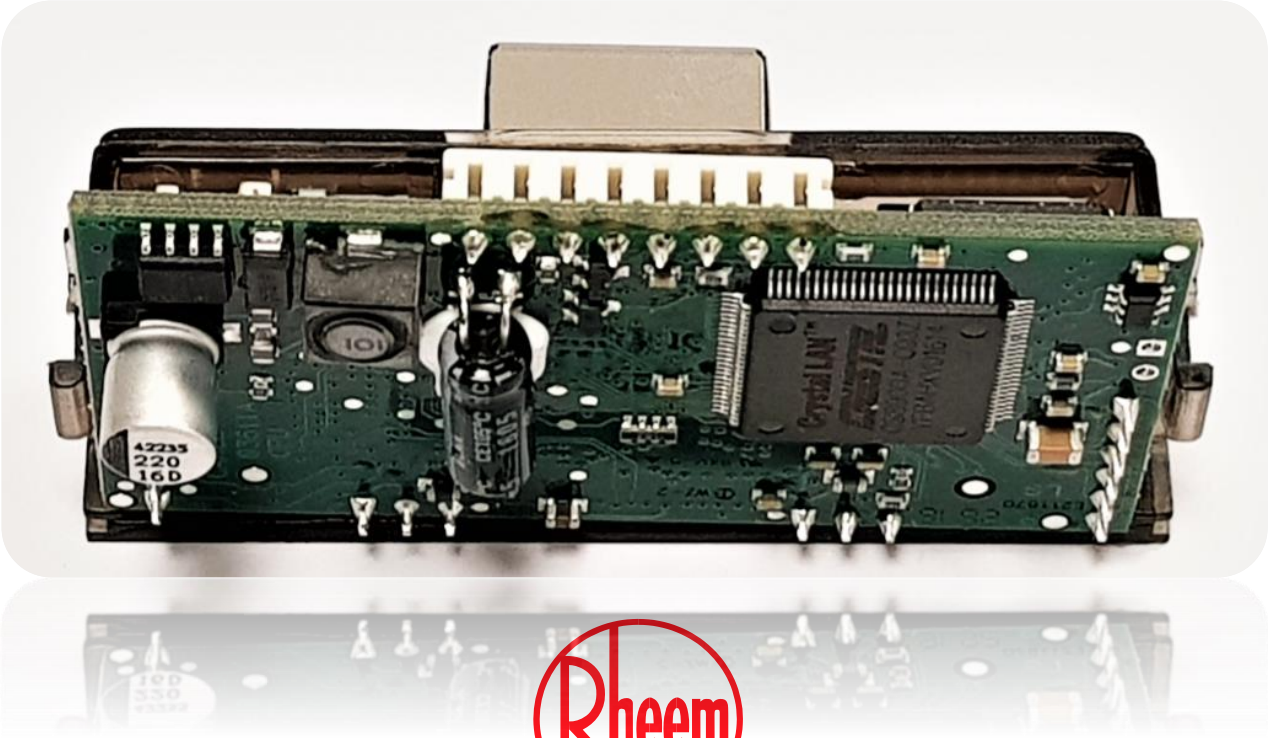
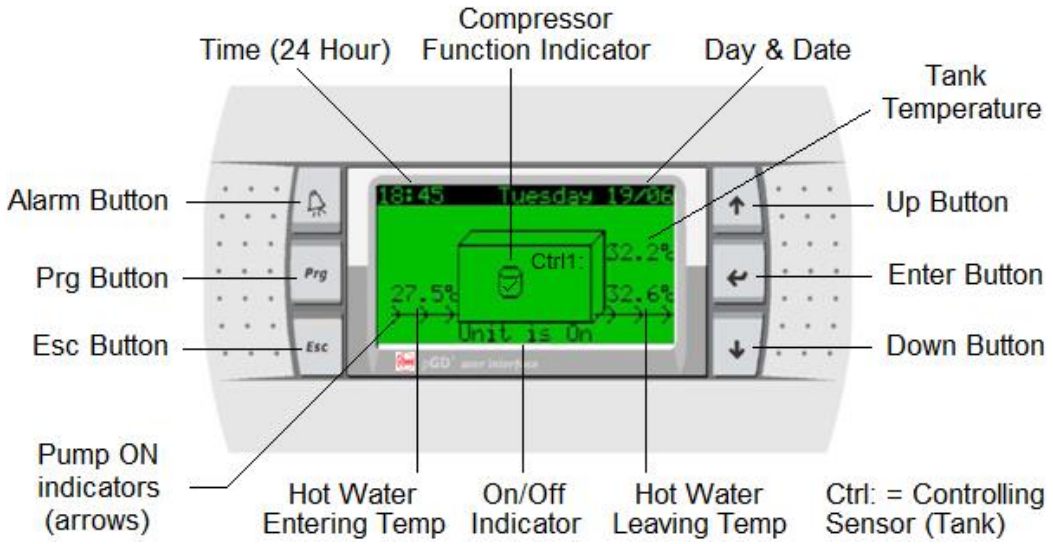
# BACnet/IP & Modbus TCP/IP on Ethernet Configuration Guide

