

HELLA LITHUANIA – HLT

December 2024

FORVIA



AGENDA

- 01 HELLA Lithuania at a Glance
- 02 Team
- 03 Company Roadmap
- 04 Production Overview

01 HELLA LITHUANIA AT A GLANCE

KEY FACTS

HELLA Lithuania – a central pillar of the HELLA Electronics business growth strategy in Europe

HELLA Lithuania is a pure production site

- > We are industrializing new production projects and running series production.
- > Our responsibility ranges from taking care of purchased parts and manufacturing equipment until delivery of the final product to the customer.
- > We support HELLA's global sales team to acquire projects and the global development teams in the design of our products.



We have all functions on site which are necessary to run our operations smoothly

- > Production, Launch Management, Logistics, Technical Service and Quality departments are preparing and running the business.
- > Purchasing, Finance & Controlling, Human Resources and Administration are supporting them.

Product portfolio consists only of automotive electronics parts

DECISION RATIONALE

Overall strategic rationale for a new plant in Europe – running out of space in the mid-term

High availability of qualified workforce

- > High availability of education e.g. Kaunas University of Technology.
- > High English level.
- > Low attrition rates.



Highly developed country

- > Part of the EU, EURO zone and NATO.
- > Very good road / sea infrastructure.
- > Good manufacturing availability and high electronics motivation.

Lithuania was chosen out of originally 17 countries – decision after evaluation of empirical data, on-site visits, interviews with international companies located in Lithuania and consultation of HELLA customers

LOCATION

Plant located in Kaunas Free Economic Zone (FEZ)

8.8 km to Kaunas city center and 7.3 km to Kaunas airport

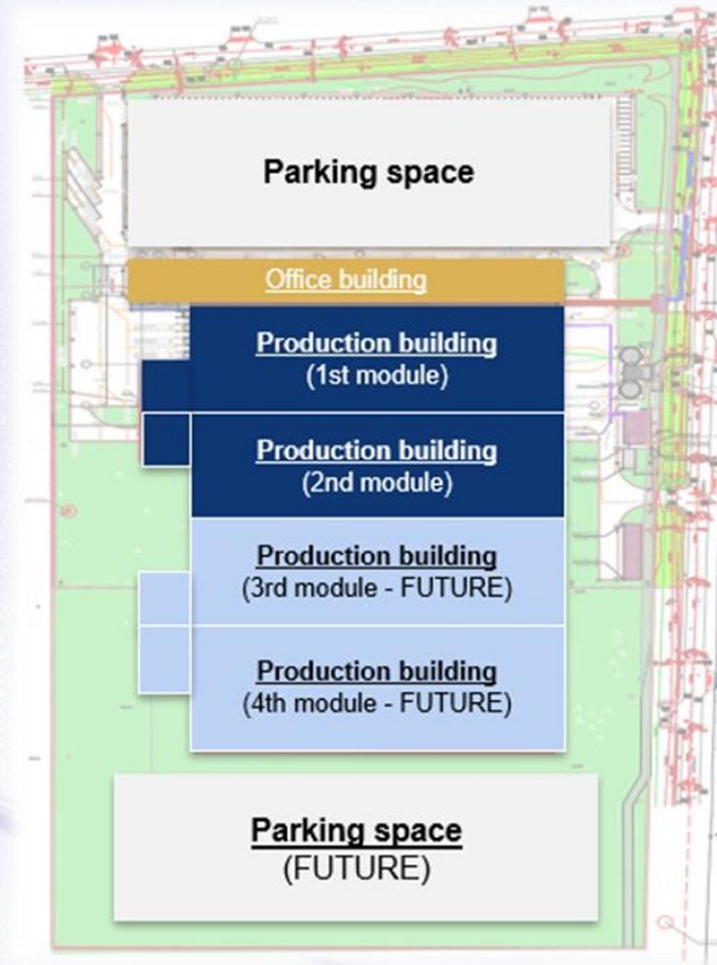


LAND PLOT

Kaunas Free Economic Zone selected due to favorable location, pre- installed infrastructure & expansion possibility

Total size of land plot: 89,297m²

- Utilization in four construction steps
- Extension started 2nd production module & engineering center
- Plant today:
 - 7,592 m² shopfloor
 - 5,670 m² warehouse
 - 3,300 m² office



