

Systems Controls & Instruments (UK) Ltd.

Manx House, Bousley Rise, Ottershaw, Surrey, KT16 0JX

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Multi zone system until 7 zones – PSMZ100/200 Series Owner's Manual - Installation and Operating Instructions

Please read this manual carefully before installation and use

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2. Options and features.
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1. Components

1.1 Main boards

- PSMZ100 - main board - until 4 zones
- PSMZ200 - main board - until 7 zones

1.2 Master units

- ETN-M100-PR - wall mount master thermostat.

1.3 Zones units

- ETN-Z100-PR - wall mount zone thermostat.

2. Options and features

- 2.1. The Master and the Zone units can be programmable or non programmable (the thermostats MUST be SCI type for Multi zone)
- 2.2. State of art thermostats , wall mount , very slim units or the last word in technology , Flush mount units.
- 2.3. The system has Auto change over (Cool + Heat mode), that means that the system can cool some of the zones and after heat others without changing the thermostats.
- 2.4. The thermostats have Set cool different than Set heat for comfort purpose.
- 2.5. The big display in the thermostats allows user to see the room temperature as well as the set temperature.
- 2.6. All the system can be select to Set back (Economy mode) by press one button in the master unit.
- 2.7 Single zone Set back (Economy mode) by press one button in the specific zone unit.
- 2.8 Each zone has Fan on or Auto-fan feature, that means that when the system (cool or heat) or not in demand you can have just fan into the specific zone .
- 2.9. Fresh air damper, if connected, the operation mode can be selected in the master thermostat opening by:
 - time (0-15-30-45-60 minutes)
 - temperature (need to connect T1 and T3)

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3. Options and features for technician

3.1 The main board "SUPER all in one" that means you can change at the last minute the configuration for the main board to suite the system:

- Heat pump or not.
- Fan electric or oil/gas.
- Heat pump active in cool "O" or in heat "B".
- Multistage - 2 compressor and 3 heat stages , connect what you need.

3.2 By pass output option, for logic See # 12

3.3 Hot connection for open or close damper. For logic See trouble shooting # 14.5

3.4 Quick connectors in between the main board and the thermostats. See # 6.1.3

3.5 Quick connectors for the damper connections.

3.6 Discharge sensor for freeze in cooling and over heat in heating. See logic temperature sensors # 6.1.5

3.7 Sensors for the fresh air damper. See logic temperature sensors # 6.1.5

3.8 Dampers connections and options. See # 6.1.4

4. Accessories

4.1. Temperature Sensor with 30 inches lead - Part No. TS01

4.2. Temperature Sensor in decorative box - Part No. RS01

4.3. Duct temperature sensor - Part No. DT02

4.4 Outdoor temperature sensor in sealed box - Part No. OST01

FOR DETAILS ON WHERE TO PURCHASE ACCESSORIES, PLEASE CONTACT SCI FOR YOUR NEAREST LOCATION OR VISIT OUR WEB SITE AT WWW.SCIUK.CO.UK

