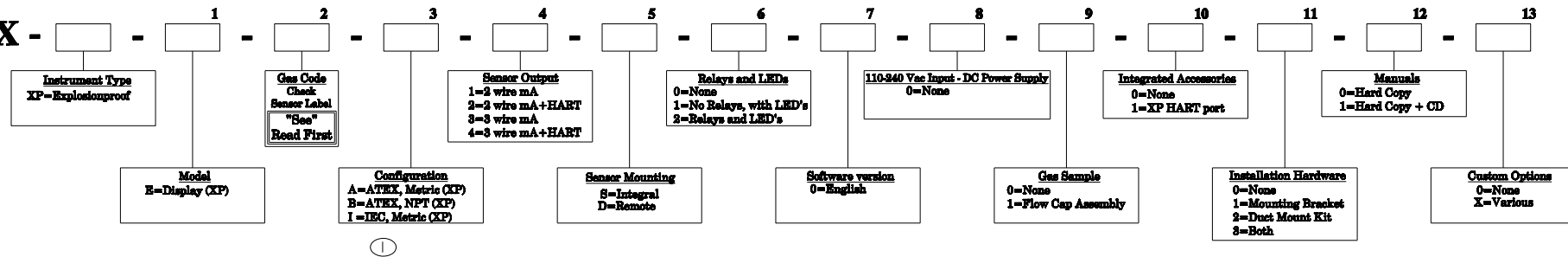
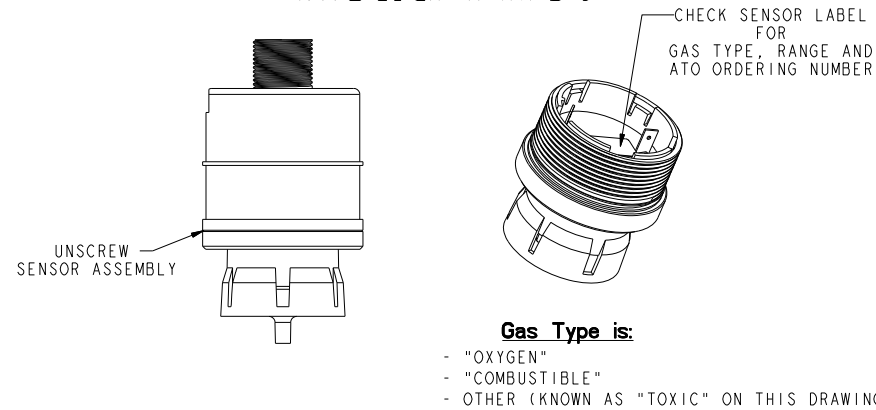


