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Technical Manual

with

Tables

and

graphic

Menu Navigation

for the universal layout-light-control

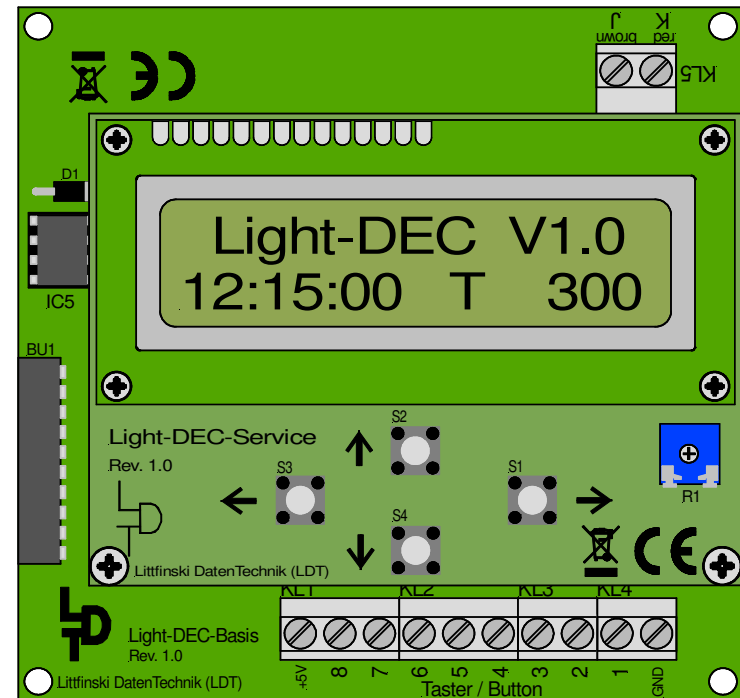
Light-DEC

Various **light-functions** can be assigned to up to **160 light outputs** and can be **automatically** controlled **within the daylight-cycle** or can be **switched ON or OFF via push buttons** or **DCC-commands**.

This product is not a toy! Not suitable for children under 14 years. Improper use will imply danger or injuries due to sharp edges and tips! Please store this instruction carefully.

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The universal layout-light-control Light-DEC consist of the Basic-Module and at-least one Light-Module (Light-Display or Light-Power) which will be plugged onto the side of the Basic-Module.

Light-Display-Modules contain 40 outputs which can cover a load of up to 0.5 Ampere each. **Light-Power-Modules** with 24 outputs supply a current of max. 2.5 Ampere each output.

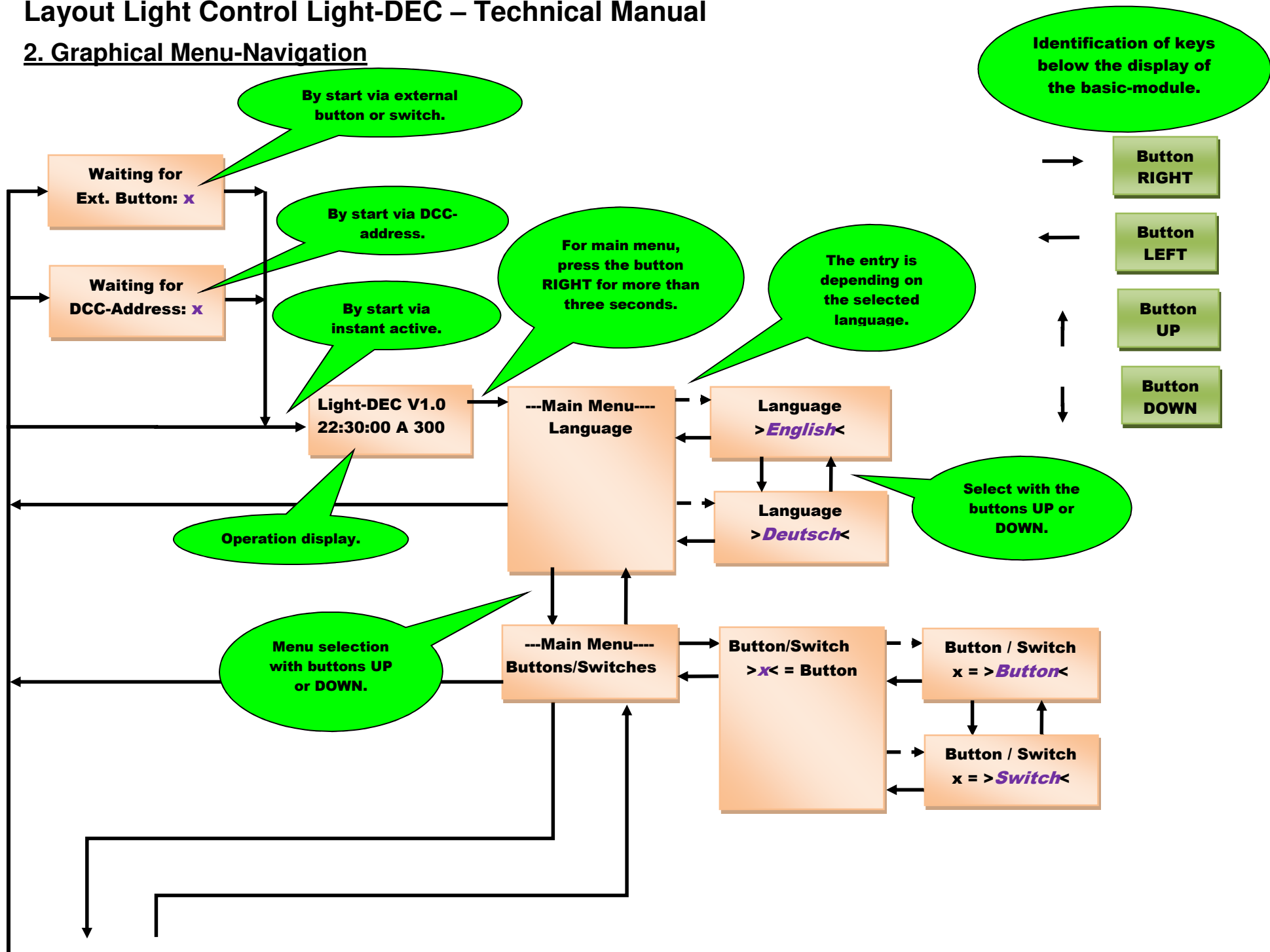
With one **Basic-Module** can be up to 160 light-outputs via up to 7 **light-modules** controlled. The various light effects (Neon-lamps, Flash-light, Running-lights, Traffic-light control and many others) can be assigned individual to the particular outputs.

