

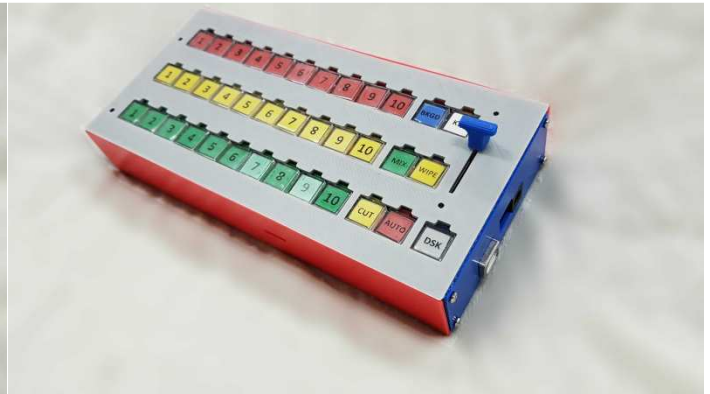
SERIAL CONTROLLER FOR ATEM

by Baz Leffler v0.6

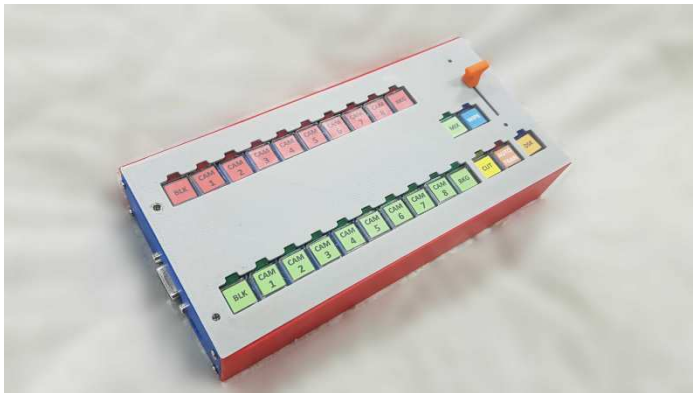
USERS GUIDE *(under construction)*



BASIC



DELUXE



BASIC+



ULTRA



RIGHT SIDE



LEFT SIDE

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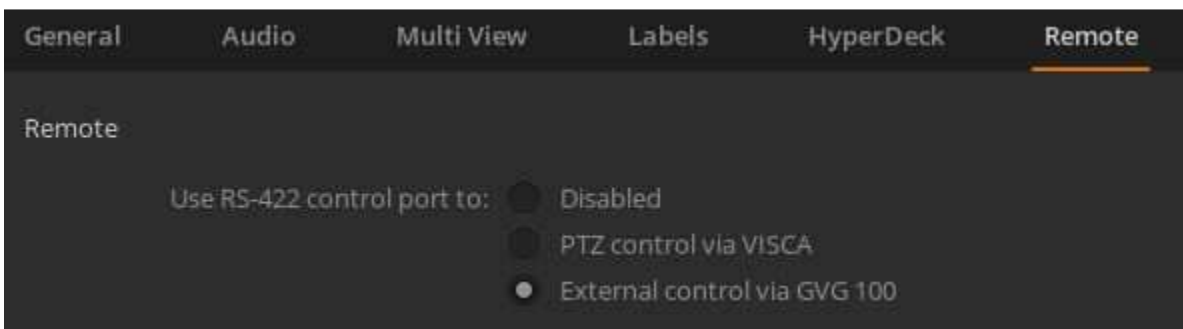
STARTING UP

When power is initially applied some of the LED's will randomly flash while the controller resets itself. Then the controller loads all its operational parameters from memory.

If no ATEM is connected the **PROGRAM** and **PREVIEW** row LEDs will **cycle left to right** waiting to detect the presence of serial data on the *RS422 connector*. If the ATEM *IS* connected and powered and still will not connect, check the ATEM settings and ensure the '**Remote**' is set to '**External control via GVG 100**'.



This can be achieved by clicking the **SETTINGS** icon on the **ATEM Software Control Panels** bottom left corner.



