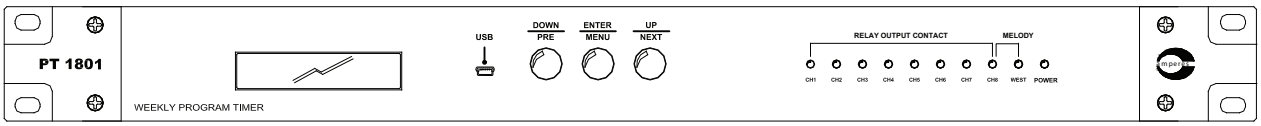
INSTRUCTION MANUAL

PT1801

Multichannel Programmable Timer



Thank you for choosing another quality product from Amperes Electronics.

PT1801 is enhanced with more features as compared to its competitors in its class, among them the ease of programming via " PT1801 Configurator " software , multiple outputs and high number of programming steps. Configurator software is available free and provide the convenience of scheduling, upload or recall stored programs and for back up purpose.

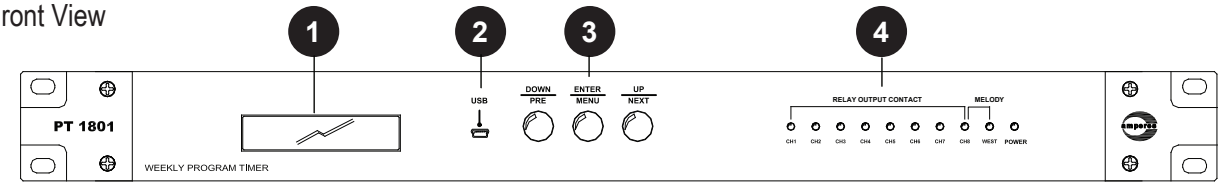
You shall find that PT1801 is a useful tool in schools, factories, malls etc, which shall provide reliable time reminder for various applications. Its 250 programmable steps into 8 output channels shall exceed the requirement for most installations.

Do read through this manual to obtain a better understanding of what we have to offer and tap the full features available in this device.

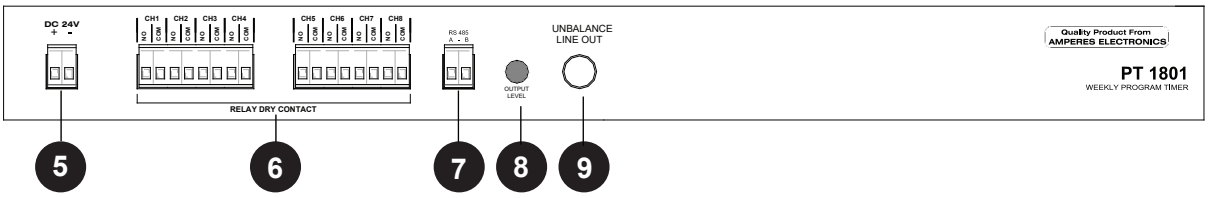
VER 3 / 2019

Parts Identification

Front View



Rear View



1. LCD DISPLAY

2 X 16 character LCD display for programming as well as status indication purpose.

2. USB PORT

USB Input Slot

3. MENU / UP / DOWN BUTTON

Used for accessing the setup / programming menu.

4. LED INDICATORS

The LED for the corresponding channel when triggered shall lit. If the built in melody accompanies the triggered channel, it shall be indicated by the MELODY LED. Green STATUS LED denotes that the unit is powered.

5. POWER SUPPLY INPUT

The unit operates on 24V DC power supply. Please use Amperes PS9400 power supply unit or other recommended regulated power supply adaptor.

NOTE: Do not tap power supply directly from a charging batteries or via battery charger in the system. The excessive voltage would damage the equipment.

6. TRIGGERING DRY CONTACT

8 output channels are available in PT1801. Whenever a channel is activated by the timer, a dry contact is available and this is then connected to external equipment such as message recorder to activate a specific playback message for a specific time.

7. RS485 DATA PORT

RS485 data port is used to interface with other Amperes products, to enable simpler cabling or interconnection works. Alternatively, it can be linked to PC for firmware upgrade. A USB-RS485 converter shall be required for this purpose.

Please refer to section ‘ Firmware Upgrading’ to perform the Firmware update process.

Parts Identification (con't)

