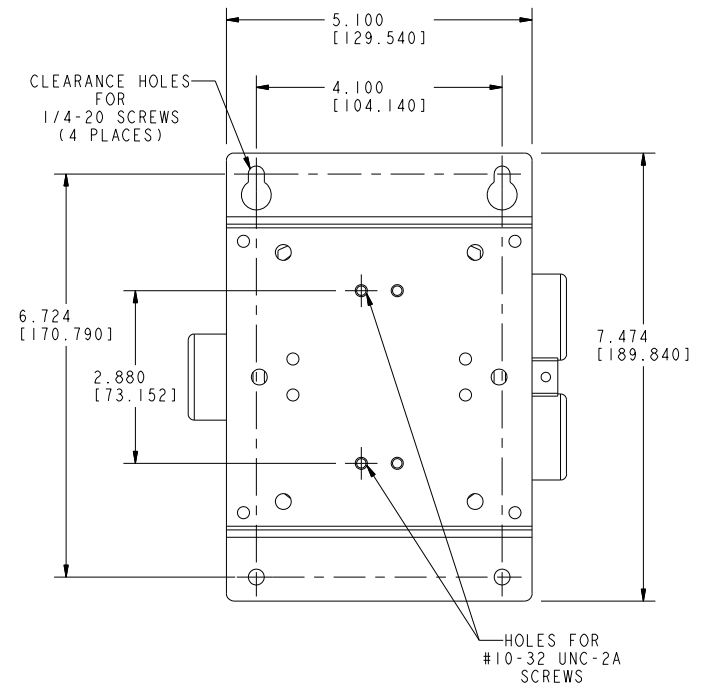
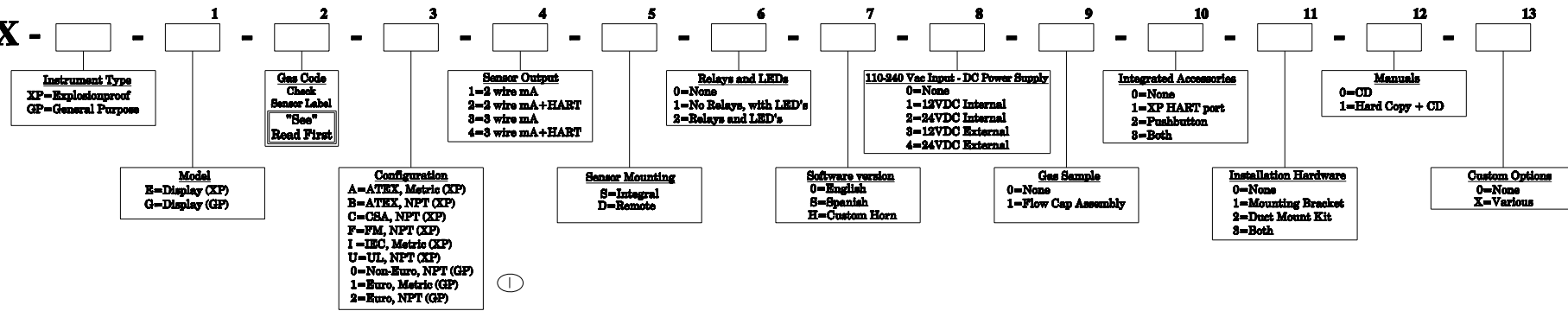


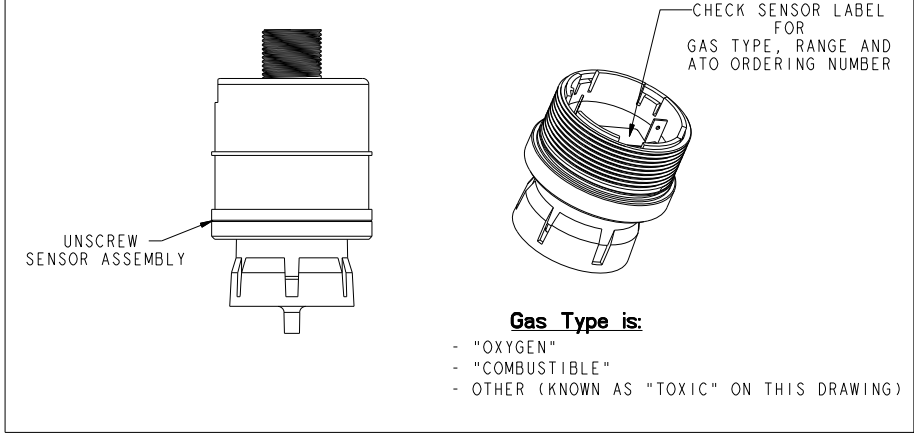
A - ULTIMAX -



OPTIONAL MOUNTING BRACKET METHOD (PART NUMBER 10047561)