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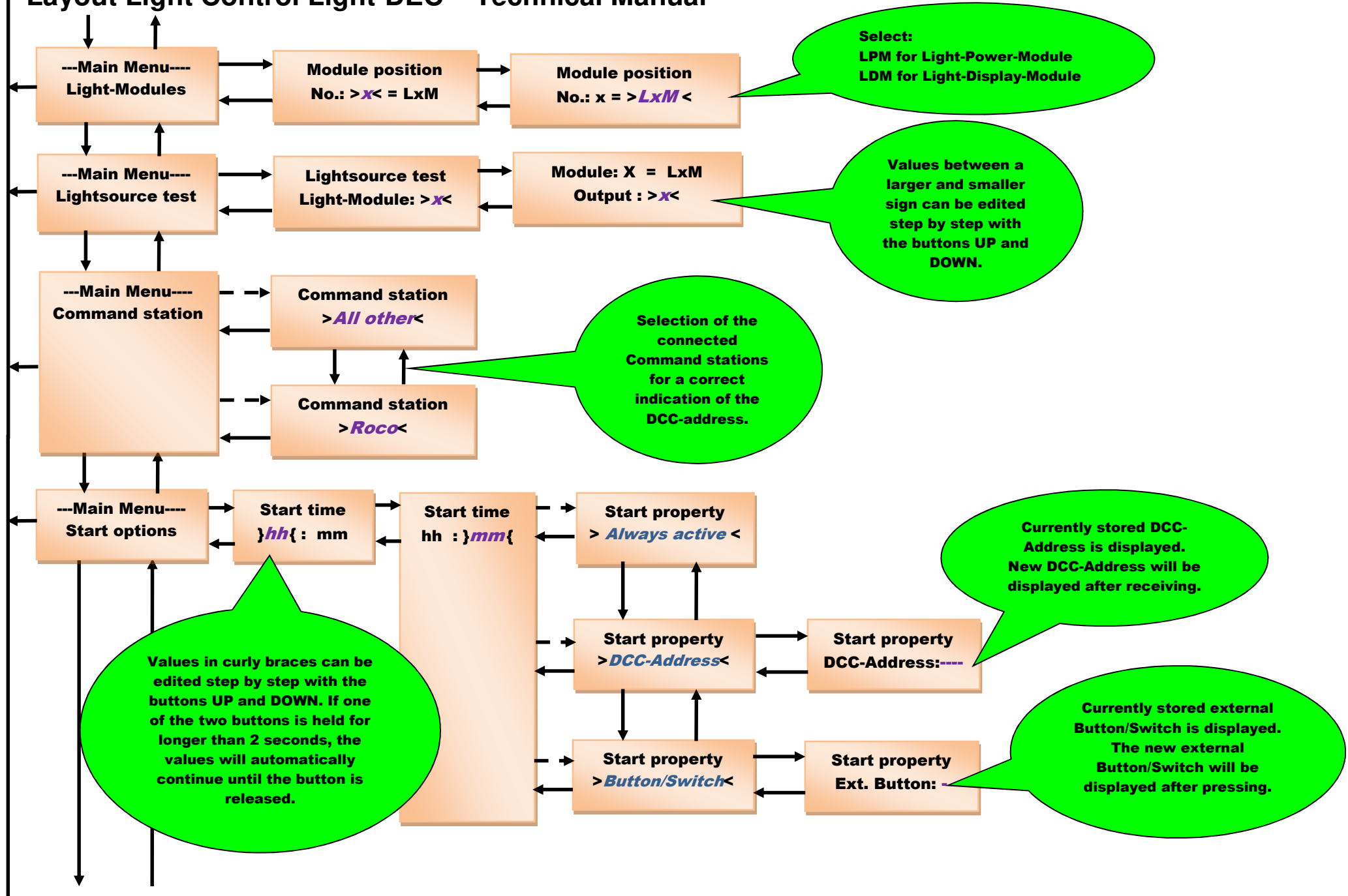
<u>Content:</u>	<u>Page</u>	<u>1. Introduction</u>
1. Introduction	1	This technical Manual shall be used as supplement to the basic Manual for the universal Layout-Light-Control Light-DEC .
2. Graphical Menu-Navigation	2	It contains a graphic menu-navigation and tables which are especially located here to simplify the reading of the instructions at the basic manual of the Layout-Light-Control Light-DEC and prevent the searching on various pages .
3. Start-times and Time-factor at the Menus Start-adjustment and Day-phases	8	
4. Switch groups with example: Working hours at the factory	9	At the section “ Downloads ” you can download this technical Manual from our Web-Site (www.ldt-infocenter.com) as a colored PDF-File and open and print it with the Acrobat Reader .
4.1. Switch group table for own adjustments	10	Additionally is the menu-navigation and all tables as well as separate PDF-Files at an A4 format for downloading available.
5. Description of the available light functions	11	
6. Light options: Parameter of Light functions, which can be individually matched	13	Therefore you will have the possibility to enter your individual settings into a printout of a PDF-File .
7. Output functions: Factory settings	14	
7.1. Output functions: Table for own application	15	

