



BLACK BOX Catalogue Ltd.



The Source for Connectivity.

USER'S MANUAL

MODELS: AC211A-R2, AC212A & AC216A-R2

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SAFETY INSTRUCTIONS

All of the safety and operating instructions should be read before the product is operated and should be retained for further reference. Please follow all of the warnings on this product and its operating instructions.

CAUTION:

WARNING: To prevent the risk of electric shock and fire, do not expose this device to rain, humidity or intense heat sources (such as heaters or direct sunlight). Slots and openings in the device are provided for ventilation and to avoid overheating. Make sure the device is never placed on or near a textile surface that could block the openings. Also keep away from excessive dust, vibrations and shocks.

POWER: Only use the power supply indicated on the device or on the power source. Devices equipped with a grounding plug should only be used with a grounding type outlet. In no way should this grounding be modified, avoided or suppressed.

POWER CORD: Use the On (I) / Off (O) switch to power On or Off devices equipped with that switch. All other devices should be plugged and unplugged from wall outlet. In both cases, please follow these instructions:

- The power cord of the device should be unplugged from the outlet when left unused for several days.
- To unplug the device, do not pull on the power cord but always on the plug itself.
- The outlet should always be near the device and easily accessible.
- Power supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them.

If the power supply cord is damaged, unplug the device. Using the device with a damaged power supply cord may expose you to electric shocks or other hazards. Verify the condition of the power supply cords once in a while. Contact your dealer or service center for replacement if damaged.

CONNECTIONS: All inputs and outputs (except for the power input) are TBTS defined under EN60950.

SERVICING: Do not attempt to service this product yourself by opening or removing covers and screws since it may expose you to electric shocks or other hazards. Refer all problems to qualified service personnel.

OPENINGS: Never push objects of any kind into this product through the openings. If liquids have been spilled or objects have fallen into the device, unplug it immediately and have it checked by a qualified technician.



ISTRUZIONI DE SÉCURITÉ

Afin de mieux comprendre le fonctionnement de cet appareil nous vous conseillons de bien lire toutes les consignes de sécurité et de fonctionnement de l'appareil avant utilisation. Conserver les instructions de sécurité et de fonctionnement afin de pouvoir les consulter ultérieurement. Respecter toutes les consignes marquées dans la documentation, sur le produit et sur ce document.

ATTENTION : Afin de prévenir tout risque de choc électrique et d'incendie, ne pas exposer cet appareil à la pluie, à l'humidité et aux sources de chaleur intense.

INSTALLATION : Veillez à assurer une circulation d'air suffisante pour éviter toute surchauffe à l'intérieur de l'appareil. Ne placez pas l'appareil sur ou proximité de surface textile susceptible d'obstruer les orifices de ventilation. N'installez pas l'appareil à proximité de sources de chaleur comme un radiateur ou une bouche d'air chaud, ni dans un endroit exposé au rayonnement solaire direct, à des poussières excessives, à des vibrations ou à des chocs mécaniques. Ceci pourrait provoquer un mauvais fonctionnement et un accident.

ALIMENTATION : Ne faire fonctionner l'appareil qu'avec la source d'alimentation indiquée sur l'appareil ou sur son bloc alimentation. Pour les appareils équipés d'une alimentation principale avec fil de terre, ils doivent être obligatoirement connectés sur une source équipée d'une mise à la terre efficace. En aucun cas cette liaison de terre ne devra être modifiée, contournée ou supprimée.

CORDON D'ALIMENTATION : Pour les appareils équipés d'un interrupteur général (Marche I / Arrêt O), la mise sous tension et la mise hors tension se fait en actionnant cet interrupteur général. Pour les appareils sans interrupteur général, la mise sous tension et la mise hors tension se fait directement en connectant et déconnectant le cordon d'alimentation de la prise murale.

Dans les 2 cas ci-dessus appliquer les consignes suivantes :

- Débrancher le cordon d'alimentation de la prise murale si vous prévoyez de ne pas utiliser l'appareil pendant quelques jours ou plus.
- Pour débrancher le cordon, tirez le par la fiche. Ne tirez jamais sur le cordon proprement dit.
- La prise d'alimentation doit se trouver à proximité de l'appareil et être aisément accessible.
- Ne laissez pas tomber le cordon d'alimentation et ne posez pas d'objets lourds dessus.

Si le cordon d'alimentation est endommagé, débranchez le immédiatement de la prise murale. Il est dangereux de faire fonctionner cet appareil avec un cordon endommagé, un câble abîmé peut provoquer un risque d'incendie ou un choc électrique. Vérifier le câble d'alimentation de temps en temps. Contacter votre revendeur ou le service après vente pour un remplacement.

CONNEXIONS : Toutes les entrées et sorties (exceptée l'entrée secteur) sont de type TBTS (Très Basse Tension de Sécurité) définies selon EN 60950.

RÉPARATION ET MAINTENANCE : L'utilisateur ne doit en aucun cas essayer de procéder aux opérations de dépannage, car l'ouverture des appareils par retrait des capots ou de toutes autres pièces constituant les boîtiers ainsi que le dévissage des vis apparentes à l'extérieur, risque d'exposer l'utilisateur à des chocs électriques ou autres dangers. Contacter le service après vente ou votre revendeur ou s'adresser à un personnel qualifié uniquement.

OUVERTURES ET ORIFICES : Les appareils peuvent comporter des ouvertures (aération, fentes, etc...), veuillez ne jamais y introduire d'objets et ne jamais obstruer ses ouvertures. Si un liquide ou un objet pénètre à l'intérieur de l'appareil, débranchez immédiatement l'appareil et faites le contrôler par un personnel qualifié avant de le remettre en service.

ISTRUZIONI DI SICUREZZA

Allo scopo di capire meglio il funzionamento di questa apparecchiatura vi consigliamo di leggere bene tutti i consigli di sicurezza e di funzionamento prima dell'utilizzo. Conservare le istruzioni di sicurezza e di funzionamento al fine di poterle consultare ulteriormente. Seguire tutti i consigli indicati su questo manuale e sull'apparecchiatura.

ATTENZIONE : Al fine di prevenire qualsiasi rischio di shock elettrico e d'incendio, non esporre l'apparecchiatura a pioggia, umidità e a sorgenti di eccessivo calore.

INSTALLAZIONE : Assicuratevi che vi sia una sufficiente circolazione d'aria per evitare qualsiasi surriscaldamento all'interno dell'apparecchiatura. Non collocare l'apparecchiatura in prossimità o su superfici tessili suscettibili di ostruire il funzionamento della ventilazione. Non installate l'apparecchiatura in prossimità di sorgenti di calore come un radiatore o una fuoruscita d'aria calda, né in un posto esposto direttamente ai raggi del sole, a polvere eccessiva, a vibrazioni o a shock meccanici. Ciò potrebbe provocare un errneo funzionamento e un incidente.

ALIMENTAZIONE : Far funzionare l'apparecchiatura solo con la sorgente d'alimentazione indicata sull'apparecchiatura o sul suo alimentatore. Per le apparecchiature fornite di un'alimentazione principale con cavo di terra, queste devono essere obbligatoriamente collegate su una sorgente fornita di una efficiente messa a terra. In nessun caso questo collegamento potrà essere modificato, sostituito o eliminato.

CAVO DI ALIMENTAZIONE : Per le apparecchiature fornite di interruttore generale (Acceso I / Spento O), l'accensione e lo spegnimento dell'apparecchiatura si effettuano attraverso l'interruttore. Per le apparecchiature senza interruttore generale, l'accensione e lo spegnimento si effettuano direttamente inserendo o disinserendo la spina del cavo nella presa murale.

In entrambe i casi applicare i seguenti consigli :

- Disconnettere l'apparecchiatura dalla presa murale se si prevede di non utilizzarla per qualche giorno.
- Per disconnettere il cavo tirare facendo forza sul connettore.
- La presa d'alimentazione deve trovarsi in prossimità dell'apparecchiatura ed essere facilmente accessibile.
- Non far cadere il cavo di alimentazione né appoggiarci sopra degli oggetti pesanti.

Se il cavo di alimentazione è danneggiato, spegnere immediatamente l'apparecchiatura. E' pericoloso far funzionare questa apparecchiatura con un cavo di alimentazione danneggiato, un cavo graffiato può provocare un rischio di incendio o uno shock elettrico. Verificare il cavo di alimentazione spesso. Contattare il vostro rivenditore o il servizio assistenza per una sostituzione.

CONNESSIONE : Tutti gli ingressi e le uscite (eccetto l'alimentazione) sono di tipo TBTS definite secondo EN 60950.

RIPARAZIONI E ASSISTENZA : L'utilizzatore non deve in nessun caso cercare di riparare l'apparecchiatura, poiché con l'apertura del coperchio metallico o di qualsiasi altro pezzo costituente la scatola metallica, nonché svitare le viti che appaiono esteriormente, poiché ciò può provocare all'utilizzatore un rischio di shock elettrico o altri rischi.

APERTURE DI VENTILAZIONE : Le apparecchiature possono comportare delle aperture di ventilazione, si prega di non introdurre mai oggetti o ostruire le sue fessure. Se un liquido o un oggetto penetra all'interno dell'apparecchiatura, disconnetterla e farla controllare da personale qualificato prima di rimetterla in servizio.



SICHERHEITSHINWEISE

Um den Betrieb dieses Geräts zu verstehen, raten wir Ihnen vor der Inbetriebnahme alle Sicherheits- und Betriebsanweisungen genau zu lesen. Diese Sicherheits- und Betriebsanweisungen für einen späteren Gebrauch sicher aufbewahren. Alle in den Unterlagen, an dem Gerät und hier angegebenen Sicherheitsanweisungen einhalten.

VORSICHT & WARNUNG

ACHTUNG: um jegliches Risiko eines Stromschlags oder Feuers zu vermeiden, das Gerät nicht Regen, Feuchtigkeit oder intensiven Wärmequellen aussetzen.

EINBAU : Eine ausreichende Luftzufuhr sicherstellen, um jegliche Überhitzung im Gerät zu vermeiden. Das Gerät nicht auf und in Nähe von Textiloberflächen, die Belüftungsöffnungen verschließen können, aufstellen. Das Gerät nicht in Nähe von Wärmequellen, wie z.B. Heizkörper oder Warmluftkappe, aufstellen und es nicht dem direkten Sonnenlicht, übermäßigem Staub, Vibrationen oder mechanischen Stößen aussetzen. Dies kann zu Betriebsstörungen und Unfällen führen.

STROMVERSORGUNG : Das Gerät nur mit der auf dem Gerät oder dem Netzteil angegebenen Netzspannung betreiben. Geräte mit geerdeter Hauptstromversorgung müssen an eine Stromquelle mit effizienter Erdung angeschlossen werden. Diese Erdung darf auf keinen Fall geändert, umgangen oder entfernt werden.

STROMKABEL : Für Geräte mit einem Hauptschalter (Ein/Aus) erfolgt die Stromversorgung und Unterbrechung mittels dieses Hauptschalters. Geräte ohne Hauptschalter werden durch das Einstecken oder Herausziehen des Steckers in den Wandanschluß ein- oder ausgeschaltet. Für beide Fälle gelten folgende Richtlinien :

- Den Stecker aus dem Wandanschluß herausziehen wenn Sie das Gerät mehrere Tage oder länger nicht benutzen.
- Das Kabel mittels dem Stecker herausziehen. Niemals am Stromkabel selbst ziehen.
- Die Steckdose muß sich in der Nähe des Geräts befinden und leicht zugänglich sein.
- Das Stromkabel nicht fallen lassen und keine schweren Gegenstände auf es stellen.

Wenn das Stromkabel beschädigt ist, das Gerät sofort abschalten. Es ist gefährlich das Gerät mit einem beschädigten Stromkabel zu betreiben; ein abgenutztes Kabel kann zu einem Feuer oder Stromschlag führen. Das Stromkabel regelmäßig untersuchen. Für den Ersatz, wenden Sie sich an Ihren Verkäufer oder Kundendienststelle.

ANSCHLÜSSE : Bei allen Ein- und Ausgängen (außer der Stromversorgung) handelt es sich, gemäß EN 60950, um Sicherheits- Kleinspannungsanschlüsse.

