



# vee vue

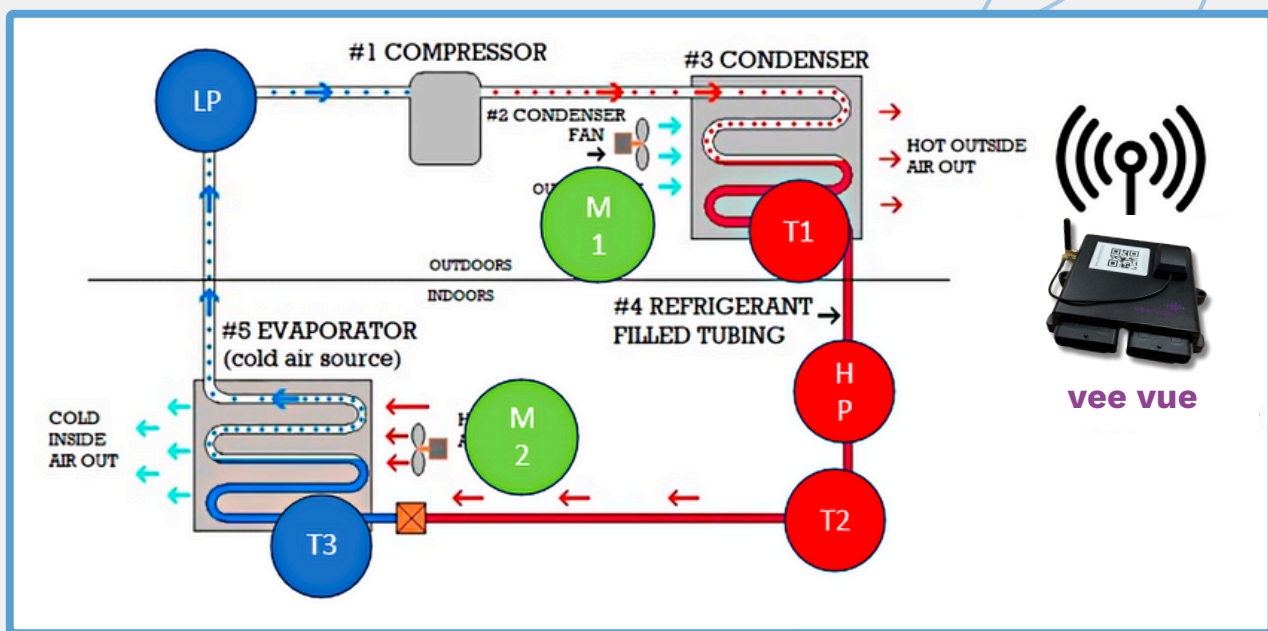
Predictive maintenance software  
for fleet operators and transport  
companies



Let's talk maintenance!

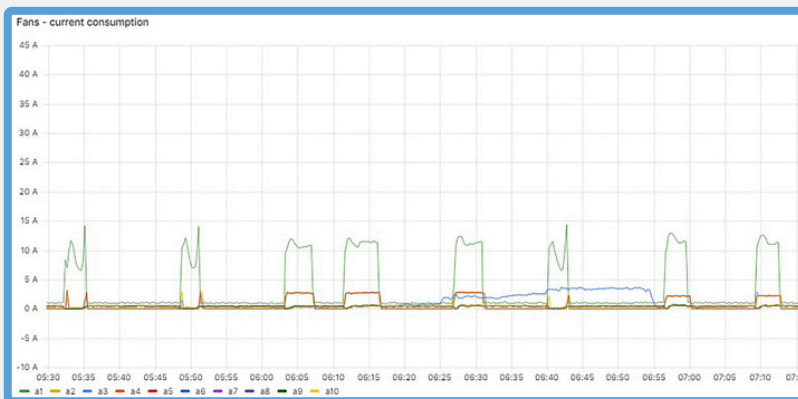
# System description

- Stand alone system with independent sensors and separate IoT unit
- Retrofittable for all systems - compatible with all brands of A/C units, heat pumps and diesel heaters for busses
- Direct data transmission - online readings of temperatures and current consumption of components
- Monitoring the HVAC systems 24/7
- Providing online service reports on demand
- Real time alarms e.g for leakages, malfunctioning components and lack of system performance
- Over the air updates of functionality – no need to access the vehicle