02 TEAM

LEADERSHIP TEAM



**Managing Director /
Purchasing Indirect**
Maxim Zakletskiy



Head of Operations
Mantas Skinderis



Human Resources
Jurgita Macijauskienė



**Finance & Controlling
/ Operations Services**
Liveta Cirtautaitė



**EHS & Regulatory
Services**
Justas Jurgaitis



Quality
Vaida Kolosej



Internal Factory 1
Tomas Ziutelis



Internal Factory 2
Donatas Vlasovas



Internal Factory 3
Marius Pukelevičius



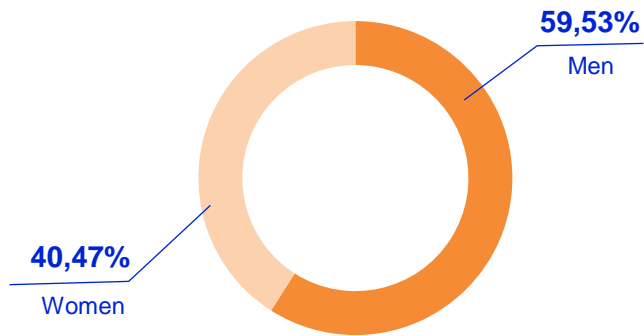
Logistics
Živilė Dabašinskienė



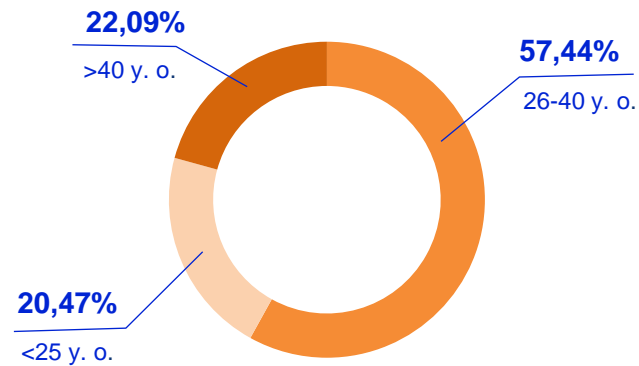
Technical Service
Arvydas Maciulevičius

TEAM STRUCTURE

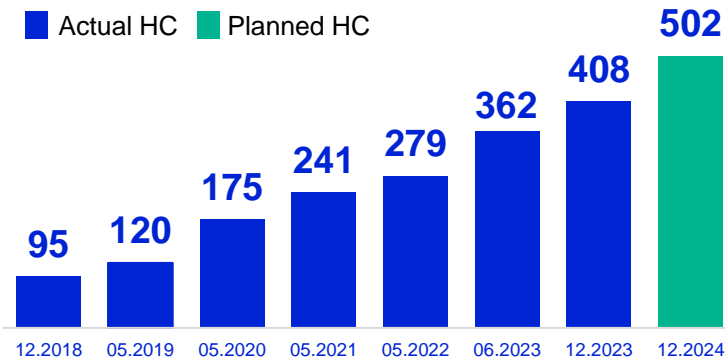
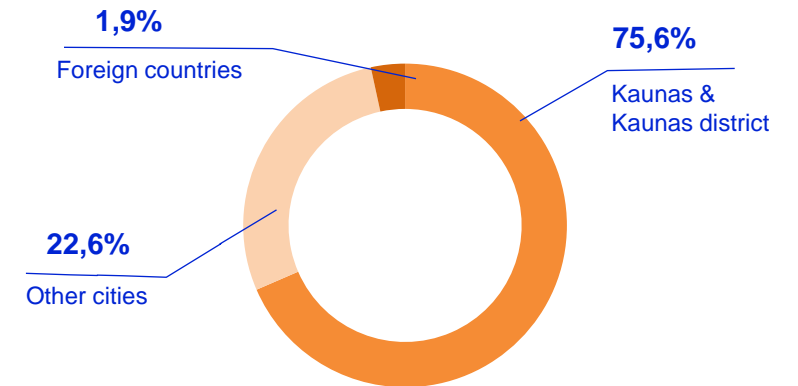
Employee Gender Distribution



Employee Age Distribution



Employee Location Distribution



430 employees
employed by 01.12.2024

33,38 years
the average age

All employees are trained
based on the requirements of
their positions in existing HELLA
plants and central departments

HLT DNA

Being the team of openminded intrapreneurs in automotive electronics

Growing together

Acting as one team leading by example with integrity. Keeping focus on continuous development of each other.

Working as intrapreneurs

Being result oriented, driving efficiency and proactively handling our commitments.

Being open minded

Considering feedback as a gift and constructively sharing our knowledge

The graphic features a glowing blue DNA double helix structure against a dark blue background with a silhouette of a person. The text 'HELLA Lithuania' is written along the helix. To the right, there are sections for 'MŪSŲ VIZIJA' (Our Vision) and 'MŪSŲ MISIJA' (Our Mission). A central box contains the text 'DIRBAME KAIP INTRAPRENERIAI' (We work as intrapreneurs) and a list of values: 'KOMANDINIS DARBAS' (Teamwork), 'PAGARBA' (Respect), 'VERŽLUMAS' (Ambition), 'ATSAKOMYBĖ' (Responsibility), 'ADAPTYVUMAS' (Adaptability), and 'ATVIRUMAS' (Openness). At the bottom, the 'HELLA Lithuania' logo and a description of the team are provided.

AUGAME KARTU

HELLA Lithuania

DIRBAME KAIP INTRAPRENERIAI

MŪSŲ VIZIJA
Aistra išmaniesiems sprendimams, formuojant tvarų ir saugų mobilumą.

- **KOMANDINIS DARBAS**
Mes planuame komandų darbą
- **PAGARBA**
Mes esame pagarbiai
- **VERŽLUMAS**
Mes sekame tuos, kurie vėžti
- **ATSAKOMYBĖ**
Mes patikime atsakomybę
- **ADAPTYVUMAS**
Mes vertiname adaptyvumą
- **ATVIRUMAS**
Mes vertiname atvirumą

ESAME ATVIRI

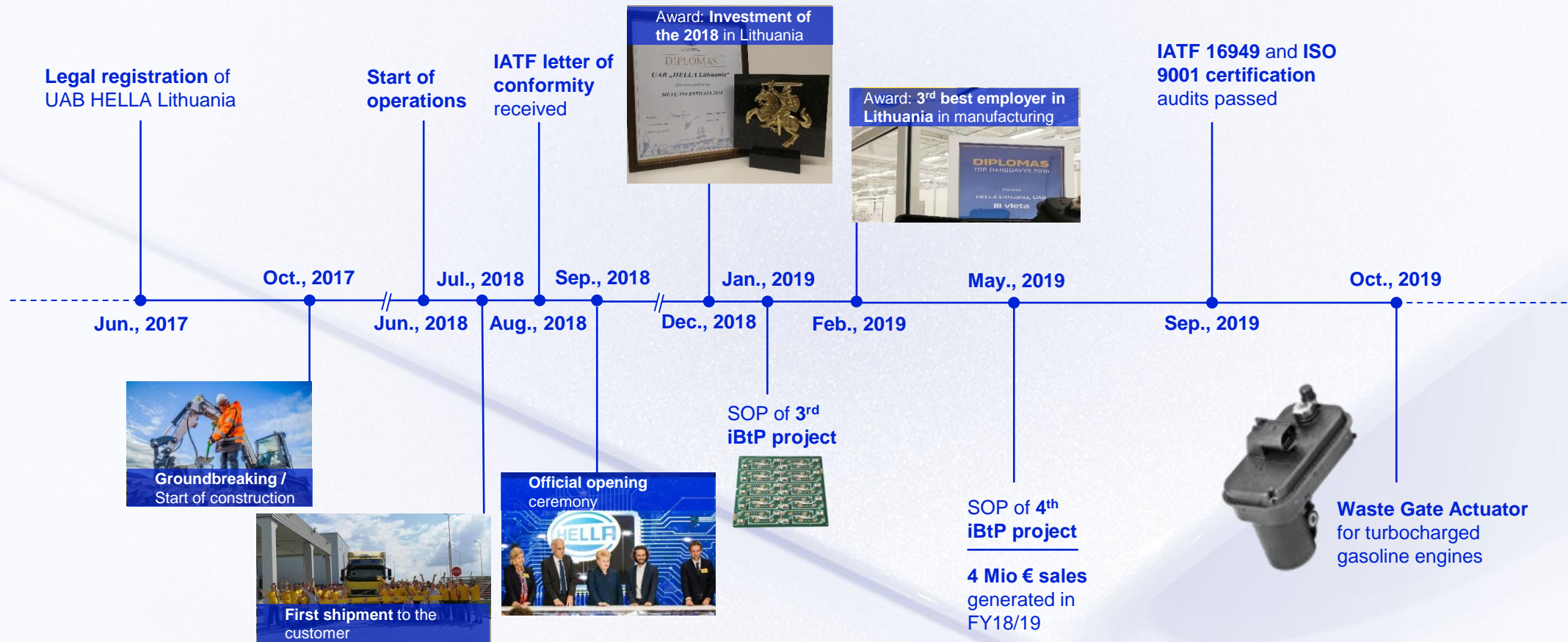
MŪSŲ MISIJA
Esame technologijų lyderiai, užtikrinantys žmonėms svarbią mobilumo patirtį.

