AUTOMATION / SOFTWARE SOLUTIONS

AS1 CONTROL SYSTEM

CONTROL AND MANAGEMENT SYSTEMS
ASPHALT MIXING PLANTS

150 Years of Innovation
Since 1869

AMMANN
INNOVATION AND QUALITY AS BASIS FOR THE FUTURE

Maximising productivity is the central challenge in today’s business environment. Innovative control technology and IT have developed into a decisive factor in terms of creating a competitive edge in the area of building materials processing. In addition to productivity, they have considerable influence in the quality of materials produced and the availability of plants.

Worldwide proven process engineering coupled with future-oriented technologies and partnerships during the entire product life-cycle are the pillars upon which Ammann’s daily work is based. Ammann has been realising practically-orientated, innovative solutions in collaboration with its customers for decades. The continuous development of Ammann systems and its recognised service, serve to protect the investments they make.

Ammann offers an extremely interesting product range covering all areas of process control systems for asphalt and concrete mixing plants as well as for mineral processing plants, providing support for existing and future operational processes, including networked solutions.
The powerful and future-oriented as1 system concept combines proven Ammann software with specially matched industrial hardware. The as1 computing environment has been designed and tested for use in tough environments. Its networking capability also has been optimised. Customers profit from the flexible workstation configuration, networking and administration.

**THE FIELD BUS SYSTEM**

**GUARANTEED FOR RELIABLE SIGNAL TRANSFER**
The proven field bus system is robust and reliable under tough operation. Faults can be detected efficiently and rectified by means of the diagnostic tools, even via remote support.

**THE POWER CABINET’S COMPONENTS**

**DESIGNED FOR TOUGH, ROUND-THE-CLOCK OPERATION**
The power cabinet’s components have to withstand extreme stress 24 hours a day, which is why Ammann only uses tried-and-tested, globally available quality components from renowned manufacturers.

**HIGHLIGHTS**
- Comprehensive system functionality
- Quick and easy to learn
- Safe to operate
- Proven, reliable field bus and load-sharing
- Professional hotline and support organisations ready for service worldwide

**HOTLINE AND SUPPORT**

**PLANT AVAILABILITY ASSURED**
Electromechanical faults can be quickly resolved by the customer’s own personnel with the help of the electrical circuit diagrams and the as1 diagnostic tools. Ammann’s knowledgeable customer service team staffs the hotline, which can be called for fault diagnosis or maintenance at any time. Modern telecommunications media increase the availability of the plant and reduce the need for costly on-site servicing.
“The forte of the as1 process control system is achieved through the precise implemented process technology, it’s simple operation and the subsequent expandability options.”
AS1 WORK PLACE CONFIGURATIONS

SPLIT PROCESS VIEW

Batch asphalt mixing plant

Continuous asphalt mixing plant

OVERALL PROCESS VIEW

Continuous asphalt mixing plant
AS1 FUNCTIONALITY
AT A GLANCE
COMPREHENSIVE SYSTEM WITH MANY USEFUL TOOLS FOR YOUR DAILY TASKS

COLD FEEDING

- Unlimited number of cold feeding recipes
- Graded start-up control system for creating an optimal material spread with automatic sand advance function
- Composite or individual adjustment of the feeder proportions during running production
- Assignment and selection of any number of materials incl. calibration curve per feeder
- Combinable volumetric and gravimetric metering
- Indication can be switched over per mouse click (proportions/capacity/quantity/speed)
- Calibration wizard for easy calibration (incl. linearization)
- Dynamic visualisation of material spread on the conveyor belts

Example from the options menu
- Automatic conveyor belt drainage
- Filling level measurement
- Feeding of Bunker silos

DRYING AND DEDUSTING

- Control all type of Burner manufacturer
- Fully automatic burner step-up and step-down system (configurable)
- Automatic burner control for constant mineral temperatures
- Automatic negative pressure regulation
- Monitoring of material, raw gas and cleaned gas temperature
- Material temperature trend visualisation
- Burner diagnosis by means of trend visualisation and display of current automatic firing system status
- Control all types of filter manufacturers
- Dew point monitoring
- Automatic filler compensation

