

IntelliLight

***Do not remain
in the dark***

Manual

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1. Description

IntelliLight gives you realistic lighting for your model railway layout. IntelliLight illuminates your layout depending on the time of day and weather.

When you switch the lighting system on it starts at dawn. The sun rises after a magnificent morning red. If the sun sets again after an eventful day the moon bathes the entire layout in a mysterious silvery light.

According to the conditions the weather is radiantly beautiful or gloomy. Now and then it rains or a thunderstorm passes through and lightning flashes and it thunders.

The routine of the day, with an adjustable time, is started when the layout is switched on. The kind of the lighting depends on the time and cloudy appearance. Thunderstorms and rain appear randomly or by the push of a button.

Depending on programming, the day passes in 24 hours or up to 20 times faster, in approximately 1¼ hours. The lighting can be switched manually or automatically time controlled.

All pre-programmed time tables can be changed in duration and intensity by LNCV programming according to one's own wish. The system can be used with analog and digital layouts. The lighting system is powered with a normal Model railway transformer.

2. The Components

Basic Unit Part No. 28000

The electronic controller, two white, one red and one blue CCFL (cold cathode fluorescent) tubes, one Halogen flood light and two end caps.

For connecting numerous add-on units.

Dimensions (L x W x H): 600 x 105 x 66 mm.

Add-on unit – White Part No. 28010

Four white tubes and a 10W Halogen flood light, inc. connecting cable and 2 connecting plates.

Dimensions (L x W x H): 600 x 105 x 66 mm.

Add-on unit – Colour Part No. 28020

Two white, one red and one blue CCFL tube and one 10W Halogen flood lamp, inc. connecting cable and 2 connecting plates.

Dimensions (L x W x H): 600 x 105 x 66 mm.

Add-on unit – Lightning & Sound Part No. 28110

One unit with flash lamp and one unit with Loud speaker and IntelliSound module "Rain und Thunder", inc. connecting cable and 2 connecting plates.

Dimensions (L x B x H): 200 x 105 x 66 mm each

Add-on unit – Empty channel Part No. 28150

3 units for extending the length of the lighting, inc. 6 connecting plates.

Dimensions (L x B x H): 200 x 105 x 66 mm.

End caps Part No. 28190

2 Pieces

3. Technical Data

Power consumption basic unit 28000	27 VA
Power consumption add-on unit white 28010	43 VA
Power consumption add-on unit colour 28020	27 VA
Output voltage of the power transformer	12V-17V
Max. current in connecting cables transformer	8A
Max. additional power rating of Halogen units	20W
Fuse	4A fast action

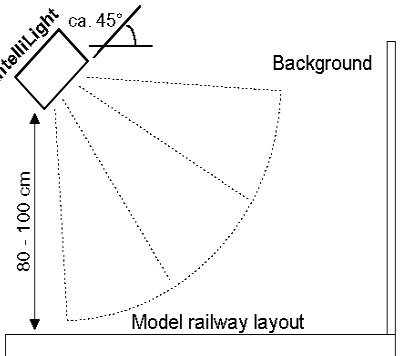
4. Installation of the Lighting System

4.1 Light requirement and Positioning

For optimal lighting of a layout of a depth of up to 2m per running metre, one lighting unit is needed. In order to arrange the lighting effect correctly with sunrise (morning red) and sunset (evening red), as well as the night effect, two white and one coloured unit are required. A 3m long layout can be illuminated with a basic unit (2 white and 2 colored tubes) and two white add-on units.

