



**AIR TECH
SYSTEMS**

A background graphic for LTG Comfort Air Technology featuring light blue wavy lines on a gradient blue background.

LTG Comfort Air Technology

A background graphic for LTG Process Air Technology featuring a large, light blue arrow pointing upwards and to the right on a gradient background.

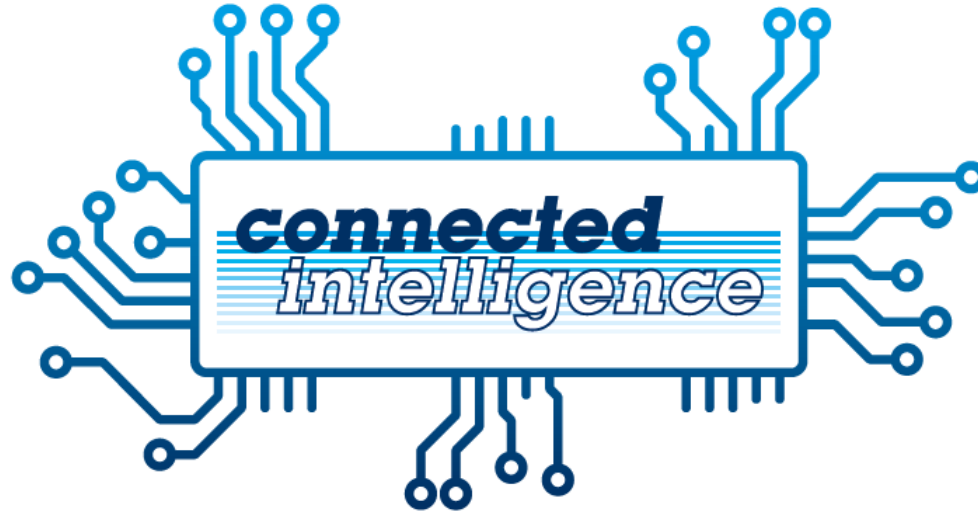
LTG Process Air Technology

A background graphic for LTG Engineering Services featuring a white paper airplane flying across a blue sky with clouds.

LTG Engineering Services

LTG Connected Intelligence

**Innovative Integrated Modbus-Control-Board
on LTG Air-Water-Systems**



Modbus

Modbus is available as IP and MSTP

It is an open Bus-System

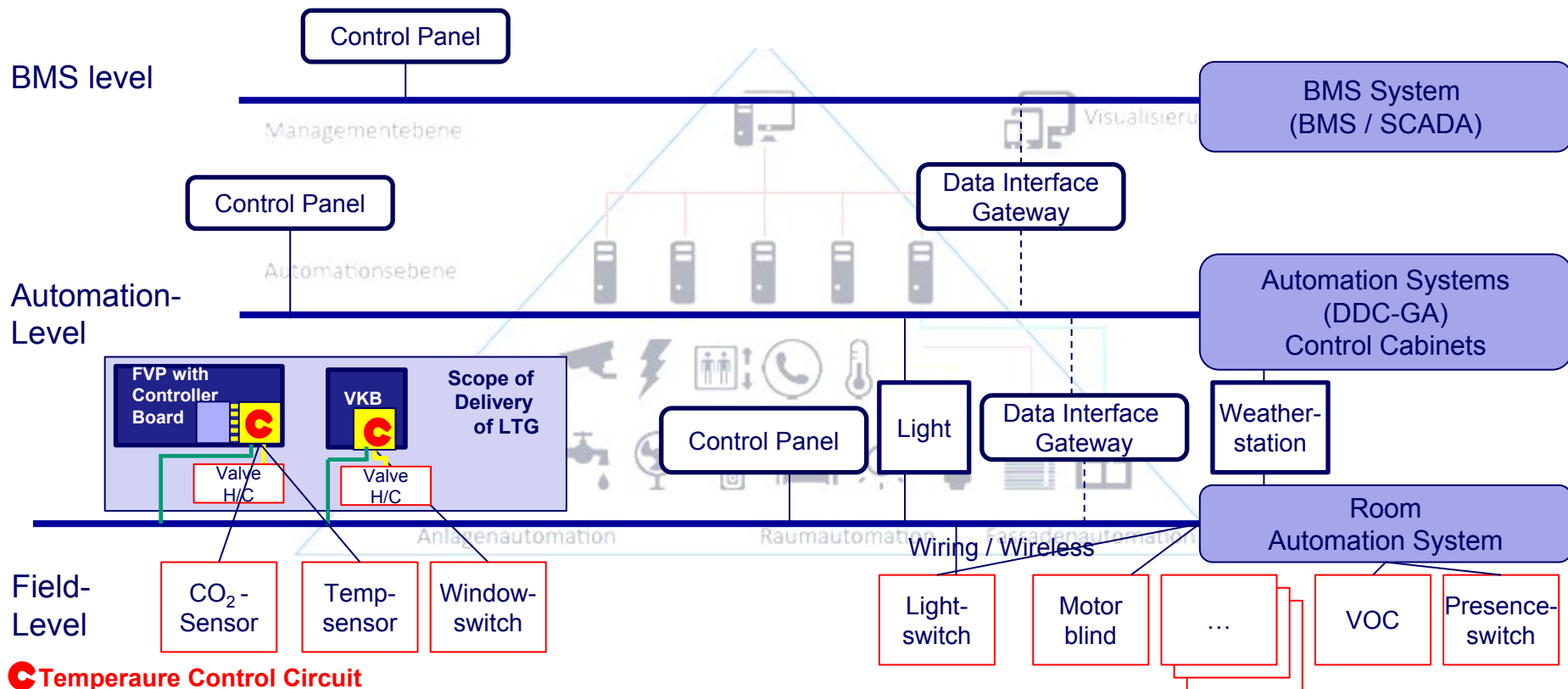
**Popular Bus-System for all part of
Building Services**

