

This manual addendum provides supplementary information to the 8084/8084AD/8085 manual revision 1.3, published in March 2002. It describes new features applicable to the Evertz 8084, 8084AD and 8085 Closed Caption Encoders with firmware revision R020527 or later.

1. OVERVIEW

- Ability to set the clock time, date, time zone and DST observance from the front panel
- Ability for the encoder to automatically perform Daylight Saving Time changes in April and October
- Improved Time of Day/Time Zone Packet encoding to ensure interoperability with consumer VCRs
- Improved Content Advisory Packet encoding to ensure packets are inserted when upstream bandwidth is all used up.
- Fixed bug with encoding and detection of Time Zone Packet for time zone 6
- Fixed bug with synchronizing the clock to MetaCast for the month of July
- Added Auto padding of Network Name Packet to 4 characters to aid in Auto Clock function on Panasonic VCRs.
- "0-based" indexing for 8085 EIA-708 caption translator (8085 firmware version R020618)

2. SETTING THE ENCODER CLOCK

A new menu item **SET UTC CLOCK** appears in the Engineering Menu of the encoders. This menu item allows the user to set the internal real time clock directly from the front panel. Note that the time and date entered are the UTC time. Setting of the clock is done in four stages.

- Setting the UTC time
- Setting the UTC date
- Setting the local time zone offset from UTC
- Setting whether Daylight Saving time is observed in the local region.

When you press the **→** key you will be prompted to set the time. Press the **SELECT** key to move from one stage to the next, or press the **SETUP** key at any time during the process to exit the clock setting function and return to the original clock settings.

2.1. Setting the Time

When you enter the time setting stage, the front panel display shows the current UTC time of the internal clock with the Hours digits blinking, indicating that they can be changed. E.g. Time = 04:06:53. Press the **↑** or **↓** keys to change the hours digits or press the **→** key move to the minutes or the **←** key to move to the seconds. Set the minutes and seconds the same way. When you have entered the correct UTC time press the **SELECT** key to move to the date setting stage.

2.2. Setting the Date

When you enter the date setting stage, the front panel display shows the current UTC date of the internal clock with the Month blinking, indicating that it can be changed. E.g. June 04, 2002 Tue. Press the **↑** or **↓** keys to change the month or press the **→** key to move to the day of the month or the **←** key to move to the year. Set the day and year the same way. As you change the month, day or year, the day of the week will automatically change. When you have entered the correct UTC date press the **SELECT** key to move to the time zone setting stage.

2.3. Setting the Time Zone

When you enter the time zone setting stage the front panel display shows the local time zone offset from UTC. E.g. Time zone = 05. The number shown is the number of hours between the *standard* time in the local time zone and UTC. For users in time zones west of Greenwich this number will be between 1 and 12. For users in time zones east of Greenwich, this number will be between 13 and 23. (E.g. for Eastern Time set the time zone to 05) Press the **↑** or **↓** keys to change the time zone. When you have entered the correct local time Zone offset from UTC press the **SELECT** key to move on to setting the Daylight Saving time observance.

2.4. Setting the Daylight Saving Time Observance

The Front panel display shows the whether Daylight saving time is observed in your region. E.g. DST Observed = On. Press the **↑** or **↓** keys to select the correct setting for your region. When you have entered the correct setting press the **SELECT** key to complete setting the UTC Clock in the encoder. The front panel display will show **CLOCK UPDATED** when the internal clock has been updated successfully. You will automatically exit the menu system and the front panel should show the new time and date settings after a few seconds.

3. DAYLIGHT SAVING TIME ADJUSTMENT

Daylight Saving Time (DST) was instituted to take advantage of the later hours of daylight between April and October. In 1966, the U.S. Congress passed the Uniform Time Act that standardized the length of Daylight Saving Time. For those parts of the United States that observe Daylight Saving Time, it begins at 2 a.m. local time on the first Sunday of April. Time reverts to standard time at 2 a.m. local time on the last Sunday of October. In the spring clocks *spring* forward by 1 hour to 3 a.m.; in the fall clocks *fall* back by 1 hour to 1 a.m. Arizona, Hawaii and most of Indiana have chosen not to observe Daylight Saving Time.

People often consider daylight saving time to be an “event” that happens twice a year, setting their clocks ahead or back by one hour. In reality, DST is *in effect* (ON) for six months of the year and *not in effect* (OFF) for the other six months, in regions that observe DST.

Starting with firmware revision R020527, the encoders will automatically switch their local time to Daylight Saving time at 2 a.m. local time on the first Sunday of April, and back to standard time at 2 a.m. local time on the last Sunday of October. A new control *DST Observed* has been added that allows the user to enable or disable the DST adjustment of the local encoder time (the DSO flag). For regions that observe Daylight saving time, the *DST Observed* setting must be set to On, and for regions that do not observe Daylight saving time, the *DST Observed* setting must be set to Off. Regardless of whether DST is observed in a region, DST will be *In effect* between the first Sunday of April and the last Sunday of October. (The DST flag)

The front panel time display shows the status of the DST and DSO flags as shown in Figure 1.