HELLA Lithuania
Plačių pažiūrų intraprenerių komanda, veikianti automobilių elektronikos srityje.

03 COMPANY ROADMAP

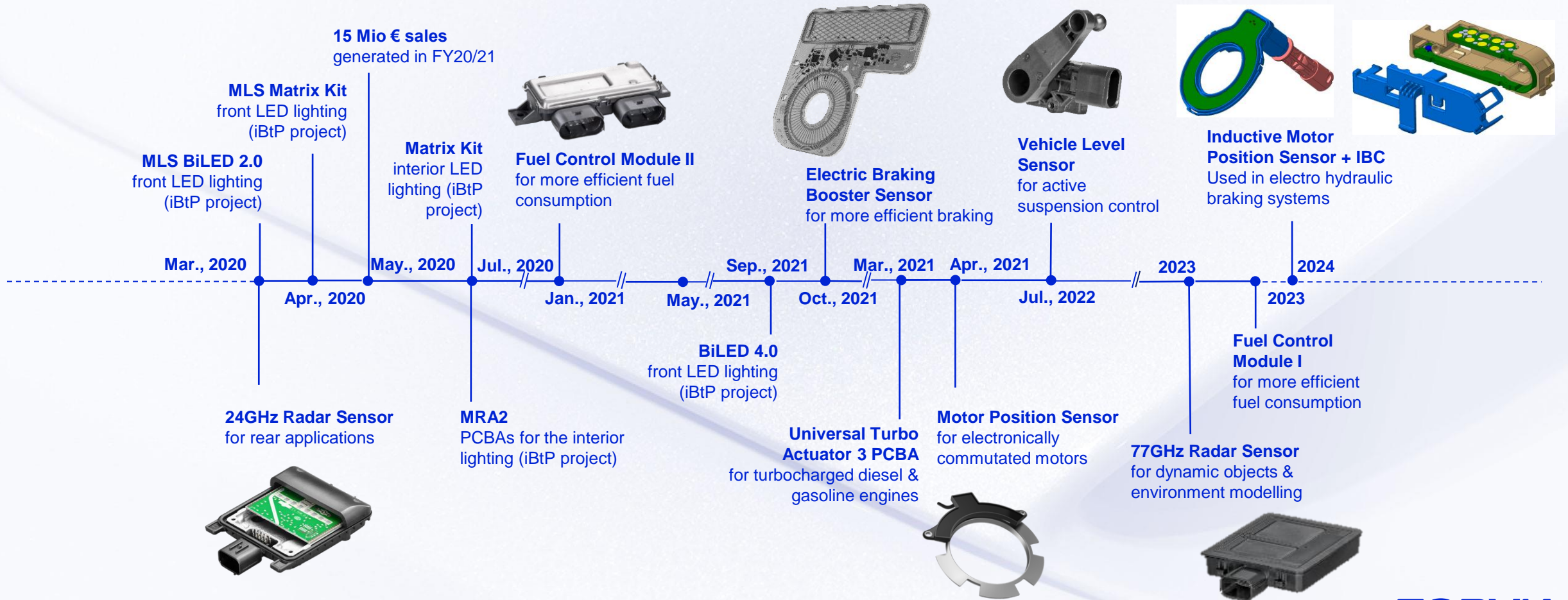
COMPANY HIGHLIGHTS

SOP – start of production
iBtP – internal Build to Print



COMPANY HIGHLIGHTS AND ROADMAP

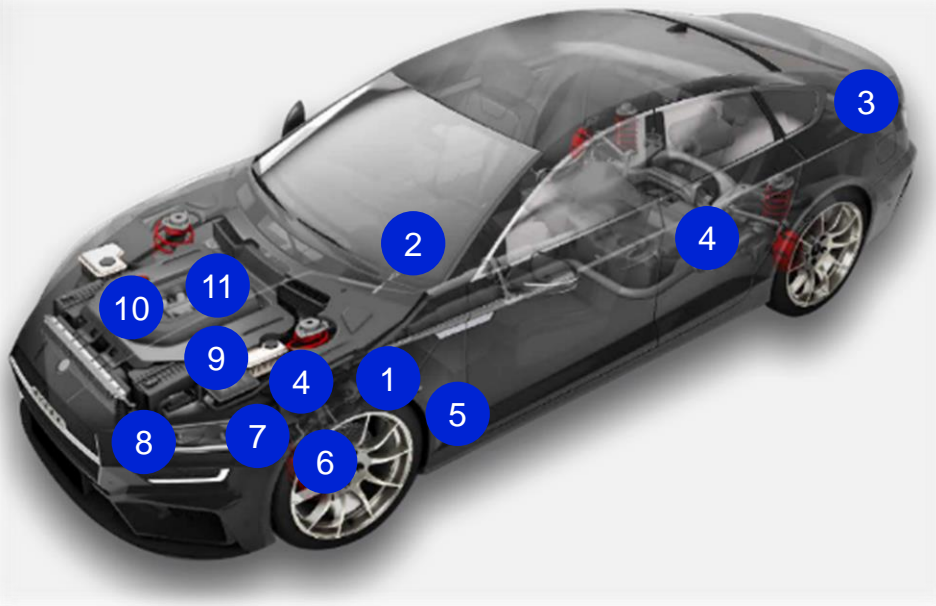
SOP – start of production
iBtP – internal Build to Print



04 PRODUCTION OVERVIEW

HELLA LITHUANIA PRODUCTS

- 1 Brake System Sensor (IBC MPS&PTS) 
- 2 Steering Sensor (STS) 
- 3 Radar I & II (RS) 24 GHz and 77 GHz 
- 4 Vehicle Level Sensor (VLS) 
- 5 Accelerator Pedal Sensor (APS) 
- 6 SHAKE Sensor (RLS) 



- 7 Fuel Control Modules (FCM) 
- 8 Lighting sensors (iBTP PCBA GL) 
- 9 Electronic Valve Actuators (eVA) 
- 10 Motor Position Sensor (MPS) 
- 11 Actuators (WGA and UTA) 
- 12 Throttle Position Sensor (TPS) 

