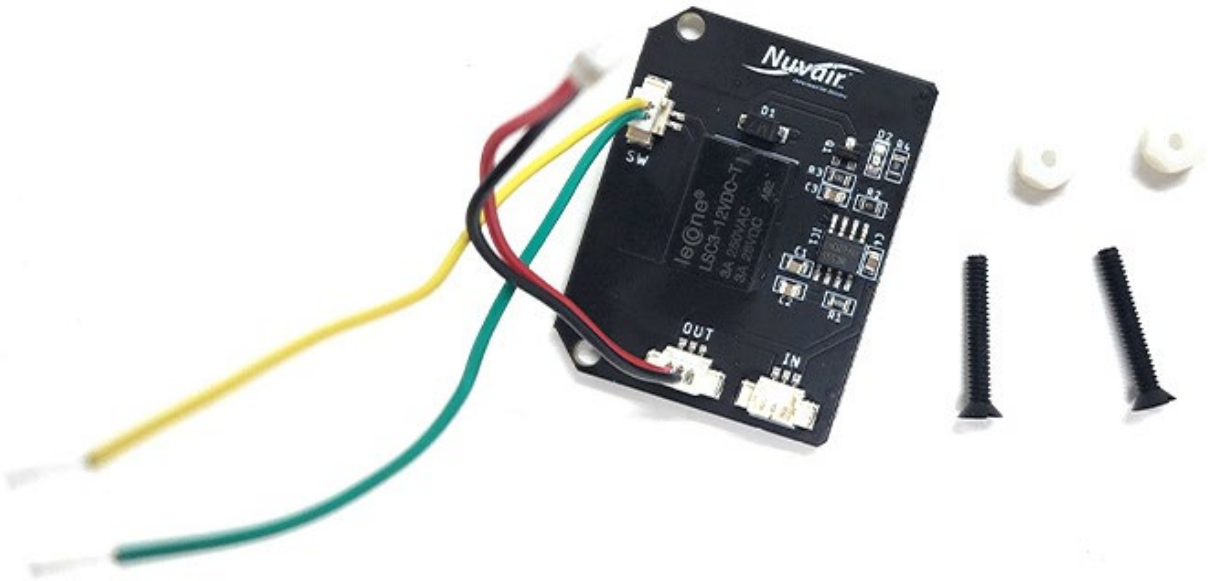
Nuvair®

Compressed Gas Solutions

Installation Manual
SMART START Module Kit
for
Nuvair Pro Alarm Analyzers



SKU PRO-ALARM-SS-PCB

Notes

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Hours: Monday through Friday
8:00 AM to 5:00 PM Pacific Time

WARNING

This Operation Manual contains important safety information and should always be available to those personnel operating this equipment. Read, understand, and retain all instructions before operating this equipment to prevent injury or equipment damage.

Every effort was made to ensure the accuracy of the information contained within. Nuvair, however, retains the right to modify its contents without notice.

Under Nuvair's system of continuous improvement, certain components may be updated or changed as higher quality or more efficient parts and assemblies become available.

Nuvair will make every effort to update manuals as parts and functional aspects change. However, the look or location of components on your product may differ from those in this manual if improvements have been made that do not affect functionality or operational procedures.

Units pictured may also be equipped with different options than those on your product. In this case, the basic operational and maintenance guidelines will still apply.

If you have problems or questions after reading the manual, stop and call Nuvair at +1.805.815.4044 for information.

1.0 Introduction

This manual will assist you in the installation of the SMART START Module (SKU PRO-ALARM-SS-PCB) into existing handheld or panel mount Nuvair Pro Alarm analyzer powered externally by either DIN Rail or wall plug-in. This manual will also help customers understand the function of Nuvair Pro Alarm analyzers equipped with a factory-installed SMART START Module.

The Nuvair Pro Alarm analyzer series are gas analyzers with alarms (visual and/or audible) that activate when user-defined set points (low and/or high) are violated.