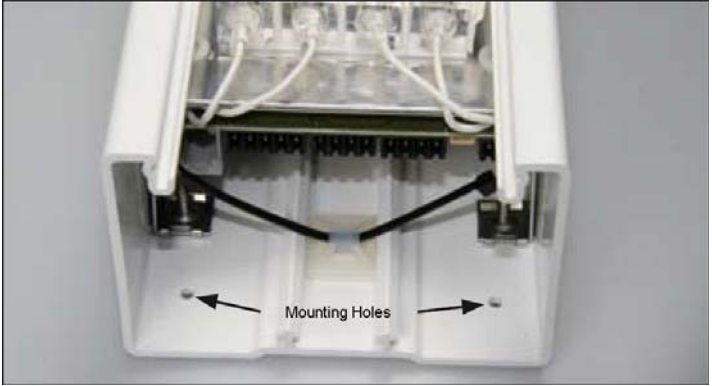
Depending on desired light intensity, the lights should be attached at 45° angle (approx) at a min. distance of 80cm above the layout surface. The lights should be fitted to the front edge of the layout to light up the scene.

It has proven useful to fasten the light to a common base board. This board is then hung at an appropriate height from the room ceiling with chains. The length of the chains can be adjusted to provide the desired lighting effect on the layout surface.



4.2 Mounting the Lamps

Open the light fittings by pulling the cover pieces to the left and right of the CCFL tubes up. Loosen the screws on the basic units end caps on the base of the lamp housing and remove them sideways. Now the mounting holes in the base and the plug are accessible.



Use the mounting holes to screw the lights onto a firm base board. Install the basic unit first.

If you are using add-on units, then firstly put the joining plate vertically on side panels of the lamp boxes. The serrated edges top and bottom of joiners will hold them tight in the lamp box. Ensure that you use the end of the housing which has the joining cable connections for the next module. Attach the add-on unit to the preceding lamp unit and mount them on the base board. Proceed in the same way with all the add-on units.



Use the 20cm pieces of empty channel (Part No. 28150) between the individual lighting units to separate them. Once you have made the electrical connection between the individual modules (see next chapter) two end caps can be placed on the light channel and the cover plates replaced.

5. Connection

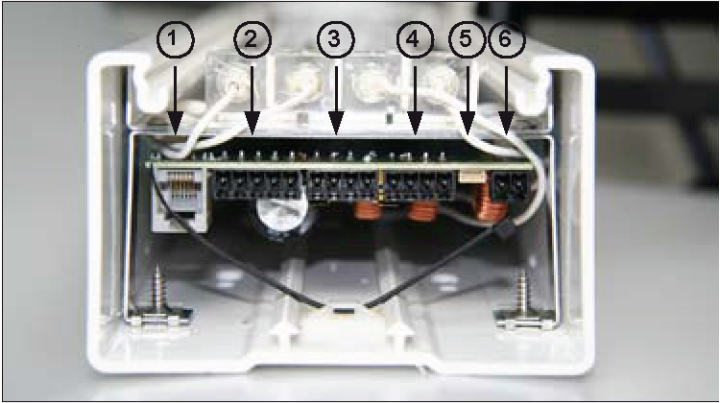
The controller circuit board with all the connectors is found under the short cover plate of one of the lamp housings.



The CCFL tubes are supplied with up to 800V alternating current. Only open the equipment with the power switched off!

5.1 The Connecting Sockets

- 1 LocoNet connector for the digital control (base unit only)
- 2 Connector for Keys or LED in analog operation (base unit only)
- 3 and 4 AC power and data link
- 5 SUSI connector for sound module
- 6 Connector for lightning module



5.2 Power Supply for the Base Unit

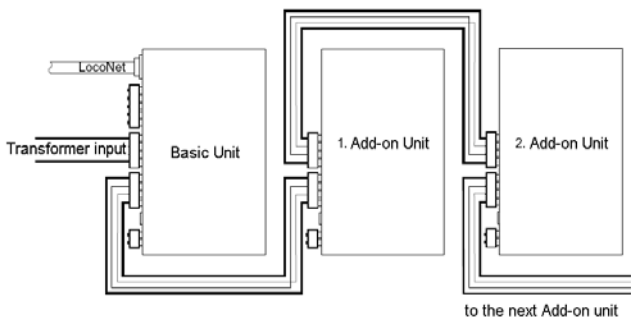
Insert the 4-way plug with the 2-core lead into connector 3 or 4. The screws of the plug point to the base of the housing. Bore an 8mm hole in the base and feed the cable through. Connect the two ends to a transformer.

