



TDCT-Pro Time-Date-Character-Title

Operation Manual

March 2007



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CAUTION!
RISK OF ELECTRICAL SHOCK!
DO NOT OPEN!



TO PREVENT ELECTRIC SHOCK, DO NOT REMOVE THE COVER. DO NOT EXPOSE THE EQUIPMENT TO RAIN OR MOISTURE. NO USER SERVICEABLE PARTS ARE INSIDE. REFER SERVICING TO QUALIFIED PERSONNEL.

WARNING!

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 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 CASE THE USER AT HIS/HER OWN EXPENSE WILL BE REQUIRED TO TAKE WHATEVER MEASURES MAY BE REQUIRED TO CORRECT THE INTERFERENCE.

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1. INTRODUCTION

Introduction

The TDCT-Pro is the powerful time, date, character, and titler which has all the features of existing TDCT products (TDCT-T, mTDCT, TDCT-60, TDCT-Military, MTDCT, STDCT, mSTDCT, and mSVTDCT). Daylight Savings time is also supported along with a set of RS-232 commands allows the master unit to be programmed by other devices of Title and Time and Date settings. The following is the features of TDCT-Pro.

2. FEATURES

- Easy on screen programming
- Programmable Date & time.
- Programmable single line or dual line Time & Date display
- Programmable Time Format hh/mm/ss or hh/mm/ss/fr (hh/mm/ss/fr will result in two line time and date display. The fr = frame rate 1/60 sec for NTSC and 1/50 for PAL)
- Programmable for Tenths of Second or Frame Rate Counter
- Programmable 12 hour or 24 hour time format
- Daylight Savings Time for USA/Canada/Australia/Tasmania
- Programmable Date mm/dd/yy or dd/mm/yy or yy/mm/dd
- Programmable title up to 20 characters and single line display
- Programmable 10 character size.s
- Gray scale and border selection from front panel and from programming menu.
- Programmable master and slave selection
- Set or change the title of the master or the slave TDCT via serial interfacing between the master TDCT and a communication device (e.g Personal computer).
- Synchronizing the time and date between master and slave.
- Compatible with the AVE RS-232 to RS-485 Adapter for distances of up to 3000' for master slave connections.

3. PROGRAMMING

TDCT-Pro has an easy programmable option that can be accessed by pressing “UP”, “DOWN”, “SET”, button and by pressing and releasing the “RESET” button.



Figure 2: Four Front Panel Push Buttons of TDCT-Pro

3.1 FRONT CONTROL PANEL

The front panel controls are provided to allow simple changing of the display’s vertical and horizontal position and the gray scale or border. This eliminates the need of the user to enter the main menu and inadvertently change important programming setups.

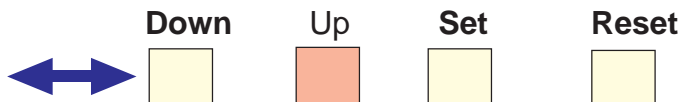
PROGRAMMING CONT.

Changing the Gray scale



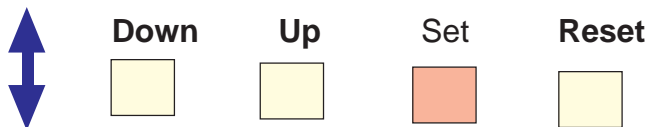
- 1) Press and hold the “Down” button
- 2) Press and release the “Reset” button
- 3) Release the “Down” button
- 4) Press “Down” or “Up” to select the Gray scale
- 5) When choice is made, press and release the “Reset” button

Changing the Horizontal Position



- 1) Press and hold the “Up” button
- 2) Press and release the “Reset” button
- 3) Release the “Up” button
- 4) Press “Down” or “Up” to move the text block
- 5) When choice is made, press and release the “Reset” button

Changing the Vertical Position



- 1) Press and hold the “Set” button
- 2) Press and release the “Reset” button
- 3) Release the “Set” button
- 4) Press “Down” or “Up” to move the text block
- 5) When choice is made, press and release the “Reset” button

PROGRAMMING CONT.

