



# Uhlenbrock

digital

## Technical Specification

**IntelliLight**

**Part No. 28 000**



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## IntelliLight 28000

### Programming of the Flow control

#### Description of the Flow control

The IntelliLight's flow control uses two interval timers, which affect the operational time sequence of the lighting changes. One interval timer determines the current model clock and can be adjusted by LNCV 7. The model clock determines the time of sunrise and sunset. A second interval timer is used for all time count downs (events) that cause a change of light. This timer is started if an event is initiated. The speed of this timer is independent of the first timer adjustable by the LNCV 8.

It applies to:

Model clock:

Reduction factor of the model time in relation to real time 1:  $(100/(\text{LNCV7 Value}))$

Event counter:

A change counter for the event timer =  $0.01\text{s} * (\text{LNCV8 Value})$

The flow control differentiates between two different types of event. With their help events like sunrise and sunset, that are to be started at fixed times in accordance with the model clock can be achieved and other events can be randomly activated, in order to produce lighting changes due to meteorological phenomena.

Each event consists of several actions. Actions, in the sense of the flow control, set individual light channels (white, red, blue or halogen lamp) to a particular brightness level, activate lightning, switch the sound on, or send a command via the LocoNet.

Actions, which change the brightness of the individual lamps, contain data parameter concerning the desired rate of change besides the desired relative brightness. The control gradually ramps each change of brightness in small steps. Beginning with the brightness at the starting time, the action evenly increases or reduces the brightness till the desired goal value is reached. Both the time interval between two steps and change of brightness per step can be specified when programming such an action.

The control multiplies the absolute brightness and/or change of brightness of time triggered events (sunrise and sunset) by the relative changes of brightness for random events (weather events). The result is passed on to the lamps. By this process a weather event always has the same effect regardless of the time of day at which the random event occurs.

## **2. Programming of the events**

Each action is specified by 5 LNCV's in the IntelliLight memory. The action memory begins with the LNCV 10 and ends with the LNCV 2044. The first LNCV of an action contains the action number (ID) and the channel number for the action. Actions with same action number belong to an event, which, for example, produces the sunrise or a thunderstorm. A particular sequential order is not necessary during programming but does assist with clarity. All actions are clearly described by the action data and therefore triggered at the correct

time, regardless of its location in the action memory. The following table shows the valid action numbers and explains their meaning:

Action ID	Description
0	Only has meaning in conjunction with channel 7 and is otherwise not to be used
1	This action is always implemented immediately and only once at start time. It cannot be started via a solenoid address.
2	This action is implemented once, randomly. It cannot be started via magnet article address.
3 and 4	These action numbers are used for events, which consist of several actions and defines events, which are started at fixed times. (sunrise, sunset) These events can be started only by the model clock and the solenoid address in LNCV 2. Where: ID 3 = sunrise ID 4 = sunset
5 to 10	These action numbers are used for events which consist of several actions and defines events, which are started at fixed times. These events can be started only by the model clock.
11 to 24	These action numbers are used for events, which consist of several actions and defines events, which are randomly run. (weather events) If an action is programmed as a random event, it is also randomly implemented. Individual actions cannot be suppressed. Each random event must be provided with an index. The index is used at the start of the event. The random events with the indices 1-8 can be started by solenoid command. The appropriate solenoid addresses can be specified in the LNCV's 2-5.

The following channel numbers are known to the system:

Channel number	Description
0	End event with the action number
1	Start event with the action number
2	White CCFL tube
3	Red CCFL tube
4	Blue CCFL tube
5	Halogen lamp
6	Lightning
7	SUSI Sound Module
8	Solenoid command or feedback command on LocoNet

The numeric code programmed into the first the LNCV of an action, must be computed as follows:

$$1. \text{ LNCV} = \text{Action number} * 10 + \text{Channel number}$$

All following 4 LNCV of an action are dependent on the channel number and are described in the following:

## Starting channel: (channel number 1)

- 1. LNCV = Action number \* 10 + 1
- 2. LNCV = Index of the random event or starting time of the event  
The starting time programmed by the following numeric value:  
Hour \* 100 + minute
- 3. LNCV = 0
- 4. LNCV = 0
- 5. LNCV = 0

## Stopping channel: (Channel number 0)

- 1. LNCV = Action number \* 10 + 0
- 2. LNCV = Time to end the events  
End time = (value in 2.LNCV) \* (value in LNCV8) \* 0.01s
- 3. LNCV = 0
- 4. LNCV = 0
- 5. LNCV = 0

