



A Simpler and Smarter Wireless Lighting Control Solution

Programming Guide

For SRP-281 OS-NET Remote Programmer with FW: 3.7 and above

Following settings are new features available on the OS-NET devices loaded with compatible firmware.

- DALI Power
- DAY/NIGHT SYNC
- DAYLIGHT OVERRIDE
- OVERRIDE LEVEL
- MINIMUM DIM
- MANUAL DIMMING
- FIND DEVICE

For the latest information of OS-NET device firmware compatibility, please visit www.irtec.com and check the "OS-NET Programming Tool".

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OS-NET Programming Guide

1. INTRODUCTION

Thank you for choosing OS-NET, a simpler and smarter wireless lighting control solution developed by IR-TEC to enable sophisticated smart control with ease. Herewith the OS-NET also represents the wireless mesh network formed by numerous wirelessly connected OS-NET devices; including OS-NET Sensors (ONS), OS-NET Buttons (ONB), and OS-NET Power Packs & Load Controllers (ONP).

An OS-NET network can be easily deployed and established through installing OS-NET enabled luminaires and lighting circuits. The OS-NET enabled luminaire refers to the luminaire integrated with an ONS, and the OS-NET enabled lighting circuit refers to the electrical power line controlled by an ONS or ONP. Each OS-NET device not only provides its distinctive functionalities to control the connected lighting and load, but also acts as a node to transmit, receive, or forward wireless commands to achieve code-compliant smart controls.

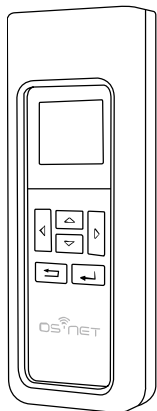
After installing an OS-NET enabled lighting system, every OS-NET device MUST be grouped to link with the same OS-NET network to enable wireless smart controls. Ensure to use the SRP-281 Remote Programmer to configure all OS-NET devices. An ungrouped ONS or ONP can only operate as standalone control.







This guide is created to help commissioning personnel complete OS-NET device configuration and control settings. Please read thoroughly before commissioning.

2. BASIC OPERATIONS

The SRP-281 is an exclusive handheld programming tool for configuring the OS-NET devices. In addition, it can be used to manually turn on/off or dim the OS-NET controlled lighting in individual/group basis.

Before operating, ensure that good batteries are correctly placed in the compartment. Press any button to activate the MAIN MENU to start. 6 buttons are available for the operation as below described;

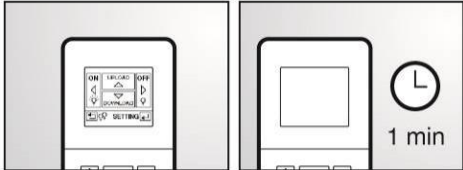
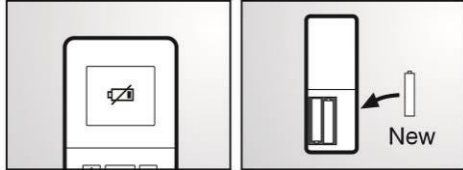
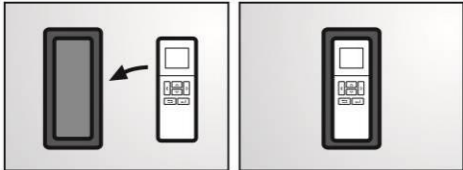

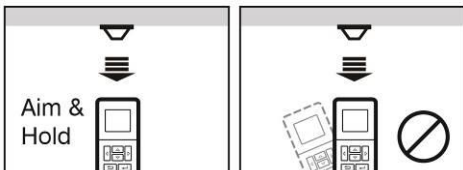
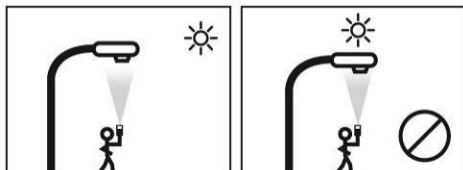

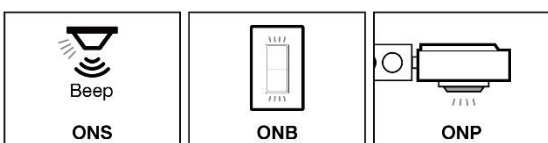
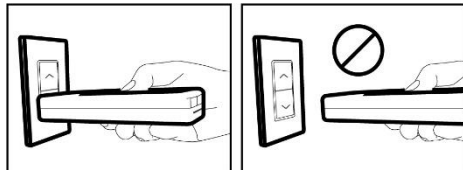
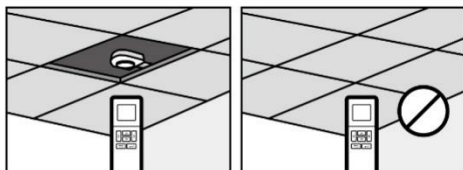


BUTTON	MAIN MENU	MANUAL DIMMING	SETTING PAGE
	Enter UPLOAD page	Dim UP the light	Move UP setting bar
	Enter DOWNLOAD page	Dim DOWN the light	Move DOWN setting bar
	Turn ON the connected light		Decrease setting value
	Turn OFF the connected light		Increase setting value
	Enter SETTING pages		Confirm operation or upload the setting
	Swap individual/group control Enter/exit manual dimming page (long press > 1 second)		Return to previous page Return to main menu (long press > 1 second)

NOTE: To verify the firmware version of remote programmer, remove the battery and replace, or enter REMOTE INFO page from DOWNLOAD page.

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






IMPORTANT NOTES

<p>The LCD will automatically shut off in 1 minute after the last button operation. Pressing any button will activate the LCD.</p> 	<p>If the low battery sign appears while activating the remote, please replace with new batteries as soon as possible.</p> 
<p>The rubber sleeve helps protect the remote from accidental fall. Always operate the remote with rubber sleeve on.</p> 	<p>The paper square tube supplied can be used as below illustrated to enhance remote communication with target sensor.</p> 
<p>To achieve successful upload/download, aim and hold the remote right under the target sensor until upload/download completed.</p> 	<p>Strong light on the remote window could affect the remote operation. Avoid downloading the sensor with strong light nearby or direct sunlight from the back.</p> 
<p>Most setting operations will be inhibited if network is locked. Ensure to unlock the network before change setting or adding new devices to an existing network.</p> 	<p>The OS-NET Sensor will beep and blink the LED, and the OS-NET Button and Power Pack will blink the LED to acknowledge successful setting.</p> 
<p>To configure an installed OS-NET Button with better success rate, please place the remote to the Button as illustrated below.</p> 	<p>To configure an OS-NET Power Pack installed above the ceiling, ensure that the device has a line-of-sight and face down to enable IR communication.</p> 

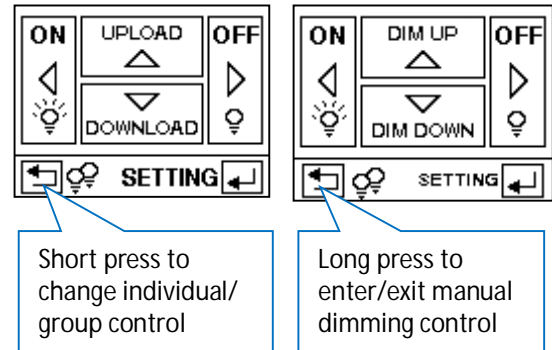
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2.1 MAIN MENU




The MAIN MENU allows you to do basic operations as below;





- To enter SETTING pages, press 
- To UPLOAD current setting or EZ-SET profile, press 
- To DOWNLOAD network/group/device/remote info, device setting, current dim/lux level, press 
- To turn OFF the light, aim at the sensor and press 
- To turn ON the light*, aim at the sensor and press 
- To change individual/group control, short press 
- To enter/exit manual dimming control, long press 

*OS-NET will resume control after the set delay time elapsed.









