

RS232 PROJECTOR COMMANDS

SCG 8258

See also : "Communication protocol.doc".

This document can be used to update or generate manuals and other publications, but not vice versa!

New in revision of 01-04-97 :

- READ_MEAS 48H : for ACTAS.
- E2_COPY options for "custom gamma" & "factory gamma"
- Added return values for projector type in READ_VERSION.
- FORCE_TOGG options for orbit, boost.
- New reserved address for QUAD Switcher.

New in revision of 21-10-99 :

- F_1 .. F_5 31H..35H : equivalents for the 5 function keys on the blue RCU.
- READ_STATUS 48H : added extensions.
- READ_VERSION 4CH : added new identifiers.
- FORCE_TOGG 51H : added new target identifiers for bank switching, digital decoder, Macrovision and LED Wall.
- CONTROL_IRIS 62H : added IRIS3 commands.
- BLK_E2_PC 72H : added block address for special purpose block 32.

Contents

<i>Contents</i>			2
ADDR	01H	4	
ENTER	07H	4	
EXIT	08H	4	
ADJUST	09H	4	
TEXT	0DH	4	
STDBY	0EH	4	
PARK	0FH	4	
NUM_0	10H	4	
NUM_1	11H	4	
NUM_2	12H	4	
NUM_3	13H	4	
NUM_4	14H	4	
NUM_5	15H	4	
NUM_6	16H	4	
NUM_7	17H	4	
NUM_8	18H	4	
NUM_9	19H	4	
FREEZE	1BH	4	
MONO	1DH	4	
EXPAND	1EH	4	
MUTE	1FH	4	
CUR_UP	21H	4	
CUR_DN	22H	4	
CUR_RI	23H	4	
CUR_LE	24H	4	
TOGG_A	27H	5	
CON_UP	28H	5	
CON_DN	29H	5	
BRI_UP	2AH	5	
BRI_DN	2BH	5	
SAT_UP	2CH	5	
SAT_DN	2DH	5	
HUE_UP	2EH	5	
HUE_DN	2FH	5	
F_1	31H	5	
F_2	32H	5	
F_3	33H	5	
F_4	34H	5	
F_5	35H	5	
SHA_UP	36H	5	
SHA_DN	37H	5	
VOL_UP	38H	5	
VOL_DN	39H	5	
BAS_UP	3AH	5	
BAS_DN	3BH	5	
TRE_UP	3CH	5	
TRE_DN	3DH	5	
BAL_UP	3EH	5	
BAL_DN	3FH	6	
SEL_SOUND	40H	6	
SEL_PICT	41H	6	
E2_COPY	42H	7	
READ_MEAS	48H	7	
READ_VERSION_ID	49H	8	
READ_SOURCE	4AH	8	
READ_STATUS	4BH	10	

READ_VERSION	4CH	11
READ_SERNR	4DH	12
CONTROL_TEXT	4EH	12
LOCK_IR	50H	12
FORCE_TOGG	51H	12
READ_TIME	60H	13
SET_INT_PATT	61H	13
CONTROL_IRIS	62H	13
CONTROL_RCVDS	62H	15
CONTROL_ACTAS	62H	15
BLK_PC_E2	71H	16
BLK_E2_PC	72H	16
BLK_DEL	73H	16
FORCE_BLK	74H	16
IDENT	77H	18
REQ_SHAPE	78H	18
WRITE_POT	79H	19
READ_POT	7AH	19

Reserved addresses : _____ **19**

ADDR 01H

This code is emitted by the infra red remote control when the address of the remote control is programmed. All projectors react by displaying the address they are working on. This is not usable for RS232 communication, because in a chain of projectors only the projector with the correct address will display its address.