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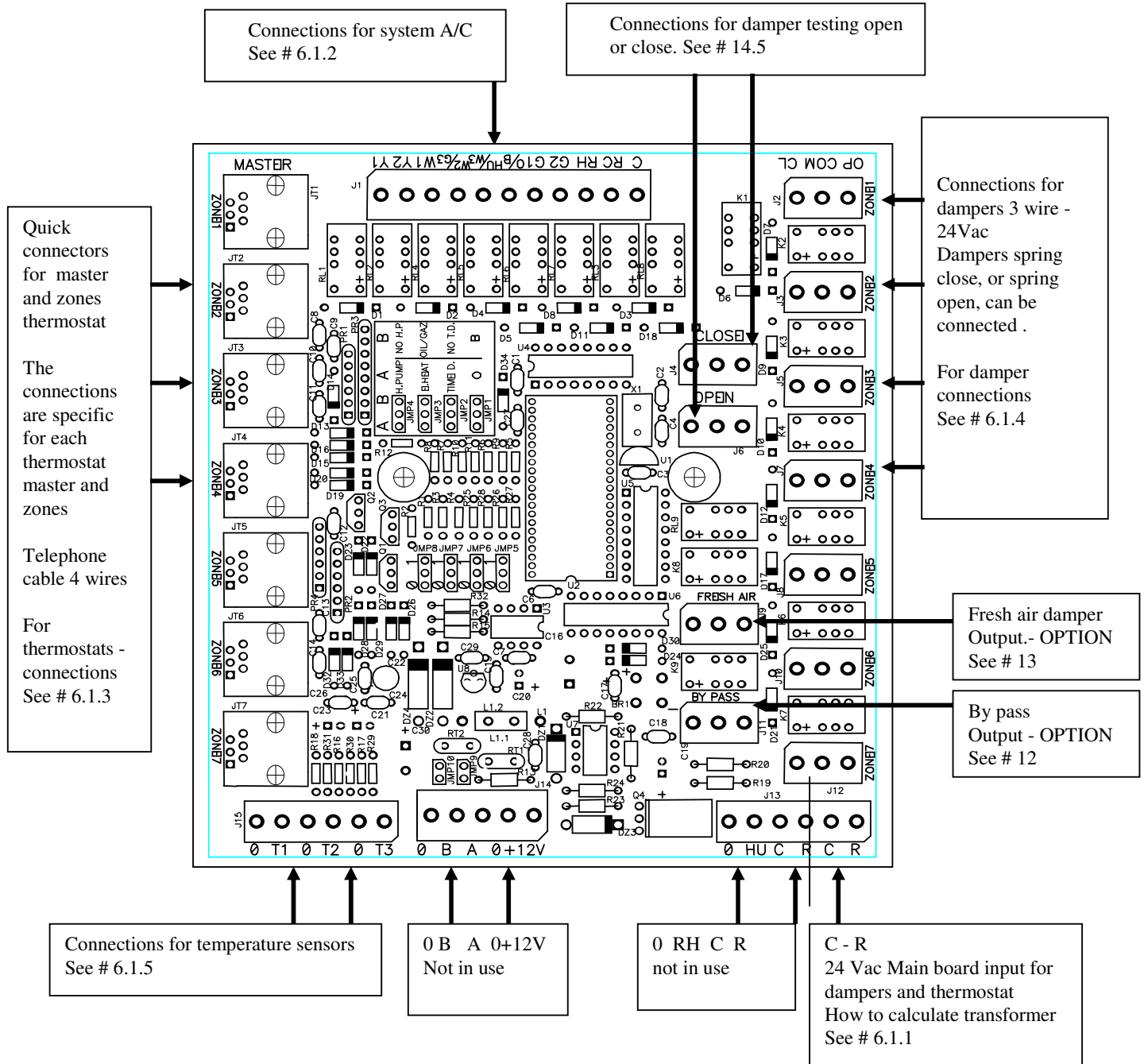
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5. Installation Instructions

5.1 .Main Board :

- The main board is install close to system (furnace).
- The main board need a 24Vac transformer. For calculating transformer sizes See # 6.1.1
- All the connections, dampers, thermostats, and system are connected to the main board (home run).

5.1.2 Layout of main board



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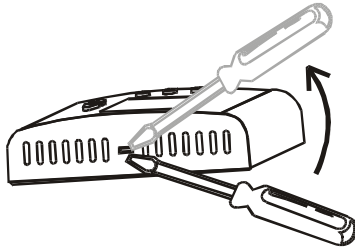
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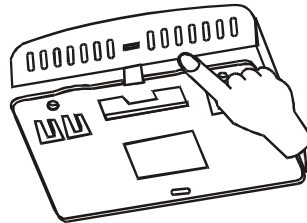
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5.2 ETN-master and zones

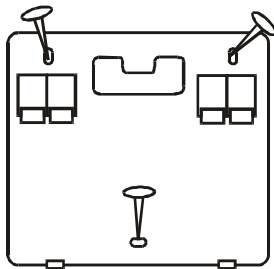
Important: It is very easy to open and handle after assembly on wall!



