CB Electronics

MR Series Remote

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MR SERIES REMOTE

This document should be read with the SR Manual
and details the differences between the SR and MR systems.

0.0 HARDWARE DIFERENCES BETWEEN MR AND SR SYSTEMS

The MR & SR Hubs are made from the same basic PCB, the differences are as follows

0.1 U RAM (Random Access Memory and JP4

MR SYSTEMS

U is a 62256
JP4 is connected between pins 2&3

SR SYSTEMS

U is a 6264
JP4 is connected between pins 1&2

0.2 JP2 Keyboard LED Drive

Old Systems JP2 is connected between pis 2 & 3
New Systems JP2 is connected between pins 1&2

0.3 Serial Port A

Serial port A may be configured as an input or output as follows:-

System Name	Port A Direction	Links LK4,5,6,7
SR-3	Input	Horizontal
SR-4	Output	Vertical
SR-24	Output	Vertical
MR (4 Port)	Input	Horizontal
MR (6 Port)	Output	Vertical

1.00 QUICK START

1.01 MR-BLOCK

This diagram shows a typical MR-8 Film/Video installation, The master at all times is the CB MC-1 MASTER MOTION CONTROLLER which is controlled directly by the Serial **OUT** port on the MR-8. The three slave machines are controlled by the **MR-3** Triple serial interface. Video cues and clicks/ beeps are provided by the VS-1 Video Streamer.

1.02 ACCESSING MACHINES

Direct access is provided to the master and six slave machines, the machine buttons are programable and the user may select any machine to any key. To assign a machine to a machine key use the keyboard to define the machine number and **STORE** followed by the machine key. The machine numbers may be determined by adding the MR-3 address, for the first MR-3 (Address-1) the machine numbers are 1, 2 and 3, for the second MR-3 (Address-4) the machines numbers are 4, 5 and 6.

When any machine is selected the display will show the key depressed (M or A .. L) followed by the machine name. If the machine name is not known then the machine indent will de displayed. Provided that you inform CB Electronics of the Machine name,indent and default parameters then the next issue of software will be updated to include this data.

When the Master is selected the transport commands go directly to the master machine via the MR 9 pin **OUT**. When a slave is selected the commands are routed to the selected MR-3.

1.03 SELECTING THE MASTER

The current MR software does support master selection, however to prepare for future improvements the master machine must be defined as master, to do this the depress **[SHIFT]** followed by **[MASTER]**. When properly setup the display will show **MASTER**, **LOCK**, **SLEW**, or **PARK** when accessing the master.

1.04 SELECTING A SLAVE

A machine may be selected to be a slave by selecting the machine as above and using **Chase/Offset** or **Shift** followed by **Chase/Offset**. When the shift key is used the current Master slave Positions are used to calculate the Slave Offset.

1.05 RECORD READY Assignment KEYS

Unlike the SR the MR may have separate record ready key assignment keys, these may be used to select which machine(s) the record ready keys ase assigned. The record ready key assignement is dynamic and will change if you change the machines connected to the ports. Each record ready assignment key may be programed with the machine (00:00:00:01 = Slave 1 track 1, or machine and track (00:00:01:25 = Slave 1 track 25). The user may specify the hard reset selection. If the Analog track and/or Video are enabled they will be positione after any digital tracks, eg. Digital Betacam Tracks 1-4 are digital 1-4, track 9,10 are cue 1 and 2, track 11 is timecode, track 13 is video and track 14 is Assemble. On a U-matic or Betacam tracks 1&2 are Analog 1 & 2, track 3 is timecode, track 5 is video, track 6 is Assemble.

To Assign the current selected machine to a Record Ready Assignment key use 'SHIFT' + 'Record Assignment Key'.

1.06 Multiple Machine Record Ready Assignment keys

When menu 10 (Unit/Record/Ready keys 1= Mutiple Machines) is set to 1 more that one machine may be assigned to the record ready keys. For example if you have 3 8-track machines on a MR-24 you may have a different machine on each bank of 8 keys.

1.06 CUSTOM Ready Assignment key

Unlike the normal Record ready Assignemnt keys this key is not dynamic, each record ready key may be individualy assigned to a specfic machine and track, this is then memorised and recalled when custom is selected.

1.07 Record Ready Macro Keys

There are four individual record ready macro keys that may be position in any macro key position. Each key may be assigned to any Machine/track, these are normally assigned to DAT or Video machines

2.00 DISPLAY

The MR series use two different displays, the MR-1 is fitted with a two line by forty character display, the MR-8 and MR-24 are fitted with a four line by forty character display. The two line display mirrors lines three and four of the four line display.

2.01 STATUS INDICATOR

A single character at the start of the line 3 that indicates the status of the selected machines.

L ALL All selected, chase enabled machines are locked.
L DA-88 1 Current Selected machine is Locked.
M DA-88 1 Current Selected machine is not chase enabled.
G ALL One or more selected, chase enabled machines are locating (GOTO).
G DA-88 1 Current Selected machine is locating (GOTO).

2.02 MACHINE NAME

Situated after the status indicator on line 1, the 6 character machine indicator display displays the current selected machine name (When known). When not known the current serial port number will be displayed:-

L **7030**

When the machine name is not known the hexadecimal machine type will be displayed

L $F111

If you connect a machine that displays its number please inform us of the displayed number, type, and record setting etc. so that we can include the machine in the next revision.

2.03 POSITION

Situated at the start of line 4 the position display indicates either of the following dependant on the ALL/Indiv switch:-

ALL The position of the master machine controlled via the Sony 9 pin port.
INDIV The position of the selected machine.

The format of the display is dependant on the **TIME/FEET** switch as follows:-

TIMECODE **01:00:00:00** Timecode
FOOTAGE **F 0000:00** FEET and Frames converted from timecode referenced to the **LOCAL ZERO**.
LOCAL TIME **L 00:00:00** Minutes, Seconds and frames referenced to the **LOCAL ZERO**.

Note: The Frames will only be displayed when the selected machine is slow or stopped.

2.04 CURRENT ENTRY

The last eleven characters of line 4 represent the current keyboard entry or the last memory recalled. Where the memory name is known it is displayed immediately to the left of the display.

