On display board:
```
10   14:00   H5
     +15'    Batthyány tér –
             Szentendre
```
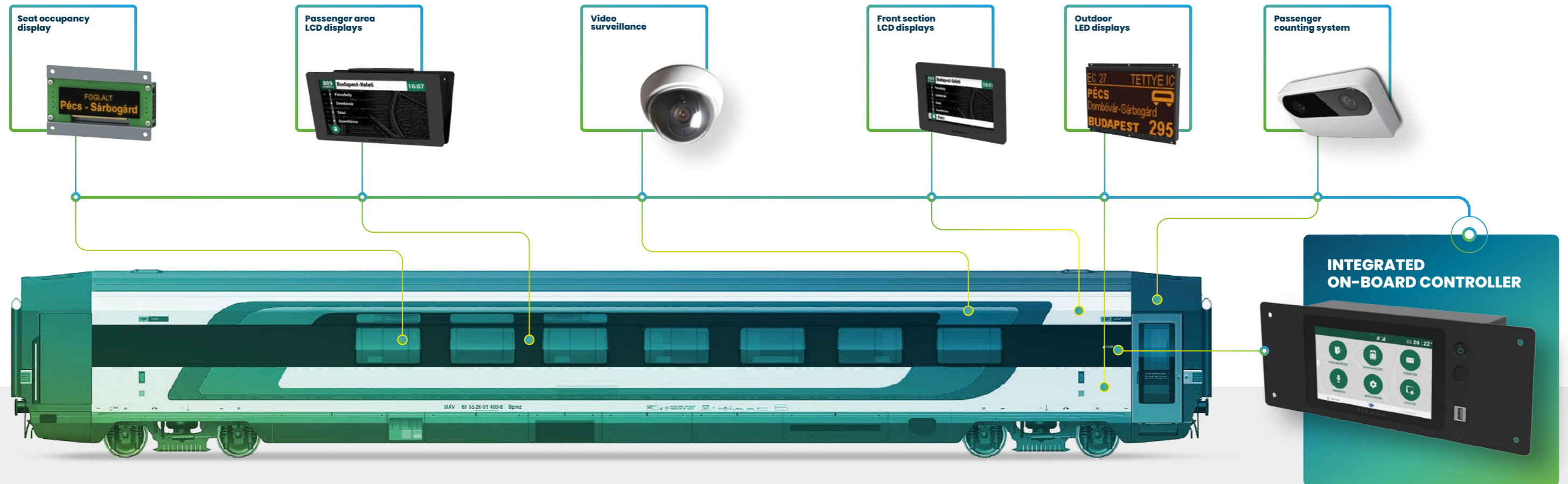
Rail
Solutions

**Complex, Onboard, Station
and Stop Passenger Information**

■ **HARDWARE**   ■ **SOFTWARE**   ■ **SYSTEM**

Rail Solutions

Vektor Train System

Experience our rail passenger info technology. Our railway solution system is designed to be cost-effective, in-house developed, designed and manufactured. It comprises hardware components and embedded software that collect innovative measurement data, seat occupancy indicators, GPS passenger information and display elements compliant with international standards.

Seat occupancy display

Passenger area LCD displays

Video surveillance

Front section LCD displays

Outdoor LED displays

Passenger counting system

INTEGRATED ON-BOARD CONTROLLER

On-board Controller with Touchscreen:

Central management and communication unit featuring a min. 7" capacitive touchscreen for seamless control and interface with various peripherals.