REPARATUR UND WARTUNG : Der Benutzer darf keinesfalls versuchen das Gerät selbst zu reparieren, die Öffnung des Geräts durch Abnahme der Abdeckhaube oder jeglichen anderen Teils des Gehäuses sowie die Entfernung von außen sichtbaren Schrauben zu Stromschlägen oder anderen Gefahren für den Benutzer führen kann. Wenden Sie sich an Ihren Verkäufer, Ihre Kundendienststelle oder an qualifizierte Fachkräfte.

ÖFFNUNGEN UND MUNDUNGEN : Die Geräte können über Öffnungen verfügen (Belüftung, Schlitze, usw.). Niemals Gegenstände in die Öffnungen einführen oder die Öffnungen verschließen. Wenn eine Flüssigkeit oder ein Gegenstand in das Gerät gelangt, den Stecker herausziehen und es vor einer neuen Inbetriebnahme von qualifiziertem Fachpersonal überprüfen lassen.

INSTRUCCIONES DE SEGURIDAD

Para comprender mejor el funcionamiento de este aparato, le recomendamos que lea cuidadosamente todas las consignas de seguridad y de funcionamiento del aparato antes de usarlo. Conserve las instrucciones de seguridad y de funcionamiento para que pueda consultarlas posteriormente. Respete todas las consignas indicadas en la documentación, relacionadas con el producto y este documento.

PRECAUCIONES Y OBSERVACIONES

CUIDADO : Para prevenir cualquier riesgo de choque eléctrico y de incendio, no exponga este aparato a la lluvia, a la humedad ni a fuentes de calor intensas.

INSTALACIÓN : Cerciórese de que haya una circulación de aire suficiente para evitar cualquier sobrecalentamiento al interior del aparato. No coloque el aparato cerca ni sobre una superficie textil que pudiera obstruir los orificios de ventilación. No instale el aparato cerca de fuentes de calor como radiador o boca de aire caliente, ni en un lugar expuesto a los rayos solares directos o al polvo excesivo, a las vibraciones o a los choques mecánicos. Esto podría provocar su mal funcionamiento o un accidente.

ALIMENTACIÓN : Ponga a funcionar el aparato únicamente con la fuente de alimentación que se indica en el aparato o en su bloque de alimentación. Los aparatos equipados con una alimentación principal con hilo de tierra deben estar conectados obligatoriamente a una fuente equipada con una puesta a tierra eficaz. Por ningún motivo este enlace de tierra deberá ser modificado, cambiado o suprimido.

CABLE DE ALIMENTACIÓN : Para los aparatos equipados con un interruptor general (Marcha I / Paro O), la puesta bajo tensión y la puesta fuera de tensión se hace accionando este interruptor general.. En los aparatos que no tienen interruptor general, la puesta bajo tensión y la puesta fuera de tensión se hace directamente conectando y desconectando el enchufe mural.

En ambos casos, se deberá respetar las siguientes consignas:

- Desconectar el aparato del enchufe mural si no piensa utilizarlo durante varios días.
- Para desconectar el cable, tire de la clavija. No tire nunca del cable propiamente dicho.
- El enchufe de alimentación debe estar cerca del aparato y ser de fácil acceso.
- No deje caer el cable de alimentación ni coloque objetos pesados encima de él.

Si el cable de alimentación sufre algún daño, ponga el aparato inmediatamente fuera de tensión. Es peligroso hacer funcionar este aparato con un cable averiado, ya que un cable dañado puede provocar un incendio o un choque eléctrico. Verifique el estado del cable de alimentación de vez en cuando. Póngase en contacto con su distribuidor o con el servicio de posventa si necesita cambiarlo.

CONEXIONES : Todas las entradas y salidas (excepto la entrada del sector) son de tipo TBTS (Muy Baja Tensión de Seguridad) definidas según EN 60950.

REPARACIÓN Y MANTENIMIENTO : Por ningún motivo, el usuario deberá tratar de efectuar operaciones de reparación, ya que si abre los aparatos retirando el capó o cualquier otra pieza que forma parte de las cajas o si destornilla los tornillos aparentes exteriores, existe el riesgo de producirse una explosión, choques eléctricos o cualquier otro incidente. Contacte el servicio de posventa, a su distribuidor o diríjase con personal cualificado únicamente.

ABERTURAS Y ORIFICIOS : Los aparatos pueden contener aberturas (aireación, ranuras, etc.). No introduzca allí ningún objeto ni obstruya nunca estas aberturas. Si un líquido o un objeto penetra al interior del aparato, desconéctelo y hágalo revisar por personal cualificado antes de ponerlo nuevamente en servicio.



AC211A-R2, AC212A & AC216A-R2

CHAPTER 1 : INTRODUCTION

1-1. ACCESSORIES SUPPLIED WITH THE AC211A-R2

- 1 AC211A-R2
- 1 External Power supply.
- 1 Set of 2 MCO (5-pin) female connectors (for audio connection).
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.

1-2. ACCESSORIES SUPPLIED WITH THE AC212A

- 1 AC212A
- 1 External Power supply.
- 1 Set of 2 MCO (5-pin) female connectors (for audio connection).
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.

1-3. ACCESSORIES SUPPLIED WITH THE AC216A-R2

- 1 AC216A-R2
- 1 AC mains cable.
- 1 VGA cable (HD15 male / male connector).
- 1 DVI M/M cable.
- 1 Set of 3 MCO (5-pin) female connectors (for audio connection).
- 1 S.VIDEO (Y/C) cable (mini DIN 4 M / mini DIN 4 M).
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.



1-4. AC211A-R2 GENERAL INFORMATION

The device is a half 19" rack compact Video Scaler. Offering multiple output resolutions up to 1600x1200, it significantly improves the quality of any video signal, providing enhanced brightness and sharpness.

The device allows video sources (PAL, SECAM, NTSC, S.VIDEO) to be displayed on high resolution TFT, plasma or video projectors.

The powerful 3D motion auto-adaptive pixel per pixel basis Scaling Algorithms provide a perfect high resolution, bright and colorful image. It also removes flickering and movement artifact thanks to its powerful auto 3:2 and 2:2 pull down film detection.

The device presents user friendly menus on an LCD screen. User can easily adjust output format and image parameters through clearly designed menus.

The device offers convenient features in the installation environment such as full frame memory to be automatically displayed in case of loss of input sync., Auto Switch to a user defined source when current input signal is lost and complete remote control through RS232 connection.

The device also provides audio/stereo switching following the video input.

The device is the perfect device for conference room installations, where both video and computer have to be displayed on a high resolution large screen.

1-5. AC212A GENERAL INFORMATION

The device is a half 19" rack compact Video Scaler. Offering multiple output resolutions up to 1600x1200, the device significantly improves the quality of any video signal, providing enhanced brightness and sharpness.

The device allows video sources (PAL, SECAM, NTSC, S.VIDEO, YUV and RGBS) to be displayed on high resolution TFT, plasma or video projectors.

The powerful 3D motion auto-adaptive pixel per pixel basis Scaling Algorithms by Analog Way provide a perfect high resolution, bright and colorful image. It also removes flickering and movement artifact thanks to its powerful auto 3:2 and 2:2 pull down film detection.

The device presents user friendly menus on an LCD screen. User can easily adjust output format and image parameters through clearly designed menus.

The device offers convenient features in the installation environment such as full frame memory to be automatically displayed in case of loss of input sync., Auto Switch to a user defined source when current input signal is lost and complete remote control through RS232 connection.

The device also provides audio/stereo switching following the video input.

The device is the perfect device for conference room installations, where both video and computer have to be displayed on a high resolution large screen.

1-6. AC216A-R2 GENERAL INFORMATION

The device combines the functions of a **High Resolution Video Scaler** with a **Video Switcher**. It is a state of the art **Scaler / Line Multiplier / Quadrupler / Doubler** which significantly increases Video image resolution and brightness.

The device is fitted with a BNC, RGB and YUV component input and a DVI output providing perfect connection with an LCD screen, a video projector or a plasma. The device offers a double analog output on both HD15 and DVI-I connectors. Additionally, the device can drive up to 3 displays simultaneously. A Computer or external input is also provided for direct display of your presentations or Internet applications.

The device features a non volatile frame memory that can be used as a "welcome " or an "alert" message. This frame can be acquired from any video input.

The very high quality decoder includes an advanced comb filter, an emphasized "natural" color processing, a highly robust sync. detection and a new enhanced 3D (pixel by pixel basis) auto-adaptive de-interlacing scheme (for motion artifacts). With automatic correction of the "film to video" transfer (3/2 pulldown for NTSC), it provides a "cinema like" image.

The frame conversion & time base correction provides high end A/V Pro & home theater solutions.



1-7. INSTALLATION

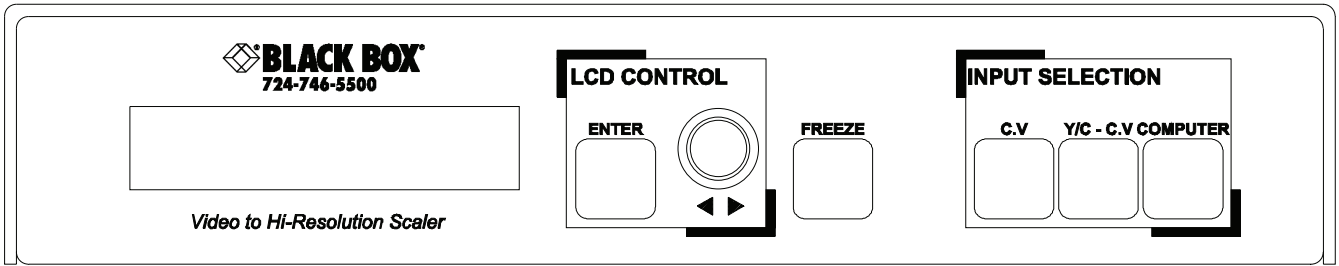
IMPORTANT: Please read all the safety instructions (pages 2 to 4) before starting.

- Table Top Mounting: The devices can be used directly on a table: they are equipped with 4 plastic feet.
- Rack Mounting: The AC216A-R2 is compatible with a 19" enclosure. To install the device into a 19" rack: Attach the device to the rack by using 4 screws in the front panel holes (screws are not included). Connect all of the cables to the devices and attach them to the rack with some tie wraps.

- IMPORTANT:**
- The openings in the rear and side panels are for cooling. Do not cover these openings.
 - Be sure that no weight is added onto the device in excess of 2 kg (4.4 lbs.).
 - The maximum ambient operating temperature must not exceed 40°C (104°F).
 - The rack and all mounted equipment in it must be reliably grounded to national and local electrical codes.



1-8. AC211A-R2 FRONT PANEL DESCRIPTION



LCD CONTROL

ENTER:

Validates a selected item.

A long push on this button allows to activate the STANDBY mode. A short push on a front panel push button allows to wake up the device.



Allows to scroll thru the different menus (in Control mode).

FREEZE:

A short push allows to freeze the displayed output.

INPUT SELECTION: Selection of the 3 input sources.

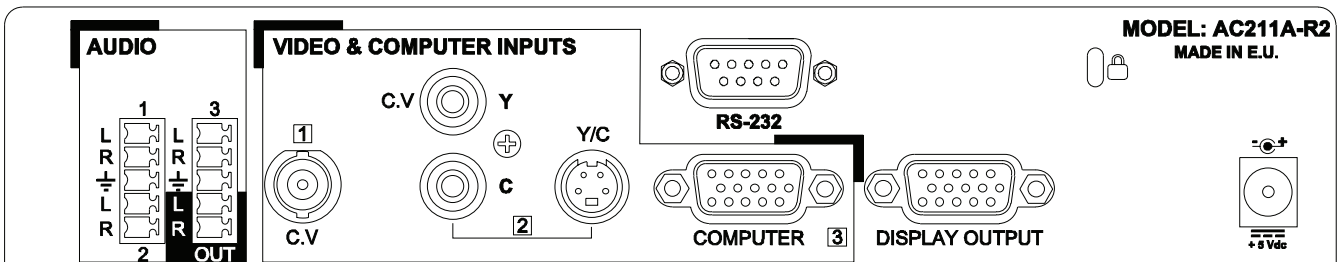
C.V.: Composite source #1 selection (Input #1).

Y/C - C.V.: S.VIDEO source or Composite source #2 selection (Input #2).

COMPUTER: Computer source selection (Input #3).

NOTE: A long push (2 seconds) on the selected input button allows to activate the **BLACK** function. A black screen is displayed onto the output. A short push on an INPUT SELECTION button allows to inactive this function.