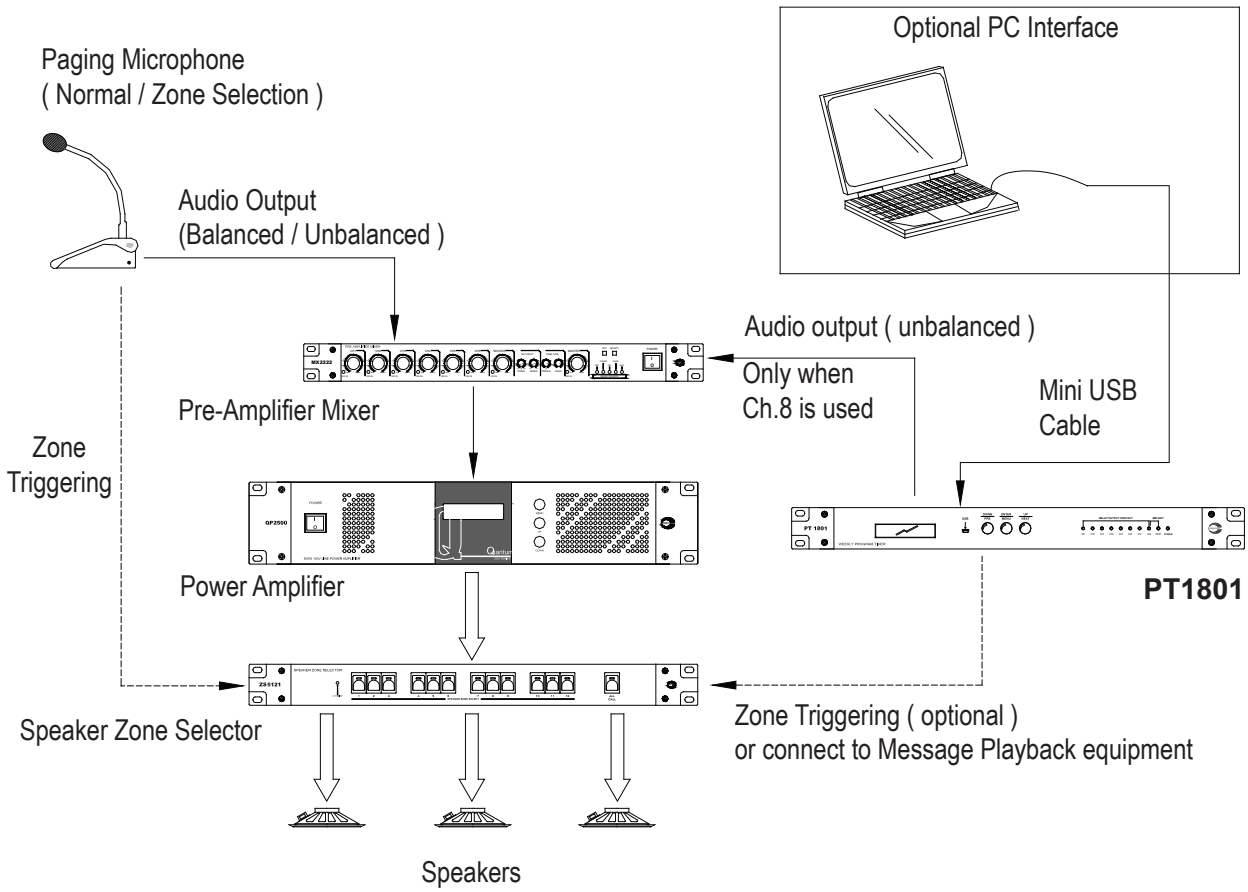
8. OUTPUT VOLUME

PT1801 comes with a built in Westminster chime. The output volume can be adjusted accordingly to suit the requirement.

9. OUTPUT JACK

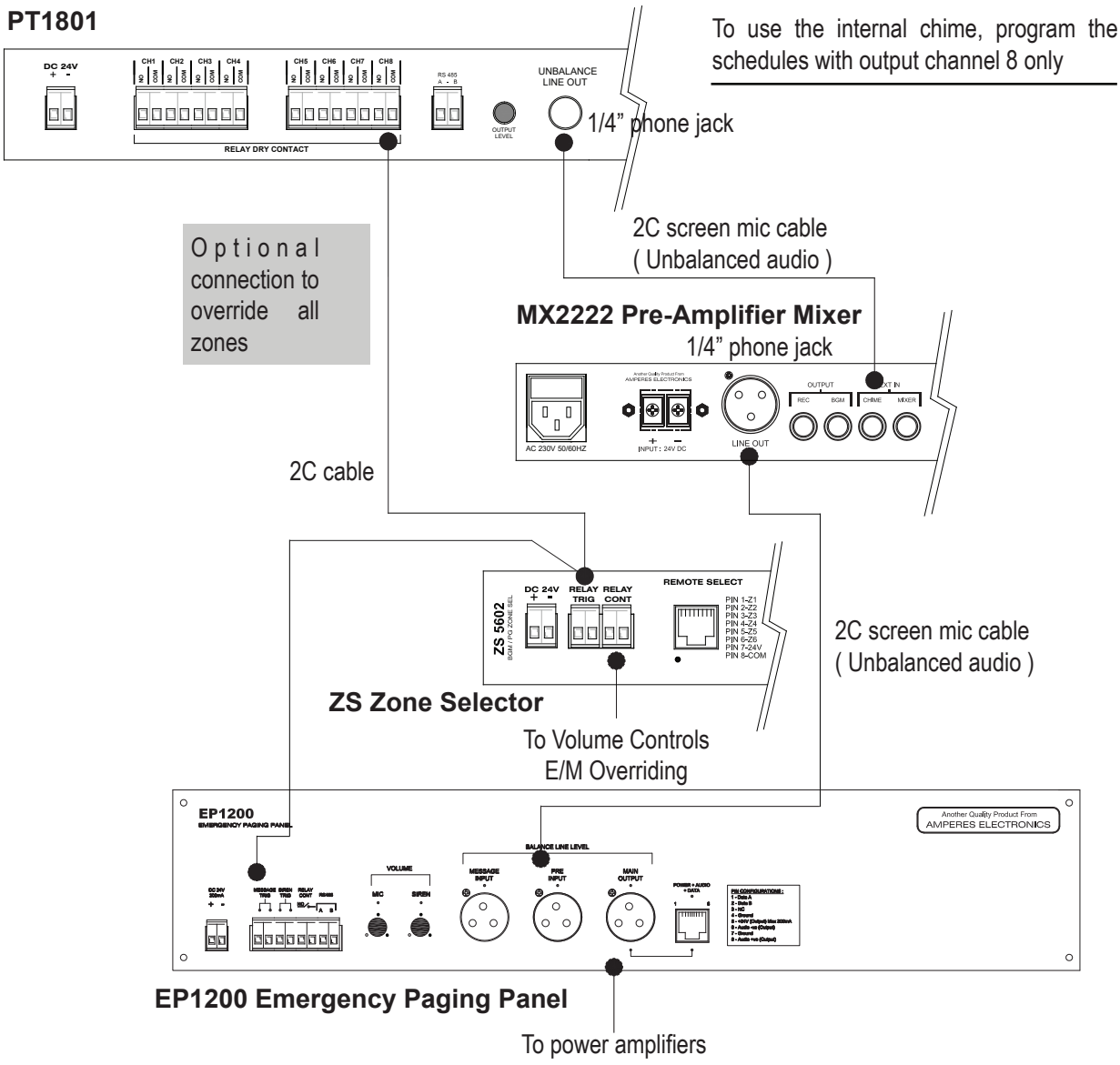
The chime output can be connected to pre-amplifier mixer with 1/4" unbalanced phone jack.
Note : Chime output is only available when CH8 is used as output channel.

General Schematic Diagram



Connection Diagram

Option 1 : Using PT1801 with its chime output



The connection diagram above utilises the built in chime of PT1801 to feed to mixer chime input. The timer is set to trigger a dry contact for one channel and is then connected to Zone Selector Relay Trigger port.

