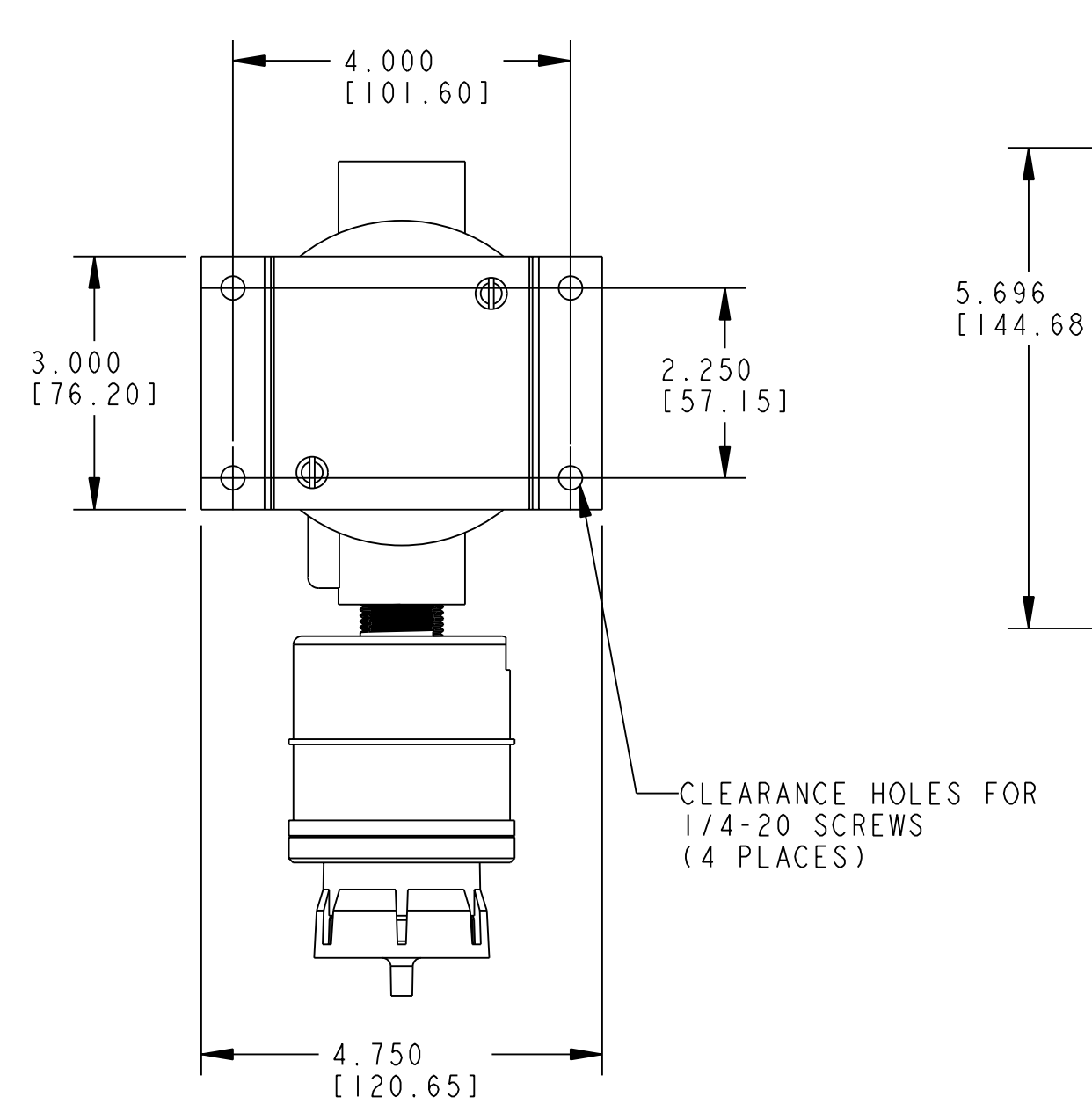
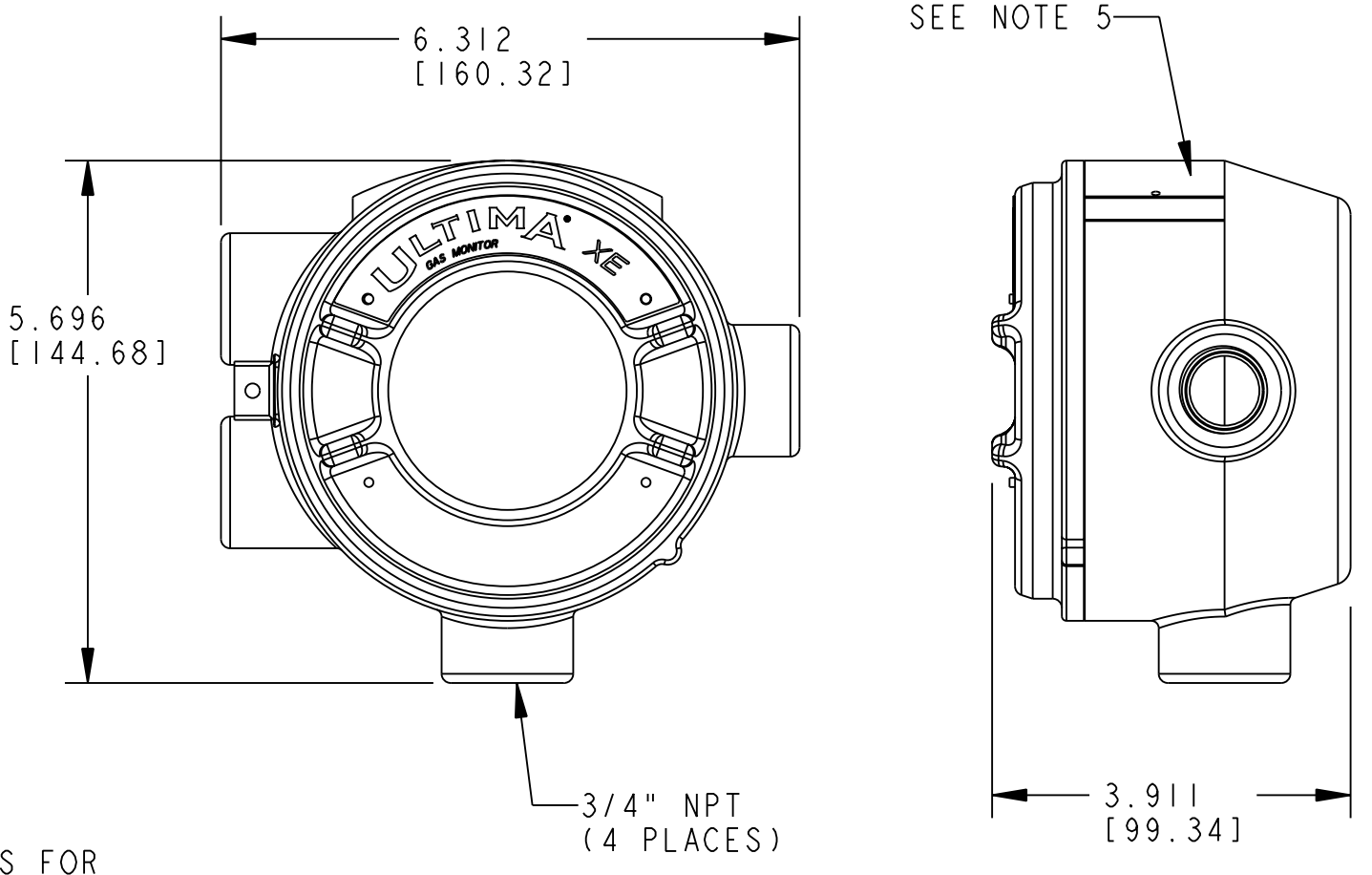