## Rheem Commercial Heat Pump BMS Card



*Install a Rheem*

# Configuration on Heat Pump Display




**Control Panel Operation Quick Guide**

Press and release **Esc** to enter main menu (from home screen)
Press and release ↑ or ↓ to highlight desired main menu screen
Press and release ↵ to enter highlighted main menu screen
Press and release ↑ or ↓ to navigate to desired parameter screen
Press and release ↵ to move curser to desired parameter
Press and release ↑ or ↓ to change parameter
Press and release ↵ to accept new parameter setting
Press and release **Esc** to navigate back one screen
Repeatedly press and release **Esc** to navigate back to home screen

- After commissioning the Master heat pump, go to the Service menu
- Service- Password 0022>BMS Config
- Go to BMS configuration (will time out after 5 minutes if no buttons pressed)
- Change the settings for BMS configuration from the display menu as mentioned below.

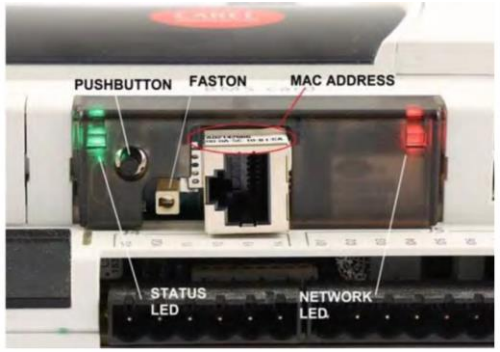
**Address:** No change required (address is irrelevant for this card)
**Protocol:** CAREL
**Speed:** 19200 (this value is set from factory to communicate between heat pump and BMS card)



Rheem
*Install a Rheem*

# Inspection of BMS Card

Open the heat pump enclosure and check the BMS card.




The BACnet/IP & Modbus TCP-IP card features a button (PUSHBUTTON) and two indicator lights (STATUS LED and NETWORK LED).

Functions of the button:

- When starting up the BACnet/IP & Modbus TCP-IP, this is used to select, for network communication, whether to use the factory parameters or the user parameters

- In normal operation, reboots the card without needing to disconnect the power supply

**Status LED:** indicates the status of communication with the heat pump controller and the status of the card, and must normally be green and flash around 3 times a second; in special circumstances it displays the operation of service activities, such as the restart of the internal program on the card, the remote updating of the program, or others. See the table below.

| Status LED | Meaning | Notes |
|---|---|---|
| Green flashing (3 times/sec) | Regular communication | When running demanding tasks (sending a large number of notifications), this may be green steady for a few seconds |
| Red flashing slowly (once every 2 seconds) | Communication not established | - |
| Single red flash and then flashing green | Single communication error, one failed response or attempt to write a variable with an index higher than 207 | After 5 failed responses, the Status LED starts flashing red until communication resumes |
| Off, then green-red repeated in rapid succession, then green steady for 1 minute | Card reboot phase | - |
| Green steady for a minute | Card reboot phase | Wait for the conclusion of the reboot |
| Red- Off slow (1sec-1sec) repeated 3 times | Detection of button pressed during reboot for selecting factory parameters (rather than User parameters) | Release the button to confirm |
| Red- Off fast (3 times a second) repeated 3 times | During reboot, confirms that factory parameters have been selected by pressing the button | - |
| Blue steady for a minute | During firmware update, writing to non-volatile memory | Do not interrupt the power supply |

**Network LED:** displays the status of the physical network connection (Ethernet connection signals), regardless of whether the network parameters are correct; usually this must be green and flash when data is transmitted/received.

| Network LED | Meaning |
|---|---|
| Green steady | Correct Ethernet data connection signals |
| Green flashing | Correct Ethernet data exchange |
| Red | No Ethernet signal detected |



Install a Rheem

# Card Configuration via Laptop/PC

To configure the card, it is required to be powered. This can be done by turning ON the heat pump.

An Ethernet cable will be required to connect the card to a laptop or PC.

In order to access the configuration, the card can be started using the “factory boot-switch parameters”:

1. Switch on the power supply source and hold the black pushbutton on the card for approx. 10 seconds until the Status LED begins to flash SLOWLY 3 times, red-OFF.

2. **You will need to release the button before the 3rd red flash.**

3. After about 35 seconds, the status LED will flash regularly and the card will have booted with its factory boot switch parameters in place of the user settings.

Note: These factory settings will remain in place until the next Reboot.

