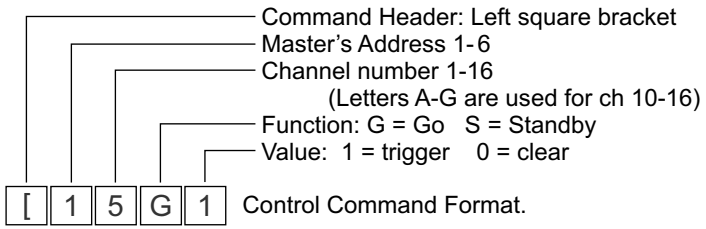
PCinterface QL-PCi mk4

16 channel Cue Light control from
your Touch Screen or Show Control PC

- Control up to 6 Cue Light Master Stations
- Control 240 Outstations across 96 channels
- Simple 5 byte ASCII commands
- Return Status Monitoring
- Supports RS232 and 4 wire RS485

Quick Start Guide

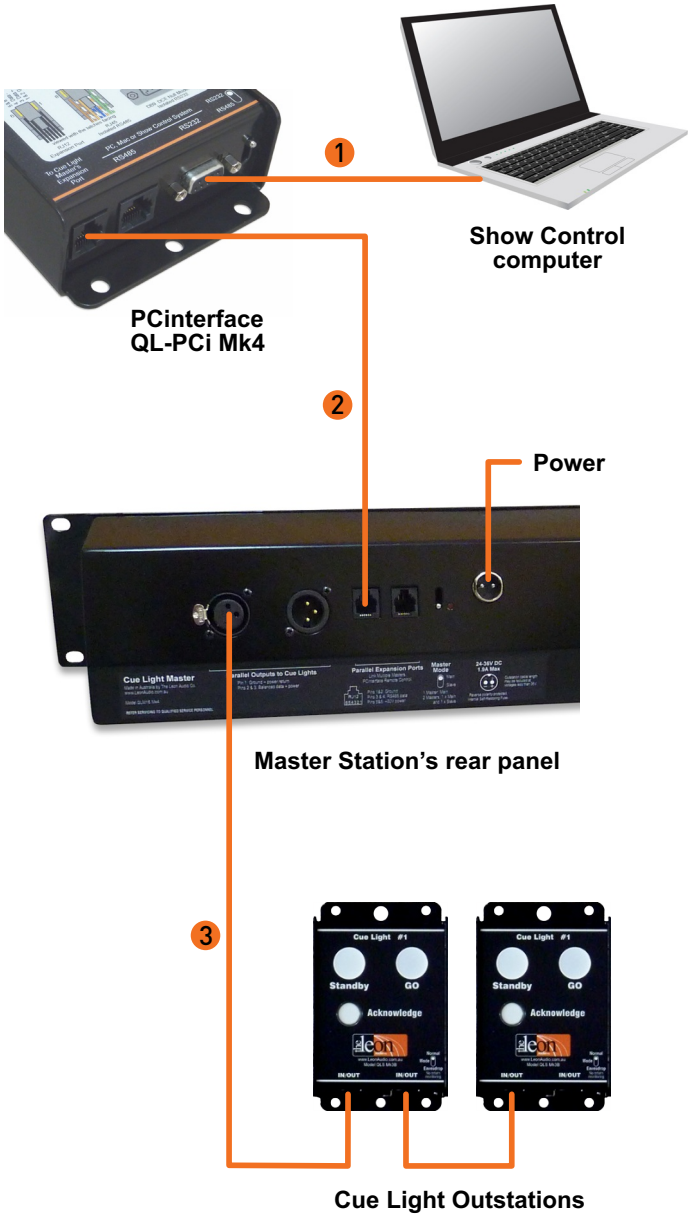
- Connect the Show Control computer to the RS232 port on the PCinterface using an RS232 cable. 1
  A USB to RS232 adaptor (not supplied) will be required if the Show Control computer lacks an RS232 port.
- Connect the PCinterface's 6 pin RJ12 Expansion port to either of the two RJ12 Expansion ports on the Master Station using the supplied RJ12 - RJ12 cable. 2
- Connect one or more Cue Light Outstations to either of the two XLR connectors on the Master Station. 3
- Set the Show Control Computer's serial port to 9600 baud, N81, no handshaking. Baud rate can be changed from 2,400 to 115,200 once the initial connection has been established.
- The QL-PCi will now be sending the ***Heart Beat*** signal to the Show Control computer. This is a 5 byte ASCII string ***{RRH1***
- Basic Control Commands are 5 ASCII bytes.



Each 5 byte command is held in a buffer in the ***PCinterface*** and is not executed until the single letter **X** for e**X**ecute is received. Multiple commands may be entered followed by a single **X.** Letters are not case sensitive. Spaces are only permitted between each 5 byte command and/or the letter **X.**

Examples

[1 5 S 1 X	Master 1, Ch 5, S/by Cue, Trigger, e**X**ecute.
[1 5 G 1 X	Master 1, Ch 5, Go Cue, Trigger, e**X**ecute.
[1 2 S Ø [1 3 G 1 X	Master 1, Ch 2, S/by Cue, Clear, Master 1, Ch 3, Go Cue, Trigger, and e**X**ecute.



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PCinterface Overview

Control your Cue Light system from a PC or Show Controller

- **PC, Mac or show controller**
  Will work with any PC, Mac or hardware controller capable of sending ASCII characters via a RS232 or RS485 serial port. Trigger or cancel cues, configure Outstation features and more.
- **Cue Light Outstations and Masters**
  A single ***PCinterface*** can control from 1 to 6 Master Stations. Each 16 channel Master can control up to 40 Outstations giving a maximum of 240 Outstations across 96 channels.
  Buttons on the Master Station(s) remain operational while the ***PCinterface*** is connected allowing for manual ad hoc cues.
  Each Master requires its own wiring universe for its associated Outstations.
- **Command structure**
  All basic commands are 5 bytes long. Most commands can be typed from a keyboard using only ASCII characters.
  No Escape sequences or control characters are used.
  Return monitoring is provided in a choice of 2 different formats.
  Can be easily tested with any Terminal communications program.
- **Simple GUI mode**
  A simple command interface for use with touch screens.
  Each button on the Master Station has been assigned a number, and by using a single command, any button can be pressed or released.
- **Cue Sheet Command Format**
  A command interface for use with a Show Control system using a pre-loaded cue list.
- **Configuration Data**
  Allows the Master Station(s) and all 3 types of Outstation to be remotely configured. e.g. Flashing/steady Go and Standby lamps, Standby lamp colour. Almost 40 different parameters can be changed. Configuration data can also be downloaded.
- **Return Monitoring**
  The status of every lamp on the Master Station(s) is returned to the Show Controller in a choice of two data formats.
- **Supports RS232 and 4 wire RS485**
  2,400 to 115,200 baud.
  It has a 500 byte FIFO buffer for incoming RS232/485 data.

Command Format Overview

There are 3 classes of command available.

- ***Simple GUI*** command format
- ***Cue Sheet*** command format

Operate Command Header

These control Commands are used to control the Cue Light System during a performance.

Simple GUI command format.
A simple command interface for touch screens.
The touchscreen sends a command to the ***PCinterface*** when any touchscreen button is pressed or released. This ***toggles*** the function of that key (in the same manner that the buttons on the Master Station toggle on or off).

Cue Sheet command format.
For use with a show control system with a pre-loaded cue list.
The control system sends a command(s) to the ***PCinterface*** when the ***Next*** cue button is pressed. It either ***triggers*** or ***clears*** a ***Go*** or ***Standby*** command (if a cue is already triggered, it will remain triggered i.e. it does not toggle as in Simple GUI).

Note

The mechanical buttons on the Master Station(s) remain 100% operational while the ***PCinterface*** is connected.
This allows ad hoc cues to be given if needed.
It also allows cues to be given ***when*** your show control system malfunctions.

- ***Configuration*** command format

Configuration Command Header

Configuration Commands are usually used to configure the Cue Light System prior to a performance.
Almost 40 different parameters can be changed in the Master Station(s) for all 3 types of Outstation.
Configuration data can also be downloaded from the Master Station via the ***PCinterface*** to the ***PC/Show Controller.***

Simple GUI Command Format

A simple command interface for touch screens.
The touchscreen sends a command to the ***PCinterface*** when any touchscreen button is pressed or released. This ***toggles*** the function of that key (in the same manner that the buttons on the Master Station toggle on or off).

Programming Simple GUI Commands

Programming is done via your touch screen control system. (e.g. AMX or Medallion etc).
All characters are ASCII except for the button number (4th byte) which is a decimal byte. Letters are not case sensitive.

[4 N 66 1 **Operate Command Header**

Header character to mark the start of a command.

[**4** N 66 1 **Master Station Address (0-6)**

Up to 6 Master Stations can be controlled by one ***PCinterface.***

Master's Address	
Ø	All Masters
1	Master #1
2	Master #2
3	Master #3
4	Master #4
5	Master #5
6	Master #6

The Master Station's address is set to 1 when shipped.
To change the address, please see ***Master Station options*** under ***Configuration Editor*** in the PDF file ***16 Channel Cue Light Mk4.***

[4 **N** 66 1 **Letter *N* selects Simple GUI command**

where a single ***N****umber* is used to describe a specific button.

[4 N **66** 1 **A specific button on the Master (1-87)**

This is a single byte decimal number (not ASCII) in the range of 1 - 87.
It describes a specific button on the Master Station.
A single byte decimal number cannot be typed directly from a PC's keyboard. The buttons and their numbering scheme is described on the following pages.

[4 N 66 **1** **Pressed/Released command**

Pressed	Released
1	Ø

ASCII numbers

When the ***Pressed*** command is sent, it must always be followed by a ***Released*** command - either immediately or after other commands that are executed while that key is still pressed.

Important

All commands must be followed by the letter **X** for e**X**ecute.
Once **X** has been received by the PCinterface, the commands are uploaded to the Master Station(s).

Multiple commands may be entered followed by a single **X.**

Examples

Button Pressed

[4 N 66 1 **X** Master 4, N = Simple GUI command, Button 66 (Ch1 Go), 1 = Pressed, e**X**ecute.

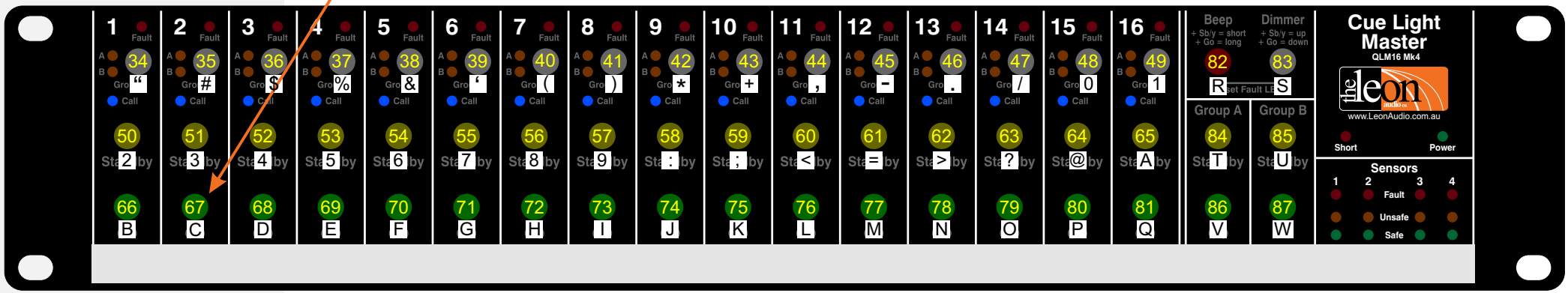
Button Released

[4 N 66 Ø **X** Master 4, N = Simple GUI command, Button 66 (Ch1 Go), Ø = Released, e**X**ecute.

Programming Simple GUI Commands - button number allocation

[4 N 67 1 **A specific button on the Master Station.**

This is a single byte decimal number in the range of 34 - 87.
It describes a specific button on the Master Station as illustrated by the yellow numbers below.
Characters in the white boxes are their case sensitive ASCII equivalents.



Each horizontal row of 16 buttons (channels 1-16) uses consecutive numbers. Number 33 is not used as it is reserved.

Examples

Button Pressed

[4 N 67 1 **X**

Master 4, N = Simple GUI command,
Button 67 (Ch2 Go), 1 = Pressed, e**X**ecute.

Button Released

[4 N 67 0 **X**

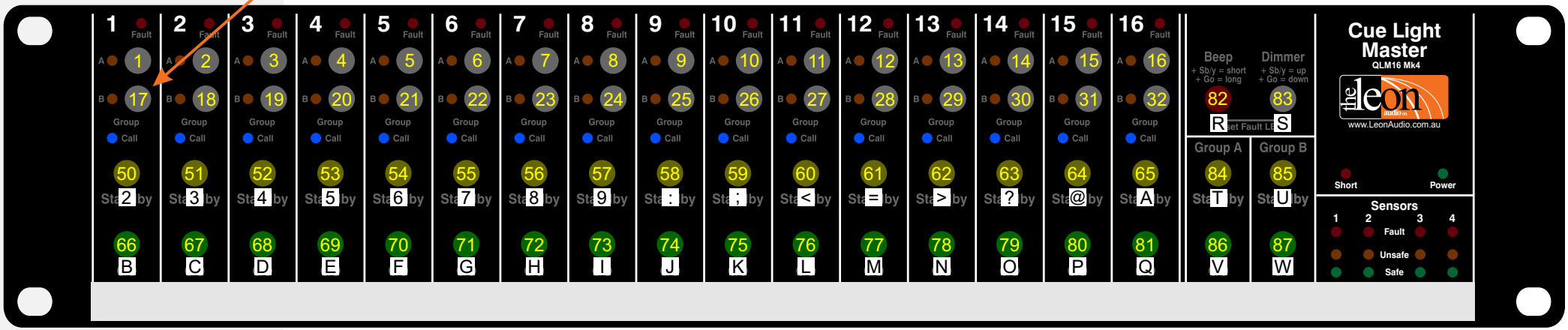
Master 4, N = Simple GUI command,
Button 67 (Ch2 Go), 0 = Released, e**X**ecute.

Programming Simple GUI Commands - expanded button number allocation

There wasn't enough space to use 2 Group buttons on the physical Master Station but separate Group buttons for Groups A and B are possible on a touch screen.

[4 N 17 1] **A specific button on the Master Station.**

This is a single byte decimal number in the range of 1 - 87.
It describes a specific button on the Master Station as illustrated by the yellow numbers below.
Characters in the white boxes are their case sensitive ASCII equivalents.



Each horizontal row of 16 buttons (channels 1-16) uses consecutive numbers. Number 33 is not used as it is reserved.

Examples

Button Pressed

[4 N 17 1 **X** Master 4, N = Simple GUI command, Button 17(Ch1 Grp B), 1 = Pressed, e**X**ecute.

Button Released

[4 N 17 Ø **X** Master 4, N = Simple GUI command, Button 17(Ch1 Grp B), Ø = Released, e**X**ecute.

Programming Simple GUI Commands

Table of Button numbers

[4 N 66 1 **A specific button on the Master Station**

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Touch Screen's Soft buttons																
Group A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group B	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Master Station's Grey group buttons																
Group Buttons	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
S/by Buttons	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Go Buttons	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81

Other buttons

Red Beep Button	82
White Dimmer Button	83
Group Master Buttons	
Group A Standby	84
Group B Standby	85
Group A Go	86
Group B Go	87

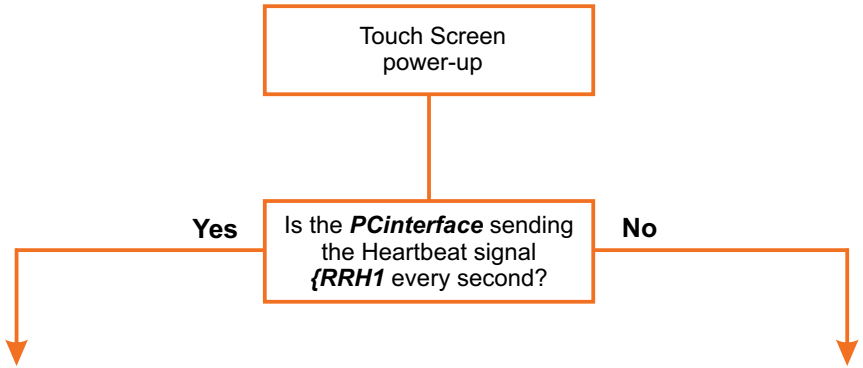
Each horizontal row of 16 buttons (channels 1-16) uses consecutive numbers.
Number 33 is not used as it is reserved.

Note

Each number is a single byte decimal number in the range of 1 - 87.

Startup in Simple GUI mode

Either the Touch Screen Controller or the Cue Light system will boot up first.
Both cases needed to be handled slightly differently.



Cue Lights are running when Touch Screen Controller starts.

Request the Lamp Status for all channels ***[1SQ1*** to update the display on the touch screen.

Touch Screen Controller is running when Cue Lights start.

There is nothing special to do in this case.
When the ***PCinterface*** starts, data for any lamps that are lit will be sent once. This will update the display on the touch screen.

Cue Sheet Commands

For use with a show control system with a pre-loaded cue list. The control system sends a command(s) to the ***PCinterface*** when the ***Next*** cue button is pressed. It either ***triggers*** or ***clears*** a ***Go*** or ***Standby*** cue (if a cue is already triggered, it will remain triggered i.e. it does not toggle as in Simple GUI).

Programming Cue Sheet Commands

Programming is done via your show control system (e.g. AMX or Medallion etc).
All text and numbers are ***ASCII.*** Letters are not case sensitive.

[1 5 G 1 **Operate Command Header**

Header character to mark the start of a command.

[1 5 G 1 **Master Station Address (0-6)**

Up to 6 Master Stations can be controlled by one ***PCinterface.***

Master's Address	
0	All Masters
1	Master #1
2	Master #2
3	Master #3
4	Master #4
5	Master #5
6	Master #6

The Master Station's address is set to 1 when shipped.
To change the address, please see ***Master Station options*** under ***Configuration Editor*** in the PDF file ***16 Channel Cue Light Mk4.***

Important

All commands must be followed by the letter **X** for e**X**ecute. Once **X** has been received by the PCinterface, the commands are uploaded to the Master Station(s).

Multiple commands may be entered followed by a single **X.**

Cue Sheet Commands

- Channel Number

Channel Number

The basic channel address is a single byte.
It can be entered as a decimal number 00d to 16d or as an ASCII character.

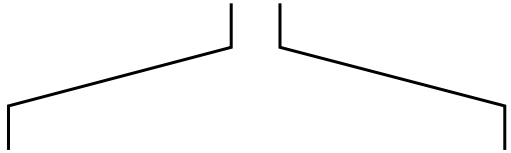
ASCII	Decimal	Channel
0	00d	All Channels
1	01d	Channel 1
2	02d	Channel 2
3	03d	Channel 3
4	04d	Channel 4
5	05d	Channel 5
6	06d	Channel 6
7	07d	Channel 7
8	08d	Channel 8
9	09d	Channel 9
A	10d	Channel 10
B	11d	Channel 11
C	12d	Channel 12
D	13d	Channel 13
E	14d	Channel 14
F	15d	Channel 15
G	16d	Channel 16
Y	-	Group A Master
Z	-	Group B Master

Letters are not case sensitive.

- Additional options for the channel number

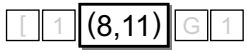
For ASCII Channel Numbers.
These options are enclosed in round brackets.
No spaces are allowed.

