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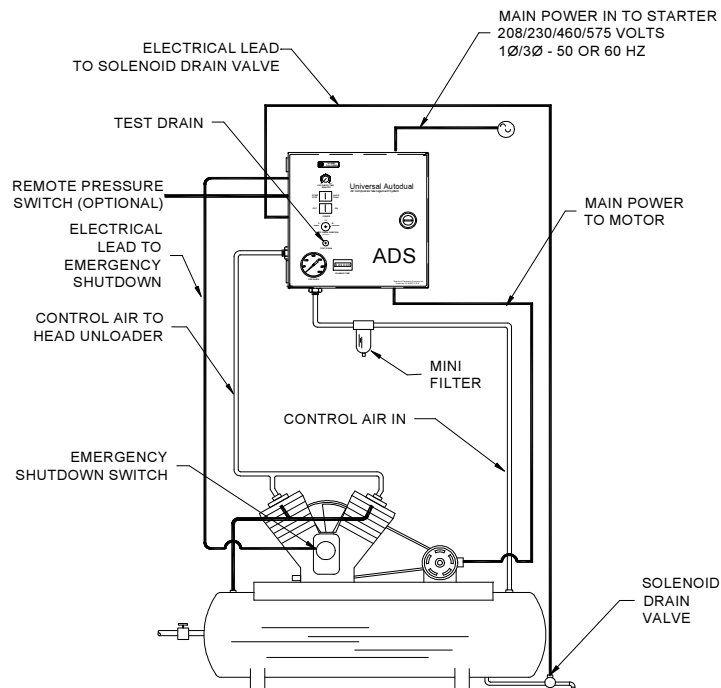
"Saving the planet, one compressor at a time"

INSTRUCTIONS FOR INSTALLING AND OPERATING THE MODEL ADS UNIVERSAL AUTODUAL/STARTER COMBINATION COMPRESSOR CONTROLLER W/ PRESSURE TRANSDUCER

The AUTODUAL/STARTER COMBINATION CONTROLLER is a modern energy savings controller that will operate your air compressor at its maximum level of efficiency. With the optional features, the Emergency Shutdown will protect your compressor from failure from oil loss or high discharge air temperature; the Auto Tank Drain will drain the condensate from your receiver tank automatically with virtually no wasted air. There is also an optional manual drain button conveniently located on the front of the console for tank purging at any time.

PLEASE READ INSTRUCTIONS BEFORE INSTALLING.

The AUTODUAL/STARTER COMBINATION was designed to be simple to install and requires only two plumbing (air) connections and two electrical connections to use all of the standard features.



Note: Wire routing penetrations may be slightly different on actual controller

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!

Remove the existing pressure switch, pilot unloading valve, and special valves associated with these controls from the air compressor, and plug all open ports after removal. These are not used with the Universal Autodual Controller. All required pressure switching components are included on the controller.

Mount the AUTODUAL Starter enclosure to the compressor platform using the supplied mounting holes inside the ADS controller box or mount as a remote unit to an adjacent wall.

Plumb compressed air from the air receiver into the bottom ¼” center connection of the enclosure and then connect the compressor head unloader control air line directly to the ¼” outlet connection on the bottom left fitting side of the enclosure.

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 clogging and subsequent failure.

Select the power switch to the “OFF” position. Plumbing is now complete.

SYSTEM ELECTRICAL

Standard Features Electrical Connections

The standard ADS without options requires only 2 wiring connections to operate, 3 phase wiring in, and 3-phase wiring out to the motor.

Power in to the starter is through the top opening of the enclosure. Verify that the voltage of the unit matches the inlet voltage and hp requirements of the supplies starter. Always use a locking/tagout electrical disconnect box between the main compressor power source and the ADS. Power out to motor is through the bottom of the unit and is connected directly to the motor leads. Verify all 3 input and output power leads are securely connected to the internal starter/overload.

Test for proper motor direction rotation, then start unit by pushing the rocker switch to the “ON” position. For initial setup, the ADS “START/STOP - AUTODUAL” switch should be placed in “Start/Stop” mode.

ADS OPERATION

Operating Pressure (Fixed and adjustable deadband)

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.

Internal High Pressure Switch (-HPI Transducer option)

The ADS-HP console is supplied with an internal high pressure switch, The High Pressure connection is via a ¼" female fitting, located near the control air inlet line. This is the connection for **the high pressure** connection, and is labeled as such. USE CAUTION when installing the high pressure line to this fitting, and be certain high pressure air is not connected to the nearby control air fitting. Installing high pressure to the control air inlet will cause severe damage to the controller pneumatic system, and void the AutoDual controllers warranty.

CHANGE SHUTOFF PRESSURE - IMPORTANT: The number appearing on the transducer is multiplied by 10x, so an 80 reading on the transducer means 800PSI

Press the center "set" button on the transducer display until the display toggles between P_1 and 80 (800 PSI) which is the default factory pressure setting. Then press the "up" button. This will change the last digit on the display. Press set again, and the "up" button to change the 2nd digit. Press "set" again to change the 1st digit. Holding the "set" button down after these adjustments returns the transducer to the high pressure reading on the controller. To change the pressure deadband press the "set" button until the transducer toggles between H1 and 8 (80PSI) which represents the pressure ON/OFF deadband. Change the H_1 settings as described above for the P_1 settings. Note that changing the shutoff pressure also changes the turn on pressure, as the pressure deadband always remains 80 psi lower than the shutoff pressure. For example, if you change the "compressor off" pressure to 900PSI (90 on display) the turn on pressure will also move to 820 psi, a difference of 80 psi. This is known as the hysteresis setting, or "Pressure deadband"

Transducer Pressure Switch (150 & 300psi, SMC MFG.)

