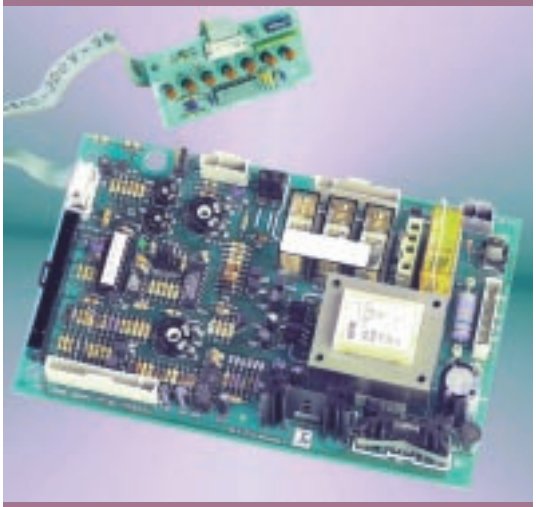
SIT Group

5 5 0 E C S



Electronic Control
System

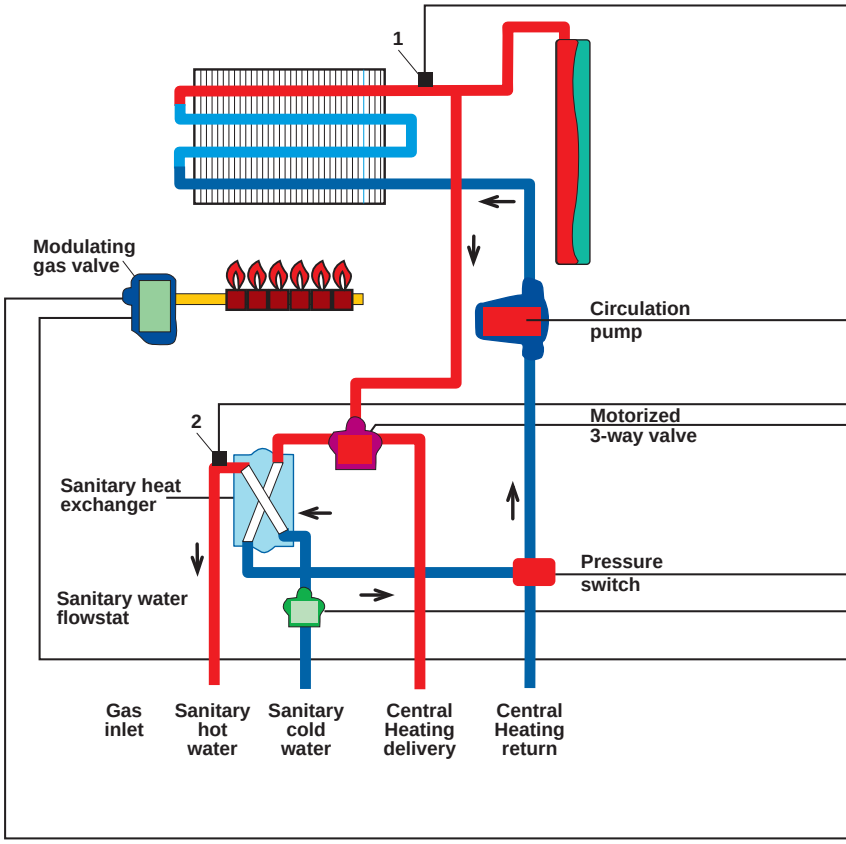
550 ECS

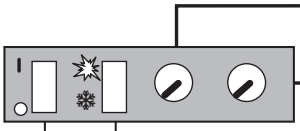
DESCRIPTION

GENERAL HARDWARE AND SOFTWARE FEATURES

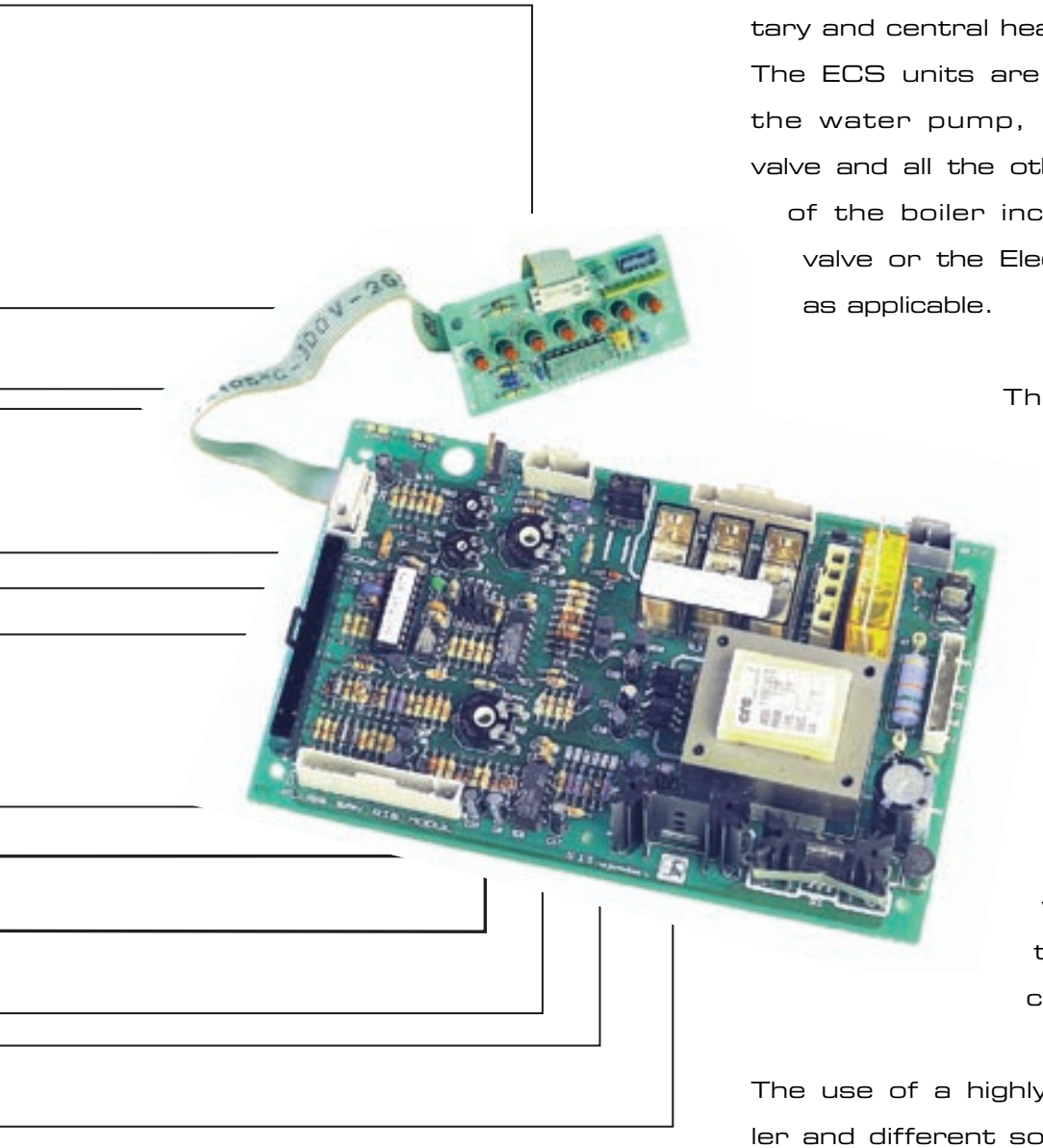
SERIAL COMMUNICATION INTERFACE

DESCRIPTION





SIT 550 ECS range of SIT Electronic Control System units are specifically designed to those applications which require a precise temperature control.
These units are particularly suitable for controlling the operation of domestic gas boilers that produce hot water for sanitary and central heating purposes.
The ECS units are capable of controlling the water pump, motorized three way valve and all the other electrical functions of the boiler including the gas supply valve or the Electronic Flame Devices, as applicable.



The units are designed according to the BUILDING BLOCKS CONCEPT.
Each function can be identified with a specific block and different blocks can be inserted into the board in a modular way to comply with the customer specifications.

The use of a highly reliable microcontroller and different software routines allows the quick writing of the boiler's programme which is simple to test and modify.

The advanced hardware and software design of the boards assure a high immunity against electro magnetic interference.