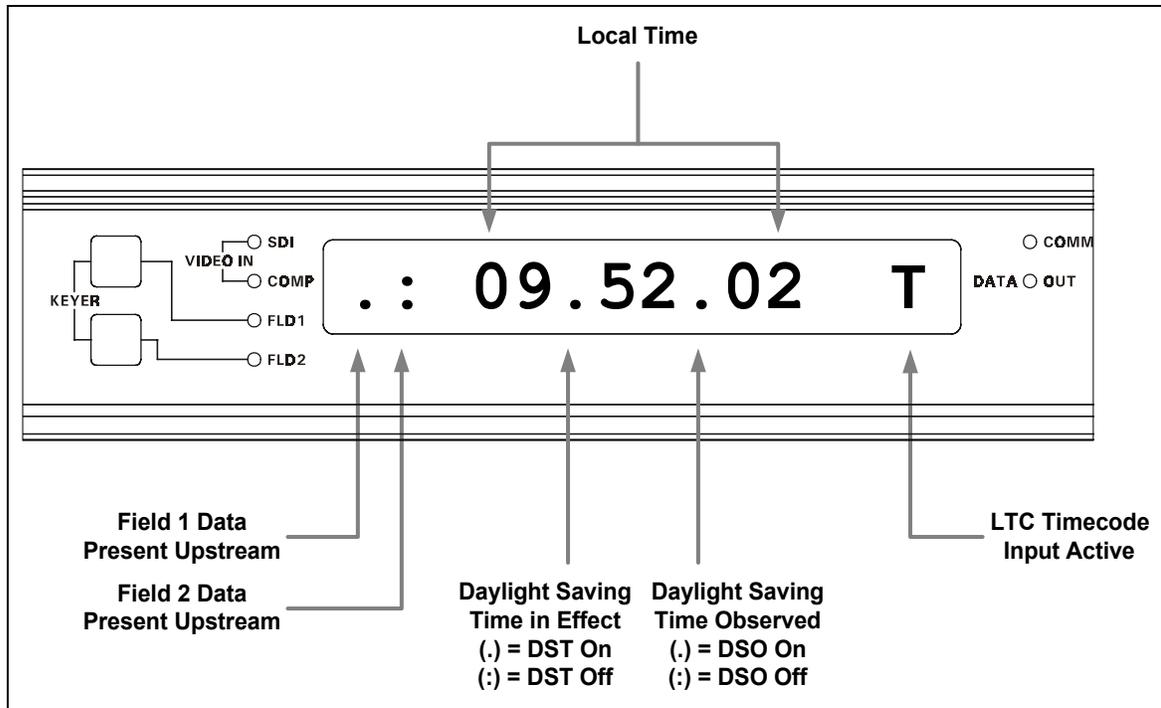


Figure 1: 8084AD Front Panel Time Indicators

There are two XDS packets defined by EIA-608-B for encoding time and date information. The *Time of Day* packet (0701) encodes the **UTC time** and contains a flag bit (**DST Flag**) that is to be set when Daylight Saving Time is *in effect* (i.e. between the first Sunday of April and the Last Sunday of October). The *Time of Day* packet must be inserted locally at each affiliate station so that the correct time is encoded when programs are aired at different times across the network.

The *Time Zone* packet (0704) encodes the **time zone offset** from UTC time and contains a flag bit (**DSO Flag**) that is to be set when the entire area served by the signal observes Daylight Saving Time. When the DSO Flag bit is set to Off, it means that the VCR will ignore the DST Flag bit in the Time of Day packet. The *Time Zone* packet must be inserted locally at each affiliate in order to encode the correct time zone offset for the region. See application note AN3 at the back of the 8084 manual for more information about encoding time in XDS packets.

4. XDS TIME OF DAY AND TIME ZONE PACKET ENCODING

The encoding of the XDS *Time of Day* packet (0701) and *Time Zone* packet (0704) has been enhanced to improve the interoperability with various models of consumer VCRs. Application note AN3 at the back of the 8084 manual gives some interoperability details about various VCR models. The information in section 4.1 updates the information in section 5.2 of AN3. The information in sections 4.2 and 4.3 about JVC and Sony VCRs should be added after section 5.2 of AN3.

4.1. Notes about Panasonic and Quasar VCRs

The Matsushita chipset (used in Panasonic and Quasar VCRs) has some anomalies in the way they handle *Time of Day* and *Time Zone* XDS packets

- The Network Name XDS packet MUST be present, and its contents MUST be "PBS<sp>" or "<sp>PBS" where <sp> is a space character.
- The Station Call Letters and *Time Zone* packets MUST also be present for the AUTO CLOCK feature in these VCRs to work. In areas that do encode *Time Zone* packets, in accordance with EIA-608-B rules, the AUTO CLOCK function in these VCRs will not work.
- These VCRs ignore the state of the DST bit. They figure out whether DST is in effect based on the current date & time, using the typical rules for changing the clock. This means that these VCRs may not work properly in regions of the country that do not observe daylight saving time.