MARK 01:00:00:00 The position captured when the **MARK** key was depressed.
KEYBD -> 00:00:12:23 Keyboard entry

2.05 PREVIOUS ENTRY

The last eleven characters of line 3 represent the previous keyboard entry. The format is the same as for the current entry. This value may be swapped with the current entry using the **RECALL-RECALL** command or used as a locate point with **SHIFT LOCATE**.

2.06 MESSAGE TO USER

The centre section of line 3 is reserved for messages to users, as only one message may be displayed at a time the messages are prioritised. The following list starts at the highest priority:-

Character When the ADR mode is enabled the character name or "LOOP" is displayed.
Disabled All commands and status requests disabled
Status Only Status and position requests only
Local No Tape or Local control
Sync Error Slave only, Difference between master and slave position.
Shuttle Speed Shuttle speed in multiples of play speed
Varispeed Varispeed as a percentage difference to nominal
Unlaced Tape unlaced
No Syncs No Video Syncs at the MR-24 power supply.
No Tape No tape in machine
No Comms No communications to the machine, check cable and serial protocol
No MR-3 No communications between MR-24 BUS and MR-3

2.07 SHIFTER

The shifter display is located at the end of line 2 above the PREVIOUS ENTRY display. The shifter value is added to the offset to set a new machine offset. It is designed to be a temporary offset that us used to pull into sync different sections of the soundtrack.

The display shows the shifter value for the currently selected machine. In All mode the shifter display and shifter keys refer to the last selected machine.

MACHINE NAME **Shift +5**

Shifter value (Temporary Offset) for current or previous machine.
Note: when Shift = 0 this message is not displayed!

2.08 RECORD BANK

The **BANK** switch when fitted assigns the record keys to different machines. The selected machine name and number are displayed at the start of line 2.

2.10 ADR DISPLAY

When the ADR mode is enabled, **REHEARSE / AUTO-REC / MANUAL RECORD / REVIEW** active.

2.11 CHARACTER NAME

The centre section of line 3 may display the character name dependant on the current message priority. If the name is not known then **LOOP** will be displayed.

2.12 LOOP NUMBER

The centre section of line 4 displays the current loop number. When extra loops are inserted the current loop number will be suffixed with the letter A which is changed if more loops are inserted.

2.13 PREVIOUS ENTRY/RECORD OUT

The previous entry is replaced by the **RECORD OUT** point. The **SHIFT LOCATE** command locates the current **RECORD OUT** point.

2.14 CURRENT ENTRY/RECORD IN

The current entry is replaced by the **RECORD IN** point. The **LOCATE** command locates the current **RECORD IN** point.

2.15 ADR TEXT

When the ADR information is downloaded from a suitable file the first 40 characters of the text will be displayed on Line 1.

4.00 ADR LOOP MODES

There are 4 LOOP modes:- Rehearse, Auto-Record, Manual Record, and Review as described below. When any loop mode is active the system is modified as follows:-
1) The **LOCATE** switch is modified to always locate pre-roll ahead of **Record-In**.
2) **SHIFT-LOCATE** locates pre-roll ahead of **RECORD-OUT**.

4.01 LOOP OFF

When no LOOP mode is active the following applies:-
1) Monitor switches Before/During/After only with manual record.
2) LOOP keys are **NOT** active.
3) The **LOCATE** key locates the **Current Entry** display.
4) **SHIFT-LOCATE** locates the **Previous Entry** display.

4.02 REHEARSE

In the rehearse mode the following apply:-
1) Monitoring switches Before/During/After Record.
2) No Auto-Record Drop in / Drop out.

On depressing the **Rehearse** key the following commands are sent:-
1) Locate pre-roll ahead of **Record-in**.
2) Turn **OFF** loudspeaker monitoring.

4,03 AUTO RECORD

In the Auto Record mode the following apply:-
1) Monitoring switches Before/During/After with Rec-In/Rec-Out or with manual Record.
2) Auto-Record Drop in / Drop out enabled.

On depressing the **AUTO REC** key the following commands are sent:-
1) Locate pre-roll ahead of **Record-in**.
2) Turn **OFF** loudspeaker monitoring.

4.04 MANUAL RECORD

In the Manual Record mode the following apply:-
1) Monitoring switches Before/During/After only with manual Record.
2) No Auto-Record Drop in / Drop out

On depressing the **MAN REC** key the following commands are sent:-
1) Locate pre-roll ahead of **Record-in**.
2) Turn **OFF** loudspeaker monitoring.

4.05 REVIEW

In the Review mode the following apply:-
1) Monitor stays in BEFORE unless changed by user.
3) No Auto-Record Drop in / Drop out

On depressing the **Review** key the following commands are sent:-
1) Locate pre-roll ahead of **Record-in**.
2) Turn **ON** loudspeaker monitoring.

4.06 NEXT LOOP

Used to step forward through the stored loops.

4.07 PREV LOOP

Used to step backward through the stored loops.

4.08 JUMP TO LOOP ???

To access a specific loop, enter the loop number and use either **Store** or **Recall** with **Next Loop** or **Prev Loop**. Note that this will access the loop at this pointer location, where extra loops have been inserted or the loops are not numerically labelled then some intuitive guesswork may be needed.

4.09 JOIN LOOP

Used to Join two or more loops Each depression of this key increments the loop pointer and updates the **Record Out** only. The **Record In** is left at the original value.

4.10 INSERT LOOP

Used to insert a new loop in an existing list, the same loop number is used with an letter suffix eg. 11 -> 11A, 11A -> 11B....

4.11 DELETE LOOP

To delete a loop use **SHIFT-INSERT LOOP**, caution! once a loop is deleted it lost there is no undo function!

4.12 CYCLE

The **CYCLE** key when illuminated indicates that the **RECORD OUT** is active, the system will drop out of record at the record out point and at **POST-ROLL** after record out will locate **PRE-ROLL** before record in.

4.20 LOOP ENTRY

The ADR controller is based on storage of a list of loops, when any of the edit modes is selected the loop in and out points are transferred to the record in and out pints. Because of this the contents of the record in and out stores are lost when any edit mode is selected.

