PureGlare

userguide • benutzer handbuch • guide d’utilisateur • guía del usario • manuale d’uso • bruksanvisning

• SXGA+ • HD720

http://www.pureglare.com.au

This digital projector is designed with the latest state-of-the-art technologies in illumination, imaging, optics, electronics, thermal and industrial design in order to serve traditional as well as novel imaging applications across a variety of markets, offering features such as:

- SXGA+ 1400x1050 or HD720 1280x720 pixel DLP™ technology
- SINGLE CHIP DMD™ with DarkChip™ technology by Texas Instruments®
- HIGH CONTRAST for vibrant colors and deep blacks
- HIGH RESOLUTION for unprecedented detail
- HIGH BRIGHTNESS for larger screens
- DEEP BLACKS for maximum dynamics
- COLOR CALIBRATION for precise images
- REAL TIME CLOCK for timing control
- REDUCED IMAGE NOISE through high end signal processing
- FAROUDJA DCDi™ Video processing and de-interlacing
- ECO MODE for reduced power consumption and lower audible noise
- VARIABLE LAMP POWER for alignment of multi-screen configurations
- LONG LIFE LAMP (up to 4000 hours) in low power ECO mode
- STYLISH AND COMPACT MAGNESIUM DESIGN to fit most applications,
  installed or movable
- FIVE VIDEO and GRAPHICS INPUTS for virtually any video and data source
- LAN, RS232 and USB ports for control and monitoring

The specifications and functionality of the product may change without prior notice.

This user guide contains important information about safety precautions and the set-up and use of the projector. Please read the manual carefully before you operate the projector.

SAFETY
This device complies with relevant safety regulations for data processing equipment for use in an office environment. Before using the projector for the first time, please read the safety instructions thoroughly.

WARNING
Use only the cables and cords supplied with the projector or original replacement cables. Using other cables or cords may lead to malfunction and permanent damage of the unit.

Always use 3-prong / grounded power cord to ensure proper grounding of the unit. Never use 2-prong power cords, as this is dangerous and could lead to electrical shock.

Never open the unit. The projector contains no user serviceable parts. Refer all repairs to qualified personnel only. Make sure that no objects enter into the vents and openings of the set.

Do not spill any liquids on the projector or into the vents or openings of the unit.

Always remove lens cap before switching on the projector. If the lens cap is not removed, it may melt due to the high energy light emitted through the lens. Melting the lens cap may permanently damage the surface of the projection lens.

Do not look into the projection lens when the projector is switched on. The strong light may permanently damage sight. Do not look into the laser beam when activated on the remote control. Laser light may permanently damage sight.

Do not point laser beam on people.

Only place the projector on a stable surface, or mount it securely using an approved ceiling-mount.

Do not drop the projector.

Always operate the projector horizontally, within the range of the adjustable rear feet. Operating the unit in other positions may reduce lamp life significantly, and may lead to overheating, resulting in malfunctioning.

Always allow ample airflow through the projector. Never block any of the air vents. Never cover the unit in any way while running. Allow for sufficient distance to walls and ceilings to avoid overheating.

Minimum safety distance to any side of the unit is 50 cm / 20” in any direction.

CAUTION! Hot air is exhausted from the rear vent. Do not place objects that are sensitive to heat nearer than 50cm / 20” to the exhaust vent.

The projector is designed for indoor use only. Never operate the unit outdoors.

Do not operate the projector outside its temperature and humidity specifications, as this may result in overheating and malfunctioning.

Only connect the projector to signal sources and voltages as described in the technical specification. Connecting to unspecified signal sources or voltages may lead to malfunction and permanent damage of the unit.

Allow the unit to cool down for 60 minutes before lamp change.

INFORMATION AND WARNING ABOUT POTENTIAL HEALTH ISSUES RELATED TO MERCURY VAPOR.

This projector uses a very powerful UHP™ lamp for illumination to produce an extremely bright image.

This technology is similar to other high-pressure discharge lamps that are extensively used in cars, street lights and other lighting appliances today. These lamps, like fluorescent lighting, contain small amounts of mercury. The amount of mercury present in a lamp is far below the limits of danger set by the authorities. It is very important that lamps containing mercury are treated properly to minimize potential health hazards.

The UHP™ lamp, like any other high brightness projector lamp, is under high-pressure when operating. While the lamp and the projector are carefully designed to minimize the probability of lamp rupture, the lamp may break while operating and small amounts of mercury vapor may be emitted from the projector. The probability of rupture increases when the lamp reaches its nominal life. It is therefore highly recommended that the lamp is replaced when the rated lifetime is reached.

As a general precaution, secure good ventilation in the room when operating the projector. If lamp rupture occurs, evacuate the room and secure good ventilation. Children and pregnant women in particular should leave the room.

When replacing a worn lamp, dispose of the used lamp carefully by proper recycling.

Mercury is a naturally occurring, stable metallic element that may pose a safety risk to people under certain conditions. According to the Public Health Statement for Mercury published by the Agency for Toxic Substances and Disease Registry (“ATSDR”, part of the United States Public Health Service), the brain, central nervous system and kidneys are sensitive to the effects of mercury, and permanent damage can occur at sufficiently high levels of exposure. Acute exposure to high concentrations of mercury vapor can cause conditions such as lung and airway irritation, tightness in the chest, a burning sensation in the lungs, coughing, nausea, vomiting and diarrhea. Children and fetuses are particularly sensitive to the harmful effects of metallic mercury to the nervous system.

Seek medical attention if any of the above symptoms are experienced or if other unusual conditions are experienced following lamp rupture.

WEEE INFORMATION

This product conforms to all requirements of the EU Directive on waste electrical and electronic equipment (WEEE). This product shall be recycled properly. It can be disassembled to facilitate proper recycling of it's individual parts. This product is using projection lamps that shall be recycled properly. Consult your dealer or relevant public authority regarding drop-off points for collection of WEEE.

WARNING

This product contains chemicals, including lead, known to the State of California to cause birth defects or other reproductive harm. Recycle properly, do not dispose of in ordinary waste!

REMOTE CONTROL WARNING

Laser radiation class II product; wavelength 670nm; maximum output 1mW.

Remote control complies with applicable requirements of
21 CFR 1040.10 and 1040.11.

Remote control complies with applicable requirements of
EN 60 825-1: 1994 + A11

WARNING SYMBOLS

READ USER GUIDE
Attention! Read the user guide for further information!

DANGEROUS VOLTAGE
Danger! High voltage inside the product!

HOT
Warning! Hot surfaces!

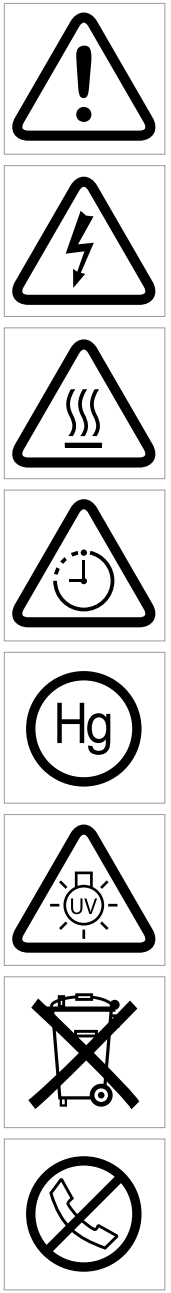
WAIT
Warning! Wait until cooled down!

MERCURY
Warning! Lamp contains mercury! Recycle properly,
do not dispose of in ordinary waste!

UV
Warning! UV radiation inside the product!

RECYCLE
Warning! Recycle properly, do not dispose of in ordinary waste!

NO TELEPHONE
Warning! Do not connect to telephone lines!



Projector

Remote control with batteries

User guide

Bag

Power Cord
(country dependent)

Before Set up and Use
Unpack the supplied parts and familiarise yourself with the various components.