GENERAL HARDWARE AND SOFWARE FEATURES

BUILDING BLOCKS CONCEPT

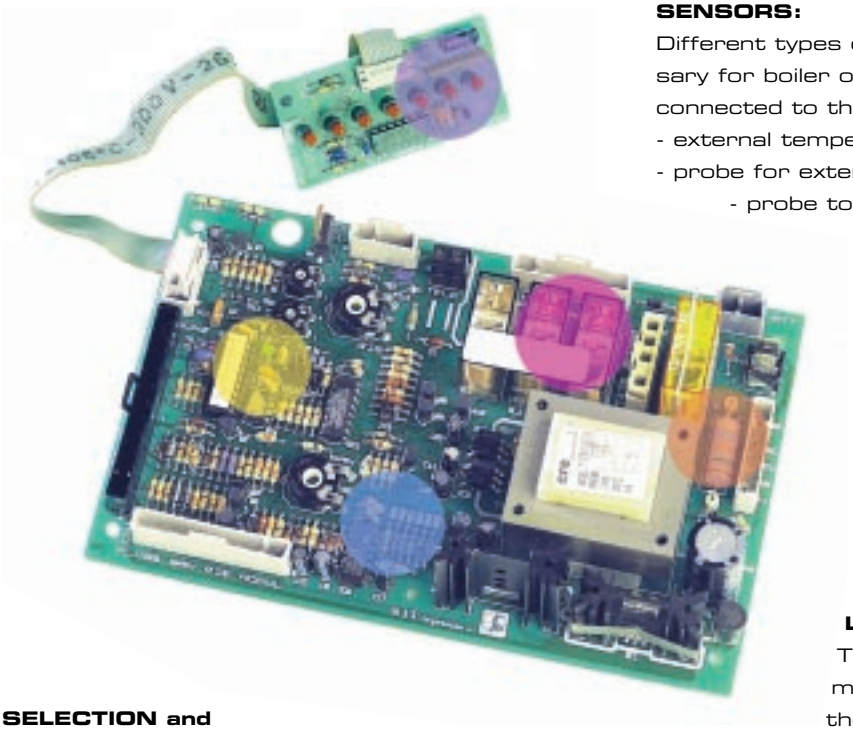
The BUILDING BLOCKS concept allows SIT to produce new ECS cards quickly and simply to the customer's requirements from standard parts using hardware and software tested modifications.

HARDWARE

Different hardware solutions are available to optimize ECSt realization for the customer's specific boiler:
temperature selector card or external potentiometer
- main switch and/or summer/winter selector on a card or as an external unit
- choice of different materials for making the printed circuit, which may be single or double-sided
- choice of different quick-coupling polarized connectors
- jumpers for selecting different functioning modes
- trimmers for setting different functioning parameters
- Serial Communication Interface

SOFTWARE

Different software routines may be connected in a modular structure to optimize boiler function or to insert functions corresponding to different boiler models on the same card:
- optimization of PID temperature regulating parameters
- anti-frost function
- anti-pump blocking function
- fault recognition and storage
- external storage of boiler parameters
- Serial Communication Interface



SENSORS:

Different types of sensors necessary for boiler operation may be connected to the ECS.
- external temperature probe
- probe for external temperature
- probe to measure combustion fumes
- flow sensor
- water, air, gas pressure switches

LOADS:

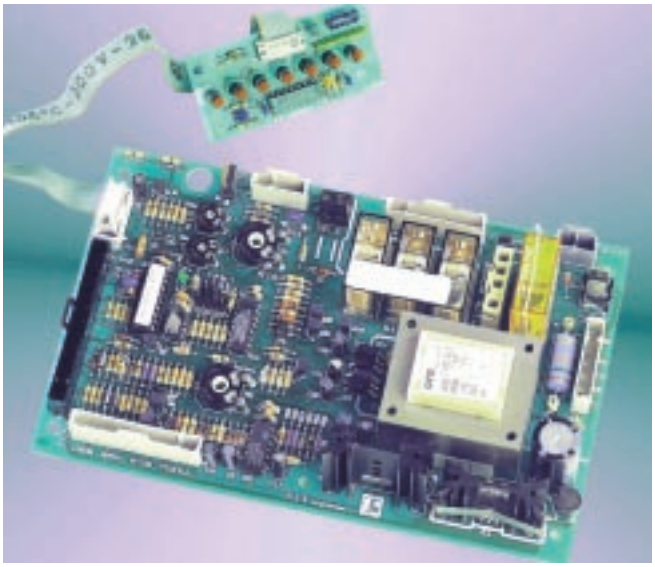
The cards are optimized for managing the electrical loads needed for operation of the specific boiler.
- gas valve or flame failure device
- fan and air pressure switch: 230 Vac or 24 Vdc
- 1 or 2 pumps: ON/OFF or modulating
- electrical or hydraulic 3-way valve: 230 Vac or 24 Vdc
- electrical modulating system:
  16 Vdc, 310 mA modulating coil
  28 Vdc, 165 mA " "
  230 Vdc, 25 mA " "
  in according with SIT NOVA and TANDEM modulating gas valves
- pneumatic modulating system: to be used with a variable speed fan and in accordance with SIT NOVA air/gas valves 828 or 822 1:1 ratio

SELECTION and VISUALIZATION BOARD:

A separated board can be supplied to be connected to the ECS and to interface the boiler with the user.
Many possibilities are available to select how the boiler must work and to visualize the status of the boiler.
The selection of:
- operational mode
- operation temperatures can be effected with selectors and/or potentiometers or with digital switches.