4.21 ENTERING A LOOP LIST FROM SETUP

The simplest way of entering a list of loops is from SETUP, in this mode both the current and previous loops are displayed at the same time.To enable:-

Select **Setup**
Select "0=ADR" using the "0" key
Use **Next Loop** and **Prev Loop** to select loop number
Enter **Loop In** point
Use **Store** key to store **Loop In** and select loop out point
Enter **Loop Out** point
Use **Store** key to store **Loop Out** and select next loop

The **Recall** key is used to move backward from **Loop Out** to **Loop In** and from **Loop In** to **Loop Number**. The **Store** key is used to move forward from **Loop Number** to **Loop In** and from **Loop In** to **Loop Out**.

4.22 ENTERING LOOPS FROM EDIT

Loops my be entered in any edit mode, if you wish to keep the old loops then **Next Loop** should be used to move to the next loop for each loop entry.

Select **Rehearse, Auto Record, Manual Record,** or **Review**
Key in loop in point and save **Store - Record In**
Key in Loop out point and save **Store - Record Out**

4.23 ENTERING LOOPS ON THE FLY

If you wish to capture a loop in play

Select **Rehearse, Auto Record, Manual Record,** or **Review**
Hit the **Mark** key when playing through or stopped at the loop in point.
Hit the **Mark** key a second time when playing through or stopped at the loop out point.
Key in **Store - Store** to save the loop in Record in and out stores.

4.24 SPLITTING A LOOP

When a loop is to long it may be split into two or more loops using the **Loop Insert** key. After inserting the extra loop the out time of the first loop and the in time of the second loop must be updated.

4.30 ADR COMPUTER LINK

When large amounts of ADR work is involved it is advantageous to prepare ADR off-line and download the prepared files when required. CB Electronics supplies with the system the basic Download, Upload and EDL conversion programs. When using the system all that is required is a RS232 link to a IBM compatible computer. The download or upload process takes only a matter of seconds.

The system expects each individual character to have its own file, however in situations where more than one character is present at the same time the file may be modified to suit (See Section 4.35)

Note: down loading a new adr file will erase the current loop data.

4.31 ADR FILE FORMAT

The download program "MRADR" expects to see a ASCII text file (Save as ASCII text from your normal editor/word processor) with one loop on each line.

4.311 FILE NAME

The file name is used as the Character name and should be a maximum of 8 characters long, the download program expects a .NAM extension.

4.312 TEXT FORMAT

Loop Number<Tab or Space>IN-TIME(HH:MM:SS:FF)<Tab or space>OUT-TIME(HH:MM:SS:FF)<Tab or space>TEXT

The download program will expect to find one line per entry, more than one line will cause problems.

4.313 LOOP NUMBER

The Loop Number is optional, numeric loop numbers will be generated if none are used. The loop number should not be greater that 3 characters.

4.314 DATA SEPARATORS

As both <Tab> or <Space> are acceptable as separators there should be no spaces between the Hours minutes and seconds within the IN-TIME and OUT-TIME.

4.315 TIMECODE ENTRY

The colons within the timecode are optional, the IN-TIME hours must be present on the first loop entry, after that they may be omitted.

4.316 TEXT ENTRY

Only the first 40 characters of the text will be displayed, any colons will be removed.

4.32 ADR DOWNLOAD

Once the download program has been installed "MRADR" it may be run at any time by typing **MRADR<Enter>**. Alternatively it may be run from a DOS window under windows.

4.33 ADR UPLOAD

When recording the talent the loop in and out points are often corrected due to incorrect entry or changes in length. The system prompts the operator to upload the loop data in the ADR controller for later use.

4.34 GENERATING AN EDL FOR AUTO-CONFORM

The completed ADR loop files may be combined to make a CMX format EDL file that may be used to auto-conform from the tape to a hard disk based edit system for sweetening.

4.35 USING THE SYSTEM WITH MULTIPLE CHARACTERS

The system may be used with multiple characters by entering the character name at the start of the TEXT for example:-

100 10:00:00:00 10:00:30:00 HENRY- What time is it dear?

101 10:01:00:00 10:00:30:00 ELIZABETH- Time you bought a watch!

4.36 FILE STORAGE

The ADR files are stored with the following sub-directory system:-

ADR\PROJECT NAME\EPISODE\Character.NAM

The download program MRADR will generate sub-directories to keep the files in this format.

4.37 RS232 Communications detail

The IBM port is configured as RS232 with the following parameters:-

Baud Rate 9600
Data bits 8
Parity None
Stop Bits 1

4.38 IBM CABLE (RS232)		
MR Controller 9 pin 'D' Male on cable	Cable Colour	IBM COM1: 9 pin 'D' Female on cable
2	Black	2
8	Red	3
4	Screen	5

The loop details are transmitted as text, each line must be terminated by a Carriage Return ($0D), or Line Feed ($0A) or both. The first character in the line is used to specify the data type as follows:-

Control Characters		
First Character	Line type	Following data
$B0	New List	"XxName"
$B1	New Loop	"LllIntimeOutimeText"
$B2	End of List	
$B3	Transmit current List	

Where

Xx Two digit number
Name Eight character name
Lll Loop label, three characters
Intime Eight timecode characters (No Colons allowed!)
Outime Eight timecode characters (No Colons allowed!)
Text Maximum of 40 characters

Note: there are no characters(tabs or spaces)between data fields. The download program parses the data from the file and formats the data so as to fit the requirements.

Example in BASIC:-

```
OPEN "Com1: 9600,n,8,1," FOR RANDOM AS #comport LEN = 256
text$ = CHR$(176) + "00" + "Henry"
PRINT #comport, text$
text$ = CHR$(177) + "001" + "10000000" + "10010000" + "This is the first line"
PRINT #comport, text$
PRINT #comport, CHR$(178)
CLOSE
```

11.00 RESET

11.03 CONTROLLER HARD RESET

If it is required to reset the battery backed memory manually a hard reset may be initiated from the front panel by simultaneous depression of two keys. If the front panel software is not working correctly the unit will only reset if the **REWIND** and **LOCATE** keys are depressed during the power up sequence. The exact keys used is dependant on the keyboard design as follows:-

SR-4 **REWIND** and **LOCATE** keys.
DFC **MASTER** and **JOG** keys
SR24 **MASTER** and **JOG** keys

CAUTION if **Menu 22 Setup : Unit : Generic : On Hard Reset is set to 1 = Leave Macro's** this will reset the Setup and Macro key memory!

