



Traffic Products and Warning Systems

DLPRO 18

SOFTWARE INSTALLATION AND USER GUIDE

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TABLE OF CONTENTS

Table of Contents	i
Section 1—System Description and Theory of Operation	
1.1 DLPRO 18	2
1.2 Quick Setup Checklist.....	2
1.3 Minimum System Requirements	2
Section 2—Installation	
2.1 Software Installation	4
2.2 USB Driver Installation	5
Section 3—DLPRO 18 Software User Guide	
3.1 Creating Schedule Folders	12
3.2 Schedule	13
3.3 Holidays	15
3.4 Exceptions.....	16
3.5 Edit DST	18
3.6 Download.....	19
3.7 Upload.....	20
3.8 Schedule Management.....	21
Appendix A	
TC-18 Instruction Manual.....	24

Section 1

System Description and Theory of Operation

1.1 DLPRO 18

ELTEC's DLPRO 18 software is the programming platform for the TC-18 time clock. DLPRO 18 provides the user with an intuitive graphic user interface to program and manage multiple schedules and easily download them to each clock using the USB interface cable. The software additionally provides an interface to test clock functionality and synchronize the clock's time and date to the host computer.

The TC-18 clock uses a hierarchy of control which includes the regular weekly SCHEDULE, the HOLIDAY schedule and the EXCEPTION schedule. The weekly SCHEDULE offers six ON/OFF intervals for each day of the week and includes a start and stop date to define the period for the schedule to run. The HOLIDAY schedule allows input of up to twenty-five holiday/no school days which can be programmed for a single day or range of days. The EXCEPTION schedule provides the ability to program alternative flash intervals for specific days. Up to 365 exceptions dates may be programmed with a unique schedule for each date.

Each school or group with a common schedule is defined by creating a unique folder. The folder is dynamically linked to the program interface by simply clicking on the folder to make it active. Once the appropriate folder is selected the folder name appears at the top of the main window and all subsequent schedule editing and clock downloading is associated with the active folder.

Duplicating schedules is easily accomplished by selecting the VIEW/EDIT FOLDERS function and using standard Windows copy and paste functions.

1.2 QUICK SETUP CHECKLIST

DLPRO 18 and the TC-18 are designed for simplicity of implementation. The following checklist will facilitate easy installation and basic programming.

1. Install software.
2. Connect clock and install/configure USB driver.
3. Program start date, end date and the regular weekly ON/OFF SCHEDULE.
4. Program HOLIDAYS.
5. Define EXCEPTION days and Program Exception Schedules.
6. DOWNLOAD program to clock.
7. SYNC clock time and date.
8. Install clock in cabinet and connect power and control wiring as required.
 - A. See clock manual provided in Appendix A.

1.3 MINIMUM SYSTEM REQUIREMENTS

- Microsoft Windows Operating System (Windows 2000, XP, Windows 7, Windows 8)
- Hard Disk Space 3.5 MB for system files
- Memory 12.5 MB
- USB Port

Section 2

Installation

2.1 SOFTWARE INSTALLATION

Insert the installation disk into the CD drive. If the installation program does not automatically start, navigate to the appropriate drive using My Computer and double click on the Setup.exe file to begin the installation.

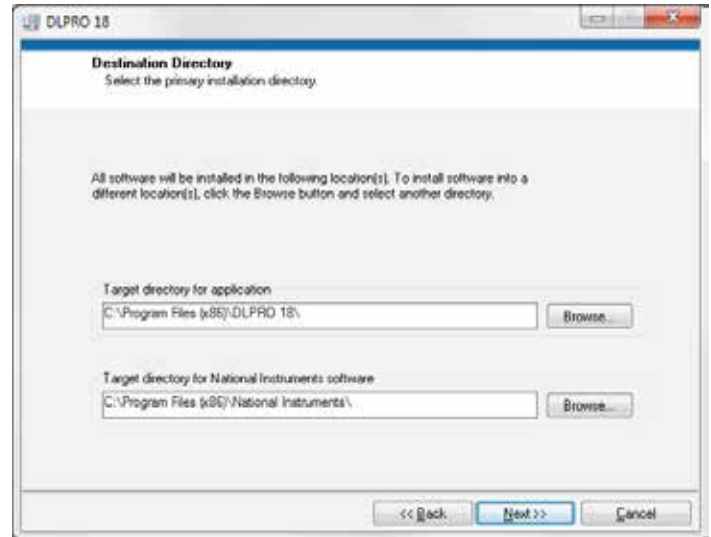
If a User Access Control window opens asking whether to allow a program from unknown publisher to make changes, click on the YES button. A window will appear (Figure 1) recommending that all programming be executed before beginning installation. After executing all programming, click NEXT.

At the DLPRO 18 Installation window, click NEXT (Figure 2) to proceed with installation.

Figure 1



Figure 2



Accept the default installation directory (Figure 3) and click NEXT. At the Start Installation window, Click NEXT.

A progress window (Figure 4) will be displayed as shown until installation is complete. Click the FINISH button when the Installation Complete window is displayed.

Figure 3

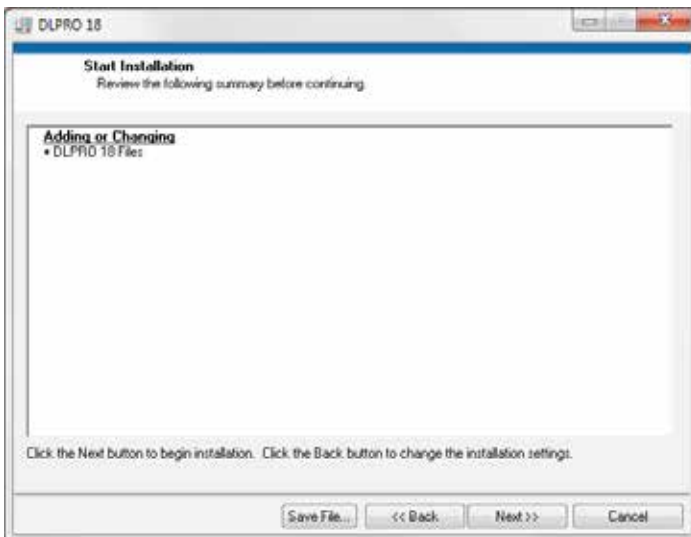
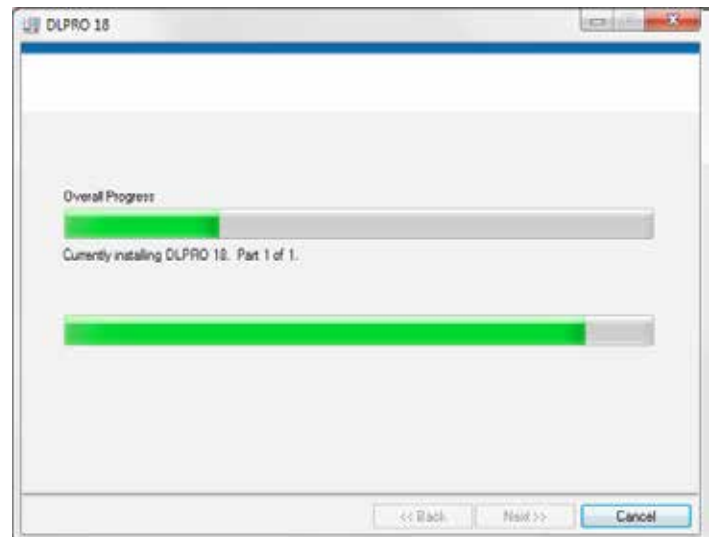


Figure 4



2.2 USB DRIVER INSTALLATION

Once the DLPRO 18 software installation is complete & prior to running the application software, the USB driver will need to be installed to establish communication with the TC-18 clock. Start by navigating to the Device Manager (Control Panel → System & Security → System → Device Manager) and select Ports (COM & LPT). Note the ports that are listed prior to connecting the TC-18 to easily identify the port assigned to the device by the operating system automatic installation. The ports listed will vary based upon existing installed equipment, but the list will be similar to that shown below left (Figure 5). If there are no existing ports listed in the Device Manager, as shown below right (Figure 6), simply move on to the next step in the installation.

Figure 5

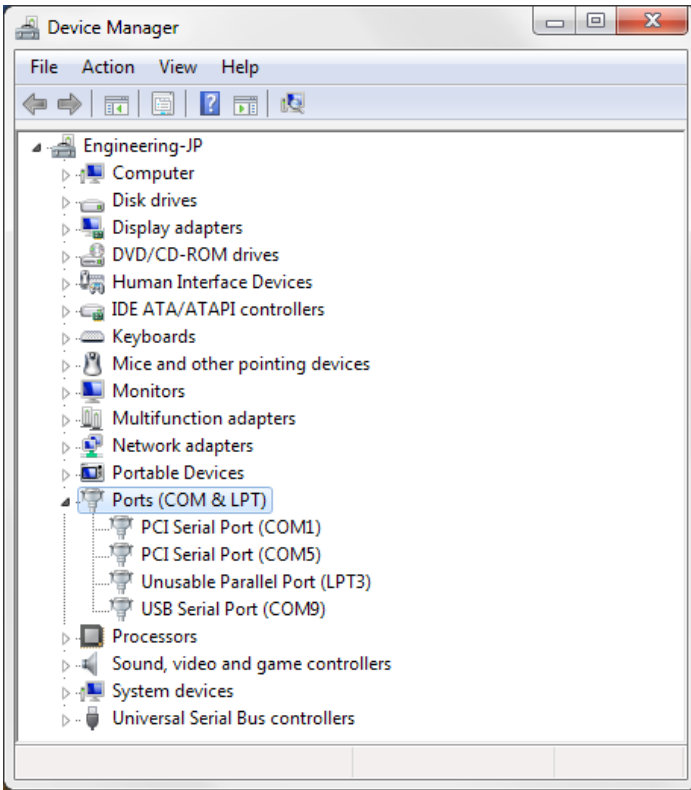
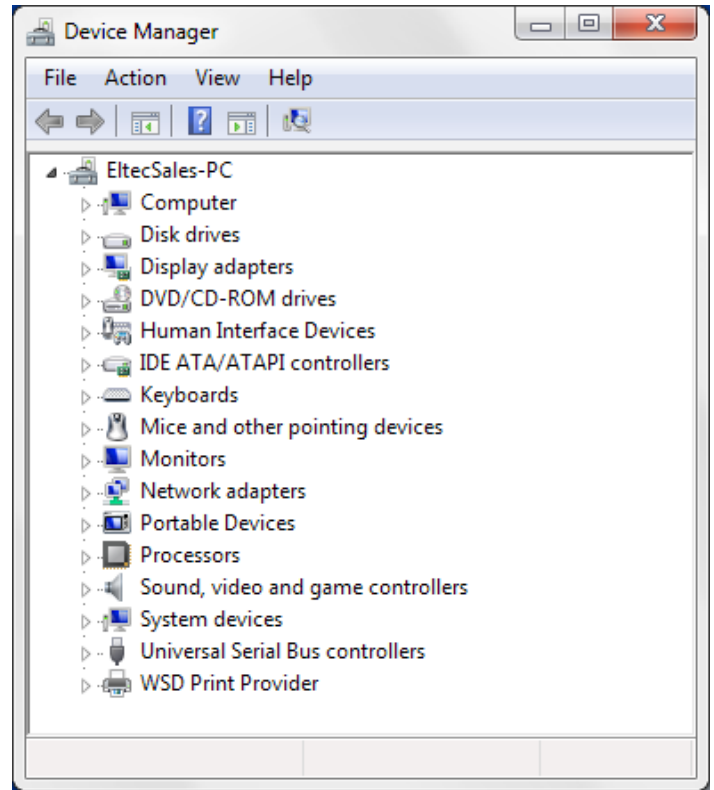


Figure 6



Power up the TC-18 clock and connect the provided USB cable between the clock and the PC. The computer operating system will automatically recognize that a new device has been detected and will attempt to install a device driver. (Figure 7)

Wait for the driver to install and a message to display indicating that the driver software is installed and the device is now ready to use (Figure 8). Click on the Close button to complete the driver installation.

Figure 7

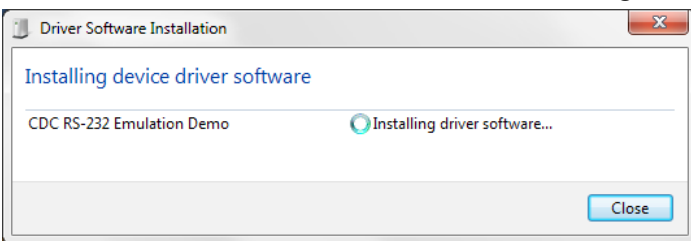
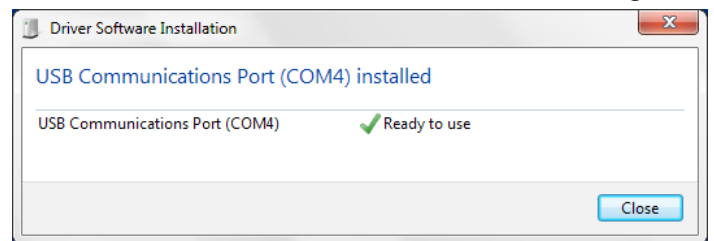


Figure 8



Select the Device Manager Window and double-click on the COM Port that was installed to open the USB Communications Port Properties window (Figure 9).

A new Serial Port device should show up in the Device Manager previously opened, in the example shown in Figure 9 is shown as USB Communications Port (COM4) (Figure 10). The device driver that is installed by the operating system will allow the device to be recognized in the system Device Manager, but the driver and port settings will need to be updated for DLPRO to communicate with the clock.