**MODULE "A" (REMOTE XE SENSOR)  
EXPLOSION-PROOF HOUSING**  
MATERIAL: CAST ALUMINUM  
MODULE "A" WEIGHT = 4.4 LBS.

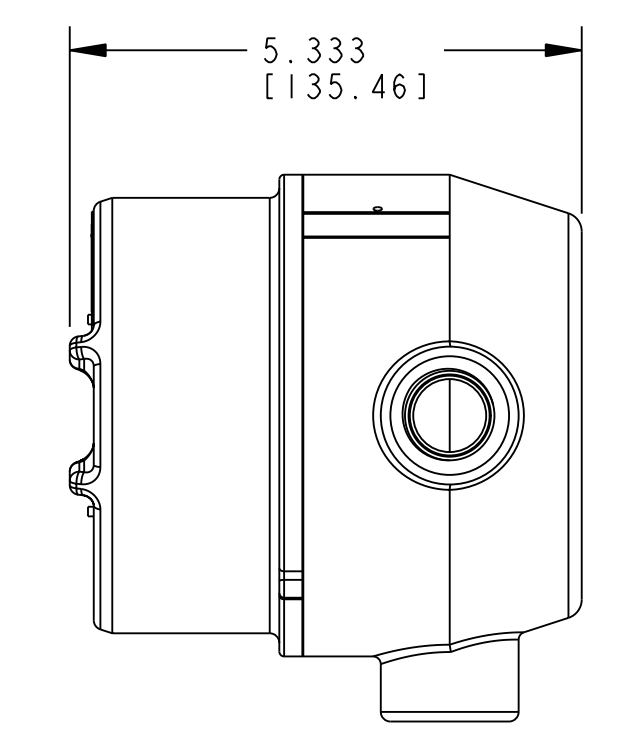


**MODULE "A" (REMOTE XE SENSOR)  
MOUNTING STRAP METHOD  
(OPTIONAL)**  
SEE NOTE 4

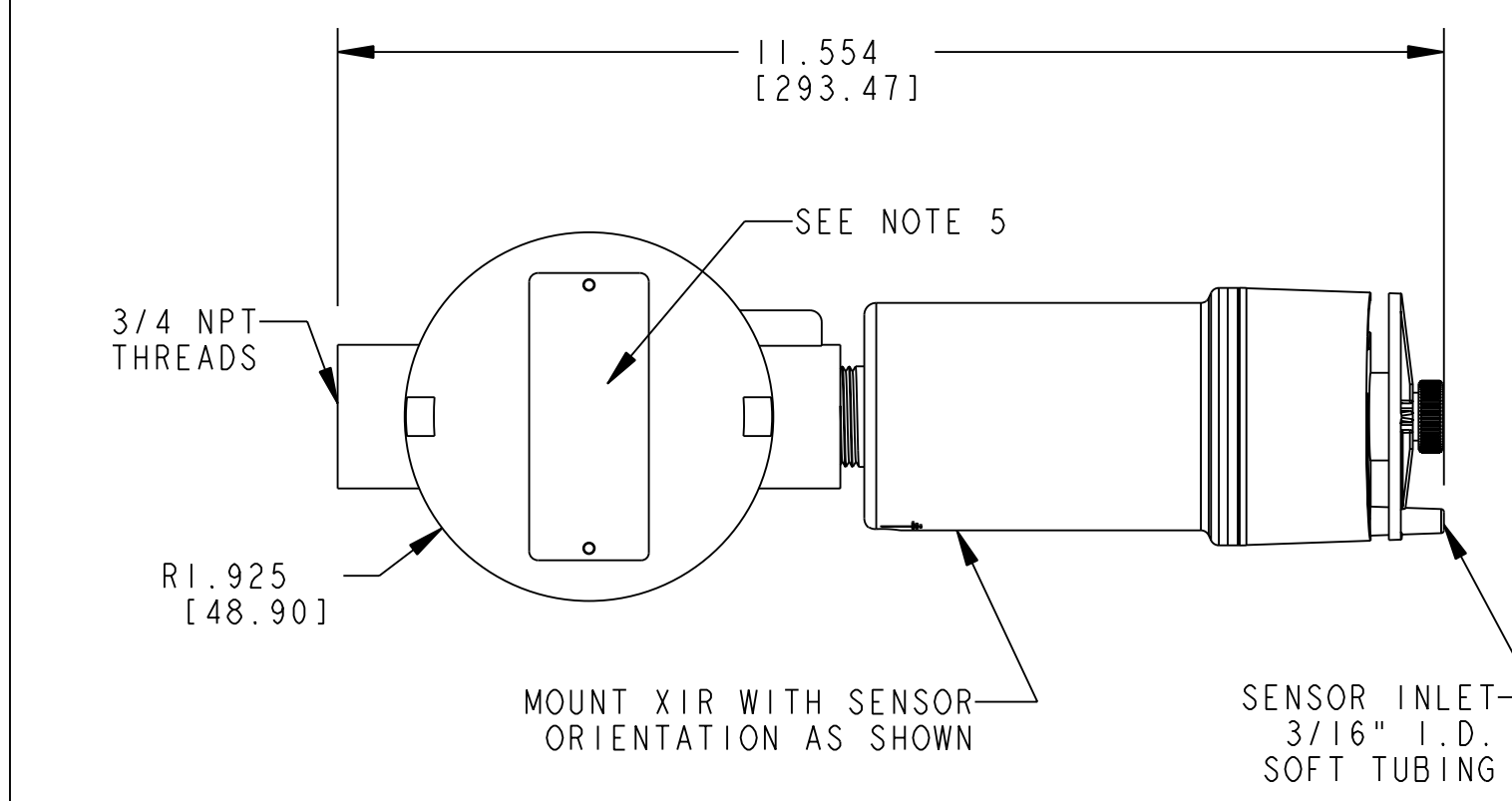


**MODULE "B"  
EXPLOSION-PROOF HOUSING**  
MATERIAL: 316 STAINLESS STEEL  
MODULE "B" WEIGHT = 8.1 LBS.

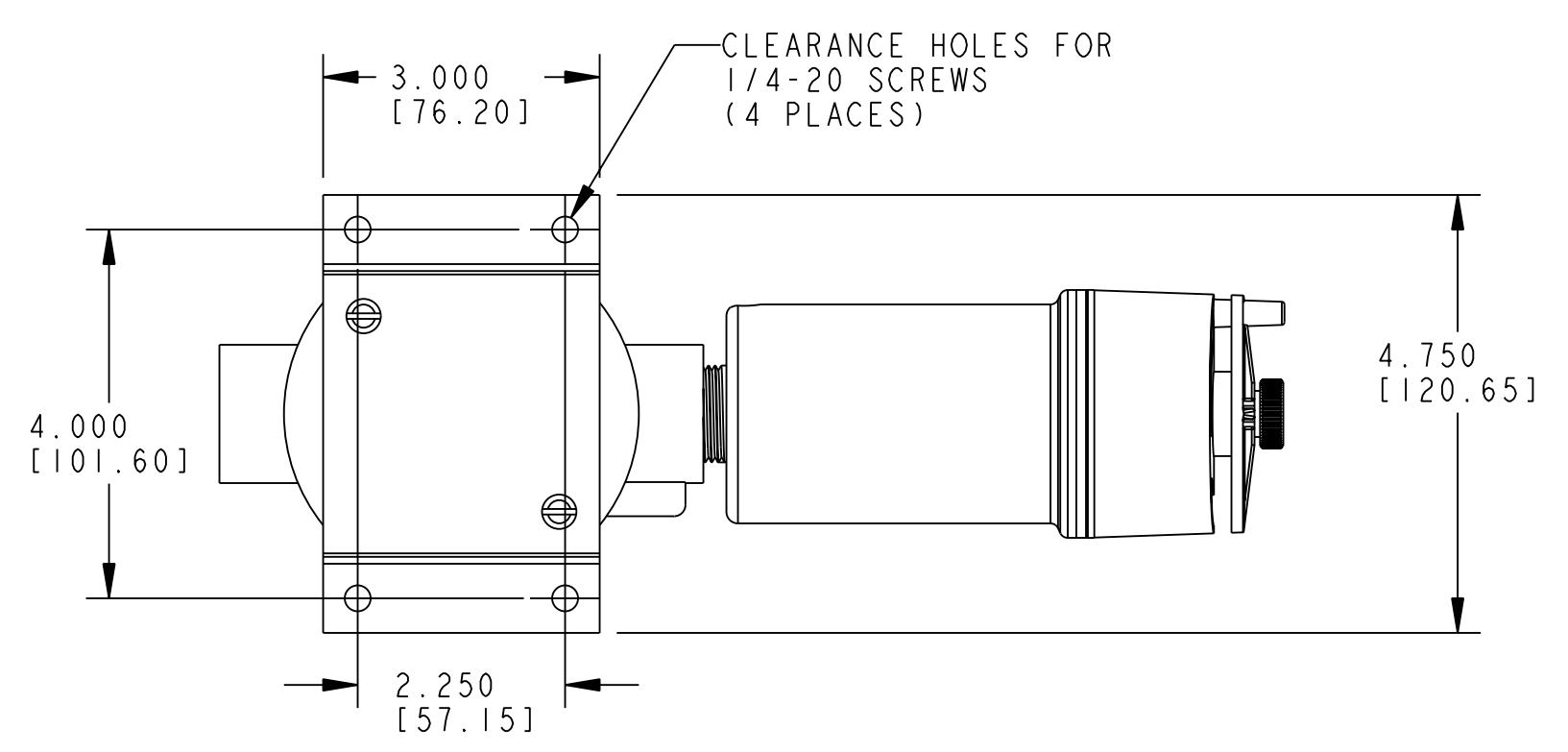
PARTS LIST				REVISIONS