ENTER 07H

EXIT 08H

ADJUST 09H

TEXT 0DH

STDBY 0EH

PARK 0FH

NUM_0 10H

NUM_1 11H

NUM_2 12H

NUM_3 13H

NUM_4 14H

NUM_5 15H

NUM_6 16H

NUM_7 17H

NUM_8 18H

NUM_9 19H

FREEZE 1BH

MONO 1DH

Toggle mono / stereo

EXPAND 1EH

Toggle normal / expand

MUTE 1FH

Mute of the sound

CUR_UP 21H

CUR_DN 22H

CUR_RI 23H

CUR_LE 24H

TOGG_A	27H	Toggles from picture adjustments (brightness...) to sound adjustments (volume...). These are useful for remote control units made for retro projectors.
CON_UP	28H	
CON_DN	29H	
BRI_UP	2AH	
BRI_DN	2BH	
SAT_UP	2CH	
SAT_DN	2DH	
HUE_UP	2EH	
HUE_DN	2FH	
F_1	31H	Function key F1 (Blue remote control)
F_2	32H	Function key F2 (Blue remote control)
F_3	33H	Function key F3 (Blue remote control)
F_4	34H	Function key F4 (Blue remote control)
F_5	35H	Function key F5 (Blue remote control)
SHA_UP	36H	
SHA_DN	37H	
VOL_UP	38H	Volume control
VOL_DN	39H	Volume control
BAS_UP	3AH	Bass control
BAS_DN	3BH	Bass control
TRE_UP	3CH	Treble control
TRE_DN	3DH	Treble control
BAL_UP	3EH	Balance control

BAL_DN **3FH**
Balance control

SEL_SOUND **40H**
Force to picture

SEL_PICT **41H**
Force to sound

E2_COPY 42H

This function copies the cut off and gain settings

For 701, 808, 1209, 801(V5.30)

Offers the possibility to copy the custom cut off and gain settings to one of the "fixed" color temperature settings (3200K, 6500K, 4900K or 9300K)

Bytes sent :

```

Dat1 = destination, Dat2 = source
Dat1/Dat2meaning
00H custom cut off settings
01H custom gain settings
02H 3200K cut offs
03H 3200K gains
04H 6500K cut offs
05H 6500K gains
06H 9300K cut offs
07H 9300K gains
08H 4900K cut offs
09H 4900K gains
0AH "custom gamma" (custom midlights & blue corr)
0BH "factory gamma" (fixed midlights & blue corr)
Dat3 = length (normally 3)
Dat4 = mode
0 E2 to E2
1..255 reserved

```

READ_MEAS 48H

Purpose : questions ACTAS Control Unit measurement values.

Cmd	Dat1	Dat2	Dat3	Dat4
48H	Which	Color	Type	Option

Dat4	Option
------	--------

00H	last measured values are returned (immediate answer; 7 byte record)
10H	a new measurement is done first; with normal sensitivity (answer is ACTAS' initiative; full format 9 byte record starting with STX OFFS FEH,...)
11H	a new measurement is done first; with sensitivity/10(answer as for 10H)

Dat3	Type
------	------

00H	default
01H	signed long integer (MSB returned in Dat1, ..., LSB in Dat4)
02H	IEEE 754 floating point (Dat1 Dat2 Dat3 Dat4 return MMMMMMMM MMMMMMMM EMMMMMMM SEEEEEEE)

Dat1	Dat2	Dat3	function	default type
00H	00H	00H	reserved	
01H	00H	00..02H	full_lux	IEEE 754 float
02H	00H	00..02H	peak_lux	IEEE 754 float
03H	00H..02H	00H	lux[Dat2]	IEEE 754 float [R, G, B]
10H	00H..02H	00H	colval[Dat2]	meas. in counts, long int; [R, G, B]
11H	00H..02H	00H	colref[Dat2]	reference in counts, long int; [R, G, B]

Remark : returned values in lux are internally recalculated according to the selected range and the white box size; the values in counts aren't.

READ_VERSION_ID 49H

Information sent : Dat1=0, Dat2=0, Dat3=0, Dat4=0

Information returned :

identification number :

$$2^{24} \cdot \text{Dat4} + 2^{16} \cdot \text{Dat3} + 2^8 \cdot \text{Dat2} + 2^0 \cdot \text{Dat1}$$

This identification number is unique and enables one to distinguish customized releases of the same version.

READ_SOURCE 4AH

This command asks the projector to return the currently selected source and attributes.