2.2 ON/OFF CONTROL

Press the  /  button with the remote pointing toward an OS-NET device will turn ON/OFF the light in individual or group basis. You may press the  button to swap between individual and group control.

A single-lamp (5) indicates that pressing the  /  button will turn ON/OFF ONLY the lights physically controlled by the OS-NET device. A double-lamp (5 5) indicates that pressing the  /  button will turn ON/OFF the lighting group of the OS-NET device assigned. This operation can help check if the lights are correctly grouped or not.

2.3 MANUAL DIMMING






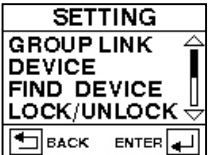
Manual dimming control can be enabled by long pressing the  button for more than 1 second. You may short press the  button to swap between individual and group control.

A single-lamp (5) indicates that pressing the  /  button will dim UP/DOWN the lights physically controlled by the OS-NET device. A double-lamp (5 5) indicates that pressing the  /  button will dim UP/DOWN the lighting group of the OS-NET device assigned. Manual dimming is ONLY available with OS-NET controlled dimmable luminaires.

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







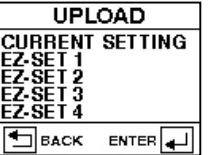

2.4 SETTING

The SETTING pages allow you to setup or change the settings of OS-NET devices. Followings are brief instructions of SETTING operation.

Operation Instructions	Remote Displays
<ol style="list-style-type: none"> Press  to enter into the SETTING pages from MAIN MENU. Press  or  to select the setting option and press  to enter. GROUP LINK - Group the device and link to the network. DEVICE - Set how the device will control the connected light. FIND DEVICE - Find devices of the same network/group, or day/night sync primary. LOCK/UNLOCK - Lock/unlock the network. SAVE/RECALL - Save/recall the control settings. Refer to Section 3 for detailed information of all setting items. 	<ol style="list-style-type: none"> MAIN MENU  SETTING options 
<p>NOTE: To setup newly installed OS-NET devices, you should complete GROUP LINK setting for all devices first. Then conduct the DEVICE control settings (one item at a time) via GROUP-SET to save time.</p>	

2.5 UPLOAD







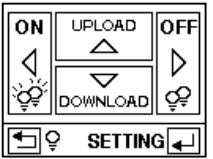


UPLOAD function allows you to configure device settings via simple remote operation. You may select the CURRENT SETTING or an EZ-SET profile for uploading to a specific OS-NET device.

Operation Instructions	Remote Displays
<ol style="list-style-type: none"> Press  to enter into UPLOAD pages from MAIN MENU with options below; CURRENT SETTING (Upload the current settings of the remote) EZ-SET 1 (Upload the EZ-SET 1 profile stored in the remote) EZ-SET 2 (Upload the EZ-SET 2 profile stored in the remote) EZ-SET 3 (Upload the EZ-SET 3 profile stored in the remote) EZ-SET 4 (Upload the EZ-SET 4 profile stored in the remote) Press  or  to select the EZ-SET profile for uploading. Press  to enter into next page with below options; GROUP LINK (Upload the group setting) DEVICE (Upload the device control setting) BOTH (Upload both the group and device control settings) Press  or  to select the data for uploading. Press  to confirm. Aim the remote at the target device and press  to upload the data. The remote will display UPLOAD OK following with a successful upload. If UPLOAD FAIL displays, wait for a moment and press  to upload again until successful. 	<ol style="list-style-type: none"> MAIN MENU  UPLOAD pages  
<p>NOTE: GROUP-SET is not available for UPLOAD operation, so you can only upload the setting to one device at a time.</p> <p>NOTE: It may take several seconds to complete data transmission, please aim and hold the remote while uploading.</p>	

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2.6 DOWNLOAD

DOWNLOAD function allows you to read numerous data from an installed device, including network and group info, device setting, current dim and lux levels, while you can also obtain basic information of the remote. The following are brief instructions of **DOWNLOAD** operations.

Operation Instructions	Remote Displays
<ol style="list-style-type: none"> Press  to enter into DOWNLOAD pages from MAIN MENU with below options NETWORK INFO (Download the network information of target device) GROUP INFO (Download the group information of target device) DEVICE SETTING (Download the control setting of target device) CURRENT DIM (Download the current dim level of target device) CURRENT LUX (Download the current lux level of target device) REMOTE INFO (Download the information of the remote) DEVICE INFO (Download the information of target device) Press  or  to select the download option, press  to confirm. Aim the remote at the target device (excl. REMOTE INFO) and press  to download the data. The remote will display DOWNLOAD OK follow with a successful download. If DOWNLOAD FAIL displays, wait for a moment and press  to try again until DOWNLOAD OK is shown. 	<ol style="list-style-type: none"> MAIN MENU  DOWNLOAD pages  
<p>NOTE: Downloaded data of GROUP INFO and DEVICE SETTING will be displayed on the respective pages.</p> <p>NOTE: It takes several seconds to complete data transmission, please aim and hold the remote while downloading.</p>	

3. SETTING

3.1 SETTING ITEMS

Table below highlights all setting items of the remote in page display sequence. Please note certain setting items are not available for OS-NET button and OS-NET power pack due to different functionality. The remote will display N/A to indicate non-applicable settings.

Setting	Item	Brief Description	ONS	ONB	ONP
GROUP LINK	EZ-GROUP	An easy way to group the OS-NET device and link with a network.	√	√	√
	ADVANCED	Setting advanced control, such as pre-lighting or directional lighting.	√	√	√
	UNGROUP	Disconnect a grouped device from the connected network.	√	√	√

