



User's Manual



MODEL: tv401



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 DI SICUREZZA

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 erroneo 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

CAUIDADO : 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.

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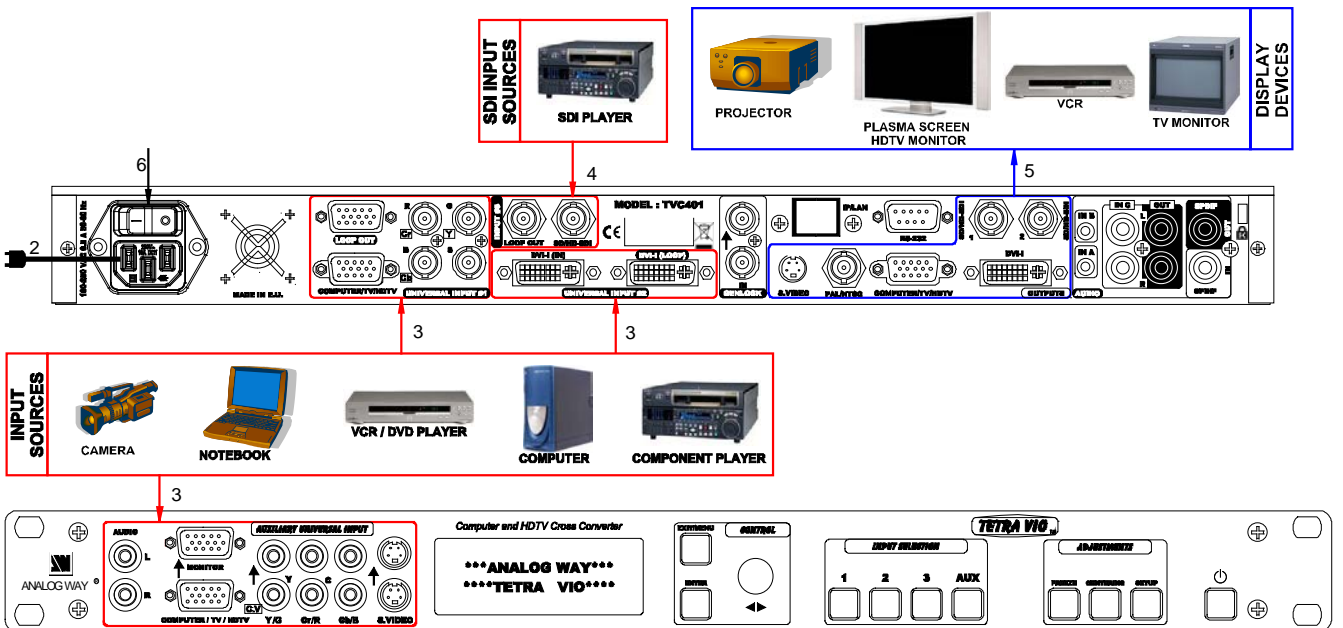
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CONNECTIONS:

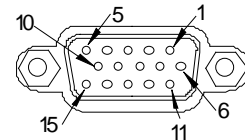
- ① Turn OFF all of your equipment before connecting.
 - ② Connect the AC power supply cord to the TETRA VIO and to an AC power outlet.
 - ③ Connect your computer & video sources to the 3 universal inputs of the TETRA VIO.
 - If you need to connect a digital computer source, use the input #2 (DVI-I IN connector).
 - Connect your other analog sources to the inputs #1 and AUXILIARY (front panel).
 - IMPORTANT:** Connect only one source by input.
 - ④ Connect your SDI or HDSDI video source to the input #3.
 - ⑤ Connect your Hi-Resolution display device (projector, plasma screen...) to the HD15 connector, or connect your video display device (TV, VCR...) to the mini DIN (S.VIDEO), BNC (composite PAL/NTSC) or HD15 connectors, or connect your DVI display device to the DVI-I connector, or connect your digital display device to the SD/HD-SDI BNC connectors.
- NOTE:**
- In SDTV output format, the Composite video, S-VIDEO, YUV/RGSB/RGBS, SDI & DVI signals are available simultaneously (on respectively BNC, mini DIN, HD15, BNC & DVI connectors).
 - In EDTV output format, the YUV/RGSB/RGBS & DVI signals are available simultaneously (on respectively HD15 & DVI connectors).
 - In HDTV output format, the YUV/RGSB/RGBS, SDI & DVI-D YUV/RGB (16-235) signals are available simultaneously (on respectively HD15, BNC & DVI connectors).
 - In Computer output format, the RGBHV/RGBS/RgB & DVI-D RGB (0-255) signals are available simultaneously (on respectively HD15 & DVI connectors).
- ⑥ Turn ON the TETRA VIO (rear panel switch). Then turn ON all your input sources and then your display device.

• TETRA VIO connection diagram:



• HD15 connector pin assignment (inputs #1 & AUX - input #2 with the DVI/HD15 adaptor):

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



SETTINGS:

- ① We recommend resetting the TETRA VIO to its **default values**, with the front panel display menu (**CONTROL > Default values > Yes**) before proceeding.
- ② Activate the auto-setting function (Press the **SETUP** front panel button or select auto-setting with the front panel display menu **INPUT > Auto setting**). This function detects automatically the input type of the source connected to the input connectors. Then the device performs an auto-centering function.
- ③ Select the Input status menu (**INPUT > Input status**) to verify the correct detection of the type and format of your input source. If a wrong message is displayed, select manually the type of your input source (**INPUT > Input # > Type**). Renew the step ③ for each input connected to the device.
- ④ In case of audio connection, assign the audio input to the needed video input (**INPUT > Input # > Audio input**).
- ⑤ Select the **output format** which corresponds to your display device with the front panel display menu (**OUTPUT > Output format**).
- ⑥ Select one of the **output rate** available with the front panel display menu (**OUTPUT > Output rate**).
- ⑦ Select the **output type** with the front panel display menu (**OUTPUT > Analog type & DVI type**).
- ⑧ For each input source connected to the TETRA VIO, make the following adjustments available in the **IMAGE** menu.

TETRA VIO™

Chapter 1 : INTRODUCTION

1-1. ACCESSORIES SUPPLIED WITH YOUR DEVICE

- 1 AC Power supply cord.
- 1 HD15 to BNC (x5) breakout cable (male / female).
- 1 DVI / HD15 adaptor (male / female).
- 1 CD-ROM (Remote Control Software).
- 1 User's Manual.

1-2. GENERAL INFORMATION

Tetra-VIO™ by Analog Way is a highly versatile A/V Switcher / Converter / Interface with 3 universal Inputs and 1 SD/HD-SDI Input. It accepts a large range of formats, from Computer to Video and HDTV, in Analog or Digital format, and provides a large range of connectors: BNC, HD15, DVI, mini DIN4, Cinch, RCA. The output provides the same diversity of formats, and the same type of signals and connectors.

4 A/V Inputs: 3 Universal + 1 HD/SD-SDI

Each of the 3 universal inputs features an active loop through (monitoring) for easy control of the sources and accepts the following formats:

- **TV:** NTSC/PAL/SECAM, S.VIDEO, RGB or YUV, HDTV in HD-YUV or HD-RGB analog,
- **Computer:** RGB up to UXGA and 2K. Input 2 also accepts digital DVI signal.

The 4th input is dedicated to SDI & HD-SDI 10 bits with embedded stereo audio.

Genlock

Equipped with an Analog Genlock input with an active loop through. Tetra-VIO offers a choice between SDTV Black Burst and Black HD-YUV. It allows genlocking of HDTV output signal on an SDTV Black Burst. User phase adjustments are available for a perfect result.

Formats I/O

Tetra-VIO supports numerous input and output formats and signal types. These formats are:

- | | |
|----------|--|
| HDTV | <ul style="list-style-type: none"> • 720p @ 60, 59.94 & 50 Hz • 1080i @ 60, 59.94 & 50 Hz • 1035i @ 60 Hz & 59.94 Hz, • 1080sF @ 30, 29.97 & 25 Hz, • 1080p @ 30, 29.97, 25, 24, 23.98 Hz |
| TV | <ul style="list-style-type: none"> • NTSC – 525i @ 60 & 59.94 Hz – 15.735 kHz • PAL– 625i @ 50 Hz – 15.625 kHz • Progressive NTSC - 31.471 kHz@60/59.94Hz • Progressive PAL- 31.250kHz@50Hz |
| COMPUTER | • up to 2048x1080RB, 1920x1200RB & 1600x1200 @60Hz in both analog RGB & DVI. |

Output

The same format is available simultaneously on different outputs. For example: Computer formats are delivered in RGB and in DVI-D at the same time, SD-TV formats are available in Composite, S.VIDEO, YUV and SDI, etc.

Tetra-VIO features 4 Analog Audio Stereo In and 1 Out and also one Digital SPDIF audio In/Out. It allows embedding Analog and SPDIF Digital Audio stereo signal into SD/HD-SDI with A/V delay compensation. (Fs: 48kHz – 20/24 bits). It also extracts and outputs SPDIF digital Audio stereo signal from the SD/HD-SDI embedded stream.

Tetra-VIO offers a high quality image thanks to:

- its new high performance true 10 bits video path processing with automatic 3:2 and 2:2 pull down circuitry,
- de-interlaced SD and HD TV format,
- auto adaptative pixel per pixel level motion compensation,
- auto centering, clock, time base corrector,
- frame rate converter and follower and
- multi-level anti-flicker.

The image adjustments and device setup are recorded in a non-volatile memory.

1-2. GENERAL INFORMATION (continued)

Tetra-VIO is a universal device with six functions in one: Scan Converter, Scaler, Standard converter with TBC, Audio De/Embedder, Switcher and Interface. Its high flexibility makes it essential in complex installations. It is extremely useful in solving signal compatibility issues at the last minute. In addition to a powerful multi-format Converter, Tetra-VIO is also a smooth and fast Audio / Video Switcher offering many useful possibilities such as 500% Zoom, user programmable EDID for DVI input, etc... The standard RS232 connection and GUI allow a full remote control of the device and also upgrade capability to maintain the high value of your equipment. Optional RJ45 is available for TCP/IP control.

Tetra-VIO is your accurate “all in one” Versatile Input/Output tool.

1-3. DEVICES & OPTIONS REFERENCES

REFERENCE	DESIGNATION
TVC401	TETRA VIO
OPT-LAN	LAN communication port (optional).

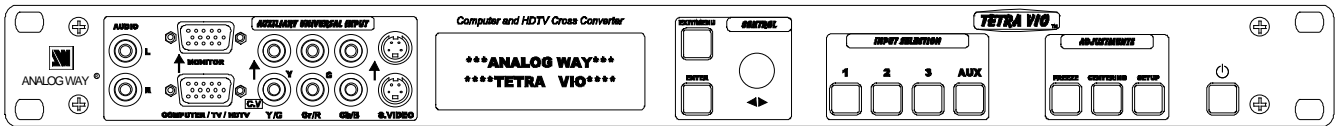
1-4. INSTALLATION

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

- **Table Top Mounting:** The device can be used directly on a table: the unit is equipped with 4 plastic feet.
- **Rack Mounting:** The device 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 device 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 to 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.**

1-5. FRONT PANEL DESCRIPTION



- AUXILIARY UNIVERSAL INPUT:** Universal (computer and video) input. This input accepts the following sources:
- AUDIO L+R:** Audio stereo source on 2xRCA connectors.
 - COMPUTER/TV/HDTV:** Computer (RGBHV, RGBS or RGsB) or video (SDTV or HDTV) source with loophrough on a HD15 female connector.
 - Y / Cr / Cb:** Component (SDTV or HDTV) sources with loophrough on 3xRCA female connectors.
 - R / G / B:** RGB video source with loophrough on 3xRCA female connectors.
 - S.VIDEO:** S.VIDEO (Y/C) source with loophrough on 2xRCA female connector or on a 4-pin mini DIN connector.
 - C.V:** Composite Video (PAL, NTSC...) source with loophrough on a RCA female connector.

CONTROL

- ◀ ▶** Allows scrolling thru the different menus (in Control mode).
- EXIT MENU:** Switches between Status and Control mode.
- ENTER:** Validates a selected item.

