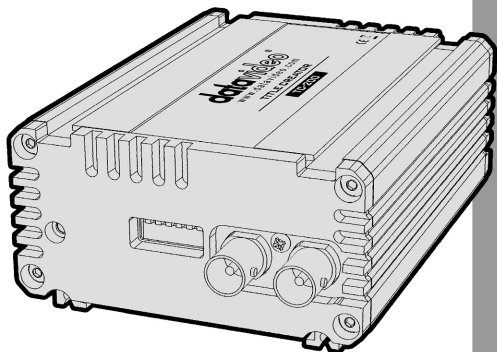


# datavideo



**TITLE CREATOR  
TC-200**

**Quick Start Guide**

[www.datavideo.com](http://www.datavideo.com)

# Warranty

## Standard Warranty

- ◆ Datavideo equipment is guaranteed against any manufacturing defects for one year from the date of purchase.
- ◆ The original purchase invoice or other documentary evidence should be supplied at the time of any request for repair under warranty.
- ◆ Damage caused by accident, misuse, unauthorized repairs, sand, grit or water is not covered by this warranty.
- ◆ All mail or transportation costs including insurance are at the expense of the owner.
- ◆ All other claims of any nature are not covered.
- ◆ Cables & batteries are not covered under warranty.
- ◆ Warranty only valid within the country or region of purchase.
- ◆ Your statutory rights are not affected.

## Two Year Warranty

- ◆ All Datavideo products purchased after 01-Oct.-2008 qualify for a free one year extension to the standard Warranty, providing the product is registered with Datavideo within 30 days of purchase. For information on how to register please visit [www.datavideo-tek.com](http://www.datavideo-tek.com) or contact your local Datavideo office or authorized Distributors
- ◆ Certain parts with limited lifetime expectancy such as LCD Panels, DVD Drives, Hard Drives are only covered for the first 10,000 hours, or 1 year (whichever comes first).

Any second year warranty claims must be made to your local Datavideo office or one of its authorized Distributors before the extended warranty expires.

## Disposal



### For EU Customers only - WEEE Marking

This symbol on the product indicates that it will not be treated as household waste. It must be handed over to the applicable take back scheme for the recycling of electrical and electronic equipment. For more detailed information about the recycling of this product, please contact your local Datavideo office.

## Packing List

1	x	TC-200 Unit
1	x	Accessory List
1	x	TC-200 Quick Start Guide

## Minimum computer requirements:

- WINDOWS XP or WINDOWS 7
- 3 GHz Processor
- 2 GB RAM

## TC-200 Box has 3 modes to work

1. HDMI input is CG ; SDI In is live video so SDI outputs is the live video and CG overlay (2 identical signal , Reference with the internal signal )
2. HDMI input is CG; SDI In is used as reference signal, so SDI Output1 is SDI Titles and SDI Output 2 is alpha channel. ( Genlock mode)
3. HDMI input is CG; SDI In is not in use so SDI Output 1 is SDI Titles and SDI Output 2 is alpha Channel. ( Reference with the internal signal )


## Install CG-200

TC-200 uses Ethernet Network connect to Laptop or PC, and then uses CG-200 Software control the all functions.

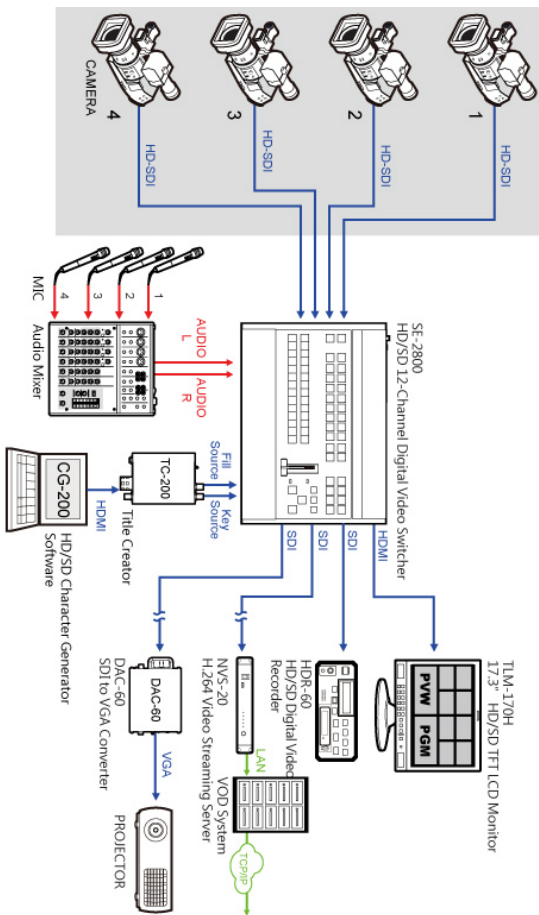
**Step1:** Please click the  icon to install CG-200 Software

