Standard Pneumatic Products, Inc.

31 Shepard Hill Rd • Newtown, CT • 06470 • 203-270-1400 • 203-270-3881 Fax

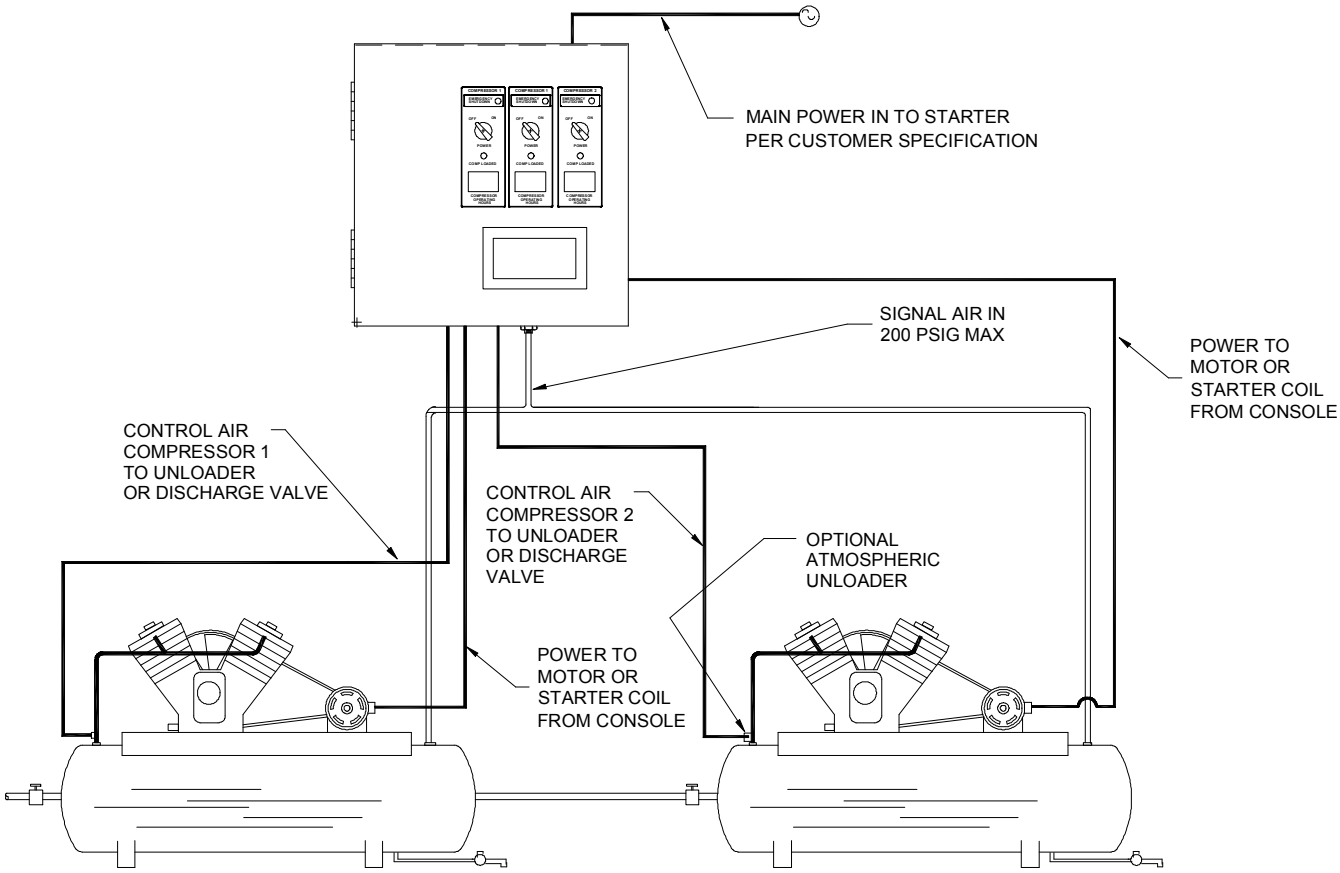
www.stdpneumatics.com *"Saving the planet, one compressor at a time"*