Info sent : Dat1 = 0, Dat2 = 0, Dat3 = 0, Dat4 = 0

For 800, 1100, 1200 and 1600 series : The returned bytes hold the following information :

Dat1 Horizontal period : Hp = Dat1 x 250ns

Dat2 Source number

Dat3 Source type and installation :

bits 0,1 = installation :

for 800,1100,1600/1200

0 = Rear/ Ceiling 0 = Front/Ceiling

1 = Front / Table 1 = Rear/Table

2 = Front/ Ceiling 2 = Rear/Ceiling

3 = Rear / Table 3 = Front/Table

bit 2 : set if HDTV

bits 4,5,6,7 :

0 = Video 8 = Forced video

1 = SVHS 9 = Forced SVHS

2 = TTL 10 = Forced TTL

3 = RGsBB = Forced RGsB

4 = RGBSC = Forced RGBS

5 = Internal

Dat4 Vertical frequency in Hz.

Remarks :

1. The selected block is not closed.

When the projector is working with a not closed block (copied or interpolated from other block(s)), also indicated on the controller unit inside the projector with the 'Block Match' LED, the most significant bit of the returned Source Number byte is set to 1.

e.g. When input 4 is selected, Dat2 will be :

block matched : 4

no block matched : 132 (=128 + 4)

2. No coincidence.

No coincidence for a selected source happens when the sync pulses are missing, the source is not switched on, ...

The contents of the returned bytes to the PC depend on the soft version of the projector.

2.1. Controller soft version V2.03 or earlier.

- Text ON mode :

TEXT is switched ON and OFF using the 'text' key on the RCU800.

In text on mode, the projector displays 'Input no longer available, check' as a warning for the user.

After this, READ_SOURCE will return :

Dat2 = 127 (indicating internal pattern)

Dat3 : most sign nibble = 5 (indicating internal pattern)

The frequencies will be those of the warning message.

- Text OFF mode :

In this mode, all the parameters returned by the READ_SOURCE will not be update. They remain the same as before the no coincidence state. That can be : the previously selected source, or the source itself if it was in coincidence before going into no coincidence.

2.2 Controller soft version V2.04 or higher.

Without coincidence READ_SOURCE will return :

Dat1 = 0, indicating the no coincidence state.

Dat2 = requested source number (see also point 1)

Dat3 = the source type and installation related to the requested source number.

Dat4 = 0, indicating the no coincidence state.

For 700 series :

V700V701, D701

Hor. period Dat1x362 nsDat1x300 ns

Vert. period Dat2x185 µsDat2x154 µs

Dat3 Source number

Dat4 Source type

bits 0, 1 : installation

0 = Front/ceiling

1 = Rear/table

2 = Rear/ceiling

3 = Front/table

bit 2 : set if block not closed

bits 3. 4. 5: input selection

0 = Video

1 = S-Video

2 = RGB

3 = RGB3S

4 = Component Video

5 = reserved

6 = reserved

7 = internal

Dat1 = 0 for no coincidence

READ_STATUS 4BH

This command asks the projector to return the status in which it is working.

Information sent : Dat1=0, Dat2=0, Dat3=0, Dat4=0

Returned information is :

Dat1 : Bit 0..5 : menu nr. (internal ref. Nr. of displayed menu)

bit 6 : Green convergence 1 = Installed

bit 7 : Fast / Slow1 = Fast

Dat2 : cursor position

Dat3 : bit 0 : Standby1 = standby

bit 1 : Pause1 = pause

bit 2 : Text on/off1 = text on

bit 3 : PC mode1 = PC mode

bit 4 : Sound available

bit 5 : see below

bit 6 : see below

bit 7 : if set, following additional info is available :

Dat3 : bit 6 : focus is magnetic

bit 5 : convergence is stripped

Dat4 : bit 0 : orbiting is installed

bit 1 : soft edge is installed

bit 2 : contrast modulation is installed

bit 3 : NS is mounted on the convergence

bit 4 : controller with ASIC

bit 5 : IRIS is installed

bit 6 : dynamic stigmators

bit 7 : reserved

Information sent : Dat1=1, Dat2=0, Dat3=0, Dat4=0

Returned information is :

Extra info from LIMO

Information sent : Dat1=2, Dat2=0, Dat3=0, Dat4=0

Returned information is :

Extra info from the LED Wall

Information sent : Dat1=3, Dat2=0, Dat3=0, Dat4=0

Returned information is :

extra info from the BARON

Dat1 : height of the table

Dat2 : angle of the table

READ_VERSION 4CH

This command asks the projector to return the soft version and the type of projector :

Information sent : Dat1=0, Dat2=0, Dat3=0, Dat4=0

The returned information :

Dat1 : alpha type identifierG = Graphics

D = Data

V = Vision

Dat2 : BCD encoded soft version : two digits preceding the decimal point.