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

Read First



Gas Type	Sensor Output	DC Voltage Supply	Max Current Draw
Oxygen or Toxic	3 Wire	8 VDC	250 mA
		12 VDC	175 mA
		24 VDC	100 mA
Combustible	3 Wire	8 VDC	600 mA
		12 VDC	400 mA
		24 VDC	210 mA

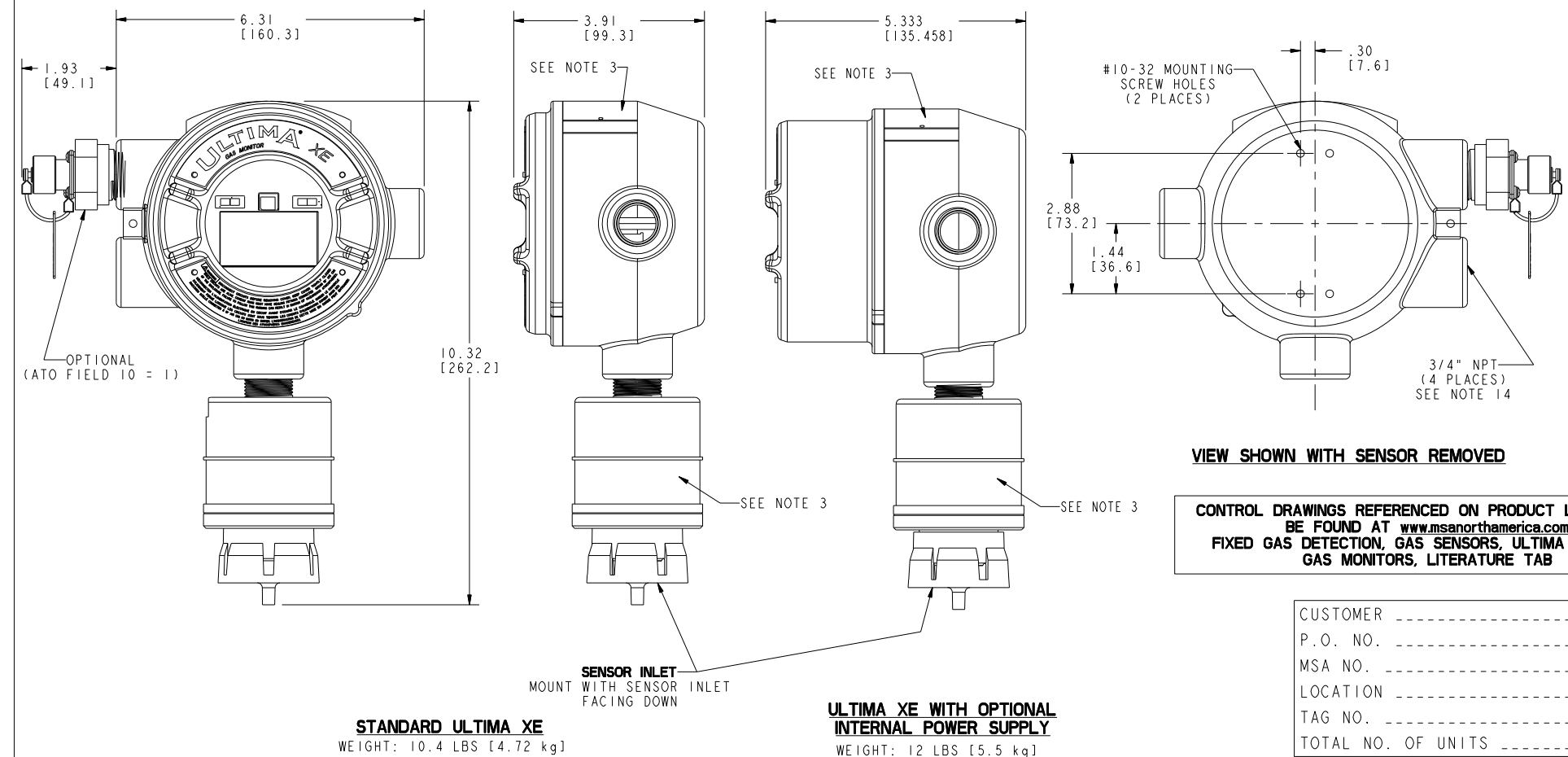
CABLE LENGTH AND WIRE SIZE FOR UNITS WITHOUT INTERNAL RELAYS (See value in ATO Box 7 to Identify Relay configuration)

