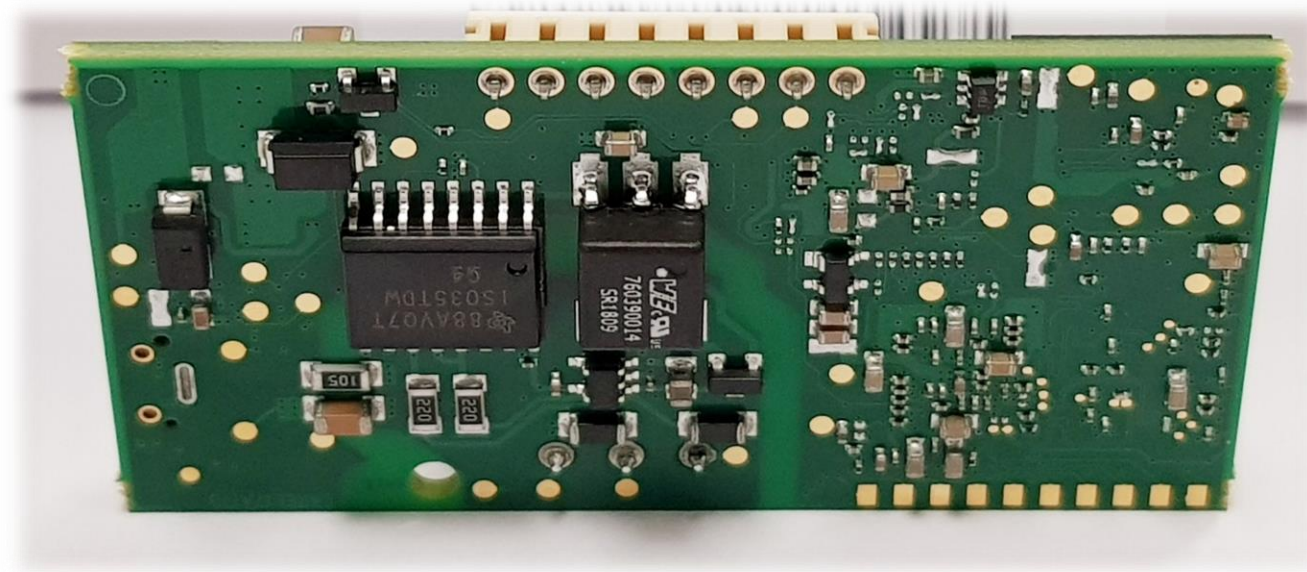


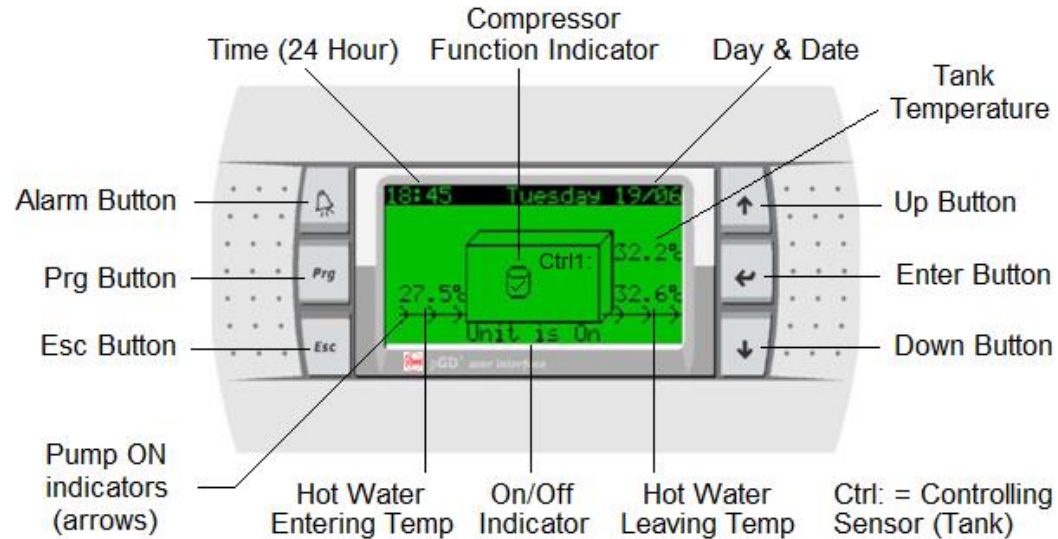
BACnet MS-TP Configuration Guide

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 cursor 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)