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
Setting	Item	Brief Description	ONS	ONB	ONP
DEVICE	INDIV-SET	To set/change the device control settings in individual basis.	√		√
	GROUP-SET	To set/change the device control settings in group basis.	√		√
	CONTROL	Select the control scheme for the OS-NET device.	√		√ ¹
	DALI POWER	To enable DALI bus power output of line voltage OS-NET DALI sensor.	√		
	HIGH DIM	Lighting output level during occupancy with ambient lux lower than the threshold. To enable constant lighting level control, select SmartDIM.	√		√ ²
	LOW DIM/ SmartDIM	Lighting output level set to dim when space is vacant. This setting item will become the SmartDIM bar if SmartDIM is selected.	√		√ ²
	DAY/NIGHT SYNC	Setting the primary sensor in charge of sensing the ambient light level and reporting the day/night status to secondary devices of the group.	√		√ ²
	AMBIENT LUX	Thresholds of the ambient light level that will enable the OS-NET device to execute the control as set.	√		
	DELAY	Time that the device will turn off or fade down the controlled lighting after the area is vacated.	√		√
	TIME OFF	Time that the device will keep the light at low-dim level after the DELAY time elapsed.	√		√ ²
	RAMP UP	The speed of lighting output increase.	√		√ ²
	FADE DOWN	The speed of lighting output decrease.	√		√ ²
	VM-TB	Time duration BEFORE the Virtual Midnight. This item is only available if DSVM is selected.	√		
	VM-TA	Time duration AFTER the Virtual Midnight. This item is only available if DSVM is selected.	√		
	SENSITIVITY	Occupancy sensing sensitivity. To disable the occupancy sensing capability, select OFF.	√		
	LED INDICATOR	To enable/disable the LED indicator of movement detection of OS-NET devices.	√		√
	BURN-IN	Select time duration for burn-in test. To conduct burn-in test with uncertain time duration, select MANUAL.	√		√
	TEST (10-MIN)	Device will control the light as the scheme set, but with 10 seconds delay. Automatic exit to resume normal control after 10 minutes.	√		√
	DAY O'RIDE	Enable/disable daylight override control. Device will shut off the light when ambient lux exceeds the override level set below. Only available if AMBIENT LUX is enabled.	√		
	O'RIDE LEVEL	Set the ambient lux level to enable daylight override. Only available if DAY O'RIDE is enabled.	√		
	MINIMUM DIM	Set the lowest dim level applicable on the device.	√		√ ²
	DEFAULT	Resume factory default settings of the REMOTE or DEVICE.	√	√	√
FIND DEVICE	NETWORK	Find all devices of the same network.	√	√	√
	GROUP	Find all devices of the same group.	√	√	√
	D/N SYNC PRIMARY	Find the primary device (if applicable) of day/night sync of the group.	√		
LOCK/ UNLOCK	LOCK	Lock the network to inhibit unauthorized OS-NET device linkage or control setting change.	√	√	√
	UNLOCK	Open the network to allow adding OS-NET devices or change setting .	√	√	√
	AUTO-LOCK	The network will be automatically locked in 12 hours.	√	√	√

¹ ON-PPU-301/ON-PPU-302 only.

² ON-PPU-302 only.

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3.2 GROUP LINK

GROUP LINK is the most important task to establish an OS-NET enabled lighting system with correct performance. After all installation complete, every OS-NET device must be link up to the network via grouping process. Press  from MAIN MENU to enter the SETTING menu and select GROUP LINK to enter the setting page. Three items (EZ-GROUP, ADVANCED, UNGROUP) are available for selection.

NOTE: An ungrouped OS-NET Sensor will only operate in standalone control, ungrouped OS-NET Buttons or Power Packs will be functionless. Incorrectly grouped OS-NET devices may perform unexpectedly.

3.2.1 EZ-GROUP

EZ-GROUP is a very common setting operation that not only allows you to create a new OS-NET network, but also links the OS-NET devices to a network through grouping process.

IMPORTANT NOTE!

- A. Use ONE remote to group ALL devices for the same network. Avoid using multiple remotes to conduct grouping process in the same time as this may likely create multiple networks at the same site.
- B. Group control will NOT work if the OS-NET devices are assigned to the same group but different networks (different PAN ID's). You can download the "NETWORK INFO" from the "grouped" devices to confirm if they have the same PAN ID's or not.

● Creating a New OS-NET Network

After installing an OS-NET enabled lighting system, the first thing to be done is to create a new network for all OS-NET devices to link and form a wireless mesh network to enable smart lighting control. A distinctive PAN ID (excl. 0000) will be given by the system after the network is created. To create a new OS-NET network, please follow the instructions below;

1. Ensure the site does not have any open (unlocked) OS-NET network. See the NOTE below to check if the site is clear or not.
2. Select 2 adjacent OS-NET devices and assign with the respective group number via EZ-GROUP setting (see the next section) within 1 minute. The device LED will blink in **BLUE** and **GREEN** intermittently while linking, and eventually display in **GREEN** to indicate that an OS-NET network is created.

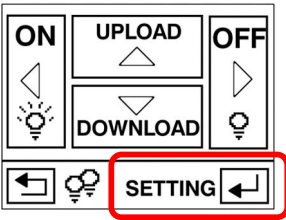

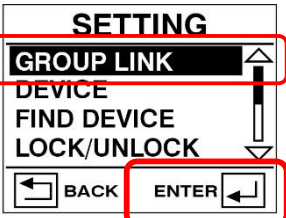

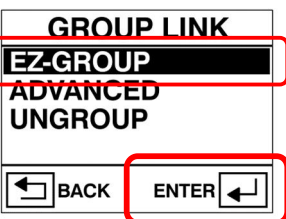

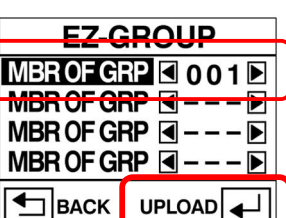



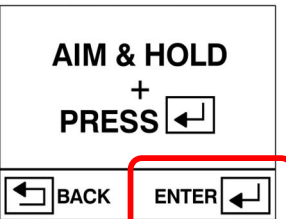




NOTE: To verify if the site is clear of any open OS-NET network, you can select an installed OS-NET device and test with a temporary EZ-GROUP setting. Wait and observe the device LED after uploading the group setting data. If the device LED remains in **BLUE** after the network linking process completed, it means the site is clear. If the LED eventually displays in **GREEN**, it means the site has at least one open (unlocked) OS-NET network.

NOTE: Ensure to UNGROUP the testing device to off-link from the connected network, and LOCK the network before creating a new networking. If locking the neighboring network is not possible due to inaccessibility, select other OS-NET devices far from the undesired network to create a new network.

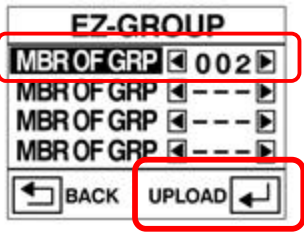
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● Group and Link Single-Group Devices

Single-group control device means the device belongs to ONE lighting group only.

Step	Remote Display	Operation and Notes
1		Press  to enter the SETTING menu from MAIN MENU (as shown).
2		Select GROUP LINK. Press  to enter the GROUP LINK page.
3		Select EZ-GROUP. Press  to enter the EZ-GROUP page.
4		Select the assigned group number (001-250) for the device by pressing  or  on the 1 st line of MBR OF GRP. <u>Do NOT select any group number for the other lines.</u> NOTE: Group number 001 is just an example. Press  to upload the grouping data.
5		Aim the remote at the target device. Press  and hold until the transmission completed. NOTE: The OS-NET device will respond according to the Setting Acknowledgment Indication (refer to section 4).
6		If UPLOAD OK, the connected light will respond according to the Setting Acknowledgement Indication (refer to section 4). To assign the other device to the SAME group, aim the remote at the device and press  to upload again. NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown.