## Light channel: (Channel number 2 to 5)

- 1. LNCV = Action number \* 10 + Channel number
- 2. LNCV = Starting time of the single action after the start of the event:  
Start time = (value in 2.LNCV) \* (value in LNCV8) \* 0.01s
- 3. LNCV = Final brightness value of the this channel, value range 1-255,  
a value of 255 corresponds to 100%.
- 4. LNCV = Change of brightness, range of values 1-255
- 5. LNCV = Increment size in time direction, value range 1-255

## Lightning channel: (Channel number 6)

- 1. LNCV = Action number \* 10 + 6
- 2. LNCV = Starting time of the single action after the start of the event:  
Start time = (value in 2.LNCV) \* (value in LNCV8) \* 0.01s
- 3. LNCV = Number of Lightning Flashes
- 4. LNCV = SUSI sound function keys  
Value contains F1 bit by bit to F8 with bits 0 = F1 to bits 7 = F8  
The sound entered here is played in addition to the sounds started with a  
SUSI action (channel number 7) during the lightning phase.
- 5. LNCV = Interval between  
Flash and Sound = (value in 5. LNCV) \* 100ms

## SUSI Sound module: (Channel number 7)

- 1. LNCV = Action number \* 10 + 7
- 2. LNCV = Starting time of the single action after the start of the event:  
Start time = (value in 2.LNCV) \* (value in LNCV8) \* 0.01s
- 3. LNCV = Value contains F1 bit by bit to F8 with bits 0 = F1 to bits 7 = F8
- 4. LNCV = 0
- 5. LNCV = 0

## SUSI Sound module: (Channel number 7 and Action ID=0)

The LocoNet command in the 2. LNCV, activates the sound for function key set in 3. LNCV in the sound module, which is attached at the expansion module address in 4. LNCV.

- 1. LNCV = 7
- 2. LNCV = Receive Solenoid or Feedback address: AAAAC  
(AAAAC = address \* 10 + C)

- AAAA = address  
 C=0 Solenoid command – status: red  
 C=1 Solenoid command – status: green  
 C=2 Feedback command – status: vacant  
 C=3 Feedback command – status: occupied
3. LNCV = SUSI sound function keys  
 Value contains F1 bit by bit to F8 with bits 0 = F1 to bits 7 = F8
4. LNCV = Module address (LNCV0) of the expansion module  
 (see also Programming of an Expansion Module)
5. LNCV = 0

### Solenoid or Feedback: (Channel number 8)

1. LNCV = Action number \* 10 + 8  
 2. LNCV = Starting time of the single action after the start of the event:  
 Start time = (value in 2.LNCV) \* (value in LNCV8) \* 0.01s
3. LNCV = Send Solenoid or Feedback address: AAAAC  
 (AAAAC = address \* 10 + C)  
 AAAA = address  
 C=0 Solenoid command – status: red  
 C=1 Solenoid command – status: green  
 C=2 Feedback command – status: vacant  
 C=3 Feedback command – status: occupied
4. LNCV = 0  
 5. LNCV = 0

### The factory default programming of the IntelliLight:

LNCV	Value	Description
10	31	Start <b>Sunrise</b> Action ID = 3
11	701	Time 7:01
12	0	
13	0	
14	0	
15	34	Blue CCFL tube
16	120	Start time: 120 counts after action start
17	0	End value: 0
18	1	Brightness change: 1
19	2	Step size: change brightness every 2 <sup>nd</sup> timeout
20	32	White CCFL tube
21	160	Start time: 160 timeouts after action start
22	75	End value: 75
23	1	Brightness change: 1
24	1	Step size: change brightness every timeout
25	33	Red CCFL tube
26	285	Start time: 285 timeouts after action start
27	200	End value: 200
28	1	Brightness change: 1
29	1	Step size: change brightness every timeout
30	33	Red CCFL tube
31	510	Start time: 510 timeouts after action start
32	0	End value: 0
33	1	Brightness change: 1
34	1	Step size: change brightness every timeout
35	32	White CCFL tube
36	565	Start time: 565 timeouts after action start
37	255	End value: 255
38	1	Brightness change: 1
39	2	Step size: change brightness every 2 <sup>nd</sup> timeout