Inspection of BMS Card

Open the heat pump enclosure and check the BMS card.



The BACnet MS-TP card features a button (PUSHBUTTON) and two indicator lights (STATUS LED and NETWORK LED).

Functions of the button:

- When starting up the BACnet MS-TP, 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.

Starting sequence: on power-up, or after restarting card, the Status LED switches in the following sequence:

- off;
- 1 seconds after restarting: quick flash red-green-red-green...;
- 3 seconds after restarting: green on steady;
- around 45 seconds after restarting: flashing (colour: see below -Status of communication with the card) card communication starts.

Status of communication with the card: once the starting sequence has been completed, the Status LED flashes to indicate the quality of communication with the card:

- quick green-OFF-green if communication with the card is OK (card ON-LINE);
- slow red-OFF-red if communication has not been established with the card (card OFF-LINE)
- green-red-green if card detects errors or a temporary lack of response.

Network LED: The Network LED (right) indicates the status of communication with the BACnet MS/TP network (RS485). The LED shows the following information:

Starting sequence: on power-up or after rebooting card, the Network LED switches in the following sequence:

- off for around 45 seconds;
- around 45 seconds after restarting the card: slow green-red-green-red: at the end, BACnet will be active.

Status of communication with the BACnet MS/TP network: once the starting sequence has been completed, the Network LED flashes to indicate the quality of communication with the BACnet MS/TP network:

- green with occasional red flashes if communication is OK (BACnet MS/TP meaning: green ON = card keeps the Token (control of the MS/TP network); green OFF = card DOES NOT keep the Token; red on = Poll-For-Master, search for a Master to pass the Token to);
- green and red ON together (BACnet MS/TP meaning: continuous Poll-For-Master): communication not established (connection problems, or no network device found); this may depend on electrical connection difficulties or communication settings that are not compatible with the other network devices connected

