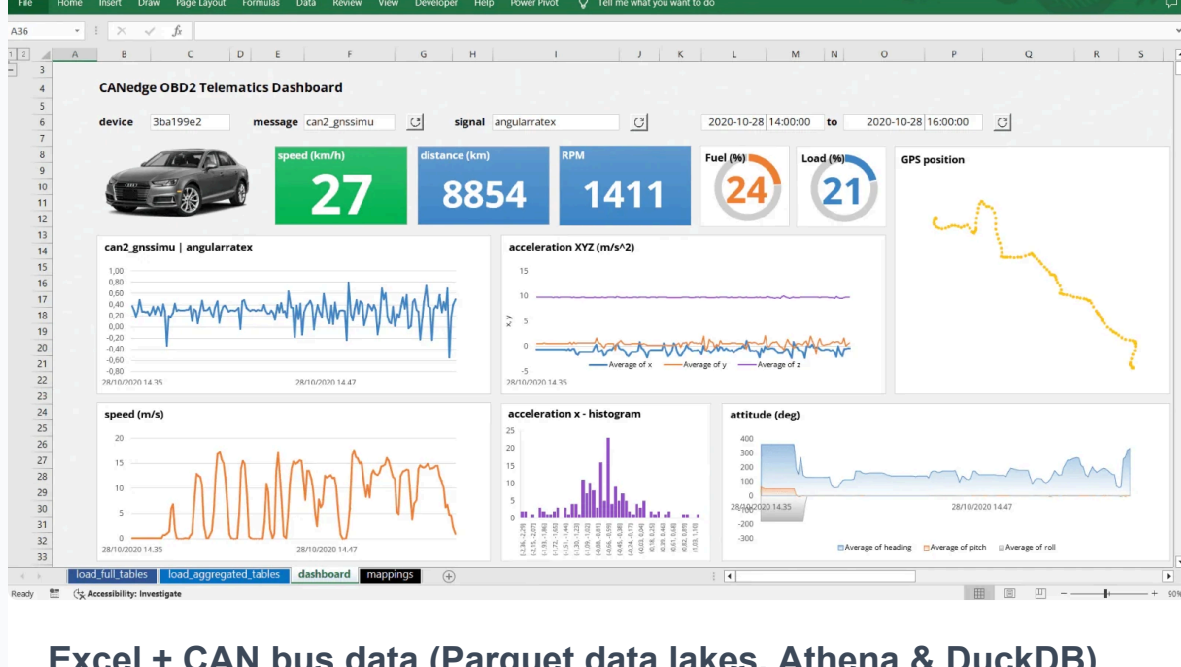


Excel + CAN bus, new CLX000 TXT converters/decoders - and more

CSS Electronics newsletter - March 2024



Excel + CAN bus data (Parquet data lakes, Athena & DuckDB)

Analyze terabytes of CAN data in Excel!

In our latest article we show how you can use Excel to load and process large volumes of CAN/LIN data from the [CANedge](#) CAN bus data logger - and even visualize the results in 'Grafana-style' dashboards!

Specifically, we use our new [MF4 decoders](#) to DBC decode raw CAN bus data into a Parquet data lake. We then use 'ODBC drivers' to query this data using either Amazon Athena (from AWS S3) or DuckDB (from local disk).