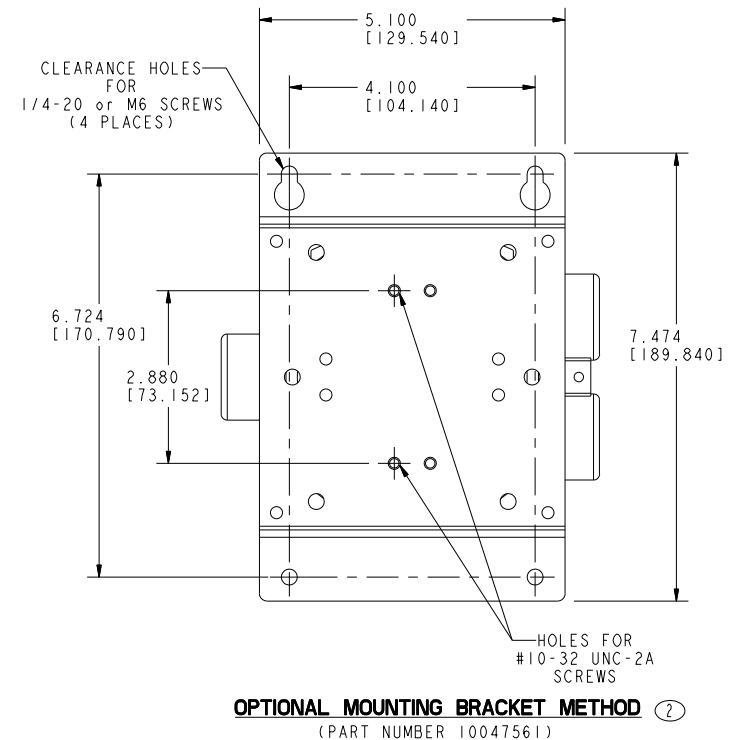
# A - ULTIMAX -



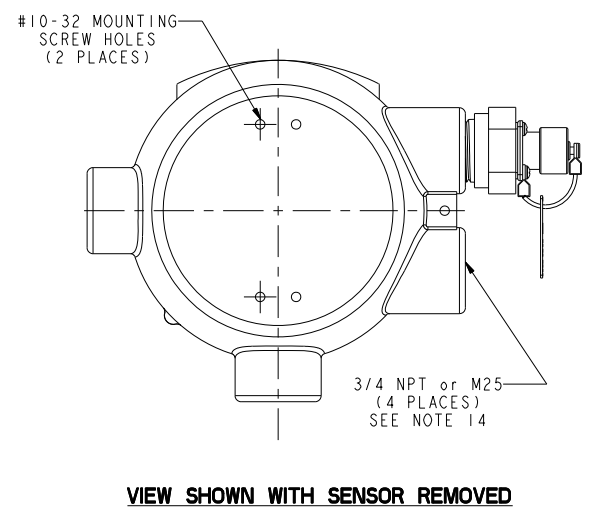
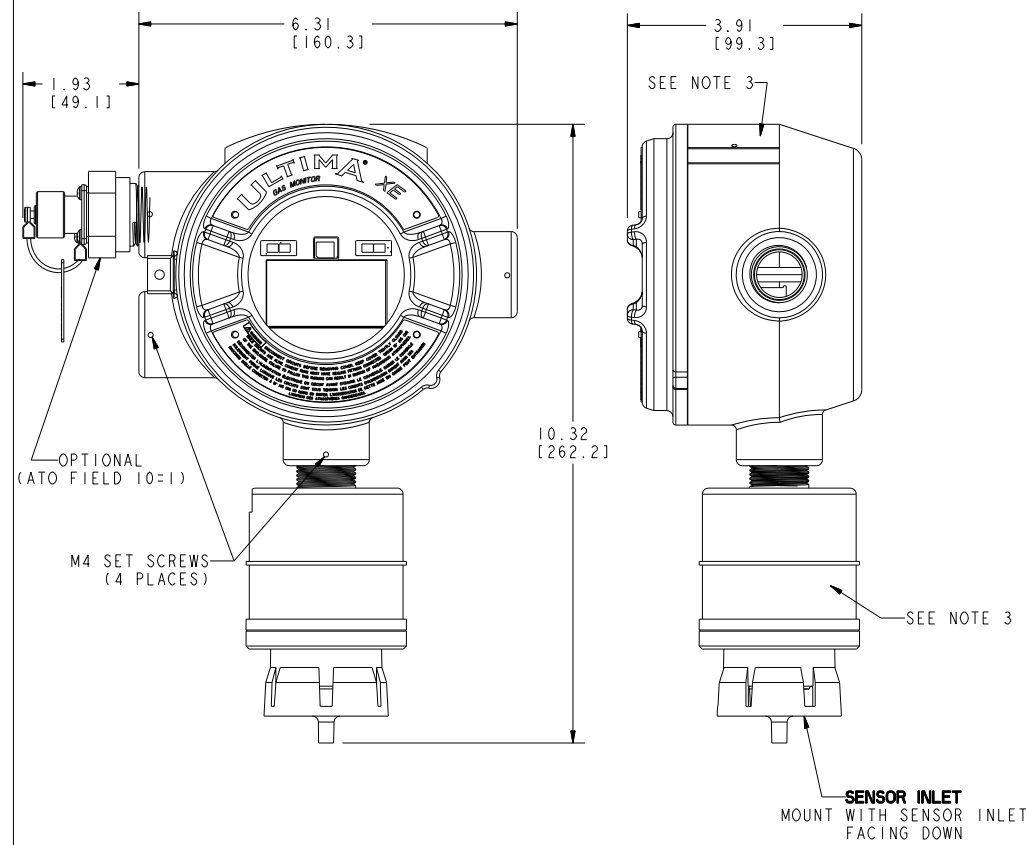
## Read First



| Gas Type        | Sensor Output | DC Voltage Supply | Max Current Draw |
|-----------------|---------------|-------------------|------------------|
| Oxygen or Toxic | 3 Wire        | 24 VDC            | 100 mA           |
| Combustible     | 3 Wire        | 24 VDC            | 210 mA           |



| Gas Type        | Sensor Output | DC Voltage Supply | Wire Size          | Max Cable Length            |        | Max Load Resistance |
|-----------------|---------------|-------------------|--------------------|-----------------------------|--------|---------------------|
|                 |               |                   |                    | without HART/with HART Feet | Meters |                     |
| Oxygen or Toxic | 2 Wire        | 24 VDC            | 1.5mm <sup>2</sup> | 23,000                      | 7,010  | 500 Ohms            |
| Oxygen or Toxic | 3 Wire        | 24 VDC            | 1.5mm <sup>2</sup> | 8,800                       | 2,680  | 600/500 Ohms        |
| Combustible     | 3 Wire        | 24 VDC            | 1.0mm <sup>2</sup> | 2,500                       | 762    | 500 Ohms            |
|                 |               |                   | 1.5mm <sup>2</sup> | 4,200                       | 1,200  | 500 Ohms            |
|                 |               |                   | 3.0mm <sup>2</sup> | 10,000                      | 3,000  | 500 Ohms            |



| Gas Type        | Sensor Output | DC Voltage Supply | Wire Size          | Max Cable Length |        | Max Load Resistance |
|-----------------|---------------|-------------------|--------------------|------------------|--------|---------------------|
|                 |               |                   |                    | Feet             | Meters |                     |
| Oxygen or Toxic | 3 Wire        | 24 VDC            | 1.5mm <sup>2</sup> | 8,000            | 2,400  | 500 Ohms            |
| Combustible     | 3 Wire        | 24 VDC            | 1.5mm <sup>2</sup> | 3,000            | 900    | 500 Ohms            |