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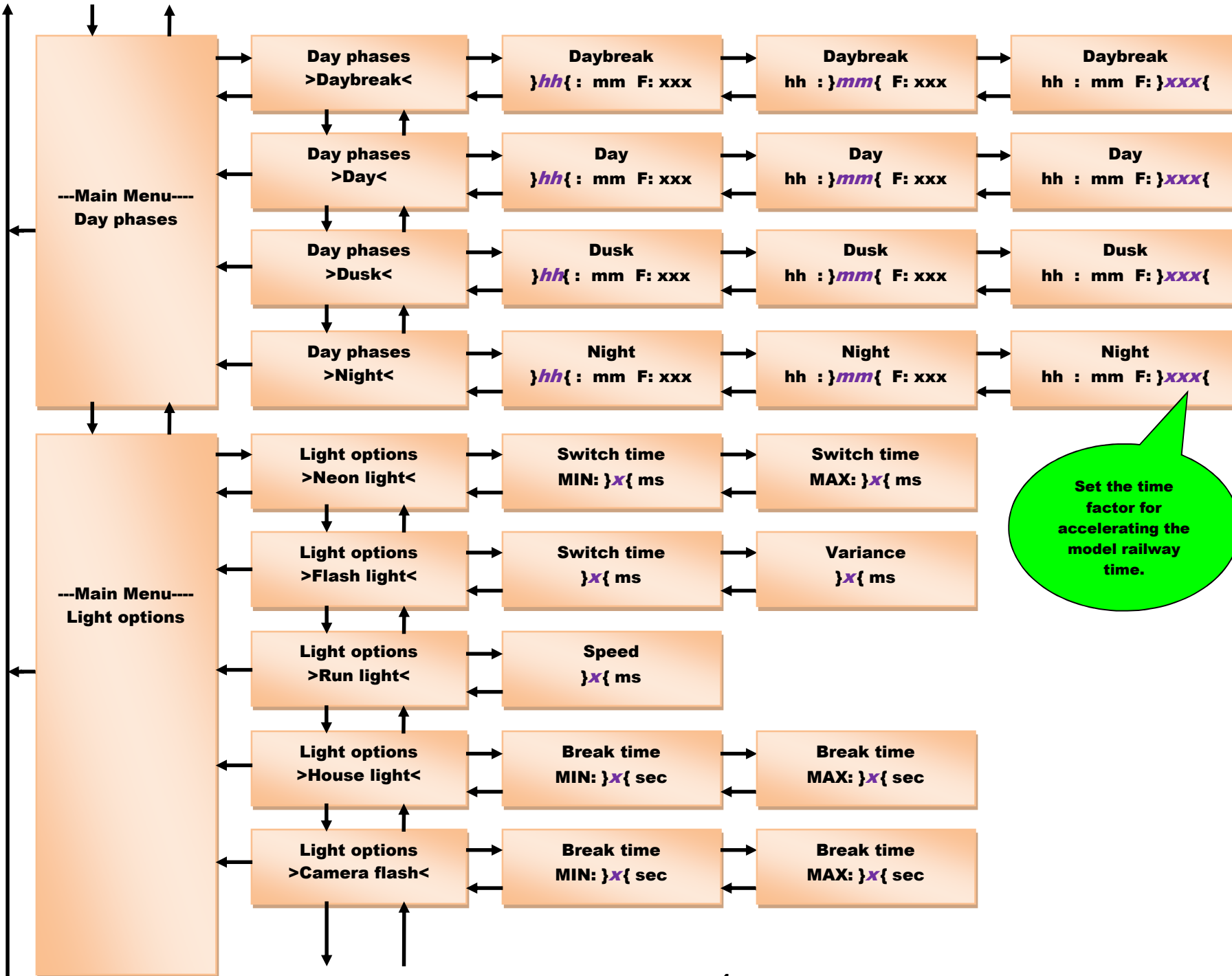
2. Graphical Menu-Navigation