Then enable the required radio button.

If this selection is changed during normal operation the Serial Controller will lose *communications* with the ATEM indicated by the PROGRAM and PREVIEW row LEDs cycling left to right. Changing back to '*External control via GVG 100*' will re-establish the connection.

When the controller detects the ATEM it then asks the ATEM to provide some status information including the current selection of the PROGRAM and PREVIEW row sources.

The T-BAR will not engage until it is moved to the PREVIEW row end of the controller. This prevents the controller starting up and changing the ATEM unnecessarily.

BASIC OPERATION *(for all versions)*

All versions of the Serial Controller for ATEM have a 10 button **PROGRAM row** with tally LED's, a 10 button **PREVIEW row** with tally LED's, a **CUT button** with LED, an **AUTO button** with LED and a manually operated **T-BAR** for doing transitions between the PROGRAM row and the PREVIEW row.

Also available on the sides are:

LEFT SIDE –



- 9 pin D connector for RS422 communications with the ATEM electronics
- SHIFT button for achieving second level adjustments
- trimmer adjustment for setting the base LED brightness
- reset button for restarting the controller

RIGHT SIDE –



- USB for power and using a terminal program for setup and diagnostics
- Power connector for 12 volt usage (centre pin +)
- An optional 6 pin mini-din connector for a LCD display/menu panel

PROGRAM ROW



The program row has 10 buttons. Each button can be allocated any ATEM **INPUT 1 to 8**, **BLACK** or **COLOR 1**. The LED will follow the user allocation when the associated source is selected either on the ATEM or any control panel.

The default inputs are:

ATEM inputs 1 to 9, where input 1 is black, inputs 2 to 9 are external inputs 1 to 9 (*usually camera's 1 to 9*) and input 10 is Color 1. The **SOURCE ALLOCATIONS** can be changed around using the **SETUP function 13**.

Immediately after a PROGRAM button is pressed, it is selected on the ATEM and its associated LED will illuminate only after the ATEM has performed the function. While the *switch* action is immediate, there will be a slight delay before the LED will illuminate as it is a *status change* at the ATEM and the communications from the ATEM to the Serial Controller is slower than the ethernet interface.

If no LED is illuminated on the PROGRAM ROW this indicates that the current selected source on the ATEM program buss is not allocated to a button on the Serial Controller. When doing a **CUT** the sources on the PROGRAM and PREVIEW rows will swap as in traditional methods. When doing an **EFFECTS TRANSITION** the sources on the PROGRAM and PREVIEW rows will swap at the end of the transition also as in traditional methods.

When doing a **T-BAR TRANSITION** the sources on the PROGRAM and PREVIEW rows will swap at the end of the transition.

PREVIEW ROW



The preview row has also 10 buttons. The source allocation of the PREVIEW row is the same as the PROGRAM row.

Immediately after a PREVIEW button is pressed, it is selected on the ATEM and its associated LED will illuminate only after the ATEM has performed the function. While

the *switch* action is immediate, there will be a slight delay before the LED will illuminate as it is a *status change* at the ATEM and the communications from the ATEM to the Serial Controller is slower than the ethernet interface.

If no LED is illuminated on the PREVIEW ROW this indicates that the current selected source on the ATEM preview buss is not allocated to a button on the Serial Controller. When doing a **CUT** the sources on the PROGRAM and PREVIEW rows will swap as in traditional methods. When doing an **EFFECTS TRANSITION** the sources on the PROGRAM and PREVIEW rows will swap at the end of the transition also as in traditional methods.

When doing a **T-BAR TRANSITION** the sources on the PROGRAM and PREVIEW rows will swap at the end of the transition.

CUT BUTTON



The **CUT button** *immediately* changes the PROGRAM row to whatever the source was selected on the PREVIEW row. This in turn changes the PREVIEW row to whatever the source was selected on the PROGRAM row. Both PROGRAM row and PREVIEW row LEDs will update as per the ATEM status change.

AUTO BUTTON



The **AUTO button** can provide either a transition of MIX or WIPE between the PROGRAM row and PREVIEW row OR using the **SHIFT** button toggle a **FADE TO BLACK**.

