TCDS

Time Code Digital Display

User Manual

Masterclock, Inc. 2026
St. Charles, Missouri, USA
www.masterclock.com

Rev A

Contents

Introduction

The TCDS Time Code Digital Display synchronizes to IRIG or SMPTE Time Code sources to provide accurate, traceable timing for professional and technical environments. The display supports multiple Time Code formats and is designed for applications requiring dependable, externally referenced time presentation.

In addition to displaying synchronized output from a Time Code reference, the TCDS supports countdown and count-up functionality when used with optional Masterclock remote count controllers, including the RC600 and RC1000. This capability allows the display to be used in operational, testing, broadcast, and mission-critical environments where controlled timing is required.

The TCDS accepts IRIG-B and SMPTE Time Code signals and automatically interprets supported formats. When a valid Time Code reference is unavailable, the display maintains operation using a battery-backed real-time clock chip, allowing continued operation with minimal drift until the reference is restored.

The TCDS features high-visibility LED digits housed in a durable black metal enclosure. The display is intended for indoor use only. For outdoor installations or hazardous environment applications, users should contact sales@masterclock.com to discuss available options. The display can be configured and monitored using the WinDiscovery software application.

Features

The TCDS Time Code Digital Display provides clear, accurate time presentation based on external Time Code references. The display is designed for applications that require reliable synchronization, flexible configuration, and long-term operational stability.

Key features include:

- Synchronization to external IRIG-B and SMPTE Time Code sources
- Support for multiple SMPTE frame rates; 12M, 309M, 24/25/30 fps, 29.97 drop frame
- Support for IRIG-B formats, including IRIG-B00 and IRIG-B12
- Automatic detection and decoding of supported Time Code formats
- Battery-backed real-time clock chip that maintains operation during loss of reference or power
- Configurable Time Zone offsets with one-second resolution
- Automatic Daylight-Saving Time adjustment using selectable regional rules
- Display of UTC, local, or custom-offset time
- High-visibility LED digits with adjustable brightness
- Support for 12-hour or 24-hour display formats
- Optional Day of Year (DOY) display or countdown functionality on supported models
- Countdown and count-up operation when used with Masterclock remote count controllers, including the RC600 and RC1000
- Password-protected configuration access
- Configuration, monitoring, and status viewing using the WinDiscovery software application
- Internal configuration storage using non-volatile memory
- Worldwide AC power input compatibility
- Optional dry-contact relay output (must be specified at time of order)

Device Connections

The TCDS display provides rear-panel connectors and controls used for power, Time Code input, configuration, and device recovery. Connector availability may vary depending on model and options, but the functions described in this section apply to all TCDS series displays.

All cabling should be installed prior to applying power to the display.

AC Power Input

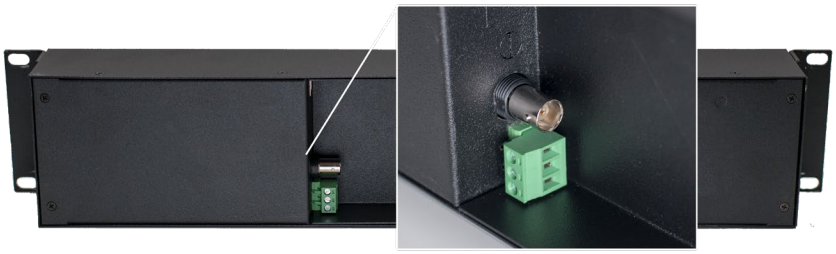
The TCDS is powered through a standard IEC AC power inlet located on the rear of the display. A compatible power cord is supplied with the unit.

The display supports a wide range of AC input voltages and frequencies and does not require manual voltage selection. Internal power regulation automatically accommodates the input supply.

Connect the power cord only after all signal and configuration cables have been installed. Ensure the AC outlet is properly grounded.

Time Code Input

Time Code input is provided through a rear-panel BNC connector or a 3-pin terminal block connector. These inputs accept supported IRIG-B and SMPTE Time Code signals as specified in the Specifications section of this manual.



The TCDS automatically detects supported Time Code formats and adjusts internal decoding parameters accordingly. No manual format selection is required under normal operating conditions.

Use properly terminated coaxial cable suitable for the installation environment. Avoid routing Time Code cabling parallel to AC power lines to reduce the risk of interference.

USB Configuration Port

A USB Type-B port is provided on the rear of the display for configuration, monitoring, and diagnostics using the WinDiscovery software application.

Most TCDS units rely exclusively on this USB connection for configuration and must be physically connected to the computer running WinDiscovery. Some models may also be equipped with an Ethernet interface, allowing configuration over the network in addition to USB.

The USB port is intended for configuration and diagnostics only and is not used for time synchronization. Continuous USB connection is not required after configuration is complete.

Reset Button

A recessed reset button is located on the rear of the display. This button is used to restore the device to its factory default configuration.

To restore factory defaults, press and hold the reset button for approximately 10 seconds until dashes appear on the display, then release the button. All configuration settings, including the password, will be reset.

