

## **UMSUG paper – Valid Combinations of Switch Regime and Charge Code**

### **1. Purpose**

This document is seeking to update the existing table of valid combinations of switch regime and charge code in the Operational Information Document (OID)<sup>1</sup> with new terminology, extended number ranges and redefine certain combinations. It also seeks to include an additional table in the OID that defines valid combinations of switch regime and controller charge code.

### **2. Rationale**

#### **2.1. Updates to existing table**

For several years a table displaying valid combinations of switch regimes and charge codes has been included in the OID. Some of the content needs updating to reflect changes since the table was first introduced. Details of the proposed updates are given below, and a change marked table is attached as an appendix to this document.

- a. The table has been updated to reflect the use of term of VPSR to replace MLSD.
- b. In the column that defines which equipment can be used with VPSR, the word “physical” has been introduced to make it clear that a Charge Code does not need to have a dimming circuit watts value to be used with VPSR.
- c. The mCMS switch regime has been added and some changes made to the CMS definitions.
- d. The Switch Regime series for Manually Switched Equipment has been extended to match the current Operational Switch Regime Spreadsheet.

#### **2.2. Additional table**

The existing table only covers lights and traffic signal equipment with no definitions for controllers. The summary files we receive from UMSO’s contain a wide range of combinations, some of which are illogical. With no explicit definition of which combinations are valid/invalid it is difficult to challenge these illogical combinations.

Although controllers typically do not consume much energy, the quantities involved means that they can have a material impact on consumption if they are not declared correctly. For example, a thermal photocell incorrectly declared on an electronic switch regime will be treated as burning at 3W between dawn and dusk whereas a correctly declared electronic photocell would burn continuously at 0.25W.

The proposed additional table is included in the appendix to this document.

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<sup>1</sup> [www.elexon.co.uk/operations-settlement/unmetered-supplies/charge-codes-and-switch-regimes/](http://www.elexon.co.uk/operations-settlement/unmetered-supplies/charge-codes-and-switch-regimes/)

### **3. Recommendation**

The UMSUG is invited to:

- Review the suggested changes to the existing valid combinations table,
- Review the suggested additional table,
- Include in the next update of the OID.

**Nigel Birchley**

21<sup>st</sup> Sept 2018

**Valid Combinations of Equipment Charge Codes and Switch Regimes**

	Equipment Type	Lamp /Ballast Charge Codes ending in 100	Lamp /Ballast Charge Codes ending in less than 100	Lamp /Ballast Charge Codes for use with <a href="#">MSL-DVPSR</a>	School Crossing Patrol Warning Signals	Traffic Signal Equipment (Non Dimming)	Traffic Equipment (Dimming)	Miscellaneous (Non Dimming)	Any Legacy Charge Code beginning 800-899 that has been given a dimming circuit watts value	Control Host
	Charge Code range	Prefixed 01 to 50	Prefixed 01 to 50	Prefixed 40, 41, 42 or 50. Also any prefixed 14 and 21-33 where <a href="#">physical</a> dimming is possible	Prefixed 7918 or 7947	Prefixed 7901, 7903, 7905 to 7917, 7919 to 7923, 7925 to 7927, 7930 to 7938, 7940, 7942, 7944, 7946, 7948 <sup>2</sup> , 7952, 7954, 7956, 7957,	Prefixed 7902, 7904, 7924, 7929, 7939, 7941, 7943, 7945, 7950, 7953 <sup>3</sup> , 7955, 7958, & 7959	Codes beginning 800 - 899 except those listed as dimming		815
Switch Regime Type	Switch Regime Series	Valid Combination								
Continuous - No switching - 24 Hour Burning	001	Yes	No	No	No	Yes	No	Yes	No	No
Manually Switched e.g. School Crossing Patrol Flashers	<a href="#">0130</a> to <a href="#">0369</a>	No	No	No	Yes	No	No	No	No	No
Part Time Traffic Signals	078 & 079	No	No	No	No	Yes	No	No	No	Yes
Infra Red Photo Cells (see Note Below) <sup>4</sup>	100	Yes	No	No	No	No	No	Yes	Yes	Yes

<sup>2</sup> The 7948 Series Charge Code can additionally be used with Dusk to Dawn or self-control Switch Regime types.

<sup>3</sup> The 7953 Series increases in load at night due to a night light but is treated as per Dimming Charge Codes

<sup>4</sup> *Infrared detectors are typically located in the base of bollards (at ground level and under an opaque cover) which results in significantly longer operating hours than if an infrared detector were located within a PECU array in an elevated location. Therefore infrared detectors should not be included within an PECU array but the burning hours should be derived using the extended offsets defined in the Switch Regime Spreadsheet on a passive basis."*

