Version 3 Detectors
Advanced Handset Programming

CP electronics
ENERGY CONTROLS

PROGRAMMING OVERVIEW

This guide is for programming Version 3 detectors or later. If you are not sure what version of detector you have please contact CP Electronics Technical Support.

Some parameters are available for certain products only.

The functionality of programmable devices is controlled by a number of parameters which can be configured and changed by the following devices:

- UHS5 Infrared Handset
- UNLCDHS Infrared Handset with LCD display

All parameters can be programmed using the UNLCDHS handset and are listed in this document; only some can be programmed using the UHS5 handset.

Basic UNLCDHS handset operation

1. Press [ON/OFF] and hold for 3 seconds to turn the handset on.

2. Select the product family from the main PRODUCT FAMILY menu and press ▷.

3. Either select the specific product or Generic Product and press ▷. Generic Product lists all the parameters used within the family, but some might not be available or applicable for all products.

4. Select the parameter group to program and press ▷.

5. Select the parameter using △ and ▽.

6. Enter parameter values. There is no need to press ⏎ after entering a number.

7. Point the handset directly at the device and press [S SEND] to send the currently selected parameter, or press and hold [S SEND] to send all parameters in the current menu.

Each device is fitted with an LED that flashes when it successfully receives a valid command - it won't flash if the parameter doesn't apply to the device or the value is out of range. The device then waits 5 seconds before processing the command (enabling more efficient use of macros), and then flashes again to indicate completion. If you switch the device off during this 5 second period, any pending command will be lost.

KEYPAD OPERATION

Button	Short press	Long press	+ SHIFT
PLAY	Displays a list of the items in the currently loaded macro. Press again to send the parameters.	-	Lists all saved macros.
RECORD	Adds an item to the current macro.	-	Switches between saving the current macro or recording a new one.
C CHANNEL	Selects the channel to configure. This only affects devices that have more than one channel.	-	-
D DISPLAY	Increases backlight for 5 presses, then back to off.	-	Decreases backlight level.
ON/OFF	-	Switches the handset on and off.	-
? HELP	Displays the help screen for the selected item. Press again to cancel.	-	Shows software version number.
HOME	Returns to the root menu for the current product family.	Returns to the PRODUCT FAMILY menu.	-
R READ	Reads back the currently selected parameter.	Reads back all the parameters in the current menu.	-
S SEND	Sends the currently selected parameter.	Sends all the parameters in the current menu.	-
▷	Selects the submenu.	-	-
◁	Returns to previous list	-	-
△	Scrolls up the page.	-	-
▽	Scrolls down the page.	-	-
⏎	Selects the submenu. Also confirms handset configuration changes.	-	-

| Button	Short press	Long press	
NO	Selects No; reduces the value of the selected parameter; removes a value from a list.	Continuously decreases the value of the selected parameter.	-
YES	Selects Yes; increases the value of the selected parameter; adds a value to a list.	Continuously increases the value of the selected parameter.	-
1 SYMBOL	Number 1, or cycles through a list of symbols.	-	-
2 ABC ... **9 WXYZ**	Numbers 2 to 9, or cycles through the list of corresponding letters (e.g. 2 = ABC).	-	-
SHIFT	Changes between upper case and lower case.	Toggles Caps Lock on and off.	-
0 SPACE	Zero, or the space character.	-	-
DELETE	Deletes a single character or item.	Resets the parameter to its default value.	-