Mounting

The TCDS display is designed for installation in a variety of indoor environments. Mounting options vary by model and may include rack mounting, wall mounting, ceiling mounting, swivel mounting, or other fixed installations depending on the enclosure style and hardware supplied.

Refer to the product documentation or mechanical drawings specific to your TCDS model to determine which mounting options are supported.

For outdoor installations or hazardous environment mounting requirements, contact sales@masterclock.com to discuss available options.

General Mounting Guidelines

Before mounting the display, ensure the installation location provides clear visibility, adequate structural support, and sufficient clearance for rear-panel connections.

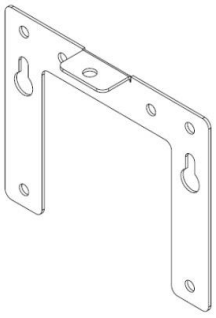
All mounting and wiring should comply with applicable local electrical and building codes. Plan power and signal cabling prior to installation to avoid strain, sharp bends, or interference.

Rack Mounting

Some TCDS models are designed for installation in standard 19-inch equipment racks. When rack mounting is supported, use only the hardware supplied with the display or hardware recommended by Masterclock.

Secure the display using all provided mounting points. Ensure adequate ventilation is provided and that the rack structure can support the display.

Wall Mounting



Some TCDS models support wall mounting using supplied brackets or mounting hardware. Mount brackets securely to a structural surface or appropriate electrical mounting box.

If rear-panel access is limited after installation, connect all required cables before fully securing the display to the bracket.

Swivel Mounting

Certain TCDS models may support swivel mounting. When supported, a swivel mount allows the display to be attached to a flat surface while providing the ability to tilt the display upward or downward to improve visibility.

Ensure all swivel hardware is securely tightened after final positioning and that cables have sufficient slack to accommodate adjustment without strain.

Ceiling Mounting

Certain TCDS models may support ceiling mounting or suspended installations using approved mounting hardware. Ensure all hardware is rated for overhead installation and complies with applicable safety requirements.

Cable Routing and Safety Notes

Do not route power or signal cables between the display enclosure and the mounting surface. Avoid pinching or sharply bending cables and keep low-voltage signal cabling separated from AC power wiring whenever possible.

Configuration

The TCDS display stores all configuration data in non-volatile memory, allowing settings to be retained when power is removed. Configuration and monitoring are performed using the WinDiscovery software application.

Most installations require only minimal configuration once the display is connected to a valid Time Code source. However, it is recommended that all configuration settings be reviewed during installation to ensure correct operation.

Initial Startup Behavior

When AC power is first applied, the TCDS performs an internal self-test and initializes the display.

If a valid Time Code signal is present, the display will automatically synchronize and begin displaying time. If no valid Time Code signal is detected, the display will operate using the internal battery-backed real-time clock chip until a reference is acquired.

During startup, indicators such as flashing colons or dashes may be visible until synchronization is achieved. These conditions are normal during initial power-up.

Recommended Configuration Workflow

For most installations, configuration should be performed in a specific order to ensure correct operation and minimize the risk of incorrect offsets or display behavior.

1. Verify Time Code signal presence and format
2. Assign a descriptive device name
3. Confirm Time Zone and Daylight-Saving Time settings
4. Verify display format and brightness
5. Save and apply configuration changes

Configuration Prerequisites

Before configuring the TCDS, ensure the following information is available:

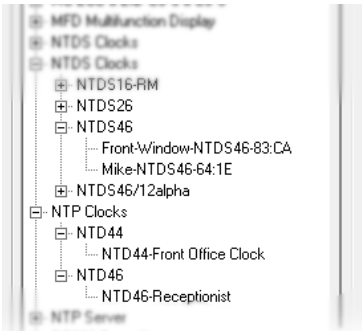
- Type of Time Code source being used (IRIG or SMPTE)
- Time Code format provided by the source
- Whether the Time Code source outputs UTC or applies local offsets
- Desired Time Zone offset and Daylight-Saving Time behavior
- A descriptive device name for identification
- Access to a Windows-based system with WinDiscovery installed

Factory Default Configuration

The TCDS ships from the factory with default configuration settings intended to support most installations. Incoming Time Code signals are interpreted as UTC.

Setting	Default Value
Time Zone Offset	Disabled
Daylight Saving Time	Disabled
Time Code Reader	Enabled
Time Display Format	24-hour

Device Naming



Each TCDS display is assigned a factory default device name consisting of the product name followed by the last four characters of the device's MAC address.

It is strongly recommended that the device name be changed during installation to reflect the display's physical location or function, especially in environments with multiple devices.

Time Zone Configuration

The TCDS maintains internal time relative to UTC. Time Zone offsets may be applied to adjust the displayed time for local presentation.

Time Zone offsets may be positive or negative and support one-second resolution. Offsets affect only the displayed time and do not alter the internal reference.

If the incoming Time Code source already applies a Time Zone offset, the Time Zone offset on the TCDS must remain disabled to prevent double adjustment.