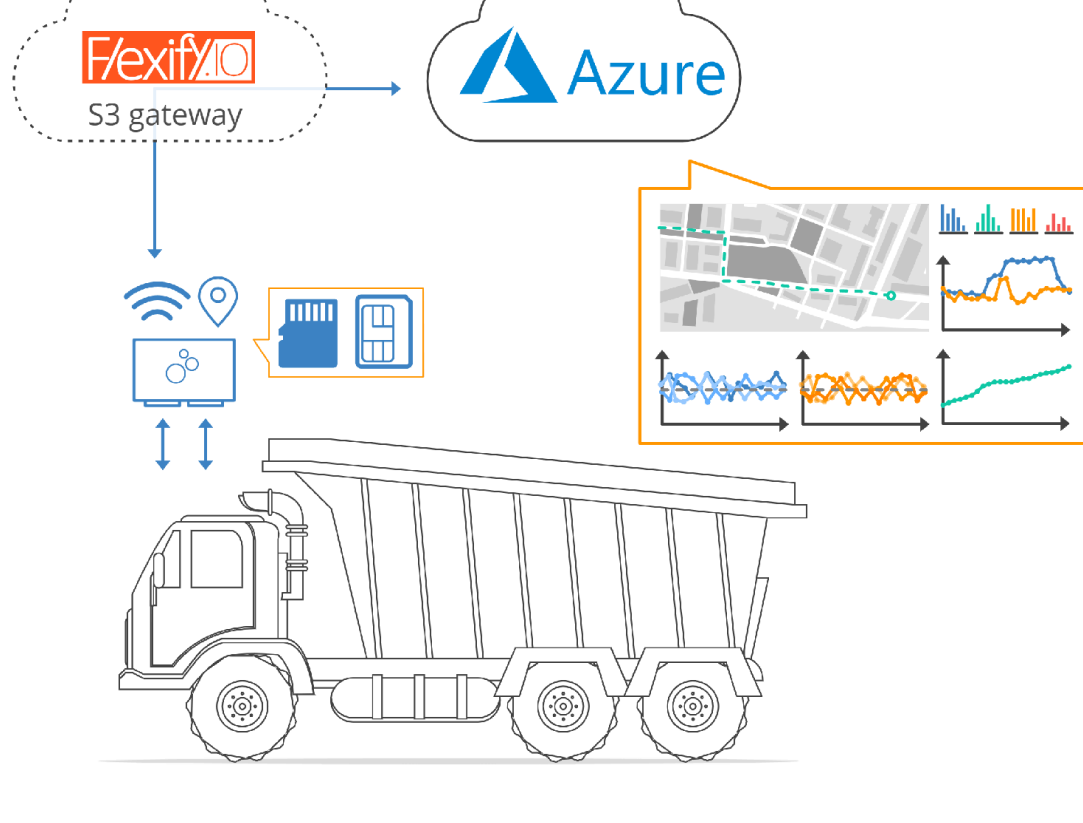
Normally, Excel is near-useless for analyzing CAN bus data at scale, given the limitation of 1,000,000 rows/sheet. But when using Excel-Athena or Excel-DuckDB, the processing of raw data is done at the 'backend', letting Excel focus on loading the light aggregated results. As a result, you can keep your workbook slim, whether you're creating analyses/reports/dashboards across a few MB of data - or several TB.

This is one example of how our [Grafana-Athena dashboard integration](#) can be directly leveraged for other use cases.

The article covers the following:

- Why use Excel for CAN data?
- How to set up Excel-Athena
- 5 showcases of Excel-Athena
- How to set up Excel-DuckDB
- Excel-Athena vs. Excel-DuckDB
- Performance comments

[Learn more](#)



Azure-Flexify: Now available 'as a service'

It is now far easier (and cheaper) to connect your CANedge to Azure via Flexify!

The [CANedge2/CANedge3](#) supports uploading CAN/LIN data to any S3 server (self-hosted/cloud). This includes natively AWS, Google Cloud, MinIO - and many more.

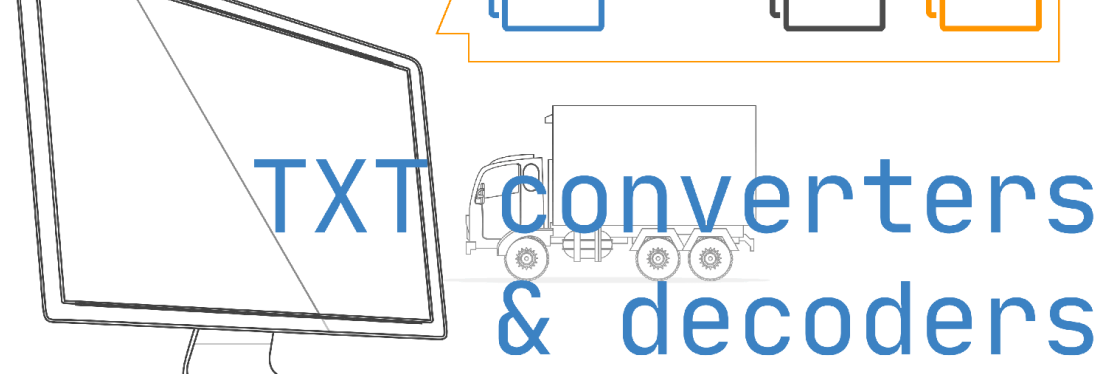
However, many of our users prefer Azure e.g. due to company policies.

The CANedge can be connected to Azure Blob Storage via an 'S3 gateway' - but previously this would require end users to deploy a VM in Azure to host the gateway. This adds complexity, costs and security challenges.