ASCII Channel Number

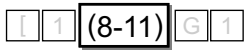


(12) Double digit channel numbers.
(1,3,5) Multiple channels selected.
(1-5) A range of channels selected.

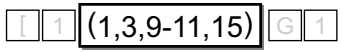
The channel options above can be used in any combination.



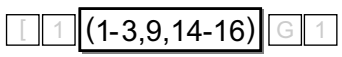
Channels 8 and 11



Channels 8, 9, 10, and 11



Channels
1, 3, 9, 10, 11 &15



Channels
1, 2, 3, 9, 14, 15 & 16

Cue Sheet Commands

Functions and Values

[1 5 **G** 1 **Function**

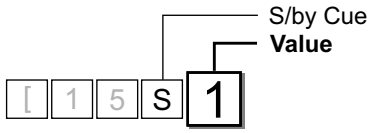
Functions	
G	GO Cue
S	S/by Cue
C	Clear any Cues
B	Sound the Beeper
P	Channel's Group Button
F	Reset Fault Lamps

Details for each of these functions follows.

Function	
G	GO Cue
S	S/by Cue
C	Clear any Cues
B	Sound the Beeper
P	Channel's Group Button
F	Reset Fault Lamps

Summary of Cue Sheet Commands

- **Standby Cue**



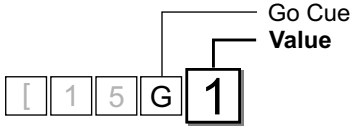
Value	S/by Cue
Ø or C	Clear
1 or T	Trigger

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

[1 5 S 1	Master 1, Ch 5, S/by Cue, Trigger.
[1 (12) S Ø	Master 1, Ch 12, S/by Cue, Clear.
[1 (8-14) S T	Master 1, Ch 8-14, S/by Cue, Trigger.

- **Go Cue**



Value	Go Cue
Ø or C	Clear
1 or T	Trigger

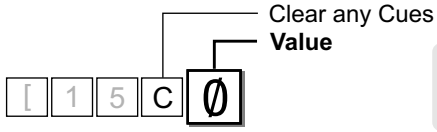
Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

[1 5 G 1	Master 1, Ch 5, Go Cue, Trigger.
[1 (12) G Ø	Master 1, Ch 12, Go Cue, Clear.
[1 (8-14) G T	Master 1, Ch 8-14, Go Cue, Trigger.

- **Clear any Cues**

Same as Go = Clear and S/by = Clear but in a single command.



Value	Any Cue
Ø or C	Clear

Either a letter or number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

[1 5 C Ø	Master 1, Ch 5, Clear Cues, Clear.
[1 (12) S Ø	Master 1, Ch 12, Clear Cues, Clear.
A shortcut:- [Ø Ø C C	Clear all cues on all channels of all Masters

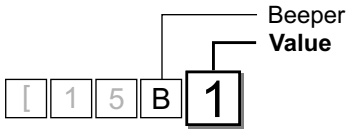
Cue Sheet Commands

Functions and Values

Function	
G	GO Cue
S	S/by Cue
C	Clear any Cues
B	Sound the Beeper
P	Channel's Group Button
F	Reset Fault Lamps

Summary of Cue Sheet Commands

- **Sound the Beeper**



Value	Beep Duration
0	5 mS (Note 1)
1	60mS
2	120 mS
3	180 mS
4	240 mS
5	300 mS
6	360 mS
7	420 mS
8	480 mS
9	540 mS
A or (10)	600 mS
B or (11)	660 mS
C or (12)	720 mS
D or (13)	780 mS
E or (14)	840 mS
F or (15)	900 mS
G or (16)	960 mS

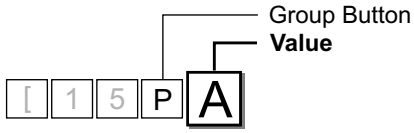
Note 1
A beep of 5mS duration is so short that it is heard as a click.

Letters are not case sensitive.
Either a letter or numbers can be used for the ASCII Value of the last 7values. Use which ever you prefer.
Values of A-G can be replaced by a double digit number inside curved brackets

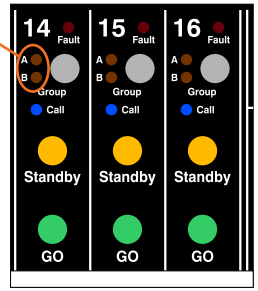
Examples

[1 5 B 2	Master 1, Ch 5, Beeper, 120mS duration.
[1 (12) B (15)	Master 1, Ch 12, Beeper, 900mS duration.
[1 (8-14) B F	Master 1, Ch 8-14, Beeper, 900mS duration.

- **Channel's Group Button**



Control these 2 Lamps on the Master Station(s)



Value	Group Button
A	A on, B off
B	B on, A off
C	A on, B on
D	A on, B unchanged
E	A off, B unchanged
F	B on, A unchanged
G	B off, A unchanged
0 or K	A off, B off (kill)

Letters are not case sensitive.
Either a letter or a number can be used for the ASCII Value of the kill command. Use which ever you prefer.

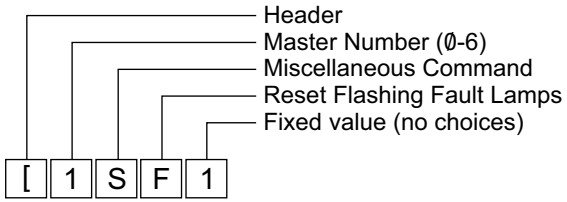
Examples

[1 5 P A	Master 1, Ch 5, Group A on, B off
[1 (12) P D	Master 1, Ch 12, Group A on, B unchanged
[1 (8-14) P 0	Master 1, Ch 8-14, Group A & B off

Cue Sheet Commands

Miscellaneous Commands

- **Reset Flashing Fault Lamps**



Reset all flashing Fault Lamps on the Master Station(s).
The Fault Lamp(s) will flash when all Outstations are disconnected from a channel.

This command will not turn off any Fault Lamps that are burning steady. A steady Fault Lamp is an indication that the channel has no ***Normal mode*** Outstation connected but has one or more ***Eavesdrop mode*** Outstations connected.
To turn off steady Fault Lamps, connect one Outstation set to ***Normal mode*** to the channel in question.

Example

[Ø S F 1 — Reset all flashing Fault Lamps on all Master Stations.

Function	
G	GO Cue
S	S/by Cue
C	Clear any Cues
B	Sound the Beeper
P	Channel's Group Button
F	Reset Fault Lamps

Summary of Cue Sheet Commands

Table of Cue Sheet Commands

[4 5 G 1 Operate Commands	[**4** 5 G 1 Master number	[4 **5** G 1 Channel number			[4 5 **G** 1 Function		[4 5 G **1** Value	
			ASCII	Dec	Hex		Description		Description
Header Byte	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	G	GO Cue	Ø or C	Clear
(Left square bracket)	1	1	1	Ø1d	Ø1h	S	S/by Cue	1 or T	Trigger
	2	2	2	Ø2d	Ø2h				
	3	3	3	Ø3d	Ø3h	C or K	Clear any Go or S/by cue with a single command	Ø or C	Clear
	4	4	4	Ø4d	Ø4h				
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	P	Channel's Group	A	A on, B off
		7	7	Ø7d	Ø7h			B	B on, A off
		8	8	Ø8d	Ø8h			C	A on, B on
		9	9	Ø9d	Ø9h			D	A on, B unchanged
		1Ø	A or (1Ø)	1Ød	ØAh			E	A off, B unchanged
		11	B or (11)	11d	ØBh			F	B on, A unchanged
		12	C or (12)	12d	ØCh			G	B off, A unchanged
		13	D or (13)	13d	ØDh			Ø or K	A off, B off (kill)
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh	B	Sound the Beeper		Beep Duration
		16	G or (16)	16d	1Øh			Ø	5 mS (click)
			Notes 1, 2	Note 4				1	6Ømś
								2	12Ø mS
								3	18Ø mS
								4	24Ø mS
								5	3ØØ mS
								6	36Ø mS
								7	42Ø mS
								8	48Ø mS
								9	54Ø mS
								A or (1Ø)	6ØØ mS
								B or (11)	66Ø mS
								C or (12)	72Ø mS
								D or (13)	78Ø mS
								E or (14)	84Ø mS
								F or (15)	9ØØ mS
								G or (16)	96Ø mS
								Note 1	
			Description						
		Y	Group A Master buttons			G	Go Master	Ø or C	Clear
		Z	Group B Master buttons			S	S/by Master	1 or T	Trigger
								E	Toggle
		S	Miscellaneous commands			Q	Request Lamp Status for all channels	1	Fixed value
						F	Reset Fault Lamps		
		N Note 3	Simple GUI (Number) mode			1-87d	Button's number	1	Button pressed
								Ø	Button released

Note 1: Double digits can be in round brackets e.g. (12)
Note 2: Multiple channels in round brackets e.g. (1,2,3) or (5-15)
Note 3: Simple GUI mode. Each button has been assigned a decimal number. See pages 8-10 for details.
Note 4: Channel number can be ASCII characters or a decimal number 00d to 16d.

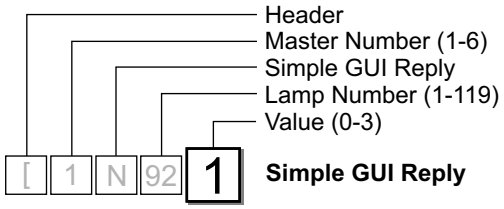
Return Monitoring

When ever there is a change in state of any lamp on the Master Station, return data showing the state of that lamp is sent from the ***PCinterface*** to the ***Show Controller.***
This data can be in one of two formats:-
Simple GUI Reply and ***Channel & Function Reply.***

The ***PCinterface*** is shipped with the ***Simple GUI Reply*** set as the default. To change the reply format, see ***Monitoring Reply Mode*** command on the following page.

• Simple GUI Reply

A simple monitoring interface for use with touch screens.

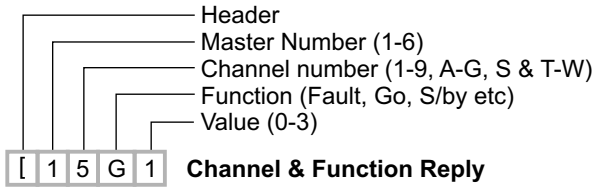


Value	Lamp
Ø	Off
1	On
2	Flashing
3	Dimmed

Each lamp has been allocated a single byte decimal number in the range of 1-119. See pages 22 and 23 for details.
While there are only 112 lamps, some numbers are not used.

• Channel & Function Reply

A monitoring interface using all ASCII characters.
Its primary application is for debugging.



Channel Number	
1-9	Channels 1-9
A	Channel 1Ø
B	Channel 11
C	Channel 12
D	Channel 13
E	Channel 14
F	Channel 15
G	Channel 16
S	Group Masters & Short Lamp
T-W	Sensors 1-4

Additional letters are used in the Channel Number position to indicate lamps other than those of the 16 channels.
S indicates the ***Group Master*** lamps and the ***Short*** lamp.
T-W are used to indicate the 4 ***Sensor*** channels.

The ***Function*** varies depending on the letter in the Channel Number position. Refer to the table on page 24 for details.

Value	Lamp
Ø	Off
1	On
2	Flashing
3	Dimmed

Simple GUI Reply Example

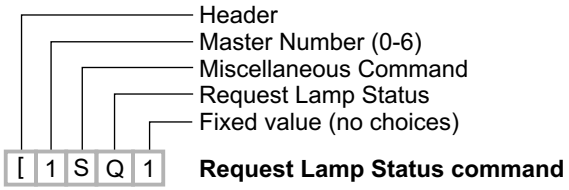
[1 N 67 Ø	Master 1, Ch 2 Standby lamp, Off
[1 N 83 3	Master 1, Group B Master lamps, Dimmed
[1 N 1ØØ 2	Master 1, Ch 9 Go lamp, Flashing

Channel & Function Reply Example

[1 2 S Ø	Master 1, Ch 2, Standby lamp, Off
[1 S B 3	Master 1, Group B Master lamps, Dimmed
[1 9 G 2	Master 1, Ch 9, Go lamp, Flashing

Return Monitoring

- ## Request Lamp Status

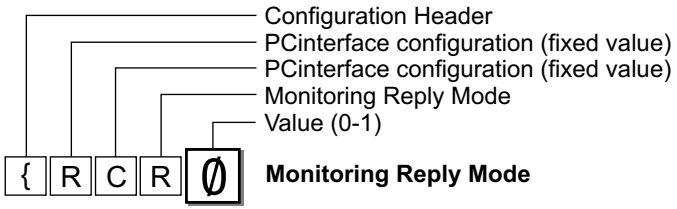


Request the Lamp Status for all channels on a specified Master.
Status data for each of the 112 Lamps is sent from the ***PCinterface*** to the ***Show Controller.***
Typical use is to update the display on a touch screen controller.

This data can be in one of two formats:-
Simple GUI Reply and ***Channel & Function Reply***.
See previous page for details.

To change the reply format, see ***Monitoring Reply Mode*** command opposite.

- ## Monitoring Reply Mode command



Select the data format for ***Simple GUI Reply*** or ***Channel & Function Reply*** status monitoring.

Value	Command
Ø	Simple GUI Reply
1	Channel & Function Reply

This command configures the ***PCinterface*** and is remembered when the power is off.
It does not require the **X** for e**X**ecute as it is not uploaded to the Master Station.
It will execute as soon as the 5th byte ***Value*** has been received.

Examples

{ R C R Ø — Command to select ***Simple GUI Reply*** mode

[1 N 92 2 — Typical ***Simple GUI Reply*** (Master 1, Ch 1 Go flashing in this example)

{ R C R 1 — Command to select ***Channel & Function Reply*** mode.

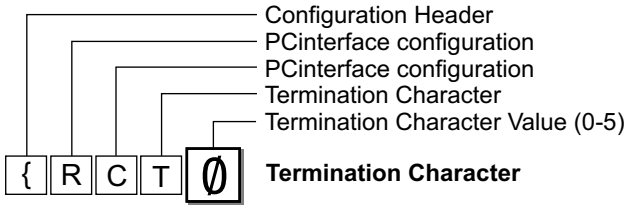
[1 1 G 2 — Typical ***Channel & Function Reply*** (Master 1, Ch 1 Go flashing in this example)

Return Monitoring

- ## Termination Character

Each 5 byte monitoring reply can be terminated by a special character.

There is a choice of 5 different termination characters chosen by the following command.
This command configures the ***PCinterface*** and is remembered when the power is off.
It does not require the **X** for e**X**ecute as it is not uploaded to the Master Station.
It will execute as soon as the 5th byte has been received.



Value	Termination Character ASCII	Decimal	Hex	
Ø	none	none	none	
1	}	125d	7Dh	
2	|	124d	7Ch	
3	space	32d	2Øh	*
4	line feed	1Ød	ØAh	*
5	~	126d	7Eh	

The default terminator as shipped is none.

* The <Space> and <LF> characters may appear in data sent as part of the ***Simple GUI Reply*** and hence are not suitable choices for terminator characters intended to be read by a machine (PC). They are however ideal to aid in readability when data is displayed on a terminal program.

Use **}** (125d), **|** (124d) or **~** (126d) as terminator characters to be read by a machine (PC) as they are not used within any commands.

The repeating ***HeartBeat*** reply ***{RRH1*** is used in the examples below.

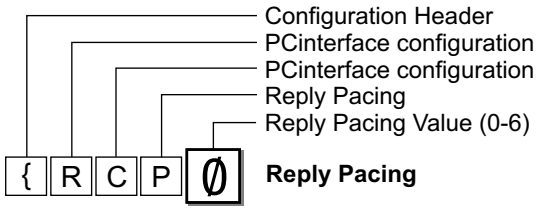
Termination Character Examples

{ R R H 1 { R R H 1	No terminator
{ R R H 1 } { R R H 1 }	} Right curly bracket
{ R R H 1 | { R R H 1 |	| Pipe
{ R R H 1 2Øh { R R H 1 2Øh	Space
{ R R H 1 1Øh { R R H 1 1Øh	Line Feed
{ R R H 1 ~ { R R H 1 ~	~ Tilde

Return Monitoring

- **Reply Pacing**

Add a pause between each 5 byte reply if the receiving system is unable to process the incoming data quickly enough.



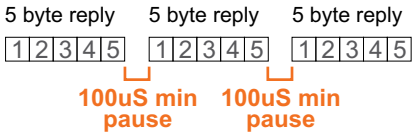
Reply Pacing	
Ø	no pause
1	100uS
2	300uS
3	1mS
4	3mS
5	10mS
6	30mS

No response is given when this command is sent.
The new setting is saved when the power is off.

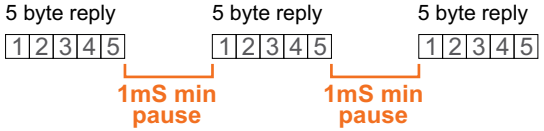
Use the shortest pause possible or response times may become unacceptable.
With Pacing set to ØmS, the ***Request Lamp Status [1SQ1*** command takes 63mS to return 56Ø bytes of data at 115,2ØØ baud.
With Pacing set to 3ØmS, the same command takes 3.38 seconds to return the same data.

Examples

{ R C P 1 **Set Reply Pacing pause to 100uS**



{ R C P 3 **Set Reply Pacing pause to 1mS**



Note:
These drawings are not to scale.
The duration of the 5 byte replies will vary with baud rate.

Return Monitoring. Simple GUI Reply format

Lamp number allocation

[1 N 50 1 **A specific Lamp on the Master Station.**

This is a single byte decimal number in the range of 1 - 119.
It describes a specific Lamp. (Ch1 Call lamp in this example).

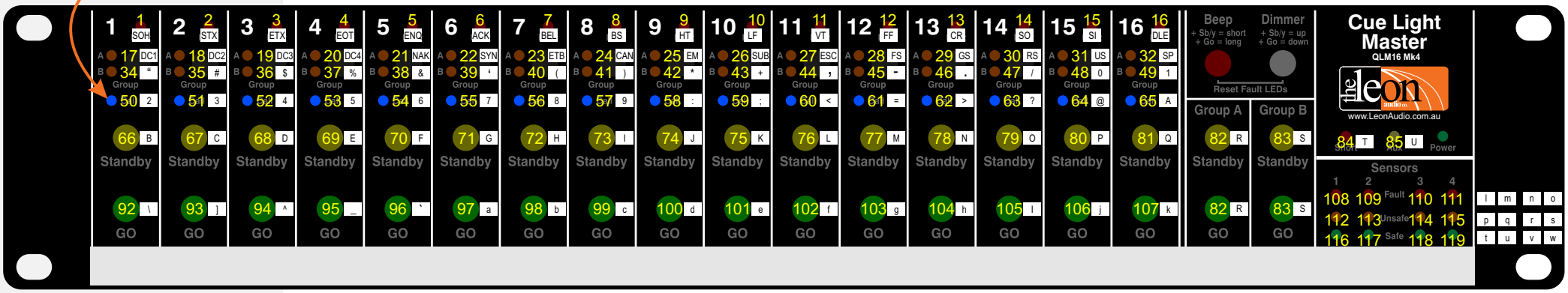
- **Lamp numbers.**
  (includes illuminated Go & Standby buttons)

  Yellow numbers are decimal values (1-119) returned as the 4th byte of return monitoring when using the Simple GUI Reply format. Values in the white boxes are their ASCII equivalent.