We recommend our 150VA transformer Part No. 20150 to power the system. This transformer can feed up to 4 light units. If you want to use another transformer then ensure that this has an output voltage of at least 12V and a maximum of 17V. The current in the cable from the transformer to the system may amount to maximum of 8A.

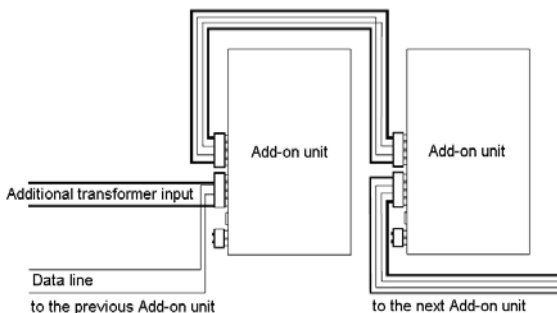
5.3 Power supply for Add-on Units

Each add-on unit receives its power via a connecting cable which is placed between the base and metal chassis of the light housing and plugged into connector 3 or 4. Connect it with connector 3 or 4 of the preceding unit.

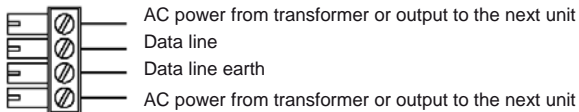
The maximum load for the transformer, Part No. 20150, is 4 light units. A replacement transformer's capacity should not exceed 8A.



Additional unit must be provided with further transformers in groups.



For this, the first unit in each group will not receive its power from the previous unit but instead from the additional transformer. The two data lines on the other hand must not be separated from the previous unit.



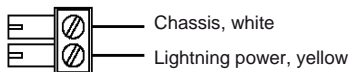
Connector 3 and 4 – AC power and Data line

Important: The Transformers that are used to power the system must not have any electrical connection to the wiring of the model railway layout.

5.4 Connecting Lightning & Sound

The Lightning & Sound add-on unit consists of two parts, the flash (lightning unit) and a sound unit with loudspeaker.

The plug from the lightning unit goes into socket 6 of the unit or one of the add-on units. If necessary, the cables of the lightning unit must run between the metal chassis and the housing of the lamp unit.



Connector 6 – Lightning

The sound unit has a cable soldered to it. Insert the small 4-way plug of the sound module into the connector 5 of a basic or an add-on unit. Using the enclosed double sided tape attach the sound module, near the socket, to

the side panel of the lamp box. The power cable must be run to the loudspeaker between metal chassis and base of the lamp.

5.5 Connecting an external Amplifier

Near the loudspeaker of the sound unit is a board with a connector. An external amplifier can be connected to this.

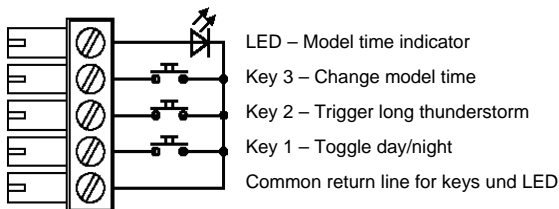
5.6 Connecting the LocoNet for Digital Control

If the light system is to be operated by a digital center with LocoNet connection (Intellibox, DAISY, Märklin 6021 with 6021-Infrarot & LocoNet adapter, Fleischmann TwinCenter, Piko power box), the LocoNet cable from the digital center is connected to the basic unit (connector 1). Additional cables can be found in our catalog.

5.7 Connecting Keys and LED's for Analog Operation

If the Light system is to be used with a conventional DC or AC layout or a digital controller that does not have a LocoNet output, it can be controlled by using push button keys. Any normally open momentary push button switch can be used as keys.

