



Asphalt Plant Control Systems & Automation

# Better Data. Increased Control. Higher Profits.



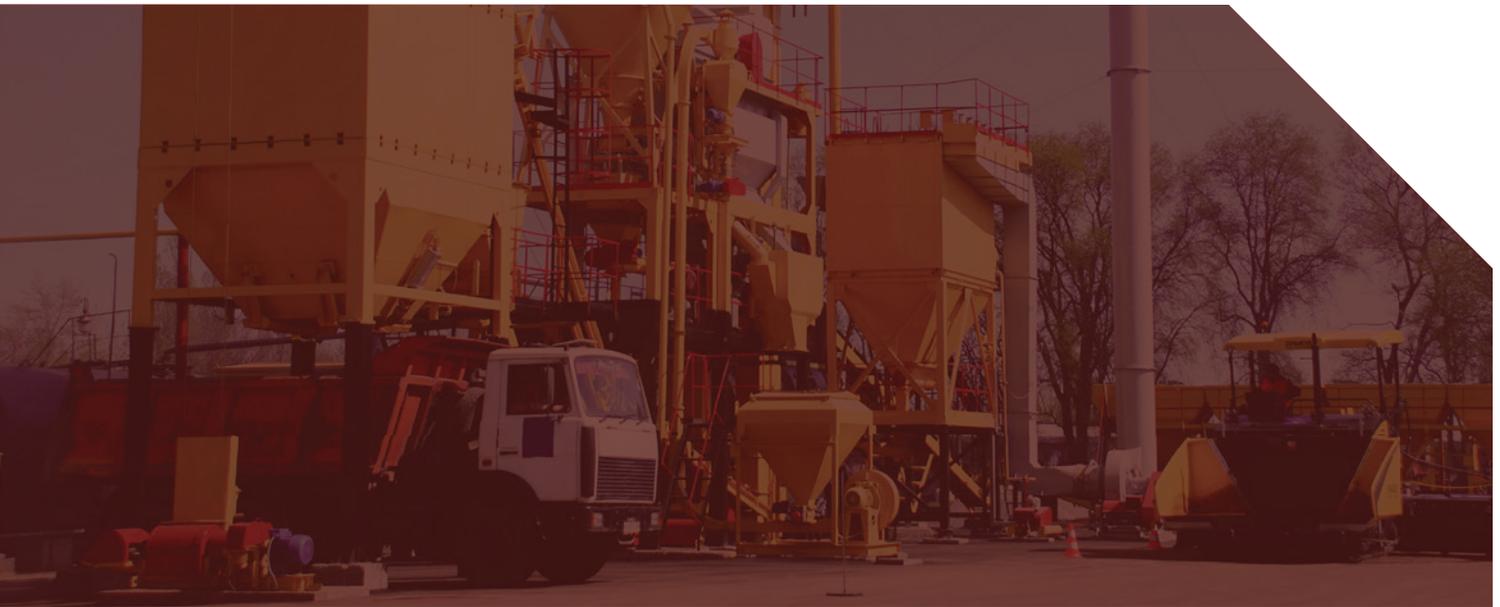
Leading in automation control systems and data management for the asphalt industry



# Software, hardware, and information technology for the road construction industry since 1994



MINDS is a leader in advanced customizable asphalt plant control systems for Drum, Batch, combo/hybrid hot mix plants, emulsion and modified bitumen plants, silo load-out, ticketing and data management for the asphalt industry. The production-level data forms the foundation that flows up the pipeline to our large-scope job/business management IT tools.



**Trusted for  
over 25 years in  
500+ locations  
worldwide**



With over 25 years of industry experience, MINDS has been installed in over 500 locations throughout North America, Europe and worldwide.



# More Production. Better Accuracy. Higher Profits.



MINDS Data Suite is a complete software and hardware toolset for managing and optimizing asphalt plant operations.