Almost Standard at field level

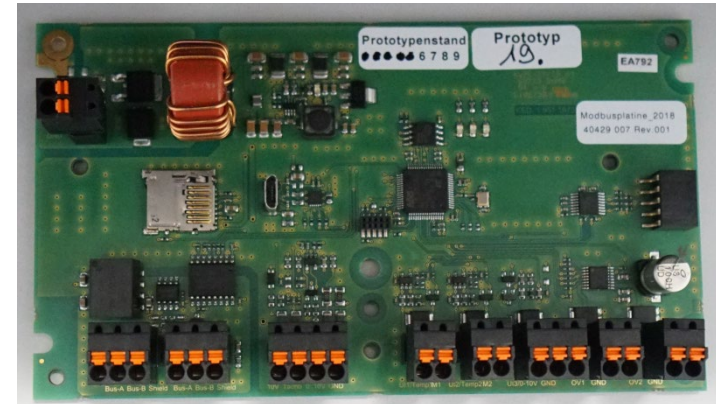
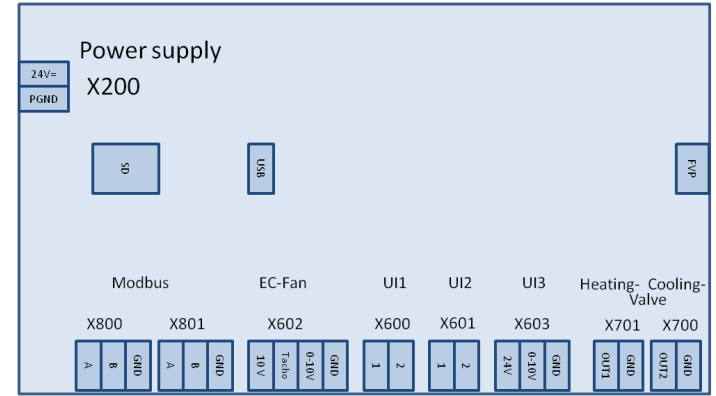
Since 1979