**Step2:** Step by Step install the CG software to finish.



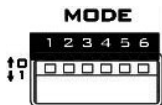
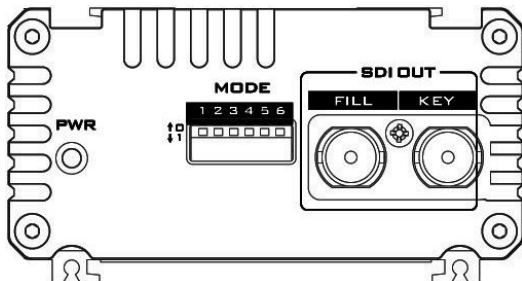
**Step3:** When finished, please double click the  icon to execute the software.

# Typical Link Map



# Connections & Controls

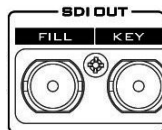
## Front Panel



### Mode Select

The mode switching is performed by means of a 6 key dip switches.

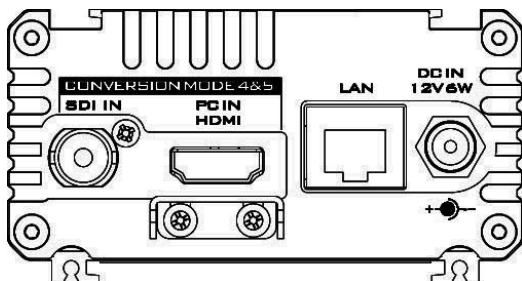
About DIP switch modes please see the TC-200 Settings.



### SDI Output

BNC connect for SDI Output (Fill source & Key source).

## Rear Panel



**SDI IN**



### HD/SD - SDI Input

BNC connector for SDI Input.

**PC IN  
HDMI**



### PC Input (HDMI)

Video input from PC (by HDMI cable).

**LAN**



### Ethernet Port (RJ-45)

100/10M base Ethernet Network interface.

- FW upgrade
- Remote control (not available yet)

**DC IN  
12V6W**



### DC In Socket

Connect the supplied 12V PSU to this socket. The connection can be secured by screwing the outer fastening ring of the DC In plug to the socket.

## TC-200 Settings

Mode switching is by program or DIP switches on the hardware unit.  
The mode switching is performed by means of a 6 key dip switches.

- ◆ The first 3 key-switchers Supported modes:

SDI In:	HDMI in (from PC)
000	1920x1080i/50Hz
001	1920x1080i/60Hz
010	1920x1080i/59.94Hz
011	1280x720p/50Hz
100	1280x720p/60Hz
101	1280x720p/59.94Hz
110	720x576i/50Hz
111	720x480i/59.94Hz

- ◆ The next 2 key -switchers (№4,5) : HDMI into 2 SDI signals conversion mode:
  - 00 - HDMI signal is split into titles and alpha channel.
  - 01 - HDMI titles overlay over the input SDI signal.
  - 10 - HDMI signal is split into titles and alpha channel with Gen-lock.
- ◆ The 6th key-switcher
  - 0 - Control from DIP Switch.
  - 1 - Control from PC



## CG-200 Function reference

### Technical details

Exact **1920x1080** pixel-to-pixel output is required on HDMI channel, otherwise separation of picture and alpha channels wouldn't work properly! Unfortunately some graphic adapter drivers enable over scan or underscan mode by default. This leads to either black borders at the edges of the picture or zoomed picture with parts of it not visible at all. It's not possible to turn this feature off programmatically so overscan/underscan should be disabled manually.