3.2 Main Programming Menu

Following is a detailed description of the Menu selections and the programming capabilities of the TDCT-Pro.

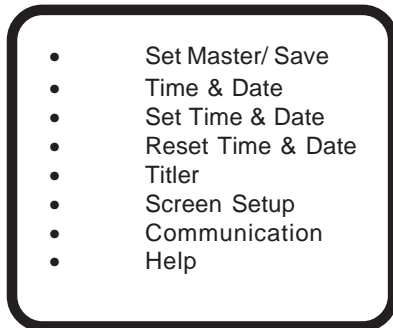
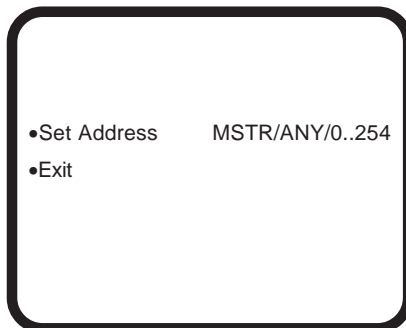


Figure 3: TDCT-Pro main menu

Note: *If a sub menu has an "EXIT" selection, always go there and press "SET". Pressing "RESET" at the main menu exits you from the program*

3.3 Set Master / Slave

This programming feature can be used to select the TDCT-Pro as a master or slave or a stand-alone unit. The Following menu appears when you select the Set Master Slave from the main menu.



PROGRAMMING CONT.

By selecting the Set Address between 0 to 254 make TDCT-Pro to act as a slave and that make TDCT-Pro ready to receive command from the master. Selecting “ANY” will make TDCT-Pro as a stand-alone unit. Selecting “MSTR” make the TDCT-Pro to act as a master. TDCT-Pro can sense all the slaves by pressing the reset button and synchronize the time of slaves TDCT-Pros connected with it. Appendix 1 illustrates the connection information between master and slave.

3.4 Time & Date

This programming feature can be use to format the time and date on display. Following menu is appears on the screen when “Time & Date” is selected from the main programming menu.

•Time Display	ON/OFF
•Date Display	LN1/LN2/OFF
•Counter	FIELD/T/10/OFF
•Time Format	12/24
•Date Format	(MM/DD/YY)/(DD/MM/YY)/(YY/MM/DD)
•DST	DISABLED/USA/CANADA/AUSTRALIA/TASMANIA
•Exit	

3.5 Set Time & Date

Time and Date can manually set by selecting set time and date from the programming menu.

PROGRAMMING CONT.

Time Display can be programmed on or off by selecting ON or off. Date can be displayed in 1 line or, 2 lines or can be programmed off by selecting Date display feature. If the counter is turned on then the date is automatically displayed in the 2nd line. The Counter can be programmed either as a field counter or as 1/10th of the second counter. Field counter counts the number of fields in a second (60 fields per second in NTSC or 50 fields per second in PAL). If 1/10th of second is selected, then its count from 0 to 10 in a second. Time format can be programmable as a 12-hour display or 24-hour or military time display. Date format is programmable to (mm/dd/yy), (dd/mm/yy), or (yy/mm/dd).

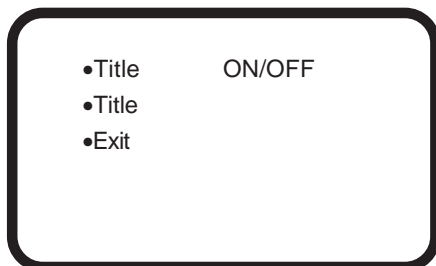
If Daylight savings selected then the time is automatically advanced one hour in the Spring and automatically reversed in the Fall at the appropriate time for the selected country.

3.6 Reset Time & Date

Time and date can be set to the factory default by selecting the time and date from the programming.

3.7 Titler

Selecting titler in the programming menu displays the following menu on the screen.



PROGRAMMING CONT.