40	35	Halogen lamp
41	570	Start time: 570 timeouts after action start
42	255	End value: 255
43	1	Brightness change: 1
44	2	Step size: change brightness every 2 <sup>nd</sup> timeout
45	38	Solenoid / Feedback
46	150	Start time: 150 timeouts after action start
47	1991	Solenoid address 199 green [House lights on]
48	0	
49	0	
50	38	Solenoid / Feedback
51	285	Start time: 285 timeouts after action start
52	2030	Solenoid address 203 red [Moon off]
53	0	
54	0	
55	38	Solenoid / Feedback
56	510	Start time: 510 timeouts after action start
57	2000	Solenoid address 200 red [Street lighting off]
58	0	
59	0	
60	38	Solenoid / Feedback
61	550	Start time: 550 timeouts after action start
62	2010	Solenoid address 201 red [Platform lighting 1 off]
63	0	
64	0	
65	38	Solenoid / Feedback
66	560	Start time: 560 timeouts after action start
67	2020	Solenoid address 202 red [Platform lighting 2 off]
68	0	
69	0	
70	38	Solenoid / Feedback
71	690	Start time: 690 timeouts after action start
72	1990	Solenoid address 199 red [House lighting off]
73	0	
74	0	
75	30	End of Sunrise action ID = 3
76	700	End: 700 timeouts after action start
77		
78		
79		
80	41	Start Sunset action ID = 4
81	1900	Time 19:00
82		
83		
84		
85	42	White CCFL tube
86	10	Start time: 10 timeouts after action start
87	120	End value: 120
88	1	Brightness change: 1
89	2	Step size: change brightness every 2 <sup>nd</sup> timeout
90	45	Halogen lamp
91	50	Start time: 50 timeouts after action start
92	0	End value: 0
93	2	Brightness change: 2
94	2	Step size: change brightness every 2 <sup>nd</sup> timeout
95	43	Red CCFL tube
96	120	Start time: 120 timeouts after action start
97	200	End value: 200
98	1	Brightness change: 1

99	1	Step size: change brightness every timeout
100	42	White CCFL tube
101	400	Start time: 400 timeouts after action start
102	0	End value: 0
103	1	Brightness change: 1
104	3	Step size: change brightness every 3 <sup>rd</sup> timeout
105	43	Red CCFL tube
106	500	Start time: 500 timeouts after action start
107	0	End value: 0
108	1	Brightness change: 1
109	2	Step size: change brightness every 2 <sup>nd</sup> timeout
110	44	Blue CCFL tube
111	800	Start time: 800 timeouts after action start
112	150	End value: 150
113	1	Brightness change: 1
114	2	Step size: change brightness every 2 <sup>nd</sup> timeout
115	48	Solenoid / Feedback
116	350	Start time: 350 timeouts after action start
117	1991	Solenoid address 199 green [House lights on]
118	0	
119	0	
120	48	Solenoid / Feedback
121	470	Start time: 470 timeouts after action start
122	2001	Solenoid address 200 green [Street lighting on]
123	0	
124	0	
125	48	Solenoid / Feedback
126	530	Start time: 530 timeouts after action start
127	2011	Solenoid address 201 green [Platform lighting 1 on]
128	0	
129	0	
130	48	Solenoid / Feedback
131	540	Start time: 540 timeouts after action start
132	2021	Solenoid address 202 green [Platform lighting 2 on]
133	0	
134	0	
135	48	Solenoid / Feedback
136	910	Start time: 910 timeouts after action start
137	2031	Solenoid address 203 green [Moon on]
138	0	
139	0	
140	48	Solenoid / Feedback
141	1490	Start time: 910 timeouts after action start
142	1990	Solenoid address 199 red [House lighting off]
143	0	
144	0	
145	40	End of Sunset action ID = 4
146	1500	End: 1500 timeouts after action start
147	0	
148	0	
149	0	
150	111	Start Weather event 1 (cloud cover) action ID = 11
151	1	Random ID = 1
152	0	
153	0	
154	0	
155	115	Halogen lamp
156	10	Start time: 10 timeouts after action start
157	0	End value: 0 [0%]