Design of a BMS with Connected Intelligence

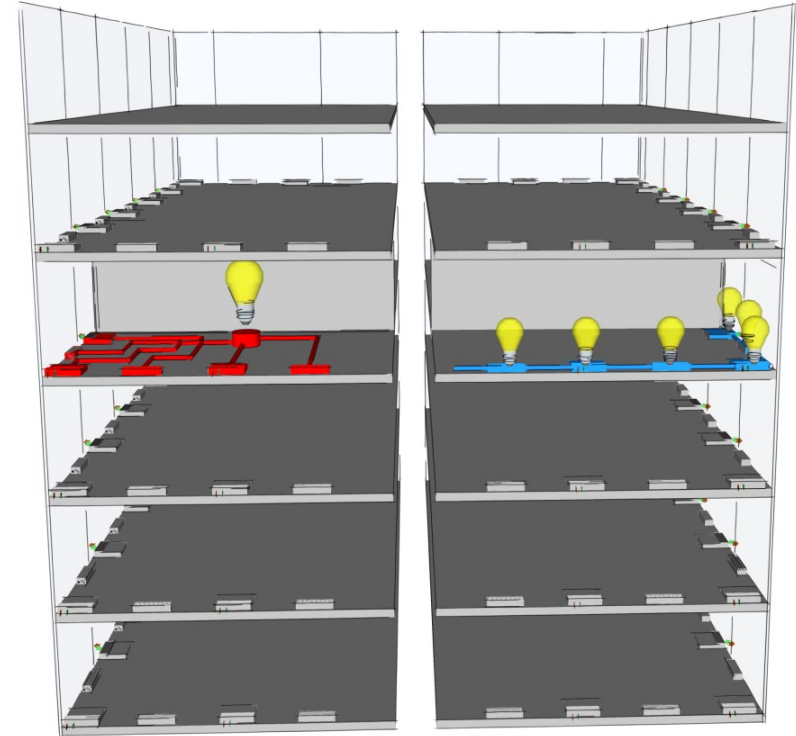
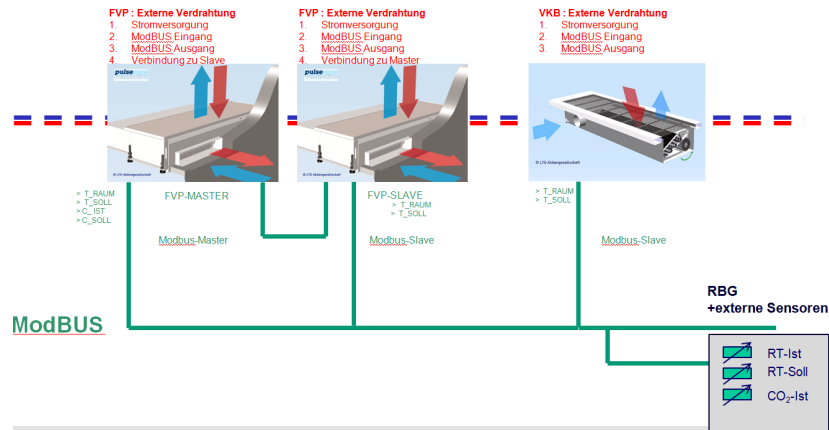


Integration and Clip-On-Board
24 VDC (Direct Current) Supply
Direct Wiring of Valve Actuator
Connection of up to 3 sensors
(Temperature, CO₂, Condensate,...)
Quick Parameterisation with SD-Card



1) LTG System as Stand-Alone-System

For small control zones without superior BMS system it is possible to link the LTG units with connected intelligence and to activate the Master function on one of the control board. The Master board receives information from the control panel and distributes the information to the slave boards. The units with the slave boards control the room temperature and air quality automatically.