Card Configuration via Laptop/PC

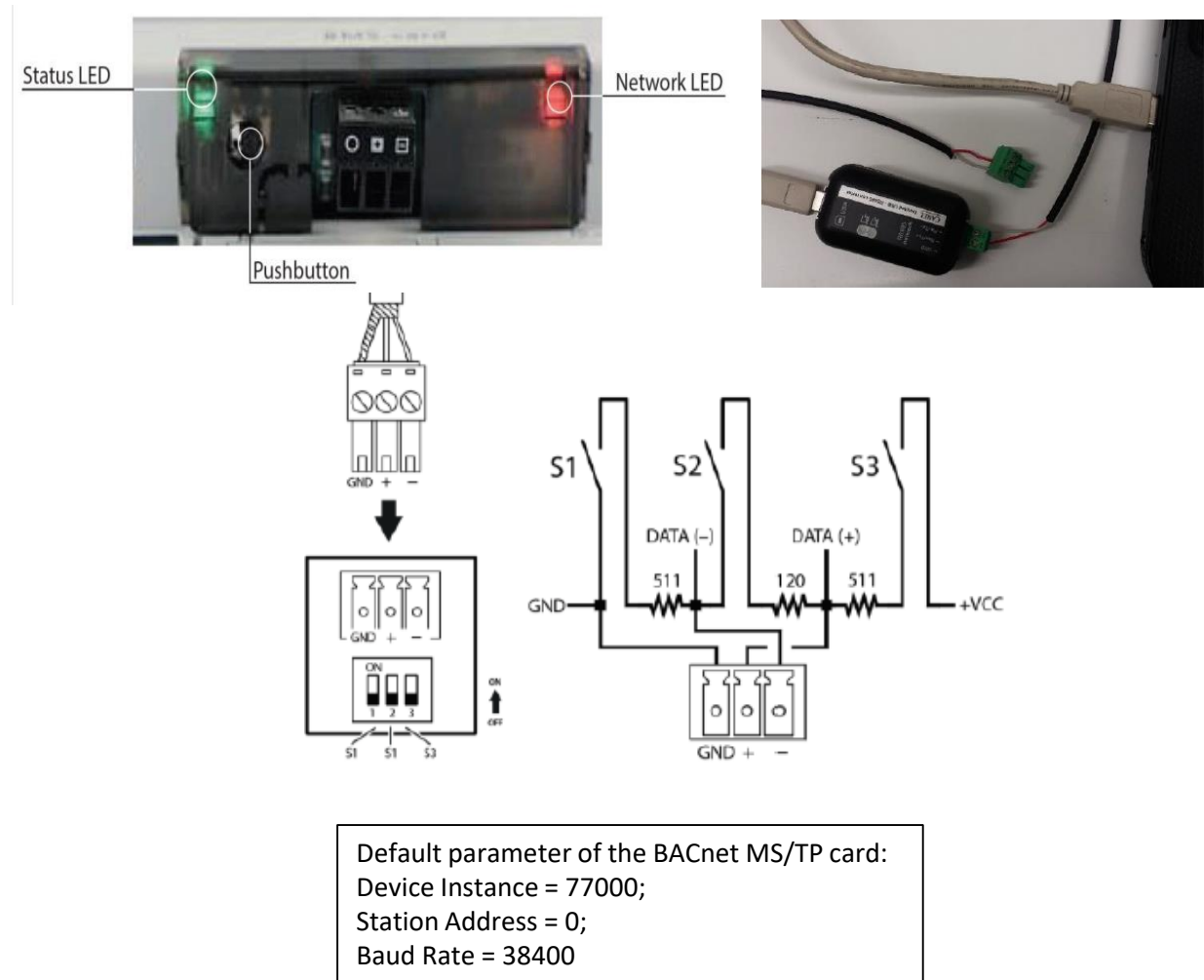
To configure the card, it is required to be powered. This can be done by turning ON the heat pump or using a Micro USB cable.

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.
4. Connect the BACnet MS/TP card to your laptop via the USB-RS485 Convertor (CVSTDUMOR0). The driver for the adapter can be found at <http://www.ftdichip.com/Drivers/VCP.htm>