158	1	Brightness change: 1
159	2	Step size: change brightness every 2 <sup>nd</sup> timeout
160	112	White CCFL tube
161	50	Start time: 50 timeouts after action start
162	128	End value: 128 [50%]
163	1	Brightness change: 1
164	3	Step size: change brightness every 3 <sup>rd</sup> timeout
165	113	Red CCFL tube
166	55	Start time: 55 timeouts after action start
167	30	End value: 30 [12%]
168	1	Brightness change: 1
169	2	Step size: change brightness every 2 <sup>nd</sup> timeout
170	114	Blue CCFL tube
171	128	Start time: 128 timeouts after action start
172	80	End value: 80 [31%]
173	1	Brightness change: 1
174	2	Step size: change brightness every 2 <sup>nd</sup> timeout
175	112	White CCFL tube
176	950	Start time: 950 timeouts after action start
177	255	End value: 255 [100%]
178	1	Brightness change: 1
179	3	Step size: change brightness every 3 <sup>rd</sup> timeout
180	115	Halogen lamp
181	1000	Start time: 1000 timeouts after action start
182	255	End value: 255 [100%]
183	1	Brightness change: 1
184	2	Step size: change brightness every 2 <sup>nd</sup> timeout
185	113	Red CCFL tube
186	1010	Start time: 1010 timeouts after action start
187	255	End value: 255 [100%]
188	1	Brightness change: 1
189	2	Step size: change brightness every 2 <sup>nd</sup> timeout
190	114	Blue CCFL tube
191	1010	Start time: 1010 timeouts after action start
192	255	End value: 255 [100%]
193	1	Brightness change: 1
194	2	Step size: change brightness every 2 <sup>nd</sup> timeout
195	110	End of Weather event 1 action ID = 11
196	1310	End: 1310 timeouts after action start
197	0	
198	0	
199	0	
200	121	Start Weather event 2 (Rain) action ID = 12
201	2	Random ID = 2
202	0	
203	0	
204	0	
205	125	Halogen lamp
206	10	Start time: 10 timeouts after action start
207	0	End value: 0 [0%]
208	1	Brightness change: 1
209	1	Step size: change brightness every timeout
210	122	White CCFL tube
211	10	Start time: 10 timeouts after action start
212	128	End value: 128 [50%]
213	1	Brightness change: 1
214	2	Step size: change brightness every 2 <sup>nd</sup> timeout
215	123	Red CCFL tube
216	12	Start time: 12 timeouts after action start



217	0	End value: 0 [0%]
218	1	Brightness change: 1
219	2	Step size: change brightness every 2 <sup>nd</sup> timeout
220	124	Blue CCFL tube
221	10	Start time: 10 timeouts after action start
222	80	End value: 80 [31%]
223	1	Brightness change: 1
224	2	Step size: change brightness every 2 <sup>nd</sup> timeout
225	127	SUSI Sound module
226	10	Start time: 10 timeouts after action start
227	128	F8 (fade sound out)
228	0	
229	0	
230	127	SUSI Sound module
231	400	Start time: 400 timeouts after action start
232	129	F8 + F1 (Sound channel 1 on and fade sound out)
233	0	
234	0	
235	127	SUSI Sound module
236	500	Start time: 500 timeouts after action start
237	1	F1 (Sound channel 1 - Rain and fade sound in)
238	0	
239	0	
240	127	SUSI Sound module
241	1100	Start time: 1100 timeouts after action start
242	129	F1 + F8 (Sound channel 1 - Rain and fade Sound out)
243	0	
244	0	
245	122	White CCFL tube
246	1210	Start time: 1210 timeouts after action start
247	255	End value: 255 [100%]
248	1	Brightness change: 1
249	2	Step size: change brightness every 2 <sup>nd</sup> timeout
250	123	Red CCFL tube
251	1210	Start time: 1210 timeouts after action start
252	255	End value: 255 [100%]
253	1	Brightness change: 1
254	2	Step size: change brightness every 2 <sup>nd</sup> timeout
255	124	Blue CCFL tube
256	1210	Start time: 1210 timeouts after action start
257	255	End value: 255 [100%]
258	1	Brightness change: 1
259	2	Step size: change brightness every 2 <sup>nd</sup> timeout
260	125	Halogen lamp
261	1230	Start time: 1230 timeouts after action start
262	255	End value: 255 [100%]
263	1	Brightness change: 1
264	1	Step size: change brightness every timeout
265	128	Solenoid / Feedback
266	350	Start time: 350 timeouts after action start
267	1991	Solenoid address 199 green [House lighting on]
268	0	
269	0	
270	128	Solenoid / Feedback
271	1300	Start time: 1300 timeouts after action start
272	1990	Solenoid address 199 red [House lighting off]
273	0	
274	0	
275	120	End of Weather event 2 action ID = 12

