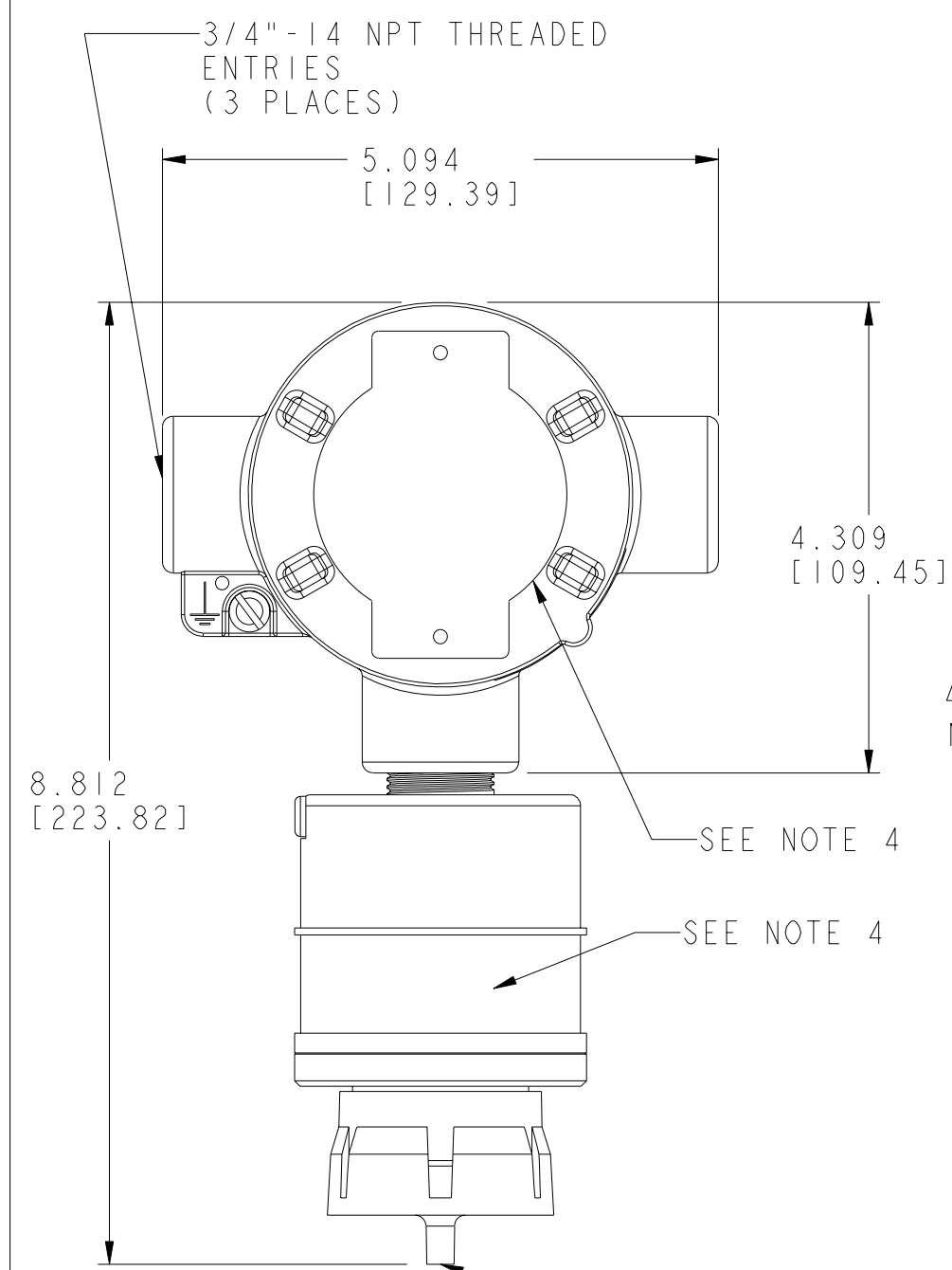


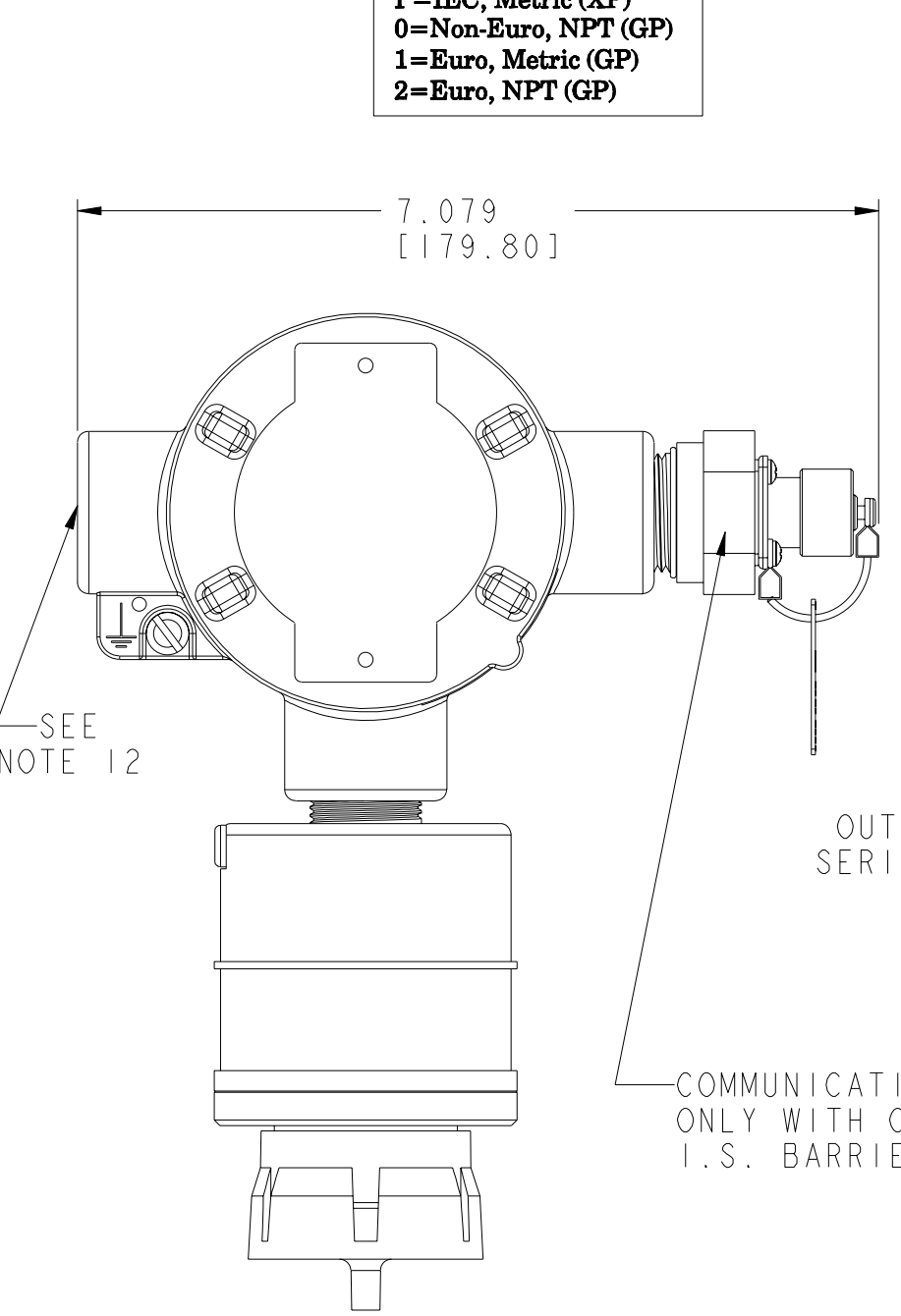
# A - ULTIMAX -



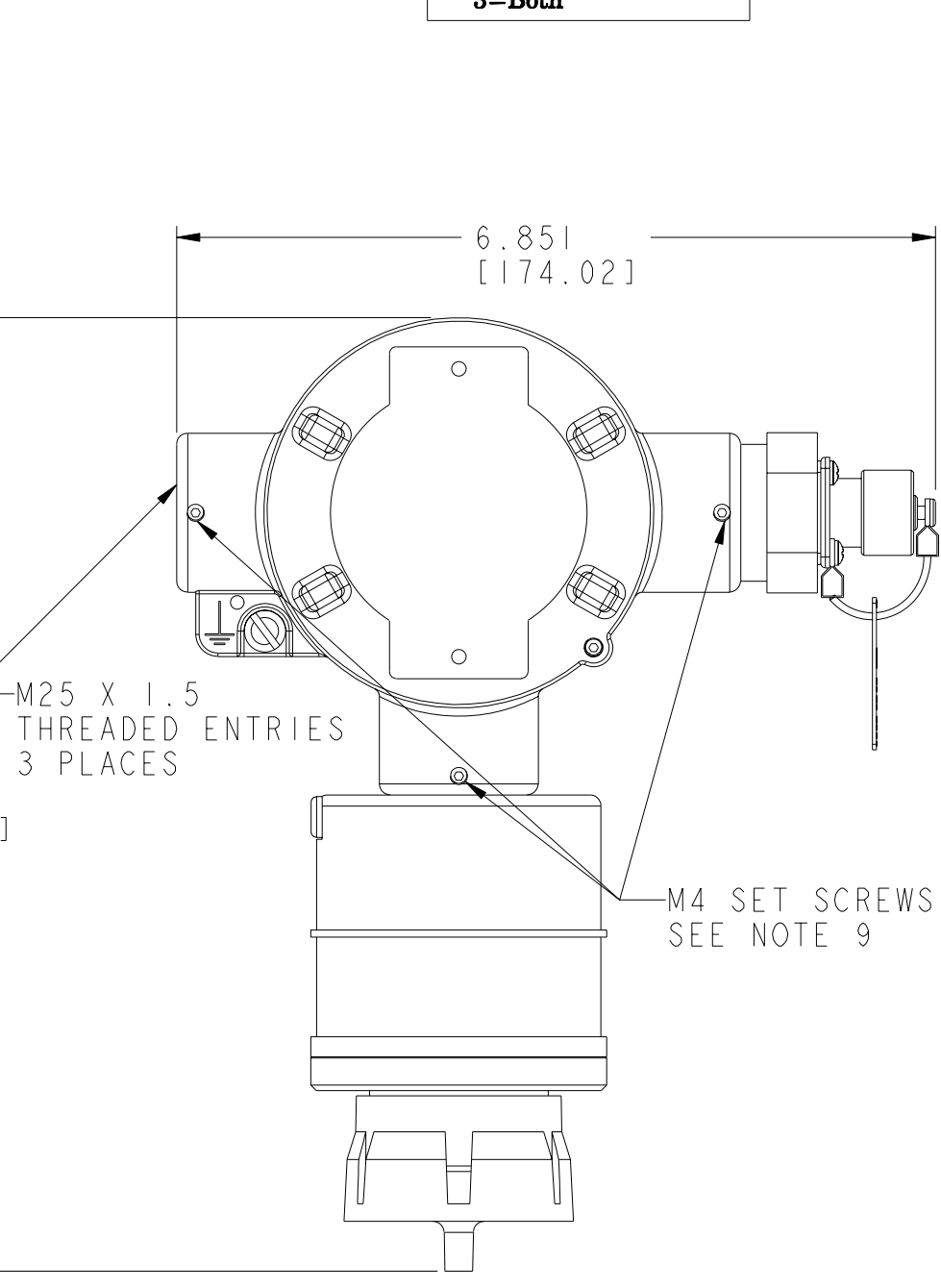