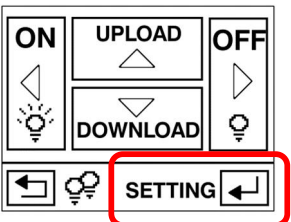

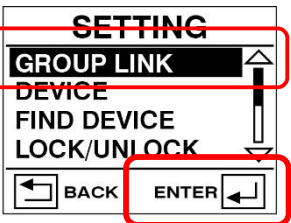

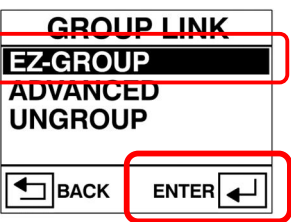

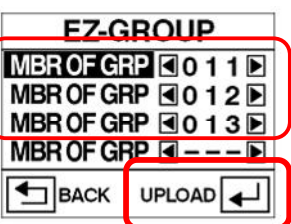

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7		<p>To assign other device to a DIFFERENT group, return to the EZ-GROUP page. Select the group number (002-250) for the device on the SAME line of MBR OF GRP. Repeat step 5 to 7 until all devices are grouped successfully. <u>Do NOT select any group number for the other lines.</u></p> <p>NOTE: Group number 002 is just an example.</p>
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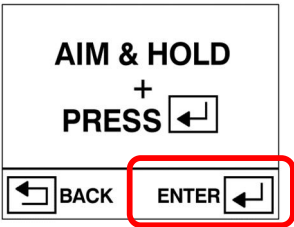





NOTE: The device will blink its LED in BLUE and GREEN intermittently while linking up the network and eventually display in GREEN to indicate successful network linkage.

● Group and Link Multi-Group Devices

Multi-group device means that the device can control multiple lighting groups. An OS-NET device can be assigned to be member of maximum 4 groups.

Step	Remote Display	Operation and Notes
1		<p>Press  to enter the SETTING menu from MAIN MENU (as shown).</p>
2		<p>Select GROUP LINK.</p> <p>Press  to enter the GROUP LINK page.</p>
3		<p>Select EZ-GROUP.</p> <p>Press  to enter the EZ-GROUP page.</p>
4		<p>Select the assigned group numbers (001-250) for 2/3/4 lines of MBR OF GRP to achieve a 2/3/4-group control respectively.</p> <p>Ex: Set the device to belong to group 11, 12, and 13 for a 3-group control.</p> <p>Press  to upload the grouping data to the target device.</p>

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5		<p>Aim the remote at the target device.</p> <p>Press  and hold until transmission completed.</p> <p>NOTE: The OS-NET device will respond according to the Setting Acknowledgment Indication (refer to section 4).</p>
6		<p>If UPLOAD OK, the connected light will respond according to the Setting Acknowledgement Indication (refer to section 4). To assign other devices to the SAME groups, aim the remote at the device and press  to upload again.</p> <p>NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown.</p>
7		<p>To assign other devices to DIFFERENT groups, return to the EZ-GROUP page. Select the group numbers for the device on the respective lines of MBR OF GRP. Repeat Step 5 to 7 until all devices are grouped successfully.</p> <p>Ex: Set the device to belong to group 11, 14, and 15 for a 3-group control.</p>

NOTE: After grouping all devices to a specific group, test with Group On/Off via remote to verify all devices are grouped correctly.


● Group and Link more OS-NET Devices to an Existing Network

If you cannot group and link all OS-NET devices in one time, ensure to LOCK the network before leaving the site. To group and link more OS-NET devices to the same network some other time, ensure to UNLOCK the network before grouping to avoid creating multiple networks at the same site.

Repeat EZ-GROUP process to group and link the ungrouped OS-NET devices. Grouping device will blink its LED while scanning for an open OS-NET to link up. Configure DEVICE settings as required after all devices are grouped and linked to the same network.

NOTE: Having multiple networks at the same site is not preferred as this could result in group control failure.

● Change the Group Assignment

To change the group assignment of a networked OS-NET device, enter the EZ-GROUP page and select the NEW group number(s), aim at the target device and press  to upload the grouping data. The device will acknowledge the group change completion according to Setting Acknowledgment Indication (refer to section 4).

NOTE: A locked network will inhibit adding new devices, group or device control setting change.

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3.2.2 ADVANCED

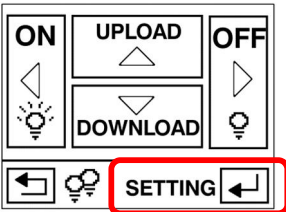

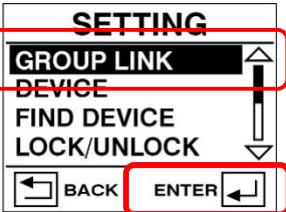

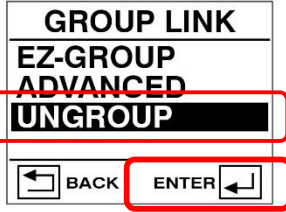



Although most group controls can be achieved by EZ-GROUP setting, some special applications may require sophisticated group control that may require ADVANCED setting to achieve.

Example of special one-way control: When Zone A is occupied, the lighting of Zone A and B should be activated. But when Zone B is occupied, only the lighting of Zone B is required to be activated.

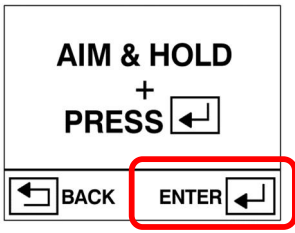




Typical group control of OS-NET Sensors is actually a combined operation of TRANSMITTING and RECEIVING groups. To achieve the one-way control as above example, you can use EZ-GROUP to setup the OS-NET Sensors of Zone A and Zone B with respective group numbers. Then use the ADVANCED setting to add the group number of Zone B to the TRANSMITTING group of Zone A sensors, or add the group number of Zone A to the RECEIVING group of Zone B sensors.

3.2.3 UNGROUP

If an OS-NET device has been mistakenly connected to an undesired network, you can UNGROUP the device to disengage from the network. The LED of an ungrouped sensor will become **BLUE**. You can also download the NETWORK INFO of an ungrouped device and check if the PAN ID is 0000.

Step	Remote Display	Operation and Notes
1		Press  to enter the SETTING menu from MAIN MENU (as shown).
2		Select GROUP LINK. Press  to enter the GROUP LINK page.
3		Select UNGROUP. Press  to enter the UNGROUP page.
4		Select YES and press  to enter UNGROUP page.

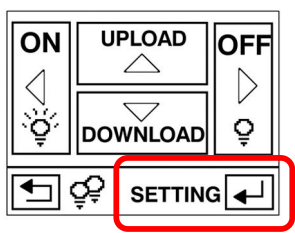

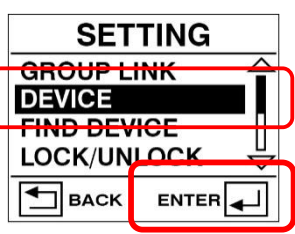

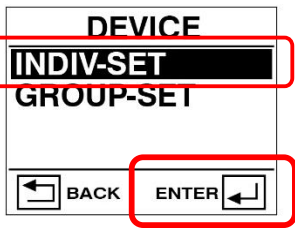

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5		<p>Aim the remote at the target device.</p> <p>Press  and hold until transmission completed.</p>
6		<p>If UPLOAD OK, the LED indicator of device will respond according to the Setting Acknowledgement Indication (refer to section 4). To UNGROUP other devices, aim the remote at the device and press  to upload again.</p> <p>NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown.</p>

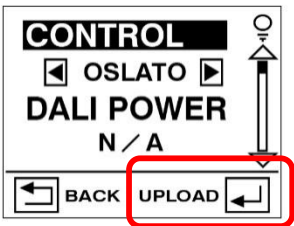







3.3 DEVICE

DEVICE setting is to configure how the OS-NET Sensor or Power Pack will control the connected load. Single lamp (5) indicates setting individual device, double lamp (5 5) indicates setting the devices in group basis. NOTE: Only networked devices can be set or changed (ONE item at a time) in group basis.