Dat3 : BCD encoded soft version : two digits following the decimal point.

example : V01.10

Dat2 = 01

Dat3 = 10

Dat4 : information in Dat4 is only valid if in READ_STATUS Dat3 returned bit 7=1.

Dat4	Projector type
0	800
1	801
2	1200
3	1100
4	1600
5	700
6	1208
7	1101
8	500
9	808
10	1209
11	701
12	RCVDS
13	801 with 68000
14	1208/2
15	V701 with Data input
16	801 with fixed color temp : V5.20 and later
17	1609 (with 68000)
18	1109 (with 68000)
19	V701 with 32 blocks : V3.00 and later
20	1208S (dyn stigm block flyback dependent, has left corr since V7.20)
21	1209/2 (dyn stigm block flyback dependent, has seagull and left corr since V7.20)
22	1109 (with left corr; since V7.10)
23	808 (with left corr + dyn stigm block flyback dependent; since V6.30)
24	808s
25	701 with 68000 (=708)
26	1208s/2
27	1209/3
28	1109/3
29	1609/3
30	R808s
31	V508
32	VSE 10
33	VSE 20
34	VSE 40
35	BR812
36	LWD10 LED Wall Digitizer

READ_SERNR 4DH

The projector's serial number is returned in BCD format (Di):

Dat1 = D7D6

Dat2 = D5D4

Dat3 = D3D2

Dat4 = D1D0

The serial number = D6D5D4D3D2D1D0

D7 = FH, otherwise the serial number is not programmed yet.

CONTROL_TEXT 4EH

This command switches off the text which was first programmed using PLACE_TEXT

With Dat1 = 00 the text which was previously placed using PLACE_TEXT is cleared.

LOCK_IR 50H

Available in 800 ,1100, 1200, 1600, 1208 from V4.00
in 700, 701 from V1.12

Dat2, Dat3, Dat4 = 00

Dat1 = MASK :

value allowed IR-command

00H [None]

01H Stand by

02H Pause

04H Text

08H Adjust keys (Adj, Enter, Exit,
cursors)

10H Numeric keys

20H Picture control keys

40H Sound control keys

80H (reserved)

E.g. : To enable all IR commands : Dat1 = 7FH

To enable all except stand by : Dat1 = 7EH

FORCE_TOGG 51H

Dat2, Dat3 = 00H

Dat1		Dat4	
		1/0	
00H	none	-	-
01H	pause	pause	operate
02H	mute	mute	mute off
03H	mono/stereo	mono	stereo
04H	normal/expanded	normal	expanded
05H	sound/pict	sound	pict
06H	text	on	off
07H	sync	fast	slow
08H	enhanced blue	on	off
09H	adjust	adj	operational
0AH	power	on	stand by
0BH	reserved for RCVDS	beeper on	beeper off
0CH	reserved	8 bl	1 bl
0DH	ABL(VIP only)	on	off

0EH	screen saver	on	off	
0FH	warm up	on	off	
10H	internal use			
11H	CRT drive mode	0	boost	normal
	CRT drive mode	1	perm. boost	eco
12H	ACTAS data valid	valid	invalid	
13H	orbit	on	off	
14H	clamp mode	normal	restoration	
15H	bank switching	Source nr	memory bank	
16H	filmmode	on	off	
17H	Time base correction	on	off	
18H	Scan converter mode	0 thru 3		
19H	LIMO	on	off	
1AH	Macrovision	on	off	
1BH	freeze	on	off	
20H..	reserved for the LED-Wall			
..3FH	reserved for the LED-Wall			

READ_TIME 60H

The projector run time is returned as an unsigned integer with the high order byte in Dat1 the low order byte in Dat2.

$$\text{run time} = \text{Dat1} \times 256 + \text{Dat2}$$

SET_INT_PATT 61H

(+)

This command allows the user to set the internal pattern of the projector to a requested set of horizontal and vertical frequencies. The displayed picture is the standard convergence raster. In the future, it is possible that Dat4 is used to hold a number of different patterns.

```
Dat1 Hor_Period_M
Dat2 Number_of_lines_M
Dat3 16 * Hor_Period_L + Number_of_lines_L

Dat4 function
0   blank, nothing on the screen
1   convergence grid
... reserved
```

$$\text{Number_of_Lines} = 16 * \text{Number_of_lines_M} + \text{Number_of_lines_L}$$

$$\text{Hor_Period} = (16 * \text{Hor_Period_M} + \text{Hor_Period_L}) * \text{Hor_base_period}$$

Where Hor_base_period depends on the type of projector and the type of controller in the projector (see *.dsc report listings)

CONTROL_IRIS 62H

Note : after a task was started, READ_STATUS can be used to monitor its progress; see column "response..."