A Lens

B IR sensor

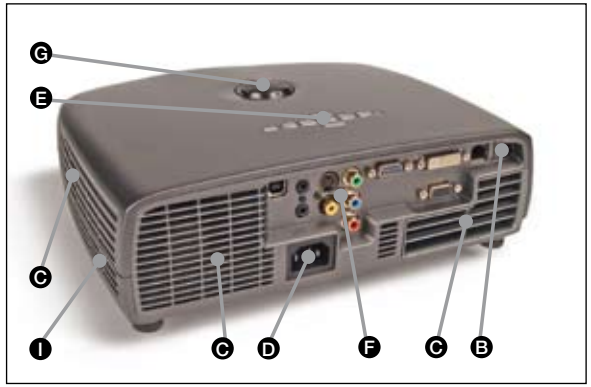
C Ventilation

D Power connector

E Keypad

F Connector panel

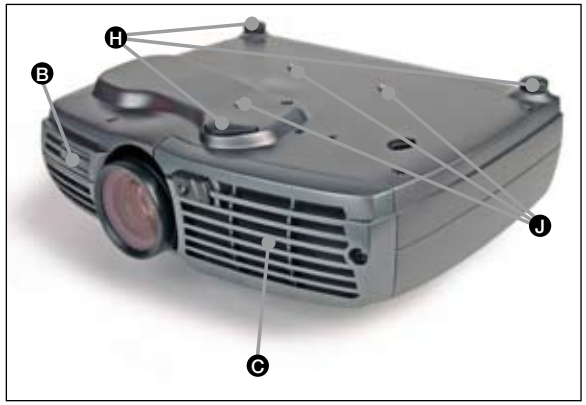
G Lens shift



H Adjustable feet

I Security lock

J Ceiling mount



The keypad is illuminated for operation in dark environments. Several keys have multiple functions.

POWER
Switches the projector between on and standby modes. Press firmly (1 sec) to switch on. Press firmly (1 sec) twice to switch off.

AUTO
Adjusting the projector to display a correct image, including position, width, height and overall stability.

MENU
Activates the menu system. Use the four arrow keys to navigate and «OK» to activate.

ARROW KEYS
Use the arrow keys to navigate the menu system, or to control speaker sound volume or source selection when not in the menu

OK
Confirm menu option when menu system is activated.

0-9
These keys are used for PIN code entry.

SRC
Use these keys to select active source.

VOL
Use these keys to adjust volume of the built-in monitor speaker.

KST
Engage digital keystone correction when not in menu mode. Use arrow keys to adjust.

INDICATOR
The light next to the power key indicates the overall system status by blue, orange and red colors.

PERMANENT BLUE LIGHT
The projector is turned on and in normal operation.

PERMANENT ORANGE LIGHT
The unit is in standby mode; no source(s) connected, or the source(s) connected are inactive or switched off, thereby activating the powersave function (DPMS). You may enable or disable the power save function in the SET UP sub menu, DPMS on or off.

FLASHING ORANGE LIGHT
Please wait. The yellow light will flash a period after power cord is connected (10-15 sec.), and a period after going to standby mode while lamp is cooling down (approximately 45 sec.). The projector may not be turned on again until the light has turned to permanent yellow.

FLASHING RED LIGHT
Projector is overheated. Turn off immediately! Check if air inlets are covered or if ambient temperature is outside specifications. The projector can not be restarted unless the power cord is disconnected and reconnected again. If the projector continues to flash red, you will need to return the unit for service.

PERMANENT RED LIGHT
Lamp life has expired. Please change projection lamp immediately. Failing to change lamp may lead to lamp explosion.

NO LIGHT
Power is not connected to the projector.

REMOTE CONTROL
The remote control allows flexible access to the projector settings, either through direct keys, or through the menu system. The remote control is backlit for use in dark environments. It also has a datajack that allows for wired connection to the projector. When the wire is connected, the IR (infra-red) beam and internal batteries are switched off. The remote control may also be used to control presentations by mimicing mouse functionality (LEFT, RIGHT keys and arrow keys).

The remote control can be operated either in 'broadcast mode', or 'individual mode'. When several projectors are in use in an installation, individual control may be convenient. Individual control is available either by wired remote control, using the data-jack, or by using an individual number code. For individual control, first set the individual RC ID code using the projector menu system, see the MISC sub menu. Then, to select a specific projector to control, first press the '*' button in the lower keypad area, then the code as set in the target projector. A code can be in the range '0'..'255'. '0' is reserved for broadcast. To select another target, repeat the process by pressing '*' and a new code. To exit individual control, press '*''*' twice or press '*' and '0'.

POWER
Switches the projector between on and standby modes.

AUTO
Adjusting the projector to display a correct image, including position, width, height and overall stability.

INFO
Displays source and projector status on screen.

BACKLIGHT
Switches the backlight on and off. The backlight will switch off automatically after ten seconds.

BRIGHT
Adjusts image brightness.

CONTRAST
Adjusts image contrast.

COLOR
Adjusts color saturation of the image.

VOLUME
Adjusts the internal monitor speaker volume.

C-VIDEO
Selects the composite video input as signal source.

S-VIDEO
Selects the super video input as signal source.

YPbPr
Selects component video input.

DVI
Selects the DVI input.

VGA
Selects the VGA input.

AV-MUTE
Toggles the internal speaker and the projected image on and off. The lamp is not shut off.

STILL
Toggle function, locking the projected image on and off.

TIME
Displays date and time. Set the date and time in the MENU system, MISC sub menu.

ASPECT
Cycles through the aspect ratios available with the current source.

MENU
Toggles the menu system on and off.

ARROW KEYS
Use the arrow keys to navigate in the menu system and other adjustments. Controls the mouse pointer when not in the menu system or other functions.

LEFT
Emulates the LEFT mouse key when not in the MENU system.

RIGHT
Mimics the RIGHT mouse key when not in the MENU system.

OK
Press OK to confirm selected option in menu.

LASER
Activates the built-in laser pointer. CAUTION! Do not point laser beam at people. Do not stare into laser beam.

GAMMA
Press GM+ or GM- to select between gamma settings.

STORE
Press STORE, then one digit 0-9, to store user setting in memory.

RECALL
Press RECALL, then one digit 0-9, to recall user setting from memory.

0-9
Used for various numeric functions such as PIN code and user memory.

*
Used for RC ID control. See the explanation above.

CONNECTOR PANEL

A **C-VIDEO:** Used for standard video quality.

B **S-VIDEO:** Used for improved quality video.

C **YPbPr:** Used for high quality video reproduction.

D **DVI-D - Digital RGB:** For a low noise computer and video image.

E **VGA - Analog RGB:** The standard analog computer graphics interface.

F **RS 232 control:** Allows for wired remote control and monitoring of many projector functions used in installation environments.

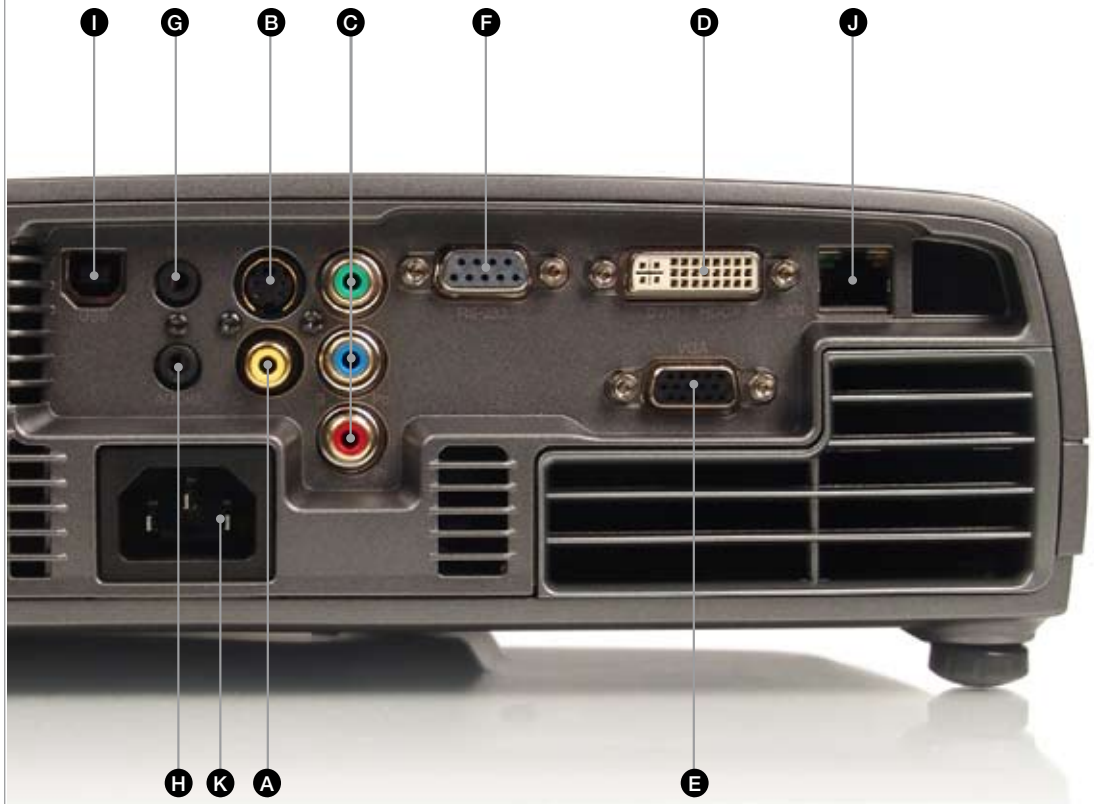
G **RC:** Allows connection of external IR receiver or wired remote control.