Daylight Saving Time Configuration

Automatic Daylight-Saving Time (DST) adjustment may be enabled independently of the Time Zone offset.

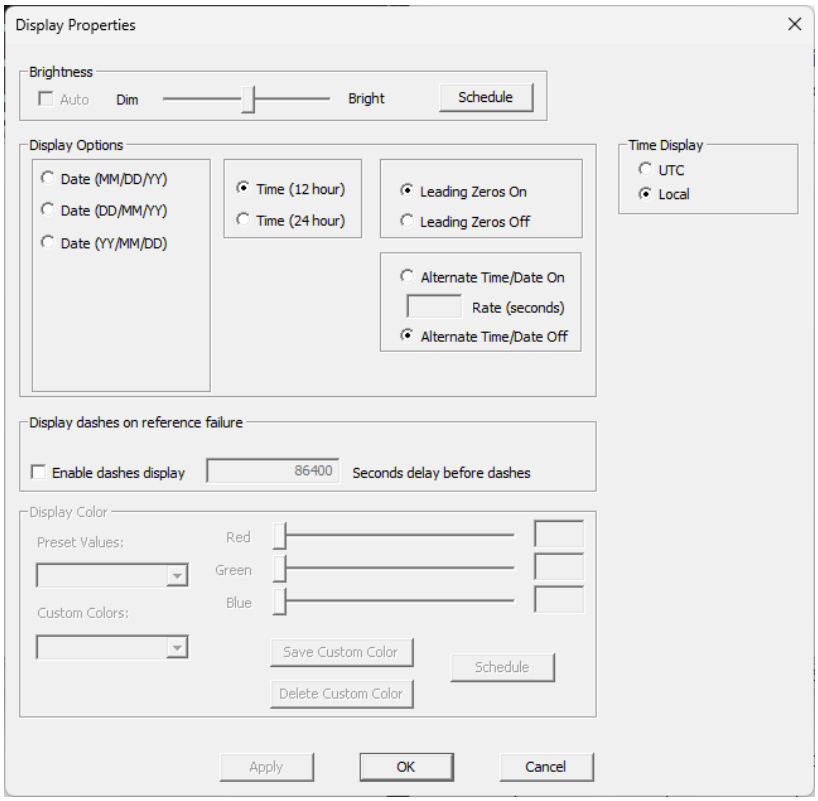
TCDS supports multiple DST rule sets, including regional standards. DST should be enabled only if the Time Code source does not already apply DST adjustments.

If both the Time Code source and the display apply DST, the displayed time will be incorrect.

Display Format and Behavior

Display-related settings allow customization of how time and date information is presented. Available options may vary depending on model and configuration.

Display format options may include 12-hour or 24-hour time display, date or Day of Year display, alternating time and date presentation, and brightness adjustment.



Saving Configuration Changes

Configuration changes are not applied until Apply or Apply and Close is selected. If WinDiscovery is closed without applying changes, all modifications will be discarded.

When password protection is enabled, users will be prompted to enter the password before changes can be saved.

Restoring Factory Defaults

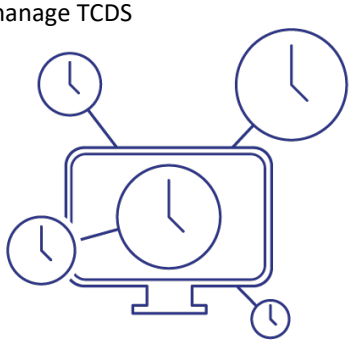
In situations such as a lost password or improper configuration, the TCDS may be restored to its factory default settings using the physical reset button on the device.

Press and hold the reset button for approximately 10 seconds until dashes appear on the display, then release the button. All configuration settings, including the password, will be reset.

Note: After holding the reset button for more than 4 seconds the device will begin rebooting, this is just a soft reboot that retains configuration; you must continue holding the button for the full 10 seconds to perform the factory reset.

WinDiscovery and USB Configuration

WinDiscovery is a Windows-based setup, configuration, and monitoring application used to manage TCDS displays. It is used for initial configuration, ongoing management, and diagnostic purposes.



Most TCDS units are equipped with a USB interface for configuration and must be physically connected to the computer running WinDiscovery. Some TCDS models may also be equipped with an Ethernet interface, allowing configuration over the network.

Software Download and Installation

The latest version of WinDiscovery can be downloaded from the Masterclock website under Products > Software or Resources > Firmware.

By default, WinDiscovery installs to the following directory:

`C:\Program Files (x86)\Masterclock, Inc\WinDiscovery\`

USB Connection and Driver Installation

A USB Type-B port is provided on the rear of the TCDS display for configuration and diagnostics using the WinDiscovery software application.

To establish a USB connection:

1. Apply power to the TCDS display.
2. Connect the display to the Windows computer using a USB cable (not supplied).
3. Allow Windows Plug and Play to detect the device.

In most cases, Windows will automatically install the required USB device drivers.

If drivers are not installed automatically, they may be installed manually using Device Manager.

