

## **Acam: Empowering Calibration and Control Systems at Knorr-Bremse**

Knorr-Bremse Group is the world's leading manufacturer of braking systems and a leading supplier of safety-critical sub-systems for rail and commercial vehicles. The Commercial Vehicle Systems division offers braking systems for trucks, buses, trailers, and agricultural machinery. In the chassis systems sector, Knorr-Bremse is a leading player in electronic control, driver assistance and air supply systems. Other product fields include steering systems, powertrain-related systems, and torsional vibration dampers for diesel engines. To enhance the software development processes, Knorr-Bremse harnesses the power of Acam, a state-of-the-art software tool developed by Udoka Electronics.

Adam Kinyik, a former software developer and team leader situated at Knorr-Bremse in Budapest, have been using Acam since 2022 and explains: *"Acam is an excellent tool for automated A2L creation and management. Easy to integrate and easy to use. One of the key features that has been truly beneficial for us is the flexible license model, including node-locked, USB dongle, floating licenses for workstations, and build server licenses, available as perpetual or subscription services."*

### **Efficient tool for automating A2L creation and management**

Acam is a comprehensive suite of tools (Creator, Merger, Updater and Filter) designed to automate the creation and management of A2L (ASAM MCD-2MC) files. Whether you're involved in software development, measurement, or calibration, Acam maximizes efficiency, and ensures high-quality results.

For the start Adam Kinyik and his colleagues recognized the benefits of the intuitive solution: *"Acam enables us to further streamline our calibration and control processes, ensuring our continuous delivery of cutting-edge braking systems that meet the highest standards of safety and performance."*

### **Creator: Unique algorithm for A2L creation**

With the Creator tool, Acam introduces a unique algorithm that automatically generates A2L files from your C/C++ source code. By analyzing the build products, Creator derives A2L information, reducing the need for manual input – maximizing efficiency and quality and freeing up resources which can be focused on value-adding activities. Creator is integrated in the build just like a compiler. This approach makes for the completely automated creation of A2L files.

### **Merger: Effortless A2L file merging**

When working with software components organized into separate A2L files, the Merger tool simplifies the process of combining them into a single A2L file. Whether the component specific A2L files are generated by tools like Simulink, TargetLink, or ASCET, hand-written, or created by the Creator tool, Merger effortlessly merges them, allowing for smooth integration with measurement and calibration tools such as ATI Vision, Vector CANape, Udoka Electronics Sumac and ETAS INCA.

### Updater: Seamless A2L updating

The Updater tool in Acam ensures that your A2L files are always up to date with the latest software builds. By automatically updating the A2L file with ECU addresses for signals and calibration parameters, Updater eliminates the manual effort and potential errors involved in this process. It supports a wide range of compilers and performs address calculations for variables, arrays, structs, and bitfields. With easy integration into your build chain, Updater ensures that your A2L files accurately reflect the memory addresses of your software components.

### Filter: Flexible A2L filtering

To protect intellectual property or prevent accidental calibration changes, the Filter tool allows you to customize your A2L files by selectively removing or keeping specific measurements, characteristics, groups, and functions. Filter offers a rich set of expressions to define filtering rules, making it easy to tailor the A2L file to your exact requirements. You can define the filter rules in a text file, allowing for easy reuse and documentation.

### **Key features of Acam:**

- Ideal for continuous integration and delivery
- Easy to integrate in a build environment such as traditional make, Ant, or Maven.
- Extensive user manual and built-in help.
- Attractive and flexible license model. We can also offer a migration package if you use a different A2L tool today.
- Choose node-locked, USB dongle or floating license for workstations or a build server license for build servers. All licenses available as perpetual or a subscription service.
- Operating system versatility. Windows and Linux are built for every release. We deliver builds for other platforms on request.

### **We aim to please with both exceptional products and customer service**

At Udoka Electronics we work closely with our clients, providing ongoing support and collaboration. This partnership ensures that Acam and our other products meets everyone's unique challenges and objectives:

*"Acam seamlessly integrates with our systems and existing workflows, supporting various communication protocols such as XCP over CAN, CAN FD, and UDP/IP. Also, we appreciate the user-friendly interface that simplifies our daily tasks" says Adam Kinyik and continues: "We have worked with similar tools from more established companies, and it takes a lot for us, as a large international company, to change or supplement with a new tool. But Udoka Electronics has exceeded our expectations, and continue to do so, with their responsiveness to our specific needs."*

[Learn more about Acam](#)