IRIS1, not for 700 series

Cmd	Dat1	Dat2	Dat3	Dat4
62H	function	00H	00H	00H

<u>Dat1</u>	<u>function</u>	<u>response to READ STATUS 4BH</u>
		(in Dat1, bits 7 and 6 stripped off)
00H	start IRIS	00H→1AH 1AH→1BH (startup done)
01H	focus the lens	1CH
02H	learn the screen	1DH
03H	align current source	1DH
04H	align all sources	1EH
05H	touch up (shift adjustment)	1DH
06H	set convergence zone on/off	1BH
07H	set precision	1BH
08H	not used	
09H	not used	
0AH	not used	
FFH	exit operation, go back 1 menu	1CH,1DH,1EH→1BH 1BH→00H

IRIS2

<u>Cmd</u>	<u>Dat1</u>	<u>Dat2</u>	<u>Dat3</u>	<u>Dat4</u>
62H	function	00H	00H	00H

<u>Dat1</u>	<u>function</u>	<u>response to READ STATUS 4BH</u>
		(in Dat1, bits 7 and 6 stripped off)
00H	start IRIS	00H 00H→1CH (startup done)
01H	focus the lens	1EH
02H	not used	
03H	align current source	1EH
04H	align all sources	1EH
05H	touch up (shift adjustment)	1EH
06H	not used	
07H	not used	
08H	touch up all sources	1EH
09H	align camera horizontally, 1EH	give command ENTER 07h align camera vertically, 1CH give command ENTER 07h
0AH	IRIS2 diagnostics (no answer)-none-	when finished, give command to exit operation (see next line)
FFH	exit operation, go back 1 menu	1EH→1CH 1CH→00H

IRIS3

<u>Cmd</u>	<u>Dat1</u>	<u>Dat2</u>	<u>Dat3</u>	<u>Dat4</u>
62H	function	00H	00H	00H

<u>Dat1</u>	<u>function</u>	<u>response to READ STATUS 4BH</u>
		(in Dat1, bits 7 and 6 stripped off)
00H	start IRIS	00H 00H→1CH (startup done)
01H	focus the lens	1EH
02H	not used	
03H	align current source	1EH
04H	align all sources	1EH
05H	touch up (shift adjustment)	1EH
06H	not used	

07H Quick geometry1EH
 After geometry is done:
 give command ENTER 07H to converge
 -or-
 give command EXIT 08H to quit
 08H touch up all sources1EH
 09H align camera horizontally, 1EH
 give command ENTER 07h
 align camera vertically, 1CH
 give command ENTER 07h
 0AH IRIS2 diagnostics (no answer)-none-
 when finished, give command to exit operation (see next line)
 0CH full geometry1DH
 0DH Learn reference1DH
 0EH Toggle front/rear
 dat2 = 0 => front
 dat2 = 1 => rear
 FFH exit operation, go back 1 menu1EH→1CH
 1CH→00H

CONTROL_RCVDS 62H

See RCVDS documentation.
 (code already exists as CONTROL_IRIS, but will not interfere)

CONTROL_ACTAS 62H

(code already exists as CONTROL_IRIS and CONTROL_RCVDS, but will not interfere)

Purpose : specific programming of WGEN functions.

Cmd	Dat1	Dat2	Dat3	Dat4
62H	Funct	00H	00H	On/Off

Dat1	Dat4	function
00H		reserved
01H	1/0	projector and actas interface answers come through / are muted towards host

Purpose : specific programming of ACTAS functions.