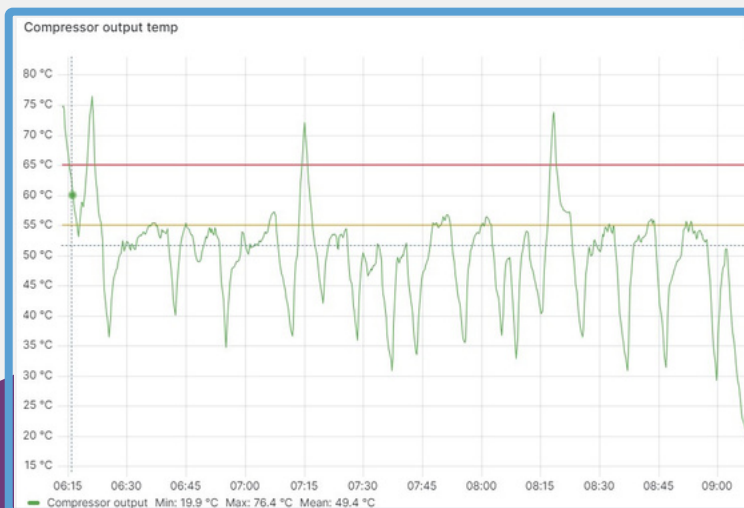
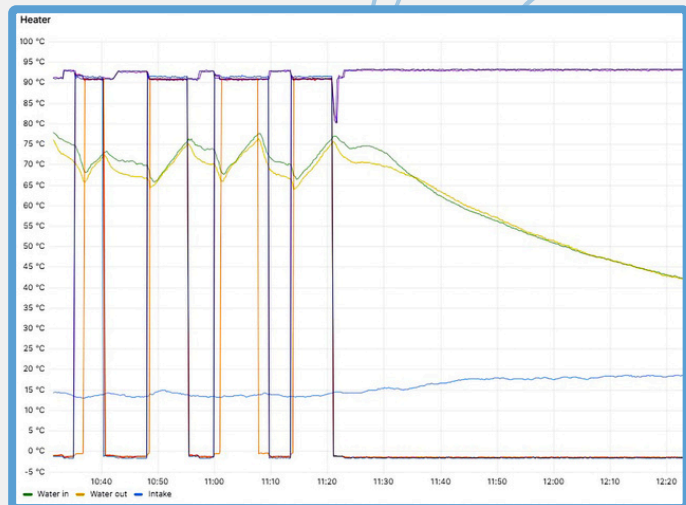
# Data collection

- Collecting data from the heater using our own Electronic Control Unit (ECU)
- Independent temperature sensors and clamps for measuring power consumption on components
- The use of independent ECU and sensors makes the NEQ veevue system flexible and easy to access with no dependency on OEM canbus data



*#1 Power consumption of fans and blowers on an electric Volvo bus north of the Polar Circle in Norway*