CHANGE SHUTOFF PRESSURE – Quickly press and release the blue button on the transducer display until the display toggles between P_1 and 160.0psi 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 changing the pressure setting. Changing the shutoff pressure also changes the turn on pressure, as the pressure deadband always remains 20 psi lower than the shutoff pressure. For example, if you change the “compressor off” pressure to 175 psi, the turn on pressure will also move to 155 psi, a difference of 20 psi. This is known as the hysteresis setting, or “Pressure deadband”

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 current 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.

ADS OPTIONS

EMERGENCY SHUTDOWN (-ES Option)

The emergency shutdown is wired normally closed, i.e., a break in the circuit simultaneously shuts down the air compressor and activates the emergency indicator light. The connection to the ES is labeled on the barrier strip inside the ADS console. After the emergency situation has been repaired, reset the **AUTODUAL** by pushing the “On/Off” rocker switch to “Off” for 15 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 System can be used equally on low-oil-level signals, high air temperature devices or low oil pressure switches. The single electrical characteristic is that the alarm devices must be normally closed since the **AUTODUAL** emergency system is activated when its circuit is broken. Wire the emergency shutdown external leads to the terminal block connections labeled EMERG SHUTDOWN. Multiple emergency shutdown devices can be wired together IN SERIES. For example, a low oil pressure shutdown and a high air temperature shutdown wired in series.

IMPORTANT NOTE: The ES option is shipped factory defeated and non-functional. To activate the Shutdown circuit, move the jumper on the control board from JP4 to JP5. This jumper is located on the upper right hand corner of the control board.

AUTO TANK DRAIN (-TD Option)

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 be activated to open and blow for the time interval set on the (optional) knob labeled "AUTO DRAIN DURATION", 5, 10 or 20 seconds. To manually operate the tank drain solenoid, push the "Test Drain" button. The drain solenoid valve is pre-wired from the factory with a DIN connector for easy installation to your tank exit pipe.

MANUAL Lead/Lag Control (-LL) (optional)

The Universal Lead-Lag System is shipped with 2 Universal AutoDual Control Units. The Compressor 2 control unit has a gray or black Lead/Lag control cable installed, which needs to be connected to the Primary control box (Compressor 1). After mounting and wiring both AutoDual Units to their respective compressors, run the control cable from the compressor 2 controller to the compressor 1 controller, and connect the 4 leads as specified on the Terminal block on the compressor 1 controller (term 1, term 2, term, 3, term 4). Note the controller will not operate in Lead2/LAG 1 mode unless the control cable is installed on the terminal block. The front panel of the Compressor 1 ADS controller has a manual Lead/Lag control switch for operating lead/lag functionality. When switched to the Lead 1/Lag 2 Position (UP Position), the compressor 2 unit serves as the Lag controller and will supply additional pressure if required.. The opposite is true when switched to Lead 2/Lag 1. Pressure settings on the Compressor 1 controller must ALWAYS be set higher than the Compressor 2 controller. The "low end" pressure settings on both controllers can be changed by turning the pressure switch adjusting screw clockwise to increase "turn on" pressure. 1/4 turn of the pressure adjusting switch screw increases "turn on" pressure approximately 20 P.S.I. Therefore, small screw adjustments are required when adjusting pressure switches. The low/high pressure "deadband" range is factory preset to 15-18psi and cannot be adjusted, unless the optional -ADP pressure switches are ordered. See -ADP option above for deadband settings on these pressure switches.

AUTOMATIC Lead/Lag Control (-LLA) (optional)

See attached Addendum with this instruction for dual console Auto Lead/Lag Systems

Customer Supplied Powered Solenoid Unloader Valve (OPTION)

If a powered solenoid unloader valve is used on your compressor, there will be a Label on the terminal strip labeled UNLOAD SOLENOID This terminal location supplies 110VAC to the external (customer supplied) unloader valve via a control relay inside the ADS console and delivers 110VAC to the solenoid when **shutoff pressure is achieved and compressor is idling or off.**

Important note: In some rare cases the customer unloader solenoid requires Voltage to be supplied when the compressor is pumping, not when it is idling. If this is the case, Both Normally Closed and Normally open contacts are provided on the barrier strip to accommodate both requirements.

Remote Signal Installation (-RS)

The remote signal option is designed to send a compressor failure signal to a remotely located control room, or to activate an external alarm. The signal from this line is 24VDC 40ma. It will not, in itself, power an alarm, rather, will allow a fault signal to be sent to a control relay, wired to any voltage required to activate the end users alarm. The signal “pulses” in the same manner as the emergency shutdown light on the ADS control console. Connection to the remote signal is located on the barrier strip inside the ADS console. Note as this is a DC signal polarity is important when installing the remote signal.

Line Voltage Monitoring (-LVM)

The line voltage monitor is installed inside the ADS console and is end-user adjustable. The monitoring parameters are preset at the factory for the proper input voltage to the motor starter, 10% “High/Low” voltage, and .25sec trip-on line fault. The compressor will shut down in the event of a line phase/voltage problem. This shutdown will not be apparent to the ADS Logic board, or the ADS console readings, as the fault will shut down the compressor motor between the ADS logic board and the coil signal to the starter. **IT WILL NOT TRIGGER THE ADS EMERGENCY SHUTDOWN CIRCUIT.** Power off the ADS front panel on/off switch prior to resetting the line monitor. Note the “fault” light condition on the voltage monitor, and check the phases and phase voltages to the monitor, prior to resetting the monitor.

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.

Please do not hesitate to call us at Standard Pneumatic Products for assistance when wiring in an AUTODUAL/STARTER COMBINATION CONTROLLER. The price of a phone call is far less costly than a mis-wired AUTODUAL.