Cmd	Dat1	Dat2	Dat3	Dat4
62H	function	00H	data	00H

Dat1	Dat3	function
00H	0..3	address block offset for addr. table of configs nr. 0..3 (obsolete)
10H	0..19	select setup nr. 0..19
11H	0..19	select config nr. 0..19
20H	0	start adjust using current setup (as a manual "start adj")
20H	1	start adjust using current setup, and report when finished
20H	2	start adjust using current setup, don't stop at prompts, and report when finished

Remark : functions invoked with 20H can be aborted by sending a record containing EXIT (08H).
 Response : for the function invoked with 20H option 2, ACTAS will take the initiative to report completion with 8 full format records (i.e. starting with STX OFFS) containing 0xFE as address, and following data :

Cmd	Dat1	Dat2	Dat3	Dat4
62H	20H	index	status	00H

index = report index 0..7; 0..3 being for the 1st adjustment frequency, 4..7 for the 2nd.

<u>Dat2</u>	<u>Dat3</u>	<u>status</u>
index	0	"OK"
index	1	"time out"
index	2	"out of range"
index	3	"aborted by user"
index	4	"skipped"

BLK_PC_E2 71H

This command invokes a block transfer from computer to projector:

Such a block consists of the various adjustments of the projector. Appendix B gives a detailed list of which byte is meaning which adjustment. Before the data for the block's adjustment parameters can be transmitted, the block's header (see READ_SOURCE) is first dispatched to the projector.

If there is already a block available in the EEPROM in the projector, then the data in the EEPROM is replaced by the transmitted data. If there is no such a block available, then a new one is created. So, transmitting blocks has to be done with a lot of care. Otherwise the contents of the EEPROM may become unusable. If the EEPROM is already completely filled up, then a message will appear on the screen of the projector. This can be avoided by first checking the contents of the EEPROM before transmitting a block with a not yet existing heading.

BLK_E2_PC 72H

Using this command the projector transmits a block to the PC.

Dat1 to Dat4 have to hold the necessary information as described in READ_SOURCE. Then the projector will return the block in his EEPROM with the corresponding header. If a not existing block is requested, no error information is returned. So take care.

A special case is used to get an overview of all blocks of the projector : (except "common" and "stigmator" blocks)

Dat1	Dat2	Dat3	Dat4	function :
FFH	FFH	FFH	FFH	overview of blocks
FEH	FFH	FFH	FFH	stigmator block
EFH	FFH	FFH	FFH	common block
F0H	00H	FFH	FFH	ACTAS serial number table transfer
F0H	01H	FFH	FFH	ACTAS serial number table comment transfer
FDH	FFH	FFH	FFH	load settings in block 32 (for simulation purpose)

Then the configuration of the EEPROM is returned to the computer in the way described in appendix B.

BLK_DEL 73H

This function deletes a block in the EEPROM :

Dat1 to Dat4 have to hold the header of the block as described in READ_SOURCE.

FORCE_BLK 74H

This command puts the projector in "forced block mode".

(not available in the 700 series)

This commands allows the user to force the projector to work with a specific block in the EEPROM. Normally, everything is managed automatically by the software in the projector and the block is selected by looking at the selected source number, the horizontal and the vertical frequency and the installation (front, rear, table, ceiling). Using this command, the

user can limit this automatic selection and force the projector to a block or to a subset of blocks. There are two data bytes relevant when using this command:

Dat1 : Source Number (from 0 to 100)
Dat2 : Source Type : 80H = Video
 90H = SVHS
 A0H = TTL
 B0H = RGsB
 C0H = RGBS
Dat3 and Dat4 : meaningless

When not in the forced block mode, Source number in the header of a block in the EEPROM is related to the input selection :

Without RCVDS	With RCVDS
1 : Video	1 : Slot 1
2 : SVHS	2 : Slot 2
3 : TTL	3 : Slot 3
4 : RGsB	...
5 : RGBS	

In forced block mode, this relationship disappears. A block in the EEPROM intended to be used in forced block mode only holds information concerning the input selection of the projector with "source type". This "source type" also holds the information if the block is "normal" or "forced" (0H = Video normal, 8H = Video forced,...).

After putting the projector in forced block mode using the force_blk command, the projector will switch to the desired input selection (according to Dat2) and search a block with matching "source number" (according to Dat1), frequencies and installation. In this way the projector will work with a "subset" of blocks in the EEPROM (It is possible that there is only one block in this subset). These blocks in this subset all have the same "source number" and "source type" in their header. Which block is selected in the subset depends on the deflection frequencies and installation of the connected source.