Example from the options menu
- Differential-pressure-related dedusting
- Fuel/energy consumption prognosis (peak load monitoring)
- Single-button drying
WEIGHING AND MIXING

- Production list for successive processing of several productions
- Support various dosing systems
- Dynamic inflight correction based on dynamic flow measurement for all components
- Self-learning automatic correction of the inflight parameters
- Automatic optimisation function for aggregate ratio to bitumen
- Dynamic switch point from coarse to fine batching for small quantities
- Automatic tare function of all weighing scales
- Silo switching in the event of material lack during production
- Possibility for parallel dosing
- Detailed logging and tolerance monitoring (configurable)
- Straightforward wizard for weighing scale calibration
- Freely programmable mixing process (order of weighing/weighing scale discharge)
- Convenient direct selection of recipes via onscreen menu
- Recipe change on the "fly"
- Automatic batch reduction during the warm-up phase

Example from the options menu
- Multi-phase mixing system
- Required quantity calculator

BITUMEN TANK STORAGE

- Full integration of electrically heated bitumen tank store (filling, circulation, transfer, mixing, evacuating)
- Temperature regulation
- Display of temperature and content
- Integrated, freely programmable timer for all heating's
- Bitumen delivery monitoring and logging

LOADOUT BINS

- Automatic loading bin control
- Locking of silo loading based on bin content
- Freely programmable switchover to subsequent bin in the event of full target bin
- Integrated heating and display of load temperature

Example from the options menu
- Balancing for the calculation of bin contents in combination with a weigh bridge
**HANDLING AND OPERATION**

- Clear and intelligible visualisation of the plant status in real-time
- Complete plant status available permanently at a glance
- Fully automated mix production
- Manual manipulation possible at any time
- Various modes selectable (repair mode, manual mode, automatic mode)
- Upgradable to numerous workstations
- Broad choice of operating languages available
- Warning and error messages in clear text
- Numerous object-oriented parameters for plant settings and optimisation
- Integrated backup solution
- Online operating manual

**FAULT DIAGNOSIS, SERVICE AND SUPPORT**

- Plant optimisation, breakdown diagnosis and remote maintenance
- Configurable trend diagrams for plant monitoring and optimisation
- Integrated oscilloscope
- Efficient troubleshooting by means of fieldbus diagnostic tools
- Extensive event log
- Object-oriented event counter (e.g. hours, throughput, starts, etc.)
- Failure protocol
- Directly accessible wiring diagrams
- Remote maintenance access and diagnosis via Internet
- Automatic connection to the Ammann service platform and competent support through the Hotline Team

**REPORTING**

- Batch protocol and batch summary protocol (mixing tower/cold feeding)
- Production and component statistics
- Capacity report (drying/mixing tower)
- Day report
- Event counter report (operating hours, etc.)
- Operating unit report for straightforward plant documentation
AS1 ADDITIONAL MODULES
THE CONTROL SYSTEM CAN DO SO MUCH MORE

AS1 LOADOUT
For automated truck loading and overload protection

AS1 TRAFFIC CONTROL (TC)
Who is next

AS1 WEIGHING SYSTEM
The operation of weighbridges can be seamlessly integrated into the as1 order planning system

AS1 DRIVER TERMINAL
Your customer chooses

AS1 DYNAMIC RECYCLING ADDITION (RAD)
RAP ratio change during production with automatic recipe adaption

AS1 ECOVIEW
Indicates how ecological the mixing plant is operated and shows trends

AS1 PEAK LOAD (PLM)
Helps preventing short term and expensive peak loads

AS1 EXCEL ADDIN
Indispensable for in-depth evaluations of as1 data in Excel

AS1 INTEGRATED MAINTENANCE MANAGEMENT (IMM)
Supports the staff with the planning of the required maintenance tasks