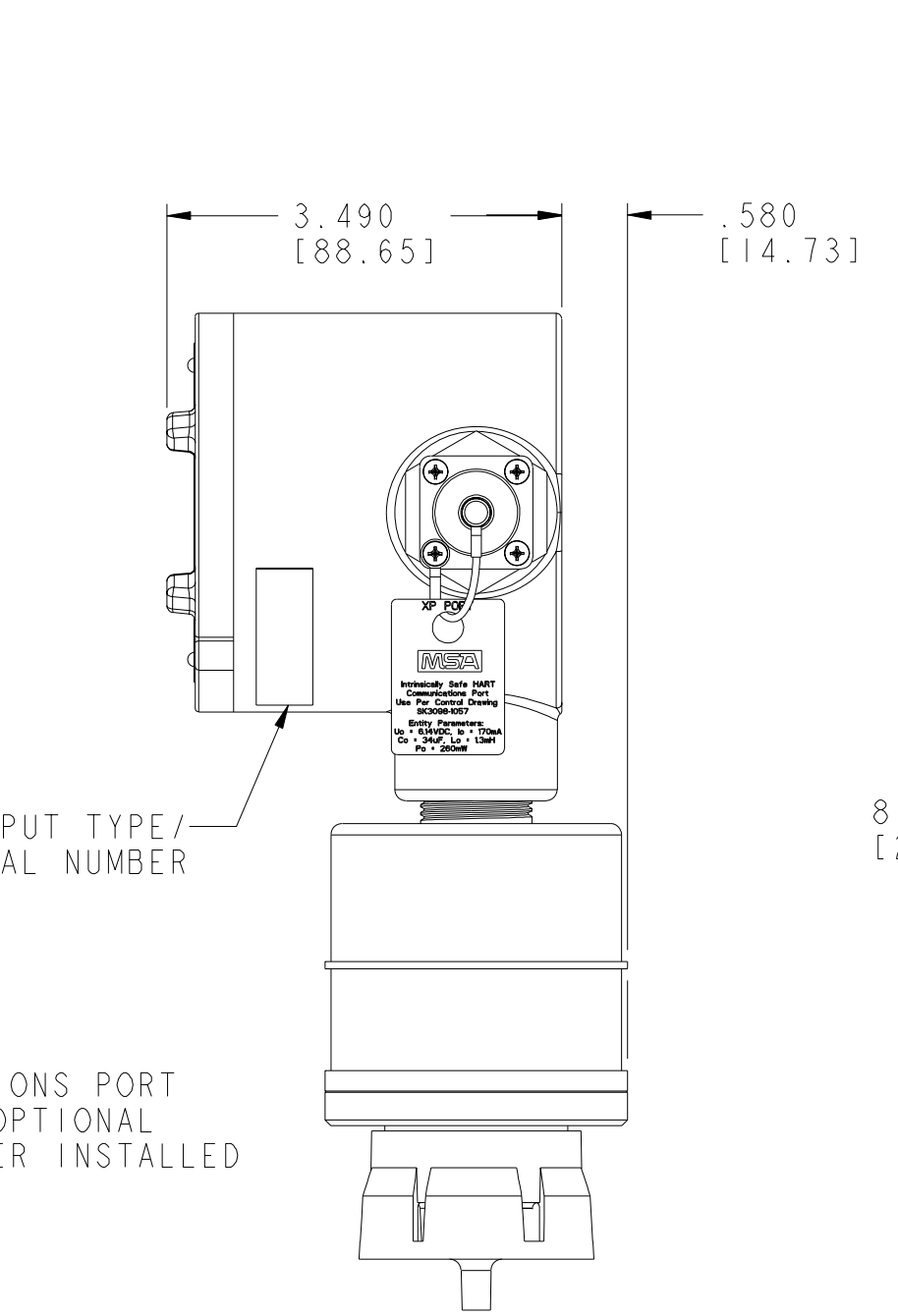
REVISIONS	
<b>MAR 26 2007</b>	10-29-2008 REPLACED OLD ATO MATRIX WITH NEW ONE ECO-70000002331A GJT CL
<b>OCT 29 2008</b>	