PARAMETERS

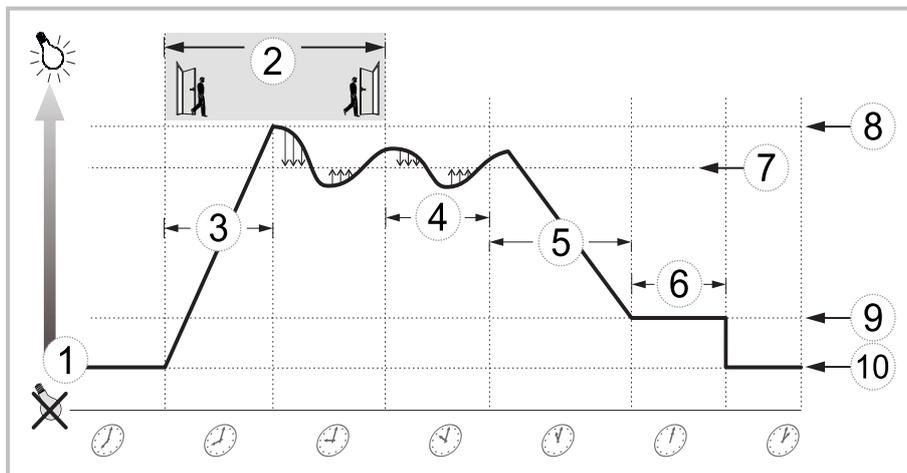## Basic lux switching settings
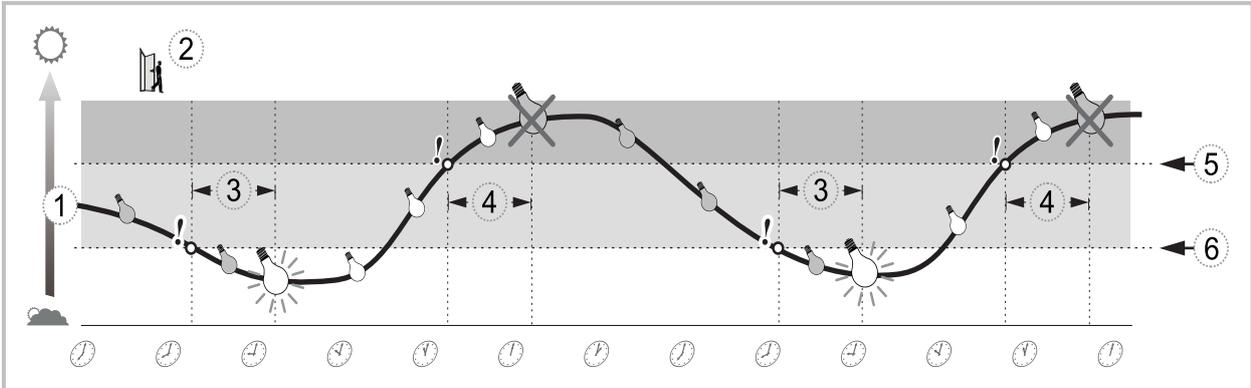
1. *Ambient light level*   2. *Occupancy*   3. Lux On Time   4. Lux Off Time   5. Lux Off Level   6. Lux On Level

Basic dimming settings (without fading)
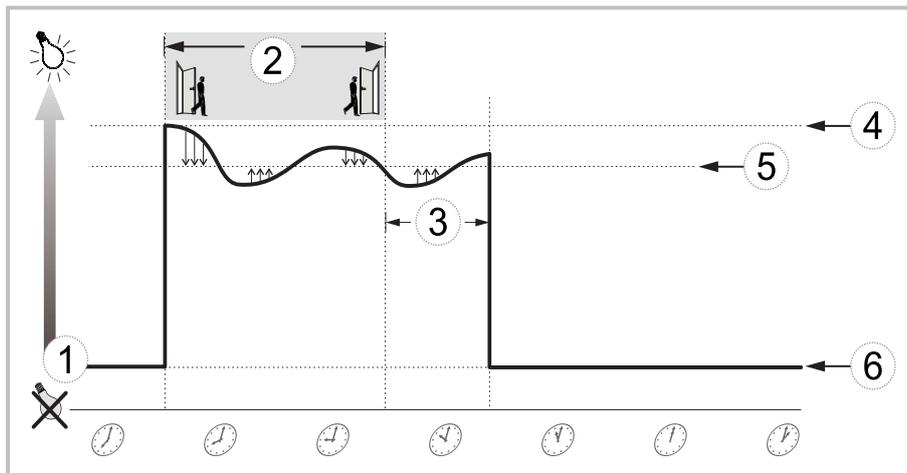
1. *Output level*
2. *Occupancy*
3. Timeout
4. On Value
5. Light Level (MI)
6. Off Value

Basic dimming settings with fading

1. *Output level*
2. *Occupancy*
3. Gradual Fade On Time
4. Timeout
5. Gradual Fade Off Time
6. Stepped Fade Off Time
7. Light Level (MI)
8. Fade On Level
9. Fade Off Level
10. Off Value

Detector Params (Ch. 1 & 2)

