Door Controls International
PS17-TD2
Access Control Power Supply/Charger

Overview:
PS17-TD2 is a power supply that converts 115VAC, 60Hz input into two individually PTC protected 12VDC or 24VDC outputs (see specifications) and provides time delays to conform with both Delayed Egress and Access-Controlled Egress provisions of the U.S. model building codes. It is intended for use in applications requiring UL listing for Access Controls (UL294) and applications requiring an interface with Fire Alarm Control Panels. It must be installed in accordance with National and Local Electrical Codes and Regulations.

Specifications:

Agency Listings:
• UL Listed for Access Control Systems (UL294*),
  * ANSI/UL 294 7th Ed. Access Control Performance Levels:
    Destructive Attack - I; Endurance - N/A; Line Security - I;
    Stand-by Power - I, II.
• cUL Listed - CSA Standard C22.2 No.205-M1983,
  Signal Equipment.

Input:
• Input 115VAC/60Hz, 0.6A.

Output:
• Switch selectable 12VDC or 24VDC power-limited output.
• 1.75A continuous supply current @ 12VDC or 24VDC.
• Filtered and electronically regulated output.
• Outputs are overload protected by PTCs.
• Delay timing is reset (before, during, or after a delay) by dry contact closure (RES & G).
• An output is provided for unlocking devices (electric strikes).
• An auxiliary output is provided which is not affected by the Fire Alarm Relay Terminals (1.25A @ 12VDC/24VDC for UL Installations).

Supervision:
• AC Fail relay (Form “C” 1A @ 28VDC) indicates AC is powering unit.
• Output relay (Form “C” 1A @ 28VDC) indicates the [DC Lock+] terminal is powered and not the [Strike+] terminal, or vice versa.

LED Indicators:
• A green LED also indicates the AC is powering unit.
• A red LED indicates the DC outputs are powered.

Delayed Egress:
• Field selectable: Delayed egress, Access-controlled egress or No delays (a standard power supply).
• Delay for delayed egress applications is 15 or 30 sec field selectable.
• Delayed egress has field selectable none or 1 sec nuisance delay.
• Delayed egress has alarm relay to switch on alarm power.
• Delay for access-controlled applications is 30 or 45 sec field selectable.
• Delays are triggered by a dry contact closure (TR & G).
• Delay timing is reset (before, during, or after a delay) by removal a dry contact closure (RES & G).

Enclosure Dimensions (H x W x D):
8.5” x 7.5” x 3.5” (215.9mm x 190.5mm x 88.9mm).

Requirements For Delayed Egress:
An audible alarm shall be provided that shall activate upon initiation of the delayed timing process and continue signaling until the door lock is released. Follow wiring diagram on pg. 3 for hookup. Please make sure the operating voltage of the sounding device matches the preset output of power supply. Use 12V devices for 12V setting and 24V devices for 24V setting. Special locking device interconnected with the power supply shall be plainly marked on the hardware assembly: “Controlled Egress Equipment and Systems” or “Delayed Egress Equipment and Systems”. For delayed egress locking devices, the programmed time delay duration shall be plainly marked on the hardware assembly.

Requirements For Controlled Egress:
Activation of a fire alarm signal or fire sprinkler signal shall release the door latching mechanism to allow egress in a time frame not to exceed two seconds. The door shall remain unlocked until the fire alarm control unit has been reset. Connect [TRIG1] and [TRIG2] terminals to Normally closed Fire alarm contact (fig. 3, pg. 5).
Special locking device interconnected with the power supply shall be plainly marked on the hardware assembly: “Controlled Egress Equipment and Systems” or “Delayed Egress Equipment and Systems”. Equipment and systems shall be provided with a means to release door latches upon activation of a manual release switch intended to be installed within 5 feet of the door. Activation of this manual release switch shall cause the door to remain unlocked for 30 seconds Activate TRG and GND Input by means of NO dry contact. Follow wiring diagrams and DIP switch settings for proper hookup. Equipment and systems utilizing an electromagnetic locking mechanism shall be capable of being operated with one hand. The releasing mechanism shall interrupt the power to the electromagnetic lock to unlock the door.

Requirements For Fire Exit and Panic Applications:
Equipment and systems designed as fire exit or panic hardware shall comply with the Standard for Panic Hardware, UL 305. Interruption of power shall cause the locking mechanism to unlock/release in less than 2 seconds. Do not use battery backup. Activation of a fire alarm signal or fire sprinkler signal shall release the door latching mechanism to allow egress in a time frame not to exceed two seconds. The door shall remain unlocked until the fire alarm control unit has been reset. Connect [TRIG1] and [TRIG2] terminals to Normally closed Fire alarm contact (fig. 3, pg. 5).
A means to release door latches upon activation of a manual release switch shall occur within two seconds following initiation of TRG and GND Input by means of NO dry contact. Follow wiring diagrams and DIP switch settings for proper hookup.
Installations Instructions:

The unit should be installed in accordance with article 760 of The National Electrical Code and NFPA 72, as well as all applicable Local Codes.