AS1 LABORATORY DATA EXCHANGE (LDE)
Integrated quality control (asphalt and concrete mixing plants)

AS1 SUPERVISOR VIEW
The factual report

AS1 QUALIVIEW
Helps localizing causes of defect and to improve asphalt mix quality

AS1 DATA INTERFACE
Data is required in various types and formats these days

AS1 DOCUMENT ARCHIVE
The protocols and predefined statistics are automatically converted into PDF files and are then saved and systematically ordered

AS1 SAMPLE PLANNING (PSS)
Certified quality
AS1 LOADOUT

THE RIGHT LOAD IS IMPORTANT

The as1 Loadout module is the logical complement of the as1 production control system. The enlarged view of the loadout silos offers additional information such as time stamps of the last filling and take out, silo content (Quantity and Article) and last loaded quantity. The view comes either on the main screen, a second screen or optionally on a separate workstation for the truck loading operator.

HIGHLIGHTS
- Large display of the loadout silos on separate view with additional information
- Efficient and safe loading creates cost advantages and satisfied customers
- Increased safety thanks to integrated tare verification and overload protection of the vehicles
- Automatic level calculation of the loadout silos

AS1 TRAFFIC CONTROL (TC)

WHO IS NEXT

In addition, large alphanumeric displays for signaling the loading sequence can be integrated. In combination with loadout.

HIGHLIGHTS
- Less communication via radio
- Automatic display of silo and truck information
- No traffic jam before weigh bridge
- Optimized process flow
AUTOMATIC DELIVERY NOTE GENERATION
The as1 truck weighing system can be used to create weighing orders, weigh vehicles, and create delivery notes. The delivery note data can be transferred electronically into the invoicing system by means of data transfer, which reduces the amount of administrative work considerably. The truck weighing system can be operated as a stand-alone system or it can be combined with the as1 loadout system and integrated into an as1 process control system. This enables valuable synergies to be utilised.

HIGHLIGHTS
• Integrated master data handling
• Direct delivery note creation
• Integrated delivery statistics
• Fully integrated with as1 control system
• Reduction of administration costs thanks to electronic data transfer into the invoicing system
• Overload protection in combination with as1 loadout system

YOUR CUSTOMER CHOOSES
Depending on customer requirements, the system can be supplemented with a card-based identification system with touch panel in order to aid the operator.

HIGHLIGHTS
• Optimized process flow
• Less communication via radio
• Available with RFID cards and PIN codes
• Self registration when arriving at plant
• Available with ticket printer in combination with as1 weighing system
AS1 DYNAMIC RECYCLING ADDITION (RAD)

VARIOUS RAP RATIOS IN A SINGLE RECIPE
Use of reclaimed asphalt protects natural resources and also offers economical advantages. The optional as1 module “dynamic RAP addition” makes it easy to modify the RAP ratio in accordance with requirements, even during production.

TWO COMPENSATION OPTIONS
QUANTITATIVE COMPENSATION
The correction of virgin material is carried out in relation to the quantity and composition of the RAP material.

QUALITATIVE COMPENSATION
The correction of virgin material is carried out in relation to the quantity and composition of the RAP material in accordance of Ring and Ball specifications (based on the formulae detailed in EN13108).

ENERGY EFFICIENCY MADE VISIBLE
The additional module EcoView shows how efficiently your operators are running the plant. The operating data is continuously recorded and presented in condensed form to the operator.

The EcoView module informs in a simple way about the energy consumption and the according CO₂ emission values related to ton of produced mixed material. With the display compared with historical data or with explicitly defined target values, trends and actions may be recognized.

EcoView sensitizes and promotes an energy optimised operation of the mixing plant and helps to discover and eliminate energy waste.

