

CLKTCA12

TIME CODE DRIVEN

ANALOG CLOCK



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See important *limited warranty* information at the end of this document.

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Introduction

The CLKTCA12 is an analog display for time code. These units decode and display SMPTE 30 fps, 25 fps, 24 fps, IRIG-B(1) (1 KHz modulated) and IRIG-B (unmodulated). The time code type is selected via switch settings. For SMPTE, the time code frame rate will be automatically determined.

The CLKTCA12 is synchronized to time code either hourly at 58 minutes past each hour or daily at 05:58A.M. The scheduling of the correction is switch configurable.

The CLKTCA12 supports time zone and Daylight Savings Time adjustments – all switch configurable.

- +12 to -12 hour time zone offsets
- Half hour offsets
- US/Canada daylight savings time adjustments
- Self correcting after loss of power and/or time code

An LED is included on the face to indicate status of the CLKTCA12.

Operating Environment

The CLKTCA12 is not water or moisture proof. Treat it as you would any other delicate electronic device and do not expose it to water, excessive heat or physical abuse.

Configuration

Basic operation of the CLKTCA12 is configured via the switch bank accessible on the back panel of the CLKTCA12.

The switch bank configures fundamental operation as follows:

Switches 1-4: Time zone hour offset:

Hour offset	S1-1	S1-2	S1-3	S1-4	
0 hour offset	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>	(default)
1 hour offset	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>	
2 hour offset	<i>OFF</i>	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	
3 hour offset	<i>ON</i>	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	
4 hour offset	<i>OFF</i>	<i>OFF</i>	<i>ON</i>	<i>OFF</i>	
5 hour offset	<i>ON</i>	<i>OFF</i>	<i>ON</i>	<i>OFF</i>	
6 hour offset	<i>OFF</i>	<i>ON</i>	<i>ON</i>	<i>OFF</i>	
7 hour offset	<i>ON</i>	<i>ON</i>	<i>ON</i>	<i>OFF</i>	
8 hour offset	<i>OFF</i>	<i>OFF</i>	<i>OFF</i>	<i>ON</i>	
9 hour offset	<i>ON</i>	<i>OFF</i>	<i>OFF</i>	<i>ON</i>	
10 hour offset	<i>OFF</i>	<i>ON</i>	<i>OFF</i>	<i>ON</i>	
11 hour offset	<i>ON</i>	<i>ON</i>	<i>OFF</i>	<i>ON</i>	
12 hour offset	<i>OFF</i>	<i>OFF</i>	<i>ON</i>	<i>ON</i>	

Switch 5: Positive/negative time zone offset (as set by switch positions 1-4 & 6).

<u>Function</u>	<u>S1-5</u>
Time offset is positive	<i>OFF</i> (default)
Time offset is negative	<i>ON</i>

Switch 6: Additional ½ hour time offset (as set by switch positions 1-4).

<u>Function</u>	<u>S1-6</u>
No ½ hour offset	<i>OFF</i> (default)
Enable ½ hour offset	<i>ON</i>

Switch 7: Daylight savings time adjustment. (See *Daylight Savings Time*)

<u>Function</u>	<u>S1-7</u>
DST adjustment disabled	<i>OFF</i> (default)
DST adjustment enabled	<i>ON</i>

Switch 8: Hourly/Daily Correction.

<u>Function</u>	<u>S1-8</u>
Hourly Correction	<i>OFF</i> (default)
Daily Correction	<i>ON</i>

Switches 9 and 10: Time Code type selection.

<u>Type</u>	<u>S1-9</u>	<u>S1-10</u>
SMPTE (Frame rate autodetected)	<i>OFF</i>	<i>OFF</i> (default)
IRIG-B(1) modulated	<i>ON</i>	<i>OFF</i>
IRIG-B unmodulated	<i>OFF</i>	<i>ON</i>
Reserved	<i>ON</i>	<i>ON</i>

Switches 11 and 12: Reserved.

The CLKTCA12 must be power cycled for any switch changes to take affect.

Default Configuration

The CLKTCA12 ships from the factory with all S1 switches in the OFF position. This configuration results in the time displayed as: no time zone offset, no daylight saving time adjustment, hourly corrections, with SMPTE time code.

Operation

Insert the power cord or power supply into an appropriate AC source. If ordered with the power pigtails, the wiring is:

Black: AC Line

White: AC Neutral

Green: AC Ground

After application of power the CLKTCA12 will go through an internal checkout. Time from the real-time clock backup will be applied until a time code signal is acquired. The CLKTCA12 cannot be set manually and requires a time code source to display accurate time.

Connect a source of SMPTE or IRIG-B time code to the input connector. The CLKTCA12 may take up to 90 minutes to set the time, depending on the current time and the hand positions. If the CLKTCA12's hands do not move to the correct time, check the section entitled *Troubleshooting Tips*.

The LED on the CLKTCA12 will indicate its status:

Solid Green: The CLKTCA12 has completed synchronizing to time code, and the time code signal is being detected and decoded.

Solid Amber: The CLKTCA12 has completed synchronizing to time code, but the time code signal has been lost. The CLKTCA12 is using its internal backup clock to supply the time.

Blinking Red: The CLKTCA12 has never received a time code signal.

Alternating Red/Amber (slow): The CLKTCA12 is currently synchronizing to time code, and the time code signal is being detected and decoded.

Solid Red: The CLKTCA12 is currently synchronizing to time code, but the time code signal has been lost. The CLKTCA12 is using its internal backup clock to supply the time.

