User Manual
for
Amron International, Inc.

Model 2810E-ATEX
Dual Lock, ATEX Rated Chamber Communicator

S/N _____

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1 INTRODUCTION

The 2810E-ATEX is the newest member of the Amron International AMCOM series of chamber communicators. The 2810E-ATEX is a dual lock chamber communicator that uses state-of-the-art electronics and introduces several new features. The 2810E-ATEX uses a new audio filtering network for improved sound clarity and communications. It is important that the operator read and understand the entire manual including all warnings.

The 2810E-ATEX operates in 2-Wire communication mode. There is a single volume control for the up-link (Operator) and another volume control for the down-link (Chamber). Designed for a long and dependable service life, the 2810E-ATEX is housed in a rugged IEC Class 1, Zone 2 rated cast aluminum enclosure. The communicator comes standard with an 8 ohm MEDC ATEX rated speaker. Speaker cable, power/chamber/light cable, and all connectors are also ATEX rated.

2 SPECIFICATIONS

2.1 ELECTRICAL

Input Impedance (Microphone Input)	300 Ohms
Frequency Response	300 - 4000 Hz
Common Mode Rejection (minimum)	40 dB
Current Drain - Maximum Full Volume	1Amps
Typical Quiescent	50 -130 mAmps
Minimum Load Impedance	4 ohm
Nominal Power Supply Voltage	15 V_{DC}
Operational Supply Voltage	13V_{DC} - 18 V_{DC}
Sensitivity (Input)	1.8 mV_{RMS}
Maximum Output Power (4 Ohm Load, 14 V_{DC})	10 Watts

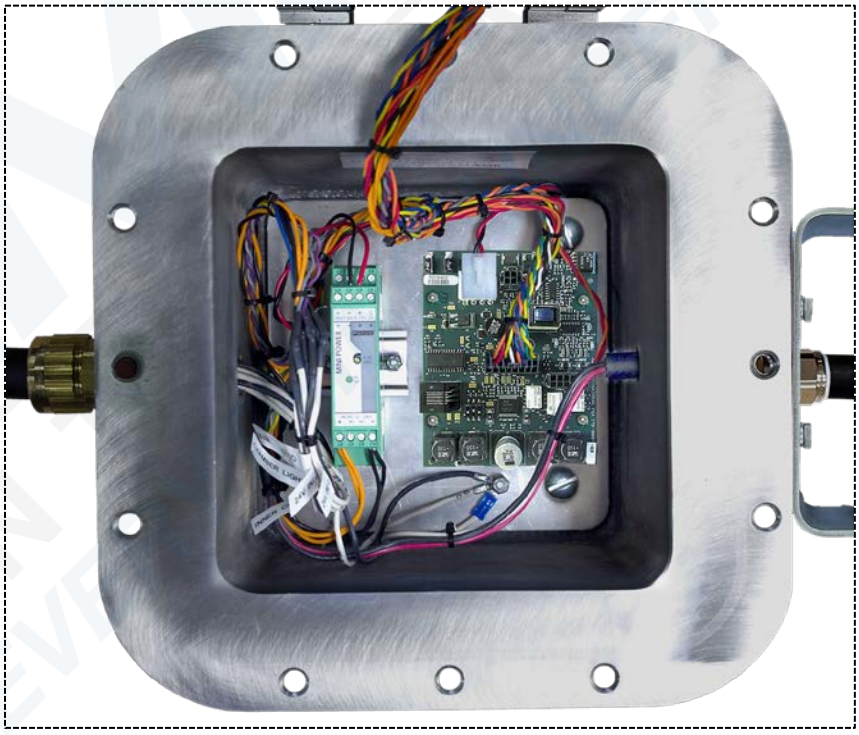
2.2 MECHANICAL

Enclosure	Aluminum
Width	13.0 in. (33.0 cm)
Depth	9.0 in. (22.9 cm)
Height with Speaker	20.5 in. (52.0 cm)
Weight	49 lbs. (22.23 kg)

2.3 MODEL 2810E-ATEX - FRONT PANEL

All of the controls for the Model 2810E-ATEX are located on the front panel with the electrical connections for power and the chamber accessible via cable located at the bottom of the enclosure. An ATEX rated speaker is attached to the top of the main enclosure. This speaker acts as the operator microphone when the PUSH-TO-TALK button is pressed. A complete description of all the controls is given in section 3.1. The front panel is sealed to the main housing with twelve (12) bolts. When these bolts are removed, the front panel can be swung open using the hinges located on the left side of the panel.

2.4 MODEL 2810E-ATEX – INSIDE OF ENCLOSURE



3 ACCESSORIES

Amron produces a series of accessories designed to operate with the 2810E-ATEX chamber communicator.

3.1 AMRON STANDARD HEADSET - MODEL 2460-31R

This light and comfortable headset is designed to extended wear by chamber occupants. The Model 2460-31R features an adjustable boom microphone, vinyl cushioned adjustable ear pads and a spiral cord that can be extended up to 8 feet (2.4 meters). It can be plugged into the headset jacks of most models of Amron Chamber Speakers.

3.2 AMRON CHAMBER SPEAKER - MODEL 3115

The Model 3115 Chamber Speaker allows the operator to monitor conversations within the chamber with the internal speaker acting as a microphone. There is a speaker on/off switch that allows the occupants to turn off the speaker for private conversations. The operator can talk to the occupant(s) by using the PUSH-TO-TALK BUTTON located on the front panel of the 2810E-ATEX.