Be sure to read the entire manual.

1.1 Symbol Conventions

This manual uses certain words and symbols to call your attention to conditions, practices or techniques that may directly affect your safety. Pay particular attention to information introduced by the following symbols or words:

SYMBOL	MEANING	DESCRIPTION
	DANGER	Indicates an imminently hazardous situation, which if not avoided, will result in serious personal injury or death.
	CAUTION	Indicates a potentially hazardous situation, which if not avoided, could result in serious personal injury or death.
	WARNING	Indicates a potentially hazardous situation, which if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.
	NOTICE	Notifies people of installation, operation or maintenance information which is important but not hazard-related.

2.0 Module Description

As originally designed, the power to Nuvair Pro Alarm analyzers is manually controlled by an On/Off button (Figure 1) on the front of the analyzer panel.

Figure 1. Pro Alarm on/off button.

Some customers want to have analyzers power-up automatically when the integrated power equipment—like a compressor—turns on. To avoid having to power on analyzers after turning on connected equipment, Nuvair developed the SMART START Module. Adding this printed circuit board (PCB) to your existing Pro Alarm analyzer will automatically power the analyzer on when external power equipment is energized.

The SMART START Module can be installed on the following on Pro Alarm analyzers originally equipped with these power configurations:

- Wall plug-in
- DIN power

The SMART START Module is not compatible with any Pro Alarm analyzer powered by battery. Any internal power source (i.e., battery) must be removed and replaced with either DIN Rail or wall plug-in power.

By installing the SMART START Module, the analyzer will automatically power on when external equipment power is detected. After three (3) seconds the On/Off button will return to its normal function.

The SMART START Module can be purchased separately and installed by existing Pro Alarm analyzer owners, or the analyzer can be returned by the customer to the Nuvair production facility in California (USA) for installation.

WARNING
This manual describes how a customer can install the SMART START Module to existing Pro Alarm handheld or panel mount analyzers. To complete this installation, the customer must have a rudimentary knowledge of, access to, and the ability to use and understand:

- **Electronic components**
- **Small hand tools**
- **Solder**
- **Soldering iron, and**
- **Electrical tape.**

DANGER

Failure to properly install the SMART START Module will result in the Pro Alarm analyzer not functioning properly. An improperly operating analyzer will not alarm and will not alert users that dangerous gas conditions exist. Exposure to dangerous gases will result in significant injury or death.

2.1 Module Compatibility

The SMART START Module is compatible with many Nuvair Pro Alarm analyzers power by wall plug-in or DIN power. This installation manual covers the installation of the SMART START Module on the following analyzers:

- Pro CO_2 Alarm Handheld (9616)
- Pro CO_2 Alarm Panel Mount (9617)
- Pro CO Alarm Handheld (9625)
- Pro CO Alarm Panel Mount (9617)
- Pro He Alarm Handheld (9627)
- Pro He Alarm Panel Mount (9628)
- Pro H_2O Alarm Panel Mount (9607)
- Pro N_2 Alarm Handheld (9613)
- Pro N_2 Alarm Panel Mount (9614)
- Pro O_2 Alarm Handheld (9611)
- Pro O_2 Alarm Panel Mount (9462)
- Pro O_2 Alarm Panel Mount Remote (9460)

The SMART START Module is also compatible with the following multigas and specialty container analyzers. Due to the complexity of these unique and specialized Pro Alarm analyzers, Nuvair does not offer written guidance to customers on how to install the SMART START Module. Customers are advised to return the following analyzers to the Nuvair production facility in California (USA) for installation of SMART START Module/s:

- Pro 4 Warn Alarm (9604)
- Pro Trio Multigas Alarm (9603)
- Pro CO Analyzer with Low Pressure Alarm (9621.5)
- Pro CO Analyzer with Low Pressure & High Temperature Alarms (9621)
- Pro Trimix Alarm (9609-LB)
- Pro He-O_2 Trimix (9602)
- Pro Duo Alarm (DUO – all versions)

3.0 Installation of the SMART START Module

The images shown in this manual are of a handheld Nuvair Pro Alarm analyzer. Within the context of a SMART START Module installation, the panel mount Nuvair Pro Alarm analyzer version is the same as the handheld version except for the aluminum overlay faceplate.