INSTRUCTIONS FOR INSTALLING AND OPERATING THE UNIVERSAL AUTOSYNC ADSE/ASPSS-2 DUAL COMPRESSOR SEQUENCER

Congratulations on your purchase of the Universal ADSE/ASPSS Dual Compressor Sequencer. The ADSE/ASPSS DUAL/STARTER COMBINATION CONTROLLER is a modern PLC controller that will operate, sequence, and idle your air compressors automatically, in one easy to install, self-contained package. The ADSE controller differs from the ASPSS controller in that the ADSE does not have internal starters, bit the operation of the console is the same. PLEASE READ INSTRUCTIONS BEFORE INSTALLING.

The ADSE/ASPSS Dual Compressor Sequencer was designed to be simple to install and requires only 3 (three) plumbing (air) connections and 4 (four) electrical connections to control and sequence 2 complete air compressors.

MODEL ADSE/ASPSS
DUAL COMPRESSOR SEQUENCER
GENERAL ARRANGEMENT



Note: Outside console penetrations may vary depending on customer options

IMPORTANT NOTE: CONSOLE MUST BE POWERED UP WITHIN 30 DAYS OF SHIPMENT. THE PLC PROGRAMMING REQUIRES POWER TO BE MAINTAINED. FAILURE TO ENERGIZE CONSOLE MAY CAUSE THE INTERNAL PROGRAMMING OF THE PLC TO DROP OUT IF THE INTERNAL PLC BACKUP BATTERY LOSES POWER

SYSTEM PLUMBING

Preparing the Air Compressor

1. Per O.S.H.A. regulation 1910.147, relieve the system of all pressure before attempting to service any part of the unit.

2. Turn off and lockout/tagout the main power disconnect switch before attempting to work or perform any maintenance (per O.S.H.A. regulation 1910.147).

3. Do not attempt to service any part of the unit while it is operating.

4. Isolate the compressor from the compressed air supply by closing a manual shutoff valve upstream and downstream from the compressor. Display a sign in clear view at the shutoff valve stating that the compressor is being serviced.

5. Lock open a pressure relief valve within the pressurized system to allow the system to be completely de-pressurized. **NEVER** remove a plug to relieve the pressure!

   Mount the ADSE/ASPSS COMPRESSOR SEQUENCER to the compressor platform on one of the compressors using the supplied mounting holes inside the controller box or mount as a remote unit to an adjacent wall.

   Plumb compressed air from the air receiver into the bottom ¼" connection of the enclosure and then connect the compressor head unloaders control air lines directly to the ¼" outlet connections on the left side of the enclosure. The unloader fittings are identified as Compressor 1 and Compressor 2. These MUST be routed to the proper compressor head on the compressors

   If your compressor is old and subject to oily water carryover, it is advisable to **install** a ¼" mini filter before the bottom air inlet to prevent pressure switch or console gauge errors and/or subsequent failure.

   Select the power switches on both compressors to the "**OFF**" position. Plumbing is now complete.

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SYSTEM ELECTRICAL

Standard Features Electrical Connections

ADSE - Connect the starter coil on the remote customer provided starters to the 2 terminal block screws for each starter coil labeled COMP 1 (2,3,4,) The 2 wires to each starter coil (IEC Type starters) typically go to the 96 thermal terminal and the A2 terminal on the starter coil with a wire running from thermal term 95 to the A1 coil terminal. NEMA starters vary the way the heaters interface to the coil. Refer to manufacturers instructions on your starters to verify proper wiring.

ASPSS – The connection on the ASPSS is 2 or 3 phase wiring in to the "line" (L1, L2, & L3) side of the starter, and 2 or 3 phase out from the therma (2T1,4T2,6T3)l to the motor. In this configuration, the incoming motor leads must be connected thru an external wall mounted motor disconnect.

With all compressor switches turned to "OFF", energize ADSE or ASPSS console and make pressure adjustments as outlined in this manual. After all settings have been made, turn selector switch of each compressor to the "ON" position.