	Equipment Type	Lamp /Ballast Charge Codes ending in 100	Lamp /Ballast Charge Codes ending in less than 100	Lamp /Ballast Charge Codes for use with <a href="#">MSL-DVPSR</a>	School Crossing Patrol Warning Signals	Traffic Signal Equipment (Non Dimming)	Traffic Equipment (Dimming)	Miscellaneous (Non Dimming)	Any Legacy Charge Code beginning 800-899 that has been given a dimming circuit watts value	Control Host
	Charge Code range	Prefixed 01 to 50	Prefixed 01 to 50	Prefixed 40, 41, 42 or 50. Also any prefixed 14 and 21-33 where <a href="#">physical</a> dimming is possible	Prefixed 7918 or 7947	Prefixed 7901, 7903, 7905 to 7917, 7919 to 7923, 7925 to 7927, 7930 to 7938, 7940, 7942, 7944, 7946, 7948 <sup>2</sup> , 7952, 7954, 7956, 7957,	Prefixed 7902, 7904, 7924, 7929, 7939, 7941, 7943, 7945, 7950, 7953 <sup>3</sup> , 7955, 7958, & 7959	Codes beginning 800 - 899 except those listed as dimming		815
Switch Regime Type	Switch Regime Series	Valid Combination								
Full Night Time Switches	200 to 210, 370 & 380	Yes	No	No	No	No	Yes	Yes	Yes	Yes
Part Night Time Switches	219 to 369, 371 to 377 & 381	Yes	No	No	No	No	No	Yes	No	Yes
Thermal Photo Cells	400 - 499	Yes	No	No	No	No	Yes	Yes	Yes	Yes
Single Stage Dimming Devices	500 -599	No	Yes	No	No	No	No	No	No	Yes
Hybrid Photo Cells	600 - 699	Yes	No	No	No	No	Yes	Yes	Yes	Yes
Part Night Electronic Photo Cells	700 - 799	Yes	No	No	No	No	No	Yes	No	Yes
Electronic Photo Cells	800 - 899	Yes	No	No	No	No	Yes	Yes	Yes	Yes

	Equipment Type	Lamp /Ballast Charge Codes ending in 100	Lamp /Ballast Charge Codes ending in less than 100	Lamp /Ballast Charge Codes for use with <a href="#">MSLDVPSR</a>	School Crossing Patrol Warning Signals	Traffic Signal Equipment (Non Dimming)	Traffic Equipment (Dimming)	Miscellaneous (Non Dimming)	Any Legacy Charge Code beginning 800-899 that has been given a dimming circuit watts value	Control Host
	Charge Code range	Prefixed 01 to 50	Prefixed 01 to 50	Prefixed 40, 41, 42 or 50. Also any prefixed 14 and 21-33 where <a href="#">physical</a> dimming is possible	Prefixed 7918 or 7947	Prefixed 7901, 7903, 7905 to 7917, 7919 to 7923, 7925 to 7927, 7930 to 7938, 7940, 7942, 7944, 7946, 7948 <sup>2</sup> , 7952, 7954, 7956, 7957,	Prefixed 7902, 7904, 7924, 7929, 7939, 7941, 7943, 7945, 7950, 7953 <sup>3</sup> , 7955, 7958, & 7959	Codes beginning 800 - 899 except those listed as dimming		815
Switch Regime Type	Switch Regime Series	Valid Combination								
<a href="#">mCMS<sup>5</sup></a> (Continuous- No Switching)	<a href="#">998990</a>	<a href="#">YesNo</a>	No	No	No	No	No	Yes	No	No
CMS (Switching)	<a href="#">998 &amp; 999</a>	Yes	No	No	<a href="#">NoYes</a>	No	No	Yes	No	No
<a href="#">MSLDVPSR</a>	A01-AZZ, B01-BZZ, C01 – CZZ, <del>and</del> D01-DZZ, <a href="#">F01-FZZ</a> and <a href="#">G01-GZZ</a>	No	No	Yes	No	No	No	No	No	Yes

<sup>5</sup> [Currently only used for electrical vehicle charge so therefore only valid with 8901000000100](#)

## Valid Combinations of Controller Charge Codes and Switch Regimes

	Description	Time Switch Controllers	Thermal Photocells	Hybrid Photocells	Electronic Photocells	Electronic Photocells (Latching relay) [Discontinued]	Infra Red Photocells	Electronic Photo-Cell Timeswitch [Discontinued]	Electronic Controls (e.g. CMS devices)	MLSD Controls and Controls integral to Ballasts
	Equipment Code	91	92	93	94	95	96	97	98	99
Switch Regime Type	Switch Regime	Valid Combinations								
Continuous - No switching - 24 Hour Burning	001	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Manually Switched e.g. School Crossing Patrol Flashers	010 to 039	Yes	N/A	N/A	Yes	N/A	N/A	N/A	Yes	N/A
Part Time Traffic Signals	078 to 079	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Infra Red Photo Cells	100	No	No	No	No	No	Yes	No	No	No
Time Switches	200 to 399	Yes	No	No	No	No	No	No	No	No
Thermal Photo Cells	400 - 499	No	Yes	No	No	No	No	No	No	No
Single Stage Dimming Devices	500 -599	Yes	Yes	Yes	Yes	Yes	No	Yes	No	Yes
Hybrid Photo Cells	600 - 699	No	No	Yes	No	No	No	No	No	No
Part Night Electronic Photo Cells	700 - 799	No	No	No	Yes	Yes	No	Yes	No	No
Electronic Photo Cells	800 - 899	No	No	No	Yes	Yes	No	Yes	No	No
CMS and mCMS	990-999	No	No	No	No	No	No	No	Yes	No
VPSR – Photocell Controlled	A01-AZZ, B01-BZZ, D01-DZZ, F01-FZZ and G01-GZZ	No	Yes	Yes	Yes	Yes	No	Yes	No	Yes
VPSR – Timeswitch Controlled	C01-CZZ	Yes	No	No	No	No	No	No	No	Yes