Figure 2. Removing faceplate screws and separate faceplate from back cover.

3.1 Remove Faceplate Screws

1. Power off internally powered analyzer with On/Off button.
2. Disconnect power supply from externally powered analyzer.
3. Remove any additional external parts, such as the flow adapter cap, external relay connections, etc.
4. Remove four (4) faceplate screws using a small Phillips screwdriver (Figure 2).
5. Separate faceplate from back cover.

3.2 Remove PCB and Display Screen from Faceplate

1. Unplug red and black power wire (Molex connector) from faceplate PCB.
2. Set back cover and battery (if any) aside.
3. Place faceplate face-up (with display screen facing you) on a flat, clean, dry, non-metallic surface (Figure 3).
4. Remove two (2) bottom screws below display screen using a small flat blade screwdriver and a 1/4 in nut driver.

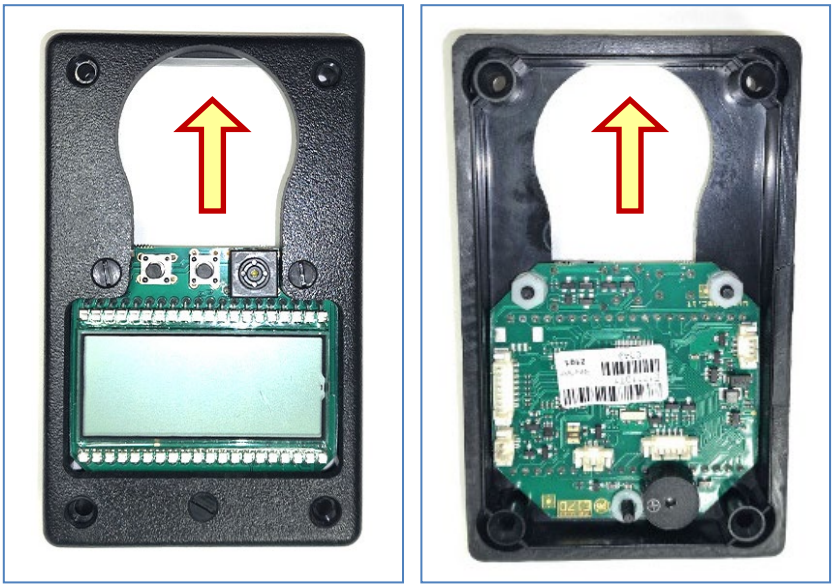

Figure 3. Faceplate face up (left) and face down (right). Note: Arrows denote assembly orientation.

3.3 Replace Screws

1. Replace the two (2) 1/2 in screws (just removed) and install the 3/4 in screws supplied in your SMART START Module Kit.
2. Make sure the two (2) white plastic spacers located between the analyzer PCB and faceplate stay in place as you replace both screws (Figure 4).

Figure 4. Make sure spacers stay in place.

3.4 Reinstall Flange Nuts

Use a 1/4 in nut driver to reinstall the two (2) white plastic flange nuts (Figure 5).

WARNING
Do not overtighten flange nuts. Damage to analyzer PCB or screws will occur.

WARNING
After securing analyzer board to plastic assembly, ensure analyzer control buttons operate freely and do not bind to cover.

Figure 5. Replace both flange nuts on longer screws.

3.5 Locate PCB Soldering Connections

1. With the PCB and display screen properly oriented, locate the left screw and flange nut you just reinstalled.
2. To the right of the flange nut are two (2) posts that you will solder the SMART START Module power supply to (Figure 6).