Figure 9

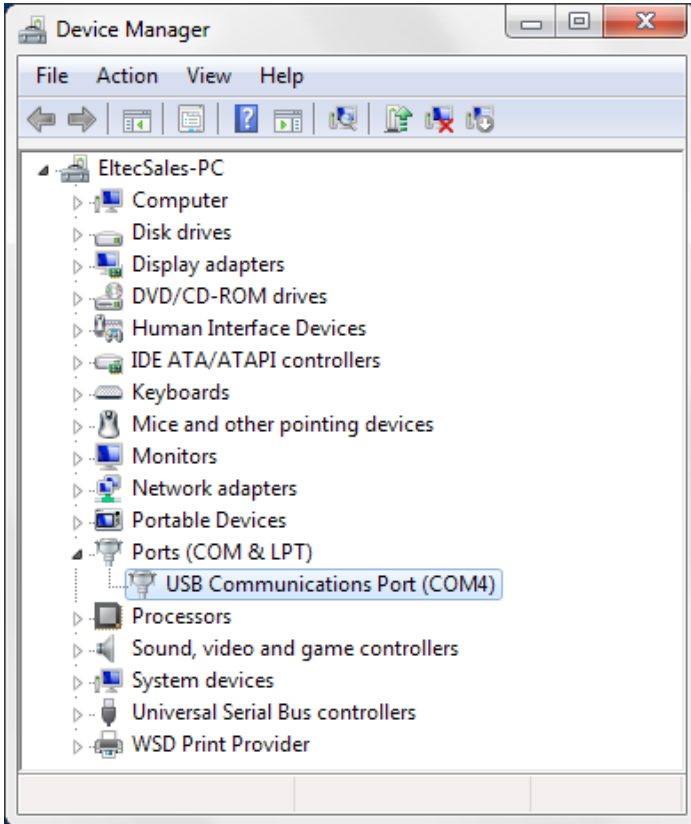
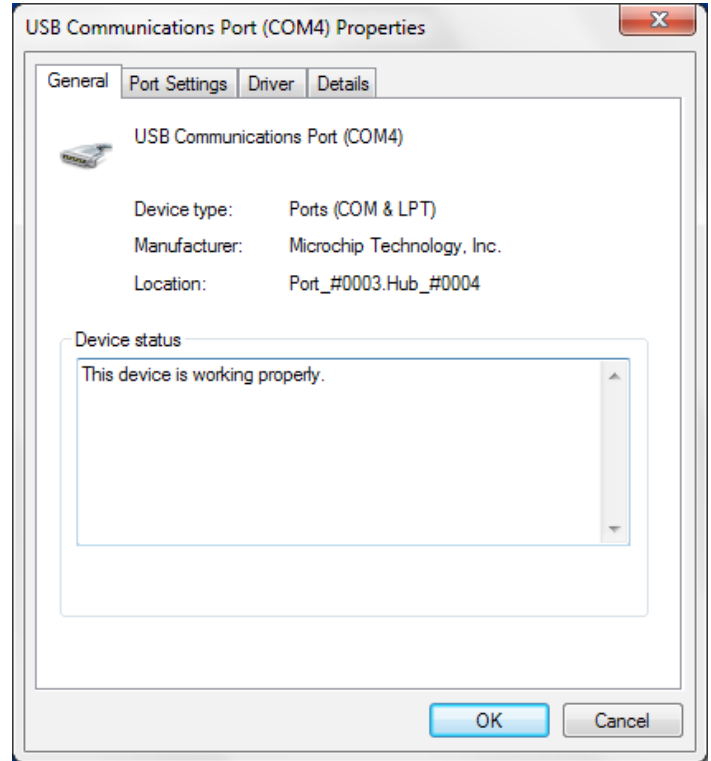


Figure 10



Select the Driver tab in the Properties window and click on the Update Driver button (Figure 11). When prompted for how to search for the driver software, select Browse my computer for driver software (Figure 12).

Figure 11

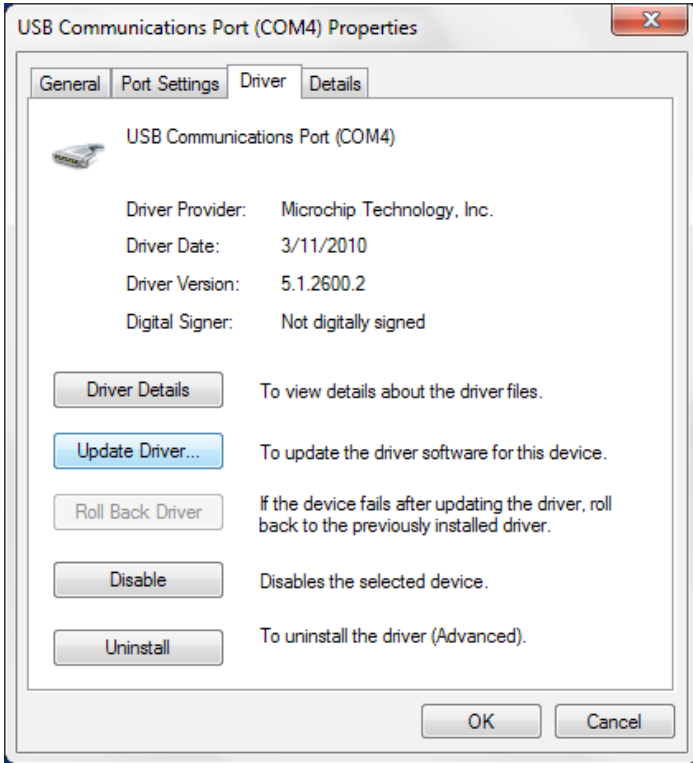
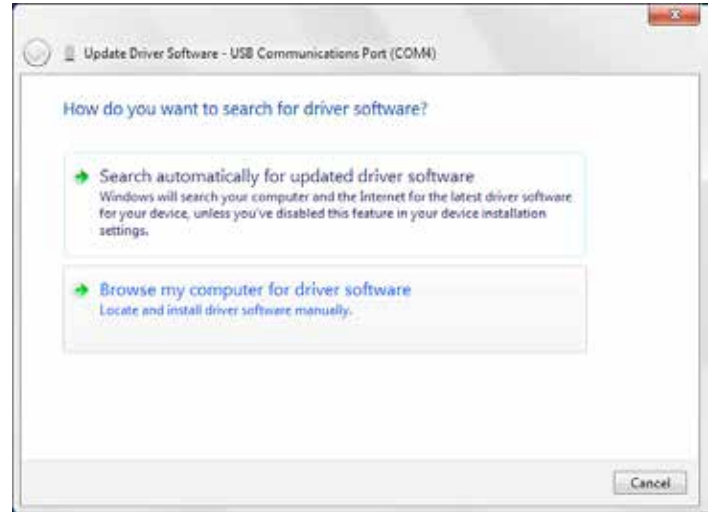


Figure 12



Click on the Browse button and navigate to the drive with the installation CDROM and click OK (Figures 13 and 14).

Figure 13

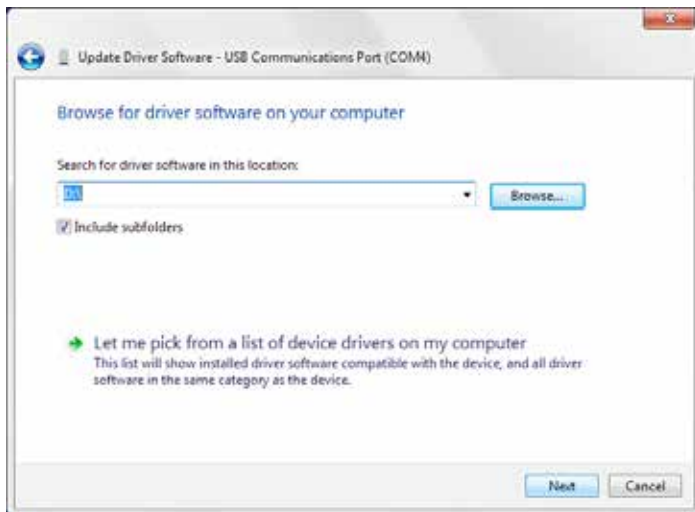
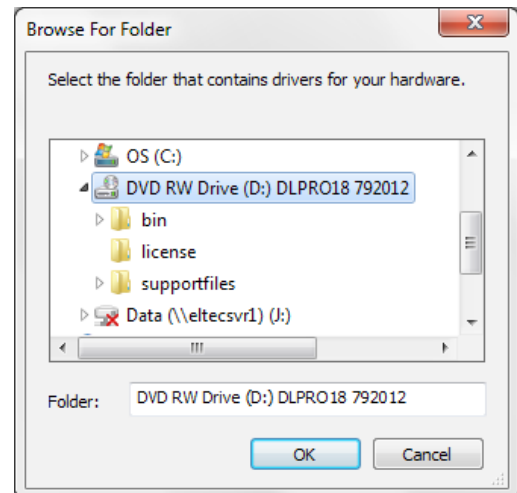


Figure 14



Click Next (Figure 15) and click on 'Install this driver software anyway' when presented with a Windows Security warning (Figure 16).

Figure 15

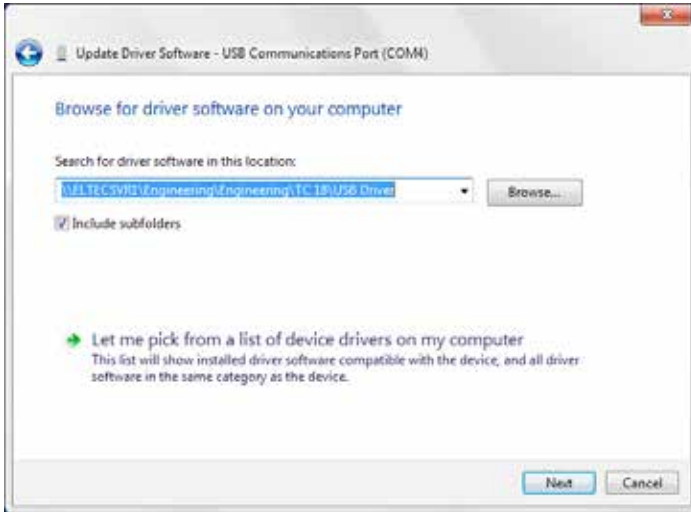
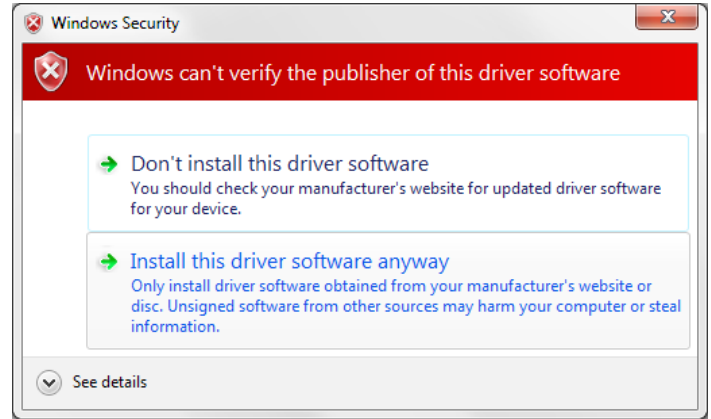


Figure 16



The driver software will install (Figure 17). Click on Close to complete the installation (Figure 18).

Figure 17

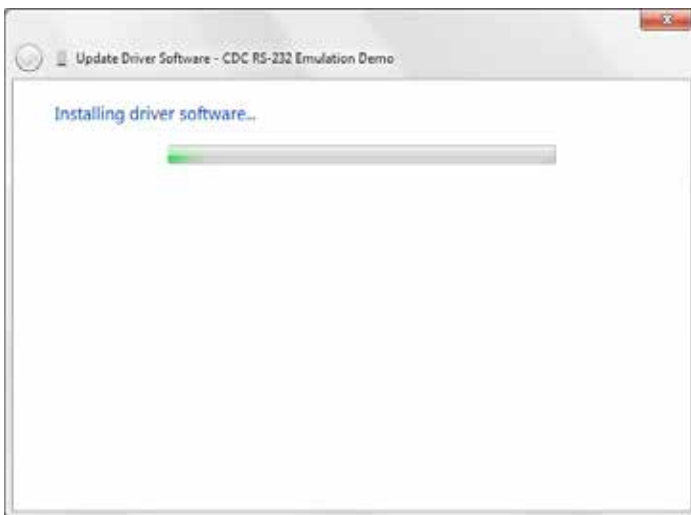


Figure 18



With the correct USB driver installed, the final configuration step is to verify correct port settings. From the Properties window select the Port Settings tab and click on the Advanced... settings button (Figures 19 and 20).

Figure 19

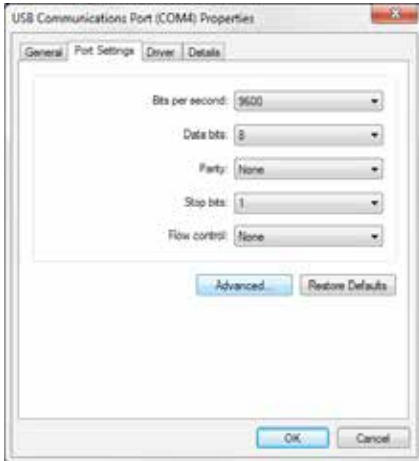
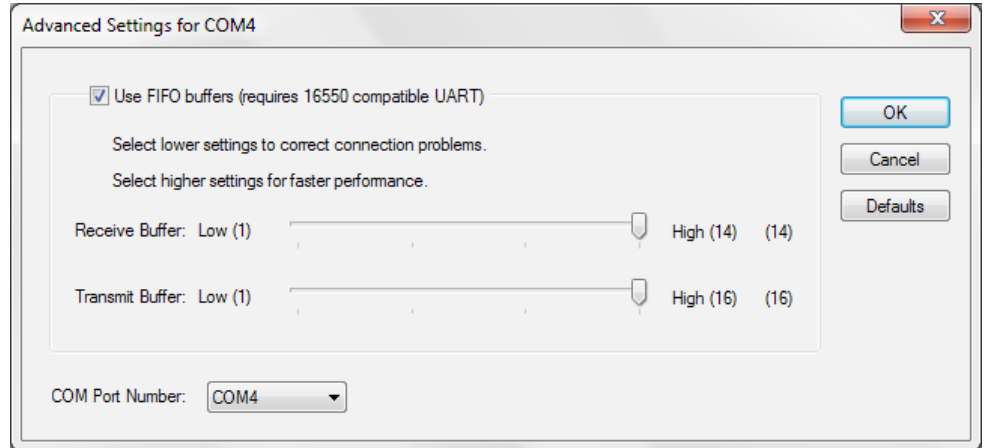


Figure 20



Select a COM Port Number (Figure 21) in the range of 1 to 10 from the available ports listed; leave all other settings as default and click OK to exit the Advanced Settings. Click OK at the Properties window (Figure 22) to save the settings and exit.

