



ANIMATED LIGHT SCALABLE ARCHITECTURE WITH MeLiBu™ by Melexis

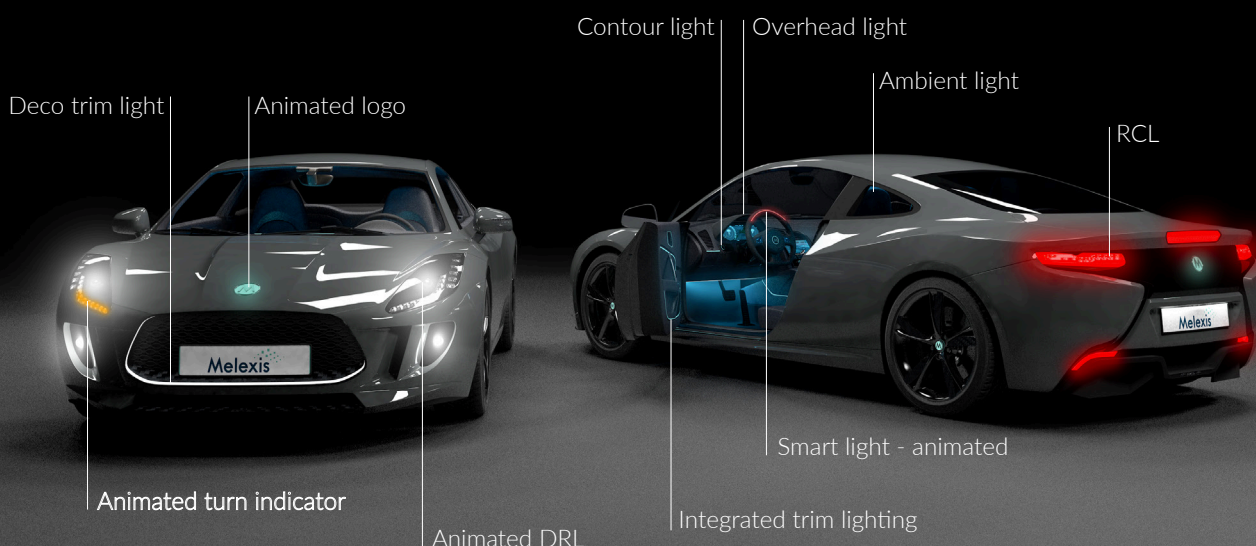
Despite the complexity of the required architecture around the body control unit, animated lighting is gaining in popularity, for both comfort and safety purposes. There are some challenges for a large integration:

- high performance at low-BOM solution so that the feature is not limited to high-end cars
- flexibility in the car architecture for lighting evolution without reprogramming the BCM

- handling of multiple (RGB-)LED suppliers with different color sensitivity to be adjusted separately
- managing safety-critical applications
- ensuring overall system EMC & ESD robustness in a harsh environment
- ...while fulfilling space requirements to fit in any location within the car

MeLiBu™
by Melexis

System view



Melexis
INSPIRED ENGINEERING

Melexis Light Bus

MeLiBu - Melexis Light Bus - is a high-speed low-BOM automotive robust communication system that enables applications with high RGB-LED counts for highly animated light animations within cars.

The system is optimized for automotive use cases and robustness and allows the integration into LED driver products to develop powerful and cost-optimized animated light systems. It is based on CAN-FD physical layer and UART communication with self-synchronization. The differential CAN-FD PHY supports advanced safety applications according to ISO26262.

The success of the system is already on the road with multiple OEMs having validated and implemented MeLiBu.

SENSE&LIGHT
by Melexis

MeLiBu™
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= UART protocol over CAN-FD PHY

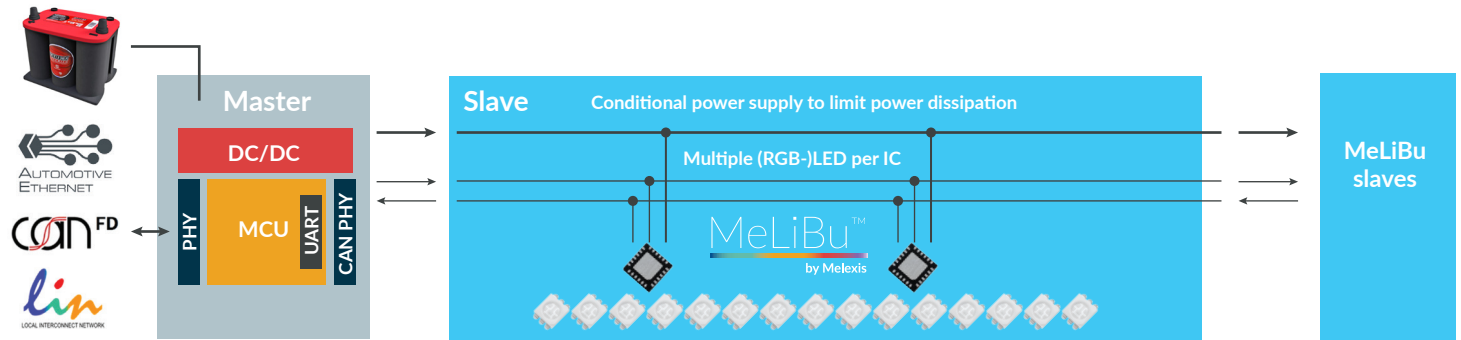


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|-----------------------------|---------------------------|
| Simple protocol | • High speed (2 Mbit) |
| RGB lighting optimized | • EMC/ESD robustness |
| Easy to integrate | • Automotive proven PHY |
| Enables low BOM (RCO based) | • Enables light animation |



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Block diagram



Key features & benefits



- Master-Slave based system
- Usage of CAN-FD PHY differential interface (high-speed 2 Mbit)
- License-free high-speed system
- No IP-licence cost for soft- and hardware
- Every standard MCU can be used as Master for car communication
- CAN-FD over UART communication
- Real differential bus structure enables simple wiring harness
- Simple synchronization of light animations over the full car via MeLiBu
- Delay free communication system between LEDs
- Multiple bus segments can be distributed over the full car
- Real time update of >300 LEDs (with the MLX81116) without any delay in one bus segment
- ISO26262 support
- Freedom to use any LED
- Using one IC to drive multiple LEDs

Key differentiations:

- Ability to connect multiple LED modules together on one MeLiBu via a wiring harness
- EMC & ESD robustness unreached by competitive solution
- ISO11898 compatible (CAN-FD PHY standard)
- Lowest cost per light node on the market

More about our products and solutions

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