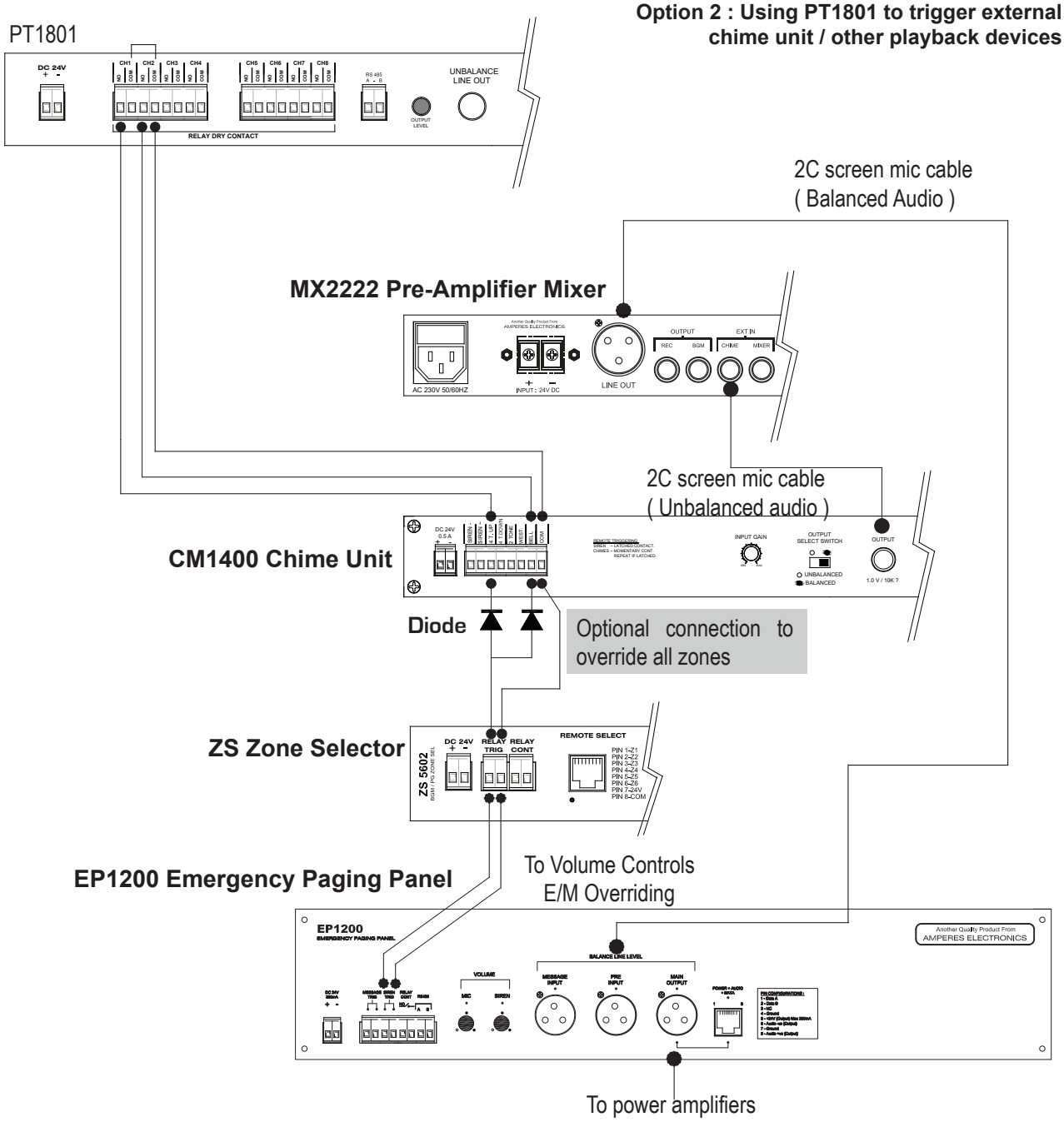
The relay port is also connected to EP1200 Mic Switch relay port for emergency overriding of Volume Controllers.

When the preset time at PT1801 is reached, it will provide a dry contact for channel 8, This will provide an chime output to the mixer. In the mean time, it shall also trigger all zones at the zone selector. The chime shall be broadcasted to all zones with volume controller bypassed.

Note:
The application above, which EP1200 is used to override all zones is optional. For normal setup without ALL CALL, connection to EP and relay contacts can be omitted.

Connection Diagram

Option 2 : Using PT1801 to trigger external chime unit / other playback devices



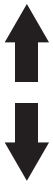
The connection diagram above uses external chime unit (or other playback devices), which shall be triggered by PT1801 at designated time.

It is also intended to trigger different chime or message for different times, such as to differentiate the melody for morning and the afternoon working shift. In this case, a set of times shall trigger channel 1 and another set shall trigger channel 2. This is then linked to chime / tone unit at the corresponding triggering port.

If whenever a time is reached and requires all zones to be activated, use diodes as shown above for connection to Zone Selector all call triggering. Otherwise, this connection may be omitted.

Setting Up

The unit has to be setup prior to operating, and can be done via the front panel setup menu or via a notebook. To enter setup menu, press ENTER / MENU button, and the following main menu shall appear.