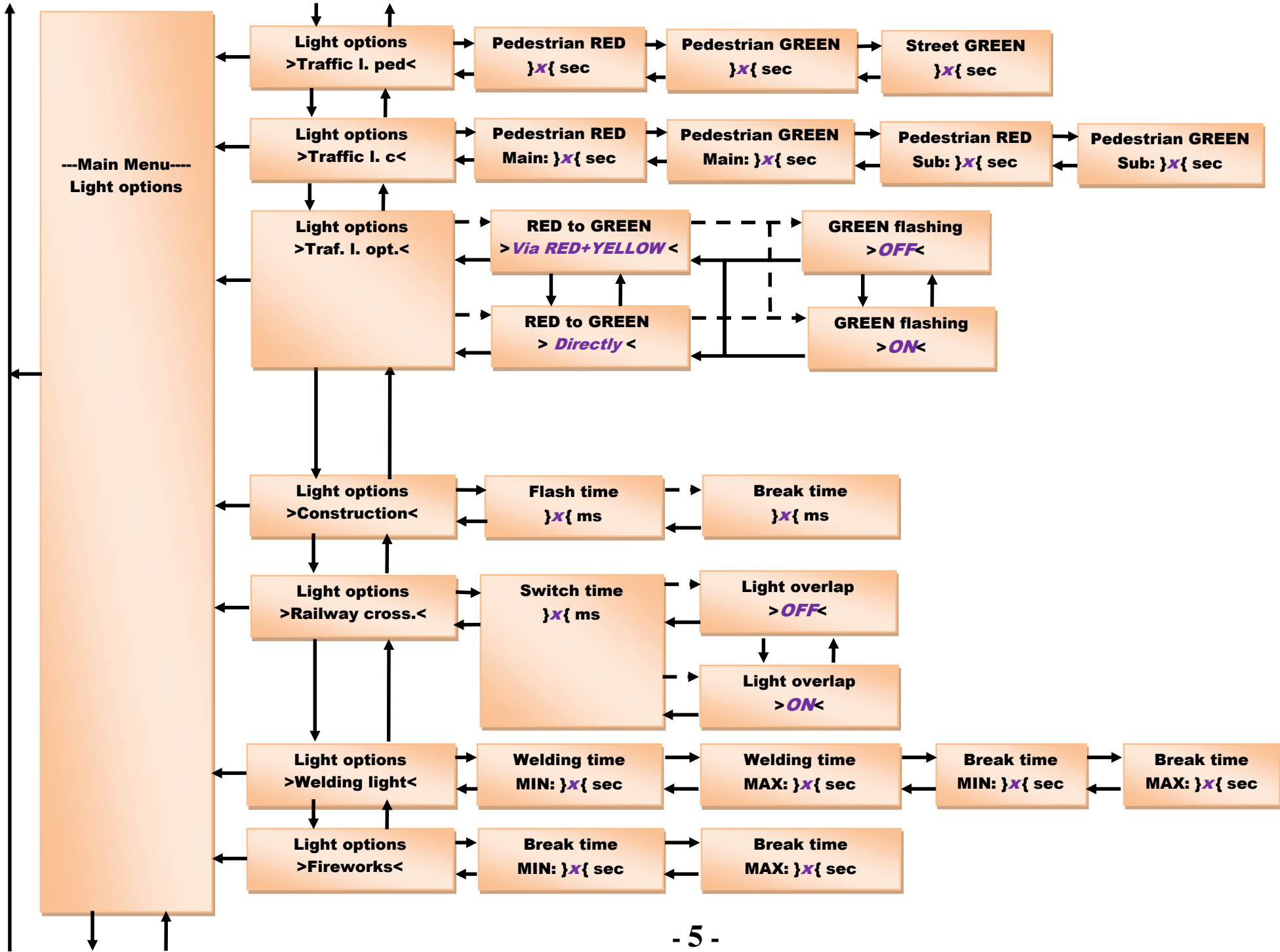
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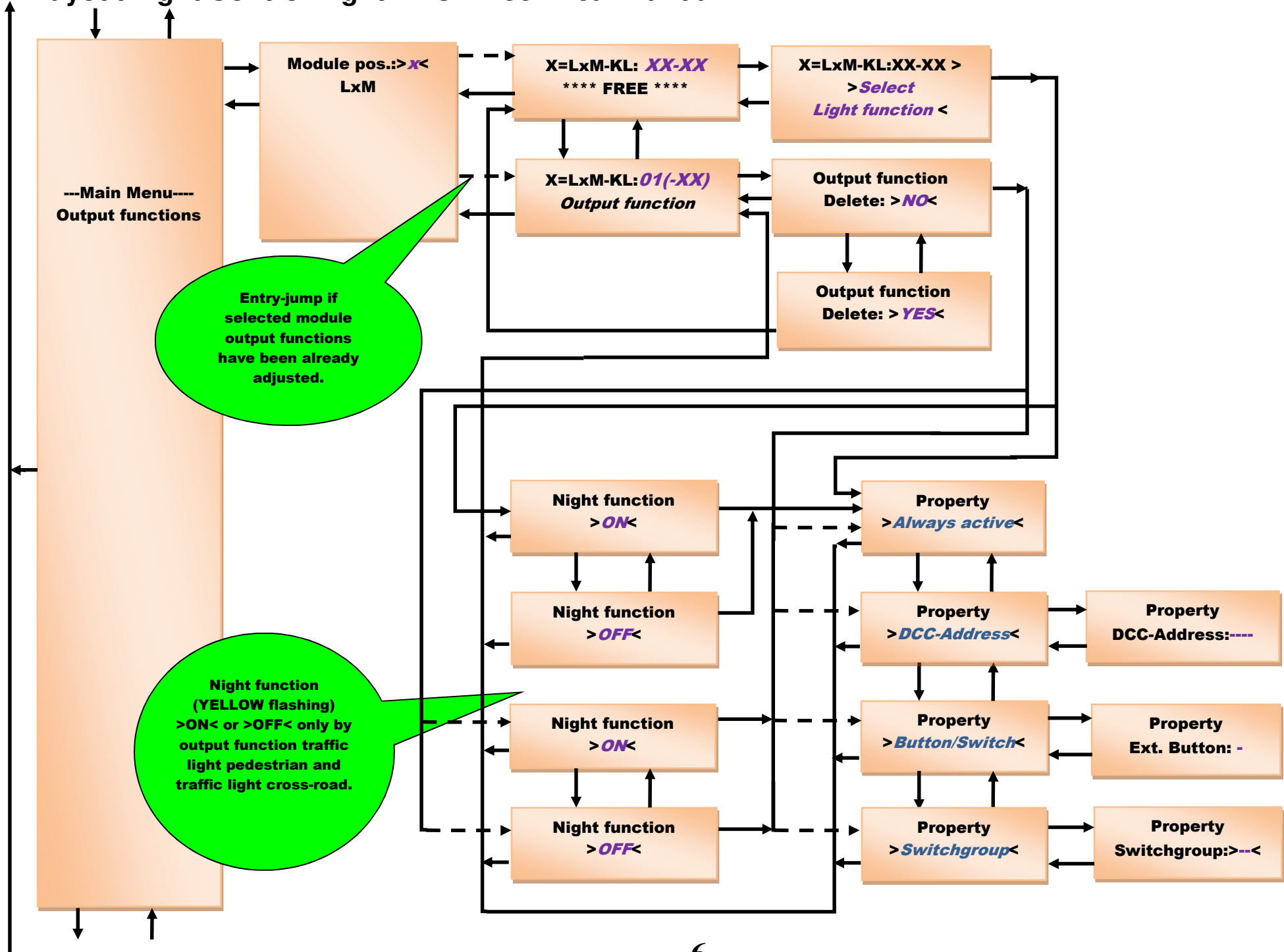