ITEM NO.	MATERIAL MASTER NO.	QTY. REQD.	DESCRIPTION	REFERENCE ONLY
				NOT FOR PRODUCTION/PURCHASING PURPOSES DRAWING UNDER DEVELOPMENT, MAY CHANGE WITHOUT CHANGE TO REVISION LEVEL



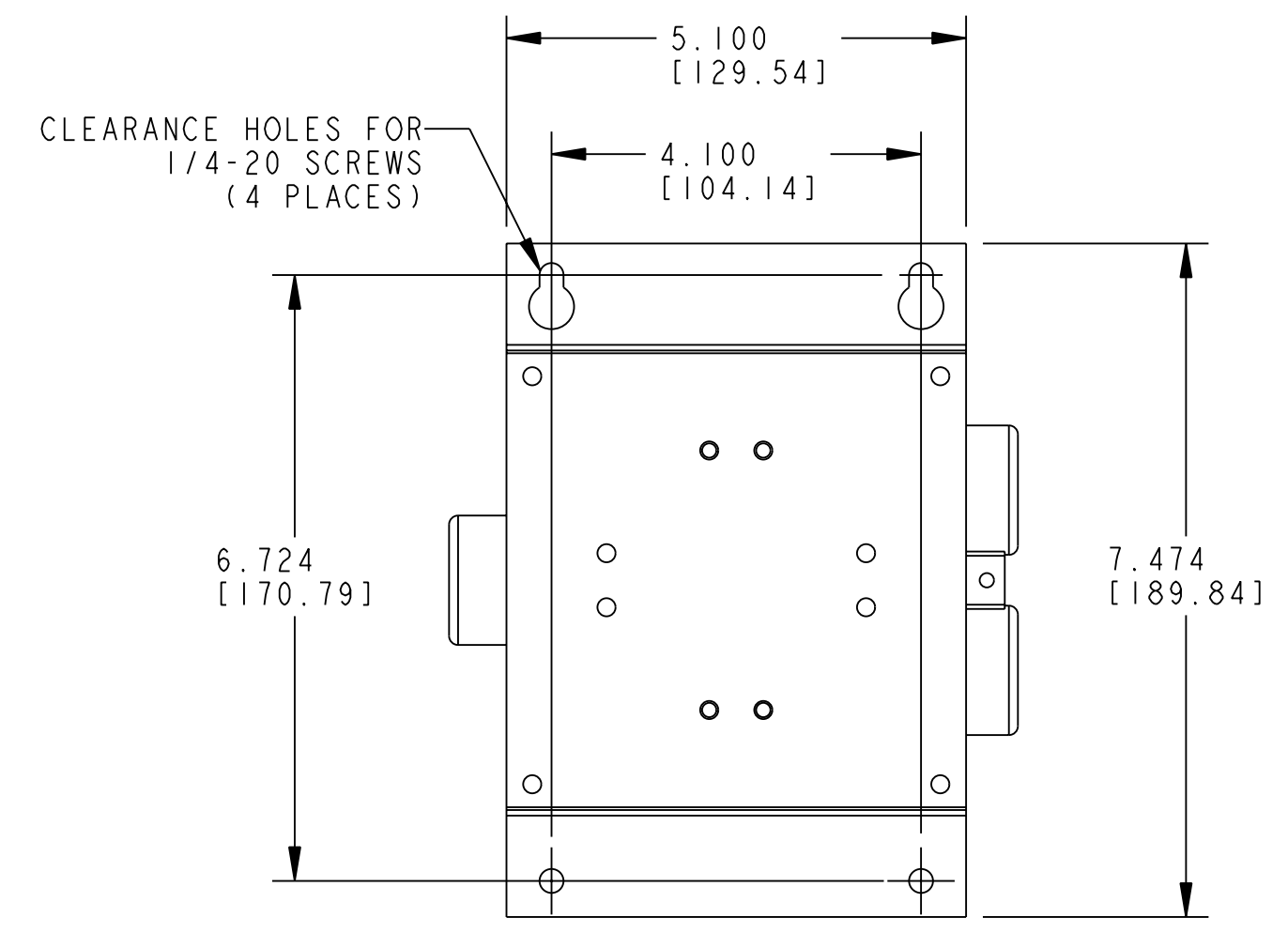
**MODULE "B"  
WITH INTERNAL POWER SUPPLY  
(OPTIONAL)**  
MODULE "B" WEIGHT = 9.14 LBS



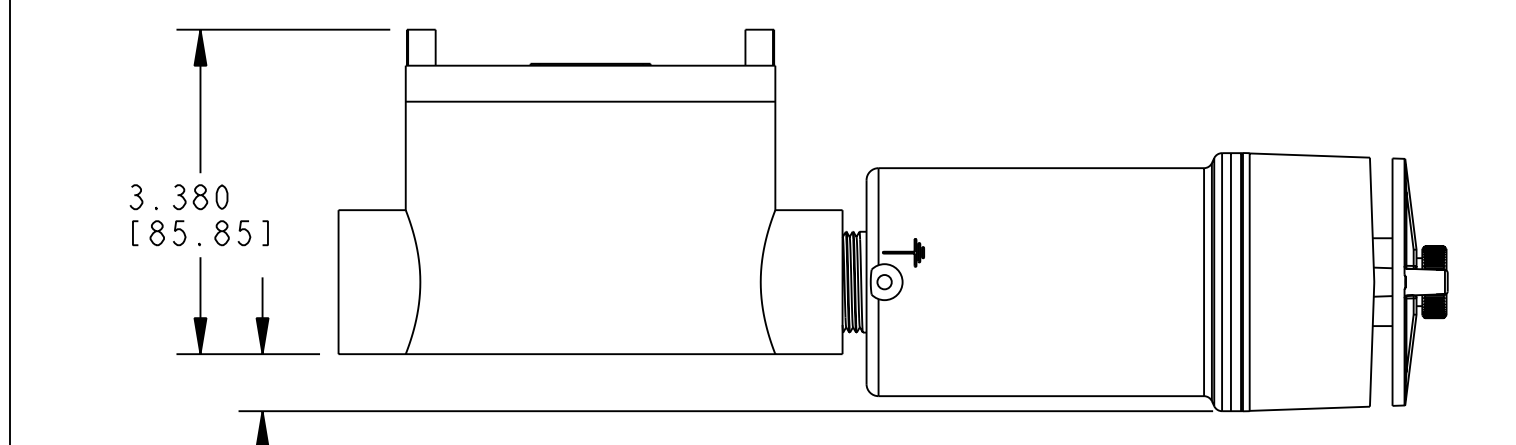
**MODULE "A" (REMOTE Xir SENSOR)  
EXPLOSION-PROOF HOUSING**  
MATERIAL: CAST ALUMINUM  
MODULE "A" WEIGHT = 4.9 LBS.