1-9. AC211A-R2 REAR PANEL DESCRIPTION



AUDIO:

1, 2 & 3: Audio stereo input 1, 2 & 3 on MCO connectors.
L: Left, R = Right.

OUT: Audio stereo output on a MCO connector.

VIDEO & COMPUTER INPUTS:

1 C.V.: Composite Video input #1 on a BNC female connector.

2 C.V.: Composite Video input #2 on 2xRCA female connectors.

Y/C: S.VIDEO (Y/C) input on 2xRCA female connectors or a 4-pin mini DIN female connector.

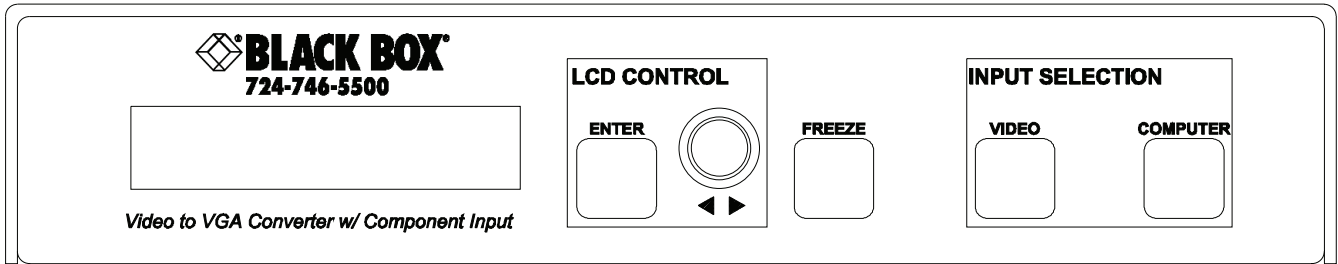
3 COMPUTER: Computer input on a HD15 female connector.

DISPLAY OUTPUT: DATA output (RGBHV, RGBS or RGsB) on a HD15 female connector.

RS-232: RS-232 communication port on a DB9 female connector.

+5 Vdc: DC input connector.



1-10. AC212A FRONT PANEL DESCRIPTION**LCD CONTROL****ENTER:**

Validates a selected item.

A long push on this button allows to activate the STANDBY mode. A short push on a front panel push button allows to wake up the device.



Allows to scroll thru the different menus (in Control mode).

FREEZE:

A short push allows to freeze the displayed output.

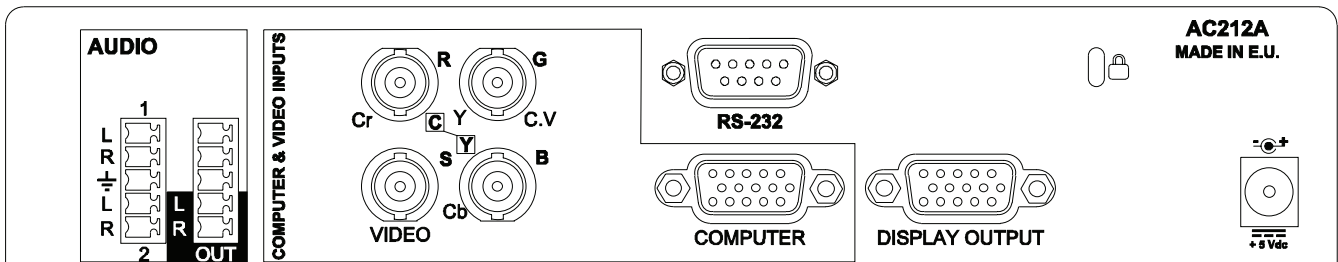
INPUT SELECTION: Selection of the 3 input sources.**VIDEO:**

Video source selection.

COMPUTER:

Computer source selection.

NOTE: A long push (2 seconds) on the selected input button allows to activate the **BLACK** function. A black screen is displayed onto the output. A short push on an INPUT SELECTION button allows to inactive this function.

1-11. AC212A REAR PANEL DESCRIPTION**AUDIO:****1 & 2:**

Audio stereo input 1 & 2 on a MCO connector.

L: Left, R = Right.

OUT:

Audio stereo output on a MCO connector.

VIDEO & COMPUTER INPUTS:**VIDEO:**

Composite Video, S.VIDEO, YUV, RGSB or RGSB input on a BNC female connector.

COMPUTER:

Computer input on a HD15 female connector.

DISPLAY OUTPUT:

DATA output (RGBHV, RGSB or RGSB) on a HD15 female connector.

RS-232:

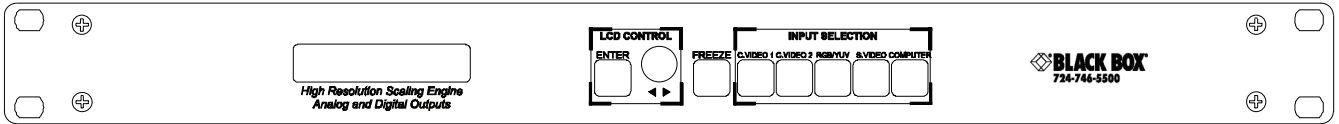
RS-232 communication port on a DB9 female connector.

+5 Vdc:

DC input connector.



1-12. AC216A-R2 PLUS FRONT PANEL DESCRIPTION



LCD CONTROL

ENTER:

Validates a selected item.

A long push on this button allows to activate the STANDBY mode. A short push on a front panel push button allows to wake up the device.



Allows to scroll thru the different menus (in Control mode).

FREEZE:

A short push allows to freeze the displayed output.

INPUT SELECTION: Selection of the 3 input sources.

C.VIDEO 1: Composite source #1 selection (Input #1).

C.VIDEO 2: Composite source #2 selection (Input #2).

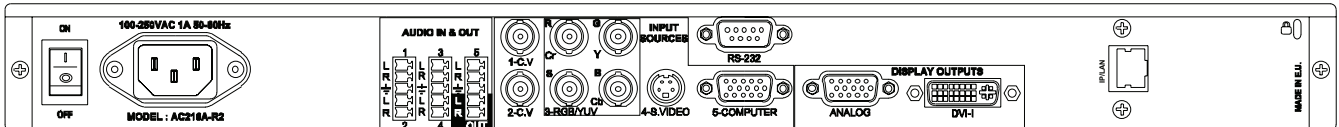
RGB/YUV: RGBS & YUV source selection (Input #3).

S.VIDEO: S.VIDEO source selection (Input #4).

COMPUTER: Computer source selection (Input #5).

NOTE: A long push (2 seconds) on the selected input button allows to active the **BLACK** function. A black screen is displayed onto the output. A short push on an INPUT SELECTION button allows to inactive this function.

1-13. AC216A-R2 PLUS REAR PANEL DESCRIPTION



ON / OFF: AC power switch (O = OFF, I = ON).

POWER: Standard IEC connector (100-250 VAC, 1A, 50-60Hz automatic).

AUDIO IN & OUT

1, 2, 3, 4 & 5: Audio stereo inputs on MCO connectors.
L: Left, R = Right.

OUT: Audio stereo output on a MCO connector.

INPUT SOURCES

1-C.V: Composite Video input #1 on a BNC female connector.

2-C.V: Composite Video input #2 on a BNC female connector.

3-RGB/YUV: RGBS & YUV (Y, Cr, Cb) video input on 4xBNC female connectors.

4-S.VIDEO: S.VIDEO (Y/C) input on 4-pin mini DIN female connector.

5-COMPUTER: Computer input on a HD15 female connector.

RS-232: RS-232 communication port on a DB9 female connector.

DISPLAY OUTPUTS

ANALOG: Analog computer output (RGBHV, RGBS or RGSB) on a HD15 female connector.

DVI-I: Digital & analog computer output on a DVI-I female connector.



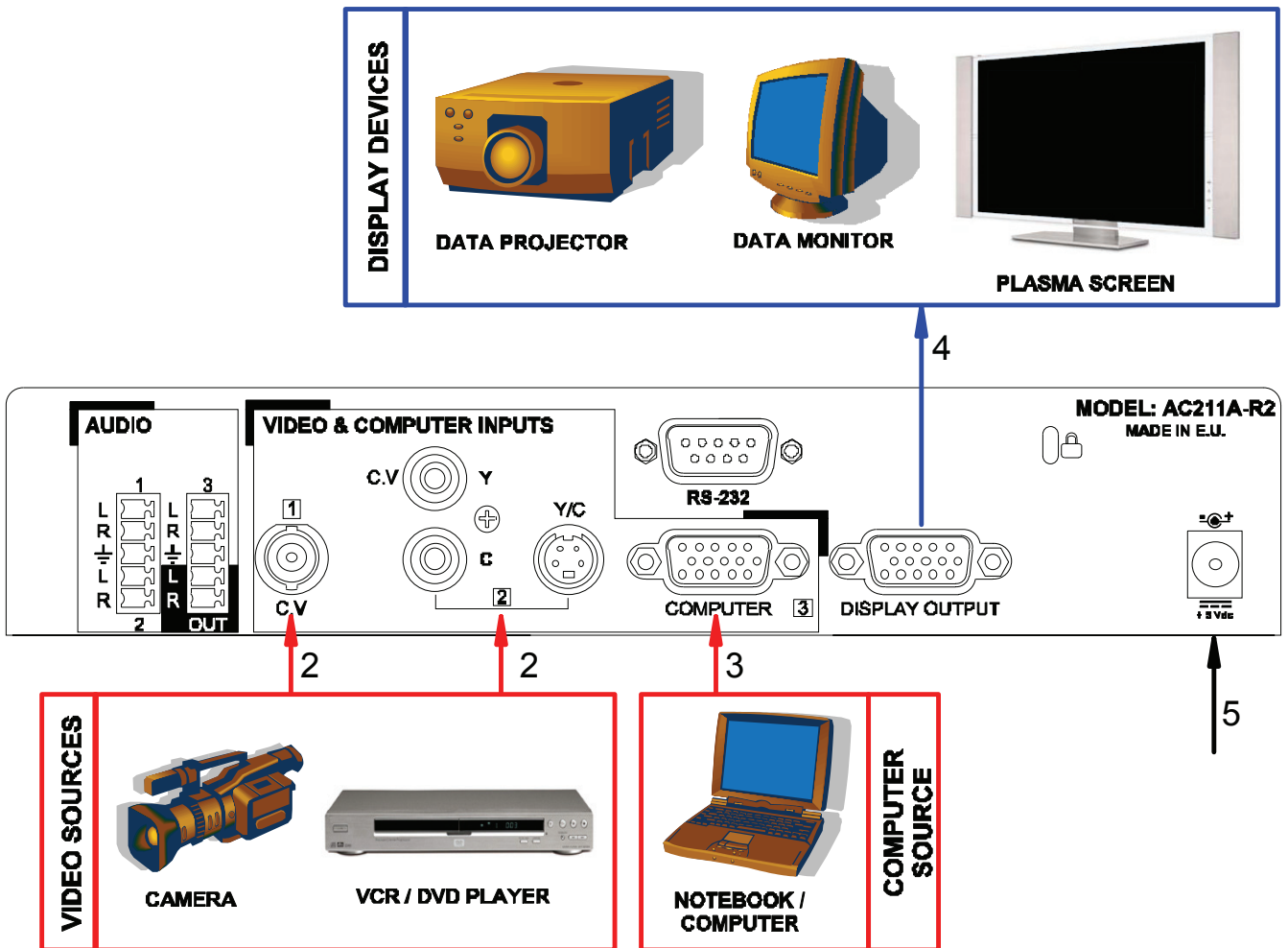
CHAPTER 2 : STARTING

2-1. STARTING THE AC211A-R2

• **Connections:**

- ① Turn OFF all of your equipment before connecting.
- ② Connect your video sources to the inputs **1** & **2** of the device.
IMPORTANT: Connect only one source by input.
- ③ Connect your computer source to the input **3** of the device.
- ④ Connect your Hi-Resolution display device (projector, plasma screen...) to the DISPLAY OUTPUT (HD15 connector of the device).
- ⑤ Connect the external power supply to an AC power outlet and to the DC input connector of the device.

