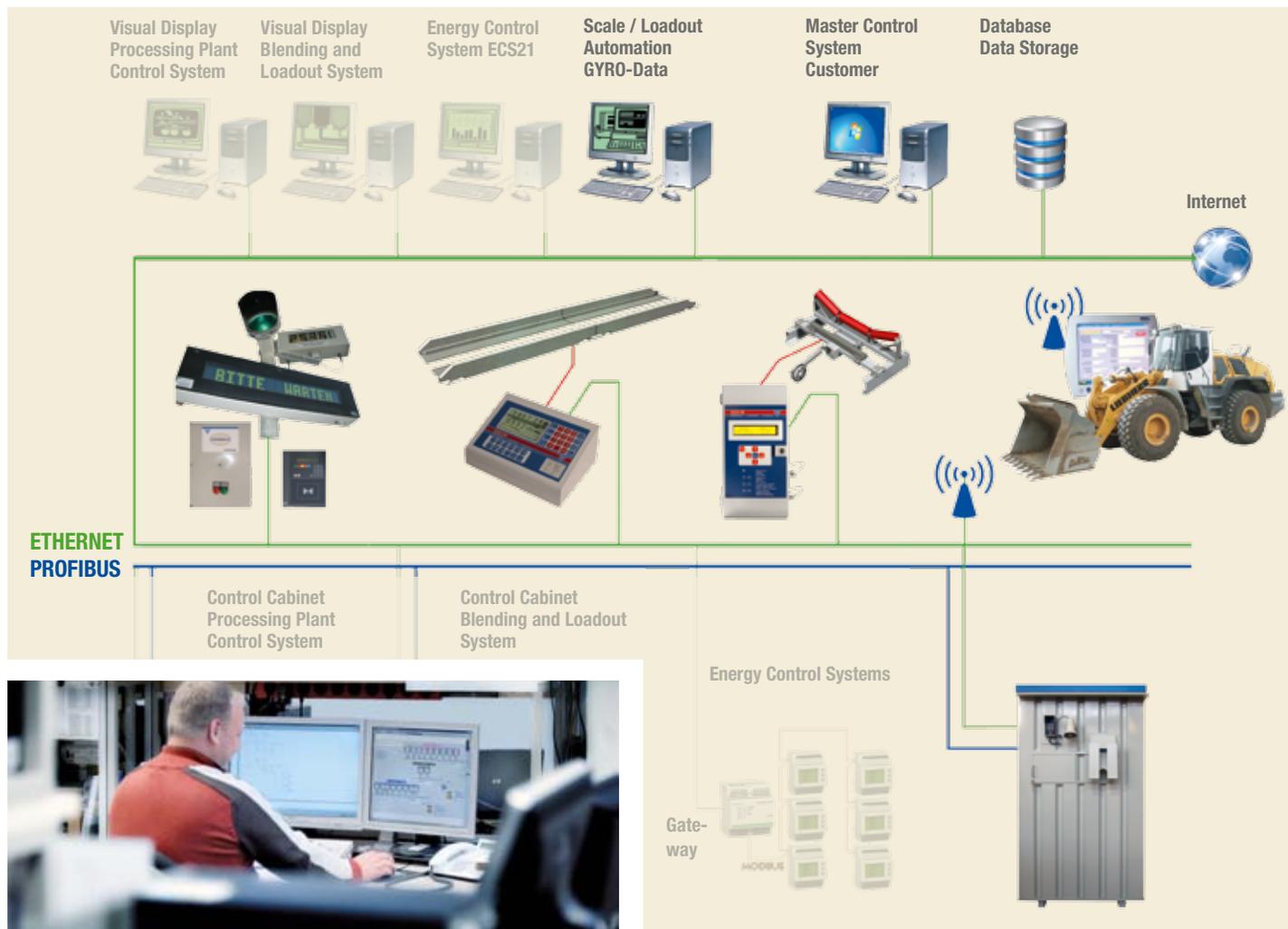# A cutting-edge system concept – individual and future-proof

The WOHWA control system concept is based on single, completely independent, centrally located or distributed control systems for blending, processing and automation applications. Field bus systems, such as PROFIBUS, can be used for interconnection, if the plant layout makes it necessary. As per customer preference, every single control system can be supplied with a PLC (Programmable Logic Controller) by any of the following suppliers: Siemens, Schneider, Mitsubishi, or Allen-Bradley.