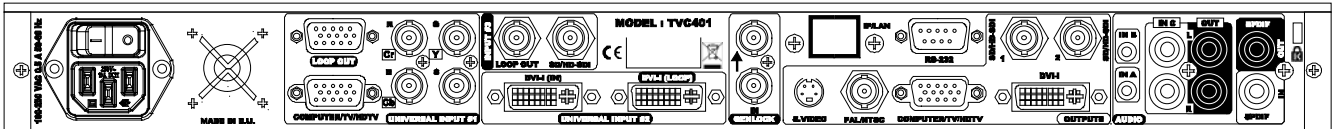
INPUT SELECTION

- 1, 2, 3:** Selection of the 3 input sources (short push).
- AUX:** Selection of the auxiliary input source (short push).
- NOTE:** A long push (1 second) on the selected input button allows to active the **BLACK** function. A black screen is displayed onto the output (the blinking LED indicates that this function is active). A short push on an INPUT SELECTION button allows to inactive this function.

ADJUSTMENT

- FREEZE:** Freezes the displayed output (the FREEZE button turns RED).
- CENTERING:** Adjusts automatically the image in the centering pattern.
- SETUP:** Automatic configuration.

1-6. REAR PANEL DESCRIPTION



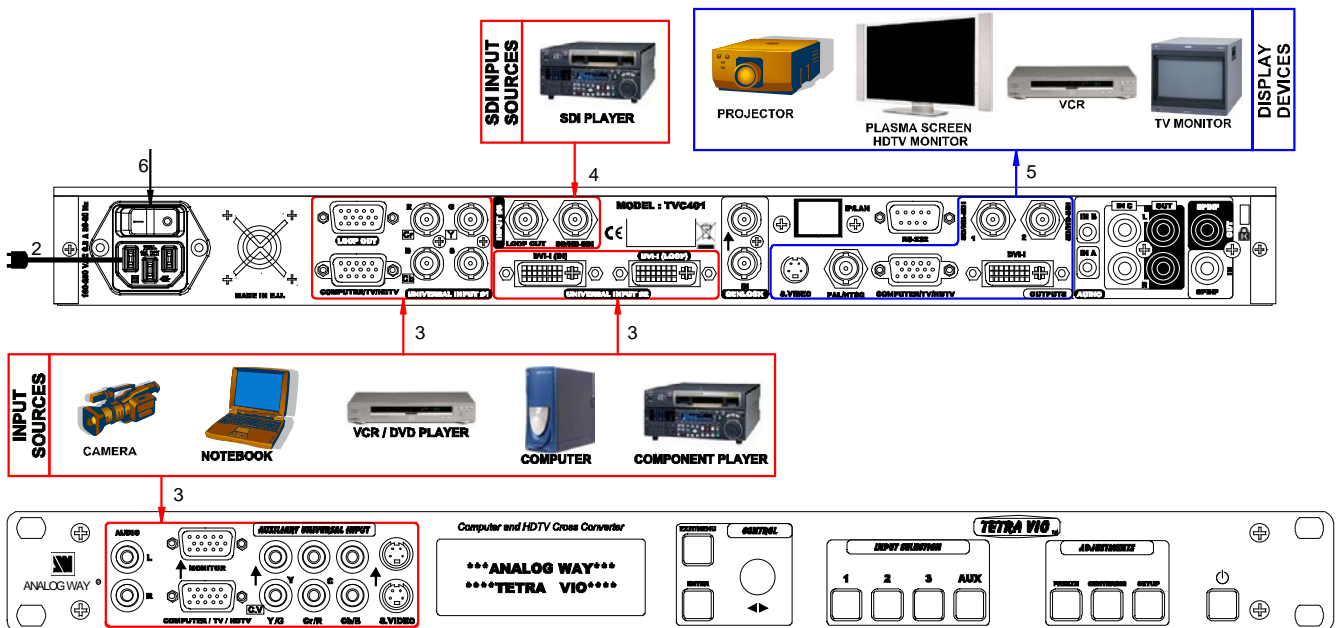
- POWER:** Standard IEC connector (100-250 VAC, 1A, 50-60Hz automatic).
- O / I:** AC power switch (O = OFF, I = ON).
- UNIVERSAL INPUT #1:** Universal (computer and video) input. This input accepts one of the following sources:
COMPUTER/TV/HDTV: Computer or video source with loopthrough on a HD15 female connector.
RGBS / Y-Cr-Cb: Computer (RGBS or RGsB) source, Component (SDTV or HDTV) source, S.VIDEO (Y/C) source or Composite Video source on BNC female connectors.
- UNIVERSAL INPUT #2:** Universal (computer and video) input. This input accepts one of the following sources:
DVI-I (IN): Computer (analog or digital) source or video (SDTV & HDTV) source on a DVI-I female connector.
- LOOP OUT:** Universal loopthrough.
- INPUT #3:** Universal (computer and video) input. This input accepts one of the following sources:
SD/HD-SDI: SDI or HSDI source with loopthrough on a BNC female connector.
LOOP OUT: SD/HD-SDI loopthrough.
- GENLOCK:** Analog genlock input (IN) with loopthrough.
- OUTPUTS:** Universal (computer and video) outputs.
DVI-I: Computer (digital) output on a DVI-I female connector.
COMPUTER/TV/HDTV: Computer (RGBHV, RGBS or RGsB) output or Component (SDTV or HDTV) output or S.VIDEO (Y/C) output or Composite Video output on a HD15 female connector.
S.VIDEO: S.VIDEO (Y/C) output on a 4-pin mini DIN female connector.
PAL/NTSC: Composite Video (PAL/NTSC) output on a BNC female connector.
SD/HD-SDI: 2 SD-SDI or HD-SDI outputs on BNC female connectors.
- NOTE:** -In SDTV output format, the Composite video, S-VIDEO, YUV/RGSB/RGBS, SDI & DVI signals are available simultaneously (on respectively BNC, mini DIN, HD15, BNC & DVI connectors).
 -In EDTV output format, the YUV/RGSB/RGBS, & DVI signals are available simultaneously (on respectively HD15, & DVI connectors).
 -In HDTV output format, the YUV/RGSB/RGBS, SDI & DVI-D YUV/RGB (16-235) signals are available simultaneously (on respectively HD15, BNC & DVI connectors).
 -In Computer output format, the RGBHV/RGSB/RGBs & DVI-D RGB (0-255) signals are available simultaneously (on respectively HD15 & DVI connectors).
- RS-232:** RS-232 communication port on a DB9 female connector.
- IP/LAN:** LAN communication port on a RJ45 connector (optional).
- AUDIO:**
IN A: Audio stereo input on 3.5mm jack female connectors.
IN B: Audio stereo input on 3.5mm jack female connectors.
IN C: Audio stereo input on 2xRCA (L - R) female connectors.
OUT: Audio stereo output on 2x RCA (L - R) female connectors.
SPDIF OUT: Digital audio output on RCA female connector (SPDIF: Sony/Philips Digital Interconnect Format).
SPDIF IN: Digital audio input on RCA female connector (SPDIF: Sony/Philips Digital Interconnect Format).

Chapter 2 : STARTING

2-1. CONNECTIONS

- ① Turn OFF all of your equipment before connecting.
- ② Connect the AC power supply cord to the TETRA VIO and to an AC power outlet.
- ③ Connect your computer & video sources to the 3 universal inputs of the TETRA VIO.
 - If you need to connect a digital computer source, use the input #2 (DVI-I IN connector).
 - Connect your other analog sources to the inputs #1 and AUXILIARY (front panel).
- IMPORTANT:** Connect only one source by input.
- ④ Connect your SDI or HDSDI video source to the input #3.
- ⑤ Connect your Hi-Resolution display device (projector, plasma screen...) to the HD15 connector, or connect your video display device (TV, VCR...) to the mini DIN (S.VIDEO), BNC (composite PAL/NTSC) or HD15 connectors, or connect your DVI display device to the DVI-I connector, or connect your digital display device to the SD/HD-SDI BNC connectors.
- NOTE:**
 - In SDTV output format, the Composite video, S-VIDEO, YUV/RGSB/RGBS, SDI & DVI signals are available simultaneously (on respectively BNC, mini DIN, HD15, BNC & DVI connectors).
 - In EDTV output format, the YUV/RGSB/RGBS & DVI signals are available simultaneously (on respectively HD15 & DVI connectors).
 - In HDTV output format, the YUV/RGSB/RGBS, SDI & DVI-D YUV/RGB (16-235) signals are available simultaneously (on respectively HD15, BNC & DVI connectors).
 - In Computer output format, the RGBHV/RGBS/RGsB & DVI-D RGB (0-255) signals are available simultaneously (on respectively HD15 & DVI connectors).
- ⑥ Turn ON the TETRA VIO (rear panel switch). Then turn ON all your input sources and then your display device.

• **TETRA VIO connection diagram:**



2-2. INPUT #1 DESCRIPTION

① CONNECTION:

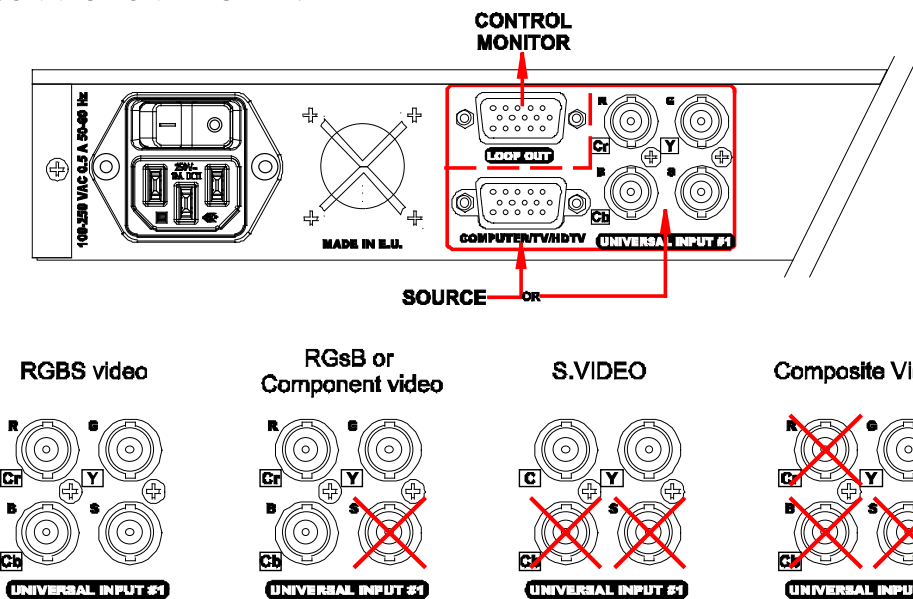
You can connect to this input one of the following source:

- A composite video source on the **Y** BNC connector or on the **COMPUTER/TV/HDTV HD15** (bottom) connector.
- A S.VIDEO source on the **Y** and **Cr** BNC connectors or on the **COMPUTER/TV/HDTV HD15** (bottom) connector.
- A Component video source (YCrCb or HD-YCrCb) on the **Cr**, **Y** and **Cb** BNC connectors or on the **COMPUTER/TV/HDTV HD15** (bottom) connector.
- A RGBS source on the **R**, **G**, **B** and **S** BNC connectors or on the **COMPUTER/TV/HDTV HD15** (bottom) connector.
- An analog (RGBHV, RGsB, RGBS) computer source on the HD15 **COMPUTER/TV/HDTV** (bottom) connector.

② LOOP OUT:

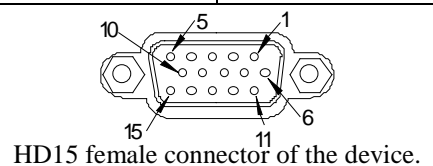
You can connect a control monitor to the HD15 (LOOP OUT) connector. This connector can be used as well with analog sources connected to the BNC inputs.

③ INPUT #1 CONNECTION DIAGRAM:



④ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	VIDEO RGB/S	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



HD15 female connector of the device.

2-3. INPUT #2 DESCRIPTION

① CONNECTION:

You can connect to this input one of the following source:

- A digital computer source on the DVI-I (IN) connector.
- An analog computer source (RGBHV, RGSB, RGBS) on the DVI-I (IN) connector.