Now, Flexify has introduced their popular S3 gateway 'as a service'. With this, you setup the integration within the Flexify platform. In practice, this lets you link your CANedge to your Azure Blob Storage container in <1 min - and practically for free! (0.04\$/GB uploaded/downloaded and the first ~500 GB are free)

The new solution is both secure, low cost, scalable and easy to deploy - check out our updated guide below. In addition, we now provide [pre-built TLS certificates](#) for both AWS, Google and Azure-Flexify, making it easy to enable secure upload of your data.

[Learn more](#)



CLX000: TXT converters + TXT decoders

We have now released two new software tools for the CLX000:

#1: The [TXT converters](#) let you quickly convert raw data to Vector ASC or PEAK TRC.

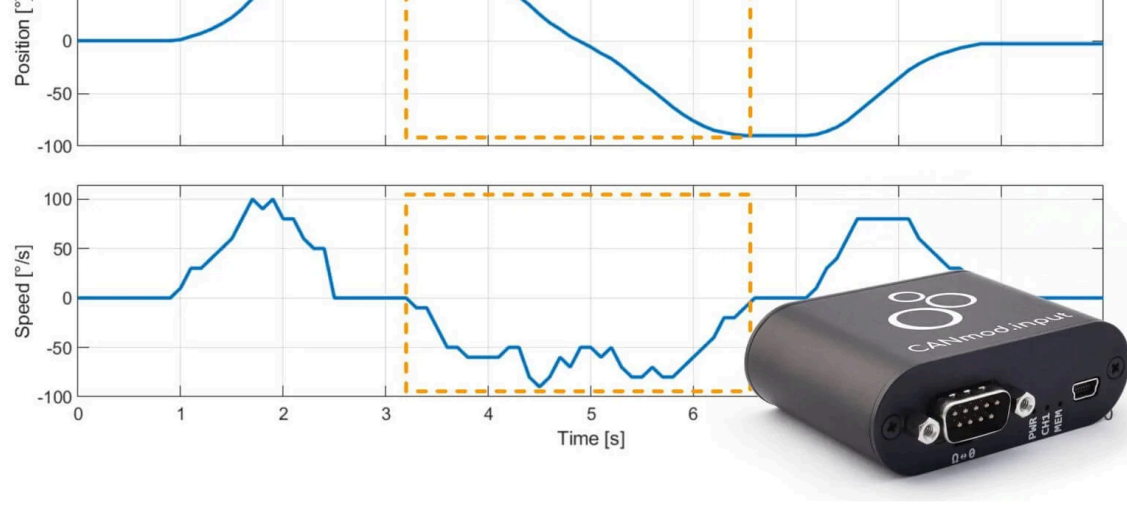
#2: The [TXT decoders](#) let you quickly DBC decode raw data to CSV or Parquet - ideal for quick analysis or creating big data lakes.

The tools are similar in functionality to the [MF4 converters](#) and [MF4 decoders](#) for the CANedge series, enabling a more seamless transition across our range of CAN loggers.

You can use the tools via drag & drop, the command line or e.g. Python scripts. This enables you to much more efficiently process your log files from the CLX000 - and output them into formats that offer wider integration.

[Learn more](#)

CANmod.input FW 00.03.01 pulse count with direction



CANmod.input: Pulse count with direction

The [CANmod.input](#) is a sensor-to-CAN module that produces analog, digital & pulse measurements from 8 input channels - and outputs the data via CAN bus. The module is 100% standalone, no PC required. It is frequently used as an add-on for the CANedge.

With FW 00.03.01, the device now supports **two pulse modes**:

#1: Normal: In normal mode, pulses are counted on each channel separately. The pulse count can only increase.

#2: Encoder: In the new encoder mode, two channels are combined to count pulses with direction - i.e., the pulse count can both increase and decrease.

The encoder mode can e.g. be used to measure shaft position and speed using a rotary encoder (as illustrated). Notice how the encoder mode can be used both with the 'accumulate' pulse counting (position plot) and 'reset' pulse counting (speed plot).

Our team has had a lot of requests for this - and we believe it greatly expands the use cases which the CANmod.input can support.

[Learn more](#)

Other highlights



J1939 DBC 2024-02

Our [J1939 DBC](#) has now been updated to revision 2024-02. The DBC lets you decode 60-80% of the signals from most heavy-duty vehicles, tractors, marine engines and more.

[Learn more!](#)



Grafana-Athena tips

Check out Martin Falch's post on how to use advanced SQL queries in Grafana-Athena dashboards to perform calculations on 'delta variables'

[Learn more!](#)

Status at CSS

We're starting 2024 off with a lot of new product/software improvements. Priorities for the coming period include further improvements to the MF4 decoders, a new significant CANedge firmware update and new Python integration packages. Stay tuned!

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