FORVIA



BACK UP

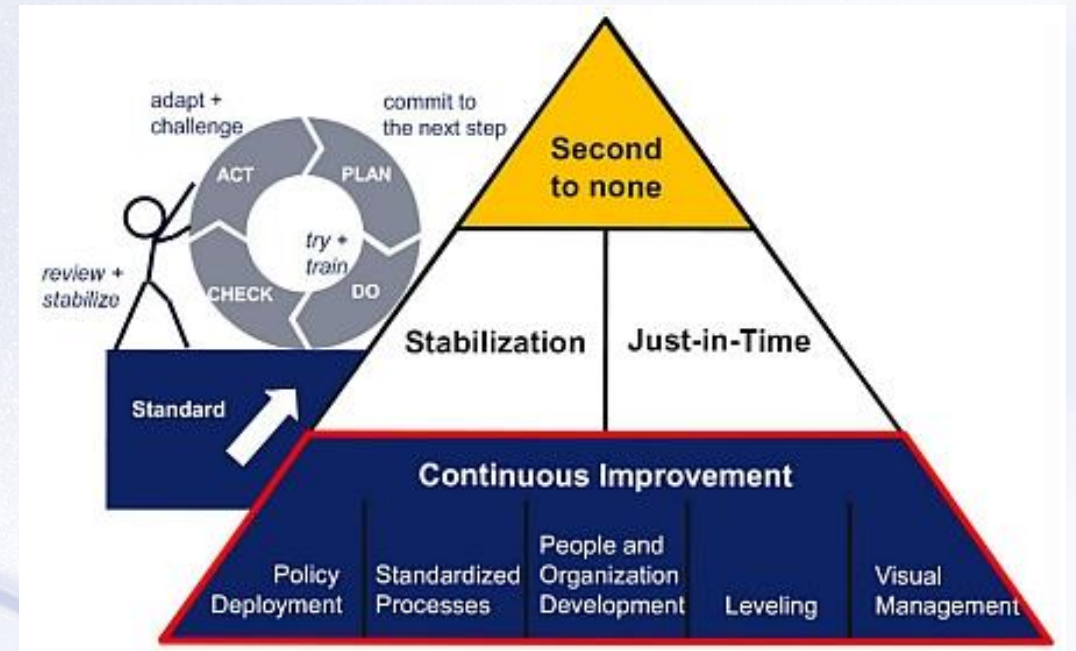
OPERATIONAL EXCELLENCE

HELLA PRODUCTION SYSTEM HELPS

The “HELLA Production System HelPS” summarizes all principles, methods and used tools whose application helps in achieving operative excellence

Lean principles and Continuous improvement activities at HELLA Lithuania:

- Visual standardization
- Processes standardization
- Zero defects
- Material flow
- 7+1 wastes analysis
- KAIZEN (eliminating waste +1)
- Value stream map (analyzing MUDA)
- Production leveling
- 5S standard
- 5 why analysis
- SPI quarterly planning



PLANT TOUR

PLANT TOUR MAP

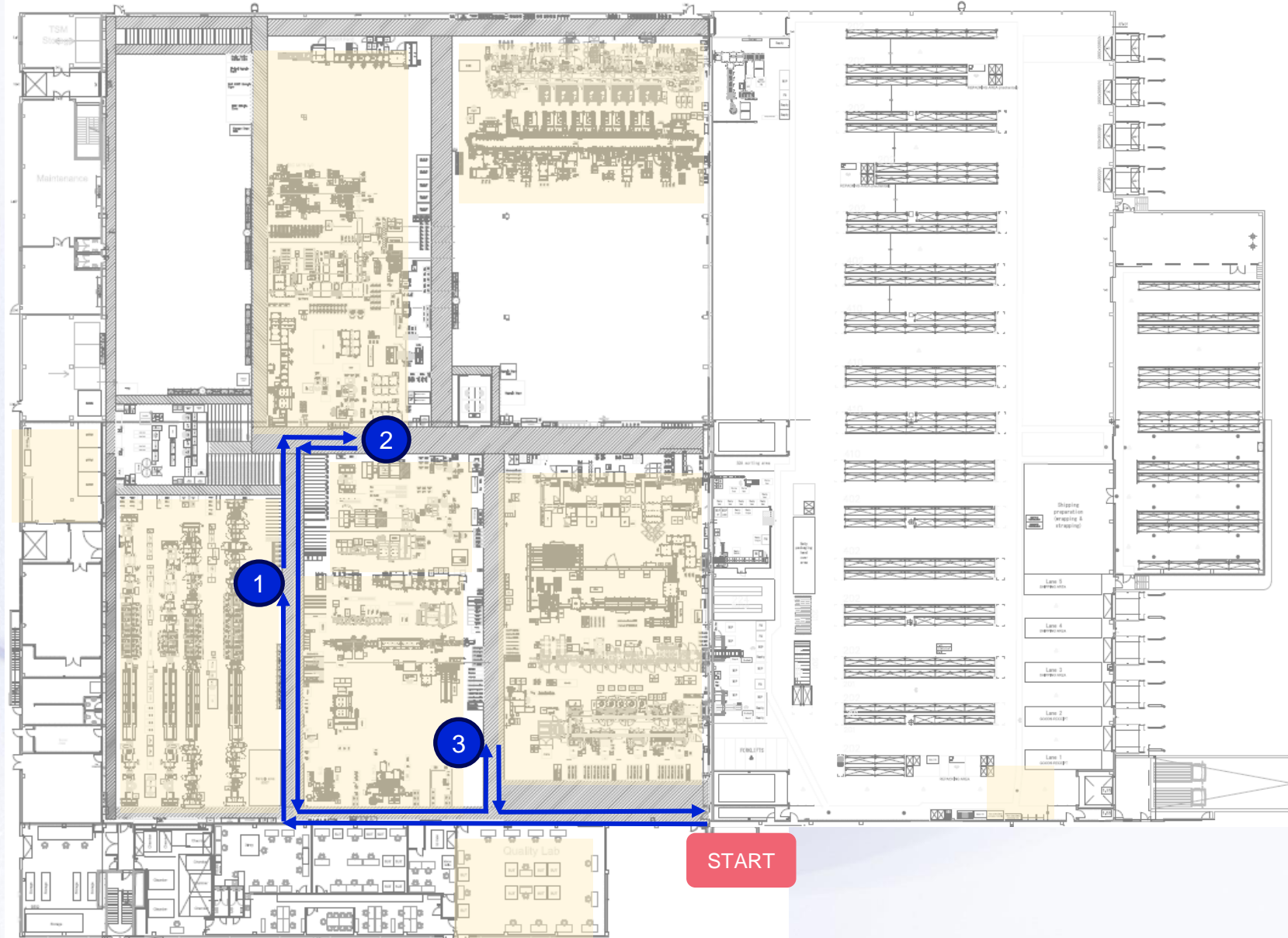
1 SMT Lines

2 BTP

Final Assembly:

