

Under Monitor Display Systems

(for Tally Signaling in TV Studios and TV OB Vans)

TUTORIAL

INTRODUCTION

The rapid development of the technological progress we are witnessing in the TV production and broadcasting world, allowing for ever-increasing amounts of information to be handled in spaces progressively smaller, demands the development of Under Monitor Signaling Systems (UMD) with Text and Tally, whenever there is interaction of mixers, switching routers, automation systems, etc. In such cases, it is no longer feasible to divide an installation into small islands, each carrying out simple tasks: instead, flexible and sophisticated controls are required, capable of adapting to needs that may change even within a given program.

Where, no long ago, a simple label taped under each video monitor, indicating the origin (or destination) of the displayed signal was sufficient, now it is preferable to take into account the state of the system as a whole: to be able to change the identification tag shown under each monitor, so that the operators can instantly monitor the state of the system. A flexible installation needs a versatile signaling system, capable of obtaining



information of the state of the mixer or commutation elements, including the selected monitor input, so as to avoid errors, and not only operating errors, but also instances of time-out lapses while locating problems.

The speed at which changes are being introduced in the technology and work philosophy within the audiovisual world, points to **open Under Monitor Display signaling systems, with capability for expansion and interaction with products of different manufacturers**, as the most sensible option.

It is not just a matter of merely exchanging a label taped under a video monitor for a illuminated sign which doesn't offer additional information (only improves the look). It is necessary to give the operator a tool which allows him to know, at a glance, the state of the system and its configuration; so as to enable him to identify precisely the signals being displayed; to locate, without searching for them, the signals "on the air". It should be possible for a text to follow input B of a monitor, even to access such input remotely (with almost no wiring). Likewise, it should be possible to modify texts automatically following a routing switcher which has made a commutation or a salvo, or to store several configurations to non-volatile memory –to be recalled later by an automation system or by pressing a push-button on the Production desk.

Of interest for Continuities, is to be able to have a clock on any of the Displays (synchronized by the station time code), or a simultaneous display of several time zones. Using a double display (two independent messages on one rack unit), it is possible to show other world time-zones, with the left sign displaying the city name **highlighted** within that time-zone and the corresponding time on the right sign.

The present range of **Under Monitor Displays** by CROSSPOINT includes models with a single text window, or else, double or triple; of reduced width; tricolored; folding, and with several sizes of LED matrixes, so as to match perfectly the needs of every individual user. The new COMBO models allows text and audio bar-graph monitoring simultaneously. One more member of UMD's COMBO family allows simultaneous display of text and Time code derived from SDI vertical interval.

Our experience in handling different protocols has made it possible to achieve a versatile product which adapts to other manufacturers, even to those automation systems being currently designed.

ADVANTAGES

There are other characteristics that single out the **Under Monitor Displays System** by CROSSPOINT and make it suitable for TV Broadcast environment:

Installation:

Most of our equipment are powered directly from the 220VAC mains supply. This facilitates the power supply wiring and helps to keep better organized the rear of the rack where they are installed.

For communication between different elements over RS485 serial network, RJ11 connectors are used (connector installation takes less than 10 seconds) and standard telephone cable, which is more economical and adequate for up to 400

meters of data network: sufficient length for this kind of application. Using screened twisted-pair wire, distances of up to 1,200 meters can be bridged.

Interconnection:

The Option to serialize the Tally/GPI is available. Although the Displays admit direct input of Tally and GPI, it is advisable to use option "Tally IN", which allows the main HUB-DSP unit to receive those signals and send them over the RS485 network to the remote UMDs. In this way, each display receives only power supply and data, thus avoiding Tally and GPI signal wiring, which not only requires a great deal of time and money to install, but also turn into a problem any future modification of the installation.

It is also possible to obtain Tally information from routing switchers and mixers of certain manufacturers directly from a serial port, eliminating the added cost of changing from serial to parallel and back to serial.



Each Display within its interconnecting network is identified by a number. Frequently, this number is programmed at factory or using dip-switches located on the rear of unit. Whenever a Display has to be replaced due to malfunction or modification of the system, a great deal of time has to be spent in re-numbering the devices.

With CROSSPOINT's Under Monitor Displays, the change in number is performed with the miniature push-buttons on the unit's front, without removing the device from its place. Once the number has been changed (it takes less than 10 seconds), your monitoring panel can be reconfigured quickly, without de-soldering a single wire or loosening a single screw.