HIGHLIGHTS
- The integrated wizard guides operator through the recipe input process
- One recipe is sufficient for numerous RAP ratios
- Changing the RAP ratio by using the slide controls during production

HIGHLIGHTS
- Intuitive operator display showing how efficient the plant runs
- Displays key values and enables comparison to reference values and previous periods
- Determines the emitted CO₂ values
- Determines the resulting energy costs
PEAK LOAD (PLM)

For some energy media the energy price is based on price for work and price for capacity. For the latter, normally the measured peak is responsible for the tariff to be paid. It is in the interest of the plant operators/owners to keep the peak loads as low as possible.

The as1 peak load management effectively supports the process by continuously monitoring the peak performance, against critical values and prediction of peak tariff timing, with the intent to reduce the peak load demand at the time of day that is most costly. In addition, the certain devices can be managed by stepping or automatic (i.e: Heating) to be switched on/off, based on the consumers forecast of optimal high and low points in the tariff concession.

The as1 peak load management module fits seamlessly in the as1 eco modules and is available for the energy media electricity and gas.

HIGHLIGHTS
- Preventing short term and expensive electrical peak loads
- Forecast function
- Automatic switch off for electrical consumers

AS1 EXCEL ADDIN

Ammann offers an AddIn for Excel for comprehensive data evaluation, as an extension of the broad menue of as1 standard reports. This ingenious tool makes your Excel as1-capable. This enables defined data to be imported into Excel where it can then be processed just as you wish.

HIGHLIGHTS
- The requisite data can be selected from the comprehensive as1 data pool, imported into Excel and then evaluated
- Newly generated data can be seamlessly integrated at any time with a click of the mouse
- An effective tool for your individual evaluations in one trusted tool
MAINTENANCE DUE?
The as1 IMM Module supports the staff with the planning of the required maintenance tasks of the mixing plant. The module allows various maintenance tasks to be created and structured. Supported are maintenance tasks with fixed time schedules as well as event based tasks which are automatically planned based on the operating hours or the quantities processed on the plant. Store documents like work instructions or even short video clips to each single maintenance task.

HIGHLIGHTS
• Planning of cyclic maintenance tasks
• Planning of event based maintenance tasks
• Listing of the due maintenance tasks
• Cost registration of the maintenance tasks
• Assignment of detailed, multimedia work instructions

INTEGRATED QUALITY CONTROL
Amid the bustle of daily work at the mixing plant, the sampling and quality control processes are rather an irksome obligation. Integrated and automatic workflows between laboratory and mixing plant will minimise the necessary efforts and increase the quality and efficiency of those processes.

The standardized Laboratory Data Exchange (LDE) interface integrates your Asphalt or Concrete mixing plant with the laboratory system.

HIGHLIGHTS
• Automatic recipe transfer between laboratory and mixing plant
• Direct transfer of quality-related suggestions from laboratory to plant control
• Analysis of production data by the laboratory technician without delay
• Integrated inspection scheduling in accordance with EN 13108 and EN 206
• Automatic sampling reminders from plant in combination with as1 sample planning
**AS1 SUPERVISOR VIEW**

**THE FACTUAL REPORT**

The AS1 Supervisor View presents the various production data, formatted into one clear and well-structured view, with flexibility to color code and breakdown the recipe categories. In a single glance, it becomes immediately clear how much of which product was produced and how much recycling was used in it. In addition, any variations in product quality characteristics are immediately identified in the visual display. A simple click on the mouse is enough to verify the details of every batch produced, making this function a must-have tool for any supervisor or production manager.

**HIGHLIGHTS**

- Real-time display of the batch protocol of the on-going production
- Overview of the mixed material quantities in the selected time range
- Overview of the quality relevant data
- Overview of the used recycling quantities

**AS1 QUALIVIEW**

**IMMEDIATE QUALITY REPORT**

This module provides a production quality report that indicates the mixed product quality by indicating the deviation of each component in each batch. This graphical report can evaluate a single production or multiple productions with the same recipe. It serves as a quality assessment based on the measured values and is available for review immediately after production without waiting for the laboratory analysis.