276	1510	End: 1510 timeouts after action start
277	0	
278	0	
279	0	
280	131	Start Weather event 3 (short thunder storm) action ID = 13
281	3	Random ID = 3
282	0	
283	0	
284	0	
285	135	Halogen lamp
286	2	Start time: 2 timeouts after action start
287	0	End value: 0 [0%]
288	2	Brightness change: 2
289	1	Step size: change brightness every timeout
290	132	White CCFL tube
291	10	Start time: 10 timeouts after action start
292	110	End value: 110 [43%]
293	2	Brightness change: 2
294	1	Step size: change brightness every timeout
295	137	SUSI Sound module
296	10	Start time: 10 timeouts after action start
297	128	F8 (fade sound out)
298	0	
299	0	
300	133	Red CCFL tube
301	10	Start time: 10 timeouts after action start
302	0	End value: 0 [0%]
303	0	Brightness change: 0
304	0	Step size: change brightness every 0 timeout
305	134	Blue CCFL tube
306	10	Start time: 10 timeouts after action start
307	0	End value: 0 [0%]
308	0	Brightness change: 1
309	0	Step size: change brightness every 0 timeout
310	137	SUSI Sound module
311	110	Start time: 110 timeouts after action start
312	129	F8 + F1 (Sound channel 1 – fade rain in and fade sound out)
313	0	
314	0	
315	137	SUSI Sound module
316	210	Start time: 210 timeouts after action start
317	1	F1 (Sound channel 1 - Rain and fade sound in)
318	0	
319	0	
320	136	Lightning
321	240	Start time: 240 timeouts after action start
322	3	3 lightning flashes
323	4	F3 Sound on
324	22	Sound 2.2s after the flash
325	137	SUSI Sound module
326	500	Start time: 500 timeouts after action start
327	3	F1 + F2 (Sound channel 1 - Rain and Sound channel 2 - thunder)
328	0	
329	0	
330	137	SUSI Sound module
331	510	Start time: 510 timeouts after action start
332	1	F1 (Sound channel 1 - Rain and fade sound in – thunder off)
333	0	
334	0	

335	136	Lightning
336	750	Start time: 750 timeouts after action start
337	1	1 lightning flash
338	4	F3 Sound on
339	19	Sound 1.9s after the flash
340	137	SUSI Sound module
341	1020	Start time: 1020 timeouts after action start
342	129	F1 + F8 (Sound channel 1 - Rain and Sound fade out)
343	0	
344	0	
345	137	SUSI Sound module
346	1120	Start time: 1120 timeouts after action start
347	128	F8 (Sound channel 1 - Rain off and fade sound out)
348	0	
349	0	
350	132	White CCFL tube
351	1320	Start time: 1320 timeouts after action start
352	255	End value: 255 [100%]
353	1	Brightness change: 1
354	2	Step size: change brightness every 2 <sup>nd</sup> timeout
355	133	Red CCFL tube
356	1320	Start time: 1320 timeouts after action start
357	255	End value: 255 [100%]
358	1	Brightness change: 1
359	2	Step size: change brightness every 2 <sup>nd</sup> timeout
360	134	Blue CCFL tube
361	1320	Start time: 1320 timeouts after action start
362	255	End value: 255 [100%]
363	1	Brightness change: 1
364	2	Step size: change brightness every 2 <sup>nd</sup> timeout
365	135	Halogen lamp
366	1340	Start time: 1340 timeouts after action start
367	255	End value: 255 [100%]
368	1	Brightness change: 1
369	2	Step size: change brightness every 2 <sup>nd</sup> timeout
370	130	End of Weather event 3 action ID = 13
371	1350	End: 1350 timeouts after action start
372	0	
373	0	
374	0	
375	141	Start Weather event 4 (long thunder storm) action ID = 14
376	4	Random ID = 4
377	0	
378	0	
379	0	
380	145	Halogen lamp
381	10	Start time: 10 timeouts after action start
382	0	End value: 0 [0%]
383	1	Brightness change: 1
384	2	Step size: change brightness every 2 <sup>nd</sup> timeout
385	142	White CCFL tube
386	11	Start time: 11 timeouts after action start
387	100	End value: 100 [40%]
388	1	Brightness change: 1
389	2	Step size: change brightness every 2 <sup>nd</sup> timeout
390	143	Red CCFL tube
391	12	Start time: 12 timeouts after action start
392	0	End value: 0 [0%]
393	1	Brightness change: 1

