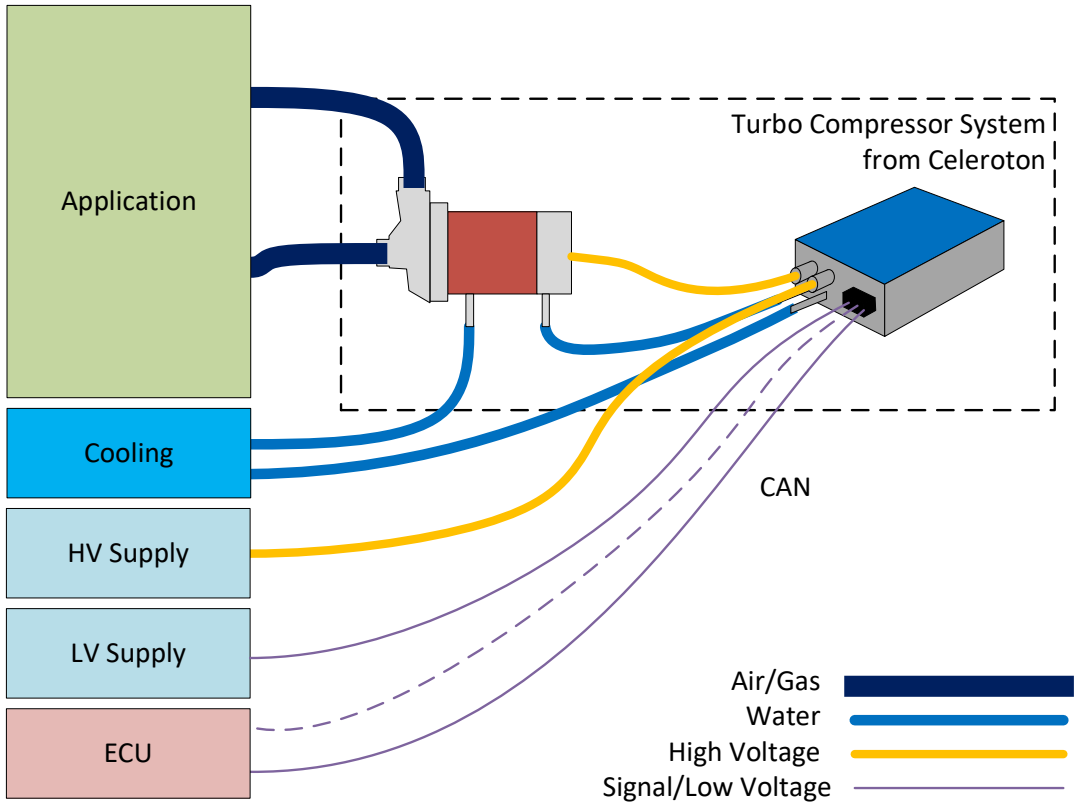


Typical mobile application

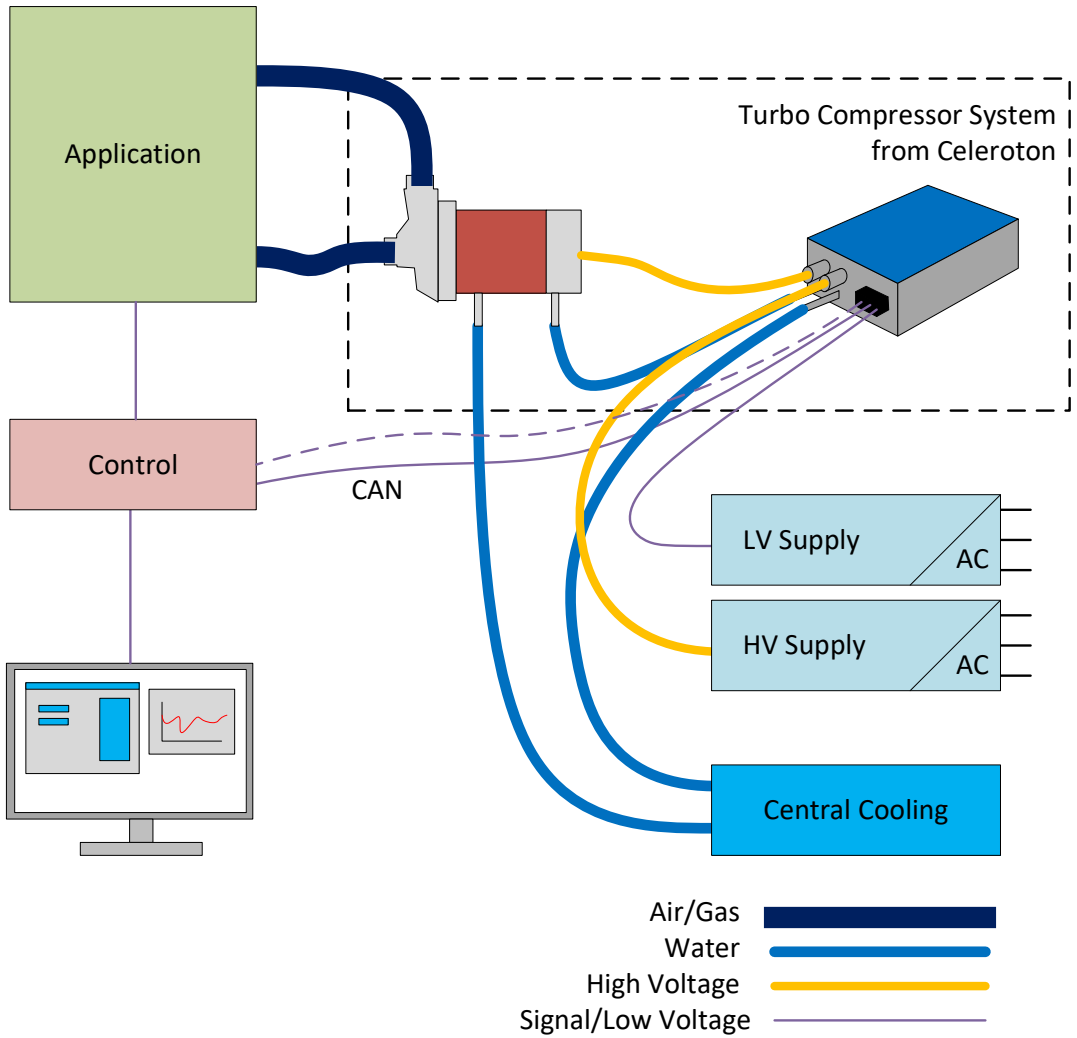
In a mobile field application, the compressor system is typically integrated seamless into the application. Space and weight constraints are more significant than in a laboratory setup and the system integrator tries to combine as many auxiliary components as possible.

1) **Cooling**
Mobile compressor applications often already have a cooling system in place to cool other parts of the application. If this cooling system is compatible with the compressor system, it is integrated in the existing cooling.

2) **Power Supply**
Mobile compressor applications always have some electrical power source, dominantly batteries. The converter is connected to the best suited existing power source, which can be the battery or any other high voltage bus in the system.

3) **Control**
The application with its actuators and sensors is most of the time controlled by an electric control unit (ECU). In many mobile applications, this ECU implements a mass flow controller which then sets the speed set point of the compressor in conjunction with some other actuators in order to control a certain mass flow through the application.

4) **Safety**
Mobile applications often are already equipped with a safety loop (interlock). The compressor is then directly integrated in the existing safety loop.