• **AC211A-R2 connection diagram:**

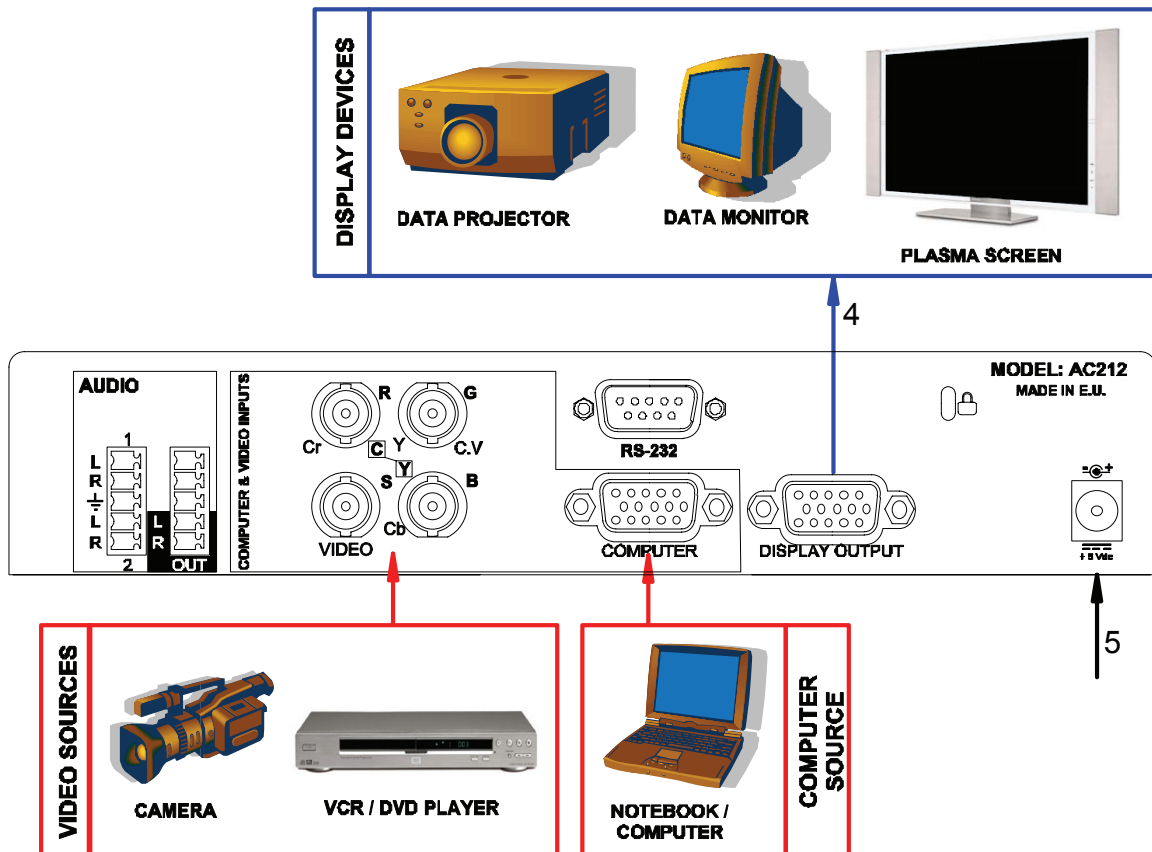


2-2. STARTING THE AC212A

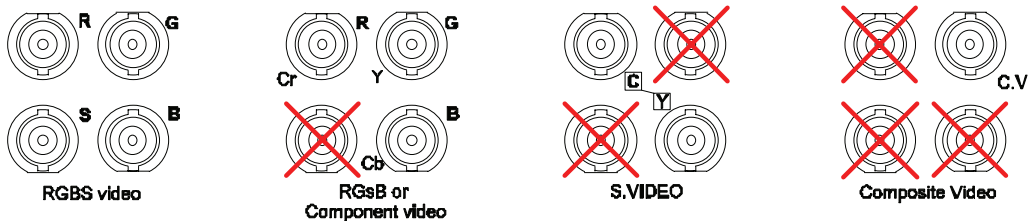
• **Connections:**

- ① Turn OFF all of your equipment before connecting.
- ② Connect your video source to the VIDEO input of the device.
- ③ Connect your computer source to the COMPUTER input of the device.
- ④ Connect your Hi-Resolution display device (projector, plasma screen...) to the DISPLAY OUTPUT (HD15 connector of the device).
- ⑤ Connect the external power supply to an AC power outlet and to the DC input connector of the device.

• **AC212A connection diagram:**



• **Video input connection:**

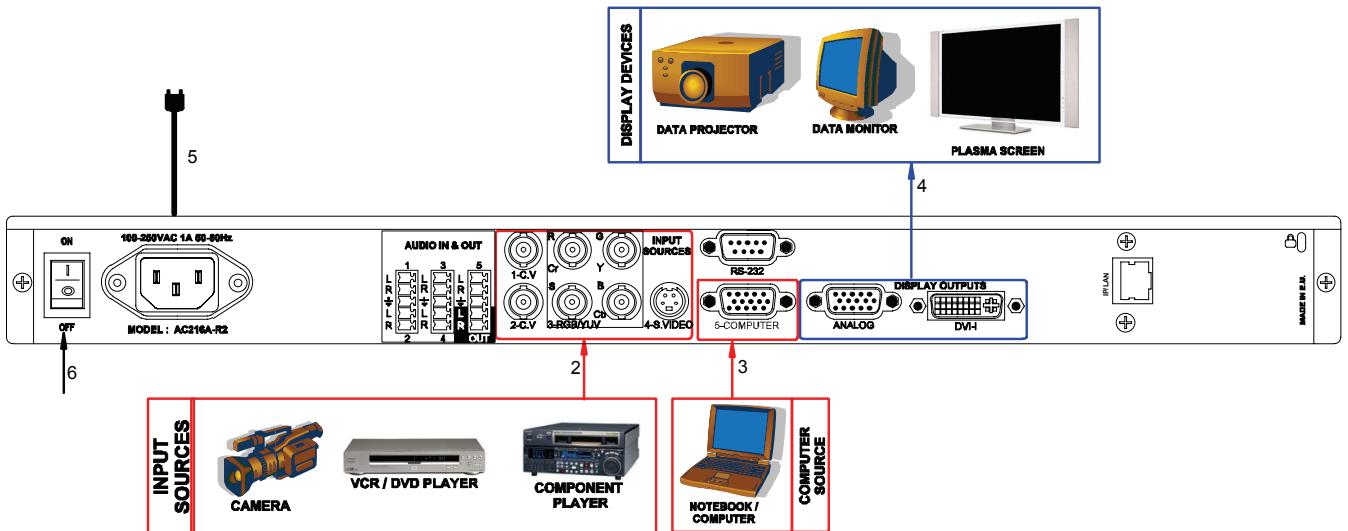


2-3. STARTING THE AC216A-R2

• Connections:

- ① Turn OFF all of your equipment before connecting.
- ② Connect your video sources to the inputs 1, 2, 3 & 4 of the device.
- ③ Connect your computer source to the input 5 of the device.
- ④ Connect your display device (projector, plasma screen...) to the DISPLAY OUTPUTS (HD15 or DVI-I female connectors) of the device.
- ⑤ Connect the AC power supply cord to the device and to an AC power outlet.
- ⑥ Turn ON the device (rear panel switch). Then turn ON all your input sources and then your display device.

• AC216A-R2 connection diagram:

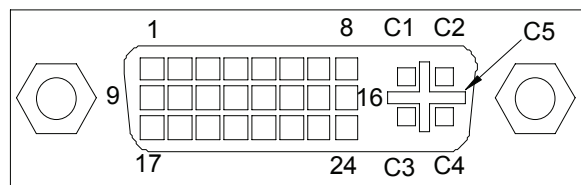


• DVI-I pin assignment:

The DVI-I female connector of the device can be used with digital signals as well as analog signals. The table hereafter explain the pin assignment of these connectors.

Pin	Function	Pin	Function	Pin	Function
1	TMDS Data 2-	9	TMDS Data 1-	17	TMDS Data 0-
2	TMDS Data 2+	10	TMDS Data 1+	18	TMDS Data 0+
3	TMDS Data 2 Shield	11	TMDS Data 1 Shield	19	TMDS Data 0 Shield
4	Not used.	12	Not used.	20	Not used.
5	Not used.	13	Not used.	21	Not used.
6	DDC Clock	14	+ 5V (Power)	22	TMDS Clock Shield
7	DDC Data	15	Ground for (+5V)	23	TMDS Clock+
8	Analog Vertical Sync.	16	Hot plug detect.	24	TMDS Clock-
C1	Analog Red video				
C2	Analog Green Video				
C3	Analog Bleu Video				
C4	Analog Horizontal Sync				
C5	Analog Common Ground Return				

DDC = Display Data Channel.
 TMDS = Transition Minimized Differential Signal.



CHAPTER 3 : OPERATING MODE

3-1. SETTINGS

- ① We recommend resetting the device to all of its **default values**, with the front panel display menu (**CONTROL > default value > yes**) before proceeding.
- ② Select the **input type** connected to the **INPUTS** with the front panel display menu (**INPUT > input type**).
- ③ **For the AC216A-R2 only**, select the **output type** with the front panel display menu (**OUTPUT > output type**).
- ④ Select the **output format** which corresponds to your display device with the front panel display menu (**OUTPUT > output format**).
- ⑤ Select one of the **output rate** available with the front panel display menu (**OUTPUT > output rate**).
- ⑥ Select the **output sync** type with the front panel display menu (**OUTPUT > output sync**).

3-2. IMAGE ADJUSTMENTS

For each input source connected to the device, make the following adjustments:

- ① Select the source you want to adjust (with the front panel "INPUT SELECTION" buttons).
 - ② Select the aspect ratio of your input source with the front panel display menu (**IMAGE > aspect ratio in**).
 - ③ Adjust the image in your display device with the position & size functions (**IMAGE > pos settings**).
 - ④ If needed, make the others adjustments, available in the **IMAGE** menu (color, brightness...).
- NOTE:** To set the image adjustments to the factory settings, use the **Preset** function (**IMAGE > preset > yes**).



CHAPTER 4 : FRONT PANEL DISPLAY MENU DESCRIPTION

4-1. INTRODUCTION

The front panel display menu presents 2 modes: the STATUS MODE and the CONTROL MODE.

- The STATUS MODE indicates the input and output status of the device.
- The CONTROL MODE allows selecting and adjusting the parameters of the device.

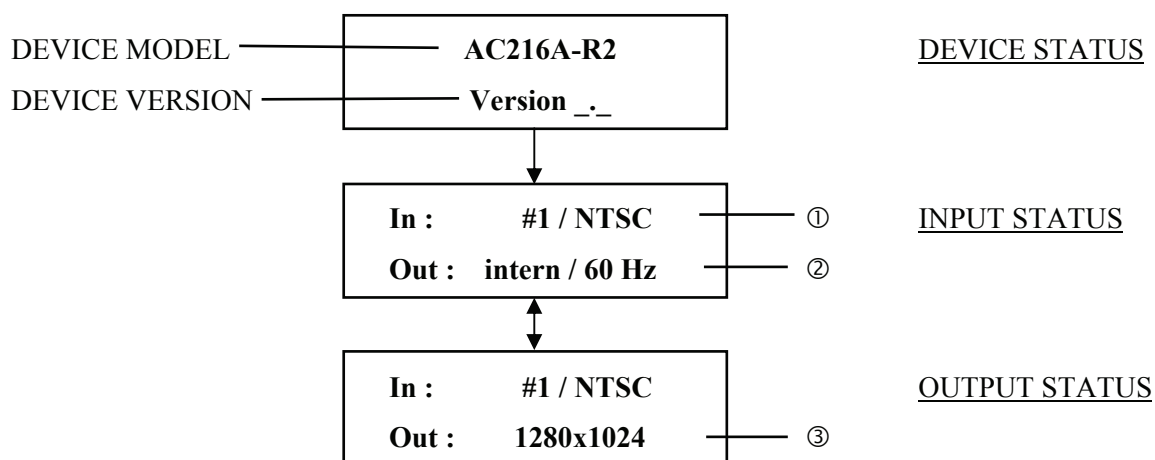
4-2. CONTROL BUTTONS

The front panel display is controlled by 1 button and 1 knob:

- ◀ ▶ knob:
 - In the CONTROL MODE, turn this knob to scroll thru the different menus.
- ENTER button:
 - From the STATUS MODE, press this button to enter in the CONTROL MODE.
 - From the CONTROL MODE, press this button to confirm a selected item.