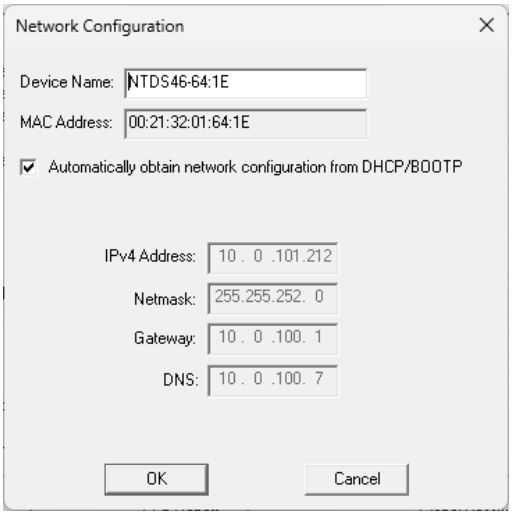
USB device drivers are included with WinDiscovery and are in the following directory:

`C:\Program Files (x86)\Masterclock, Inc\WinDiscovery\USB Drivers\`

The TCDS enumerates as multiple USB devices. Drivers must be installed for all detected device entries, commonly identified as COM and BUS, to ensure proper communication.

Network Configuration (Ethernet-Equipped Models Only)

Some TCDS models are equipped with an Ethernet interface, allowing configuration over the network in addition to USB.



When using network configuration, the display must be connected to the same network as the computer running WinDiscovery. Network discovery may be affected by firewalls, VLANs, or security policies.

USB configuration remains available regardless of network configuration and is recommended for initial setup when possible.

Launching WinDiscovery

After installation, launch WinDiscovery from the Windows Start Menu or desktop shortcut.

When WinDiscovery opens, the main window displays a device tree on the left and device details on the right. Select Discover to locate available devices.

Device Discovery and Identification

Discovered devices are grouped by product family in the left pane. Selecting a group displays all associated devices in the right pane.

Device text color indicates how the device is being accessed:

- **Blue** text indicates a device connected directly via USB.
- **Black** text indicates a device discovered over the network.
- **Red** text indicates a DHCP problem. (For devices with network options)
- **Green** text indicates the device has been assigned a fallback IP address**.** (For devices with network options)
- ***Italicized*** text indicates the device was found but is not yet configurable (still loading or connecting)

Using WinDiscovery for Configuration

Configuration changes to the TCDS are made using the WinDiscovery software application. WinDiscovery allows users to view device status, modify configuration settings, and apply changes in real time.

To configure the TCDS using WinDiscovery:

1. Connect the display to the computer using USB.
2. Launch the WinDiscovery application.
3. Select **Discover** to locate available devices.
4. Single left-click the device name to open its configuration settings.
5. Make the desired configuration changes.
6. Select **Apply** or **Apply and Close** to save the changes.

Accessing Device Settings

To access device settings in WinDiscovery, use the following actions:

- Single left-click the device name to open its configuration settings.
- Right-click the device name to open the device management menu (quick access).

Only one user should configure a device at a time. Running multiple configuration tools concurrently is not recommended.

Device Management Menu

Right clicking a device name opens the device management menu, which provides quick access to the following functions:

- Properties
- Device Settings
- Set Password
- Set Time and Date
- Status
- Reboot Device
- Set to Default Configuration

Password Management

Configuration access to the TCDS is protected by a password. WinDiscovery allows users to change the device password, provided the current password is known.

The default device password is public

WinDiscovery does not provide a method to recover or reset a forgotten password. If the password is lost, the device must be returned to factory default configuration using the physical reset button on the display.

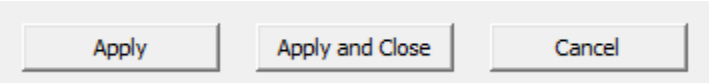
To access devices equipped with ethernet ports through SSH the default username and password are:

Username: **public**
Password: **publicpass**

Saving Configuration Changes

Configuration changes made in WinDiscovery are not applied until the user selects **Apply** or **Apply and Close**.

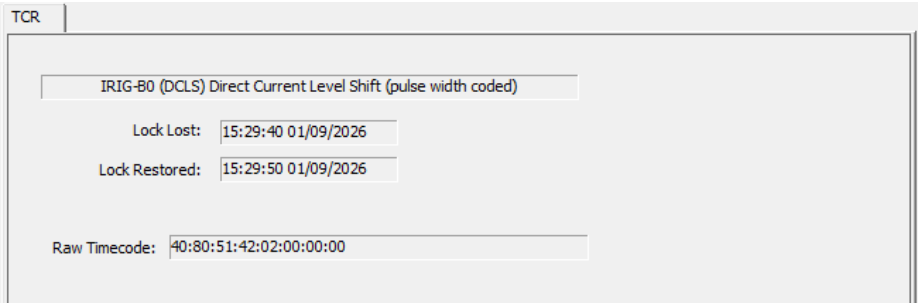
If WinDiscovery is closed without applying changes, all configuration modifications will be discarded.



When password protection is enabled, users will be prompted to enter the password before configuration changes can be saved.