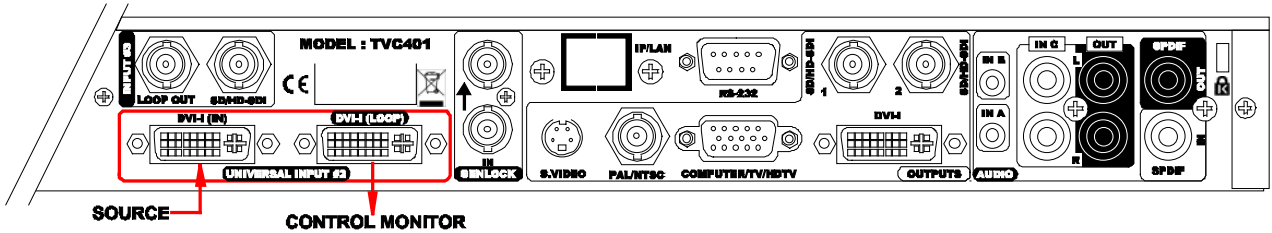
NOTE: You can use the DVI / HD15 adaptor provided with the device to connect analog sources on the DVI-I (IN) connector.

- You can also connect to this input a composite video source or a S.VIDEO source or a Component video source (YCrCb or HD-YCrCb) or a RGBS source. For the connection of these sources you may required the adaptors provided with the device.

② LOOP-THROUGH:

You can connect a control monitor to the DVI-I (LOOP OUT) connector.

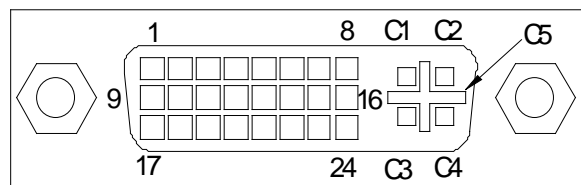
③ INPUT #2 CONNECTION DIAGRAM:



④ DVI-I PIN ASSIGNMENT:

This connector 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 (or Cr / Pr or C)				
C2	Analog Green Video (or Y or composite video)				
C3	Analog Bleu Video (or Cb / Pb)				
C4	Analog Horizontal Sync (or composite sync)				
C5	Analog Common Ground Return				



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

2-4. INPUT #3 DESCRIPTION

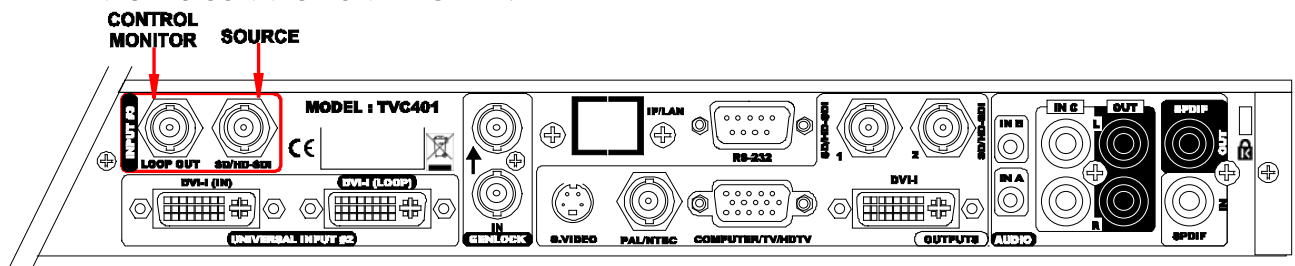
① CONNECTION:

You can connect a SD-SDI or HD-SDI source on the **SD/HD-SDI** BNC connector.

② LOOP-THROUGH:

You can connect a control monitor to the BNC (**LOOP OUT**) connector.

③ INPUT #3 CONNECTION DIAGRAM:



2-5. AUXILIARY INPUT DESCRIPTION

① CONNECTION:

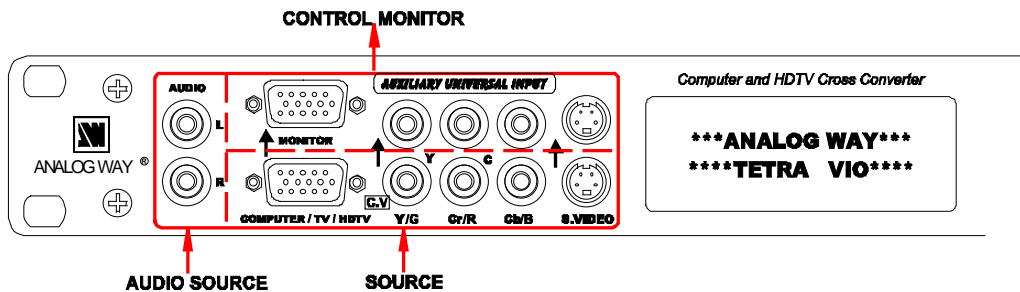
You can connect to this input one of the following source:

- A Composite Video source on the **C.V** RCA connector or on the **COMPUTER/TV/HDTV** connector (bottom HD15).
- A S.VIDEO source on the **S.VIDEO** connector (bottom 4-pin mini DIN) or on the **Y & C** connectors (bottom RCA) or on the **COMPUTER/TV/HDTV** connector (bottom HD15).
- A Component video source on the **Y, Cr & Cb** (bottom RCA) connectors or on the **COMPUTER/TV/HDTV** connector (bottom HD15).
- A HDTV source on the **Y, Cr & Cb** (bottom RCA) connectors or on the **COMPUTER/TV/HDTV** connector (HD15 bottom).
- A RGBS source on the **COMPUTER/TV/HDTV** connector (bottom HD15).
- An analog computer source (RGBHV, RGsB or RGBS) on the **COMPUTER/TV/HDTV** (bottom HD15) connector.

② LOOP-THROUGH:

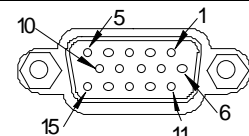
You can connect a control monitor to the loop-through connectors (top BNC, 4-pin mini DIN & HD15 connectors).

③ CONNECTION DIAGRAM:



④ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)	S.VIDEO (Y/C)	COMPOSITE VIDEO
PIN 1	RED.	RED.	Cr / Pr.	C (chrominance).	
PIN 2	GREEN.	GREEN.	Y.	Y (luminance).	VIDEO (NTSC, PAL...)
PIN 3	BLUE.	BLUE.	Cb / Pb.		
PIN 6	RED return.	RED return.	Cr / Pr return.	C return.	
PIN 7	GREEN return.	GREEN return.	Y return.	Y return.	
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.		
PIN 10	GND.	GND.			
PIN 13	H sync or C sync (S).	C sync (S).			
PIN 14	V sync.				



HD15 female connector of the device.

⑤ AUDIO SOURCE:

You can also connect an AUDIO stereo source on 2xRCA connectors.

2-6. OUTPUT DESCRIPTION

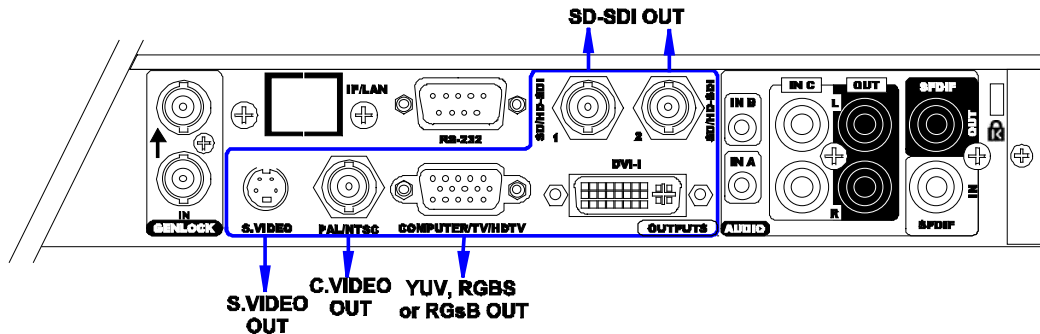
① CONNECTION:

According to the Output format configuration you may connect one or many of the following devices:

- A Hi-Resolution display device (projector, plasma screen...) to the HD15 connector,
- A video device (TV, VCR...) to the mini DIN (S.VIDEO), BNC (composite PAL/NTSC) or HD15 connectors,
- A DVI display device to the DVI-I connector,
- A digital device to the SD/HD-SDI BNC connectors.

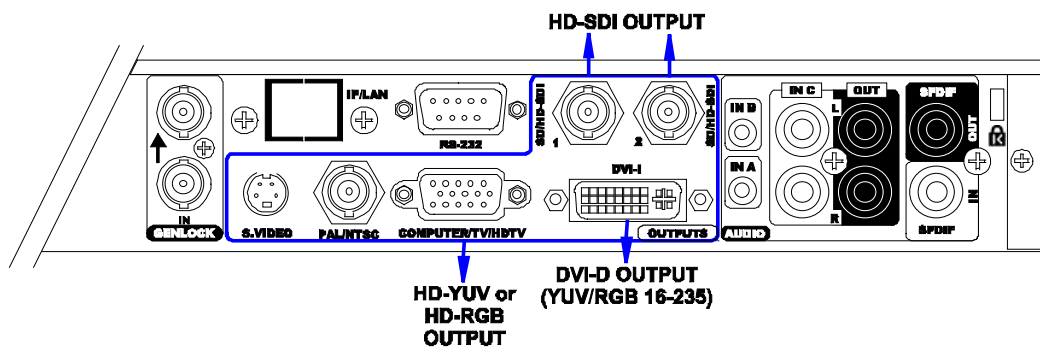
② OUTPUT CONNECTION DIAGRAMS:

- In SDTV output format, the Composite video, S-VIDEO, YUV/RGSB/RGBS, SDI & DVI signals are available simultaneously (on respectively BNC, mini DIN, HD15, BNC & DVI connectors).



- In EDTV output format, the YUV/RGSB/RGBS, & DVI signals are available simultaneously (on respectively HD15 & DVI connectors).

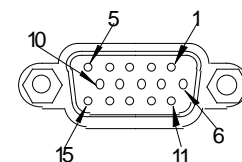
- In HDTV output format, the YUV/RGSB/RGBS, SDI & DVI-D YUV/RGB (16-235 or 0-255) signals are available simultaneously (on respectively HD15, BNC & DVI connectors).



- In Computer output format, the RGBHV/RGSB/RGB & DVI-D RGB (0-255) signals are available simultaneously (on respectively HD15 & DVI connectors).

③ HD15 PIN ASSIGNMENT:

SIGNAL	COMPUTER (analog)	RGB/S VIDEO	YUV & HDTV (analog)
PIN 1	RED.	RED.	Cr / Pr.
PIN 2	GREEN.	GREEN.	Y.
PIN 3	BLUE.	BLUE.	Cb / Pb.
PIN 6	RED return.	RED return.	Cr / Pr return.
PIN 7	GREEN return.	GREEN return.	Y return.
PIN 8	BLUE return.	BLUE return.	Cb / Pb return.
PIN 10	GND.	GND.	
PIN 13	H sync or C sync (S).	C sync (S).	
PIN 14	V sync.		



HD15 female connector of the device.

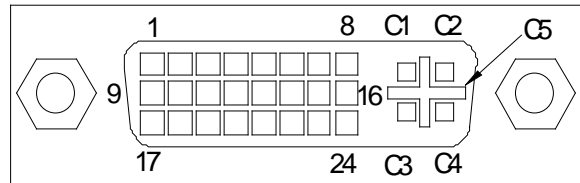
2-6. OUTPUT DESCRIPTION

④ DVI-I PIN ASSIGNMENT:

This connector 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 (or Cr / Pr)
C2	Analog Green Video (or Y)
C3	Analog Bleu Video (or Cb / Pb)
C4	Analog Horizontal Sync (or composite sync)
C5	Analog Common Ground Return



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

2-7. AUDIO INPUTS & OUTPUTS

① DESCRIPTION:

Tetra-VIO features 4 Analog Audio Stereo In and 1 Out and also one Digital SPDIF audio In/Out. It allows embedding Analog and SPDIF Digital Audio stereo signal into SD/HD-SDI with A/V delay compensation. (Fs: 48kHz – 20/24 bits). It also extracts and outputs SPDIF digital Audio stereo signal from the SD/HD-SDI embedded stream.

② AUDIO INPUTS:

Each audio input can be assigned to one or several video input.
 Rear panel connector:

- IN A: Audio stereo input on 3.5mm jack female connectors.
- IN B: Audio stereo input on 3.5mm jack female connectors.
- IN C: Audio stereo input on 2xRCA (L - R) female connectors.
- SPDIF IN: Digital audio input on RCA female connector.