3.3 AMRON CHAMBER SPEAKER - MODEL 3113

The Model 3113 Chamber Speaker has all the features of the Model 3115 except for the speaker on/off switch.

3.4 AMRON INNER-LOCK COMBO BOX - MODEL 3125

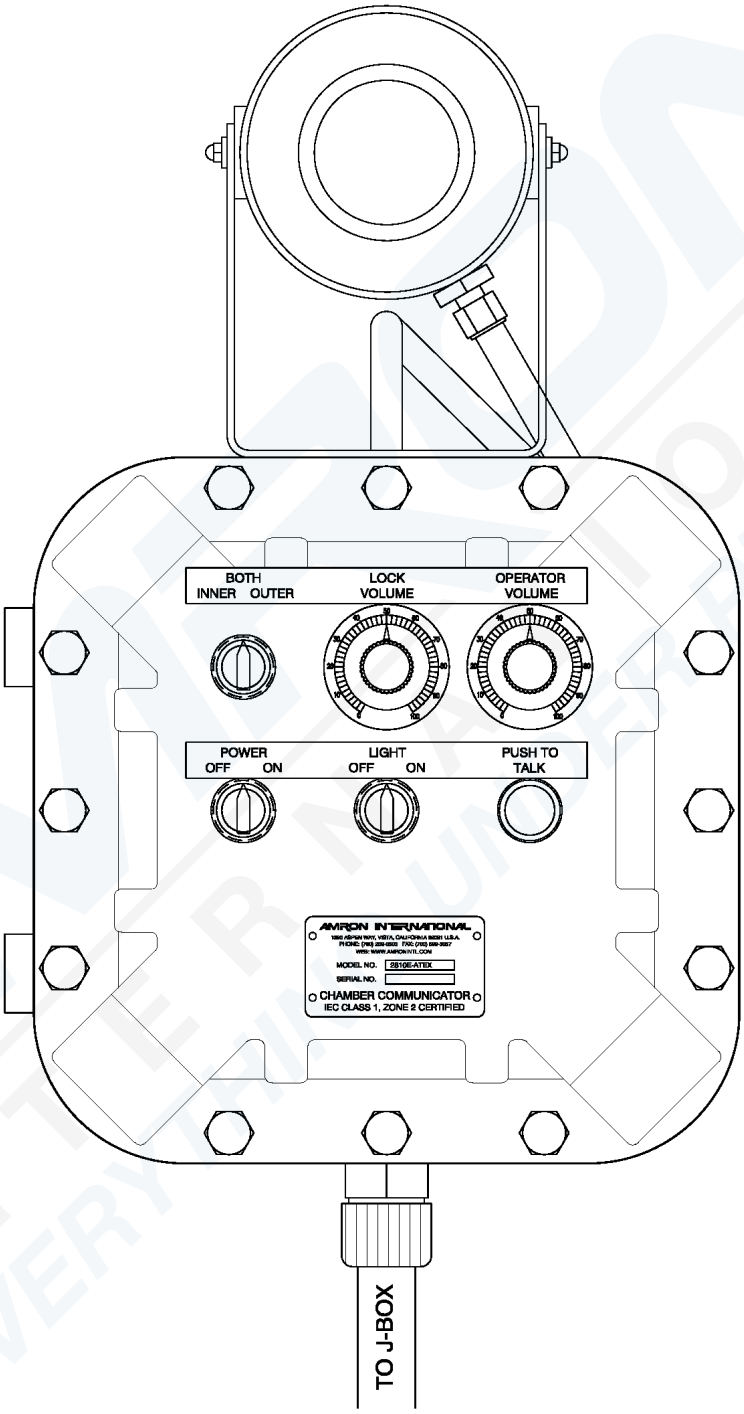
The Model 3125 features a talk-back speaker with on/off switch and headset jack that operates in the same manner as the Model 3115. It also includes a sound-powered phone with bracket, chamber temperature probe, scrubber power circuit wiring, chamber environmental conditioning unit wiring and electrical penetrator adaptor all together in a single pre-wired, pre-tested housing.

3.5 AMRON OUTER-LOCK COMBO BOX - MODEL 3126

The Model 3126 features a talk-back speaker with on/off switch and headset jack that operates in the same manner as the Model 3115. It also includes the sound-powered phone and bracket like the Model 3125 but does not have the additional chamber function wiring of the 3125.

4 CONTROLS AND CONNECTIONS

Before using the 2810E-ATEX chamber communicator, the operator should be familiar with all the controls and connections. While reading this manual, you will find capitalized words such as PANEL SPEAKER. These words are to remind the reader that additional information can be found in this section of the manual.



4.1 FRONT PANEL CONTROLS

The following controls and connections are located on the front panel of the 2810E-ATEX.

4.1.1 **POWER SWITCH** – Turns the power on/off to the communicator. It does not affect the chamber light power. Turn this control to ON to power the communicator and OFF to turn the communicator off.

4.1.2 **LIGHT SWITCH** - This switch allows the operator to turn on and off the chamber light(s). This control is on a separate circuit from the communicator power and is not affected by the communicator POWER SWITCH

4.1.3 **PUSH-TO-TALK BUTTON** - This button allows the operator to talk to the chamber occupant(s) by talking into the HORN SPEAKER while pushing this button.

4.1.4 **LOCK VOLUME** - This control sets the volume for the chamber. Rotate this knob clockwise to increase the volume.