Parameter	Default	Range/Option	Description
Detection Mode	Pres	Pres (Presence) / Abs (Absence)	Select Pres to turn lights on when movement is detected and off when movement ceases. Select Abs to turn lights off when movement ceases, but the lights must be manually turned on by a switch or handset first.
Timeout	20	0 - 99 minutes	How long the lights stay on for after movement has stopped. This sets both **Timeout** (channel 1) and **Timeout** (channel 2) to the same value. Select **0** for a 10 second delay (use for commissioning only).
Abs Recovery (secs)	10	0 - 99 seconds	Sets a period for a detector in Absence mode to operate in Presence mode after lights are turned off. This enables a person to use movement to retrigger lights which have switched off while they are still in the room. If **Abs Recovery (secs)** is set to a non-zero value you should also set **Inhibit (secs)** to 1 to detect any occupancy immediately. If gradual fade off is set on Ch2, then absence recovery timeout becomes equal to gradual fade time. Note: both Ch. 1 and Ch. 2 can have separate absence recovery time-outs, if Channel mode set is Switch and Dim Separate.
Sensitivity On	9	1 - 9	Sensitivity level for detecting further movement when the lights are already on. 1 = minimum, 9 = maximum (least movement required to trigger the lights). (UHS5 sets **Sensitivity On** and **Sensitivity Off** to the same value.)
Sensitivity Off	9	1 - 9	Sensitivity level for detecting any movement when the lights are off. 1 = minimum, 9 = maximum (least movement required to trigger the lights).. (UHS5 sets **Sensitivity On** and **Sensitivity Off** to the same value.)

Parameter	Default	Range/ Option	Description
Manual Timeout	10	0 - 99 minutes	How long the lights stay off after they have been turned off using a switch or handset before returning to the automatic **Timeout** operation.
			The following examples are for a detector in presence mode with**Timeout** set to 15 minutes and **Manual Timeout** to 3 minutes:
			Example 1:
			When the user leaves the room they switch the light off. The lights stay off for 3 minutes even someone walks back into the room. Every time a movement is detected, the 3 minute timeout period is retriggered, but if no movement is detected for this period operation reverts to automatic. Then walking back in the room will turn the lights on, and the lights will then stay on until no movement has been detected for 15 minutes.
			Example 2:
			The user turns the lights off but stays in the room (for example to give a presentation). Every time a movement is detected, the 3 minute timeout period is retriggered, but if no movement is detected for this period operation reverts to automatic. This means the lights may turn on inadvertently during the presentation if the occupants are still for 3 minutes, so you should adjust the manual timeout carefully.
Walk Test LED	Off	On / Off	When set to **On** a red LED on the sensor flashes when movement is detected. Use this feature to check for adequate sensitivity levels.
Disable Detect	No	Yes/ No	Disables presence/absence detection, so that the detector can't control switching but can control dimming output. Use this mode when the unit is for maintained illuminance only.
Relay State when Det Disabled	Off	On / Off	If **Disable Detect** is set Yes, setting **Relay State when Det Disabled** to On keeps the channel 1 relay output closed. Setting it to Off keeps the relay open.
Power Up State	Yes	Yes/No	Select **No** for a 30 second delay (10 seconds for microwave detectors) after initial power up before the detector starts detecting and changing outputs.
			Select **Yes** for no delay - the detector will always power up detecting.
Inhibit (secs)	4	1 - 99 seconds	The time to wait after the detector turns lights off before it can retrigger them. If using the device in Absence mode, set this time to 0.

Lux Control (Ch. 1 & 2)

Parameter	Default	Range/ Option	Description
Light Level (MI)	999	1 - 998 (999 = maintained illuminance off)	Sets a target light level to be maintained by the lighting system.
Lux Learn Level	0	0 - 999	Use with the Readback function to get the lux level the unit is currently reading. Press Send to update the **Light Level (MI)** parameter with this value.
Auto Brightness %	20	0 - 100 (0 = disabled)	Value used to set **Lux On Level** and **Lux Off Level** automatically. **Lux Off Level** is set to the **Auto Brightness %** percent above **Light Level (MI)** (for example if **Auto Brightness %** is set to 30 and **Light Level (MI)** set to 600, **Lux Off Level** becomes 780 (600 + 30%). **Lux On Level** is always set to 10 percent below **Light Level (MI)**. In the above example, **Lux On Level** becomes 540 (600 - 10%).
Lux On Level	999	0 - 999	Sets a minimum ambient light level below which lights are turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux Off Level	999	0 - 999	Sets a maximum ambient light level above which lights cannot be turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux On Time	0	0 - 99 minutes	When the ambient light falls below **Lux On Level**, the time to wait before switching on the lights. If at any time during the timed delay the lux change reverses then the process is cancelled. Note: Lux ON/OFF Time can be individually set for each channel in Switch and Dim separate mode. If you try to turn lights on using a switch or handset, the lights will go on regardless of ambient light level. However, if there is sufficient ambient light, they will turn off again after **Lux Off Time**.
Lux Off Time	0	0 - 99 minutes	When the ambient light rises above **Lux Off Level**, the time to wait before switching off the lights. If at any time during the timed delay the lux change reverses then the process is cancelled.
Lux Switch NZOL	No	Yes /No	Enables and disables luminaire switching when **Off Value** is set to a non-zero value.