Front panel connector:

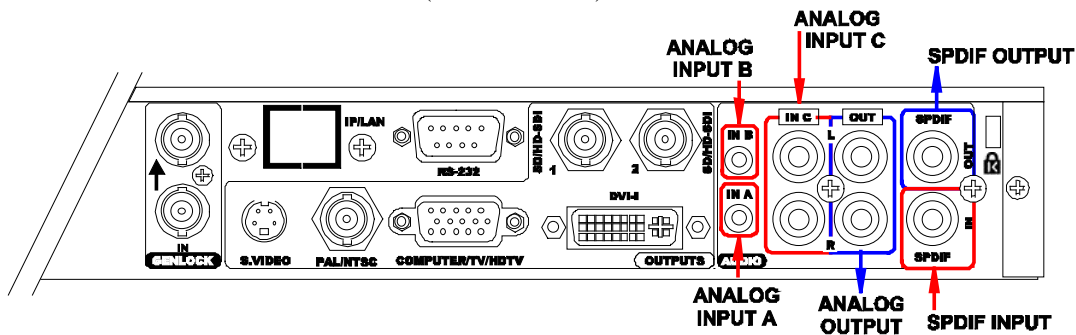
- AUDIO (L - R): Audio stereo input on 2xRCA (L - R) female connectors.

③ AUDIO OUTPUTS:

The ANALOG & SPDIF audio outputs are available simultaneously.

- OUT (L - R): Audio stereo output on 2x RCA (L - R) female connectors.
- SPDIF OUT: Digital audio output on RCA female connector.

④ AUDIO CONNECTOR DIAGRAM (REAR PANEL):



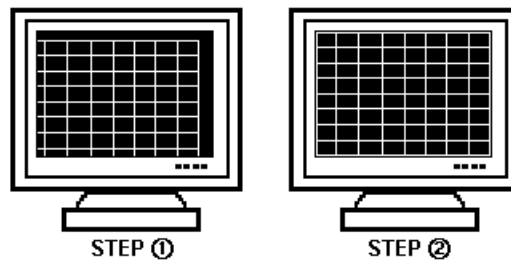
Chapter 3 : OPERATING MODE

3-1. SETTINGS

- ① We recommend resetting the TETRA VIO device to its **default values**, with the front panel display menu (**CONTROL > Default value > Yes**) before proceeding.
- ② Activate the auto-setting function (Press the SETUP front panel button or select auto-setting with the front panel display menu **INPUT > Auto setting**). This function detects automatically the input type of the source connected to the input connectors. Then the device performs an auto-centering function.
- ③ Select the Input status menu (**INPUT > Input status**) to verify the correct detection of the type and format of your input source. If a wrong message is displayed, select manually the type of your input source (**INPUT > Input # > Type**). Renew the step ③ for each input connected to the device.
- ④ In case of audio connection, assign the audio input to the needed video input (**INPUT > Input # > Audio input**).
- ⑤ Select the **Output format** which corresponds to your display device with the front panel display menu (**OUTPUT > Output format**).
- ⑥ Select one of the **Output rate** available with the front panel display menu (**OUTPUT > Output rate**).
- ⑦ Select the **Output type** with the front panel display menu (**OUTPUT > Analog type & DVI type**).

3-2. DISPLAY DEVICE ADJUSTMENTS

- ① Display the **grid pattern** with the front panel display menu (**OUTPUT > Test pattern > Grid**).
- ② Adjust directly the display device itself, using its position and size controls, to fill the grid pattern in full screen.



3-3. IMAGE ADJUSTMENTS

For each input source connected to the TETRA VIO, 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 in**).
- ③ Display the centering pattern (**OUTPUT > Test pattern > Centering**).
- ④ Press the **Centering** front panel button to automatically position the image in the **Centering pattern**.

IMPORTANT: For best results, display a full size bright image (no black border) to perform a centering. If necessary, correct the adjustment with the position & size functions (**IMAGE > Blanking adjust**).

NOTE: The centering function is only available for computer sources.

NOTE: In case of same Input/Output resolution, the centering also achieves automatic pixel clock adjustments. It may be useful, to improve manually the pixel **clock** and **phase** using the screen menu (**IMAGE > Optimize > Clock or Phase**).

- ⑤ If needed, make the others adjustments, available in the screen **IMAGE** menu (color, brightness...).

NOTE: To set the image adjustments to the factory settings, use the **Preset** function (**IMAGE > Preset > Yes**).

NOTE: The adjustments are automatically stored in NON-volatile memories. The TETRA VIO is provided with 40 NON-volatile image memories. Each of these memories contains the input channel number, the input and output format parameters and all of the image adjustments (position, size, brightness...). When the 40 memories are used, each new memorization erases the oldest record.

3-4. AUDIO ADJUSTMENTS

- ① Assign the audio input to the needed video input with the front panel display menu (**INPUT > Input # > Audio input**). The audio input available are Analog A, Analog B, Analog C, Analog Front, SPDIF and Embedded SDI (input #3 only).
- ② Adjust the master volume with the front panel knob (status mode) or with the front panel display menu (**AUDIO > Output > Master volume**).
- ③ For each audio input, adjust the input audio level (**AUDIO > Input > Level**) and the balance (**AUDIO > Input > Balance**).
- ④ In case of SDTV or HDTV output format, activate or deactivate the embedded audio mode. The embedded audio is available on the SD/HD-SDI Outputs (BNC connector).
- ⑤ For the analog audio OUTPUT select the mono or stereo mode (**AUDIO > Output > Mode**).
- ⑥ For the SPDIF audio OUTPUT select the output rate (**AUDIO > Output > SPDIF out rate**).

NOTE: The ANALOG & SPDIF audio outputs are available simultaneously.

Chapter 4 : FRONT PANEL DISPLAY MENUS 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.

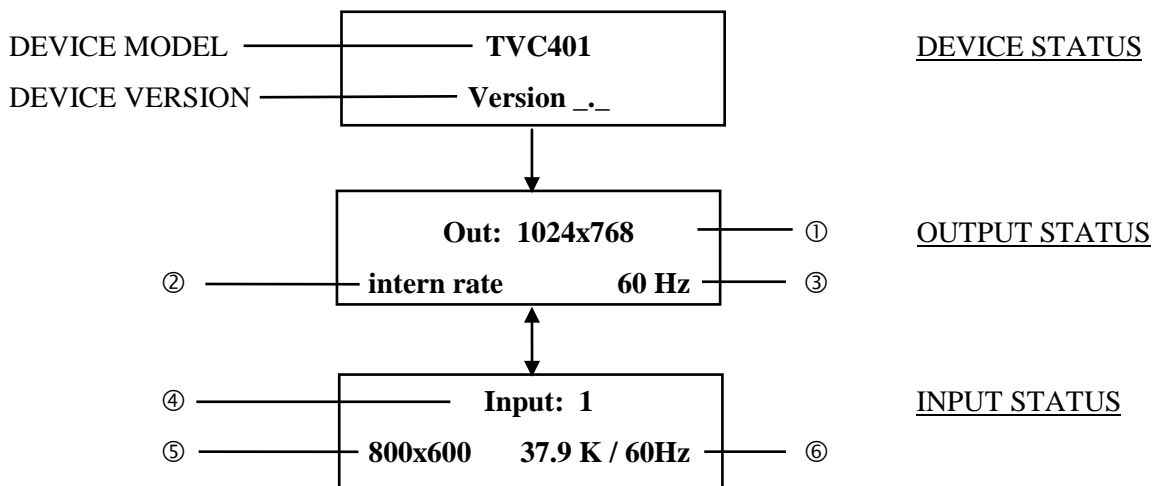
4-2. CONTROL BUTTONS

The front panel display is controlled by 2 buttons and 1 knob:

- ◀ ▶ knob:
 - In the CONTROL MODE, turn this knob to scroll thru the different menus.
 - In the STATUS MODE, turn this knob to adjust the master volume.
- EXIT / MENU** button:
 - In the STATUS MODE, press this button to enter in the CONTROL MODE.
 - In the CONTROL MODE, press this button to:
 - return to the previous menu without safeguarding the selection.
 - return to the STATUS MODE (press several times).
- 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

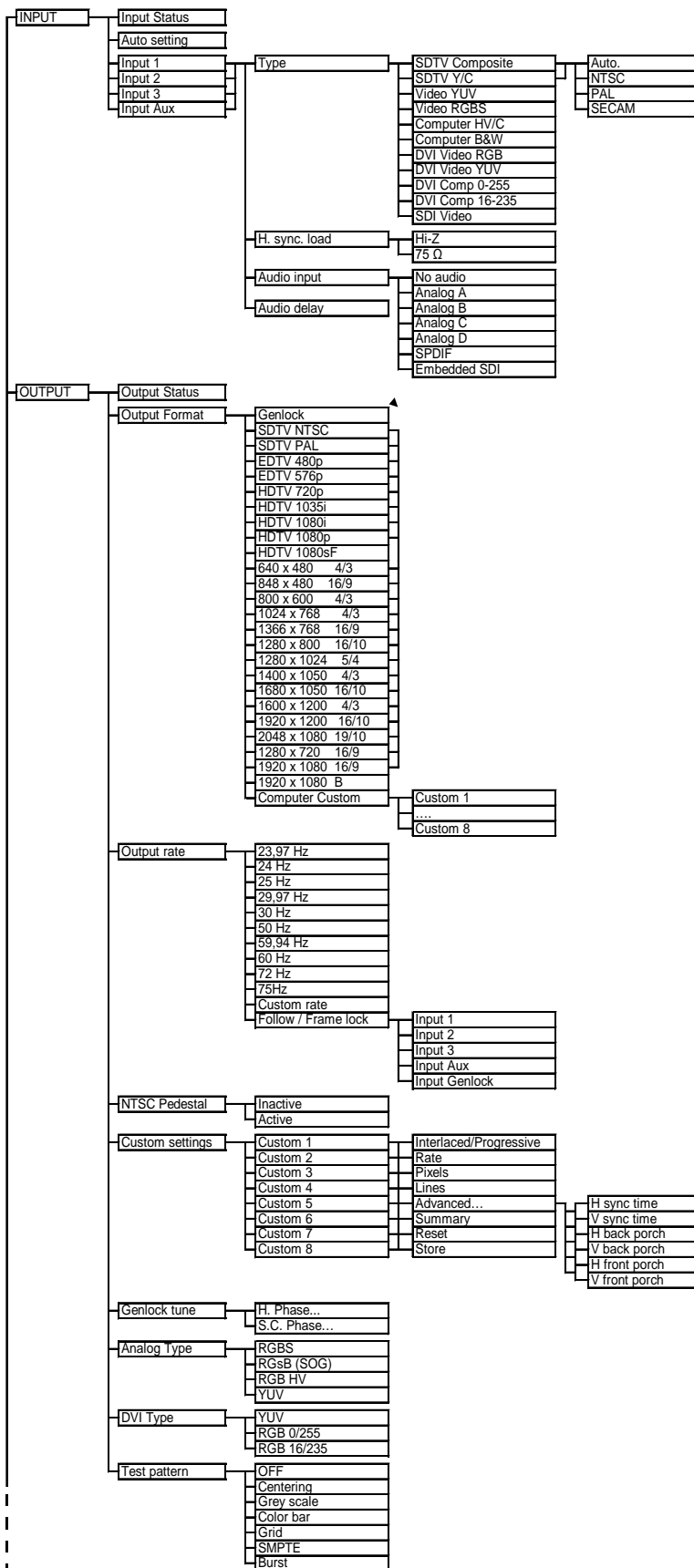
When switching ON, the front panel display shows the product's name and firmware versions as follows:



