



WIDE DYNAMIC RANGE CAMERA

Smartec-STC 2008



USER'S MANUAL

Thank you very much for your wise choice of the Smartec Camera. Please carefully read this Instruction Manual to keep your camera at full capacity.

CASES FOR INDEMNITY (LIMITED WARRANTY)

We shall be exempted from taking responsibility and held harmless for damage or losses incurred by the user in the following cases.

- In the case damage or losses are caused by fire, earthquake, or other acts of God, acts by a third party, deliberate or accidental misuse by the user, or use under extreme operating conditions.
- In the case of indirect, additional, consequential damages (loss of business interests, suspension of business activities) are incurred as result of malfunction or non-function of the equipment, we shall be exempted from responsibility for such damages.
- In the case damage or losses are caused by failure to observe the information contained in the instructions in this instruction manual and specifications.
- In the case damage or losses are caused by use contrary to the instructions in this instruction manual and specifications.
- In the case damage or losses are caused by malfunction or other problems resulting from use of equipment or software that is not specified.
- In the case damage or losses are caused by repair or modification conducted by the customer or any unauthorized third party (such as an unauthorized service representative).
- Expenses we bear on this product shall be limited to the individual price of the product.

RESTRICTION FOR USE

- Should the equipment be used in the following conditions or environments, give consideration to safety measures and inform us of such usage:
 1. Use of the equipment in the conditions or environment contrary to those specified, or use outdoors.
 2. Use of the equipment in applications expected to cause potential hazard to people or property, which require special safety measures to be adopted.

- This product can be used under diverse operating conditions. Determination of applicability of equipment or devices concerned shall be determined after analysis or testing as necessary by the designer of such equipment or devices, or personnel related to the specifications. Such designer or personnel shall assure the performance and safety of the equipment or devices.
- This product is not designed or manufactured to be used for control of equipment directly concerned with human life (*1) or equipment relating to maintenance of public services/functions involving factors of safety (*2). Therefore, the product shall not be used for such applications.
 (*1): Equipment directly concerned with human life refers to:
 - Medical equipment such as life-support systems, equipment for operating theaters.
 - Exhaust control equipment for exhaust gases such as toxic fumes or smoke.
 - Equipment mandatory to be installed by various laws and regulations such as the Fire Act or Building Standard Law.
 - Equipment related to the above.
 (*2): Equipment relating to maintenance of public services/functions involving factors of safety refers to:
 - Equipment for nuclear power generation.
 - Equipment related to the above.

Outline

The STC-2008/1 utilizes Pixim's Digital Pixel System ® (DPS) for enterprise security and embedded cameras based on 1/3 type WDR (Wide Dynamic Range) sensor. The STC-2008/1 provides dramatically higher dynamic range image than the charge-coupled devices (CCDs) or CMOS active pixel Sensors (APS) typically used in similar video camera applications. The enhanced imaging capabilities of DPS are based on a multi-sampling of image capture process. An analog-to-digital converter (ADC) is designed into each pixel, and is operated simultaneously with all other ADCs in every pixel of the sensor.