Environmental Quality Sensor:

Specially designed to withstand railway conditions, this sensor accurately measures temperature, humidity, noise, and acceleration, ensuring passenger comfort.
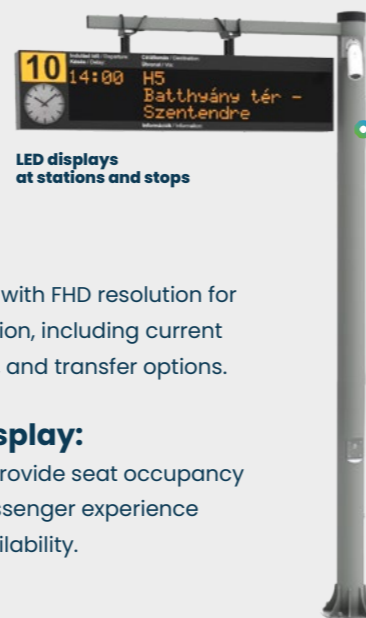
LED Display:

High-brightness LED technology displays directional information, providing clear guidance in any environment.

LED displays at stations and stops

LCD Monitors:

Rail-mounted LCD displays with FHD resolution for interior passenger information, including current and next stops, train routes, and transfer options.

Seat Occupancy Display:

OLED technology displays provide seat occupancy information, enhancing passenger experience and optimizing seating availability.
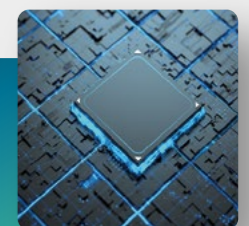
LCD displays at stations and stops

Station overview LCD displays

ONLINE
GPS | GSM

CENTRAL DATA MANAGEMENT

VEKTOR
Train System

Passenger Information System for Trains

Passenger Information, Onboard, Central Control Unit

TFT Capacitive Touchscreen

The central unit with a touchscreen is specifically designed for railway environments, controlling the components of the passenger information system. The central unit, equipped with a GPS receiver, can control onboard passenger information devices on various national railways based on static and dynamic data from a GPS-based database. It is advisable to install it in a central location, such as the control cabinet of the vehicle.

Once the device is connected to the power supply and turned on, it starts immediately. Within the specified operating temperature range, no additional tempering is required.

"One controller rules them all"

Key Parameters

- Minimum 7" TFT Capacitive Touchscreen
- Ethernet and CAN 2.0 Interface
- Integrated GPS Receiver and Antenna Connector
- Integrated SSD Storage
- Integrated Power Supply
- EN 50155 Standard
- CPU: min. Quad-core 1.5GHz
- RAM: 2-8 GB LPDDR4
- Resolution: min. 800 x 480 pixels

Recessed Front Section Passenger Information Displays

Specially designed for railway environments, these indoor recessed LCD displays are suitable for dynamically displaying passenger information such as current and next stop, route, and transfer options.

Product Features

- Minimum 12" active area
- 1920x1080 pixels (FHD) resolution
- Ethernet communication interface with galvanic isolation
- 24 VDC nominal power supply with galvanic isolation
- Meets UIC 176 requirements
- EN 50155 standard compliance

Passenger Area Infotainment LCD Displays

The LCD product line includes passenger information displays specifically designed for railway environments. These displays are suitable for dynamically displaying passenger information such as current and next stop, route, and transfer options.

Product Features

- 1 or 2 x 21.5" and 29.4" active area
- 1920x1080 pixels (FHD) resolution
- Ethernet communication interface with galvanic isolation
- 24 VDC nominal power supply with galvanic isolation
- Meets UIC 176 requirements
- EN 50155 standard compliance

Available in any resolution, size, and color

Seat Occupancy Displays

General Information

The seat occupancy display is specifically designed for railway environments, resistant to climatic and mechanical conditions. Utilizing OLED technology, it is installed above the seats or next to the entrances of travel cabins. The display casing is suitable for hidden/recessed installation. The display can show the character sets of the official languages of UIC member countries.