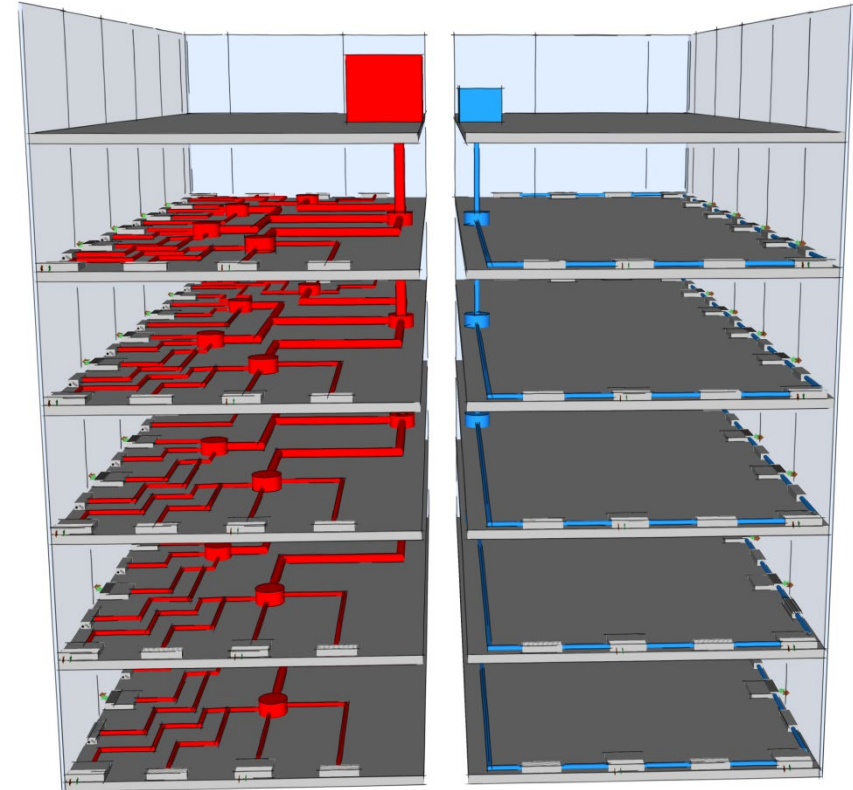
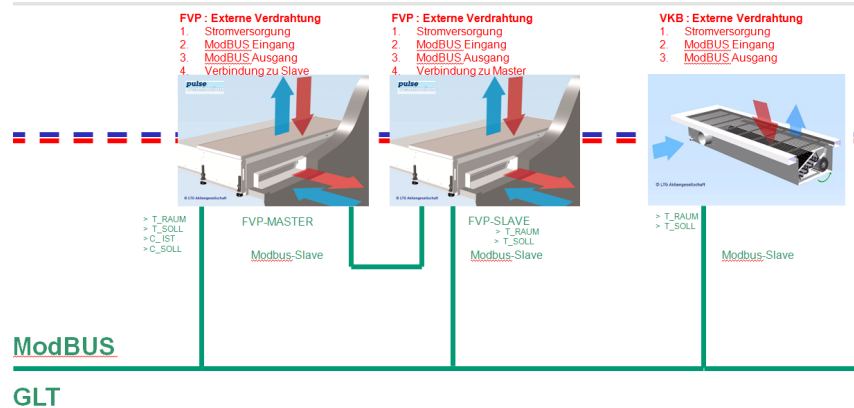
2) LTG System connected to BMS

Normally the LTG control board communicates with a superior BMS system.

The BMS system manages the classification of the control zones.