Figure 21

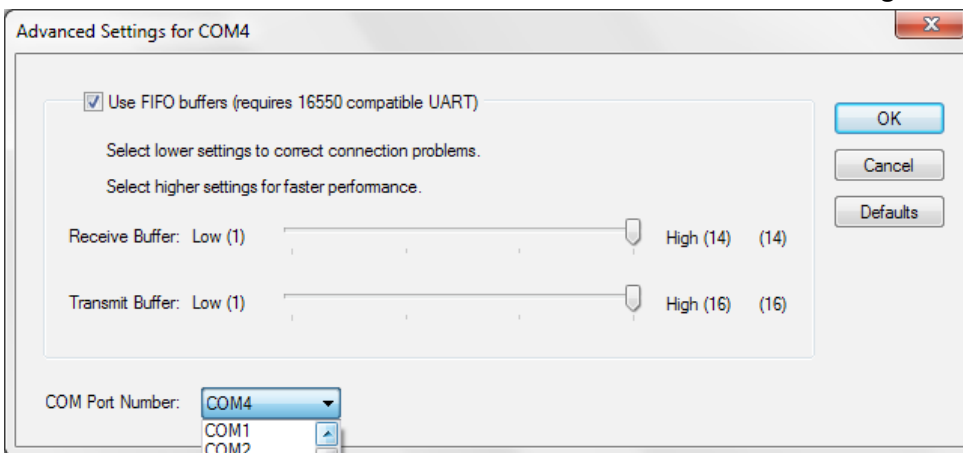


Figure 22



This completes the installation of USB drivers and Port configuration. Continue to the Software User Guide section to get started programming schedules and downloading schedules to TC-18 clocks.

Section 3

DLPRO 18 Software User Guide

3.1 CREATING SCHEDULE FOLDERS

Begin by navigating to and starting the DLPRO 18 software. When the program is opened for the first time, it will open to a 'Default' folder and may display a message suggesting that you may want to change the folder name, simply click OK to get to the main window. The main DLPRO 18 window (Figure 23) is dynamically associated to the currently selected School Folder and the current folder name displays at the top center of the window.

Rename the 'Default' folder by clicking on the VIEW/EDIT FOLDERS button (Figure 23), right-click on the Default folder (Figure 24) and select Rename (Figure 25). Type in the new folder name, hit the enter key and select Done when finished.

Figure 23

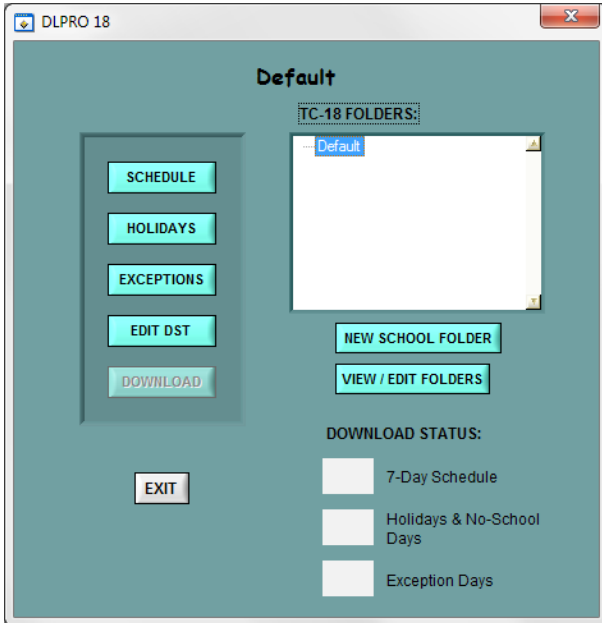
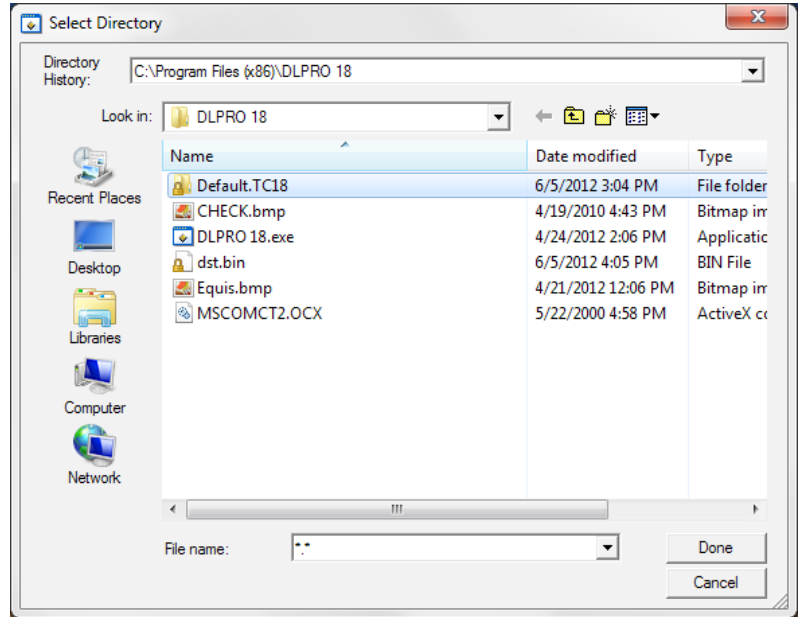


Figure 24



The main DLPRO 18 window will now display the folder with the appropriate name (Figure 26).

Figure 25

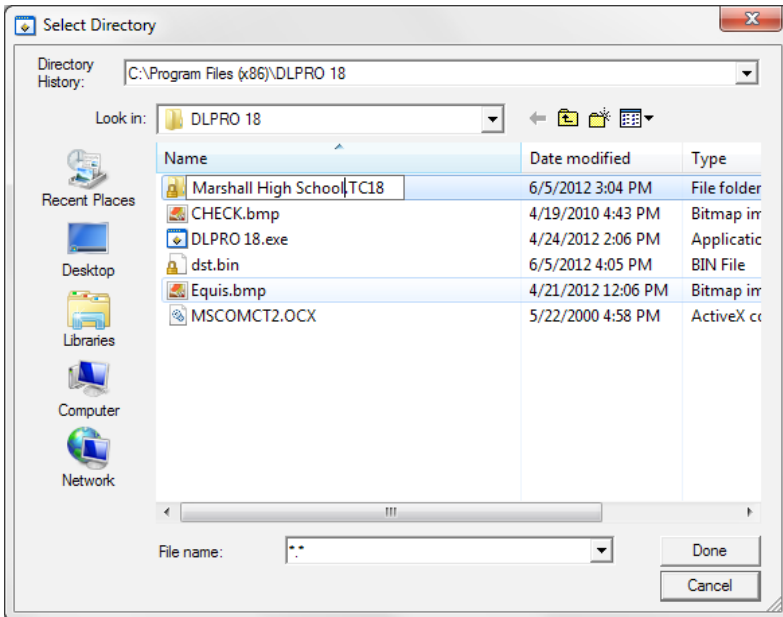
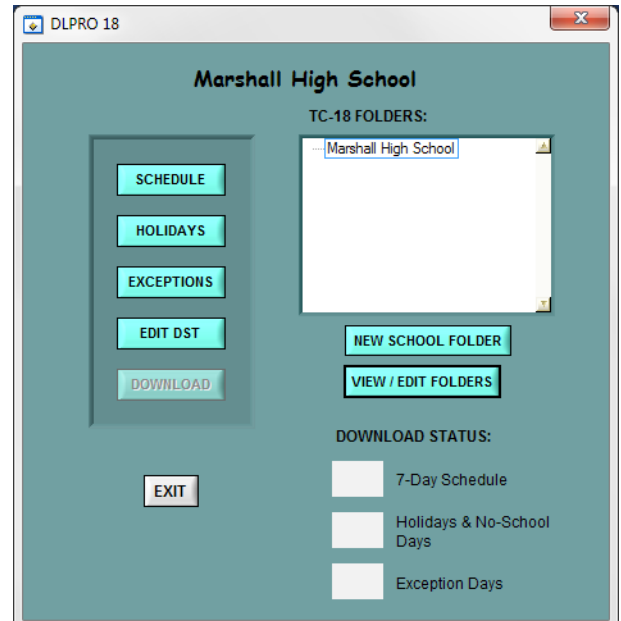


Figure 26



3.2 SCHEDULE

Click the SCHEDULE button (Figure 26) to program the standard weekly schedule. Select the START DATE and END DATE for the school year being programmed (Figures 27 and 28). A pop-up calendar tool offers easy date selection by clicking the arrow button next to the DATE fields.

Figure 27

Figure 28

Once the START DATE and END DATE are input, the ON/OFF intervals for the weekly schedule can be entered by selecting each interval field and using the TIME TOOL to input the start and stop time for each flashing interval (Figure 29). After entering all the intervals for MONDAY, the COPY ARROW > over the columns can be used to copy the schedule to each subsequent day's column to easily complete a schedule for the typical school week (Figures 30 and 31).

Figure 29

Figure 30

Verify that the entered schedule is valid, noting that the appropriate times are entered for each ON/OFF interval and that the times reflect the appropriate AM or PM designation for morning and afternoon times. Make any necessary changes or modifications to the schedule and then Click on the SAVE button to save the schedule (Figure 32). This saves the standard WEEKLY SCHEDULE to the computer hard drive. The WEEKLY SCHEDULE window also provides functions to PRINT the schedule or SEND the schedule to a connected TC-18 time clock. After saving the schedule, click EXIT (Figure 32) to return to the main DLPRO 18 window (Figure 23).

Figure 31

Marshall High School

START DATE: 08-27-12 END DATE: 05-31-13 TIME TOOL: 00:00 PM

	SUN	MON	TUE	WED	THU	FRI	SAT
INTERVAL 1		07:30am	07:30am	07:30am	07:30am		
		05:30am	08:00am	08:30am	08:30am		
INTERVAL 2		11:30am	11:30am	11:30am	11:30am		
		12:15pm	12:15pm	12:15pm	12:15pm		
INTERVAL 3		03:30pm	03:00pm	03:30pm	03:00pm		
		04:30pm	04:00pm	04:30pm	04:00pm		
INTERVAL 4							
INTERVAL 5							
INTERVAL 6							

Buttons: SAVE, PRINT, SEND, EXIT

Figure 32

Marshall High School

START DATE: 08-27-12 END DATE: 05-31-13 TIME TOOL: 3:00:00 PM

	SUN	MON	TUE	WED	THU	FRI	SAT
INTERVAL 1		07:30am	07:30am	07:30am	07:30am	07:30am	
		05:30am	08:00am	08:30am	08:00am	08:30am	
INTERVAL 2		11:30am	11:30am	11:30am	11:30am	11:30am	
		12:15pm	12:15pm	12:15pm	12:15pm	12:15pm	
INTERVAL 3		03:30pm	03:00pm	03:30pm	03:00pm	03:00pm	
		04:30pm	04:00pm	04:30pm	04:00pm	04:00pm	
INTERVAL 4							
INTERVAL 5							
INTERVAL 6							

Buttons: SAVE, PRINT, SEND, EXIT

3.3 HOLIDAYS

To program the HOLIDAY SCHEDULE, from the main DLPRO 18 window (Figure 23) click on the HOLIDAYS button. At the HOLIDAYS window (Figure 33) select the NAME field for the first holiday and type in the name. Select the FIRST DAY field and input the date by selecting it using the CALENDAR TOOL. Select the LAST DAY field and input the date by selecting it using the CALENDAR TOOL. For single day holidays the FIRST and LAST days will be the same date, for multi-day holidays the FIRST and LAST days will be the first and last days that the holiday will be observed (Figure 34).

Figure 33

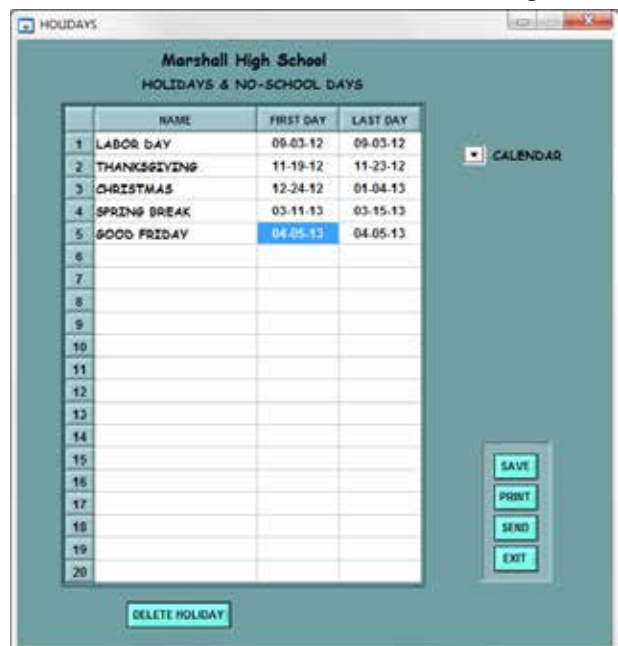


Figure 34



Continue entering holiday names and dates for each no flash day that will be observed during the school year. When all holidays have been entered (Figure 35), click the SAVE button to save the holiday schedule to the computer hard drive. The HOLIDAYS window also provides functions to PRINT the holiday schedule or SEND the holiday schedule to a connected TC-18 time clock. After saving the holiday schedule, click EXIT to return to the main DLPRO 18 window (Figure 23).