When new software is fitted always hard reset the unit and ensure that **Menu 22 Setup : Unit : Generic : On Hard Reset is set to 0 = Reset Macro's** is selected and Hard Reset the controller

If the front panel software is not working correctly the unit will only reset if the keys are depressed during the power up sequence, WAIT UNTIL ALL THE LED'S ILLUMINATE, then depress the Hard Reset key combination.

11.04 MR-3 HARD RESET

To hard reset the system, each individual unit must be hard reset. To hard reset the MR-3's depress the **MR-3** units depress **Select** and **Slave-2** on each unit (On later software **Select** & **Slave-3** the two outside keys will also hard reset the unit).

12.00 GPIO's

The MR system has a very flexible GPIO system based on the MRP-16 Parallel port has 16 Opto Isolated GPIO's that may be configured as either inputs or outputs in groups of four. A maximum of 16 MRP-16's may be used in any system.

The 16 output unit should be used for simple unambiguous functions as follows:-

On whist key depressed, or Shift key for continuous on . . . . . eg Talkback
Individual Switches with continuous output . . . . . eg
Linked switches providing continuous output selection . . . . . eg. Monitor selection
Toggle functions that do not need a tally . . . . . eg Lights On/Off

The 8 Output/Tally unit should be used wherever a toggle function may result in an out of sync situation, or where more than one switch or external event can cause confusion, eg. DIM or MUTE

12.01 GIPO's and BIT MACRO's

The relationship between switches and outputs is defined by a combination of macro keys and software. The Macro Key function assigns a key to a memory location. The Software assigns a memory location to an output or group of outputs. The software is configured dependant on the number of outputs required, and their relationship, this must be installed by CB Electronics. The Macro keys are user definable and may be changed at any time. CB Electronics will set up the default macros to suit the user requirements, in this way the unit may be reset to a kno
wn state by the user.

12.02 BIT MACRO's

Bit Macro's are used to define the switch logic, each Bit Macro controls one bit or pair of bits in the memory. The Memory bits are then be used to control the switch LED and the associated GPIO state. The following output related macro's are available:-

Bit Macro's					
1	MACROBIT: Bit 0 ON	21	MACROBIT+1: Bit 4 Toggle	41	M'MOM+2: Bit 0 Momentary
2	MACROBIT: Bit 0 OFF	22	MACROBIT+1: Bit 5 Toggle	42	M'MOM+2: Bit 1 Momentary
3	MACROBIT: Bit 1 ON	23	MACROBIT+1: Bit 6 Toggle	43	M'MOM+2: Bit 2 Momentary
4	MACROBIT: Bit 1 OFF	24	MACROBIT+1: Bit 7 Toggle	44	M'MOM+2: Bit 3 Momentary
5	MACROBIT: Bit 2 ON	25	M4Byte : Bits 01 = 0	45	M'MOM+2: Bit 4 Momentary
6	MACROBIT: Bit 2 OFF	26	M4Byte : Bits 01 = 1	46	M'MOM+2: Bit 5 Momentary
7	MACROBIT: Bit 3 ON	27	M4Byte : Bits 01 = 2	47	M'MOM+2: Bit 6 Momentary
8	MACROBIT: Bit 3 OFF	28	M4Byte : Bits 01 = 3	48	M'MOM+2: Bit 7 Momentary
9	MACROBIT+2: Bit 0 Toggle	29	M4Byte : Bits 23 = 0	49	M'MOM+4: Bit 0 Momentary
10	MACROBIT+2: Bit 1 Toggle	30	M4Byte : Bits 23 = 1	50	M'MOM+4: Bit 1 Momentary
11	MACROBIT+2: Bit 2 Toggle	31	M4Byte : Bits 23 = 2	51	M'MOM+4: Bit 2 Momentary
12	MACROBIT+2: Bit 3 Toggle	32	M4Byte : Bits 23 = 3	52	M'MOM+4: Bit 3 Momentary
13	MACROBIT+2: Bit 4 Toggle	33	MACROMOM: Bit 0 Momentary	53	M'MOM+4: Bit 4 Momentary
14	MACROBIT+2: Bit 5 Toggle	34	MACROMOM: Bit 1 Momentary	54	M'MOM+4: Bit 5 Momentary
15	MACROBIT+2: Bit 6 Toggle	35	MACROMOM: Bit 2 Momentary	55	M'MOM+4: Bit 6 Momentary
16	MACROBIT+2: Bit 7 Toggle	36	MACROMOM: Bit 3 Momentary	56	M'MOM+4: Bit 7 Momentary
17	MACROBIT+1: Bit 0 Toggle	37	MACROMOM: Bit 4 Momentary	57	M'MOM+6: Bit 0 Momentary
18	MACROBIT+1: Bit 1 Toggle	38	MACROMOM: Bit 5 Momentary	58	M'MOM+6: Bit 1 Momentary
19	MACROBIT+1: Bit 2 Toggle	39	MACROMOM: Bit 6 Momentary	59	M'MOM+6: Bit 2 Momentary
20	MACROBIT+1: Bit 3 Toggle	40	MACROMOM: Bit 7 Momentary	60	M'MOM+6: Bit 3 Momentary

Although any memory bit could be assigned to any output bit it is sensible to make the bit assignment linear wherever possible.

12.03 CONTINUOUS TALLY's

Macros's 1..40 have continuous outputs, the switch LED will illuminate when the bit is set to logic 1.

12.04 MOMENTARY TALLY's

The Momentary macro's (33 - 64) have associated LED tally inputs, the LED logic is as follows:-

Momentary Macro's 33-48

LED ON if either, Key Depressed or Bit Latched On, or Tally on.

Momentary Macro's 49-64

LED ON if Tally on

12.05 BIT MACRO 1..16 BIT ON + BIT OFF

Eight individual on/off or 1 pole 2 way continuous outputs, each controlled by an ON and OFF switch.

12.06 BIT MACRO 17-24 BIT TOGGLE

Eight individual on/off or 1 pole 2 way continuous outputs, each controlled by one TOGGLE switch.

12.07 BIT MACRO 25-40 ONE OF FOUR

Four outputs arranged as a 1 pole 4 way switch controlled by Four switches, May also be used as a 1 pole 3 way switch. Three switches may also be used to select 4 states defined as binary bit patterns 00, 01, 10, and 11, depressing an switch that is illuminated will reset the selection to the lowest selection (00).