394	2	Step size: change brightness every 2 <sup>nd</sup> timeout
395	144	Blue CCFL tube
396	13	Start time: 13 timeouts after action start
397	0	End value: 0 [0%]
398	1	Brightness change: 1
399	2	Step size: change brightness every 2 <sup>nd</sup> timeout
400	147	SUSI Sound module
401	14	Start time: 14 timeouts after action start
402	128	F8 (fade sound out)
403	0	
404	0	
405	147	SUSI Sound module
406	120	Start time: 120 timeouts after action start
407	129	F1 + F8 (Sound channel 1 – Rain on and fade sound out)
408	0	
409	0	
410	147	SUSI Sound module
411	220	Start time: 120 timeouts after action start
412	1	F1 (Sound channel 1 – Rain on and fade sound in)
413	0	
414	0	
415	146	Lightning
416	500	Start time: 500 timeouts after action start
417	1	1 lightning flash
418	4	F3 Sound on
419	35	Sound 3.5s after the flash
420	146	Lightning
421	700	Start time: 700 timeouts after action start
422	3	3 lightning flash
423	2	F2 Sound on
424	50	Sound 5s after the flash
425	147	SUSI Sound module
426	900	Start time: 900 timeouts after action start
427	3	F1 + F2 (Sound channel 1 – Rain on and Sound channel 2 – thunder on)
428	0	
429	0	
430	147	SUSI Sound module
431	910	Start time: 910 timeouts after action start
432	1	F1 (Sound channel 1 – Rain on and Sound channel 2 – thunder off)
433	0	
434	0	
435	146	Lightning
436	1100	Start time: 1100 timeouts after action start
437	3	3 lightning flash
438	2	F2 Sound on
439	75	Sound 7.5s after the flash
440	147	SUSI Sound module
441	1450	Start time: 1450 timeouts after action start
442	129	F1 + F8 (Sound channel 1 – Rain on and fade Sound out)
443	0	
444	0	
445	145	Halogen lamp
446	1700	Start time: 1700 timeouts after action start
447	255	End value: 255 [100%]
448	1	Brightness change: 1
449	2	Step size: change brightness every 2 <sup>nd</sup> timeout
450	142	White CCFL tube
451	1710	Start time: 1710 timeouts after action start
452	255	End value: 255 [100%]

453	1	Brightness change: 1
454	2	Step size: change brightness every 2 <sup>nd</sup> timeout
455	143	Red CCFL tube
456	1650	Start time: 1650 timeouts after action start
457	255	End value: 255 [100%]
458	1	Brightness change: 1
459	2	Step size: change brightness every 2 <sup>nd</sup> timeout
460	144	Blue CCFL tube
461	1660	Start time: 1660 timeouts after action start
462	255	End value: 255 [100%]
463	1	Brightness change: 1
464	2	Step size: change brightness every 2 <sup>nd</sup> timeout
465	148	Solenoid / Feedback module
466	350	Start time: 350 timeouts after action start
467	1991	Solenoid address 199 green [House lighting on]
468	0	
469	0	
470	148	Solenoid / Feedback module
471	1800	Start time: 1800 timeouts after action start
472	1990	Solenoid address 199 red [House lighting off]
473	0	
474	0	
370	140	End of Weather event 4 action ID = 14
371	1800	End: 1180 timeouts after action start
372	0	
373	0	
374	0	
480	147	SUSI Sound module
481	1550	Start time: 1550 timeouts after action start
482	128	F8 (Sound channel 1 – off and fade Sound out)
483	0	
484	0	
485	0	- vacant -
486	0	
487	0	
488	0	
489	0	

....

2040	0	- vacant -
2041	0	
2042	0	
2043	0	
2044	0	

Factory defaults for LNCV's 0-9 basic setting:

LNCV	Value	Description
0	1	Module address
1	193	Solenoid address for sunrise (green) and sunset (red)
2	194	Solenoid address for random event 1 (red) and 2 (green)
3	195	Solenoid address for random event 3 (red) and 4 (green)
4	196	Solenoid address for random event 5 (red) and 6 (green)
5	197	Solenoid address for random event 7 (red) and 8 (green)
6	198	Solenoid address for service mode green = on, red = off
		Reduction factor of model time in relation to real time 1: (100/LNCV-value)
7	5	In this case: 1:20, i.e. model time customer last 0.05s
		A change of the event counter = 0.01s * (Wert-LNCV8)

8	5	In this instance: a change of counter every 0.05s
9	700	Time when system is turned on. The LNCV value of 700 corresponds to Time 7:00

From IntelliLight in factory setting used solenoid addresses:

Solenoid addresses for controlling of the IntelliLight:

Solenoid address	Description
193 red	Activates the Sunset
193 green	Activates the Sunrise
194 red	Activates random event 1: Cloud cover
194 green	Activates random event 2: Rain
195 red	Activates random event 3: Short thunderstorm
195 green	Activates random event 4: Long thunderstorm
196 red	Activates random event 5: vacant
196 green	Activates random event 6: vacant
197 red	Activates random event 7: vacant
197 green	Activates random event 8: vacant
198 red / green	Service mode on/off (only white CCFL tubes and Halogen)

In the IntelliLight program sequence uses solenoid addresses for switching from lighting on the layout:

Solenoid address	Description
199 red / green	House lights off / on
200 red / green	Street lighting off / on
201 red / green	Platform lighting 1 off / on
202 red / green	Platform lighting 2 off / on
203 red / green	Moon off / on

### Simple changes to the flow control without changing the Program sequence

1. Changing the blue night lighting:

LNCV	Value	Description
112	150	The end value of the blue night lighting is 150 The value can be changed to any value from 0-255.