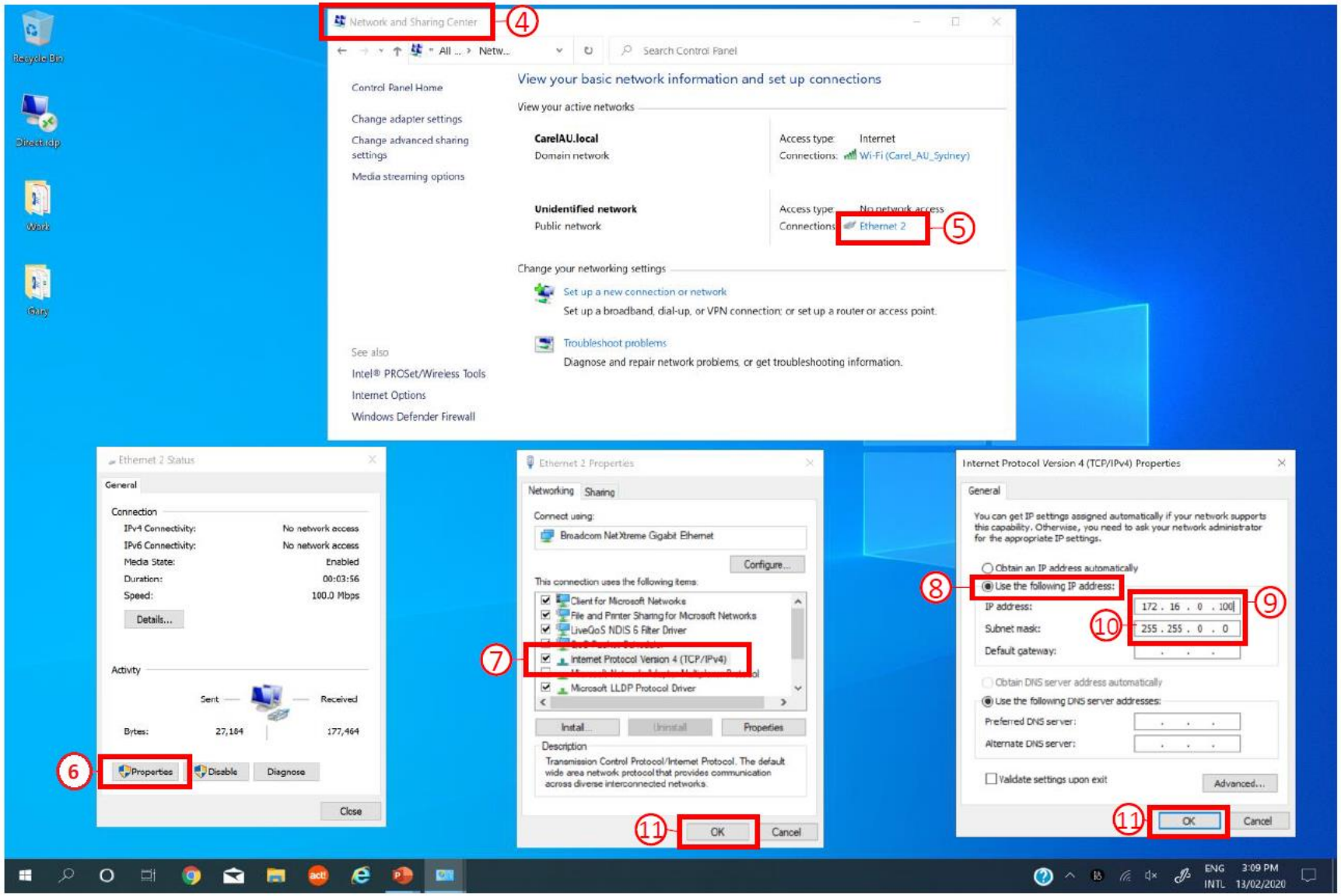

Default Address settings of the card:
IP address= 172.16.0.1;
Net mask= 255.255.0.0;