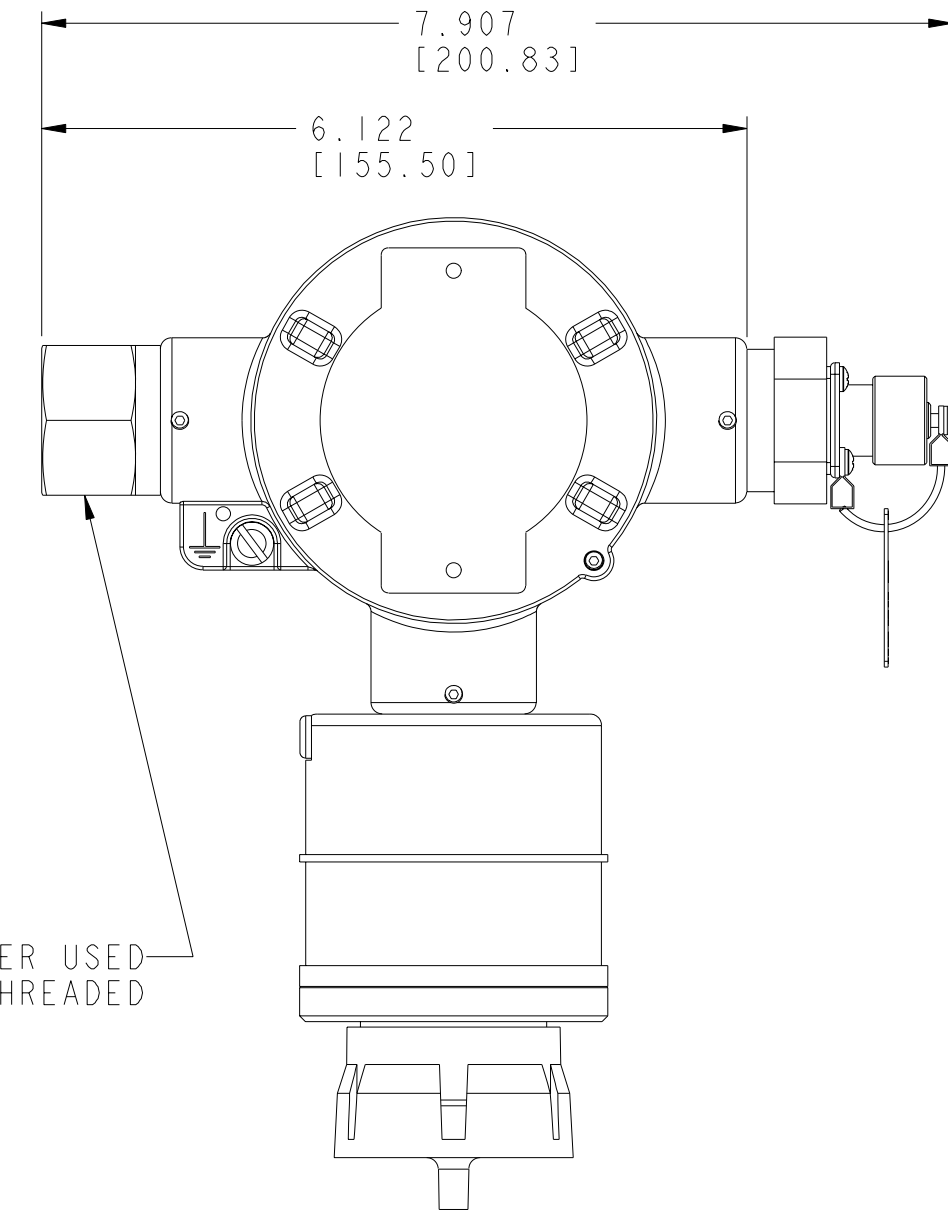
**ULTIMA XL (STANDARD)**  
3/4"-14 NPT THREADED ENTRIES SHOWN  
WEIGHT = 7.12 LBS (3.23 KG.)