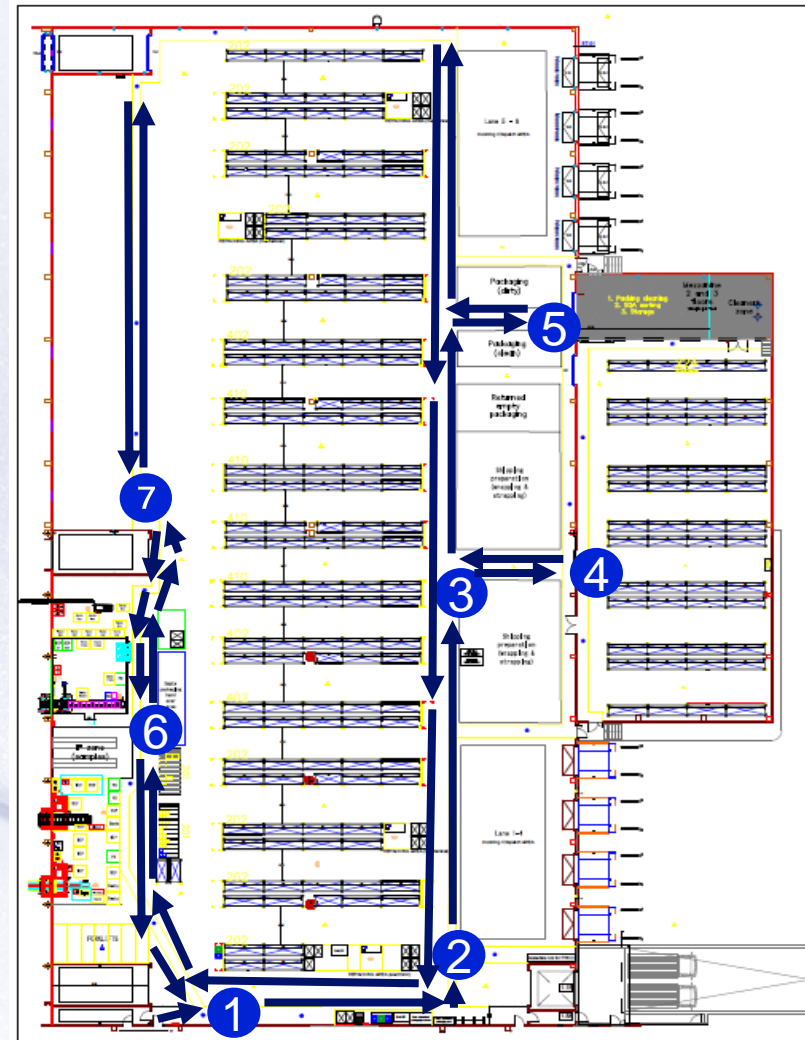
- RADAR Gen 4
- WGA
- FCM II
- MPS
- EBB

← Walk flow
→ Returning flow



WAREHOUSE TOUR MAP

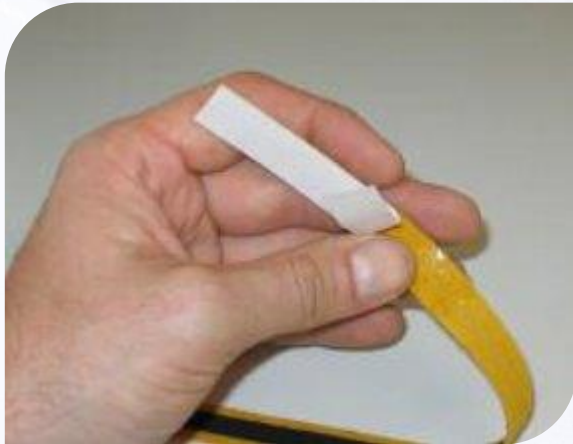
- 1 Introduction to warehouse and safety rules
 - 2 Goods incoming, logistics process
 - 3 Outgoing
 - 4 Empty packaging and quality lockrooms
 - 5 Sorting area
 - 6 End of lines: Radar FSM, EBB, WGA
 - 7 Opportunity workshop
- Moving direction



HOW TO MOUNT ESD PROTECTED STRIPES



1. Remove the protective strip part:



2. Attach the sticky part to the sole:



3. Insert another part of the strip inside the shoe:



4. Place the tape and put on footwear:



ESD-CONFORM CLOTHING

Entering ESD areas is only permissible with approved ESD-conform personal equipment.

ESD-conform clothing has to be worn completely buttoned up, must not be modified and has to cover private clothing completely.



Correct!



Wrong!

ESD TEST STAND

Persons (visitors, external service providers) who do not wear suitable ESD-conform footwear must wear heel grounding stripes on regular shoes. The stripes should be put on both shoes!

ESD inspection gate



Green light?



You can enter
the shopfloor



Red light?

1. Repeat the test.
2. Check if the ESD strips are properly attached.
3. Ask for the assistance of an accompanying HELLA employee.
4. Attach additional ESD stripe.