Using the **AUTO button** *WITHOUT* the **SHIFT** allows a transition of MIX or WIPE between the source on the PROGRAM row and the source selected on the PREVIEW row at a *fixed rate*.

The **RATE** of the transition is determined by the current **ATEM TRANSITION RATE**. This can be set using the **SETUP function 5**.

At the completion of the **AUTO** function the source selected on the PROGRAM row changes to whatever the source was on the PREVIEW row. This in turn changes the

PREVIEW row to whatever the source was selected on the PROGRAM row. Both PROGRAM row and PREVIEW row LEDs will update as per the ATEM status change.

Using the **AUTO button** *WITH* the **SHIFT** performs a **FADE TO BLACK**. If it is not in 'fade to black', it will fade to black at a *fixed rate*. If it is in 'fade to black', it will fade up from black at a *fixed rate*.

The **RATE** of the fade is determined by the current **ATEM FTB RATE**. This can be set using the **SETUP function 7**.

T-BAR



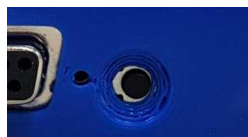
The **T-BAR** allows a transition of MIX or WIPE between the source on the PROGRAM row and the source selected on the PREVIEW row at a *variable rate*. The **RATE** of the transition is determined by the position of the T-BAR. This can be enabled or disabled using the **SETUP function 11**.

At the end of the T-BAR movement the source selected on the PROGRAM row changes to whatever the source was on the PREVIEW row. This in turn changes the PREVIEW row to whatever the source was selected on the PROGRAM row. Both PROGRAM row and PREVIEW row LEDs will update as per the ATEM status change. This END of transition function will only occur if the T-BAR has moved completely to the opposite end.

The **RED LED** above the T-Bar indicates the T-Bar is **NOT** active. The **GREEN LED** above the T-Bar indicates the T-Bar **IS** active.

To synchronise the T-BAR to any *other* T-BAR connected to the ATEM, enter the **SETUP MODE** and move the T-BAR to the required position.

SHIFT BUTTON



The **SHIFT** Button (*on the LEFT SIDE of the controller*) is used for getting alternate button functions. It is also used for entering the **SETUP MODE**. There are 2 types of SETUP button presses.

- SETUP Button QUICK PRESS

This is used to enter and exit the SETUP MODE

- SETUP Button LONG PRESS (button held down)
This is used in conjunction with any other button to provide an alternate function

DELUXE OPERATION *(for all versions above BASIC)*

BKGD



The **BKGD button** toggles ON or OFF the ATEM background function. It only works if a KEY button is selected as per that ATEM operation.

KEY *(Only Keyer 1 and Keyer 2 for each ME are available)*



The **KEY button** can provide either a preview of a key or put the key on the program. Using the **KEY button WITHOUT** the **SHIFT** toggles the ATEM selected keyer ON or OFF on the **PREVIEW**. It only works if the **BKGD** button is selected as per that ATEM operation.

Using the **KEY button WITH** the **SHIFT** toggles the ATEM selected keyer ON or OFF on the **PROGRAM**. Note that if the KEY is not selected it will act as a CUT between the PROGRAM and PREVIEW rows. It only works if the **BKGD** button is selected as per that ATEM operation.

Operational hint: To use a transition on to program the selected ME press KEY to preview the key and make adjustments accordingly. Then use the AUTO to transition ON the key as previewed on the preview monitor. To CUT the key on to program the selected ME press SHIFT+KEY. This will display the key as previewed on the preview monitor (note that the background source is also selected).

The **Selected Keyer** can be set by using the **SETUP** function 2 for ME 1 and function 3 for ME 2.

MIX



The **MIX button** selects the MIX TRANSITION on the **ATEM**.

WIPE



The **WIPE button** selects the WIPE TRANSITION on the **ATEM**.

DSK *(currently only DSK 1 is available for control)*



The **DSK button** can provide either a DOWN STREAM KEY **CUT** or **FADE**.