Gas Type	Sensor Output	DC Voltage Supply	Wire Size	Max Cable Length without HART/with HART		Max Load Resistance
				Feet	Meters	
Oxygen or Toxic	2 Wire	12 VDC	22 AWG	4000/900	274.32	100/250 Ohms
		24 VDC	22 AWG	7,000	2133.6	500 Ohms
Oxygen or Toxic	3 Wire	24 VDC	22 AWG	12,000/10,000	3048	600/500 Ohms
		12 VDC	18 AWG	900	274.32	250 Ohms
Combustible	3 Wire	12 VDC	16 AWG	1,400	426.72	250 Ohms
			12 AWG	3,600	1097.28	250 Ohms
			18 AWG	2,500	762	500 Ohms
Combustible	3 Wire	24 VDC	16 AWG	4,200	1280.16	500 Ohms
			12 AWG	10,000	3048	500 Ohms
			18 AWG	2,500	762	500 Ohms

CABLE LENGTH AND WIRE SIZE FOR UNITS WITH INTERNAL RELAYS (See value in ATO Box 7 to Identify Relay configuration)

Gas Type	Sensor Output	DC Voltage Supply	Wire Size	Max Cable Length		Max Load Resistance
				Feet	Meters	
Oxygen or Toxic	3 Wire	12 VDC	16 AWG	2,500	762	250 Ohms
		24 VDC	16 AWG	8,000	2438.4	500 Ohms
Combustible	3 Wire	12 VDC	16 AWG	900	274.32	250 Ohms
		24 VDC	16 AWG	3,000	914.4	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)



CONTROL DRAWINGS REFERENCED ON PRODUCT LABELS CAN BE FOUND AT www.msanorthamerica.com
FIXED GAS DETECTION, GAS SENSORS, ULTIMAX X SERIES GAS MONITORS, LITERATURE TAB

CUSTOMER _____

P.O. NO. _____

MSA NO. _____

LOCATION _____

TAG NO. _____

TOTAL NO. OF UNITS _____

AUTHORIZED COUNTRY	MSA STANDARD SHOP PRACTICES APPLY
CRITICAL	MAJOR A
MAJOR B	100% INSPECTION
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	

