

VIDEOTON

YOUR ELECTRONICS MANUFACTURING PARTNER

TECHNOLOGY

STABILITY

SUSTAINABILITY

DYNAMISM

—
2022

WHO WE ARE TODAY



A vertically integrated **industrial group** in best-cost Europe

- Privately owned
- Financially strong

One of the leading European **EMS providers**

- With extensive operations for mechanical parts

Complex service provider owning and operating **industrial parks**

- Including facility management and workforce secondment

30-years of proven **„adaptive” strategy**, maintaining diversity

- In customer-base: accounts from up-and-coming companies (incl. startups) till established global players
- In market segments: Traditional markets (like Automotive, Industrial or Household) as well as dynamically growing segments (such as Portable Energy, IoT or Smart Home)
- In technology and activities: making parts, modules and final-assembled products

VIDEOTON GROUP

Manufacturing Companies

Service Companies

PCBA & Box build assy.



VT Automotive Electronics
Automotive EMS
Box build assembly



Videoton EAS
Non-automotive EMS
Box build assembly



Videoton EAS Bulgaria
Non-automotive EMS
Box build assembly

EMS member companies of VIDEOTON



VT Elektro-PLAST
Assembly & box build
Plastic injection moulding



VT Battery Technology
Battery pack assembly



VT ES
Box build assembly
Enclosure manufacturing
Sheet metal fabrication

Part mfg. & Box build assy.



VTBH (Bulgaria)
Electromechanical and mechanical
assembly & box build services



VT Mechatronics
High complexity assembly
and machining



VT TIPA
Robotized assembly lines
Testers



VT ASYST
Robotized assembly lines
Testers



VT Plastic
Automotive-focused injection
moulding



VT Bulplast (Bulgaria)
Thermoplast injection and thermoset
injection and compression moulding
Tooling



VT METAL
Medium to high volume machining
Electroplating, KTL

Part mfg. & Heavy duty assy.



KVJ Muvek
Stamping w/ presses



VT Precizios
Injection moulds



VENTIFILT
Heavy-duty fans, filters
Large steel fabs



VT Systemtechnics
Shelter / container mfg.



Pannonjob
HR services



Industrial Park
Building lease & services



VT ARtrans
Logistics services



Pannonfacility
Facility management

Centralized (Holding) function
Function shared between Holding & subsidiaries

VIDEOTON HOLDING

Controlling

Property Mgmt

Legal

Business Development

Finance

Sourcing

IT

HR

Design & Engineering

KEY FIGURES OF OUR EMS SUBSIDIARIES

3rd

Among EMS
Companies HQ'd
in Europe

41

SMT-lines

50M

PCBAs &
modules
produced yearly

4,6

Billion
electronic
components
mounted

240

Million €
purchasing
spend in
electronics

1200

PCBA types
in production

17K

Component
types used in
PCBA
operation

63K

m² built-in area
of our EMS
companies

PRODUCTION SITES FOR EMS

Székesfehérvár (HU)