The Master User Interface for the entire plant in the central control room is operated and visualized on independent off-the-shelf PCs. The various PCs and PLCs are interconnected via an Intranet (Ethernet).

The plant's intranet infrastructure (Ethernet) is used for easy connection of additional system components, such as belt scales, printers, camera systems, and card readers. The site's intranet (Ethernet) including all control systems is linked to the internet, making remote maintenance easy.

Visual Display Processing Plant Control System

Visual Display Blending and Loadout System

Energy Control System ECS21

Scale / Loadout Automation GYRO-Data

Master Control System Customer

Database Data Storage

Internet

ETHERNET
PROFIBUS

Control Cabinet Processing Plant Control System

Control Cabinet Blending and Loadout System

Energy Control Systems

Gateway

Programming individual applications

WOHWA
Dispatch Automation for the Bulk Materials Industry

WOHWA service engineer performing remote maintenance

Preparing plans and documentation using EPLAN

Training at the WOHWA training center

Maintenance Management

The blending and loadout system PCS35 allows easy recording and storage of essential maintenance information for each motor, e.g., maintenance intervals.

Online remote maintenance

The integrated remote maintenance module and the system monitoring feature (archiving of all entries and system statuses) allow the WOHWA service team to analyze and correct faults quickly and reliably from the office at the WOHWA factory.

Safety concept and documentation

After project commissioning, WOHWA supplies all required manufacturer's declarations for all WOHWA systems and components to provide legal certainty for the plant's operation.

Additionally and in accordance with general standards, WOHWA provides all wiring diagrams (EPLAN P8), operation manuals, and instructions for parameterization for the electrical control components of WOHWA's PCS35 system.

Training

Individual training will be provided on site by specially trained WOHWA service engineers, or at the WOHWA training center, to guarantee the safe operation of the blending and loadout system.

Multiple-Language Support

Like all other WOHWA products, the WOHWA Blending and Loadout System PCS35 features a multiple-language User Interface. In calibration mode, the operator can switch between the most common foreign languages, English and French. Other languages can be provided on request.
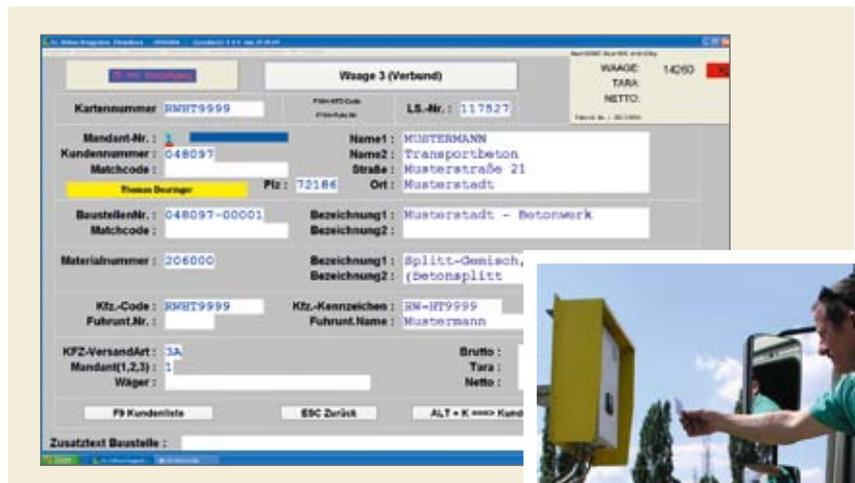

EC Declaration
of Incorporation

WOHWA
Dispatch Automation for the
Bulk Materials Industry

Features/Benefits
- **Investment security**
- **Accuracy and precision**
- **Reliability**
- **One system, one point of contact**
- **Spare parts provisioning security**
- **Service guaranteed**
- **Easy to operate**
- **Over 50 years of experience**

Investment security with WOHWA automation systems

For more than 50 years now, WOHWA has been a leading specialist in planning, designing, manufacturing and programming weighing, blending, and loadout systems. Thanks to its mature and highly specialized technology and long experience, WOHWA can provide all core components of a blending and loadout system, such as truck scales, belt scales (legal-for-trade), blending and feeding devices, mixing and loadout devices. There is a one-point contact for accuracy and precision in blending and efficient loadout, and that's WOHWA!