12.08 BIT MACRO 33-64 BIT MOMENTARY

Thirty two individual pulse outputs, may also be latched (Shift Macro Key) with both internal and external tallies. As momentary switches may be paralleled the external tally input ensures that the LED and external event stay in sync. The LED logic is as follows:-

MACRO's 33-48

The LED is Illuminated if KEY DEPRESSED or LATCHED or EXTERNAL TALLY ACTIVE

MACRO's 49-64

The LED is Illuminated if EXTERNAL TALLY ACTIVE

Macro's 41-48 are designed for functions such as Talkback, or Focus, brightness up/down where there is no need for an external tally. Macro's 49-64 are designed for on off functions such as Mute, Dim, or Tape direct where it is important that the tally is in sync with the controlled event.

12.09 AUTO-MUTE + MUTE

AN EXAMPLE OF AN GPIO DEFINITION

1) MUTE KEY

BIT MACRO = MOMENTARY
GPO = PULSE OUTPUT
GPI = TALLY INPUT

Pulse Output ON When Mute key depressed

2) AUTO-MUTE KEY

BIT MACRO = TOGGLE
GPIO'S = NONE (Use Mute GPIO's)

AUTO MUTE ON : **if** NOT PLAY **and** MUTE LED OFF **then** PULSE MUTE OUTPUT
AUTO MUTE OFF : **if** MUTE LED ON **then** PULSE MUTE OUTPUT

LEAVE PLAY MODE : **if** AUTO-MUTE BIT SET **and** MUTE TALLY OFF **then** PULSE MUTE OUTPUT

ENTER PLAY MODE : **if** AUTO-MUTE BIT SET **and** MUTE TALLY ON **then** PULSE MUTE OUTPUT

Note that the type of GPIO's and Bit Macro's has been specified but not tied to a specific output pin or bit macro.

13.00 MRP16 Connection

The following table shows the physical to logical relationship of machine numbers. The physical bus numbering is always 1-31 the logical letters are assigned alphabetically and will depend on the number of ports on the hub, 1, 2 or 3. The old numbering system (Master Mmn) used special lettering for the hub ports.

13.01 Parallel Interface Address Programming Table

Function	Master AB 4 Port		Master ABC 6 Port		Master Mmn		Programming Switches							
							In/Out Type			Address				
	No.	L	No.	L	No.	L	1	2	3	4	5	6	7	8
GP Port	33	g	34	h	31	f								
Giant Display	32	f	33	g	30	e				On				
	31	e	32	f	29	d					On			
	30	d	31	e	28	c				On	On			
	29	c	30	d	27	b						On		
MWA	28	b	29	c	26	a		On		On		On		
	27	a	28	b	25	Z					On	On		
	26	Z	27	a	24	Y				On	On	On		
	25	Y	26	Z	23	X							On	
Pec/Dir	24	X	25	Y	22	W				On			On	
Streamer	23	W	24	X	21	V					On		On	
	22	V	23	W	20	U				On	On		On	
	21	U	22	V	19	T						On	On	
	20	T	21	U	18	S				On		On	On	
	19	S	20	T	17	R					On	On	On	
	18	R	19	S	16	Q				On	On	On	On	

To check a port first check which type of system you have.

Old Mmn

The original systems master machines were labled M, m or n dependant on the number of master ports on the controller. On these systems the master machines are accessed as machine number 32, 33, or 34 with the slave machines numbered 1..15.

New AB or ABC

The later systems are more like the SR system with the master machines labled A,B, or C dependant on the number of serial ports. The machines are accessed as numbers 1..18 with the master machines numbered 1..3.

Because the Master machines are labled 1, 2, or 3 the BUS now starts at number 3 or 4 dependant on the number of serial ports. Enter the Port number to the keyboard display then type **Shift** followed by **Store** followed by one of the machine keys. The display should show the letter L for your system if entered correctly.

13.02 MRP-16 INPUT/OUTPUT Programing					
Interface Type	**16 Output**	**12 Output 4 Input**	**8 Output 8 Input**	**4 Output 12 Input**	**16 Input**
D1/Switch 1		ON		ON	
D2/Switch 2			ON	ON	
D3/Switch 3					ON
RN2-1	330R 9 pin	330R 9 pin	330R 9pin	330R 5 pin	
RN2-10				Short 5 pin	Short 9 Pin
RN3-1	330R 9 pin	330R 5 pin			
RN3-10		Short 5 pin	Short 9 pin	Short 9 pin	Short 9 Pin
RN4	4*47R 8 Pin	4*47R 8 Pin	4*47R 8 pin	4*47R 8 pin	4*4K2 8 Pin
RN5	4*47R 8 Pin	4*47R 8 pin	4*47R 8 pin	4*2K2 8 pin	4*2K2 8 Pin
RN6	4*47R 8 Pin	4*47R 8 Pin	4*2K2 8 pin	4*2K2 8 pin	4*2K2 8 Pin
RN7	4*47R 8 Pin	4*2K2 8 Pin	4*2K2 8 pin	4*2K2 8 pin	4*2K2 8 Pin
U1-U4	Out	Out	Out	Out	IN
U5-U8	Out	Out	Out	In	IN
U9-U12	Out	Out	In	In	IN
U13-U16	Out	In	In	In	IN

13.03 PARALLEL PORT OUTPUT CONNECTIONS
37 way 'D' Male on Cable

DESTINATION	Pin	OUTPUT FUNCTION	Colour	OPTO EMITTER	OPTO COLLECTOR
		1:		1	
					20
		2:		2	
					21
		3:		3	
					22
		4:		4	
					23
		5:		5	
					24
		6:		6	
					25
		7:		7	
					26
		8:		8	
					27
		9:		9	
					28
		10:		10	
					29
		11:		11	
					30
		12:		12	
					31
		13:		13	
					32
		14:		14	
					33
		15:		15	
					34
		16:		16	
					35

13.04 PARALLEL PORT 8 OUTPUT with 8 TALLY CONNECTIONS 37 way 'D' Male on Cable			
OUTPUT FUNCTION	Colour	OPTO EMITTER	OPTO COLLECTOR
Output 1:		1	20
Output 2:		2	21
Output 3:		3	22
Output 4:		4	23
Output 5:		5	24
Output 6:		6	25
Output 7:		7	26
Output 8:		8	27
TALLY FUNCTION		Opto Anode	Opto Cathode
Input 1:		9	28
Input 2		10	29
Input 3		11	30
Input 4		12	31
Input 5		13	32
Input 6		14	33
Input 7		15	34
Input 8		16	35