Setting the OS-NET device individually



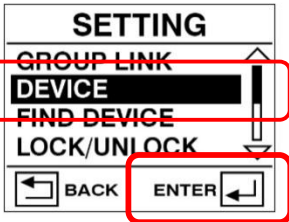

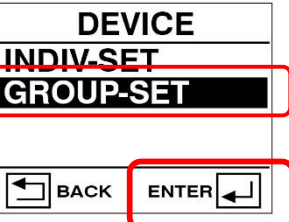

Step	Remote Display	Operation and Notes
1		<p>Press  to enter the SETTING menu from MAIN MENU (as shown).</p>
2		<p>Select DEVICE.</p> <p>Press  to enter the DEVICE page.</p>
3		<p>Select INDIV-SET.</p> <p>Press  to enter the INDIV-SET page.</p>

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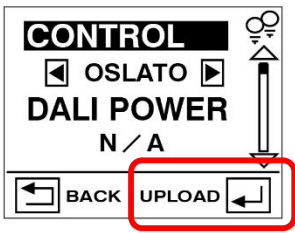





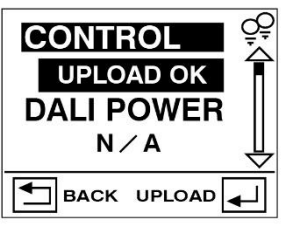

4		<p>A single lamp (5) sign will display at the upper right corner of setting pages to indicate that you are setting an individual sensor.</p> <p>Press  or  to select the setting item.</p> <p>Press  or  to select the parameter.</p> <p>Aim the remote at the target device.</p> <p>Press  to upload the setting data.</p>
5		<p>If UPLOAD OK, the device will acknowledge according to the Setting Acknowledgement Indication (refer to section 4).</p> <p>NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown.</p>

Setting the OS-NET devices in group basis

Select GROUP-SET after entering the DEVICE setting page. Select the setting parameter and upload to an OS-NET Sensor, all other sensors of the group will control the connected lights in the same scheme and parameters.

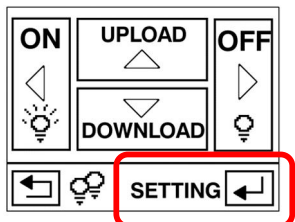

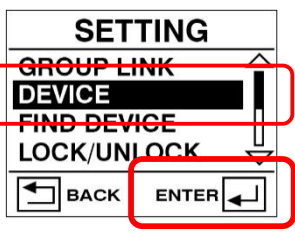

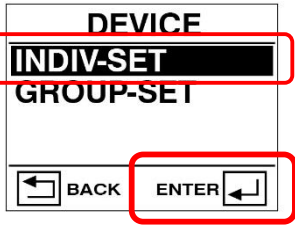

Step	Remote Display	Operation and Notes
1		<p>Press  to enter the SETTING menu from MAIN MENU (as shown).</p>
2		<p>Select DEVICE.</p> <p>Press  to enter the DEVICE page.</p>
3		<p>Select GROUP-SET.</p> <p>Press  to enter the GROUP-SET page.</p>

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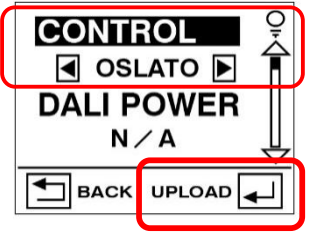







4		<p>A double lamp (5 5) sign will display at the upper right corner of setting pages to indicate that you are setting sensor control parameter in group basis.</p> <p>Press  or  to select the setting item.</p> <p>Press  or  to select the parameter.</p> <p>Aim the remote at the target device.</p> <p>Press  to upload the setting data.</p>
5		<p>If UPLOAD OK, the device will acknowledge according to the Setting Acknowledgement Indication (refer to section 4).</p> <p>NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown.</p>

● CONTROL

Each OS-NET sensor and power pack can be set to provide specific control scheme to the light connected, including on/off switching, bi-level or continuous dimming based on occupancy, vacancy and daylight sensing control strategies.

Step	Remote Display	Operation and Notes
1		<p>Press  to enter the SETTING menu from MAIN MENU (as shown).</p>
2		<p>Select DEVICE.</p> <p>Press  to enter the DEVICE page.</p>
3		<p>Select INDIV-SET or GROUP-SET.</p> <p>Press  to enter the page.</p> <p>NOTE: Selecting INDIV-SET is just an example.</p>

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4		<p>A single lamp (5) sign will display at the upper right corner of setting pages to indicate that you are setting an individual sensor.</p> <p>Press  or  to find CONTROL.</p> <p>Press  or  to select the mode with below options.</p> <ul style="list-style-type: none"> ON/OFF (On/off switching) OSO (Occupancy sensing only) OSLA (Occupancy sensing at low ambient light) OSLATO (Occupancy sensing at low ambient light with time off) DSVM (Daylight sensing with virtual midnight) DSC (Daylight sensing control) VSC (Vacancy sensing control) OSB (Occupancy sensing with background lighting) OFF (Always off) PLC (Plug load control) <p>Aim the remote at the target device.</p> <p>Press  to upload the setting data.</p> <p>NOTE: Different device have different modes available for setting, following table highlights all control schemes available on the OS-NET device.</p>
5		<p>If UPLOAD OK, the device will acknowledge according to the Setting Acknowledgement Indication (refer to section 4).</p> <p>NOTE: If UPLOAD FAIL, wait for a few seconds and press  to upload again until UPLOAD OK is shown. If device NOT MATCH, check the available modes on the device through DOWNLOAD DEVICE SETTING for the available settings.</p>

OS-NET Sensor

Scheme	Status	Day*	Night*	Description
ON/OFF	Vacant	OFF		Lighting will be inhibited when the ambient light level is higher than the set threshold, regardless of occupancy or vacancy. When the ambient light level is lower than the set threshold, the controlled light will be turned on automatically once the sensor detects the presence of occupant, and turned off after the delay time elapsed. NOTE: This is a typical occupancy sensing control scheme for dimmable or non-dimmable lighting, but not HID.
	Occupied	OFF	ON	
OSO	Vacant	Low Dim		When space is vacant, the lights will be maintained at Low Dim level. Whenever space is occupied, lighting output will be increased to High Dim level or continuously regulated to maintain within the pre-set range by SmartDIM control. NOTE: This is an occupancy sensing control scheme that can be applied in areas that require 24-hour lighting. Do NOT use this for non-dimmable lighting.
	Occupied	High Dim		
		SmartDIM		