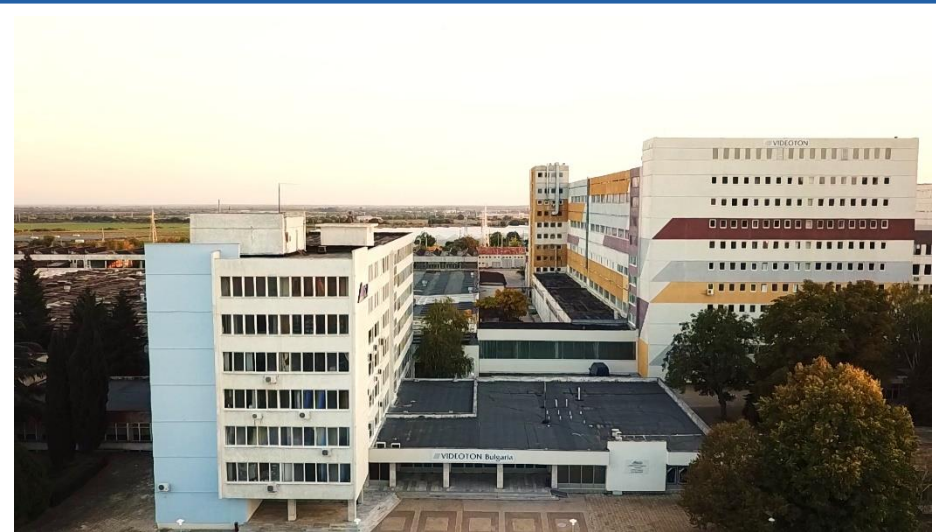
58 500 m²



2 500

- Competence centre and main mfg. location for EMS (both for Automotive and non-Automotive applications)
- Brand new dedicated building for non-automotive EMS subsidiary with state-of-the-art warehouse system. Inaugurated in January 2019.

Stara Zagora (BG)



4 000 m²



280

- Electronic manufacturing operation was started in December 2008 at this location
- Currently makes non-automotive PCBAs only (e.g. labour-intensive, THT-heavy boards)

OUR EMS TECHNOLOGIES

SURFACE MOUNT TECHNOLOGY

■ Component placement

- ❑ reflow, glue
- ❑ chip01005, BGA, fine-pitch, odd-forms, flip-chip

■ Placement machines for diverse volumes*

- ❑ Fuji NXTs Gen II & III
- ❑ Fuji Aimex

*incl. SMD component taping

■ Inspection solutions

- ❑ SPI (Koh Young, Cyberoptics)
- ❑ AOI (Viscom, Mirtec)
- ❑ X-ray
- ❑ Ersascope



OUR EMS TECHNOLOGIES

THROUGH-HOLE TECHNOLOGY

- **THT automatic pick & place machines**

- ❑ Axial (Universal)
- ❑ Radial (Panasonic)

- **Manual through-hole assembly**

- **Soldering** (RoHS & Non-RoHS)

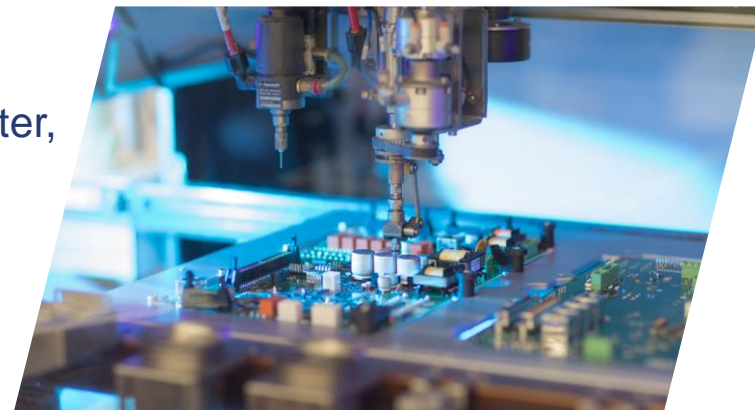
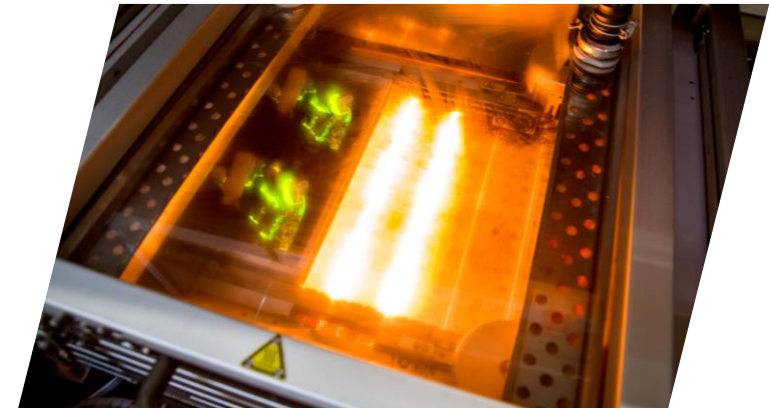
- ❑ Wave soldering (Ersa and Soltec)
- ❑ Selective soldering (dual pot system) (Ersa)
- ❑ Robotic soldering
- ❑ Manual soldering