WARNING
If you do not have rudimentary knowledge of electronics, which includes possession of and no-how of how to properly solder sensitive electronic connections, STOP! Package up all parts and contact Nuvair for assistance.

DANGER
Your failure to properly install the SMART START Module will result in the Pro Alarm analyzer from functioning properly. An improperly operating—or non-operating analyzer will not alarm and will not alert users that dangerous compressor gas conditions exist. Exposure to dangerous gases will result in significant injury or death.

3.6 Solder SMART START Module Power Supply Wires

Using a soldering iron and solder, solder green and yellow SMART START Module power supply wires to analyzer PCB posts (Figure 7).

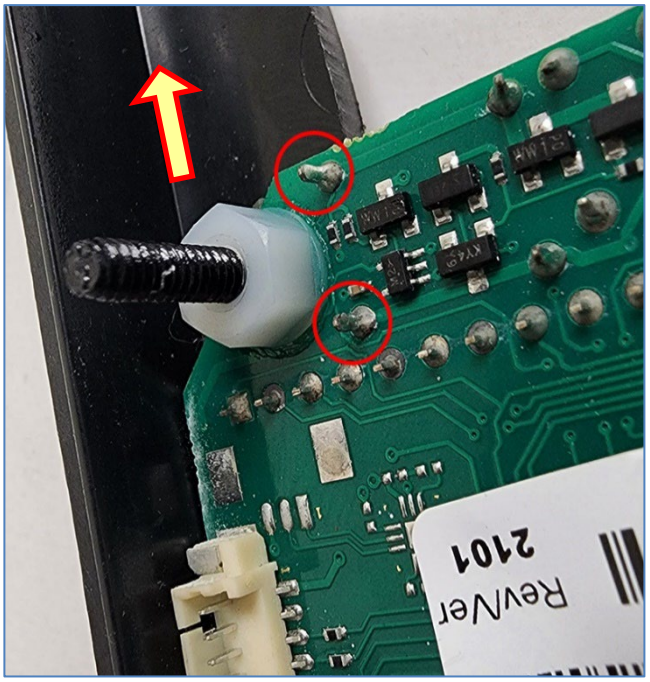

Figure 6. Location of soldering connections (red circles).

3.7 Connect SMART START Module

1. Using existing screw holes, place SMART START Module on over screws.
2. Using a 1/4 in nut driver, screw the two (2) white plastic flange nuts supplied with your SMART START kit onto screw.
3. Connect green and yellow power supply to SMART START Module.
4. Connect red and black wire jumper as pictured (Figure 8).

WARNING
Do not overtighten flange nuts. Damage to analyzer PCB or SMART START Module, or screws will occur.