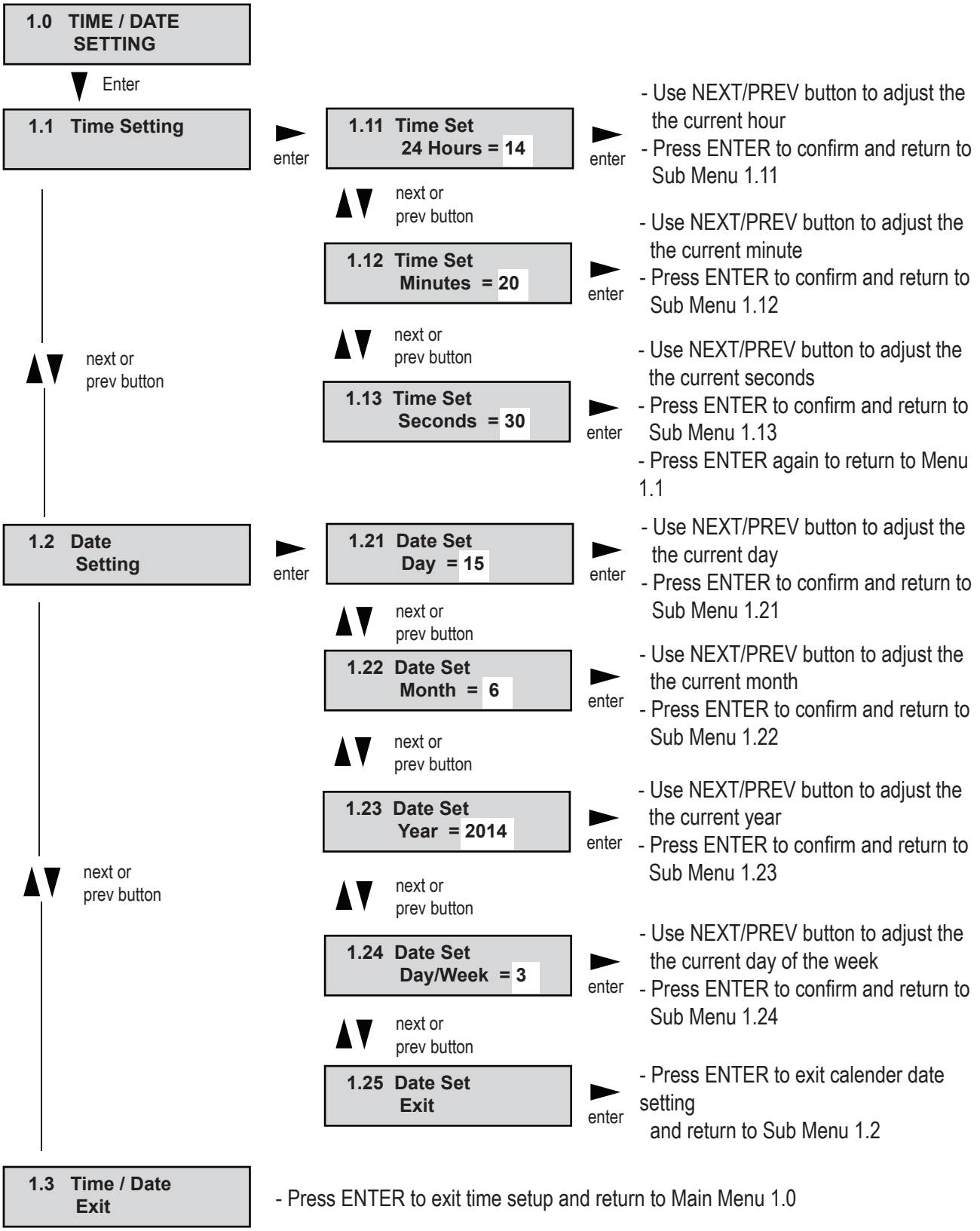
Use the NEXT and PREV button to toggle between the main menu. To select, press MENU/ENTER button

1.0 TIME / DATE SETTING	To set the current time, date and day of the week of the unit
2.0 PRG.SCHEDULE SETTING	To set the triggering time and the corresponding channel of up to 250 memories.
3.0 SCHEDULE CHECK	To check the preset memories
4.0 MANUAL TRIG ON / OFF	To manually trigger the channel relay port
5.0 CASCADE	Cascade setup if more than one PT1800 is used, ie. if memories required are more than 250
6.0 FACTORY RESET	To erase all settings and return the parameters to factory default
7.0 SYSTEM	System update & bootloading
8.0 EXIT	To exit from the setup menu

Setting Up (Con't)

1.0 TIME AND DATE SETTING

For first time installation, the time, date and day of the week in the unit's system has to be set. To select, press ENTER / MENU at this menu, and the following sub menus shall appear .



Setting Up (Con't)

2.0 PROGRAMMING SCHEDULES

Up to 250 memories can be stored in the unit. Select the Main Menu 2.0 to program the times as shown.

2.0 PRO. SCHEDULE SETTING

Example : It is required to program memory location 1, to trigger channel 8 at 1. 30 pm every day except Saturday and Sunday. Triggering mode shall be momentary relay contact.

▼ Enter

2.1 Sche 000 / 250
CH.0 (Skip)

- Use NEXT/PREV button to adjust the memory location. ie. 001
- Press ENTER to confirm and the cursor shall move to Channel location number

▼ Enter

2.1 Sche 001 / 250
CH.0 (Skip)

- Use NEXT/PREV button to adjust the output channel. ie. 8.
- Press ENTER to confirm and the cursor shall move to triggering mode selection

*M.West is melody channel, it will turn on channel 8 together

▼ Enter

2.1 Sche 001 / 250
CH.0 (Skip)

- Use NEXT/PREV button to adjust the triggering mode ; set to Pulse (3 secs)
- Press ENTER to confirm and the menu shall forward to Time Setting

▼ Enter

2.2 S004, C1, Skip
DOW Setting

Day of Week (DOW) Sub Menu

▼ Enter

2.2 S004, C1, Skip
DOW M,T,W,T,F,S,S

- Use NEXT/PREV button to select the day, ie. Mon to Sun at each cursor
- [M: unselected day (Monday) / M: selected day (Monday)]
- Press ENTER to set the day

▼ Enter

2.2 S004, C1, Skip
DOW M,T,W,T,F,S,S

- Press ENTER at the last location to jump to next Sub Menu, as shown in the next pg.

▼ Enter

2.2 S004, C1, Skip
Time Setting

Time Setting Sub Menu

▼ Enter

2.2 S004, C1, Skip
Time 00h;38m;00

- Use NEXT/PREV button to adjust the hour, ie 13 (24 hr format) and press ENTER.
- Repeat the step above for minute and press ENTER.

▼ Enter

2.2 S004, C1, Skip
Time 13h;30m;00

- Seconds setting can be skipped by pressing ENTER.
- Upon completion, press ENTER again and the next sub menu shall appear as below ;

▼ Enter

2.2 S004, C1, Skip
Time: 15h: 23m: 00s

- Use NEXT/PREV button to toggle between saving and discarding the setup.
- Press ENTER and return to 2.0
- Repeat the steps shown for other time setting.

▼ Enter

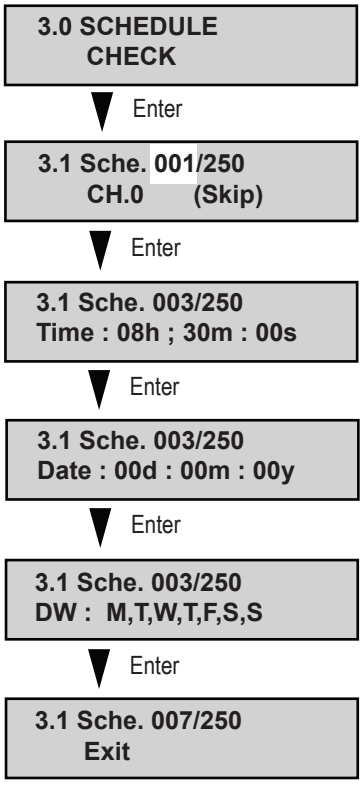
2.2 S004, C1, Skip
Sche. Save

Schedule auto save & return to 2.0.