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OSLA	Vacant	OFF	Low Dim	Lighting will be inhibited if the ambient light level is higher than the set threshold, regardless of occupancy or vacancy. When the ambient light level is lower than the set threshold, the sensor will automatically control the light at Low Dim level. When sensor detects the presence of an occupant, lighting output will be increased to the High Dim level or continuously regulated within the pre-set range by SmartDIM control. After the delay time elapsed, lighting output will be reduced to Low Dim level or shut off if the ambient light is higher than the set threshold. NOTE: This is an occupancy sensing control scheme for areas that require automatic lighting whenever ambient light level is lower than the set threshold. Do NOT use this for non-dimmable lighting.
	Occupied	OFF	High Dim	
		SmartDIM		
OSLATO	Vacant	OFF	Low Dim & OFF	Lighting will be inhibited if the ambient light level is higher than the set threshold, regardless of occupancy or vacancy. When the ambient light level is lower than the set threshold, and any sensor detects the presence of occupant, lighting output will be increased to High Dim level or continuously regulated to maintain overall lighting level within the pre-set range by SmartDIM control. After the delay time elapsed, lighting output will be reduced to Low Dim level for a period of TIME OFF delay before shut off. NOTE: This is an occupancy sensing control scheme can be applied in spaces that require to provide Low Dim lighting for a period of time (TIME OFF delay) before shutting off. This scheme requires dimmable lighting to enable dimming control. If lighting is non-dimmable, the controlled lights will be shut off after the TIME OFF delay elapsed.
	Occupied	OFF	High Dim	
		SmartDIM		
DSVM	Vacant	OFF	High Dim/ SmartDIM & Low Dim	Lighting will be inhibited if the ambient light level is higher than the set threshold. When the ambient light level is lower than the set threshold, the sensor will turn the light to High Dim level or continuously regulate the output to maintain overall lighting level within the pre-set range by SmartDIM control. Lighting output will be reduced to Low Dim level from a certain time before virtual midnight to a certain time after. NOTE: This is a daylight sensing control scheme that can be applied in spaces that require automatically dimming the light to a low level between a certain period before and after virtual midnight. This scheme requires dimmable lighting to enable dimming control.
	Occupied	OFF	High Dim/ SmartDIM & Low Dim	
DSC	Vacant	OFF	High Dim/ SmartDIM	The sensor will automatically turn on the light to High Dim level or continuously regulate the output to maintain overall lighting level within the pre-set range by SmartDIM control when the ambient light level is lower than the set threshold, and automatically turn off the light when the ambient light level is higher than the set threshold. NOTE: This is a daylight sensing control scheme that can be applied in spaces that require automatic lighting whenever the ambient light is lower than the set threshold. This scheme requires dimmable lighting to enable dimming control. If lighting is non-dimmable, all lights will remain full on whenever ambient light level is lower than the threshold.
	Occupied	OFF	High Dim/ SmartDIM	
VSC	Vacant	OFF		The occupant would have to press the OS-NET Button to turn on the lighting group assigned. The sensor will control the lights at High Dim level or continuously regulate the output to maintain overall lighting level within the pre-set range by SmartDIM control. The sensor will control the connected lighting as per OSLATO.
	Occupied	Manual ON		

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				<p>NOTE: This is a vacancy sensing control scheme that can be applied in spaces that require users to manually turn on the light, and have the sensor turn off automatically.</p> <p>This scheme requires dimmable lighting to enable dimming control. If lighting is non-dimmable, the controlled lighting will be shut off after the TIME OFF delay elapsed.</p>
OSB	Vacant	OFF	OFF/Low Dim	<p>Lighting will be inhibited if the ambient light level is higher than the set threshold, regardless of occupancy or vacancy. When the ambient light level is lower than the set threshold and the first occupant is detected by a grouped sensor, the output of sensor connected light will be increased to High Dim level or continuously regulated within the pre-set range by SmartDIM control during occupancy, and the unoccupied areas of entire lighting group will brighten up to Low Dim level as background light. The entire lighting group turns off after the last person leaves and delay time elapsed.</p> <p>NOTE: This is an advanced occupancy sensing control scheme that can be applied in open offices to provide background light level before the area of entire lighting group is vacant.</p> <p>Do NOT use this scheme to control non-dimmable lighting.</p>
	Occupied	OFF	High Dim	
		SmartDIM		
OFF	Vacant	OFF	OFF	<p>Once this scheme is set, all OS-NET controlled light will remain off until another scheme is selected.</p> <p>NOTE: This manual control scheme can be used when all lights are required to be off for a certain period of time.</p>
	Occupied	OFF	OFF	

*Day/Night refers to the condition when the ambient light level is higher/lower than the set value of AMBIENT LUX.

OS-NET Power Pack (ON-PPU-301/ON-PPU-302)

Scheme	Status	Operation	Description
ON/OFF	Occ received	ON	<p>The load will be switched on when ON-PPU receives 1) control signal from a wired low voltage sensor, or 2) wireless command from a grouped OS-NET device, and switched off when delay time elapses or receives the off command from a grouped OS-NET button. If the load was switched off via the OS-NET button, the load will remain off if motion is detected before the delay time elapse. The ON-PPU will resume to auto-on, auto-off control after delay time elapsed.</p>
	Delay ends	OFF	
OSO ¹	Occ received	ON	<p>The load will be switched on when ON-PPU receives 1) control signal from a wired low voltage sensor, or 2) wireless command from a grouped OS-NET device, and reduce lighting to low dim when delay time elapses. If the load was switched off via the OS-NET button, the load will remain off if motion is detected before the delay time elapse. The ON-PPU will resume to OSO control after delay time elapsed.</p>
	Delay ends	LOW DIM	
OSLATO ¹	Occ received	ON	<p>The load will be switched on when ON-PPU receives 1) control signal from a wired low voltage sensor, or 2) wireless command from a grouped OS-NET device. After delay time elapsed, lighting output will be reduced to low dim for a period of TIME OFF delay before shutoff. If the load was switched off via the OS-NET button, the load will remain off if motion is detected before the delay time elapse. The ON-PPU will resume to OSLATO control after delay time elapsed.</p>
	Delay ends	LOW DIM & OFF	
VSC	Manual On received	ON	<p>This control requires user to turn on the load by pressing a grouped OS-NET Button, and the ON-PPU will turn off the load when delay time elapses. If the load was switched off via the OS-NET button, the</p>
	Delay ends	LOW DIM ¹ & OFF	

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			load will remain off if motion is detected before the delay time elapse. The ON-PPU will resume to VSC control after delay time elapsed.
PLC ²	Occ received	ON	The ON-PPU will enable the plug load power when it receives 1) control signal from a wired low voltage sensor, or 2) wireless command from a grouped OS-NET device, and switch off the plug load after the area is vacant and delay time elapsed. NOTE: If PLC is selected, the OFF-command from OS-NET Button will be ignored.
	Delay ends	OFF	

¹ ON-PPU-302 only.

² ON-PPU-301 only.

● DALI POWER

DALI POWER allows you to enable DALI bus power output from a line voltage OS-NET DALI sensor. DALI bus power can be used as power supply for certain DALI device. Consult the manufacturer of DALI device for the availability.