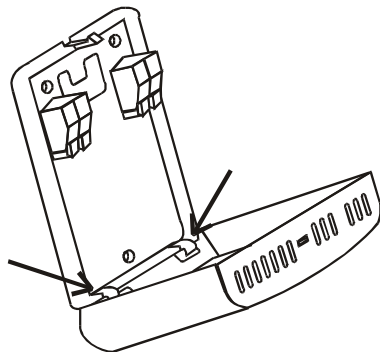
Separate the front panel from back panel by depressing the tongue located in the top of the unit.



Push the back panel out.



Line the back panel up against the wall or flat surface onto which it is to be mounted and drill in the appropriate screw holes.



Apply the cover to the base; first the two shafts and then the tongue.

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6. Wiring Connections

6.1 Connections for main board

6.1.1. Connection for the 24Vac for the Main Board - See layout main board # 5.1

The main board need 24Vac in order for the thermostat and the dampers to work.

Formula for the transformer sizes:

$$\begin{array}{rcl} \text{Main board + thermostats} & = & 6 \text{ VA} \\ \text{Dampers (number of dampers = } x \text{ current of each (amp) } \times 24) & = & \text{(see sample bellow)} \\ & & \text{-----} \\ & & \text{Total VA transformer} \end{array}$$

Sample:

$$6 \text{ dampers} \times 0.2 \text{ Amp} \times 24 \text{Vac} = 28.8 \text{ VA}$$

6.1.2. Connections for System.

This zoning system is multistage, that means that the stages are bring on by differential of ONE thermostat.

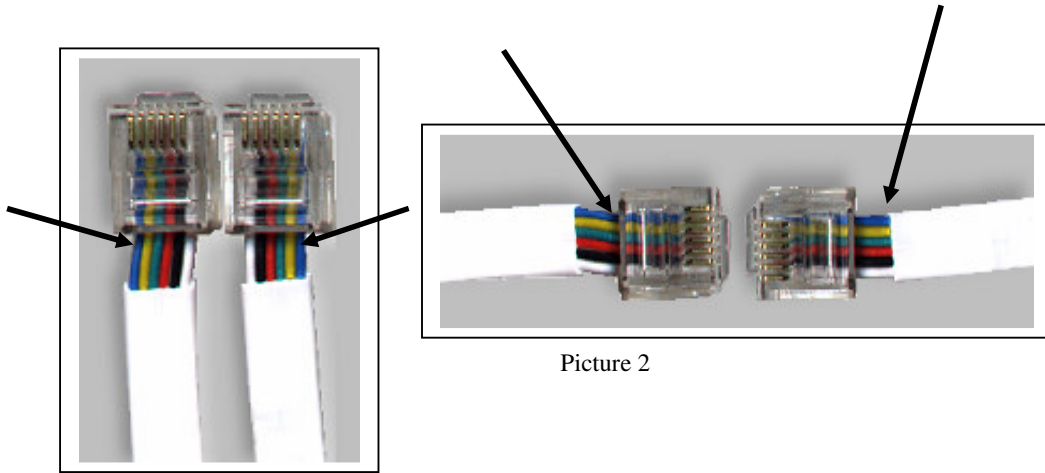
If you have a 1 heat, 1 cool system your connections are:

6.1.3. Connections for thermostats

The connections in between the main board and the thermostat is by Telephone Jack.

This is a 4 wire cable. (can be used also 6 wire cable, the extra wires do not affect the system)

The picture bellow shows the connections.