H **SOUND:** Connects to the built-in monitor speaker.

I **USB - interface:** Allows for computer mouse control.

J **LAN:** Provides access to control and monitoring over a Local Area Network.

K **Mains power connector:** Use only three-prong/grounded power cord.



SET UP VIDEO

Before setting-up, switch off all equipment.

Three video sources may be connected, using the YPbPr (component), S-VIDEO (super video) and C-VIDEO (composite video) inputs.

Component will display more detailed images. Composite video yields images with less detail.

In addition, the DVI-D input can be used with video sources (DVD player fitted with an HDCP™ compliant DVI or HDMI connector) for a pure digital connection.

Connect the power cord.

SETUP COMPUTER

Before setting-up, switch off all equipment.

The projector may be connected to two computer sources simultaneously, using the VGA and DVI inputs.

The VGA interface is analog and may cause some noise in the projected image, depending on the signal quality from the graphics card in the computer.

The DVI (Digital Visual Interface) interface is all-digital and will yield a projected image with very low noise.

Connect the RS232 or LAN interface to allow for control of the projector.

Connect the USB interface to enable mouse emulation.

Connect the power cord.

Position the projector on a level surface, preferably pointing straight on to the projection screen. Place it at a suitable distance within the throw range of the zoom lens.

A ZOOM the image for the right size. Reposition the projector if the desired image size is not achievable.

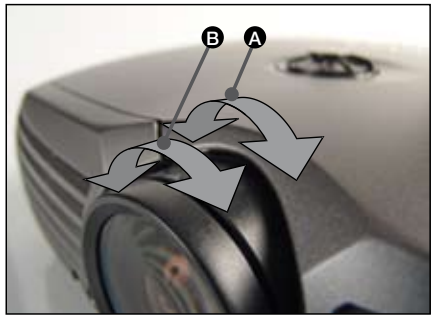
B FOCUS the image properly.

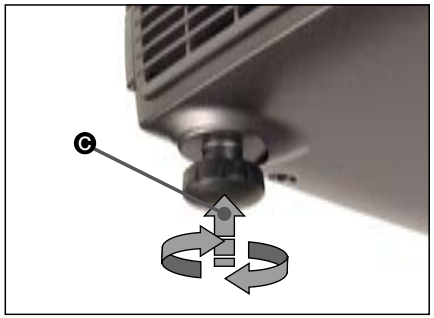
C Level the image by adjusting the rear feet.

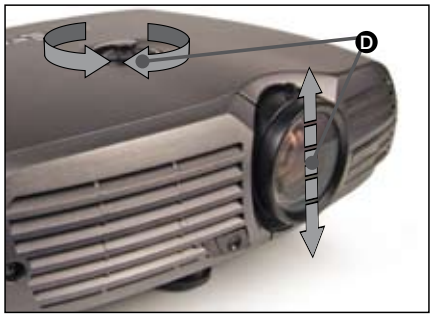
D To adjust the image vertically on the screen, turn the vertical adjustment knob on top of the unit.

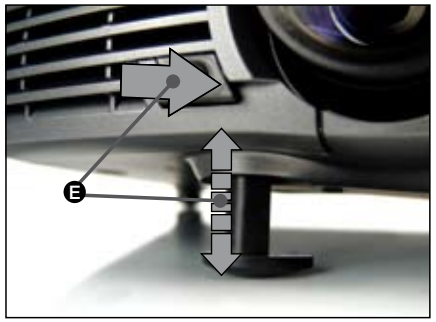
E In addition you may release the front foot.

If the front foot is ejected, you may compensate for the 'keystone' effect by pressing the 'KST' key on the keypad and adjust with the arrow keys.





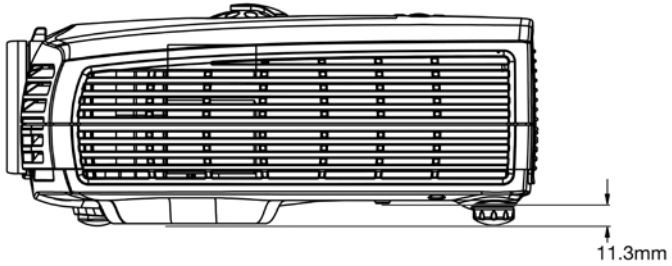


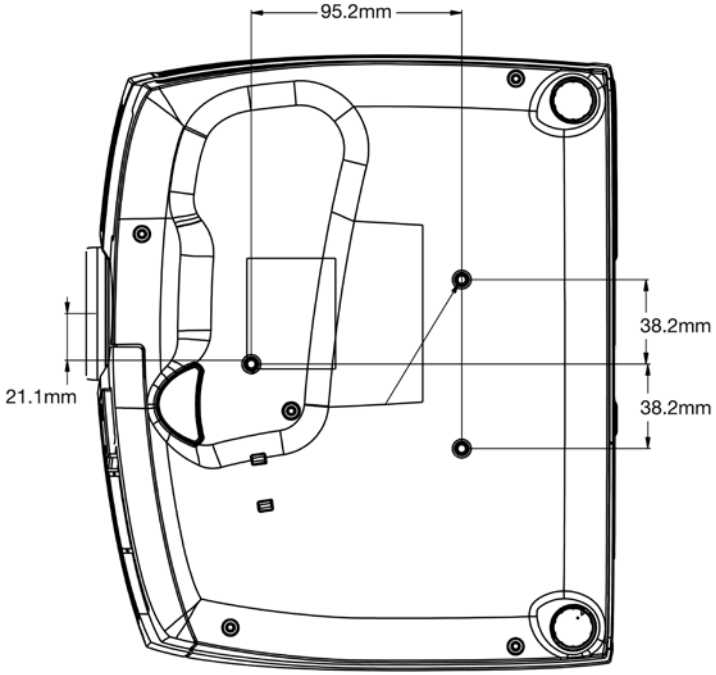


The projector can be ceiling mounted using an approved UL tested/ listed ceiling mount fixture, with a capacity of minimum 12 kg / 26 lbs.

For ceiling mount use M4 screws that penetrate maximum 5 mm (0.19 in) into the projector body.

For proper ventilation the minimum distance from ceiling / rear wall should be: 30 / 50 cm (12 / 20 in).





After setting-up, switch on all equipment. The projector can be controlled by the keypad, by the remote control or using the RS232 or LAN interfaces. To switch the projector on, firmly press the POWER button on the keypad or the remote control. The STATUS indicator will turn from yellow to blue when the unit is switched on.

If the STATUS indicator is flashing yellow, please wait until it turns permanent yellow. Issue the PIN code if activated.

When only one source is connected, the projector will auto-detect that source. If more sources are connected, the projector will search for the next active source according to the following list, provided that SOURCE SCAN is set to ON in the SET UP sub menu (see description of menu system):

- VGA
- DVI-D
- YPbPr (Component)
- S-Video
- C-Video

Select between the sources by pressing the SRC buttons on the keypad or the direct source selection keys on the remote control. Only sources that are active will be displayed.

If no source is active, searching messages will appear on the screen. If no source is active for a long time, the projector will go in standby mode if DPMS (power save) is set to ON in the SET UP sub menu.

The STATUS indicator will turn from blue to flashing yellow, then yellow. The projector will be switched back on if at least one source is (re)activated. The power-down function can be disabled in the menu.
See DPMS in the SET UP sub menu.
To switch the projector off, firmly press the POWER button on the keypad or the remote control twice (to confirm that you really want to switch off the unit). The STATUS indicator will turn from blue to flashing yellow, then yellow when switched off. You may not switch the unit on while the STATUS indicator is flashing yellow. Please wait until the indicator is permanent yellow.