Futures

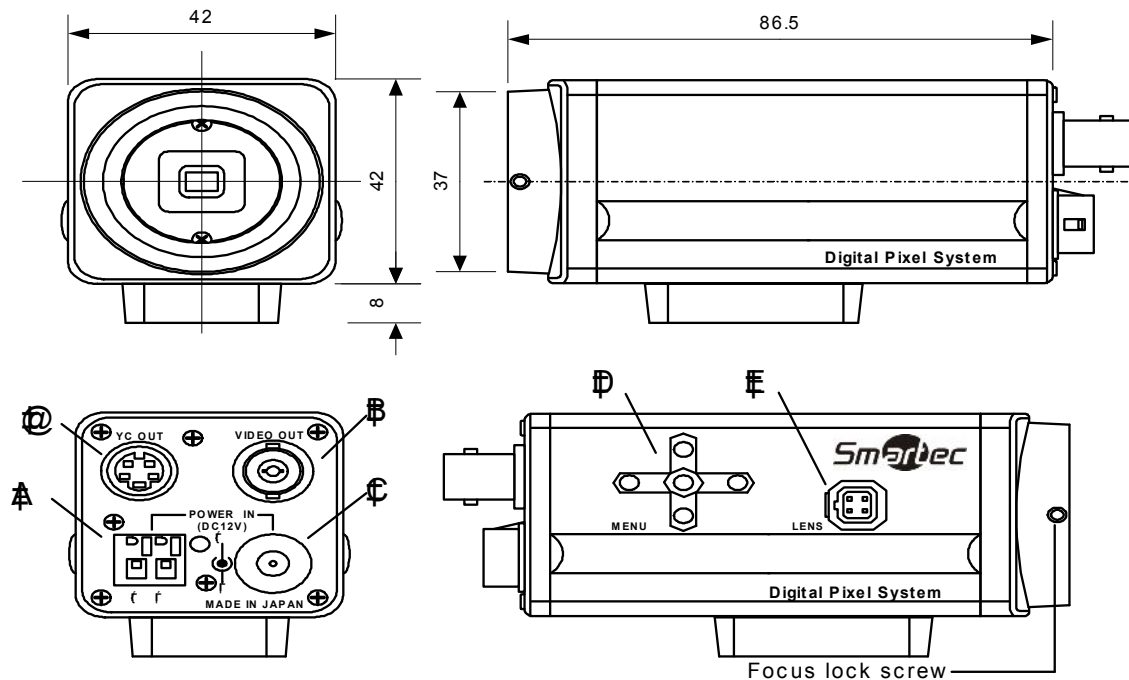
- Wide dynamic range of 120dB (maximum)
- TV system: NTSC/PAL (It switches by OSD)
- 1/3 type , 520 TV Lines, Vertical 460 TM lines (540 HTV line Equivalent).
- Minimum illumination of 0.03 lx
- The setting can be freely done with the OSD switch.
- Compact and Lightweight: 42x42x86.5mm approx 200g
- VBS, Y/C output

- Auto Iris Connector
- Mirror Reversing
- Auto White Balance
- Backlight Compensation
- CS mount
- Power source : DC12V

Configuration

- (1) The camera body 1
- (2) Accessories
 - Instruction manual 1
 - Bracket for tripod 1

Name of parts and their functions



A. Y/C output terminal(Y/C OUT)

Used for the Y/C signal output, this terminal is connected to the Y/C input terminal of a monitor, switcher, or the like.

B. DC12V Power input terminal

C. Video output terminal(video out)

Used for the video signal output, this terminal is connected to the video input terminal of a monitor, switcher or the like. (VBS:1.0V(p-p)/75ohm)

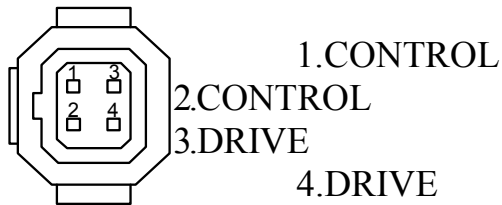
D. Camera setup function switches

Refer to the Operation chapter.

E. Auto iris lens connector

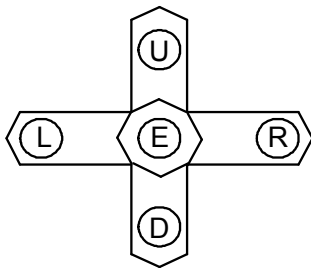
The connector is specifically used to connect the auto iris lens.

For the DC type auto iris lens.



Operation

This camera can be user-set for picture quality, sync control, etc. The SETUP MENU comes in a tree format. The onscreen display of characters is used to make various settings.



Up Switch (U) Used to select SETUP items (up and down).

Down Switch (D)

Right Switch (R) Used to modify settings.

Left Switch (L)

Enter Switch (E) Used to enter and quit the setup mode and to save the settings.

* To enter the setup mode, hold down the E button longer than 2 seconds.