Using the **DSK button** *WITHOUT* the **SHIFT** performs a **FADE ON** or **OFF** transition at a *fixed rate*.

Using the **DSK button** *WITH* the **SHIFT** performs a **CUT ON** or **OFF**.

The **BLUE LED** below the T-Bar indicates the **DSK TIE** is **ON**.

The **RATE** of the transition is determined by the current **ATEM DSK RATE**. This can be set using the **SETUP function 4**.

KEY ROW *(Only Keyer 1 and Keyer 2 for each ME are available)*



The key row is used to select the **KEY FILL** source of the *selected keyer* for each Mix Effects buss.

The key row has 10 buttons. Each button can be allocated any **ATEM INPUT 1 to 8**, **BLACK** or **COLOR 1**. The LED will follow the user allocation when the associated source is selected either on the ATEM or any control panel.

The default inputs are:

ATEM inputs 1 to 9, where input 1 is black, inputs 2 to 9 are external inputs 1 to 9 (*usually camera's 1 to 9*) and input 10 is Color 1. The **SOURCE ALLOCATIONS** can be changed around using the **SETUP function 14**.

The **Selected Keyer** can be set by using the **SETUP** function 2 for ME 1 and function 3 for ME 2.

SETUP MODE

There are 20 possible setup modes available using the SHIFT button. Fast press the SHIFT button (under 2 seconds) and the SETUP MODE assumes the last setup item selected, or if it is 1st time used it starts at SETUP menu 1.

When in setup mode:

The **PROGRAM row** indicates setup functions 1 - 10

The **PREVIEW row** indicates the selected functions value 1 to 9 and 0 (10). If a value is 2 digits the second value is displayed by holding down the SHIFT (eg. setting TRANS rates default to x10 frames per button, SHIFT will display x1 frame per button)

Setup functions (PROGRAM ROW):

- | | |
|-----------|---|
| 1 | Set M/E row – 1 = ME 1, 2 = ME 2 |
| 2 | Set ME 1 Keyer – 1 = Keyer , 2 = Keyer 2 |
| 3 | Set ME 2 Keyer – 1 = Keyer 1, 2 = Keyer 2 |
| 4 | Set DS Keyer – 1 = DSK 1, 2 = DSK 2 |
| 5 | Set AUTO Rate – 1 to 99 frames |
| 6 | Set DSK Rate – 1 to 99 frames |
| 7 | Set FTB Rate – 1 to 99 frames |
| 8 | Allow SHIFT functions - 1 = active, 2 = disabled |
| 9 | Allow LCD source display - 1 = active, 2 = disabled |
| 10 | Allow USB sources display - 1 = active, 2 = disabled |
| SHIFT + 1 | T-Bar Active - 1 = active, 2 = disabled |
| SHIFT + 2 | LED Intensity - value 0 – 9, CUT = x10 |
| SHIFT + 3 | Button Xpoints – allocation = PROGRAM, source = PREVIEW |
| SHIFT + 4 | Set KEYBUSS xpts – allocation = PROGRAM, source = PREVIEW |
| SHIFT + 5 | Set AUXBUSS xpts– allocation = PROGRAM, source = PREVIEW |
| SHIFT + 6 | unallocated |
| SHIFT + 7 | unallocated |

SHIFT + 8 unallocated
SHIFT + 9 unallocated
SHIFT + 10 System reset
 1 = reset ATEM communications
 2 = reset LCD
 3 = system reset

When in **SETUP MODE** press the **PROGRAM row** buttons 1 to 10 to select **setup functions 1 to 10** and press **SHIFT + PROGRAM row** buttons 1 to 10 to select **setup functions 11 to 20**.

To **EXIT** the setup mode fast press the **SHIFT** button

1. Set M/E row

Allows user to select Mix Effects row 1 or Mix Effects row 2 to control.

PROGRAM row displays **LED 1** to indicate SETUP MODE 1.

PREVIEW ROW displays **LED 1** if set to control ME 1 and **LED 2** if set to control ME 2

Press Preview row **BUTTON 1** to select ME 1 and press Preview row **BUTTON 2** to select ME 2.

