



PT2724 - Two (2) Channel 365 Day 24 Hr. Timer/Controller

Overview:

This unit is an extremely versatile two channel 365 Day 24 Hour Timer / Controller designed to support a wide range of applications. Such applications include: Home and Building Automation, Security, Access Control, Lighting Control, Etc.

The PT2724 is equipped with two independently controlled form “C” relay contact that provides many latching and/or momentary operations during a program schedule of your choice. The EE-Prom memory allows for programming of unit prior to/or during field installation. Events may be set for single or multiple operations on a daily and/or weekly schedule. The block programming feature enables repeating an event on any combination of consecutive days. PT2724 will compensate for daylight savings time if desired. It automatically adjusts for leap year and individually selected holiday exceptions can be programmed to over-ride regularly scheduled events.

Specifications:

- 12 to 24 volts AC or DC operation.
- Stand-by current: 10mA (relay off) 50mA for each channel (relay on).
- Two (2) form “C” relay contacts are rated 10 amp @120VAC/28VDC.
- Tandem relay mode - allows both channels to activate simultaneously for all events.
- EE-Prom program memory protected against power loss.
- Accurate crystal controlled clock.
- Momentary and/or latching events.
- 50 individually programmed daily/weekly events per channel.
- Block programming capacity can accommodate a total of 350 events per week per channel.
- Ten (10) programmable Holiday dates per channel.
- “First man in” option.
- Alphanumeric LCD display simplifies programming.
- Standard or Daylight Savings Time settings.
- Automatic compensation for leap year.
- Built-in charger for 12VDC sealed lead acid or gel type batteries (Max charge current 100mA).
- Lithium battery backup maintains clock (optional) (Altronix part # LB2032).
- User friendly programming.

Board dimensions (approximate): 5.25”W x 3.5”L x 1.5”D

Installation Instructions:

1. Mount PT2724A in desired location.

Carefully Review:

Basic Operation (pg. 2)

Terminal Identification Table (pg. 2)

Push Button Layout and Description (pg. 3)

Programming Instructions (pgs. 4-7)

2. Connect 12 to 24 Volts AC or DC to terminals marked [+ DC - / ~AC~].
(when using DC carefully observe polarity).
3. Connect 12VDC battery (optional) to terminals marked [+ BAT - / 12VDC].

4. Insert lithium battery (optional/not included. Order part LB2032) in battery holder as shown in (*Fig. 1, pg. 3*) with the (+) positive side facing up.
5. Connect devices to be controlled to the dry relay outputs of either Channel A or Channel B.
Note: It is important when connecting DC powered electromechanical devices such as Mag Locks, Electric Strikes, Bells, Relays, etc. to install a catch diode across the pos (+) and neg (-) terminals of the device. Connect diode as close to the device as possible with the banded side facing the pos (+) terminal. This will reduce the possibility of interference.
6. Program clock and desired event schedule (see *Programming Instructions, pgs. 4-7*).

Basic Operation:

PT2724 controls two independently operated dry form “C” relays. Relays can be programmed to: turn on (latch), turn off (release latch) or pulse (momentary toggle) at a specified time and day (this is referred to as an event). Events are programmed via the push buttons and LCD display. Events may be programmed to occur on any day of the week at any time. In addition, events may be programmed as a block event which repeat at a specific time on two (2) or more consecutive days (i.e. MO-FR, SU-TH, etc) Multiple combinations of individual and block events may be programmed. Holiday exceptions are individually selected by date and will over-ride all regularly scheduled events.

The four (4) output relay modes consist of:

Relay OFF - De-energizes the relay until a relay ON event is detected

Relay ON - Energizes the relay until a relay OFF event is detected.

Disable - Used to cancel an existing programmed event.

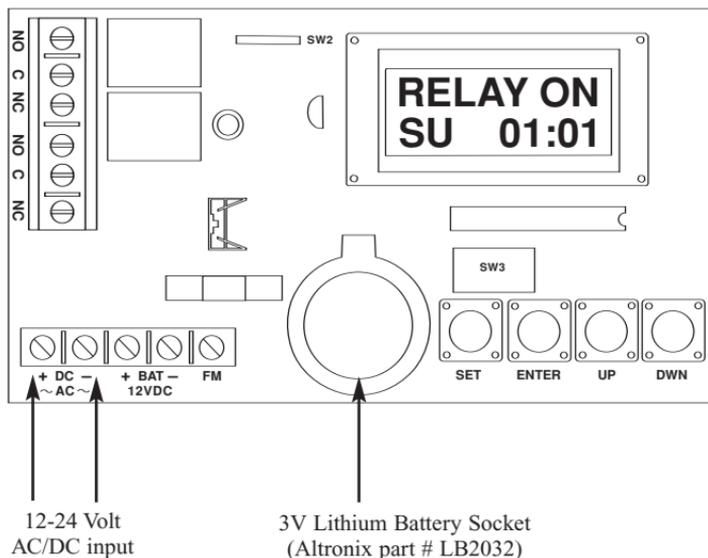
Pulse - Momentarily energizes the relay for a selectable time period of 1 sec. to 15 secs.