4.1.5 **OPERATOR VOLUME** - This control sets the volume for the HORN SPEAKER. Rotate this knob clockwise to increase the volume.

4.1.6 **HORN SPEAKER** – is a waterproof, ATEX rated speaker that allows the operator to monitor communication to the chamber and acts as a microphone by using the PUSH-TO-TALK BUTTON. The volume level is controlled by the OPERATOR VOLUME.

4.1.7 **LOCK SELECTOR SWITCH** – This rotary switch is used to select which of the two locks in the chamber that the operator will communicate with. There are three positions; INNER, BOTH and OUTER. The INNER and OUTER positions allow to the operator to monitor and talk to the selected chamber only. With the LOCK SELECTOR SWITCH in the BOTH position, the operator will monitor and talk to both chamber locks at the same time.

4.2 SYSTEM CONNECTIONS

The 2810E-ATEX system connections are made through the cable location at the bottom of the enclosure with four twisted wire pairs and an Earth Ground wire.

4.2.1 **INPUT POWER** – Black & white twisted wire pair. The black wire is connected to the positive supply terminal and the white wire is connected to the negative supply terminal. The 2810E-ATEX will accept input voltages from 12 to 24 V_{DC}.

4.2.2 **CHAMBER LIGHT** – Black & white twisted wire pair. The black wire is connected to the positive supply terminal and the white wire is connected to the negative supply terminal. It provides power to the chamber light(s) and is controlled by the LIGHT SWITCH on the front panel. The current is not limited by communicator circuitry and the power comes directly from the input power. It is advised that an in-line fuse holder with the appropriate fuse be installed between the 2810E-ATEX and the chamber light wiring.

4.2.3 **INNER CHAMBER** – Black & white twisted wire pair. No polarity is required. It is connected to the chamber speaker located in the inner lock.

4.2.4 **OUTER CHAMBER** – Black & white twisted wire pair. No polarity is required. It is connected to the chamber speaker located in the outer lock.

4.2.5 **EARTH GROUND** – Black & white twisted wire pair that connects to the earth or safety ground. The chassis can be connected to earth ground using either this wire or the external grounding lug located on the right side of the chassis.

5 OPERATION

5.1 INITIAL CHECKOUT

After all system connections have been made and inspected, perform the following check out procedures.

Set all the volume controls to minimum and turn on the POWER SWITCH. If chamber lights are installed, turn on the LIGHT SWITCH and verify that the chamber light(s) turn on.

The next checkout steps require communicating with someone inside the chamber. The chamber door will have to be closed to prevent acoustic feedback between the HORN SPEAKER and the chamber speakers. Set the LOCK VOLUME control to mid-scale. Set the LOCK SELECTOR SWITCH to the INNER position and slowly turn up the OPERATOR VOLUME. Verify you can hear the chamber occupant through the HORN SPEAKER of the 2810E-ATEX. Press the PUSH-TO-TALK BUTTON and verify the operator can talk to the chamber occupant. Adjust the LOCK VOLUME control as necessary.

Repeat the checkout procedure for the outer lock by setting the LOCK SELECTOR SWITCH to the OUTER position. Once communications has been verified with both lock, set the LOCK SELECTOR SWITCH to the BOTH position and verify communications to both locks at the same time.

Once operation has been verified, turn down the volume controls to the minimum value and turn off the POWER SWITCH.

5.2 MODES OF OPERATION

Unlike other AMCOM communicators, the 2810E-ATEX operates in the 2-Wire mode only. For the 2810E-ATEX, 2-Wire communications is defined as a single communication path with the chamber occupant(s) having the priority signal path and the operator listens to the occupants. Signal reversing is accomplished by pushing the PUSH-TO-TALK BUTTON. When pressed, the occupant(s) hears the operator who talks using the HORN SPEAKER. One advantage of 2-Wire mode is that the operator's microphone is not active unless the PUSH-TO-TALK BUTTON is pressed. This prevents noise from the outside reaching the chamber occupant(s) and allows the operator to communicate with other members of the chamber operations crew without involving the occupant(s).

5.3 SETTING THE VOLUME CONTROLS

Turn power switch to ON, turn speaker switch to ON, and adjust both volume controls to mid-scale. The operator has to depress PUSH-TO-TALK BUTTON in order to talk to chamber occupant(s). Operator and occupant(s) talk to each other while the operator adjusts the volume controls as below:

OPERATOR VOLUME

While chamber occupant(s) is talking, the operator adjusts this OPERAOTR VOLUME control to a comfortable hearing level.

LOCK VOLUME

While operator depresses the PUSH-TO-TALK button and talks into the HORN SPEAKER, the operator adjusts the LOCK VOLUME control to a comfortable level for the chamber occupants.

6 MAINTENANCE

The following section describes the general maintenance and troubleshooting procedures for the 2810E-ATEX chamber communicator.

6.1 GENERAL MAINTENANCE

The 2810E-ATEX chamber communicator is designed to provide years of continuous, failure-free service when properly used and maintained. One of the most important things that can be done to extend the service life is to clean the communicator after use or when needed. If the equipment is on an extended work program, have the tender clean the equipment during slow work periods. Rinse off salt deposits with fresh water.

6.1.1 DAILY MAINTENANCE

Wipe off any accumulated salt or salt spray on the front panel using a clean, damp cloth. Pay particular attention to where the various front panel components attach to the panel. Inspect the outer case for any damage.