The title can be programmed either ON or OFF by selecting ON or OFF from the tiler menu. A 20 characters title can be entered by selecting the title from the programming menu.

3.8 Screen Setup

Character size, position, and gray scale is programmed from this menu. Following menu pop ups when selected Screen setup from the main program menu.

- Character Size
- Border /Gray Scale
- Horizontal Position
- Vertical Position
- Exit

Gray scale, horizontal position, and vertical position can also be set from the front buttons without entering the programming mode.

3.9 Communication

This programming feature let TDCT-Pro to communicate with master or slave or with a RS-232 serial device. Following menu pops up when communication is selected from the main menu.

- RX Baudrate 1200 to 38.8 kbaud/sec
- TX Baudrate 1200 to 38.8kbaud/sec
- Parity ODD/EVEN/NONE
- Data Bits 8/7
- Hand shake ON/OFF
- Exit

4. Cables

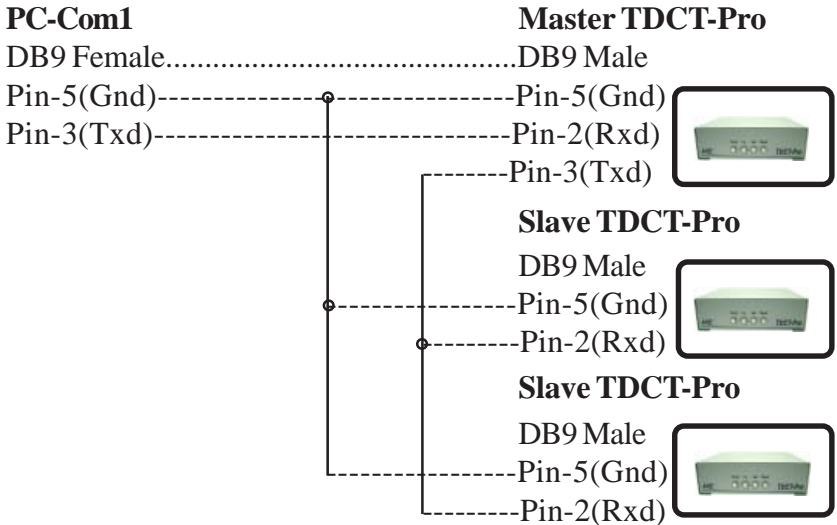
4.1 Cable

User are able to program TDCT-Pro via RS232C by TDCT- Pro software for Windows. The cable is optional for this product. COM1 or COM2 (Newer computer required COM1 cable) cable are needed if RS-232 device is used to set the time and date and title of the TDCT-Pro See Appendix for TDCT-Pro software and command set.



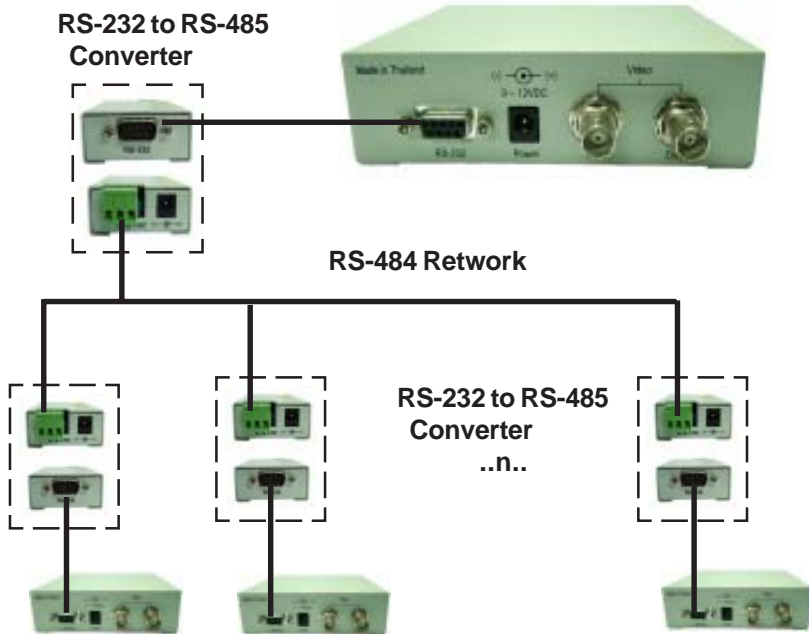
Figure 3: Back Panel of TDCT-Pro

Pin Assignments and Connectors for RS-232



RS-485 Network

For extended distance use the AVE RS-232 to RS-485 converter and get extend up to 3000' between the Master and Slave units.