PREVIEW ROW buttons and **LEDs 3 to 10** have no other functions

2. Set ME 1 Keyer

Allows user to select **KEYER 1** or **KEYER 2** on **ME 1** for control.

PROGRAM row displays **LED 2** to indicate SETUP MODE 2.

PREVIEW ROW displays **LED 1** if set to control KEYER 1 and **LED 2** if KEYER 2.

Press Preview row **BUTTON 1** to select KEYER 1 and press Preview row **BUTTON 2** to select KEYER 2.

Preview row buttons and **LEDs 3 to 10** have no other functions

3. Set ME 2 Keyer

Allows user to select **KEYER 1** or **KEYER 2** on **ME 2** for control.

PROGRAM row displays **LED 3** to indicate SETUP MODE 3.

PREVIEW ROW displays **LED 1** if set to control KEYER 1 and **LED 2** if KEYER 2.

Press Preview row **BUTTON 1** to select KEYER 1 and press Preview row **BUTTON 2** to select KEYER 2

Preview row buttons and **LEDs 3 to 10** have no other functions

4. Set DS Keyer

Allows user to select **Down Stream Keyer 1** or **Down Stream Keyer 2**.

***functions may not be available*

PROGRAM row displays **LED 4** to indicate SETUP MODE 3.

PREVIEW ROW displays **LED 1** if set to control DSK 1 and **LED 2** if set to control DSK 2

Press Preview row **BUTTON 1** to select DSK 1 and press Preview row **BUTTON 2** to select DSK 2

Preview row buttons and **LEDs 3 to 10** have no other functions

5. Set AUTO Rate

Allows user to set the selected ME AUTO TRANS rate

***only rates from 1 frame to 99 frames available*

PROGRAM row displays **LED 5** to indicate SETUP MODE 5.

PREVIEW ROW displays **LED 1 to 10** to indicate the **RATE x10** and **RATE x1** if **SHIFT** held down. **LED 10 = 0**

Press Preview row **BUTTON 1 to 10** to select the **RATE x10** and to select the **RATE x1** if **SHIFT** held down. **Button 10 = 0**

Eg. to set **AUTO RATE** to 25 press **BUTTON 2** and then hold **SHIFT** and press **BUTTON 5**

Eg. to set **AUTO RATE** to 30 press **BUTTON 3** and then hold **SHIFT** and press **BUTTON 10**

Eg. to set **AUTO RATE** to 8 press **BUTTON 10** and then hold **SHIFT** and press **BUTTON 8**

6. Set DSK Rate

Allows user to set the selected DOWN STREAM KEYER TRANS rate

***only rates from 1 frame to 99 frames available*

PROGRAM row displays **LED 6** to indicate SETUP MODE 6.

PREVIEW ROW displays **LED 1 to 10** to indicate the **RATE x10** and **RATE x1** if **SHIFT** held down. **LED 10 = 0**

Press Preview row **BUTTON 1 to 10** to select the **RATE x10** and to select the **RATE x1** if **SHIFT** held down. **Button 10 = 0**

7. Set FTB Rate

Allows user to set the selected FADE TO BLACK TRANS rate

***only rates from 1 frame to 99 frames available*

PROGRAM row displays **LED 7** to indicate SETUP MODE 7.

PREVIEW ROW displays **LED 1 to 10** to indicate the **RATE x10** and **RATE x1** if **SHIFT** held down. **LED 10 = 0**

Press Preview row **BUTTON 1 to 10** to select the **RATE x10** and to select the **RATE x1** if **SHIFT** held down. **Button 10 = 0**

8. SHIFT functions

Enables or disables the SHIFT control in normal operation (to avoid mistaken selections)

PROGRAM row displays **LED 8** to indicate SETUP MODE 8.