13.04a PARALLEL PORT POWER CONNECTIONS	
Function	Pin
+5v regulated (Link on PCB)	17
0v	18
0v	19
+9v - +12v Power In/Out	36
+9v - +12v Power In/Out	37

13.05 PARALLEL PORT INPUT CONNECTIONS 37 way 'D' Male on Cable			
FUNCTION	Colour	OPTO ANODE	OPTO CATHODE
Input 1:		1	20
Input 2:		2	21
Input 3:		3	22
Input 4:		4	23
Input 5:		5	24
Input 6:		6	25
Input 7:		7	26
Input 8:		8	27
Input 9:		9	28
Input 10:		10	29
Input 11:		11	30
Input 12:		12	31
Input 13:		13	32
Input 14:		14	33
Input 15:		15	34
Input 16:		16	35

13.05a PARALLEL PORT POWER CONNECTIONS	
Function	Pin
+5v regulated (Link on PCB)	17
0v	18
0v	19
+9v - +12v Power In/Out	36
+9v - +12v Power In/Out	37

13.06 GP PORT OUTPUT CONNECTIONS

OUTPUT FUNCTION	Colour	OPTO EMITTER	OPTO COLLECTOR
DAT STOP (Pulse)		1	20
DAT PLAY (Pulse)		2	21
DAT RECORD ON (Continuous, start of loop in loop mode)		3	22
RED LIGHT (Continuous, start of loop in loop mode)		4	23
DAT RECORD ON (Pulse, start of loop in loop mode)		5	24
ALL LOCK (Continuous)		6	25
LS MUTE ON (Pulse)		7	26
LS MUTE OFF (Pulse)		8	27
RECORD ON (Pulse)		9	28
MANUAL/AUTO RECORD MODE (Continuous)		10	29
RECORD OFF (Pulse)		11	30
BEEP ON (Pulse)		12	31
DAT Mark (Pulse)		13	32
LS MUTE (Continuous)		14	33
RECORD ON (Continuous, active during record)		15	34
		16	35

13.06a PARALLEL PORT 37 Way 'D' POWER CONNECTIONS

Pin	Function	Pin	Function
17	+5v regulated (Link on PCB)	36	+9v - +12v Power In/Out
18	0v	37	+9v - +12v Power In/Out
19	0v		

13.07 MAGNATECH/WESTREX/PERFECTONE RECORD TRACK SELECT
37 way 'D' Male on Cable

FUNCTION CONTINUOUS RECORD ON/OFF	Colour	OPTO EMITTER	OPTO COLLECTOR
Output 1: RECORD ON 1		1	20
Output 2: RECORD ON 2		2	21
Output 3: RECORD ON 3		3	22
Output 4: RECORD ON 4		4	23
Output 5: RECORD ON 5		5	24
Output 6: RECORD ON 6		6	25
Output 7: RECORD ON 7		7	26
Output 8: RECORD ON 8		8	27
Output 9: RECORD OFF 1		9	28
Output 10: RECORD OFF 2		10	29
Output 11: RECORD OFF 3		11	30
Output 12: RECORD OFF 4		12	31
Output 13: RECORD OFF 5		13	32
Output 14: RECORD OFF 6		14	33
Output 15: RECORD OFF 7		15	34
Output 16: RECORD OFF 8		16	35

13.07a PARALLEL PORT POWER CONNECTIONS

Function	Pin
+5v regulated (Link on PCB)	17
0v	18
0v	19
+9v - +12v Power In/Out	36
+9v - +12v Power In/Out	37

13.08 MWA MB51 6 TRACK RECORD ARMING AND RECORD ON/OFF CONNECTIONS St5 BA-55 Card Fitted to MB-51) 37 way 'D' Male on Cable

OUTPUT FUNCTION MB51 TRACK ARMING	Colour	MB51	OPTO Emmiter	MB 51	OPTO Collector
Output 1: RECORD READY ON/OFF TRK 1		2a(1a)	1	10a	20
Output 2: RECORD READY ON/OFF TRK 2		2a(1a)	2	9a(6a)	21
Output 3: RECORD READY ON/OFF TRK 3		2a(1a)	3	8a(9a)	22
Output 4: RECORD READY ON/OFF TRK 4		2a(1a)	4	6a(5a)	23
Output 5: RECORD READY ON/OFF TRK 5		2a(1a)	5	5a( )	24
Output 6: RECORD READY ON/OFF TRK 6		2a(1a)	6	4a( )	25
Output 7: RECORD OFF COMMAND		2a(1a)	7	3a(4a)	26
Output 8: RECORD ON COMMAND		2a(1a)	8	7a(8a)	27
TALLY FUNCTION RECORD READY TALLIES			Opto Anode		Opto Cathode
Input 1: RECORD READY TALLY TRACK 1		1c	9	10c	28
Input 2: RECORD READY TALLY TRACK 2		1c	10	9c(6c)	29
Input 3: RECORD READY TALLY TRACK 3		1c	11	8c(9c)	30
Input 4: RECORD READY TALLY TRACK 4		1c	12	6c(5c)	31
Input 5: RECORD READY TALLY TRACK 5		1c	13	5c( )	32
Input 6: RECORD READY TALLY TRACK 6		1c	14	4c( )	33
Input 7: RECORD OFF TALLY		1c	15	3c(4c)	34
Input 8: RECORD TALLY		1c	16	7c(8c)	35

1c = +24v, 2c = +24v Remote, 2a = 0v Remote, or with UPS 1a = 0v Local
Alternate ( ) Command and Tally connections for Modified older machines!