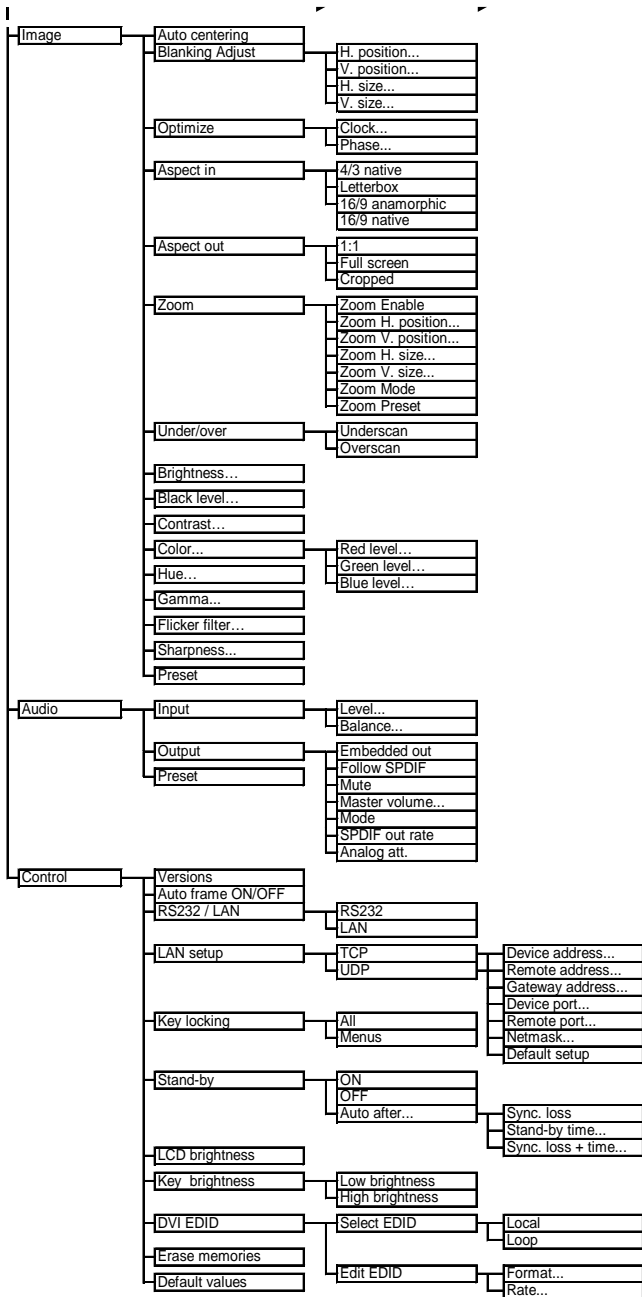
- ① OUTPUT FORMAT.
- ② OUTPUT RATE MODE.
- ③ OUTPUT FRAME RATE.
- ④ SELECTED INPUT.
- ⑤ INPUT FORMAT OR INPUT STANDARD.
- ⑥ INPUT LINE / FRAME FREQUENCY.

4-4. CONTROL MODE

The menus of the CONTROL MODE are configured as follow:



4-4. CONTROL MODE (continued)



4-5. FUNCTIONS DESCRIPTION▶ **[INPUT]**▶ **[Input status]**

Indicates the status of the selected input.

▶ **[Auto settings]**

This function detects automatically the input type of the source connected to the input connectors (DVI & RGB). Then the device performs an auto-centering function.

▶ **[Input ---]**

Input type selection. Select an input then make the following adjustment:

▶ **[Input type]:** Select the type of the source connected to the corresponding input between:

- **[SDTV Composite]**
- **[SDTV Y/C]**
- **[SDTV YUV]**
- **[Video RGBS]**
- **[Video RGsB]**
- **[Computer HV/C]**
- **[Computer SOG]**
- **[Computer B&W]**
- **[DVI video RGB]**
- **[DVI video YUV]**
- **[DVI Comp 0-255]**
- **[DVI Comp 16-235]**
- **[SDI video]**

NOTE: For **[SDTV Composite]** and **[SDTV Y/C]**, select the video standard between:

- **[Auto]:** 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.

▶ **[H sync load]**

H Sync. input load selection.

▶ **[Audio input]**

This function allows to assign the needed Audio input channel to the selected Input---. Select the corresponding audio input.

- ▶ **[Analog A]**
- ▶ **[Analog B]**
- ▶ **[Analog C]**
- ▶ **[Analog Front]**
- ▶ **[SPDIF]**
- ▶ **[Embedded SDI]**

4-5. FUNCTIONS DESCRIPTION (continued)▶ **[OUTPUT]**▶ **[Output Status]**

Displays the output status.

▶ **[Output format]**

Output format selection.

▶ **[Output rate]**

Output rate selection.

▶ **[NTSC pedestal]**

NTSC pedestal selection.

▶ **[Custom settings]**

This function allows customizing one or many output format.

▶ **[Genlock tune]**

Genlock adjustments

▶ **[Genlock H. ph]**

This function allows adjusting the genlock horizontal phase.

▶ **[Genlock Sc. ph]**

This function allows adjusting the genlock Subcarrier phase.

▶ **[Analog type]**

Output type selection for the analog output formats.

▶ **[DVI type]**

Output type selection for the DVI output formats.

▶ **[Test pattern]**

This function allows displaying a test pattern onto the output.

- **[OFF]**: No test pattern is displayed.
- **[Centering]**: Displays onto the output a centering pattern (for position and size adjustments).
- **[Grid]**: Displays onto the output a grid pattern.
- **[Grey scale]**: Displays onto the output a grey scale pattern.
- **[Color bar]**: Displays onto the output a color bar pattern.
- **[SMPTE]**: Displays onto the output a SMPTE pattern.
- **[Burst]**: Displays onto the output a burst pattern.

4-5. FUNCTIONS DESCRIPTION (continued)**3 ▶ [IMAGE]**

NOTE: The image menu contents will be different in case of input & output type selected.

- ▶ **[Auto Centering]**. Available with a computer source.
Adjust automatically the image in the centering pattern.
- ▶ **[Blanking adjust]**. Available with a computer source.
Select one of the following functions between:
 - ▶ **[H position]**
Horizontal position adjustment.
 - ▶ **[V position]**
Vertical position adjustment.
 - ▶ **[H size]**
Horizontal size adjustment.
 - ▶ **[V size]**
Vertical size adjustment.
- ▶ **[Optimize]**. Available with a computer source.
 - ▶ **[Clock]**: Manual adjustment of the pixel clock.
 - ▶ **[Phase]**: Manual adjustment of the pixel phase.
- ▶ **[Aspect in]**
Input aspect ratio selection.
 - ▶ **[4/3 native]**: 4/3 input format.
 - ▶ **[Letterbox]**: Letterbox input format.
 - ▶ **[16/9 anamorphic]**: 16/9 anamorphic input format.
 - ▶ **[16/9 native]**: 16/9 input format.
- ▶ **[Aspect out]**
Output aspect ratio selection.
 - ▶ **[1:1]**: The entire image and the aspect ratio are preserved.
 - ▶ **[Full screen]**: The image is stretched to fill the screen. The aspect ratio is not 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.
- ▶ **[Zoom]**
Select one of the following functions between:
 - ▶ **[Zoom enable]**: Activate / deactivate the zoom mode.
 - ▶ **[Zoom H position]**
Zoom Horizontal position adjustment.
 - ▶ **[Zoom V position]**
Zoom Vertical position adjustment.
 - ▶ **[Zoom H size]**
Zoom Horizontal size adjustment.
 - ▶ **[Zoom V size]**
Zoom Vertical size adjustment.
 - ▶ **[Zoom Mode]**
Zoom mode selection.
 - ▶ **[Zoom Preset]**
Reset all the Zoom settings.

4-5. FUNCTIONS DESCRIPTION (continued)

- ▶ **[Under / over]**
 - **[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.
- ▶ **[Brightness]**
Brightness adjustment.
- ▶ **[Black level]**. Available with a computer source.
Black level adjustment.
- ▶ **[Contrast]**. Available with a video source.
Contrast adjustment.
- ▶ **[Color]**
Color adjustment.
- ▶ **[Hue]**
Hue adjustment (NTSC only)
- ▶ **[Gamma]**
Gamma adjustment.
- ▶ **[Flicker filter]**
Anti-flicker adjustment.
- ▶ **[Sharpness]**
Sharpness adjustment.
- ▶ **[Preset]**
Reset all the image parameters to the factory settings.

▶ **[AUDIO]**

- ▶ **[Input]**
 - ▶ **[Level]**
Audio source adjustment.
 - ▶ **[Balance]**
Balanced adjustment.
- ▶ **[Output]**
 - ▶ **[Embedded out.]**
Allows embedding analog audio stereo signal into the SD/HD-SDI signals.
 - ▶ **[Follow SPDIF]**
Allows to follow the SPDIF Input rate even during source switching.
 - ▶ **[Mute]**
Switch ON or OFF the audio output.
 - ▶ **[Master volume]**
Audio output adjustment.
 - ▶ **[Mode]**
Mono or stereo mode selection.
 - ▶ **[SPDIF Out rate]**
SPDIF output rate selection.
 - ▶ **[Analog att.]**
Analog attenuation adjustment.
- ▶ **[Preset]**
Reset all the audio settings.

4-5. FUNCTIONS DESCRIPTION (continued)▶ **[CONTROL]**▶ **[Versions]**

Version : update version.
 I1 to I4: Identification numbers.
 K, A, B, C, O, R: Internal firmware versions.

▶ **[RS232/LAN port]**

Select the needed communication between:

- **[RS232]**: Enables the RS-232 communication port. (Default setting).
- **[LAN]**: Enables the LAN communication port.

IMPORTANT: To avoid addresses conflict, configure the LAN communication port (with the **LAN setup** menu) before activates it.

NOTE: The RS-232 & the LAN communication ports can not be used simultaneously.

▶ **[LAN setup]**

Allows configuring the LAN communication port.

NOTE: If the LAN option is not installed in the device the front panel display indicates: "LAN OPTION NOT INSTALLED".

- ▶ **[Local addr.]**: Every device connected to an IP network must have a unique IP address. This address is used to reference the specific unit. IP addresses are specified as **w.x.y.z** where each **w, x, y, z** are number from 1 to 254. Assign the device to a unique IP address and validate with **ENTER**. (Default value: 192.168.0.2).
- ▶ **[Remote addr.]**: This is the destination IP address used with an outgoing connection. Select the destination IP address and validate with **ENTER**. (Default value: 192.168.0.1).
- ▶ **[Gateway addr.]**: The gateway address, or router, allows communication to other LAN segments. The gateway address should be the IP address of the router connected to the same LAN segment as the unit. Select the gateway address and validate with **ENTER**. (Default value: 192.168.0.1).
- ▶ **[Local port]**: Every TCP connection and every UDP datagram is defined by a destination IP address and a port number. Select a local port number between 10000 and 10999 and validate with **ENTER**. (Default value: 10500).
- ▶ **[Remote port]**: You must set the remote TCP port number for the unit to make outgoing connections. This parameter defines the port number on the target host to which a connection is attempted. Select a remote port number between 00000 and 655000 and validate with **ENTER**. (Default value: 10500).
- ▶ **[Netmask]**: A netmask defines the number of bits taken from the IP address that are assigned for the host section. The device prompts for the number of host bits to be entered, then calculates the netmask, which displays in standard decimal-dot notation when the saved parameters are displayed. Select the netmask and validate with **ENTER**. (Default value: 255.255.255.0).
- ▶ **[Default setup]**: Set all the LAN settings to the default value. Select **[YES]** and validate with **ENTER**.

MAC ADDRESS: The MAC address, also referred to hardware address, is a unique number assigned to each device. The MAC address is available on the bottom device label.

▶ **[Key locking]**

Select an item between:

- ▶ **[Menus]**: Locks/unlocks the **CONTROL** switches.
- ▶ **[Input]**: Locks/unlocks the **INPUT SELECTION** switches.
- ▶ **[All]**: Locks/unlocks all the front panel switches.

NOTE: To unlock presses simultaneously on **ENTER** and **EXIT**.

▶ **[Erase memories]**

This function allows erasing all the NON-volatile image memories.

▶ **[Default value]**

This function allows setting the following functions to the factory settings.

Chapter 5 : UPDATING THE DEVICE

The TETRA VIO can be updated using a computer (PC) via its RS-232 communication port or via its LAN communication port.

5-1. UPDATE SOFTWARE INSTALLATION

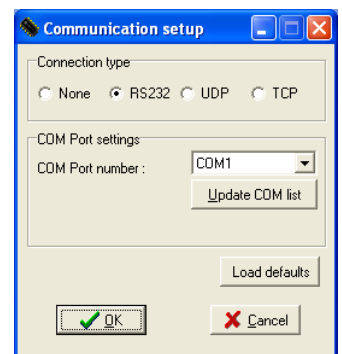
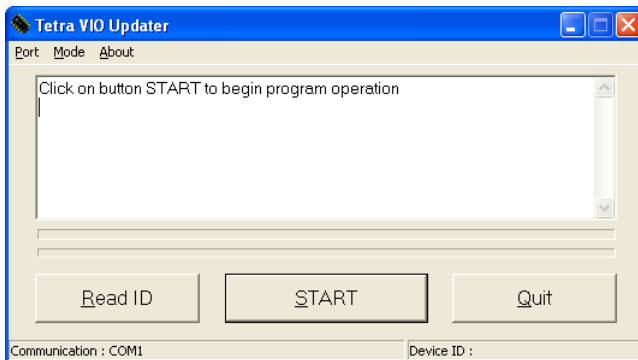
- ① Download the Tetra Vio Updater available on our Web site <http://www.analogway.com>
- ② Copy the file (eg: TetraVIO_UP_V0201900.exe) onto the computer used for the RS232 and execute it. Then follow the installation instruction (don't forget to accept the license agreement).