Typical industrial application

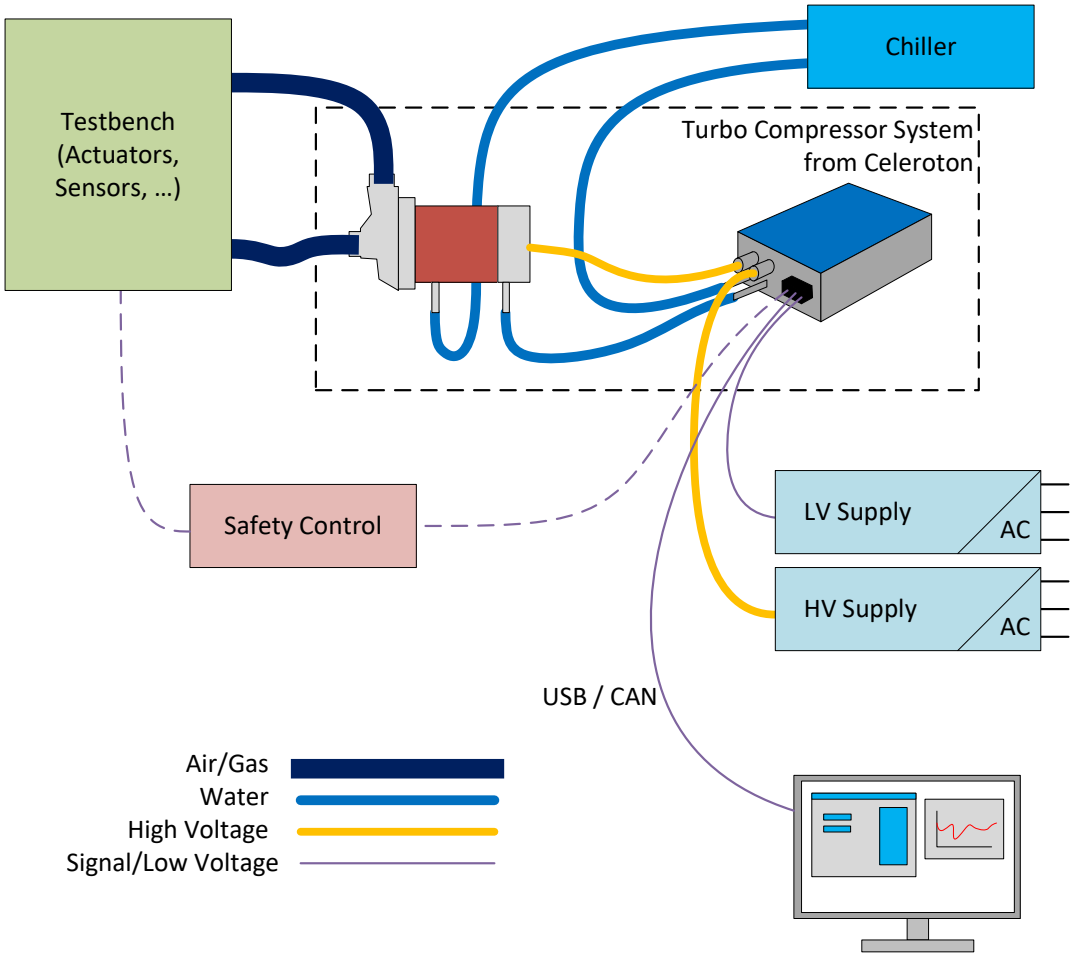
Industrial applications are predominantly stationary. Multiple applications are operated in parallel sharing multiple resources such as cooling and power supply.

1) **Cooling**
In industrial applications often a central cooling is present which is used to cool the compressor system.

2) **Power Supply**
IIn industrial applications, the compressor system is supplied by an industrial fixed-voltage AC/DC converter connected to the grid. In some cases, this converter supplies a high voltage bus shared by several applications.

3) **Control**
A programmable logic controller (PLC) controls the compressor system together with the process cycle of the application. The compressor system can be connected to the PLC via a field bus or other signals such as a serial interface or digital/analog inputs and outputs.

4) **Safety**
If desired the interlock circuit of the compressor system can be integrated directly in safety loop of the application.



Typical laboratory / test bench setup

The schematics on the left-hand side shows a typical laboratory setup featuring a turbo compressor system from Celeroton. Besides the high-speed turbo compressor and the frequency converter, some additional equipment is required to operate the test setup:

1) **Cooling**
A chiller is required to dissipate the heat from water cooled systems. For air-cooled systems, sufficient air circulation needs to be ensured.

2) **Power Supply**
A power supply providing the right voltage and sufficient power for the compressor system needs to be connected to the drive converter. Some converters additionally need a low voltage supply for powering the auxiliary.

3) **Control**
A PC running the software for controlling and monitoring the compressor system and test bench is required. The speed set point of the system can be provided by either using USB and the CelerotonPilot software or using a field bus, e.g. CAN, with a corresponding adapter and a custom software solution such as LabVIEW™ from National Instruments.

4) **Safety**
The high voltage compressor systems can be connected to an interlock circuit to prevent hazardous operation of the system in case of an unsafe state of the test setup.