MOUSE EMULATION – PRESENTATION CONTROL

You may use the remote control arrow keys and LEFT and RIGHT buttons as a remote mouse, controlling your presentations and for moving the mouse pointer around on the screen. The arrow keys allow for limited mouse pointer control.

To activate the mouse control function, you need to connect the projector to the PC via the USB port.

RS 232 AND LAN CONTROL

RS 232

You may control and monitor the projector remotely through the serial RS232 control interface.
Two RS232 protocols are employed. A simple instruction set (SIS) ASCII protocol gives access to the most frequently used commands. In addition, a binary protocol is available where each command is a series of 32 bytes in one packet. The protocols allow for both SET and GET operations. To utilize GET operations the host needs a routine for receiving and interpreting incoming packets. SET operations are used to force the projector into different modes, like setting brightness and contrast, switching between sources, etc. A separate document “RS-232 and LAN communication protocol and command set” is available that describes the communications parameters and operational codes in detail.

LAN

The projector can be controlled and monitored through the LAN connector as an alternative to RS232. LAN control is available either through an embedded web page for the most frequently used commands or using the same command set as for RS232 for full access to all system controls.

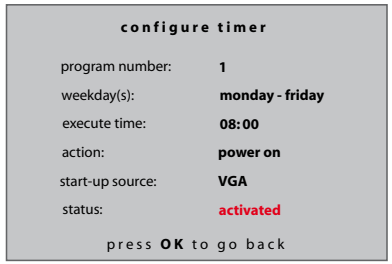
NOTE! THE PROJECTOR IS CONFIGURED WITH A DEFAULT IP ADDRESS. SEE THE SYSTEM INFORMATION AVAILABLE THROUGH THE MENU SYSTEM OR REMOTE CONTROL FOR THE ACTUAL IP-ADDRESS.

Detailed descriptions of configuration, use and command set is described in a separate document “RS-232 and LAN communication protocol and command set”. You may consider using the LAN interface as a means of theft detection. When the projector is removed, the LAN will be disconnected; this may be detected over the local area network and could be used to trigger an alarm.

TIMER

The projector features a real-time clock that enables timing control. This means that the projector can be programmed to switch on and off at certain pre-set times during a weekly cycle. To allow for a flexible schedule, 10 ‘programs’ are available. With each program, you can define the switch on or switch off time for a single day (Monday to Sunday), all work days (Monday through Friday), or week-end (Saturday and Sunday). One, several or all programs can be active at the same time as desired. In this way, a flexible scheme can be established. Observe the 24 hour time format. See the MENU system, MISC sub menu, CONFIGURE TIMER, for more details on how to define the programs.

The following example illustrates a case where the projector turns on at 08:00 in the morning (8 am) and switches off at 20:00 (8 pm) on weekdays (Monday through Friday). Weekends (Saturdays and Sundays), it turns on at 10:00 (10 am) and off at 18:00 (6 pm). VGA is used as the source. For this, four programs are needed, 2 for on and two for off.



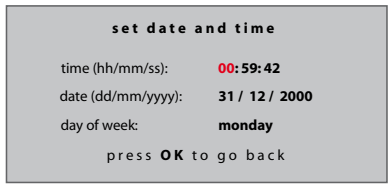


IMAGE CALIBRATION AND CORRECTION

Some applications require very precise color reproduction of the images. In addition, depending on application, different color standards are applied. When preparing for correct color reproduction, both the source and the projector must be considered.

The projector offers several ways to calibrate colors, as well as correction of the input signal.

The source may need correction because it is usually not calibrated from the factory, which leads to higher or lower signal levels than nominal. In addition, R, G and B may be slightly different (not balanced), adding a tint to the image. Correcting the input signal means adjusting the gain (contrast) and offset (brightness) of R, G and B individually. This is in addition to the normal brightness and contrast controls.

The projector may also need calibration regardless of the source signal, because there may be slight differences in optical coatings, as well as the spectral distribution of individual lamps, which can even change over time. Calibrating the projector can be done in different ways, either by changing the color temperature, by defining the x and y color coordinates or by R, G and B adjustment.

See the MENU system, ADVANCED sub menu, for details on how to correct and calibrate.

The menu system gives access to a multitude of image and system controls. The menu system is structured through a top menu and several sub menus. The sub menus may vary depending on the actual source selected. Some functions are not available with some sources.

When accessing the menu system, you will enter at the position you left last time you were using the menu system.

Press the MENU key and navigate using the arrow keys on the keypad or the arrow keys on the remote control

TOP MENU

picture
Basic picture controls.

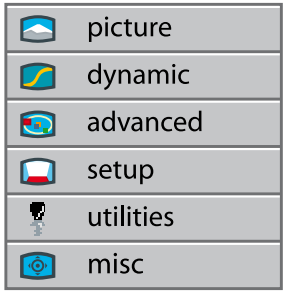
dynamic
Allows additional control over the projected image.

advanced
Advanced picture controls.

set up
General projector controls.

utilities
System controls and information.

miscellaneous
Timer, PIN code and other controls



PICTURE SUB MENU

brightness
Adjusts the image brightness. A higher setting will increase the brightness, a lower setting will decrease the brightness of the image.

contrast
Controls the contrast of the image. A higher setting will yield a 'harder' image with larger difference between shades, while a low setting will produce a 'softer' image with less difference between shades.

color
Adjusts the color saturation. A higher setting will produce stronger coloring, while a lower setting will yield paler colors.

tint
Adjusts the NTSC color tint. Applicable to NTSC (American) video standard only. A higher setting will yield a more reddish color scheme, while a lower setting will turn colors more greenish.

hue
Controls the color hue.

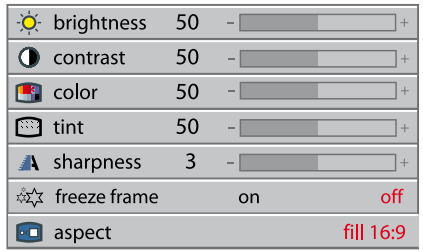
sharpness
Controls the image sharpness. A higher setting will yield a harder image, with less filtering. In video applications, this may produce more noise in the projected image. A lower setting will soften the image, looking more smeared out, and reducing the overall noise.

still
freezes the image displayed.

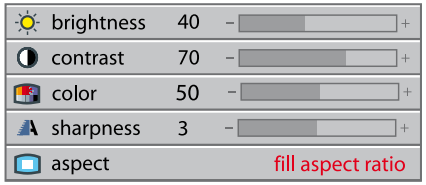
aspect
Selects image format. An image may be displayed in various aspect ratios. This function is used when displaying source formats that differ from the projectors native display format.

space
Defines the color standard used for component video so that the image is displayed with the proper characteristics.

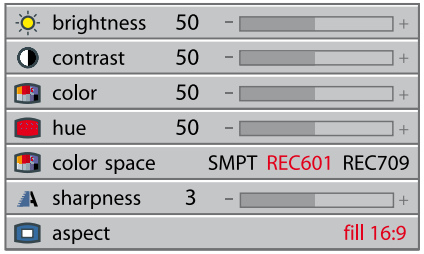
S-VIDEO / C-VIDEO / YPbPr (interlaced)



VGA/DVI



YPbPr (progressive)



DYNAMIC SUB MENU

white boost
Increases the white level of the image for enhanced contrast

gamma
The source image is adapted to characteristics typical to certain applications. This enables an optimized display of images, depending on whether the source is video, computer etc.

DVI setup
Enables an expanded dynamic range when using DVI.

digital noise reduction
Reduce noise in video images from unstable sources, cabling or material.

DNR mode
Switch DNR (digital noise reduction) off, manual or auto.

DNR level
Select filtering factor. Heavy filtering will reduce noise, but also smoothen out the image and make it less sharp.

DNR split
You may run half screen with DNR and half screen without DNR to see the difference.

eco mode
Switch eco mode (low power and long life) on or off. When on, lamp power may not be adjusted. When off, lamp power may be adjusted.