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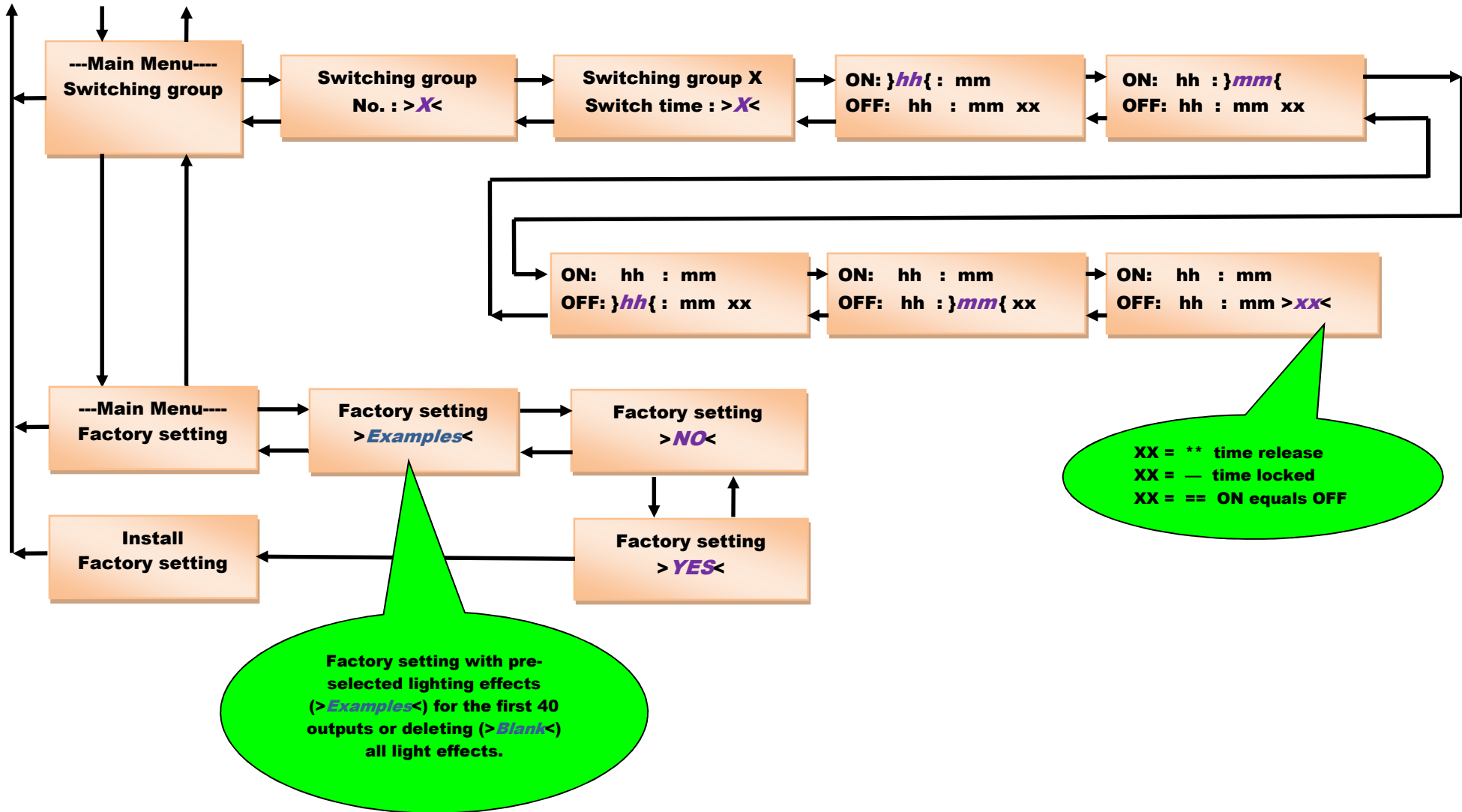
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Entry-jump if selected module output functions have been already adjusted.