Using an RCVDS, the relation of the source number with the slot number disappears in the forced block mode. Therefore the user first has to select the required input slot (using NUM_x) before using force_blk with the correct type specification.

Let's look at an example. Suppose the EEPROM is configured in this way :

For source type Video, SVHS and TTL, everything is normal. However the EEPROM is organised so that RGsB also has blocks to work in forced block mode. When selecting "4", the fifth block in the EEPROM will be used (suppose the deflection frequencies and installation are correct). When the command FORCE_BLK is used with Source number = 10 and Source type = B (forced RGsB) the projector will select the sixth or seventh block, according to the deflection frequencies. With Source Number = 11, the eighth block will be selected.

The projector returns to the normal mode when selecting another source using the RCU or the NUM_x command using the PC communication.

How can we create a block in the EEPROM intended for forced block usage? This is done by using the force_blk command with the desired source number and appropriate source type, connect the source to the projector and adjust the source. In this way the block is automatically created.

This forced block mode can be useful when using non-BARCO switchers. Suppose this configuration is used :

And the EEPROM looks like :

The computer in this installation drives the switcher and the projector. After selecting a new input port in the switcher, the computer uses FORCE_BLK to select one of the special blocks in the EEPROM. When selecting source number 11 or 13, there are two blocks available for that source, for two different deflection frequencies.

IDENT**77H**

Purpose : identify system for walls.

First use : VIP chassis.

Cmd	Dat1	Dat2	Dat3	Dat4
77H	Option	00H	00H	00H

Options

0	(master->slave) clear "ident" mode and clear "RWI initiative"
0	(proj or ACTAS -> BGFX host) tells where to remove window (correlates projector's RS232 address)
1	(master->slave) clear "key hit" flag in RWI, but keep "ident" mode
2	(master->slave) set "ident" mode
3	(master->slave) read status of "key hit" flag in RWI
4	(slave->master) answer status of "key hit" flag in RWI : cleared
5	(slave->master) answer status of "key hit" flag in RWI : set
6	(master->slave) set "ident" mode and set "RWI initiative"
7	(slave->master) RWI initiative : "key hit" flag in RWI set
8	(slave->master) disable answering to command with the "always listen" address (VIP tentative)
9	(slave->master) enable answering to command with the "always listen" address (to be reserved if VIP tentative would be implemented)
16	(proj or ACTAS -> BGFX host) tells BGFX host where to put window (correlates projector's RS232 address)

REQ_SHAPE**78H**

Dat1	0H	internal convergence pattern
	1H	horizontal line (full width) in center of zones with coordinate Y
	2H	vertical line (full height) in center of zones with coordinate X
	3H	reserved
	4H	reserved
	5H	horizontal and vertical line together, cross-ing in zone XY
Available in operational mode only :		
	6H	place convergence contour around zone XY
	7H	erase shape; switch color as in Dat3
	8H	vert. bars; switch color as in Dat3; width in pixels in Dat4
	9H	hor. bars, switch color as in Dat3; height in lines in Dat4
	AH	reserved
Dat2	BCD encoded coordinates	
	bits7-4 : Y coordinate	
	bits3-0 : X coordinate	
Dat3	color01H	: R on
	02H	: G on
	04H	: B on

+ combinations

WRITE_POT 79H

Write_pot and read_pot gives direct access to the settings in the digital potentiometers and the EEPROM. With write_pot the data in the potentiometer is changed.

Dat1 : kind of setting

Dat2 : coordinates of setting

Dat3 : delta/value

Dat4 :

0 Dat 3=delta (with storage in E²PROM)

1 Dat 3=immediate value (with storage in E²PROM)

2 Dat 3=delta (no storage in E²PROM)

3 Dat 3=immediate value (no storage in E²PROM)

4 reserved

available from version

G1200 : V5.14

*801 : V5.12

V701 : V2.02

G1208 : V5.21

D701 : V1.02

If the value in the addressed potentiometer was V before the command, It is V+delta after the command. The corresponding contents of the EEPROM are also changed. See appendix C for coding of the potentiometers

READ_POT 7AH

Read_pot reads the contents of the addressed EEPROM. Dat1 and Dat2 are the same as with write_pot. The content of the potentiometer is returned in Dat3.