Connect the switches and the LED to the 5-way plug as shown in the diagram. Insert the plug into connector 2 of the base unit.



Connector 2 – Keys and LED's for analog operation

6. Operation

The lighting system is controlled by an internal model clock.

Sunrise is set at 7:00 o'clock and sunset at 19:00. Weather events (cloudy appearance, rain and thunderstorm) are randomly inserted in the daily and night sequence.

When the lighting system is switching on, the model clock is set at 7:00 o'clock and so the sunrise occurs. Sunrise, sunset and up to 8 different weather events can be activated by key instruction.

Furthermore, the system can be brought into a layout service mode, when all white CCFL tubes and halogen lamps are brought to maximum brightness. In this mode, the system clock is stopped so that this state is not independently changed.

6.1 Operation via Solenoid addresses (digital)

If the light system is operated from a digital center with LocoNet connection (Intellibox, DAISY, Märklin 6021 with 6021-Infrarot & LocoNet adapter, Fleischmann TwinCenter, Piko power box), the individual events are switched using the following solenoid addresses:

Solenoid address	Setting	Event
193	Red	Sunset
	Green	Sunrise
194	Red	Random event 1: Cloudy
	Green	Random event 2: Rain
195	Red	Random event 3: Short thunderstorm
	Green	Random event 4: Long thunderstorm
196	Red	Not used
	Green	Not used
197	Red	Not used
	Green	Not used
198	Red	Service mode off, if switched on and System restart
	Green	Service mode on: white lights and Halogen to maximum intensity and hold clock

6.2 Operating using Key switches (analog)

If the lighting system is used with an analog DC or AC layout or a digital center which does not have a LocoNet output you can operate the lighting using push button keys. The following applies:

Key	Event
1	Skip the timing to the next Sunrise or Sunset
2	Long thunderstorm
3	The time reductions 1:1, 1:2, 1:3, 1:6, 1:12 and 1:20 adjust model clock are scrolled by successive key presses. The LED on connection 2 shows the 1 second pulse of the model clock.

Many system properties described in this chapter can be reprogrammed. In the "Programming" chapter the basic changes are described.

The changes to the time sequence and the individual events is described in an additional comprehensive document, which is available in PDF format on our website, www.uhlenbrock.de .

7. Synchronization with a LocoNet Clock

The light system's internal clock synchronizes to a LocoNet Mode Clock, if LNCV 9 is programmed to the starting time above 10000. The lighting system then starts with the programmed time and afterwards synchronizes to the system time via the LocoNet. If LNCV 9 is set to value 10000 the light system starts the clock with the first LocoNet sync signal.

If the light system's clock is in the LocoNet synchronization mode the time and time reduction are controlled by the LocoNet.

If the time of a LocoNet clock is adjusted by hand, then the changes are likewise transferred in the clock of the light system. If a change from day to the night should result or in reverse, then the sunrise or the sunset occurs.

If the time on a LocoNet clock is manually changed it flows through the lighting system. Should this result in a change of day to night or vice-versa sunset or sunrise will be activated.

If a LocoNet display 63450 is used as LocoNet clock then LNCV 34 of the display must be set to a value of 1. On changing of the time by hand, the change flows through to the light system, at the latest, after the time period in the display's LNCV 35.

8. Programming

LocoNet devices are setup using LocoNet configuration variables (LNCV's). These LNCV's can be change with help of an Intellibox (from Software-Version 1.3), the IB-Control (from Version 1.55) or the TwinCenter (from Version 1.1).