MSA MINE SAFETY APPLIANCES CO. PITTSBURGH, PA 15230, USA

JOB NO. 30009701 PH0718

DATE 4-14-2008

CHECKED BY S. TURNER 6-20-08

PROJ. ENGR. C. LEHECKA 6-18-08

QUALITY ASSURANCE J. DANNARDT 6-18-08

MANUFACTURING A. POLOCHAK 6-18-08

APPROVAL AGENCY CODE: YES | NIOSH ATTR. DOC.: _____

INSTALLATION OUTLINE, ULTIMAX XE

CADD REF: SK3015-1025

SCALE: 0.625

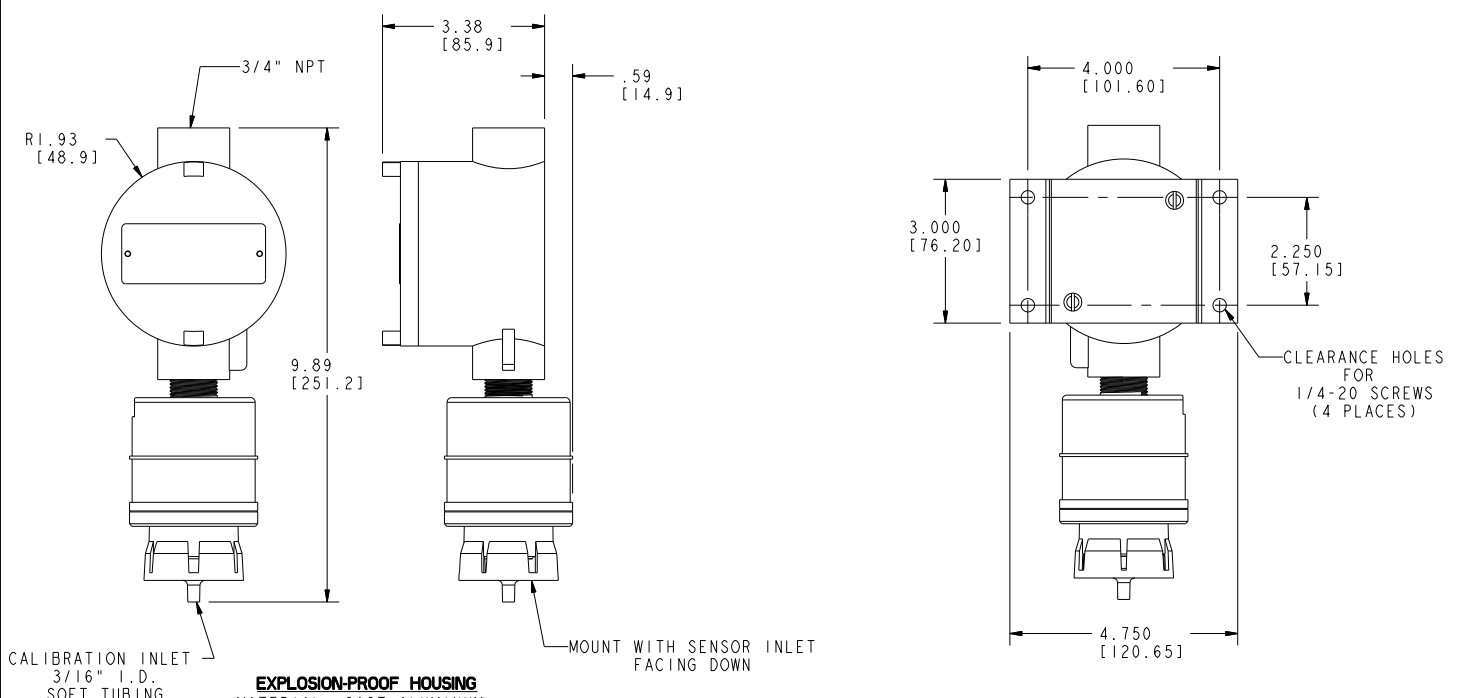
DOCUMENT NO. **D**

SK3015-1025

SHEET 1 OF 3

LIFECYCLE STATE	REVISION
Production	2

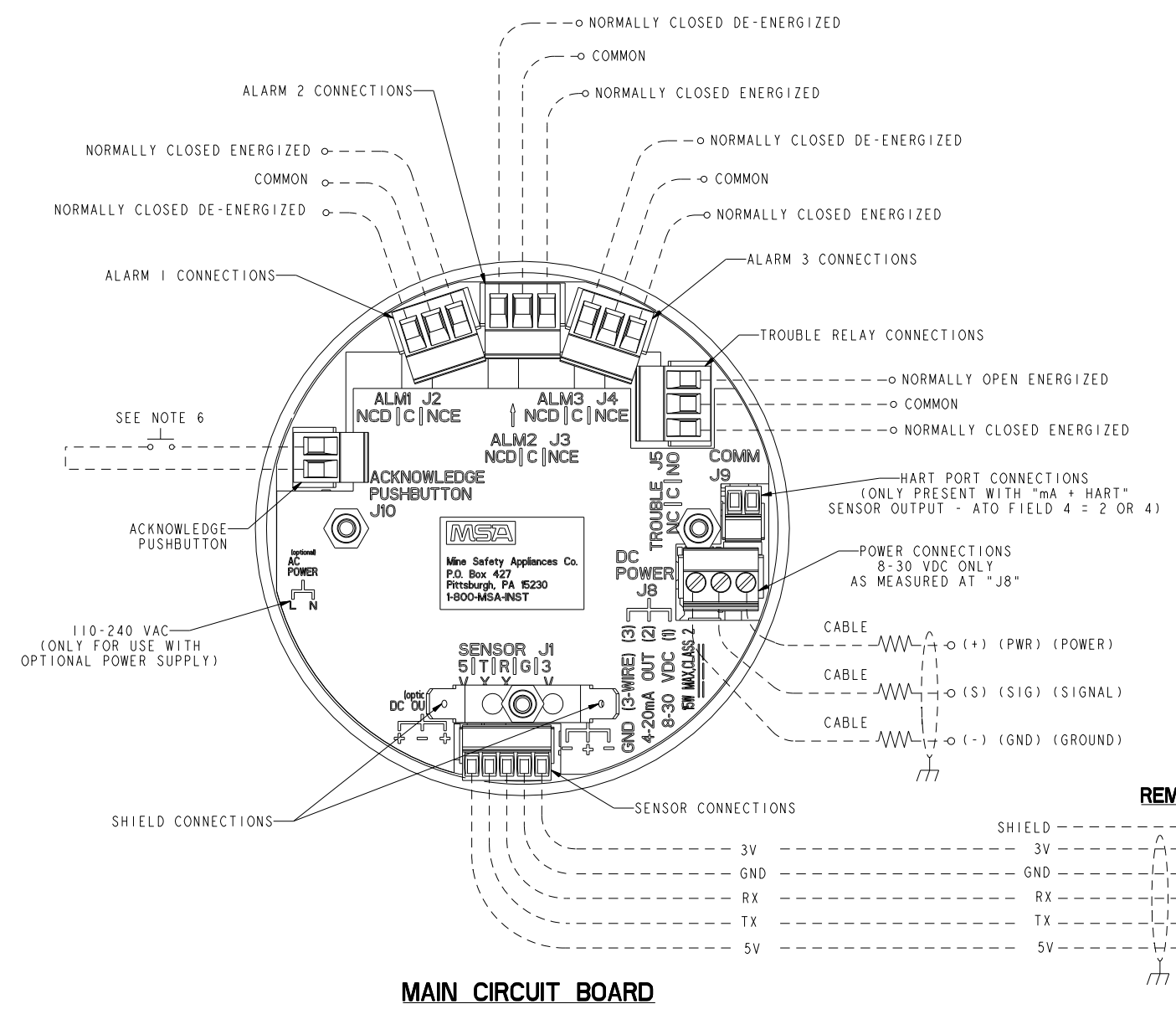
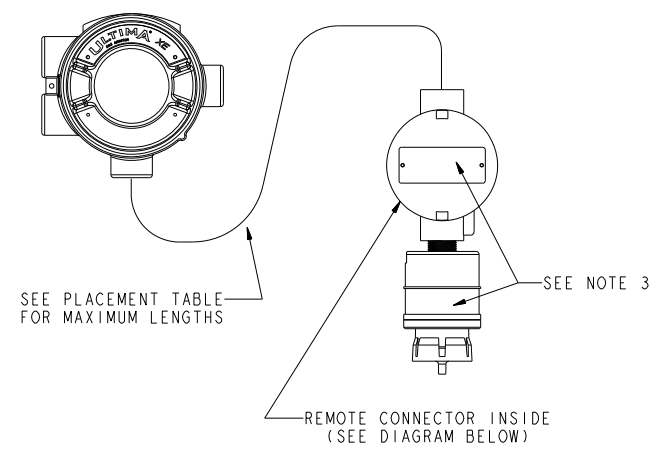
REVISIONS
JUN 24 2008
REV. 1
OCT 29 2008
REV. 2
NOV 09 2010