BMS settings:
Protocol= Carel
Baud Rate/Speed = 19200



Install a Rheem

# Card Configuration via Laptop/PC



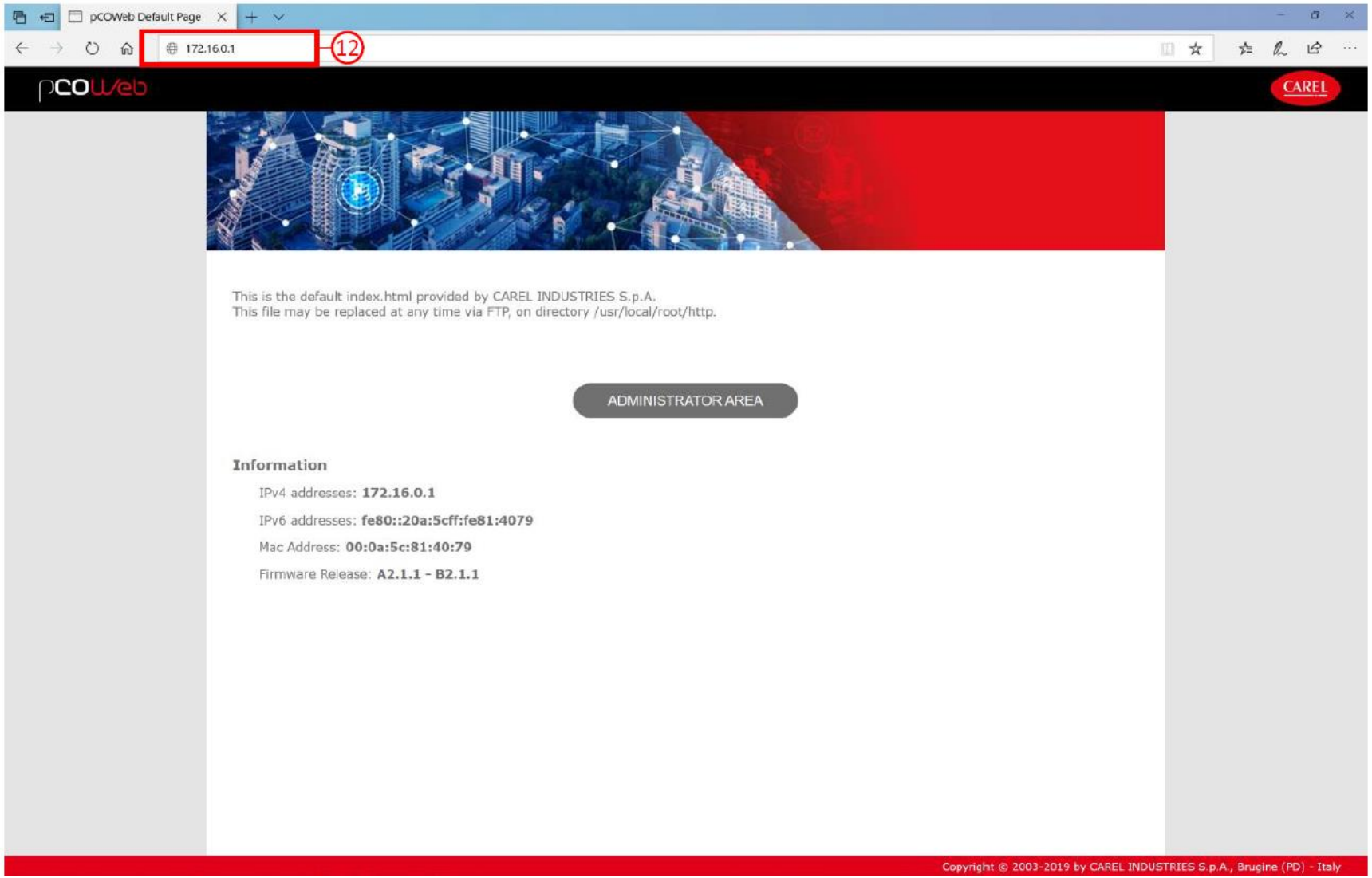

4. Open the network and sharing centre via the control panel
5. Open the Ethernet settings
6. Select Properties
7. Select Internet Protocol Version 4 (TCP/IPv4) and select properties
8. Change from “Obtain an IP address automatically” to “Use the following IP address
9. Enter the the IP Address of 172.16.0.xxx ( we have used 100 in the example Do not use 172.16.0.1 as this is the card’s default IP address)
10. Enter the Subnet mask as 255.255.0.0
11. Select OK on the two properties boxes to confirm settings

Note: Once you have completed the configuration of the card, you will need to change your network settings back to how they were previous to adjusting.