Specifications

(1)	Model Name	STC-2008/1
(2)	Signal System	NTSC/PAL (It switches by OSD)
(3)	Image Sensor	1/3 type WDR digital image sensor
(4)	Horizontal resolution	520 TV lines
(5)	S/N ratio	50dB
(6)	Minimum illumination	0.03 lx (F1.4, AGC ON, Slow shutter ON)
(7)	Video output	VBS:1.0V(p-p)/75 Ω Y/C Y:1.0V(p-p)/75 Ω Chroma:0.286V(p-p)/75 Ω
(8)	Auto IRIS	DC IRIS / Video IRIS LENS drive
(9)	Sync system	Internal
(10)	LENS mount	CS-mount
(11)	Power requirements	DC12V
(12)	Current consumption	Approx. 2W
(13)	Dimensions	42(W) x 42(H) x 86.5(D) mm
(14)	Mass	Approx. 200g
(15)	Operating temperature	-10° to +50°
(16)	Operating humidity	20 to 80 % (no condensation)

OSD Menu

To start the On Screen Display (OSD), hold the Enter button for three (3) seconds.

The current option is marked by > on a blue background.

> PRESETS

The current selection is also marked by < option > on a blue background.

<CUSTOM.. >

OSD layout

All OSD screens are made up of three sections:

- 1: The list on the LEFT shows this screen's options.
- 2: If an option has several choices, they will appear on the RIGHT.
- 3: Across the bottom is the command row.

Typical OSD Screen

Smartec Main Menu

PRESETS

<NORMAL.. >

AGC

MEDIUM

LENS SELECT

MANUAL

WB MODE

ATW Normal..

LOW LIGHT

ESS

VIDEO

NTSC..

ID SETUP..

MORE..

SAVE. CANCEL

This menu page is the first page presented when you hold down the center (Enter) button. It is designed to give you easy access to the most immediate and important settings of your camera.

Here we see that we have 7 options (presets, AGC, lens select, WB mode, low light, video, and ID setup.).

We also have three commands available: more, save, and cancel

OSD Navigation

- UP / DOWN buttons – Moves through the list of options on the left side of the page.
- ENTER button - Selects the option. Now the choices for the option are highlighted
- RIGHT / LEFT buttons – Scrolls through the list of choices for this option.
- ENTER button – If a choice has more information, it will be followed by one

period. If the choice has additional options, it will be followed by two periods. Pressing ENTER will show the page for this choice.

For example:

The PRESETS option has several choices available. INDOOR, OUTDOOR, and NORMAL. (On occasion, it will also include CUSTOM in the list. This option appears any time your current saved options differ from one of these three ‘quick setups’) Press the Enter button to select the PRESETS option. Now the choices are highlighted. Pressing the Left or Right button will flip through the choices. Since all three options are followed by one period, pressing the Enter button on any of these options will show the pre-defined settings for the option. There are no choices to be made in this case, so pressing the enter button again will return to the main menu.

Use the Down button to move to VIDEO. Press Enter to select the option and highlight the choices. Now use the Right button to select either NTSC or PAL. Notice that both choices have two periods. This indicates you have additional choices for each setting. Select the appropriate video standard using the Enter key. You will now be presented with a menu page with more choices appropriate for your video standard. In both cases you will have a VIDEO LEVEL slider (see MENU ITEMS below for more information), and a COLOR BAR option to test the performance of your system.

Additional options

Any time a menu item is followed by two periods, it indicates that this option or choice has a special menu page. For instance, the choice ATW Normal.. has a settings page, as does ID SETUP..

Notice that MORE.. is followed by two periods, indicating that you will be presented with a new page. The SmarTec MORE OPTIONS page gives you access to many more special functions of the SmarTec camera and the revolutionary PIXIM digital pixel system. These functions are organized by Exposure, Viewing, Setup, and save/restore functions. Please take a few moments to become familiar with all the available options.

Commands

Commands are always on the last row of the OSD page. Commands are generally self explanatory. However, take caution of the following notes:

- CANCEL will immediately exit the menu, and return the camera state to the last SAVE. If you make a change you do not like, you can undo it with cancel.
- Holding the Enter button on any menu option for 3 seconds will exit the menu, keeping the current settings. This way you can experiment with the current video settings. However, the settings are NOT saved to permanent memory until you return to the menu (by holding enter for three seconds) and choose

SAVE.

- If the worst should happen (you SAVE settings that you dislike), you can always recover older user settings, one of two settings profiles previously configured, or, in the worst case scenario, restore the original factory settings. These options are found in MORE.. / SAVE/RESTORE page.