Figure 35



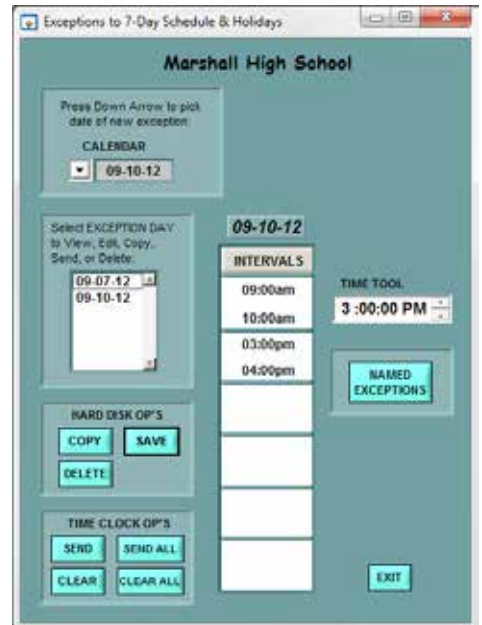
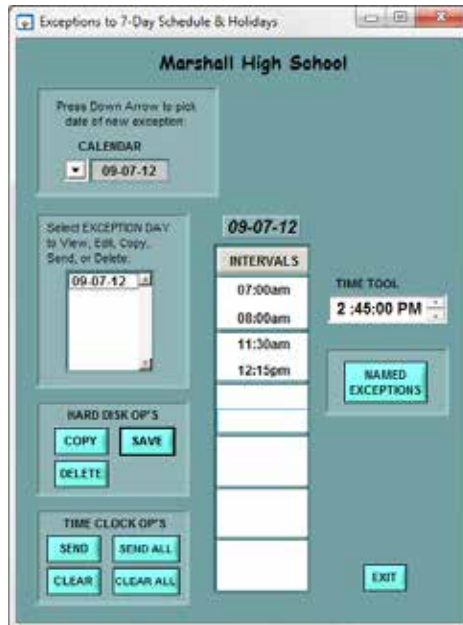
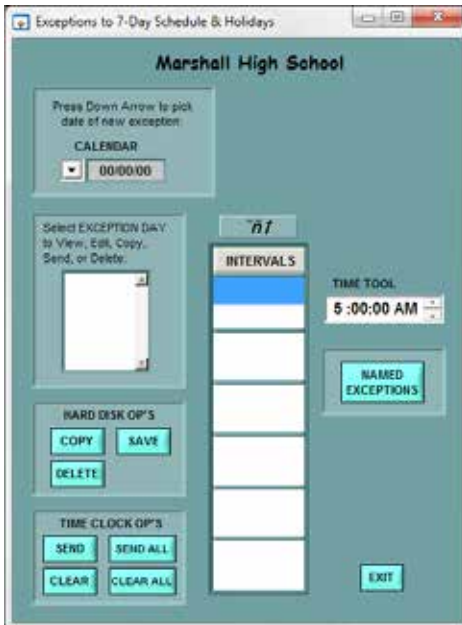
3.4 EXCEPTIONS

To program the EXCEPTION SCHEDULE, from the main DLPRO 18 (Figure 23) window click on the EXCEPTIONS button. In the Exceptions window (Figure 36), select the date for the first alternate schedule to run using the calendar tool and then enter the ON/OFF intervals for that date. Once the intervals are entered, click the SAVE button and the exception date will show in the window on the left (Figures 37 and 38).

Figure 36

Figure 37

Figure 38

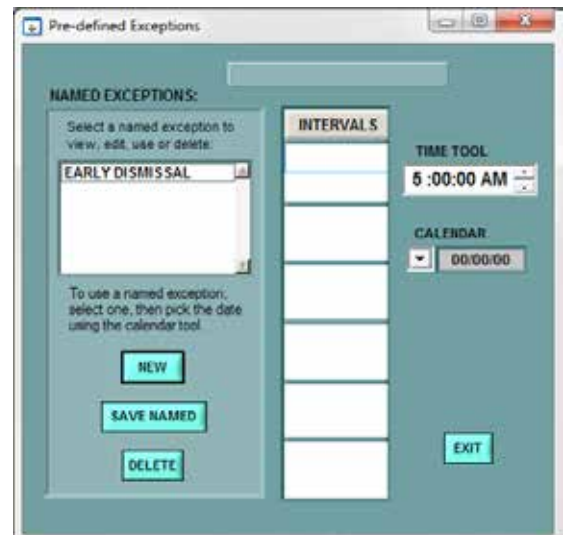
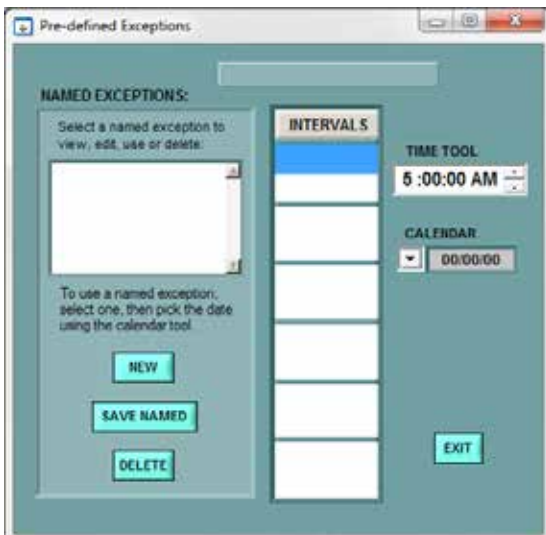


To enter exceptions for an alternate schedule that will be used on several dates throughout the year, click the NAMED EXCEPTIONS button (Figure 38). Click on the NEW button and type the name for the exception (Figure 39 and 41). Click OK and the exception will show in the NAMED EXCEPTIONS list (Figure 41).

Figure 39

Figure 40

Figure 41



Select the named exception by clicking on it (when the exception is selected the name will appear above the INTERVALS column (Figure 42)) and enter the ON/OFF intervals for the named exception. The Pre-Defined Exception is applied to the desired dates using the CALENDAR tool (Figure 43). A message will display confirming that the exception is created for the specific date and the exception will also show in the list on the main exceptions window (Figure 44). Enter all pre-defined exceptions and the respective dates that they are to be applied to and click EXIT.

Figure 42

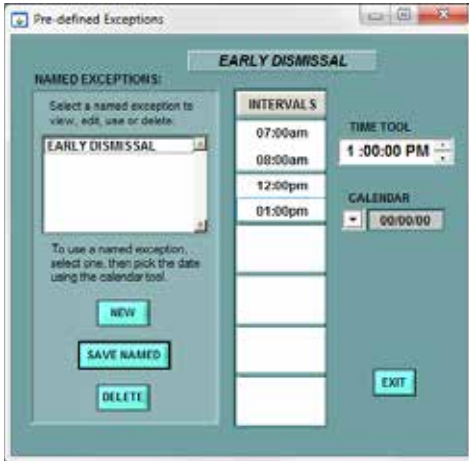


Figure 43

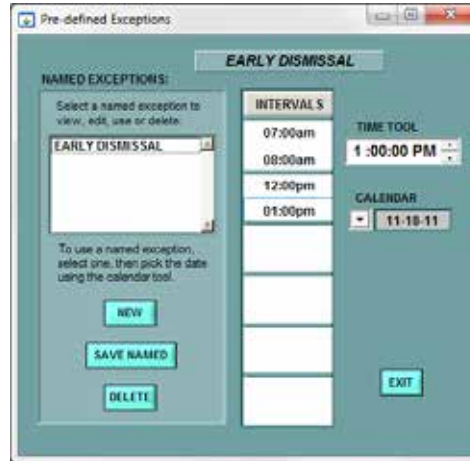


Figure 44



At the main exception window, the dates for all the NAMED EXCEPTIONS entered will display in the exception list (Figure 45). The EXCEPTIONS window provides functions to SEND or CLEAR a single exception, SEND ALL or CLEAR ALL exceptions to a connected TC-18 Clock. Once all exception schedules have been entered, exit back to the main menu (Figure 46).

Figure 45

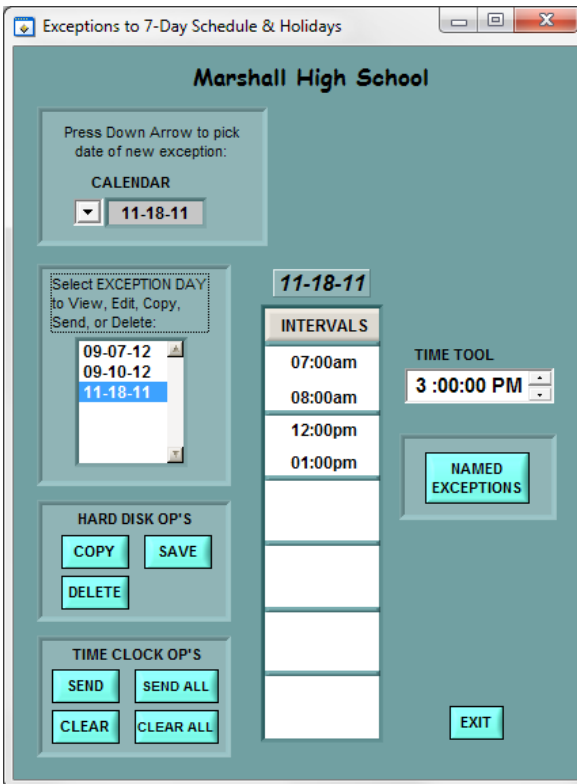
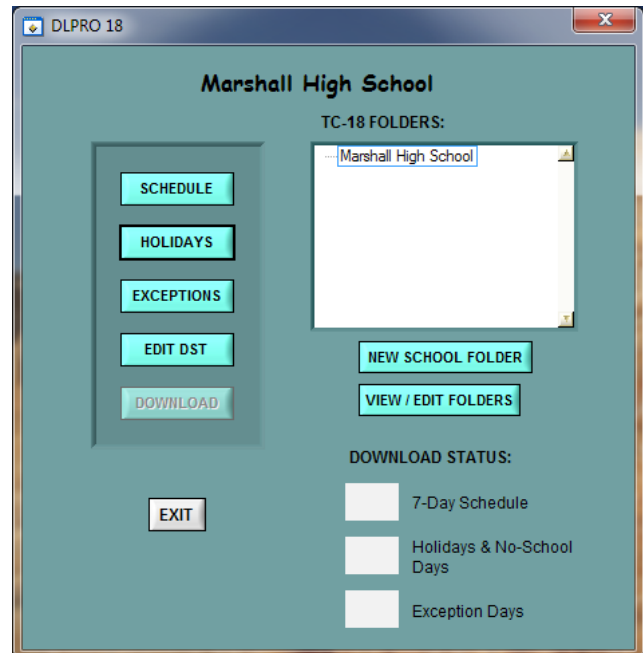


Figure 46



3.5 EDIT DST

To edit the Daylight Saving Time (DST) settings, click the Edit DST button. The start and end dates for DST can be selected with the tools provided. The Energy Policy Act of 2005, which went into effect in 2007, established the 2nd Sunday of March as the start of DST and the 1st Sunday of November as the end of DST. Observation of DST is optional with selection indicated using a Yes/No toggle switch (Figures 47 and 48).

Figure 47

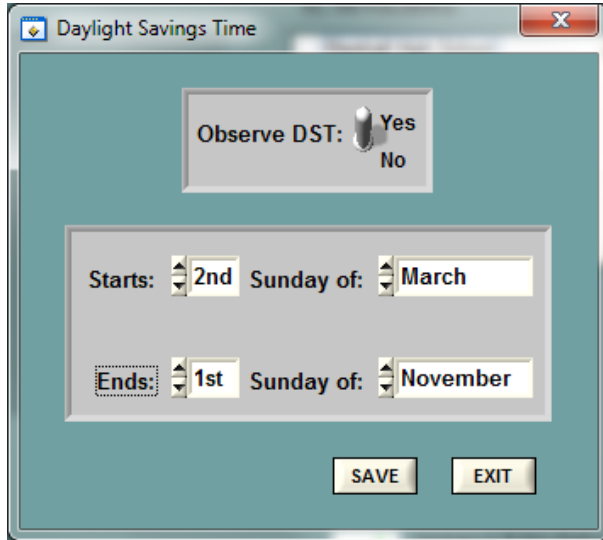
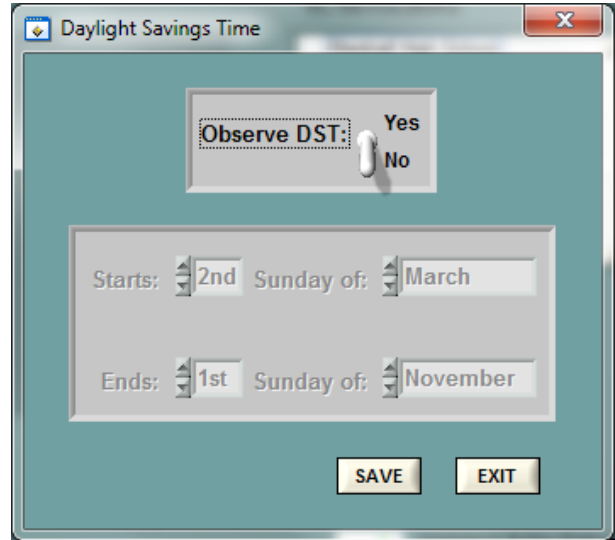


Figure 48



3.6 DOWNLOAD

To download the programmed schedule and settings to a TC-18 clock, connect the clock to the PC using the USB cable. Once the clock is recognized a status window will open within the DLPRO 18 program screen (Figure 49). The clock status window provides current clock information, including the firmware version, date, time, time drift, override duration and program status. There are control buttons to allow manual ON, OFF, CLEAR and SYNC functions for testing and time/date synchronization.

Set the date and time on the clock by clicking the SYNC button on the clock status window. The clock time and date will be synchronized with the PC. The clock status window will automatically update, displaying the correct time and date (Figure 50).

NOTE: Each schedule may be downloaded individually by selecting the SEND button when that schedule is open for viewing or editing.