Install a Rheem

# Card Configuration via Laptop/PC

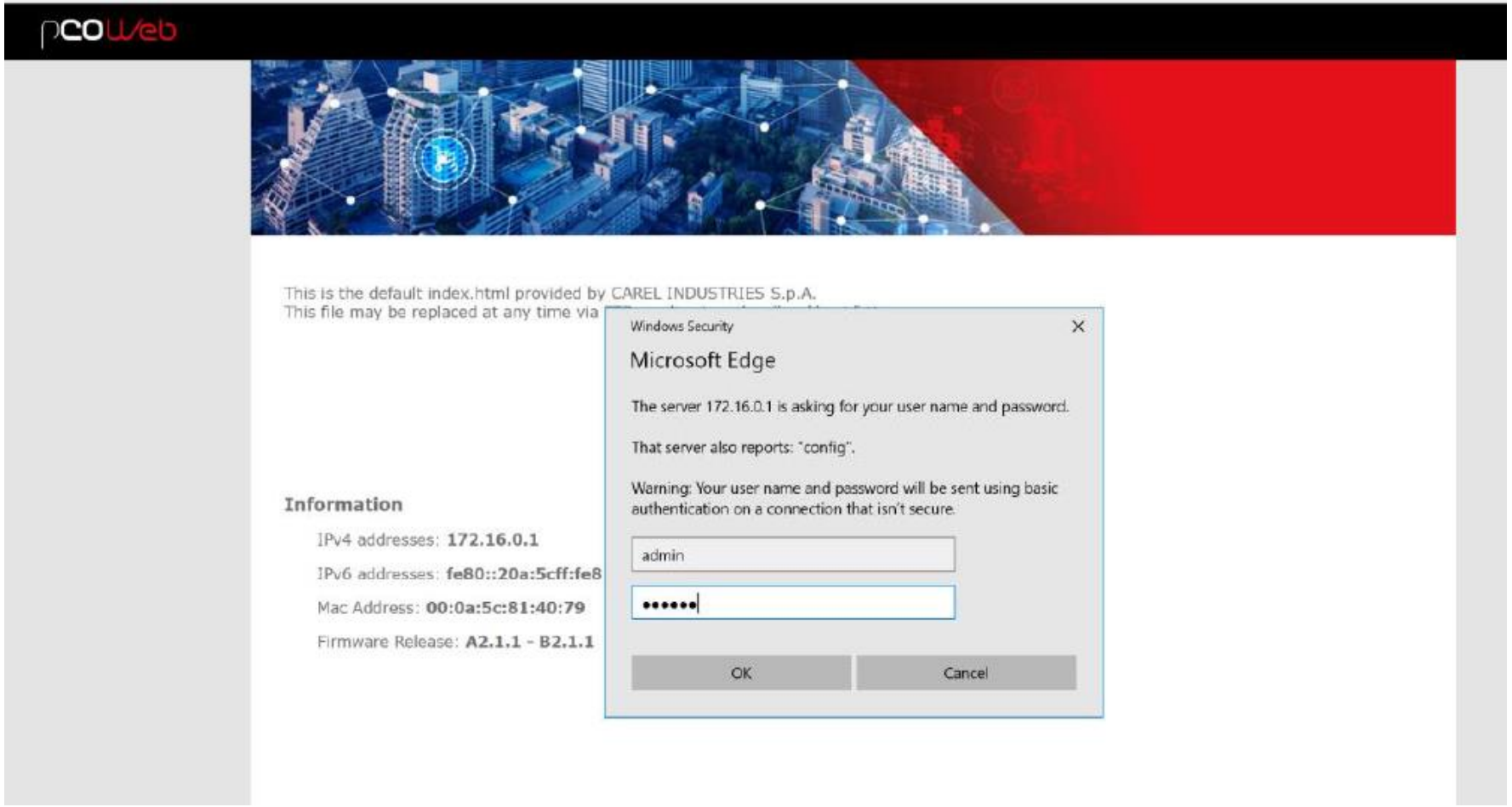



12. Open your browser of choice and enter the card IP address, 172.16.0.1, into the address bar
13. The card default page will open and you can now select to open the 'Administrator Area'



Install a Rheem

# Card Configuration via Laptop/PC




14. Enter the default user name and password-

- User Name: admin
- Password: fadmin

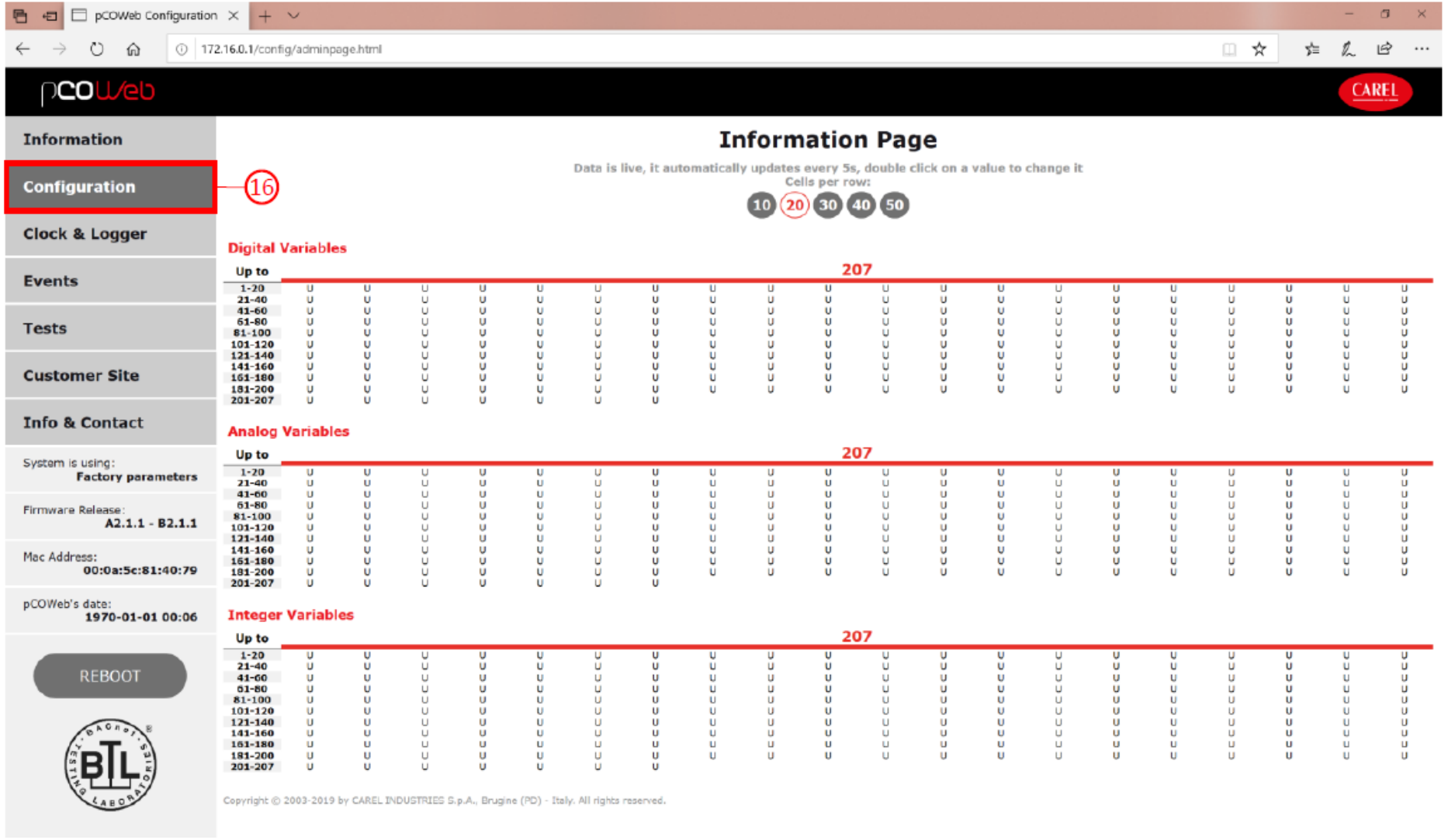
15. Select OK

**Note:** It is possible to change this user login password once inside the configuration menu.



Install a Rheem

# Card Configuration via Laptop/PC




16. Once inside the configuration menu, the default page is the information page and it displays the variables that the card is reading from the heat pump controller.