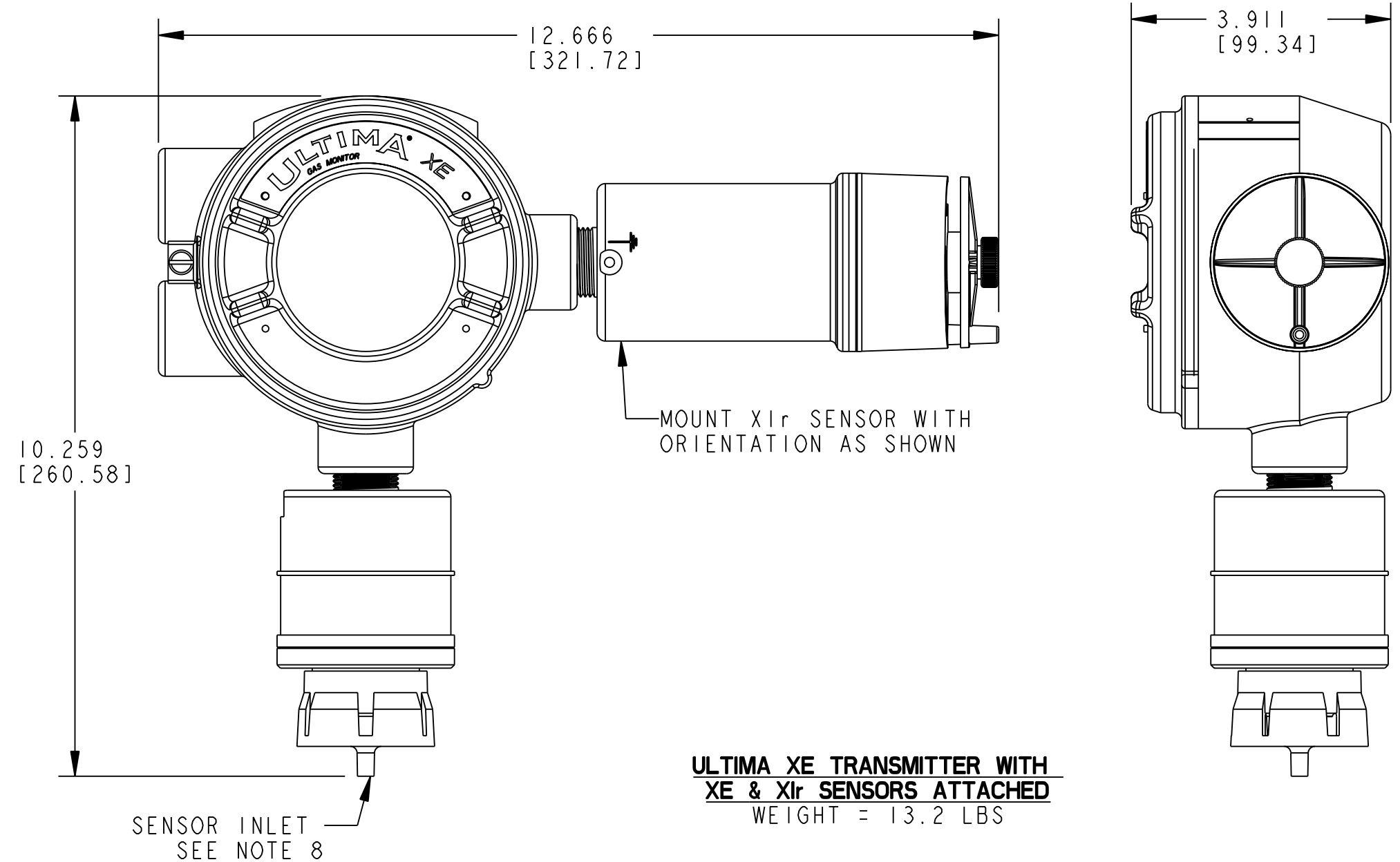
**MODULE "A" (REMOTE Xir SENSOR)  
MOUNTING STRAP METHOD  
(OPTIONAL)**



**MODULE "B"  
MOUNTING STRAP METHOD  
(OPTIONAL)**  
SEE NOTE 6



**MODULE "A" (REMOTE Xir SENSOR)  
EXPLOSION-PROOF HOUSING**  
MATERIAL: CAST ALUMINUM  
MODULE "A" WEIGHT = 4.9 LBS.



**ULTIMA XE TRANSMITTER WITH  
XE & Xir SENSORS ATTACHED**  
WEIGHT = 13.2 LBS

- NOTE:
1. DIMENSIONS SHOWN IN INCHES (MILLIMETERS).
  2. CALIBRATION TUBING IS SUPPLIED IN CALIBRATION KIT.
  3. CALIBRATION TUBING IS SUPPLIED IN CALIBRATION KIT.
  4. P/N 10047562 IS REMOTE OPTIONAL MOUNTING STRAP.
  5. CHECK THIS TAG FOR HAZARDOUS RATING.
  6. P/N 10047561 IS INSTRUMENT OPTIONAL MOUNTING STRAP.
  7. CHECK SENSOR LABEL FOR GAS TYPE, RANGE, AND ATO ORDERING NUMBER.
  8. SENSOR INLET MUST FACE DOWN.

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. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		JOB NO. 30006240 PH0718	APPROVAL AGENCY CODE: NO   NIOSH ATTR. DOC.:	
CRITICAL	MAJOR A	MAJOR B	100% INSPECTION	TOLERANCES UNLESS OTHERWISE SPECIFIED
MAJOR A	MAJOR B	100% INSPECTION	FRACTIONAL	2 PL DEC.
MAJOR B	100% INSPECTION	FRACTIONAL	2 PL DEC.	3 PL DEC.
100% INSPECTION	TOLERANCES UNLESS OTHERWISE SPECIFIED	FRACTIONAL	2 PL DEC.	3 PL DEC.
TOLERANCES UNLESS OTHERWISE SPECIFIED	FRACTIONAL	2 PL DEC.	3 PL DEC.	ANGULAR
FRACTIONAL	2 PL DEC.	3 PL DEC.	ANGULAR	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES
2 PL DEC.	3 PL DEC.	ANGULAR	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES	
3 PL DEC.	ANGULAR	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES		
ANGULAR	SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES			