CG-200 uses Windows DirectX technology. To ensure that up-to-date version of DirectX is present on the user's system, CG-200 installer runs DirectX WebSetup. WebSetup automatically checks and downloads missing components.

CG-200 uses fonts installed on Windows. It supports any **TrueType** or **OpenType** font that is available on the customer's system. Please use Windows built-in **Character Map** utility to check the list of installed fonts and see sample text.

Since internal Windows components are used to render CG text, CG-200 requires that **ClearType** technology (that is used by Windows to smooth text on LCD monitors) is turned off. CG-200 automatically turns it off on start up and restores user settings on exit. This may result in slightly deteriorated look of Windows user interface while running CG-200.

As CG-200 uses Windows RTF component for rendering text, it depends on Windows DPI settings. If file was saved on a PC with different DPI setting, the text could appear larger or smaller. CG-200 warns user if such mismatch is detected.

CG-200 is a real-time application that should update HDMI output 50 or 60 times each second. This requirement means that precious computer resources should not be consumed by other applications. Please try not to start any other foreground tasks when CG-200 is running.

## Concepts

CG-200 main concept is page – initially transparent screen area that contains objects – rectangular objects that can be individually displayed. Page can be saved to a disk file and loaded later as a whole or partially. Maximum number of objects on page is currently 256.

Object is a rectangular object that represents a piece of text, static picture or animation. Each object has position (coordinates of right side) and size, all measured in pixels. Objects can be freely moved and resized using mouse or arrow keys (use Shift + arrow keys to resize). Objects on a page are stacked upon each other. New object is always added at the top but user can change this order by moving selected object to the bottom or top of the stack. Objects are played (shown) on screen.

Object consists of a background and optional text. User can add a simple object or picture/animation. Simple object has a solid color background (that can be completely transparent). Picture object has a static picture as background. Whole picture may be semi-transparent or parts of the picture may be transparent.

## Object properties

### Background

Color:

Change color by choosing from the palette or defining exact RGB values.

Transparency:

Change background transparency from 0% (completely opaque) to 100% (completely transparent).

### Text

Transparency:

Change text transparency from 0% (completely opaque) to 100% (completely transparent).

Movement:

Fixed – text is displayed as-is, according to paragraph formatting.

Horizontal scroll – object area is used as a window in which a single line of text is scrolled horizontally.

Background remains fixed.

Vertical roll – object area is used as a window in which formatted text is scrolled vertically. Background remains fixed.

You can setting the scroll speed is Slow, Mid or Fast

### Text source

Generally, this feature works by substituting **variables** in the text by data when the object is played back. Variables are represented by numbers, enclosed in % characters (like: %1%, %2%, etc.). Character formatting (color, font, size) is retained.

Object text – text entered when the object was created is used as-is, without any modifications.

Clock – %1% variable in object text will be replaced by current system date and time. If %1% variable is not found, whole text would be replaced. Format string is used to select which date/time values user needs.

Default format string is %H:%M which translates to hours and minutes in 24-hr format. Format string options are:

- %a - Abbreviated weekday name
- %A - Full weekday name
- %b - Abbreviated month name
- %B - Full month name
- %c - Date and time representation appropriate for locale
- %d - Day of month as decimal number (01 - 31)
- %H - Hour in 24-hour format (00 - 23)
- %I - Hour in 12-hour format (01 - 12)
- %j - Day of year as decimal number (001 - 366)
- %m - Month as decimal number (01 - 12)
- %M - Minute as decimal number (00 - 59)
- %p - Current locale's A.M./P.M. indicator for 12-hour clock
- %S - Second as decimal number (00 - 59)
- %U - Week of year as decimal number, with Sunday as first day of week (00 - 53)
- %w - Weekday as decimal number (0 - 6; Sunday is 0)
- %W - Week of year as decimal number, with Monday as first day of week (00 - 53)
- %x - Date representation for current locale
- %X - Time representation for current locale
- %y - Year without century, as decimal number (00 - 99)
- %Y - Year with century, as decimal number
  
- %z, %Z - Either the time-zone name or time zone abbreviation, depending on registry settings; no characters if time zone is unknown
- %% - Percent sign

Text in this object is updated every second.