    Select the 'Configuration' tab

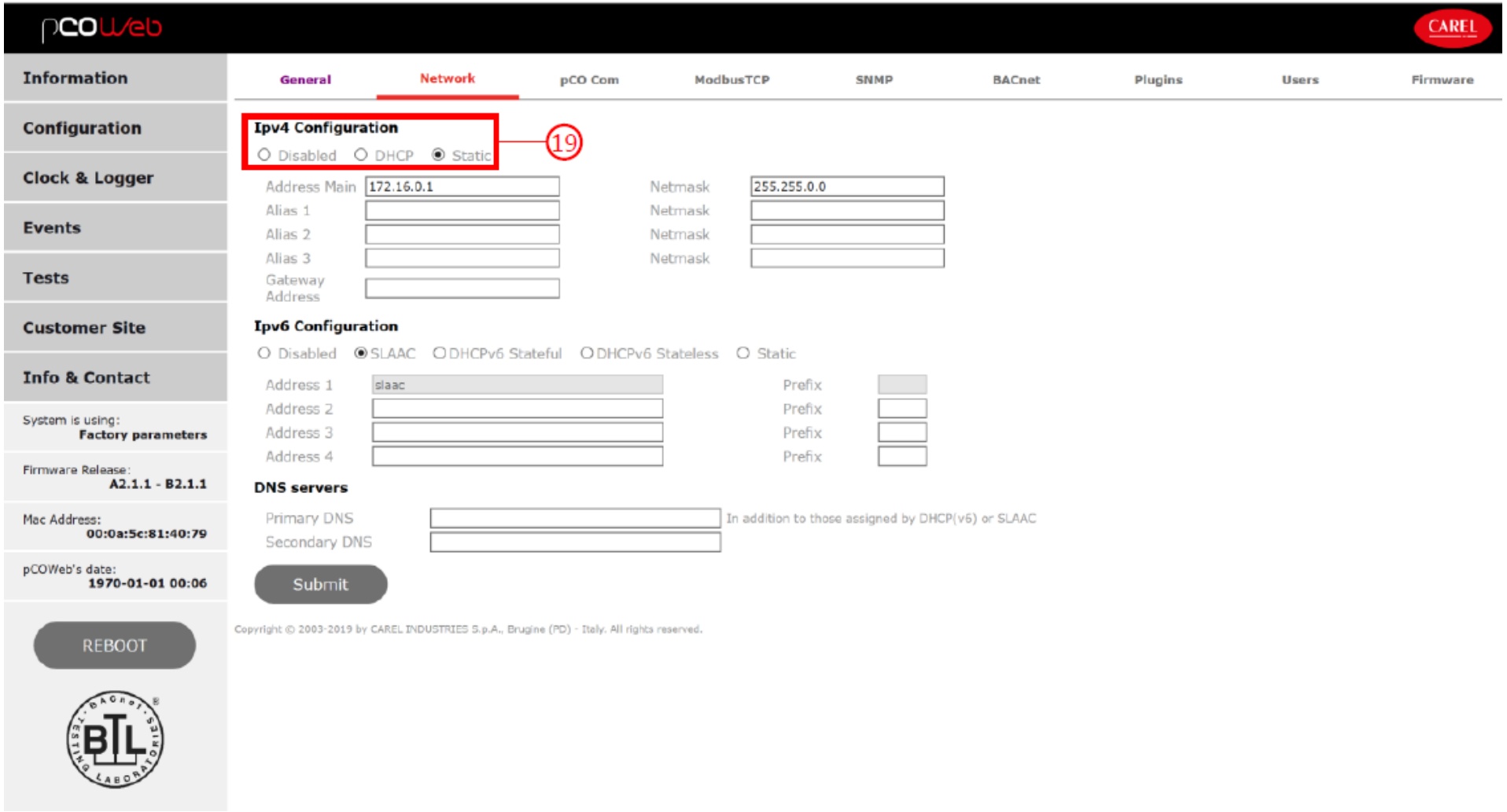
**17. Note: If the card is installed within heat pump controller board and the variables return a value of 'U', this indicates that the card is not communicating with the heat pump.**

**Confirm that the BMS settings in the heat pump controller display are set to 'CAREL' as the protocol and '19200' as the baud rate/speed.**



Install a Rheem

# Card Configuration via Laptop/PC




18. Once inside the configuration menu, select the 'Network' menu

19. Select 'Static''

20. Enter in the network settings provided to you by the BMS/Site contact.

21. Typical settings provided will be the IP Address (Address main), Subnet Mask (Netmask) and the Default Gateway (Gateway address)