- **Lamp Flash rates**

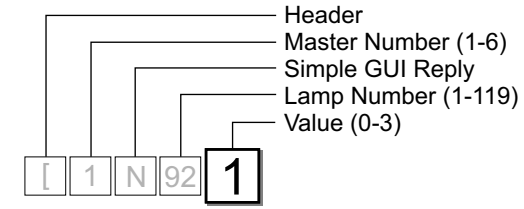
  Different lamps flash at different rates on the Cue Light Master.
  Fault lamps: 4Hz 50% duty cycle. 120mS on, 120mS off.
  Call lamps: 8Hz 50% duty cycle. 60mS on, 60mS off.
  Standby lamps: 2.1Hz 63% duty cycle. 300mS on, 180mS off.
  Go lamps: 5.6Hz 67% duty cycle. 120mS on, 60mS off.

  Standby & Go lamps deliberately use a duty cycle about 2:1 so that one is less likely to miss a Go or Standby cue when glancing at the lamp simply because the lamp is on for longer than it is off.



Master Group A&B
Lamps light as pairs.

Each horizontal row of 16 lamps (channels 1-16) uses consecutive numbers. Numbers 86 through 91 are not used as they are reserved.



Simple GUI Reply format

Value	Lamp
0	Off
1	On
2	Flashing
3	Dimmed

Monitoring Status Examples

[1 N 18 1 — Master 1, Number Mode, Lamp 18 (Ch2 Group A), 1 = On

[2 N 57 2 — Master 2, Number Mode, Lamp 57 (Ch 8 Call), 2 = Flashing

[3 N 107 3 — Master 3, Number Mode, Lamp 107 (Ch16 Go), 3 = Dimmed

Return Monitoring. Simple GUI Reply format

Table of Lamp numbers

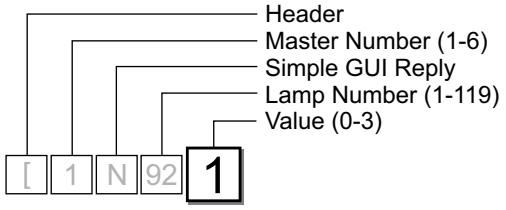
[1 N 92 1 **A specific lamp on the Master Station**

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fault Lamp	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group A Lamp	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Group B Lamp	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Call lamp	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
S/by Lamp	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
Go Lamp	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107
Sensor Lamps																
Fault	108	109	110	111												
Unsafe	112	113	114	115												
Safe	116	117	118	119												

Other Lamps

Group A Master Lamps	82 (S/by & Go buttons light as a pair)
Group B Master Lamps	83 (S/by & Go buttons light as a pair)
Short Lamp	84
Aux lamp	85 (not fitted)

Each horizontal row of 16 lamps (channels 1-16) uses consecutive numbers. Numbers 86 through 91 are not used as they are reserved.



Simple GUI Reply format

Value	Lamp
Ø	Off
1	On
2	Flashing
3	Dimmed

Note

Each number is a single byte decimal number in the range of 1 - 119.

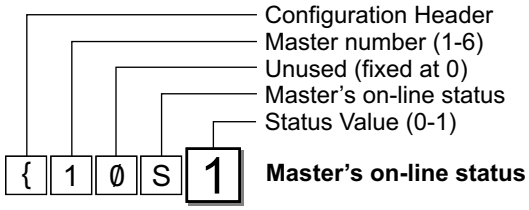
Table of Return Monitoring. Channel & Function format

[1 5 G 1	[**1** 5 G 1	[1 **5** G 1		[1 5 **G** 1		[1 5 G **1**	
Operate Replies	**Master number**	**Channel number**		**Function**		**Value**	
	ASCII		ASCII		Description		Description
Header Byte (Left square bracket)	1	1	1	F	Fault Lamps	0	Off
	2	2	2			1	On
	3	3	3			2	Flash
	4	4	4				
	5	5	5	A	Group A Lamps	0	Off
	6	6	6			1	On
		7	7				
		8	8	B	Group B Lamps	0	Off
		9	9			1	On
		10	A				
		11	B	C	Call Lamps	0	Off
		12	C			1	On
		13	D			2	Flash
		14	E				
		15	F	S	Standby Lamps	0	Off
		16	G			1	On
						2	Flash
						3	Dimmed
				G	Go Lamps	0	Off
						1	On
						2	Flash
						3	Dimmed
		Sensor 1	T	F	Fault Lamps	0	Off
		Sensor 2	U			1	On
		Sensor 3	V			2	Flash
		Sensor 4	W				
				U	Unsafe Lamps	0	Off
						1	On
						2	Flash
				S	Safe Lamps	0	Off
						1	On
		Other Lamps	S	A	Group A Master	0	Off
						3	Dimmed
				B	Group B Master	0	Off
						3	Dimmed
				S	Short Lamp	0	Off
						1	On
				T	Aux Lamp (not fitted)	0	Off
						1	On

Other Return Monitoring

Master's on-line status

Sent once by the ***PCinterface*** when ever a Master Station's status changes. The ***PCinterface*** may not report a Master Station going off-line if the ***Expansion Port*** cable is unplugged as the ***PCinterface*** is powered via this cable.



Master's on-line status	
Ø	Just gone off-line
1	Just come on-line

Examples

{ 1 Ø S 1	Master #1 has just come on-line
{ 2 Ø S Ø	Master #2 has just gone off-line

Heart Beat signal

The Heart Beat signal is generated by the ***PCinterface*** unit.
It does not indicate that any Cue Light Outstations are connected.

The ***Heart Beat*** signal is reset to ***ON*** when ever the ***PCinterface*** is powered up.

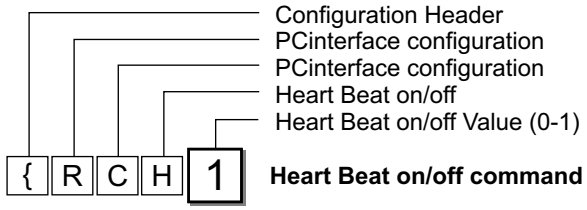
{ R R H 1 **Heart Beat signal**

This response is sent once every second +/- 5%.

The ***Heart Beat*** signal can be turned off but will automatically be turned back on the next time the ***PCinterface*** is powered up.

Heart Beat on/off command

Use this command to turn the ***Heart Beat*** signal on or off.



Heart Beat Signal	
Ø	Off
1	On

Configuration Commands

Many options can be configured for the 3 types of Outstation, Master Station and PCinterface.

All options that can be changed using the Master Station's ***Configuration Editor*** can also be changed using PCinterface commands.

All of the configuration settings (options) for a Master Station can also be downloaded into an editable ASCII text file.
The same text file can then be uploaded to (re)configure the Master Station and associated Outstations.

Configuration Commands will be covered for the following devices:-

- Standard Outstation
- Relay Outstation
- Contact Sensor
- Master Station
- PCinterface

Each configuration option is discussed in detail under ***Master Station's Configuration Editor*** in the PDF file ***16 Channel Cue Light Mk4.pdf***

Important

All commands must be followed by the letter **X** for e**X**ecute. Once **X** has been received by the PCinterface, the commands are uploaded to the Master Station(s).

Multiple commands may be entered followed by a single **X.**

Configuration Command Format

- **Configuration Command Header**

Configuration Command Header

Header character to mark the start of a command.

- **Master Station Address**

Master Station Address (0-6)

Up to 6 Master Stations can be controlled by one ***PCinterface.***

Master's Address	
0	All Masters
1	Master #1
2	Master #2
3	Master #3
4	Master #4
5	Master #5
6	Master #6

The Master Station's address is set to 1 when shipped.
To change the address, please see ***Master Station options*** under ***Configuration Editor*** in the PDF file ***16 Channel Cue Light Mk4.***

Configuration Commands

Configuration Command Format

- **Channel Number**

Channel Number

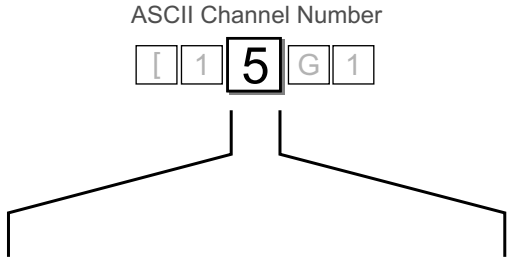
The basic channel address is a single byte.
It can be entered as a decimal number 00d to 16d or as an ASCII character.

ASCII	Decimal	Channel
0	00d	All Channels
1	01d	Channel 1
2	02d	Channel 2
3	03d	Channel 3
4	04d	Channel 4
5	05d	Channel 5
6	06d	Channel 6
7	07d	Channel 7
8	08d	Channel 8
9	09d	Channel 9
A	10d	Channel 10
B	11d	Channel 11
C	12d	Channel 12
D	13d	Channel 13
E	14d	Channel 14
F	15d	Channel 15
G	16d	Channel 16
Y	-	Group A Master
Z	-	Group B Master

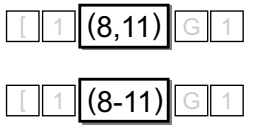
Letters are not case sensitive.

- **Additional options for the channel number**

For ASCII Channel Numbers.
These options are enclosed in round brackets.
No spaces are allowed.



The channel options above can be used in any combination.



Configuration Commands

Overview of Functions { 1 5 A 1

	Function *(Upper Case)*	Factory Default	User Selectable Function
A	Outstation S/by colour	Yellow	Red
B	S/by Flash on Master	Flashes	Steady
C	S/by Flash on Outstation	Flashes	Steady
D	S/by latches	Latches	Momentary
E	S/by Dims on ACK	No	Dims on ACK
F	Outstation Go Flickers	Steady	Flickers
G	Go times out	Times out	Stays on
H	Go flashes	Flashes	Steady
J	Go latches	Latches	Momentary
K	Go & S/by interlocked	Interlocked	Independent
M	Call lamp enabled	Enabled	Call lamp off
N	Call lamp flashes	Flashes	Steady
P	ACK button back-light	On	Off
Q	Beeper enable	Enabled	Disabled
R	Beep-on-Go	Silent	Beeps (4 choices)
S	Change colour on ACK	No change	Change colour
T	Dimmer	100%	5-100% in 5 steps

Cue Light Outstation Functions

	Function *(Lower Case)*	Factory Default	User Selectable Function
a	Mode		5 modes
b	S/by Flash on Master	Flashes	Steady
c	S/by Flash on Outstation	Flashes	Steady
d	S/by latches	Latches	Momentary
e	Go times out	Times out	Stays on
f	Go flashes	Flashes	Steady
g	Go latches	Latches	Momentary
h	Go & S/by interlocked	Interlocked	Independent
j	Call lamp enabled	Enabled	Call lamp off
k	Call lamp Flashes	Flashes	Steady
m	All Lamps on Outstation	Enabled	Off

Relay Outstation Functions

	Function	Factory Default	User Selectable Function
1	Unsafe Lamp	Steady	Flash
2	Safe when... open/closed	Open	Closed
3	End Of Line Resistors	No EOL	Two EOL
4	All Lamps on Outstation	Enabled	Disabled

Sensor Outstation Functions

	Function	Factory Default	User Selectable Function
A	Copy 1 of 8 files to PC		
B	Copy 1 of 7 files to the ShowTime file.		
C	Copy ShowTime file to Installer's Default or 1 of 4 User files.		
E	Go Cue Total Duration	15 Secs	1-16 Secs
F	Link 4 Group Master buttons	Linked	Not Linked

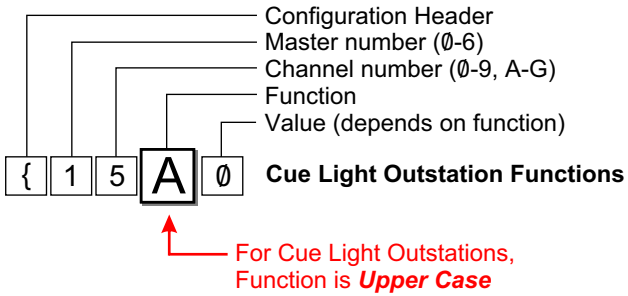
Master Station Functions

	Function	Values
R	Monitoring Reply Mode	Simple GUI Reply or Channel & Function Reply
B	Baud Rate	2400 to 115200
H	Heart Beat @ 1Hz rate (Idle Character)	on/off
P	Pacing. Pause between each 5 byte reply	0uS, 100uS, 300uS, 1mS, 3mS, 10mS, 30mS
T	Terminator chx for replies	None } | <space> <LF> ~

PCinterface Functions

Configuration Commands

Cue Light Outstation Functions



	Function	Factory Default	User Selectable Function
A	Outstation S/by colour	Yellow	Red
B	S/by Flash on Master	Flashes	Steady
C	S/by Flash on Outstation	Flashes	Steady
D	S/by latches	Latches	Momentary
E	S/by Dims on ACK	No	Dims on ACK
F	Outstation Go Flickers	Steady	Flickers
G	Go times out	Times out	Stays on
H	Go flashes	Flashes	Steady
J	Go latches	Latches	Momentary
K	Go & S/by interlocked	Interlocked	Independent
M	Call lamp enabled	Enabled	Call lamp off
N	Call lamp flashes	Flashes	Steady
P	ACK button back-light	On	Off
Q	Beeper enable *	Enabled	Disabled
R	Beep-on-Go *	Silent	Beeps (4 choices)
S	Change colour on ACK	No change	Change colour
T	Dimmer	100%	5-100% in 5 steps

Summary of Cue Light Outstation Functions

Standard Cue Light Outstation QLS Mk4
Outstation with Beeper QLS-B Mk4

Small Footprint Outstation QLS-SM Mk4

* ***Beeper*** and ***Beep-On-Go*** options only apply when a Beeper Outstation (QLS-B) is connected to that channel. Outstations without a beeper ignore the beeper settings.

Table of Cue Light Outstation Configuration Commands

{ 1 5 A 1 Configuration Commands	{ 1 5 A 1 Master number	{ 1 5 A 1 Channel number				{ 1 5 A 1 Function		{ 1 5 A 1 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	A	Outstation's Standby Colour	Ø or R	Red
	1	1	1	Ø1d	Ø1h			1 or Y	Yellow
	2	2	2	Ø2d	Ø2h				
	3	3	3	Ø3d	Ø3h	B	Standby Flash on Master	Ø or S	Steady
	4	4	4	Ø4d	Ø4h	C	Standby Flash on Outstation	1 or F	Flash
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	D	Standby Latches	Ø or M	Momentary
		7	7	Ø7d	Ø7h			1 or F	Latches
		8	8	Ø8d	Ø8h				
		9	9	Ø9d	Ø9h	E	Standby DIMs on Acknowledge	Ø or N	No DIM on ACK
		1Ø	A or (1Ø)	1Ød	ØAh			1 or D	DIM on ACK
		11	B or (11)	11d	ØBh				
		12	C or (12)	12d	ØCh	F	Outstation Go Flickers	Ø or S	Steady
		13	D or (13)	13d	ØDh			1 or F	Flicker
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh	G	Go Times-out	Ø or N	No time-out
		16	G or (16)	16d	1Øh			1 or T	Times-out after delay
			Note 1	Note 2		H	Go Flashes	Ø or S	Steady
								1 or F	Flashes after 3 secs.
						J	Go Latches	Ø or M	Momentary
								1 or L	Latches
						K	Go & S/by Interlocked	Ø	Independant
								1	Interlocked
						M	Call Lamp Enabled	Ø or D	Disabled
								1 or E	Enabled
						N	Call lamp Flashes	Ø or S	Steady
								1 or F	Flashes
						P	Acknowledge button backlight	Ø or F	ofF
						Q	Beeper Enable	1 or N	oN
						R	Beep-On-Go	Ø	Off
								1	1mS
								2	5ØmS
								3	2ØØmS
						S	S/by Change Colour on ACK	Ø or N	No Colour Change
								1 or C	Change Colour
						T	Dimmer	1	5%
								2	25%
								3	5Ø%
								4	75%
								5	1ØØ%

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)

Note 2: Channel number can be a decimal number 00d to 16d or ASCII characters.

This Column is ***Upper Case***

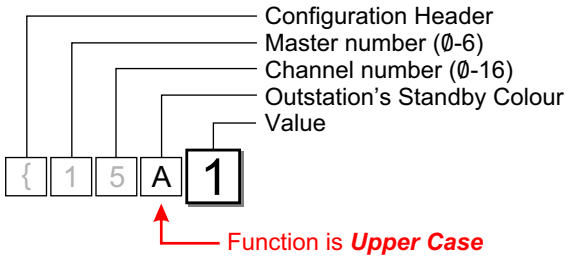
Configuration Commands

Cue Light Outstation Functions

Function	
A	**Outstation S/by colour**
B	**S/by Flash on Master**
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

- **Outstation's Standby Colour**



Value	Standby Colour
Ø or R	Red
1 or Y	Yellow *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

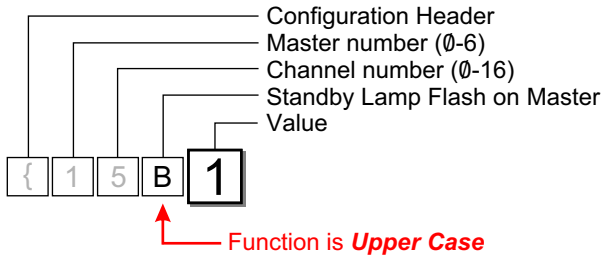
Examples

{ 1 5 A Ø Master 1, Ch5, Outstation's S/by Red

{ 1 5 A Y Master 1, Ch5, Outstation's S/by Yellow

Function is *Upper Case*

- **Standby Lamp Flash on Master**



Value	Standby Flash
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 B Ø Master 1, Ch5, S/by steady on Master

{ 1 5 B F Master 1, Ch5, S/by flashes on Master

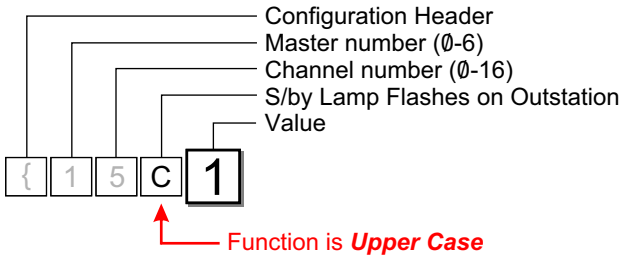
Function is *Upper Case*

* Factory default

Configuration Commands

Cue Light Outstation Functions

- S/by Lamp Flashes on Outstation



Value	Standby Flash
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

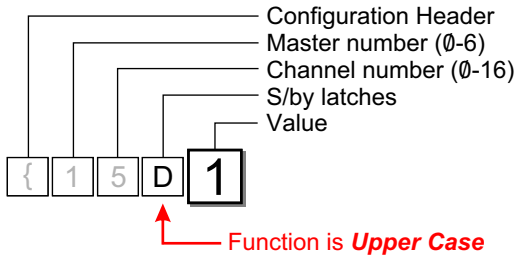
Examples

{ 1 5 C Ø Master 1, Ch5, S/by steady on Outstation

{ 1 5 C F Master 1, Ch5, S/by flashes on Outstation

Function is ***Upper Case***

- S/by latches



Value	Standby Latch
Ø or M	Momentary
1 or L	Latches *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 D Ø Master 1, Ch5, S/by momentary action

{ 1 5 D L Master 1, Ch5, S/by latching action

Function is ***Upper Case***

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	**S/by Flash on Outstation**
D	**S/by latches**
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

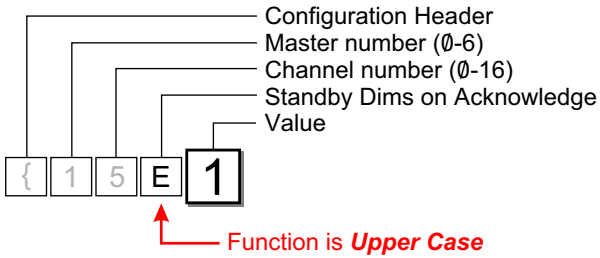
Summary of Cue Light Outstation Functions

* Factory default

Configuration Commands

Cue Light Outstation Functions

- **Standby Dims on Acknowledge**



Value	Standby Flash	
Ø or N	No Dim on Ack	*
1 or D	Dim on Ack	

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

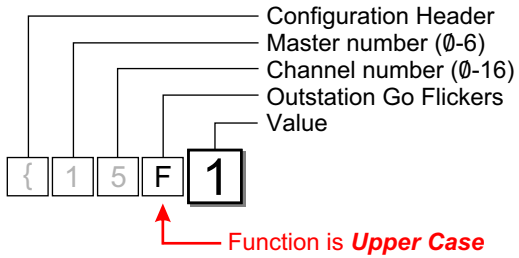
Examples

{ 1 5 E Ø Master 1, Ch5, S/by does not Dim on Ack.