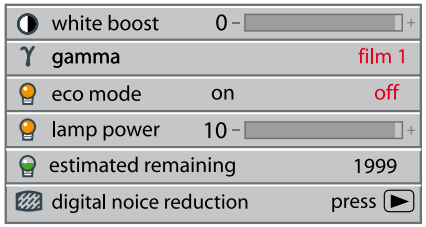
lamp power
Adjust lamp power when not in eco mode.

estimated remaining
The estimated remaining lamp life at the current lamp power.

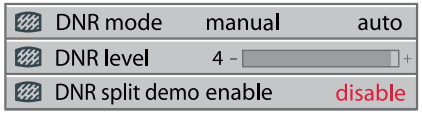
horz border
adjustable black mask on top and bottom of image. Use arrow keys to adjust.

vert border
adjustable black mask on left and right side of image. Use arrow keys to adjust.

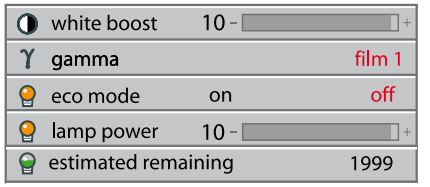
S-VIDEO / C-VIDEO / YPbPr (interlaced)



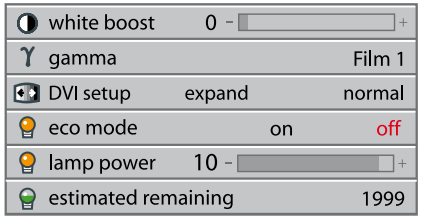
DIGITAL NOISE REDUCTION



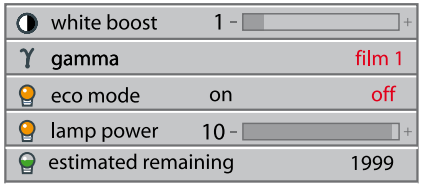
VGA



DVI



YPbPr (progressive)



ADVANCED SUB MENU

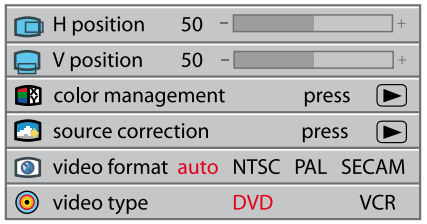
h position
Shifts the image sideways.

v position
Shifts the image up and down.

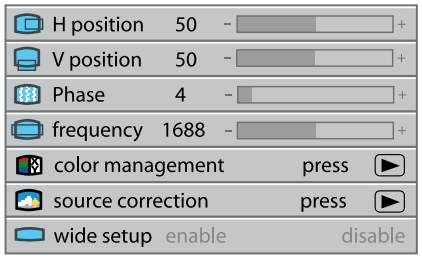
phase
Adjust for stable image. A jittery image may appear with certain VGA sources. You may also press the AUTO button on the keypad or remote control to optimize
.

frequency
Adjust image width. An incorrect setting may produce vertical, unstable bands in the image, and parts of the image may not be displayed on screen. Push the AUTO button to find a correct setting, or manually adjust the frequency until the vertical bands disappear.

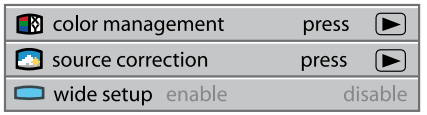
S-VIDEO / C-VIDEO / YPbPr (interlaced)



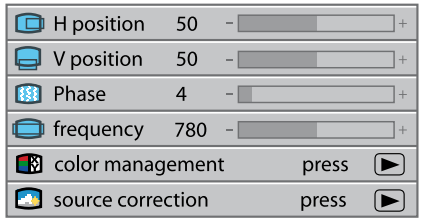
VGA



DVI



YPbPr (progressive)



ADVANCED SUB MENU

color management
The color temperature and color coordinates can be calibrated as desired.

mode
Select not corrected, temperature or custom color. The not corrected setting displays the native color temeperature of the projector.

temperature
Select color temperature in steps of 100 Kelvin from 3200 – 9200 K along the 'black body curve' of the CIE color chart.

custom color
Allows user control of the color temperature by way of either adjustments in the RGB domain or x,y space.

RGB
Allows correction of R, G and B gain individually.

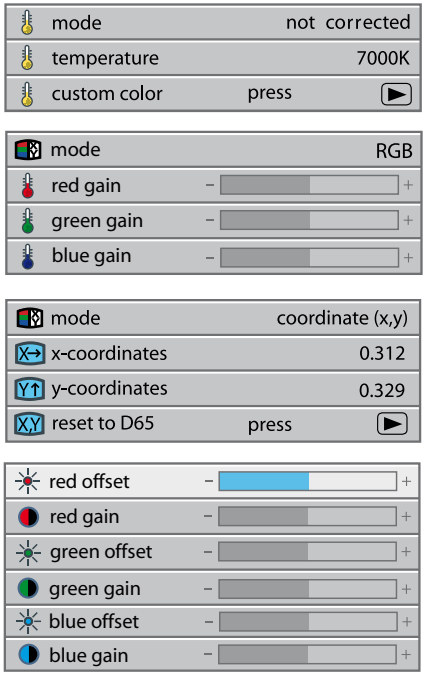
coordinate (x,y)
Set x and y color space coordinates directly. You may also reset to standard D65 coordinates.

source correction
This function allows correction of the incoming signal in the RGB space. Some sources may output R, G and B signals that need correction of gain (contrast) and/or offset (brightness). You may adjust gain (contrast) and offset (brightness) for R, G and B individually.

video format
Select between manual or auto detection of TV standard.

video type
Select between video types; DVD and VCR. The DVD setting is normally used and will yield well defined video images.

COLOR MANAGEMENT AND SOURCE CORRECTION



SET UP SUB MENU

keystone V
Adjust vertical keystone correction. Compensates for the geometrical distortion of the projected image resulting from tilting the projector to shoot higher up on the wall.

keystone H
Adjust horizontal keystone correction. Compensates for the geometrical distortion of the projected image resulting from shooting the image at an angle sideways to the screen.

DPMS
Activate/deactivate DPMS (Display Power Management Signalling). When DPMS is on, the projector will switch off following the powering off or disconnection of the signal source. The projector will switch back on when the signal source is reactivated.

source scan
Switches source scan on and off. With source scan on, the projector will search for another source if the current source is disconnected or switched off. With source scan off, the projector will remain at the selected source input even if the source is switched off or disconnected.

orientation
Select between desktop front, desktop rear, ceiling front and ceiling rear mode. The image will be flipped and reversed accordingly.

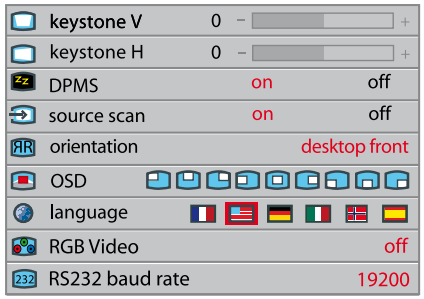
OSD
Select where to have the On Screen Display.

language
Select between languages.

RGB video
Selects RGB video on the component video input (YPbPr). Requires composite sync connected to the composite video input.

RS232 baud rate
Select baud rate to secure good transmission. Longer cable runs usually means you need to set lower baud rates.

FOR ALL



UTILITIES SUB MENU

system information
Displays information about the source and projector status.

OSD
Turn the On Screen Display on (display) or off (hide) during source scan.

OSD timeout
Defines how long OSD is displayed after last key action before it disappears from the screen.

OSD background
Select background mode, whether transparent or opaque.

factory reset
Resets the projector to its basic settings. All parameters available in the various menus are reset to their factory values.

lamp reset
Resets the lamp counter after changing lamp.

service menu
For service personnel only. A special service code is needed to access internal calibration controls and status information. Not accessible to the user.

test image
Applies a fixed test image for set-up purposes.

FOR ALL

system information		press
OSD	on	off
OSD timeout	50	seconds
OSD background	opaque	translucent
reset		press
lamp reset		press
service menu		press
test image	hide	show

MISC SUB MENU

audio options
Adjust the volume or mute the built-in monitor speaker.

configure timer
The projector has a built-in real time clock that can be used to time the operation of the unit. Use up and down arrow keys to adjust value. Use left and right arrow keys to move between fields.

program number
10 programs are available to time the projector. Multiple programs (up to 10) can be active at the same time.

weekday
Select individual weekday (Monday to Sunday), working days (Monday through Friday), all week (Monday through Sunday) or weekend (Saturday and Sunday) as the days of operation.

execute time
Set the time when the projector shall execute an action (see below). Use 24 hour format.