6.1.2 6 MONTH CHECK

Wipe off any accumulated salt or salt spray on the enclosure using a clean, damp cloth. Pay particular attention to where the various front panel components attach to the panel. Inspect the outer case for any damage.

Inspect the PUSH-TO-TALK BUTTON, rotary switches and volume controls for smooth operation.

Perform the system test shown in section 5.1.

6.1.3 LONG TERM STORAGE

If the chamber communicator is to be stored for a period greater than 30 days, it is recommended that it be stored in a cool dry location. If stored outside, the communicator should be covered.

6.2 TROUBLESHOOTING

The following section will describe the troubleshooting procedure for several common issues. If these sections do not cover your particular issue, if is recommended that the chamber wiring be disconnected from the communicator and the check-out procedures in section 5.1 be conducted. If the chamber communicator passes the check-out procedures then the issue is most likely in the chamber wiring.

6.2.1 UNIT NOT OPERATING

The most common reason that a diver communicator appears to be dead, when the POWER SWITCH and SPEAKER SWITCH are turned on, is that the 24V power supply is not on or is damaged.

If the 24V power supply and connections appear to be good and the communicator fails the check-out procedure, then remove the (12) bolts holding the front panel and carefully swing open as the components are connected to the Printed Circuit Assembly (PCA) by a wire harness. Verify that the connectors on the PCA are firmly seated. Check that the wire harnesses are soldered to the various connectors, controls, and speaker. There should be no loose wires in the system. Remove the fuse from the PCA. It is marked FH1 and is a cylindrical component.

Verify that the fuse is good by checking the continuity with a multi-meter. If the fuse is open, replace with a same type: 3.15 Amp, 250V, Fast Acting. Close the front panel, re-install the (12) bolts and re-test the communicator. If the communicator still appears dead, contact Amron per section 2.2 for further assistance.

6.2.2 LOW VOLUME

Check the volume control settings and adjust if necessary. Check the chamber connections and verify that the chamber and operator are connected as intended. Verify the wires and connectors are clean and tight. Check the 24V power supply for proper voltage to the unit. If the problem persists, disconnect the chamber wiring and perform the communicator check out procedure per section 5.1. If the communicator fails the check-out procedure, contact Amron per section 2.2 for further assistance.

If the communicator checks out, then the problem is likely in either the chamber wiring, the wiring of the chamber speaker(s), or the occupant headset.

6.2.3 GARBLED VOICE TO THE CHAMBER

The CHAMBER VOLUME control is set too high. Reduce this control until the voice signal clears. If this does not solve the problem, check the chamber speaker and/or headsets for corrosion or other defect. Replace if necessary if these steps have not solved the problem, then disconnect the chamber wiring and perform the communicator check out procedure per section 5.1. If the communicator fails the check-out procedure, contact Amron per section 2.2 for further assistance. If the communicator checks out, then the problem is likely in the chamber wiring.

6.2.4 GARBLED VOICE TO THE OPERATOR

The OPERATOR VOLUME control is set too high. Reduce this control until the voice signal clears. If this does not solve the problem, check the chamber speaker or occupant(s) headset microphone for corrosion or other defect. Replace if necessary. If this solves the problem then the operator headset may be wet or defective. If these steps have not solved the problem, then disconnect the chamber wiring and perform the communicator check out procedure per section 5.1. If the communicator fails the check-out procedure, contact Amron per section 2.2 for further assistance. If the communicator checks out, then the problem is likely in the chamber wiring.

6.2.5 CHAMBER CUTS OFF

This is usually caused by an intermittent connection either between the chamber wiring and the chamber communicator or the cable penetrator and the chamber speaker or occupant headset. Check all connections to verify that they are clean and tight. If the problem continues, then substitute the communication cable with a known good cable. If this solves the issue, then the communication cable in the original umbilical is damaged and needs to be replaced or repaired. If none of these solutions fixes the problem then contact Amron per section 2.2 for further assistance.