Output Ch. 1

Parameter	Default	Range/ Option	Description
Detection Mode	Pres	Pres (Presence) / Abs (Absence)	Select Pres to turn lights on when movement is detected and off when movement ceases. Select Abs to turn lights off when movement ceases, but the lights must be manually turned on by a switch or handset first.
Timeout	20	0 - 99 minutes	How long the lights stay on for after movement has stopped. (channel 1)
Abs Recovery (secs)	10	0 - 99 seconds	Sets a period for a detector in Absence mode to operate in Presence mode after lights are turned off. This enables a person to use movement to retrigger lights which have switched off while they are still in the room. If **Abs Recovery (secs)** is set to a non-zero value you should also set **Inhibit (secs)** to 1 to detect any occupancy immediately. If gradual fade off is set on Ch2, then absence recovery timeout becomes equal to gradual fade time. Note: both Ch. 1 and Ch. 2 can have separate absence recovery time-outs, if Channel mode set is Switch and Dim Separate.
Relay Status	Off	On/ Off	Use with the Readback function to see whether the detector switch relay is currently in an On or Off state. Note: used for field diagnosis on to see if connection is broken.
Lux On Level	999	0 - 999	Sets a minimum ambient light level below which lights are turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux Off Level	999	0 - 999	Sets a maximum ambient light level above which lights cannot be turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux On Time	0	0 - 99 minutes	When the ambient light falls below **Lux On Level**, the time to wait before switching on the lights. If at any time during the timed delay the lux change reverses then the process is cancelled. Note: Lux ON/OFF Time can be individually set for each channel in Switch and Dim separate mode. If you try to turn lights on using a switch or handset, the lights will go on regardless of ambient light level. However, if there is sufficient ambient light, they will turn off again after **Lux Off Time**.
Lux Off Time	0	0 - 99 minutes	When the ambient light rises above **Lux Off Level**, the time to wait before switching off the lights. If at any time during the timed delay the lux change reverses then the process is cancelled.

Parameter	Default	Range/ Option	Description
On Delay	0	0 - 99 minutes	Enables Channel 1 to switch on a number of minutes after Channel 2. For example if a detector is controlling lighting on Channel 2 and air conditioning on Channel 1, when an occupant is detected, the lighting turns on immediately, but the air conditioning turns on after 5 minutes. If the area is vacated and the detector times out before the delay, then the air conditioning would never go on.
EBDHS (High Bay)	-	-	Submenu for configuring high-bay detectors. **PIR 1-5** Switches each of the 5 sensors within the detector on or off individually. Default = On, Option = On/ Off **Verify Mode** Requires at least 2 sensors within the detector to detect movement before triggering the lights. Default = Yes, Option = Yes/ No

Output Ch. 2

Parameter	Default	Range/ Option	Description
Detection Mode	Pres	Pres (Presence) / Abs (Absence)	Select Pres to turn lights on when movement is detected and off when movement ceases. Select Abs to turn lights off when movement ceases, but the lights must be manually turned on by a switch or handset first.
Timeout	20 mins	0 - 99 minutes	How long the lights stay on for after movement has stopped.(channel 2)
Abs Recovery (secs)	10	0 - 99 seconds	Sets a period for a detector in Absence mode to operate in Presence mode after lights are turned off. This enables a person to use movement to retrigger lights which have switched off while they are still in the room. If **Abs Recovery (secs)** is set to a non-zero value you should also set **Inhibit (secs)** to 1 to detect any occupancy immediately. If gradual fade off is set on Ch2, then absence recovery timeout becomes equal to gradual fade time. Note: both Ch. 1 and Ch. 2 can have separate absence recovery time-outs, if Channel mode set is Switch and Dim Separate.
Lux On Level	999	0 - 999	Sets a minimum ambient light level below which lights are turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux Off Level	999	0 - 999	Sets a maximum ambient light level above which lights cannot be turned on by movement. The **Lux Off Level** value must always be greater than the **Lux On Level** value. Note: Lux ON/OFF Level can be individually set for each channel in Switch and Dim separate mode.
Lux On Time	0	0 - 99 minutes	When the ambient light falls below **Lux On Level**, the time to wait before switching on the lights. If at any time during the timed delay the lux change reverses then the process is cancelled. Note: Lux ON/OFF Time can be individually set for each channel in Switch and Dim separate mode. If you try to turn lights on using a switch or handset, the lights will go on regardless of ambient light level. However, if there is sufficient ambient light, they will turn off again after **Lux Off Time**.
Lux Off Time	0	0 - 99 minutes	When the ambient light rises above **Lux Off Level**, the time to wait before switching off the lights. If at any time during the timed delay the lux change reverses then the process is cancelled.
On Scene	1	1 - 7	Default scene to switch to after the detector times out and then powers up.