BUSINESS MANAGEMENT



PLANT MANAGEMENT



JOB MANAGEMENT



QUALITY CONTROL

<b>DrumTronic</b> (p.4)		✓		✓
<b>BatchTronic</b> (p.5)		✓		✓
<b>EmulTronic</b> (p.5)		✓		✓
<b>BurnerControl</b> (p.6)		✓		✓
<b>LiveLoader</b> (p.7)		✓		✓
<b>TankFarm</b> (p.8)		✓		✓
<b>PlantManager</b> (p.9)	✓	✓	✓	
<b>LoadOut</b> (p.10)		✓		
<b>Tessera Ticketing</b> (p.11)	✓	✓	✓	
<b>AccuLab</b> (coming soon)		✓		✓
<b>JobLink</b> (coming soon)	✓	✓	✓	
Tessera Enterprise (coming soon)	✓		✓	

# DrumTronic

## Asphalt Drum Plant Automation & Control



Designed from the ground up with the operator's priorities, DrumTronic brings asphalt plants to a new level of extremely fine-tuned automation and control through an intuitive user interface and dedicated hardware.



### DrumTronic Highlights



#### State of the art

Dependable, accurate, reliable, and customizable. DrumTronic is ideal for a simple bitumen and aggregates blending-only application, or comprehensive total plant control.

#### Clearly see your operations

The human interface has been thoroughly designed in collaboration with actual operators. The layout of information allows for a quick understanding of the overall workings.

#### Always in control

The operator remains in control and the process can be stopped and resumed anytime while direct control of motors is always possible.

"Within the first week of running we found mechanical deficiencies at every plant. Loadcells that were still working but did not calibrate out well. Asphalt content issue fixed. Vibrations being picked up by the tachs due to how the wiring was run. Safeties and limits that weren't working.

**Overall, we have cut our downtime due to controls issues to zero hours across three plants."**

Brandon Watson, The Allen Company



# BatchTronic

## Asphalt Batch Plant Automation & Control



Designed with batch plant operators in mind, BatchTronic allows exceptional automation and control of asphalt plants through powerful and easy-to-use visual software combined with dedicated hardware.

### BatchTronic Highlights



#### Multiple console options

With the number of screens ranging from one to four and a 'zero console' option, the BatchTronic fits all types of asphalt plants and budgets.

#### Clearly see your operations

The exact 3D representation of the actual asphalt plant reduces the learning curve needed to use the system.

#### Ultimate real-time control

Timing is of the essence for batching processes. BatchTronic provides tools to understand and customize how actions are scheduled.



# EmulTronic

## Emulsion & Modified Bitumen Plant Control



Based on the same platform as our successful asphalt plant automation systems, the EmulTronic handles all phases of emulsion production and storage with many levels of safety checks and advanced features.

### EmulTronic Highlights



#### Highly efficient, computerized plant controls

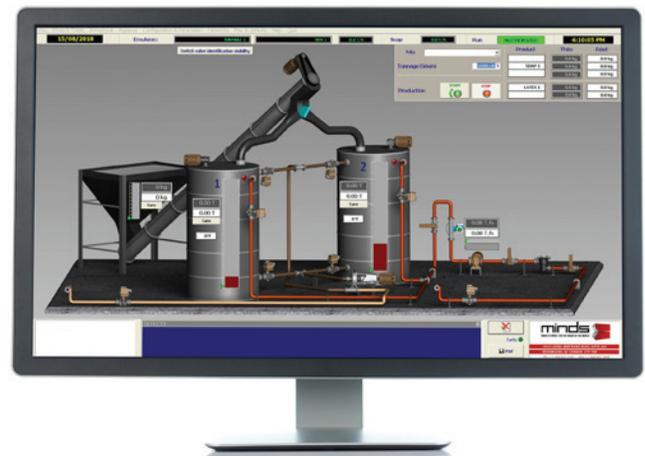
EmulTronic™ is an advanced emulsion plant control system, modified bitumen control system and liquid terminal control system.

#### Clearly see your operations

The EmulTronic system is scalable and fully expandable to adapt to existing production facilities as well as high-end modern fully integrated production plants.