OPTIONAL REMOTE ULTIMA XE SENSOR UNIT
(ATO Box 5 = D for REMOTE UNIT)

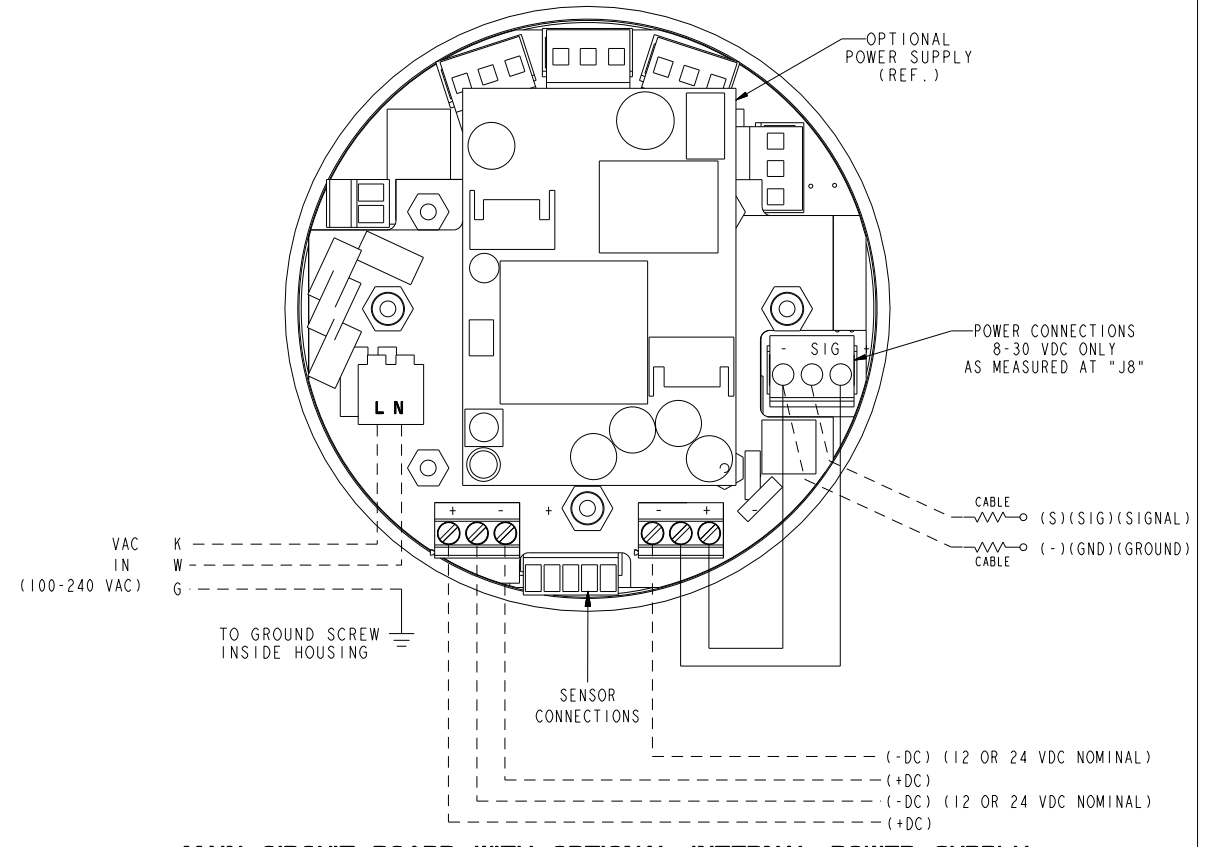
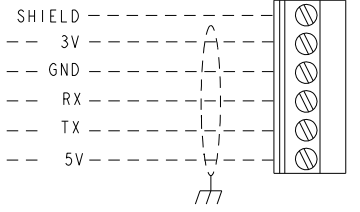
OPTIONAL REMOTE XE SENSOR MOUNTING BRACKET
(PART NUMBER 10047562)