Parameter	Default	Range/ Option	Description
Load Type	0_10V or DALION depending on product	DSI/DALION/0_ 10V/1_10V depending on product	Indicates the dimming ballast type. **DSI** 　　Sets the ballast control protocol to DSI. **DALION** 　　Sets the ballast control protocol to DALI. **1_10V** 　　Sets the ballast control to 1-10V output for analogue dimming devices. **0_10V** 　　Sets the ballast control to 0-10V output for analogue dimming devices.
On Value	99	0 - 99	Dimmed output level when lights manually switched on.
Fade On Level	99	0 - 99	Sets a maximum light level to dim up to when movement detected.
Gradual Fade On Time	0	0 - 99 minutes	When fading up, how long to take to reach the required luminaire brightness. There are 2 modes of operation which is automatically determined by the unit. If Fade time set is a small value then the output changes by x level every 1 sec. If fade time is long then output changes every x secs.Lux Switching is also applied during fade time. If ambient light level in the room is below Lux On level and occupancy is in the room then output goes to ON Value immediately otherwise will fade up.
Fade Off Level	0	0 - 99	Sets a minimal light level to dim down to when no movement is detected.
Gradual Fade Off Time	0	0 - 99 minutes	When fading down, how long to take to reach the required luminaire dimness. There are 2 modes of operation which is automatically determined by unit. If Fade time set is a small value then output changes by x level every 1 sec. If fade time is long then output changes every x secs.Lux Switching is also applied during fade time. If ambient light level in the room is above Lux Off level and there is no occupancy in the room then output goes to Off Value immediately otherwise will fade down.In Presence mode if occupancy is detected in while fade off is in progress then output will immediately go to ON Value if no fade on is set.In Absence mode if occupancy is detected while fade off is in progress then output will continue to fade until switch is pressed to turn on lights.
Stepped Fade Off Time	0	0 - 99 minutes	How long to keep lighting at **Fade Off Level** before dimming to **Off Value**.
Dim Output	0	0 - 255	Use with the Readback function to see the dimming output level currently being sent to luminaires.

Parameter	Default	Range/ Option	Description
Off Value	0	0 - 99	Dimmed output level when lights manually switched off or after detector times out.
			In cases where you are also using lux switching, a non-zero value will result in dimmed lighting unless the ambient light level is bright enough for lights to be switched off completely (if used with the **Lux Switch NZOL** parameter).
Max Value	99	0 - 99	Maximum dimming output level.
Min Value	1	0 - 99	Minimum dimming output level.
Switch Memorise	No	Yes/No	If this is set to Yes, a manually-dimmed light level is memorised when the lights are manually switched off and used as the initial light level when the lights are manually switched on.This does not apply to Microwave detectors.
Burn-in Hours	0	1 - 999 hours (0 = disabled)	Determines how long the output will be at 100% so that new lamps burn-in. The burn-in time is not affected by power supply interruptions.
Speed (On)	40	0 - 99	Sets the dimming response speed after the setup time has finished.
			Measured in 0.1 sec intervals (i.e. a value of 40 means 4 seconds).
Speed (Setup)	5	0 - 99	Determines the dimming response speed during the set up time. Measured in 0.1 sec intervals. If set to "0" will disable dimming for **Set Seconds** below, used if fittings are required to warm up before dimming.
Set Seconds	120	1 - 999 seconds	Determines how long the dimming response set-up period lasts on power-up or on setting change. This enables the desired lux level to be achieved rapidly when the lights come on, or during setup.
EBDHS (High Bay)	-	-	Submenu for configuring high-bay detectors.
			PIR 1-5
			Switches each of the 5 sensors within the detector on or off individually.
			Default = On, Option = On/ Off
			Verify Mode
			Requires at least 2 sensors within the detector to detect movement before triggering the lights.
			Default = Yes, Option = Yes/ No