Time is displayed in 24 hr. military format.

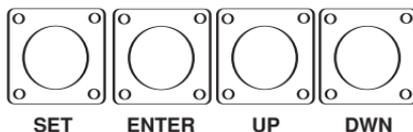
Terminal Identification Table:

Terminal Legend	Function/Description
NO, C, NC, CH A NO, C, NC, CH B	Dry Contact outputs used to switch controlled devices. When these relays are energized (ON) the NC and C terminals are open and the NO and C terminals are closed. When this relay is de-energized (Off) the NC and C terminals are closed and the NO and C terminals are open.
+ DC – ~ AC ~	AC or DC Input 12 to 24 volt. When using DC carefully observe polarity.
+ BAT – 12VDC	12VDC stand-by battery input (battery leads provided).
FM	When this terminal is connected to DC neg. (-) the “First Man in” feature is enabled. Both relays will remain in their present position until this connection is terminated. At that time relays will resume normal operation and latest scheduled events will occur.

Fig. 1



Push Button Layout:



Push Button Description Table:

Push Button	Function/Description
SET	Scrolls thru program fields. Escapes out of existing programming.
ENTER	Accepts programmed data.
UP	Scrolls up through data selections.
DWN	Scrolls down through data selections.

UP and **DOWN** keys can be used to select data entries. After scrolling to the correct entry, depress **ENTER** to accept.

SW2 clip SW	Selects tandem or individual relay operation.
SW3 slide SW	Selects channel to be programmed.

Programming Instructions:

The flashing cursor denotes location of data entry selection to be made. If an entry was made in error or requires changing, depress **SET** to backspace, make the correct selection and depress **ENTER** to accept data and advance the cursor.

A. Setting Clock/Calendar:

Upon initial power up

CH ON
SU 01:01

will appear in display.

Depress **SET** until

ENTER to
SET TIME

appears in display.

Depress **ENTER**

01/01/01
SU/01:01

will appear in display.

Enter the current date, day of week and time (military) by depressing **UP** and **DWN** to make the selection then depress **ENTER** to accept.

To program Daylight Savings Time (refer to *Setting Block Events (weekly repeat) and Daylight Savings Time* - section C 2, page 6)

To change or program clock/calendar simply repeat the steps above.

B. Setting Events and Adding Events:

Select channel A or B by moving slide switch SW3 to appropriate position.

Note: Channel cannot be changed in the middle of programming events. To change channels you must exit programming then change channel switch position then enter program mode again.

1. Setting Events

Depress **SET** until

ENTER to
SET EVENT

appears in display.

Depress **ENTER**

A01 ^ OFF
SU 00:00

will appear in display.

Note: A01 indicates Channel A event 01.

When cursor appears ^ you are able to scroll through events.

Depress **ENTER** until the flashing cursor appears under OFF (relay function) position in display. Now select type of operation required, by scrolling using the **UP** and **DWN** push buttons until either:

ON - Relay ON (latching mode).

OFF - Relay OFF (latching mode).

PL - Relay Pulse (momentary).

appears in display and depressing **ENTER** will make selection.

When selecting the pulse mode PL01 will appear in the display. It is now necessary to assign the length of time (duration of relay activation). The pulse can range in length from 1 second minimum to 15 seconds maximum and is selected by using **UP** or **DWN** push buttons, then depressing **ENTER** to accept.

Note: If pulse duration is not selected relay output defaults to 1 second.

Next select the individual day of the week by scrolling using **UP** and **DWN** push buttons and depress **ENTER** to accept.

Next select the hour and minutes the event is to occur by scrolling using **UP** and **DWN** push buttons and depress **ENTER** to accept.

You may continue to program events by repeating the previous steps or exit programming by depressing **SET**.

Note: When programming additional events it is necessary to select the next consecutive event number following the last event program to continue.

Note: When it is required to have the same event repeated on two (2) or more consecutive days of the week, the event must be programmed as a block by selecting **BK** in the day field.

A01 ^ OFF
BK 00:00

Note: To program the consecutive days of the week refer to *Setting Block Event (weekly repeat) and Daylight Savings Time* - section C1 below.

2. Adding Events

Depress **SET** until

ENTER to
SET EVENT

appears in display.

Depress **ENTER**

A01 ^ OFF
SU 00:00

will appear in display.

Depress **ENTER**, if the event is not programmed, the cursor will move to the OFF (relay function) position. If the event is programmed the cursor will move to the ^ position and the programmed information of the event will be displayed. At this point depress the UP button to step up through the programmed events. When an unprogrammed event is reached the cursor will move to the OFF (relay function position). (At this point refer to setting events or setting holiday events.)