PRODUCTS

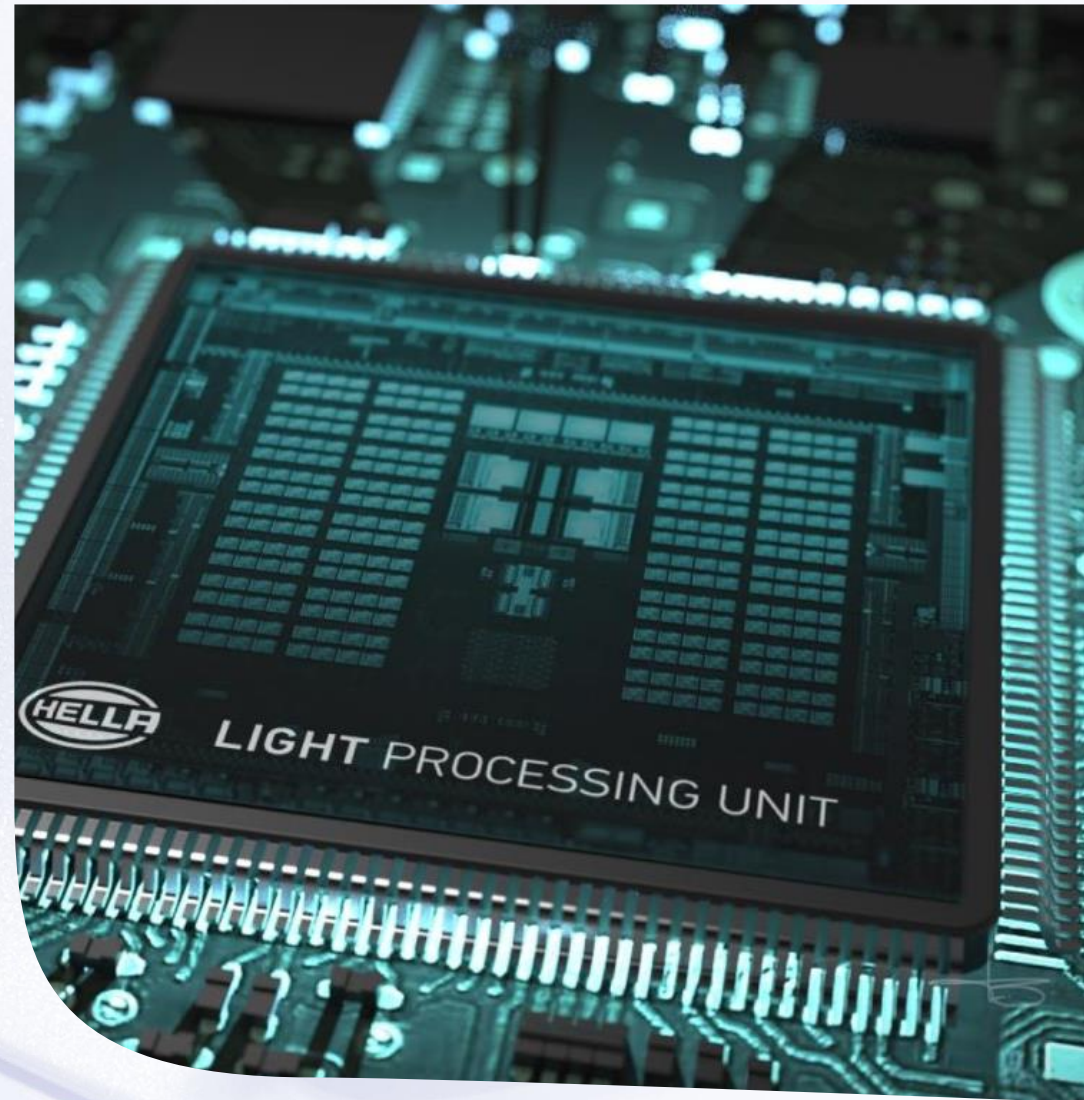
LIGHTING ELECTRONICS

Functions

- Modular kit for LED driver ECUs support different customer configurations
- Supporting signal light functions, main beam, Adaptive Driving Beam and Matrix Beam
- Control of digital light: Fully flexible lighting, real time control, high speed interfaces, animations
- Supporting Autonomous Driving: Communication, Signal lamps, Communication via light, new functionalities and new HMI interface

Benefits

- System expertise for light-based assistance systems: Development of all system components, from photon detection (camera software) to photon transmission (headlamp)
- Specification of overall systems including interfaces between components
- Scale effects and reuse of software development and software functions
- Modular feature architecture allows the implementation of customer specific/ owned algorithms
- Flexible light design by using HELLA light design tool



LIGHTING ELECTRONICS

Use Case

Today's lighting systems are becoming more and more complex, their functionality more and more diverse. The necessary intelligence to control individual light sources, to realize and to animate desired functions or to react to changing environmental conditions, they receive by electronic control units. In addition, lighting electronics will support future trends such as Autonomous Driving, Digitization and Individualization with new functions.

End Customer Benefits

- Allows more safe driving by releasing the driver from low/ high beam switching
- Higher driving comfort at night
- Supports light functions for individualization



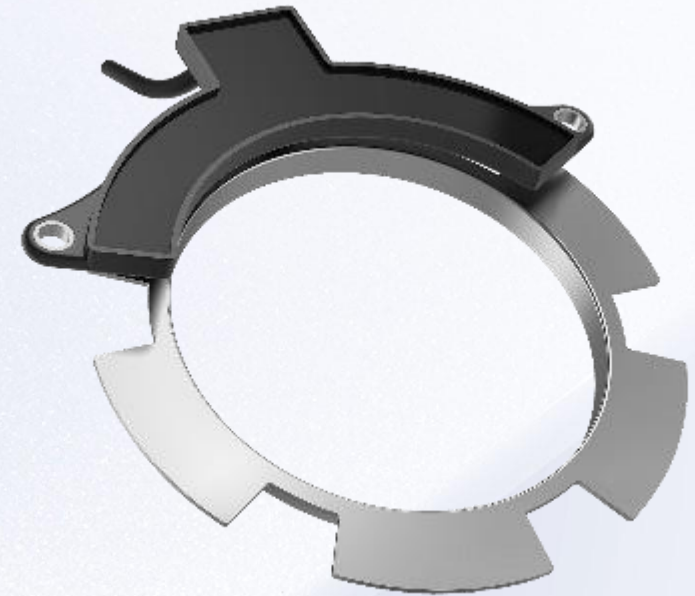
MOTOR POSITION SENSOR

Functions

- Provides rotor position to a motor control unit
- Integrated in electronically commutated motors (EC-Motor)

Benefits

- True power on system with exact motor position value at start up (initial value)
- Robustness against high current magnetic flux density and magnetic stray fields
- Applicable for EC-Motors as BLDC, PMSM with different pole pairs
- Up-to 80% weight and size reduction compared to resolver solutions