1. Mount unit in the desired location. Mark and predrill holes in the wall to line up with the top two keyholes in the enclosure. Install two upper fasteners and screws in the wall with the screw heads protruding. Place the enclosure’s upper keyholes over the two upper screws; level and secure. Mark the position of the lower two holes. Remove the enclosure. Drill the lower holes and install the three fasteners. Place the enclosure’s upper keyholes over the two upper screws. Install the two lower screws and make sure to tighten all screws (Enclosure Dimensions, pg. 8). Secure enclosure to earth ground.

2. Connect 115VAC to the black and white flying leads of the transformer. Secure wire lead to earth ground.

3. Turn the SW5 OFF for 12VDC output, turn the SW5 ON for 24VDC output.

4. Measure output voltage before connecting devices to ensure proper operation of equipment. This helps avoiding potential damage.

5. Jumper TRGI and TRG2, unless continuity is provided through a fire alarm circuit.

6. Connect appropriate signaling notification devices to AC Fail supervisory outputs marked [NC, C, and NO].

7. When a delay is to be used, install a NO Momentary Reset switch across terminals marked [RESET - GND].

8. When a delay is to be used install a NO Momentary Triggering Switch across terminals marked [TRIG INPUT - GND].

9. For monitoring the output relay governing terminals marked [Lock + and Strike +] use the [C, NC and NO] terminals next to [TRGI and TRG2]. [C] will be closed to [NC] when [Lock +] is powered.

10. When a Delayed Egress is used, an alarm is required by all Codes. The alarm relay is used to switch on the alarm. [C] will close to [NC] when the alarm should sound: immediately at triggering with no nuisance delay, or after one continuous second of trigger with nuisance delay. If moderate power is required for the alarm, it can be obtained by jumping [AUX+] to [C] on the Alarm relay; and [NC] on the Alarm relay and [AUX –] to the alarm.

11. See diagrams on following pages for wiring suggestions.
**Power Supply Output Specifications:**

<table>
<thead>
<tr>
<th>Output VDC</th>
<th>Switch Position</th>
<th>Max Load DC</th>
</tr>
</thead>
<tbody>
<tr>
<td>12VDC</td>
<td>SWI ON</td>
<td>1.75A</td>
</tr>
<tr>
<td>24VDC</td>
<td>SWI OFF</td>
<td>1.75A</td>
</tr>
</tbody>
</table>

**Stand-by Specifications:**

<table>
<thead>
<tr>
<th>Output</th>
<th>4 hr. of Stand-by &amp; 5 Minutes of Alarm</th>
</tr>
</thead>
<tbody>
<tr>
<td>12VDC / 7 AH Battery</td>
<td>Stand-by = 1.25A</td>
</tr>
<tr>
<td>24VDC / 7 AH Battery</td>
<td>Alarm = 1.25A</td>
</tr>
</tbody>
</table>

Note: For Access Control applications batteries are optional. When batteries are not used, a loss of AC will result in the loss of output voltage. When standby batteries are used, they must be lead-acid or gel type.

**LED Diagnostics:**

<table>
<thead>
<tr>
<th>Red (DC)</th>
<th>Green (AC)</th>
<th>Power Supply Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON</td>
<td>ON</td>
<td>Normal output, powered by AC.</td>
</tr>
<tr>
<td>ON</td>
<td>OFF</td>
<td>Battery backup is powering output.</td>
</tr>
<tr>
<td>OFF</td>
<td>ON</td>
<td>No DC output.</td>
</tr>
<tr>
<td>OFF</td>
<td>OFF</td>
<td>Loss of AC. Discharged or missing stand-by battery. No DC output.</td>
</tr>
</tbody>
</table>

**Battery Back-up:** Use sealed lead-acid 12 volt secondary lead-acid only. Connect two in series for 24 volts. When using standby batteries house them in a separate enclosure.