Over 50 years ago, WOHWA started with the first automation systems for blending and loadout. This technology has constantly been expanded to include such essential components as card readers, automatic licence plate recognition, digital signature pads, laser printers, camera systems, internal traffic control and information systems with alphanumeric display signs, traffic lights, self-service terminals for manless operation, and data interfaces to host data processing systems like SAP, etc., and it has meanwhile developed into a flexible and reliably working system.

Fast and long-term spare parts provisioning as well as the availability of service engineers provide investment security for all WOHWA customers. To guarantee this, a highly qualified team of engineers develops, programs, updates and maintains in-house the entire software for PLCs (**P**rogrammable **L**ogic **C**ontrollers) and PCs, with the special requirements of the bulk materials industry in mind. All control system components are selected with a view to obtaining the best solution for each customer.

Individual Project Planning

Adequate planning is a precondition at the beginning of each automation project to make sure that the requirements and complexity of each application are met. Each customer is given advice by competent WOHWA engineers who bring many years of experience in the automation of bulk material loadouts to the project. Individual, customer-specific loadout processes are incorporated in the automation software for safe and reliable functioning. Each complete system is built from single, robust hardware components to guarantee efficient and safe system operation.
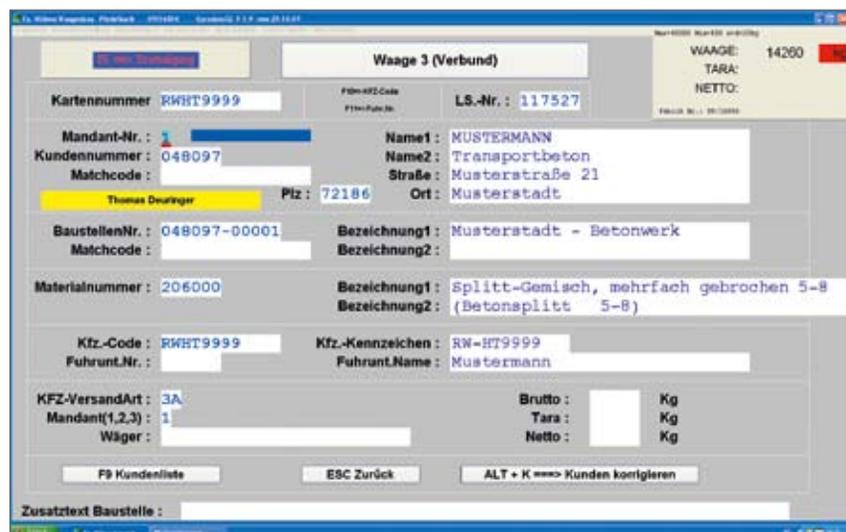

A WOHWA engineer in dialogue with customers

Central Control Room with entry/exit scale

WOHWA Weighing Data Processing System GD70 (Gyro Data)

The basis of every automation project is the convenient, easy to operate Weighing Data Processing System, managing a data base with details on customers, construction sites, products, and vehicles. For invoicing purposes, delivery note data are safely and quickly transmitted in various data formats to host ERP systems like SAP or the WOHWA Invoicing Program via Intranet (Ethernet) or Internet. Several GD70 work stations can be integrated in one system.

User Interface of Weighing Data Processing Gyro Data

Self-Service at transponder card reader

Site entry with transponder card reader system

Numeric and alphanumeric display signs with traffic lights

Scheduling

All loadouts and material supplies can be entered, managed, and processed via the Scheduler function of the WOHWA weighing data processing program GD70. Thus, safe and fast handling of all involved loadout processes is guaranteed.

Yard List

The system offers a scheduling list that is simple to handle and allows vehicles to be registered at the entry point. The operator selects the pre-stored recipe and target quantity for the vehicle at the loadout point, or the driver starts the loadout in self-service at a card-reader station.

Transponder Card Reader

Robust transponder card readers at the truck scales (entry and exit) and at the loadout points ensure the clear identification of each vehicle during the loadout and weighing processes.

Automatic Licence plate recognition

As an alternative to card readers, automatic cameras for licence plate recognition can be used.