Setting Up (Con't)

3.0 SCHEDULE CHECKS

This menu shall be used to check the setup times.



- Use NEXT/PREV button to select the schedule number.
- Press ENTER to confirm selection

- The selected schedule number, eg. 003 is selected, the time of trigger is shown
- Press ENTER to view other parameters.

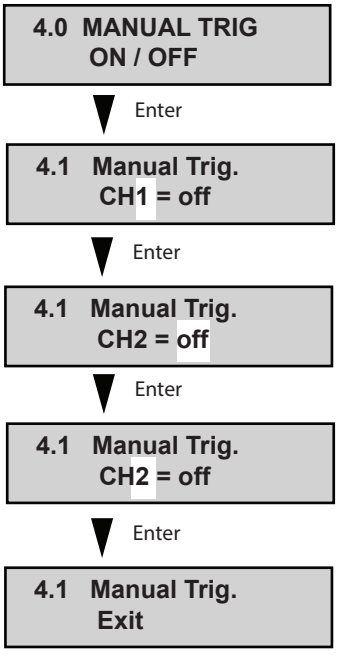
- The selected schedule number, eg. 003 is selected, the date of trigger is shown
- Press ENTER to view other parameters.

- The triggering shall occur at every day.
- Press ENTER to continue. DW = Day of Week

- To exit the current selection, press ENTER
- Menu shall return to 3.0
- To view other schedules, repeat the same steps above

4.0 MANUAL TRIGGERING

The output channel can be triggered manually, overriding the scheduled activation. It can be ON (relay closed), OFF (relay open) or Pulse.



- Use NEXT/PREV button to select the channel number
- Press ENTER to confirm the selected channel

- Use NEXT/PREV button to select the triggering mode
- Press ENTER to confirm the selection. LED for the channel shall on if the selection is ON and vice versa.

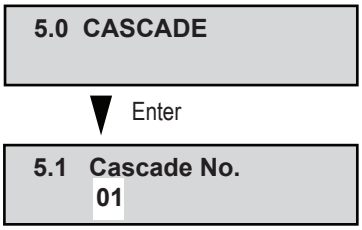
- The menu shall return as 4.1, use NEXT / PREV to select the channel number .

- Select exit to return to menu 4.0

Setting Up (Con't)

5.0 CASCADE

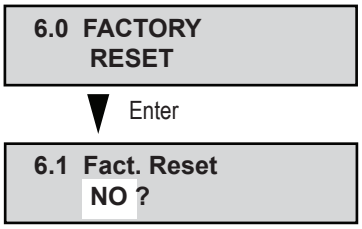
Up to 16 units can be cascaded, if number of schedules in a unit is insufficient or number of channels are more than 8. This setting is only applicable if RS485 data is communication is used, or linked to a PC for monitoring.



- Use NEXT/PREV button to determine the unit's cascading address
- Press ENTER to confirm the address number
- The menu shall return to 5.0.

6.0 FACTORY RESET

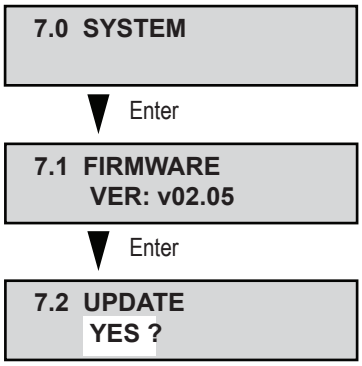
This is to delete all the settings done previously and return to factory default settings.



- Use NEXT/PREV button to select YES or NO
- Press ENTER to confirm selection
- The menu shall return to 6.0 above.

7.0 SYSTEM

System update and bootloading, enter this menu.

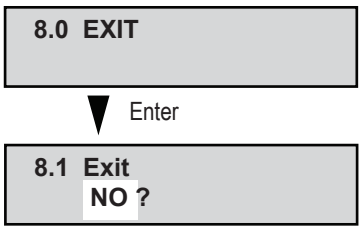


- Use NEXT/PREV button to select YES or NO
- Press ENTER to confirm selection
- The menu shall return to 7.0 above

- Please refer to section " Firmware Upgrading" to enter this function.

8.0 EXIT

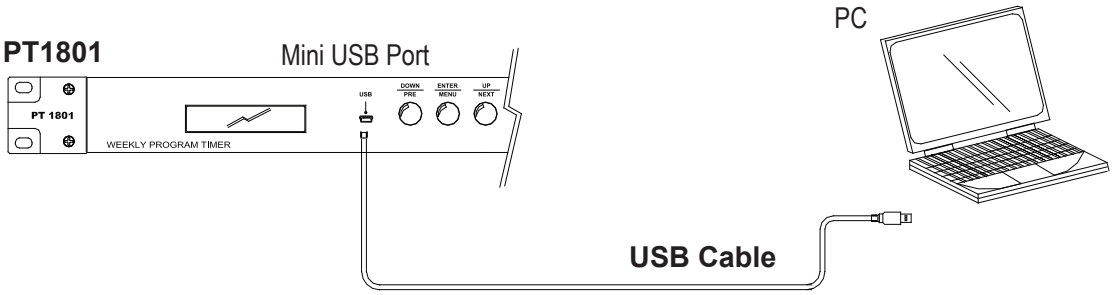
To exit programming mode, enter this menu.



- Use NEXT/PREV button to select YES or NO
- Press ENTER to confirm selection
- If NO, the menu shall return to 1.0 otherwise to time display (running mode).

PC Interface

PT1801 can be linked to a notebook / PC for the convenience of programming schedule, or to retrieve and upload the settings.



The programming software is available for free and can be downloaded from website : www.ampereselectronics.com/downloads

INSTRUCTIONS FOR INTERFACING WITH A PC

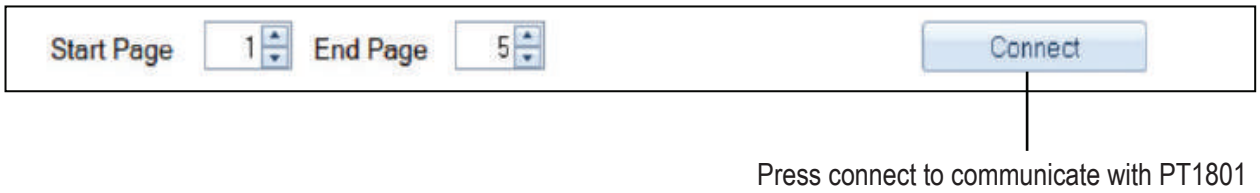
- Load the PT1801 configurator Software into your PC, an Icon shall appear at your desktop's screen
- Plug in the USB cable to your PC, and shall prompt for the driver.
- To start the program, click the icon shown and a control page shall appear.