13.08a PARALLEL PORT POWER CONNECTIONS

Function	Pin
+5v regulated (Link on PCB)	17
0v	18
0v	19
+9v - +12v Power In/Out	36
+9v - +12v Power In/Out	37

13.09 Giant Display Port Output Connections

OUTPUT FUNCTION	OPTO Emitter		OPTO Collector	
Brightness Increase (Macro 33)	1	GD-1 pin 7	20	GD-1 pin 4
Brightness Decrease (Macro 34)	2	GD-1 pin 7	21	GD-1 pin 9
Feet (Macro 112)	3	GD-1 pin 7	22	GD-1 pin 3
Frames On/Off (Macro 09)	4	GD-1 pin 7	23	GD-1 pin 8
Record	5	GD-1 pin 7	24	GD-1 pin 1
Lock	6	GD-1 pin 7	25	GD-1 pin 2
Focus - (Macro 39)	7		26	
Focus + (Macro 40)	8		27	
	9		28	
	10		29	
	11		30	
	12		31	
	13		32	
	14		33	
	15		34	
Auto Mute/Dim as defined by Menu 27: GP Output 3 Macro 154:- Auto Mute/Dim Enable Macro 155:- Mute/Dim Always	16		35	

13.06a PARALLEL PORT 37 Way 'D' POWER CONNECTIONS

Pin	Function	Pin	Function
17	+5v regulated (Link on PCB)	36	+9v - +12v Power In/Out
18	0v	37	+9v - +12v Power In/Out
19	0v		

14.00 CONNECTION DIAGRAMS

14.1 MR-8/16/24 Parallel port connections (25 pin 'D' Male on Cable)			
Pin	Function	Pin	Function
1	Timecode I/P +	14	Timecode I/P -
2	Ground	15	Timecode O/P +
3	Timecode O/P -	16	GP INPUT 5 (Rec-Off)
4	GP INPUT 6	17	GP OUTPUT 1 (Record)
5	GP OUTPUT 2	18	GP OUTPUT 3
6	GP OUTPUT 4	19	GP OUTPUT 5
7	GP OUTPUT 6	20	GP INPUT 1 (Stop)
8	GP INPUT 2 (Play)	21	GP INPUT 3 (Rvs-Play)
9	GP INPUT 4 (Rec-On)	22	REGULATED +5v O/P
10	O/P GROUND	23	REGULATED +5v O/P
11	O/P GROUND	24	UNREGULATED +18v I/P
12	I/P GROUND	25	UNREGULATED +18v I/P
13	I/P GROUND		

14.02 MR-3 BUS, + Sony 9 pin CABLE		
9 pin 'D' Male on cable (Both Ends)	Cable Colour	Function Controlled Device
1		
2	Brown	Tx-
3	Red	Rx+
4	Screen	0v
5		
6		
7	Green	Tx+
8	White	Rx-
9		

14.03 MR-5/6/8/16/24 IBM CABLE (RS232)

MR Controller 9 pin 'D' Male on cable	Cable Colour	IBM COM1: 9 pin 'D' Female on cable
1		
2 Rx-	Black	2
3		
4	Screen	5
5		
6		
7		
8 Tx-	Red	3
9		

14.04 MR-5A/6A IBM CABLE (RS232)

MR Controller 9 pin 'D' Male on cable	Cable Colour	IBM COM1: 9 pin 'D' Female on cable
1		
2 Tx-	Red	3
3		
4	Screen	5
5		
6		
7		
8 Rx-	Black	2
9		

14.05 MR-5(4 Port) Harrison Computer Interface

Remove TC Unit and plug into same port on Video Drawer, On MR-5 or MR-6 controller connect to Port 'C' or IBM

MR Controller 9 pin 'D' Male on cable	Cable Colour	Harrison
1		
2 Rx-		
3 Tx+	Black	8 Rx Hi
4 Gnd	Screen	3 Gnd
5		
6		
7 Rx+		
8 Tx-	Red	9 Rx Lo
9		

14.06 MR-5A (6 Port) Harrison Computer Interface

Remove TC Unit and plug into same port on Video Drawer, On MR-5A or MR-6A controller connect to Port 'E' or IBM

MR Controller 9 pin 'E' Male on cable	Cable Colour	Harrison
1		
2 Tx-	Black	9 Rx Lo
3 Rx+		
4 Gnd	Screen	3 Gnd
5		
6		
7 Tx+	Red	8 Rx Hi
8 Rx-		
9		

14.07 MRP-16 PARALLEL PORT BUS INTERFACE
9 pin 'D' connections

Pin	Colour	Function
1		Reset
2	Brown	Tx-
3	Red	Rx+
4	Screen+Black	Ground
5		0v Power In (Link on PCB)
6		
7	Green	Tx+
8	White	Rx-
9		9v to 12v Power In (Link on PCB)

14.08 MR-4 Machine interface Cable

Pin	Cable Colour	Machine Connector	Machine Function	Pin
1	Screen	Machine RS422 Input 9 pin 'D' Male on cable	Screen	1
9				6
2			Tx-	2
10			Tx+	7
3			Rx+	3
11			Rx-	8
4			Ground	4
12		Machine Timecode input	Timecode Input +	
5			Timecode Input -	
13			Timecode Ground	
6		Machine Timecode Output	Timecode Output +	
14			Timecode Output -	
7		Machine Biphase Input	Biphase Ground	
15			Biphase - A	
8			Biphase - B	

14.09 MR-4 Bus Connection

15 pin 'D' Male	Cable Colour	Function controlled device
1		Screen
9		Hardware Break
2		Tx-
10		Tx+
3		Rx+
11		Rx-
4		Ground
12		Master Timecode I/P +
5		Master Timecode I/P -
13		Master Timecode Ground
6		N/C
14		N/C
7		Master Biphase Ground
15		Master Biphase A
8		Master Biphase B

15.00 CONNECTOR LISTS

1) Machine RS422 connection

These may be made using 4 core screened cable, please note that CB electronics use pin 4 as the screen connection. These are taken via a 9-pin or RJ-45 patch panel

2) RS BUS connection

These may use the same 4 core screened cable. An extra connector at the end of the bus is useful for checking the BUS integraty. **Note: any connection to MR-3's must be loope through as the MR-3 has only ONE bus connector.** It is not nessasary to go via the patch with this signal.

3) Master timecode

All the MR-3 units require a master timecode feed, this should be balanced and come directly from the MR-5/6/5A/6A/8/16/24 Hub. Where a master timecode ios fed to the machines it should be fed via a timecode distribution amp and a patch point. If you intend to stripe tapes on machines then you must be able to disconnect the timecode input. Special care should be taken when connecting unbalanced inputs. The Giant Display recieve either the BUS timecode or if the Footage is to be displayed the MC-1 timecode.

4) Video Syncs

A video sync distribution amplifier is essential. The MR-5/6/5A/6A/8/16/24 will require a single feed of video syncs that will be terminated at the unit. The video syncs to the MR-3's may be looped through. All machines connected to the system will need a feed of video syncs.