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Optional Features Electrical Connections

Emergency Shutdown (Optional)

Power to the emergency shutdown circuit is provided by the ASPSS console. The console sends 110VAC power through the ES switches, so the switches must be rated for 110VAC. Multiple shutdown switches can be used and should be wired in series, that is, end to end, so that ANY open circuit on ANY fault sensor will break the circuit to the ES terminal screws. **REMOVE FACTORY JUMPERS FROM TERMINAL BLOCKS WHEN INSTALLING ANY FAULT SWITCHES**. Connect Switched Emergency shutdown device (L.O.P., High Air Temp, etc) in series to the terminals inside the ADSE/ASPSS controller using the terminals labeled, "Comp 1-Comp 4 Emerg Shutdown." The emergency shutdown switch must have contacts rated for 110VAC and will detect fault from the compressor when the contacts on the emergency switch are OPEN, therefore all switches should be of the N/C (Normally closed) type. The exception is low oil pressure. The controller will not sense any faults for 20 seconds after startup. This allows time for the oil pressure to build up inside the compressor and close the Pressure switch. A closed circuit on the switch (normally closed) indicates proper operation of the compressor. A emergency lamp will illuminate on the front panel to notify operator that the circuit has been interrupted. **DO NOT send any voltage to the fault detect circuit from the emergency shutdown switches. Power is already provided by the console. External power will permanently damage the PLC controller and VOID THE WARRANTY. DRY, NON-POWERED NORMALLY CLOSED 110VAC RATED SWITCH CONTACTS ONLY!**

Remote Signal (Optional)

Upon ADSE/ASPSS fault detected, the REMOTE SIGNAL terminals on the ADSE/ASPSS terminal block can send a 24VDC 300mA signal to an external relay allowing the use of a remote signal light or annunciator horn, etc. Connect wiring from the ADSE/ASPSS terminals to the 24VDC coil of the relay, and wire the contacts of the relay to the selected external alarm/annunciator source

Tank Drain

Connect leads from the tank drain to the ADSE/ASPSS terminal block labeled 110VAC out to drain. Power to the drain is supplied from the ADSE/ASPSS controller (120VAC) The tank will blow for 10 seconds every hour of compressor PUMPING TIME. It is not user adjustable.

SEQUENCER OPERATION

WARNING

Be sure to check the air compressor manufacturer's limitations on pressure before setting the pressure switch on the **ADSE/ASPSS**. Too high a pressure beyond the limits of the air compressor and the air receiver can result in a catastrophic failure causing destruction, injury or death. **Maximum pressure is 200 psig. Do not exceed.** A safety valve must be installed on any air receiver to safely limit the discharge pressure and sized to handle the volume from the air compressor to avoid over pressurization.

Automatic Lead Lag Control Operation

The front panel of the ADSE/ASPSS Console has a touch screen digital display to set all the pressure parameters. There are 4 adjustable functions: 1) Swap Cycle length 2) Idle time 3) High Pressure Setpoint 4) Pressure Deadband and 5) Pressure differential.

When the console is initialized, Compressor 1 is the "lead" compressor. Compressor 2 (3 & 4) serves as the Lag compressor(s) during this cycle, and will come on if additional shop air is required. In the case of optional 3 & 4 compressor consoles, the #3 and #4 compressor will also come on if additional shop air is needed. When the Lead/Lag timer reaches its "swap cycle", compressor 2 begins it's cycle as the LEAD machine, as #1, (#3, #4) serves as a backup.

If you are using the optional 3 or 4 compressor controller, compressor 3 and/or compressor 4 will continue this lead/lag cycling. There are 4 cycle orders for the compressors. Lead 1, (Lag 2,3,4), Lead 2, (Lag 3,4,1), Lead 3, (Lag 4,1,2), and Lead 4, (Lag 1,2,3). These sequences are preprogrammed and cannot be modified.

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Console Operation

FIG 1

Compressor 1: Figure 1 above shows the main monitoring screen for the ASPSS controller. The yellow pressure screen shows the main pressure entering the console, and the pressure of the shop air. Compressors shown in RED are actively pumping or idling, the gray compressors off, based on the pressure settings. The ORANGE button takes the operator to the setup screen shown in Fig 2.

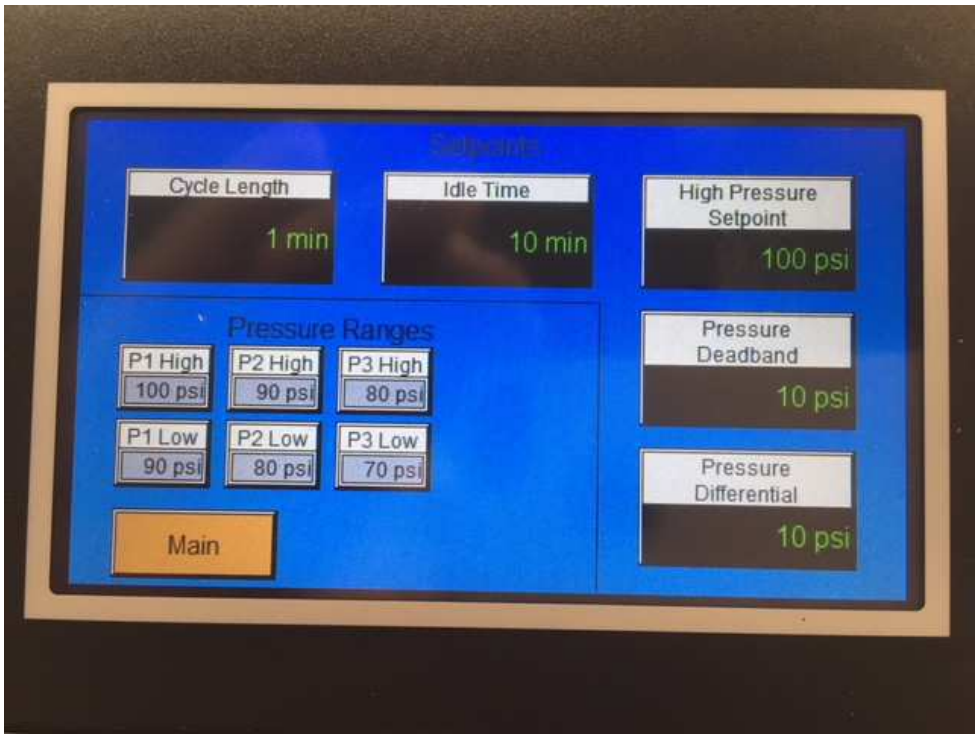

FIG 2

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FIG 3

Display settings functions:

Function 1: Cycle Length – This setting controls the duration of the lead/lag swap cycle between compressors. It is adjustable between 10 and 2000 minutes. To adjust this setting, tap on the "Cycle Length" button. You may have to tap on the "setpoints button" first, depending on the status of the display. The digital keypad will appear on the screen as shown in Fig 3. Press the "CLR" button on the digital keypad, select the delay value (10-2000min), and press "ENT" on the display. It will return to the settings display screen. Press the orange "MAIN" button to return to the monitoring, or continue to the next setting

Function 2: Idle time – This setting controls the time the motor idles after pressure is reached on the compressors. It is adjustable between 0 and 20 minutes. This setting avoids constant starting and stopping of the motors, and start the pumping cycle when the compressor is already running to avoid loaded starts. To adjust this setting, tap on the "Idle Time" button. You may have to tap on the "setpoints button" first, depending on the status of the display. The digital keypad will appear on the screen as shown in Fig 3. Press the "CLR" button on the digital keypad, select the delay value (0-20min), and press "ENT" on the display. It will return to the settings display screen. Press the orange "MAIN" button to return to the monitoring, or continue to the next setting

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Function 3: High Pressure Setpoint – This setting controls the upper most high pressure shutoff on the lead compressor, ALL OTHER COMPRESSORS adjust automatically using this baseline setting. Pressure settings for other compressors are controlled with the remaining 2 display functions, pressure deadband and pressure differrential. It is adjustable between 60 and 200PSI. To adjust this setting, tap on the "High Pressure Setpoint" button. You may have to tap on the "setpoints button" first, depending on the status of the display. The digital keypad will appear on the screen as shown in Fig 3. Press the "CLR" button on the digital keypad, select the Pressure (60-200PSI), and press "ENT" on the display. It will return to the settings display screen. Press the orange "MAIN" button to return to the monitoring screen, or continue to the next setting.

Function 4: Pressure Deadband – This setting controls the turn-on and turn-off pressure for the compressors. It is adjustable between 5 and 40PSI. EXAMPLE: If function 3 is set to 100 PSI and function 4 is set to 30 PSI, this means the compressor will shut off at 70 psi. To adjust this setting, tap on the "Pressure Deadband" button. You may have to tap on the "setpoints button" first, depending on the status of the display. The digital keypad will appear on the screen as shown in Fig 3. Press the "CLR" button on the digital keypad, select the delay value (10-40PSI), and press "ENT" on the display. It will return to the settings display screen. Press the orange "MAIN" button to return to the monitoring,screen or continue to the next setting.

Function 5: Pressure Differential – This setting controls the shutoff and turn-on pressure BETWEEN COMPRESSORS. EXAMPLE: If this value is set to 10psi, the lag compressor will turn-on and shut-off 10 psi below the Lead compressor It's value varies, based on the function 4 deadband pressure with 5psi as the lower limit. To adjust this setting, tap on the "Pressure Differrential" button. You may have to tap on the "setpoints button" first, depending on the status of the display. The digital keypad will appear on the screen as shown in Fig 3. Press the "CLR" button on the digital keypad, select the differential value, and press "ENT" on the display. It will return to the settings display screen. Press the orange "MAIN" button to return to the monitoring screen, or continue to the next setting.

The console ON/OFF switch shuts off individual compressors for service. It does not affect the Lead/Lag timing or the pressure settings.

WARRANTY

General Provisions
Standard Pneumatic Products, Inc. (the Seller) warrants to each Purchaser products of the Seller's own manufacture against defects in material and workmanship. With respect to products not manufactured by the Seller, the Seller will, if practical, pass along the warranty of the original manufacturer.

The Seller's sole obligation under this warranty shall be, at its option, to repair, replace, or refund the purchase price of any product or part thereof which is deemed to be defective, provided the Purchaser meets all of the applicable requirements of this warranty and none of the limitations apply.

Warranty Periods
Units
The Models AD and ADS, and ADSE/ASPSS are warranted for one (1) year from date of manufacture or 15 months from shipment.

Replacement Parts
Seller warrants repaired or replaced parts against defects in material and workmanship under normal use and service for ninety (90) days, or for the remainder of the warranty on the product being repaired, whichever is longer.

Normal maintenance items and procedures are not warranted unless found to be defective in material or workmanship, e.g., a clogged 3-way valve.

Limitations
Notice of the alleged defect must be given to the Seller in writing with all identifying details, including serial number, model number, type of equipment and date of purchase within thirty (30) days of discovery of same during the warranty period. If requested by Seller, such product or product thereof must be promptly returned to Seller, freight collect for inspection. No models are eligible for travel expense.

The above warranties shall not apply and Seller shall not be responsible or liable for:

a. Consequential, collateral or special losses or damages.
b. Equipment conditions caused by fair wear and tear, abnormal conditions, accident, neglect or misuse of equipment, improper storage or damages resulting during shipment.
c. Deviation from operating instructions, specifications or other terms of sales.
d. Labor charges, loss or damage resulting from improper operation, maintenance or repairs made by person(s) other than Seller or Seller's authorized service station.
e. Improper application or installation of product.

Disclaimer
In no event shall Seller be liable for any claims, whether arising from breach of contract or warranty or claims of negligence or negligent manufacture, in excess of the purchase price.

This warranty is the sole warranty of Seller and any other warranties, express, implied in law or implied in fact, including any warranties of merchantability and fitness for particular use, are hereby specifically excluded.

Please do not hesitate to call us at Standard Pneumatic Products for assistance when wiring in any of Standard Pneumatics Controller. The price of a phone call is far less costly than a mis-wired Controller.

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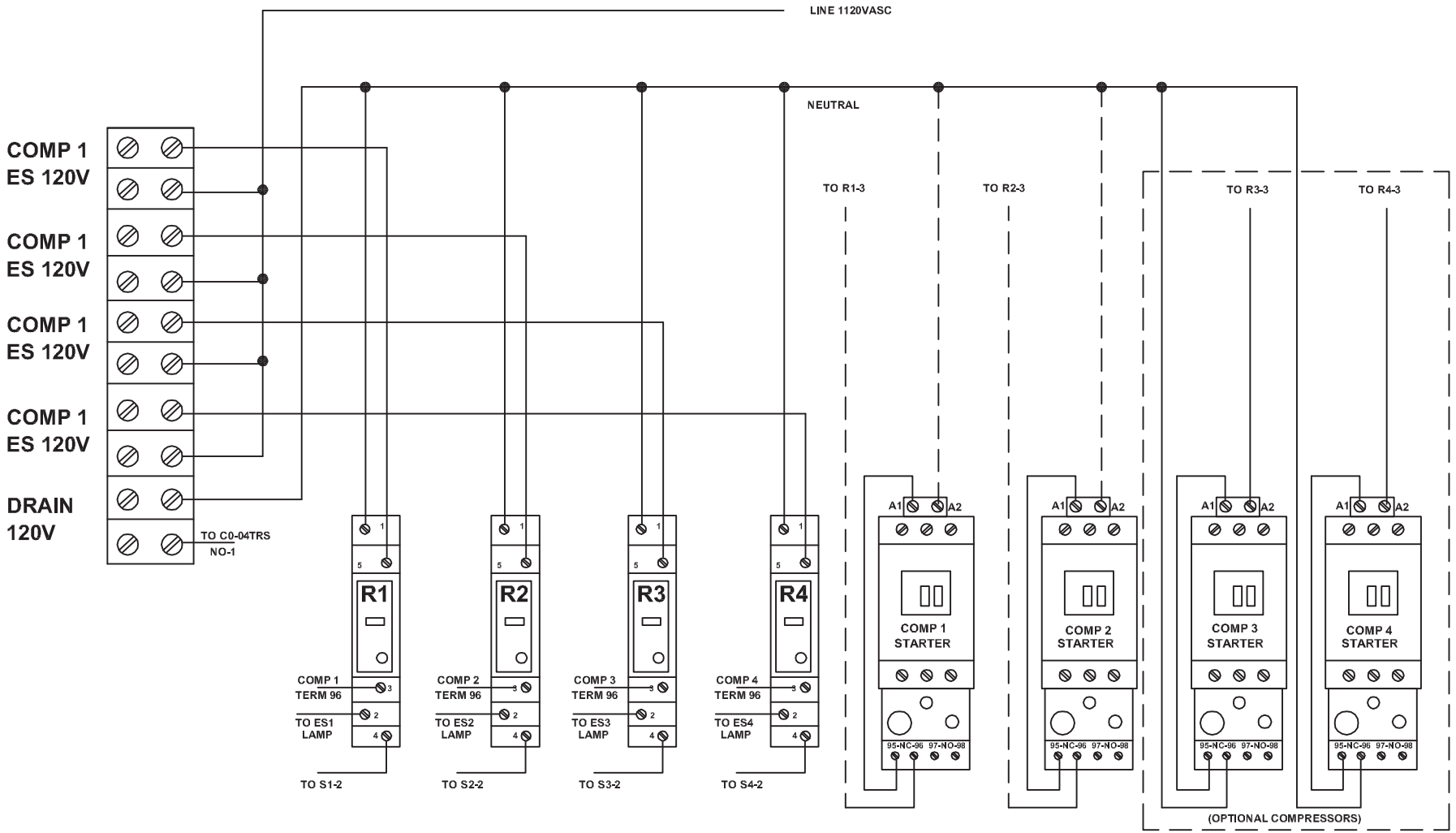
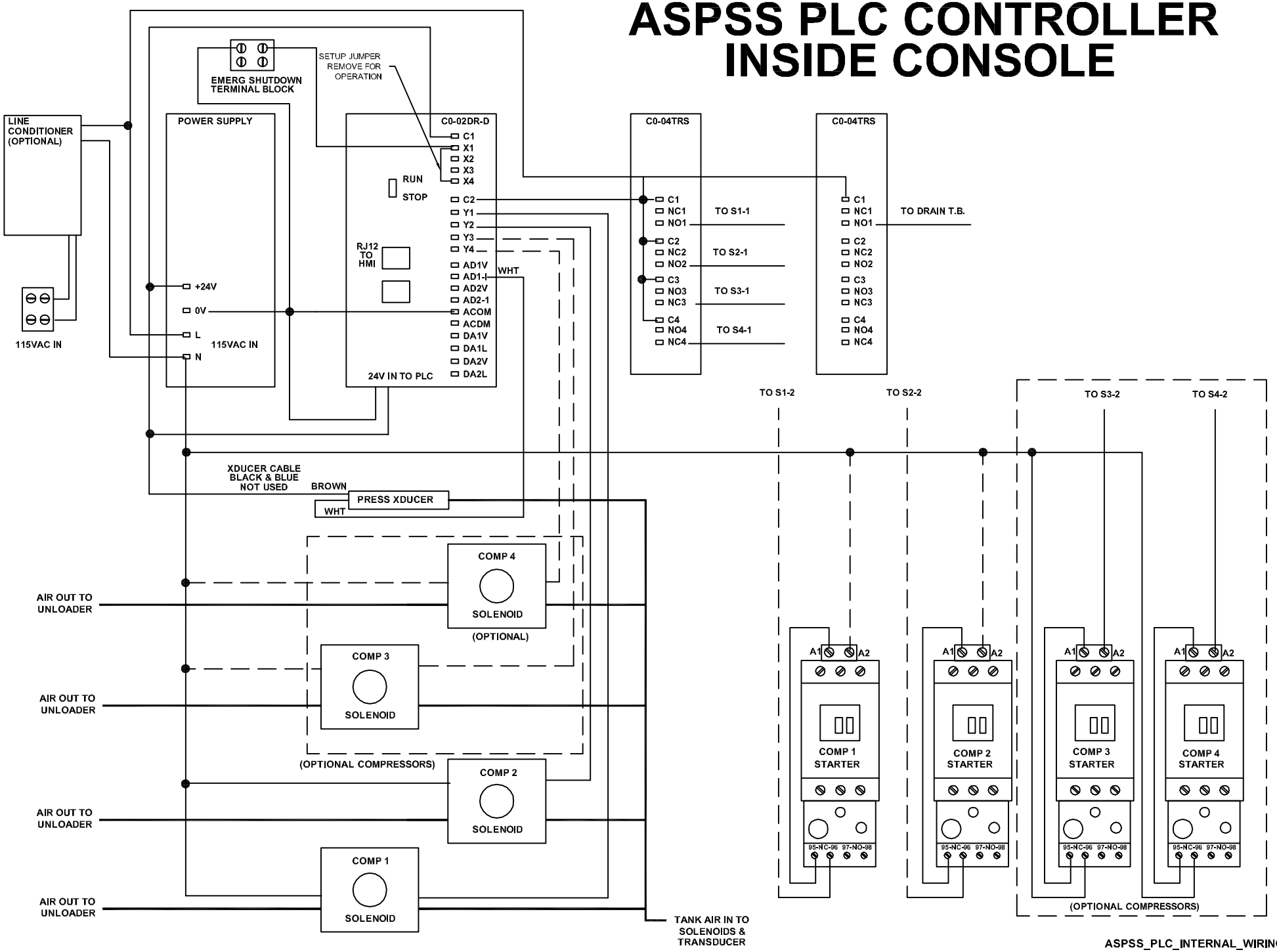
INTERNAL WIRING
ASPSS PLC CONTROLLER
STARTER WIRING W/
EMERG SHUTDOWN



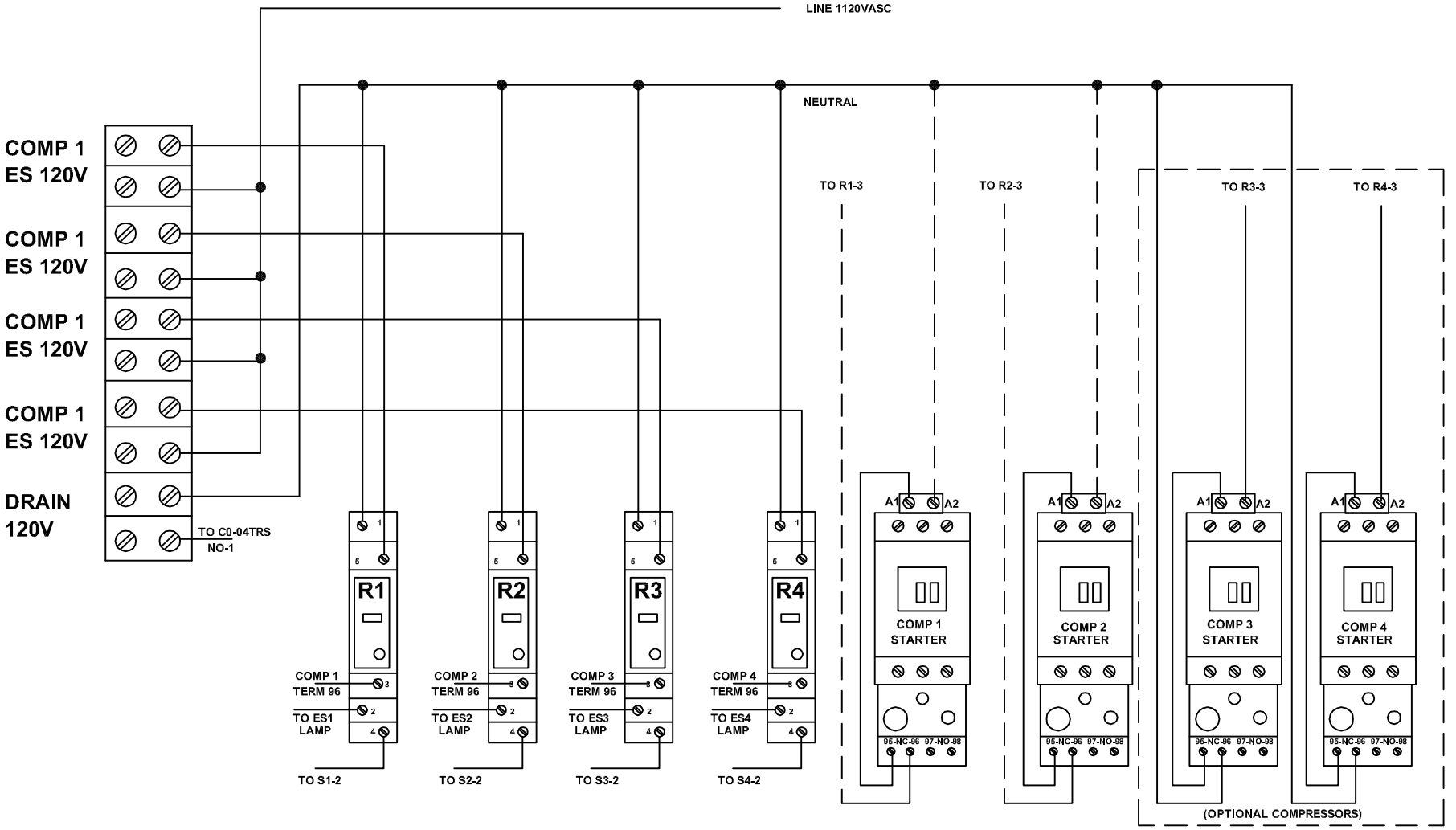
ASPSS_PLC_INTERNAL_WIRING

INTERNAL WIRING
ASPSS PLC CONTROLLER
INSIDE CONSOLE



ASPSS_PLC_INTERNAL_WIRING

INTERNAL WIRING
ASPSS PLC CONTROLLER
STARTER WIRING W/
EMERG SHUTDOWN



ASPSS_PLC_INTERNAL_WIRING