#### Worldwide proven performance

With happy customers around the globe, the proven EmulTronic system adds a level of automation that can be adapted to any budget and plant complexity.



# BurnerControl

## Multi-actuator, precision burner control software



Take the guesswork out of burner operations. BurnerControl is an affordable and effective retrofit solution that can be finely tuned and profiled with separate air/fuel ratios. Improve the efficiency and safety of your burners.



## BurnerControl Highlights



- ✔ Versatile, advanced system offering 4 analog or digital channels for an easy retrofit of any burner
- ✔ Control can be finely tuned and profiled with separate air/fuel ratio control points
- ✔ Can use direct coupled actuators or any standard drive motor such as Barber Coleman EA57 (Hauck) or D810 drive motor (Gencor)
- ✔ Flame safety is achieved with Honeywell flame relays; dependable and cost effective
- ✔ Redundant high stack temperature safeties, both hard wired and software driven
- ✔ The burner safety chain is wired for first out status and easy trouble shooting
- ✔ UL listed and NFPA compliant

## Features



- ✔ Multi-actuator, multi-fuel, profiled control points
- ✔ Integrated in plant control software or standalone version
- ✔ Easy intuitive UI interface
- ✔ UL Listed and NFPA compliant
- ✔ Low cost, easy retrofit of any burner

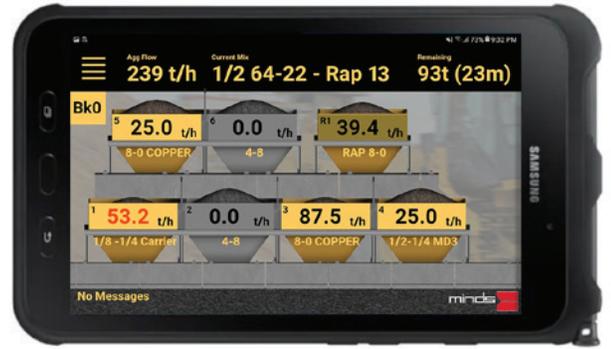


# LiveLoader

## In-Cab Production Dashboard for Loaders



Still using clipboards or walkie talkies to keep your loader operators in the loop? LiveLoader displays all vital production information inside the cab of the loader on a digital tablet. Data is always accurate and always up-to-date.



### LiveLoader Highlights



- ✔ Realtime dashboard of practical contextual information
- ✔ All vital production information and statistics available inside the cab in real-time
- ✔ Current mix/percentages, next mix scheduled, feeders in use, amount of stone needed, levels and no-flow sensors, plus time-to-empty count-downs are displayed
- ✔ Information is graphically displayed for intuitive understanding
- ✔ Available for Android devices and preferably runs on a ruggedized tablet permanently mounted in cabin

### Communications



- ✔ Receive information from Minds DrumTronic and BatchTronic plant control systems with PlantConnect option
- ✔ Data transferred through data plan on mobile (cellphone) network
- ✔ All configuration data at the plant level allowing multi instances of LiveLoader to run concurrently



# TankFarm

Remote monitoring of liquid tank farms & heating



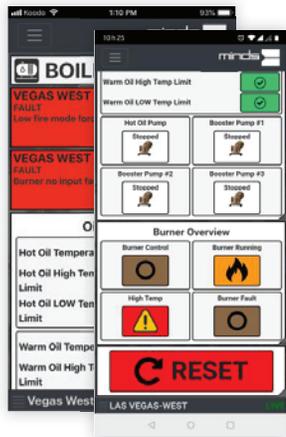
Not on site? No problem. Now there's a mobile app that integrates with desktop asphalt plant management software to remotely monitor liquid tank farms, tank heating, and boilers.