{ 1 5 E D Master 1, Ch5, S/by Dims on Acknowledge

Function is ***Upper Case***

- **Outstation Go Flickers**



Value	Go Flickers	
Ø or S	Steady	*
1 or F	Flickers	

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 F Ø Master 1, Ch5, Outstation Go doesn't Flicker

{ 1 5 F F Master 1, Ch5, Outstation Go Flickers

Function is ***Upper Case***

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	**S/by Dims on ACK**
F	**Outstation Go Flickers**
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

* Factory default

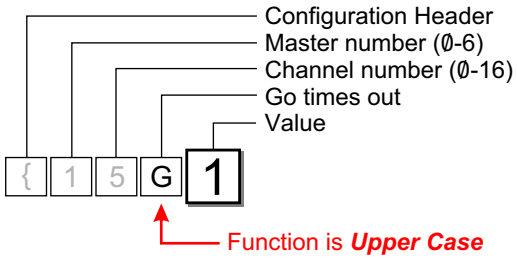
Configuration Commands

Cue Light Outstation Functions

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	**Go times out**
H	**Go flashes**
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

- **Go times out**



Value	Go time out
Ø or N	Does Not Time Out
1 or T	Times Out *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

The Factory Default time out period is 15 seconds.
This time can be adjusted from 1 to 16 seconds. See page 58

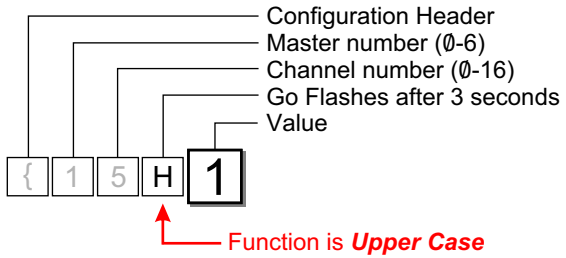
Examples

{ 1 5 G Ø Master 1, Ch5, Go does not time out.

{ 1 5 G T Master 1, Ch5, Go times out

Function is Upper Case

- **Go Flashes after 3 seconds**



Value	Go Flashes
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 H Ø Master 1, Ch5, Outstation Go doesn't Flash

{ 1 5 H F Master 1, Ch5, Outstation Go Flashes

Function is Upper Case

* Factory default

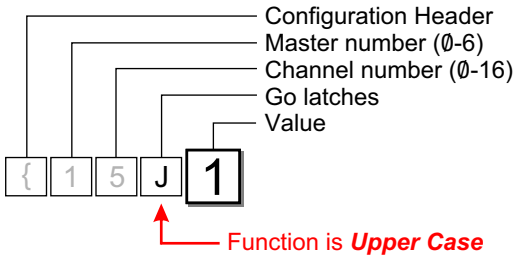
Configuration Commands

Cue Light Outstation Functions

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	**Go latches**
K	**Go & S/by interlocked**
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

- **Go latches**



Value	Go Latch
Ø or M	Momentary
1 or L	Latches *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

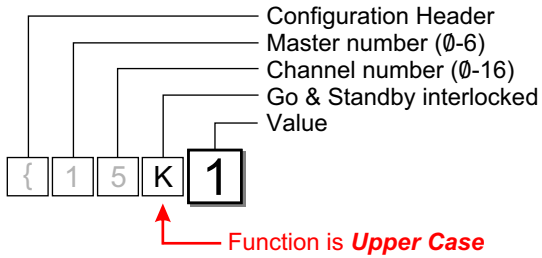
Examples

{ 1 5 J Ø Master 1, Ch5, Go momentary action

{ 1 5 J L Master 1, Ch5, Go latching action

Function is *Upper Case*

- **Go & Standby interlocked**



Value	Interlocked
Ø	Independant
1	Interlocked *

Examples

{ 1 5 K Ø Master 1, Ch5, Go & S/by Independant

{ 1 5 K 1 Master 1, Ch5, Go & S/by Interlocked

Function is *Upper Case*

* Factory default

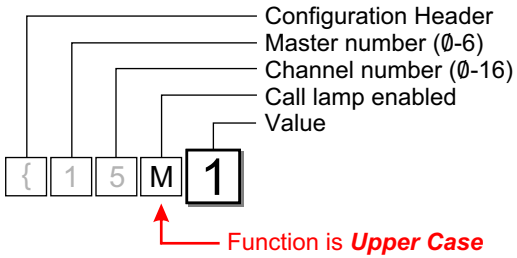
Configuration Commands

Cue Light Outstation Functions

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	**Call lamp enabled**
N	**Call lamp flashes**
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

- **Call lamp enabled**



Value	Call lamp enabled
Ø or D	Disabled
1 or E	Enabled *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

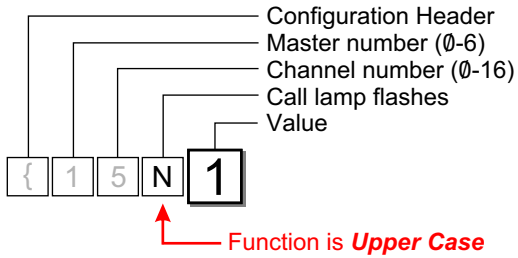
Examples

{ 1 5 M Ø Master 1, Ch5, Call lamp disabled

{ 1 5 M E Master 1, Ch5, call lamp enabled

Function is Upper Case

- **Call lamp flashes**



Value	Call lamp flashes
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 N Ø Master 1, Ch5, Call lamp steady

{ 1 5 N F Master 1, Ch5, Call lamp flashes

Function is Upper Case

* Factory default

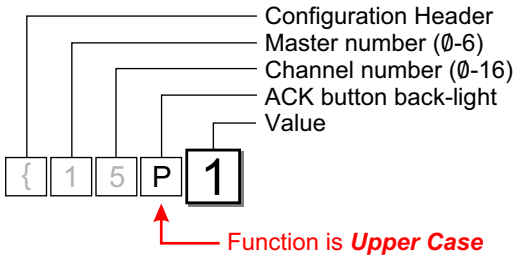
Configuration Commands

Cue Light Outstation Functions

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	**ACK button back-light**
Q	**Beeper enable**
R	Beep-on-Go
S	Change colour on ACK
T	Dimmer

Summary of Cue Light Outstation Functions

- **Acknowledge button back-light**



Value	ACK button back-light
Ø or F	Off
1 or N	On *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

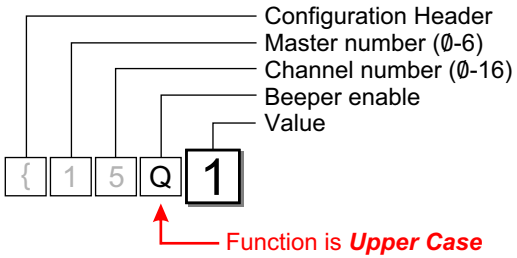
Examples

{ 1 5 P Ø Master 1, Ch5, ACK button back-light off

{ 1 5 P N Master 1, Ch5, ACK button back-light on

Function is *Upper Case*

- **Beeper enable**



Value	Beeper enable
Ø or F	Off
1 or N	On (enabled) *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 Q Ø Master 1, Ch5, Beeper off (disabled)

{ 1 5 Q N Master 1, Ch5, Beeper on (enabled)

Function is *Upper Case*

* Factory default

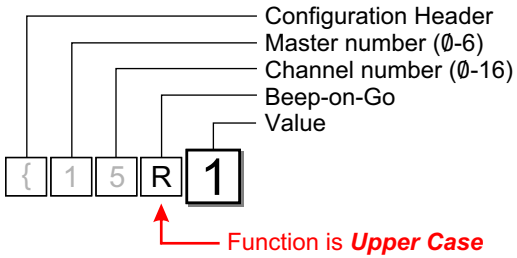
Configuration Commands

Cue Light Outstation Functions

Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	**Beep-on-Go**
S	**Change colour on ACK**
T	Dimmer

Summary of Cue Light Outstation Functions

- **Beep-on-Go**



Value	Beep-on-Go duration		
Ø	Off		*
1	1mS	Note 1	
2	50mS		
3	200mS		

Note 1
A beep of 1mS duration is so short that it is heard as a click.

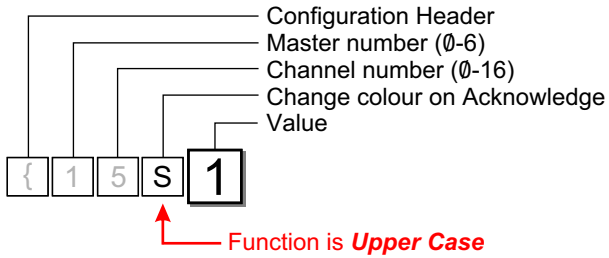
Examples

{ 1 5 R Ø Master 1, Ch5, Beep-on-Go off

{ 1 5 R 2 Master 1, Ch5, Beep-on-Go 50mS

Function is *Upper Case*

- **Change colour on Acknowledge**



Value	Change colour on ACK	
Ø or N	No colour change	*
1 or C	Change colour	

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 S Ø Master 1, Ch5, No colour change on ACK

{ 1 5 S C Master 1, Ch5, Change colour on ACK

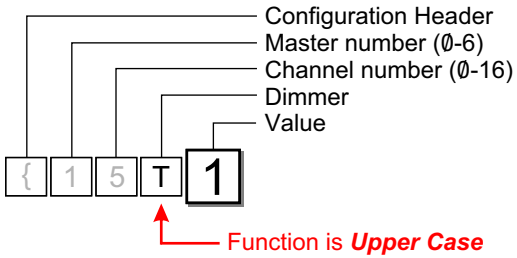
Function is *Upper Case*

* Factory default

Configuration Commands

Cue Light Outstation Functions

- Dimmer



Value	Dimmer
1	5%
2	25%
3	50%
4	75%
5	100% *

Examples

{ 1 5 T 5 Master 1, Ch5, Dimmer 100%

{ 1 5 T 2 Master 1, Ch5, Dimmer 25%

Function is ***Upper Case***

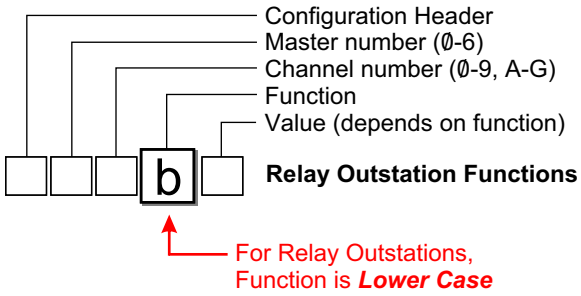
Function	
A	Outstation S/by colour
B	S/by Flash on Master
C	S/by Flash on Outstation
D	S/by latches
E	S/by Dims on ACK
F	Outstation Go Flickers
G	Go times out
H	Go flashes
J	Go latches
K	Go & S/by interlocked
M	Call lamp enabled
N	Call lamp flashes
P	ACK button back-light
Q	Beeper enable
R	Beep-on-Go
S	Change colour on ACK
T	**Dimmer**

Summary of Cue Light Outstation Functions

* Factory default

Configuration Commands

Relay Outstation Functions



	Function	Factory Default	User Selectable Function
a	Mode		5 modes
b	S/by Flash on Master	Flashes	Steady
c	S/by Flash on Outstation	Flashes	Steady
d	S/by latches	Latches	Momentary
e	Go times out	Times out	Stays on
f	Go flashes	Flashes	Steady
g	Go latches	Latches	Momentary
h	Go & S/by interlocked	Interlocked	Independent
j	Call lamp enabled	Enabled	Call lamp off
k	Call lamp Flashes	Flashes	Steady
m	All Lamps on Outstation	Enabled	Off

Summary of Relay Outstation Functions

Important

All commands must be followed by the letter **X** for e**X**ecute. Once **X** has been received by the PCinterface, the commands are uploaded to the Master Station(s).

Multiple commands may be entered followed by a single **X.**

Relay Outstation QLR Mk4

Relay Outstation Rear

Table of Relay Outstation Configuration Commands

{ 1 5 b 1 Configuration Commands	{ **1** 5 b 1 Master number	{ 1 **5** b 1 Channel number			{ 1 5 **b** 1 Function		{ 1 5 b **1** Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	Ø (Global)	Ø (Global)	Ø	Ø0d	Ø0h	a	Mode	1	A: Mom B: Mom
	1	1	1	Ø1d	Ø1h			2	A: Latch B: Latch
	2	2	2	Ø2d	Ø2h			3	A: Mom B: Latch
	3	3	3	Ø3d	Ø3h			4	A: Latch B: Mom
	4	4	4	Ø4d	Ø4h			5	Cue Light Mode
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	b	S/by Flash on Master	Ø or S	Steady
		7	7	Ø7d	Ø7h			1 or F	Flashes
		8	8	Ø8d	Ø8h				
		9	9	Ø9d	Ø9h	c	S/by Flash on Outstation	Ø or S	Steady
		10	A or (10)	10d	ØAh			1 or F	Flashes
		11	B or (11)	11d	ØBh				
		12	C or (12)	12d	ØCh	d	S/by latches	Ø or M	Momentary
		13	D or (13)	13d	ØDh			1 or L	Latches
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh	e	Go times out	Ø or N	No time-out
		16	G or (16)	16d	10h			1 or T	Times-out after delay
			Note 1	Note 2		f	Go flashes	Ø or S	Steady
								1 or F	Flashes after 3 secs.
						g	Go latches	Ø or M	Momentary
								1 or L	Latches
						h	Go & S/by interlocked	Ø	Independant
								1	Interlocked
						j	Call lamp enabled	Ø or D	Disabled
								1 or E	Enabled
						k	Call lamp Flashes	Ø or S	Steady
								1 or F	Flashes
						m	All Lamps on Outstation	Ø or D	Disabled
								1 or E	Enabled

This Column is ***Lower Case***

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)
Note 2: Channel number can be ASCII characters or a decimal number 00d to 16d.

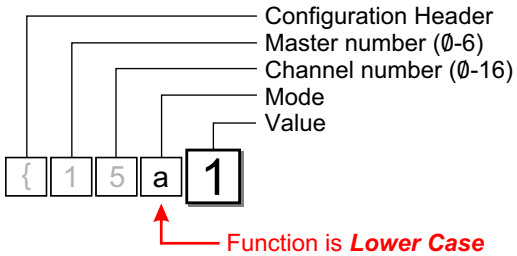
Configuration Commands

Relay Outstation Functions

Function	
a	**Mode**
b	**S/by Flash on Master**
c	S/by Flash on Outstation
d	S/by latches
e	Go times out
f	Go flashes
g	Go latches
h	Go & S/by interlocked
j	Call lamp enabled
k	Call lamp Flashes
m	All Lamps on Outstation

Summary of Relay Outstation Functions

- **Mode**



Value	Mode	
1	A: Momentary	B: Momentary *
2	A: Latch	B: Latch
3	A: Momentary	B: Latch
4	A: Latch	B: Momentary
5	Cue Light Mode	

Relay A: controlled by the Standby button.
Relay B: controlled by the Go button.
When ***Cue Light mode*** is selected, the settings stored in ***Functions c to k*** are used.

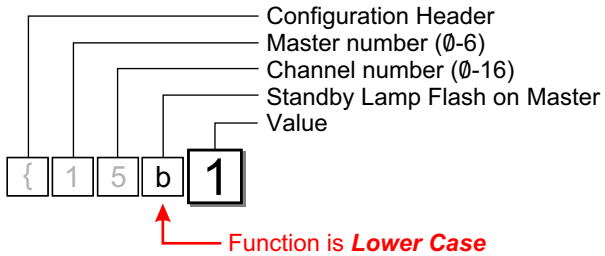
Examples

{ 1 5 a 2 Master 1, Ch5, Mode 2: *A: Latch B: Latch*

{ 1 5 a 5 Master 1, Ch5, Mode 5: *Cue Light Mode*

Function is ***Lower Case***

- **Standby Lamp Flash on Master**



Value	Standby Flash
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 b Ø Master 1, Ch5, S/by steady on Master

{ 1 5 b F Master 1, Ch5, S/by flashes on Master

Function is ***Lower Case***

* Factory default

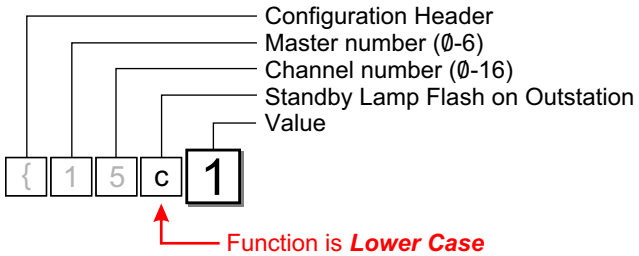
Configuration Commands

Relay Outstation Functions

Function	
a	Mode
b	S/by Flash on Master
c	**S/by Flash on Outstation**
d	**S/by latches**
e	Go times out
f	Go flashes
g	Go latches
h	Go & S/by interlocked
j	Call lamp enabled
k	Call lamp Flashes
m	All Lamps on Outstation

Summary of Relay Outstation Functions

- **Standby Lamp Flash on Outstation**



Value	Standby Flash
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

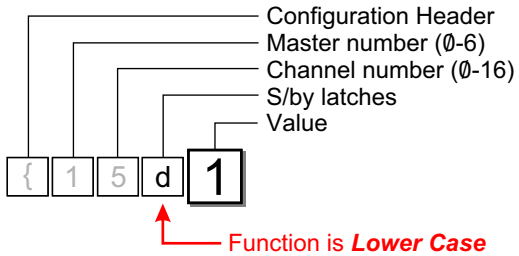
Examples

{ 1 5 c Ø — Master 1, Ch5, S/by steady on Outstation

{ 1 5 c F — Master 1, Ch5, S/by flashes on Outstation

Function is *Lower Case*

- **S/by latches**



Value	Standby Latch
Ø or M	Momentary
1 or L	Latches *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 d Ø — Master 1, Ch5, S/by momentary action

{ 1 5 d L — Master 1, Ch5, S/by latching action

Function is *Lower Case*

* Factory default

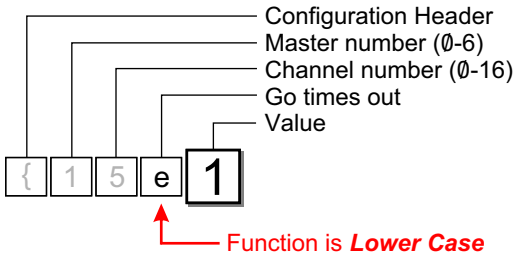
Configuration Commands

Relay Outstation Functions

Function	
a	Mode
b	S/by Flash on Master
c	S/by Flash on Outstation
d	S/by latches
e	**Go times out**
f	**Go flashes**
g	Go latches
h	Go & S/by interlocked
j	Call lamp enabled
k	Call lamp Flashes
m	All Lamps on Outstation

Summary of Relay Outstation Functions

- **Go times out**



Value	Go time out
Ø or N	Does Not Time Out
1 or T	Times Out *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

The Factory Default time out period is 15 seconds.
This time can be adjusted from 1 to 16 seconds. See page 58

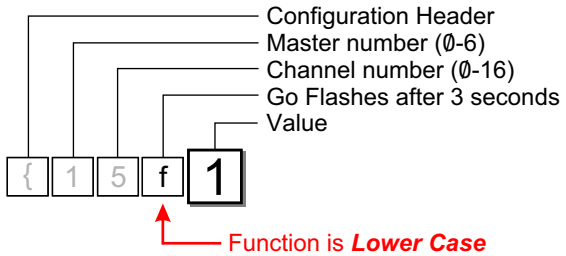
Examples

{ 1 5 e Ø Master 1, Ch5, Go does not time out.