Picture 1

Picture 2

The connections are reverse you can see the blue wire, (arrows) when you hold both of the Telephone jack in the same way, the blue wire is the RIGHT, and the other on the LEFT. (Picture 1)

If you hold the telephone jack one in front of the other, the blue wire is one in front of the other. (Picture 2)

Connection in the main board

The connection for the master unit (same as Zone 1) in the main board, is clearly marked.

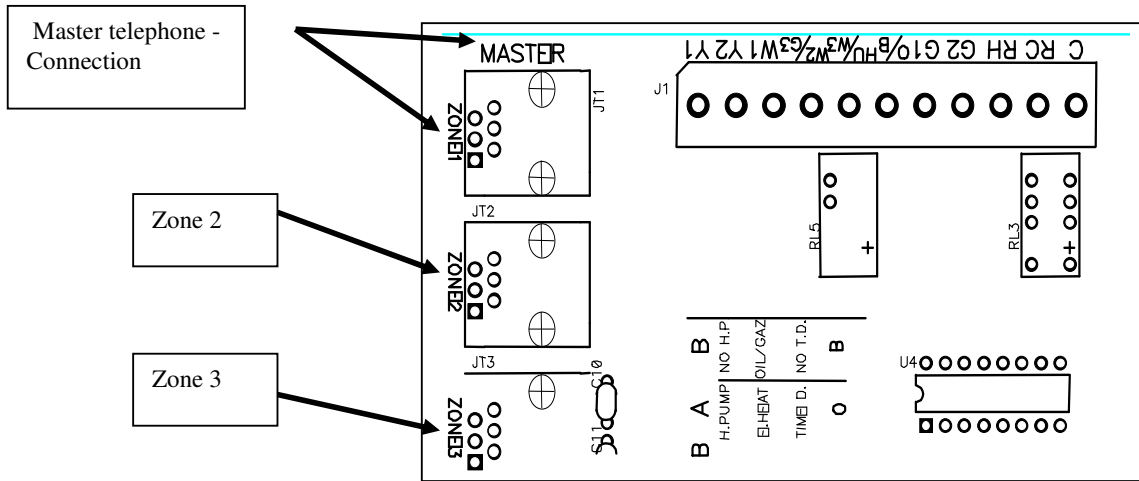
Each of the zones has it's own Telephone jack and also clearly marked.

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6.1.4. Connection for Dampers.

The dampers outputs are 3 wire 24Vac, Max 1Amp each.

The terminals are

- OP = Open
- COM = Common
- CL = Close

Also spring close or spring open dampers can be connected.

For spring close:

- OP = Open
- COM = Common
- CL = Close not connected

For spring open:

- OP = Open not connected
- COM = Common
- CL = Close

6.1.5. Connections for temperature sensors.

In the main board there are 3 temperature sensor connections.

T1 - T1 = Return air sensor (For fresh air damper)

T2 - T2 = Outdoor temperature sensor (For fresh air damper)

T3 - T3 = Freeze coil sensor.

IMPORTANT - ALL THE TEMPERATURE SENSORS MUST BE SCI TYPE

N.T.C. Sensor; Temperature ~ Resistance Characteristics

Temp °C	7.2	10.0	12.8	15.6	18.3	21.1	23.9	26.7	29.4	32.2
Temp °F	45	50	55	60	65	70	75	80	85	90
Res. k	115.8	100.9	88.1	77.1	67.7	59.6	52.5	46.4	41.2	36.6

When fresh air damper is connected, and the operation is by TEMPERATURE, then T1 and T2 MUST be connected.

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Logic for Freeze coil sensor - T3 -T3

This sensor is place into the cool COIL.

When the sensor will feel temperature of less than 30 degrees, it will turn off the compressor and leave the fan runing.

When the sensor will feel temperature more than 40 degrees, the compressor will come back to work.

All the temperature sensors are OPTIONAL. If they are connected the main board will be operational. If the sensors are not connected the main board will disregard these inputs.