Exiting the menu

As noted previously, there are two ways to exit the OSD menu:

- CANCEL is available on the bottom menu bar of most menu pages. Cancel will exit the menu, and will return all settings to the last saved state.
- Holding the Enter button for three seconds at any time will exit the OSD menu. Current settings will be preserved for testing.

However, any changes made between the last save and exiting the OSD will be lost when

camera power is lost.

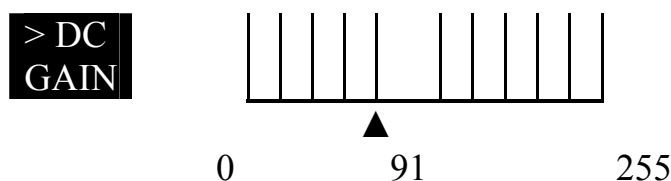
**NOTE: the original factory settings can be restored at any time by going to the SAVE/RESTORE selection from the main OSD menu page.*

MENU ITEMS

Sliders

Some OSD options include slider bars to select a value from a range.

For example: MORE / SETUP.. / IRIS.. / DC GAIN allows you to choose a value from 0 to 255.



To operate the slider, highlight the selection with the Up and Down buttons, then use the Left and Right buttons to move the pointer to the desired value.

Pressing the Down button will move to the next available slider.

Wheel

CAMERA ID in CAMERA ID SETUP is a Wheel menu item. After selecting the option, a single character of the camera ID text is highlighted. Using the left or right arrows will scroll through the character set (alphabet in upper and lower case, numbers, symbols, and additional roman character support for European

languages). Pressing Enter again will move to the next character within the ID text, and so on. UP or DOWN will leave the CAMERA ID option.

Zone Selector

The Alarm system includes Zone Selectors to set up regions of the video frame you wish to monitor for activity. Zone selection generally works as follows:

- White Zone Outline - Select the general location using the arrow buttons. When you are happy with the location, press Enter.
- Green Zone Outline - Expand the zone to the size you desire using the arrow keys. When you are happy with the size, press Enter
- Red Zone Outline – Shrink the zone to the size you desire using the arrow keys. When you are happy with the size, press Enter.
- To exit this Zone entry, hold the Enter key. *This is the only time in which holding the Enter key does NOT exit the OSD menu.*

About the Basic Selections

The SmarTec Main Menu provides all the most important camera functions on one simple to use page. The following is a brief description of each. (For more details, continue to the MORE menu options documentation.)

PRESETS – The preset option is the quickest way to get your camera setup. Simply select indoor, outdoor, or normal, and all the settings will be adjusted for these installations. If you find the picture is not the best, then you can move on and make further adjustments. *(Note that when you make additional changes, your current preset is changed to CUSTOM)*

AGC – Automatic Gain Control will automatically boost the video signal as the light levels change. Generally, this setting affects how quickly AGC will respond, and to what degree. Medium tends to be the best compromise between image details in dark light, while not washing out the image caused by boosting dark noise.

If you prefer to control this feature directly, the Custom choice will allow you to adjust bias and limit settings directly.

LENSE SELECT – If you have installed a lens with an automatic iris control, you can set up your lens here. Connect your lens to the lens port located on the side of the camera. Select the lens type. If the lens does not perform as you like, go to the MORE menu page, then SETUP / IRIS to tune your lens.

(NOTE: If you do not have an electronic iris lens, please choose Manual)

WB MODE– This option controls the White Balance functions of the PIXIM Digital Pixel System. There are several options.

Manual allows you to adjust manually by either a Kelvin scale or individual red/blue scales. Use this mode to compensate for unusual lighting conditions.

AWB – Auto White Balance is a white balance mode most familiar to camera users. It performs a single balance calculation based on the target you provide. There are no further color adjustments made to the image.

ATW Normal and ATW Extended are ‘intelligent’ White Balance modes. The camera continuously makes calculations to give the best picture under the current lighting conditions. Auto Tracking White modes usually provide the ‘truest’ picture.

LOW LIGHT – This setting will control the Electronic Shutter Speed built into the PIXIM image sensor. Generally, ESS is recommended (ESS on). This mode will dynamically adjust the shutter time to compensate for very dark conditions.

NON-ESS will turn off shutter control.

B/W ESS will switch the camera to black and white mode when ESS is taking effect.