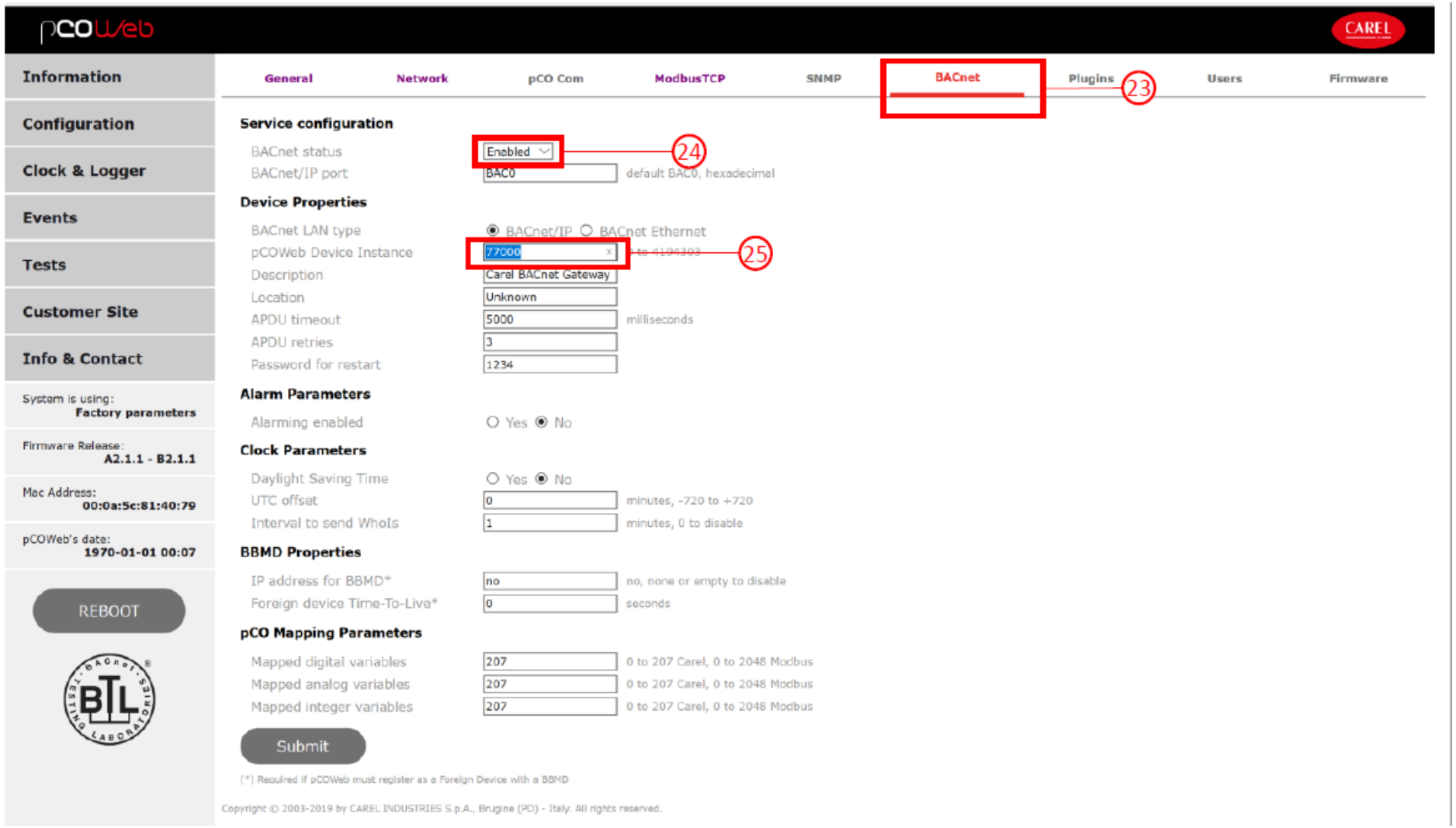
22. Once entered, select 'Submit'

**Note:** Once submitted, you will be prompted to reboot. You do not need to reboot immediately if you still require to configure further settings such as the BACnet settings. If finalised, you may reboot for the new settings to take place.