Alternating Red/Amber (fast): The CLKTCA12 has been set to DST adjust when the time code signal has no date information (IRIG). You will need to either change the CLKTCA12's DST adjust setting, or change the time code source. In both cases, you will have to cycle power on the CLKTCA12.

Daylight Savings Time

When enabled the CLKTCA12 will apply an extra hour of offset to the incoming time code during US/Canadian-defined daylight savings time. Daylight savings time begins on the first Sunday of April at 2:00AM and ends on the last Sunday of October at 2:00AM.

IMPORTANT: The incoming time code must have a date encoded in a format recognized by the CLKTCA12 for daylight savings time adjustments to be performed. For best reliability Masterclock recommends a time code source that encodes full date information, such as the Masterclock GPS-200A time code generator.

For SMPTE time codes, date must be encoded to the Leitch specification. Masterclock, Inc. master clock systems also supports these specifications. IRIG-B date decoding is supported for the IEEE 1344 standard. The CLKTCA12 will automatically detect a recognized date encoding format in time code.

If your time code source is already making adjustments for Daylight Savings Time, do not enable this feature.

Troubleshooting Tips

Problem: The CLKTCA12 is unable to detect and decode (“lock”) time code after 2 minutes.

Possible reasons/solutions:

1. The CLKTCA12 is not currently connected to time code source. Verify that all cables are properly connected.
2. There is a problem with the cabling between the CLKTCA12 and the time code source. Verify that all cables and connectors are working, in good condition, and that proper pinout connections have been observed.
3. There is a ground loop or other type of interference between the CLKTCA12 and the time code source. Verify that a common ground exists between the CLKTCA12 and the time code source. If the cabling distance between the time code source and the CLKTCA12 is large you might consider inserting an audio distribution amplifier between the devices.
4. The signal level of the incoming time code is out of the range of the CLKTCA12’s time code decoder’s circuitry. See the CLKTCA12 specification section for acceptable signal level ranges.
5. The signal level of the incoming time code is fluctuating. The signal level must be stable for the CLKTCA12 to detect and decode the time code.
6. The time code being fed to the CLKTCA12 is not a recognized format. Verify that your time code source is providing one of the time code formats that the CLKTCA12 can decode.

Problem: The CLKTCA12 is not displaying the correct local time.

Possible reasons/solutions:

1. The time code source is not referenced to your local time zone. Possibly it is referenced to UTC (GMT) or other time zone. Determine the time zone reference of your time code source and then set the CLKTCA12’s time zone offset accordingly to arrive at a correct displayed local time.
2. Your time code source is not providing the time/date that you expect. Contact the individual responsible for the time code source for more information.

Problem: The CLKTCA12 did not properly negotiate the daylight time to standard time (or vice-versa) transition.

Possible reasons/solutions:

1. Your time code source is not providing date. The daylight savings time adjustment feature will not work unless valid date information is provided.
2. Your time code source already provides the daylight savings time adjustment. The daylight savings time adjustment feature in the CLKTCA12 should be disabled.

If these troubleshooting tips do not solve your problem, contact technical support.

SPECIFICATIONS

Input

FormatSMPTE 24, 25 or 30fps, IRIG-B(1), IRIG(B)
Nominal Level.....1.5 Vpp (0dB/600Ω)
Level Range.....Nominal 1-16 Vpp
Impedance> 100 KΩ
ConnectorBNC female – Center pin Time Code In
Outer Conductor Time Code Return

Power Requirements

AC Input Voltage.....100-120 VAC
AC Input Frequency.....60 Hz
Pigtail Wiring standard. AC Power Cords available.
Power Consumption..... < 10 W

Physical

13.25” (33.7cm) Round Black Metal Case with Glass Face, 3.25” (3cm) high
Weight – 7.6 lbs. (2.45kg)

Power Supply Component Characteristics

Approvals - UL, CSA, IEC & VDE. Built in output power limiting, over voltage and short circuit protection. Input AC fuse protection – internal built in fuse designed to blow if a catastrophic failure occurs. Fuse does not blow on overload or short circuit

Operating/Storage Temperature & Humidity

Operating Temperature 0 to +40°C
Relative Humidity Up to 90% (non condensing @ 25°C)
Storage Temperature -40 to +70° C
Relative Humidity Up to 90% (non condensing @ 25°C)

OPTIONS – Special Order

220VAC, 50Hz operation (CLKTCA12-220) – special order
Power cords for US, UK, EURO, and AUS/NZ – special order
BNC to pigtail adapter available –special order, specify BNC-Pigtail

Limited Warranty

This Masterclock, Inc. (hereinafter Masterclock) product warranty extends to the original purchaser.

Masterclock warrants the CLKTCA12 against defects in materials and workmanship for a period of one year from date of sale. If Masterclock receives notice of such defects during the warranty period, Masterclock will, at its option, either repair or replace products that prove to be defective.

Should Masterclock be unable to repair or replace the product within a reasonable amount of time, the customer's alternate remedy shall be a refund of the purchase price upon return of the product to Masterclock. This warranty gives the customer specific legal rights. Other rights, which vary from state to state or province to province, may be available.

Exclusions

The above warranty shall not apply to defects resulting from improper or inadequate installation or maintenance by the customer, customer-supplied software or interfacing, unauthorized modification or misuse, operation outside of the environmental specifications for the product or improper site preparation and maintenance (if applicable).

Warranty Limitations

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