{ 1 5 e T Master 1, Ch5, Go times out

Function is ***Lower Case***

- **Go Flashes after 3 seconds**



Value	Go Flashes
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 f Ø Master 1, Ch5, Outstation Go doesn't Flash

{ 1 5 f F Master 1, Ch5, Outstation Go Flashes

Function is ***Lower Case***

* Factory default

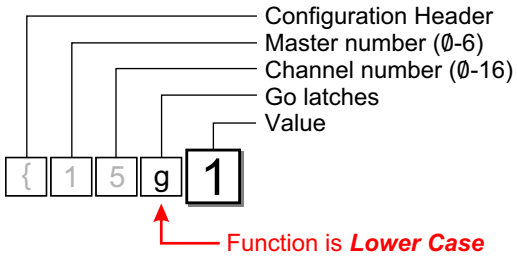
Configuration Commands

Relay Outstation Functions

Function	
a	Mode
b	S/by Flash on Master
c	S/by Flash on Outstation
d	S/by latches
e	Go times out
f	Go flashes
g	**Go latches**
h	**Go & S/by interlocked**
j	Call lamp enabled
k	Call lamp Flashes
m	All Lamps on Outstation

Summary of Relay Outstation Functions

- **Go latches**



Value	Go Latch
Ø or M	Momentary
1 or L	Latches *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

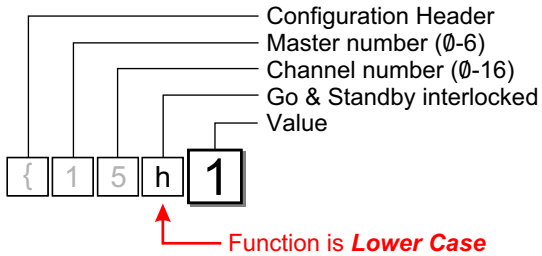
Examples

{ 1 5 g Ø Master 1, Ch5, Go momentary action

{ 1 5 g L Master 1, Ch5, Go latching action

Function is ***Lower Case***

- **Go & Standby interlocked**



Value	Interlocked
Ø	Independant
1	Interlocked *

Examples

{ 1 5 h Ø Master 1, Ch5, Go & S/by Independant

{ 1 5 h 1 Master 1, Ch5, Go & S/by Interlocked

Function is ***Lower Case***

* Factory default

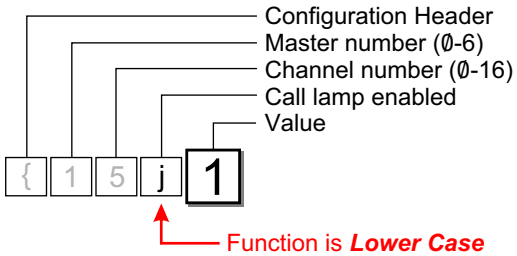
Configuration Commands

Relay Outstation Functions

Function	
a	Mode
b	S/by Flash on Master
c	S/by Flash on Outstation
d	S/by latches
e	Go times out
f	Go flashes
g	Go latches
h	Go & S/by interlocked
j	**Call lamp enabled**
k	**Call lamp Flashes**
m	All Lamps on Outstation

Summary of Relay Outstation Functions

- **Call lamp enabled**



Value	Call lamp enabled
Ø or D	Disabled
1 or E	Enabled *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

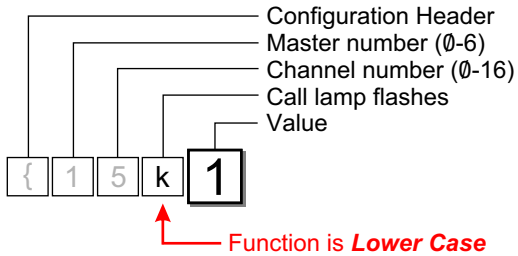
Examples

{ 1 5 j Ø Master 1, Ch5, Call lamp disabled

{ 1 5 j E Master 1, Ch5, call lamp enabled

Function is *Lower Case*

- **Call lamp flashes**



Value	Call lamp flashes
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 k Ø Master 1, Ch5, Call lamp steady

{ 1 5 k F Master 1, Ch5, Call lamp flashes

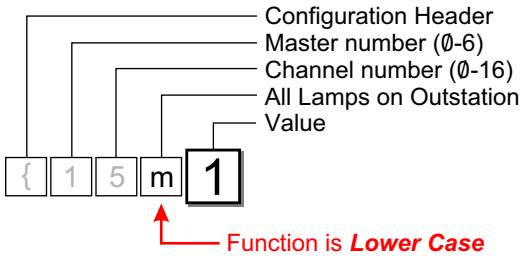
Function is *Lower Case*

* Factory default

Configuration Commands

Relay Outstation Functions

- **All Lamps on Outstation**



Value	All Lamps on Outstation
Ø or D	Disabled (off)
1 or E	Enabled *

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Function	
a	Mode
b	S/by Flash on Master
c	S/by Flash on Outstation
d	S/by latches
e	Go times out
f	Go flashes
g	Go latches
h	Go & S/by interlocked
j	Call lamp enabled
k	Call lamp Flashes
m	**All Lamps on Outstation**

Summary of Relay Outstation Functions

Examples

{ 1 5 m Ø — Master 1, Ch5, All Lamps on Outstation disabled

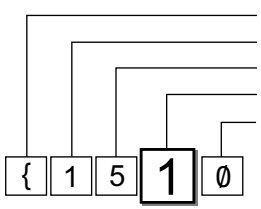
{ 1 5 m E — Master 1, Ch5, All Lamps on Outstation enabled

Function is ***Lower Case***

* Factory default

Configuration Commands

Sensor Outstation Functions



Sensor Outstation Functions

	Function	Factory Default	User Selectable Function
1	Unsafe Lamp	Steady	Flash
2	Safe when... open/closed	Open	Closed
3	End Of Line Resistors	No EOL	Two EOL
4	All Lamps on Outstation	Enabled	Disabled

Summary of Sensor Outstation Functions

Sensor Outstation QTS Mk4

Important

All commands must be followed by the letter **X** for e**X**ecute. Once **X** has been received by the PCinterface, the commands are uploaded to the Master Station(s).

Multiple commands may be entered followed by a single **X.**

Table of Sensor Outstation Configuration Commands

{ 1531 Configuration Commands	{ 1531 Master number	{ 1531 Channel number				{ 1531 Function		{ 1531 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	1	Unsafe Lamp	Ø or S	Steady
	1	1	1	Ø1d	Ø1h			1 or F	Flashes
	2	2	2	Ø2d	Ø2h				
	3	3	3	Ø3d	Ø3h	2	Safe when... open/closed	Ø or O	Open
	4	4	4	Ø4d	Ø4h			1 or C	Closed
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	3	End Of Line Resistors	Ø or N	No EOL
		7	7	Ø7d	Ø7h			1 or T	two EOL
		8	8	Ø8d	Ø8h				
		9	9	Ø9d	Ø9h	4	All Lamps on Outstation	Ø or D	Disabled
		1Ø	A or (1Ø)	1Ød	ØAh			1 or E	Enabled
		11	B or (11)	11d	ØBh				
		12	C or (12)	12d	ØCh				
		13	D or (13)	13d	ØDh				
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh				
		16	G or (16)	16d	1Øh				
			Note 1	Note 2					

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)
Note 2: Channel number can be ASCII characters or a decimal number 00d to 16d.

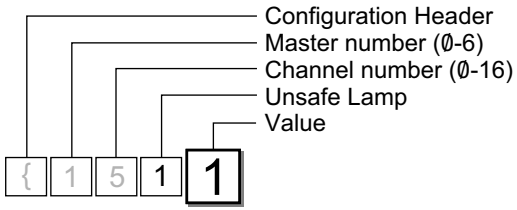
Configuration Commands

Sensor Outstation Functions

Function	
1	**Unsafe Lamp**
2	**Safe when... open/closed**
3	End Of Line Resistors
4	All Lamps on Outstation

Summary of Sensor Outstation Functions

- **Unsafe Lamp**



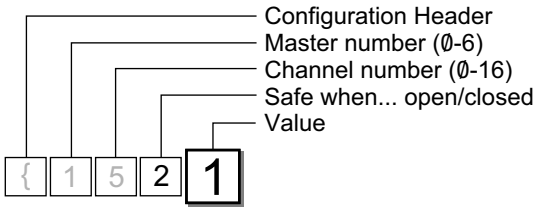
Value	Unsafe Lamp
Ø or S	Steady
1 or F	Flashes *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 1 Ø	Master 1, Ch5, Unsafe Lamp steady
{ 1 5 1 F	Master 1, Ch5, Unsafe Lamp flashes

- **Safe when... open/closed**



Value	Safe when... open/closed
Ø or O	Open
1 or C	Closed *

Either a letter or a number can be used for the ASCII Value. Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 2 Ø	Master 1, Ch5, Safe when... open
{ 1 5 2 C	Master 1, Ch5, Safe when... closed

* Factory default

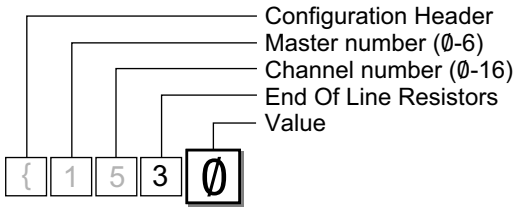
Configuration Commands

Sensor Outstation Functions

Function	
1	Unsafe Lamp
2	Safe when... open/closed
3	**End Of Line Resistors**
4	**All Lamps on Outstation**

Summary of Sensor Outstation Functions

- **End Of Line Resistors**



Value	End Of Line Resistors	
Ø or N	None	*
2 or T	Two	

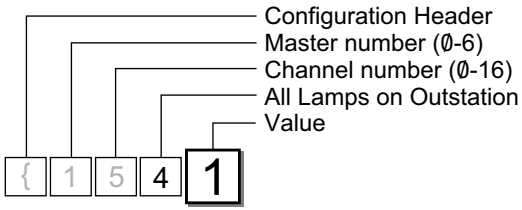
Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

{ 1 5 3 Ø — Master 1, Ch5, No ***End Of Line Resistors***

{ 1 5 3 2 — Master 1, Ch5, Two ***End Of Line Resistors***

- **All Lamps on Outstation**



Value	All Lamps on Outstation	
Ø or D	Disabled (off)	
1 or E	Enabled	*

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.

Examples

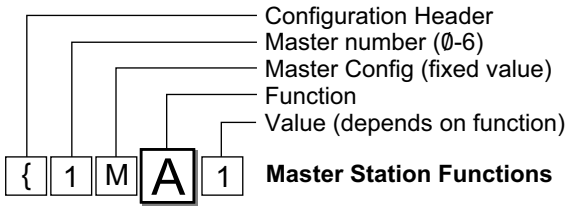
{ 1 5 4 Ø — Master 1, Ch5, All Lamps on Outstation disabled

{ 1 5 4 E — Master 1, Ch5, All Lamps on Outstation enabled

* Factory default

Configuration Commands

Master Station Functions



Master Station Functions

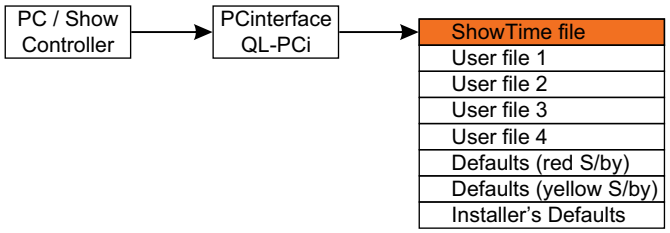
	Function	Factory Default	User Selectable Function
A	Copy 1 of 8 files to PC		
B	Copy 1 of 7 files to the ShowTime file.		
C	Copy ShowTime file to Installer's Default or 1 of 4 User files.		
E	Go Cue Total Duration	15 Secs	1-16 Secs
F	Link 4 Group Master buttons	Linked	Not Linked

Summary of Master Station Functions

The Master Station contains 8 files.
1: User file 1 (read/write)
2: User file 2 (read/write)
3: User file 3 (read/write)
4: User file 4 (read/write)
5: ShowTime file (read/write)
6: Installer's Defaults (read/write)
7: Factory Defaults with red Standby lamps. (read only)
8: Factory Defaults with yellow Standby lamps. (read only)

When the Master Station powers up, it reads the ***ShowTime*** file to run the Cue Light system.

Configuration Commands for the Cue Light, Relay or Sensor Outstations (see pages 26-58) are written to the ShowTime file.



Configuration Commands are written to the ShowTime File.

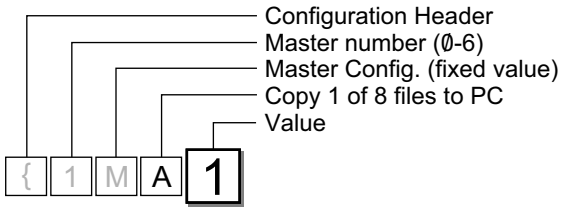
Table of Master Station Configuration Commands

{ 1 M E 6 Configuration Commands	{ 1 M E 6 Master number	{ 1 M E 6 Master Config		{ 1 M E 6 Function		{ 1 M E 6 Value	
					Description		Description
Header Byte (Left curly bracket)	Ø (Global)	M	Fixed value	A	Copy 1 of 8 files to PC	Ø	Installer's Default file
	1					1	User file 1
	2					2	User file 2
	3					3	User file 3
	4					4	User file 4
	5					5	ShowTime file
	6					6	Factory default (red S/by)
						7	Factory default (yellow S/by)
				B	Copy 1 of 7 files to ShowTime file	Ø	Installer's Default file
						1	User file 1
						2	User file 2
						3	User file 3
						4	User file 4
						6	Factory default (red S/by)
						7	Factory default (yellow S/by)
				C	Copy ShowTime file to Installer's Default or 1 of 4 User files.	Ø	Installer's Default file
						1	User file 1
						2	User file 2
						3	User file 3
						4	User file 4
				E	Go Cue Total Duration (1 to 16 seconds)	1 to 9	1 to 9 seconds
						A or (1Ø)	1Ø seconds Note 1
						B or (11)	11 seconds
						C or (12)	12 seconds
						D or (13)	13 seconds
						E or (14)	14 seconds
						F or (15)	15 seconds
						G or (16)	16 seconds
				F	Link the 4 Group Master buttons between multiple Masters	Ø	Not linked
						1	Linked

Note 1: Double digits can be in round brackets e.g. (12)

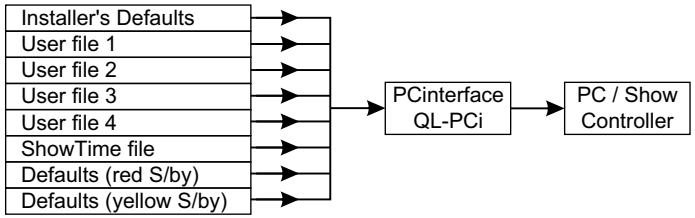
Configuration Commands
Master Station Functions

- Copy 1 of 8 files to PC



Value	Copy 1 of 8 files to PC
Ø	Installer's Defaults
1	User file 1
2	User file 2
3	User file 3
4	User file 4
5	ShowTime file
6	Factory default (red S/by)
7	Factory default (yellow S/by)

The file is an ASCII text file which can be edited if required.
All or part of the file can be uploaded to the ***PCinterface*** simply by copying it to the ***PCinterface's*** comms port. There is no special command needed to upload the file.



Any file can be copied to the PC/Show Controller.

The configuration file begins with the header ***{NSOF*** which marks the ***Start Of File.***
The file is terminated with ***{NEOF*** which marks the ***End Of File.***

The file is in the form of ***Configuration Commands*** for each channel, grouped by Function. The file is arranged in 4 sections covering configuration of Cue Light, Relay and Sensor Outstations; and the Master Station.
These Configuration Commands and their format is exactly the same as those described in this document starting on page 26 so that the file can be copied, without change, back to the ***PCinterface*** to re/configure the system.

A ***Summary of Commands*** starting on page 71 may also be a handy.