2. Changing the brightness during thunderstorm phases:

Weather event 1 (Cloud cover)		
LNCV	Value	Description
White CCFL tube:		
162	128	End value: 128 [50%]
Blue CCFL tube:		
172	80	End value: 80 [31%]
Weather event 2 (Rain)		
LNCV	Value	Description
White CCFL tube:		
212	128	End value: 128 [50%]
Blue CCFL tube:		
222	80	End value: 80 [31%]

Weather event 3 (Short Thunderstorm)		
LNCV	Value	Description
White CCFL tube:		
292	110	End value: 110 [43%]
Blue CCFL tube:		
307	0	End value: 0 [0%]

Weather event 4 (Long Thunderstorm)		
LNCV	Value	Description
White CCFL tube:		
387	100	End value: 100 [40%]
Blue CCFL tube:		
397	0	End value: 0 [0%]

LNCV's 162, 212, 292, and 387 determine the dimming of the white CCFL of tubes for weather events 1 to 4. Dimming the blue CCFL tube during the night weather events can be changed in LNCV's 172, 222, 307 and 397 for weather events 1 to 4. All indicated LNCV's contain *relative* changes. An LNCV value of 255 corresponds to 100% of the current brightness during the weather event.

### 3. Changing Solenoid addresses of the switched lighting:

LNCV	Value	Description
<b>House lighting:</b>		
47	1991	Solenoid address 199 green [House lighting on]
72	1990	Solenoid address 199 red [House lighting off]
117	1991	Solenoid address 199 green [House lighting on]
142	1990	Solenoid address 199 red [House lighting off]
267	1991	Solenoid address 199 green [House lighting on]
272	1990	Solenoid address 199 red [House lighting off]
467	1991	Solenoid address 199 green [House lighting on]
472	1990	Solenoid address 199 red [House lighting off]
<b>Moon:</b>		
52	2030	Solenoid address 203 red [Moon off]
137	2031	Solenoid address 203 green [Moon on]
<b>Street lighting:</b>		
57	2000	Solenoid address 200 red [Street lighting off]
122	2001	Solenoid address 200 green [Street lighting on]
<b>Platform Lighting 1:</b>		
62	2010	Solenoid address 201 red [Platform Lighting 1 off]
127	2011	Solenoid address 201 green [Platform Lighting 1 on]
<b>Platform Lighting 2:</b>		
67	2020	Solenoid address 202 red [Platform Lighting 2 off]
132	2021	Solenoid address 202 green Platform Lighting 2 on]

The specified LNCV's contains a numeric code for controlling of the solenoids as follows:

LNCV = AAAAC      Where AAAA = solenoid address  
 and      C = 0 for "red" – switch off  
 or      C = 0 for "green" – switch on

e.g. if the house lighting is to be controlled by solenoid address 17, then LNCV 47, 72, 117, 142, 267, 272, 467 and 472 must be changed as follows:

<b>House lighting:</b>		
47	171	Solenoid address 17 green [House lighting on]
72	170	Solenoid address 17 red [House lighting off]
117	171	Solenoid address 17 green [House lighting on]

142	170	Solenoid address 17 red [House lighting off]
267	171	Solenoid address 17 green [House lighting on]
272	170	Solenoid address 17 red [House lighting off]
467	171	Solenoid address 17 green [House lighting on]
472	170	Solenoid address 17 red [House lighting off]

#### 4. Note for special control:

The sound module from the Expansion Unit Lightning & Sound, Part. No. 28 110, has the following sound allocation:

F1	-	Rain (Thunder sounds)
F2	-	Lighting with thunder (longer)
F3	-	Violent single thunder (short)
F4	-	Light thunder (short)
F8	-	Switched on = sound fades out Switched off = sound fades in

In order to utilize the rain and the thunder sound correctly the programming for a weather event must run as follows:

1. Start of the event
2. Switch the SUSI sound module F8 on, so that the current sound is faded out
3. Switch the SUSI sound module F1 + F8 on to turn the rain sound on
4. Switch the SUSI sound module F8 off to slowly fade the rain sound in
5. Now allow all other sound actions for the weather event to run out
6. Switch the SUSI sound module F1 + F8 on to slowly fade the rain sound out
7. Switch the SUSI sound module F1 off to turn the rain off again

This following shows the programming of the SUSI module in the weather event 3:

295	137	SUSI Sound module
296	10	
297	128	
298	0	
299	0	
310	137	SUSI Sound module
311	110	Start time: 110 timeouts after action start
312	129	F8 + F1 (Sound channel 1 – fade rain in and fade sound out)
313	0	
314	0	
315	137	SUSI Sound module
315	210	Start time: 210 timeouts after action start
317	1	F1 (Sound channel 1 - Rain and fade sound in)
318	0	
319	0	

... other sound actions ...