**INSTALLATION OUTLINE,  
MODBUS, ULTIMA XE**

CADD REF: 10000021203 SCALE: 1:000

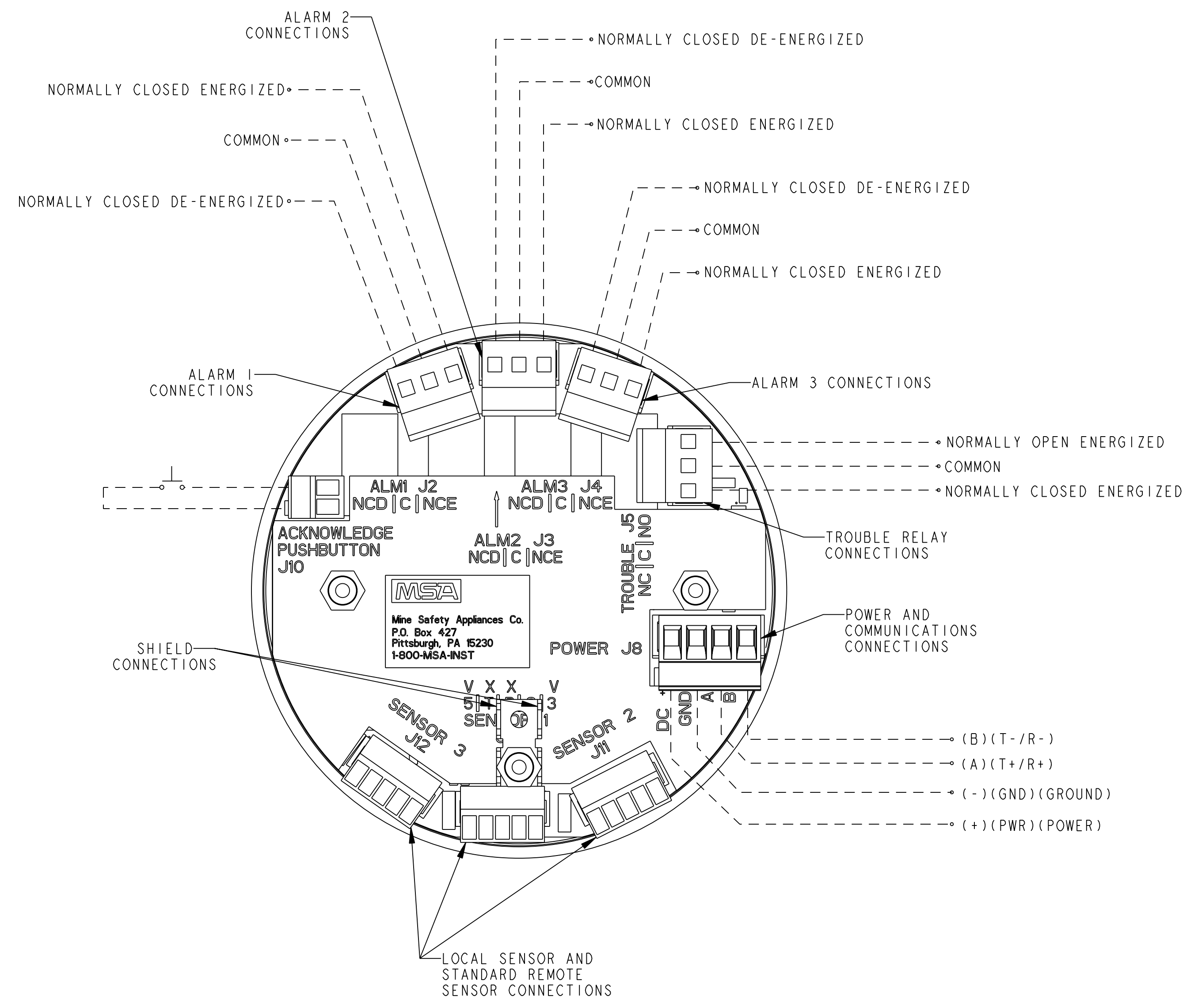
DOCUMENT NO. **D SK 10000021203**

SHEET 1 OF 4

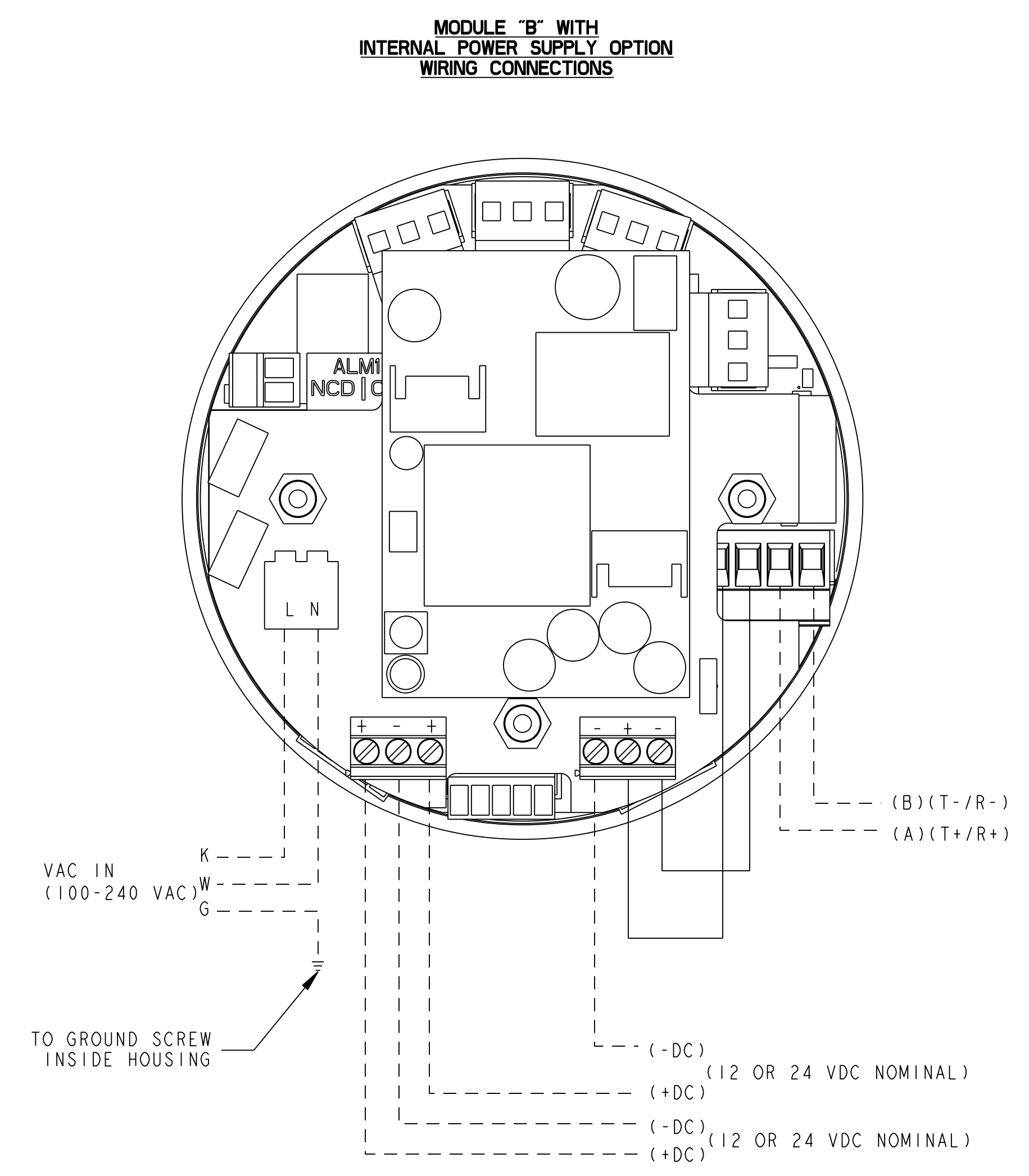
CUSTOMER \_\_\_\_\_  
P.O. # \_\_\_\_\_  
MSA # \_\_\_\_\_  
LOCATION \_\_\_\_\_  
TAG # \_\_\_\_\_  
TOTAL NO. OF UNITS \_\_\_\_\_

PARTS LIST			
ITEM NO.	MATERIAL MASTER NO.	QTY. REQD.	DESCRIPTION

REVISIONS
<b>REFERENCE ONLY</b>
<small>NOT FOR PRODUCTION/PURCHASING PURPOSES DRAWING UNDER DEVELOPMENT, MAY CHANGE WITHOUT CHANGE TO REVISION LEVEL</small>



**MODULE "B" (STANDARD) WIRING CONNECTIONS**



**TABLE 1**  
TRANSMITTER POWER CONSUMPTION (7-30VDC SUPPLY)

CONFIGURATION			MAX POWER	MAX POWER
CATALYTIC	XIR	ECEM	WITH RELAYS	WITHOUT RELAYS
0	0	3	2.5W	1.5W
0	2	1	9.5W	8.5W
0	1	2	7W	6W
1	0	2	6W	5W
1	1	1	6.5W	5.5W
2	0	1	8W	7W
3	0	0	10W	9W