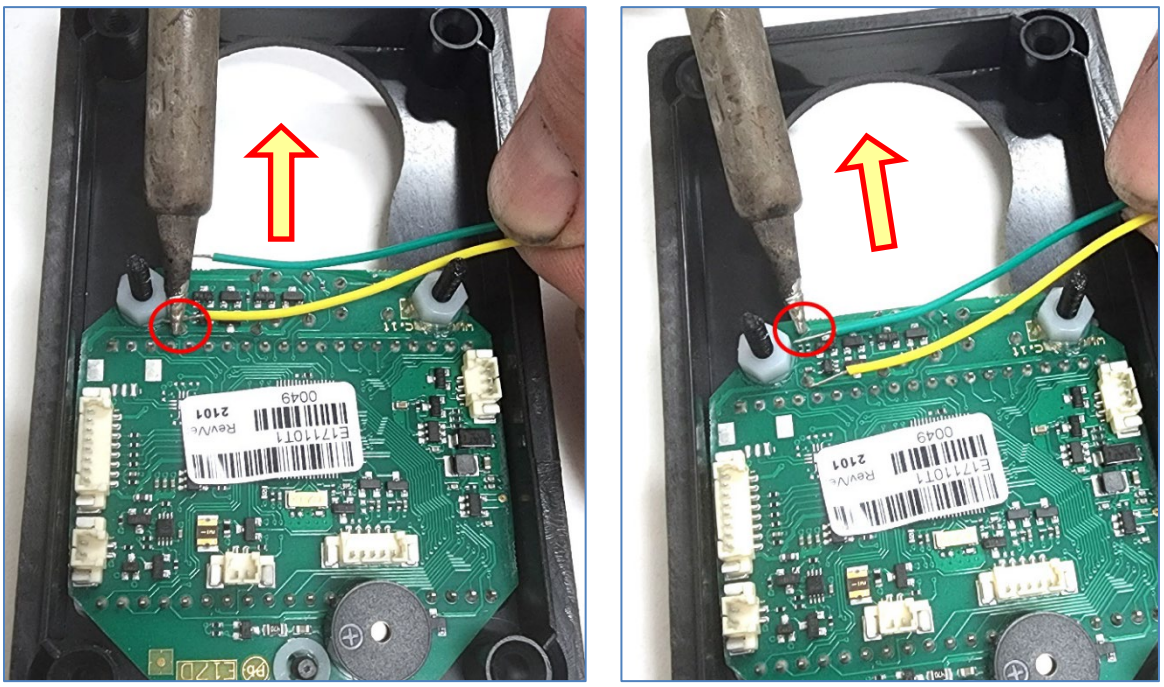

Figure 7. Soldering SMART START Module power connections #1 and #2.