4-3. STATUS MODE

When switching ON, the front panel display shows the product's name and firmware versions as follows:

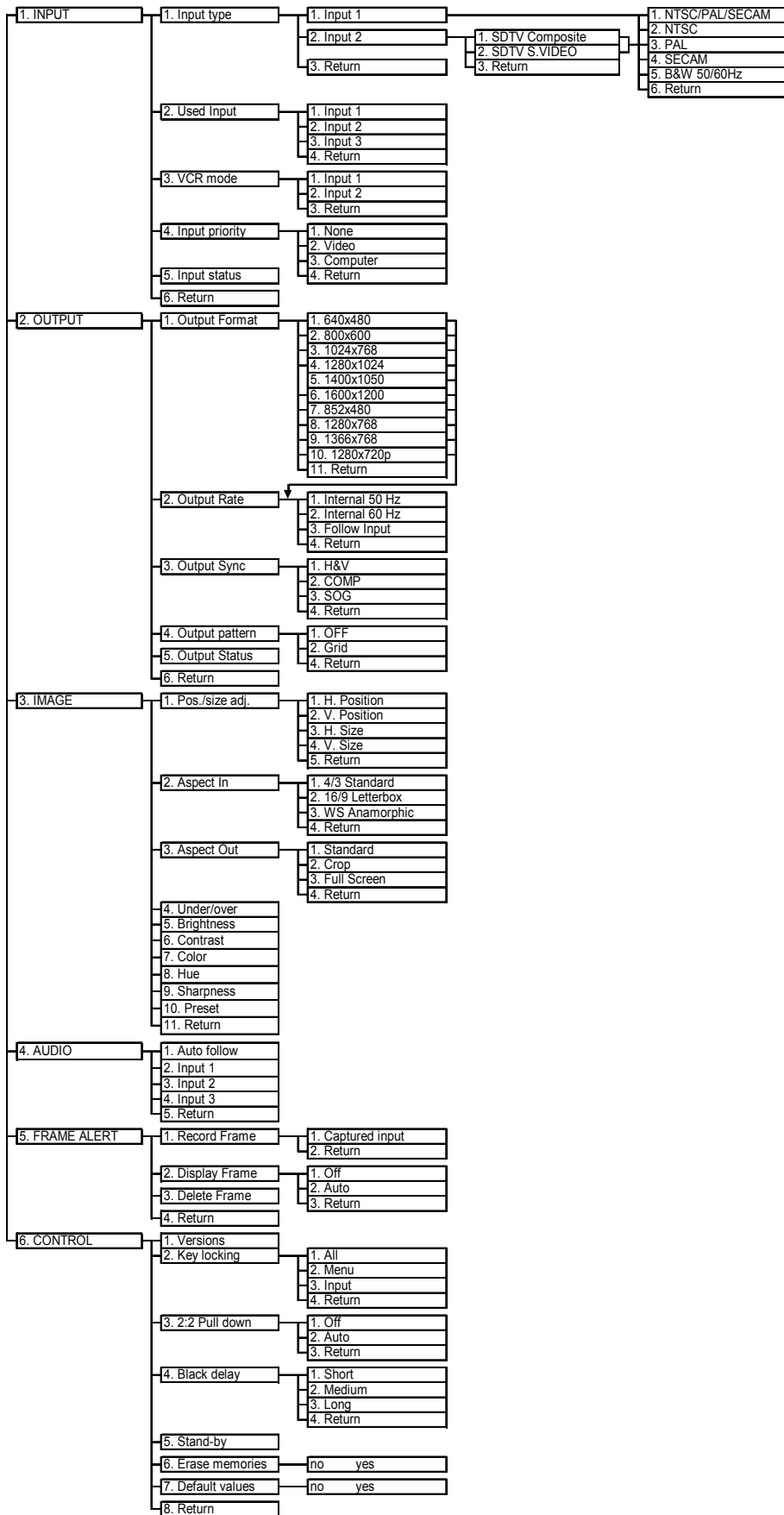


- ① INPUT NUMBER / INPUT STANDARD
- ② OUTPUT RATE MODE / OUTPUT FRAME RATE.
- ③ OUTPUT RESOLUTION.



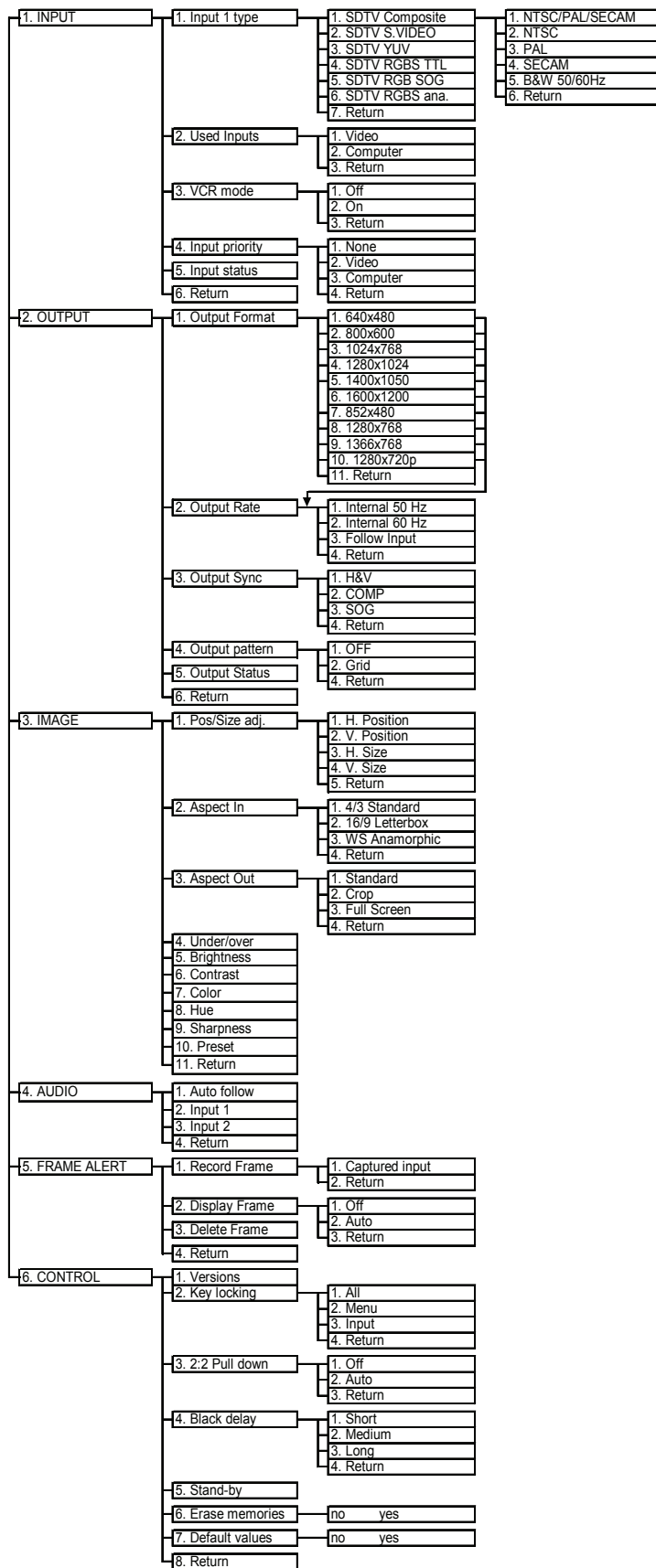
4-4. CONTROL MODE

The menus of the AC211A-R2 are configured as follow:



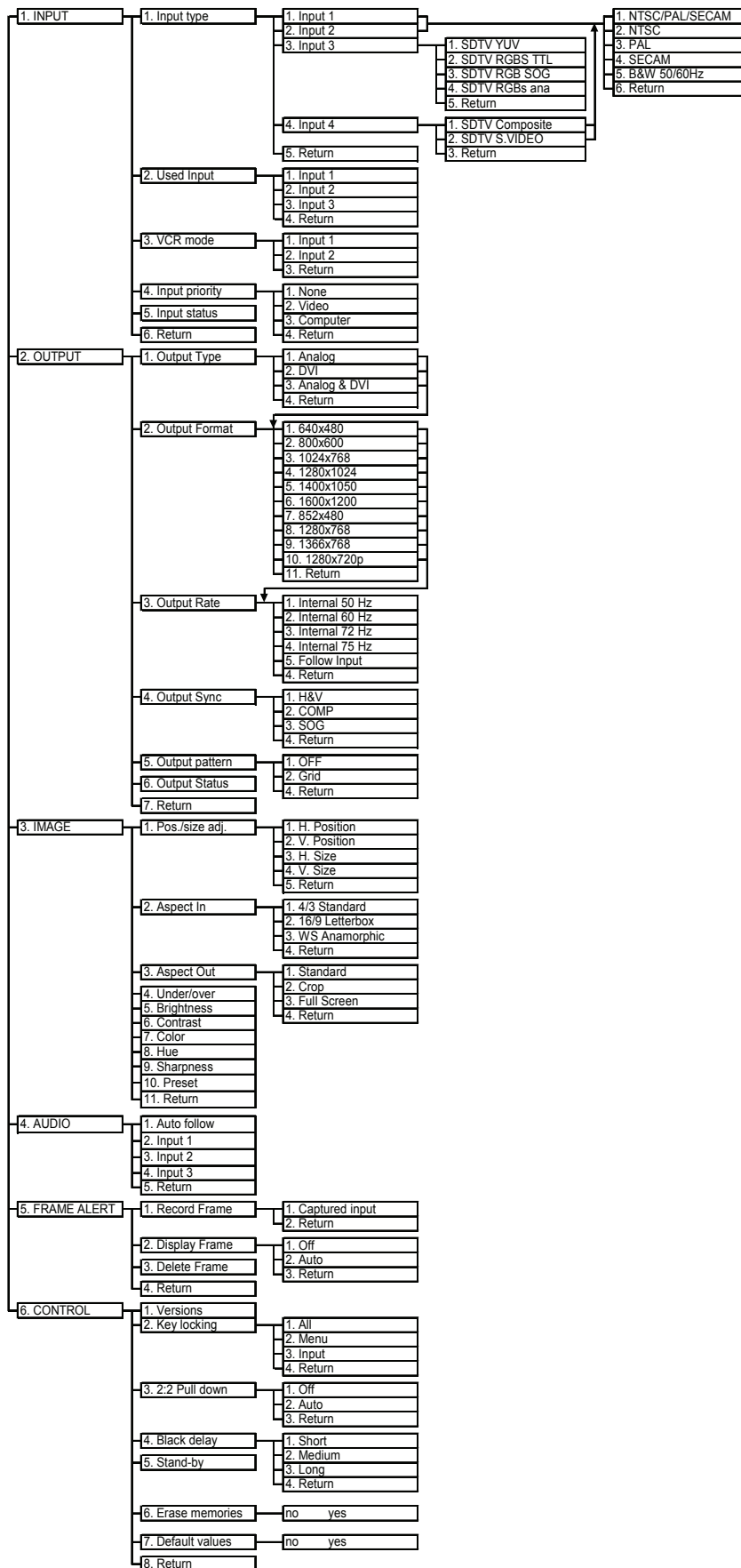
4-4. CONTROL MODE (continued)

The menus of the AC212A are configured as follow:



4-4. CONTROL MODE (continued)

The menus of the AC216A-R2 are configured as follow:



4-5. FUNCTIONS DESCRIPTION**1 ▶ [INPUT] + ENTER.****1-1 [Input type] + ENTER.**

- ① Select an input with ◀ ▶ + **ENTER**.
- ② Select the video signal type with ◀ ▶ + **ENTER** between:
 - **[SDTV Composite]**: Composite video signal.
 - **[SDTV S.VIDEO]**: S.VIDEO signal .
 - **[SDTV YUV]**: Component signal.
 - **[SDTV RGBS TTL]**: RGBS video signal with TTL sync .
 - **[SDTV RGB SOG]**: RGB video signal with Sync On Green.
 - **[SDTV RGBS ana.]**: RGB video signal with analog sync .
 - **[Return]**: Allows to return to the previous menu without safeguarding.
- ③ Then select the video standard (Inputs #1, 2 & 4) with ◀ ▶ + **ENTER** between:
 - **[NTSC / PAL / SECAM]**: automatic NTSC, PAL and SECAM standard detection.
 - **[NTSC]**: NTSC standard detection only.
 - **[PAL]**: PAL standard detection only.
 - **[SECAM]**: SECAM standard detection only.
 - **[B & W 50/60 Hz]**: Black and White detection.
 - **[Return]**: Allows to return to the previous menu without safeguarding.