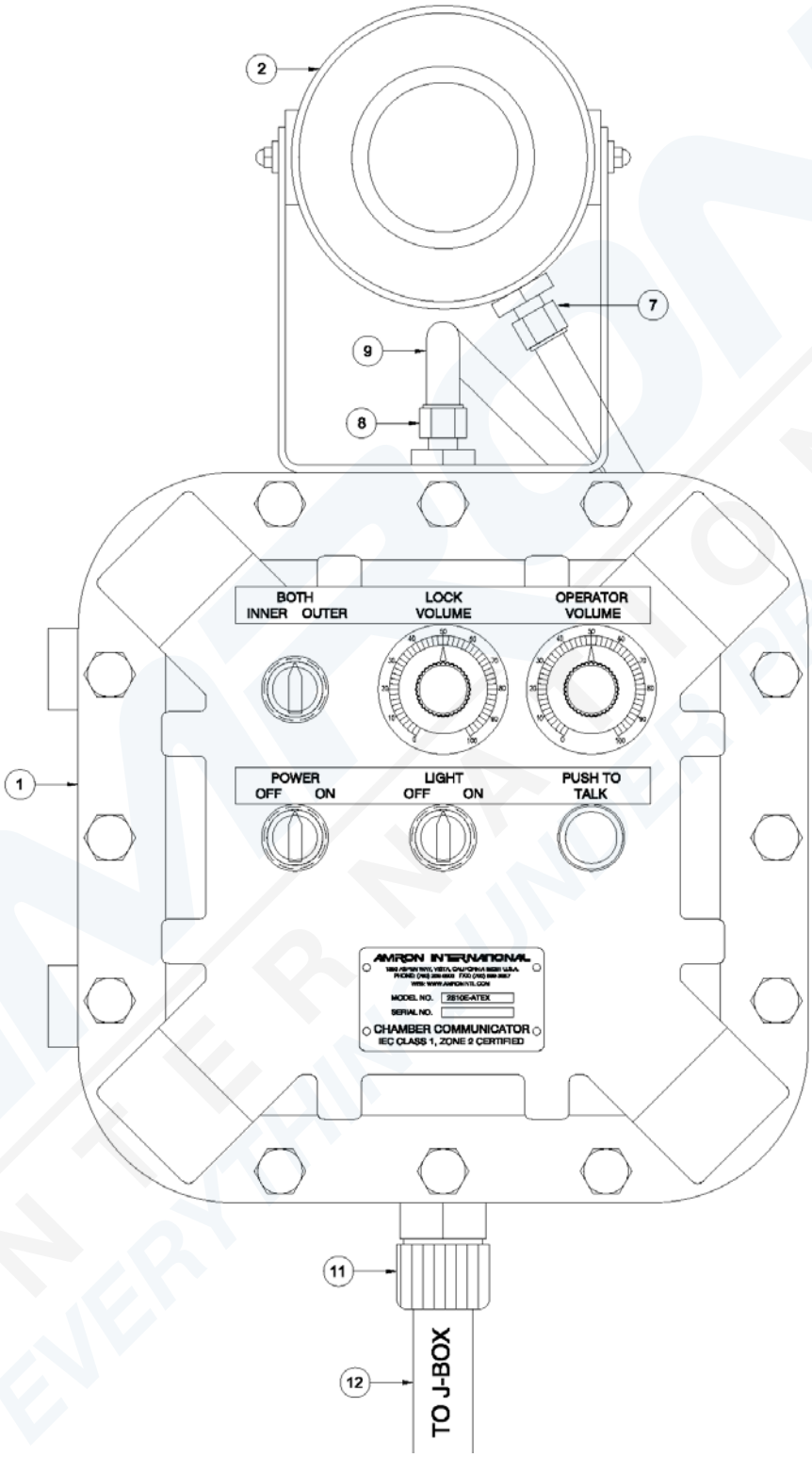
6.2.6 PUSH-TO-TALK DOES NOT WORK

Please turn the inner/both/outer lock selector switch to the desired setting. Please confirm that the selector switch is properly engaged for the chosen setting. Check that the volume controls for both the inner & outer lock are turned up to mid-scale. If no communication is heard inside the chamber locks, there could be a broken wire inside the chamber communicator. Open the front panel and inspect. If that does not resolve the problem then contact Amron per section 2.2 for further assistance.