8.1 Calling up an IntelliLight Module

- Connect the module to the LocoNet.
- On the Intellibox (from Software Version 1.3) press the [menu]-key and [mode]-key in order to enter the Basic Settings menu.
- Scroll down with the [↓]-key to the "LocoNet Prog." menu.
- Press the [→]-key:

```
LocoNet Prog.:  
Art.-Nr.: . . . . .
```

- Enter the part number of the module (here 63410) and press the [←]-key.
- Enter the part number of the IntelliLight module (here 28000) and press the [←]-key.

```
LN Prog.: 63410  
Modul Adr.: . . . . .
```

- Enter the module address (in a new module this is 1) and press the [←]-key.

```
LNPr 63410-00001  
LNCV: . . . . 0 = . . . . 1
```

On the upper line the part number of the module is displayed followed by the current module address. On the lower line is the ID number of the LNCV (here "0" for Module address) and its current value (here 1).

Important: In the event that a number of IntelliLight Base units are to be controlled by one Intellibox, every IntelliLight Base unit requires a different module address, so the digital centre knows which base unit is being

referenced during programming. The factory default address of an IntelliLight module is 1. If further IntelliLight Base units are controlled by a centre they must have different module addresses. Valid addresses are 1 to 65534.

8.2 Reading and programming of an IntelliLight Module

Similarly to DCC locomotive decoders, IntelliLight modules operation is setup in various configuration variables (CV). Contrary to locomotive decoders they are not programmed via the rails but via the LocoNet and are therefore called LocoNet CV's (LNCV's).

- After calling up the IntelliLight module (see Chapter 8.1) the Intellibox display shows:

```
LNP# 63410-00001
LNCV: ....0=....1
```

The cursor blinks under the 0.

- At the cursor position, enter the ID number of the LNCV that is to be programmed.
- Press the [←]-key.
- The Intellibox reads the LNCV and the value is displayed on the right of the lower line.
- Use the [→]-key to move the cursor to the right field and enter the new value for the LNCV.
- The value is programmed by pressing the [←]-key.
- Used the [←]-key so a new LNCV can be selected.
- Used the [←]-key to select another module.
- Or the [menu]-key to leave programming mode

As with the Intellibox, the numbers marked by the blinking cursor can be incremented by pressing the [+]-key and decremented with the [↓]-key.

8.3 The Universal Address 65535

As the name implies, the universal address can be used to call up any IntelliLight module. The universal address is not a valid address that can be used for identifying different IntelliLight modules. It can only be used for calling up modules whose real address is not known. For this only the particular module that is being tested can be connected to the LocoNet. If the module is then called up the current address can then be read from LNCV 0.

This is the procedure:

- Press the [menu]-key
- Press the [mode]- key
- Using the [↓]-key scroll down to the “LocoNet Prog.“ menu
- Press the [→]-key
- Enter the part number (the IntelliLight base unit is 28000)
- Enter the universal address 65535
- Press [←]-key
- The module's address from LNCV 0 will be read and displayed.

9. LNCV Table

LNCV	Description	Value Range	Factory Default
0	Module address	1-65534	1
1	Solenoid address for sunrise (green) and sunset (red)	1-2000	192
2	Solenoid address for Random event 1 (red) and 2 (green)	1-2000	193
3	Solenoid address for Random event 3 (red) and 4 (green)	1-2000	194
4	Solenoid address for Random event 5 (red) and 6 (green)	1-2000	195
5	Solenoid address for Random event 7 (red) and 8 (green)	1-2000	196
6	Solenoid address for Service mode green = on, red = off	1-2000	197
7	Reduction of the model time relative to the standard time factor 1: (100/LNCV value)	5 -100	5
8	Reduction of the events relative to the standard time factor 1 : (100/LNCV value)	5 -100	5
9	Time when starting the system. An LNCV value of 1330 corresponds to the time of 13:30	0-2400	700
2047	Software Version (read only)	-	varies.



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85 83 - 27 Mon - Tue - Thu - Fri., 14:00-16:00 and Wednesdays 16:00-18:00

If you have any questions call us. Hotline times are:

This product has a two year warrantee. If it is defective send decoder along with the receipt of purchase to the following address:

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