**Terminal Identification:**

<table>
<thead>
<tr>
<th>Terminal Legend</th>
<th>Function/Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>TRG1 &amp; TRG2</td>
<td>These input terminals are designed to connect to the closed C and NO terminals of an access control or fire alarm relay. These must be jumped otherwise. These terminals control LOCK +, and STRIKE +, as well as PS17-TD2 output relay contacts NC, NO, C.</td>
</tr>
<tr>
<td>LOCK+</td>
<td>This terminal provides DC output voltage when TRG1 and TRG2 are shorted together and are typically used to power electromagnetic locks. Two locks may be connected in parallel on LOCK + and COM – (fig. 2, pg. 4).</td>
</tr>
<tr>
<td>STRIKE+</td>
<td>This terminal provides DC output voltage when TRG1 and TRG2 are unshorted and are typically used to power Electric Strikes.</td>
</tr>
<tr>
<td>NC, NO, C (adjoining)</td>
<td>Isolated dry Form “C” contacts. Shortening TRG1 and TRG2 together causes these contacts to switch. They are typically used for controlling multiple power supplies with fire alarm tie-in (fig. 4 and 5, pg. 7).</td>
</tr>
<tr>
<td>TRG1 &amp; TRG2</td>
<td></td>
</tr>
<tr>
<td>AUX+</td>
<td>Continuous positive (+) DC power output voltage. It is not affected by TRG1, TRG2 operation.</td>
</tr>
<tr>
<td>COM –, AUX –, BAT –, GND</td>
<td>Are all common (–) output (ground)</td>
</tr>
<tr>
<td>(adjoining RST)</td>
<td></td>
</tr>
<tr>
<td>GND (adjoining TR)</td>
<td></td>
</tr>
<tr>
<td>FACP</td>
<td>Spare wiring terminal used for fire alarm tie-in application (fig. 3, pg. 5)</td>
</tr>
<tr>
<td>BAT +, BAT –</td>
<td>Battery back-up connections. Apply proper voltage SLA batteries. Batteries are trickle charged with 13.6 or 26.6 volts.</td>
</tr>
<tr>
<td>RES &amp; GND</td>
<td>Are normally open. To reset either time delay at any time-closed momentarily.</td>
</tr>
<tr>
<td>TRG &amp; GND</td>
<td>Trigger either Delayed Egress or Access-controlled Egress by closing momentarily TR to G. If nuisance delay is on in Delayed Egress Mode, trigger must be closed continuously for one full second.</td>
</tr>
</tbody>
</table>

Equipment and systems intended to be operated with a sensor release feature shall be constructed to operate so that when the sensor detects an occupant within 5 feet of the egress side of the door, the door locking mechanism will unlock the door.
NOTES ON:

SWITCH SELECTION TABLE:

1  NOT CONNECTED
2 OFF NUISANCE DELAY  2 ON NO NUISANCE DELAY
3 OFF ACCESS - CONTROLLED EGRESS  3 ON DELAYED EGRESS
4 OFF LONG DELAY  4 ON SHORT DELAY

3 ON  DELAYED EGRESS: IN THIS MODE #4 SWITCH SELECTS SHORT DELAY OF 15 SECS. OR LONG DELAY OF 30 SECS., AND #2 SWITCH SELECTS NONE OR A 1 SEC. NUISANCE DELAY.

3 OFF ACCESS CONTROLLED EGRESS: IN THIS MODE #4 SWITCH SELECTS SHORT RELOCK DELAY OF 30 SEC. OR LONG RELOCK DELAY OF 45 SECS., #2 SWITCH IS DISABLED.
These are code-specific terms. One or more of these relays required under every U.S. model building code.

Fig. 3

Typical Delayed Egress System:

Alarm sounds until reset for alarm to cease with door release. Move jumper on AUX+ to LOCK+.
Typical Access-Controlled Egress System:

1. SW5: Select 12VDC or 24VDC
2. Dip SW4: OFF - 45 sec relock, ON - 30 sec relock
3. Dip SW3: ON (Delayed Egress)
4. Dip SW2: Any, has no effect.
5. Jumper "RES" to "G".

NEMA 1 ENCLOSURE

OTHERWISE JUMPER TRG1 TO TRG2

FOR VOLATILE MEMORY IF REQUIRED

TRANSFORMER 115 VAC IN

1. SW5: Select 12VDC or 24VDC
2. Dip SW4: OFF - 45 sec relock, ON - 30 sec relock
3. Dip SW3: ON (Delayed Egress)
4. Dip SW2: Any, has no effect.
5. Jumper "RES" to "G".
Application Diagrams when used as a typical power supply not using delay features:

Fig. 4 - Typical single mag lock or door strike installation with fire alarm tie-in using trigger controlled output:

Fig. 5 - Typical dual mag lock installation with fire alarm tie-in using trigger controlled outputs:

Fig. 6 - Typical mag lock with fire alarm tie-in using aux. output installation:

Fig. 7 - Latching fire alarm tie-in with manual reset:

Fig. 8 - Multiple PS17-TD2 power supply connections:
**Enclosure Dimensions** *(H x W x D approximate):*

8.5” x 7.5” x 3.5” (215.9mm x 190.5mm x 88.9mm)