PREVIEW ROW displays **BUTTON 1** if **ENABLED** and **BUTTON 2** if **DISABLED**

Press Preview row **BUTTON 1 ENABLE** and press Preview row **BUTTON 2 to DISABLE**

Preview row buttons and **LEDs 3 to 10** have no other functions

9. LCD sources

Enables or disables the LCD Display when in normal operation

(displays selected program/preview sources when enabled)

PROGRAM row displays **LED 9** to indicate SETUP MODE 9.

PREVIEW ROW displays **BUTTON 1** if **ENABLED** and **BUTTON 2** if **DISABLED**

Press Preview row **BUTTON 1 ENABLE** and press Preview row **BUTTON 2 to DISABLE**

Preview row buttons and **LEDs 3 to 10** have no other functions

10. USB sources

Enables or disables the USB Display in normal operation

(displays selected program/preview sources when enabled)

PROGRAM row displays **LED 10** to indicate SETUP MODE 10.

PREVIEW ROW displays **BUTTON 1** if **ENABLED** and **BUTTON 2** if **DISABLED**

Press Preview row **BUTTON 1 ENABLE** and press Preview row **BUTTON 2 to DISABLE**

Preview row buttons and **LEDs 3 to 10** have no other functions

11. T-Bar Active

Enables or disables the T-Bar in normal operation

(this avoids accidental movement of the T-Bar when sitting idle)

PROGRAM row flashes **LED 1** to indicate SETUP MODE 11.

PREVIEW ROW displays **BUTTON 1** if **ENABLED** and **BUTTON 2** if **DISABLED**

Press Preview row **BUTTON 1 ENABLE** and press Preview row **BUTTON 2** to **DISABLE** Preview row buttons and **LEDs 3 to 10** have no other functions

12. LED Intensity

Allows user to select the panel LED brightness from low to high (0 - 15)

PROGRAM row flashes **LED 2** to indicate SETUP MODE 12.

PREVIEW ROW displays **LED BRIGHTNESS x1** on LEDs 1 to 10 and **LED BRIGHTNESS x10** on the **CUT LED**. **LED 10 = 0**.

Press Preview row **BUTTON 1 to 10** to set **LED BRIGHTNESS x1** and **CUT BUTTON** to set x10. **LED 10 = 0**

13. Button Xpoints

Allows user to allocate program and preview row sources

PROGRAM row flashes **LED 3** to indicate SETUP MODE 13.

Preview LEDs 1 - 10 will display required button to allocate

Press Preview row **BUTTON 1 to 10** to select which button to allocate

HOLD DOWN SHIFT and press preview row **BUTTON 1 to 10** to select which source required for the selected button

HOLD DOWN SHIFT and press **CUT** to restore to default input allocations

eg. to allocate input 3 to button 5 press button 5 and hold down SHIFT. LED's 1 -10 will display the current allocation.

While holding down the **SHIFT** press preview **BUTTON 1 to 10** to change allocation

14. Set KEYBUSS Xpoints

Allows user to allocate KEY row sources

PROGRAM row flashes **LED 4** to indicate SETUP MODE 14.

Press Preview row **BUTTON 1 to 10** to select which button to allocate

HOLD DOWN SHIFT and press preview row **BUTTON 1 to 10** to select which source required for the selected button

HOLD DOWN SHIFT and press **CUT** to restore to default input allocations

15. Set AUXBUSS Xpoints

Allows user to allocate KEY row sources **functions may not be available

PROGRAM row flashes **LED 5** to indicate SETUP MODE 15.

Press Preview row **BUTTON 1 to 10** to select which button to allocate
HOLD DOWN SHIFT and press preview row **BUTTON 1 to 10** to select which source required for the selected button
HOLD DOWN SHIFT and press **CUT** to restore to default input allocations

16 - 19 Unallocated

20. System reset

Resets various settings

PROGRAM row flashes **LED 10** to indicate SETUP MODE 20.

Press Preview **BUTTON 1** to reset the serial communications with the ATEM

Press Preview **BUTTON 2** to reset the serial controller

Press Preview **BUTTON 3** to reset the LCD display

After the required reset function is selected the LED will flash and the **CUT LED** will flash awaiting confirmation

Press the **CUT** button to confirm or any other button to return to *'reset selection'*