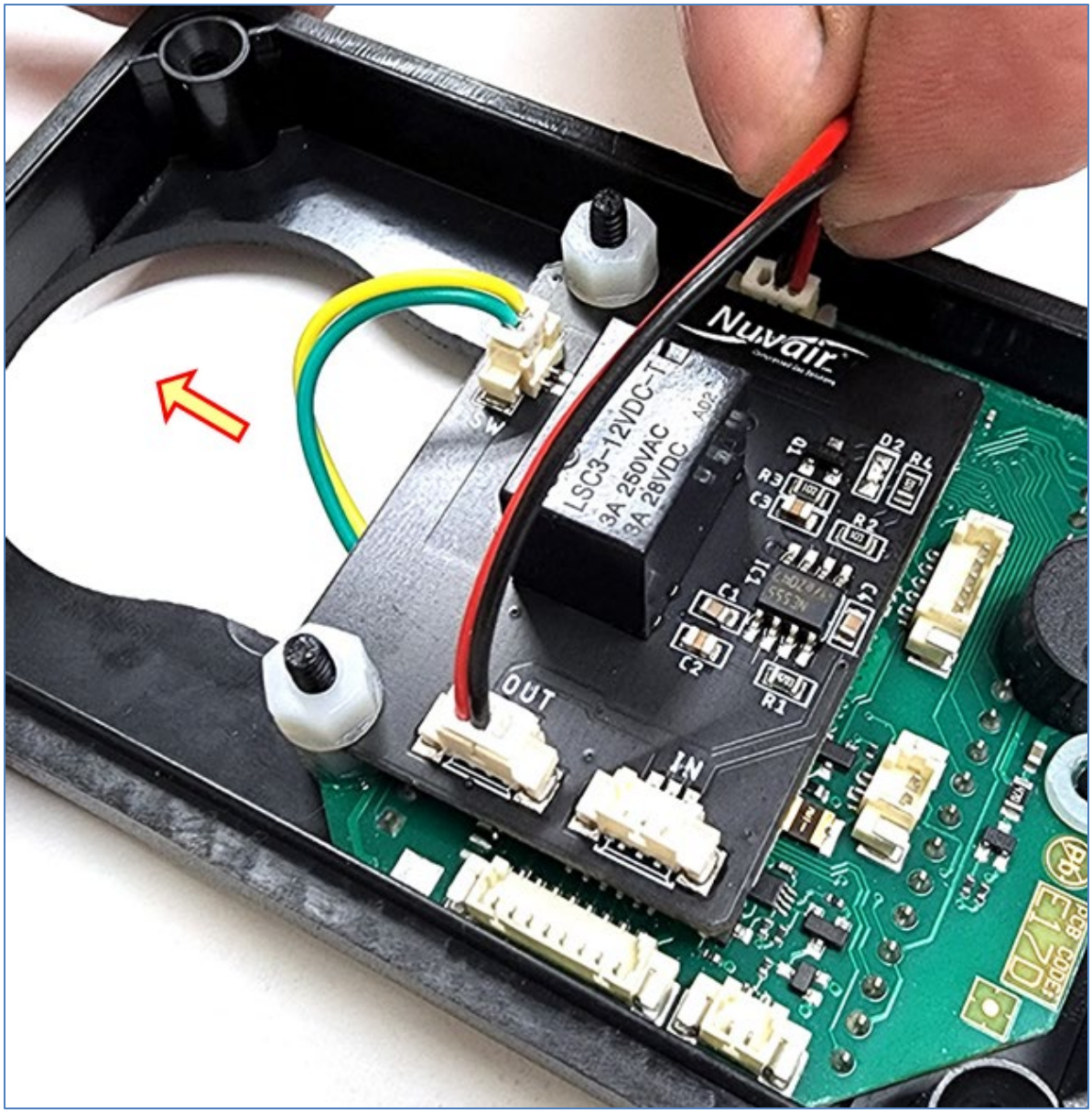

Figure 8. Connecting SMART START Module with flange nuts and wiring.

4.0 Modifying Internal Power Pro Alarm Versions

If your Pro Alarm analyzer is equipped with an internal power supply (lithium [Li-ion] battery), the battery must be removed, and the power connection to the battery stubbed off (Figure 9).

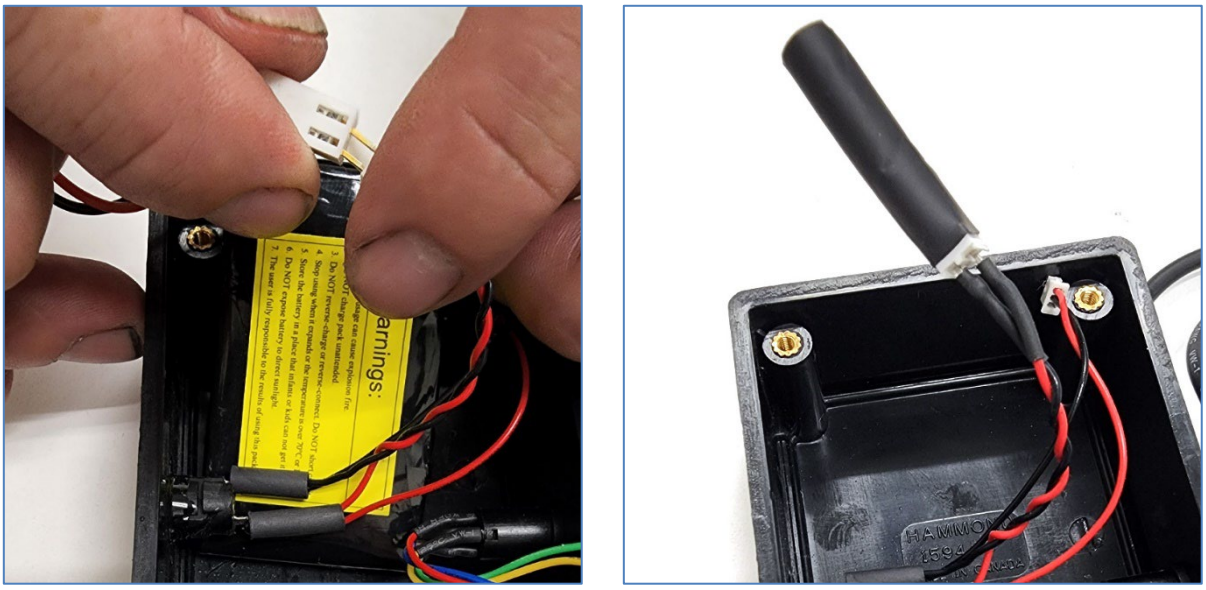

Figure 9. Disconnecting Li-ion battery (left) and stumping off battery connector (right).