**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

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. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		JOB NO. 30006240 PH0718	APPROVAL AGENCY CODE: NO   NIOSH ATTR. DOC.:
CRITICAL Δ	CODE SYMBOLS	DRAWN BY DATE	<p><b>INSTALLATION OUTLINE, MODBUS, ULTIMA XE</b></p> <p>CADD REF: 10000021203</p> <p>SCALE: 1:000</p> <p>DOCUMENT NO. <b>D SK 10000021203</b></p> <p>SHEET 2 OF 4</p>
MAJOR A Δ	(NO MARK)	BP 10-22-2004	
MAJOR B Δ	(NO MARK)	CHECKED BY	
100% INSPECTION Δ		PROJ. ENGR.	
TOLERANCES UNLESS OTHERWISE SPECIFIED		QUALITY ASSURANCE	
FRACTIONAL ± 1/64		MANUFACTURING	
2 PL DEC. ± 0.01			
3 PL DEC. ± 0.005			
ANGULAR ± 1 deg.			
SEE MSA STANDARD SHOP PRACTICES FOR DRILLED HOLE TOLERANCES			

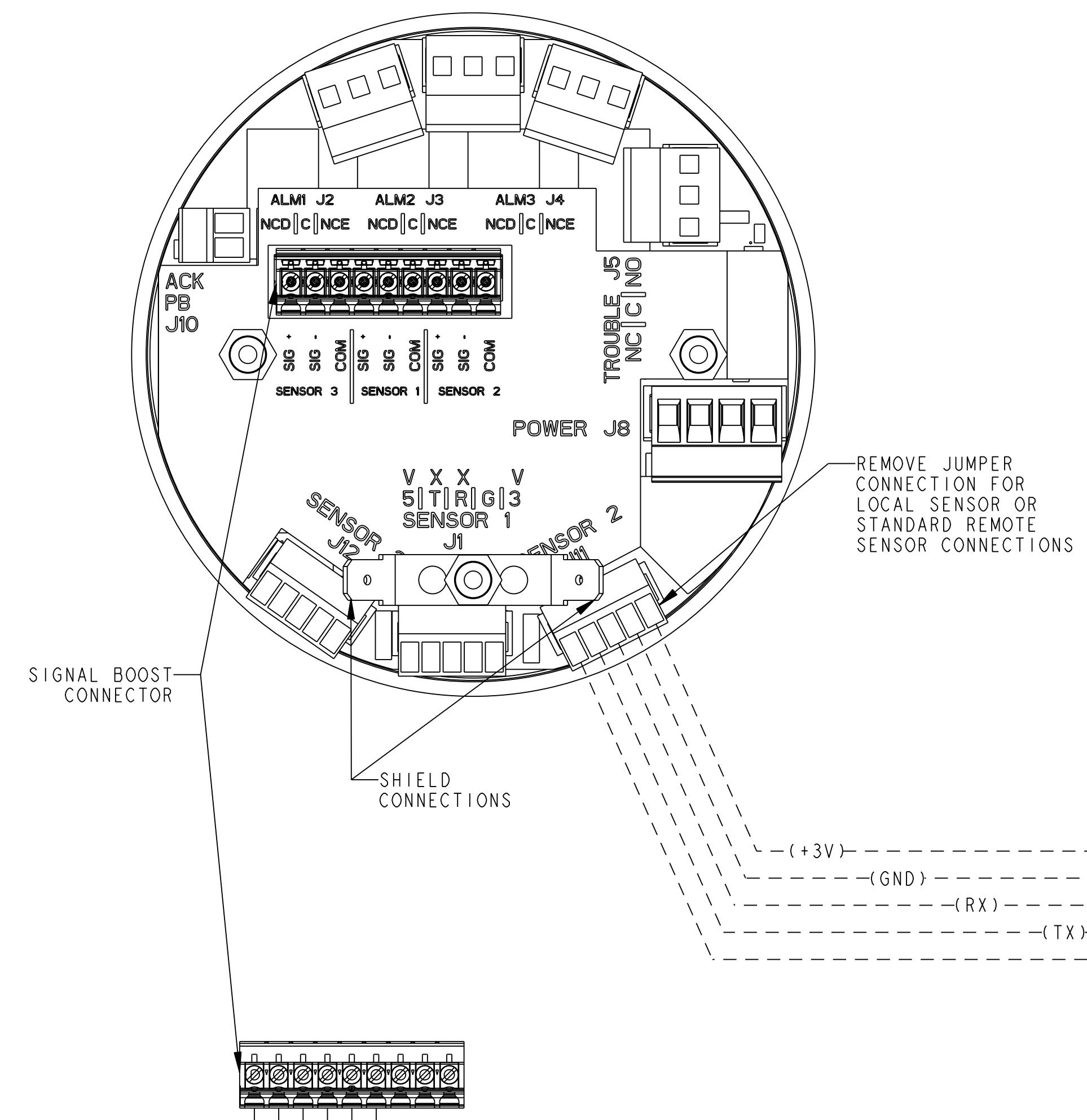
PARTS LIST			
ITEM NO.	MATERIAL MASTER NO.	QTY. REQD.	DESCRIPTION

REVISIONS

**REFERENCE ONLY**

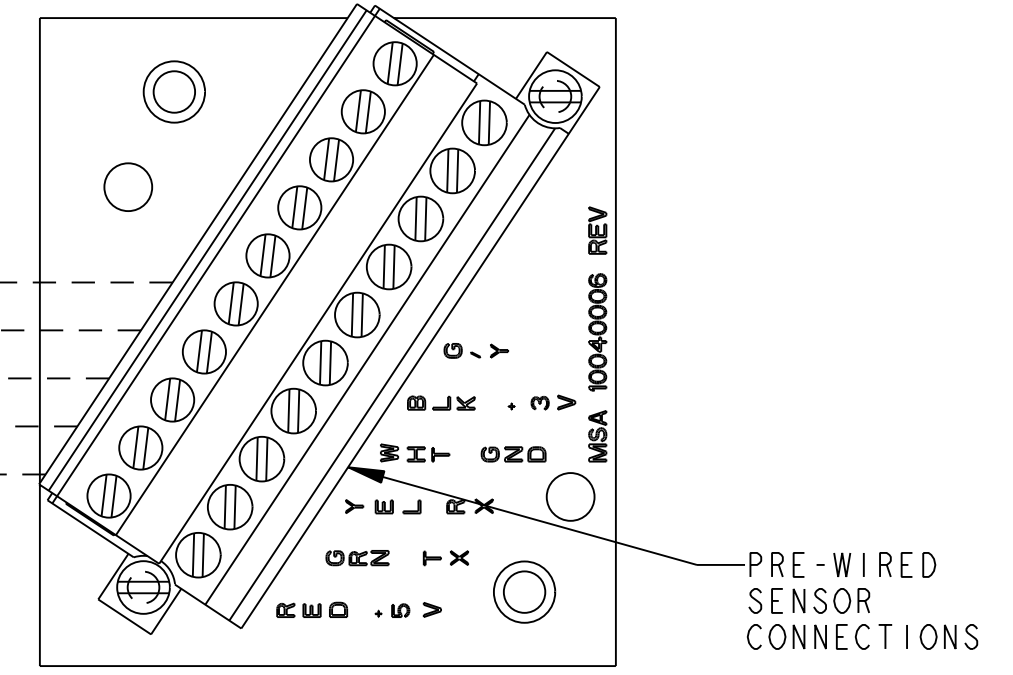
NOT FOR PRODUCTION/PURCHASING PURPOSES  
DRAWING UNDER DEVELOPMENT, MAY CHANGE  
WITHOUT CHANGE TO REVISION LEVEL