Access authorization and process control with traffic lights and barriers

Traffic lights clearly indicate the driver the successful start or end of the weighing or loadout processes. Barrier controls or access authorization terminals at the entry gate, integrated into the control system, safely supervise site access during night operation.

Internal traffic control and information systems with numerical and alphanumerical display signs

Easily readable display signs, integrated into the overall system, clearly and distinctly inform the drivers about the weight. Additionally, the signs can display instructions and requests for the drivers (texts can be smartly altered in the weighing data processing program) at the various stopping points. This technology considerably helps to smoothen and speed up processes.

Automatic cameras for vehicle licence plate recognition

Digital Signature Pad

Intercom Systems

Intercom systems with noise cancelling microphones are used for communication between central control room and customers (incoming and outgoing deliveries).

Self-Service Terminal

Various system components can be mounted in self-service terminal stations that permit the drivers to handle loadouts on their own, thus relieving the operator in the control room.

Wheel Loader Terminal

Wheel loaders can be equipped with WOHWA terminals (connected via WLAN, or USB stick). The automation system transmits relevant data about pending loadouts to the wheel loader drivers. Legal-for-trade wheel loader scales with ticket printers are directly connected to the terminals, the loaded weight is printed out and stored by the automation system.

Digital Signature Pad

Before leaving the site, the driver simply signs his name on the digital signature pad at the exit scale and the delivery note is printed. The system archives the countersigned delivery note (in PDF format) and transmits it to the invoicing department.

Laser Printer

Delivery notes can be designed with company logos and seals of quality for use with graphics laser printers.

Camera Systems

The system can automatically record pictures of, e.g., deliveries of excavated material, and attach them to the delivery notes for archiving.

Further cameras can be installed at loadout points or other locations in the plant.

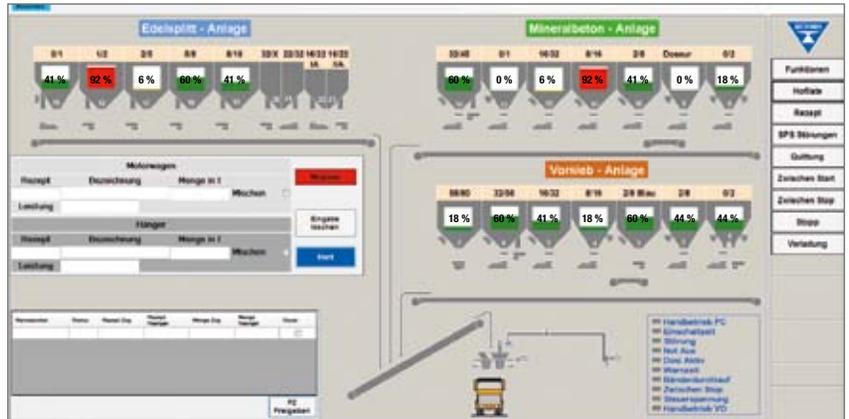Graphics printout of delivery note including seals of quality

Transponder card reader with intercom system using noise-cancelling microphones

Web Cam system

Self-Service Terminal (Touch-Screen) with transponder card reader

PCS35 screen with silo fill levels

Wheel Loader Terminal with legal-for-trade wheel loader scale and ticket printer

Legal-for-trade WOHWA belt scale SFB64e

Silo Fill Levels

Silo fill levels are measured with radar or ultra-sonic sensors and processed for loadouts. If a driver requests a product with an insufficient remaining quantity for loadout or blending, the PCS35 system will propose an alternative product instead.

Legal-for-trade Belt Scales

WOHWA can easily integrate a legal-for-trade belt scale SFB23e into the automation system for trade loadouts at the loading point. More detailed information can be found in the WOHWA leaflet on belt scales.

Data Back-Up and User Login

The PCS35 system logs and archives in the background all essential and important plant data and entries to reduce plant standstill periods to an absolute minimum, and to allow relevant fault analyses. Archiving is performed via network on the corresponding data storage devices, or manually on a memory stick. This saves time in the event of faults or damage, and reduces quite considerably on-site maintenance calls. In the background, the system's User-Login module is logging all operator activities: Who does what, when and how, thus helping to avoid operator errors.