- **Depaneling**

- ❑ Laser depaneling equipment, CNC router, roller cutter, multi cutter,
- ❑ Product specific in-house developed tooling

- **Conformal coating**

- ❑ Selective conformal coating systems



OUR EMS TECHNOLOGIES

SPECIAL SECONDARY PROCESSES

■ Resin potting

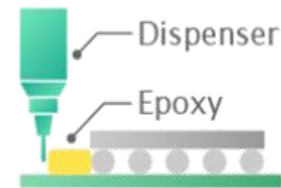
- ❑ Precision two-component automatic mixing & dosing potting equipment
- ❑ Vacuum chamber for degasing
- ❑ Penetrometer measurement & hardness analysis by dynamometer

■ Cleaning & Washing

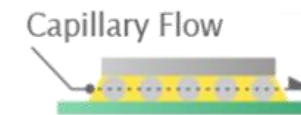
- ❑ Aqueous cleaning with spray systems
- ❑ HFE washing
- ❑ Ionic cleanliness testing

■ Underfill technique

- ❑ Strengthens the product's resistance against heat and vibration
- ❑ Used for BGA, flip-chip and CSP components to reduce mechanical load on soldering joints
- ❑ Can be both manual and robotic



a.Underfill Dispensing



b.Dispense Completed

OUR EMS TECHNOLOGIES

TEST SOLUTIONS

■ Standard test procedures

- ❑ In-circuit test equipment (MTS Digitaltest)
- ❑ Flying probe test equipment (Takaya)

■ Customer and product specific test equipment

- ❑ Functional testers
 - ATE test tower for different product variants in low series
 - Unique FCT equipment
- ❑ Boundary Scan (JTAG programming)
- ❑ Dielectric & HV testers
- ❑ Thermal chambers

■ Special test capabilities

- ❑ On board controller module development
- ❑ WLAN measurement 2.4 GHz / 5 GHz / DECT
- ❑ Customer controlled LAN design for test platforms (online test results, remote controlled tester by customer, MAC address generation from customer server)



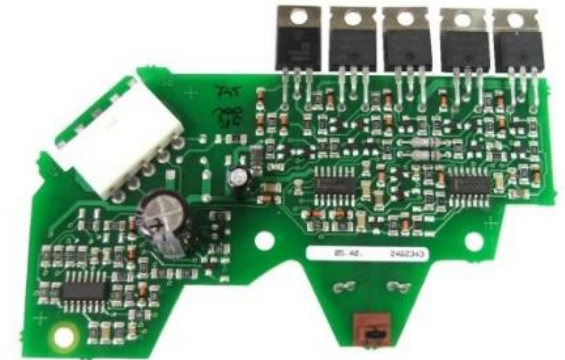
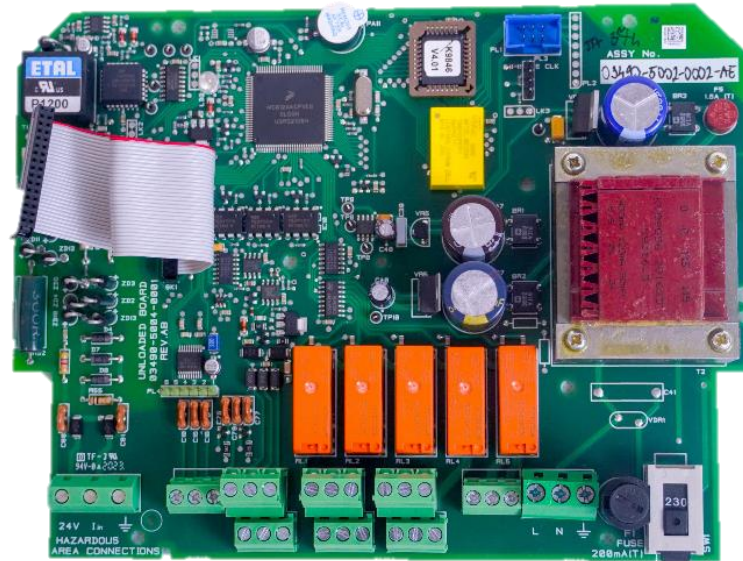
OUR EMS TECHNOLOGIES