Status Monitoring

WinDiscovery provides real-time status information useful for installation verification and troubleshooting.



- Current interpreted Time Code reference
- Time Code format and encoding type
- Time Code signal validity

- Raw Time Code data
- Date and time of the most recent loss of reference lock
- Date and time when reference lock was restored

Raw Time Code data allows verification of signal integrity and confirmation that the incoming Time Code matches the expected format.

Reference loss and restoration time stamps provide historical context and can help identify intermittent signal issues.

USB and Network Usage Notes

- USB configuration does not require network access.
- Administrator password is still required for USB access.
- Network configuration may be affected by firewalls or security policies.
- USB and network configuration methods may be used interchangeably on Ethernet-equipped models.
- Continuous connection to WinDiscovery is not required for normal operation.

Status, Display Properties, and Time Code Reference

The TCDS display provides visual indicators and software-based status information that allow users to verify proper operation, synchronization state, and display configuration.

Display Status Indicators

The primary visual indicators of synchronization status are the colon LEDs displayed between the time digits.

- Solid colons indicate synchronization to a valid Time Code reference.
- Flashing colons indicate that the display is not receiving or cannot decode a valid Time Code signal.
- Dashes displayed indicate decode failure, end of a countdown operation, or device rebooting.

Display Properties

Display properties control how time and date information is presented on the TCDS display. These settings do not affect synchronization or internal timekeeping.

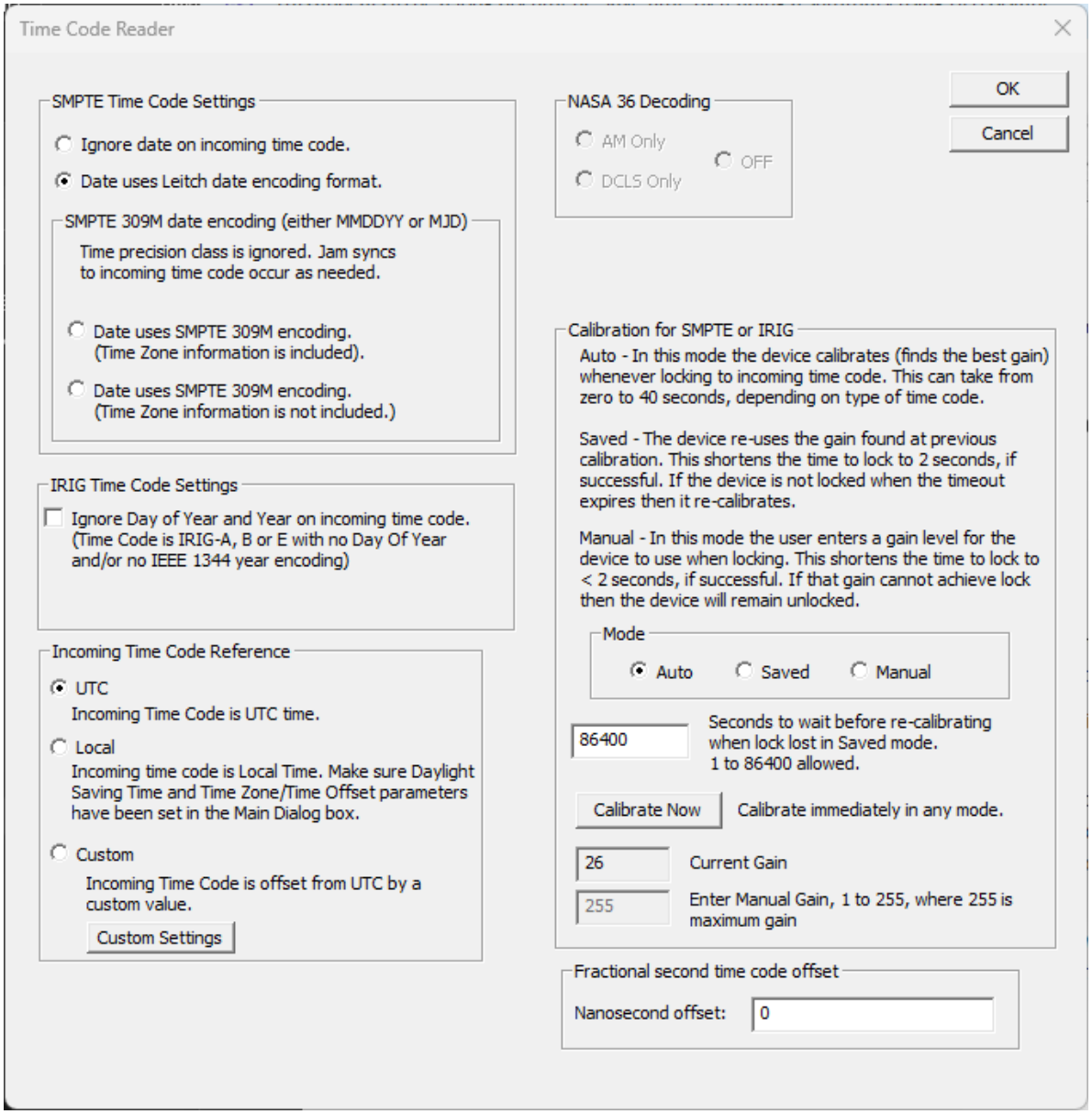
- Brightness adjustment
- 12-hour or 24-hour format
- Date or Day of Year display
- Alternating time and date display
- Leading zero enable or disable
- Display of UTC or local time
- Reference failure display behavior

Input Control > Time Code Reader

Under normal operation, the TCDS continuously synchronizes to the incoming Time Code reference.