Product Features

- OLED technology
- 24 VDC nominal power supply, with galvanic isolation
- RS-485 communication interface, with galvanic isolation
- EN 50155 standard compliance
- UIC 176 compatible

Available in any resolution, size, and color

External Passenger Information LED Displays

General Information

The device is specifically designed for railway environments, resistant to climatic and mechanical conditions. It is a high brightness LED matrix direction and train number display, which is mounted on the sidewall of the vehicle. The display casing is suitable for recessed installation. The display can show the character sets of the official languages of UIC member countries

Product Features

- LED Matrix
- 24 VDC nominal power supply, with galvanic isolation
- RS-485 communication interface, with galvanic isolation
- EN 50155 standard compliance
- UIC 176 compatible

Available in any resolution, size, and color

VEKTOR
Train System

Passenger Information System
for platforms and stations

Overview Passenger Information LCD Displays

Outdoor LCD Displays available in single- and double-sided versions

Developed and manufactured by HC Linear Ltd., the LCD summary displays are specifically designed to operate at stations and display station overview passenger information. They are available in various sizes and casing designs. The displays have an integrated control unit that connects to the central passenger information system.

This integrated controller allows the device's various operational parameters to be set, status information to be queried, the device to be restarted, display on/off timings to be set, and the displayed content to be retrieved.

Thanks to the high-resolution, color LCD technology with excellent readability, the displays can show pre-programmed content controlled by a specific protocol or any HTML page received from an external source.

An integrated audio system is also available upon request, enabling voice-based passenger information and the reading aloud of displayed information using Text-to-Speech (TTS) technology.

Available in single- and double-sided versions, the displays are mounted with a frame sized to fit the installation location, either suspended from the ceiling, mounted on a wall, or on a support pole.

Its simple design makes it easy to install and set up.

Platform Passenger Information LCD Displays

Outdoor LCD Displays available in single- and double-sided versions

The platform passenger information LCD displays are ideal for showing dynamic, real-time departure data based on actual train information, including any arrival/departure delays.

The displays feature an integrated control unit that connects to the central passenger information system. This controller allows the setting of various operational parameters, querying of status information, restarting the device, scheduling on/off times, and retrieving displayed content.

Due to the high-resolution, color LCD technology with excellent readability, the displays can show pre-programmed content controlled by a specific protocol or any HTML page received from an external source.

An integrated audio system is also available upon request, enabling voice-based passenger information and the reading aloud of displayed information using Text-to-Speech (TTS) technology.

Upon request, the display interface can also include an analog-style clock showing the accurate time.

Available in single- and double-sided versions, the displays are mounted with a bracket sized to fit the installation location, either suspended from the ceiling, mounted on a wall, or on a support pole. Their simple design makes them easy to install and set up.

Custom Sizes, Custom Requirements

Passenger Information System for Stations & Stops

Platform Passenger Information LED Displays

## Outdoor, monochrome and color LED displays in single- and double-sided designs

The platform passenger information LED displays are ideal for showing dynamic, real-time arrival information based on actual train data, such as the number of arriving trains, their routes, and expected arrival times.

Due to the integrated communication module, the displays are directly connected to the central server, allowing for the display and reading of urgent dispatcher messages.

An integrated audio system is also available upon request, enabling voice-based passenger information and the reading aloud of displayed information using Text-to-Speech (TTS) technology.

The LED technology provides excellent visibility and readability, even in strong sunlight and at night. The integrated light sensor automatically adjusts the brightness to optimal levels based on ambient light conditions.