A sample of a downloaded configuration follows. It is for ***Factory Default with Yellow Standby*** lamp for Master #1.
It was created by sending ***{1MA7*** to the PCinterface.
As this command executes as soon as it is received, an ***X*** for e***X***ecute is not required.

```
{NSOF
; Start of file
; Configuration file for Master number 1.   File: Factory Default (Yellow S/by)

; Comments are prefixed with a semicolon ';' (3Bh) and end at the next 'Line Feed' (0Ah)

; 5 byte commands start with '{' and can be editied if needed.
; Byte 1: { Header
; Byte 2: Master number
; Byte 3: Channel number
; Byte 4: Function (e.g. S/by Colour)
; Byte 5: Value    (e.g. Red/yellow)

; Lines with 16 digits are a summary of the Values in following command lines.
; Ch1  1111 1111 1111 1111  Ch16

; Copy this whole file to the PCinterface to configure the system using the settings below.
; Set the baud rate to a maximum of 38,400 baud for this file transfer or the UART buffer
; in the PCinterface will overflow.
; A Transmit Delay or Pacing of at least 0.5mS/char will allow higher baud rates up to 115,200 to be used.
; Should the UART buffer overflow a '{FULL' error message is sent.
```

Sample Configuration File. Part 1 of 4

Function	
A	**Copy 1 of 8 files to PC**
B	Copy 1 of 7 files to the ShowTime file.
C	Copy ShowTime file to Installer's Default or 1 of 4 User files
E	Go Cue Total Duration
F	Link 4 Group Master buttons

Summary of Master Station Functions

Configuration Commands
Master Station Functions

- Copy 1 of 8 files to PC

Function	
A	**Copy 1 of 8 files to PC**
B	Copy 1 of 7 files to the ShowTime file.
C	Copy ShowTime file to Installer's Default or 1 of 4 User files
E	Go Cue Total Duration
F	Link 4 Group Master buttons

Summary of Master Station Functions

```
; ########################## Cue Light Outstations (QLS & QLS-B) ####################

; Standby Red/Yellow.  1=Yellow  0=Red
; Ch1  1111 1111 1111 1111  Ch16
{11A1 {12A1 {13A1 {14A1 {15A1 {16A1 {17A1 {18A1 {19A1 {1AA1 {1BA1 {1CA1 {1DA1 {1EA1 {1FA1 {1GA1

; S/by Flash on Master.  1=Flash  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11B1 {12B1 {13B1 {14B1 {15B1 {16B1 {17B1 {18B1 {19B1 {1AB1 {1BB1 {1CB1 {1DB1 {1EB1 {1FB1 {1GB1

; S/by Flash on Outstation.  1=Flash  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11C1 {12C1 {13C1 {14C1 {15C1 {16C1 {17C1 {18C1 {19C1 {1AC1 {1BC1 {1CC1 {1DC1 {1EC1 {1FC1 {1GC1

; S/by latches.  1=Latches  0=Momentary
; Ch1  1111 1111 1111 1111  Ch16
{11D1 {12D1 {13D1 {14D1 {15D1 {16D1 {17D1 {18D1 {19D1 {1AD1 {1BD1 {1CD1 {1DD1 {1ED1 {1FD1 {1GD1

; S/by DIM on Ack.  1=Dim  0=No Dim
; Ch1  0000 0000 0000 0000  Ch16
{11E0 {12E0 {13E0 {14E0 {15E0 {16E0 {17E0 {18E0 {19E0 {1AE0 {1BE0 {1CE0 {1DE0 {1EE0 {1FE0 {1GE0

; Go Flickers.  1=Flicker  0=No Flicker
; Ch1  0000 0000 0000 0000  Ch16
{11F0 {12F0 {13F0 {14F0 {15F0 {16F0 {17F0 {18F0 {19F0 {1AF0 {1BF0 {1CF0 {1DF0 {1EF0 {1FF0 {1GF0

; Go times-out.  1=Times-out  0=No time-out
; Ch1  1111 1111 1111 1111  Ch16
{11G1 {12G1 {13G1 {14G1 {15G1 {16G1 {17G1 {18G1 {19G1 {1AG1 {1BG1 {1CG1 {1DG1 {1EG1 {1FG1 {1GG1

; Go flashes.  1=Flashes after 3 secs.  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11H1 {12H1 {13H1 {14H1 {15H1 {16H1 {17H1 {18H1 {19H1 {1AH1 {1BH1 {1CH1 {1DH1 {1EH1 {1FH1 {1GH1

; Go latches.  1=Latches  0=Momentary
; Ch1  1111 1111 1111 1111  Ch16
{11J1 {12J1 {13J1 {14J1 {15J1 {16J1 {17J1 {18J1 {19J1 {1AJ1 {1BJ1 {1CJ1 {1DJ1 {1EJ1 {1FJ1 {1GJ1

; Go & S/by interlocked.  1=Interlocked  0=Independant
; Ch1  1111 1111 1111 1111  Ch16
{11K1 {12K1 {13K1 {14K1 {15K1 {16K1 {17K1 {18K1 {19K1 {1AK1 {1BK1 {1CK1 {1DK1 {1EK1 {1FK1 {1GK1

; Call LED enabled.  1=Enabled  0=Disabled
; Ch1  1111 1111 1111 1111  Ch16
{11M1 {12M1 {13M1 {14M1 {15M1 {16M1 {17M1 {18M1 {19M1 {1AM1 {1BM1 {1CM1 {1DM1 {1EM1 {1FM1 {1GM1

; Call LED Flashes.  1=Flashes  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11N1 {12N1 {13N1 {14N1 {15N1 {16N1 {17N1 {18N1 {19N1 {1AN1 {1BN1 {1CN1 {1DN1 {1EN1 {1FN1 {1GN1

; ACK button backlight.  1=On  0=Off
; Ch1  1111 1111 1111 1111  Ch16
{11P1 {12P1 {13P1 {14P1 {15P1 {16P1 {17P1 {18P1 {19P1 {1AP1 {1BP1 {1CP1 {1DP1 {1EP1 {1FP1 {1GP1

; Beeper Enable.  1=On  0=Off
; Ch1  1111 1111 1111 1111  Ch16
{11Q1 {12Q1 {13Q1 {14Q1 {15Q1 {16Q1 {17Q1 {18Q1 {19Q1 {1AQ1 {1BQ1 {1CQ1 {1DQ1 {1EQ1 {1FQ1 {1GQ1

; Beep-On-Go.  0=Off, 1=1mS, 2=50mS, 3=200mS
; Ch1  0000 0000 0000 0000  Ch16
{11R0 {12R0 {13R0 {14R0 {15R0 {16R0 {17R0 {18R0 {19R0 {1AR0 {1BR0 {1CR0 {1DR0 {1ER0 {1FR0 {1GR0

; Change colour on ACK.  0=No colour change  1=Change colour
; Ch1  0000 0000 0000 0000  Ch16
{11S0 {12S0 {13S0 {14S0 {15S0 {16S0 {17S0 {18S0 {19S0 {1AS0 {1BS0 {1CS0 {1DS0 {1ES0 {1FS0 {1GS0

; Dimmer (1-5).  1=dimmest  5=brightest (100%)
; Ch1  5555 5555 5555 5555  Ch16
{11T5 {12T5 {13T5 {14T5 {15T5 {16T5 {17T5 {18T5 {19T5 {1AT5 {1BT5 {1CT5 {1DT5 {1ET5 {1FT5 {1GT5
```

Sample Configuration File. Part 2 of 4

```
; ########################## Relay Outstations (QLR) ################################

; Relay Mode
;       1 = A: Momentary  B: Momentary
;       2 = A: Latch      B: Latch
;       3 = A: Monentary  B: Latch
;       4 = A: Latch      B: Momentary
;       5 = Cue Light Mode
; Ch1  1111 1111 1111 1111  Ch16
{11a1 {12a1 {13a1 {14a1 {15a1 {16a1 {17a1 {18a1 {19a1 {1Aa1 {1Ba1 {1Ca1 {1Da1 {1Ea1 {1Fa1 {1Ga1

; Relay: S/by Flash on Master.  1=Flash  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11b1 {12b1 {13b1 {14b1 {15b1 {16b1 {17b1 {18b1 {19b1 {1Ab1 {1Bb1 {1Cb1 {1Db1 {1Eb1 {1Fb1 {1Gb1

; Relay: S/by Flash on Outstation.  1=Flash  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11c1 {12c1 {13c1 {14c1 {15c1 {16c1 {17c1 {18c1 {19c1 {1Ac1 {1Bc1 {1Cc1 {1Dc1 {1Ec1 {1Fc1 {1Gc1

; Relay: S/by latches.  1=Latches  0=Momentary
; Ch1  1111 1111 1111 1111  Ch16
{11d1 {12d1 {13d1 {14d1 {15d1 {16d1 {17d1 {18d1 {19d1 {1Ad1 {1Bd1 {1Cd1 {1Dd1 {1Ed1 {1Fd1 {1Gd1

; Relay: Go times-out.  1=Times-out  0=No time-out
; Ch1  1111 1111 1111 1111  Ch16
{11e1 {12e1 {13e1 {14e1 {15e1 {16e1 {17e1 {18e1 {19e1 {1Ae1 {1Be1 {1Ce1 {1De1 {1Ee1 {1Fe1 {1Ge1

; Relay: Go flashes.  1=Flashes after 3 secs.  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11f1 {12f1 {13f1 {14f1 {15f1 {16f1 {17f1 {18f1 {19f1 {1Af1 {1Bf1 {1Cf1 {1Df1 {1Ef1 {1Ff1 {1Gf1

; Relay: Go latches.  1=Latches  0=Momentary
; Ch1  1111 1111 1111 1111  Ch16
{11g1 {12g1 {13g1 {14g1 {15g1 {16g1 {17g1 {18g1 {19g1 {1Ag1 {1Bg1 {1Cg1 {1Dg1 {1Eg1 {1Fg1 {1Gg1

; Relay: Go & S/by interlocked.  1=Interlocked  0=Independant
; Ch1  1111 1111 1111 1111  Ch16
{11h1 {12h1 {13h1 {14h1 {15h1 {16h1 {17h1 {18h1 {19h1 {1Ah1 {1Bh1 {1Ch1 {1Dh1 {1Eh1 {1Fh1 {1Gh1

; Relay: Call LED enabled.  1=Enabled  0=Disabled
; Ch1  1111 1111 1111 1111  Ch16
{11j1 {12j1 {13j1 {14j1 {15j1 {16j1 {17j1 {18j1 {19j1 {1Aj1 {1Bj1 {1Cj1 {1Dj1 {1Ej1 {1Fj1 {1Gj1

; Relay: Call LED Flashes.  1=Flashes  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{11k1 {12k1 {13k1 {14k1 {15k1 {16k1 {17k1 {18k1 {19k1 {1Ak1 {1Bk1 {1Ck1 {1Dk1 {1Ek1 {1Fk1 {1Gk1

; Relay: All lamps enabled.  1=Enabled  0=Disabled
; Ch1  1111 1111 1111 1111  Ch16
{11m1 {12m1 {13m1 {14m1 {15m1 {16m1 {17m1 {18m1 {19m1 {1Am1 {1Bm1 {1Cm1 {1Dm1 {1Em1 {1Fm1 {1Gm1
```

Sample Configuration File. Part 3 of 4

Configuration Commands
Master Station Functions

- Copy 1 of 8 files to PC

```
; ############################ Sensor Outstations (QTS) ################################

; Sensor: Unsafe LED.  1=Flash  0=Steady
; Ch1  1111 1111 1111 1111  Ch16
{1111 {1211 {1311 {1411 {1511 {1611 {1711 {1811 {1911 {1A11 {1B11 {1C11 {1D11 {1E11 {1F11 {1G11

; Sensor: Safe when open/closed.  1=Closed  0=Open
; Ch1  0000 0000 0000 0000  Ch16
{1120 {1220 {1320 {1420 {1520 {1620 {1720 {1820 {1920 {1A20 {1B20 {1C20 {1D20 {1E20 {1F20 {1G20

; Sensor: End Of Line Resistors.  2=2 Resistors   0=None
; Ch1  0000 0000 0000 0000  Ch16
{1130 {1230 {1330 {1430 {1530 {1630 {1730 {1830 {1930 {1A30 {1B30 {1C30 {1D30 {1E30 {1F30 {1G30

; Sensor: All lamps enabled.  1=Enabled  0=Disabled
; Ch1  1111 1111 1111 1111  Ch16
{1141 {1241 {1341 {1441 {1541 {1641 {1741 {1841 {1941 {1A41 {1B41 {1C41 {1D41 {1E41 {1F41 {1G41


; ############################ Master Config (QLM16) ###################################

; Master: GoCueTotalDuration.  1-16 seconds.  (A-G represents 10-16)
; F Seconds
{1MEF

; Master: Link the 4 Group Master buttons.  1=Linked  0=Not linked
; 1
{1MF1



; Execute all the above commands when this file is sent to the PCinterface (QL-PCi)
X

; End of file
{NEOF
```

Sample Configuration File. Part 4 of 4

Function	
A	**Copy 1 of 8 files to PC**
B	Copy 1 of 7 files to the ShowTime file.
C	Copy ShowTime file to Installer's Default or 1 of 4 User files
E	Go Cue Total Duration
F	Link 4 Group Master buttons

Summary of Master Station Functions

Technical note

The ***PCinterface*** has a 500 byte FIFO (First In First Out) memory for receiving incoming RS232/485 commands. The FIFO allows commands to be received and stored even if the ***PCinterface*** is momentarily busy with other tasks.
Incoming commands are read from the FIFO, processed and stored in a memory buffer until the letter **X** for e**X**ecute is received. The data in the buffer is then uploaded to the Cue Light Master Station. This allows multiple commands to be uploaded to the Master Station at the same instant.

Spaces are not permitted except between each 5 byte command and/or the letter **X.**

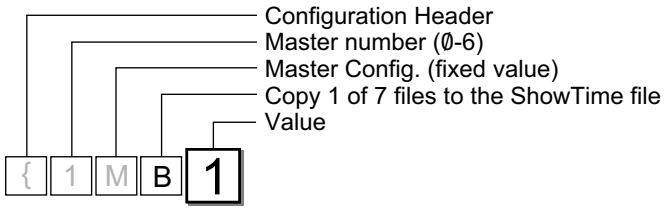
Configuration Commands

Master Station Functions

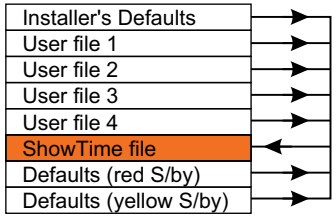
Function	
A	Copy 1 of 8 files to PC
B	**Copy 1 of 7 files to the ShowTime file.**
C	**Copy ShowTime file to Installer's Default or 1 of 4 User files**
E	Go Cue Total Duration
F	Link 4 Group Master buttons

Summary of Master Station Functions

- Copy 1 of 7 files to the ShowTime file

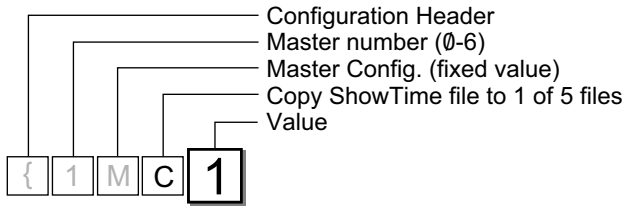


Value	Copy 1 of 7 files to Showtime
Ø	Installer's Defaults
1	User file 1
2	User file 2
3	User file 3
4	User file 4
6	Factory default (red S/by)
7	Factory default (yellow S/by)

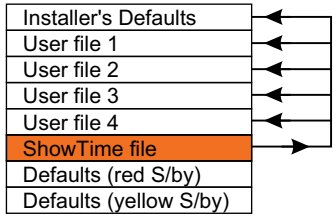


Any file can be copied to the ShowTime file.

- Copy ShowTime file to Installer's Default or 1 of 4 User files



Value	Copy Showtime to 1 of 5 files
Ø	Installer's Defaults
1	User file 1
2	User file 2
3	User file 3
4	User file 4



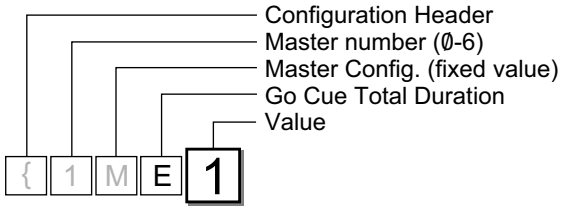
ShowTime file can be copied to most other files.

Configuration Commands
Master Station Functions

Function	
A	Copy 1 of 8 files to PC
B	Copy 1 of 7 files to the ShowTime file.
C	Copy ShowTime file to Installer's Default or 1 of 4 User files
E	**Go Cue Total Duration**
F	**Link 4 Group Master buttons**

Summary of Master Station Functions

- **Go Cue Total Duration**



This setting applies to all channels.
Individual channels can still be set to flash or burn steady.

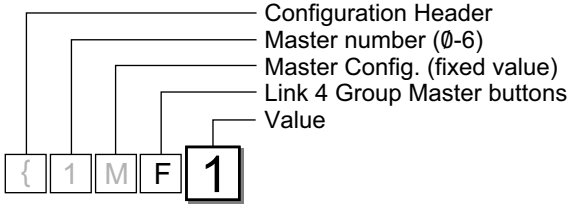
Value	Go Cue Total Duration
1-9	1 to 9 seconds
A or (1Ø)	10 seconds
B or (11)	11 seconds
C or (12)	12 seconds
D or (13)	13 seconds
E or (14)	14 seconds
F or (15)	15 seconds
G or (16)	16 seconds

Either a letter or a number can be used for the ASCII Value.
Use which ever you prefer. Letters are not case sensitive.
Values of A-G can be replaced by a double digit number inside curved brackets

Examples

[1 M E 6	Master 1, Go Cue duration = 6 seconds
[1 M E C	Master 1, Go Cue duration = 12 seconds
[1 M E (12)	Master 1, Go Cue duration = 12 seconds

- **Link 4 Group Master buttons**



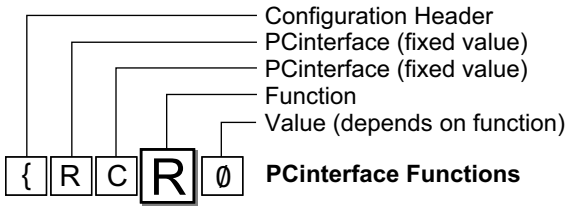
Value	Link 4 Group Master buttons
Ø	Not Linked
1	Linked

Examples

[1 M F Ø	Master 1, 4 Group Master buttons not linked
[1 M F 1	Master 1, 4 Group Master buttons linked

Configuration Commands

PCinterface Functions



PCinterface Functions

	Function	Values
R	Monitoring Reply Mode	Simple GUI Reply or Channel & Function Reply
B	Baud Rate	2400 to 115200
H	Heart Beat Signal (Idle Character)	on/off
P	Reply Pacing. Pause between each 5 byte reply	0uS, 100uS, 300uS, 1mS, 3mS, 10mS, 30mS
T	Terminator chx for replies	None } | <space> <LF> ~

PCinterface Functions

PCinterface
QL-PCi mk4

Note

As these commands execute as soon as they are received, an ***X*** for e***X***ecute is not required.

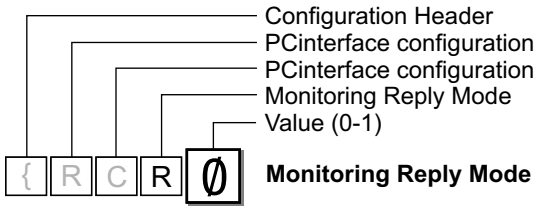
Table of PCinterface Configuration Commands

{ R C B 5 Configuration Commands	{ R C B 5 PCinterface (fixed value)	{ R C B 5 PCinterface (fixed value)	{ R C B 5 Function		{ R C B 5 Value	
				Description		Description
Header Byte (Left curly bracket)	R	C	R	Monitoring Reply Mode	0 1	Simple GUI Reply Channel & Function Reply with all ASCII characters.
			B	Baud Rate	0 1 2 3 4 5	2400 baud 9600 baud 19200 baud 38400 baud 57600 baud 115200 baud
			H	Heart Beat Signal	0 1	Off On
			P	Reply Pacing. Pause between each 5 byte reply	0 1 2 3 4 5 6	0uS 100uS 300uS 1mS 3mS 10mS 30mS
			T	Terminator chx for replies	0 1 2 3 4 5	none } 7Dh | 7Ch space 20h line feed 0Ah ~ 7Eh

Configuration Commands

PCinterface Functions

- **Monitoring Reply Mode command**



Select the data format for ***Simple GUI Reply*** and ***Channel & Function Reply*** status monitoring.

Value	Command
Ø	Simple GUI Reply
1	Channel & Function Reply

This command configures the ***PCinterface*** and is remembered when the power is off.
It does not require the **X** for e**X**ecute as it is not uploaded to the Master Station.
It will execute as soon as the 5th byte ***Value*** has been received.

Examples

{ R C R Ø — Command to select ***Simple GUI Reply*** mode

[1 N 92 2 — Typical ***Simple GUI Reply*** (Master 1, Ch 1 Go flashing in this example)

{ R C R 1 — Command to select ***Channel & Function Reply*** mode.