Text file – %1% variable in object text will be replaced by specified file contents. If %1% variable is not found, whole text would be replaced.

CSV file – each variable in object text will be replaced by value of the corresponding column in CSV file. This powerful feature can be used for news scroll and stock market quotes tickers. CG-200 includes examples to give better understanding how it works.

Following extra properties are available for CSV files:

First line is header – if checked, first line of the file is treated as header (column names) and column names are used as names of the variables. If unchecked – first line of the file is treated as a regular line and variable names %1%, %2%, %3%, are used.

Separator – choose comma or semicolon as columns separator.

CG-200 recognizes different encodings for text and CSV files:

Auto – Make an educated guess at the encoding based on file header and contents. This option should work for most files.

ANSI/OEM – text file uses 7-bit ANSI or 8-bit OEM encoding. Not suitable for Chinese characters. UNICODE/UNICODE Big-

Endian – text file uses 16-bit UNICODE Little-Endian or Big- Endian encoding. Windows Notepad uses this format.

UTF-8 – text file uses UTF-8 encoding (Common format for Internet).

## **Text formatting**

CG-200 uses Windows RTF component as fully functional text editor. Text inside each object can be edited in WYSIWYG style. Standard Cut/Copy/Paste and multilevel Undo commands are supported. Text editor follows well-known Microsoft Word UI approach.

Font (character) formatting includes selecting font name and size, bold, Italic and/or underline options, changing text and background color. Characters can be placed on level with other text (normal script), higher (superscript) or lower (subscript).

Paragraph formatting includes selecting text alignment (left, center or right), line spacing (for multi-line text) and spacing (given in pixels).

## Presentation

In CG-200 each object follows presentation (display) sequence that starts when play command is given. All times are measured in seconds and thousands of a second (milliseconds). Timing is accurate down to 20 msec. (50 Hz PAL mode) or 17 m sec (60 Hz NTSC mode).

Presentation sequence:

Start delay – optional delay after play command is given:

Start delay – optional delay after play command is given. This option can be used to synchronize appearance of several objects on page.

In effect – object appears on screen:

In effect – object appearance effect. Chose from number of different slide, stretch or reveal options. In effect properties are:

Duration – sets effect duration. Appearance will be instant if this value is not given.

Fade in – if checked object will fade in from completely transparent to given transparency value. If unchecked, object will appear as-is.

Display – object is shown on screen. Options are:

Show for – display object for the set amount of time.

Show indefinitely – display object until end or stop command is given.

Out effect – object disappears:

Out effect – object disappearance effect. Chose from number of different slide, stretch or reveal options. Out effect properties are:

Duration – sets effect duration. Disappearance will be instant if this value is not given.

Fade out – if checked object will fade out from normal transparency to completely transparent. If unchecked, object transparency will not change.

Repeat – presentation sequence will repeat indefinitely.

## Commands

Each object on a page is in one of the following states:

Stopped – object is not displayed on HDMI output.

Playing – object is displayed on HDMI output. Object display time counter is ticking, moving text and/or animation is playing.

Paused – object is displayed on HDMI output. Object display time counter is stopped. Moving text and/or animation stays paused.

Error – object is not displayed on HDMI output. Error condition while trying to play the object. For example, object text refers to text or CSV file that couldn't be read.

If the object is in Play state green border is displayed around it. Yellow border marks Paused objects. If object is in Error state, red border is displayed.

User can change state of the selected object or all objects on a page by using Playback menu commands, toolbar buttons or keyboard shortcuts.

The commands are:

Play – start playback of an object. If object is already in play state, do nothing.

Pause – pause /un-pause object. If object is not in play state, do nothing.

End – proceed to out effect. If object is not in play state, or out effect is already in progress do nothing.

Stop – remove the object immediately, skipping the out effect. If object is not in play state, do nothing.