FINAL ASSEMBLY

- **Complete concept design of the final assembly process including testing**
- **Industrialization**
- **Automated test- and final assembly systems**
- **Supply Chain Management**
 - ❑ In-house and external supplier base for mechanical parts
 - ❑ Local partners for paper goods (leaflets and packaging material)
- **Customization**
 - ❑ Software upgrade
 - ❑ OEM product branding & brand packing
 - ❑ Country kitting

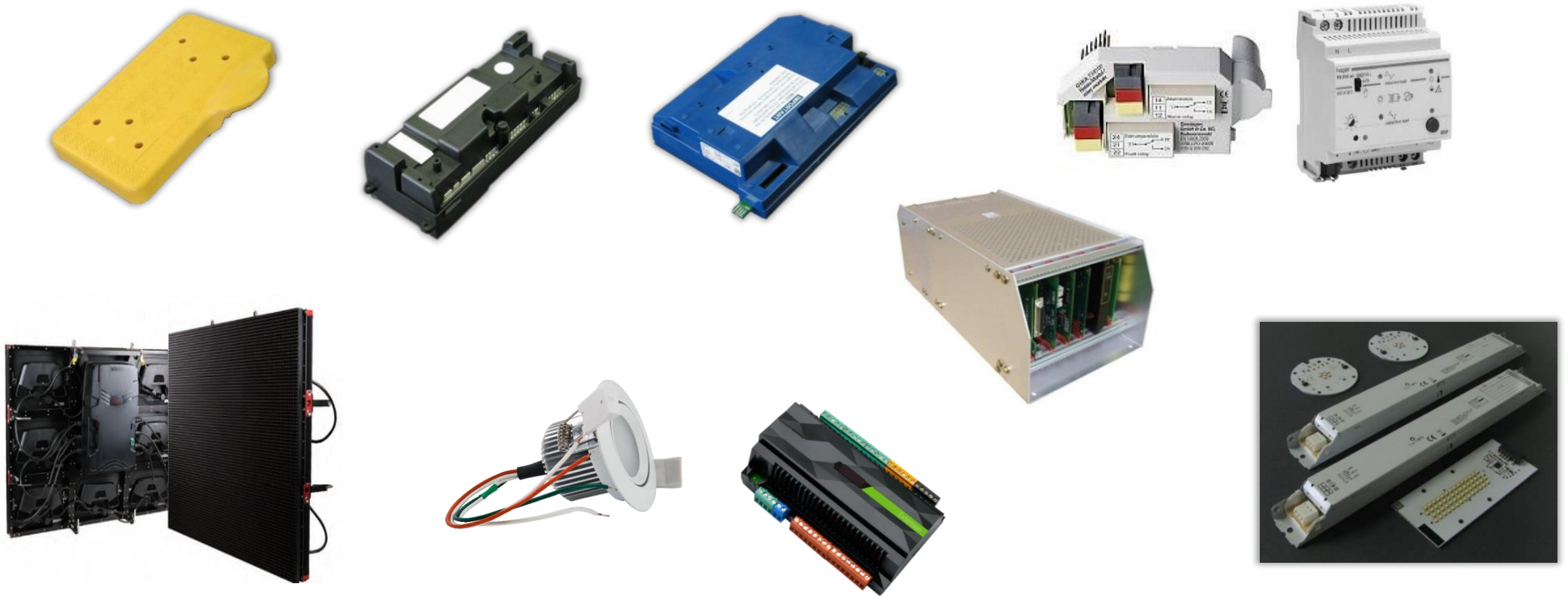


SELECTED PRODUCT REFERENCES – NON-AUTOMOTIVE I.



Including Building automation, Electrical safety & power generation, Instrumentation, Metering & Measurement, Commercial and Industrial HVACR, Railway, LED Lighting, Household appliances, Consumer, IT & Telecom, 3D printers

SELECTED PRODUCT REFERENCES – NON-AUTOMOTIVE II.