PT1801 Icon

PC Interface

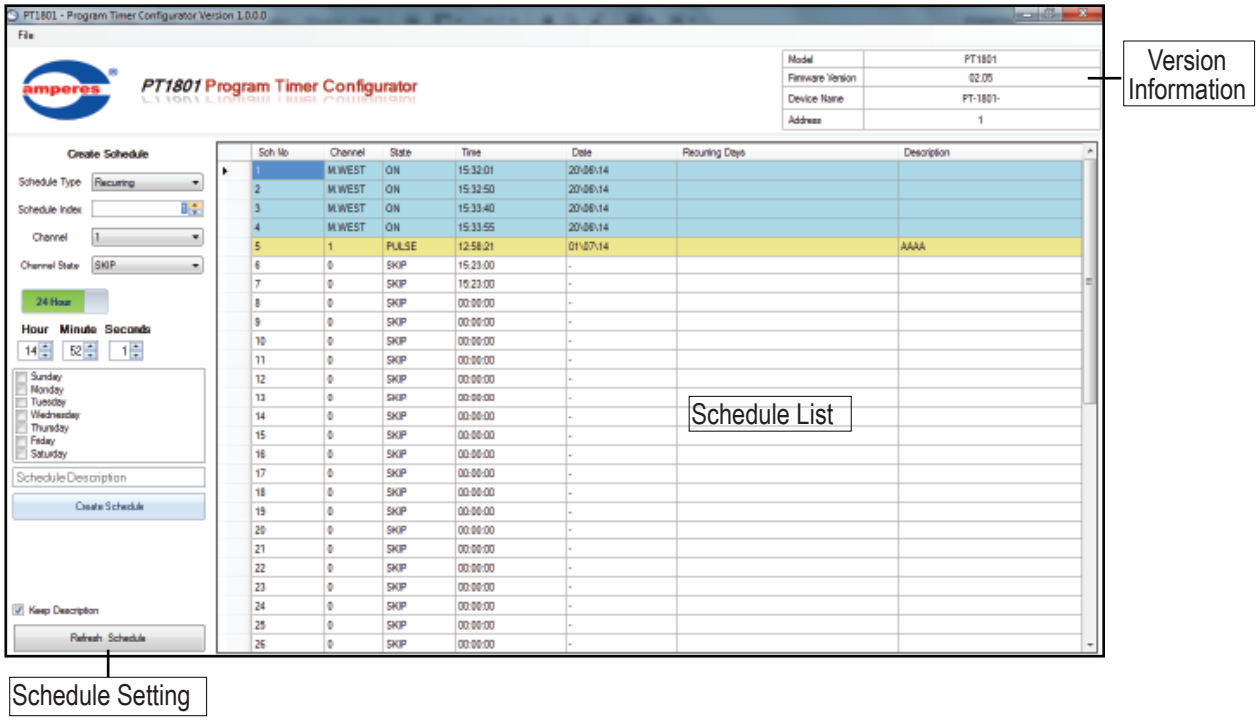
1. START THE PT1801 CONFIGURATOR

Press the icon shown and a main page shall appear.



2. CONFIGURATION PAGE

Press the 'connect' button after set the 'Start page, End Page and Address' .



Version Information

Model	PT1801
Firmware Version	02.05
Device Name	PT-1801-
Address	1

4. CREATE SCHEDULE SETTING

Set up the schedule type, schedule index, channel & Channel State
a) Schedule Type: Recurring / On Date
b) Schedule Index: Schedule number
c) Channel: The output channel of relay contact
d) Channel State: Also know as triggering mode. Available output states are SKIP, ON, OFF & PULSE (3 sec)

5. TIME

Triggering time of the timer is in 24 hr format. Set up time for schedule running.

6. DAY OF WEEK (DOW)

This is in reference to the specific day of the week for schedule activation. It is only application for weekly recurring events.

7. SCHEDULE DESCRIPTION

To provide a brief description of the schedule (e.g. lunch break).

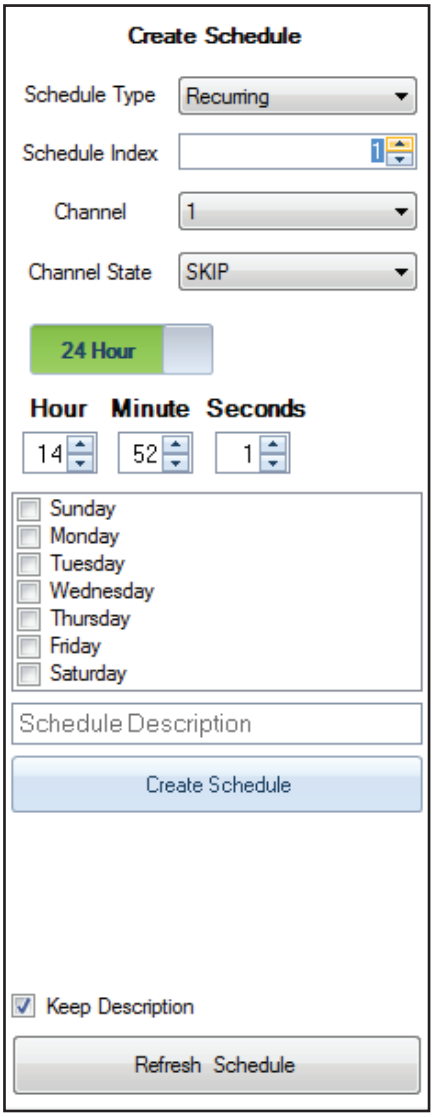
8. CREATE SCHEDULE

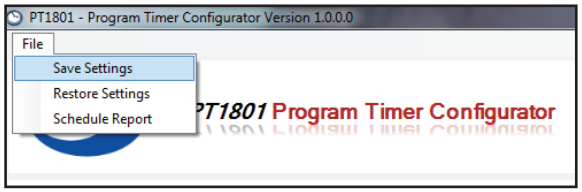
Press 'Create Button' Schedule to save the setting.