[1 1 G 2 — Typical ***Channel & Function Reply*** (Master 1, Ch 1 Go flashing in this example)

Function	
R	**Monitoring Reply Mode**
B	Baud Rate
H	Heart Beat Signal
P	Reply Pacing. Pause between each 5 byte reply
T	Terminator chx for replies

Summary of PCinterface Functions

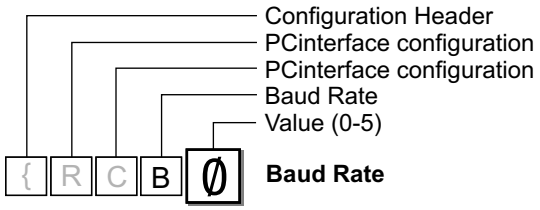
Configuration Commands

PCinterface Configuration

Function	
R	Monitoring Reply Mode
B	**Baud Rate**
H	Heart Beat Signal
P	Reply Pacing. Pause between each 5 byte reply
T	Terminator chx for replies

Summary of PCinterface Functions

- **Baud Rate**



Value	Baud Rate
Ø	2,400
1	9,600
2	19,200
3	38,400
4	57,600
5	115,200

This sets the baud rate for both the RS232 and RS485 serial comms ports.

This command configures the ***PCinterface*** and is remembered when the power is off.
It does not require the **X** for e**X**ecute as it is not uploaded to the Master Station.
It will execute as soon as the 5th byte ***Value*** has been received.

Examples

{ R C B 2	Set baud Rate to 19,200
{ R C B 5	Set baud Rate to 115,200

- **Manual Reset to 9600 baud.**

This is a debugging tool to reset the ***PCinterface*** to 9600 baud rate for those times when one loses control due to an incorrect baud rate setting.

The following procedure is not meant to be too simple because we do not want any unqualified fingers resetting the baud rate of the ***PCinterface*** once it has been installed.

- Unplug the ***PCinterface*** from the Cue Light Master.
- Press and hold the recessed ***Reset to 9600 baud*** button. (A straightened out paper clip works well as a tool)
- Plug the ***PCinterface*** into the Cue Light Master. The Tx and Rx lamps will both flash slowly for about 4 secs.
- Release the Reset button as soon as the Tx and Rx lamps start to flash fast. They only flash fast for 500mS so the window of opportunity is small.
- If successful, the Rx lamp will burn steady for 2 seconds and the PCinterface will now be running at 9600 baud. The new setting is saved when the power is off.

Configuration Commands

PCinterface Configuration

- ### Heart Beat

The Heart Beat signal is generated by the ***PCinterface*** unit. It does not indicate that any Cue Light Outstations are connected.

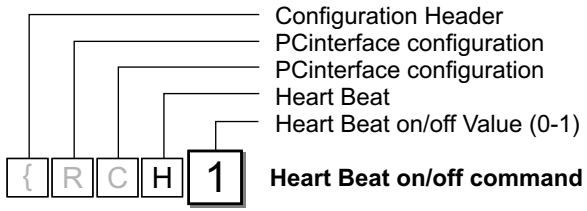
The ***Heart Beat*** signal is reset to ***ON*** when ever the ***PCinterface*** is powered up.

{	R	R	H	1	**Heart Beat signal**

This response is sent once every second +/- 5%.

The ***Heart Beat*** signal can be turned off but will automatically be turned back on the next time the ***PCinterface*** is powered up.

- ### Heart Beat on/off command



Value	Heart Beat Signal
Ø	Off
1	On

Examples

{ R C H Ø	Heart Beat Signal Off
{ R C H 1	Heart Beat Signal On

Function	
R	Monitoring Reply Mode
B	Baud Rate
H	**Heart Beat Signal**
P	Reply Pacing. Pause between each 5 byte reply
T	Terminator chx for replies

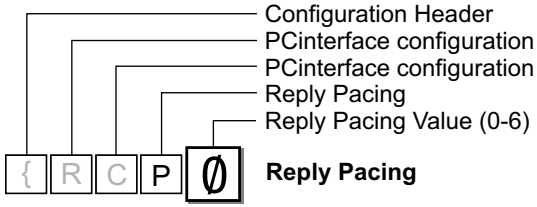
Summary of PCinterface Functions

Configuration Commands

PCinterface Configuration

- **Reply Pacing. Pause between each 5 byte reply**

Add a pause between each 5 byte reply if the receiving system is unable to process the incoming data quickly enough.



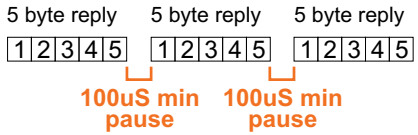
Value	Reply Pacing
Ø	no pause
1	100uS
2	300uS
3	1mS
4	3mS
5	10mS
6	30mS

No response is given when this command is sent.
The new setting is saved when the power is off.

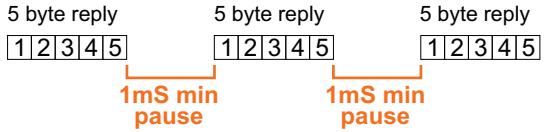
Use the shortest pause possible or response times may become unacceptable.
With Pacing set to ØmS, the ***Request Lamp Status [1SQ1*** command takes 63mS to return 56Ø bytes of data at 115,2ØØ baud.
With Pacing set to 3ØmS, the same command takes 3.4 seconds to return the same data.

Examples

{ R C P 1 **Set Reply Pacing pause to 100uS**



{ R C P 3 **Set Reply Pacing pause to 1mS**



Note:
These drawings are not to scale.
The duration of the 5 byte replies will vary with baud rate.

Function	
R	Monitoring Reply Mode
B	Baud Rate
H	Heart Beat Signal
P	**Reply Pacing. Pause between each 5 byte reply**
T	Terminator chx for replies

Summary of PCinterface Functions

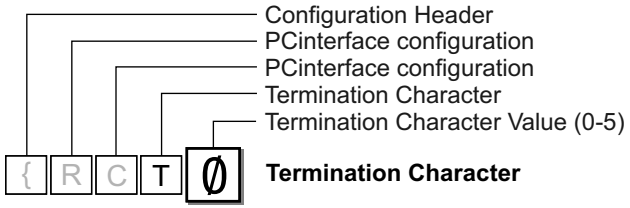
Configuration Commands

PCinterface Configuration

- Termination Character

Each 5 byte monitoring reply can be terminated by a special character.

There is a choice of 5 different termination characters chosen by the following command.
This command configures the ***PCinterface*** and is remembered when the power is off.
It does not require the **X** for e**X**ecute as it is not uploaded to the Master Station.
It will execute as soon as the 5th byte has been received.



Value	Termination Character ASCII	Decimal	Hex	
Ø	none	none	none	
1	}	125d	7Dh	
2	|	124d	7Ch	
3	space	32d	2Øh	*
4	line feed	1Ød	ØAh	*
5	~	126d	7Eh	

The default terminator as shipped is none.

* The <Space> and <LF> characters may appear in data sent as part of the ***Simple GUI Reply*** and hence are not suitable choices for terminator characters intended to be read by a machine (PC). They are however ideal to aid in readability when data is displayed on a terminal program.

Use **}** (125d), **|** (124d) or **~** (126d) as terminator characters to be read by a machine (PC) as they are not used within any commands.

Function	
R	Monitoring Reply Mode
B	Baud Rate
H	Heart Beat @ 1Hz rate
P	Pacing. Pause between each 5 byte reply
T	**Terminator chx for replies**

Summary of PCinterface Functions

The repeating ***HeartBeat*** reply ***{RRH1*** is used in the examples below.

Termination Character Examples

{ R R H 1 { R R H 1	No terminator
{ R R H 1 } { R R H 1 }	} Right curly bracket
{ R R H 1 | { R R H 1 |	| Pipe
{ R R H 1 2Øh { R R H 1 2Øh	Space
{ R R H 1 1Øh { R R H 1 1Øh	Line Feed
{ R R H 1 ~ { R R H 1 ~	~ Tilde

Testing

Testing the PCinterface to PC serial link

Test Comms { R C 2 ?

Test comms to and from the ***PCinterface.***
The 5th byte ***?*** can be any ASCII character of your choice. It is echoed back as part of the reply.
If no reply is received, check that the Rx lamp winked when the command was sent. The Rx lamp will wink when any data is received, even if the baud rate and data format are wrong. This will help identify where any problem may lie.
A reply is only sent when the ***{RC2?*** command is received in the correct data format (N81) and at the correct baud rate.

Test Comms reply

{ R R 2 ?

The 5th byte ***?*** is the random character entered as the 5th byte of the ***{RC2?*** command above.
It is echoed back in this reply.

Example

{ R C 2 ?

Test comms to and from the *PCinterface.*
The last byte ***?*** is any ASCII character of your choice.

{ R R 2 ?

Reply.
? is the ASCII character of your choice from the line above.

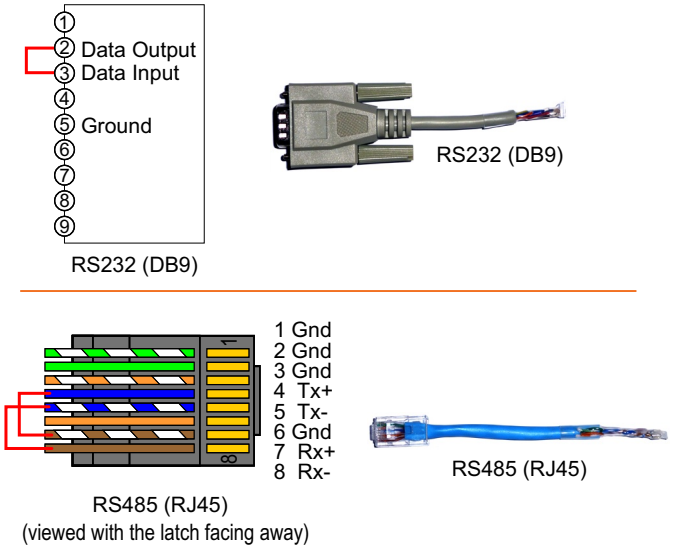
PCinterface Loop-back Test

The PCinterface has a built-in test mode.
All you need to run it is a loop-back lead.
When powered up, the PCinterface sends a heartbeat signal once per second. If this signal is fed back into the PCinterface, it enters the test mode. It works with any baud rate setting.
Set the RS232/RS485 switch to which ever input you are using.

In the test mode, you will see the following -

- On the PCinterface, both Tx & Rx lamps will blink together about once per second.
- On the Master Station, a single ***Group A*** lamp will light on a channel (1-6) that corresponds with the address that the Master is set to. Every Master Station must be set to a different address.
- ***Group B*** lamps slowly chase from channel 1 to 16.
- Go and Standby lamps toggle for any channels that have Outstations connected.

Loop-back connectors

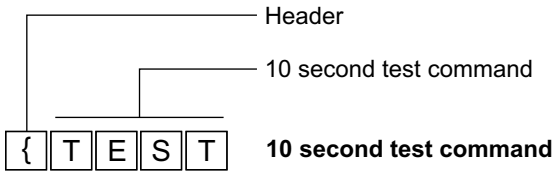


Add the links in red.

Testing

Testing the PCinterface to PC serial link

- A 10 second test



A quick test that will give the same results as the loop-back test but without the need for the loop-back connectors.

In this test mode, you will see the following -

- Both Tx & Rx lamps on the PCinterface will blink together at about once per second.

On the Master -

- A single ***Group A*** lamp will light on a channel (1-6) that corresponds with the address that the Master is set to. Every Master must be set to a different address.

- ***Group B*** lamps slowly chase from channel 1 to 16.

- Go and Standby lamps toggle for any channels that have Outstations connected.

The ***{TEST*** command does not require the letter **X** for e**X**ecute to follow the command.

Testing

What if it doesn't work?

Here are a few things to check

- Is the power turned on and all cables plugged in?
  The Power lamp will wink about once per second.
  The Tx lamp will also wink once every second as the ***Heartbeat*** signal ***{RRH1*** is sent out the serial port.

- Is the RS232/RS485 switch in the correct position?
  Output data is sent on both ports all the time.
  The switch only selects which port receives data.

- Try a loop-back connector.
  See page 66.

- Can the PC/Show Controller see the ***Heartbeat*** signal?
  Connect a terminal program (such as Hyperterm etc) to the serial port of the ***PCinterface*** and setup it up for N,8,1 with hand shaking off.
  Set the terminal program to 9600 baud. If characters other than ***{RRH1*** are received, try other baud rates or reset the ***PCinterface*** to 9600 baud (See page 62)

Once the PC/Show Controller can see the ***Heartbeat*** signal, you should be able to send commands. Try the ***Test Comms*** command on page 66. This will test the serial link to/from the ***PCinterface.***

If no Outstations are connected, the following commands will turn all the Group A Lamps, on all Master Stations, on or off.

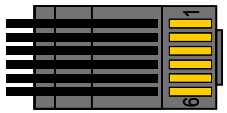
[0 0 P A	Masters 1-6, Ch 1-16, Group A on, B off
[0 0 P 0	Masters 1-6, Ch 1-16, Group A & B off

These commands must be followed by the letter **X** for e**X**ecute. Once **X** has been received by the ***PCinterface***, the commands are uploaded to the Master Station(s).

Connections

- To/from the Cue Light Master

Each Cue Light Master Station has two RJ12 Expansion Ports wired in parallel.
The ***PCinterface*** connects to either of these Expansion Ports via a 6 core cable fitted with RJ12 connectors.
Additional Masters, up to a total of six, can be daisy chained to the remaining Expansion Port.
The RJ12 cable also provides power for the ***PCinterface*** from the Cue Light Master.
The data lines in the RJ12 cable are RS485 running a proprietary protocol.
The RJ12 cable has been tested to 100m (330 feet).
A 2m (6.5 feet) long cable is provided with the ***PCinterface.***
The cable is of 6 core flat construction.



1 & 2 Gnd
3 Data +
4 Data -
5 & 6 +30V

viewed with the latch facing away

RJ12 connector wiring

- To/from the PC, Mac or Show Controller

RS232 and RS485 connections are available.
Both of these connectors are optically isolated from ground to reduce the possibility of ground loops between the ***PCinterface*** and the equipment to which they are connected.
A switch next to the DB9 connector selects either RS232 or RS485.
Baud rates of 2400, 9600, 19200, 38400, 57600, 115200 are supported. Data format is N81. No parity, 8 data bits and 1 stop bit.
No X-on/X-off software or hardware handshake is used.
Transmit (return monitoring) data is sent on both ports all the time.
The switch only selects which port is connected to the serial data receiver.

The ***PCinterface*** is wired as a DCE Null Modem.
Use a standard straight through serial modem cable for connection to the PC.
The female DB9 connector of the ***PCinterface*** unit receives data on pin 3 and transmits data on pin 2.

Use with 'Dual Masters'.
If the Cue Light system is running with two Master Stations connected to the same universe, the PCinterface must be connected to the ***Main*** Master Station.

Connections

- ## Computer configuration

Set the following data format and transmission rate for RS232 or RS485

* 1 start bit
* 8 data bits
* no parity
* 1 stop bit
* 9600 baud

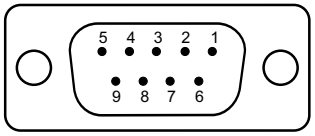
Baud rate can be changed once communications have been established at 9600 baud.
The new setting is saved when the power is off.

- ## RS232 Serial Cable

Use a fully wired straight through DB9 modem serial cable.
A suitable fully wired cable is supplied with the ***PCinterface.***
Officially, the maximum length for RS232 cables is 15 metres (50 feet), but in practice greater lengths usually work satisfactorily.

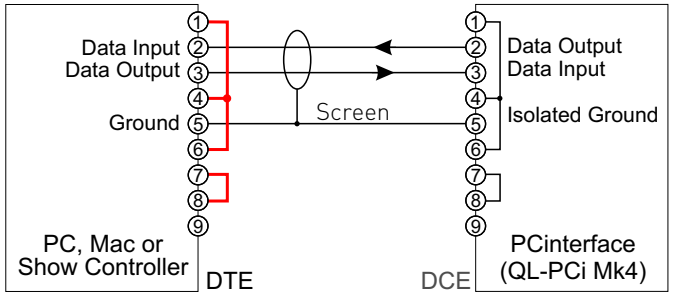
The following signals are used for data transmission.

Receive Data (RXD): Pin 3
Transmit Data (TXD): Pin 2
Signal Ground: Pin 5



Pin view of female DB9

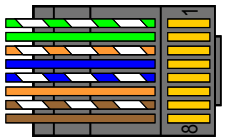
If not using a fully wired cable, it should be wired as below



The left hand connector is a DB9 on the PC/show controller.
You will need to add the wire links highlighted in red.

- ## RS485 Serial Connection

The RS485 RJ45 connector can be wired using CAT5/6 cable.
This cable must not be connected to any Ethernet (Internet) system.
The colours shown are only a suggestion.
Pins 4 and 5 (transmit data) must use the same coloured pair.
Pins 7 and 8 (receive data) must use the same coloured pair.
The remaining 2 pairs are Isolated ground.



1, 2 & 3 Isolated Gnd
4 Tx+
5 Tx-
6 Isolated Gnd
7 Rx+
8 Rx-

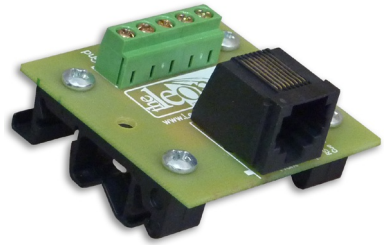
RJ45 (RS485) connector wiring viewed with the latch facing away

Maximum cable length when using CAT5/6 cable is at least 1,500 metres (5,000 feet).
Two wire RS485 connections are not supported.

- ## USB

The ***PCinterface*** can be connected to a USB port using a USB-RS232 adaptor cable. Some budget USB/RS232 cables are not fully compliant and may not work correctly, if at all.
The "US232B 1m Converter Cable" made by FTDI have been tested and do work correctly.
See http://www.ftdichip.com/Products/Cables/USBRS232.htm

- ## RS485 Breakout Board RS485BRK

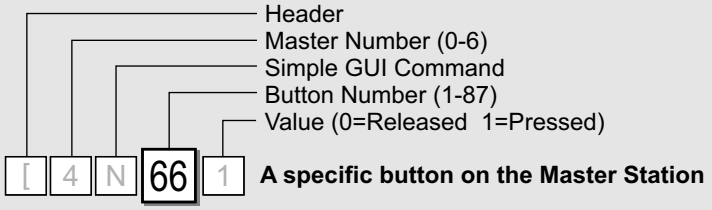


The ***RS485BRK*** Breakout Board allows connection of cables other than CAT5/6 to the PCinterface.
The Breakout Board can be DIN rail mounted or the mounting brackets can be removed allowing it to be installed in a project box.
There are 5 screw terminal connections. Tx+, Tx-, Rx+, Rx- and Gnd.
50mm square by 18mm high (excluding the DIN mount brackets).

Summary of Commands

Programming Simple GUI Commands

Table of Button numbers



Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Touch Screen's Soft buttons																
Group A	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group B	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Master Station's Grey group buttons																
Group Buttons	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
S/by Buttons	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
Go Buttons	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81

Other buttons

Red Beep Button	82
White Dimmer Button	83
Group Master Buttons	
Group A Standby	84
Group B Standby	85
Group A Go	86
Group B Go	87

Each horizontal row of 16 buttons (channels 1-16) uses consecutive numbers. Number 33 is not used as it is reserved.