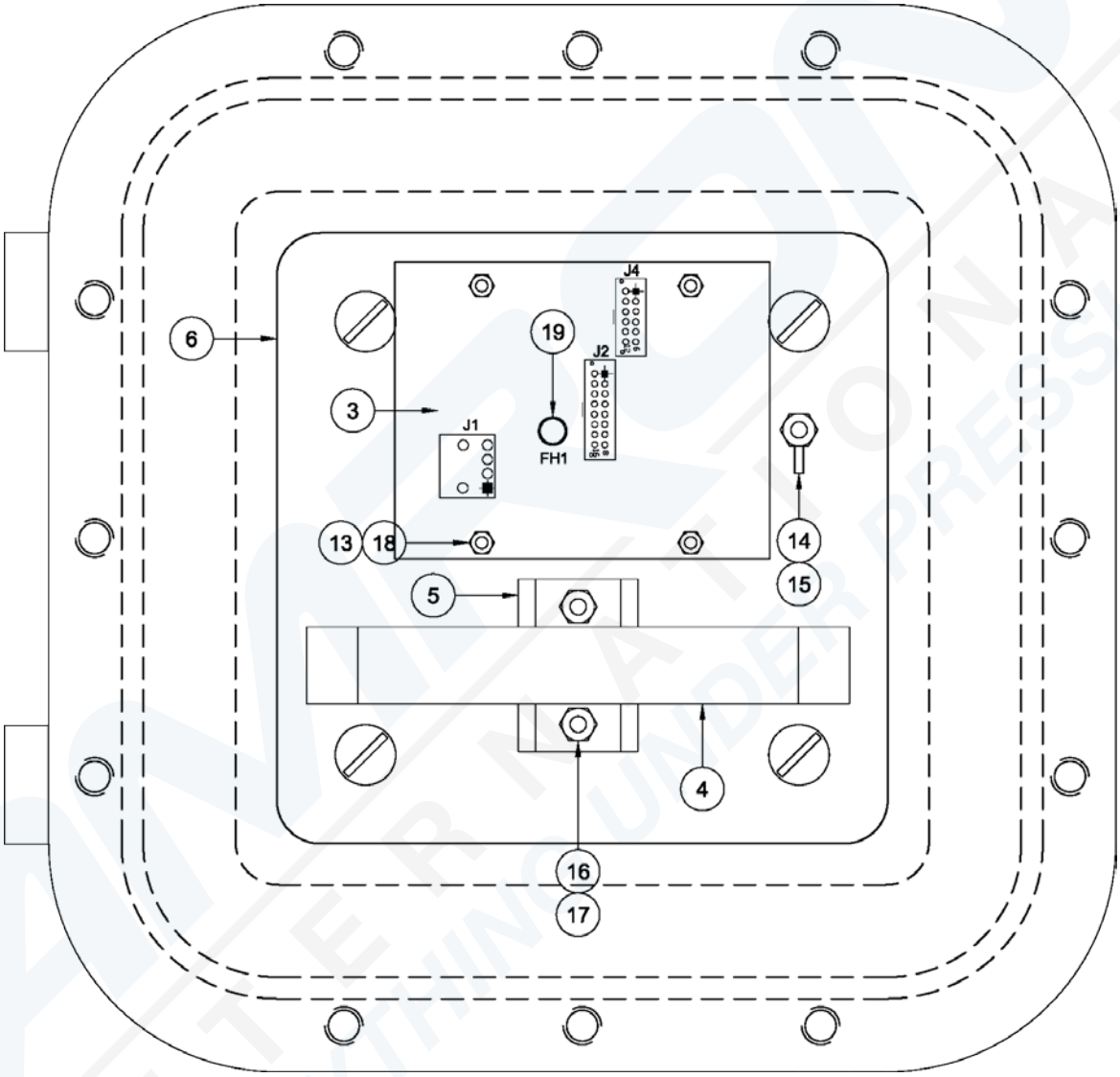
7 DRAWINGS

The following drawings illustrate the electrical and mechanical details of the chamber communication unit. The corresponding parts lists for each drawing are detailed in the parts lists section, or are included as part of the drawing. All drawings are at their current revision level as of the date of printing. Amron reserves the rights to revise the documentation without notification.

7.1 FRONT PANEL PARTS LOCATOR, MODEL 2810E-ATEX



7.2 CONTROL PARTS LOCATOR, GENERAL & MOUNTING DIMENSIONS



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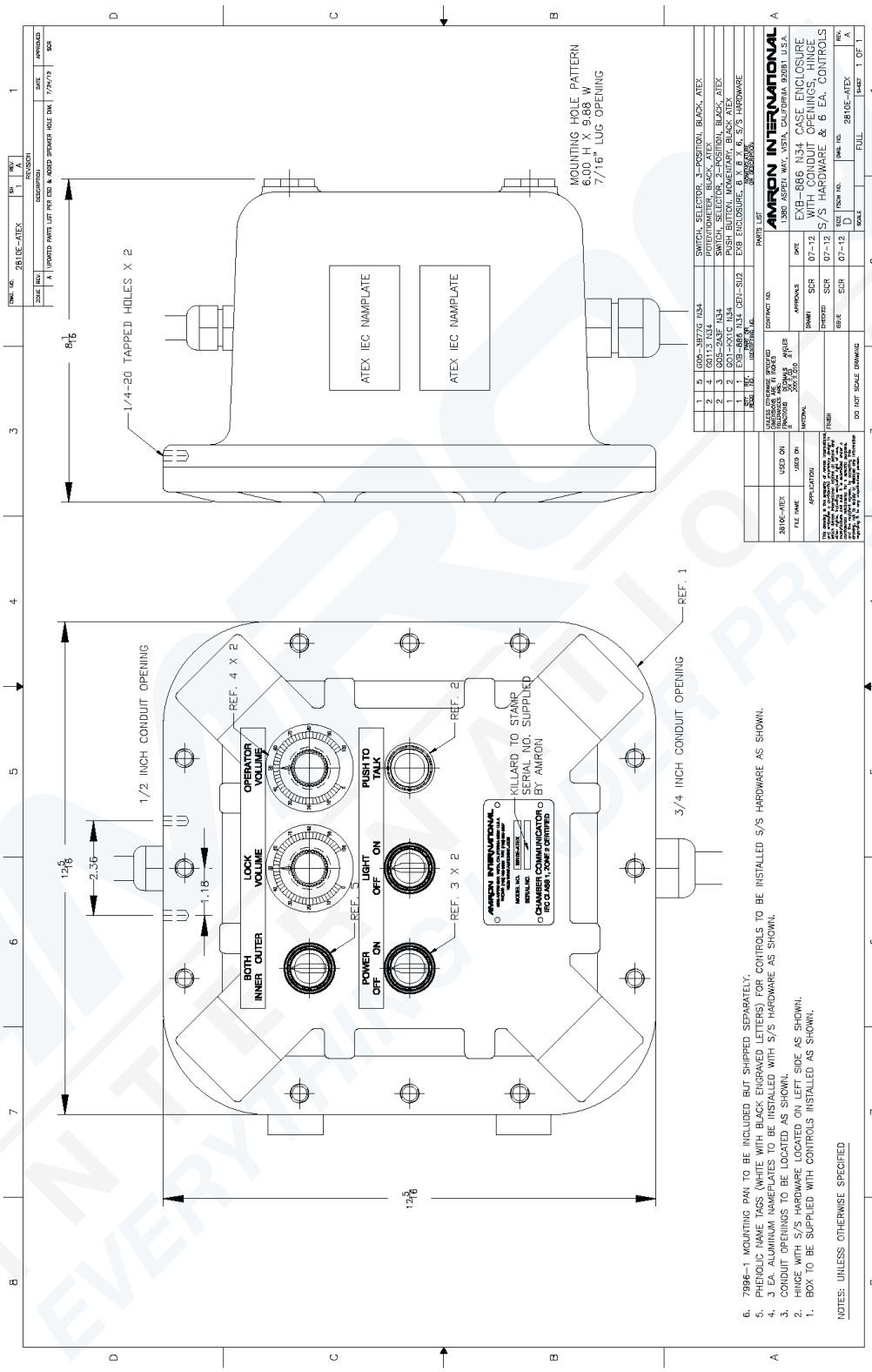