1. Disconnect battery from external power supply.
2. Remove battery from case.
3. Stub off open battery connector with shrink tubing or electrical tape.
4. Connect external battery supply wiring to open connector on SMART START Module labeled “IN” (Figure 10).

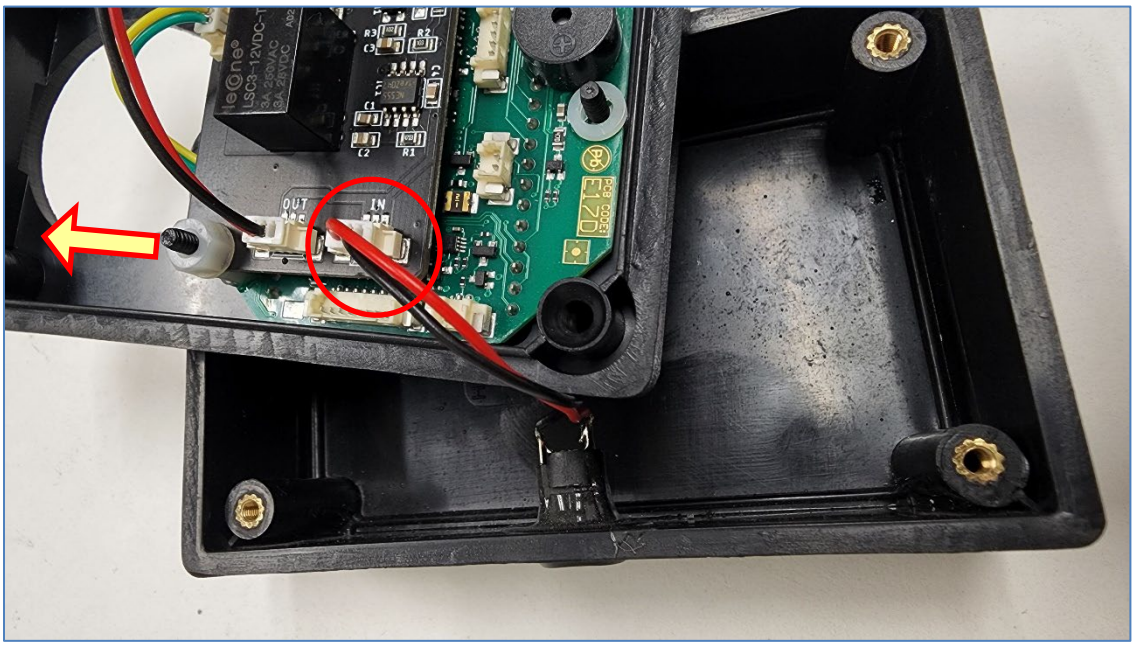

Figure 10. Connect external power supply wires to indicated port on SMART START Module.

5. From the connector labeled “OUT” connect to the original power connector on the green PCB.
6. Plug green and yellow connector in SW position on SMART START Module (Figure 11).
7. Reassemble.

