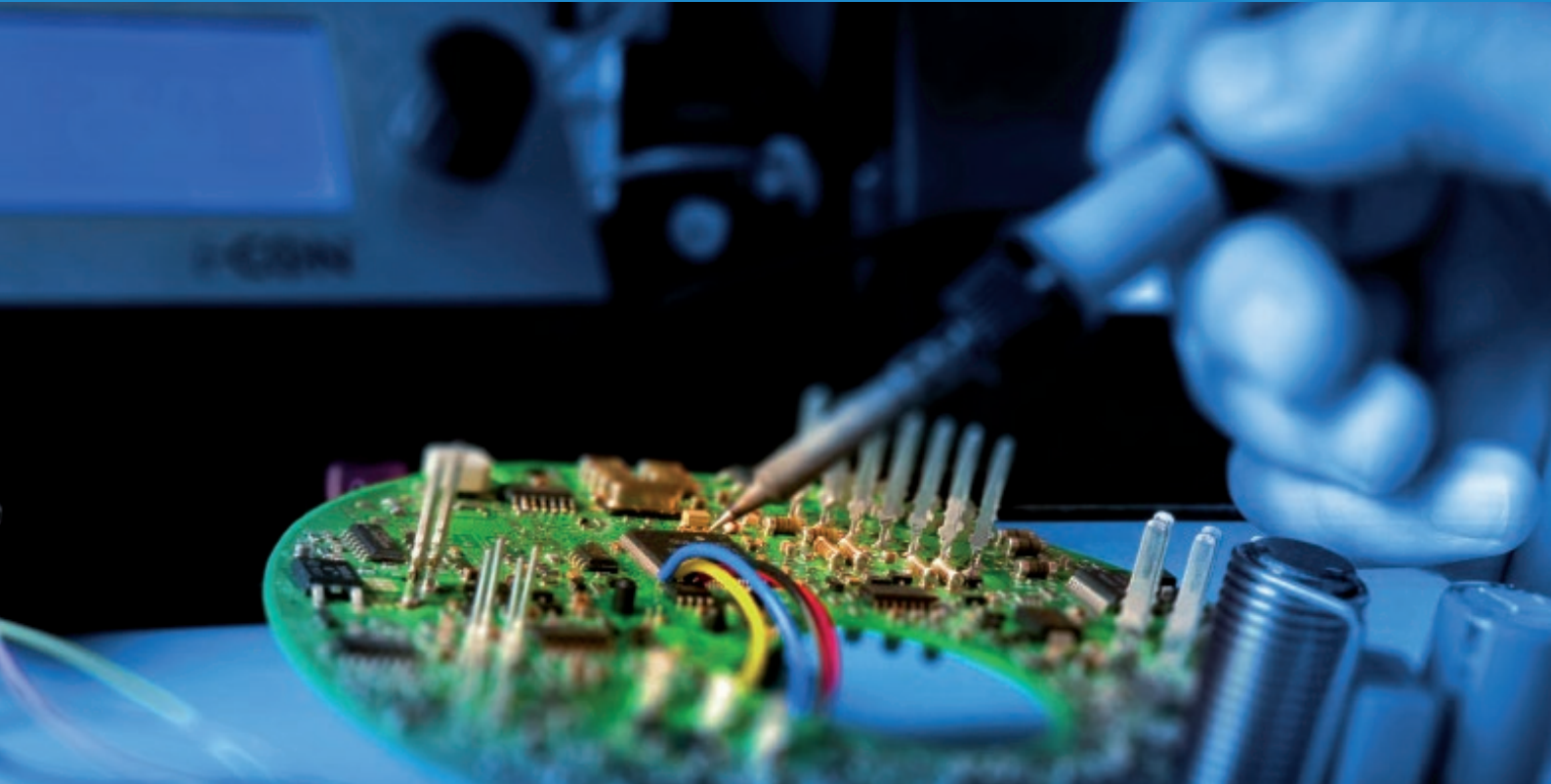


Electronics expertise and climate management

Control Systems



**Cooling, heating ventilating:
We manage it all!**



Our design and development processes are oriented to the recognized SPICE model.

► Our control units

The requirements of tomorrow lie in the intelligent networking of HVAC components in buses – this we realised at an early stage and have consciously invested in the expansion of our competence in the electronics sector.

A whole range of innovative products have emerged in the past few years. Our latest climate controls can already be employed cost-efficiently.

Examples are the LIN bus-based hatch control, likewise the CAN-based diagnosis for the Thermo S heater. The air conditioning systems are equipped with sensors and speed-controlled fans which are developed to our specifications.

► Intelligence for the bus climate

Intelligence and thermal management are of crucial importance where the control of all components responsible for optimum bus climate is concerned.