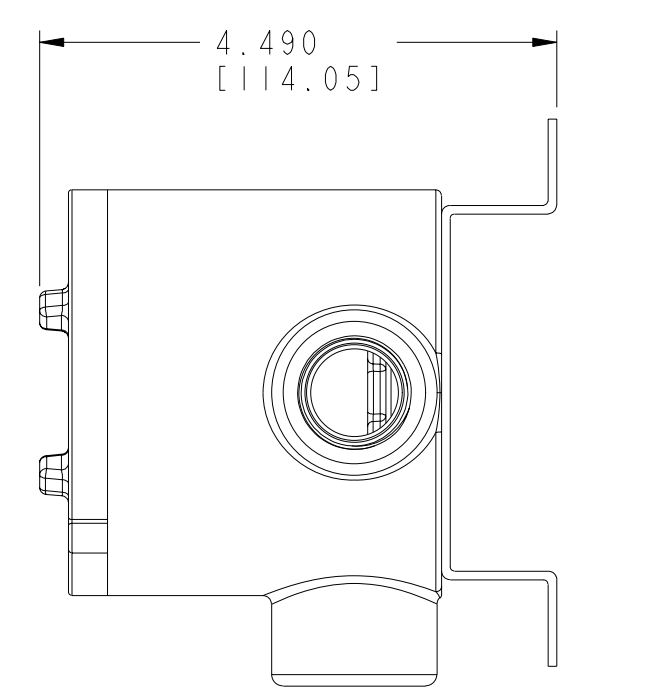
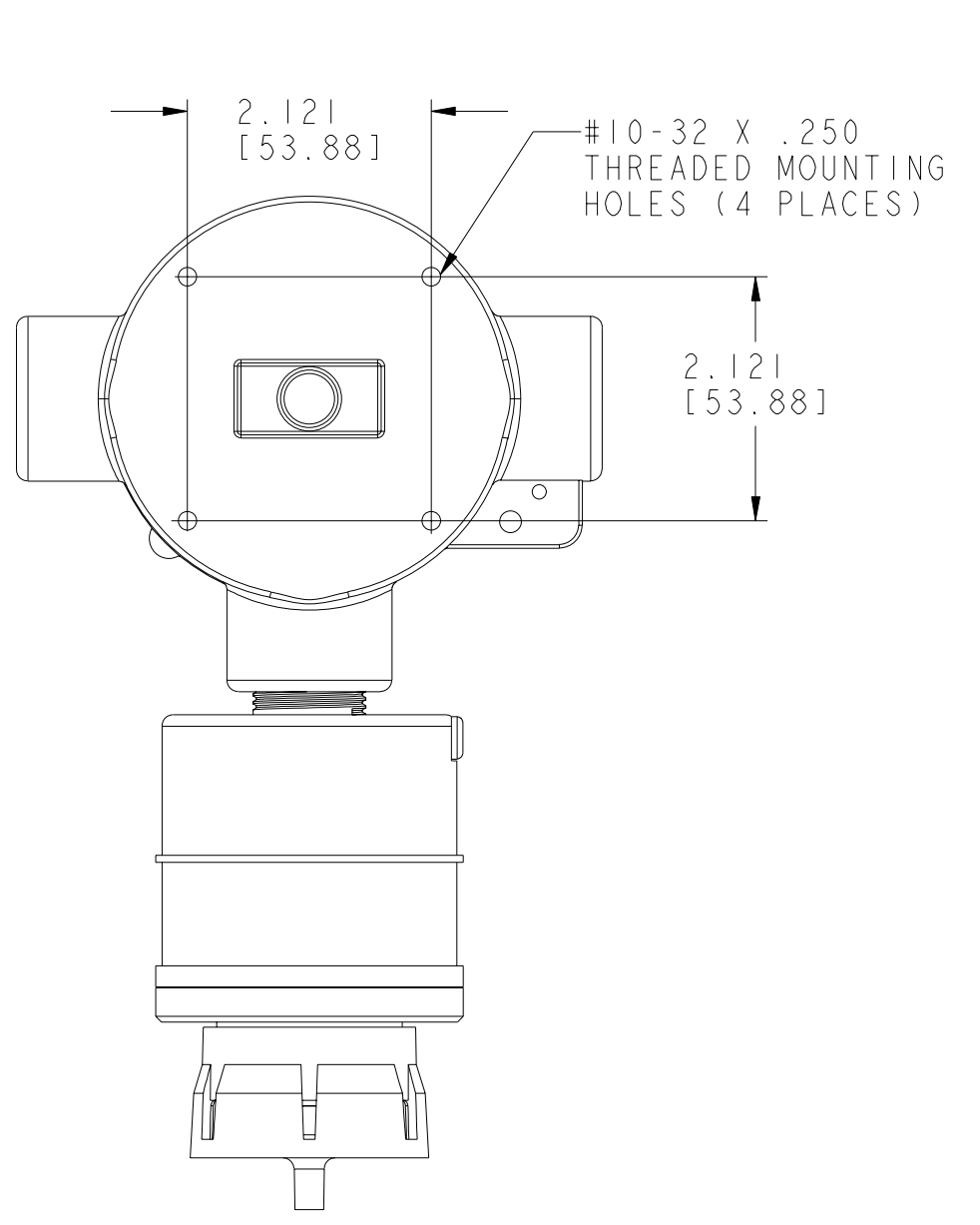
**ULTIMA XL (OPTIONAL HART PORT)**  
3/4"-14 NPT THREADED ENTRIES SHOWN WITH OPTIONAL I.S. BARRIER AND COM PORT INSTALLED  
WEIGHT = 7.66 LBS (3.47 KG.)