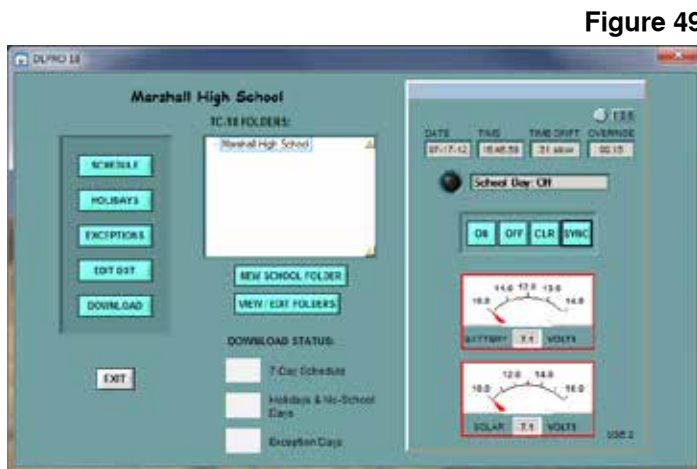


Figure 49

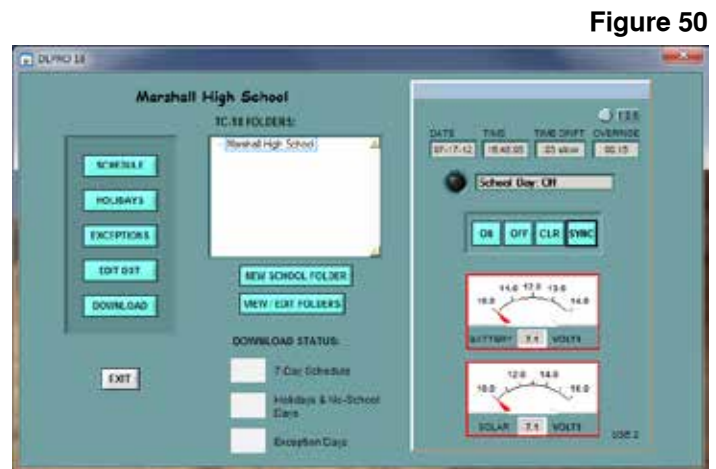


Figure 50

Clock programming is accomplished by clicking the DOWNLOAD button with the clock connected (Figure 51).

The download status will display a yellow bar indicating that the program is being transferred to the clock (Figure 51). A green check will be displayed to indicate successful completion of each portion of clock programming. A red X will be displayed if the transfer of data to the clock is not successful. When all programs have been successfully transferred to the clock, the screen will display three green check marks (Figure 52).

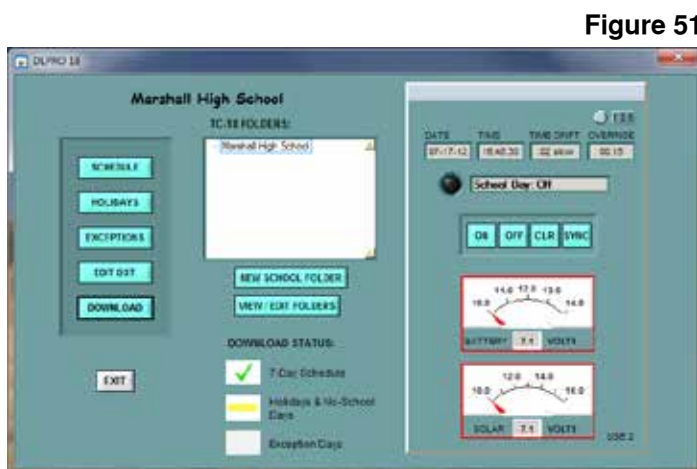


Figure 51

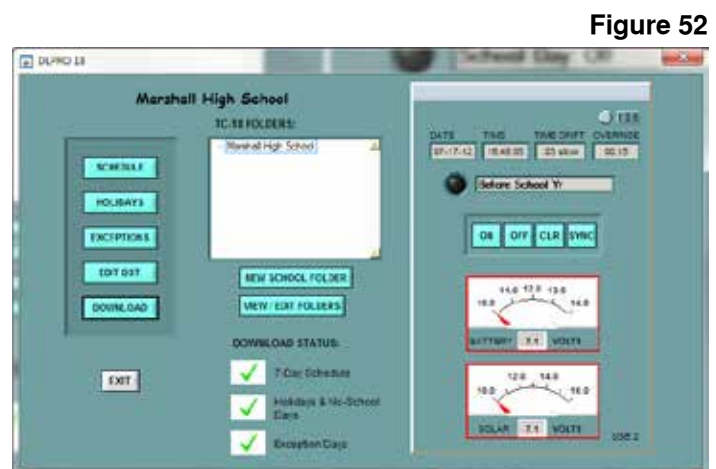


Figure 52

3.7 UPLOAD

UPLOAD SCHEDULE (Figure 53) allows the schedule information of a connected TC-18 to be uploaded to the DLPRO 18 program. The first time the upload function is used, a folder, 01-UPLOADS (Figure 54), is created for storage of uploaded information. Pressing one of the three schedule buttons (Figure 54) uploads that component of the schedule from the connected

Figure 53

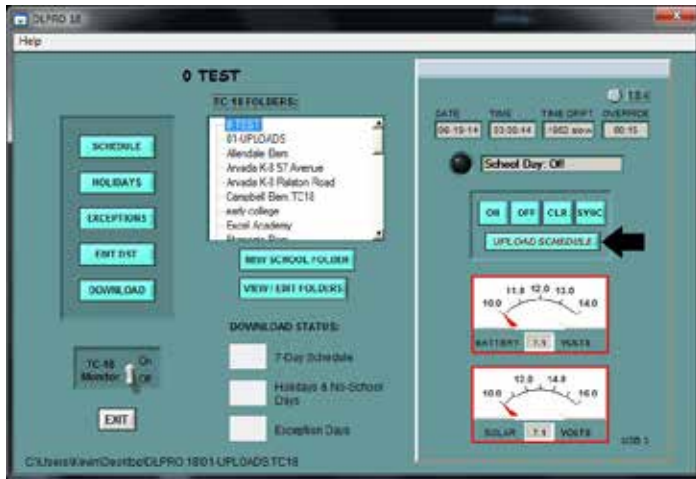


Figure 54

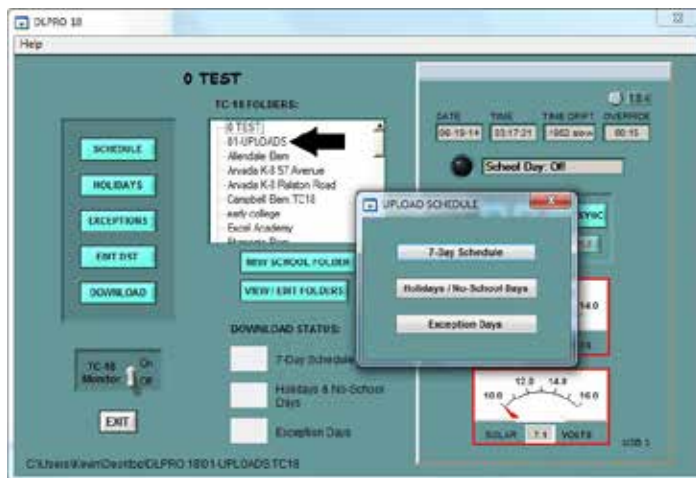


Figure 55

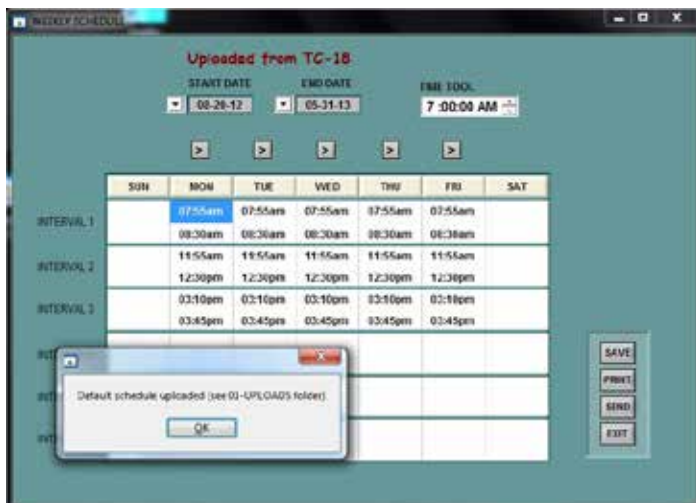


Figure 56

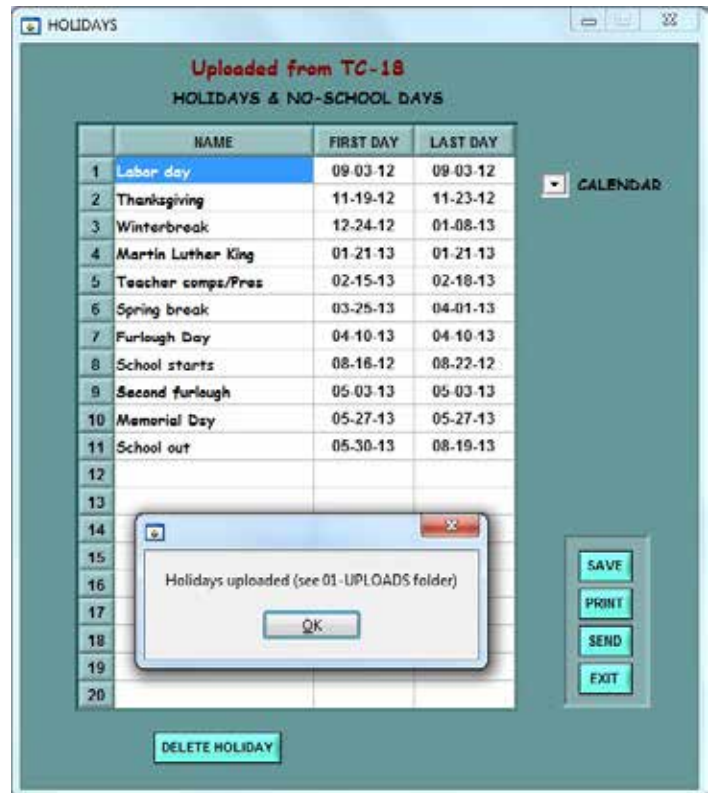
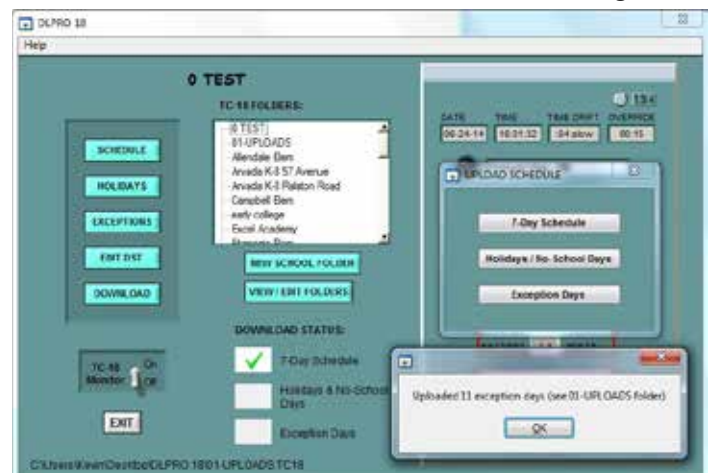


Figure 57



3.8 SCHEDULE MANAGEMENT

Creating new folders for each school or schedule group is accomplished by clicking the NEW SCHOOL FOLDER button (Figure 23). Enter the name of the new school and click OK. The new school will appear in the TC-18 Folders window (Figure 59). A new screen opens to allow the new name from the main DLPRO 18 screen (Figure 58).

Figure 58

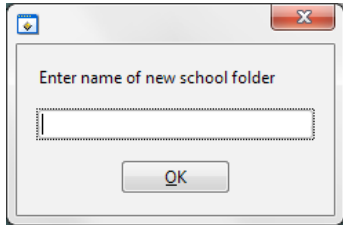


Figure 59

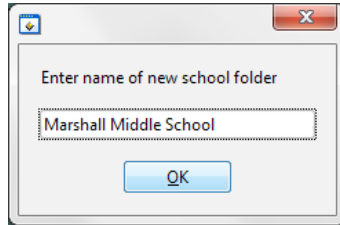
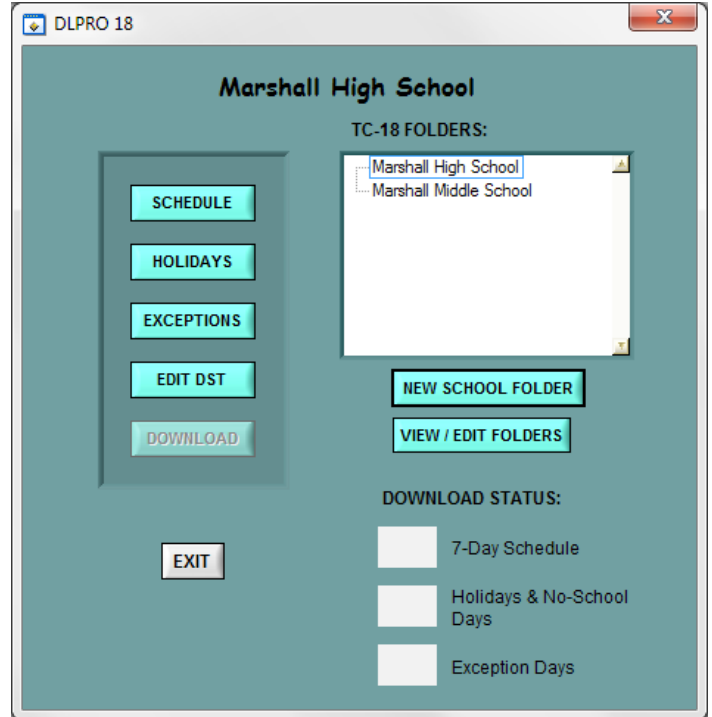


Figure 60



To copy schedules between folders, select a folder and click VIEW/EDIT FOLDERS. Open the folder to copy from by double-clicking on the folder (Figure 63). Select the file and copy using Ctrl-C or right-clicking and selecting Copy (Figures 64, 66, and 68).

Now go back to the main DLPRO 18 folder and open the folder to copy to by double-clicking on the folder. Paste the file you copied by using 'Ctrl-V' or right-clicking in the folder and selecting 'Paste'.

Each file (schedule, holidays or exceptions) can be copied from folder to folder to duplicate the program schedules. In the example presented, the weekly schedule and holiday schedule are copied from the high school to the middle school (Figures 65, 66, 67, and 68).