Motor Position Sensor

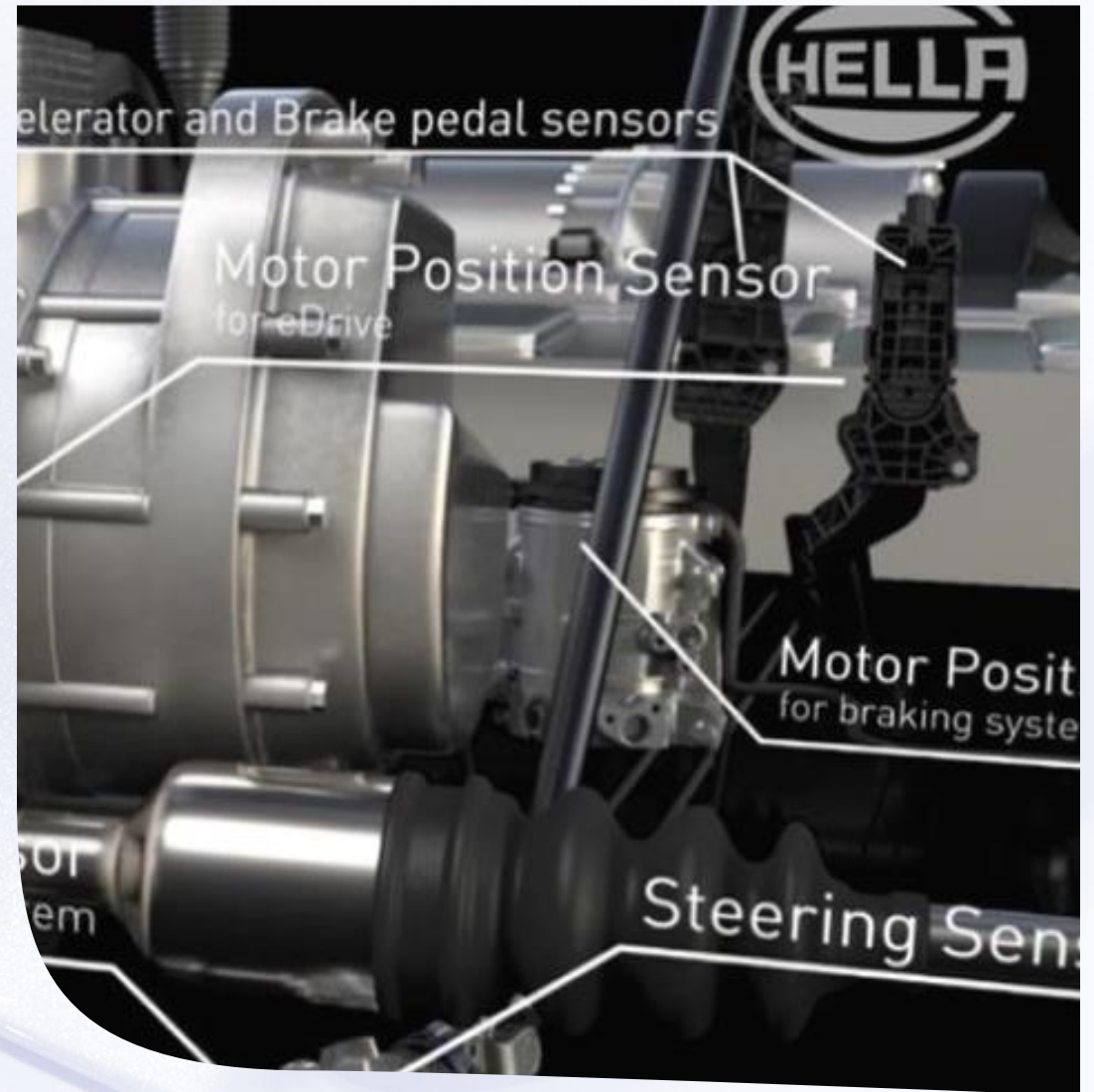
MOTOR POSITION SENSOR

Use Case

HELLA's Motor Position Sensor (MPS) detects the angular position of the rotor for accurate commutation control. By evaluating the interaction of high frequency alternating electric fields (AC) of transmission, receiver coils and rotor the MPS delivers demodulated, filtered and conditioned signal.

End Customer Benefits

- Safety ASIL-C (D)
- EMC robustness: meets all standard automotive requirements
- Customized shape and size



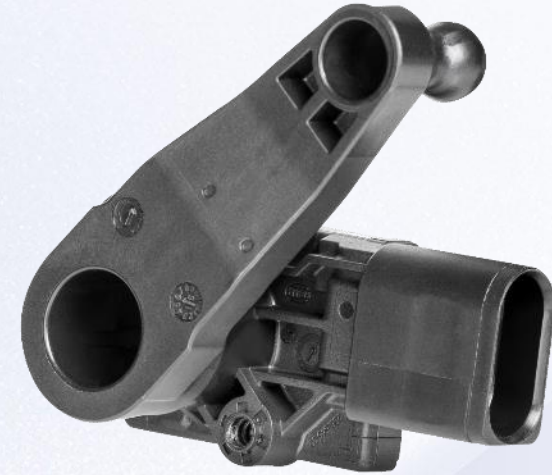
VEHICLE LEVEL SENSOR

Functions

- Compact angle sensor solution assembled at the vehicle chassis in order to support automatic headlamp levelling or active suspension control
- Applicable also for accelerator pedal, brake pedal, clutch pedal or any other application that can be coupled by a linkage

Benefits

- Angle sensor solution including housing, sealing and a lever
- Temperature Range: – 40 °C 125 °C (130 °C short time)
- Interfaces: Analog, PWM, SENT, PSI 5
- Accuracy: $\leq \pm 1\%$ vs. full scale over service-life/temperature
- Resolution: 12 bit vs full measurement range
- Size: 68 x 54 x 47 mm³ (sensor housing)



Vehicle Level Sensor

VEHICLE LEVEL SENSOR

Use Case

The Vehicle Level Sensor is a compact angle sensor solution assembled at the vehicle chassis in order to support automatic headlamp levelling or active suspension control.

End Customer Benefits

- Modular design
- Robust sensor with optimized dimensions
- Water tightness (IP6K9K)



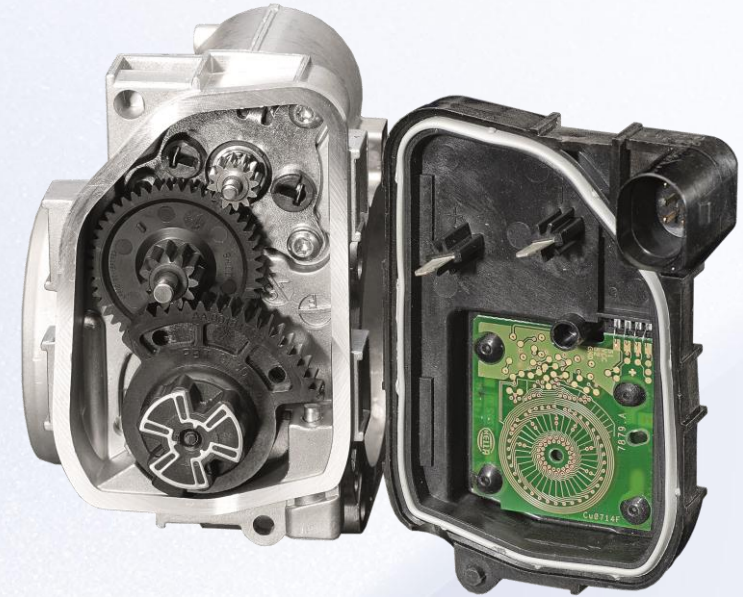
THROTTLE & EGR POSITION SENSOR

Description

- Throttle Position Sensors (TPS) use the advantages of the HELLA CIPOS® technology.
- The TPS Sensor measures the Throttle Body flap position and provides that information to the ECU.
- The EGR Sensor measures the position of the exhaust gas valve and provides that information to the ECU.