1-2 [Used input] + ENTER.

Select an input and then select an item with ◀ ▶ + **ENTER** between:

- **[used]**: A signal is connected to the input.
- **[unused]**: No signal is connected to the input. The input is unused.

1-3 [VCR mode] + ENTER.

This function allows improving the image contour of low quality VHS tapes. Select **[on]** with **ENTER**.

1-4 [Input priority] + ENTER.

Select an item with ◀ ▶ + **ENTER** between:

- **[none]**: No input priority.
- **[Computer]**: Priority to the Computer input. The last selected video input is automatically displayed if no signal is detected on the computer input.
- **[Video]**: Priority to Video input. The computer input is automatically displayed if no signal is detected on the selected video input.
- **[Return]**: Allows to return to the previous menu without safeguarding.

1-5 [Input status] + ENTER.

Indicates the status of the selected input.



4-5. FUNCTIONS DESCRIPTION (continued)**2 ▶ [OUTPUT] + ENTER.****2-1 [Output type] + ENTER.** Available on the AC216A-R2 only.Select one of the following output type with ◀ ▶ + **ENTER**.

- **[analog]**: The device provides an analog output onto the two output connectors (HD15 & DVI-I).
- **[DVI]**: The device provides a digital output onto the DVI-I connector.
- **[analog & DVI]**: The device provides analog & DVI outputs.

NOTE: The Computer input (loopthrough) is not available with the digital output (DVI).**2-2 [Output format] + ENTER.**Select one of the following output format with ◀ ▶ + **ENTER**.

- **[640x480]**
- **[800x600]**
- **[1024x768]**
- **[1280x1024]**
- **[1400x1050]**
- **[1600x1200]**
- **[852x480]**
- **[1280x768]**
- **[1366x768]**
- **[1280x720p]**
- **[Return]**: Allows to return to the previous menu without safeguarding.

2-3 [Output rate] + ENTER.Select one of the following output rate with ◀ ▶ + **ENTER**.

- **[internal 50Hz]**: 50 Hz output frame rate.
- **[internal 60Hz]**: 60 Hz output frame rate.
- **[internal 72Hz]**: 72 Hz output frame rate. Available on the AC16A-R2 only.
- **[internal 75Hz]**: 75 Hz output frame rate. Available on the AC216A-R2 only.
- **[follow input 1]**: The output rate is identical to the input frame rate. The output rate is 50 Hz for PAL & SECAM video inputs, or 59.94 Hz for NTSC video inputs.
- **[Return]**: Allows to return to the previous menu without safeguarding.

2-4 [Output sync] + ENTER.Select the Output Sync. type with ◀ ▶ + **ENTER**.

- **[H&V]**: H & V Separate Sync.
- **[COMP]**: Composite Sync.
- **[SOG]**: Sync On green.
- **[Return]**: Allows to return to the previous menu without safeguarding.

2-5 [Output pattern] + ENTER.Select an item with ◀ ▶ + **ENTER**.

- **[Off]**: Switch off the test pattern.
- **[Grid]**: Display a test pattern.
- **[Return]**: Allows to return to the previous menu without safeguarding.

2-6 [Output status] + ENTER.

Indicates the status of the output.



4-5. FUNCTIONS DESCRIPTION (continued)**3 ▶ [IMAGE] + ENTER.****3-1 [Pos./size adj.] + ENTER.**

Select one of the following function with ◀ ▶ + ENTER.

3-1-1 [H position] + ENTER.

Adjust the Horizontal position with ◀ ▶ + ENTER.

3-1-2 [V position] + ENTER.

Adjust the Vertical position with ◀ ▶ + ENTER.

3-1-3 [H size] + ENTER.

Adjust the Horizontal size with ◀ ▶ + ENTER.

3-1-4 [V size] + ENTER.

Adjust the Vertical size with ◀ ▶ + ENTER.

3-2 [Aspect in] + ENTER.

Select the Aspect Ratio of your input source with ◀ ▶ + ENTER.

- **[4/3 standard]:** 4/3 input format.
- **[16/9 letterbox]:** Letterbox input format.
- **[WS anamorphic]:** Widescreen Anamorphic input format.
- **[Return]:** Allows to return to the previous menu without safeguarding.

3-3 [Aspect out] + ENTER.

Select one of the following output aspect ratio with ◀ ▶ + ENTER.

- **[Standard]:** The entire image and the aspect ratio are preserved.
- **[Crop]:** The image is zoomed without deformation to fill the screen, but some borders of the image will be cropped. The aspect ratio is preserved.
- **[Full screen]:** The image is stretched to fill the screen. The aspect ratio is not preserved.
- **[Return]:** Allows to return to the previous menu without safeguarding.

3-4 [Under/over] + ENTER.

Select Underscan or Overscan with ◀ ▶ + ENTER.

- **[underscan]:** Underscan mode. The entire image is visible on the screen. Computer mode is underscan.
- **[overscan]:** Overscan mode. The image is displayed about 8 % bigger than in underscan mode, to avoid seeing the corners and the borders. Standard TV display mode is overscan.

3-5 [Brightness] + ENTER.

Adjust the brightness with ◀ ▶ + ENTER.

3-6 [Contrast] + ENTER.

Adjust the contrast with ◀ ▶ + ENTER.

3-7 [Color] + ENTER.

Adjust the color with ◀ ▶ + ENTER.

3-8 [Hue] + ENTER.

Adjust the tint of the picture (NTSC only) with ◀ ▶ + ENTER.

3-9 [Sharpness] + ENTER.

Adjust the sharpness with ◀ ▶ + ENTER.

3-10 [Preset] + ENTER.

This function allows setting all the image parameters to the factory settings. Select **[YES]** and validate with **ENTER**.



4-5. FUNCTIONS DESCRIPTION (continued)**4 ▶ [AUDIO] + ENTER.**

Select an item with ◀ ▶ + **ENTER**:

- **[Auto follow]**: The audio follows the video image.
- **[Input #1]**: The input #1 audio source is permanently diffused.
- **[Input #2]**: The input #2 audio source is permanently diffused.
- **[Input #3]**: The input #3 audio source is permanently diffused.
- **[Input #4]**: The input #4 audio source is permanently diffused.
- **[Input #5]**: The input #5 audio source is permanently diffused.

5 ▶ [FRAME] + ENTER.

Select an item with ◀ ▶ + **ENTER**:

5-1 [Record frame] + ENTER.

- **[Captured input]**: Allows to capture the frame ◀ ▶ + **ENTER**.

5-2 [Display frame] + ENTER.

- **[Off]**: Allows to switch off the frame.
- **[Auto]**: Allows to display the frame in case of lost of input signal on the selected input.

5-3 [Delete frame] + ENTER.

Allows to delete the frame stored.

6 ▶ [CONTROL] + ENTER.**6-1 [Versions] + ENTER.**

Version __: update version. I: Identification number. K, S, O, V: Internal firmware versions.

6-2 [Key locking] + ENTER.

Select an item with ◀ ▶ and change the mode with **ENTER**.

- **[All]**: Locks/unlocks all the front panel switches.
- **[Menu]**: Locks/unlocks the **LCD CONTROL** switches.
- **[Input]**: Locks/unlocks the **INPUT SELECTION** and **FREEZE** switches.

6-3 [2:2 pull down] + ENTER.

Select an item and validate with **ENTER**.

- **[Off]**: Disable the 2:2 pull down correction.
- **[Auto]**: Automatic recognition and correction of the 2:2 pull down.
- **[On]**: Allows to switch off the frame.

6-4 [Black delay] + ENTER.

This function allows adjusting the duration of the black during a transition. Select an item and validate with **ENTER**.

- **[Short]**: Delay = 0 second.
- **[Medium]**: Delay = 1.5 seconds.
- **[Long]**: Delay = 3 seconds.

6-5 [Stand-by] + ENTER.

When the device any more detect a signal on the selected input, this one is set in the **STANDBY** mode after the duration of your choice. Select a duration with ◀ ▶ + **ENTER**.

NOTE: A long push on the **ENTER** button allows to manually activate the **STANDBY** mode. A short push on a front panel push button allows to wake up the device.



4-5. FUNCTIONS DESCRIPTION (continued)**6-6 [Erase memories] + ENTER.**

This function allows erasing all the NON-volatile image memories. Select [YES] and validate with **ENTER**.

6-7 [Default value] + ENTER.

This function allows setting the following functions to the factory settings. Select [YES] and validate with **ENTER**.

FUNCTION	POSITION	FUNCTION	POSITION
1-1 [input type]	Computer HV/C.	3-5 [brightness]	0
1-2 [used input]	All used.	3-6 [contrast]	0
1-4 [VCR mode]	All off	3-7 [color]	0
2-2 [output format]	1024x768	3-8 [hue]	0
2-3 [output rate]	60	3-9 [sharpness]	
2-4 [output sync]	H&V.	5-2 [key locking]	all unlock
3-1 [pos. settings]	0	5-3 [2:2 pull down]	auto
3-2 [aspect in]	4/3 standard	5-4 [Black delay]	medium
3-3 [aspect out]	standard	5-5 [Stand-by]	OFF
3-4 [under/overscan]	overscan	FREEZE	inactive.



CHAPTER 5 : UPDATING THE DEVICE

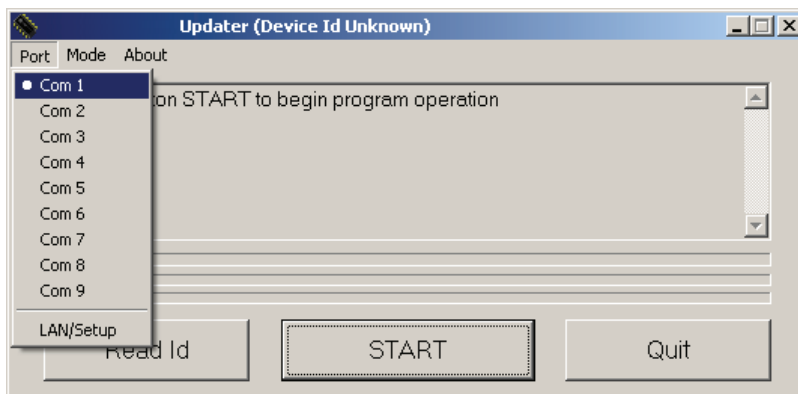
The device can be updated thanks a computer (PC) via its RS-232 communication port.

5-1. CONNECTIONS

- ① Connect the device to the computer used for the update via the desired communication port.
 - For the RS232 communication port: Connect the RS232 connector of the device to the serial port of your computer with a DB9 M/F straight cable.
- ② Power ON the device.

5-2. UPDATE INSTRUCTIONS

- ① Power ON the device.
- ② Open the file: Video Scaler Updater (in **Start > Program > BLACK BOX > Video Scaler updater**).
- ③ In the **Port** menu select the **Com** port connected to the device.
- ④ Click on **START** on the software. The update will start.
- ⑤ When the software displays: **Program operation completed**, click on the **Quit** button to close the update software. Your device is now ready to work.



NOTE: The updater files are available on our web site: www.analogway.com



CHAPTER 6 : REMOTE CONTROL SOFTWARE

Your device is shipped with a Windows compatible **Remote Control Software**. This software allows you to control and make all adjustments by a simple mouse click.

NOTE: The latest Remote Control Software is available on our web site: www.analogway.com

6-1. CONNECTIONS

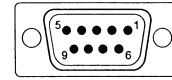
① **CONNECTING TO THE RS-232 PORT:**

-Connect the serial port of your control device to the **RS-232** port (DB9 Female connector) of the device with a **straight** cable (DB9 Female / DB9 Male).

-**Speed transmission:** 9600 bauds, 8 data bits, 1 stop bit, no parity bit, no flow control.

-**Pin-out:**

PIN #	FUNCTIONS
2	TRANSMIT DATA (Tx)
3	RECEIVE DATA (Rx)
5	GROUND (Gnd)



DB9 female (Rear panel of the device)

6-2. SOFTWARE INSTALLATION

- ① Turn your computer ON and wait for Windows to completely start.
- ② Insert the CD-ROM into your drive: the home window will open automatically.
- ③ Select the language of the CD-ROM menus, then click on "Install a Remote Control Software" and select the name of your device.