Figure 61

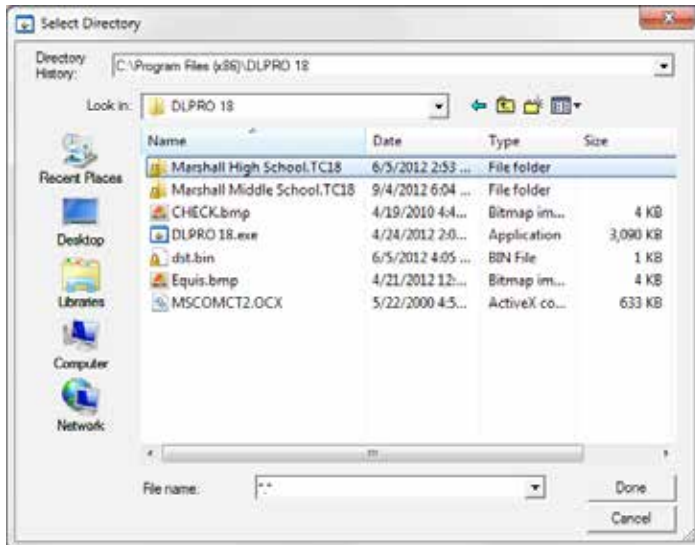


Figure 62

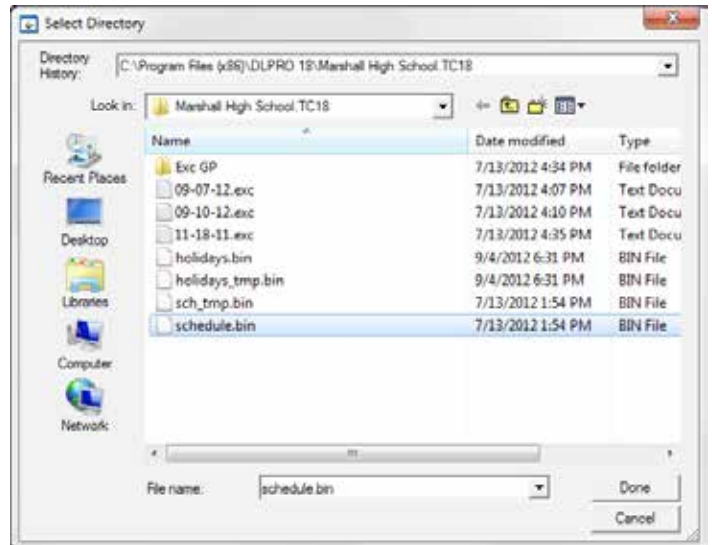


Figure 63

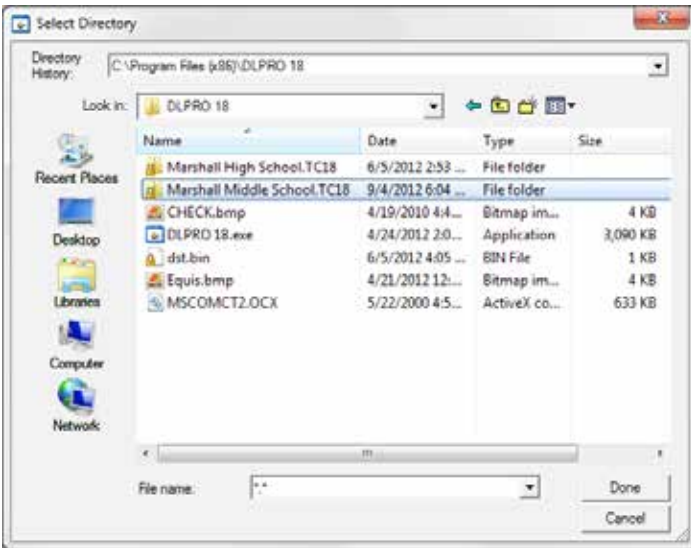


Figure 64

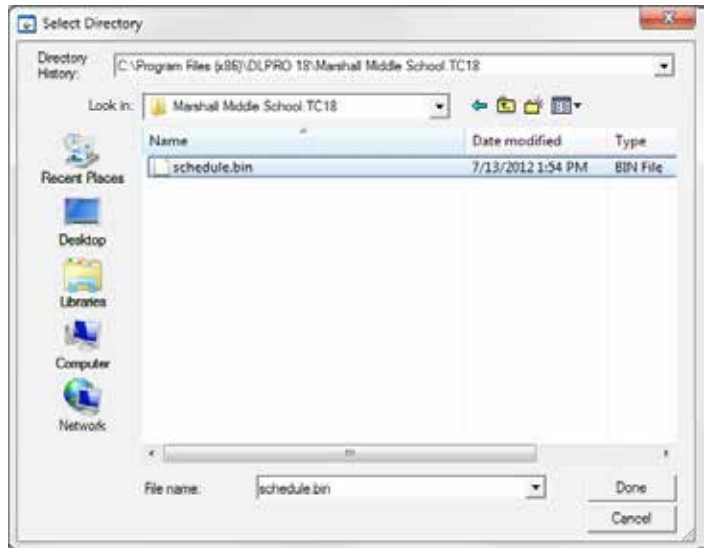


Figure 65

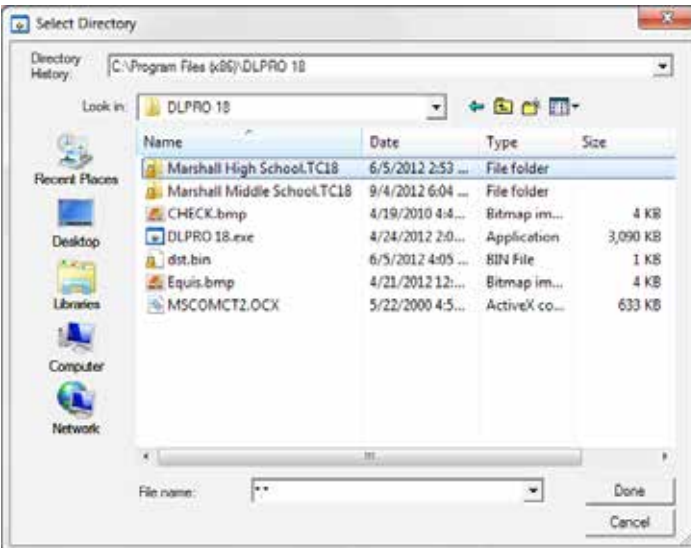


Figure 66

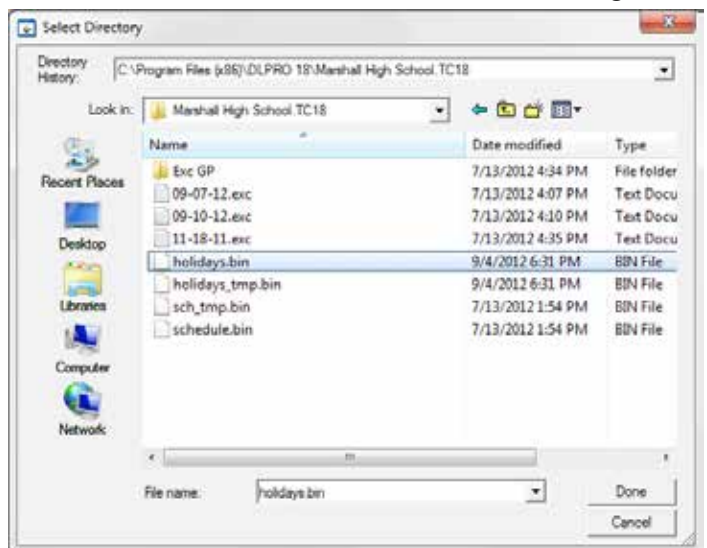


Figure 67

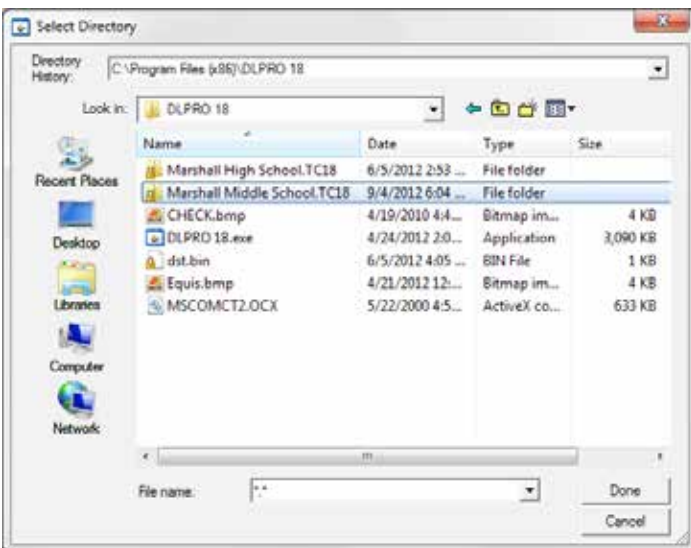
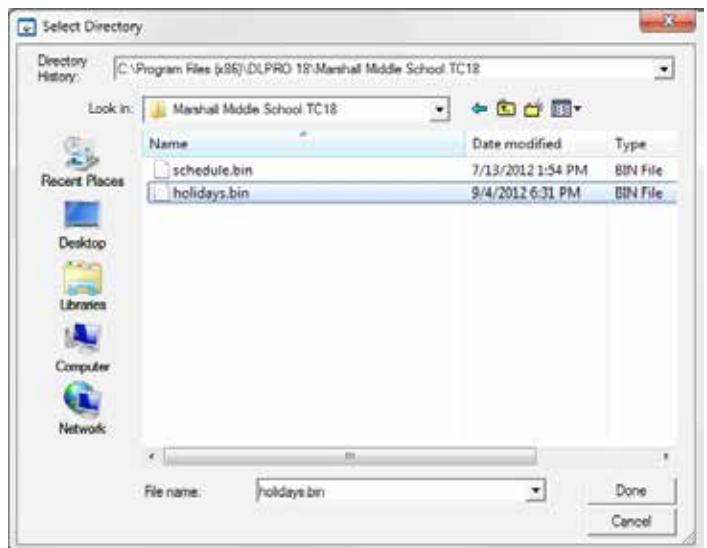


Figure 68



Back at the main DLPRO 18 menu, selecting the middle school (Figure 59) and viewing the programs shows that the weekly schedule and holidays have successfully been copied from the high school schedule while the exception schedule still has no programmed exception dates (Figures 70, 71, and 72).

Employing the available copy and paste functionality, the base weekly program, holiday and exception schedules can be quickly input for all of the schools in the system. Once the schedules are entered each school or schedule group can be edited for its particular unique schedule details.

Figure 69

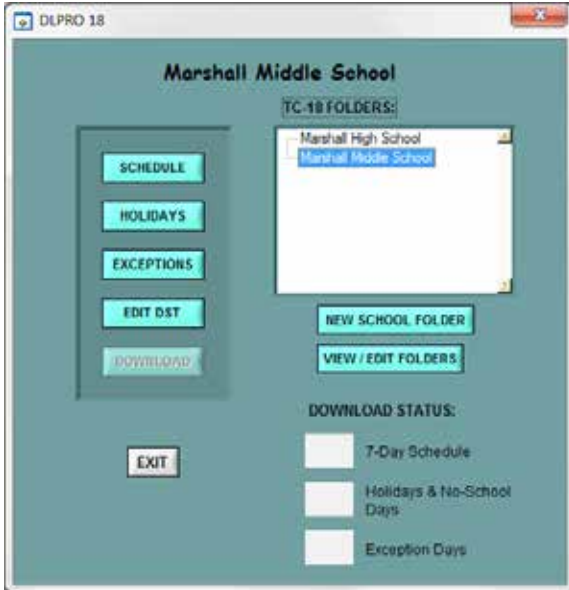


Figure 70

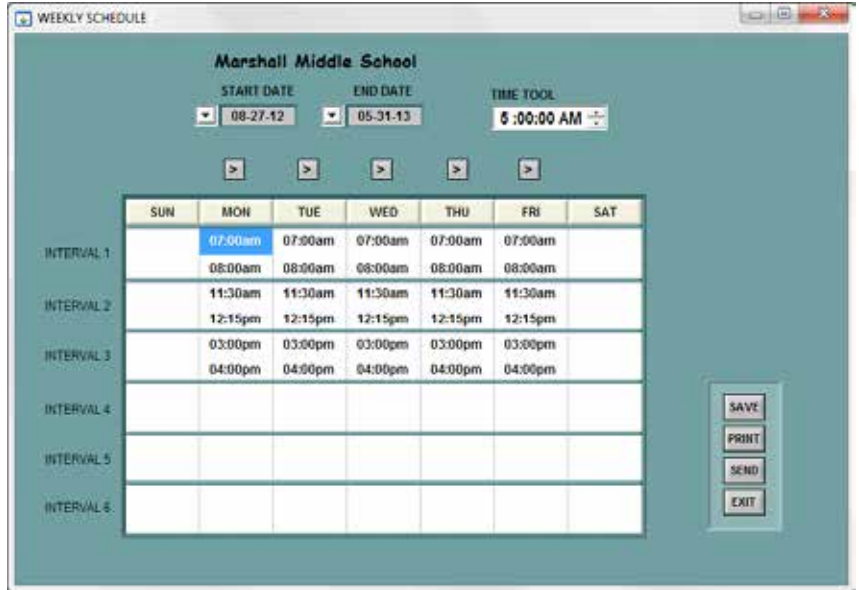


Figure 71

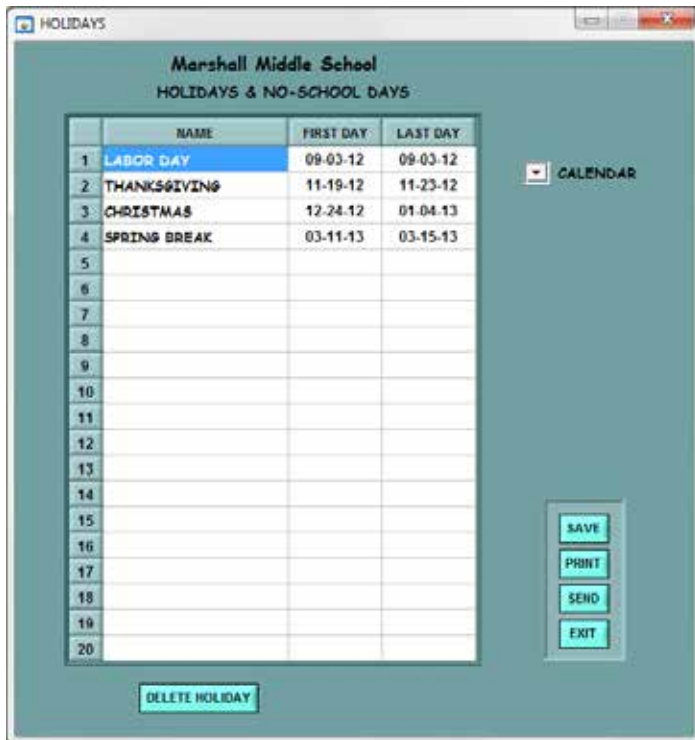
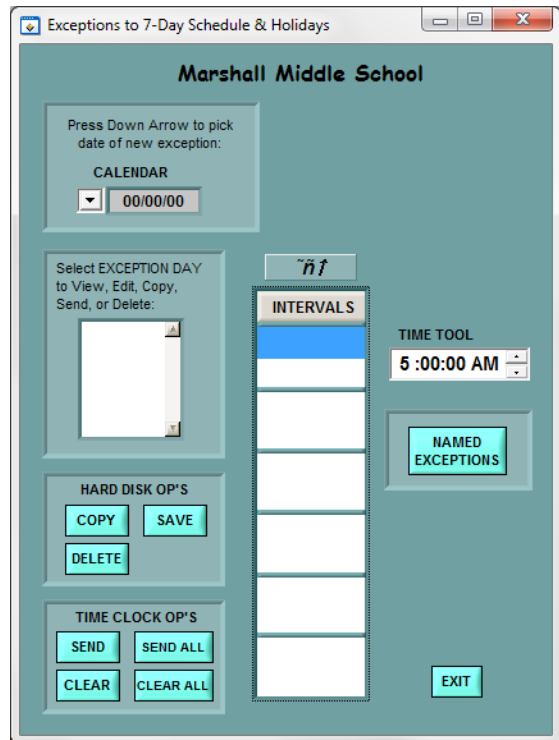