REMOTE MODULE WIRING AND PLACEMENT		
Use shielded, 5 conductor wire		
Gas Type	Minimum Wire Size	Maximum Distance
Oxygen or Toxic	20 AWG	100 ft.
Combustible	18 AWG	50 ft.
	16 AWG	100 ft.



MAIN CIRCUIT BOARD

REMOTE CONNECTOR



MAIN CIRCUIT BOARD WITH OPTIONAL INTERNAL POWER SUPPLY

- (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 PUSH BUTTON SWITCH.

(CONTINUED ON SHEET 3)

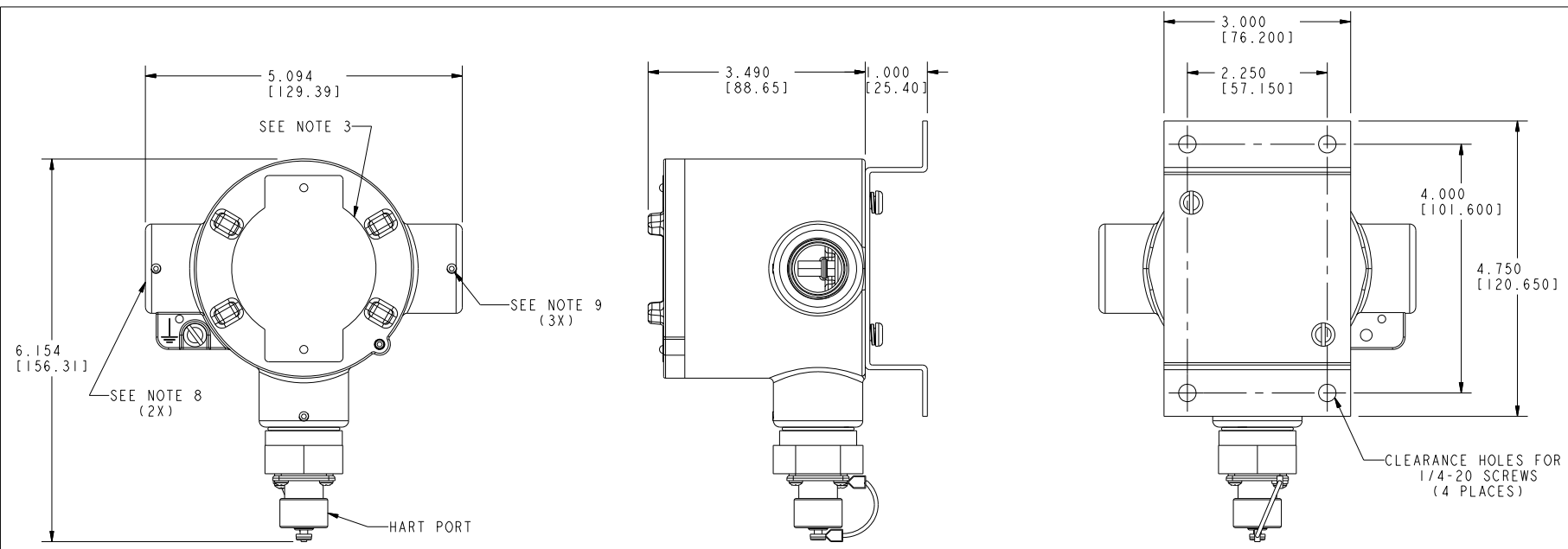
COLOR CODE			
BLACK = K	GREEN = G	BLUE = B	BROWN = N
BROWN = N	BLUE = B	VIOLET = V	RED = R
RED = R	VIOLET = V	GRAY = A	ORANGE = O
ORANGE = O	GRAY = A	WHITE = W	YELLOW = Y
YELLOW = Y	WHITE = W	TAN = T	PINK = P
PINK = P	TAN = T		