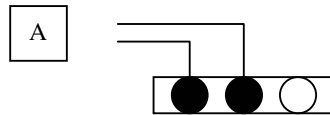
When connecting or disconnecting the temperature sensors disconnect the main 24Vac power of the main board.

7. Hardware Jumper Explanations

IMPORTANT - BEFORE MAKING ANY CHANGES IN THE HARDWARE JUMPERS, DISCONNECT ELECTRICITY AT THE MAIN SWITCH.

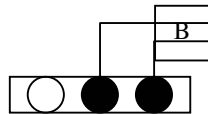
- the main board there are hardware jumpers for the configuration of the system
- these jumpers have 3 pins and they are shorted with the black plastic cover

They can be in position A



Jumper short - when the black cover is placed on the 2 pins. (2 pins shorted)
Jumper open - when the 2 pins of the jumper are NOT SHORTED (2 pins open)

or in position B



in the main board

	position A	position B
JP4 (Jumper 4)	H. PUMP (heat pump mode)	NO H.P. (no heat pump)
JP3 (jumper 3)	E.HEAT (fan mode electric)	OIL/GAZ (fan mode oil/gas)
JP2 (jumper 2)	TIME D. (normal time delay)	NO T.D. (short times for TEST ONLY)
JP1 (jumper 1)	B (heat pump active in heat)	O (heat pump active in cool)

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Factory default

- Non heat pump
- Fan electric
- Yes time delay
- Heat pump "B"

7.1 How to Change the Jumpers

To change the jumpers disconnect the main 24Vac from the main board, make the necessary changes and reconnect the main 24Vac.

8.4 Prog (Program) Button

With the Clock button you can adjust:

- Real time clock.
- Programming.

See program chart below.

11. Logic for Fan On or Auto-fan in the master unit and zones

You can select in the master unit and the zones, Fan On or Auto-fan.

This means that the specific zone that you select the Fan On function, when the main unit is not demanding for cooling or heating, this specific zone will open the damper and switch on the FAN.

If Auto-fan is selected, the damper will remain close after reaching the desire temperature.

12. Logic for the By Pass output

This is an extra damper output that will open with the last zone.

Logic:

By pass	Zone 1	Zone 2	Zone 3	Zone 4	etc
close	open	open	open	open	
close	open	open	open	close	
close	open	open	close	close	
open	open	close	close	close	
close	open	open	close	close	

THE BY PASS OUTPUT IS OPTIONAL. THE SYSTEM WILL WORK NORMALLY WITHOUT THIS CONNECTION

13. Logic of Fresh Air Damper

The fresh air damper output can work by:

- Time (0-15-30-45-60 minutes per hour)
- Temperature (differential in between indoor temperature T1 and outdoor temperature T2)

These 2 options can be selected in the master thermostat.

See technician settings # 9

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14. Troubleshooting for Technician

14.1. The display is blank in the thermostats

The unit is not getting 24 Vac

Check the wiring connections for the thermostats. SEE # 6

14.2. Cool stages do not switch on

Check the R & C connections.

14.3. Heat stages do not switch on

Check the Rh connection.

14.4. The display in the thermostats shows the word "PROGRAM" without the name

The unit is in OVERRIDE mode, the name of the program will reappear when the next program starts working.

14.5. Dampers are not opening or closing.

- Make sure that the thermostat of the same zone is ON.

- Make sure that there is demand (cooling or heating)

- To test that the damper is working unplug the quick connector of the damper, plug it the OPEN socket.

This is a ALWAYS a hot socket - make sure that the damper is opening.

After plugging the damper into the CLOSE socket , check to see that it closes.

For the OPEN and CLOSE sockets see main board layout # 5.1.2

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Your suggestions or comments regarding these units would be appreciated.

At our web site, you can find technical details regarding the units, as well as operating manuals, electrical drawings, Etc.

The company reserves the right to change the specifications any time without prior notice.

Rev 1