## Adding pictures and animations

CG-200 supports following image file formats:

JPG

PNG, with optional transparency / alpha-channel

BMP

TGA, with optional transparency / alpha-channel

GIF, with optional transparency

CG-200 supports following animation file formats:

GIF, with optional transparency

TXT – text file with each line containing picture file name and optional duration in m-sec, separated with a semicolon. If no duration is given, 1/50 or 1/60 sec is assumed. All image file formats described above are supported. Example:

```
frame001.tga; 20 frame002.tga;20 frame003.tga;20  
frame004.tga;1000
```

CG-200 imports picture and animation data into page file; it doesn't save links to original files.

## User interface

CG-200 follows Microsoft recommended design guidelines for SDI (Single Document Interface) applications. Frequently used commands are available on the toolbars and as keyboard shortcuts. Right-click context menus are available for selected object, selected text inside the object and page files list.

Main window consists of a left panel with page files list and right panel with current page view.

List panel is used for quick access to page files. Double-clicking on file name doesn't just load a page file into view, but first removes all non-playing and non-locked objects from the current view. This function is perfect for displaying predefined news captions while retaining persistent elements like news scroll, time and weather information, etc.

## Editor mode

Normally only one instance of CG-200 can run at one time. Sometimes user has a need to edit a different page file while playing other page via HDMI. CG-200 has editor mode that allows only page file editing and disables HDMI output in application instance.

Editor mode menu shortcut or select page file from the left panel list, right click and select Open in Editor.

# Menus

## File

- ◆ New – start with empty page view.
- ◆ Open – open saved page file.
- ◆ Save – save current view as a page file.
- ◆ Save As – save current view as a page file with a new name.
- ◆ Exit – close application.

## Edit – These commands are for editing text inside objects:

- ◆ Undo – Undo the last text editor action.
- ◆ Redo – Redo the previously undone action.
- ◆ Cut – Cut selected text and put it on the Clipboard.
- ◆ Copy – Copy selected text and put it on the Clipboard.
- ◆ Paste – Insert Clipboard contents.

## View

- ◆ Zoom in – change view zoom level (25% - 100%).
- ◆ Zoom out – change view zoom level (25% - 100%).
- ◆ Snap to grid – if checked, objects are snapped to user defined grid of 2~50 pixels.

## Objects

- ◆ Add – add a simple object or with static picture or animated background.
- ◆ Edit text – change text in the object.
- ◆ Clone – make exact duplicate of selected object.
- ◆ Delete – delete selected object. This operation cannot be undone!
- ◆ Move up – move selected object to front of all other object.
- ◆ Move down – move selected object behind all other objects.
- ◆ Lock – lock or unlock selected object. Locked object cannot be moved or resized.
- ◆ Properties – change object properties (see above).

## **Format**

- ◆ Font – apply font changes to selected text.
- ◆ Paragraph – apply paragraph format changes to selected text.

## **Playback**

- ◆ HDMI output – Switch HDMI output on and off. Master switch that enables playback of objects on the HDMI output. If it's turned off CG-200 is in edit only mode.
- ◆ Object play/pause/end/stop – control individual object playback.
- ◆ All Objects play/pause/end/stop – control all objects playback.
- ◆ About – display program information, version number and copyright.

## **Settings**

- ◆ Language – select UI language.
- ◆ Run initial setup wizard – setting TC-200 to the initial.
- ◆ Preferences – change preferences.

## Preferences

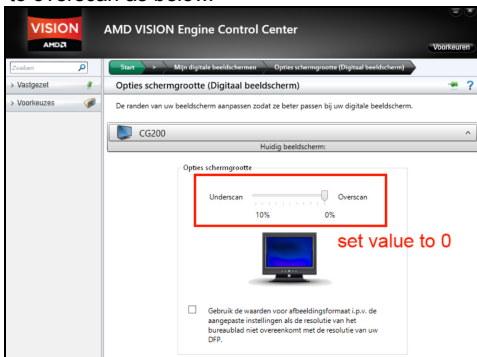
This window lists application configuration and preferences:

