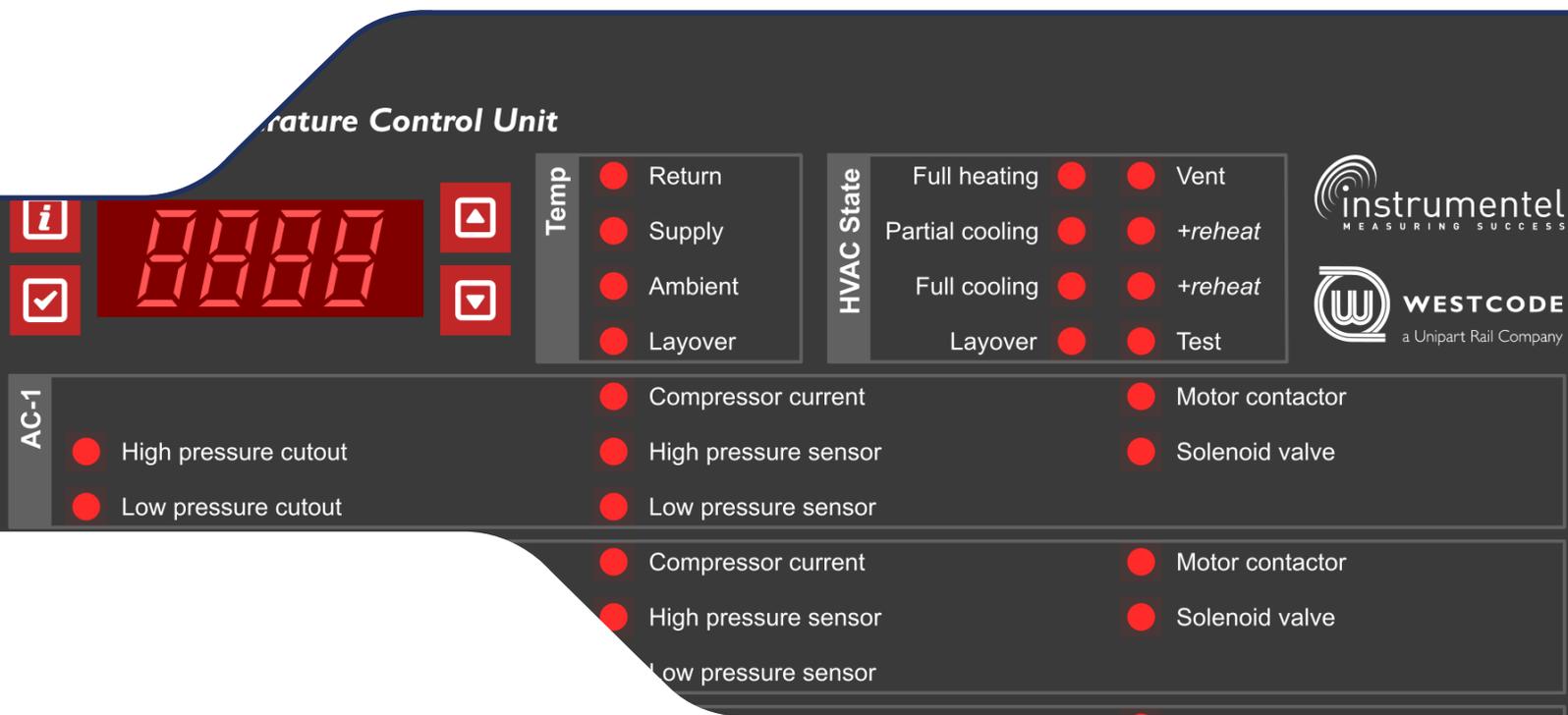


# Temperature Control Unit (TCU)

Controlling Heating Ventilation and Air Conditioning (HVAC)

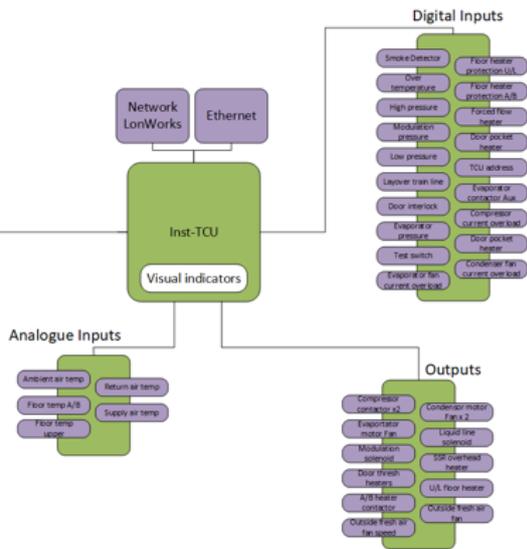


The Temperature Control Unit (TCU) system is designed to control the Heating Ventilation and Air Conditioning (HVAC) system of a rail vehicle and provide real time condition information on the current state of the HVAC operation.

Taking inputs from the various feeds within the HVAC system, the TCU aggregates and performs diagnostics on the incoming data with outputs to the required components.

Data is also be transmitted to Instrumental servers (via existing or integrated on-board networking systems) where analysis will be performed to alert for any maintenance requirements.

# System Overview



The Instrumental TCU is a multi input / output control unit suitable for processing information from HVAC sensors and providing outputs to drive the HVAC peripherals.

Capable of running from a wide input power supply range of 24-90V with a nominal voltage of either 37 V or 72V, depending on the customer's installation requirements. Other supply voltages available on request.

The inputs are connected to terminal blocks featuring at the edge of the enclosure which houses the electronics but also contains the indicator panel which gives status information about the various inputs and their current states.

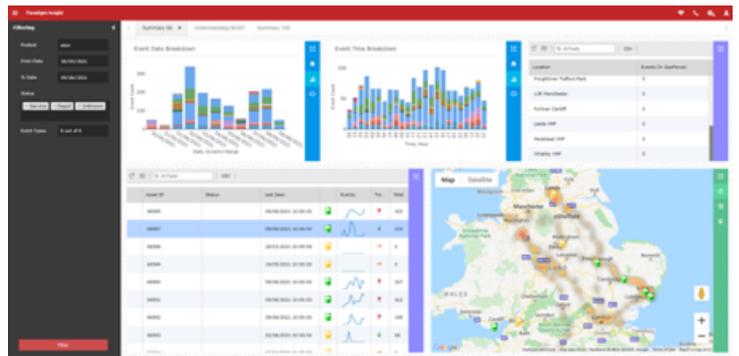
Utilizing network connections, the unit can communicate to other devices on the same network as well as receiving updates to the system when required.

Ethernet functionality is also included to allow remote network capability for diagnostics and condition monitoring.

Instrumental servers aggregate and perform diagnostics on current data streams with input from the back-end system where historical data will be trended to find typical fault signatures.

Individual measurements of single environmental parameters may give some meaningful information, however, coupled with the additional profiles from the various signals being monitored, this gives rise to rich predictive indicators.

Algorithms on the server perform analytics and visualization of the data, providing information to Westcode and their customers to inform maintenance and fault finding via Paradigm Insight, with access from any device with an internet connection.



Paradigm Insight is able to provide notifications to users via email or text message when intervention is required.