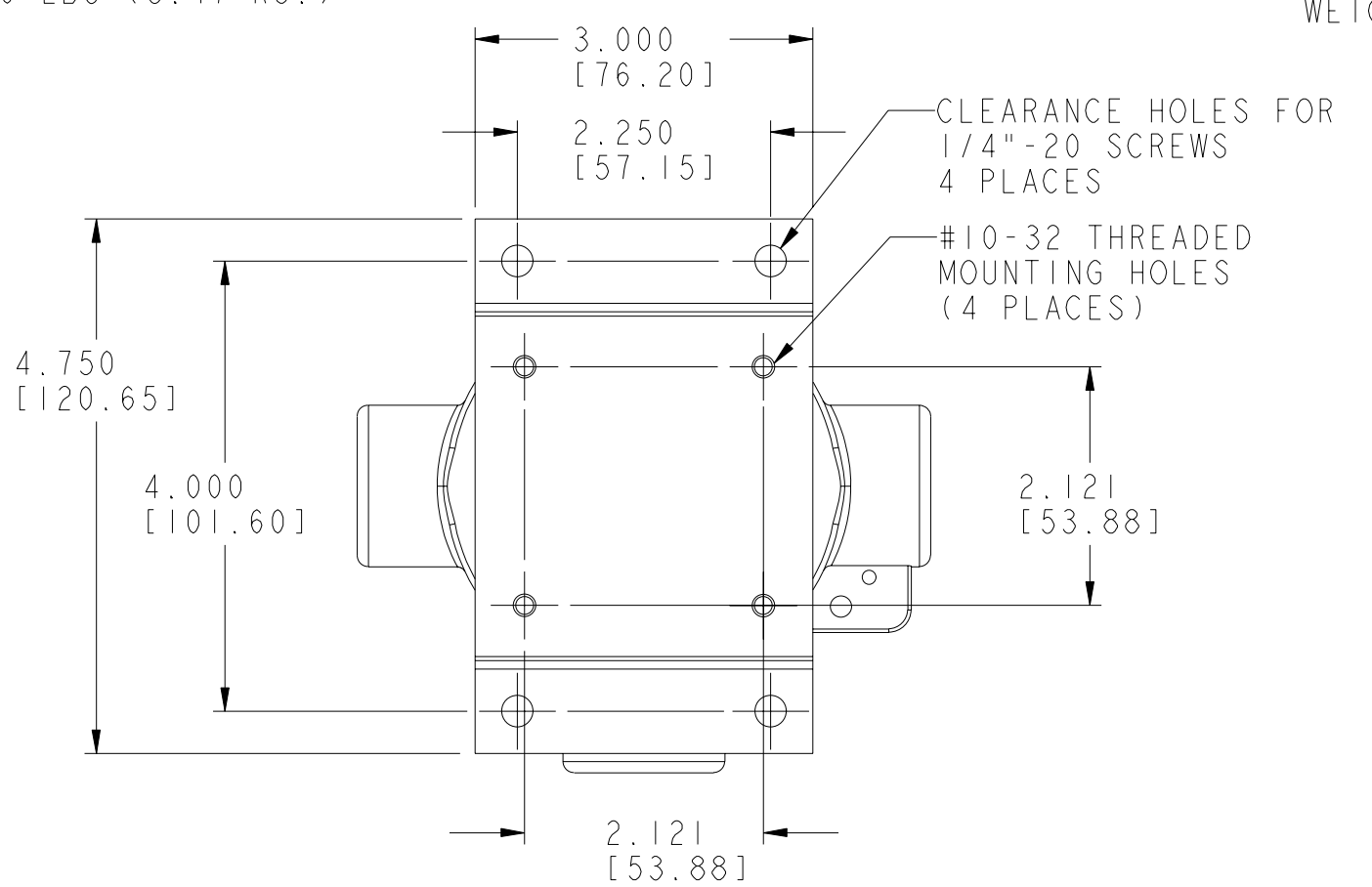
**ULTIMA XL (OPTIONAL HART PORT)**  
M25 X 1.5 THREADED ENTRIES SHOWN WITH OPTIONAL BARRIER AND COM PORT INSTALLED  
WEIGHT = 7.66 LBS (3.47 KG.)



3/4"-14 ADAPTER USED ON ATEX NPT THREADED UNITS ONLY



**OPTIONAL MOUNTING BRACKET**  
SEE NOTE 8



## Read First

UNSCREW  
SENSOR ASSEMBLY

Gas Type is:  
- "OXYGEN"  
- "COMBUSTIBLE"  
- OTHER (KNOWN AS "TOXIC" ON THIS DRAWING)

**CONTROL DRAWINGS REFERENCED ON PRODUCT LABELS CAN BE FOUND AT [www.msanorthamerica.com](http://www.msanorthamerica.com) FIXED GAS DETECTION, GAS SENSORS, ULTIMA XL/XT SERIES GAS MONITORS, LITERATURE TAB**