The integrated controller allows for the setting of IP parameters, querying of status information, restarting the device, scheduling display on/off times, and retrieving displayed content.
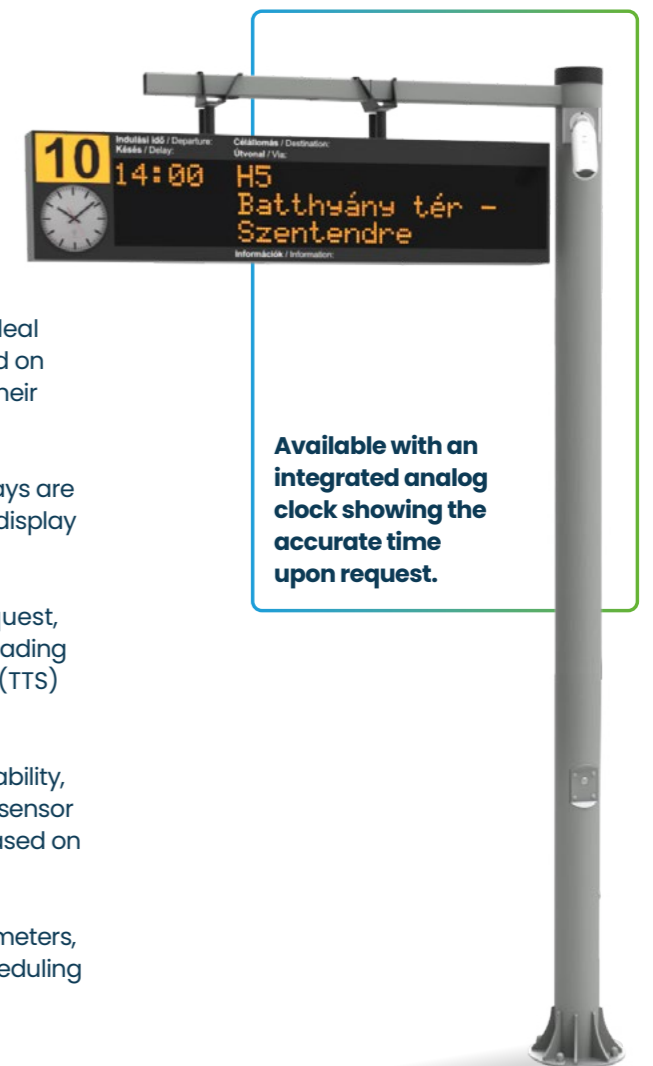
Available with an integrated analog clock showing the accurate time upon request.

Excellent Visibility and Readability

## Passenger Information System for Stations & Stops

Stations & Stops E-paper displays

Our E-Paper displays provide dynamic passenger information with an energy supply of solar panel charged built-in battery. It is designed for outdoor use in all conditions, optionally with illumination. It can display real-time departure information and with the use of the navigation any other information, for example: maps, ticketing info, real-time disruption management information or communal news.

Why E-Paper Technology

- Sustainable passenger information display
- Independent of the power grid
- Easy installation (within 1 hour) on any existing pole
- Excellent readability in all lighting conditions
- On-line management and diagnostics
- Any content can be displayed