- ♦ Mode – HDMI output mode. This setting must match input setting in the hardware.
- ♦ HDMI connection – select which video output to use (if PC has more than one video output). Auto should work for most configurations.
- ♦ Switch HDMI output on start up – if checked turns HDMI output on when application is starting. If unchecked user has to manually turn HDMI output on.
- ♦ Do not restore monitor configuration on exit – if checked CG-200 will not restore PC desktop setting on exit. Desktop will be extended to HDMI output. If unchecked – HDMI output will be switched off.
- ♦ Pages folder – specify folder where page files are located. Contents of this folder are shown in the left panel of main window.
- ♦ Load page file and play – This function will stop/delete all objects currently playing, load a page file and play all objects in it.
- ♦ Add objects to current page and start playback – This function will stop/delete all objects currently playing, load a page file and play all objects in it, and then stop / delete only objects that are not marked as 'locked'. This allows for example having permanent scroll / dynamic logo while loading and displaying titles.
- ♦ There's an option for large size toolbar buttons for larger displays.
- ♦ Note that CG-200 should be restarted if this option is changed.
- ♦ Snap objects to grid – if checked, objects are snapped to user defined grid of 2 ~ 50 pixels. If unchecked – objects can be moved and resized freely.
- ♦ Background – view background can be either checker or solid color. Choose appropriate for the task.
- ♦ Horizontal scroll and vertical roll can now optionally start with right/bottom of the block.

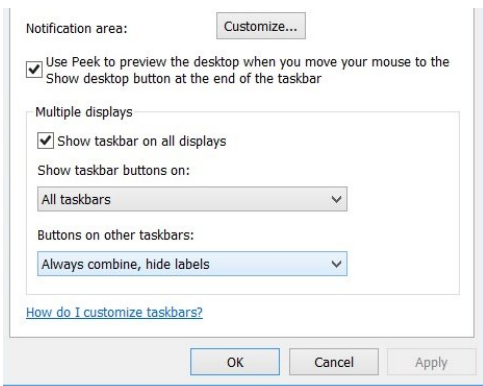
## Note

There are 2 settings need to be checked in laptop before using TC-200.

**Over scan:** CG-200 default design is based on over-scan. If you can find the setting in VGA card, the setting should be changed to overscan as below.



**Taskbar in Windows 8:** In Win8, taskbar can be seen in secondary monitor. The multiple displays setting should be unchecked. You can find taskbar setting by right-click mouse on taskbar.



## Specification

Text Source	Frame text
	Clock
	Text file
	CSV file
File Format	JPG, PNG, BMP, TGA, GIF
Animation Format	GIF
I / O	HDMI input x 1
	HD-SDI input x 1
	HD-SDI output x 1
	LAN port x 1
Mode	CG overlay : HDMI input is CG; SDI in is live video
	Gen-lock mode HDMI input is CG; SDI in is reference signal
	Reference with internal signal: HDMI input is CG; SDI in isn't in use
Input Format	1920 x 1080i/50Hz
	1920 x 1080i/60Hz
	1920 x 1080i/59Hz
	1920 x 1080i/60Hz (instead 1920 x 1080i/59Hz)
	1280 x 720p/50Hz
	1280 x 720p/60Hz
	1280 x 720p/59Hz
	1280 x 720p/60Hz (instead 1280 x 720p/59Hz)
	720 x 576i/50Hz 1920 x 1080i/50Hz (crop to 720 x 576i/50Hz)
720 x 480i/59Hz 1920 x 1080i/60Hz (crop to 720 x 480i/60Hz)	
Conversion Mode	HDMI signal is split into titles and alpha channel.
	HDMI signal is split into titles and alpha channel with Genlock.
	HDMI titles overlay over the input SDI signal.
Controlled	By dip switch
	By PC
Power Voltage	12V
F/W Upgrade	Ethernet

# Service & Support

It is our goal to make owning and using Datavideo products a satisfying experience. Our support staff is available to assist you to set up and operate your system. Contact your local office for specific support requests. Plus, please visit [www.datavideo.com](http://www.datavideo.com) to access our FAQ section.

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Please refer to our website for update the latest version manual.

[www.datavideo.com/Character+Generators/TC-200](http://www.datavideo.com/Character+Generators/TC-200)

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