Figure 72





Traffic Products and Warning Systems

TC-18

INSTRUCTION MANUAL

www.ELTECCORP.com

Part No. 0TC18

Rev. 1014A

TABLE OF CONTENTS

TABLE OF CONTENTS	i
HOW TO USE THIS MANUAL	ii
TC-18	1
QUICK SETUP CHECKLIST	1
TC-18 PROGRAMMABLE TIME CLOCK FEATURES, SPECIFICATIONS, AND POWER/CONTROL INTERFACE CONNECTIONS	2
KEYPAD DESCRIPTION	3
KEY FUNCTIONS	3
TC-18 PROGRAMMING	4
FUNCTION DESCRIPTIONS	4–9
SET TIME [A] 11	4
SET DATE [A] 21	4
MANUAL FLASH ON [A] 31	5
MANUAL FLASH OFF [A] 32.....	5
CLEAR MANUAL OVERRIDE [A] 33	5
SET OVERRIDE DURATION [A] 36	5
CLEAR HOLIDAYS [A] 65.....	5
VIEW/EDIT/ENTER HOLIDAYS [A] 67	6
CLEAR EXCEPTIONS [A] 75	6
VIEW/EDIT EXCEPTIONS [A] 77	6
NEW EXCEPTIONS [A] 78.....	7
VIEW/EDIT 7-DAY SCHEDULE [A] 87	7
FACTORY RESET [A] 90.....	9
DST ON/OFF [A] 91	9
12/24 HOUR CLOCK [A] 94.....	9
RESET/RESTART UNIT [A] 98	9
FIRMWARE VERSION [A] 99.....	9
GLOSSARY	10
TC-18 PARTS LIST	10
TC-18 WEEKLY SCHEDULE RECORD	11
HOLIDAY SCHEDULE	12
EXCEPTION SCHEDULE	13
FCC NOTICE	14
COPYRIGHTS	14
LIMITED WARRANTY	14

HOW TO USE THIS MANUAL

This manual is set up by order of commands. For instructions on how to enter a specific command refer to the table of contents for the page number. The command is initiated by pressing the keys in the order they are shown in the “Entry Sequence”. The end result of a command is described in each section under “Result”. An example is provided for each command. In the example you will find the keypad entries and the expected response from the entry as shown on the display.

If you have problems, call our Technical Support at 903-938-1901 / 800-227-1734. Any questions or comments are welcome.

TC-18

ELTEC's TC-18 is a standalone programmable time-based controller built on a scalable platform which provides a path for upgrading and integration into the System 3000 networkable programmable clock system.

The TC-18 performs local control to operate a relay output and integral DC flasher as programmed through a user-defined schedule. The schedule includes a weekly program of up to 6 ON/OFF operations per day, a holiday/no-school schedule of up to 25 holidays, and an exception schedule for alternate programs such as early dismissal, late starts, and snow delays. The schedule is typically programmed for 1 year at a time, but may be programmed for longer periods provided the user does not exceed 25 holidays or 365 exception periods. Manual control functionality is provided with variable override duration of up to 10 hours.

The TC-18 may be programmed from a host computer using the DLPRO 18 software connected with a USB interface cable. It can also be programmed from the key pad on the front of the clock. Program elements are opened by typing the appropriate access sequence. A key word for each entry is displayed to guide the user through the programming process. Once the required information is entered for each field, the display advances to the next field until all data for that program element is entered. The TC-18 provides 'type-over', 'back up' or 'field skip' features during the entry process to facilitate error correction, simplify navigation, and make programming quick and easy. Program schedules can be reviewed or edited at any time without disturbing the operation of the clock.

The TC-18 maintains time and date during power outages for a minimum of 7 days with its rechargeable capacitive backup system. Program information is stored in non-volatile memory (NVRAM) and will be kept during power off conditions for the life of the clock. Operating in stand-alone mode, a real-time clock maintains time and date information with a quartz crystal accuracy of 2 seconds per month.

QUICK SETUP CHECKLIST

The TC-18 is designed for simplicity of implementation. The following checklist will facilitate easy installation and basic programming.

1. Install clock in cabinet and connect power and control wiring as required.
 - A. See provided Wire Reference Chart.
2. Test operational functions using Manual Override [A]31 and [A]32.
3. Set current local time using [A] 11 function.
4. Set current date using [A] 21 function.
5. Program start date, end date and the standard weekly ON/OFF schedule using the [A]87 function.
6. Program Holidays using the [A]67 function.
7. Define Exception days and Program Exception Schedules using the [A]77 and [A]78 functions.

TC-18 PROGRAMMABLE TIME CLOCK FEATURES, SPECIFICATIONS, AND POWER / CONTROL INTERFACE CONNECTIONS

FEATURES

- Upgradable to Network Based Time Clock (TC-3000)
- Operates on either AC or DC (Solar)
- Built-in DC Flasher Circuit
- Isolated Relay Output
- Backlit LCD
- Keypad for Direct Programming
- Display Assisted Program Prompts
- Computer Programmable with DLPRO 18 Software
- Mini USB Port
- Weekly Default Schedule: Up to 6 Daily 'ON/OFF' Intervals
- Holidays/No School Days: Up to 25
- Exception Days: Up to 365
- Programmable Manual Override Duration
- Schedules Stored in Non-Volatile Memory
- Minimum 7-Day Capacitive Battery Backup
- Time Set from Keypad or DLPRO 18 Software
- Extremely accurate temperature compensated Real-Time-Clock Chip
- Automatically Adjust for Daylight Saving Time and Leap Year



SPECIFICATIONS

- Dimensions* 8 1/4" H x 4 1/4" W x 1 3/4" D
- Display 2 Lines x 16 Characters Alpha-Numeric LCD
- Outputs 1 SPDT Rated @ 16A/120 VAC
- Flasher Dual-circuit DC, Ground-switching 55FPM
- Back-up Power Capacitive: 7 Days Minimum; 60 Days Typical
- Input Voltage 6-22 VDC/85-264 VAC; 47-440 Hz
- Power Required 2.5 Watts
- Temperature Range -34° C to +74° C
- Electrical Connection CPC* with 48 inch Cable

* Add an additional 2 inches of clearance to the bottom of clock for CPC connection.

POWER / CONTROL INTERFACE CONNECTIONS

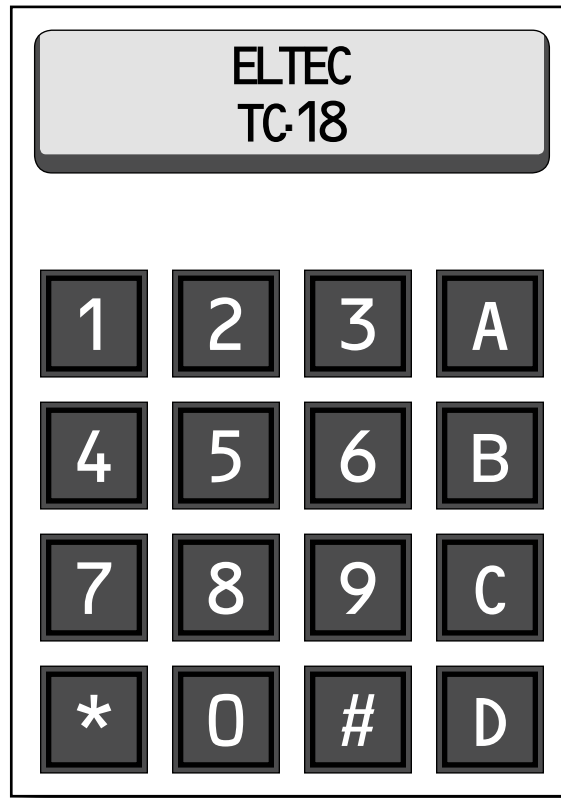
- CPC Pin #1 – **Black** – Line (120 / 240 VAC)
- CPC Pin #2 – **White** – Neutral (120 / 240 VAC)
- CPC Pin #3 – **Green** – Chassis Ground
- CPC Pin #4 – **Red** – Relay 1 Common
- CPC Pin #5 – **Yellow** – Relay 1 Normally Closed
- CPC Pin #6 – **Brown** – Manual Switch (Ground Activation)
- CPC Pin #7 – **Violet** – Solar Panel+ (PV+)
- CPC Pin #8 – **Orange** – LED 1 Ground
- CPC Pin #9 – **Blue** – LED 2 Ground
- CPC Pin #10 – **White / Yellow** – Relay 1 Normally Open
- CPC Pin #11 – **White / Red** – 12VDC Positive
- CPC Pin #12 – **White / Black** – 12 VDC Negative

NOTE: The Relay is de-energized during power outages.

KEYPAD DESCRIPTION

The TC-18 utilizes a 16-key telephone style keypad. Display-assisted programming guides the process by use of the [A] key along with a set of numbers. The information placard on front of the TC-18 provides a reference of the entry sequence required to initiate a command.

The [A] key is the 'ATTENTION' key. It is used to alert the TC-18 that it is about to "Call" a command. When a command is entered, the TC-18 displays a description and prompts for each required entry. Key in the required data and press the [B] key. The TC-18 display will advance to the next required entry or return to standard TIME, DAY/DATE display if all required information for that command has been entered. Below is a list of the keys and their functions.



KEY FUNCTIONS

[A] ATTENTION: Used to "Call" commands in conjunction with another key or set of keys. Will "call" the command and cue for specific information to be entered in a certain sequence.

[B] ENTER: Pressing this key will cause the TC-18 to perform the function displayed or accept information displayed.

[C] CANCEL/BACKUP: When a mistake is made, this key will allow user to clear data or escape the function and return to the main display.

[D] SKIP/ERASE KEY/COPY: Allows scrolling on certain command prompts. May function as an erase key. Copies Monday's schedule to Tuesday, Tuesday to Wednesday, etc.

TC-18 PROGRAMMING

Begin operation by manual keypad entry, or via the USB interface, utilizing the optional DLPRO 18 Software available from ELTEC.

<u>FUNCTION</u>	<u>COMMAND</u>	<u>FUNCTION</u>	<u>COMMAND</u>
Set Time	[A] 11	View/Edit Exceptions	[A] 77
Set Date.....	[A] 21	New Exception.....	[A] 78
Manual Flash ON.....	[A] 31	View/Edit 7-Day Schedule	[A] 87
Manual Flash OFF.....	[A] 32	Factory Reset	[A] 90
Clear Manual Override	[A] 33	Daylight Saving Time.....	[A] 91
Set Override Duration.....	[A] 36	12/24 Hour Clock.....	[A] 94
Clear Holidays	[A] 65	Restart Unit.....	[A] 98
View/Edit Holidays.....	[A] 67	Firmware Version	[A] 99
Clear Exceptions	[A] 75		

FUNCTION DESCRIPTIONS

SET TIME [A] 11: Set Time function is provided to facilitate local input of the current time at initial installation or when necessary to establish the current local time for the clock. Time is input and displayed using a 24-hr clock, commonly known as military time, indicated by the hours passed since midnight, from 0 to 23. During normal system operation, the TC-18 keeps time with an internal real-time clock (RTC).

Example: Setting time to 08:00 (8:00 AM)

Entry Sequence: [A] 1,1

Display Reads: Set Time
00:00

Entry Sequence: 0,8,0,0 [B]

Result: Time set to eight AM, Display Time should read: 08:00:00

Example: Setting time to 15:00 (3:00 PM)

Entry Sequence: [A] 1,1

Display Reads: Set Time
00:00

Entry Sequence: 1,5,0,0 [B]

Result: Time set to three PM, Display Time should read: 15:00:00

SET DATE [A] 21: Set Date function is provided to facilitate local input of the current date at initial installation or when necessary to establish the current local date for the clock. During normal system operation, date is kept based upon an internal calendar.

Example: Setting date to Tuesday April 24, 2012

Entry Sequence: [A] 2,1

Display Reads: Set Date (Wait approx. 3 sec.)

The display will read: Press * to scroll Day of Wk

After 2-3 sec., display will read: * scrolls DOWN

WED 00-00-00 (Where 00-00-00 is MM/DD/YY)

Use the * key to scroll to **TUE**

Enter the current date numerically: 0,4,2,4,1,2

Press [B] to enter the input data

Result: Display Returns to main display and shows date as: TUE 04-24-12

MANUAL FLASH ON [A] 31: Manual Flash ON turns on the internal flasher and closes the output relay for a length of time set by the Override Duration Function [A] 36.