High-efficiency solar power

On-line management and diagnostics

Easy installation

Adaptable to various diameters
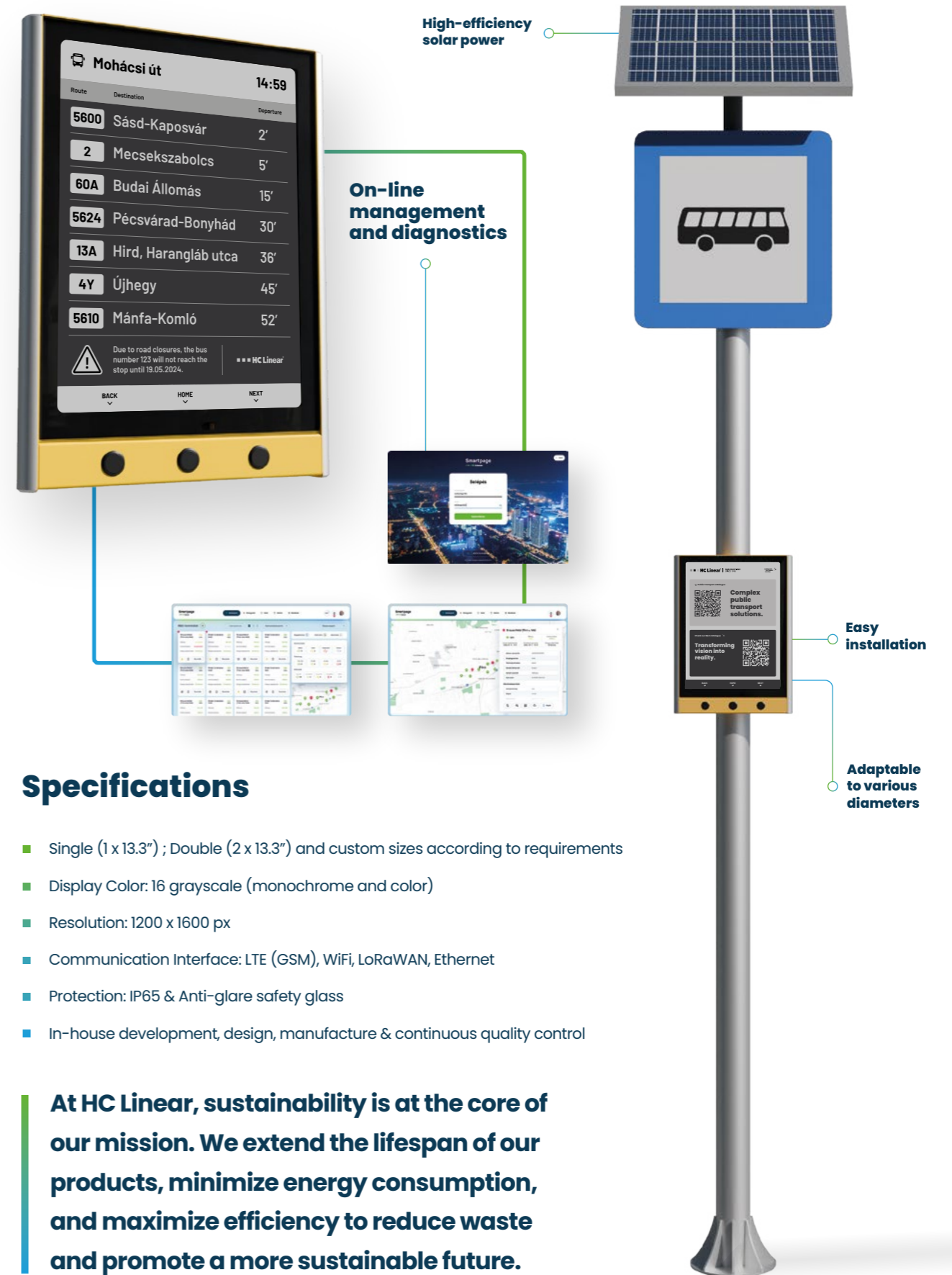
Specifications