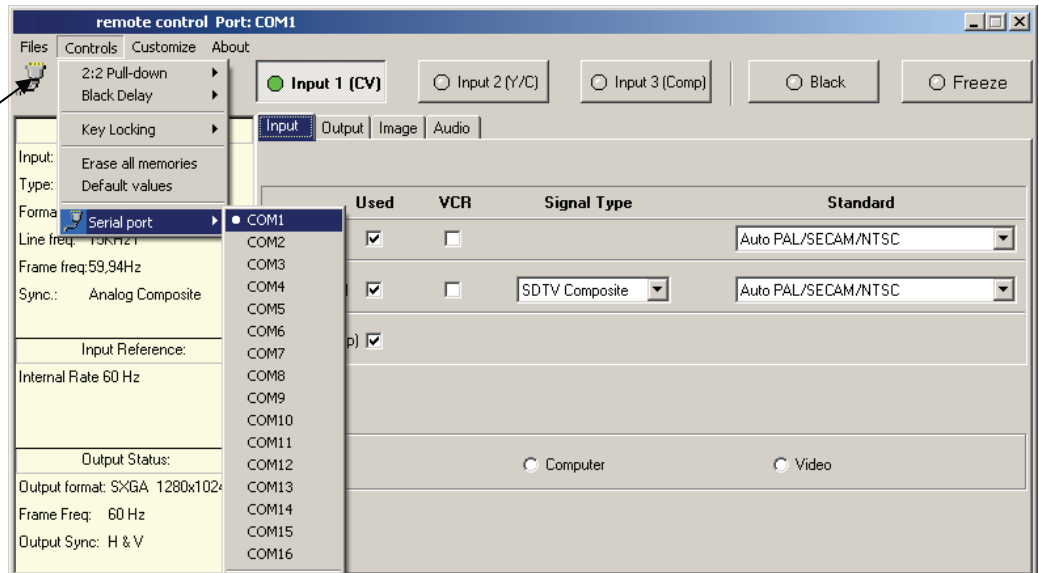
IMPORTANT: If the Autorun is not enabled: From the Windows desktop, open My Computer and select the CD-ROM drive. Select the Autorun folder, then select the autorun.exe file.

- ④ Follow the Windows installation instructions.

6-3. COMMUNICATION SETUP

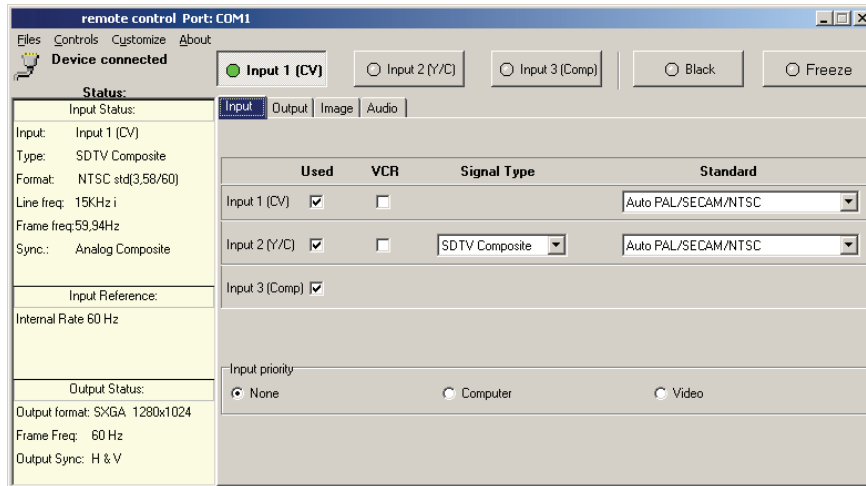
- ① Connect the RS-232 or RJ45 cable between the device and the control device as indicated in the section 6-1.
- ② Then only power ON all of the devices.
- ③ Click on the program files Video Scaler **Start>program>BLACK BOX>Video Scaler** to run the software.
- ④ Click on **Controls** menu and select the **COM** port number corresponding to the connection of the device.

When the communication is established, the message "Device connected" is displayed.

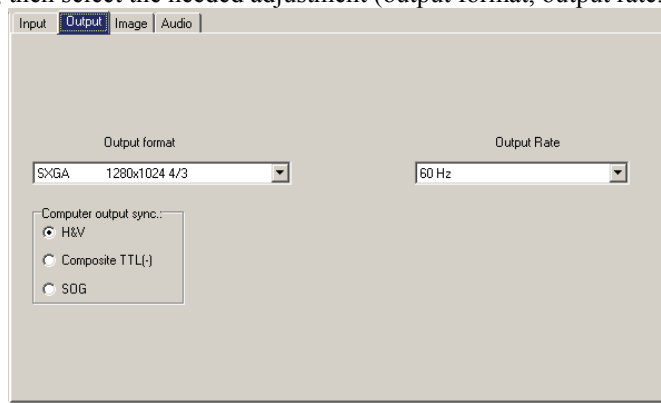


6-4. USING THE SOFTWARE

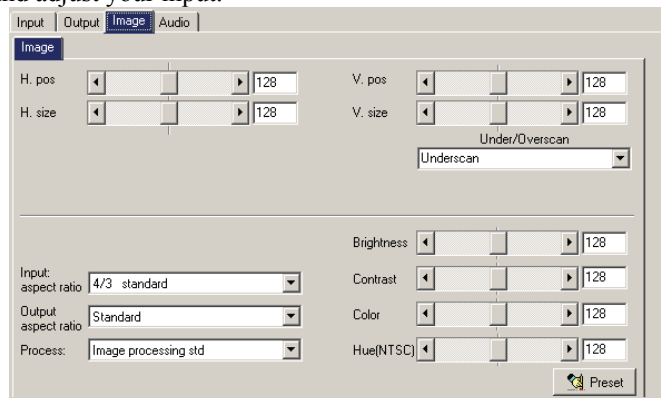
- ① Click on the **Input** tab and select the **Signal Type**. Then select the **Standard** and disable the unused inputs (**Used** section).



- ② Click on the **Output** tab, then select the needed adjustment (output format, output rate...).



- ③ Click on the **Image** tab and adjust your input.



- ④ Click on the **Audio** tab and select **Automatic** (follow switching mode) or an Audio source (breakaway mode).



CHAPTER 7 : TECHNICAL SPECIFICATIONS**7-1. COMPUTER & VIDEO INPUTS****• COMPOSITE VIDEO**

Connectors: AC211A-R2: BNC female (input #1) or RCA female (input #2).
AC212A: BNC female.
AC216A-R2: BNC female (input #1 & 2).

Standards: PAL (4.43 MHz) / SECAM: 15.625 kHz / 50 Hz - 625 lines.
NTSC (3.58 MHz): 15.734 kHz / 59.94 Hz - 525 lines.

Level: 1 Vp/p.

Impedance: 75 ohms.

• S.VIDEO

Connectors: AC211A-R2: 4-pin mini DIN female or 2xRCA female (input #2).
AC212A: BNC female.
AC216A-R2: 4-pin mini DIN female or 2xRCA female (input #4).

Standards: PAL (4.43 MHz): 15.625 kHz / 50 Hz - 625 lines.
NTSC (3.58 MHz): 15.734 kHz / 59.94 Hz - 525 lines.

Levels: Y / C = 1 Vp/p.

Impedance: 75 ohms.

• RGB/S & RGsB VIDEO (AC216A-R2 & AC212A)

Connectors: 4 BNC female.

Frequency: 15.625 kHz / 50 Hz (625 lines).
15.734 kHz / 60 Hz (525 lines).

Levels: R, G, B = 0.7 Vp/p.
SYNC. = 0.3 Vp/p or TTL.

Impedance: RGB = 75 ohms.
SYNC. = 75 ohms or Hi-Z.

• COMPONENT (AC216A-R2 & AC212A)

Connectors: 3 BNC female.

Frequency: 15.625 kHz / 50 Hz (625 lines).
15.734 kHz / 60 Hz (525 lines).

Levels: Y = 1 Vp/p.
Cr = 0.7 Vp/p.
Cb = 0.7 Vp/p.

Impedance: Y, Cr, Cb = 75 ohms.

• COMPUTER (active loopthrough)

Connector: HD15 female.

Line frequency: Up to 110 kHz.

Frame frequency: Up to 120 Hz interlaced or progressive.

Resolution: Up to 1600 x 1200.

Sync. types: RGBHV, RGB/S, RGsB (Sync On Green), YUV, HDTV.

Levels: R, G, B = 0.7 Vp/p (75 Ω load)
YUV / HDTV = 1 Vp/p (75 Ω load)
H & V Sync = TTL
Composite Sync = TTL.
SOG (Sync On Green) = 0.3 V.



7-2. DISPLAY OUTPUT**• FROM VIDEO INPUT****• ANALOG COMPUTER**

<i>Connectors:</i>	HD15 female (AC211A-R2, AC212A & AC216A-R2), DVI-I (AC216A-R2 only).
<i>Resolution:</i>	640x480, 800x600, 1024x768, 1280x1024, 1400x1050, 852x480, 1280x768, 1366x768, 720p, 1600x1200.
<i>Sync. types:</i>	RGBHV, RGB/S, RGSB (Sync On Green).
<i>Rate:</i>	AC211A-R2: 50 Hz, 60 Hz or follow on current input. AC212A: 50 Hz, 60 Hz or follow on current input. AC216A-R2: 50 Hz, 60 Hz, 72 Hz, 75 Hz or follow on current input.
<i>Levels:</i>	R, G, B = 0.7 Vp/p. H & V Sync = TTL Composite Sync = TTL. SOG (Sync On Green) = 0.3 V.
<i>Impedance:</i>	R, G, B = 75 ohms.

• DIGITAL COMPUTER (AC216A-R2 only)

<i>Connector:</i>	DVI-I.
<i>Format:</i>	Digital Visual Interface (DVI). TMDS Single link.
<i>Resolution:</i>	Up to 1600 x 1200 @ 60Hz BR (reduced blanking).

- FROM COMPUTER INPUT:** Same as the input. Buffered output.

7-3. AUDIO INPUTS

<i>Connectors:</i>	MCO 5-pins.
<i>Spec:</i>	Zi = 10 kΩ unbalanced.

7-4. AUDIO OUTPUT

<i>Connectors:</i>	MCO 5-pins.
<i>Spec:</i>	G = 0 dB nominal (passive loopthrough).

7-5. COMMUNICATION PORT**• RS-232 (on DB9 female connector)**

<i>Data Rate:</i>	9600 Bauds, 8 data bits, 1 stop bit, no parity bit, no flow control.
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7-6. ENVIRONMENTAL

<i>Power Supply:</i>	AC211A-R2 & AC212A: External adapter: UL / CSA listed (E209833).
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AC input: 100-240 Vac, 1 A, 50-60 Hz.
DC output: 5 V, 4 A, 20 W max.

AC216A-R2: Internal power supplied: TUV approved, UL/CSA certified (E167432).



100-240 Vac, 50-60 Hz, 1 A max.

<i>Storage Temperature:</i>	- 25 °C to + 85 °C (- 13 °F to + 185 °F)
<i>Operating temperature:</i>	0 °C to + 50 °C (32 °F to 122 °F)
<i>Maximum ambient temperature:</i>	< 40 °C (< 104 °F)
<i>Hygrometry:</i>	10% to 80% (without condensation)
<i>Dimensions:</i>	Compatible with the 19" rack (height = 1 unit) AC211A-R2: D 265 (10.4") x W 221 (8.7") x H 43 (1.69") mm / 1.2 kg (2.64 lbs) AC212A: D 265 (10.4") x W 221 (8.7") x H 43 (1.69") mm / 1.2 kg (2.64 lbs) AC216A-R2: D 265 (10.4") x W 482 (19") x H 44 (1.74") mm / 3 kg (6.6 lbs).



APPENDIX A: PROGRAMMER'S GUIDE**A-1: INTRODUCTION**

If you need to use your own Software Control program from a PC or WORKSTATION with an RS-232 port, the device allows communication through an ASCII code protocol.

The device treats any character that it receives on the RS-232 as a possible command but only accepts legal commands. There is no starting/ending code needed in a command string.