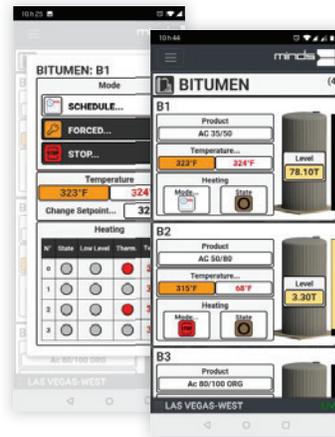
## TankFarm Highlights



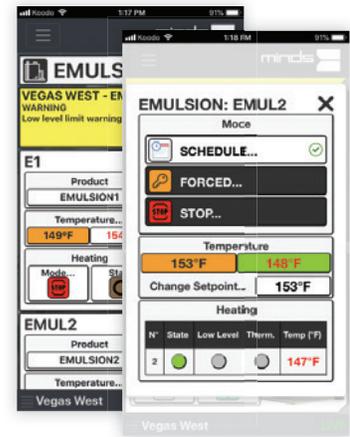
- ✔️ Oversee critical operations anywhere you have cell phone reception
- ✔️ Real-time data is constantly communicated between plant's control system (such as DrumTronic, BatchTronic, or Emultronic) and the TankFarm app
- ✔️ Monitor boiler conditions such as hot oil temperature, warm oil Temperature, pump status, and burner status
- ✔️ If the boiler or tanks aren't running within set parameters, you'll receive alerts on your phone
- ✔️ Warnings are sent as text-based push notifications to your smart phone, while Faults play a loud sound on your smart phone as well as sending the text notification



**Boiler Monitoring & Remote Reset**



**Bitumen Tank Monitoring & Settings**



**Emulsion Tank Monitoring & Settings**

# PlantManager

## Real-time dashboard of multiple plants



Gain a 30,000 ft level of your company's plants all in one powerful dashboard. Spot issues at glance, and drill down into production and job data.



**Multi-plant Dashboard** ▲

## PlantManager Highlights



- ✔ Multi-plant Dashboard: All key numbers per location
- ✔ Individual Plant Production Details: See historical, time-stamped log of tonnage, RAP %, and moisture %
- ✔ Individual Plant Energy Details: Measure current and historical energy consumption in KWh/T, BTUs/T or Therms/T.
- ✔ Individual Plant Trucking: Review truck rotations and ticket information for each job
- ✔ View information on desktop, tablet, or mobile devices
- ✔ Current and historical data enabling comparison and improvement



### Individual Plant Overview

Drill down to the individual plant level where analog style gauges make it easy to track mix rate of production, temperature, and energy usage.



### Individual Plant Energy Details

Measure current and historical energy consumption in KWh/T, BTUs/T or Therms/T.

# LoadOut

## Truck Loading Management Software

Use standalone for asphalt load out management or integrate with MINDS plant control solutions like DrumTronic and BatchTronic for a total production system.

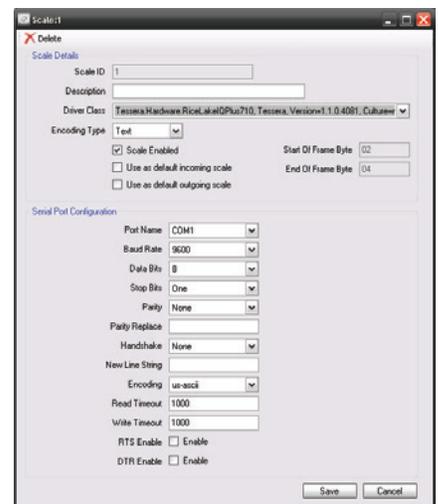


### LoadOut Highlights

- ✔ Operator can manage load out of material into trucks ready for delivery or load in of material to transfer
- ✔ Standalone or fully integrated with production computer
- ✔ Highly visual interface makes it easy to see what is happening in real-time
- ✔ Interface shows truck ID, material type, customer, job number, tonnage and number of drops
- ✔ Software animates loading of asphalt into trucks as scale's gross weight increases
- ✔ NTEP Certified

### Compatible Scales

- ✔ Mettler Toledo 8530
- ✔ Rice Lake 120
- ✔ Rice Lake IQ Plus 710
- ✔ Weigh-Tronix WI-127
- ✔ Aurora Scale Mfg. Ltd.
- ✔ Others on request



# Tessera Ticketing

## Job Ticketing & Management Software



Efficient ticketing and management software for asphalt plants to handle billing jobs, trucks, haulers, materials - use standalone or fully integrated with MINDS production systems such as DrumTronic, BatchTronic, and LoadOut.