NOTES: 1. INSTRUMENT HOUSING IS MADE OF 316 STAINLESS STEEL.  
2. DIMENSIONS SHOWN IN INCHES (MILLIMETERS).  
3. CHECK TAG FOR AREA CLASSIFICATION.  
(CONTINUED ON SHEET 2)

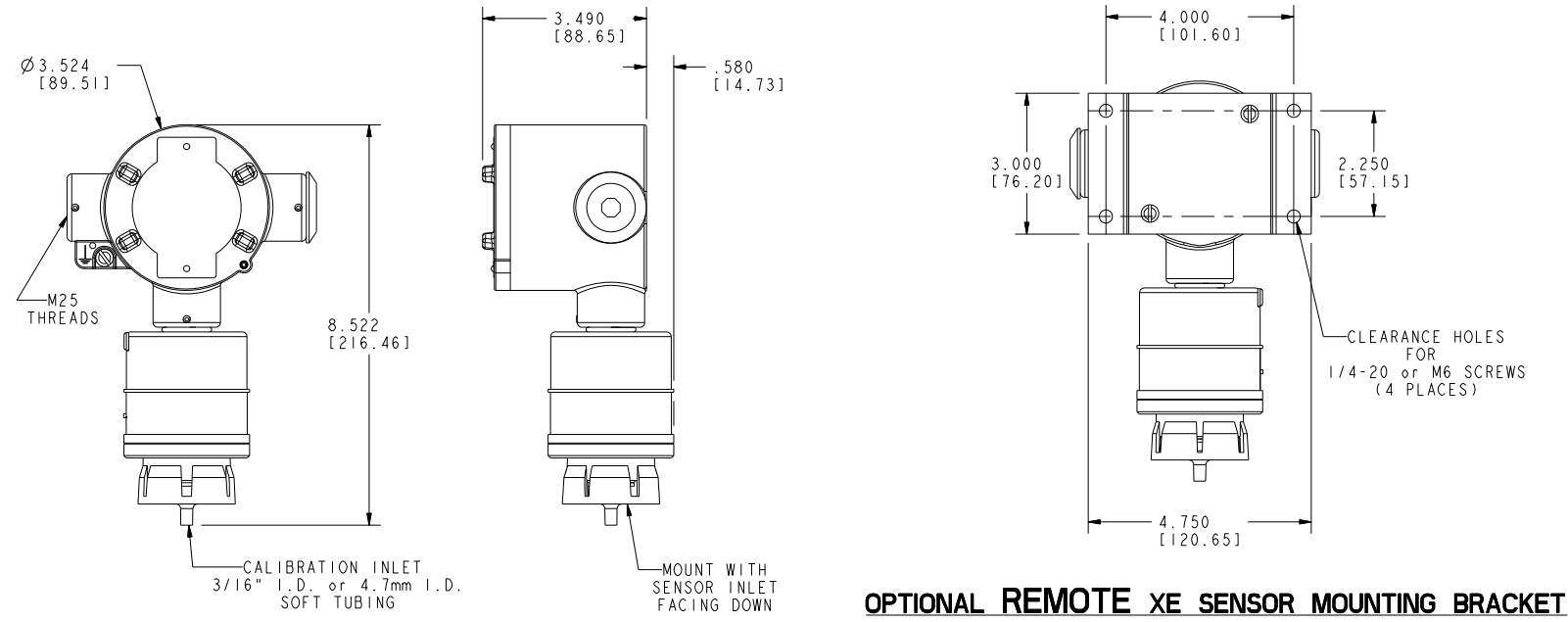
| REVISIONS   |  |
|-------------|--|
| JUN 24 2008 | 10-29-2008<br>DELETED "D2" AND ADDED "IEC" TO ATO<br>ECO-70000002331A<br>GJT CL              |
| OCT 29 2008 | 11-1-2010<br>UPDATED MOUNTING BRACKET TO ACCOMMODATE PRIMAX IR<br>ECO-70000003147A<br>GJT MB |
| NOV 09 2010 |  |

STANDARD ULTIMA XE  
WEIGHT: 10.4 LBS [4.72 kg]