● HIGH DIM/SmartDIM

HIGH DIM is for setting the output level (%) of the OS-NET device (with dimming capabilities) controlled light during occupancy, or when the ambient light level is lower than the day/night threshold if daylight sensing control is selected. Total 8 levels (50% ~ 100%) can be set for bi-level StepDIM control.

If constant lighting (continuous dimming) control is required, you can set the OS-NET Sensor with SmartDIM control. The sensor will then automatically regulate the output of controlled light to maintain the overall light level within the preset range, based on local artificial lighting and daylight available. If SmartDIM is selected, it is necessary to set the SmartDIM level as the target for OS-NET Sensor to control.

SmartDIM Setting

SmartDIM is only available on OS-NET Sensors, and can only be set one sensor at a time.

1. If selecting the HIGH DIM with SmartDIM, a SmartDIM setting bar will display. Press  to SmartDIM to enable setting the target level.
2. Place a lux meter at target spot to measure the overall light level if necessary. Aim the remote at the sensor and press  to decrease, or  to increase the target level in step.
NOTE: Press and hold  or  to change the lighting output in faster speed.
3. Once reaching the desired light level, aim at the sensor and press  to memorize the setting.
NOTE: The sensor will turn the controlled light off and on 2 times to acknowledge the setting successful.

Important! For daylight areas, it is important to set the SmartDIM level at the time when natural daylight is lower than 1/2 of the desired level. For the areas without daylight, you can set the SmartDIM level anytime.

● LOW DIM/SmartDIM

LOW DIM setting is to set the output level (in %) of connected light during vacancy. OS-NET device with dimming capabilities will regulate the output of controlled light to the level as set if the control scheme is set with OSO, OSLA, OSLATO, DSVM, VSC, or OSB. Setting the LOW DIM at 0 means light off during vacancy. If SmartDIM is

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selected at the HIGH DIM setting, the LOW DIM setting will become the SmartDIM setting bar. The LOW DIM level under SmartDIM control will be approximately 1/2 of the SmartDIM level.

● DAY/NIGHT SYNC

DAY/NIGHT SYNC is to set a specific OS-NET Sensor as the primary ambient light level sensor to synchronize day/night state of a lighting group. One lighting group can have only ONE "PRIMARY" sensor. Once the primary sensor is set, the other sensors of the group will automatically become "SECONDARY" sensors. OS-NET Power Pack can only be set as "SECONDARY".

PRIMARY - Set the sensor as PRIMARY to determine day/night state of the lighting group.

SECONDARY - Set the sensor as SECONDARY. The ambient light level sensing capability will be inhibited.

DISABLED - Disable the Day/Night Sync control and resume normal.

● AMBIENT LUX

AMBIENT LUX represents the ambient light level for the OS-NET Sensor to execute daylight harvesting control. The lower the value is, the darker the OS-NET Sensor will start controlling. DISABLED means to disable the photocell and the OS-NET Sensor will control the light at all time. CURRENT means to set the current ambient light level as the day/night threshold.

● DELAY

DELAY represents the time that OS-NET device will dim the light to LOW DIM or turn off after the area is vacated. Setting options range from 30 seconds to 60 minutes.

● TIME OFF

TIME OFF represents the time that OS-NET device will maintain the light at LOW DIM after the DELAY time elapsed. TIME OFF setting is only available if OSLATO/VSC/OSB control is selected. Setting options range from 10 seconds to 60 minutes.

● RAMP UP

RAMP UP is the speed of lighting output will be increasing when sensor detects the presence of occupant. Three speeds (INSTANT/SOFT/SLOW) are available for selection.

● FADE DOWN

FADE DOWN is the speed of lighting output will be shut off or decreasing to the LOW DIM level. Three speeds (INSTANT/SOFT/SLOW) are available for selection.

● VM-TB

VM-TB is to set the time period BEFORE Virtual Midnight. This setting is available only if DSVM control is set.

● VM-TA

VM-TA is to set the time period AFTER Virtual Midnight. This setting is available only if DSVM control is set.

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● SENSITIVITY

SENSITIVITY is for setting the occupancy sensing sensitivity of OS-NET Sensor. For typical low bay applications, LOW sensitivity can be set to eliminate false-on triggering. For medium to high bay applications, NORMAL or HIGH can be set to enhance the motion sensing capability.

For the area with interference source for occupancy sensor, you may disable the occupancy sensing capability of local sensor by setting the SENSITIVITY as OFF. For the sensor with occupancy sensing capability disabled, it will require the OCC signal from other OS-NET devices of the same group to execute its control.

● LED INDICATOR

LED INDICATOR is to enable/disable the LED indicator of OS-NET devices.

● BURN-IN

BURN-IN setting is to conduct a test on all connected lightings with full on for a period of time set (in hours) or manually control to start and stop the test by the remote.

● TEST (10-MIN)

A 10-minute TEST mode can be initiated for you to verify how the OS-NET devices will control the lights with a shorten delay (10 seconds). The OS-NET device will automatically resume to normal control after 10 minutes. You may also exit from TEST mode anytime by giving the STOP command to the OS-NET device.

● DAY O'RIDE

This setting allows you to enable/disable daylight override control of the sensor. Daylight override enabled means lighting will be shut off if ambient light level exceeds the override level set even with occupancy detected. DAY O'RIDE setting is only available if AMBIENT LUX is enabled.

● O'RIDE LEVEL

This setting is to set the overall ambient light level (artificial and daylight combined) for daylight override to shut off the lighting.

HIGH – Approximately 1.8X of the overall ambient light level.



NORMAL - Approximately 1.5X of the overall ambient light level.

LOW - Approximately 1.3X of the overall ambient light level.

● MINIMUM DIM

This setting allows you to set the lowest dim level of the OS-NET device to prevent low-dim flickering.

● DEFAULT

DEFAULT allows you to resume factory default settings for the REMOTE or DEVICE. To resume factory default for an OS-NET device, select DEVICE and press  while aiming the remote toward the device. To resume factory default for the SRP-281 remote programmer, just select REMOTE and press . DEFAULT can only be done in INDIV-SET.

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3.4 FIND DEVICE

FIND DEVICE allows you to find the devices of a NETWORK or a GROUP, and the PRIMARY sensor of Day/Night Sync control.

NETWORK is to find all the OS-NET devices of the same network.

GROUP is to find all the OS-NET devices of the same group.

D/N SYNC PRIMARY is to find the primary of the DAY/NIGHT SYNC group.

3.5 LOCK/UNLOCK

To prevent undesired linking to an existing OS-NET network, or unauthorized setting changes on the networked OS-NET devices, ensure to lock the network before leaving the site, after complete grouping and setting the devices.

LOCK is to close the network to inhibit adding new OS-NET devices, or change setting on the networked OS-NET devices.

UNLOCK is to open the network to allow adding new OS-NET devices to the network, or change setting on the networked OS-NET devices. Grouping new devices without unlocking the target network will create multiple networks at site.

AUTO-LOCK is a self-activated network protection that will automatically lock the network in 12 hours after firstly created or unlocked. The AUTO LOCK function can be enabled to prevent accidental linkage by neighboring network in case of forgetting to lock the network.