**HIGHLIGHTS**

- Evaluation of the production protocol data
- Graphical report per component
- Evaluation based on user-defined quality standards
GET CONNECTED
Data is required in various types and formats these days. Ammann offers a comprehensive data interface which leaves absolutely nothing to be desired.

HIGHLIGHTS
• For ERP, invoicing, laboratory systems, etc.
• Open XML file format
• Operating and production data
• Master data synchronisation (e.g. recipes, orders, products, etc.)

AUTOMATIC PDF CREATION
The protocols and predefined statistics are automatically converted into PDF files and are then saved and systematically ordered. They can be searched for quickly and conveniently at any time by means of the integrated WEB application and then printed or stored on external media.

HIGHLIGHTS
• Automatic conversion of production protocols into PDF files
• Automatic generation of periodic statistics into PDF files
• Ordered storage of the generated files
• Efficient search options
SAMPLE DUE?

EN-13108-21 “factory production control” provides for the monitoring of mix qualities by means of a comprehensive sampling plan. Based on the current operating compliance level, the operator is informed of a pending sampling and the required data record is created automatically. Thanks to the support by the software module, the operator is able to concentrate on his core tasks.

HIGHLIGHTS

• Allocation of recipes in classes
• Display of the current operating compliance level
• Notification of operator when sample pending
• Automatic creation of laboratory order
• Seamless documentation of conformity tests
AS1 CLOUD SOLUTION
MOBILE MIXING PLANT MANAGEMENT IN THE DIGITAL ERA

The Q Plant Agent software module connects the as1 to the Q Plant cloud solution from Q Point AG. This module allows transmission of production reports and statistics to the cloud in PDF format. The delivery notes are also transmitted from plants that utilise the as1 order processing or as1 weighing system. Selected production and operational data is transferred at the same time. This data is processed in accordance with requirements so it can then be viewed on the Q Plant website – at any time and from any location.

Q Plant makes it possible for plant operators to bundle the relevant information from their as1 plant control system, as1 weighing system or as1 order processing system on a single platform. Q Plant links this information logically and makes it accessible in a simple and easily understandable format.

Depending on the configuration level of the as1, therefore, Q Plant makes critical information available at a glance (e.g. production and operational data, customer orders, delivery and production status for individual sites, etc.).

The PDF documents generated by the as1, such as production reports, component statistics and others, are available for further processing by simply pressing a button. Thanks to cutting-edge web technologies and future-oriented software architecture, Q Plant can be used on every terminal device with a compatible web browser – with no need to install an app.

HIGHLIGHTS
• Business intelligence (BI) with data evaluations
• Dashboard with the main key values for plant and enterprise management
• Needs-based, time-controlled generation of reports
• Long-term archive for production reports or delivery note documentation
• High level of data availability in the cloud
• Interface with various third-party software products for site planning (Q Point)

The use of Q Plant Agent requires a contract with Q Point.
For availability and additional information, visit: www.q-point.com
AS1 RETROFIT CONTROL SYSTEMS
THE BRIDGE TO THE FUTURE

In many cases, technically overhauled plant control systems fail to meet current requirements in terms of spare parts availability, reliability, operating convenience and traceability of the manufactured products. Ammann understands precise customer requirements. Whether it be a partial or complete renewal of the entire process control system, Ammann offers comprehensive broad range of retrofitting packages. The large number of retrofit projects already undertaken on Ammann plants as well as third-party manufacturers serves to underline our expertise. Short retrofitting times, maximum adaptability, modular orientated expansion options are core characteristics of the future Ammann as1 retrofitting concept.