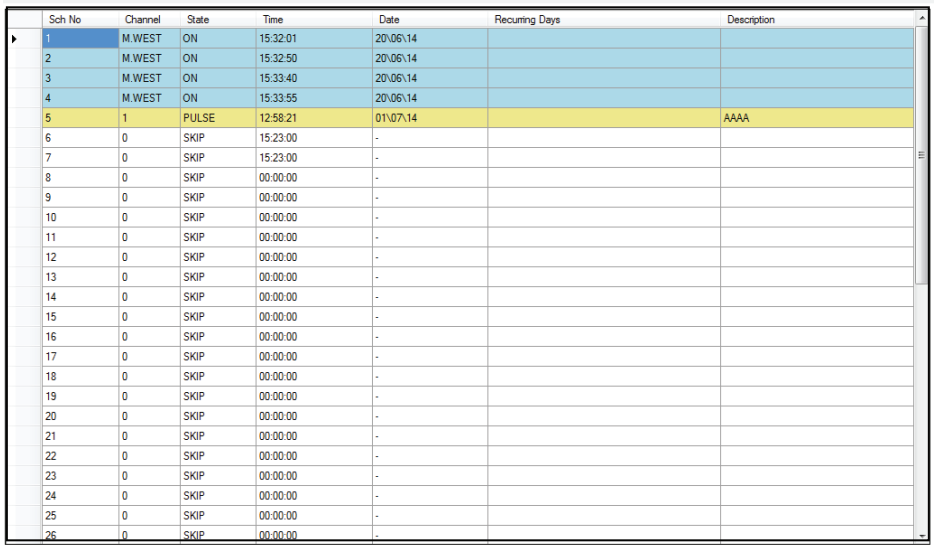
9. SAVE SETTING

Click 'File' menu to save all schedules, as shown in the right column of the window.

Schedule Setting







Sch No	Channel	State	Time	Date	Recurring Days	Description
1	M.WEST	ON	15:32:01	20\06\14		
2	M.WEST	ON	15:32:50	20\06\14		
3	M.WEST	ON	15:33:40	20\06\14		
4	M.WEST	ON	15:33:55	20\06\14		
5	1	PULSE	12:58:21	01\07\14		AAAA
6	0	SKIP	15:23:00	-		
7	0	SKIP	15:23:00	-		
8	0	SKIP	00:00:00	-		
9	0	SKIP	00:00:00	-		
10	0	SKIP	00:00:00	-		
11	0	SKIP	00:00:00	-		
12	0	SKIP	00:00:00	-		
13	0	SKIP	00:00:00	-		
14	0	SKIP	00:00:00	-		
15	0	SKIP	00:00:00	-		
16	0	SKIP	00:00:00	-		
17	0	SKIP	00:00:00	-		
18	0	SKIP	00:00:00	-		
19	0	SKIP	00:00:00	-		
20	0	SKIP	00:00:00	-		
21	0	SKIP	00:00:00	-		
22	0	SKIP	00:00:00	-		
23	0	SKIP	00:00:00	-		
24	0	SKIP	00:00:00	-		
25	0	SKIP	00:00:00	-		
26	0	SKIP	00:00:00	-		

Schedule List

Firmware Upgrading

To perform firmware update:

1. Link the PT1801 to PC as show in the Diagram 1
2. Run bootloader program at your PC and the windows (Diagram 2) should appear
3. At PT1801, select Menu 7 - System and 7.2 - Update
4. Select 'yes' for update
5. Load latest firmware by click 'New Firmware' (Diagram 3)
6. Select "Burn" and the new files would be downloaded to PT1801 (Diagram 4)
7. After completing press 'Restart' and the process of firmware upgrade is completed (Diagram 5)