Entry Sequence: [A] 3,1

Display Reads: OVERRIDE UNTIL:
00:00 (override time) 00:00:00 (current time)

Current time increment upwards until override time is reached.

Result: Internal flasher activates. LED indicators on top of clock will wig-wag. Output relay closes activating externally controlled equipment. When override time has elapsed, clock returns to current program state.

Use [A] 33 function to clear Manual Flash ON override.

MANUAL FLASH OFF [A] 32: Manual Flash OFF turns off the internal flasher and opens the output relay for the length of time set by the Override Duration Function [A] 36. If the current state of the clock is ON, the Manual OFF will override the state turning the flasher OFF. If the current state of the clock is OFF, the Manual OFF will inhibit the clock from turning ON for the length of time set by the Override Duration. Use [A] 33 function to clear Manual Flash Off override.

Entry Sequence: [A] 3,2

Display Reads: OVERRIDE UNTIL:
00:00 (override time) 00:00:00 (current time)

Current time increment upwards until override time is reached.

Result: Internal flasher de-activates. Output relay opens, de-activating externally controlled equipment. When override time has elapsed, clock returns to current program state.

CLEAR MANUAL OVERRIDE [A] 33: Clear Manual Override returns the clock to the current programmed state, clearing a manual override condition.

Entry Sequence: [A] 3,3

Display Reads: Override Off

Result: Internal flasher and relay revert from override state to current program operational state.

SET OVERRIDE DURATION [A] 36: Set Override Duration establishes the length of time that a manual operation overrides the programmed state of the clock. The duration is programmed in hr:mm format (0:01 to 9:59).

Example: Set override duration to two hours

Entry Sequence: [A] 3,6

Display Reads: Set Override in hr:min

Entry Sequence: 2,0,0 [B]

Result: Display Reads 'Override Saved.' Override duration for manual ON and OFF functions is set to two hours.

CLEAR HOLIDAYS [A] 65: Clear Holidays will delete all currently programmed holiday schedules from the time clock memory.

Entry Sequence: [A] 6,5

Display Reads: Erase Holidays? Press B to erase

Entry Sequence: [B]

Result: Display Reads: Holidays erased

VIEW/EDIT/ENTER HOLIDAYS [A] 67: View/Edit Holidays function allows entry of new holidays and viewing or editing of existing programmed holidays. Holidays, or no flash days, are entered with a start and end date which are inclusive. For a single day holiday, the start and end date are entered as the same date. When entering holidays from the keypad there is no method to enter the holiday name so holidays are 'Unnamed' and identified by the holiday date. When holidays are programmed into the clock using the DLPRO 18 software, holiday names may be entered and will appear on the display when reviewing or editing holidays.

Example: Entering Labor Day holiday on September 3, 2012.

Entry Sequence: [A] 6,7
Display Reads: -EDIT HOLIDAYS-
Unnamed holiday
From: 00-00-00

Entry Sequence: 0,9,0,3,1,2 [B]
Display Reads: Date saved
Unnamed holiday
Thru: 00-00-00

Entry Sequence: 0,9,0,3,1,2 [B]
Display Reads: Date saved
Unnamed holiday
From: 00-00-00

Entry Sequence: Additional holidays can be entered or press [C] to exit

Result: Holiday programmed for September 3, 2012, clock returns to standard date/time display.

CLEAR EXCEPTIONS [A] 75: Clear Exceptions will delete all currently programmed exceptions from time clock memory.

Entry Sequence: [A] 7,5
Display Reads: Erase Excep's? Press B to erase
Entry Sequence: [B]

Result: Display Reads: Erasing Excep's Please wait... All programmed exceptions are erased from clock memory. Clock returns to standard date/time display.

VIEW/EDIT EXCEPTIONS [A] 77: View/Edit Exceptions allows viewing, defining or editing the schedule of exception dates or deleting exception dates. If no exceptions have been entered, the screen will display 'No Exceptions...A78 to Create.' New exception dates are defined using the [A]78 function and should be performed prior to this Command.

Example: Defining schedule of exception on August 29, 2012 for early dismissal.

Entry Sequence: [A] 7,7
Display Reads: Edit Exceptions
Exc on: 08-29-12 (Note: This exception date was entered using [A]78)
A-Edit Exc Day, B-Skip to next Exc, D-Erase Exc Day,
A78-Create new Exc.

Entry Sequence: [A]
Display Reads: ON-TIME 1:
00:00

Entry Sequence: 0,7,0,0 [B]
Display Reads: Time saved
OFF-TIME 1:
00:00

Entry Sequence: 0,8,3,0 [B]

Display Reads: Time saved
ON-TIME 2:
00:00

Entry Sequence: 1,1,1,5 [B]
Display Reads: Time saved
OFF-TIME 2:
00:00

Entry Sequence: 1,2,4,5 [B]
Display Reads: Time saved
ON-TIME 3:
00:00

Entry Sequence: [B]
Display Reads: Exc on: 08-29-12

Result: Exception schedule for August 29, 2012 is programmed to operate from 7:00 AM–8:30 AM and from 11:15 AM–12:45 PM

NEW EXCEPTIONS [A] 78: Allows entry of New Exception Date on which an exception/alternate schedule is programmed to run. Exceptions can be used for early dismissal, late start, or other modified schedule days.

Example: Defining exception date on August 29, 2012 for early dismissal.

Entry Sequence: [A] 7,8
Display Reads: New Exception on
00-00-00

Entry Sequence: 0,8,2,9,1,2 [B]
Display Reads: New Exception on: 08-29-12
Use A77 to edit
Clock returns to standard date/time display.

Result: The exception day for early dismissal is defined. [A]77 function can now be employed to define the exception schedule.

VIEW/EDIT 7-DAY SCHEDULE [A] 87: View/Edit 7-Day Schedule allows entering the start and end dates for the school year, entering standard weekly schedule ON/OFF times and viewing or editing of existing programmed schedule times.

No lag now...Each interval is displayed as copied, instead of lag.

Example: Programming 2012-2013 school year from August 29, 2012 to May 30, 2013. Entering morning and afternoon ON/OFF times. (7:30 AM–8:30 AM and 2:45 PM–4:00 PM)

Entry Sequence: [A] 8,7
Display Reads: CLASSES START:
00-00-00

Entry Sequence: 0,8,2,9,1,2 [B]
Display Reads: Date Saved
CLASSES END:
00-00-00

Entry Sequence: 0,5,3,0,1,3 [B]
Display Reads: Date saved
Schedule for: MON
A-Edit Day, B-Skip to next day, D-Copy previous day

Entry Sequence: [A]
Display Reads: MON ON-TIME 1:
00:00

Entry Sequence: **0,7,3,0 [B]**
 Display Reads: Time saved
 MON OFF-TIME 1:
 00:00

Entry Sequence: **0,8,3,0 [B]**
 Display Reads: Time saved
 MON ON-TIME 2:
 00:00

Entry Sequence: **1,4,4,5 [B]**
 Display Reads: Time saved
 MON OFF-TIME 2:
 00:00

Entry Sequence: **1,6,0,0 [B]**
 Display Reads: Time saved
 MON OFF-TIME 3:
 00:00

Entry Sequence: **[B]**
 Display Reads: Schedule for: TUES
 A-Edit Day, B-Skip to next day, D-Copy previous day

Entry Sequence: **[D]**
 Display Reads: Copy from MON?
 Press B to copy

Entry Sequence: **[B]**
 Display Reads: MON copied:
 Schedule for: WED
 A-Edit Day, B-Skip to next day, D-Copy previous day

Entry Sequence: **[D]**
 Display Reads: Copy from TUE?
 Press B to copy

Entry Sequence: **[B]**
 Display Reads: TUE copied:
 Schedule for: THU
 A-Edit Day, B-Skip to next day, D-Copy previous day

Entry Sequence: **[D]**
 Display Reads: Copy from WED?
 Press B to copy

Entry Sequence: **[B]**
 Display Reads: WED copied:
 Schedule for: FRI
 A-Edit Day, B-Skip to next day, D-Copy previous day

Entry Sequence: **[D]**
 Display Reads: Copy from THU?
 Press B to copy

Entry Sequence: **[B]**
 Display Reads: THU copied:
 Schedule for: SAT

Entry Sequence: **[C]**
 Result: Cancel returns clock to standard date/time display. School year is programmed with standard weekly schedule.

FACTORY RESET [A] 90: Upon execution of this command, all program data is erased and factory defaults are restored.

Entry Sequence: [A] 9,0
Display Reads: Factory Reset?
Are you sure?
Display Reads: Factory Reset?
Press B to reset
Entry Sequence: [B]
Display Reads: Erasing Exep's
Please wait...

Result: 7-day schedule, holidays and exceptions are erased and factory defaults are restored. Clock returns to standard date/time display.

DST ON/OFF [A] 91: Daylight Saving Time observation is selected and DST start and end days are entered for the calendar year.

Example: Selecting DST ON and setting for 2nd Week in March through 1st Week in November

Entry Sequence: [A] 9,1
Display Reads: DST: ON (OFF)
A-Change B-Save
Entry Sequence: [A] (if DST is set to OFF)
Entry Sequence: [B] (to save once DST is set to ON)
Display Reads: DST begins on:
2nd Sun of Mar
Entry Sequence: [A] (Use to select 2nd Sun. When pressed sequences 1st, 2nd, 3rd, 4th.)
Entry Sequence: [B] (Saves 2nd Sun and moves cursor to month)
Entry Sequence: [A] (Use to select Mar. When pressed sequences through months of year.)
Entry Sequence: [B] (Saves week and month of DST Start)
Display Reads: DST ends on:
1st Sun of Nov
Entry Sequence: [A] (Use to select 1st Sun. When pressed sequences 1st, 2nd, 3rd, 4th.)
Entry Sequence: [B] (Saves 1st Sun and moves cursor to month)
Entry Sequence: [A] (Use to select Nov. When pressed sequences through months of year.)
Entry Sequence: [B] (Saves week and month of DST End)

Result: DST is set to ON, begins the 2nd Sunday in March and ends the 1st Sunday in November.

12/24 HOUR CLOCK [A] 94: Allows the selection for time to be input and displayed as either a 12-hour clock with AM and PM or a 24-hour clock. When command is initiated it prompts the user to change to the alternate of the current setting.

RESET/RESTART UNIT [A] 98: Reset/Restart unit function performs a soft reboot of the clock firmware.

Entry Sequence: [A] 9,8
Display Reads: System Reset

Result: The TC-18 System reboots. Clock returns to standard date/time display and current program state.

FIRMWARE VERSION [A] 99: Displays current version of firmware running on clock.

Entry Sequence: [A] 9,9
Display Reads: Firmware Version
1.8.4

Result: Firmware version is displayed. Clock returns to standard date/time display.

GLOSSARY

CMD - Command
CPC - Circular Pin Connector
DLPRO - Data Link Program Software
DST - Daylight Saving Time
LCD - Liquid Crystal Display
MIPS - Millions of Instructions per Second
NVRAM - Non-Volatile Random Access Memory
ROM - Read Only Memory

TC-18 PARTS LIST

<u>Component Item Code</u>	<u>Qty.</u>	<u>Description</u>
860310.....	1 ea.	CABLE, EXT. 2', 12W, TC18
310819.....	1 ea.	PLUG, CPC 17-16, AMP 206037-1
761535.....	1 ea.	ASSY SEC, TC-18
414500.....	1 ea.....	TC-18 Case (Color Cardinal y)
450735.....	1 ea.	Label, TC-18 TIME CLOCK
230235.....	1 ea.	DISPLAY, LCD-016N002B YYH-ETK
230420.....	1 ea.	KEYBOARD, LZR AK-1607-N-BBW

TC-18 WEEKLY SCHEDULE RECORD

PROGRAM SCHEDULE for _____

Start Date: _____ End Date: _____

	SCHEDULE	SUN	MON	TUES	WED	THUR	FRI	SAT
1	On Time							
	Off Time							
2	On Time							
	Off Time							
3	On Time							
	Off Time							
4	On Time							
	Off Time							
5	On Time							
	Off Time							
6	On Time							
	Off Time							

EXCEPTION SCHEDULE

EXCEPTION NUMBER	DATE	TIME	CYCLE 1	CYCLE 2	CYCLE 3	CYCLE 4	CYCLE 5	CYCLE 6
1		On						
		Off						
2		On						
		Off						
3		On						
		Off						
4		On						
		Off						
5		On						
		Off						
6		On						
		Off						
7		On						
		Off						
8		On						
		Off						
9		On						
		Off						
10		On						
		Off						
11		On						
		Off						
12		On						
		Off						
13		On						
		Off						
14		On						
		Off						
15		On						
		Off						
16		On						
		Off						
17		On						
		Off						
18		On						
		Off						
19		On						
		Off						
20		On						
		Off						

FCC NOTICE

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to subpart J of part 15 of the FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which the user will at their expense, be required to correct the interference.

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LIMITED WARRANTY

Electrotechnics Corporation (d.b.a ELTEC) warrants devices manufactured by ELTEC to be free of defects in material and workmanship for a period of 25 months from the date of purchase/invoice by the original purchaser. Additionally, the capacitor device utilized in the TC-18 time clock for back-up power is warranted for a total of five (5) years.

To determine if the clock is within warranty, locate the serial number (SN) on the white decal. The letter determines the month (A-L=January through December) it was manufactured followed by the year. Example: C12xxxxx=March '12.

ELTEC will repair or replace any clock returned prepaid within the warranty period as long as there is no evidence that the unit has been misused, abused, damaged by input overvoltage, output overloads, lightning, or water, or altered in any manner without the expressed written permission of ELTEC. ELTEC disclaims any warranties expressed or implied, including warranties of merchantability and/or fitness for a particular purpose. In no event shall ELTEC be held liable for incidental or consequential damages. Warranty repairs will be handled during normal business hours. Ship clocks requiring warranty service to:

ELECTROTECHNICS CORPORATION
1310 Commerce Street
Marshall, TX 75672

Products requiring warranty service must have a RETURN MATERIAL AUTHORIZATION (RMA) number

For an RMA number and/or more information, call: 903-938-1901 / 800-227-1734.

Be sure to include the following Product Return Information:

1. Description of problem
2. Model number and serial number
3. Return Address
4. Telephone number and name of contact person