

# PURGE ECONOMIZER CONTROL\$



## PURGE ECONOMIZER CONTROL\$

is an energy management system which allows the air dryer user to operate at a specified outlet dewpoint, and maintain that dewpoint level within a close tolerance, while reducing the volume of purge air required. The volume of purge air will vary proportionally with the volume of air being dried. Standard timed based controls do not allow for purge adjustment due to demand fluctuations, or reduction in dryer loading. Purge flow must be fixed for a maximum dryer inlet capacity based on an anticipated operating pressure with standard time based controls.

Purge Economizer Control\$ purging, is based on the dewpoint level measured at the outlet of the dryer—not by moisture or thermal sensors placed in the centre of the desiccant chambers. What you read on the digital display, is the dewpoint of your system. If the outlet dewpoint does not warrant taking the drying chamber off line at the end of each purging/repressurization period, the tower positions are maintained in a "Purgeless" condition until the outlet dewpoint rises to the set level of the hygrometer. This "Purgeless" period may continue for an extended period of time if very little air is being processed by the dryer. As the dewpoint level is considered prior to each tower switching, a "Purgeless" period is likely to occur prior to inlet switching. Therefore, the overall time cycle of the dryer is extended, resulting in fewer valve switching operations, and reduced wear and tear on valves. As the controls operate based on outlet dewpoint, system changes such as variation in operating pressures, and aging of desiccant (reducing its capacity), are automatically taken into consideration. Over time, due to desiccant aging, "Purgeless" periods will become increasingly shorter, providing the user with an indication that the desiccant requires changing.

All new **APPL** twintower regenerative air dryers can be supplied with "Purge Economizer Control\$", or existing models may be converted. This control system can also be applied to most competitive twintower dryers. Contact Air Power Products Limited, or your regional distributor for further information on your dryer upgrading.

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## Features of Purge Economizer Controls

**PEC** is complete with a precision hygrometer, programmable logic controller, and a text display/keypad console which provides all information relating to dryer operation. Standard text displayed for both the left and right towers is "Drying", "Purging", "Repressurizing" and "Purgeless". The keypad can also be used to alter the dryer time cycle. If the dryer is supplied with a control panel operated prefilter drain solenoid, the time settings for this valve may be adjusted on the keypad. In addition to dryer operation, the text display provides these other key functions.



The total number of operating hours, and the total number of hours that the dryer has operated in the "Purgeless" condition are displayed. If the dryer is supplied with optional alarms, these will be displayed as flashing text on the last two lines of the screen when activated. The window cells are re-assigned to display "Total" hours and "Purgeless" hours in these areas.



The total number of cubic feet of air saved (through "Purgeless" operation) are calculated by the PLC, and can be momentarily displayed by simply turning the mode selector switch to the "Fixed Time" position. If you have determined your cost to produce compressed air, you can use this figure to calculate your actual dollar savings based on the use of the **PEC** system.

## Other "PEC" Features

- 1) Continuous bright LED display of dewpoint
- 2) Dewpoint setting for control of tower switching is easily adjustable directly on the board.
- 3) Easily convertible to read in either °F or °C.
- 4) Display/operating range of -9 to -40°C (or +15°F to -40°F).
- 5) 4-20 mA or 0-5VDC analog outputs for remote reading or recording (by others)
- 6) Sensors are directly replaceable without re-calibration of the board. Sensors are economically replaced at a fraction of the cost of most competitive units.
- 7) Selector switches are provided for power "Off/On", and also a mode selector switch for "Purge Economizer/Fixed Time". If the hygrometer requires servicing, the mode selector switch may be positioned to "Fixed Time" to allow the dryer to operate on the standard 10 minute time cycle, bypassing input from the hygrometer.

## "PEC" Optional Features

- 1) High humidity alarm may be added as an option. In this case the hygrometer 4-20 mA analogue output is used by a current sensing relay to provide a second dewpoint level setting.
- 2) Other alarms such as "Tower Switching Failure", "Low Purge", "Low Inlet" or "Outlet Pressure", and "High Differential Pressure" may be economically added, using the PLC and text display facility already present for administration purposes.
- 3) Lower operating dewpoint ranges can be offered.

## **air power products limited**

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