Action
Define whether the projector shall turn on or off at the given execute time (see above).

start-up source
Define which source to display when switching on.

status
Shows whether the program is active or not

set date and time
Use up and down arrow keys to adjust value. Use left and right arrow keys to move between fields.

enable PIN
Activate the PIN code. The projector needs a PIN code to unlock.

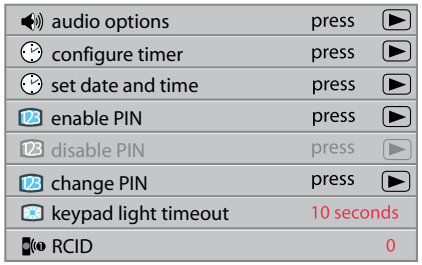
disable PIN
De-activate the PIN code. The projector no longer needs a PIN code to unlock.

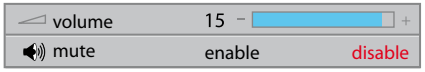
change PIN
To change PIN code, enter old code, then new code twice.

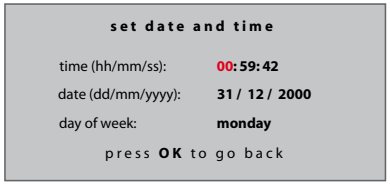
keypad light timeout
Define the timeout for the keypad backlight to turn off after activating a key.

RC ID
Use the left and right arrow keys to select address for individual remote control. By selecting an individual address, the projector will only react when this address is issued from the remote control. Address range is 0..255. Address 0 is 'broadcast mode', meaning a unit with address 0 will react to any other address.

FOR ALL







NO IMAGE

No connection: Check if all connections are properly made.

Source off: Check if the equipment is powered on.

Lamp dead: The lamp may need replacement. Check the LAMP TIME in the UTILITIES sub menu.

Source hibernated: Engage the source to display and activate image.

Notebook external screen: Different notebook PC's use different combinations of keystrokes to enable the external graphics port.

Source scan off: Check SOURCE SCAN in the SET UP sub menu. If setting is OFF, the projector will not search for the next active source, but will remain with the current source selected.

Lens cap: check if the lens cap is off!

DARK IMAGE

Old, worn lamp: The lamp may need replacement. Check the LAMPTIME in the UTILITIES sub menu.

Low BRIGHTNESS and CONTRAST settings: Use the remote control or the menu system, PICTURE sub menu for CONTRAST and BRIGHTNESS adjustment.

FLICKERING IMAGE

Bad lamp: Replace the lamp. Check the LAMP TIME in the UTILITIES sub menu.

UNSHARP IMAGE

Lens not focused: Focus the lens properly. Keystone correction may have been activated inadvertently: Parts of the image is compressed that affects the display of fine-line graphics, text and other images of high resolution.

Source resolution is different from projectors native resolution:
The projector will automatically scale and resize the input format to its native resolution. Use a different scaling factor in the PICTURE sub menu, ASPECT. You may also adjust the SHARPNESS.

MAINTENANCE

The projector may from time to time need cleaning. Never open the unit, as this will void any warranties. Refer service and repair to qualified personnel only.

The projector is using lamps that have a limited life time. Please refer to the LAMP CHANGE section below for further details.

Only the exterior of the unit may be cleaned. Use a damp cloth. Make sure no liquids enter the inside of the projector Vacuum clean all the air vents (A) regularly to maintain sufficient air flow.

The projection lens (B) is sensitive to scratches. Use lens cleaning tissue, available at all photographic stores when cleaning the projection lens. Use lens cap when not in use.

SERVICE INFORMATION

This product contains no user serviceable parts. If the product fails to function as expected, please first check that all connections are properly made, and that the power cord is properly connected. Please check that the projector as well as the video and computer sources are all switched on. Cables and cords may break over time. Try to change cables and cords, in case there is a bad or intermittent connection. Check if the circuit breaker or fuse of your mains is intact. In the event of product failure, please contact your reseller. You should prepare a description of the symptoms of failure you experience. Please also state product number and serial number as printed on the label on the bottom of the projector.

SERVICE PERSONNEL INFORMATION
WARNING

Use UV radiation eye and skin protection during servicing

The INDICATOR on the keypad will turn red when lamp life expires. Change the lamp when lifetime expires. Always replace lamp with the same type and rating.

Always disconnect the power cord and wait until the projector has cooled down (60 minutes) before opening the lamp cover.

WARNING
Be careful not to touch the protective glass when replacing the lamp house, this may cause the protective glass to overheat and break while in use.

WARNING
Be extremely careful when removing the lamp module. In the unlikely event that the bulb ruptures, small glass fragments may come loose. The lamp module is designed to contain these fragments, but use caution when removing the lamp module.

A Release the front cover screw.

B Remove the front cover.

C Un-screw the three mounting screws.

D Release the handle and pull the lamp out.

Replace with a new lamp in reverse order.

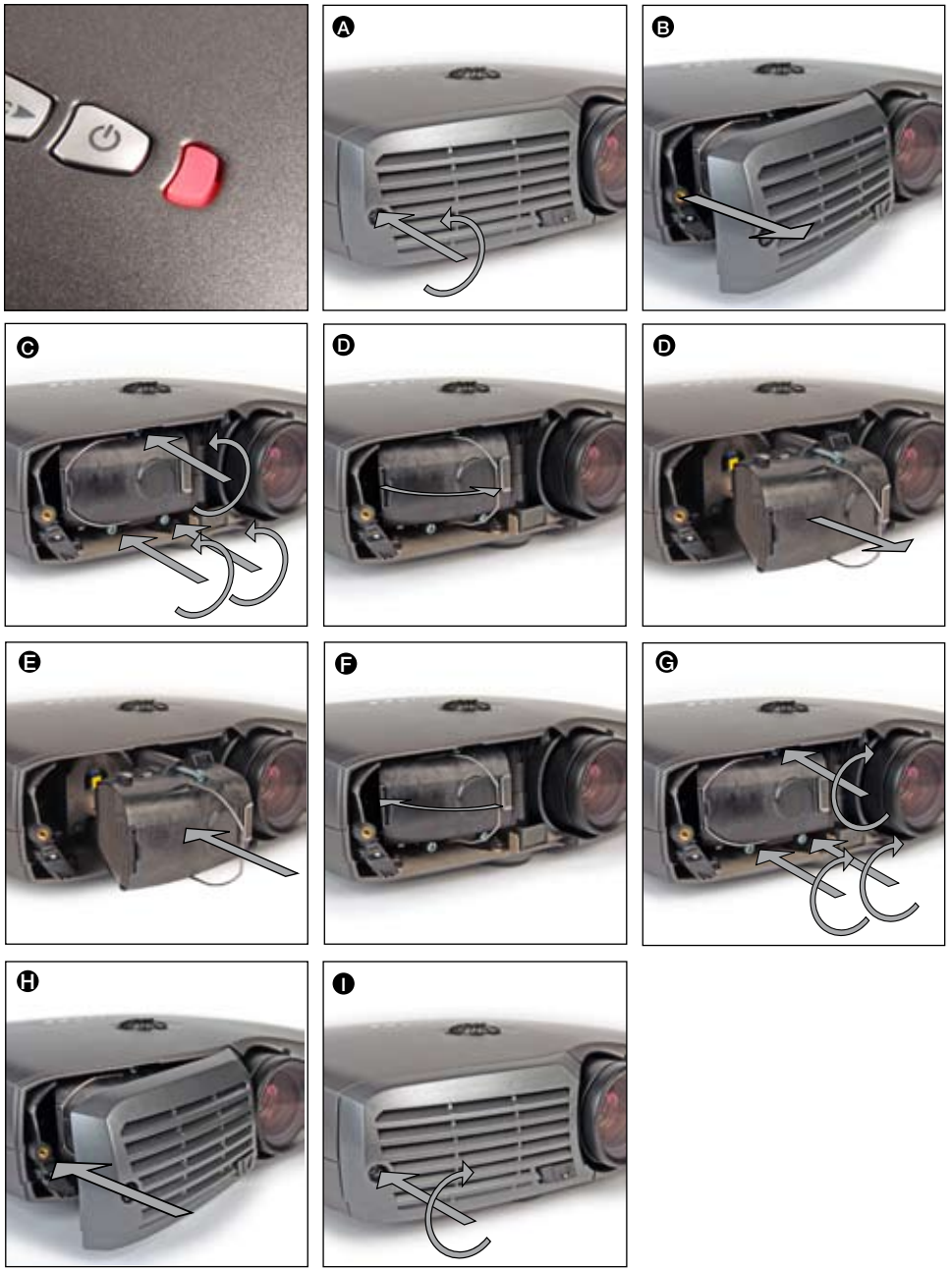
E Insert a new lamp. Observe the guide pins.