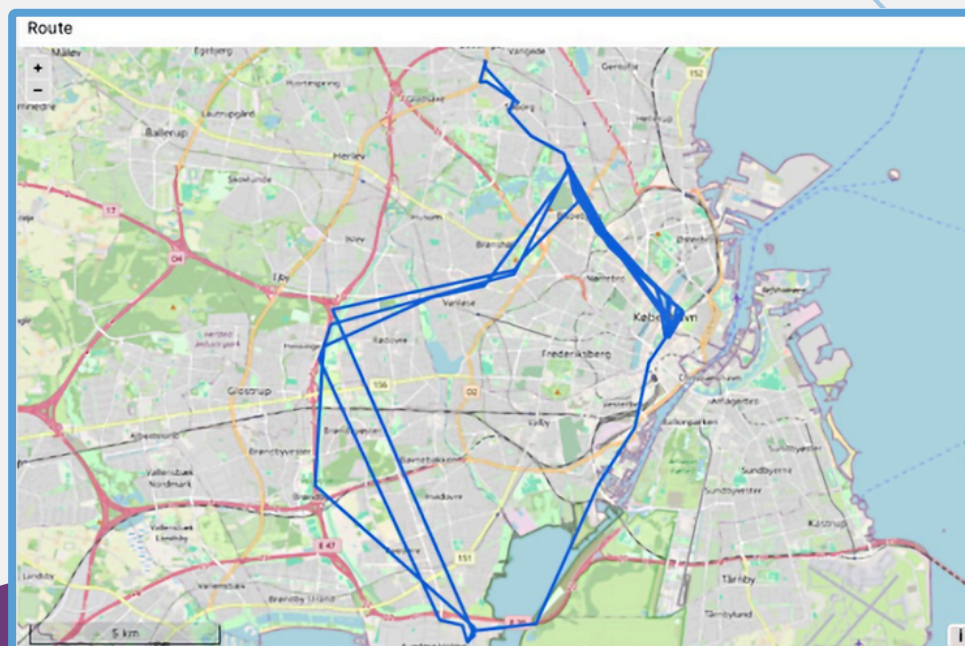
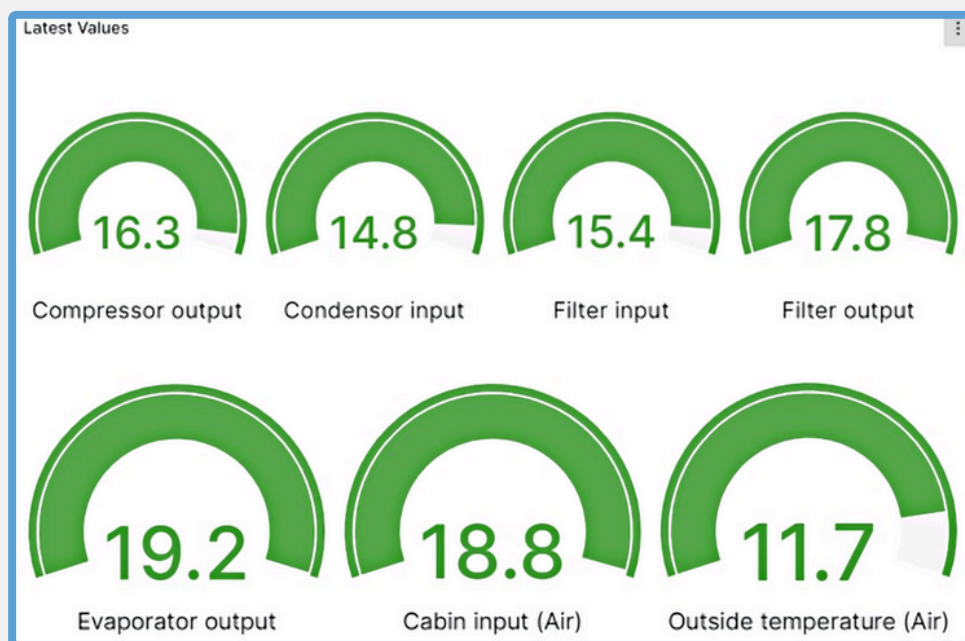
*#2 Data signals from a Valeo diesel heater on a BYD Bus in Sweden*



*#3 Temperature measurements on compressor output on an electric bus in Denmark*

# Operator advantages

- Only one monitoring system for all types of HVAC systems on the fleet
- Direct monitoring of individual components possible
- Stand alone system without interaction with the control system of the bus
- Optimization of workshop processes through better advanced planning
- Reducing maintenance cost thanks to early fault warnings