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

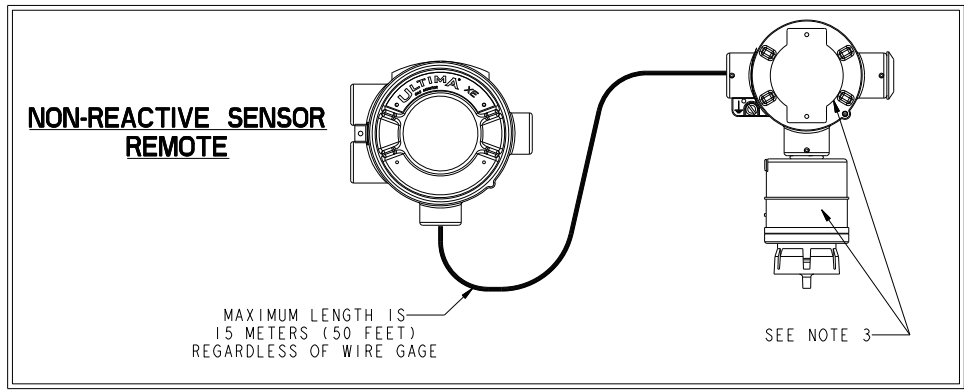
|  |   |   |   |                        |
|--|---|---|---|------------------------|
| AUTHORIZED COUNTRY                               | <b>MSA</b>  | MINE SAFETY APPLIANCES CO.<br>PITTSBURGH, PA 15230, USA | THIS DRAWING IS THE PROPERTY OF MSA AND IS MADE AVAILABLE TO YOU IN CONFIDENCE AND SUBJECT TO THE FOLLOWING: NO PERMISSION IS GRANTED TO PUBLISH, USE, REPRODUCE, TRANSMIT OR DISCLOSE THIS DRAWING, OR ANY INFORMATION CONTAINED THEREIN TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF MSA EXCEPT FOR THE MANUFACTURE OF ARTICLES FOR MSA. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH. | DO NOT SCALE DWG.      |
| MSA STANDARD SHOP PRACTICES APPLY                | CODE SYMBOLS  | JOB NO. 30009701 PH0718                                 | APPROVAL AGENCY CODE: YES   NIOSH ATTR. DOC.:   | REVISION 2             |
| CRITICAL Δ                                       | MAJOR A Δ (NO MARK)   | MAJOR B Δ   | 100% INSPECTION Δ   |                        |
| TOLERANCES UNLESS OTHERWISE SPECIFIED            | 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 |   |   |                        |
| DRAWN BY GJT                                     | DATE 6-11-2008  | CHECKED BY S. TURNER                                    | DATE 6-20-08  | PROJ. ENGR. C. LEHECKA |
| QUALITY ASSURANCE J. DANNARDT                    | DATE 6-18-08  | MANUFACTURING A. POLOCHAK                               | DATE 6-18-08  | CADD REF: SK3015-1030  |
| <b>INSTALLATION OUTLINE, EUROPEAN, ULTIMA XE</b> |   |   | SCALE: 0.625  | SHEET 1 OF 3           |
| <b>D.</b>  |   |   | <b>SK3015-1030</b>  |                        |

| REVISIONS   |        |
|-------------|--------|
| JUN 24 2008 | REV. 1 |
| OCT 29 2008 | REV. 2 |
| NOV 09 2010 |        |