15.01 MR-5/6/8/16/24 Connector List

Connector Number	Name	Destination	Type
1	Power	12-18v PSU	
2	Parallel	GPI In/Out, Timecode In/Out	14.01
3	IN	Remote Control / DAW	14.02
4	OUT	MC-1 Serial-A / Video	14.02
5	IBM	IBM Combatable COM1: / COM2:	14.03
6	BUS	All BUS connections	14.02
7	Video	Video Ref	BNC

15.02 MR-5A/6A Connector List

Connector Number	Name	Destination	Type
1	Power	12-18v PSU	
2	Parallel	GPI In/Out, Timecode In/Out	14.01
3	Serial O/P-n	Machine	14.02
4	Serial O/P M	Machine	14.02
5	Serial O/P m	IBM Combatable COM1: / COM2:	14.02
6	BUS	All BUS connections	14.02
7	Input	Remote Control / DAW	14.02
	IBM	IBM Combatable COM1: / COM2:	14.04
	S29 Remote	Parallel remote input	
7	Video	Video Ref	BNC

15.03 MR-3 Connector List			
Connector Number	Name	Destination	Type
1	BUS	BUS **Note as there is only one BUS connection the cable must be looped in and out of the same connector**	14.02
2	Slave 1	DA-88/DAT/Digital Dubber/Video	14.02
3	Slave 2	DA-88/DAT/Video	14.02
4	Slave 3	DA-88/DAT/Video	14.02
5	Video Ref	Video Sync Source	BNC
6	Video Ref	Video Sync Loop Through	BNC
6	Input	Master Timecode Bus	XLR
7	Output	Master Timecode Loop Through	XLR
8	TC-1	Slave-1 Timecode Output	BNC/Phono
9	TC-2	Slave-2 Timecode Output	BNC/Phono
10	TC-3	Slave-3 Timecode Output	BNC/Phono
11	TC-IN		BNC/Phono
note	TC-1,2,3 only fitted on newer units		

15.04 VS-1 Connector List			
Connector Number	Name	Destination	Type
1	Serial-A	BUS	14.02
2	Serial-B	BUS	14.02
3	Video Ref	Video Sync Source	BNC
4	"Input" Timecode Reader	Master Timecode Bus	XLR
5	"Output" Timecode Generator		XLR
6	Aux-A Beep Output		XLR

15.05 MRP-16 Parallel Port Connector List			
Connector Number	Name/Type	Destination	Type
1	9 Pin 'D' Female	BUS	14.02
2	9 Pin 'D' Female	BUS	14.02
3	37 Pin 'D' Female	16 opto-isolated outputs/inputs	13.02/13.03 13.04

15.06 MR-4 Connector List

Connector Number	Name	Destination/Function	Type
1a & 1b	Bus-A	Bus A + Master Timecode A + Master Biphase A	14.09
2a & 2b	Bus-B	Bus B + Master Timecode B + Master Biphase B	14.09
3a & 3b	Bus-C	Bus C + Master Timecode C + Master Biphase C	14.09
4a & 4b	Bus-D	Bus D + Master Timecode D + Master Biphase D	14.09
5	Machine	Machine RS422 + Timecode I/P + Timecode O/P + Biphase I/P	14.08
6	RS422	RS422 Patch, Monitor/machine control in	14.02
7	Machine Timecode Input	Timecode Patch, Monitor/machine timecode in	XLR Female
8	Machine Timecode Output	Timecode Patch, Machine timecode Out	XLR Male
9	Video Ref O/P	Machine Video ref	BNC
10a and 10b	PAL Reference In/Out	Master PAL SPG	BNC
11a and 11b	NTSC Reference In/Out	Master NTSC SPG	BNC

Machine RS422 Connections						
Machine Name	**Record Tracks**	**Mcn No.**	**Mcn Let**	**Function**	**CB Port**	**Patch Location**
		1	A	Master/Slave /Individual	MR-5 A	
		2	B	Master/Slave /Individual	MR-5 B	
		3	C	Master/Slave /Individual	MR-5 C	
		4	D	Slave/Individual	MR-3A1 1	
		5	E	Slave/Individual	MR-3A1 2	
		6	F	Slave/Individual	MR-3A1 3	
		7	G	Slave/Individual	MR-3A4 1	
		8	H	Slave/Individual	MR-3A4 2	
		9	I	Slave/Individual	MR-3A4 3	
		10	J	Slave/Individual	MR-3A7 1	
		11	K	Slave/Individual	MR-3A7 2	
		12	L	Slave/Individual	MR-3A7 3	
		13	N	Slave/Individual	MR-3A10 1	
		14	O	Slave/Individual	MR-3A10 2	
		15	P	Slave/Individual	MR-3A10 3	

Beta Tecnik Machine RS422 Connections

Machine Name	Record Tracks	Mcn No.	Mcn Let	Function	CB Port	Patch Location
MC-1	4	1	A	Master/Slave /Individual	MR-6 A	
V-Mod		2	B	Master/Slave /Individual	MR-6 B	
U-Matic		3	C	Master/Slave /Individual	MR-6 C	
DAT-1	2	4	D	Slave/Individual	MR-3A1 1	
DAT-2	2	5	E	Slave/Individual	MR-3A1 2	
DA88-1		6	F	Slave/Individual	MR-3A1 3	
Augan	8	7	G	Slave/Individual	MR-3A4 1	
Fairlight	24	8	H	Slave/Individual	MR-3A4 2	
DAT-3	2	9	I	Slave/Individual	MR-3A4 3	
DAT-4	2	10	J	Slave/Individual	MR-3A7 1	
DA88-2	8	11	K	Slave/Individual	MR-3A7 2	
DAT-5		12	L	Slave/Individual	MR-3A7 3	
Router		13	N	Slave/Individual	MR-3A10 1	
Patch		14	O	Slave/Individual	MR-3A10 2	
Spare		15	P	Slave/Individual	MR-3A10 3	

BetaTecnik MRP-16 Addressing

Function	Type	Machine No.	Machine Letter	Physical Address	Switch Setting 12345678
MB51 Record	8 Output - 8 Input	29	d	26	_2_4_6__
Giant Display	16 output	30	e	27	_____6__