- Single (1 x 13.3") ; Double (2 x 13.3") and custom sizes according to requirements
- Display Color: 16 grayscale (monochrome and color)
- Resolution: 1200 x 1600 px
- Communication Interface: LTE (GSM), WiFi, LoRaWAN, Ethernet
- Protection: IP65 & Anti-glare safety glass
- In-house development, design, manufacture & continuous quality control
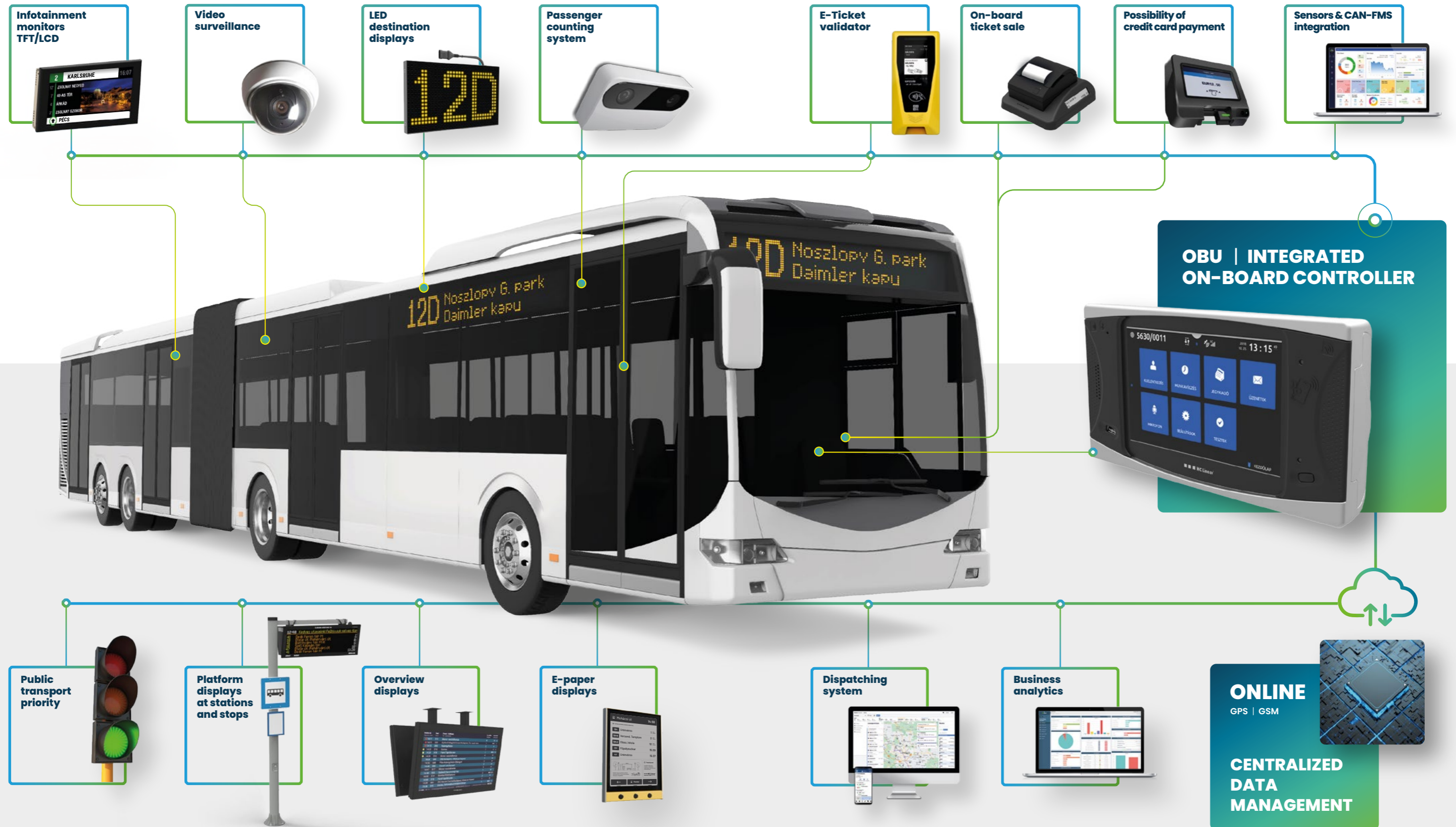
At HC Linear, sustainability is at the core of our mission. We extend the lifespan of our products, minimize energy consumption, and maximize efficiency to reduce waste and promote a more sustainable future.

ONE
Vehicle
One Controller

Vektor System

Explore our diverse range of bus solutions designed to revolutionize public transportation management. From real-time traffic control to dynamic passenger information systems, safety monitoring and beyond our products offer a holistic approach to optimizing bus fleet operations. The system contributes to increasing passenger experience and satisfaction to make public transport more calculable, economical and attractive.

Infotainment monitors TFT/LCD

Video surveillance

LED destination displays

Passenger counting system

E-Ticket validator

On-board ticket sale

Possibility of credit card payment

Sensors & CAN-FMS integration

OBU │ INTEGRATED ON-BOARD CONTROLLER

Public transport priority

Platform displays at stations and stops

Overview displays

E-paper displays

Dispatching system

Business analytics

ONLINE
GPS │ GSM

CENTRALIZED DATA MANAGEMENT

Transforming vision into reality

From idea to implementation, from production to operation! We are with our partners throughout the entire process, using the knowledge and expertise of our specialist engineering team to turn concepts into working systems. We turn ideas into working solutions!