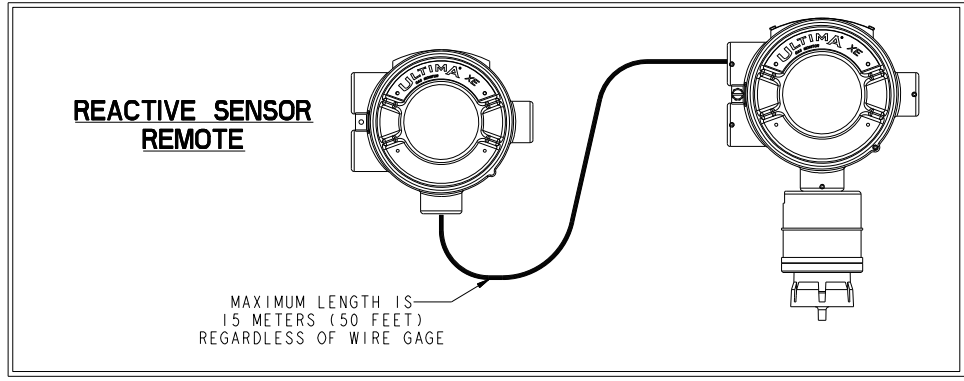


**OPTIONAL REMOTE XE SENSOR MOUNTING BRACKET**

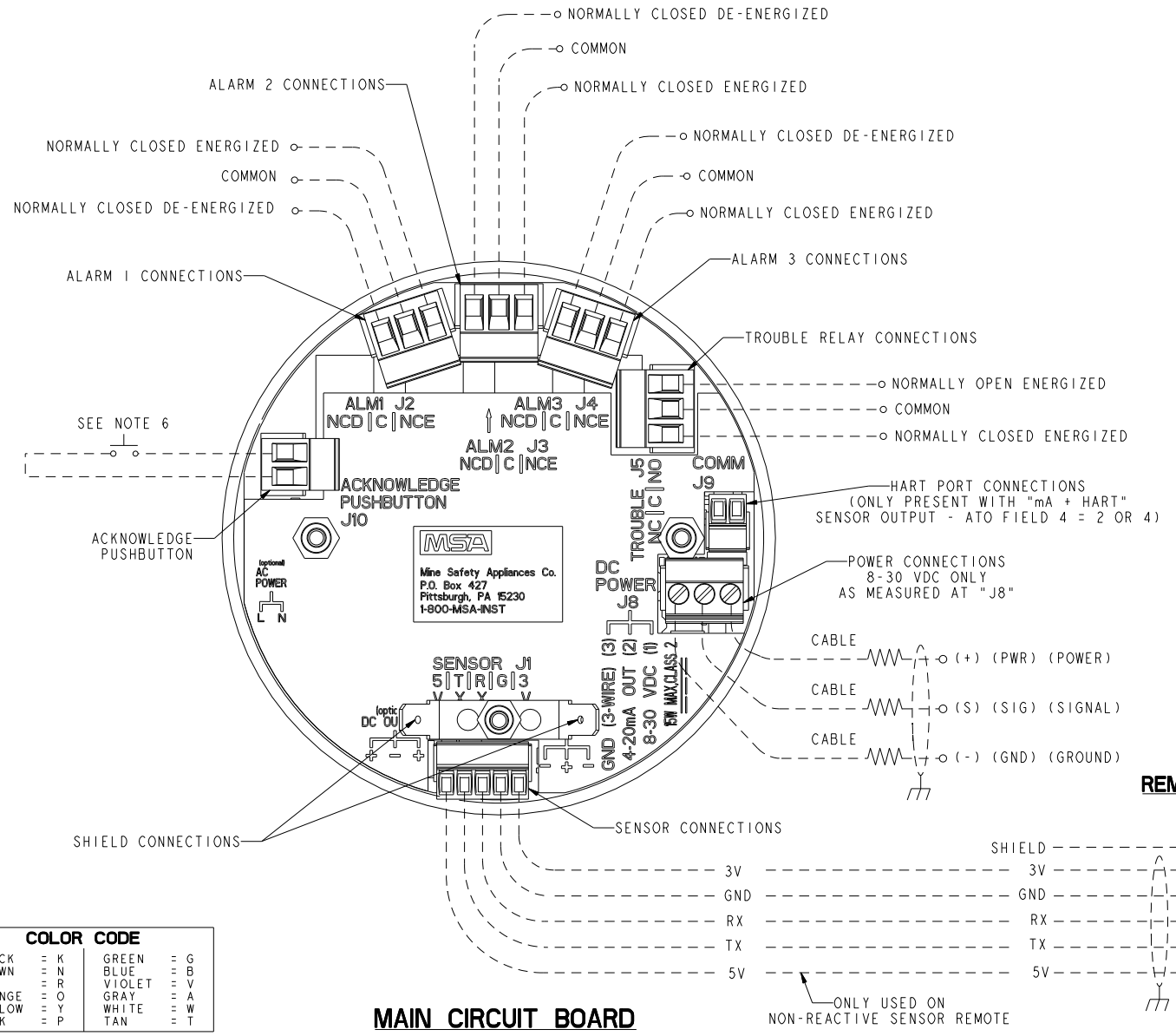
**EXPLOSION-PROOF HOUSING**  
 MATERIAL: 316 STAINLESS STEEL  
**OPTIONAL REMOTE ULTIMA XE SENSOR UNIT**  
 (ATO Box 5 = D for REMOTE UNIT)



**NON-REACTIVE SENSOR REMOTE**

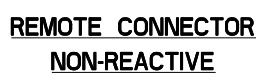


**REACTIVE SENSOR REMOTE**

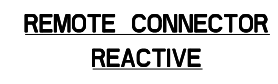


**MAIN CIRCUIT BOARD**

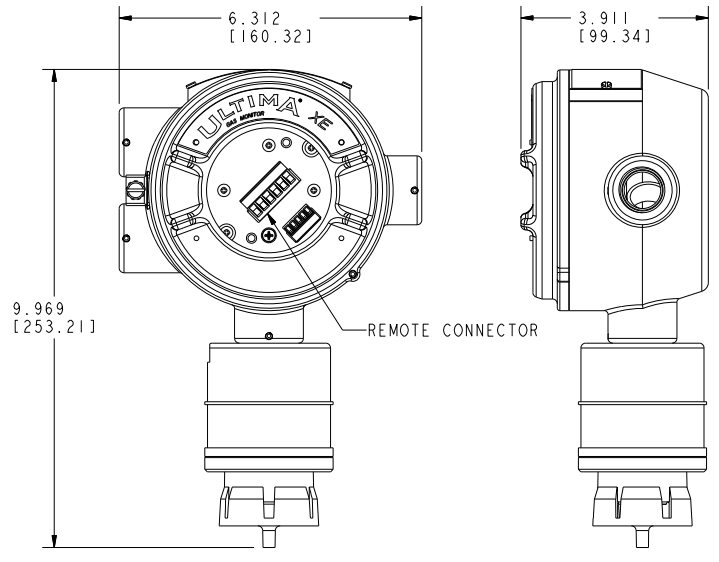
| COLOR CODE |            |  |  |
|------------|------------|--|--|
| BLACK = K  | GREEN = G  |  |  |
| BROWN = N  | BLUE = B   |  |  |
| RED = R    | VIOLET = V |  |  |
| ORANGE = O | GRAY = A   |  |  |
| YELLOW = Y | WHITE = W  |  |  |
| PINK = P   | TAN = T    |  |  |