AUTHORIZED COUNTRY	MSA 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. SCHUTZVERMERK 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 4-14-2008
	CRITICAL Δ	DRAWN BY GJT	CHECKED BY S. TURNER
	MAJOR A Δ	PROJ. ENGR. C. LEHECKA	DATE 6-20-08
	MAJOR B Δ	PROJ. ENGR. J. DANNARDT	DATE 6-18-08
	100% INSPECTION Δ	PROJ. ENGR. A. POLOCHAK	DATE 6-18-08
	TOLERANCES UNLESS OTHERWISE SPECIFIED	QUALITY ASSURANCE	MANUFACTURING
	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		
		DOCUMENT NO. D	
		SK3015-1025	
		CADD REF: SK3015-1025	SCALE: 0.625
			SHEET 2 OF 3

INSTALLATION OUTLINE, ULTIMA XE

LIFECYCLE STATE **Production** REVISION **2**

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

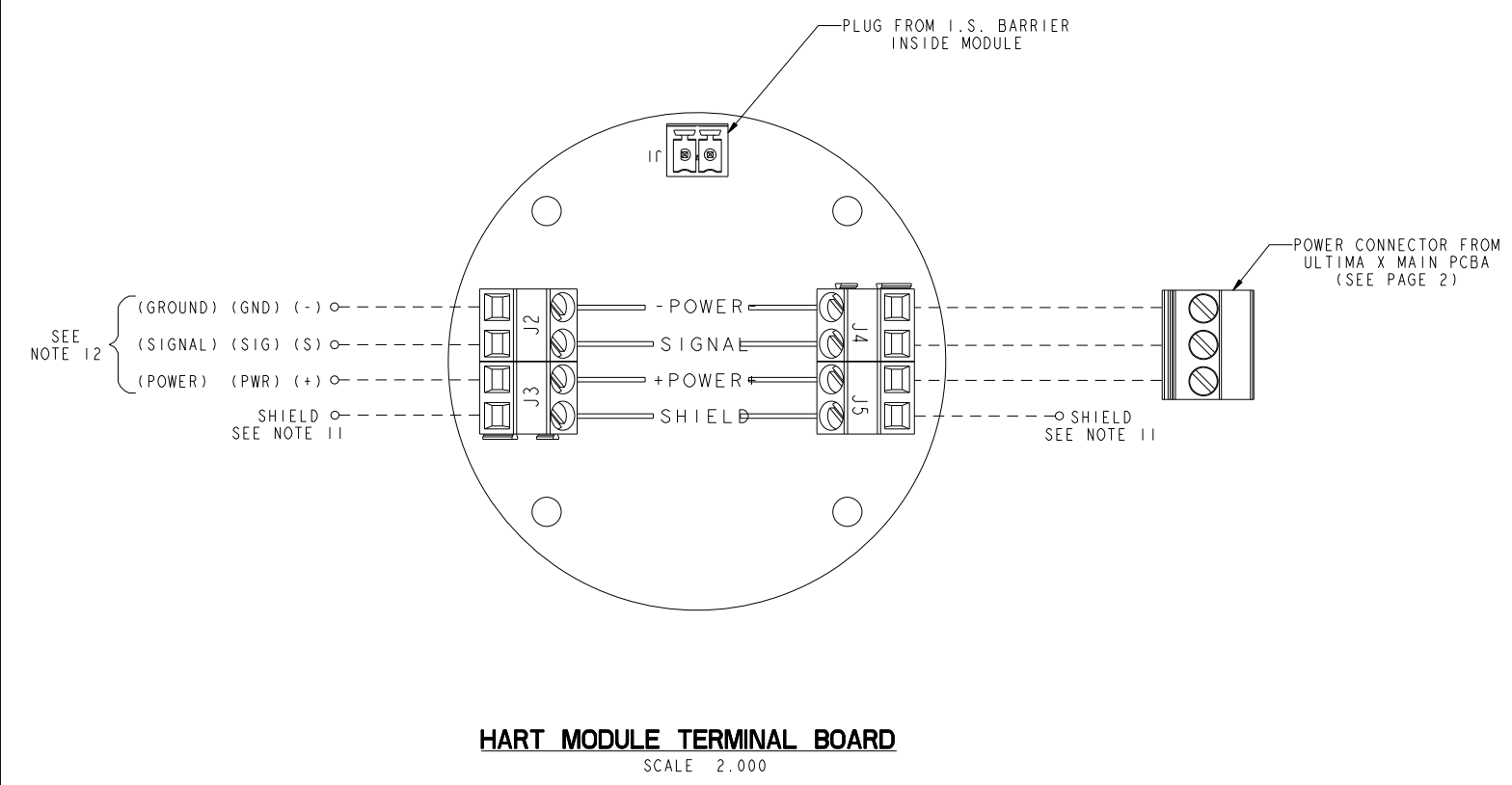
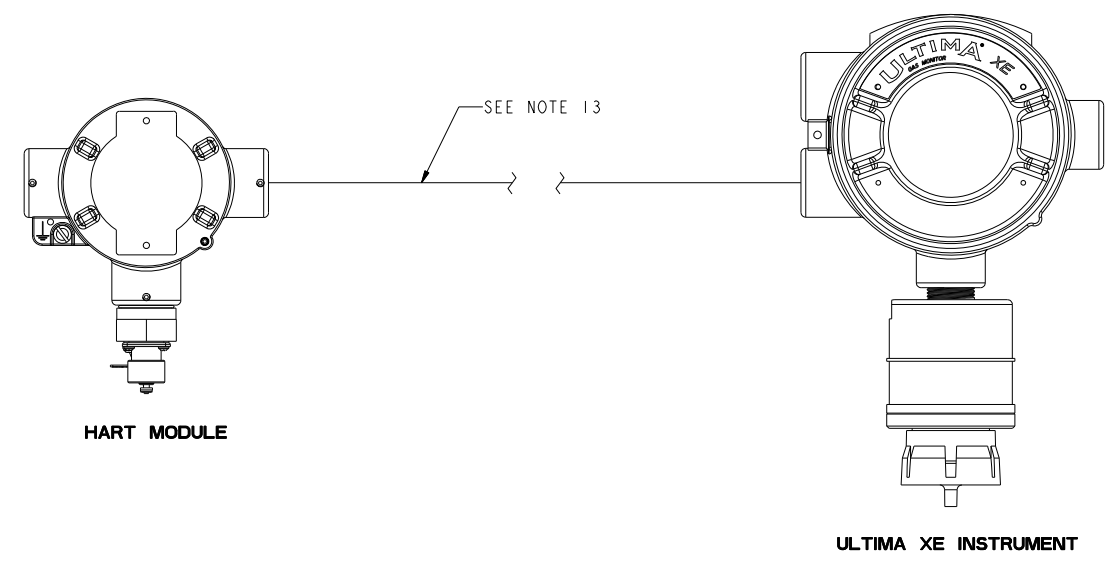