A command can be a single character typed on a keyboard and does not require any special character before or after it. (It is not necessary to press "ENTER" on the keyboard). A command can be preceded by a value (See chapter A-2: COMMANDS STRUCTURE). When the device receives a valid command, it will execute the command. Then it will send back the status of the parameters that have changed due to this command.

If the command cannot be executed (value out of range, no signal on the selected input), the device will just send back the current status of the corresponding parameters.

If the command is invalid, an error response will be returned to the control device. All responses returned to the control device end with a carriage return <CR> and a line feed <LF> signaling the end of the response character string (see chapter A-3: RÉPONSES D'ERREUR).

A-2: COMMANDS STRUCTURE

Commands are usually composed of a numerical value followed by the command character. The characters used without any numerical value return the current setting of the command.

Command = Value (optional) + Character.

Examples / Exemples:

Command / Commande		Response Réponse	Description
Value/ Valeur	Character / Caractère		
none aucune	FY	OSYN	Read the output sync type. <i>Lit le type de synchro.</i>
10	V	VP10	Set Vertical position to 10. <i>Règle la position horizontale à 10.</i>

A-3: ERROR RESPONSES

When the device receives from the control device an invalid command or value, it returns an error response:

Command / Commande		Response Réponse	Description
Value/ Valeur	Character / Caractère		
none aucune	Z	E10	Invalid command. / <i>Commande invalide.</i>
70260	H	E13	Invalid value. / <i>Valeur invalide.</i>

ANNEXE A: GUIDE DE PROGRAMMATION**A-1: INTRODUCTION**

Si vous souhaitez utiliser votre propre logiciel de contrôle avec votre PC, MAC ou Station de Travail par un port RS-232, l'appareil peut communiquer par simple émission / réception de caractères ASCII.

L'appareil traite tous les caractères reçus sur son port RS-232 comme des commandes possibles; seules certaines commandes sont reconnues et acceptées.

Une commande est constituée d'un ou deux caractères sans code de contrôle ni avant, ni après. Il n'est pas nécessaire d'appuyer sur "ENTER" du clavier. Une commande peut être précédée d'une valeur (voir chapitre A-2: STRUCTURE D'UNE COMMANDE).

Lorsque l'appareil reçoit une commande valide, il exécute cette commande puis renvoie à l'appareil de contrôle l'état de tous les paramètres qui ont été modifiés suite à l'envoi de cette commande.

Si la commande n'est pas reconnue (valeur en dehors de la plage, pas de signal sur l'entrée sélectionnée), l'appareil renvoie uniquement les états des paramètres correspondant.

Si la commande est invalide, une réponse d'erreur sera retournée à l'appareil de contrôle. Toute réponse faite à l'unité de contrôle se termine par un retour à la ligne et par un saut de ligne (CR / LF) signalant la fin de la commande de réponse. (Voir chapitre: A-3: RÉPONSES D'ERREUR).

A-2: STRUCTURE D'UNE COMMANDE

Les commandes sont généralement constituées d'une valeur numérique suivie par 1 ou 2 lettres de commande. Une lettre utilisée sans valeur numérique renvoie l'état de la commande.

Commande = Valeur (optionnelle) + Caractère

A-3: RÉPONSES D'ERREUR

Lorsque l'appareil reçoit de l'appareil de contrôle une valeur ou une commande invalide, il retourne les messages d'erreur suivants:



A-4: COMMANDS AND RESPONSES TABLE

A-4: TABLE DES COMMANDES ET RÉPONSES

COMMAND <i>COMMANDE</i>	RESPONSE <i>RÉPONSE</i>	COMMAND DESCRIPTION <i>DESCRIPTION DE LA COMMANDE</i>	TYPE	VALUE / <i>VALEUR</i>		
				MIN	MAX	DESCRIPTION
FRONT PANEL COMMANDS / <i>COMMANDES DE LA FACE AVANT</i>						
CC	CH	Selected input.	Rd	0	5	<ul style="list-style-type: none"> ● AC212A-R2 & AC216A-R2: 1 = INPUT #1 2 = INPUT #2 3 = INPUT #3 4 = INPUT #4 5 = INPUT #5 ● AC212A: 1 = VIDEO 2 = COMPUTER 0 = inactive 1 = active. 1 = BLACK.
CN	CHN	Input selection.	Rd/Wr	0	5	
Z	FRZ	FREEZE.	Rd/Wr	0	1	
FO	OBLK	BLACK output screen selection.	Rd/Wr	0	1	
INPUT COMMANDS / <i>COMMANDES D'ENTRÉE</i>						
PC	PCH	Input selection for adjustment.	Rd/Wr	0	5	0 = All inputs 1 = INPUT #1 2 = INPUT #2 3 = INPUT #3 4 = INPUT #4 5 = INPUT #5
PE	PEN	Input disabling (according to PCH).	Rd/Wr	0	1	0 = Input disable 1 = Input enable
PR	PRGB	Input signal type selection. (according to PCH).	Rd/Wr	0	7	0 = SDTV Composite 1 = SDTV S.VIDEO 2 = SDTV YUV 3 = SDTV RGBs TTL. 4 = SDTV RGSb 5 = SDTV RGB ana. 6 = reserved 7 = Computer
PI	PSTD	Input standard selection (according to PCH).	Rd/Wr	0	4	0 = NTSC / PAL / SECAM 1 = NTSC 2 = PAL 3 = SECAM 4 = Black & White
PP	PPRC	VCR mode (according to PCH).	Rd/Wr	0	1	0 = OFF 1 = ON
PM	PM	Input priority	Rd/Wr	0	2	0 = no priority 1 = video priority 2 = computer priority
OUTPUT COMMANDS / <i>COMMANDES DE SORTIE</i>						
oY	OTYP	Output type selection (AC216A-R2)	Rd/Wr	0	3	1 = analog 2 = DVI 3 = analog & DVI
FM	OFTM	Output format selection.	Rd/Wr	0	9	0 = 800x600 1 = 1024x768 2 = 1280x1024 3 = 1400x1050 4 = 1600x1200 5 = reserved 6 = 852x480 7 = 1280x768 8 = 1366x768 9 = 720p 10 = 640x480
XR	REFR	Output rate mode	Rd/Wr	0	1	0 = internal rate 1 = follow input
oR	ORTM	Output frame rate selection.	Rd/Wr	0	3	0 = 50 Hz 1 = 60 Hz 2 = 72 Hz 3 = 75 Hz
op	OPAT	Centering pattern	Rd/Wr	0	1	0 = OFF 1 = ON
FY	OSYN	Output sync selection.	Rd/Wr	0	2	0 = H & V 1 = Composite 2 = SOG (Sync On Green).
IMAGE COMMANDS / <i>COMMANDES DU MENU IMAGE</i>						
H	HP	Horizontal position.	Rd/Wr	0	255	
V	VP	Vertical position.	Rd/Wr	0	255	
W	HW	Horizontal size.	Rd/Wr	0	255	
S	VS	Vertical size.	Rd/Wr	0	255	
QA	ASP	Input aspect ratio selection.	Rd/Wr	0	2	0 = 4/3 standard 1 = 16/9 letterbox 2 = WS anamorphic.
QS	OASP	Output aspect ratio selection	Rd/Wr	0	2	0 = Standard 1 = Full screen 2 = Crop
B	BRG	Brightness adjustment (video).	Rd/Wr	0	255	
D	CON	Contrast adjustment (video).	Rd/Wr	0	255	
O	COL	Color adjustment (video).	Rd/Wr	0	255	
T	HUE	Hue adjustment (video NTSC).	Rd/Wr	0	255	
QO	OVR	Underscan / overscan (video).	Rd/Wr	0	1	0 = underscan 1 = overscan
QP	PRO	Sharpness adjustment (video).	Rd/Wr	0	7	0 = standard level 1 = level 1 2 = level 2..... 7 = level 7.
yP	PRES	PRESET.	Rd/Wr	0	1	1 = PRESET action (automatic reset).
NOTE: Rd = Read only command / <i>Commande de lecture.</i> Rd/Wr = Read and write command / <i>Commande de lecture et d'écriture.</i>						



COMMAND <i>COMMANDE</i>	RESPONSE <i>RÉPONSE</i>	COMMAND DESCRIPTION <i>DESCRIPTION DE LA COMMANDE</i>	TYPE	VALUE / <i>VALEUR</i>		
				MIN	MAX	DESCRIPTION
STATUS COMMANDS / <i>COMMANDES D'ÉTAT</i>						
U	UNIT	Measures unity in kHz.	Rd	0	65535	
IL	ILD	This command allows to calculate the input line frequency in Hz.	Rd	0	65535	Line frequency (in kHz) = (UNIT VALUE) ÷ (ILD VALUE).
ID	IFD	This command allows to calculate the input frame frequency in Hz.	Rd	0	65535	Frame frequency (in Hz) = (Line frequency in Hz) ÷ (IFD VALUE).
IP	IPS	Input Sync. detection.	Rd	0	1	0 = not detected 1 = Sync. detected.
IH	IHP	Sign of the horizontal input Sync.	Rd	0	1	0 = negative 1 = positive.
IV	IVP	Sign of the vertical input Sync.	Rd	0	1	0 = negative 1 = positive.
IK	IST	Input Sync type detection.	Rd	0	3	0 = H & V. 2 = SOG. 1 = Comp. (TTL). 3 = Composite (ana)
II	IIN	Interlaced signal detection.	Rd	0	1	0 = not interlaced 1 = interlaced.
IO	IOO	"Out of range" signal detection.	Rd	0	1	0 = In range 1 = Out of range.
IF	IFA	Standard input signal detection.	Rd	0	11	0 = no signal. 1 = not compatible. 2 = NTSC (3.58/60). 3 = PAL (4.43/50). 4 = SECAM (50Hz). 5 = B & W (50Hz). 6 = B & W (60Hz). 7 = YUV 50 Hz. 8 = YUV @ 60 Hz. 9 = RGB @ 50 Hz. 10 = RGB @ 60 Hz. 11 = Computer
XF	REFF	Standard of the synchronized input.	Rd	0	11	8 = YUV @ 60 Hz. 9 = RGB @ 50 Hz. 10 = RGB @ 60 Hz. 11 = Computer
XT	REFT	Frame frequency of the synchronized input.	Rd	0	65535	Value in hundredth of Hz.
XA	REFA	Synchronized input.	Rd	0	1	0 = Internal rate 1 = follow selected in.
ut	TKEV	Transition availability.	Rd	0	1	1 = New input ready to commute.
NOTE: Rd = Read only command / <i>Commande de lecture.</i> Rd/Wr = Read and write command / <i>Commande de lecture et d'écriture.</i>						



A-5: ASCII / HEX / DEC TABLE**A-5: TABLE ASCII / HEX / DEC**

ASCII	HEX	DEC	ASCII	HEX	DEC	ASCII	HEX	DEC
space	20	32	@	40	64	`	60	96
!	21	33	A	41	65	a	61	97
"	22	34	B	42	66	b	62	98
#	23	35	C	43	67	c	63	99
\$	24	36	D	44	68	d	64	100
%	25	37	E	45	69	e	65	101
&	26	38	F	46	70	f	66	102
'	27	39	G	47	71	g	67	103
(	28	40	H	48	72	h	68	104
)	29	41	I	49	73	i	69	105
*	2A	42	J	4A	74	j	6A	106
+	2B	43	K	4B	75	k	6B	107
,	2C	44	L	4C	76	l	6C	108
-	2D	45	M	4D	77	m	6D	109
.	2E	46	N	4E	78	n	6E	110
/	2F	47	O	4F	79	o	6F	111
0	30	48	P	50	80	p	70	112
1	31	49	Q	51	81	q	71	113
2	32	50	R	52	82	r	72	114
3	33	51	S	53	83	s	73	115
4	34	52	T	54	84	t	74	116
5	35	53	U	55	85	u	75	117
6	36	54	V	56	86	v	76	118
7	37	55	W	57	87	w	77	119
8	38	56	X	58	88	x	78	120
9	39	57	Y	59	89	y	79	121
:	3A	58	Z	5A	90	z	7A	122
;	3B	59	[	5B	91	{	7B	123
<	3C	60	\	5C	92	|	7C	124
=	3D	61	]	5D	93	}	7D	125
>	3E	62	^	5E	94	~	7E	126
?	3F	63	_	5F	95	DEL	7F	127