5-2. DEVICES CONNECTIONS

- ① Connect the device to an AC power outlet.
- ② Switch ON the device (REAR PANEL SWITCH = I).
- ③ 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. Then with the front panel display menu activate the RS232 communication port (**CONTROL > RS232/LAN > RS232**).
 - For the LAN communication port: Connect the RJ45 connector of the device to your network according to your installation. Then with the front panel display menu configure the LAN communication port (**CONTROL > LAN setup**) and activate the LAN communication port (**CONTROL > RS232/LAN > LAN**).

5-3. UPDATE INSTRUCTIONS

- ② Open the file: Tetra VIO Up.exe (in **Start > Program > ANALOGWAY > Tetra VIO updater**).
- ③ In the **Port** menu select the **Setup** then select the **Connection type** (RS232, UDP or TCP) and select the communication parameters.
- 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 TETRA VIO is now ready to work.



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: Preferably use Windows NT, 2000, XP or VISTA for LAN operation.

6-1. REMOTE CONTROL SOFTWARE INSTALLATION:

- ① Turn your computer ON and wait for Windows to completely start.
- ② Insert the CD-ROM into your drive: the ANALOG WAY 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, and then select the autorun.exe file.

- ④ Follow the Windows installation instructions.

NOTE: The latest Remote Control Software (RCS) is also available our Web site <http://www.analogway.com>

6-2. DEVICES CONNECTIONS

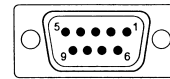
① CONNECTING TO THE RS-232 PORT:

- 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, and 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)

② CONNECTING TO THE LAN PORT (optional):

- Connect the LAN port (RJ45 connector) of the device to your network according to your installation.

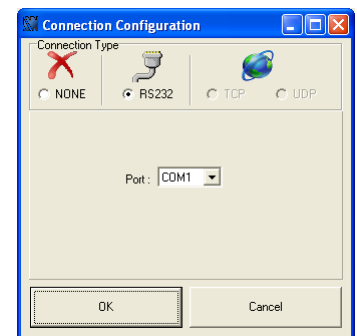
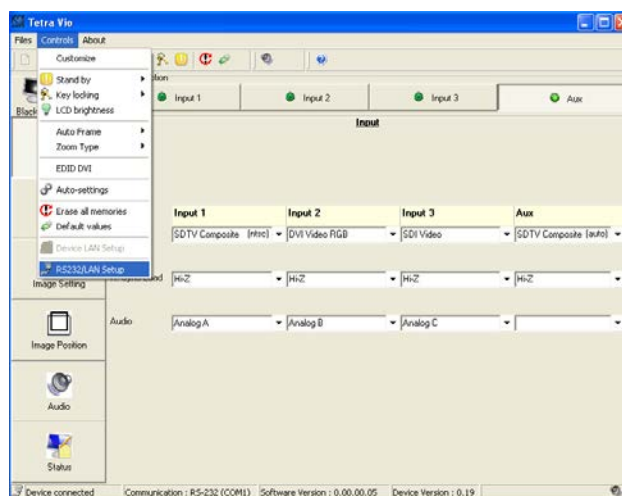
6-3. COMMUNICATION SETUP

- ① Connect the RS-232 or RJ45 cable between the TETRA VIO and the control device as indicated in the section 6-2.
- ② Then only power ON all of the devices.
- ③ Click on the program files TetraVio in **Start>program>ANALOGWAY>TetraVio** to run the software.
- ④ Click on **Controls** menu and select **RS232/LAN setup**, then:

• CASE OF RS-232 PORT:

- With the front panel display menu of the device, verify that the RS-232 port is activating (**CONTROL > RS232/LAN > RS232**).

- With the **Controls** menu of the software, select **RS232/LAN setup**, then in the **Connection Configuration** window select RS232 and the **COM** port number corresponding to the connection of the device.



If the communication is OK, the message "**Device connected**".

6-3. COMMUNICATION SETUP (continued)

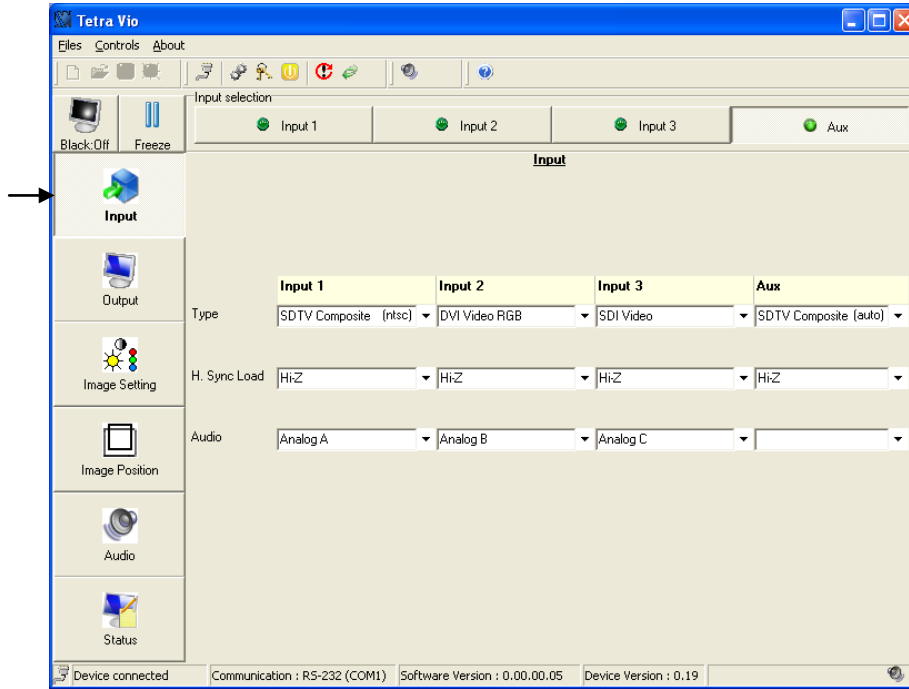
• **CASE OF LAN PORT:**

- With the front panel display menu of the device, verify the configuration of the LAN communication port (**CONTROL > LAN setup**), then activate the LAN communication port (**CONTROL > RS232/LAN > LAN**).
- With the **Controls** menu of the software, select **RS232/LAN setup**. Then in the **Connection Configuration** window select the UDP or TCP protocol and select the needed parameters. The software will also display **Device connected**.

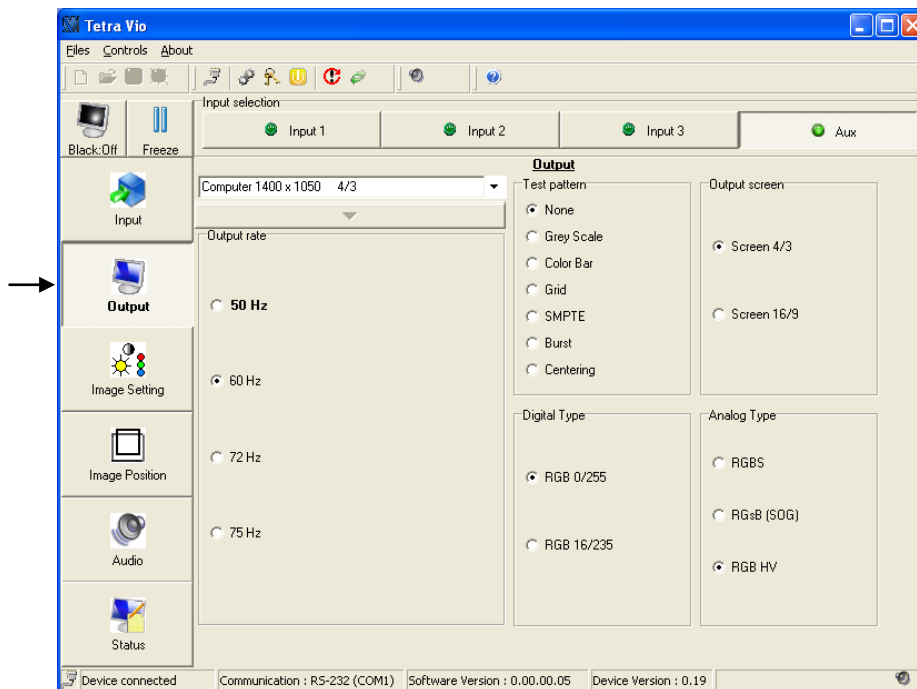
NOTE: To verify the LAN status of your device: Select **LAN status** in the **Controls** menu.

6-4. USING THE SOFTWARE

- ① Click on the **Input** button and select the **Signal Type** for each input. Then make the others adjustments (H sync load, Audio...).



- ② Click on the **Output** button and select the Output format and output rate. Then make the others needed adjustments.



Chapter 7 : TECHNICAL SPECIFICATIONS

7-1. COMPUTER & VIDEO INPUTS

• ANALOG COMPUTER

<i>Connectors:</i>	HD15 (inputs #1 & AUX), BNC (input #1) and DVI-I (input #2).
<i>Pixel frequency:</i>	Up to 165 MHz
<i>Resolution:</i>	Up to 1600x1200 - 4/3
<i>Sync. types:</i>	RGBHV, RGB/S, RGsB (Sync On Green).
<i>Levels:</i>	R, G, B: 0.7 Vp/p. H & V Sync : TTL Composite Sync : TTL or 0.3 V. SOG (Sync On Green) : 0.3 V.
<i>Impedance:</i>	R, G, B: 75 ohms. H: 75 ohms or Hi-Z. V: Hi-Z.

• DIGITAL COMPUTER INPUT

<i>Connectors:</i>	DVI-I (input #2).
<i>Format:</i>	DVI (RGB or YUV) – 8 bits – 4:4:4 – 0/255 or 16/235 -TMDS – 100 Ω.
<i>Pixel frequency:</i>	Up to 165 MHz.
<i>Resolution:</i>	Up to 2048x1080 RB (reduced blanking) -19/10. Up to 1920x1200 RB (reduced blanking) -16/10. Up to 1600x1200 - 4/3.

• RGB/S VIDEO

<i>Connectors:</i>	HD15 (inputs #1 & AUX), BNC (input #1) and DVI-I (input #2).
<i>Frequency:</i>	15.625 kHz - 50 Hz (625 lines). 15.734 kHz - 60 Hz (525 lines).
<i>Levels:</i>	R, G, B: 0.7 Vp/p. Sync: 0.3 Vp/p or TTL.
<i>Impedance:</i>	RGB: 75 ohms. Sync: 75 ohms or Hi-Z.

• COMPONENT

<i>Connectors:</i>	RCA (AUX input), BNC (input #1), HD15 (inputs #1 & AUX) and DVI-I (input #2).
<i>Frequency:</i>	15.625 kHz - 50 Hz (625 lines). 15.734 kHz - 60 Hz (525 lines).
<i>Levels:</i>	Y: 1 Vp/p (0.7 V Luma + 0.3 V Sync.). Cr: 0.7 Vp/p. Cb: 0.7 Vp/p.
<i>Impedance:</i>	Y, Cr, Cb: 75 ohms.

• HD-YUV

<i>Connectors:</i>	RCA (AUX input), BNC (input #1), HD15 (inputs #1 & AUX) and DVI-I (input #2).
<i>Formats:</i>	720p, 1035i, 1080i, 1080p & 1080sF.
<i>Levels:</i>	Y, Cr, And Cb: 1 Vp/p (0.7 V + sync.).
<i>Sync.:</i>	Tri-level: ±0.3V (positive/negative). Bi-level: 0.3V (negative).
<i>Impedance:</i>	75 ohms.

7-1. COMPUTER & VIDEO INPUTS (continued)**• S.VIDEO (Y/C)**

Connectors: 4-pin mini DIN (AUX input), RCA (AUX input), BNC (input #1), HD15 (inputs #1 & AUX) and DVI-I (input #2).

