Metroline with DCC/NCC

Illumination Description and Guideline

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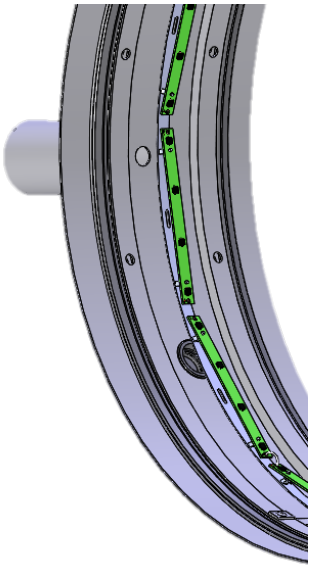
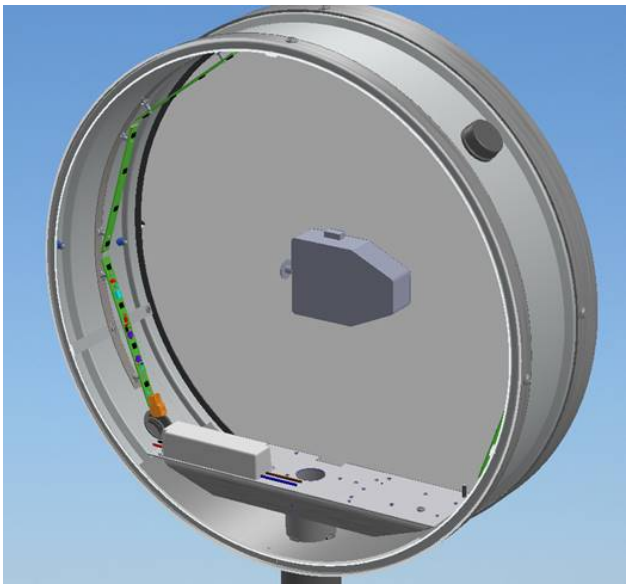
1 General Description

The LED illumination of the clock is placed around the frame to ensure an even and shadow free illumination of the dial.

The LED lighting is dimmable over the configuration of the Network clock controller NCC (remotely). With the DCC, the level of the illumination can be configured over a DIP-switch.





1.1 Number of LED Modules used

The Illumination is built with LED prints, each holding 4 LEDs. Based on the size of the clock a different number of those prints is used. The required number was defined based on measurements during the development phase. With the here listed number an even illumination of the clock is ensured.

In the Metroline clocks, the LED prints are connected in two parallel circuits of an equal number of prints.

Diameter	Single or double side	Number of LED prints
50 cm	Single	8
50 cm	Double	6
60 cm	Single	10
60 cm	Double	8
80 cm	Single	14
80 cm	Double	12

1.2 Color Temperature

In the standard Metroline clock (ML2….), warm white LEDs with a temperature of 4000K are used. The dial reduces the color temperature by approx. 300-500K.

Available Color temperatures:

Type Name	Description	Color temperature of the LED	Color temperature on the dial
ML4…	Cold white	6500 K	6000 ±500 K
ML2…	Warm white	4000 K	3500 ±500 K
ML3…	Neutral white	5000 K	4500 ±200 K

Currently only the warm white ML2 Metroline clocks are standard products. All other configurations need to be requested.

2 Power Consumption

The power consumption of the LED illumination inside a Metroline clock depend on the number of built in LED strips and of the chosen setting of the illumination on the DCC/NCC. The table below shows the consumption for all the different combinations and if the POE power supply is sufficient.

Type	clock diameter	single/double side	No of LED Strips	No of circuits	Power Consumption of the Illumination at different Settings (configured via DIP-Switch or Software) [W]							
					0	1	2	3	4	5	6	7
					240 mA	350 mA	390 mA	440 mA	500 mA	550 mA	590 mA	700 mA
ML2.50.R1	50 cm	single	8	2	2.9	4.2	**4.7**	5.3	6	6.6	7.1	8.4
ML2.50.R2	50 cm	double	6	2	2.2	3.2	**3.5**	4	4.5	5	5.3	6.3
ML2.60.R1	60 cm	single	10	2	3.6	5.3	5.9	6.6	**7.5**	8.3	8.9	10.5
ML2.60.R2	60 cm	double	8	2	2.9	4.2	4.7	5.3	**6**	6.6	7.1	8.4
ML2.80.R1	80 cm	single	14	2	5	7.4	8.2	9.2	10.5	11.6	**12.4**	14.7
ML2.80.R2	80 cm	double	12	2	4.3	6.3	7	7.9	9	9.9	**10.6**	12.6

Legend:

NCC: POE Power supply Legend (max 12.95 W)	
< 12W	POE power supply is sufficent ~ 1W is reserved for the Movements and the NCC
>= 12.00 W	POE+ or mains power is required ~ 1W is reserved for the Movements and the NCC
Bold	Typical setting based on experience (swiss railways)

Conclusion

- Metroline Clocks up to 60cm can be powered with POE.
- 80 cm Metroline Clocks are critical. If a bright illumination is required, POE+ or mains power is required.

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