The visualization of:
- operation status
- operation temperatures
- diagnostics can be effected with L.E.D.S. or with display.

SERIAL COMMUNICATION INTERFACE



SIT HAS DEVELOPED AND PATENTED A SPECIFIC S.C.I. TO CONNECT THE E C S WITH EXTERNAL MICROPROCESSOR BASED UNITS TO:

- make a complete and automatic test of the boiler .

- display the instantaneous parameters of the boiler.

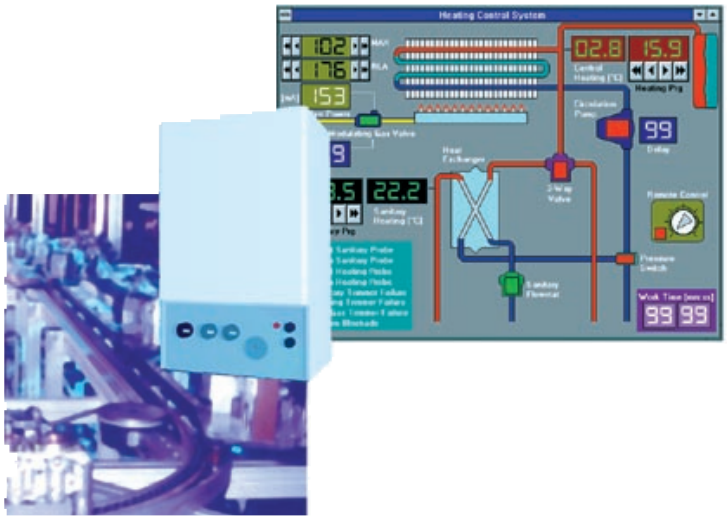
- store parameters inside a non-volatile memory.

- monitor with a specific modem the behaviour of the boiler during the field-test.

- store failures occuring during the boiler's life.

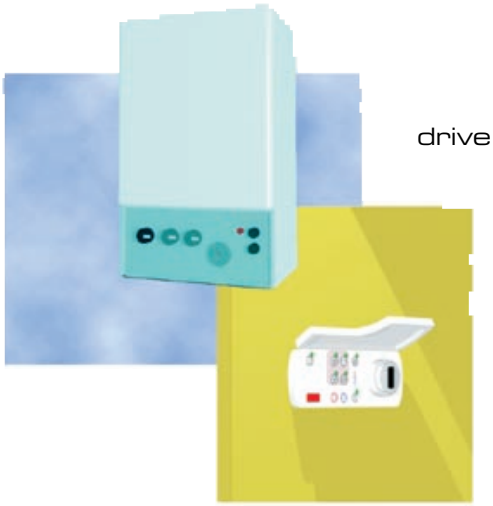
- drive the boiler with a remote control.

- record parameters inside a BLACK BOX for specialized analysis.



make a complete and automatic test of the boiler.

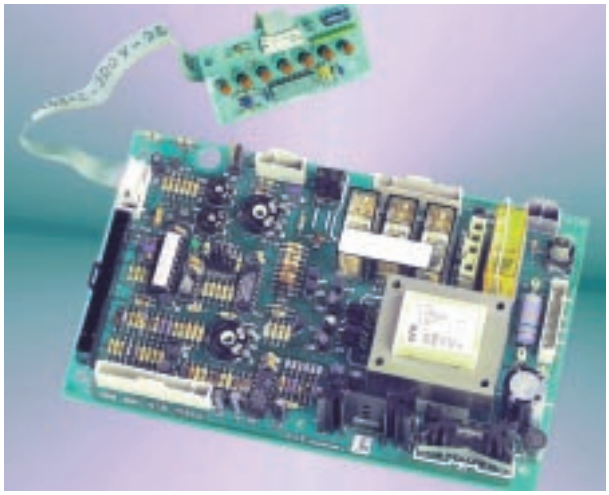
monitor with a specific modem the behaviour of the boiler during the field-test.



drive the boiler with a remote control.

The hardware and software design of the S.C.I. permits the connection of the E C S with only two non polarized low voltage wires.

5 5 0 E C S



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