Config

Parameter	Default	Range/ Option	Description
Channel Mode	Switch and dim together	Switch only Switch and dim together Switch and dim separate	Submenu to configure dimming controls. **Switch only** Choose this option if the dimming channel is not required (for example with single channel devices). Usually used for absence detection, as in this mode the dimming channel is not used. **Switch and dim together** Choose this when the channel 1 output is also used to power dimming luminares on channel 2. If both channels are powered by an external source there is a 1 second delay between channel 1 luminaires being switched and dimming commands being sent on channel 2. To avoid this delay use the **Switch and dim separate** option. Note: when using this mode you set common parameters for both channels to the same values. **Switch and dim separate** Choose this option on unit when channel 1 is switched using the relay output and channel 2 is powered from an external 230V power source so that both channels work independently.
Switch Mode	*Switching Devices:* Long Press Off, Short Press On	Long Press Off, Short Press On Short Press Off, Short Press On	Submenu to configure switches. **Long Press Off, Short Press On** A single momentary switch where you must press for 3 seconds to switch the load OFF and a short press ON. **Short Press Off, Short Press On** A single momentary switch where a short press switches the load ON and another short press to switch OFF.

Parameter	Default	Range/ Option	Description
	Dimming Devices: 1 position switch together	2 position switch together 2 position switch separate 1 position switch together 1 position switch separate	**2 position switch together** A single centre-biased retractive switch controls both channels together **2 position switch separate** A single centre-biased retractive switch controls only the dimming channel **1 position switch together** A single position retractive switch controls both channels together **1 position switch separate** 2 single position retractive switches control the channels separately
Factory Reset	-	-	Clears any programmed settings and returns the device to its default set-up.
Soft Reset	-	-	Reboots the device, but retains all current settings.
Lux Cal Value	0	0 - 999	Enter the current reading of a lux meter to calibrate the photocell in the detector. If a further change is needed then reset **Lux Cal Value** to zero before entering a new reading from a meter. Note: this feature is useful when detectors are mounted high up, for example EBDHS high-bay detector, where actual lux level on floor is different to what detector sees. User can make photocell see the level on floor by sending the lux reading on floor to photocell. While setting the calibration level make sure you have set-up the right environment. Once value is set, photocell will follow the same trend.
Lux Cal Factor	0	0 - 999	Reads back the correction factor calculated from the photocell reading and **Lux Cal Value**.
IR Enabled	Yes	Yes/No	Set to **No** to prevent the device from receiving commands from the handset. The device's LED will flash several times if you try to send a command when in this state. Set to **Yes** to reenable programming.

User

Parameter	Default	Range/ Option	Description
Select Scene	1	1 - 8	The scene default levels are as follows: Scene 1 - Maintained illuminance Scene 2 - 100% Scene 3 - 75% Scene 4 - 50% Scene 5 - 25% Scene 6 - 15% Scene 7 - 10% Scene 8 - Off
Scene Up	-	-	Changes the scene from 1 up to 8.
Scene Down	-	-	Changes the scene from 8 down to 1.
Set Scene Level	0	0 - 255	Changes a particular scene's illumination level. Select the scene first using **Select Scene** and then send **Set Scene Level**. 255 = 100% 191 = 75% 128 = 50% 64 = 25% 26 = 10% 0 = Off
Raise	-	-	Increases light level. Reverts to programmed light levels when absence detected.
Lower	-	-	Decreases light level. Reverts to programmed light levels when absence detected.
Manual Set	-	-	Reserved for future use
Manual Override On	-	-	Turns lights on and reverts to automatic operation after the period set by **Manual Timeout** in the **Detector Params (Ch. 1 & 2)** menu.
Manual Override Off	-	-	Turns lights off and reverts to automatic operation after the period set by **Manual Timeout** in the **Detector Params (Ch. 1 & 2)** menu.
Manual Override Cancel	-	-	Cancels the manual on and off overrides, returning the detector to normal operation.
Override Perm On	-	-	Keeps the channel 1 relay closed. Channel 2 continues to send out dimming signals until a Cancel command has been received by sensor.
Override Perm Off	-	-	Keeps the channel 1 relay open. No dimming signal is sent by channel 2 unless **Off Value** has been set or a Cancel command is received by sensor. If **Off Value** is set to anything other than 0, then the channel 1 relay stays closed, and the channel 2 dimming **Off Value** continues to be sent out
Override Perm Cancel	-	-	Return to normal operation after one of the Permanent Override commands has been sent.

User

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Due to our policy of continual product improvement, CP Electronics reserves the right to alter the specification of this product without prior notice.