Night function (YELLOW flashing) >ON< or >OFF< only by output function traffic light pedestrian and traffic light cross-road.

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3. Starting-times and Time-factor at the Menus Start-adjustment and Day-phases

Main menu	Sub menu	Adjustments	Factory setting	Own setting	Setting range
Start options		Starting time	22:30		00:00 till 23:59 / Step: 1 min
Day phases	Daybreak	Starting time	05:00		
		Time factor	F: 300	F:	F: 1, 3, 6, 20, 40, 60, 100, 200, 300, 400, 500, 600
	Day	Starting time	12:00		
		Time factor	F: 300	F:	F: 1, 3, 6, 20, 40, 60, 100, 200, 300, 400, 500, 600
	Dusk	Starting time	17:00		
		Time factor	F: 300	F:	F: 1, 3, 6, 20, 40, 60, 100, 200, 300, 400, 500, 600
Night	Starting time	23:00			
	Time factor	F: 600	F:	F: 1, 3, 6, 20, 40, 60, 100, 200, 300, 400, 500, 600	

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4. Switch groups with example: Working hours at the factory

Switch groups	Name	Switch time									
		1		2		3		4		5	
1	Working hours Production	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		07:00	08:40	09:00	12:00	12:40	16:00				
2	Working hours Office	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		08:00	09:40	10:00	13:00	13:40	17:00				
3	Working hours Boss	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		08:15	10:00	10:30	13:10	14:00	17:30	18:45	20:55		
4	Working hours Manager	ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		06:25	10:05	10:25	13:15	13:50	18:10	19:05	21:35		
5		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
6		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
7		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
8		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
9		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
10		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF

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4.1. Switch group table for own adjustments

Switch groups	Name	Switch time									
		1		2		3		4		5	
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF
		ON	OFF	ON	OFF	ON	OFF	ON	OFF	ON	OFF

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5. Description of the available light functions

Light function	Description	Adjustment	Outputs
Railway cross	Typical light flashing on railroad crossing with two synchronous contrary switching outputs.	Switch time Light overlap (ON/OFF)	2
Flash light	Generates ON- and OFF-times with simultaneous duration. With little variances of flash sequences on each flash-light and each start.	Switch time Variance	1
Run light 4	Four outputs switching successively ON for a certain time.	Speed	4
Run light 5	Five outputs switching successively ON for a certain time.	Speed	5
Signal post	One output each for the control of LED's or incandescent lamps in red, yellow and green creating light effects as on a panel of a signal post.	-	3
Television	Three outputs for red, green and blue creating continuous changing color-, flash- and flickering effects as on a TV-set at random.	-	3
Lamp	Switches one light source ON or OFF at random.	Break time over House light	1
Entrance hall	Switching-ON and OFF at random. The switched-on time is much shorter than the off-time. This allows a simple configuration for floor and staircases.	Break time over House light	1
House room	Switches ON or Off at random. The switching time varies on each switching process. This makes a simple configuration for residential houses possible.	Break time over House light	1
House light	Delay of switching by several seconds at random. Therefore will be at the same switching time e.g. the illumination of houses on one complete street switched ON and OFF at different times.	Break time over House light	1
Neon light	At first after switching-on irregular flickering at random. Will be remain switched on.	Switch time	1
Fireworks1	The first output switches permanently ON for a short time. Following the second output will be flickering. The timing will vary and overlap.	Break time	2
Fireworks2	The first output will flicker for a short time. Following the second output will be switched permanently ON. The timing will vary and overlap.	Break time	2
Fireworks3	Initially the first output will be flickering for a certain time. Following the second output will be flickering. The timing will vary and overlap.	Break time	2
Ran. Fireworks	Switches fire work at random 1, 2 or 3.	-	2
Funfair1 to 8	8 different effects for fun-fairs. As well for advertising signs or others. The speed can vary.	-	8
Random Funfair	Switches light at random for fun-fair 1, 2, 3, 4, 5, 6, 7 or 8.	-	8

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Light function	Description	Adjustment	Outputs
Advert. sign1 to 8	8 different effects for advertising signs, shops or for a fun-fair. The speed can vary.	-	4
Radio tower	Creates flash effects as for radio- and TV-towers or other high buildings. With one time short flashing and following a longer pause.	-	1
Chimney	Creates flash effect as for chimneys and wind mills with dual short flash and following with a longer pause.	-	1
Welding light	Randomized flickering of a welding light. The duration of a welding process with irregular flickering and subsequent pause will be new determined for each sequence by random.	Welding time Break time	1
Camera flash	Randomized camera flash. The pause length after every camera flash will be new determined at random within the adjusted pause timing.	Break time	1
Police light	For emergency vehicles. On each start each light with flash duration at random and simulated motor drives of different speed.	-	1
Fire	Simulation of open fire by creating irregular flickering.	-	1
Traffic light pedestrian	Creates all phases of a pedestrian traffic light with three-color traffic lights and two-color pedestrian light with adjustable phase-timing. With the output function can be the night function adjusted: "YELLOW flashing" and individual ON or OFF switching. For the traffic light can be the direct switch from "RED" to "GREEN" and for the pedestrian light the switching to "GREEN flashing" collective adjusted at the menu traffic light (Traf. I. opt.) for all traffic light control.	Pedestrian RED Pedestrian GREEN Street GREEN YELLOW flashing (individual) RED to GREEN (collective) GREEN flashing (collective)	5
Traffic light cross-road	Creates all phases of pedestrian and traffic lights for cross roads and T-junctions with adjustable phase-timing. With the output function can be the night function adjusted: "YELLOW flashing" and individual ON or OFF switching. For the traffic light can be the direct switch from "RED" to "GREEN" and for the pedestrian light the switching to "GREEN flashing" collective adjusted at the menu traffic light (Traf. I. opt.) for all traffic light control.	Pedestrian RED (Main street) Pedestrian GREEN (Main street) Pedestrian RED (Sub street) Pedestrian GREEN (Sub street) GELB flashing (individual) RED to GREEN (collective) GREEN flashing (collective)	10
Car flash light	Creates typical flash frequencies of the direction indicator at motor cars. Little variances of flash frequencies after each start.	-	1
Construction 5	Suitable for running lights at construction works. Very short activation time for simulating flash lamps. After each sequence comes a short pause.	Flash time Break time	5
Construction 8	Suitable for running lights at construction works. Very short activation time for simulating flash lamps. After each sequence comes a short pause.	Flash time Break time	8
ON / OFF	Switching instantly ON or OFF. Suitable for functional models such as windmills, mills, motors, foreign light modules, smoke generators.	-	1