**MODULE "B" (SIGNAL BOOST OPTION)  
WIRING CONNECTIONS**

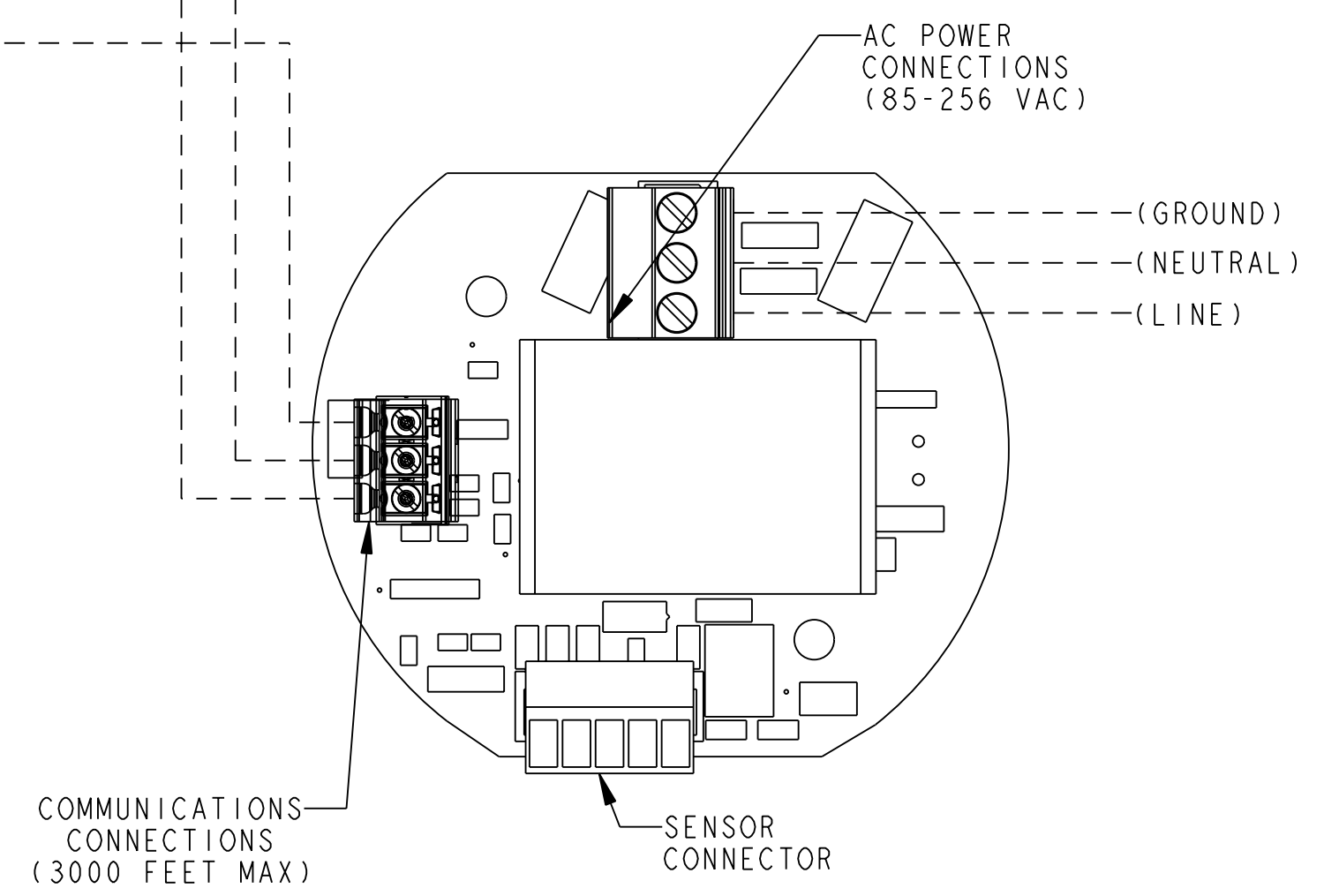


**TABLE 2**  
REMOTE SENSOR POWER CONSUMPTION  
(AC OR DC VERSION)

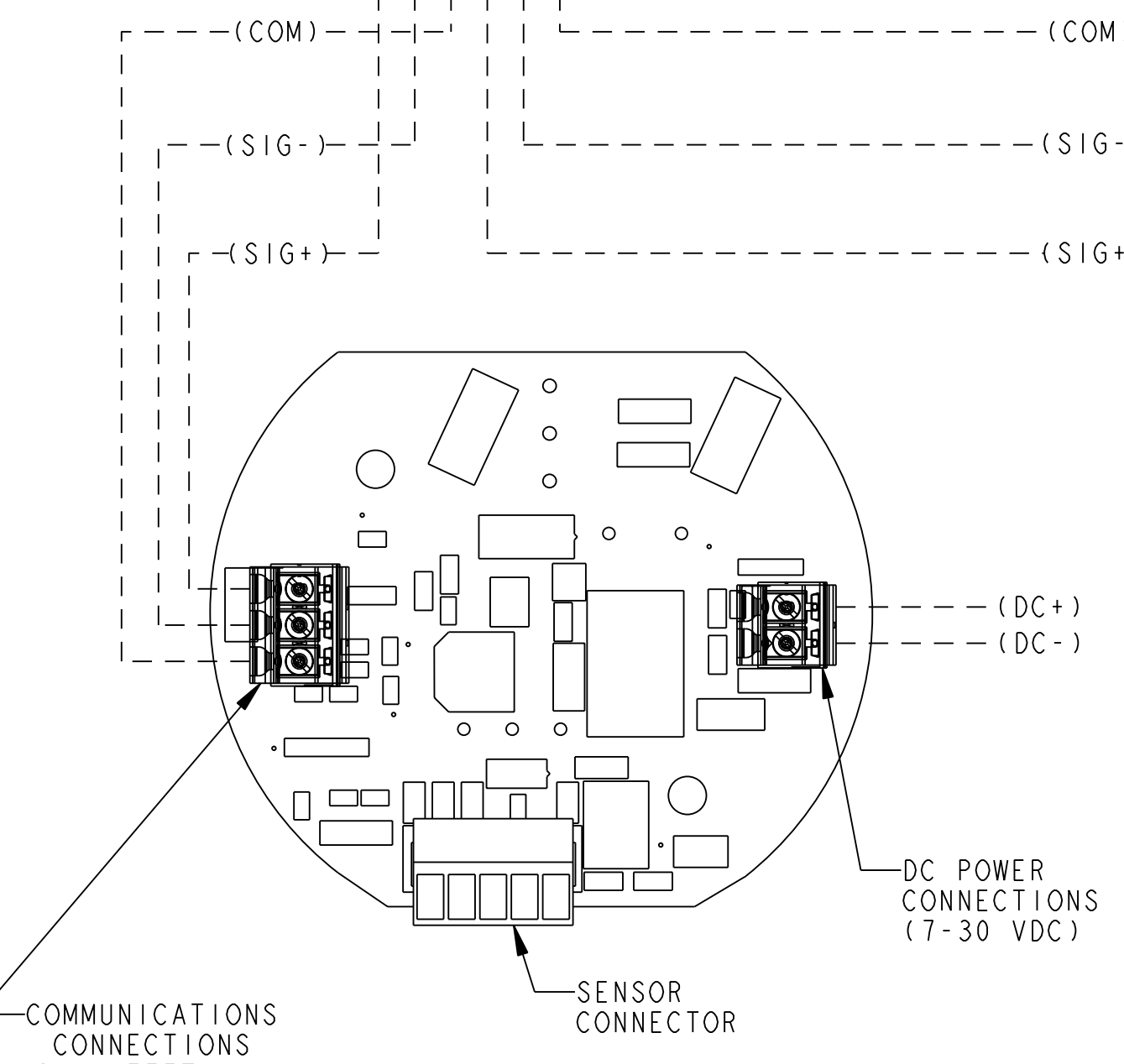
SENSOR TYPE	MAXIMUM POWER CONSUMPTION
CATALYTIC	4.5 WATTS
X1r	5 WATTS
E-CHEM	1.5 WATTS