Standards: PAL / SECAM (15.625 kHz - 50 Hz - 625 lines)
NTSC (15.734 kHz - 60 Hz - 525 lines).

Levels: Y: 1 Vp/p.
C: 0.3 Vp/p.

Impedance: 75 ohms.

• COMPOSITE VIDEO

Connectors: BNC (input #1), RCA (AUX input), HD15 (inputs #1 & AUX) and DVI-I (input #2).

Standards: PAL / SECAM (15.625 kHz - 50 Hz - 625 lines)
NTSC (15.734 kHz - 60 Hz - 525 lines).
Black & White (15.625 kHz - 50 Hz - 625 lines)
Black & White (15.734 kHz - 60 Hz - 525 lines).

Level: 1 Vp/p.

Impedance: 75 ohms.

• SD-SDI

Connector: BNC (input #3).

Signal: Serial Digital Interface (YUV - 4.2.2 - 10 bits - 270 Mbps)

Impedance: 75 ohms.

• HD-SDI

Connector: BNC (input #3).

Data rate: Serial Digital Interface (YUV - 4.2.2 - 10 bits - 1.485 Gbps)

Impedance: 75 ohms.

7-2. GENLOCK INPUT

Connector: BNC.

Standards: Black burst PAL or NTSC.
HD black.

Levels: 1 Vp/p.

Impedance: 75 ohms.

7-3. OUTPUTS**• ANALOG COMPUTER**

<i>Connectors:</i>	HD15 and DVI-I.
<i>Resolution:</i>	Up to 2048x1080 RB (reduced blanking*) -19/10. Up to 1920x1200 RB (reduced blanking*) -16/10. Up to 1600x1200 - 4/3.
<i>Sync. types:</i>	RGBHV, RGB/S, RGsB (Sync On Green).
<i>Levels:</i>	R, G, B = 0.7 Vp/p. H & V Sync = TTL Composite Sync = TTL and 0.3 V. SOG (Sync On Green) = 0.3 V.
<i>Impedance:</i>	R, G, B = 75 ohms.

• DIGITAL COMPUTER

<i>Connector:</i>	DVI-I.
<i>Format:</i>	DVI (RGB or YUV) – 8 bits – 4:4:4 – TMDS – 100 Ω.
<i>Resolution:</i>	Up to 2048x1080 RB (reduced blanking) -19/10. Up to 1920x1200 RB (reduced blanking) -16/10. Up to 1600x1200 - 4/3

• RGB/S VIDEO (SDTV)

<i>Connectors:</i>	HD15 & DVI-I.
<i>Frequency:</i>	15.625 kHz - 50 Hz (625 lines) 15.734 kHz - 60 Hz (525 lines).
<i>Levels:</i>	R, G, B: 0.7 Vp/p. Sync: TTL.
<i>Impedance:</i>	RGB: 75 ohms.

• COMPONENT (STDV & EDTV)

<i>Connectors:</i>	HD15 and DVI-I.
<i>Frequency:</i>	NTSC- 525i @ 60 & 59.94 Hz - 15.734 kHz. PAL - 625i @ 50 Hz - 15.625 kHz Progressive NTSC: 31.471 kHz - 60/59.94 Hz. Progressive PAL: 31.250 kHz - 50 Hz.
<i>Levels:</i>	Y: 1 Vp/p, Cr: 0.7 Vp/p, Cb: 0.7 Vp/p.
<i>Impedance:</i>	Y, Cr, Cb: 75 ohms.

• HD-YUV

<i>Connectors:</i>	HD15 and DVI-I.
<i>Formats:</i>	720p, 1035i, 1080i, 1080p & 1080sF.
<i>Levels:</i>	Y: 1 Vp/p, Cr: 0.7 Vp/p, Cb: 0.7 Vp/p.
<i>Sync.:</i>	Tri-level: ±0.3V (positive/negative). Bi-level: 0.3V (negative).
<i>Impedance:</i>	75 ohms.

*WARNING: The operating of analog display devices in RB (reduced blanking) output format is not guaranteed.

7-3. OUTPUTS (continued)**• S.VIDEO (Y/C)**

<i>Connectors:</i>	4-pin mini DIN.
<i>Standards:</i>	NTSC - 525i @ 60 & 59.94 Hz - 15.734 kHz. PAL - 625i @ 50 Hz - 15.625 kHz
<i>Levels:</i>	Y: 1 Vp/p. C: 0.3 Vp/p (Chroma Burst).
<i>Impedance:</i>	75 ohms.

• COMPOSITE VIDEO

<i>Connectors:</i>	BNC.
<i>Standards:</i>	NTSC- 525i @ 60 & 59.94 Hz - 15.734 kHz. PAL - 625i @ 50 Hz - 15.625 kHz
<i>Level:</i>	1 Vp/p.
<i>Impedance:</i>	75 ohms.

• SD-SDI

<i>Connectors:</i>	BNC (x2).
<i>Formats:</i>	480i (NTSC) or 576i (PAL).
<i>Data rate:</i>	Serial Digital Interface (YUV - 4.2.2- 10 bits - 270 Mb/s).
<i>Impedance:</i>	75 ohms.

• HD-SDI

<i>Connectors:</i>	BNC (x2).
<i>Formats:</i>	720p @ 50, 59.94 & 60 Hz 1035i @ 59.94 & 60 Hz 1080i @ 50, 59.94 & 60 Hz 1080p @ 30, 29.97, 25, 24 & 23.98 Hz. 1080sF @ 30, 29.97 & 25 Hz.
<i>Data rate:</i>	Serial Digital Interface (YUV - 4.2.2 - 10 bits - 1.485 Gb/s)
<i>Impedance:</i>	75 ohms.

7-4. ANALOG AUDIO INPUTS

Connectors: RCA (inputs C & AUX) and Jack 3.5mm (inputs A & B).
Type: Stereo unbalanced.
Levels: Stereo analog: $V_i = + 18 \text{ dBu (max)}$.
 $Z_i = 22 \text{ k}\Omega$.
Gain: Boost 0 to +18 dB.

7-5. DIGITAL AUDIO INPUT

Connector: RCA.
Type: SPDIF
Sampling frequency: Up to 48 kHz @ 20/24 bits.
Gain: Boost 0 to +18 dB.

7-6. ANALOG AUDIO OUTPUT

Connectors: RCA (x2)
Type: Stereo unbalanced.
Levels: Stereo analog: $V_o = + 10 \text{ dBu max}$.
 $Z_o = 300 \Omega$.

7-7. DIGITAL AUDIO OUTPUT

Connector: RCA
Type: SPDIF
Sampling frequency: 48 kHz @ 20/24 bits.

7-8. COMMUNICATION PORTS

• **RS-232 (on DB9 female connector)**

Data Rate: 9600 Bauds, 8 data bits, 1 stop bit, no parity bit, and no flow control.

• **LAN (Optional on RJ45 connector)**

Protocol: TCP (Transmission Control Protocol) / UDP (User Datagram Protocol).

Data Rate: 10 / 100 Mbps.

LED functions (on RJ45 connector):

Left LED	Right LED	Meaning
OFF	OFF	No link
OFF	ON	100 BASE-T link.
ON	OFF	10 BASE-T link.

7-9. ENVIRONMENTAL

Power Supply: Internal CE / UL / CSA / IEC 950 (50 W), universal, automatic.
 Input: 100 VAC to 250 VAC; 50-60 Hz; I = 1 A Max.
Storage Temperature: - 40 °C to +70 °C (- 40 °F to + 158 °F).
Operating temperature: 0 °C to + 50 °C (32 °F to 122 °F).
Hygrometry: 10% to 80% (without condensation).
Dimensions: D 275 x W 482 x H 44 mm / D 10.8" x W 19" x H 1.74".
 Compatible with the 19" rack (height = 1 unit).
Weight: 3.8 kg / 8.4 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	OF	OF12	Read the output format. Lit le type de format.
10	RY	RY10	Set Vertical position to 10. Règle la position verticale à 10.

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	zz	E10	Invalid command. / Commande invalide.
70260	RY	E13	Invalid value. / Valeur invalide.

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 suivit 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 /VALEUR			
				MIN	MAX	DESCRIPTION	
FRONT PANEL COMMANDS / COMMANDES DE LA FACE AVANT							
IC	IC	Selected input.	Rd	0	4	1 = INPUT #1	2 = INPUT #2
Ic	Ic	Input selection.	Rd/Wr	0	4	3 = INPUT #3	4 = INPUT AUX
RZ	RZ	Freeze.	Rd/Wr	0	1	0 = inactive	1 = active.
RK	RK	Centering.	Rd/Wr	0	1	1 = Centering (automatic reset).	
Ia	Ia	Setup (auto setting)	Rd/Wr	0	1	1 = Auto setting (automatic reset).	
OB	OB	BLACK output screen selection.	Rd/Wr	0	1	1 = BLACK.	
wS	wS	Standby	Rd/Wr	0	2	1 = set to standby mode 2 = wake up the device.	
ws	ws	Standby mode status	Rd	0	1	0 = standby inactive	1 = standby active
INPUT COMMANDS / COMMANDES D'ENTRÉE							
Ia	Ia	Auto setting	Rd/Wr	0	1	1 = Auto setting (automatic reset).	
IP	IP	Input selection for adjustment.	Rd/Wr	0	4	1 = INPUT #1	2 = INPUT #2
Ip	Ip	Selected input for adjustment.	Rd	0	4	3 = INPUT #3	4 = INPUT AUX
IU	IU	Enabled Input (according to IP).	Rd/Wr	0	1	0 = Input unused	1 = Input used
IT	IT	Input signal type selection. (according to IP).	Rd/Wr	0	12	0 = SDTV Composite 1 = SDTV Y/C 2 = Video RGBS. 3 = Video RGB SOG 4 = Video YUV 5 = Computer SOG 6 = Computer HV/C 7 = Computer B&W 8 = DVI Video RGB 9 = DVI Video YUV 10 = DVI Computer 0-255 11 = DVI Computer 16-235 12 = SDI	
IN	IN	Input signal type.	Rd	0	33	0= No Signal 1= Wrong Signal 2= Unknown Signal 3= NTSC 4= PAL 5= SECAM 6= SDTV_BW 7= 480i 8= 576i 9= 480p 10= 576p 11= 720p 12= 1035i 13= 1080i 14= 1080p 15= 1080sf 16= VGA 640x480 17= SVGA 800x600 18= XGA 1024x768 19= 1280x 960 20= SXGA 1280x1024 21= DILA 1366x1024 22= SXGA+ 1400x1050 23= UXGA 1600x1200 24= WVGA 852x480 25= 1280 x 720 26= WXGA 1280 x 768 27= SWXGA 1366x768 28= 1280x800 29= WSXGA+1680x1050 30=1920x1080 31=WUXGA 1920x 1200 32=1440x900 33=2048x1536	
IZ	IZ	H sync load selection (according to IP)	Rd/Wr	0	1	0 = Hi-Z load	1 = 75Ω load
Is	Is	Input standard selection (according to IC).	Rd/Wr	0	15	0 = Auto w/o Ped. 1 = Auto w/ Ped 2 = NTSC (J) 2 = NTSC (M) 4 = NTSC 4.43 5 = PAL BGHID 6 = PAL 60 7 = PAL N BGHID 8 = PAL M w/o Ped. 9 = PAL M 10 = PAL Comb. N 11 = PAL Comb. N Ped 12 = SECAM 13 = SECAM w Ped. 14 = B&W w/o Ped. 15 = B&W w/ Ped.	
IA	IA	Audio input assignment (according to IC)	Rd/Wr	0	6	0 = No audio source assigned 1 = Input A 2 = Input B 3 = Input C 4 = Input D 5 = SPDIF 6 = Embedded SDI.	
Ib	Ib	Audio delay mode selection	Rd/Wr	0	1	0 = Auto	1 = Manual
IB	IB	Audio delay (in ms)	Rd/Wr	0	500		
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 / VALEUR		
				MIN	MAX	DESCRIPTION
OUTPUT COMMANDS / COMMANDES DE SORTIE						
OF	OF	Output format selection.	Rd/Wr	0	31	0 = SDTV PAL 2 = EDTV 480p 4 = HDTV 720p 6 = HDTV 1080i 8 = HDTV 1080sF 10 = WVGA 848x480 12 = XGA 1024x768 14 = WXGA2 1280x800 16 = SXGA+ 1400x1050 18 = UXGA 1600x1200 20 = 2048 x 1080 22 = 1920 x 1080 24 = custom 1 26 = custom 3 28 = custom 5 30 = custom 7 1 = SDTV NTSC 3 = EDTV 576p 5 = HDTV 1035i 7 = HDTV 1080p 9 = VGA 640x480 11 = SVGA 800x600 13 = WXGA1 1366x768 15 = SXGA 1280x1024 17 = WSXGA+ 1680x1050 19 = WUXGA 1920x1200 21 = 1280 x 720 23 = 1920x1080 B 25 = custom 2 27 = custom 4 29 = custom 6 31 = custom 8
OR	OR	Output rate selection.	Rd/Wr	0	10	0 = Custom 2 = 24 Hz 4 = 29,97 Hz 6 = 50 Hz 8 = 60 Hz 10 = 75Hz 1 = 23,97 Hz 3 = 25 Hz 5 = 30 Hz 7 = 59,94 Hz 9 = 72 Hz
Op	Op	Pedestal activation (NTSC only)	Rd/Wr	0	1	0 = inactive 1 = active
OZ	OZ	Analog video output type.	Rd/Wr	0	3	0 = RGBS 2 = RGB H&V 3 = YUV 1 = RGSB
OX	OX	Digital video output type.	Rd/Wr	0	2	0 = RGB 0-255 2 = YUV 1 = RGB 16-255
OP	OP	Test pattern.	Rd/Wr	0	4	0 = no pattern 2 = color bar 4 = SMPTE 1 = grey scale 3 = grid
On	On	Scan type	Rd/Wr	0	1	0 = Progressive 1 = interlaced
Or	Or	Output rate (in hundredth of Hz)	Rd/Wr	100	10000	
OU	OU	Pixels number (in a line)	Rd/Wr	0	8191	
Ou	Ou	Lines number	Rd/Wr	0	8191	
OY	OY	Horizontal sync time	Rd/Wr	0	8191	
Oy	Oy	Vertical sync time	Rd/Wr	0	8191	
OA	OA	Horizontal back porch	Rd/Wr	0	8191	
Oa	Oa	Vertical back porch	Rd/Wr	0	8191	
OO	OO	Horizontal front porch	Rd/Wr	0	8191	
Oo	Oo	Vertical front porch	Rd/Wr	0	8191	
OW	OW	Output format size in pixels	Rd	0	65535	
OH	OH	Output format size in lines	Rd	0	65535	
OT	OT	Pixels total number	Rd	0	65535	
Ot	Ot	Pixels total number	Rd	0	65535	
OC	OC	Control command	Rd/Wr	0	2	0 = normal use 2 = store 1 = reset
GENLOCK COMMANDS / COMMANDES DU GENLOCK						
XR	XR	Synchronization mode selection	Rd/Wr	0	6	0 = Internal (rate = according to OR) 1 = Follow / Frame Lock input #1 2 = Follow / Frame Lock input #2 3 = Follow / Frame Lock input #3 4 = Follow / Frame Lock input #4 5 = Frame Lock on the genlock input 6 = Genlock H&V 7 = Error
XA	XA	Synchronization mode selection	Rd	0	7	
XH	XH	Genlock tune > Horizontal Phase	Rd/Wr	0	65535	
XV	XV	Genlock tune > Vertical offset	Rd/Wr	0	65535	
XF	XF	Genlock type	Rd	0	23	Identical to OF command
XT	XT	Frame frequency of the genlock signal	Rd	0	65535	Value in hundredth of Hz
NOTE: Rd = Read only command / <i>Commande de lecture.</i> Rd/Wr = Read and write command / <i>Commande de lecture et d'écriture.</i>						