HIGHLIGHTS

- The adaptability and modular format of the as1 makes it an outstanding choice for retrofitting all types of asphalt mixing plants
- Easily comprehensible and fully graphical visualisation
- Simple, easily learned and modern operation with mouse and keyboard
- Qualitatively optimal batch production thanks to detailed process technology
- Numerous statistics and evaluations for quality assurance
- Remote maintenance via internet
- Efficient service and support
- Flexible and needs-related expansion possible at any time
- Rapid retrofitting times thanks to pre-engineered interfaces

INDIVIDUAL RETROFIT SOLUTION
RIGHT SOLUTION FOR EVERY NEED
Ammann offers solutions for its own plants and plants from third-party manufacturers for retrofitting to modern Ammann as1 control systems.
WEIGHING / MIXING RETROFITTING KITS
RETROFITTING KITS FOR PLANTS FROM ALL MANUFACTURERS
This retrofitting kit covers the automation for the area of weighing/mixing. Plant operators can economically equip their plants to fulfil requirements in the areas of production, statistics and quality assurance and are thereby ready for the future.

AMMANN AS20 RETROFITTING KIT
This retrofitting kit covers the automation for the area of weighing/mixing. Plant operators can economically equip their plants to fulfil requirements in the areas of production, statistics and quality assurance and are thereby ready for the future.

COMPLETE RETROFITS
RETROFITTING KITS FOR PLANTS FROM ALL MANUFACTURERS
The adaptability and modularity of the as1 means that a suitable solution can be realised for any plant. Either a central interface cabinet or decentralised interface modules are used for installation in the existing switching cabinets, depending on the concept of the existing control system.

AMMANN AS2000 / AS2000PLUS RETROFITTING KIT
Ammann AS2000 and AS2000plus control systems can be retrofitted quickly by means of minor adaptations to the fieldbus system and exchanging the computing environment. The smart solution for progressive operators.

RETOFIT VARIANTS
The reconstruction of the as1 control system retrofit kit can be done in three different ways. The volume of the retrofit it’s up by the condition of the existing switch gear panel.

**ALL PANELS NEW**

- Computer System equal to all versions

**SOME PANELS NEW**

- New panels or Interfaces

**NO NEW PANELS**

- Existing panels
HOTLINE AND SUPPORT

PLANT AVAILABILITY ASSURED
Ammann experts are ready for you in emergency situations 24 hours a day, seven days a week. The help line team is highly trained and experienced. Representatives can talk you through the challenges – in many different languages – with a remote connection to your system that will minimise the troubleshooting time.

INTERNATIONAL HOTLINE
- Experienced Hotline staff and use if modern communication media drastically reduces response time and therefore plant down time
- The Hotline is available 24h a day and 7 days a week
- You talk to experts who knows your problems and have solutions ready
- Our Hotline staff speaks several languages
- The Ammann staff can connect to your Ammann plant control system via remote access for diagnosis and support

Electromechanical faults can be quickly resolved by the customer’s own personnel with the help of the electrical circuit diagrams and the as1 diagnostic tools. Ammann’s knowledgeable customer service team staffs the hotline, which can be called for fault diagnosis or maintenance at any time. Modern telecommunications media increase the availability of the plant and reduce the need for costly on-site servicing.
FULLFIL YOUR PLANT’S POTENTIAL WITH TRAINING
Your plant features components engineered for productivity and technology that can deliver benefits unheard of just a few years ago. Yet those components and that technology are only as good as the operator using them. How can you help operators make the most of the tools at their disposal? The answer is training.

WORLDWIDE TRAINING CENTRES
Ammann has more than 10 regional training centre locations around the world. Key teaching themes connect them all.

• A good balance. The centres combine a traditional classroom setting with hands-on experience, including the availability of plant components for maintenance lessons.
• Experiment without consequences. The as1 control system simulator provides operators with realistic scenarios without running the risk of wasting material or causing plant downtime. Operators can experiment and learn from their mistakes – without costly consequences to your operations.
• Learn from peers. Operators from other facilities attend the training. Participants say the conversations with their peers – and learning how they overcome challenges – is another key benefit.
• Learn in your language. Lessons are taught in many languages, ensuring your team understands key terms and lessons and makes the most of your investment.

In addition, Ammann experts can customise a curriculum for your needs and work with operators and managers at your facility. The advantages include hands-on experience with your equipment and the ability to involve more of your staff than would likely be sent to a regional training centre. Choose from the Ammann training modules.