Install a Rheem

# Card Configuration via Laptop/PC




**If the requested protocol is BACnet/IP**

23. Select the BACnet tab.

24. Set the BACnet status to 'Enabled'

25. Change the 'pCOWeb Device Instance' to the value provided you by the BMS contact.

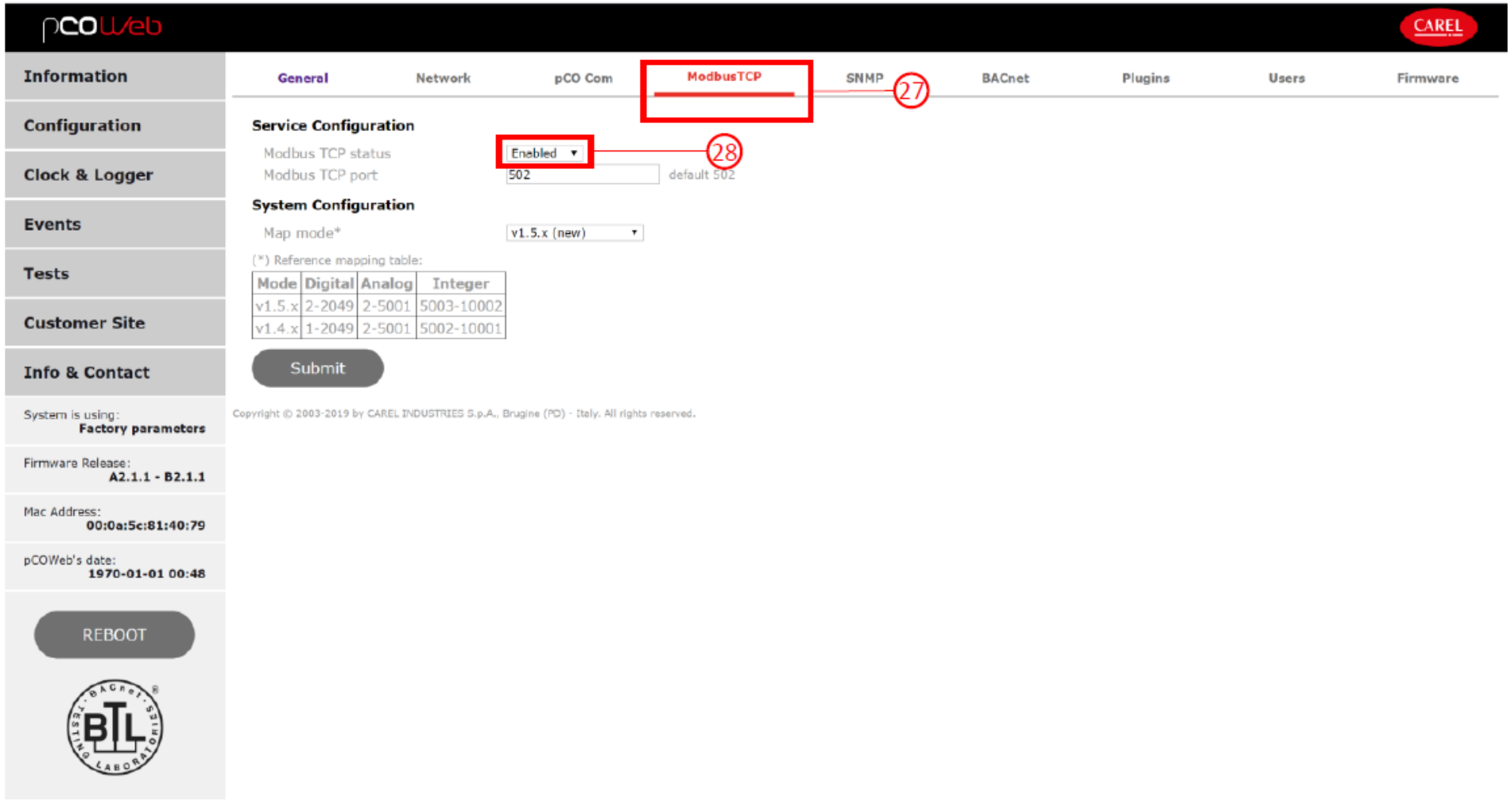
26. Select Submit

**Note:** Once submitted, you will be prompted to reboot. You do not need to reboot immediately if you still require to configure further settings. If finalised, you may reboot for the new settings to take place.



Install a Rheem

# Card Configuration via Laptop/PC




**<u>If the requested protocol is Modbus TCP/IP</u>**

27. Select the ModbusTCP tab

28. Set the Modbus TCP status to 'Enabled'

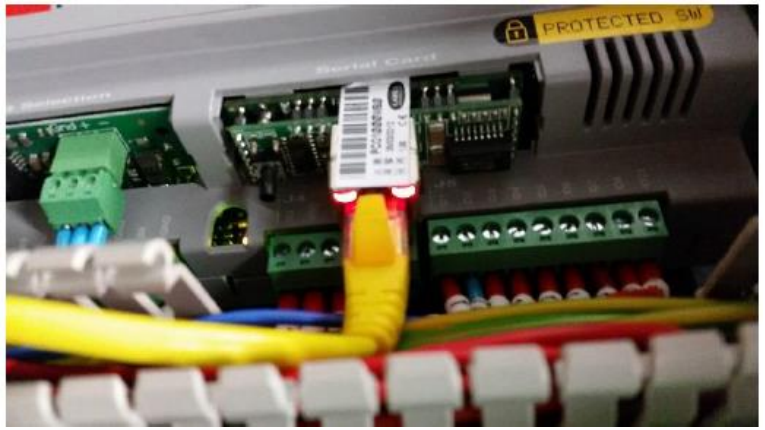
29. Select Submit

**Note:** Once submitted, you will be prompted to reboot. You do not need to reboot immediately if you still require to configure further settings. If finalised, you may reboot for the new settings to take place.



Install a Rheem

# Inspection of BMS Card Connection




Status RED- card not communicating with heat pump
Ethernet RED- No connection between card and network


Status RED- card not communicating with heat pump
Ethernet GREEN- Network connection OK


Status GREEN- card communication OK
Ethernet RED- No connection between card and network


Status GREEN- card communication OK
Ethernet GREEN- Network connection OK

**For further assistance, call Rheem Service on 131 031.**



Rheem
*Install a Rheem*