**REMOTE CONNECTOR NON-REACTIVE**



**REMOTE CONNECTOR REACTIVE**



**REACTIVE SENSOR REMOTE**

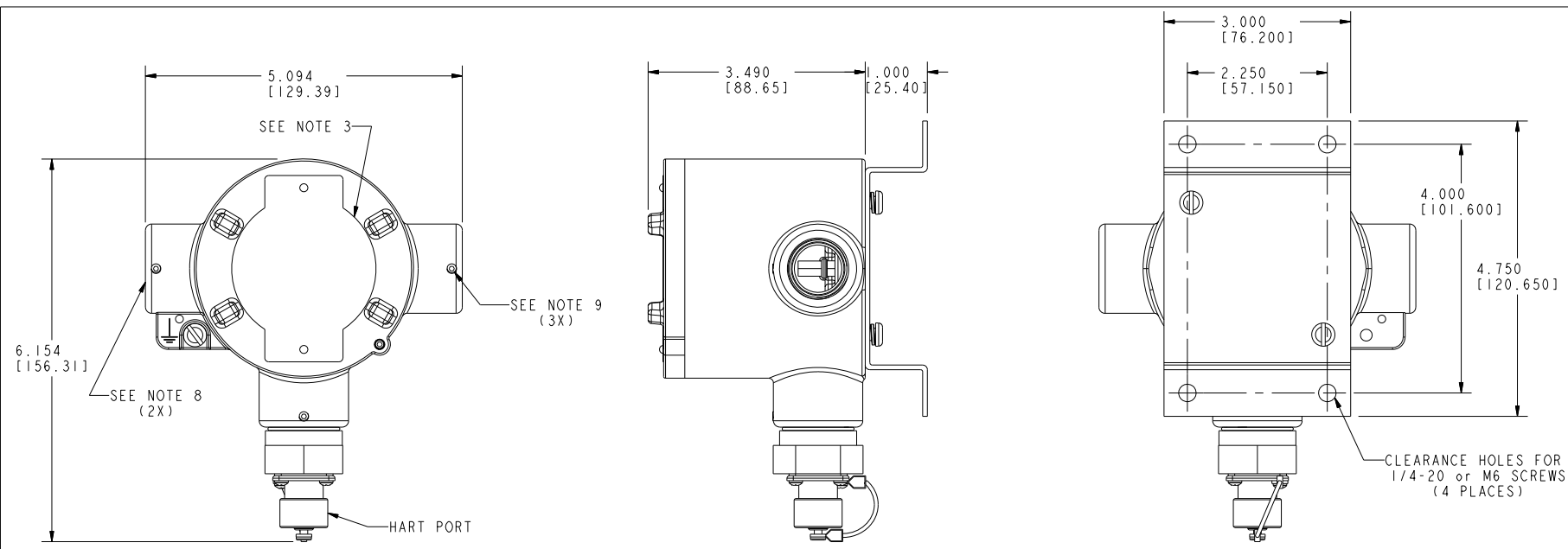
(CONTINUED FROM SHEET 1)  
 NOTES: 4. GROUND SHIELD AT POWER SUPPLY AND TERMINATE THROUGH RC NETWORK AT FAR END.  
 5. - - - - - INDICATES FIELD CONNECTIONS BY OTHERS.  
 6. CUSTOMER INSTALLED NORMALLY OPEN CERTIFIED PUSH BUTTON SWITCH.

(CONTINUED ON SHEET 3)

|                    |   |  |                   |
|--------------------|---|--|-------------------|
| AUTHORIZED COUNTRY | <b>MSA</b> MINE SAFETY APPLIANCES CO. PITTSBURGH, PA 15230, USA | THIS DRAWING IS THE PROPERTY OF MSA AND IS MADE AVAILABLE TO YOU IN CONFIDENCE AND SUBJECT TO THE FOLLOWING: NO PERMISSION IS GRANTED TO PUBLISH, USE, REPRODUCE, TRANSMIT OR DISCLOSE THIS DRAWING, OR ANY INFORMATION CONTAINED THEREIN TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF MSA EXCEPT FOR THE MANUFACTURE OF ARTICLES FOR MSA. SCHUTZMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH. | DO NOT SCALE DWG. |
|                    | MSA STANDARD SHOP PRACTICES APPLY                               | APPROVAL AGENCY CODE: YES   NIOSH ATTR. DOC.:  |                   |
|                    | CODE SYMBOLS  | JOB NO. 30009701 PH0718 DATE 6-11-2008   |                   |
|                    | CRITICAL Δ  | DRAWN BY GJT   |                   |
|                    | MAJOR A Δ   | CHECKED BY S. TURNER   |                   |
|                    | MAJOR B Δ   | PROJ. ENGR. C. LEHECKA   |                   |
|                    | 100% INSPECTION Δ   | QUALITY ASSURANCE J. DANNARDT  |                   |
|                    | TOLERANCES UNLESS OTHERWISE SPECIFIED                           | MANUFACTURING A. POLOCHAK  |                   |
|                    | 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     |  |                   |
|                    | <b>D.</b>   | CADD REF: SK3015-1030  | SCALE: 0.625      |
|                    | <b>SK3015-1030</b>  |  | SHEET 2 OF 3      |