Our services are tailored to individual needs, whether it is a single sub-task or the creation of a complex, functioning finished product or system.

Our process ↘

Feasibility Assessment & Requirement Management

We evaluate project feasibility and provide assistance in blueprinting, documenting, analyzing, and prioritizing requirements to ensure smooth development processes.

Support Services

Our commitment doesn't end with the sale. Apart from round-the-clock operations to ongoing maintenance and future enhancements, you can count on us for comprehensive customer care and support services.

Electronic Development

Our expert engineering team utilizes cutting-edge design tools to develop a broad range of services from system designs to custom printed circuit boards (PCB), ensuring the highest quality standards.

Manufacturing

With our in-house production capabilities, we strictly maintain control over the entire development and manufacturing process, to ensure high quality parts and comprehensive supervision.

Mechanical Development

Our engineers leverage the latest 3D CAD/CAM design software to develop every aspect of your product, from enclosures to mounting elements, guaranteeing professional engineering throughout.

01
02
03
04
05
06
07

Project Management

Certification Management

Sustainability Management

System Integration

Our comprehensive approach accelerates the integration of diverse system components and subsystems into an optimal solution.

Software Development

We specialize in delivering comprehensive end-to-end (E2E) software solutions developed specifically for industrial environments, ensuring robustness, efficiency, and future readiness.

In-house Manufacturing

Manufacturing process ↘

Procurement

We leverage dependable materials and established supplier relationships to furnish products renowned for their durability and performance.

Traceability

Components, assemblies and systems are managed with serial numbers, and production is ERP documented. The structured data are available for production analyses.

SMT

Fully automated in-line SMT production line, multifunctional pick & place machine, even for large panels and special parts, enabling fast and flexible product changeover.

THT

We provide machine and hand soldering of THT components. Through-hole technology, or THT, refers to a mounting technique for wired electronic components.

Testing

With automated optical inspection (AOI), errors in production can be identified using image processing and also using an in-circuit tester (ICT).

Assembly

After the assembly of the devices, we conduct functional, safety and environmental tests on the finished products before packaging and delivery.
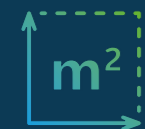
Design, development, production and support in one hand