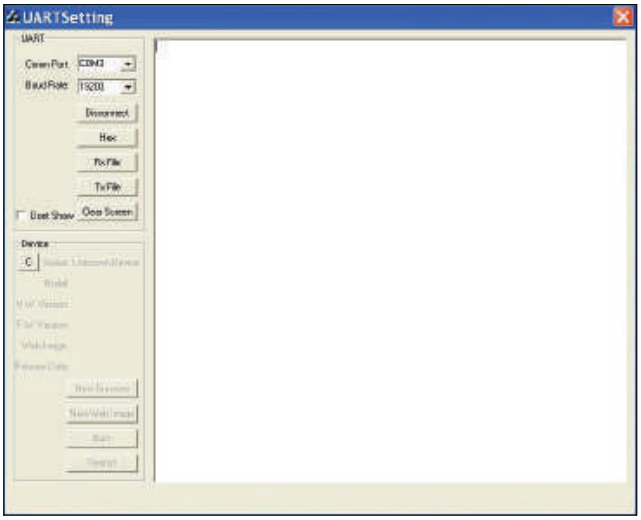


Diagram 1

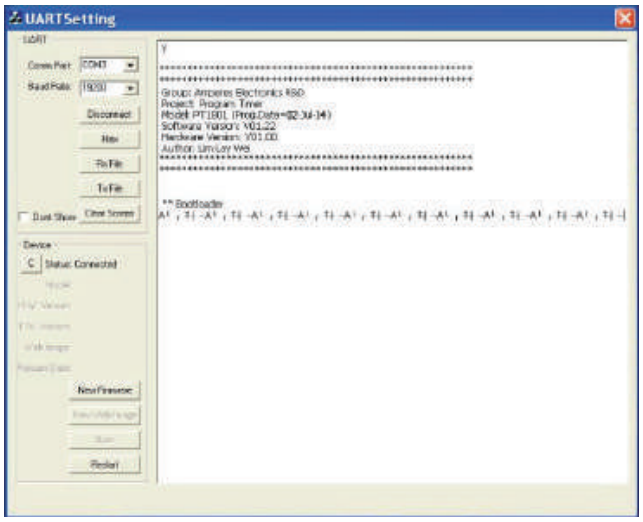


Diagram 2

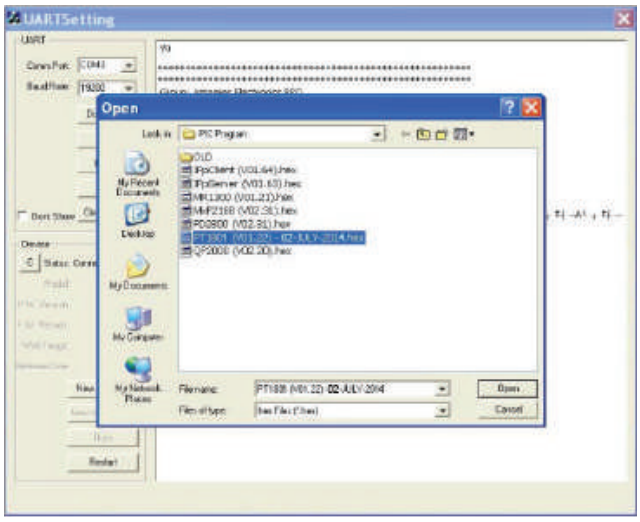


Diagram 3

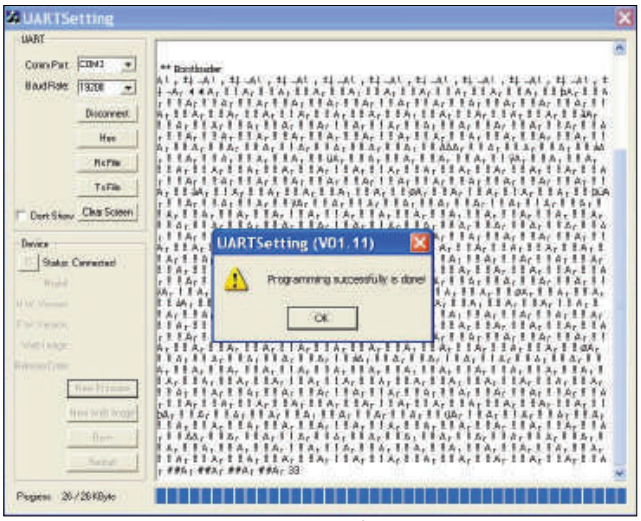


Diagram 4

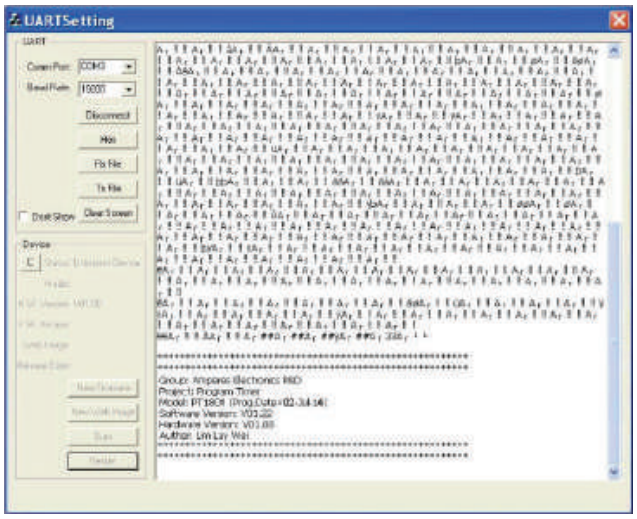


Diagram 5

The bootloding software is available for download. However, we prefer that this procedures are only performed by a trained technician.

Technical Specifications

Input voltage	24V DC ; 0.5A
Power consumption	4.8W
Output channels	8
Triggering mode	ON, OFF, pulse (3 seconds)
Memory	250 preset time
Contact rating	3A
Indicators	LED for triggered channel, Melody, Standby
Output chime	Westminster (Ch. 8 only)
Chime output level	Line level ; 1.2Vrms
Volume attenuation	off to 0 dB
Output connection	1/4” phone jack ; unbalanced
Impedance	1K Ohm
Clock backup	CR1220 button battery
RTC accuracy	± 2ppm
Data link	RS485
Baud rate	19.2 kbps
Dimensions (WxHxD)	482 x 44 x 180 mm
Weight	2 kg

Note:
The above specifications are correct at time of printing but subjected to changes without prior notice due to product improvements.

Warranty Conditions

Only Amperes Electronics Service Centres are allowed to make warranty repairs : a list of Amperes Electronics authorized service centres may be asked by the purchaser or send directly to Amperes Electronics Sdn Bhd at 70 Jalan Industri PBP3, Tmn Perindustrian Pusat Bandar Puchong, 47100, Puchong, Selangor. This warranty is not valid if repairs are performed by unauthorized personnel or service centres.

This warranty covers only repairs and replacement of defective parts. Cost and risk of transportation as well as removal and installation of the product from the main system are for the account of the purchaser. This warranty shall not extend to the replacement of the unit.

This warranty does not cover damages caused by misuse, negligence in application as well as using the product with power supply voltage other than shown on the product, or any other power supply source / adapter not recommended by the manufacturer.

This warranty does not cover damages caused by fire, earthquakes, floods, lightning and every cause not directly related to the unit.

This warranty does not include any indemnity in favor of the purchaser or the dealer for the period out of use of the unit, moreover the warranty does not cover any damages which may cause to the people and things during the use of the product.

This warranty certificate is valid only for the described product, and is not valid if modifications are made on this certificate or identification labels applied to the unit or any other modifications to the physical unit other than its intended usage.

This warranty covers all the material and manufacturing defects and is valid for a period of 36 months from the date of purchase or for a specified period in countries where this is stated by a national law. In this case, the extension is valid only in the country where the product is purchased.

Amperes Electronics Sdn Bhd is not obliged to modify previously manufactured products under warranty if the design changes or improvements are made.

The purchaser is deemed to agree to the above warranty conditions once the product packaging is unpacked., Otherwise the product shall be returned to the seller in proper original condition.

Disclaimer

Information contained in this manual is subjected to change without prior notice and does not represent a commitment on the part of the vendor. Amperes Electronics Sdn Bhd shall not be liable for any loss or damages whatsoever arising from the use of information or any error contained in this manual.

It is recommended that all services and repairs of this product to be carried out by Amperes Electronics or its authorized service agents.

Amperes products must only be used for the purpose they were intended by the manufacturer and in conjunction with this operation manual.

Amperes Electronics Sdn Bhd cannot accept any liability whatsoever for any loss or damages caused by service, maintenance or repair by unauthorized personnel, or by use other than that intended by the manufacturer.

UNITED REGISTRAR OF SYSTEMS • ISO 9001 •

UKAS MANAGEMENT SYSTEMS 043

ISO 9001: 2015
Design & Manufacture of Public Address Equipment and Systems
Certificate No. 16895 / A / 0001 / UK / En

amperes®

AMPERES ELECTRONICS SDN BHD
MADE IN MALAYSIA
Published : FEB 2023