If the Time Code reference is lost or becomes invalid, the display automatically switches to the internal battery-backed real-time clock chip. Time continues until the reference is restored.

When the Time Code reference is restored, the display automatically resynchronizes and normal operation resumes without user intervention.



Time Code Detection and Input

The TCDS synchronizes to externally generated Time Code sources and continuously monitors the incoming signal to maintain reference lock. The unit is designed to automatically detect supported IRIG and SMPTE/LTC formats and apply automatic gain adjustment within the supported input range.

Correct Time Code cabling, signal level, and source configuration are essential for reliable operation. Use the specifications and connection information in this section to verify compatibility with the upstream Time Code source.

Supported Time Code Formats

The following Time Code formats are supported. Format detection is automatic when the signal is within the supported amplitude range.

Time Code Type	Supported Formats
IRIG	IRIG-B0
IRIG	IRIG-B12
SMPTE / LTC	SMPTE 12M
SMPTE / LTC	SMPTE 309M
SMPTE / LTC	24 fps
SMPTE / LTC	25 fps
SMPTE / LTC	30 fps
SMPTE / LTC	29.97 fps (drop frame)

Input Electrical Characteristics

Use the following electrical characteristics to confirm the Time Code source and cabling meet TCDS input requirements.

Parameter	**Specification**
Type	LTC (Longitudinal/Linear Time Code), forward running, automatic detection, and automatic gain adjustment
Impedance	> 50 kΩ
Nominal Level	1.5 Vpp (0 dB/600 Ω)
Input Level Range	0.175 to 12 Vpp (-15 dBV to 20 dBV)
Auto-Detection / Gain Adjustment Range	IRIG-B00 un-modulated, 0.5 to 12 Vpp; IRIG-B12, 1 kHz AM, 0.5 to 8 Vpp; SMPTE 24/25/30 fps, NDF, 0.2 to 12 Vpp

Input Signal and Connector

Time Code input is provided using either a BNC connector (single-ended, unbalanced) or a 3-pin terminal block connection (differential, balanced). Connector availability may vary by model and configuration.

BNC-female, Single Ended, Unbalanced

Connection	Function
Center pin	Time Code Signal (+)
Outer conductor	Time Code Return (Common)

Terminal Block, Differential, Balanced

Terminal	Function
Pin 1	Signal (+)
Pin 2	Return (-)
Pin 3	Shield (optional)

Operational Notes

- Verify the Time Code source is actively generating a supported IRIG-B or SMPTE/LTC format before troubleshooting the display.
- If the incoming signal is outside the supported input level range, the TCDS may fail to decode or may lose reference lock.
- Route Time Code cabling away from AC power wiring where possible to reduce the risk of interference.

Use WinDiscovery status information to confirm the interpreted Time Code format.

Troubleshooting

The TCDS display provides visual indicators and WinDiscovery status information to assist with diagnosing configuration and Time Code issues.

Time Code Status Indicators

- Solid colons indicate synchronization to a valid Time Code reference.
- Flashing colons indicate that the display is not receiving or cannot decode a valid Time Code signal.
- Dashes displayed indicate decode failure or the end of a countdown operation.

Note: These indicators should be confirmed by checking the device's Status window in WinDiscovery

Problem: Flashing Colons or Dashes

Possible causes and corrective actions include:

- No Time Code signal present at the input. Verify that the Time Code source is powered and generates a signal.
- Incoming Time Code format is not supported. Confirm that the source is outputting a supported IRIG-B or SMPTE format.
- Signal amplitude is outside the supported range. Verify signal levels and cabling.
- Damaged, improperly terminated, or incorrectly routed cabling.
- Electrical interference or grounding issues affecting the Time Code signal.
- The display has reached the end of a countdown operation initiated by a remote count controller.

Problem: Incorrect Time or Date

Possible causes and corrective actions include:

- Incorrect Time Zone or Daylight-Saving Time configuration in the display.
- Time Zone or Daylight-Saving Time adjustments applied both at the source and at the display.
- Incorrect configuration or output from the Time Code source.

Problem: Daylight Saving Time Did Not Change Correctly

Possible causes and corrective actions include:

- The Time Code source does not include valid date information.
- Daylight Saving Time adjustments are already applied by the Time Code source.
- Incorrect Daylight-Saving Time rules are configured on the display.

Verify that Daylight Saving Time adjustments are applied in only one location, either at the Time Code source or at the display.