### Tessera Ticketing Highlights



- ✔ Allows users to quickly and easily print tickets/invoices after material has been loaded on to a truck
- ✔ Supports the ability to store customers, haulers, jobs, materials and trucks
- ✔ Extremely powerful reporting capabilities, comprehensive external accounting interface and flexible printing system with highly customizable layouts and behavior
- ✔ Software takes care of pricing the material, doing any relevant unit conversions, calculating the taxes and much more

### Features



- ✔ Use Standalone or integrate with our Plant Production software (image to right)
- ✔ Automatic unit conversion; system adjusts unit price based on units selected by the operator
- ✔ Comprehensive material pricing rules; price material for specific customer and job
- ✔ Handles multiple taxes, including tax-on-tax; can account for tax increases that automatically take effect at a specified date



# Replacing multiple asphalt plant control systems with DrumTronic brings many advantages to U.S. firm



MINDS' DrumTronic software for asphalt plant automation improves production reliability and accuracy for construction firm

## PRODUCT

MINDS' DrumTronic asphalt plant automation and control software

## APPLICATION

More than ten asphalt plants

## CHALLENGE

Improve consistency of plant control metrics and reduce operator training for a United States highway construction firm

## SOLUTION

The company replaced its various plant control systems with MINDS' DrumTronic software

## RESULTS

The firm has seen a significant reduction in operator training and orientation, and improvements in accuracy, production control and ease of operation over the ten years it has used DrumTronic

A highway construction firm in the United States that operates many asphalt plants was using multiple asphalt plant automation systems. The various plant control software was not compatible with each other, making it difficult for the firm to understand at a company-wide level how its plants were performing in relation to each other, ensure production standardization and accuracy across its operations, and train plant staff.

In 2009, the company made the switch from its multiple plant control systems to MINDS' DrumTronic software for asphalt plant automation and control. MINDS' reliable, accurate and customizable asphalt plant software was designed after consultation with actual plant operators to allow plant managers to get a quick and clear understanding of their operation, and handles everything from simple blending to total plant control.

**"We've been using Minds' DrumTronic for ten years now, and have no plans to go back." — Plant Manager, 10+ Site Asphalt Production Plant, USA**

The construction firm saw immediate improvements from switching to the MINDS software beyond the simplicity of having one plant control solution instead of several. According to a plant maintenance manager, DrumTronic was superior to the vast majority of plant software on the market in key metrics such as calibration, ease of operation and overall plant production consistency and accuracy. As well, the plant manager said, the program offered far superior reliability for its plants.

**The simplicity of use is thanks to the way DrumTronic was designed to easily communicate all the metrics that operators need to understand, to prevent confusion and misinterpretation of data.**

MINDS prioritized symbolizing information clearly, such as how delays and timing can be shown over a graphic representation of material flow and plant, in order to save operators from having to look at overwhelming collections of numbers.

By standardizing on a system, the company was also able to reduce the amount of time it was spending on operator training and orientation. Prior to using MINDS' software, personnel would be trained on one type of plant control system only to be moved to a new asphalt plant and need to be trained again on a new system. With DrumTronic, the company had the ability to move personnel from plant to plant without needing to bother re-training.

The Minds system is highly customizable and has a consistent interface on drums, batches, hybrids plants or even bitumen terminals and emulsion plants, "When they opened the door in the control house, it was an identical screen that they had from their old plant," said the plant maintenance manager. With more than 30 personnel who would need to know how to operate the plant software, this was a huge time-saving.