C. Setting Block Events (weekly repeat) and Daylight Savings Time:

Select channel A or B by moving slide switch SW3 to appropriate position.

Note: Channel cannot be changed in the middle of programming events. To change channels you must exit programming then change channel switch position then enter program mode again.

Depress **SET** until

ENTER to
SET BK

appears in display.

Depress **ENTER**

A=SA/SU
TIME=DS

will appear in display.

1. Block Event Programming

Flashing cursor will appear at the location of the first day of the week desired. Depress **UP** and **DWN** to select day. Depress **ENTER** to confirm selection, then cursor will appear at the location of the last day of the week desired. Depress **UP** and **DWN** to select day. Depress **ENTER** to confirm selection.

- 1) Monday through Thursday depress **MO** followed by **TH**.
- 2) Wednesday through Sunday depress **WE** followed by **SU**.

2. Daylight Savings Programming

The cursor will appear under DS (auto clock adjust daylight savings mode) in display. To change mode depress **UP** or **DWN** once ST (clock does not adjust standard time mode) will appear in display. Depress **ENTER** to accept correct selection.

Note: Select **DS** for areas that observe daylight savings or **ST** for areas that don't observe daylight savings.

D. Setting Holiday Events: (These events will occur on programmed Holiday Dates - see Setting Holiday Dates below).

Select channel A or B by moving slide switch SW3 to appropriate position.

Note: Channel cannot be changed in the middle of programming events. To change channels you must exit programming then change channel switch position then enter program mode again.

Find the first unprogrammed event (refer to *Adding Events* - section B2 page 6).

Depress **ENTER** until the flashing cursor appears under OFF (relay function) position in display. Now select type of operation required, by scrolling using the **UP** and **DWN** push buttons until either:

ON - Relay ON (latching mode).

OFF - Relay OFF (latching mode).

PL - Relay Pulse (momentary).

appears in display and depressing **ENTER** will make selection.

When selecting the pulse mode PL01 will appear in the display. It is now necessary to assign the length of time (duration of relay activation). The pulse can range in length from 1 second minimum to 15 seconds maximum and is selected by using **UP** or **DWN** push buttons, then depressing **ENTER** to accept.

Note: If pulse duration is not selected relay output defaults to 1 second.

Next select **HL** (holiday) and time (military) by scrolling using **UP** and **DWN** push buttons and depress **ENTER** to accept. You may continue to program events by repeating the previous steps or exit programming by depressing **SET**.

E. Setting Holiday Dates:

Select channel A or B by moving slide switch SW3 to appropriate position.

Note: Channel cannot be changed in the middle of programming events. To change channels you must exit programming then change channel switch position then enter program mode again. It is now necessary to assign these holiday events specific calendar dates which they are to occur.

Depress **SET** until

ENTER to
SET HOL

appears in display.

Depress **ENTER**

A01^HOL
SU 00:00

will appear in display.

Enter the holiday date, day of week and year by depressing **UP** and **DWN** to make the selection then depress **ENTER** to accept.

Note: Holiday events will override all regularly programmed events that occur on a particular holiday date.

F. Delete/Disable Events or Edit Events:

Select channel A or B by moving slide switch SW3 to appropriate position.

Note: Channel cannot be changed in the middle of programming events. To change channels you must exit programming then change channel switch position then enter program mode again. Previously programmed regularly scheduled and/or holiday events may be deleted/disabled without having to erase all events.

Depress **SET** until

ENTER to SET EVENT

 appears in display.

Depress **ENTER**

A01^ ON TU 00:00

 appears in display.

Now scroll using **UP** and **DWN** push buttons to the event you wish to delete, depress **ENTER** to move flashing cursor under relay option then depress **UP** and **DWN** push buttons until DIS is displayed, depress **ENTER** to confirm.

G. Delete All Events:

This will delete all previously programmed events.

Depress **SET** until

ENTER to CLR MEM

 appears in display.

Depress **ENTER**

CLEAR MEMORY?

 will appear in display.

Depress **ENTER**

PRESS UP & ACCEPT

 will appear in display.

Depressing **UP** push button will now clear all events previously programmed. If you wish to escape from this selection depress any of the other push buttons: **SET**, **ENTER** and **DWN**.

H. Tandem Relay Mode:

To operate in the Tandem Relay Mode, close switch SW2. This mode setting will allow events programmed for Channel A and Channel B to operate both relays simultaneously (1 DPDT relay output). This setting doubles the amount of programmable events.

Note: When using the Tandem Relay mode, sequential ON/Off or OFF/ON events must be programmed in the same channel. (If there is a Channel Program conflict, such as CH A is set to ON and Channel B is set to OFF. The ON command will override the OFF and both relays will remain ON.

