

Heat Pump Controller



A product from Koloban SRL & Covers SA

Hardware

● Key functionalities

Sensors

- 4x PT100 temperature sensor
- SHT31 I2C humidity sensor
- Thermostat heat & cold
- Photovoltaic panel signal AC260V

Actuators

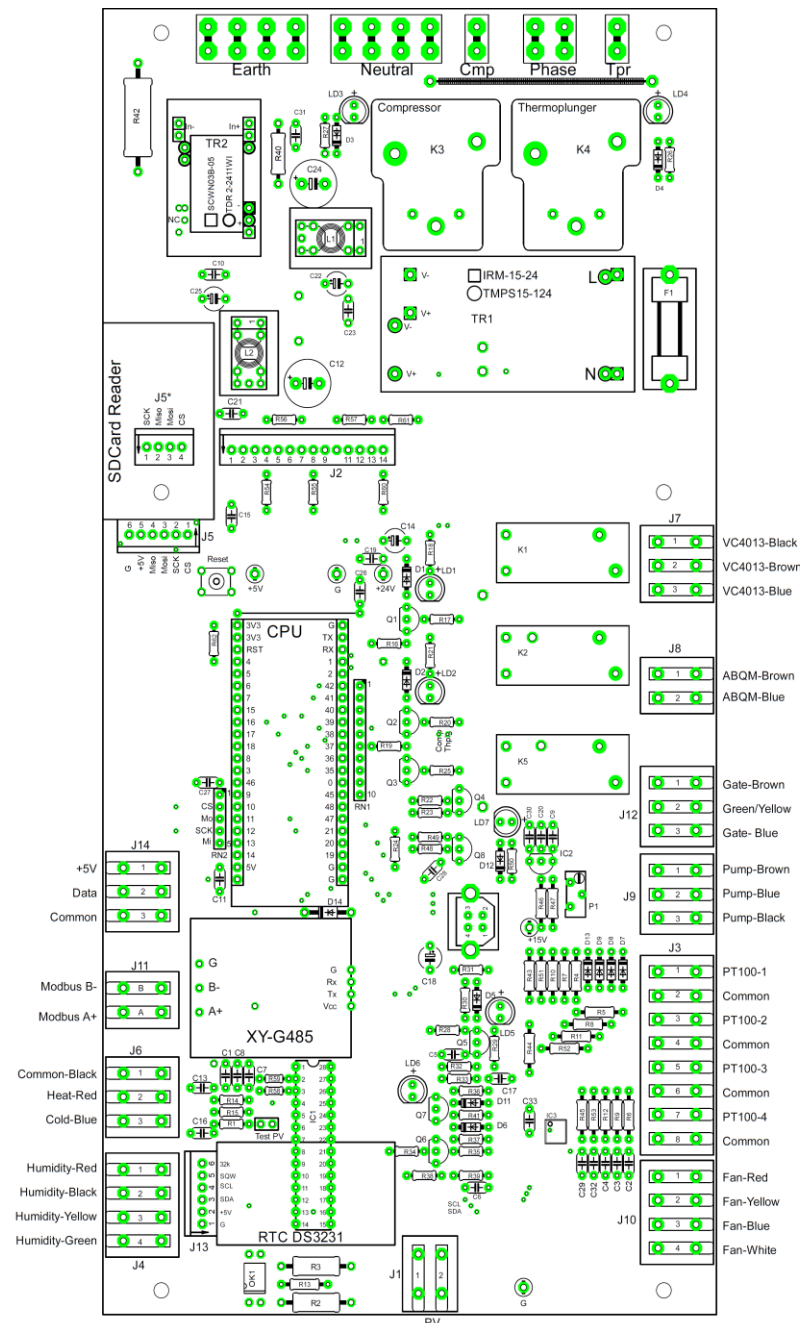
- Highly compressor 700W
- Kamenev Heating resistor 3000W
- 2-way valve Danfoss TWA-Q AC230V
- 3-way valve Honeywell SPST 2W+C AC230V
- EBM-Papst fan in PWM
- Grundfos Alpha1 L pump in PWM
- Damper control AC230V