# MINDS' DrumTronic improves operator training time, calibration and production consistency at two asphalt plants

After piloting two units of DrumTronic, an aggregates company plans to go all-in on MINDS software

## PRODUCT

MINDS' DrumTronic asphalt plant control system

## APPLICATION

Two asphalt drum plants in western Kentucky and North Carolina

## CHALLENGE

A construction aggregates company wanted to replace its outdated asphalt control system, and get its operators onto a more user-friendly software

## SOLUTION

The company pilot tested two units of MINDS' DrumTronic asphalt plant process automation software

## RESULTS

The company's pilot test was so successful that it now has DrumTronic installed at three of its drum plants, with a fourth already ordered, and MINDS' BatchTronic software installed at three batch plants. It plans to order more software in the coming months, and have all of its 40 operations using MINDS' plant automation and monitoring system within five years

When a United States construction aggregate company wanted to get away from its clunky and difficult-to-use asphalt plant control system in 2016, the company's corporate asphalt plant manager decided to pilot two units of MINDS' DrumTronic asphalt plant software in western Kentucky and North Carolina. The manager knew of MINDS and its dedicated focus on the asphalt industry, and was impressed with the evolution of its software.

The company, which has more than 30 asphalt plants across the U.S. — the majority asphalt drum mix plants, with some asphalt batching plants — quickly saw improvements at the plants where MINDS' software was installed.

The onboarding process for plant operators was significantly reduced on the MINDS systems. When operators were trained on the old PLC system, it took them around five to seven days to get to the point where they were comfortable using it, the manager said. In comparison, operators had a handle on the MINDS system within one or two days. "We have operators that get skittish about change and looking at different graphics, people get curmudgeonly and set in their ways," he said. "But what we found with the MINDS controls were, once the operators spent a day or two with them, they understood how they operated."

**The manager also noted that the calibration platform on MINDS' plant software had greatly improved the company's mix design.**

The previous controls could lose their calibration points and, as a result, create mix design failures. MINDS' plant automation system is now providing a level of accuracy and ease of use that the company hadn't seen before. "We see a real difference in that, and we're very pleased with it," he said.

He said other plant control software companies tend to branch out to similar industries, and divide their focus, but MINDS has kept its dedication to asphalt plants and it shows.

**"They understand more of how an asphalt plant operates than most other software providers," the manager said.**

After the company's pilot test of MINDS' DrumTronic plant control system, it has committed to going all in on the software. The manager said his company now has three asphalt batching plants outfitted with MINDS' BatchTronic software, and three drum plants set up with DrumTronic, with a fourth unit already purchased.

**"We're gonna put in an order for three more controls sometime in the next four months," he said. "Our plan is to be totally MINDS within five years."**

# MINDS builds the tools you need for asphalt plant automation and management.



Minds Automation has exceeded my expectations with regards to features, ease of operation and reliability. I researched automation controls for 3 years before making the decision to install Minds. I can honestly say I am EXTREMELY satisfied with the overall performance of Minds and the service provided by both Minds Inc. and Reliable Asphalt Products

**Jeff O'Brien, Member, Plant Manager**  
**Elmira Road Materials, LLC**



"The plant control system that Minds designed for us has worked very well. The graphics depict the plant almost identically as built and are very easy to follow from the control room. Each valve is shown with its position indicated by colors that make identifying issues, such as a stuck valve, extremely easy. The materials that we have produced with the system have been very consistent from the first production run. Also, Minds has been very responsive to any issues that have been identified and can dial into the system and make adjustments easily."

**Allen Hendricks, Vice President**  
**Blythe Construction, Inc.**



"We have cut our downtime due to controls issues to zero hours across three plants. This is a big change from the last few years where we were fighting issues almost daily. Whether it was lost PLC programming, output cards blowing out, systems glitches, wasted mix due to an inconsistent mix design, wasted oil due to chasing asphalt content, the list goes on..."

**Brandon Watson, Quality Control & Asphalt Plant Operations Manager**  
**The Allen Company**





MINDS is a leader in process control and automation systems for the road construction industry. We work with 100s of asphalt plants around the world, as well as emulsion and modified bitumen plants.

Please contact one of our offices or representatives to explore how we can work together.

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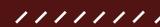
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