F Fix the three mounting screws firmly. Do not use excess force.

G Re-position the handle.

H Replace the front cover.

I Fix the front cover screw carefully, but do not use excess force.



TECHNICAL DATA

Technical data shown are for the following versions : SX+, HD720-3 and HD720-2. Different specifications apply accordingly. Where HD720 only is referenced, data are valid for both -2 and -3 versions.

Resolution	1400 x 1050 (native) SXGA+, 4 : 3 aspect ratio 1280 x 720 (native) HD720, 16 : 9 aspect ratio
Display technology	Single chip DLP™ technology by Texas Instruments®
Display device	LVDS DMD™ with DarkChip™ technology
Computer Compatibility	UXGA, SXGA+, SXGA, XGA, SVGA, VGA, PC, MAC, SGI and other workstations, RGBHV, RGBS, RGsB
Video Compatibility	HDTV (1080i, 720p, 576i/p, 480i/p), NTSC, NTSC 4.43, PAL, PAL-M, PAL-N, SECAM. Faroudja™ de-interlacing with automatic film mode detection (3 : 2 and 2 : 2 pull-down)
Aspect Ratio	4 : 3 (native), 16 : 9 / 5 : 4 (compatible) SXGA+ 16 : 9 (native), 4 : 4 / 5 : 4 (compatible) HD720
Bandwidth	Up to 205 MHz on analog RGB Up to 160 MHz on DVI Up to 75 MHz on component input
Brightness	2500 ANSI lumen (typ), 2000 ANSI lumen (min) @ 220W lamp power*) 2000 ANSI lumen (typ), 1600 ANSI lumen (min) @ ECO-mode 180W lamp power*) SXGA+ 1000 ANSI lumen (typ), 800 ANSI lumen (min) @ 220W lamp power*) 800 ANSI lumen (typ), 640 ANSI lumen (min) @ ECO-mode 180W lamp power*) HD720 *) Initial brightness.
Contrast	2000 : 1 B/W (typ), 1500 : 1 B/W (min) SXGA+ 4000 : 1 B/W (typ), 3000 : 1 B/W (min) HD720-3 3000 : 1 B/W (typ), 2200 : 1 B/W (min) HD720-2
Lamp	220W UHP™ dimmable to 180W
Lamp Life	2000 hrs (typical) to 50% brightness @ 220W 4000 hrs (typical) to 50% brightness @ 180W
Lens	Zoom lens f = 24.9 - 32.6 mm F = 2.1 - 6.5 zoom ratio = 1.3 x throw ratio = 1.75 - 2.25 : 1 SX+ 1.91 - 2.46(distance : width) throw distance =1 - 15 m / 3.3 - 50 ft. horizontal shift = 0% vertical shift = 0 - 100%
Dimensions	234 x 278 x 94 mm / 9.2" x 10.9" x 3.7", excluding lens
Weight	2.9 kg / 6 lbs, excluding lens
Inputs	1 VGA 15 pin female HD-DSUB analog RGBHV 1 DVI-D female digital RGB 1 Component video female 3 x RCA/phono 1 S-video female 4 pin mini-DIN 1 C-video female RCA/phono 1 RS 232 9 pin female DSUB (control, firmware update) 1 USB-B female (control, firmware update) 1 LAN RJ-45 female (control, firmware update) 1 Remote Control 3.5 mm female stereo jack 1 Sound 3.5 mm female stereo jack

TECHNICAL DATA

Power	90-260 VAC, 50-60 Hz, 270W
Conformance	CE, FCC B, CSA(C,US) CCC
Temperature operating	0-40°C / 32-104°F, 0-1500 m / 0-4950 ft 0-35°C / 32-95°F, 1500-3000 m / 4950-9900 ft
Temperature storage	-20 - 60°C / -4 - 140°F
Humidity operating	20-90% RH, non-condensing
Humidity storage	10-95% RH, non-condensing

CONNECTORS/STECKER/CONNECTEURS/CONECTADORES/CONNETTORI/KONTAKTER

S-Video
4 PIN MINI DIN FEMALE
1 GND
2 GND
3 Luma
4 Chroma

G/Y
PHONO/RCA FEMALE
STEM GREEN: G/Y
SHIELD: GND

Computer DVI
DVI-D
1 TMDS Data 2-
2 TMDS Data 2+
3 TMDS Data 2/4 Shield
4 Not used
5 Not used
6 DDC Clock
7 DDC Data
8 NC
9 TMDS Data 1-
10 TMDS Data 1+
11 TMDS Data 1/3 Shield
12 Not used
13 Not used
14 +5V Power

Computer VGA
15 HIGH DENSITY DSUB FEMALE
1 Analog R in
2 Analog G in
3 Analog B in
4 AGND
5 AGND
6 Analog R GND in
7 Analog G GND in
8 Analog B GND in
9 Reserved
10 Sync GND in
11 AGND
12 DDC/SDA
13 H Sync in
14 V Sync in
15 DDC/SCL