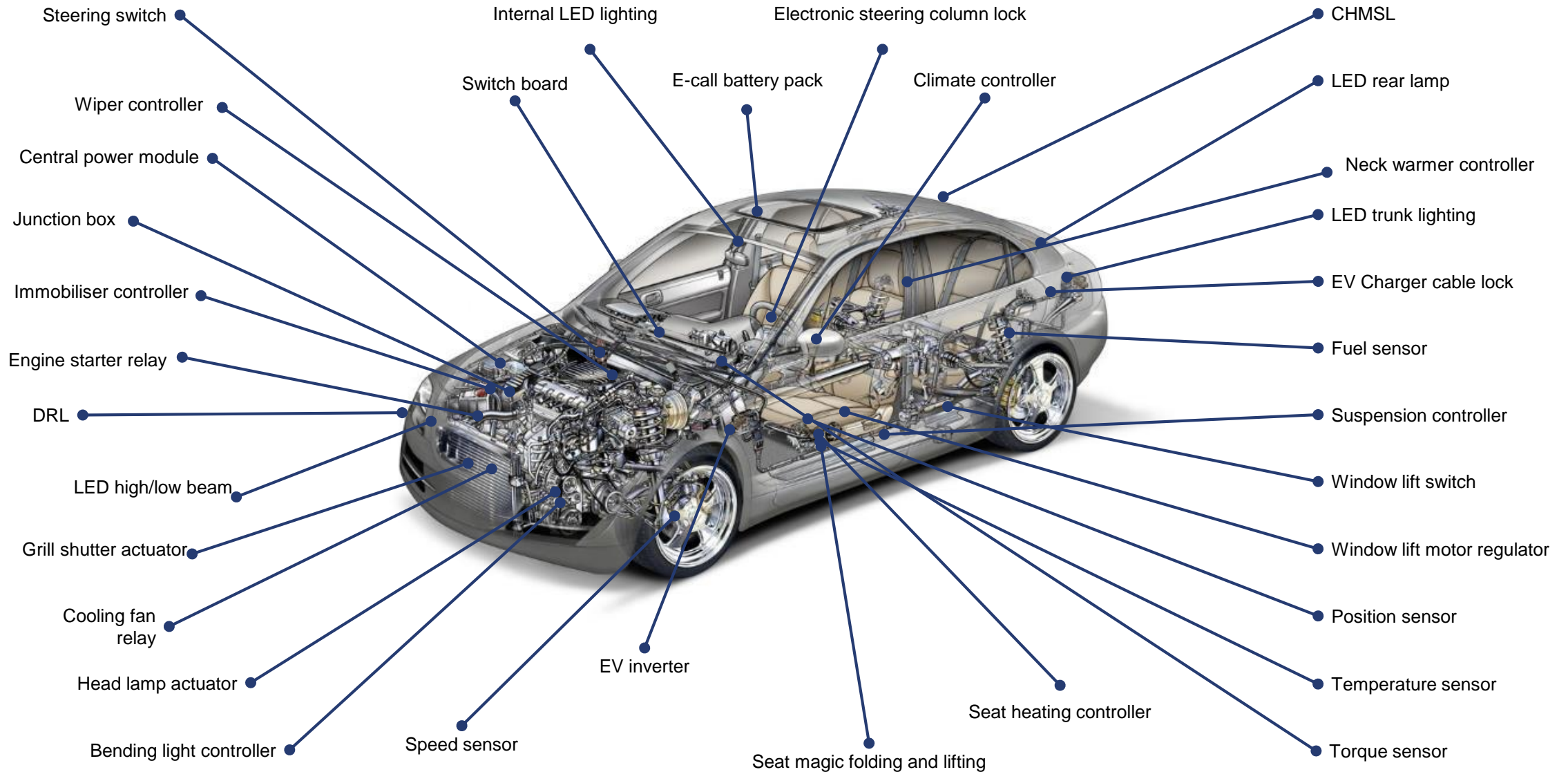
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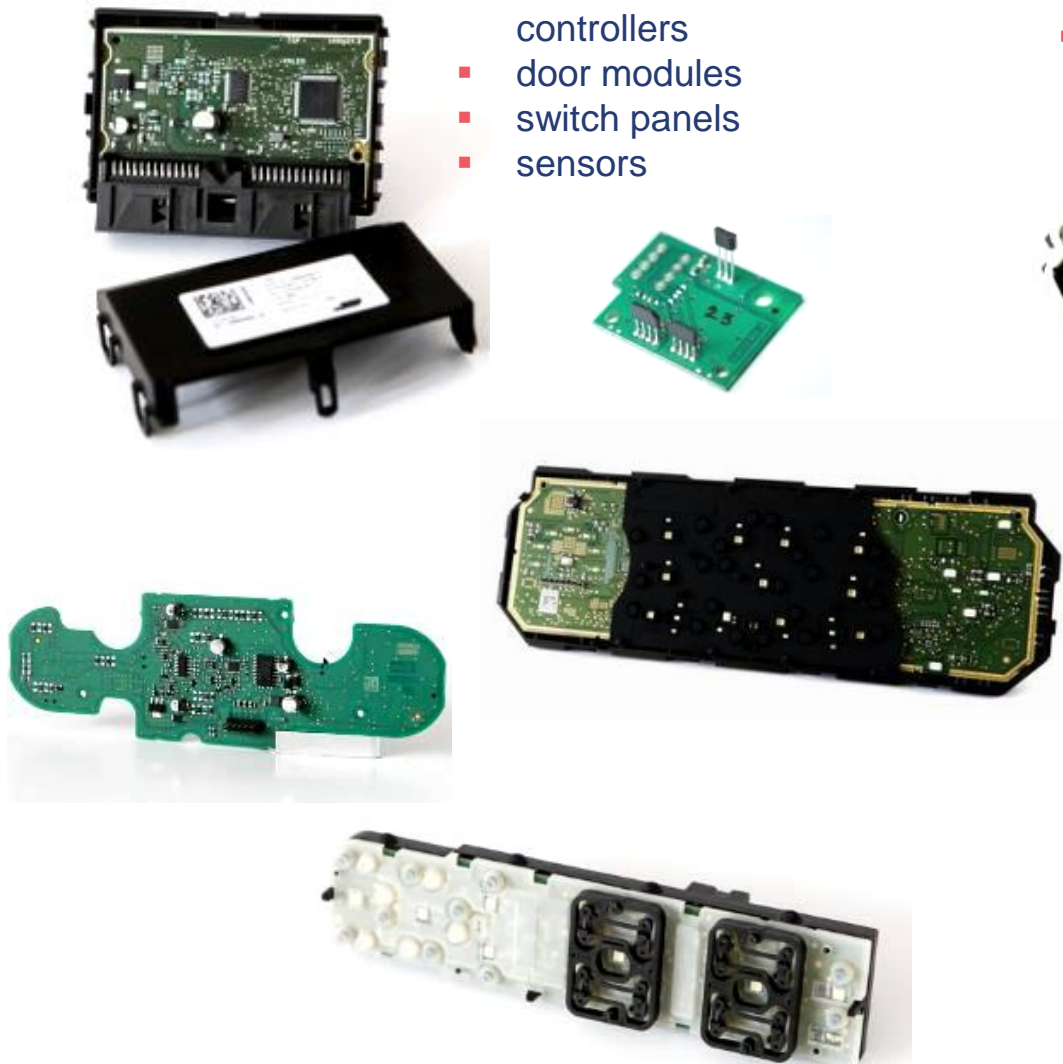
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SELECTED PRODUCT REFERENCES – AUTOMOTIVE II.