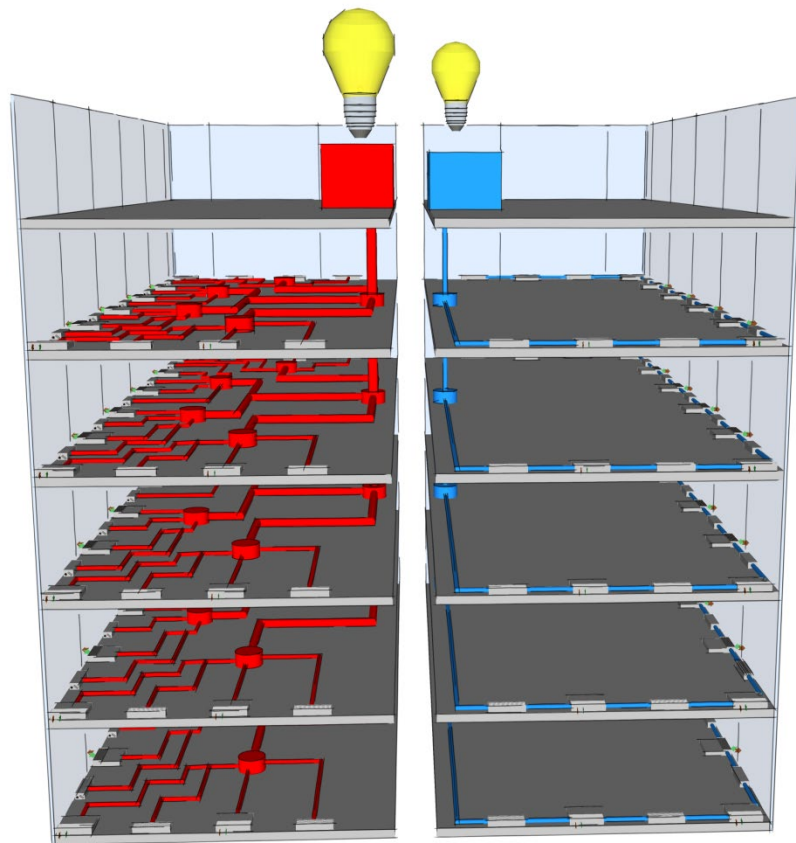
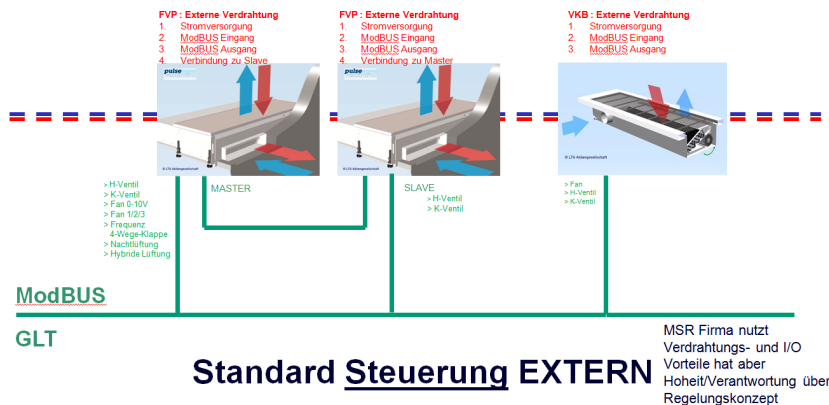
It reads information from the control panels and sends set values to the slave units.

The slave units automatically control room temperature and air quality (CO₂).



3) LTG System controlled by BMS

The superior BMS system processes all control circuits and monitoring functions. The control boards forward the control commands to the valve actuators and the fan. The responsibility for the control method and control quality is put on the BMS system.



- **Reduction of the total control costs**
- **Lower wiring effort**
- **Reduction of data points**
- **Reduction of costs for DDC units with less expensive integrated control boards**
- **Shifting of control setup costs from construction site to factory**
- **Controls designed by the manufacturer of the unit who has the best knowledge of the product**
- **System is simply scalable**
- **Open Bus communication, non-proprietary**
- **Modbus is a standard system – it is known on the market and can be combined with other brands / units**
- **Simple integration in existing systems**
- **Connection of various sensors possible: Water supply temperature, outside air temperature, room air temperature, supply air temperature, condensate sensor, CO2 Sensor, presence switch, window switch**
- **Shared information of the sensors connected with one unit to the whole zone**
- **Retrofitting of existing units possible**
- **Isolated application / stand-alone-system possible**

- Refurbishment of part zones in the building is easily possible – connecting to the BMS system is not required.
- Special Functions of LTG Units like Building Cross Flow Ventilation, Hybride Ventillation can be easily provided with LTG control system.
- System can also be connected to KNX or Bacnet with special gateways.
- Each zone can be controlled according to demand.
- Operation data is available for every single unit.
- Completely free in the configuration of zones. It can be changed later on easily without changing any wiring.
- Intelligence is decentral. If one unit fails all other units are still working.
- Small Load on the network as minimal information is required in the BUS-system (Room Air Set Temperature, Actual Room Air Temperature, Operation Mode, CO2-Content).
- If necessary LTG units can be reconnected to BMS after installation.
- Additional sensors can be installed subsequently.
- Long Terms Monitoring, Data logging, Data Mining possible.

**Innovative Solutions
for Humans and Products.**



**AIR TECH
SYSTEMS**



www.LTG.de

LTG Aktiengesellschaft

Grenzstr. 7
70435 Stuttgart
Deutschland
Tel.: +49 (0) 711 8201-0
Fax: +49 (0) 711 8201-720
info@LTG.de
www.LTG.de

LTG Incorporated

105 Corporate Dr
Spartanburg, SC 29303
USA
Tel.: +1 (864) 599-6340
Fax: +1 (864) 599-6344
info@LTG-INC.net
www.LTG-INC.net