CUSTOM OUTPUT FORMAT SETTINGS

COMMAND <i>COMMANDE</i>	RESPONSE <i>RÉPONSE</i>	COMMAND DESCRIPTION <i>DESCRIPTION DE LA COMMANDE</i>	TYPE	VALUE / VALEUR		
				MIN	MAX	DESCRIPTION
IMAGE COMMANDS / COMMANDES DU MENU IMAGE						
RK	RK	Image centering (computer).	Rd/Wr	0	1	1 = CENTERING action (automatic reset).
RX	RX	Horizontal position (computer).	Rd/Wr	0	2048	
RY	RY	Vertical position (computer).	Rd/Wr	0	2048	
RW	RW	Horizontal size (computer).	Rd/Wr	0	4096	
RH	RH	Vertical size (computer).	Rd/Wr	0	4096	
RP	RP	Optimize > phase adjust. (computer).	Rd/Wr	0	31	
RD	RD	Optimize > clock adjust. (computer).	Rd/Wr	200	65535	
RI	RI	Input aspect ratio selection.	Rd/Wr	0	3	0 = 4/3 2 = 16/9 anamorphic 1 = letterbox 3 = 16/9.
RA	RA	Output aspect ratio selection	Rd/Wr	0	2	0 = Standard 2 = Crop 1 = Full screen
ZM	ZM	Zoom mode selection	Rd/Wr	0	1	0 = zoom OFF 1 = zoom ON
ZH	ZH	Zoom horizontal position.	Rd/Wr	0	1000	
ZV	ZV	Zoom vertical position.	Rd/Wr	0	1000	
ZW	ZW	Zoom horizontal size.	Rd/Wr	500	5000	500 = 50% (x0.5) 1000 = 100% (no zoom) 5000 = 500% (x5)
ZS	ZS	Zoom vertical size.	Rd/Wr	500	5000	
ZT	ZT	Zoom mode	Rd/Wr	0	1	0 = direct 1 = dynamic
RO	RO	Underscan / overscan (video).	Rd/Wr	0	1	0 = underscan 1 = overscan
RT	RT	Brightness adjustment (video) or Black level (computer)	Rd/Wr	0	255	
RC	RC	Contrast adjustment (video).	Rd/Wr	0	255	
RL	RL	Color adjustment (video).	Rd/Wr	0	255	
RE	RE	Color > Red level (computer).	Rd/Wr	0	255	
RV	RV	Color > Green level (computer).	Rd/Wr	0	255	
RB	RB	Color > Bleu level (computer).	Rd/Wr	0	255	
RU	RU	Hue adjustment (video NTSC).	Rd/Wr	0	255	
RG	RG	Gamma adjustment	Rd/Wr	5	40	
RF	RF	Anti-flicker level (video output)	Rd/Wr	0	7	
RS	RS	Sharpness adjustment (video).	Rd/Wr	0	255	
Rn	Rn	3:2 pull down	Rd/Wr	0	1	0 = inactive 1 = active
RN	RN	2:2 pull down	Rd/Wr	0	1	0 = inactive 1 = active
RR	RR	Preset image parameters.	Rd/Wr	0	1	1 = PRESET action (automatic reset).
AUDIO COMMANDS / COMMANDES DU MENU AUDIO						
AP	AP	Audio input selection for adjustment.	Rd/Wr	1	6	0 = No audio source assigned 1 = Input A 2 = Input B 3 = Input C 4 = Input D 5 = SPDIF 6 = Embedded SDI.
Ap	Ap	Selected audio input for adjustment..	Rd	1	6	
AL	AL	Audio > Input > Level.	Rd/Wr	0	47	
AB	AB	Audio > Input > Balance.	Rd/Wr	0	90	
AE	AE	Audio > Output > Embedded out	Rd/Wr	0	1	1 = Embedded Audio Output
AF	AF	Audio > Output > Follow SPDIF	Rd/Wr	0	1	1 = follow SPDIF Output
AT	AT	Audio > Output > Mute.	Rd/Wr	0	1	0 = MUTE OFF 1 = MUTE ON
AV	AV	Audio > Output > Master volume.	Rd/Wr	0	63	
AS	AS	Audio > Output > Mode.	Rd/Wr	0	1	0 = STEREO 1 = MONO
AR	AR	Audio > Output > SPDIF output rate	Rd/Wr	0	4	0 = 32 kHz 2 = 48 kHz 4 = 96 kHz 1 = 44.1 kHz 3 = 88.2 kHz
AO	AO	Audio > Output > Analog att	Rd/Wr	0	127	
Ar	Ar	Audio 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 / VALEUR		
				MIN	MAX	DESCRIPTION
CONTROLS COMMANDS / COMMANDES DU MENU CONTROL						
xU	xU	Device version.	Rd	0	65535	Example: xU256. 256 (hexa) = 0001 0000 0000 (bin) = Version 1.00
yo	yo	Options available.	Rd	0	65535	1 = LAN option.
YK	YK	Key locking.	Rd/Wr	0	2	0 = unlocks 2 = lock front panel 1 = locks menu control
wS	wS	Standby	Rd/Wr	0	2	1 = set to standby mode 2 = wake up the device.
ws	ws	Standby mode status	Rd	0	1	0 = inactive 1 = active
wt	wt	Stand by time	Rd/Wr	0	8	0 = 0 second 2 = 5 min 4 = 15 min 6 = 60 min 8 = 120 min 1 = 1 min 3 = 10 min 5 = 30 min 7 = 90 min
wm	wm	Standby mode activation	Rd/Wr	0	3	0 = Sync.loss 2 = Sync. loss + time 1 = Standby time 3 = inactive
YB	YB	LCD Brightness .	Rd/Wr	1	8	1 = min 8 = max
Yb	Yb	Key brightness	Rd/Wr	0	1	0 = low 1 = high
YE	YE	Erase memories.	Rd/Wr	0	1	1 = erase all memories (automatic reset).
YR	YR	Default value.	Rd/Wr	0	1	1 = Default value action (automatic reset).
COMMUNICATION PORT COMMANDS / COMMANDES DE COMMUNICATION						
ne	ne	Communication port selection	Rd/Wr	0	1	0 = RS232 1 = LAN
nr	nr	Reset of the LAN parameters.	Rd/Wr	0	1	1 = reset.
ns	ns	Store the LAN parameters.	Rd/Wr	0	1	1 = store.
na	na	IP address and port selection (for modification)	Rd/Wr	0	2	0 = IP local address / local port 1 = IP remote address / remote port 2 = IP gateway address.
nw	nw	First byte of the address selected by the na command.	Rd/Wr	0	255	
nx	nx	Second byte of the address	Rd/Wr	0	255	
ny	ny	Third byte of the address	Rd/Wr	0	255	
nz	nz	Forth byte of the address	Rd/Wr	0	255	
np	np	Number of the port (local or remote) selected by the na command.	Rd/Wr	0	65500	local port: 10000 to 10999. remote port: 0 to 65500.
nk	nk	Netmask.	Rd/Wr	0	24	Value = number of bit to 0 (from right). example: 2 ▶ 255.255.255.252 3 ▶ 255.255.255.248..... 8 ▶ 255.255.255.0..... 24 ▶ 255.0.0.0
nt	nt	Protocol selection.	Rd/Wr	0	1	0 = UDP 1 = TCP
STATUS COMMANDS / COMMANDES D'ÉTATS						
IL	IL	Input line frequency in hundred of Hz.	Rd	0	65535	
IR	IR	Input frame frequency in tenth of Hz.	Rd	0	65535	
IK	IK	Input Sync. detection.	Rd	0	3	
IH	IH	Sign of the horizontal input Sync.	Rd	0	1	0 = negative 1 = positive.
IV	IV	Sign of the vertical input Sync.	Rd	0	1	0 = negative 1 = positive.
OTHERS COMMANDS / AUTRES COMMANDES						
YS	YS	Image parameters storing.	Rd/Wr	0	1	1 = STORE action (automatic reset).
?	DEV	Device type.	Rd	0	65535	67 = TETRA VIO
*	*	Ready.	Rd	0	1	1 = device ready to work.
#	#	Device parameters.	Rd	0	1	1 = Send all device parameters.
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

WARRANTY

Analog Way warrants the product against any defects in materials and workmanship for a period of three years from the date of purchase (back to the factory).

In the event of any malfunction during the warranty period, Analog Way will, at its discretion, repair or replace the defective units, including free materials and labor.

This warranty does not apply if the product has been:

- improperly installed or abused,
- handled with improper care,
- used or stocked in abnormal conditions,
- modified, opened,
- damaged by fire, war, or Natural disasters (Acts of God).

In no way shall Analog Way be responsible for direct or indirect loss of profit or consequential damages resulting from any defect in this product.

In case of any problem, get the serial number of the unit, a description of the problem, and then call your authorized dealer.