● Scalable

- Expansion & scalability through daughter boards I2C, 1-Wire, Modbus, Wi-Fi, Bluetooth SD Card reader, USB update
- 32-bit processor, 2MB Ram, 8MB Flash, RTC clock

● Reliable

- Through-hole double layer PCB
- High quality components



3.5 inch colour screen
Capacitive touch panel



Phoenix MSTB
for low currents



Faston blade
For high currents

Software

● Key functionalities

- Fully supports all features of the electronic board
- Constant monitoring of thermodynamic circuit
- Control the system based on configurable rules (truth table)
- Heat & cool mode
- Photovoltaic & geothermal management
- Away & Boost function
- Configuration file & log mechanism
- GUI in multi-languages & support touchscreen
- Real Time Clock
- Network support

● Evolutive

- Modular approach to easily customize the software, including GUI, according to tailor needs.

● Reliable

- In-house design, development and tests following the best practices of IT Sector

Easy configuration & customization

Truth table in Excel format to easily modify the control rules

Rule n°	(A11) T° evaporator compared to defrost T°	(A12) T° evaporator compared to icing T°	(A13) T° low-level compared to setpoint sanitary	(I4) PV (on/off)	(Q1) Compressor (on/off)	(Q2) Fan (1V, 3V, 7V)	(Q3) B resist
1	Mode: Summer (thermostat is off)						
2	1	>	n/a	>	off	off	8
3	2	>	n/a	>	off	off	1
4	3	>	n/a	<	off	on	8
5	4	>	n/a	<	off	on	7
6	5	>	n/a	>	off	on	8
7	6	>	n/a	>	off	on	7
8	7	>	n/a	<	off	on	8
9	8	>	n/a	<	off	on	7
10	9	<	>	>	off	off	8
11	10	<	<	>	off	off	8
12	11	<	<	>	off	off	3
13	12	<	<	>	off	off	8
14	13	<	>	<	off	on	8
15	14	<	<	<	off	off	8
16	15	<	>	<	off	on	7
17	16	<	<	<	off	off	8
18	17	<	>	>	off	on	8
19	18	<	<	<	off	off	8
20	19	<	>	>	off	off	7

```
# INIT SYSTEM PARAMETERS
# maximum size of the log file in kb - when maximum size is reached, the log file is erased
log_file_name=log.dat
max_size_logfile=1024
log_level=0
messages_file=messages.csv
truth_table_file=truth_table_verso-V2.0.csv
default_language=EN
modbus=on
wifi=off
bluetooth=off
photovoltaic=off
thermostat=off
geothermal_circuit=on
# INIT CONTROL PARAMETERS
temperature_sanitary=55
temperature_heating=35
temperature_sanitary_away=25
temperature_heating_away=20
temperature_boost=70
humidity_percentage=90
temperature_defrost=1
```

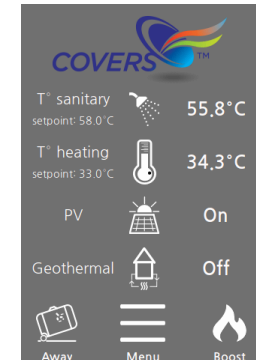
Text configuration file accessible to technician

Modular software architecture

Graphical User Interface

Core logic

Hardware drivers



Highly customizable GUI

Graphical User Interface

● Home

- Display current t° and set points
- Display current state of photovoltaic and geothermal
- Access to Main menu
- Direct access to Away & Boost menu
- Interchangeable logo

● Main menu

- Access to submenus to set end-user parameters
- Multi-languages (configured in Excel file)
- Set date and time (real-time clock)

● Away & Boost

- From 2 weeks to 1 year
- Boost up to 70°C



Contact us

Joachim Vandersleyen  +32 479 289 919

 joachim.vandersleyen@koloban.be

Bertrand Lotteau  +32 488 391 735

 bertrand.lotteau@koloban.be

David Verscheure  +32 493 571 027

 david.verscheure@coversheating.com

www.netsuflow.com