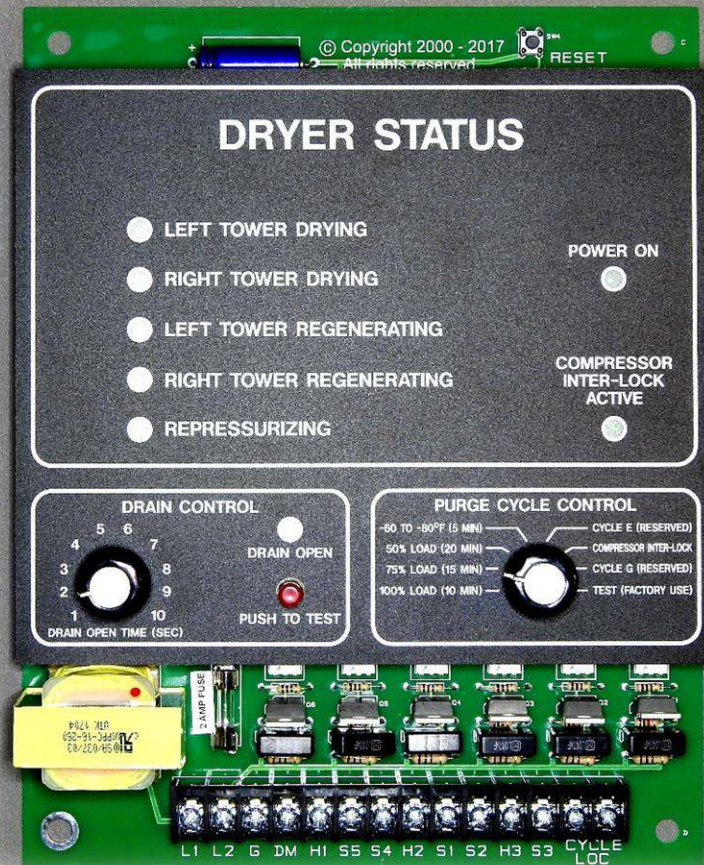




TP2577 AIR DRYER CONTROLLER

(REV 1.0 04/14/20)



The TP2577 Air Dryer Controller is a fully automatic controller designed to operate twin tower heatless desiccant compressed air dryers. Five transient protected AC control switches are designed to provide the necessary control signals for three, four or five solenoid valve dryer systems. A sixth transient protected AC control switch is designed to provide adjustable timing cycle signals to run an AC powered condensation drain. An energy saving Compressor Inter-lock mode may be activated using a Cycle Lock contact closure monitor. Status indicator LEDs provide a visual indication of dryer operation.

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GENERAL DISCRIPTION OF PCB FUNCTIONALITY

- Operates off standard 120v, 60Hz AC power.
- Eight LED status indicators provide the following status indications:
 - Left tower drying
 - Left tower regeneration
 - Right tower drying
 - Right tower regeneration
 - Repressurization
 - Compressor interlock active
 - AC power
 - Drain open
- Six solid state AC control switches protected by transient voltage suppressors. Each switch is rated for 120VAC at 2 amps. Total instantaneous current for all switch is limited to 2 amps.
 - Left tower drying
 - Left tower regeneration
 - Right tower drying
 - Right tower regeneration
 - Repressurization
 - Drain
- A rotary Dryer Mode switch with the ability to select 7 mode configurations. One additional position provides a Factory Test Mode to verify unit operation.
 - 100% Load (10 Min)
 - 75% Load (15 Min)
 - 50% Load (20 Min)
 - -60°F to -80°F (5 Min)
 - CYCLE E (Reserved)
 - Compressor Inter-lock
 - Cycle G (Reserved)
- A rotary Drain Control switch which provides the ability to run 10 dryer time cycles. Drain open time may be adjusted to between 1 and 10 seconds over a 5 minute period. A push button switch is also provided to initiate manual drain control.

MECHANICAL AND ELECTRICAL SPECIFICATION

MECHANICAL SPECIFICATIONS:

1. PCB Dimensions: 7.0" x 8.75" with four 0.250" holes in a 6.25" x 8.12" pattern.
2. Front Panel Dimensions: 7.0" x 6.0".
3. Maximum Height: 1.5"

POWER SPECIFICATIONS:

1. Input – 120VAC, 50/60HZ.
2. Output to Solenoids – 2 amp per solenoid, 2 amps total.
3. Fuse – 2 AMP

TERMINAL BLOCK FUNCTIONALITY

- Terminal 1: L1 - Power Source ACHI
2: L2 - Power Source ACLO
3: FG - Power Source
4: DM - Drain Solenoid
5: H1 - Solenoid Common
6: S5 – Repressurization Solenoid
7: S4 – Right Tower Regenerating Solenoid
8: H2 - Solenoid Common
9: S1 – Left Tower Regenerating Solenoid
10: S2 – Right Tower Drying Solenoid
11: H3 - Solenoid Common
12: S3 – Left Tower Drying Solenoid

AIR DRYER CYCLE TIMING

20 MINUTE DRYING CYCLE (50% LOAD):

- (1) Left Regenerating Solenoid (S1) – 602 Seconds to 860 Seconds
- (2) Right Drying Solenoid (S2) – 600 Seconds to 1198 Seconds
- (3) Left Drying Solenoid (S3) – 000 Seconds to 598 Seconds
- (4) Right Regeneration Solenoid (S4) – 002 Seconds to 260 Seconds
- (5) Repressurization Solenoid (S5) – 260 Seconds to 600 Seconds and 860 Seconds to 1200 Seconds

15 MINUTE DRYING CYCLE (75% LOAD):

- (1) Left Regenerating Solenoid (S1) – 452 Seconds to 898 Seconds
- (2) Right Drying Solenoid (S2) – 450 Seconds to 898 Seconds
- (3) Left Drying Solenoid (S3) – 000 Seconds to 448 Seconds
- (4) Right Regeneration Solenoid (S4) – 002 Seconds to 260 Seconds
- (5) Repressurization Solenoid (S5) – 260 Seconds to 450 Seconds and 710 Seconds to 900 Seconds

10 MINUTE DRYING CYCLE (100% LOAD):

- (1) Left Regenerating Solenoid (S1) – 302 Seconds to 560 Seconds
- (2) Right Drying Solenoid (S2) – 300 Seconds to 598 Seconds
- (3) Left Drying Solenoid (S3) – 000 Seconds to 298 Seconds
- (4) Right Regeneration Solenoid (S4) – 002 Seconds to 260 Seconds
- (5) Repressurization Solenoid (S5) – 260 Seconds to 300 Seconds and 560 Seconds to 600 Seconds

5 MINUTE DRYING CYCLE (-60°F to -80°F):

- (1) Left Regenerating Solenoid (S1) – 152 Seconds to 270 Seconds
- (2) Right Drying Solenoid (S2) – 150 Seconds to 298 Seconds
- (3) Left Drying Solenoid (S3) – 000 Seconds to 148 Seconds
- (4) Right Regeneration Solenoid (S4) – 002 Seconds to 120 Seconds
- (5) Repressurization Solenoid (S5) – 120 Seconds to 150 Seconds and 270 Seconds to 300 Seconds

NOTE: See Attachment #1 for cycle timing diagrams

ATTACHMENT #1 – DRYING CYCLE TIME DIAGRAMS