NOTE

1. If setting the whole network requires more than one day, and you cannot be sure about if any other OS-NET will be established within the area before all settings complete, please enable the AUTO LOCK.
2. A locked network still allows certain remote control operations, including Light ON, Light OFF, Manual dimming, TEST, BURN-IN, current lux/dim and network data reading.

To LOCK an OS-NET network

1. Enter the LOCK/UNLOCK page and select LOCK.
2. Point the remote to any networked OS-NET device and press ENTER.

To UNLOCK an OS-NET network

1. Enter the LOCK/UNLOCK page and select UNLOCK.
2. Point the remote to any networked OS-NET device and press ENTER.

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
To enable AUTO-LOCK

1. Enter the LOCK/UNLOCK page and select AUTO-LOCK.
2. Press enter and select ENABLED.
3. Point the remote to any networked OS-NET device and press ENTER.




3.6 SAVE/RECALL

SAVE is to store a specific control scheme with desired parameters as an EZ-SET profile into the remote for future use. RECALL is to recall the DEFAULT setting of a specific OS-NET device, or a saved EZ-SET profile in the remote for uploading to the OS-NET device. NOTE: SAVE/RECALL is a remote setting operation that can be done off site.

To save the current settings as a new EZ-SET profile

1. Enter the SETTING page and select DEVICE.
2. Enter INDIV-SET and press  or  to navigate the setting item.
3. Press  or  to select the desired parameter.
4. Continue setting on all other items as required.
5. Enter the SAVE AS page and select an EZ-SET profile (1-4) to be saved.
6. Press  to save the settings as a new EZ-SET profile.

To recall the DEFAULT setting or saved EZ-SET profile

1. Enter the SETTING page and select SAVE/RECALL.
2. Select RECALL.
3. Press  or  to select the EZ-SET profile (DEFAULT, 1-4).
4. Press  to recall the settings.

Factory preset parameters of EZ-SET profiles

PROFILE	DEFAULT	EZ-SET 1	EZ-SET 2	EZ-SET 3	EZ-SET 4
CONTROL	OSLATO	ON/OFF	OSO	OSLA	OSLATO
DALI POWER	N/A	N/A	N/A	N/A	N/A
HIGH DIM	100%	SmartDIM	70%	80%	SmartDIM
LOW DIM	30%		20%	30%	
DAY/NIGHT SYNC	DISABLED	N/A	N/A	DISABLED	N/A
AMBIENT LUX	DISABLED	N/A	N/A	200 LUX	N/A
DELAY	10 MIN	5 MIN	3 MIN	10 MIN	5 MIN
TIME OFF	10 MIN	N/A	N/A	N/A	10 MIN
RAMP UP	INSTANT	INSTANT	SOFT	INSTANT	SOFT
FADE DOWN	SOFT	SOFT	SOFT	SLOW	SLOW
VM-TB	N/A	N/A	N/A	N/A	N/A
VM-TA	N/A	N/A	N/A	N/A	N/A
SENSITIVITY	HIGH	HIGH	NORMAL	NORMAL	NORMAL
LED INDICATOR	ENABLED	ENABLED	ENABLED	ENABLED	ENABLED
DAY O'RIDE	N/A	N/A	N/A	DISABLED	N/A
O'RIDE LEVEL	N/A	N/A	N/A	N/A	N/A
MIN. DIM	DISABLED	DISABLED	DISABLED	DISABLED	DISABLED

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4. Setting Acknowledgment Indication

Different OS-NET devices will acknowledge setting status with different indications via device LED and/or the connected light.

OS-NET Sensor

INDICATION	ACKNOWLEDGEMENT	REMARKS
Sensor LED fast blinking in GREEN and BLUE.	Sensor is scanning and linking to the network.	Fast blinking (on& off every 0.2 second) only appears during network linking.
Sensor LED blinks twice every 2 seconds in GREEN or BLUE.	The sensor detects occupant's motion.	GREEN means the sensor is networked. BLUE means the sensor is not linked.
Sensor LED blinks twice every 2 seconds for 5 minutes and then 15 seconds.	The sensor is set with daylight sensing control. (DSVM or DSC)	GREEN means the sensor is networked. BLUE means the sensor is unlinked.
Sensor short beeps twice.	Receives a single setting or control command.	
Sensor beeps one long and two short. The connected lights turn on and off 2 times.	Multiple setting data (ex. grouping upload) UPLOAD successful.	
The connected lights turn on and off 2 times.	Factory default setting resumed. SmartDIM setting completed.	

OS-NET Button

INDICATION	ACKNOWLEDGEMENT	REMARKS
Button LED slow blinking (once every 2 seconds) in BLUE.	The button is unlinked.	IR communication disabled.
Button LED blinks twice per second in BLUE.	The button is in configuration mode but not grouped.	IR communication enabled. Device will exit configuration mode after 90 seconds if no configuration is performed.
Button LED blinks irregularly in GREEN or BLUE.	Receiving commands from the remote.	GREEN means the device is network linked. BLUE means the device is unlinked.
Button LED fast blinking in GREEN and BLUE intermittently.	Button is scanning and linking to the network.	Fast blinking (on& off every 0.2 second) only appears during network linking.
Button LED lit for 2 seconds in GREEN.	Grouping completed.	Exit configuration mode automatically.
Button blinks twice per second in GREEN.	The button is linked and in configuration mode.	Button will exit configuration mode after 90 seconds if no configuration is performed.

OS-NET Power Pack

INDICATION	ACKNOWLEDGEMENT	REMARKS
Device LED is on in GREEN or BLUE.	Control scheme is set to ON/OFF.	Auto-ON, auto-OFF, occupancy sensing.
Device LED slow blinking (0.5 seconds) in GREEN or BLUE.	Control scheme is set to VSC.	Manual-ON, auto-OFF, vacancy sensing.
Device LED blinks twice per 2 seconds GREEN or BLUE.	Control scheme is set to PLC.	Occupancy sensing plug load control.

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Device LED blinks slow twice and fast once in GREEN or BLUE.	Control scheme is set to OSO.	Auto-ON, auto-LOW DIM, occupancy sensing.
Device LED blinks slow twice and fast twice in GREEN or BLUE.	Control scheme is set to OSLATO.	Auto-ON, auto-LOW DIM to OFF, occupancy sensing.
Device LED blinks in BLUE or GREEN irregularly.	Receiving IR communication commands from the remote.	
Device LED fast blinking in BLUE and GREEN intermittently.	Device is scanning for an open network and linking.	Fast blinking (on& off every 0.2 second) only appears during network linking.
Device LED blinks slow once and fast twice in BLUE or GREEN.	Device is in test mode.	
Device LED blinks slow once and fast once in BLUE or GREEN.	Device is in burn-in mode.	
Device LED on for 2 seconds in GREEN	Grouping/setting is completed	
The connected lights turn on and off twice.	1. Factory default setting resumed. 2. Multiple setting data UPLOAD successful.	

NOTE: GREEN means the device is networked, and BLUE means the device is unlinked.

5. Troubleshooting

If encounter with any problem while programming, please refer to the OS-NET Troubleshooting Guide available on www.irtec.com.