Note

Each number is a single byte decimal number in the range of 1 - 87.

Summary of Commands

Table of Cue Sheet Commands

[4 5 G 1 Operate Commands	[4 5 G 1 Master number	[4 5 G 1 Channel number			[4 5 G 1 Function		[4 5 G 1 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left square bracket)	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	G	GO Cue	Ø or C	Clear
	1	1	1	Ø1d	Ø1h	S	S/by Cue	1 or T	Trigger
	2	2	2	Ø2d	Ø2h				
	3	3	3	Ø3d	Ø3h	C or K	Clear any Go or S/by cue with a single command	Ø or C	Clear
	4	4	4	Ø4d	Ø4h				
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	P	Channel's Group	A	A on, B off
		7	7	Ø7d	Ø7h			B	B on, A off
		8	8	Ø8d	Ø8h			C	A on, B on
		9	9	Ø9d	Ø9h			D	A on, B unchanged
		10	A or (10)	10d	ØAh			E	A off, B unchanged
		11	B or (11)	11d	ØBh			F	B on, A unchanged
		12	C or (12)	12d	ØCh			G	B off, A unchanged
		13	D or (13)	13d	ØDh			Ø or K	A off, B off (kill)
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh	B	Sound the Beeper		Beep Duration
		16	G or (16)	16d	10h			Ø	5 mS (click)
			Notes 1, 2	Note 4				1	60mS
								2	120 mS
								3	180 mS
								4	240 mS
								5	300 mS
								6	360 mS
								7	420 mS
								8	480 mS
								9	540 mS
								A or (10)	600 mS
								B or (11)	660 mS
								C or (12)	720 mS
								D or (13)	780 mS
								E or (14)	840 mS
								F or (15)	900 mS
								G or (16)	960 mS
								Note 1	
			Description						
		Y	Group A Master buttons			G	Go Master	Ø or C	Clear
		Z	Group B Master buttons			S	S/by Master	1 or T	Trigger
								E	Toggle
		S	Miscellaneous commands			Q	Request Lamp Status for all channels	1	Fixed value
						F	Reset Fault Lamps		
		N	Note 3	Simple GUI (Number) mode		1-87d	Button's number	1	Button pressed
								Ø	Button released

Note 1: Double digits can be in round brackets e.g. (12)
Note 2: Multiple channels in round brackets e.g. (1,2,3) or (5-15)
Note 3: Simple GUI mode. Each button has been assigned a decimal number. See pages 8-10 for details.
Note 4: Channel number can be ASCII characters or a decimal number 00d to 16d.

Summary of Configuration Commands

Overview of Functions { 1 5 A 1

	Function *(Upper Case)*	Factory Default	User Selectable Function
A	Outstation S/by colour	Yellow	Red
B	S/by Flash on Master	Flashes	Steady
C	S/by Flash on Outstation	Flashes	Steady
D	S/by latches	Latches	Momentary
E	S/by Dims on ACK	No	Dims on ACK
F	Outstation Go Flickers	Steady	Flickers
G	Go times out	Times out	Stays on
H	Go flashes	Flashes	Steady
J	Go latches	Latches	Momentary
K	Go & S/by interlocked	Interlocked	Independent
M	Call lamp enabled	Enabled	Call lamp off
N	Call lamp flashes	Flashes	Steady
P	ACK button back-light	On	Off
Q	Beeper enable	Enabled	Disabled
R	Beep-on-Go	Silent	Beeps (4 choices)
S	Change colour on ACK	No change	Change colour
T	Dimmer	100%	5-100% in 5 steps

Cue Light Outstation Functions

	Function *(Lower Case)*	Factory Default	User Selectable Function
a	Mode		5 modes
b	S/by Flash on Master	Flashes	Steady
c	S/by Flash on Outstation	Flashes	Steady
d	S/by latches	Latches	Momentary
e	Go times out	Times out	Stays on
f	Go flashes	Flashes	Steady
g	Go latches	Latches	Momentary
h	Go & S/by interlocked	Interlocked	Independent
j	Call lamp enabled	Enabled	Call lamp off
k	Call lamp Flashes	Flashes	Steady
m	All Lamps on Outstation	Enabled	Off

Relay Outstation Functions

	Function	Factory Default	User Selectable Function
1	Unsafe Lamp	Steady	Flash
2	Safe when... open/closed	Open	Closed
3	End Of Line Resistors	No EOL	Two EOL
4	All Lamps on Outstation	Enabled	Disabled

Sensor Outstation Functions

	Function	Factory Default	User Selectable Function
A	Copy 1 of 8 files to PC		
B	Copy 1 of 7 files to the ShowTime file.		
C	Copy ShowTime file to Installer's Default or 1 of 4 User files.		
E	Go Cue Total Duration	15 Secs	1-16 Secs
F	Link 4 Group Master buttons	Linked	Not Linked

Master Station Functions

	Function	Values
R	Monitoring Reply Mode	Simple GUI Reply or Channel & Function Reply
B	Baud Rate	2400 to 115200
H	Heart Beat @ 1Hz rate (Idle Character)	on/off
P	Pacing. Pause between each 5 byte reply	0uS, 100uS, 300uS, 1mS, 3mS, 10mS, 30mS
T	Terminator chx for replies	None } | <space> <LF> ~

PCinterface Functions

Summary of Configuration Commands

Table of Cue Light Outstation Configuration Commands

{ 15A1 Configuration Commands	{1 5A1 Master number	{15 A1 Channel number			{15A1 Function		{15A1 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	0 (Global)	0 (Global)	0	00d	00h	A	Outstation's Standby Colour	0 or R	Red
	1	1	1	01d	01h			1 or Y	Yellow
	2	2	2	02d	02h				
	3	3	3	03d	03h	B	Standby Flash on Master	0 or S	Steady
	4	4	4	04d	04h	C	Standby Flash on Outstation	1 or F	Flash
	5	5	5	05d	05h				
	6	6	6	06d	06h	D	Standby Latches	0 or M	Momentary
		7	7	07d	07h			1 or F	Latches
		8	8	08d	08h				
		9	9	09d	09h	E	Standby DIMs on Acknowledge	0 or N	No DIM on ACK
		10	A or (10)	10d	0Ah			1 or D	DIM on ACK
		11	B or (11)	11d	0Bh				
		12	C or (12)	12d	0Ch	F	Outstation Go Flickers	0 or S	Steady
		13	D or (13)	13d	0Dh			1 or F	Flicker
		14	E or (14)	14d	0Eh				
		15	F or (15)	15d	0Fh	G	Go Times-out	0 or N	No time-out
		16	G or (16)	16d	10h			1 or T	Times-out after delay
			Note 1	Note 2		H	Go Flashes	0 or S	Steady
								1 or F	Flashes after 3 secs.
						J	Go Latches	0 or M	Momentary
								1 or L	Latches
						K	Go & S/by Interlocked	0	Independent
								1	Interlocked
						M	Call Lamp Enabled	0 or D	Disabled
								1 or E	Enabled
						N	Call lamp Flashes	0 or S	Steady
								1 or F	Flashes
						P	Acknowledge button backlight	0 or F	ofF
						Q	Beeper Enable	1 or N	oN
						R	Beep-On-Go	0	Off
								1	1mS
								2	50mS
								3	200mS
						S	S/by Change Colour on ACK	0 or N	No Colour Change
								1 or C	Change Colour
						T	Dimmer	1	5%
								2	25%
								3	50%
								4	75%
								5	100%

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)

Note 2: Channel number can be a decimal number 00d to 16d or ASCII characters.

This Column is ***Upper Case***

Summary of Configuration Commands

Table of Relay Outstation Configuration Commands

{ 1 5 b 1 Configuration Commands	{ 1 5 b 1 Master number	{ 1 5 b 1 Channel number				{ 1 5 b 1 Function		{ 1 5 b 1 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	a	Mode	1	A: Mom B: Mom
	1	1	1	Ø1d	Ø1h			2	A: Latch B: Latch
	2	2	2	Ø2d	Ø2h			3	A: Mom B: Latch
	3	3	3	Ø3d	Ø3h			4	A: Latch B: Mom
	4	4	4	Ø4d	Ø4h			5	Cue Light Mode
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	b	S/by Flash on Master	Ø or S	Steady
		7	7	Ø7d	Ø7h			1 or F	Flashes
		8	8	Ø8d	Ø8h				
		9	9	Ø9d	Ø9h	c	S/by Flash on Outstation	Ø or S	Steady
		1Ø	A or (1Ø)	1Ød	ØAh			1 or F	Flashes
		11	B or (11)	11d	ØBh				
		12	C or (12)	12d	ØCh	d	S/by latches	Ø or M	Momentary
		13	D or (13)	13d	ØDh			1 or L	Latches
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh	e	Go times out	Ø or N	No time-out
		16	G or (16)	16d	1Øh			1 or T	Times-out after delay
			Note 1	Note 2		f	Go flashes	Ø or S	Steady
								1 or F	Flashes after 3 secs.
						g	Go latches	Ø or M	Momentary
								1 or L	Latches
						h	Go & S/by interlocked	Ø	Independent
								1	Interlocked
						j	Call lamp enabled	Ø or D	Disabled
								1 or E	Enabled
						k	Call lamp Flashes	Ø or S	Steady
								1 or F	Flashes
						m	All Lamps on Outstation	Ø or D	Disabled
								1 or E	Enabled

This Column is ***Lower Case***

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)

Note 2: Channel number can be ASCII characters or a decimal number 00d to 16d.

Summary of Configuration Commands

Table of Sensor Outstation Configuration Commands

{ 1 5 3 1 Configuration Commands	{ 1 5 3 1 Master number	{ 1 5 5 3 1 Channel number			{ 1 5 3 1 Function		{ 1 5 3 1 Value	
			ASCII	Dec	Hex		Description		Description
Header Byte (Left curly bracket)	Ø (Global)	Ø (Global)	Ø	ØØd	ØØh	1	Unsafe Lamp	Ø or S	Steady
	1	1	1	Ø1d	Ø1h			1 or F	Flashes
	2	2	2	Ø2d	Ø2h				
	3	3	3	Ø3d	Ø3h	2	Safe when... open/closed	Ø or O	Open
	4	4	4	Ø4d	Ø4h			1 or C	Closed
	5	5	5	Ø5d	Ø5h				
	6	6	6	Ø6d	Ø6h	3	End Of Line Resistors	Ø or N	No EOL
		7	7	Ø7d	Ø7h			1 or T	two EOL
		8	8	Ø8d	Ø8h				
		9	9	Ø9d	Ø9h	4	All Lamps on Outstation	Ø or D	Disabled
		1Ø	A or (1Ø)	1Ød	ØAh			1 or E	Enabled
		11	B or (11)	11d	ØBh				
		12	C or (12)	12d	ØCh				
		13	D or (13)	13d	ØDh				
		14	E or (14)	14d	ØEh				
		15	F or (15)	15d	ØFh				
		16	G or (16)	16d	1Øh				
			Note 1	Note 2					

Note 1: Double digits can be in round brackets e.g. (12)
Multiple channels in round brackets e.g. (1,2,3) or (5-15)
Note 2: Channel number can be ASCII characters or a decimal number 00d to 16d.

Summary of Configuration Commands

Table of Master Station Configuration Commands

{ 1 M E 6 Configuration Commands	{ 1 M E 6 Master number	{ 1 M E 6 Master Config		{ 1 M E 6 Function		{ 1 M E 6 Value		
					Description		Description	
Header Byte (Left curly bracket)	Ø (Global) 1 2 3 4 5 6	M	Fixed value	A	Copy 1 of 8 files to PC	Ø 1 2 3 4 5 6 7	Installer's Default file User file 1 User file 2 User file 3 User file 4 ShowTime file Factory default (red S/by) Factory default (yellow S/by)	
				B	Copy 1 of 7 files to ShowTime file	Ø 1 2 3 4 6 7	Installer's Default file User file 1 User file 2 User file 3 User file 4 Factory default (red S/by) Factory default (yellow S/by)	
				C	Copy ShowTime file to Installer's Default or 1 of 4 User files.	Ø 1 2 3 4	Installer's Default file User file 1 User file 2 User file 3 User file 4	
				E	Go Cue Total Duration (1 to 16 seconds)	1 to 9 A or (1Ø) B or (11) C or (12) D or (13) E or (14) F or (15) G or (16)	1 to 9 seconds 1Ø seconds 11 seconds 12 seconds 13 seconds 14 seconds 15 seconds 16 seconds	Note 1
				F	Link the 4 Group Master buttons between multiple Masters	Ø 1	Not linked Linked	

Note 1: Double digits can be in round brackets e.g. (12)

Summary of Configuration Commands

Table of PCinterface Configuration Commands

{ R C B 5 Configuration Commands	{ R C B 5 PCinterface (fixed value)	{ R C B 5 PCinterface (fixed value)	{ R C B 5 Function		{ R C B 5 Value	
				Description		Description
Header Byte (Left curly bracket)	R	C	R	Monitoring Reply Mode	0 1	Simple GUI Reply Channel & Function Reply with all ASCII characters.
			B	Baud Rate	0 1 2 3 4 5	2400 baud 9600 baud 19200 baud 38400 baud 57600 baud 115200 baud
			H	Heart Beat Signal	0 1	Off On
			P	Reply Pacing. Pause between each 5 byte reply	0 1 2 3 4 5 6	0uS 100uS 300uS 1mS 3mS 10mS 30mS
			T	Terminator chx for replies	0 1 2 3 4 5	none } 7Dh | 7Ch space 20h line feed 0Ah ~ 7Eh

Return Monitoring

Simple GUI Reply format

Table of Lamp numbers

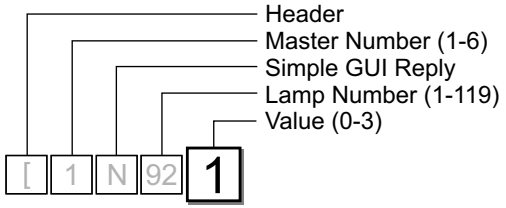
[1 N **92** 1] **A specific lamp on the Master Station**

Channel	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Fault Lamp	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Group A Lamp	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32
Group B Lamp	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49
Call lamp	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65
S/by Lamp	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81
Go Lamp	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107
Sensor Lamps																
Fault	108	109	110	111												
Unsafe	112	113	114	115												
Safe	116	117	118	119												

Other Lamps

Group A Master Lamps	82 (S/by & Go buttons light as a pair)
Group B Master Lamps	83 (S/by & Go buttons light as a pair)
Short Lamp	84
Aux lamp	85 (not fitted)

Each horizontal row of 16 lamps (channels 1-16) uses consecutive numbers. Numbers 86 through 91 are not used as they are reserved.



Simple GUI Reply format

Value	Lamp
0	Off
1	On
2	Flashing
3	Dimmed

Note

Each number is a single byte decimal number in the range of 1 - 119.

Return Monitoring

Table of Return Monitoring. Channel & Function format

[1 5 G 1 Operate Replies	[1 5 G 1 Master number	[1 5 G 1 Channel number		[1 5 G 1 Function		[1 5 G 1 Value	
	ASCII		ASCII		Description		Description
Header Byte (Left square bracket)	1	1	1	F	Fault Lamps	0	Off
	2	2	2			1	On
	3	3	3			2	Flash
	4	4	4				
	5	5	5	A	Group A Lamps	0	Off
	6	6	6			1	On
		7	7				
		8	8	B	Group B Lamps	0	Off
		9	9			1	On
		10	A				
		11	B	C	Call Lamps	0	Off
		12	C			1	On
		13	D			2	Flash
		14	E				
		15	F	S	Standby Lamps	0	Off
		16	G			1	On
						2	Flash
						3	Dimmed
				G	Go Lamps	0	Off
						1	On
						2	Flash
						3	Dimmed
		Sensor 1	T	F	Fault Lamps	0	Off
		Sensor 2	U			1	On
		Sensor 3	V			2	Flash
		Sensor 4	W				
				U	Unsafe Lamps	0	Off
						1	On
						2	Flash
				S	Safe Lamps	0	Off
						1	On
		Other Lamps	S	A	Group A Master	0	Off
						3	Dimmed
				B	Group B Master	0	Off
						3	Dimmed
				S	Short Lamp	0	Off
						1	On
				T	Aux Lamp (not fitted)	0	Off
						1	On

ASCII Character Codes

Dec	Hex	Chx	Dec	Hex	Chx	Dec	Hex	Chx	Dec	Hex	Chx
000	000	NUL	032	020	Space	064	040	@	096	060	`
001	001	SOH	033	021	!	065	041	A	097	061	a
002	002	STX	034	022	"	066	042	B	098	062	b
003	003	ETX	035	023	#	067	043	C	099	063	c
004	004	EOT	036	024	$	068	044	D	100	064	d
005	005	ENQ	037	025	%	069	045	E	101	065	e
006	006	ACK	038	026	&	070	046	F	102	066	f
007	007	BEL	039	027	'	071	047	G	103	067	g
008	008	BS	040	028	(	072	048	H	104	068	h
009	009	HT	041	029	)	073	049	I	105	069	I
010	00A	LF	042	02A	*	074	04A	J	106	06A	j
011	00B	VT	043	02B	+	075	04B	K	107	06B	k
012	00C	FF	044	02C	,	076	04C	L	108	06C	l
013	00D	CR	045	02D	-	077	04D	M	109	06D	m
014	00E	SO	046	02E	.	078	04E	N	110	06E	n
015	00F	SI	047	02F	/	079	04F	O	111	06F	o
016	010	DLE	048	030	0	080	050	P	112	070	p
017	011	DC1	049	031	1	081	051	Q	113	071	q
018	012	DC2	050	032	2	082	052	R	114	072	r
019	013	DC3	051	033	3	083	053	S	115	073	s
020	014	DC4	052	034	4	084	054	T	116	074	t
021	015	NAK	053	035	5	085	055	U	117	075	u
022	016	SYN	054	036	6	086	056	V	118	076	v
023	017	ETB	055	037	7	087	057	W	119	077	w
024	018	CAN	056	038	8	088	058	X	120	078	x
025	019	EM	057	039	9	089	059	Y	121	079	y
026	01A	SUB	058	03A	:	090	05A	Z	122	07A	z
027	01B	ESC	059	03B	;	091	05B	[	123	07B	{
028	01C	FS	060	03C	<	092	05C	\	124	07C	|
029	01D	GS	061	03D	=	093	05D	]	125	07D	}
030	01E	RS	062	03E	>	094	05E	^	126	07E	~
031	01F	US	063	03F	?	095	05F	_	127	07F	DEL

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Specifications

Cue Light PCinterface
Model Ql-PCi mk4

Connectors
To PC/Show controller:
RS232 9 pin DB9
RS485 8P8C RJ45
Both RS232 and RS485 ports are opto-isolated

To Cue Light Master's Expansion Port:
6P6C RJ12

Power
Powered via RJ12 from the Cue Light Master

Dimensions
Width: 92mm (3.7")
Length (excluding connectors): 148mm (5.8")
Height: 38mm (1.5")

Weight
515g (1.14 lbs)

Warranty
The Leon Audio ***PCinterface*** for Cue Light System is guaranteed for five years from date of original purchase against defects in workmanship and materials. If suc
prepaid to THE LEON AUDIO COMPANY. Unit will be returned prepaid. Warranty does not cover finish or malfunction due to abuse or operation at other than specified conditions. Repairs by other than THE LEON AUDIO COMPANY or authorized agents will void this guarantee.

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