Problem: UTC Time or Date Appears Incorrect

Possible causes and corrective actions include:

- Intermittent or poor-quality Time Code signal.
- Incorrect date or year overwrite configuration for non-date-encoded Time Code.
- Internal battery-backed real-time clock chip is depleted.
- Incorrect Time Zone or Daylight-Saving Time configuration.
- The Time Code source is not generating UTC-referenced time.
- A drop-frame SMPTE format is being used. The TCDS supports non-drop frame SMPTE formats only.

Additional Diagnostic Notes

- Use the Status window in WinDiscovery to view raw Time Code data and synchronization history.
- Review timestamps for reference loss and restoration to identify intermittent signal issues.
- Verify upstream Time Code sources are synchronized to a trusted reference such as GPS.
- External Time Code delivery methods may introduce propagation delays that cannot be compensated.

Service and Support

There are no user-serviceable components inside the TCDS display. If troubleshooting steps do not resolve the issue, contact Masterclock Technical Support.

Email: support@masterclock.com
Website: www.masterclock.com

Specifications and Power Requirements

This section lists general specifications applicable to the TCDS series. Specific dimensions, mounting hardware, and weights vary by model and are not listed in this manual.

Time Code Input

Supported Formats	IRIG-B (B00, B12), SMPTE
SMPTE Frame Rates	24, 25, 30 fps (non-drop frame)
Connector Type	BNC

Power Requirements

Input Voltage	100–240 VAC

Input Frequency	50/60 Hz
Power Connector	IEC

Additional Specifications

Configuration Interface	USB (Ethernet optional on select models)
Configuration Software	WinDiscovery (Windows)
Display Technology	LED
Operating Environment	Indoor use only
Configuration Storage	Non-volatile memory

Care and Cleaning

The TCDS display requires minimal routine maintenance. Adherence to regular and proper cleaning procedures is recommended to preserve appearance. Scratched or otherwise damaged lenses caused by misuse, mishandling, improper storage, or improper cleaning are not covered under the limited warranty.

MINIMIZE HAIRLINE SCRATCHES

Always store the device face-up in the protective plastic shipping bag until ready for installation and during transportation to the installation site. Do not place the device face (lens surface) down on any surface as this may scratch or mar the lens.

Scratches and minor abrasions can be minimized by using a mild automobile polish. Three such products that tend to polish and fill scratches are:

1. Johnson Paste Wax
2. Mirror Glaze (Mirror Bright Polish Wax #10)
3. Novus Plastic Polish (Novus #2)

It is suggested that a test application be made on a small inconspicuous area first.

REMOVING SURFACE CONTAMINANTS

Clean the lens as soon as possible after exposure to dirt, grime, or paint. The longer a contaminant remains on the lens surface, the more difficult it will be to remove. Avoid cleaning the lens in hot sun or on extremely hot days.

During painting and construction

New construction and renovations frequently require that the job site be cleaned of any excess mortar, paint, sealant, primers, or other construction compounds. Only recommended cleaners should be used to clean the polycarbonate lens. Contact with harsh solvents such as methyl ethyl ketone (MEK) or muriatic acid can result in surface degradation and possible crazing of the polycarbonate.

When the device is first installed, glazing compound and masking tape adhesive can be easily removed from the lens by applying VM & P Naphtha or kerosene with a soft cloth, followed immediately with a thorough soap and water cleaning.

Limited Warranty

This Masterclock product warranty extends to the original purchaser. Masterclock warrants these TCDS devices against defects in materials and workmanship for a period of (5) five years from the 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 alternative 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, province to province, or country to country may be available.

EXCLUSIONS & SEVERABILITY

The above warranty shall not apply to defects resulting from improper or inadequate 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).

If any single part of this warranty shall be deemed severable, incorrect, invalid, or otherwise inappropriate in any form, it shall not void the entire warranty. Only the incorrect, invalid, or ineffective portion of the warranty shall be severed or excluded. Not the warranty as a whole.

WARRANTY LIMITATIONS

MASTERCLOCK MAKES NO OTHER WARRANTY, EITHER EXPRESSED OR IMPLIED, WITH RESPECT TO THIS PRODUCT. MASTERCLOCK SPECIFICALLY DISCLAIMS THE IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

In any state or province which does not allow the foregoing disclaimer, any implied warranty of merchantability or fitness for a particular purpose imposed by law in those states or provinces is limited to the five-year duration of the written warranty.

EXCLUSIVE REMEDIES

THE REMEDIES PROVIDED HEREIN ARE THE CUSTOMER'S SOLE AND EXCLUSIVE REMEDIES. IN NO EVENT SHALL MASTERCLOCK BE LIABLE FOR ANY DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, WHETHER BASED ON CONTRACT, TORT, OR ANY OTHER LEGAL THEORY.

In any state or province that does not allow the foregoing exclusion or limitation of incidental or consequential damages, the customer may have other remedies.

HARDWARE SERVICE

You may return your TCDS device to Masterclock for repair service. Please contact Technical Support for **RETURN AUTHORIZATION** before returning the unit. When you return your device for service, you must prepay all shipping charges, duty and taxes unless expressly stated otherwise by the Technical Support department. For international returns, please contact Technical Support.