RS-232
9 PIN DSUB FEMALE
1 NC
2 RXD
3 TXD
4 NC
5 GND
6 NC
7 NC
8 NC

RC in
3,5mm stereo mini jack
TIP: 5V DC
RING: SIGNAL
STEM: GND

LAN
RJ 45
1TX+
2TX-
3RX+
4GND
5GND
6RX-
7GND
8GND

C-Video
PHONO/RCA FEMALE
STEM YELLOW: Composite
SHIELD: GND

B/Pb
PHONO/RCA FEMALE
STEM BLUE: B/Pb
SHIELD: GND

R/Pr
PHONO/RCA FEMALE
STEM RED: R/Pr
SHIELD: GND

USB
DIGITAL USB
1 VCC
2 -Data
3 +Data
4 GND

SX+

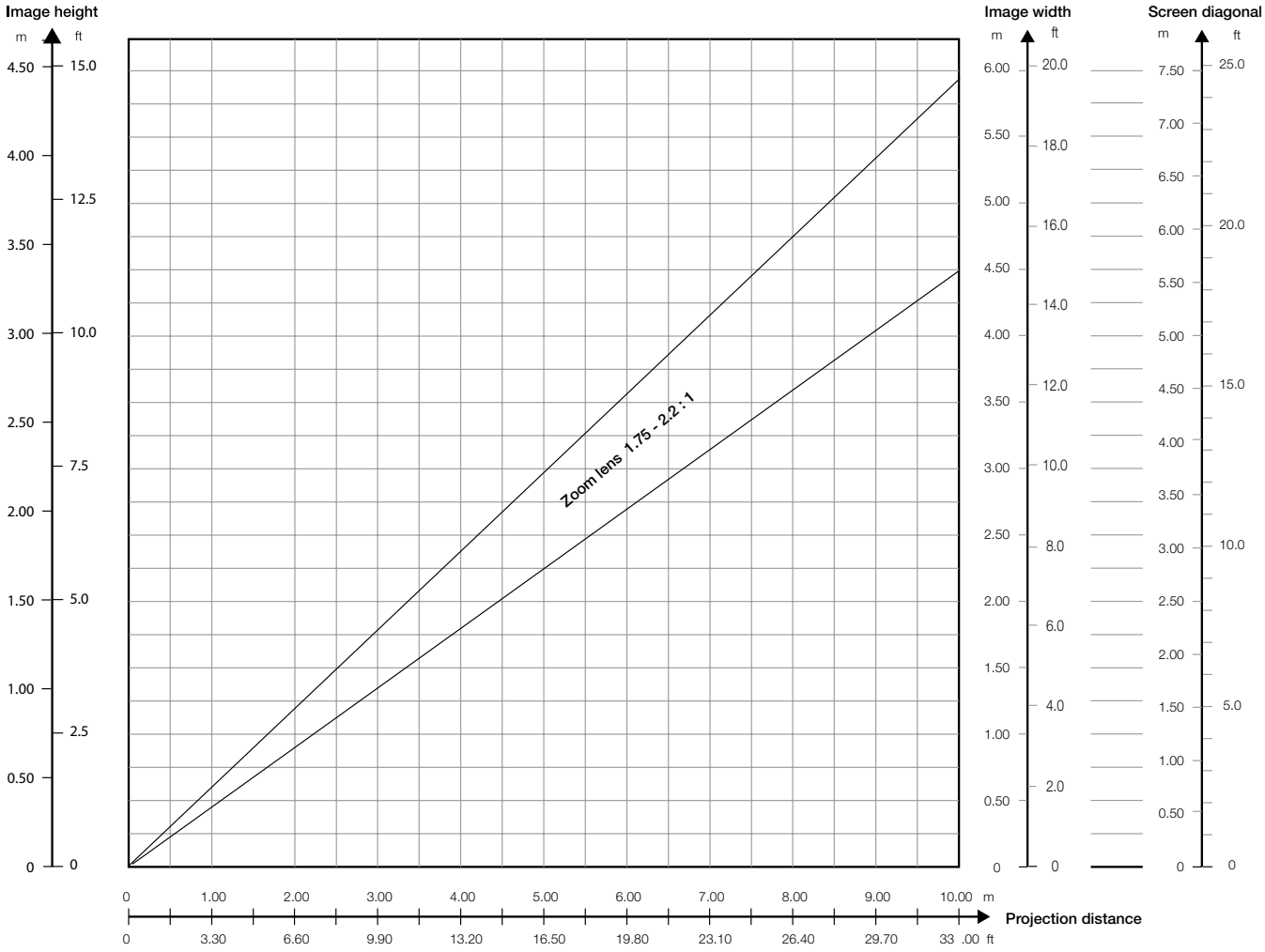


Image height
m
ft
4.50
15.0
4.00
12.5
3.50
3.00
10.0
2.50
7.5
2.00
1.50
5.0
1.00
2.5
0.50
0
0
Zoom lens 1.75 - 2.2 : 1
Image width
m
ft
6.00
20.0
5.50
18.0
5.00
16.0
4.50
14.0
4.00
12.0
3.50
3.00
10.0
2.50
8.0
2.00
6.0
1.50
4.0
1.00
2.0
0.50
0
0
Screen diagonal
m
ft
7.50
25.0
7.00
6.50
6.00
20.0
5.50
5.00
4.50
15.0
4.00
3.50
3.00
10.0
2.50
2.00
1.50
5.0
1.00
0.50
0
0
0 1.00 2.00 3.00 4.00 5.00 6.00 7.00 8.00 9.00 10.00 m
0 3.30 6.60 9.90 13.20 16.50 19.80 23.10 26.40 29.70 33 .00 ft
Projection distance

720 HD

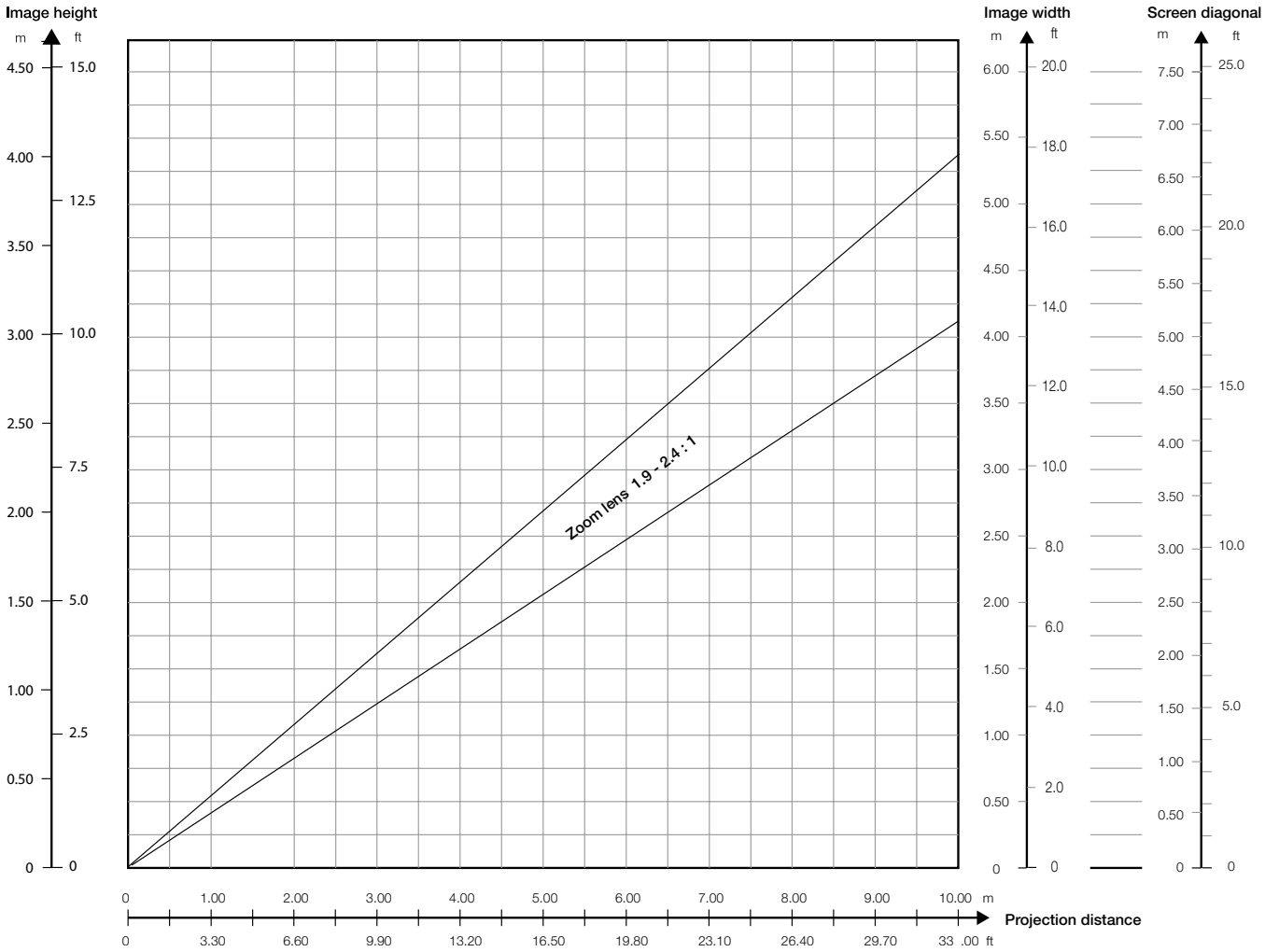


Image height
m
ft
4.50
15.0
4.00
12.5
3.50
3.00
10.0
2.50
7.5
2.00
1.50
5.0
1.00
2.5
0.50
0
0
Zoom lens 1.9 - 2.4 : 1
Image width
m
ft
6.00
20.0
5.50
18.0
5.00
16.0
4.50
14.0
4.00
12.0
3.50
3.00
10.0
2.50
8.0
2.00
6.0
1.50
4.0
1.00
0.50
2.0
0
0
Screen diagonal
m
ft
7.50
25.0
7.00
6.50
6.00
20.0
5.50
5.00
4.50
15.0
4.00
3.50
3.00
10.0
2.50
2.00
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5.0
1.00
0.50
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0
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1.00
2.00
3.00
4.00
5.00
6.00
7.00
8.00
9.00
10.00
m
0
3.30
6.60
9.90
13.20
16.50
19.80
23.10
26.40
29.70
33 .00
ft
Projection distance

FCC

FCC regulations provide that changes or modifications not expressly approved by the party responsible manufacturer could void your authority to operate the equipment.

This device complies with part 15 of the FCC Rules. 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.

Note: This equipment 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. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications made to this device which are not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CANADA
This Class B digital apparatus complies with Canadian ICES-003. / Cet appareil numérique de la classe B est conforme à la norme NMB- 003 du Canada.

userguide • benutzer handbuch • guide d’utilisateur • guía del usario • manuale d’uso • bruksanvisning

601-0082-01