APPENDIX

TDCT-Pro Software

To send the title to the TDCT-Pro first enters the address of the TDCT-Pro in the address window. After that enter the title in the title window and press the send button. To change and time and date, enter the time and date and press the send button. Pressing the update button will get the system time in the time and date window. System time and date display the system time and date in the time and date window. Selecting the SYNC TIME DATE will synchronize the system time with the TDCT-PRO. It will send time and date information to the TDCT-PRO on every minute if the sync time date is checked. See Main Menu on following page.

TDCT-Pro Windows Software

TITLE

ADDRESS: 1 TITLE: American Video Equipment

Clear Send Comm Set

TIME & DATE

HOUR: 09 MIN: 19 MM: 07 / DD: 28 / YY: 00

Update Time Send Clear

SYSTEM TIME & DATE

12 Hour Time: 09:19:27 Date: 07-28-2000

24 Hour

Sync Time Date

Exit

Main Menu

RS232 Command Protocol

1. Update Titler(Master)

Command

/TT(Address)<Title><CR>

Description

This command is only support Master mode

Address (1 byte) 0 - 255

Title (1-20 bytes) text strings

<CR> (1 byte) Carriage return

Ex Update titler at address 65 with Camera 65

/TTACamera 65<CR>

/	0x2F	
T	0x54	
T	0x54	
A	0x41	Address 65
C	0x43	
a	0x61	
m	0x6D	
e	0x65	
r	0x72	
a	0x61	
space	0x20	
6	0x36	
5	0x35	
<CR>	0x0D	Carriage return

2. Update Hour

Command

/Hxx

Description

H (1 byte) Hour

xx(2 bytes) 00-23

;00=12AM,01=1AM,...,12=12PM,13=1PM,...,23=11PM

Ex Update hour = 1AM(12 hour) or 13:00(24 hour)

/H01

/	0x2F	
H	0x48	
0	0x30	
1	0x31	

3.Update Minute

Command

/Mxx

Description

M(1 byte) Minute

xx (2 bytes) 00-59

Ex Update minute = 3

/M03

/ 0x2F

M 0x4D

0 0x30

3 0x33

4.UpdateYear

Command

/Yxx

Description

Y(1 byte) Year

xx(2 bytes) 00-99 ;

00=2000,01=2001,...,10=2010,...,99=2099

Ex Update Year = 2007

/Y07

/ 0x2F

Y 0x59

0 0x30

7 0x37

5.Update Month

Command

/mxx

Note: m is a small letter

Description

m(1 byte) Month

xx(2 bytes) 01-12

;01=JAN,02=FEB,...,10=OCT,...,12=DEC

Ex Update month = October

/m10

/ 0x2F

m 0x6D

1 0x31

0 0x30

6.Update Date

Command

/Dxx

Description

D(1 byte) Date

xx(2 bytes) 01-31

Ex Update Date = 5

/D05

/ 0x2F

D 0x44

0 0x30

5 0x35

7.Update Titler(Slave)

Command

/T(Address)<Title><CR>

Description

This command is only support Slave mode

Address (1 byte) 0 - 255

Title (1-20 bytes) text strings

<CR> (1 byte) Carriage return

Ex Update titler at address 65 = Camera 65

/TACamera 65<CR>

/ 0x2F

T 0x54

A 0x41 Address 65

C 0x43

a 0x61

m 0x6D

e 0x65

r 0x72

a 0x61

space 0x20

6 0x36

5 0x35

<CR> 0x0D Carriage return



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