VIDEO STANDARD – You can select NTSC or PAL operating modes. Each mode will allow you to control the Video Level as well as turn on the color bar test signal output to test your video equipment.

ID SETUP – Takes you to the camera ID setup page. Here you can turn the ID on and off, change the ID text, and change the position of the camera ID on screen.

MORE Smartec CAMERA OPTIONS

The PIXIM digital pixel system provides a wealth of features to help you get the best possible picture. The remainder of these features are found by choosing MORE from the main menu on the bottom of the page.

You will find each option from the main menu is also represented in other areas of the menu system. Do not worry; choices made deep in the menu structure will carry back to the main menu as well.

The remainder of the menu is arranged in a tree configuration. There are three ‘branches’ (plus the Save/Restore settings branch).

Each branch is summarized below. The controls available from that branch are listed and special notes and explanations are provided.

EXPOSURE

- AGC – Automatic Gain Control
- MANUAL GAIN – provides a slider to manually adjust gain
- AE PREFs – Auto Exposure will choose either highlights or shadows within the image to make it's calculations
- SHUTTER LIMIT – Off, Custom, or shutters between X2 and X32. Each choice has additional features under your control.
- BACKLIGHT – When Backlight is turned on, you can select a zone in which the video image has backlight.
- LOW LIGHT – Low light modes include ESS, NON-ESS, and B/W ESS.

VIEWING

- FLIP – Flip the image horizontally, vertically, or both.
- BW MODE – off, Black and White, or Black and White with color Burst signal
- SHARPNESS – This menu page has several features to control the image sharpness and quality. Detail Boost, Noise Reduction and Sharpness Control are set from this page. In additions, Sharpness and Aperture levels are set by slider controls.
- PRIVACY MASK SETUP – This page allows you to configure privacy masks overlaying the video image. You can black out up to 12 parts of the screen. Each mask can be positioned and sized using the same methods as a ZONE selection.

SETUP

- IRIS – Lens Select, DC gain, Video Gain, and AI Threshold. These settings affect your electronic Iris lens. Please consult your lens manual for more information. If you do not have an electronic iris, please choose MANUAL. The Other controls have no affect on a manual lens.
- FOCUS – Graphical, Numerical and Numerical + Graphical focus types. These options show you focus meters using image data. After selecting a focus meter type, you can set the focus Zone. *The focus zone and data is the same regardless of which Focus type meter you choose.*
- VIDEO I/O – In addition to the Video standard, you may also configure the Sync type, DAC output, and Digital Video Output of the camera. *Some features my not be supported by the external connections provided on your camera*

model.

- **AUTO-FFF** – Fluorescent Flicker Free settings can be enabled. This control is recommended for advanced users only, as it will directly affect many other settings previously made.
- **ID SETUP** – Enable or disable the camera ID display, change the ID text and on screen position.
- **ACTIVITY DETECTION** – Enable detection alarms, set the alarm text position, and setup alarm zones. The camera can detect motion in any or all of up to four zones. Each zone is sizeable and position able. In addition, you can select how sensitive detection is, and choose to digitally pan, tilt, and zoom to the activated zone.

SAVE / RESTORE

- **RESTORE USER SETTINGS** – Restores all settings to the last SAVE state
- **SAVE USER SETTINGS** – Save the current settings to flash memory.
- **RESTORE FACTORY SETTINGS** – Restore the factory default settings. If you wish to keep use these settings, please SAVE them using SAVE USER SETTINGS. Otherwise, upon resetting the camera or recovering from loss of power, the camera will return to the last saved state.
- **RESET CAMERA** – Perform a hard reset of the camera. This has the same affect as cycling the camera power. It will boot and load user settings from the last SAVE.
- **FW Rev** – Displays the internal firmware revision.
- **CONFIG SETS** – The user can store up to three (3) settings configurations to be recalled later. The BOOT configuration settings will be recalled when the camera is powered up or RESET. This is the last SAVE state. It is the “working” configuration. In addition, you can save two additional settings profiles, to be recalled at any time. *NOTE: Configuration sets will not be loaded at boot time unless the user selects SAVE CURRENT AS BOOT.* Finally, the user can overwrite the current BOOT configuration with the original factory boot settings.