**MODULE "A" (STANDARD REMOTE)  
WIRING CONNECTIONS (100 FEET MAX)  
SEE NOTE 2**



**MODULE "A" (SIGNAL BOOST REMOTE)  
WIRING CONNECTIONS (AC VERSION)  
SEE TABLE 2  
SEE NOTE 3**



**MODULE "A" (SIGNAL BOOST REMOTE)  
WIRING CONNECTIONS (DC VERSION)  
SEE TABLE 2  
SEE NOTE 3**

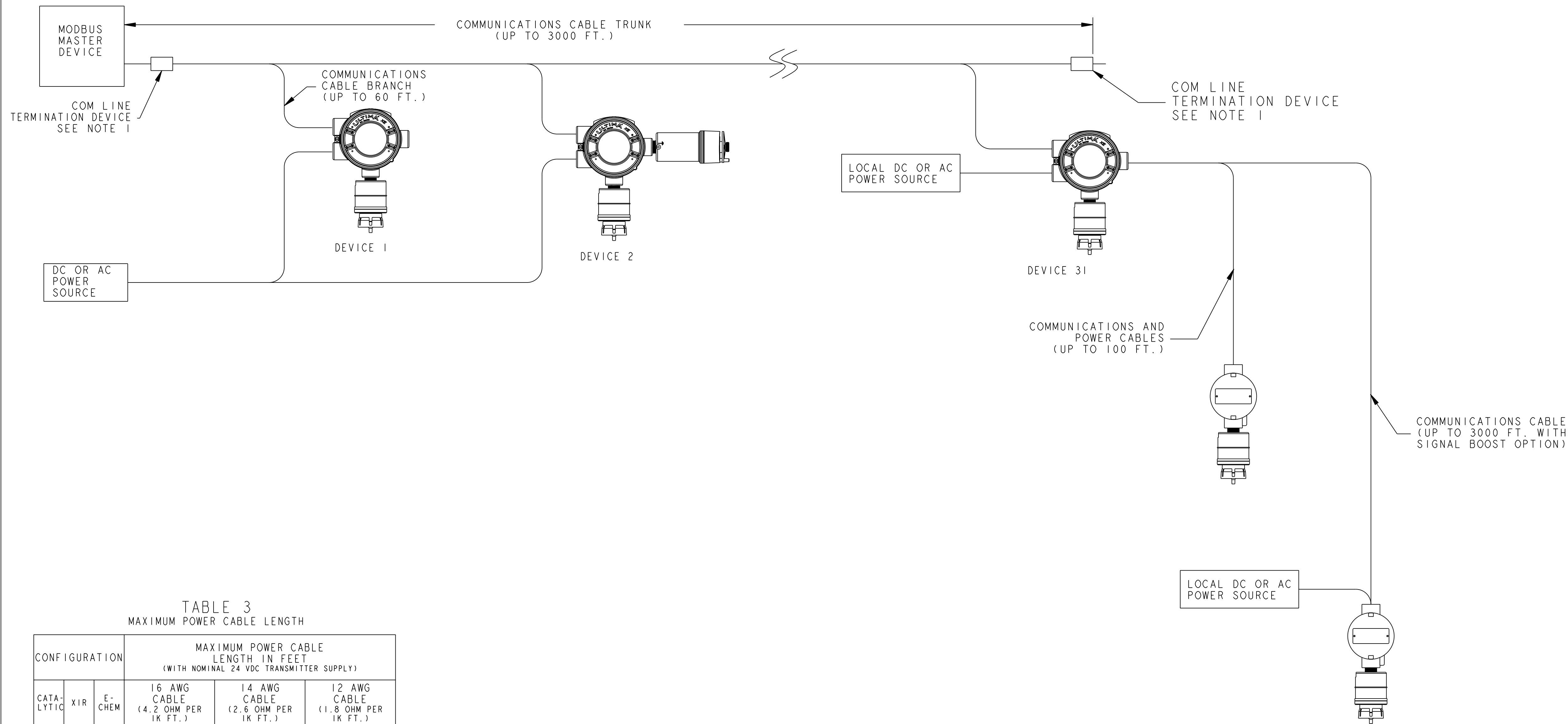
- NOTE:
- INDICATES FIELD CONNECTIONS BY OTHERS.
  - MAXIMUM TRANSMITTER-SENSOR DISTANCE IS 100 FT WITHOUT THE SIGNAL BOOST OPTION.
  - USE OF THIS OPTION REQUIRES THE SENSOR TO BE POWERED LOCALLY.

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. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		JOB NO. 30006240 PH0718	APPROVAL AGENCY CODE: NO   NIOSH ATTR. DOC.:	
CRITICAL	MAJOR A	MINOR (NO MARK)	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		
D SK		DOCUMENT NO. 10000021203	CADD REF: 10000021203	SCALE: 1:000
<b>INSTALLATION OUTLINE, MODBUS, ULTIMA XE</b>				SHEET 3 OF 4

PARTS LIST			
ITEM NO.	MATERIAL MASTER NO.	QTY. REQD.	DESCRIPTION

REVISIONS
<b>REFERENCE ONLY</b>
<small>NOT FOR PRODUCTION/PURCHASING PURPOSES DRAWING UNDER DEVELOPMENT, MAY CHANGE WITHOUT CHANGE TO REVISION LEVEL</small>

**TYPICAL ModBUS NETWORK TOPOGRAPHY**



NOTE:  
 1. LINE TERMINATION DEVICE MUST MATCH COM LINE (TYPICALLY 120 OHMS).  
 2. TYPICAL RS485 COMMUNICATIONS WIRING SCHEME IS 3 WIRE CABLE, 22AWG, LABELED (A) T+/R+, (B) T-/R- AND (C) COMMON.

TABLE 3  
MAXIMUM POWER CABLE LENGTH

CONFIGURATION			MAXIMUM POWER CABLE LENGTH IN FEET (WITH NOMINAL 24 VDC TRANSMITTER SUPPLY)					
CATA- LYTIC	XIR	E- CHEM	16 AWG CABLE (4.2 OHM PER 1K FT.)		14 AWG CABLE (2.6 OHM PER 1K FT.)		12 AWG CABLE (1.8 OHM PER 1K FT.)	
			NO RELAYS	RELAYS OPTION	NO RELAYS	RELAYS OPTIONS	NO RELAYS	RELAYS OPTION
0	0	3	4500	3500	7200	5500	10000	7500
0	2	1	2000	1500	2750	2500	4000	3500
0	1	2	3000	2250	4500	3500	6250	5000
1	0	2	3500	2750	5500	4250	7500	6000
1	1	1	2000	1500	2750	2500	4000	3500
2	0	1	2500	1750	3500	3000	5000	4000
3	0	0	2000	1500	2750	2500	3750	3500

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. SCHUTZVERMERK NACH DIN 34 BEACHTEN. MSA AUER GmbH.	DO NOT SCALE DWG.
MSA STANDARD SHOP PRACTICES APPLY		JOB NO. 30006240 PH0718	APPROVAL AGENCY CODE: NO   NIOSH ATTR. DOC.:	
CRITICAL $\Delta$	CODE SYMBOLS	DRAWN BY DATE	10-22-2004	
MAJOR A $\Delta$	MINOR (NO MARK)	CHECKED BY		
MAJOR B $\Delta$		PROJ. ENGR.		
100% INSPECTION $\Delta$		QUALITY ASSURANCE		
TOLERANCES UNLESS OTHERWISE SPECIFIED		MANUFACTURING		
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				
D SK		DOCUMENT NO.	10000021203	
CADD REF: 10000021203			SCALE: 1:000	SHEET 4 OF 4

**INSTALLATION OUTLINE,  
MODBUS, ULTIMA XE**