**INSTALLATION OUTLINE, EUROPEAN, ULTIMA XE**

| REVISIONS   |        |
|-------------|--------|
| JUN 24 2008 | REV. 1 |
| OCT 29 2008 | REV. 2 |
| NOV 09 2010 |        |

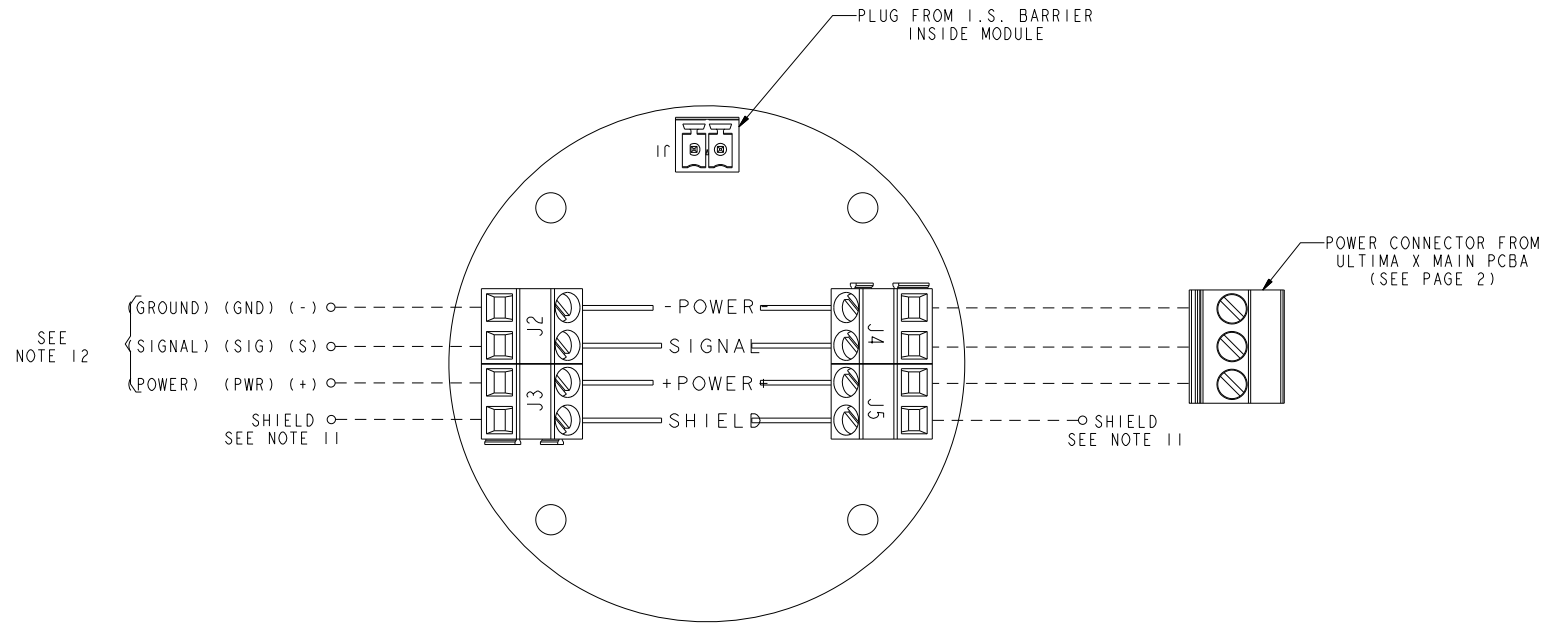
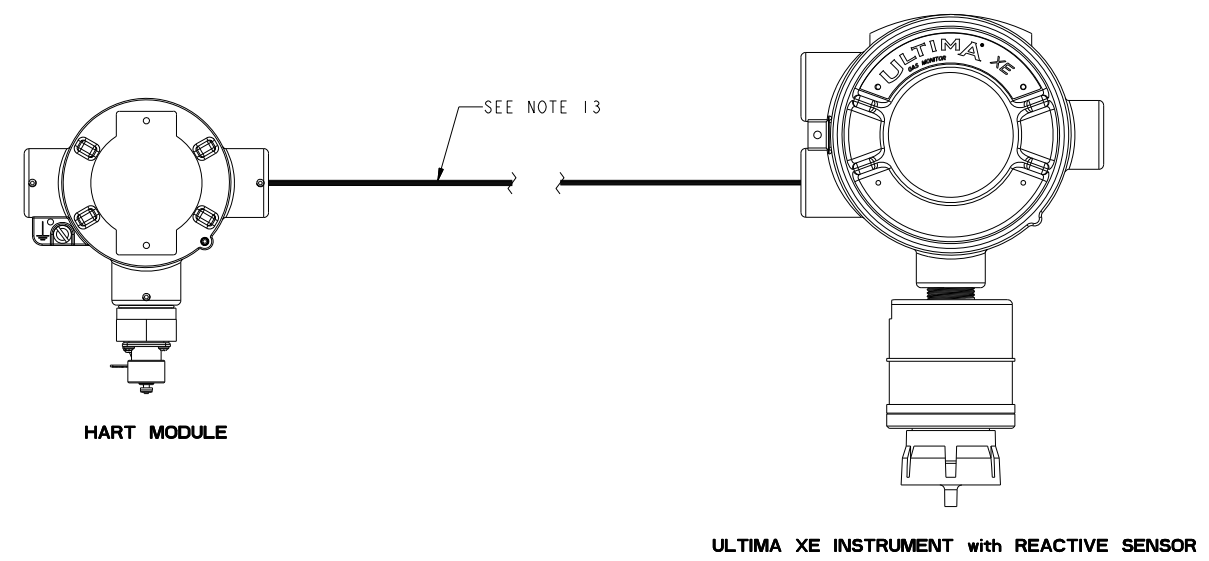