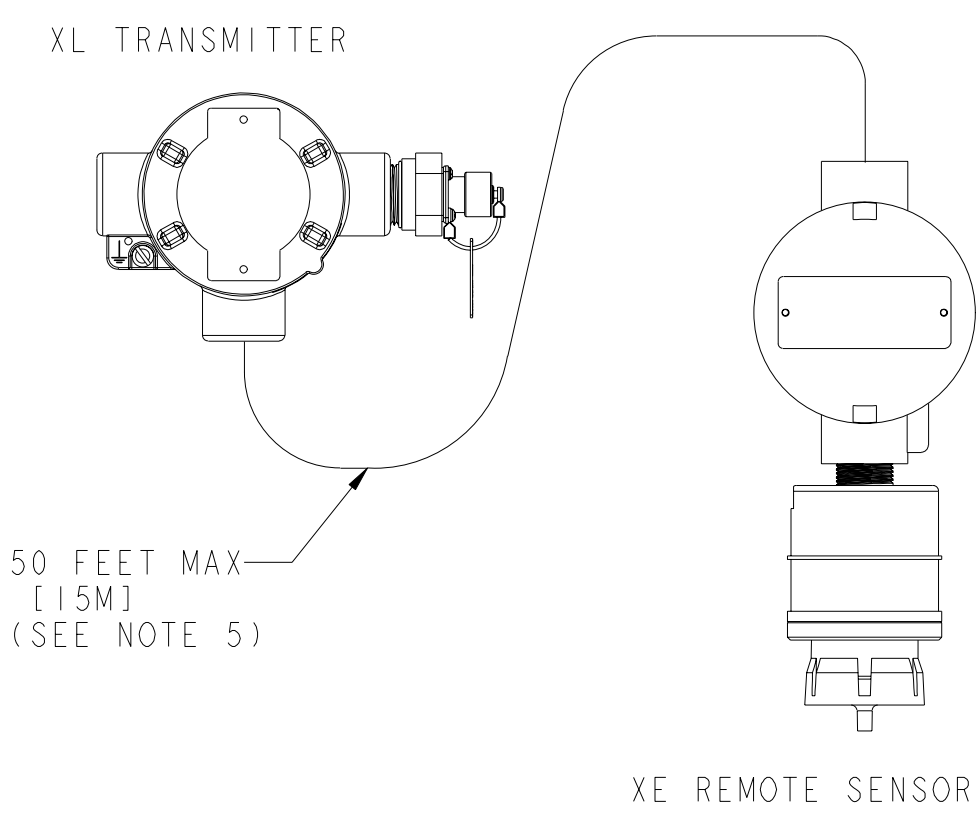
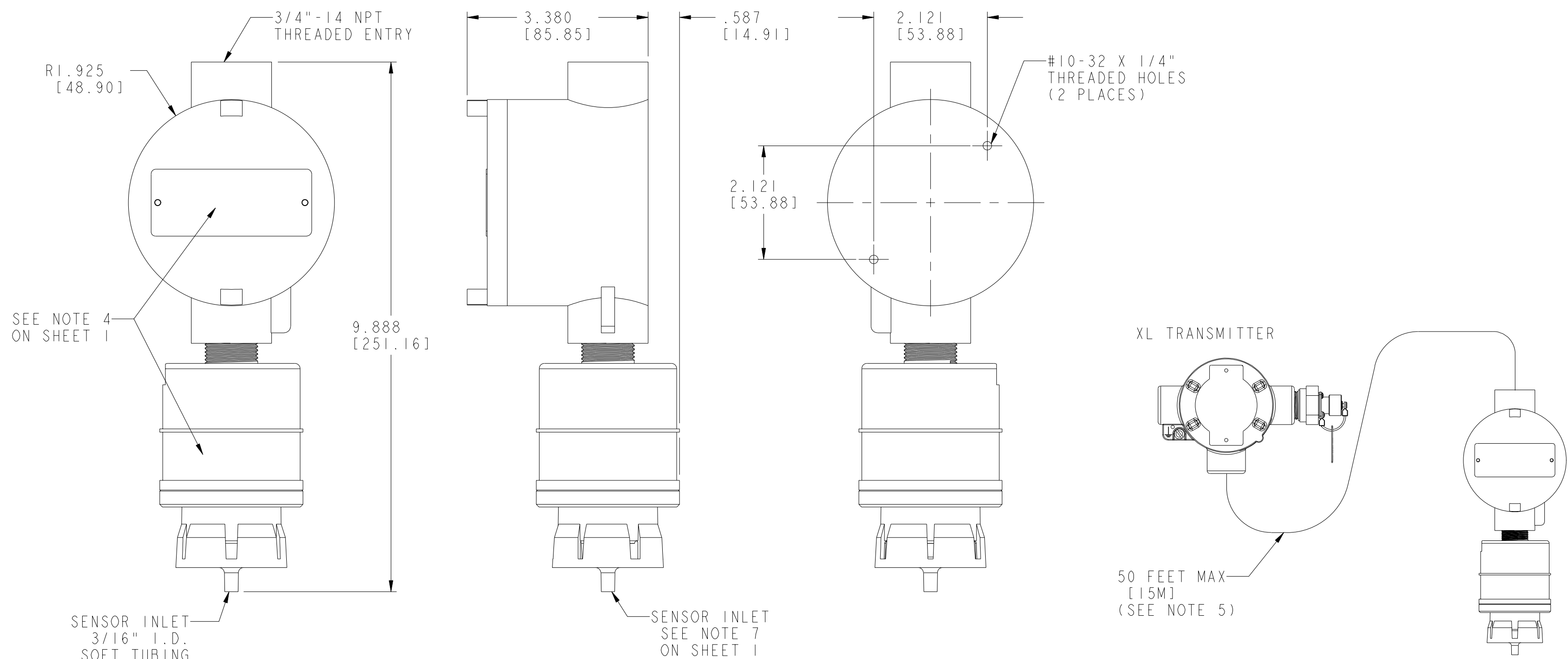
- NOTES:
- INSTRUMENT WEIGHTS ARE THE SAME FOR NPT OR METRIC THREADED HOUSINGS.
  - INSTRUMENT AND SENSOR HOUSINGS ARE MADE OF 316 STAINLESS STEEL.
  - DIMENSIONS SHOWN IN INCHES [MILLIMETERS].
  - CHECK TAG FOR AREA CLASSIFICATIONS.
  - - - - - INDICATES FIELD CONNECTIONS MADE BY OTHERS.
  - MOUNT UNIT WITH SENSOR INLET FACING DOWN.
  - P/N 10047562 IS OPTIONAL MOUNTING BRACKET.
  - ALL M25 X 1.5 THREADED ENTRIES HAVE SECURING M4 X .7 SET SCREWS, NPT THREADED ENTRIES DO NOT.
  - APPLY TEFLON TAPE TO ALL THREADED ENTRIES FOR WATER TIGHT APPLICATIONS.
  - CERTIFIED STOPPING PLUGS OR CERTIFIED ENTRIES SHALL BE INSTALLED AT ALL THREADED ENTRIES AT INSTALLATION.
  - INCOMING POWER AND SIGNAL CABLE SHIELD SHOULD BE EARTH GROUNDED AT THE POWER SOURCE. CONNECT POWER AND REMOTE SENSOR CABLE SHIELDS TOGETHER IN THE MAIN HOUSING. PROVIDE SHIELD TERMINATIONS INSIDE THE SENSOR HOUSING.

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MSA STANDARD SHOP PRACTICES APPLY	CODE SYMBOLS	JOB NO. 30007082 PH0730	APPROVAL AGENCY CODE: NO INTOSH ATTR. DOC.:	
CRITICAL	△	DRAWN BY WJE	DATE 2-13-2007	
MAJOR A	△	CHECKED BY D. MAST	3-22-07	
MAJOR B	△	PROJ. ENGR. S. TURNER	3-22-07	
100% INSPECTION	△	QUALITY ASSURANCE J. DANNHARDT	3-22-07	
TOLERANCES UNLESS OTHERWISE SPECIFIED		MANUFACTURING H. TRACHSEL	3-26-07	
FRACTIONAL	± 1/64			
2 PL DEC.	± 0.01			
3 PL DEC.	± 0.005			
ANGULAR	± 1 deg.			
SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES				

**CUSTOMER** \_\_\_\_\_  
**P.O. NO.** \_\_\_\_\_  
**MSA NO.** \_\_\_\_\_  
**LOCATION** \_\_\_\_\_  
**TAG NO.** \_\_\_\_\_  
**TOTAL NO. OF UNITS** \_\_\_\_\_

## INSTALLATION OUTLINE, ULTIMA XL WITH XE SENSOR

CADD REF: SK3015-1017      SCALE: 1:000  
**SK3015-1017**      SHEET 1 OF 2



**REMOTE XE SENSOR**  
 EXPLOSION-PROOF HOUSING  
 MATERIAL: CAST ALUMINUM (NORTH AMERICA) or  
 STAINLESS STEEL (INTERNATIONAL)  
 SEE NOTE 4