30+
more than 30 years of expertise

1000 +
more than 1000 products developed

2000 m² +
r&d on over 2000 square metres

8500 +
on-board systems in 3 countries

3 million +
used by more than 3 million people per day
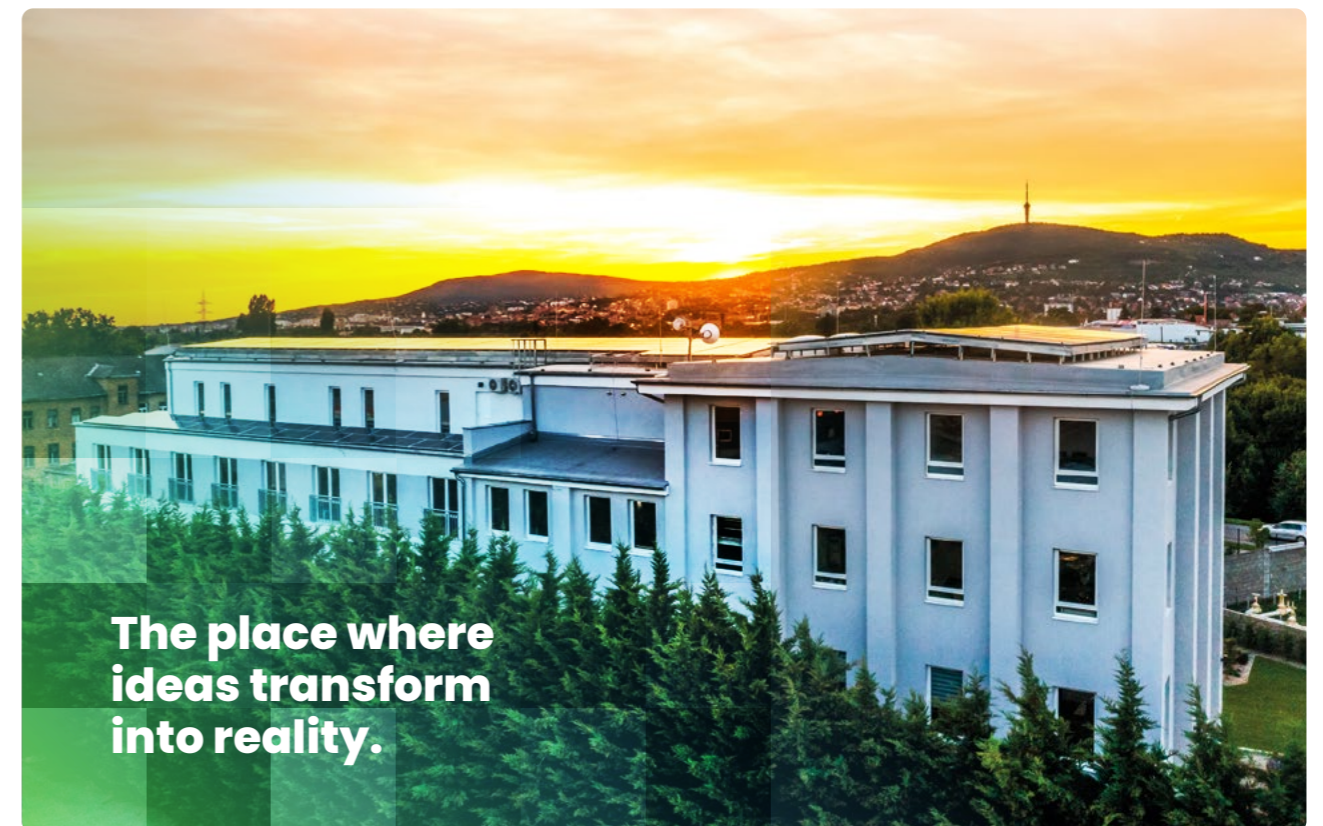
MAN

VOLVO

SIEMENS

BYD

IVECO

T··Systems

FENIKSBUS

VOLÁNBUSZ

→ ...and many other partners

What we are proud of

We are proud of our commitment to innovation and excellence, constantly pushing boundaries to deliver cutting-edge solutions while ensuring quality to exceed expectations and set new standards.

HUNGARIAN INNOVATION GRAND PRIX | Special Recognition

MB | MAGYAR BRANDS
5x '17 "19 '21 '22 '23
HUNGARIAN INNOVATIVE BRAND AWARD

BÉT50 2023
BUDAPEST STOCK EXCHANGE
TOP50 INTERESTING AND SUCCESSFUL COMPANIES

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ISO 14001
ISO/IEC 27001

AAA®
Highest Creditworthiness
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Gold

IT XPT
PRINCIPAL MEMBER

The place where ideas transform into reality.

Why us?

Complexity

From concept to working products, we offer seamless R&D solutions with in-house production.

Experience

Benefit from over 30 years of expertise and skilled teams delivering professional engineering.

Efficiency

Our specialization in end-to-end solutions ensures durability and value across various industries.

Sustainability

We care deeply about our planet and the future. We place a strong emphasis on sustainable electronic solutions.

Commitment

Our dedication extends beyond sales, focusing on client satisfaction and collaborative growth.

Support

Enjoy round-the-clock operations, maintenance, and enhancements for optimal performance.

HC Linear ®

R&D SOLUTIONS | SINCE 1990

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