NOTES: UNLESS OTHERWISE SPECIFIED

1. BOX TO BE SUPPLIED WITH CONTROLS INSTALLED AS SHOWN.
2. HINGE WITH S/S HARDWARE LOCATED ON LEFT SIDE AS SHOWN.
3. CONDUIT OPENINGS TO BE LOCATED AS SHOWN.
4. 3 EA. ALUMINUM NAMEPLATES TO BE INSTALLED WITH S/S HARDWARE AS SHOWN.
5. PHENOLIC NAME TAGS (WHITE WITH BLACK ENGRAVED LETTERS) FOR CONTROLS TO BE INSTALLED S/S HARDWARE AS SHOWN.
6. 7998-1 MOUNTING PAN TO BE INCLUDED BUT SHIPPED SEPARATELY.

PARTS LIST

ITEM	QTY	PART NO.	DESCRIPTION
1	5	GDS-3877G N34	SWITCH, SELECTOR, 3-POSITION, BLACK, ATEX
2	4	GD113 N34	POTENTIOMETER, BLACK, ATEX
2	3	GDS-2A3F N34	SWITCH, SELECTOR, 2-POSITION, BLACK, ATEX
2	2	GDS-2A2F N34	SWITCH, SELECTOR, 2-POSITION, BLACK, ATEX
1	1	EXB-886 N34	EXB ENCLOSURE, 8 X 6, S/S HARDWARE
REF	REF	REF	REFERENCE

AMRON INTERNATIONAL
1380 ASPEN WAY, VISTA, CALIFORNIA 92081 U.S.A.

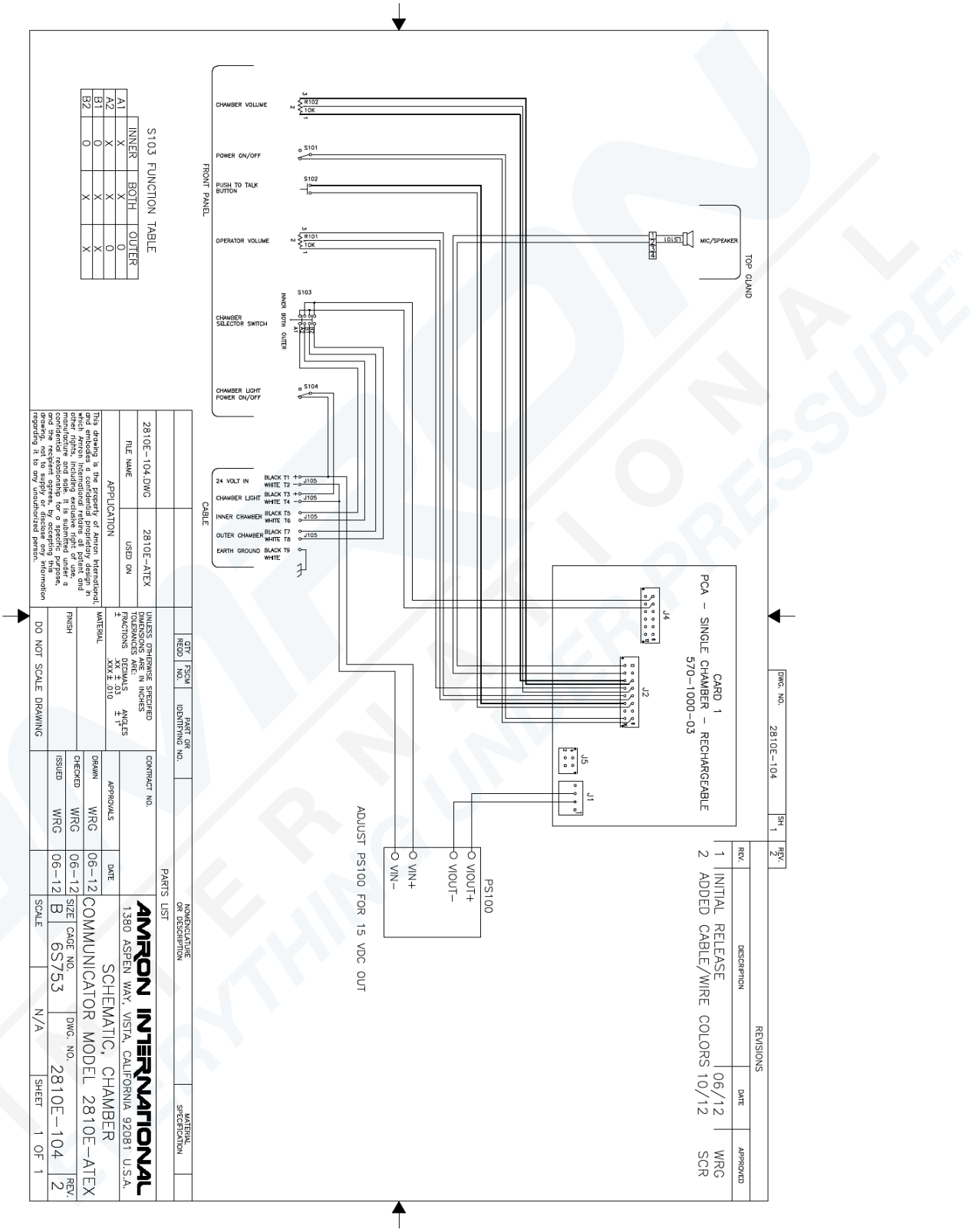
DRAWN	SCR	07-12
CHECKED	SCR	07-12
ISSUE	SCR	07-12