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



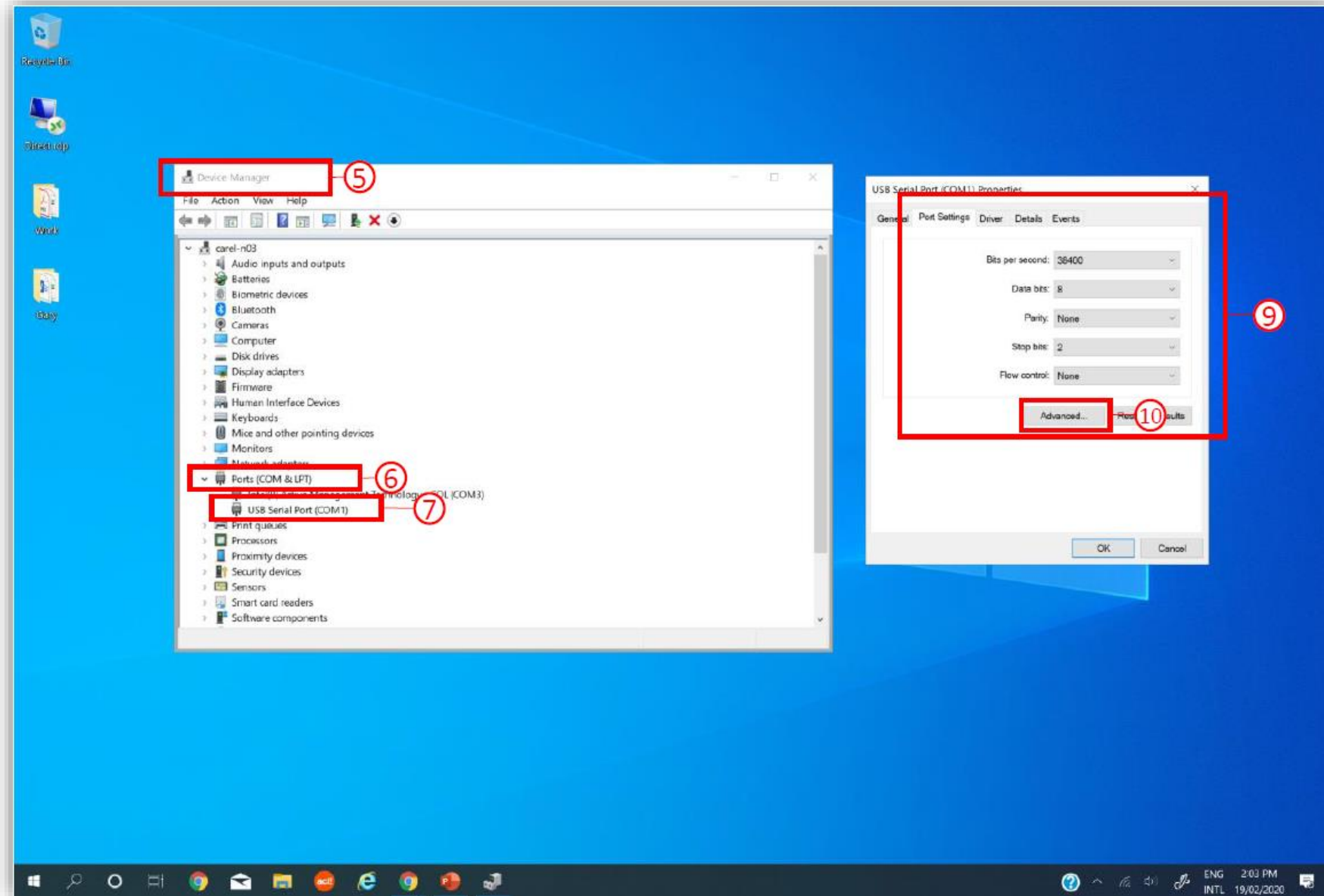
Card Configuration via Laptop/PC

5. Open up Device Manager via the control panel to confirm the port number and settings.
6. Open the Ports (COM & LPT) tab
7. Confirm that your PC has detected the USB Serial converter used. It will need to be connected to COM 1
8. Right click on the USB serial port and open properties.
9. Confirm that the port settings have the following values:

- Bits per second- 38400
- Data Bits- 8
- Parity- None
- Stop Bits- 2
- Flow control- None

10. If required, Open the advanced menu and change the port to COM1 (if COM1 is already in use, you will need to confirm the override as the BACSet program is looking for com port 1).

Note: BACSet is a program provided by card manufacturer to configure BACnet MS-TP card.