Service and Return Information

We sincerely hope that you never experience a problem with any Masterclock product. If you do need service, contact Masterclock's Technical Support team. A trained specialist will help you to quickly determine the source of the problem. Many problems are easily resolved with an email or phone call. If it is necessary to return a unit to us, an RMA (Return Material Authorization) number will be given to you.

Visit our website to download a current RMA request form.

https://www.masterclock.com/return-merchandise-authorization.html

Masterclock tracks the flow of returned material with our RMA system to ensure speedy service. You must include this RMA number on the outside of the box so that your return can be processed immediately.

RMA Policy

Our RMA policy is straightforward and is based on several basic premises:

- An item can be returned, subject to several basic requirements, under our 30-day Satisfaction Guarantee.
- If an item fails within the Warranty Period we will repair and return it, freight prepaid.
- If an item gives trouble beyond the warranty period and requires repair we will inspect, repair, and return the item to you for a reasonable charge for the work and the cost for freight.
- If you think an item or system is not working properly, we expect you to read the instruction manual, talk with our technical support department and make a reasonable effort to resolve the issue.
- If you return an item to us for repair and the item is found to work properly then we will charge you an "Analysis and Inspection" charge plus the return freight. Please supply us with as many details about the problem as you can. The information you provide will be supplied to the repair department before your unit arrives. This helps us to provide you with the best service, in the fastest manner.

We apologize for any inconvenience that the need for repair may cause you. We hope that our rapid service meets your needs. If you have any suggestions to help us improve our service, please give us a call. We appreciate your ideas and feedback and will respond to them.

Health and Safety

These devices generate, use, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. There is no guarantee that interference will not occur in a particular installation. If this device does cause harmful interference to radio or television reception, which can be determined by removing power from the device, the user is encouraged to try to correct the interference by one or more of the following measures:

1. Connect the devices AC power cord into an outlet on a different circuit than other devices.
2. Increase the physical distance between the TCDS digital time display and other devices.
3. Contact technical support.

This TCDS device has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

Only qualified persons are authorized to carry out maintenance on this device. Read this User's Manual carefully and follow the correct procedure when setting up the device. Do not open your Masterclock display product or attempt to disassemble or modify it. **Devices contain NO USER SERVICEABLE PARTS.**

Never insert any metallic object into the device's case. Doing so increases the risk of electrical shock, short circuiting, fire, or personal injury.

Never expose this device to rain or use it near water or in damp or wet conditions.

Never place objects containing liquids on or near this device, as they may spill into its openings increasing the risk of electrical shock, short circuiting, fire, or personal injury

Regulatory Compliance

The TCDS display complies with applicable regulatory requirements.

Electromagnetic Compatibility 89/336/EEC ; 92/31/EC ; 93/68/EEC ; 2004/108/EC
Tested and Conforms to the following EMC standards :
EN61000-6-1:2001 (EMC Immunity Generic Commercial)
EN61000-4-2:1995 +A1:1998 +A2:2001
(Electrostatic Discharge)
EN61000-4-3:2006 +A1:2008 (RF Immunity)
EN61000-4-4:2004 (Fast Transient Common Mode)
EN61000-4-5:2006 (Surge)
EN61000-4-6:2007 (RF Injection Common Mode) EN61000-4-8: 1993 +A1:2001
(Power Frequency Magnetic Field)
EN61000-4-11:2004 (Voltage Dips)
EN61000-6-3:2001 (EMC Emissions Generic Commercial)
EN55022:2006 +A1:2007
CISPR22:2008
ANSI C63.4:2009
EN61000-3-2:2006 +A1:2009 +A2:2009
(Harmonic Current Emission)
EN61000-3-3:2008 (Voltage Fluctuations and Flicker)
Low voltage directive 2006/95/EC
Tested and Conforms to the following Safety standards:
EN60950-1:2006
(Safety of Information Technology Equipment)

FCC STATEMENT

This device complies with Part 15 of the FCC Rules and found to comply with the limits for a Class B digital device. These limits are designed to provide reasonable protection against harmful interference in a commercial/residential installation.

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation

WASTE ELECTRICAL AND ELECTRONIC EQUIPMENT DIRECTIVE (WEEE) 2002/95/EC

The TCDS models are considered WEEE Category 9
(Monitoring and Control Instruments Equipment) as defined by the WEEE Directive and therefore fall within the scope of the WEEE Directive.

For more information about Masterclock display's WEEE compliance and recycle program, please visit:
https://www.masterclock.com/cmss_files/attachmentlibrary/Other/RoHS-3-CERTIFICATE-OF-COMPLIANCE.pdf

Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. this device must accept any interference received, including interference that may cause undesired operation.

Trademarks

Masterclock is a registered trademark of Masterclock, inc. Other trademarks mentioned in this manual are the property of their respective owners.

Microsoft is a registered trademark of Microsoft Corporation. Other trademarks mentioned in this manual are the property of their respective owners.

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