| Area Classification | Other Fields   | Control Drawing<br>See CD or www.MSAnet.com |
|---------------------|--|---|
| Zone 2              | Gas Codes: 13, 14, 31-33, 38-39                                      | SK3098-1108                                 |
| Zone 2              | Gas Codes: All other gases except 13, 14, 31-33, 38-39, 51-53, 58-59 | SK3098-1072                                 |
| Zone 1              | HART port or HART Module included                                    | SK3098-1057                                 |
| Zone 1              | No XP HART port  | No control drawing required                 |

**HART MODULE**  
MATERIAL: CAST 316 STAINLESS STEEL

**HART MODULE**  
WITH OPTIONAL MOUNTING BRACKET SHOWN  
(P/N 10047562)

**HART MODULE ONLY INCLUDED UNDER CERTAIN ATO CONFIGURATIONS**



**HART MODULE TERMINAL BOARD**  
SCALE 2.000

(CONTINUED FROM SHEET 2)  
NOTES:

- 8. ATEX NPT MODULES INCLUDE: ONE (1) 3/4 NPT to M25 ADAPTER, ATEX METRIC MODULES HAVE M25 X 1.5 THREADED ENTRIES.
- 9. M4 SET SCREWS ONLY ON MODULES WITH M25 THREADED ENTRIES.
- 11. TIE CABLE SHIELD TO ULTIMA X MAIN P.C BOARD ASSEMBLY OR POWER SOURCE SHIELD, NOT BOTH.
- 12. TWO WIRE UNITS: ONLY USE POWER AND SIGNAL CONNECTIONS
- 13. SEE CABLE LENGTH TABLES ON SHEET 1.
- 14. CERTIFIED STOPPING PLUGS OR CABLE GLANDS SHALL BE INSTALLED AT ALL THREADED ENTRIES AT INSTALLATION.

|                                   |   |   |   |                         |
|-----------------------------------|---|---|---|-------------------------|
| AUTHORIZED COUNTRY                | <b>MSA</b>  | MINE SAFETY APPLIANCES CO.<br>PITTSBURGH, PA 15230, USA | THIS DRAWING IS THE PROPERTY OF MSA AND IS MADE AVAILABLE TO YOU IN CONFIDENCE AND SUBJECT TO THE FOLLOWING: NO PERMISSION IS GRANTED TO PUBLISH, USE, REPRODUCE, TRANSMIT OR DISCLOSE THIS DRAWING, OR ANY INFORMATION CONTAINED THEREIN TO OTHERS WITHOUT THE PRIOR WRITTEN CONSENT OF MSA EXCEPT FOR THE MANUFACTURE OF ARTICLES FOR MSA. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH. | DO NOT SCALE DWG.       |
| MSA STANDARD SHOP PRACTICES APPLY |   | JOB NO. 30009701 PH0718                                 | APPROVAL AGENCY CODE: YES   NIOSH ATTR. DOC.:   | REVISION 2              |
| CODE SYMBOLS                      | CRITICAL $\Delta$   | MINOR (NO MARK)   | MAJOR A $\Delta$  | MAJOR B $\Delta$        |
| 100% INSPECTION $\Delta$          | TOLERANCES UNLESS OTHERWISE SPECIFIED                       | 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 | DRAWN BY GJT  | DATE 6-11-2008  | CHECKED BY S. TURNER    |
|                                   |   | PROJ. ENGR. C. LEHECKA                                  | 6-20-08   | PROJ. ENGR. J. DANNARDT |
|                                   |   | MANUFACTURING A. POLOCHAK                               | 6-18-08   | 6-18-08                 |
|                                   |   | D.  | SK3015-1030   | SCALE: 0.625            |
|                                   |   |   |   | SHEET 3 OF 3            |

**INSTALLATION OUTLINE,  
EUROPEAN, ULTIMA XE**

**SK3015-1030**