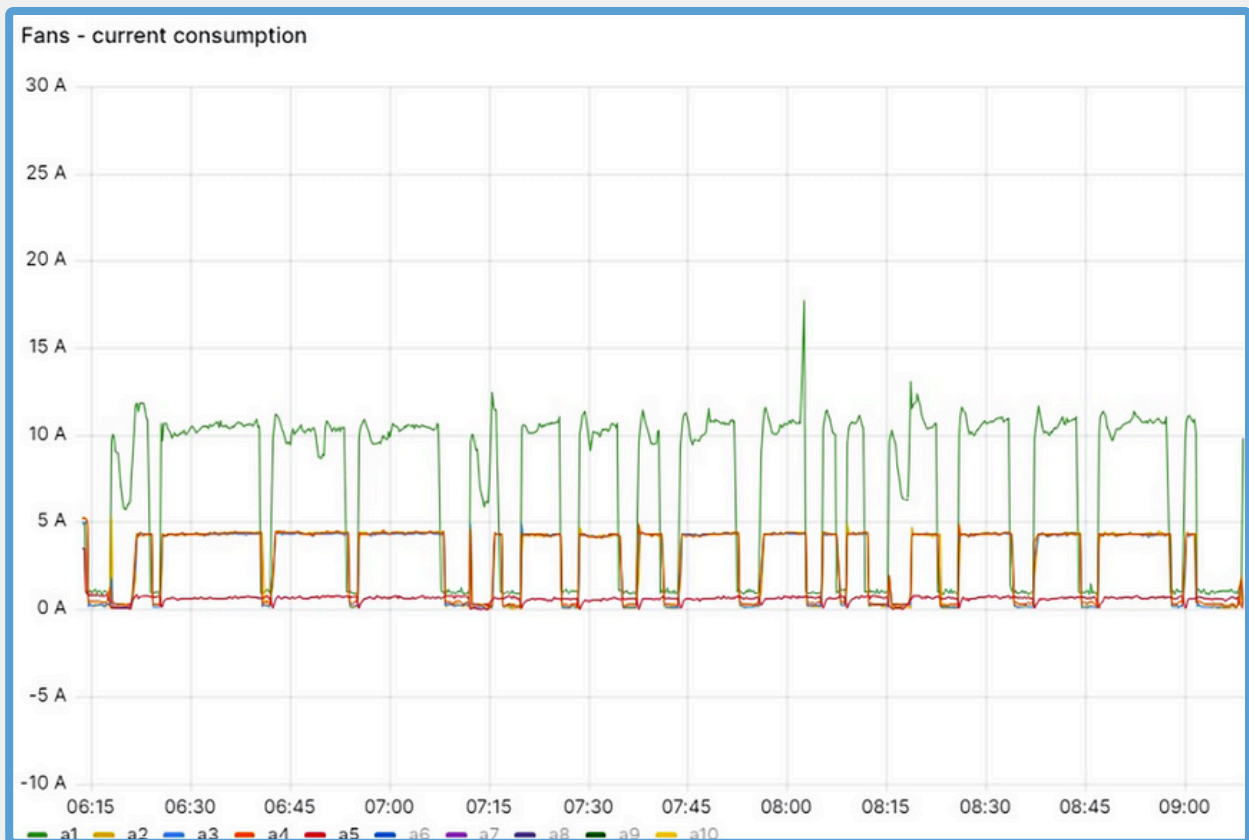


\*Headline of the cockpit of the NEQ veevue system including GPS tracking of the bus.



# Service Partner Advantages

- Optimization of the service business
- Basis for the development of predictive maintenance
- One system for all busses – possible to retrofit
- Add on services such as alarms and ESG data
- Easy to mount or replace components of the NEQ veevue system



\*Current consumption of evaporator and condenser fans on an electric bus in Scandinavia.

# Credentials

- Initial development project started in 2019 with the assistance of Force Technology
- Test project with customers in Scandinavia on diesel busses, electric busses and on trains
- Currently the NEQ veevue monitoring system is a major part of an EU funded project, examining the impact of a malfunctioning HVAC system on the overall power consumption on electric busses
- First commercial order for over 150 city busses is being installed in the Copenhagen area since March 2024

## Test sites for vee vue:

- Copenhagen
- Oslo (busses and trains)
- Hagesund (Norway)
- Jönköping (Sweden)
- Trelleborg (Sweden)
- Bodø (Norway)
- Bergen (Norway)
- Haderslev (Denmark)
- Tylstrup (Denmark)
- Venice (Italy)
- Thessaloniki (Greece)
- Dubai (UAE)



# Getting started

- Subscription fee each year per unit
- Prices from 350,- Euro per year for A/C - Heat Pump systems
- Prices from 265,- Euro per year for diesel heaters
- Sales and handling support through our premium partner network in Europe
- No additional fee for firmware and software updates
- Three levels of system information:
  - Basis level incl. 2 yearly service reports
  - Alarm level including 24/7 monitoring of HVAC systems incl. online alarms
  - ESG level incl. data for ESG reporting on power consumption, CO2 equivalents due to leakages etc.
- Free online support



**Let's talk maintenance!**

# vee vue packages

Description	veevue basic	veevue alarm	veevue ESG
Cleaning of roof unit	Add-on	Add-on	Add-on
Replacement of air filters as needed	Add-on	Add-on	Add-on
Checking refrigerant level	✓	✓	✓
Efficiency check of cooling system	✓	✓	✓
Checking blower power consumption	✗	✓	✓
Service documentation twice a year	✓	✓	✓
Service documentation on demand	✗	✓	✓
Optimization of workshop time usage	✗	✓	✓



# vee vue packages

Description	veevue basic	veevue alarm	veevue ESG
24/7 monitoring and control of the entire A/C system	✗	✓	✓
Alarm in case of system malfunction	✗	✓	✓
Leakage alarm	✗	✓	✓
Remote troubleshooting during operation	✗	✓	✓
Guided troubleshooting assistance for the workshop	✗	✓	✓
Prioritization order for bus repairs	✗	✓	✓
Optimization of power consumption	✗	✗	✓
Predictive maintenance	✗	✗	✓
ESG reporting on power consumption and CO2 emissions	✗	✗	✓