Assigning Tally/GPI in the main unit is mapped by software, so in case of modification there is no need to de-solder any wires. As indicated above, the same Tally input module permits the input of GPI to the HUB-DSP.

Dialogue With Other Equipments:

Like the "Tally IN" option already mentioned, several other options can be installed in the HUB-DSP Controller. Also, "Tally OUT", "additional serial ports" and "SMPTE clock" options can be installed.

Each "Tally OUT" option incorporates 32 relays (extensible to 64) and allows assigning a Tally level to commutation systems without one, or to generate Tallies in systems that go "on the air" through a routing switcher instead of through a Presentation Mixer. This situation is frequent today with Continuities serving multiple channels.

The "SMPTE clock" option incorporates an internal clock in the CPU, synchronized by an external LTC time-code signal, which keeps the count in case of time-code failure. The possibility of conveying the time signal to any display in the network, with several time-zones, is very convenient for via satellite broadcasts and sport events. Also, this option allows control of the COUNTDOWN function.

The "Additional Serial Ports" option makes possible to establish a dialogue with communication systems or routing switchers, obtaining their status, and also with Automation Systems. This allows the texts shown under the monitors to follow external systems, giving the operator a global view of the signals he is working with. This allows working in environments where the monitoring (wholly or partly) passes through a routing switcher, so maintaining both texts and Tallies actualized at all times. Sometimes, using a double Display under the Program monitor, the message on the right is used to indicate the name of the channel, and the left one for the source "on the air".

The dialogue with Automation systems makes it possible to present additional information, the state of VTR machines, malfunctions, countdown, etc.

Some protocols, already incorporated, allow communication with Routing Switchers, Mixers and Automations of most manufacturers, such as **Datatek, Leitch, Louth, Quartz, Thomson-GVG, Network, Omnibus, Pesa, Probel, Sierra Video, Sony, Telecast, Utah, Extron, IsisGroup...**

Remote Control:

CROSSPOINT displays are provided optionally with GPOs (non-isolated output with open collector) which can be controlled remotely over the RS485 network. This allows, for example, controlling output B of a monitor (if that possibility is available). Since the commands travel over the data network, there is no need for any additional wiring, which is very useful when it is necessary to control input B of monitors from a panel and we want to avoid the operator having to abandon his post. The window message will follow the change in video input, so that the operator will always be rightly informed. This application is just an example of the advantages of serializing GPI-type commands.

Security:

CROSSPOINT's experience with control systems within a Broadcast environment makes it possible to offer you a totally reliable product. Each CPU incorporates "Watch Dog" and a power micro-cuts detector which will reset equipment to its initial conditions, before it begins malfunctioning.

Improved Operator Working Conditions:

Besides giving the operator all necessary information, one should try to optimize his working conditions, for the operator must spend many hours in front of a great monitoring panel. CROSSPOINT panels are not restricted to 8 or 16 brightness levels, but allow gradual level adjustment in 1% steps, so as to find the level best adapted to the actual lighting conditions. Whenever a display goes into Tally situation, it will not only show led bars (red or green), but it will also change its brightness to the level determined as "Tally situation brightness" (1 to 100%). Generally, it operates with a low brightness and the sign will over-illuminate when signal is "on the air". In this way, the signal being emitted will be shown clearly even when color of Tally and of text coincide.

CROSSPOINT uses variable-width characters, which makes reading the messages more agreeable and optimizes the use of the leds matrix surface.

As we have already shown, CROSSPOINT's Under Monitor Display System differs from a mere display system in that it has been specially developed for Broadcast environments. It is an open system, which can adapt to the specific needs of the Customer and is in constant development. Our commitment to Quality and Customer Service drives us to continuously improve and update our range of products.

A new line of Displays makes it possible to obtain indication of audio levels (analogical, AES or embedded in digital video), both independently or with audio and text combined on the same unit.

Also available is a Display capable of presenting the Time Code of the vertical interval of a Digital signal, D-VITC. This new double Display uses a window to present Text and another for the Time Code. Its main application is in the new Production Studios and Continuities adapted to SDI digital signals.

At present, there are several thousand CROSSPOINT UMDs installed throughout the world. Please, do not hesitate to contact us in CROSSPOINT if you have any requirement in signaling, regardless of whether it is already covered by traditional systems or not: we are manufacturers.

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