**CABLE LENGTH AND WIRE SIZE (COMBUSTIBLE GAS) SENSOR, 4-20 mA SIGNAL OUTPUT (THREE WIRE SENSOR)**

WIRE SIZE	MAXIMUM CABLE LENGTH @ 24 VDC	MAXIMUM LOAD RESISTANCE	MAXIMUM CABLE LENGTH @ 12 VDC	MAXIMUM LOAD RESISTANCE
18 AWG (1.00 mm <sup>2</sup> )	2500 FT. (762 m)	500 Ohms	900 FT. (274 m)	300 Ohms
16 AWG (1.50 mm <sup>2</sup> )	4200 FT. (1280 m)		1400 FT. (427 m)	
12 AWG (2.50 mm <sup>2</sup> )	10000 FT. (3048 m)		3600 FT. (1097 m)	

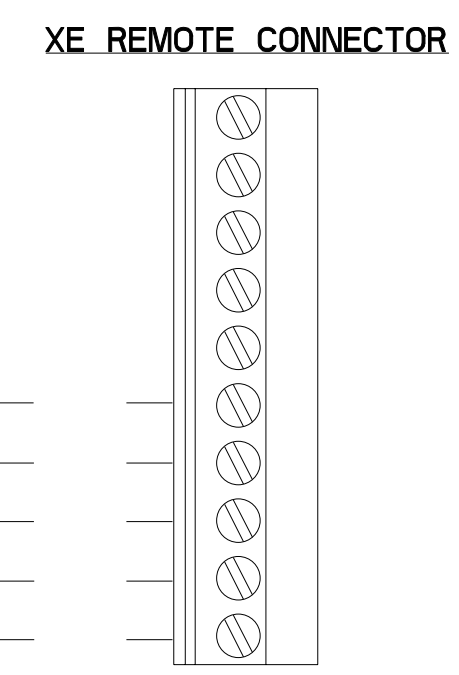
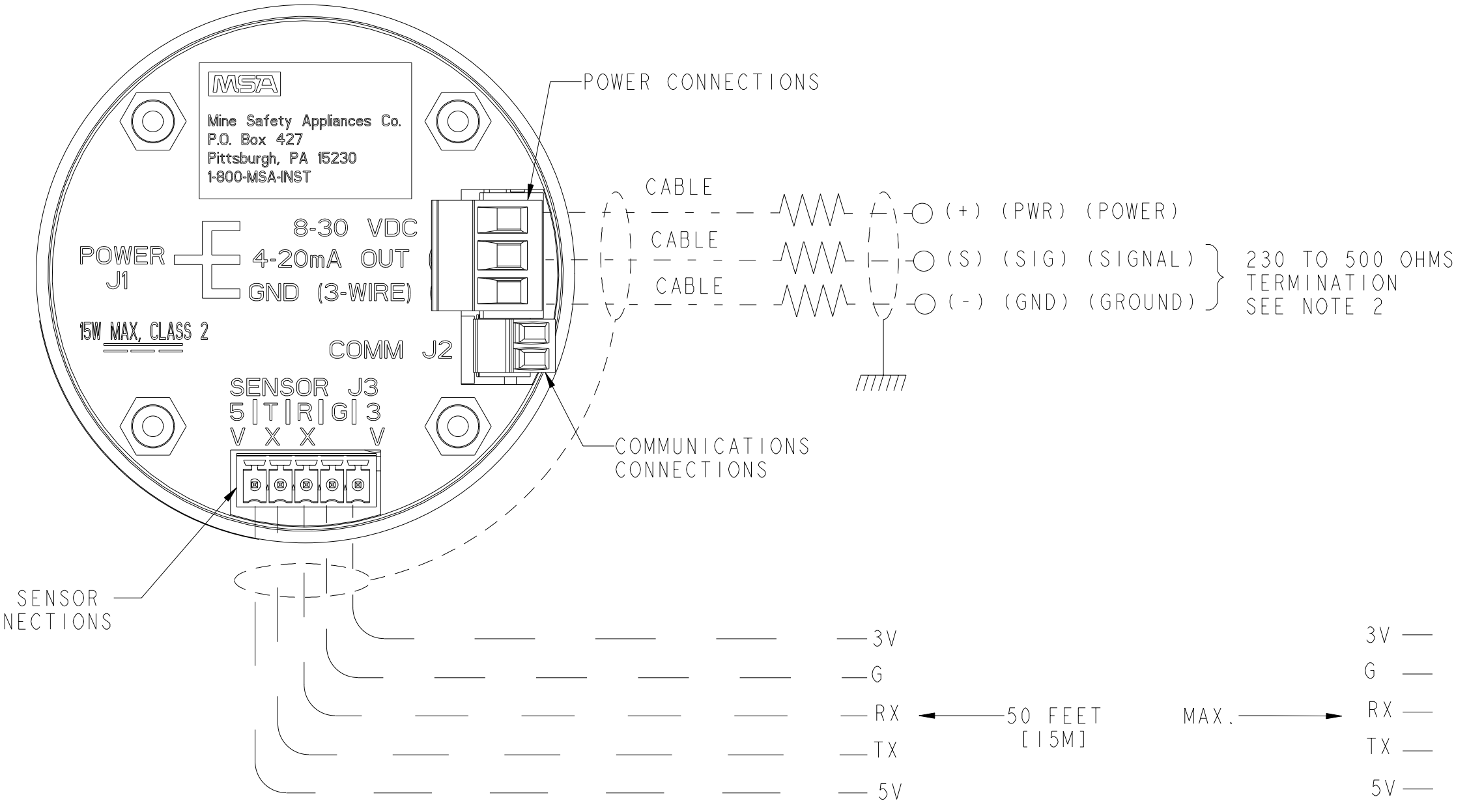
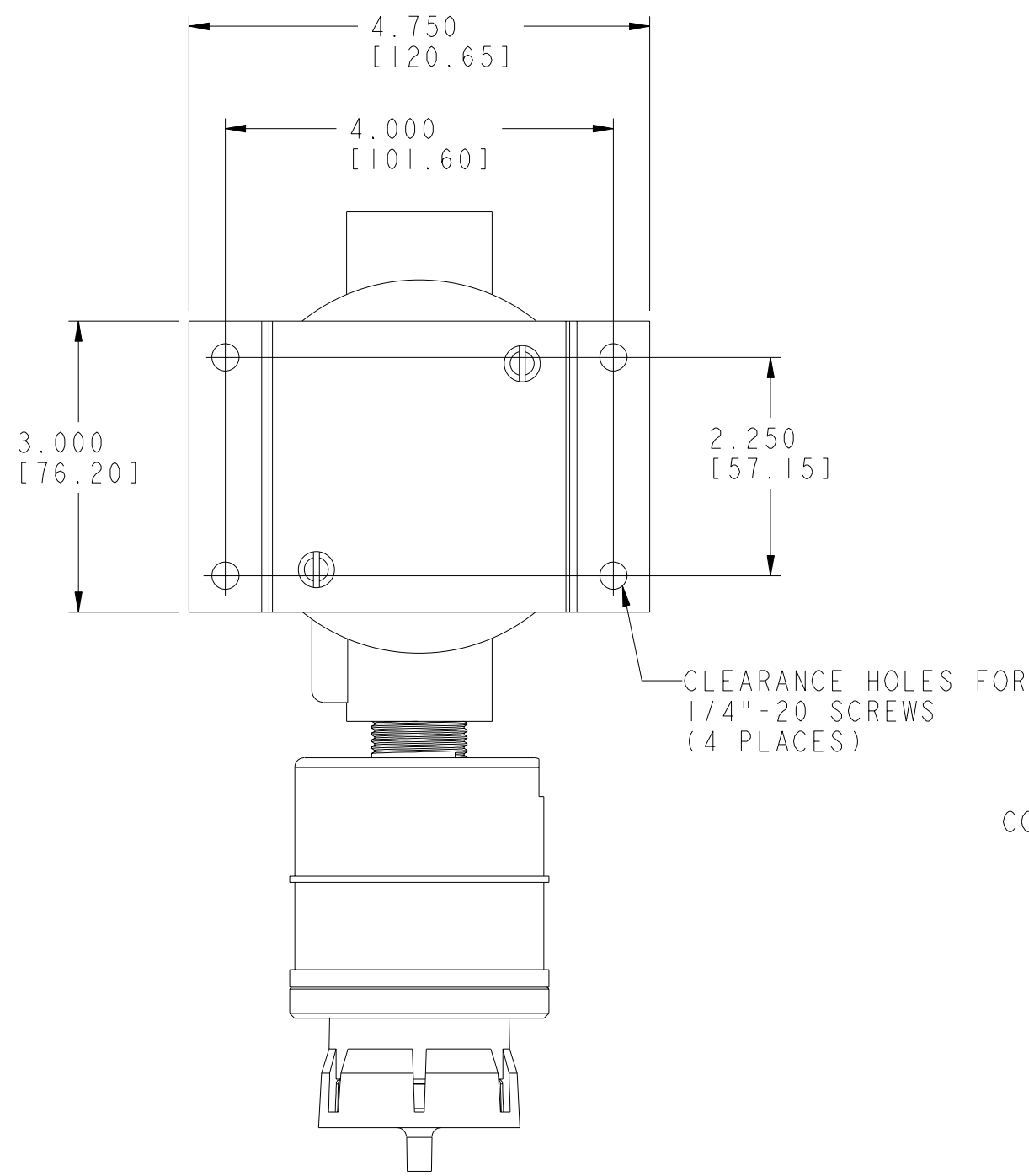
**CABLE LENGTH AND WIRE SIZE (POWER SUPPLY 24 VDC) (TOXIC GAS OR OXYGEN) SENSOR, 4-20 mA SIGNAL OUTPUT (THREE WIRE SENSOR)**