Reserved addresses :

0	"Always listen" (708)
249	Stand-alone LiDo
250	QUAD Switcher 350
251	VISU
252	ACTAS External Generator (Host)
253	ACTAS Interface
254	ACTAS Control Unit
255	SN-addressing protocol (VIP only)

APPENDIX C ENCODING FOR DIRECT POTENTIOMETER ACCESS

Coordinates (transmitted in Dat2) are only required for potentiometers in the convergence :

	X=0	1	2	3	4
Y=0					
1					
2					
3					
4					

Y and X are encoded as two nibbles in Dat2 : Y : X.

Kind :

00H Convergence Green Vert.	1FH Bottom Keystone Green
01H Convergence Green Hor.	20H Top Bow Blue
	21H Bottom Bow Blue
02H Convergence Red Vertical	22H Top Keystone Blue
	23H Bottom Keystone Blue
03H Convergence Red Horizontal	24H Hor. Centerline Bow Red
04H Convergence Blue Vertical	25H Hor. Centerline Bow Blue
05H Convergence Blue Horizontal	26H Hor. Centerline Bow Green
06H Blanking Left	27H Horizontal Amplitude
07H Blanking Right	28H Horizontal Centerline Skew
08H Shift Red Horizontal	
09H Shift Green Horizontal	29H Left Keystone
0AH Shift Blue Horizontal	2AH Right Keystone
0BH NU	2BH Left Bow
0CH Blanking Bottom	2CH Right Bow
0DH Shift Red Vertical	2DH Coarse Shift Red
	2EH Coarse Shift Blue
0EH Shift Green Vertical	2FH Vertical S correction
0FH Shift Blue Vertical	30H Saturation
10H Amplitude Vertical	31H Hue
11H Linearity Vertical	32H Sharpness
12H Phase horizontal	33H Contrast
13H Blanking Top	34H Brightness
14H Side Keystone	35H Volume
15H Vertical Centerline Skew	
16H Side Bow	36H Bass
17H Vertical Centerline Bow	37H Treble
18H Top Bow Red	38H Balance
19H Bottom Bow Red	
1AH Top Keystone Red	39H Red Gain
1BH Bottom Keystone Red	3AH Blue Gain
1CH Top Bow Green	3BH Red Cut Off
1DH Bottom Bow Green	3CH Blue Cut Off
1EH Top Keystone Green	3DH Green Gain

3EH Green Cut Off
3FH Seagull NZ

40H Seagull EW

41H Blue correction Breaks
42H Blue correction Slope
43H Peaking
44H Midlights Red
45H Midlights Blue
46H Red Vertical Corn
47H Blue Vertical Corn
48H Red Horizontal Sides
49H Blue Horizontal Sides
4AH Hor Cent. Bow coarse
4BH N/S Bow coarse
4CH Horizontal Linearity
4DH Left Edge
4EH Right Edge

50H Focus Midpoint Red
51H Focus Midpoint Green
52H Focus Midpoint Blue
53H NU
54H Focus Bottom Red
55H Focus Top Red
56H Focus Left Red
57H Focus Right Red
58H Focus Bottom Green
59H Focus Top Green
5AH Focus Left Green
5BH Focus Right Green
5CH Focus Bottom Blue
5DH Focus Top Blue
5EH Focus Left Blue
5FH Focus Right Blue

60H Bottom Soft Edge
61H Top Soft Edge
62H Right Soft Edge
63H Left Soft Edge
64H Horizontal Edge Correction
65H Contrast Equalisation Blue
66H Contrast Equalisation Green
67H Contrast Equalisation Red
68H Vertical Edge Correction
69H Stop Position Soft Edge (Horz)
6AH Start Position Soft Edge (Horz)
6BH Vertical Contrast Equalisation
6CH Stop Position Soft Edge (Vert)
6DH Start Position Soft Edge (Vert)

70H Dynamic Astigmatism Red axial
71H Dynamic Astigmatism Red diagonal
72H Dynamic Astigmatism Green axial
73H Dynamic Astigmatism Green diagonal
74H Dynamic Astigmatism Blue axial
75H Dynamic Astigmatism Blue diagonal

Softedge Lite/Advanced

80H Left Start
81H Left length
82H Right start
83H Right Length
84H Gamma Red Low
85H Gamma Red High
86H Gamma Green Low
87H Gamma Green high
88H Gamma Blue low
89H Gamma Blue High