Efficient, error-free management of the component hardware is backed up by intelligent software. Climate control of the future will incorporate an increasing number of extremely complex components for reading out and evaluating the vehicle's operating status.

For us and our customers this sophisticated form of thermal management is the most important task of a state-of-the-art bus air condition system – today and in the future.



Individual air conditioning control:
a joy for the passenger

ONLY PASSENGER DEPARTMENT

SC 100



Area of application

AC ROOF

SCI 300



Area of application

AC ROOF

SC 400 / 410



Area of application

AC ROOF

FLOOR OR ROOF HEATING

Convenient control unit for all bus types

- Hardware, software and mechanical design by Spheros
- Easy control of brush fans and blowers
- Available only together with relays board

12 V / 24 V

Citysphere climate control units for city buses

- Outside temperature controlled
- Fully-automatic control
- On-board diagnosis with error code in display
- Use in temperate zone

24 V

Robust control unit for simple demands

- Hardware, software and mechanical design by Spheros
- Error code in display
- Water resistant front material (IP54)
- Available only together with relay board / brush fans & blowers

12V / 24 V



► Synchronous load thermal management

By “synchronous load thermal management” we mean demand-oriented control. The aim of this thermal management is to synchronise all components required for regulating the climate in the vehicle’s interior. It should also integrate them communicatively into the bus’s overall drive system, so that they always deliver an optimum level of performance irrespective of the operational profile and available energy.

The conservation of energy is the primary objective for achieving an increased vehicle driving range whilst maintaining the highest level of efficiency.

Spheros has been continuously stepping up its commitment in this sector and is resolutely positioning itself as a development and system partner for vehicle electronics and complete control in buses worldwide.



SC 1000 – integral control unit at the driver’s seat – for worldwide use.

SC 600



Area of application

- AC ROOF
- FLOOR OR ROOF HEATING

Convenient control unit for all bus types

- Hardware, software and mechanical design by Spheros
- Durable membrane keyboard made of extremely robust and water resistant material (IP54)
- On-board diagnosis with error code in display
- Efficient controlling of EC fans and blowers
- Support up to 3 substations

DRIVER AND PASSENGER DEPARTMENT

SC 1000



Area of application

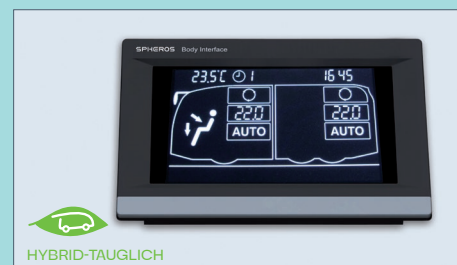
- AC ROOF
- AC FRONTBOX
- FLOOR HEATING
- ROOF HEATING
- AUX. HEATING TIMER

Complete climate control for higher standards

- Fully automatic control (heating/cooling)
- Separate controls for driver and passengers
- Integrated pre-selection timer for heating
- On-board diagnosis with error code in display
- Individual customization by parameterization using Spheros software
- CAN-bus-communication to up to 4 substations

AND FOR EVEN MORE

Spheros Body Interface



Area of application

- AC ROOF
- AC FRONTBOX
- ADDITIONAL DEVICE CONTROL
- FLOOR HEATING
- ROOF HEATING
- AUX. HEATING TIMER

Intuitive HMI for complex vehicle comfort systems

- Hardware, software and mechanical design by Spheros
- Modular concept
- Suitable for SC600, SC1000 and optional use for a 4,3” touch display
- Fully automatic HVAC control
- Integration into vehicle via separate CAN interface
- Connection of various Valeo system components possible
- Support up to 16 substations

Cooling, heating ventilating: We manage it all!



► Climate management competence centres

Our global development and competence teams are the creative workshops when it comes to optimum solutions in the field of control synthesis. Many years ago we realised that the future of bus air condi-

tioning – even more than in the manufacture of individual instruments – lies in conducting the entire 'orchestra'.
Take us at our word and see for yourself!

Digital Hatch Control



Operating unit controlling up to 4 hatches

- Professional design for intuitive operation
- Fully digital
- Memory function
- LIN bus-communication between operating unit and control module
- Multiplex controllable
- Compatible with all existing Spheros Parabus hatches
- Simple assembly
- Simple wiring
- Indicator lamp for the driver
- Automatic closing

Full-digital control unit

Spheros Control Preheater



Pre-selection timer for heaters

- Modern design, easily to read even under difficult lighting conditions
- Digital 7-day pre-selection timer
- Programming of different automatic starting times
- Real time clock
- Durable membrane keyboard made of extremely robust and water resistant material (IP54)
- Power failure bypass 72 hours

12 V / 24 V