Comfort and Driving Assistance

- climate controllers
- door modules
- switch panels
- sensors



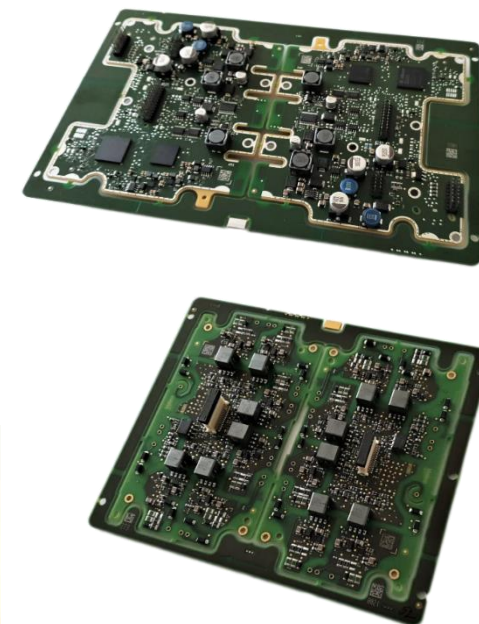
Visibility Systems

- front and rear lamp electronics
- wiper motor controllers



Electromobility

- EV inverter electronics



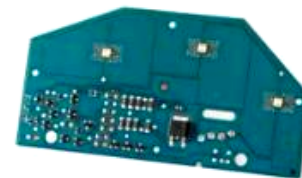
SELECTED PRODUCT REFERENCES – AUTOMOTIVE III.

- suspension controllers
- acceleration sensors

- magic lifting and folding ECU
- seat comfort electronics

- window lift ECU
- daytime running light
- internal lighting

- bending light controllers
- grill shutter actuators
- head lamp actuators

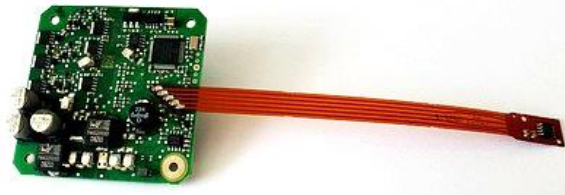


SELECTED PRODUCT REFERENCES – AUTOMOTIVE IV.

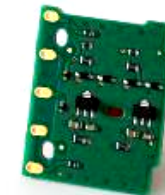
- rear lamp electronics



- Electronic oil pump
- EGR valve driver
- Variable valve driver



- gearbox sensors
- position sensors
- distance sensors
- clutch sensor
- EV charger lock



YOUR CHALLENGES – OUR ANSWERS

YOU might face the following challenges and needs

BETTER COST SOLUTION IN EUROPE

Need to replace traditional Western European suppliers due to the growing price pressure, but want to keep the supply chain in Europe for flexibility, IP protection or other reasons

ALTERNATIVE TO CHINA

Need to transfer back / set up alternative production solution from / beside China for increasing resilience

INTEGRATED SOLUTION

If you look for an all-around B2B UX as a startup/scaleup

FOCUS

Want to focus only on core activities like R&D or function design

VIDEOTON EMS companies might be your right partner due to our competitive advantages



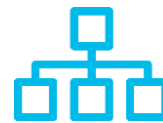
Ideally located in **Eastern European countries** like Hungary and Bulgaria (incl. the overhead)



Experience in both **high volume low mix and low volume high mix** projects regardless of technology



Working for many segments and have a **wide range of technologies** (→ high cross-industry knowledge on manufacturing side)



Flat and flexible organization, private ownership and a highly stable financial background that make quick decisions possible (incl. on project-specific investments).

VIDEOTON & OUR CUSTOMERS: A LONGTERM, STRATEGIC APPROACH

OPEN FOR NEW MARKET SEGMENTS

Videoton has no rigid preferences regarding the markets and applications it wants to work for. As a pure CM, we are always open to and want to enter new segments, proactively learning and investing into the specifics.

LONG-TERM LOYALTY

Not being present at the focal point (center of gravity) of the innovative actions of our target markets, we need often guidance and trust from our customer being the icebreaker, as the first customer in a technology or industrial segment. We prove our attitude with outstanding long-term commitment and loyalty.

OPEN TO LEARN

Our region's industrial density, cluster-building capability and the integration of higher education with the local industry are all lagging behind Western Europe and China. Hence, we need **the support and motivation of our customers** in those areas (segments, processes etc.) where we do not have any meaningful experience yet.

CREATING LOCAL SUPPLY CHAINS

We expect global companies investing in the region, most of the time with substantial financial incentives being committed for local supplier development for flexible supply and strengthening the local economy. We want to take part in this journey.

THANK YOU FOR YOUR KIND ATTENTION!

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