Area Classification	Other Fields	Control Drawing See CD or www.MSAnet.com
Div. 2	Gas Codes: 13, 14, 31-33, 38-39	SK3098-1108
Div. 2	Gas Codes: All other gases except 13, 14, 31-33, 38-39, 51-53, 58-59	SK3098-1072
Div. 1	HART port or HART Module included	SK3098-1057
Div. 1	No XP HART port	No control drawing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



(CONTINUED FROM SHEET 2)
NOTES:

- 8. MODULE PART NUMBER 10090128 HAS 3/4-14 NPT THREADED ENTRIES. MODULE PART NUMBER 10090127 HAS 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 CERTIFIED ENTRIES SHALL BE INSTALLED AT ALL THREADED ENTRIES AT INSTALLATION.

AUTHORIZED COUNTRY	MSA	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. 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	DATE 4-14-2008	INSTALLATION OUTLINE, ULTIMA XE	
	CRITICAL Δ	DRAWN BY GJT		
	MAJOR A Δ (NO MARK)	CHECKED BY S. TURNER		
	MAJOR B Δ	PROJ. ENGR. C. LEHECKA		
	100% INSPECTION Δ	DATE 6-20-08	PROJ. ENGR. J. DANNARDT	
	TOLERANCES UNLESS OTHERWISE SPECIFIED	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
	FRACTIONAL $\pm 1/64$	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
	2 PL DEC. ± 0.01	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
	3 PL DEC. ± 0.005	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
	ANGULAR ± 1 deg.	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES	DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	
		DATE 6-18-08	PROJ. ENGR. A. POLOCHAK	

LIFECYCLE STATE: Production

HART MODULE TERMINAL BOARD
SCALE 2.000

CADD REF: SK3015-1025 SCALE: 1.000
SK3015-1025 SHEET 3 OF 3