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6. Light options: Parameter of Light functions which can be individually matched

Main Menu	Sub Menu	Adjustment	Factory setting	Own setting	Setting range
Light options	Neon light	Switch time	MIN: 700 ms	MIN: ms	MIN: 500 ms till 3000 ms / Step: 100 ms
			MAX: 1500 ms	MAX: ms	MAX: 500 ms till 3000 ms / Step: 100 ms
	Flash light	Switch time	400 ms	ms	300 ms till 3000 ms / Step: 50 ms
			Variance	100 ms	ms
	Run light	Speed	200 ms	ms	50 ms till 5000 ms / Step: 50 ms
	House light	Break time	MIN: 5 sec	MIN: sec	MIN: 1 sec till 5 sec / Step: 1 sec
			MAX: 50 sec	MAX: sec	MAX: 1 sec till 120 sec / Step: 1 sec
	Camera flash	Break time	MIN: 5 sec	MIN: sec	MIN: 1 sec till 120 sec / Step: 1 sec
			MAX: 60 sec	MAX: sec	MAX: 1 sec till 480 sec / Step: 1 sec
	Traffic light pedestrian	Pedestrian RED	5 sec	sec	RED: 1 sec till 20 sec / Step: 1 sec
		Pedestrian GREEN	5 sec	sec	GREEN: 1 sec till 20 sec / Step: 1 sec
		Street GREEN	3 sec	sec	GREEN: 1 sec till 120 sec / Step: 1 sec
	Traffic light cross road	Pedestrian RED	Main: 3 sec	Main: sec	Main: 1 sec till 20 sec / Step: 1 sec
		Pedestrian GREEN	Main: 6 sec	Main: sec	Main: 1 sec till 20 sec / Step: 1 sec
		Pedestrian RED	Sub: 3 sec	Sub: ms	Sub: 1 sec till 20 sec / Step: 1 sec
		Pedestrian GREEN	Sub: 3 sec	Sub: ms	Sub: 1 sec till 20 sec / Step: 1 sec
	Traffic light option	RED to GREEN	Via RED+YELLOW		RED to GREEN: Via RED + YELLOW / Directly
		GREEN flashing	OFF		GREEN flashing: ON / OFF
	Construction	Flash time	250 ms	ms	50 ms till 500 ms / Step: 50 ms
		Break time	500 ms	ms	50 ms till 5000 ms / Step: 50 ms
	Railway cross.	Switch time	1000 ms	ms	500 ms till 3000 ms / Step: 100 ms
		Light overlap	OFF		Light overlap: ON / OFF
	Welding light	Welding time	MIN: 5 sec	MIN: sec	MIN: 1 sec till 20 sec / Step: 1 sec
			MAX: 10 sec	MAX: sec	MAX: 1 sec till 20 sec / Step: 1 sec
		Break time	MIN: 5 sec	MIN: sec	MIN: 1 sec till 300 sec / Step: 1 sec
			MAX: 20 sec	MAX: sec	MAX: 1 sec till 300 sec / Step: 1 sec
	Fireworks	Break time	MIN: 5 sec	MIN: sec	MIN: 1 sec till 120 sec / Step: 1 sec
			MAX: 50 sec	MAX: sec	MAX: 1 sec till 120 sec / Step: 1 sec

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7. Output functions: Factory settings

Module Position:	1
Module:	Light-Display-Module (LDM)
Name:	Factory setting

Clamp (s)	Output functions	Characteristic			
		Always active	DCC-Address	Button/Switch	Switch group
1 - 8	Random Funfair	x			
9 - 13	Run light 5	x			
14 - 16	Television	x			
17	Welding light	x			
18	Radio tower	x			
19	Fire	x			
20 - 22	Signal post	x			
23 - 27	Construction 5	x			
28	Police light	x			
29	Police light	x			
30	Car flash light.	x			
31 - 40	Traffic light cross road	x			

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7.1. Output functions: Table for own application

Module Position:					
Module:					
Name:					
Clamp(s)	Output functions	Characteristic			Switch group
		Always active	DCC-Address	Button/Switch	