Advantages

- Temperature-independent sensor performance (up to 170°C)
- Mechanical robustness
- High reliability and accuracy ($\pm 1\%$ vs. full scale)
- Flexible integration and simple installation
- ASIL B compliant
- Annual volume approx. 20Mio. sensors/year



Throttle & EGR Position Sensor

24 GHZ RADAR

Description

- 4th Generation of 24 GHz (Narrow Band) Mid-Range Radar Sensors
- Fast-chirp modulation principle for improved object recognition and separation using 2D-FFT
- Increased field of view by significantly increased detection capability
- Highly integrated BiCMOS-SiGe MMIC and dual-core μ -processor
- Functions: blind spot detection, rear cross-traffic alert, lane change assistant, exit assistant, pre-crash rear

Benefits

- Single PCB solution with cost optimized system architecture
- Further cost and size reduction compared to previous generations
- Significantly increased measurement capabilities by increased amount of sampling points
- Further expansion of the functional spectrum
- Improvement of auto-alignment performance to allow elimination of end-of-line calibration



24 GHz Radar Sensor

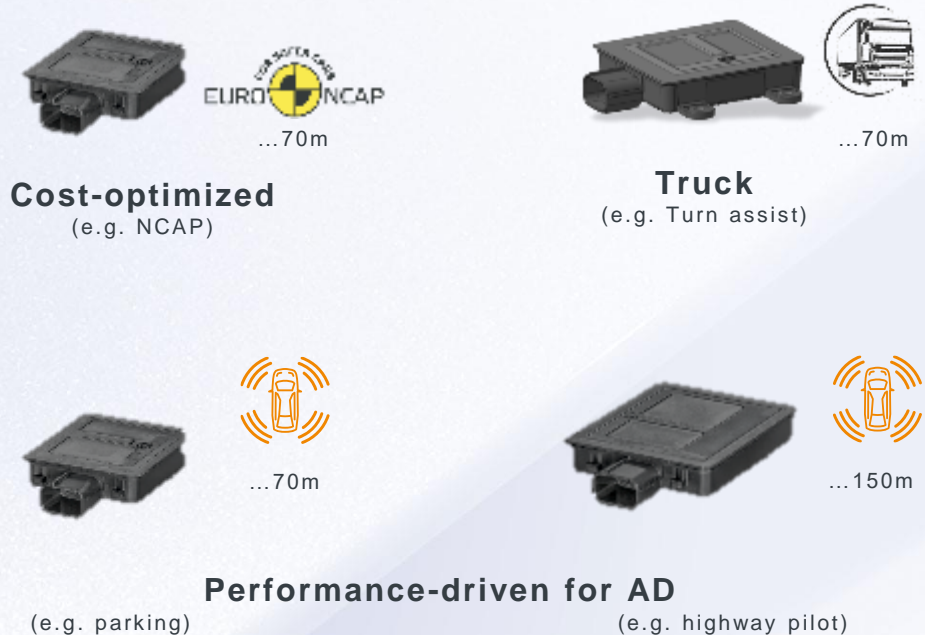
77 GHZ RADAR

Description

- HELLA 77 GHz radar sensor family for assisted and automated driving
- Scalable platform approach for centralized and decentralized architectures
- 360° environment perceptions (dynamic objects and environment modelling incl. elevation measurement as basis for assisted and automated driving functions)
- Adaptive radar signal modulation optimized for distinct driving scenarios (e.g. parking, highway)

Benefits

- High flexibility and customer orientation, with a high level of cost efficiency
- Radar system design, optimized for high volume applications
- Years of experience in sensor integration and simulation
- Flexible software deployment for centralized and de-centralized architectures



77 GHz Radar Sensor Family



24 GHZ/ 77 GHZ RADAR

360° Environment Perception for Automated Parking

Modular and scalable HELLA 77 GHz radar sensors further drive the realization of highly-automated driving. When visibility is compromised, the car alerts the driver of oncoming vehicles, and automatically engages the brakes. The advanced near field performance and a 360° surround view enable automated parking scenarios as well as provide quick reaction times, even at speed.

End Customer Benefits

- Mature driver assistance and automated driving functions in a cost effective and hence affordable manner
- Increased safety and comfort during parking maneuver as well as other driving scenarios



WASTE GATE ACTUATOR

Functions

- Actuates kinematics in harsh engine environments
- Controls the turbocharger valve of turbocharged gasoline engines

Benefits

- Superior cost/performance ratio
- HELLA CIPOS® technology for high sensor resolution and precise wastegate actuator control
- Broad range of experience with hardware, software and control algorithms of the turbocharger
- Robust design for harsh engine environments with ambient temperature up to 160°C
- Operating angle of 108,5°, min. torque of 250 Ncm and a various length of output lever
- Available globally, short logistics and technical support locally



Waste Gate Actuator

WASTE GATE ACTUATOR

Use Case/Applications

- Turbo charger - Actuator controls the boost pressure provided by the turbo charger to the engine
- Park Lock – Actuator drives park locking mechanism to ensure vehicle standstill
- Gear shift – Actuator switches gear stages
- Universal actuation – Actuator moves linear (combined with kinematic) and rotatory within a requested range

End Customer Benefits

- CO2 reduction and fuel efficiency
- Safety function



FUEL PUMP CONTROL MODULE

Functions

- Communicates via PWM (pulse width modulation) or CAN
- Capable of controlling BLDC (EC) or DC motors
- Customized module variants with a wide range of functions and diagnostics
 - Fuel Pump control
 - Tank level determination
 - Fuel Filler Flap Locking Control
 - Valve control for Hybrids

Benefits

- Demand-driven fuel pump
 - improves fuel economy,
 - extends the life of the fuel pump,
 - reduces fuel pump noise
- Enables diagnosis capabilities
 - HW diagnosis
 - Fuel system diagnosis
 - OBD II conformance (secondary OBD ECU)
- Allows calibrations and parameter selection via XCP



Fuel Pump Control Module

FUEL PUMP CONTROL MODULE

Use Case

Fuel Pump Control Module enables an on-demand controlled fuel delivery. The FCM supports DC motor control as well as sensorless EC motor control and allows to connect a wide range of sensors and additional actuators. The FCM portfolio includes very cost efficient single-function PWM controlled modules up to high complex multi-function CAN controlled modules. Especially the multi-function FCM's provide (beside fuel pump control) additional functions like fuel level determination, support of evaporation systems and a wide range of diagnosis options.

End Customer Benefits

- Cost-efficient design based on generic design approaches
- Integration of additional functions
- Demand-responsive Fuel Pump Control improves economy, extends the Fuel Pump lifetime and reduces the noise incase of low engine rpms.