4.2. Notes about JVC VCRs

- The *Time Zone* packets MUST be present for the AUTO CLOCK feature in these VCRs to work. In areas that do not encode *Time Zone* packets, in accordance with EIA-608-B rules, the AUTO CLOCK function in these VCRs will not work.
- These VCRs ignore the state of the DSO bit. When they are set to DST AUTO they assume DST is always observed in the region and figure out whether DST is in effect based on the current date & time, using the typical rules for changing the clock. For regions that do not observe daylight saving time you must set them to DST OFF. If the DST AUTO setting is used in these regions, the VCR clock will be off by 1 hour for a period of time around the DST change in the spring and the fall.
- When they are in the AUTO CLOCK mode, they search for incoming signals with XDS time of day and time zone packets when they are first plugged in. They only update from the XDS packets at the beginning of the minute. If these VCRs do not have a valid RF signal present at the time the VCR is plugged in the AUTO CLOCK feature will not work.
- Once the clock has been initially set, it only updates from the XDS packets once per hour at the beginning of the minute except between 11:00 p.m. and 2:00 a.m. To force the clock to update at other times, you have to turn off the AUTO CLOCK mode then turn it back on, and then power down the VCR. The clock will then update at the beginning of the next minute if there are valid *Time of Day* and *Time Zone* packets present.

4.3. Notes about Sony VCRs

- When they are in the AUTO CLOCK mode, they search for incoming signals with XDS time of day and time zone packets when they are first plugged in. They only update from the XDS packets at the beginning of the minute. The VCR can also lock onto the time by simply powering the unit on and then off. When this happens, the time will only get updated at the beginning of a minute.
- The *Time Zone* packets MUST be present for the AUTO CLOCK feature in these VCRs to work. In areas that do not encode *Time Zone* packets, in accordance with EIA-608-B rules, the AUTO CLOCK function in these VCRs will not work.
- If the VCR is receiving *Time of Day* and *Time Zone* packets, its clock will be updated depending on its timezone and DST settings. If the timezone is set manually in the VCR, the clock will be updated with the VCR timezone setting rather than pulling it off the 8084 packets.
- VCR does not look for the DSO flag in the *Time Zone* packet. The VCR can be set for DST On/Off/Auto. When it is set to Auto the VCR follows the DST flag bit in the *Time of Day* packet as long as both packets are present. In regions that do not observe DST the VCR must be set to DST Off.
- VCR will not automatically do rollovers for Daylight Saving Time if *Time of Day* and *Time Zone* packets are not present. The VCR needs to be turned off and then on to adjust to the correct time again.

5. XDS CONTENT ADVISORY PACKET ENCODING

The encoding of the XDS *Content Advisory* packet (0105) has been enhanced to guarantee that this high priority packet will be inserted even when the upstream bandwidth has been all used up. According to section E.7.3 of EIA-608B, the *Content Advisory* packet must take the priority over other packets and must be repeated at intervals no greater than every 3 seconds. The algorithm for encoding these packets will remove redundant upstream packets when necessary to make room for the *Content Advisory* packets. Previous versions of firmware would only insert packets when there was available space in the upstream packets.

6. TIME ZONE PACKET ENCODING/DECODING BUG FIXED

Under certain conditions when the time zone was set to 06 (US Central Time) the 8084 would not decode upstream *Time zone* packets (0704) correctly. This problem has now been fixed. Previous versions of firmware would display the message `Nonsense CC F2` on the front panel when it encountered these packets.

7. METACAST2 SYNCING BUG FIXED

As of Firmware revision R020726 the 8084 will return the month of July as the string "JUL" to satisfy the requirements of MetaCast2. Previous versions returned the month as "JLY" which caused MetaCast to return the error *MetaCast failed to synchronize to the encoder*.

8. NETWORK NAME PADDED TO 4 CHARACTERS

Panasonic VCRs require that the network name XDS packet contain either the string "<sp>PBS" or "PBS<sp>" where <sp> is the space character. As of Firmware revision R020726 the 8084 will automatically add a <sp> character to the end of 3 character Network Name packets in order to satisfy this requirement.

9. 8085 CAPTION TRANSLATOR '0 BASED' INDEX (8085 Only)

Starting with firmware version R020618, the 8085 caption translator has been modified to comply with the CEB-10-A clarification to EIA-708B rules for the *Define Windows* and *Set Pen Location* commands. Previously the top left co-ordinates of the raster were defined as "1,1". CEB-10-A has clarified that the top left of the raster should be defined as '0,0'.