WIRE SIZE	MAXIMUM CABLE LENGTH @ 24 VDC	MAXIMUM LOAD RESISTANCE
22 AWG (.25 mm <sup>2</sup> )	10000 FT. (3048 m)	500 Ohms

**REMOTE MODULE WIRING AND PLACEMENT**

SENSOR TYPE	MINIMUM WIRE SIZE	MAXIMUM CABLE LENGTH
TOXIC & OXYGEN	20 AWG (0.50 mm <sup>2</sup> )	100 FT. (30 m)
CATALYTIC COMBUSTIBLE	18 AWG (1.00 mm <sup>2</sup> )	50 FT. (15 m)
	16 AWG (1.50 mm <sup>2</sup> )	100 FT. (30 m)
*IR COMBUSTIBLE	16 AWG (1.50 mm <sup>2</sup> )	50 FT. (15 m)
	12 AWG (2.50 mm <sup>2</sup> )	100 FT. (30 m)

\* - CE APPROVED INSTRUMENTS HAVE A MAXIMUM 50FT (15m) DISTANCE



SENSOR FIELD WIRING ONLY NECESSARY FOR REMOTE APPLICATIONS

**WIRING CONNECTIONS**  
**ULTIMA XL MAIN PCBA**  
 NETWORK 6 - HART

**MOUNTING BRACKET (OPTIONAL)**  
 SEE NOTE 8

- NOTE:
- ULTIMA XL SERIES MONITORS OPERATE IN THE CURRENT SOURCE MODE.
  - THE HART COMMUNICATIONS REQUIRE THE LOAD ON THE 4-20 mA TO BE BETWEEN 230 TO 500 OHMS.
  - THE ULTIMA X SERIES MONITOR HAS A FIVE-WIRE TERMINAL TO ACCOMMODATE UP TO #16 AWG (1.32mm<sup>2</sup>) CONDUCTORS. CABLES LARGER THAN #16 AWG (1.32mm<sup>2</sup>) WILL REQUIRE A SPLICE OF SMALLER CABLE TO FIT THE CONNECTOR.
  - FOR INTERNATIONAL INSTALLATIONS, REMOTE HOUSING WILL HAVE (3) M25 THREADED ENTRIES.
  - REMOTE CABLES MAX. 50 FT. [15M] OF 18 AWG (1mm<sup>2</sup>) OR 100 FT. [30M] OF 16 AWG (1.50mm<sup>2</sup>) CABLE. 12 AWG OR LARGER WIRE MUST HAVE AN ADAPTER TO 16 AWG TO CONNECT TO J3 ON MAIN CIRCUIT BOARD. FOR EUROPEAN INSTALLATIONS, 15 METERS MAXIMUM DISTANCE

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	MSA STANDARD SHOP PRACTICES APPLY	JOB NO. 30007082 PH0730	APPROVAL AGENCY CODE: NO IN/OSH ATTR. DOC.:	
	CRITICAL $\Delta$	DRAWN BY WJE	DATE 2-13-2007	<p><b>INSTALLATION OUTLINE, ULTIMA XL WITH XE SENSOR</b></p> <p>CADD REF: SK3015-1017 SCALE: 1:000</p> <p><b>SK3015-1017</b> SHEET 2 OF 2</p>
	MAJOR A $\Delta$	CHECKED BY D.MAST	3-22-07	
	MAJOR B $\Delta$	PROJ. ENGR. S.TURNER	3-22-07	
	100% INSPECTION $\Delta$	QUALITY ASSURANCE J.DANNHARDT	3-22-07	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	MANUFACTURING H.TRACHSEL	3-26-07	
	FRACTIONAL $\pm 1/64$			
	2 PL DEC. $\pm 0.01$			
	3 PL DEC. $\pm 0.005$			
	ANGULAR $\pm 1$ deg.			
	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES			