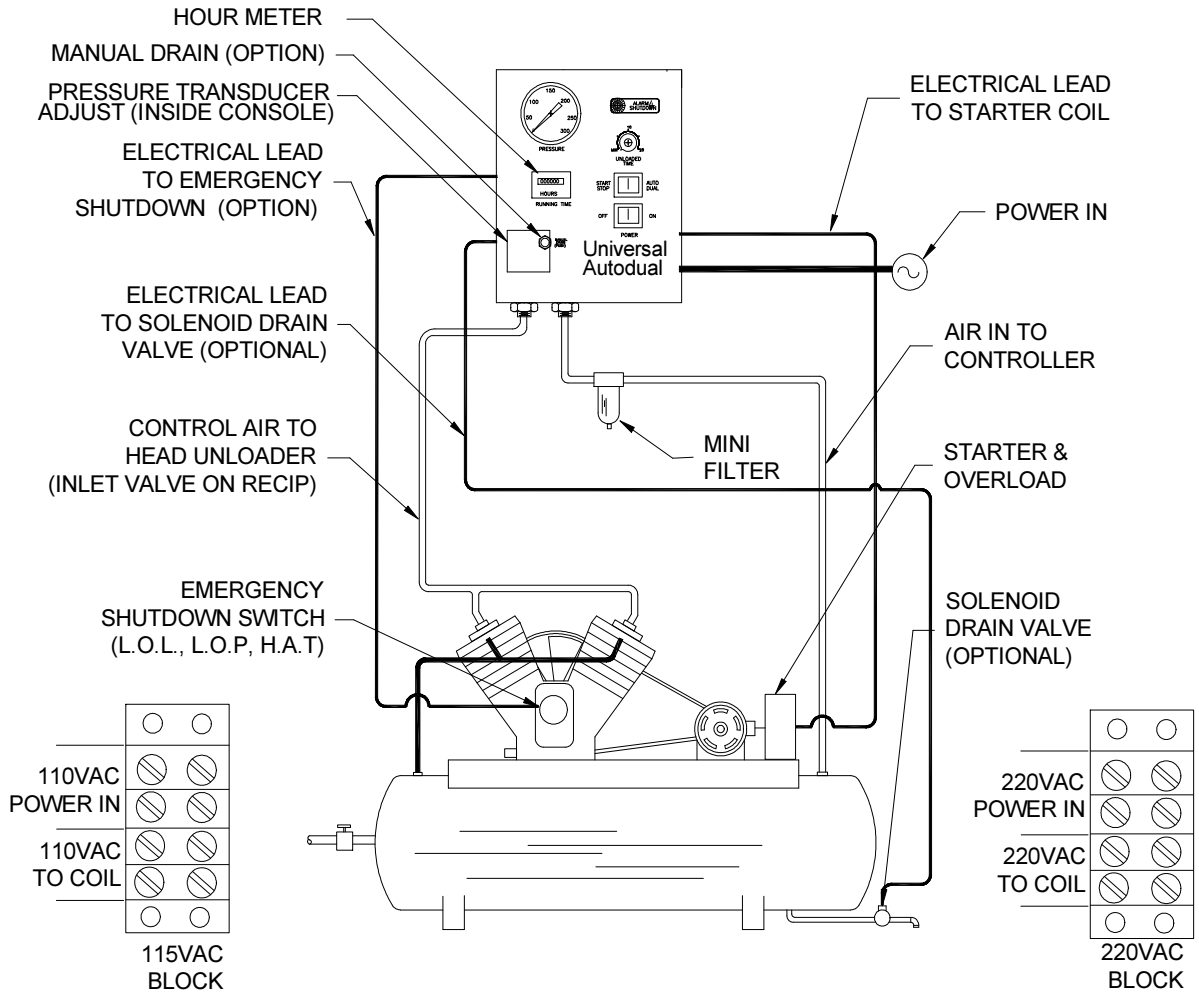


INSTRUCTIONS FOR INSTALLING AND OPERATING THE UNIVERSAL AUTODUAL – TRANSDUCER MODELS

SAFETY PRECAUTIONS – DO NOT DESTROY
 This manual contains important safety information and should be made available to all personnel who operate and/or maintain this product. Carefully read this manual before attempting to operate or perform maintenance on this product.



Note: location of penetrations on controller may vary from above drawing

The **UNIVERSAL AUTODUAL** is a modern energy savings device that will operate your air compressor at its maximum level of efficiency. The **UNIVERSAL AUTODUAL** will eliminate the problems associated with long idle periods and will protect your compressor from low oil level failure. Further, the tank drain system will automatically drain condensate from the receiver tank with virtually no wasted air.

PLEASE READ INSTRUCTIONS BEFORE INSTALLING.

The **UNIVERSAL AUTODUAL** is designed to be simple to install and requires only two plumbing (air) connections and two electrical connections to use all of the standard features.

Preparing the Air Compressor

1. A. Per O.S.H.A. regulation 1910.147, relieve the system of all pressure before attempting to service any part of the unit.
B. 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).
C. Do not attempt to service any part of the unit while it is operating.
D. 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.
E. 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!
2. **Remove** the existing pressure switch, pilot unloading valve, and special valves associated with these controls from the air compressor.
3. **Mount** the **UNIVERSAL AUTODUAL** to the compressor platform using the flanges on the rear mounting plate of the enclosure or as a remote mount to an adjacent wall.
4. **Plumb** compressed air from the air receiver into the bottom ¼” connection of the **UNIVERSAL AUTODUAL** and then connect the compressor head unloader control air line **directly** to the ¼” outlet connection on the left side of the **AUTODUAL**, bypassing any other valves or control lines on the air compressor.
5. 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 solenoid valve failure.

Plumbing is now complete.

WIRING THE CONSOLE

The following electrical procedures must be followed when stopping the compressor for **AUTODUAL** installation.

Per O.S.H.A. regulation 1910.147: The Control of Hazardous Energy Source (Lockout/Tagout), disconnect and lockout the main power source. Display a sign in clear view at the main power switch stating that the compressor is being serviced.

Switch the **AUTODUAL** power switch to the “Off” position. The barrier block inside the console has 4 terminal connections, 2 for power in to the console, and 2 terminals to run console supplied 110VAC OR 230VAC (Depending on order) to the A1 & A2 connections on the starter coil. There may be additional terminal connections on this barrier strip as well, depending on purchased options on the AD controller. These additional terminals are labeled for the optional functions, and described later in this manual.

Wiring the console (cont)

The simplest way to wire the **AUTODUAL** is 1/60/115 volts, but wiring is the same if the controller was ordered as a 230VAC unit.. This requires that you run power wires from a customer supplied and installed external disconnect box to the upper 2 terminals on the AD controller barrier block inside the AD console, and then run wires from the barrier strip labeled “coil terminals” to the A1 and A2 terminals on the starter coil (see diagram). **The starter coil MUST BE 115 volts (or optional 230VAC)** regardless of the main inlet voltage to the controller.

If 115-volt control voltage is a requirement, then use an **AUTODUAL** (Model AD115) for 115 volts. For 230 Volts the controller should be ordered as a Model AD-230. For higher voltages, Use a CVT (Control Voltage Transformer) to convert down from the feed voltage to 110/230, depending on which controller you ordered (Ad-115 or AD-230).

In all circumstances when wiring to the starter coil terminals, it is a requirement to wire one leg through the dry contact thermal overload switch on the starter output terminals to obtain a “stop” if the overload motor relay trips. This wiring connection is shown on the starter, or on the starter installation instructions.

Starting the Compressor

When the wiring job is completed and is checked for correctness, select the mode of operation – “START/STOP” or “AUTODUAL.”

Start the compressor unit by pushing the “OFF/ON” rocker switch to “ON.”

The compressor will start and stop in response to the pressure switch when operated in the “START/STOP” mode. The “AUTO DUAL” mode provides unattended start/timed-stop operation. The compressor will start automatically, load, unload, idle and stop in response to the automatic controls. The timed shutdown “UNLOADED TIME” interval is adjustable from 4 to 20 minutes and can be adjusted with the knob located on the front of the controller. AUTO DUAL mode is selected to prevent frequent starting and stopping of the compressor motor. Always begin the adjustment for “AutoDual” Mode in the MINIMUM 4min position, and increase this setting **ONLY** if the compressor stops and starts more than 6 times per hour. This guarantees maximum compressor efficiency and electrical savings.

Setting the Compressor Operating Pressure with 150 or 300 psi Transducer:

CHANGE SHUTOFF PRESSURE - Press the blue button on the transducer display until the display toggles between P_1 and 120.0psi which is the default factory pressure setting. To increase or decrease this pressure use the up or down arrows next to the blue button as required to adjust the pressure setting. Note the pressure you are changing in this mode is the compressor SHUTOFF pressure. It is important to note that changing the shutoff pressure also changes the turn on pressure, as the pressure deadband (known as hysteresis) always remains 20 psi lower than the shutoff pressure. For example, if you change the “compressor off” pressure to 100 psi, the turn on pressure will also move to 80 psi, a difference of 20 psi. This is known as the hysteresis setting, and can be changed as follows:

CHANGE PRESSURE DEADBAND - Factory preset to 20 psi differential between the high and low pressure settings. Do not change any other functions or modes on the transducer!!

Press and hold down the blue button on the transducer until F_0 flashes on the display. Press the “up” arrow until F_1 appears on the display.

Press the blue button until H_1 appears on the display, and alternately toggles between H_1 and 20.0. This is the default pressure deadband pressure.

Use the up or down arrows to increase or decrease the deadband setting between the upper and lower pressure. **This number represents the difference between the high and low pressure, NOT THE ACTUAL LOW PRESSURE “turn on” pressure.**

Hold the blue button down until the transducer display goes back to the current inlet pressure setting.

Maximum Pressure setting on the Low pressure transducer is 148 PSI. Pressures over this will fault the transducer. The transducer will automatically reset itself after pressure drops below 148 PSI and compressor will restart.

INSTALLING AND USING THE OPTIONS

EMERGENCY SHUTDOWN (OPTIONAL)

The emergency shutdown simultaneously shuts down the air compressor and activates the emergency indicator light if there is a fault on any of the detecting switches. After the emergency situation has been repaired, reset the **AUTODUAL** by pushing the “On/Off” rocker switch to “Off” for 5 seconds. Unit can then be restarted.

There is a 20 second delay in the **AUTODUAL** “brain” before an emergency shutdown will occur. The 20 second delay will give an air compressor with a pressure lubricated running system time for the oil pump to build pressure and eliminate false low oil pressure shutdowns.

The Emergency Shutdown circuit can be used equally on any or all low-oil-level signals, high air temperature devices or low oil pressure switches. The single electrical characteristic is that ALL warning devices must be **NON-POWERED and normally closed** since the **AUTODUAL** emergency system is activated when its circuit is broken. Wire the fault device to the internal barrier block, (the terminals will be marked for emergency shutdown). Multiple emergency shutdown devices can be wired in series. For example, a low oil pressure shutdown and a high air temperature shutdown wired in series.

DO NOT SUPPLY ANY POWER FROM ANY FAULT DEVICES TO THE CONSOLE BARRIER BLOCK, YOU WILL DAMAGE THE CONTROLLER AND VOID THE WARRANTY! ONLY NON-POWERED, NORMALLY CLOSED FAULT SWITCHES SHOULD BE USED.

REMOTE SIGNAL (OPTIONAL)

The Remote Alarm contacts send a 24 volt, 40 ma signal to a low voltage relay for distribution to visual, audible or computer alarms. It is labeled on the barrier block. Use these 2 terminals to send a signal to a remote relay for activating a remote alarm or other external source.

AUTO TANK DRAIN (OPTIONAL)

The Auto Tank Drain electrical line connects directly to a two (2) way normally closed solenoid valve. After every hour of compressor pumping time, the solenoid will automatically be activated to open and blow for the time interval set by the JP1 jumper on the control board. The jumper across pins 1-2 is 20 seconds, across pins 3-4 is 5 seconds, And across pins 5-6 is 10 seconds. This can be changed by the customer for proper automatic draining. Push and hold the "Test Drain" button at any time to drain the tank. The drain solenoid valve is pre-wired from the factory with a DIN connector for easy installation to your tank exit pipe. The connection for the drain solenoid is located on the barrier strip inside the console, and is labeled for "tank drain". It is powered by the control console, and operates a solenoid drain valve at 110VAC.

WARNING

Be sure to check the air compressor manufacturer's limitations on pressure before setting the pressure switch on the **AUTODUAL**. 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.

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 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.