340	137	SUSI Sound module
341	1020	Start time: 1020 timeouts after action start
342	129	F1 + F8 (Sound channel 1 - Rain and Sound fade out)
343	0	
344	0	
345	137	SUSI Sound module
346	1120	Start time: 1120 timeouts after action start
347	128	F8 (Sound channel 1 - Rain off and fade sound out)
348	0	
349	0	

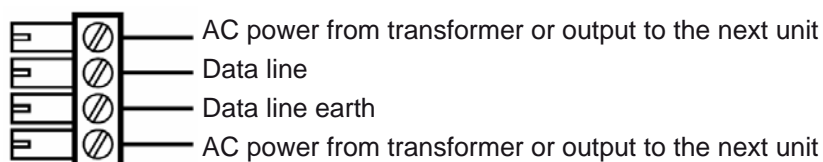
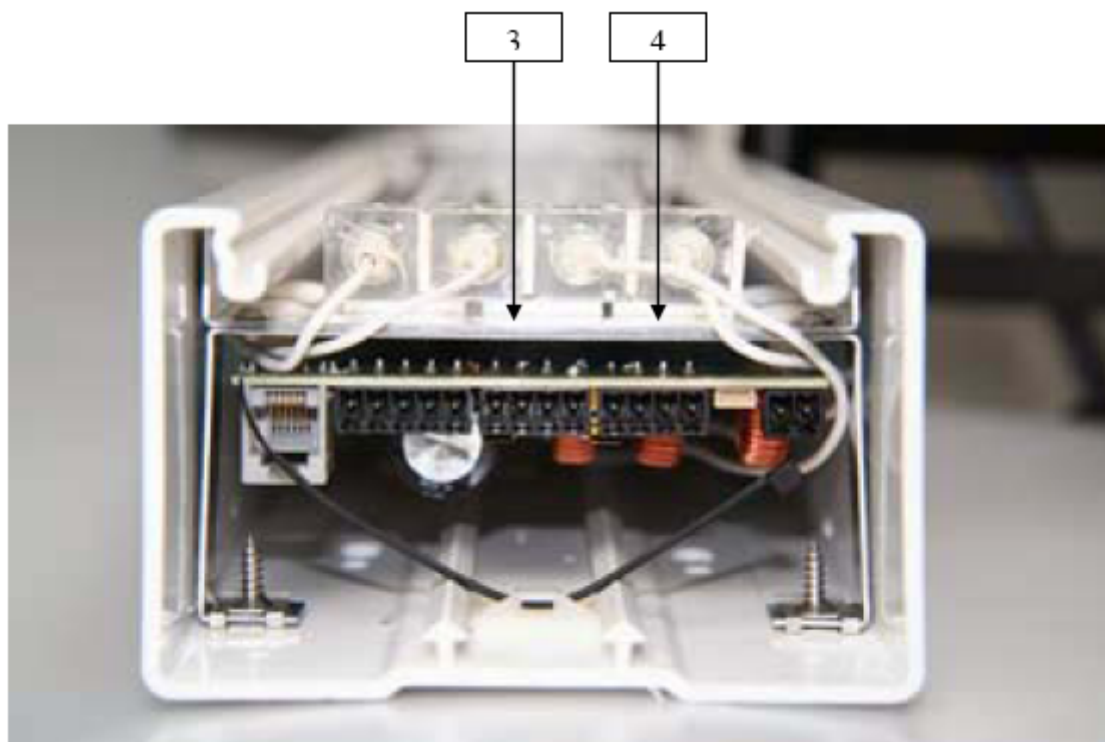


## Changing the settings of Expansion units 28010 and 28020

The expansion units 28010 and 28020 can also be configured via LNCV's. Communication between the expansion units and the basic unit 28000 takes place over a separate bus, which works like the LocoNet.

To program the module address of an expansion unit the following procedure must be followed:

- Separate the expansion unit which is to be programmed from all other units
- Connect a transformer to connection 3 or 4
- Connect the middle two data lines of this plug to the LocoNet. These are LocoNet "data line" and "data line chassis" chassis potential
- Insert connector into socket 3 or 4
- Place the Intellibox into LocoNet programming in the Basic Settings menu
- As part number use the number 28010 for all basic units
- As usual, program the module address (LNCV 0) to the desired value.



**Connector 3 and 4 – AC power and Data line**