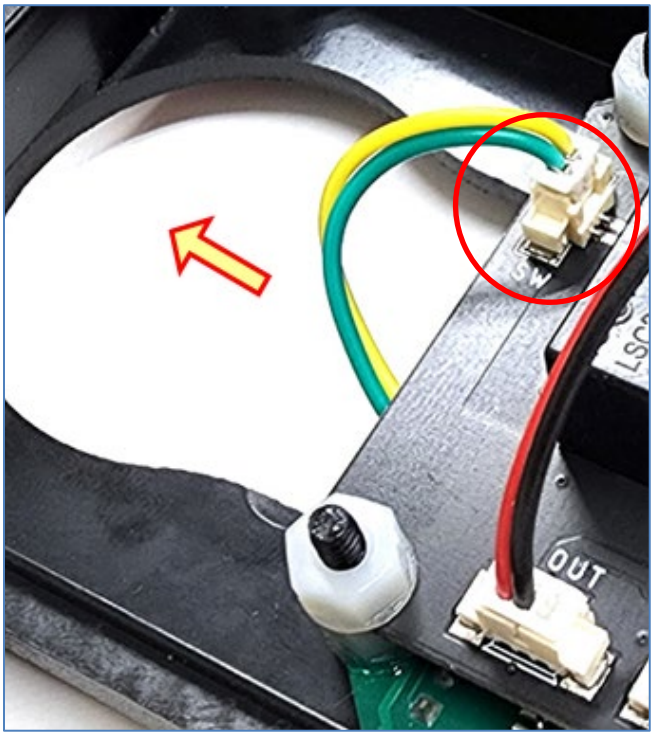

Figure 11. Green and yellow connector plugs into SW position.

5.0 Additional Parts

SKU	Identification
BPM6	Pro Analyzer Flow Adapter Cap
5463K369	Hose Barb Fitting for Pro Analyzer Flow Adapter Cap
51075K246	Tubing for Nuvair Pro Analyzer Flow Adapter Cap
PC	Wall Socket for SP-C2S3A Charger
120-052	12-volt Power Supply for Nuvair Pro Alarm Analyzers without Battery

6.0 Nuvair Standard Warranty

Unless otherwise specified, materials (parts and equipment) supplied by Nuvair are covered by a one (1) year warranty period from the date of delivery to customer. “Date of delivery” is determined by shipping or proof of receipt documentation.

Should the customer note any flaws and/or defects, it must be reported in writing to Nuvair within two (2) months of discovery or the warranty shall be rendered null and void.

Nuvair shall repair or replace materials it acknowledges to be faulty during the warranty period.

In replacing faulty material, Nuvair shall not be liable for any other expenses sustained by the dealer or its customer, such as presumed damage (present or future), lost earnings or fines.

Warranty only covers flaws and faults that occur where materials are used properly in compliance with the instructions contained in the User Manual and where periodic maintenance is carried out. The warranty does not cover faults caused by improper use of materials, exposure to atmospheric conditions (rain, etc.) or damage during transport.

Materials subject to wear and those subject to periodic maintenance are not covered by warranty and are to be paid for by the customer in full. Routine and unscheduled maintenance must be carried out in compliance with User Manual instructions. If required work is not covered by the User Manual or if technical assistance is required, please contact Nuvair directly by email or phone. Nuvair cannot be held liable for any delays or failure to execute work.

Use of genuine OEM (original equipment manufacturer) parts and lubricants (if applicable) are recommended to maintain a product warranty. If a product failure is deemed a result of using non-OEM part and/or lubricant, the warranty will be considered null and void.

Nuvair is not liable for any damage or malfunctions caused by work carried out on materials by unauthorized personnel.

Warranty is rendered null and void if materials are tampered with or if work (other than routine maintenance) is carried out by personnel who have not been authorized by Nuvair.

Faulty equipment due to flaws in design, workmanship, or materials used shall be repaired or replaced free of charge by Nuvair at its California production facility. Transportation costs, delivery of spare parts, and/or any materials subject to normal wear, are the responsibility of the customer.

Should on-site warranty work be required on the customer’s premises, Nuvair repair personnel travel, accommodations, and per diem costs of shall be the responsibility of the customer.

Warranties are nontransferable.

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