EXB-886 N34 CASE ENCLOSURE WITH CONDUIT OPENINGS, HINGE S/S HARDWARE & 6 EA. CONTROLS

DWG. NO. 2810E-ATEX | REV A | SHEET 1 OF 1

ZONE	REV.	DESCRIPTION	DATE	APPROVED
	A	UPDATED PARTS LIST PER ECO & ADDED SPONGE HOLE DIM.	7/24/12	SCR

7.4 SCHEMATIC, CHAMBER COMMUNICATOR, MODEL 2810E-ATEX



8 PARTS LISTS

The parts lists include both mechanical and electrical parts. The following information will be useful in interpreting data which is not self-explanatory.

REVISIONS

The parts lists in this manual are for the current model of diver communicator as of the printing date.

To Order Replacement Parts Contact:

Amron International, Inc.
1380 Aspen Way, Vista, California, 92081 U.S.A.
Telephone: (760) 208-6500 Fax: (760) 599-3857
Email: sales@amronintl.com
Web: www.amronintl.com

When ordering replacement parts, you should give as much information as possible to enable us to supply the correct part. This information should include the part number, description, reference designator, value, radio model number, and serial number. Failure to provide sufficient information may hinder our ability to fill your parts orders promptly and correctly.

8.1 MODEL 2810E-ATEX TOP ASSEMBLY

Reference	Part Number	Description
1	520-0006-01	Enclosure, Model 2810E-ATEX
2	100-0001-01	Speaker, MEDC, ATEX, 8 Watt, 8 Ohm
3	570-1000-03	PCA for Chamber Communicator
4	520-0007-01	Power Supply, DIN MINI-PS, 12-24 DC
5	520-0008-01	DIN Rail, NS 15 Perforated
6	7996-1	Mounting Pan
7	520-0009-01	Cable Connector, M20
8	520-0010-01	Cable Connector, ½" MNPT
9	180-0100-01	Cable, 3 Conductor, Armor & Sheath
N/S	112-0100-01	Potentiometer, 10K 20% .5W
11	520-0011-01	Connector, ¾" MNPT
12	180-0101-01	Cable, 5 Pair, Shielded, Armor & Sheath
13	4-40X3/4SSPHP	Screw, 4-40X3/4 S/S, Phillips
14	10-32x1/2SSPSP	Screw, 10-32X1/2 S/S, Phillips
15	10NUTSS	Nut, Locking, 10-32, S/S
16	8-32x1/2SSPHP	Screw, 8-32X1/2in S/S, Phillips
17	1452-A	Hex Spacer, 3/8
18	4NUTSSL	Nut, Locking, 4-40, S/S
N/S	1902A	Standoff, 4-40X1/4in, Nylon, Hex
N/S	43025-1200	Receptacle, 12 Pin, Micro-Fit
N/S	43025-1600	Receptacle, 16 Pin, Micro-Fit
N/S	43030-0007	Contact, 3.0mm, Female Socket
N/S	39-01-4040	Receptacle, 4 Pin, Mini-Fit
N/S	39-00-0039	Terminal, Female, Crimp Mini-Fit
N/S	61310	Terminal, Ring, 16-14 AWG
N/S	10/18-22	Terminal, Ring, 18-22 AWG

8.2 2810E-ATEX RECOMMENDED SPARES

Reference	Part Number	Description	Quantity
N/S	112-0100-01	Potentiometer, 10K 20% .5W	2
19	0034.6019	Fuse, PCA, 3.15A/150V Micro Quick	1

9 LIMITED WARRANTY AND SERVICE POLICY

Amron International, Inc.

LIMITED WARRANTY & SERVICE POLICY

LIMITED WARRANTY

AMRON INTERNATIONAL, INC., (Amron) warrants that its manufactured products are free from defects in material and workmanship under normal use and service for a period of one year from date of shipment as described in Amron's literature covering this product. Oxygen Treatment Hoods and accessories are excluded and limited to 90 days. Amron's obligation under this warranty is limited to the repair of or replacement, at Amron's option, of defective material. This warranty shall not cover defects which are the result of misuse, negligence, accident, repair or alterations.

SERVICE POLICY

For technical assistance or to request a repair, please complete one of the following:

- *Amron Communicator Repair* : https://www.amronintl.com/communicator-repair-form
- *Repair Request* (all other products): https://www.amronintl.com/repair-form
- Call (760) 208-6500, Monday – Friday, 8 a.m. to 5 p.m. PST.

Both MODEL NO. and SERIAL NO. are required fields to be entered on the *Amron Communicator Repair Request* form and can be found on the products identification label as shown below.

"Sample" Product Identification Label

Do not return any product without obtaining a RMR (Return Materials Request). Detailed return instructions will be provided at the time of request.

1380 Aspen Way, Vista California 92081-8349 U.S.A
Phone: (760) 208-6500 Fax (760) 599-3857
Email: sales@amronintl.com Web: www.amronintl.com