How to Install BACset version 2.15.4

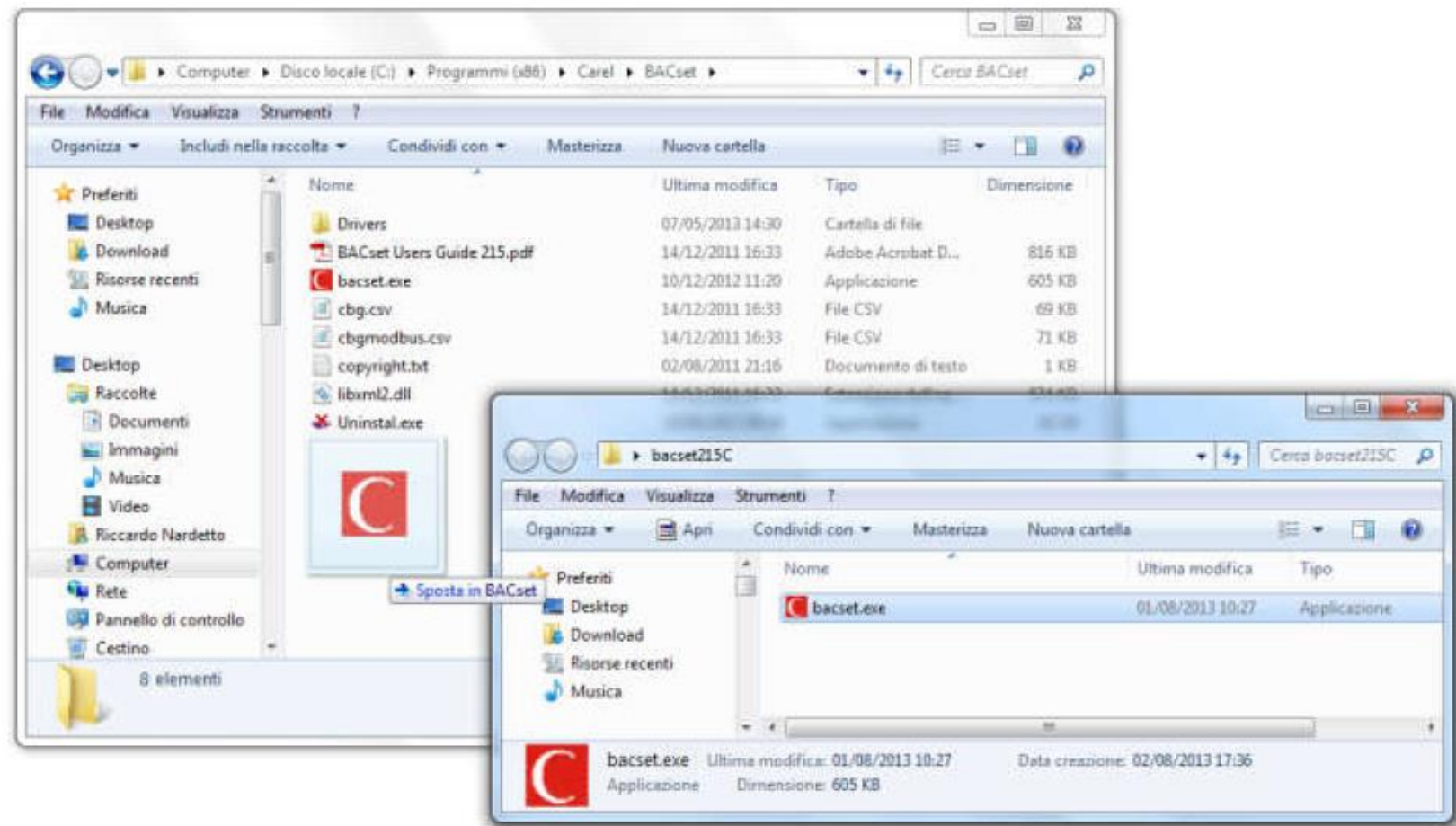
- a. Go to <https://ksa.carel.com/>
- b. Create an account to log in
- c. Once logged in, select "software and support"
- d. Select "pCONet and pCOWeb"
- e. Select the "pCONet SE" tab. (this should be <https://ksa.carel.com/group/2234798/pconet-se>)
- f. Once in the pCONet SE section, select the BACSet folder. This will then allow the user to download the files "BACSet_INSTALLER" and "BACSet_2.15.5.exe". Install the program in the "BACSet_INSTALLER" folder first. Then replace the .exe file as per the instructions below.

How to replace BACset exe

In order to change BACset version (from 2.15) to version 2.15.4 is necessary have access where BACset is installed. The standard folder is:

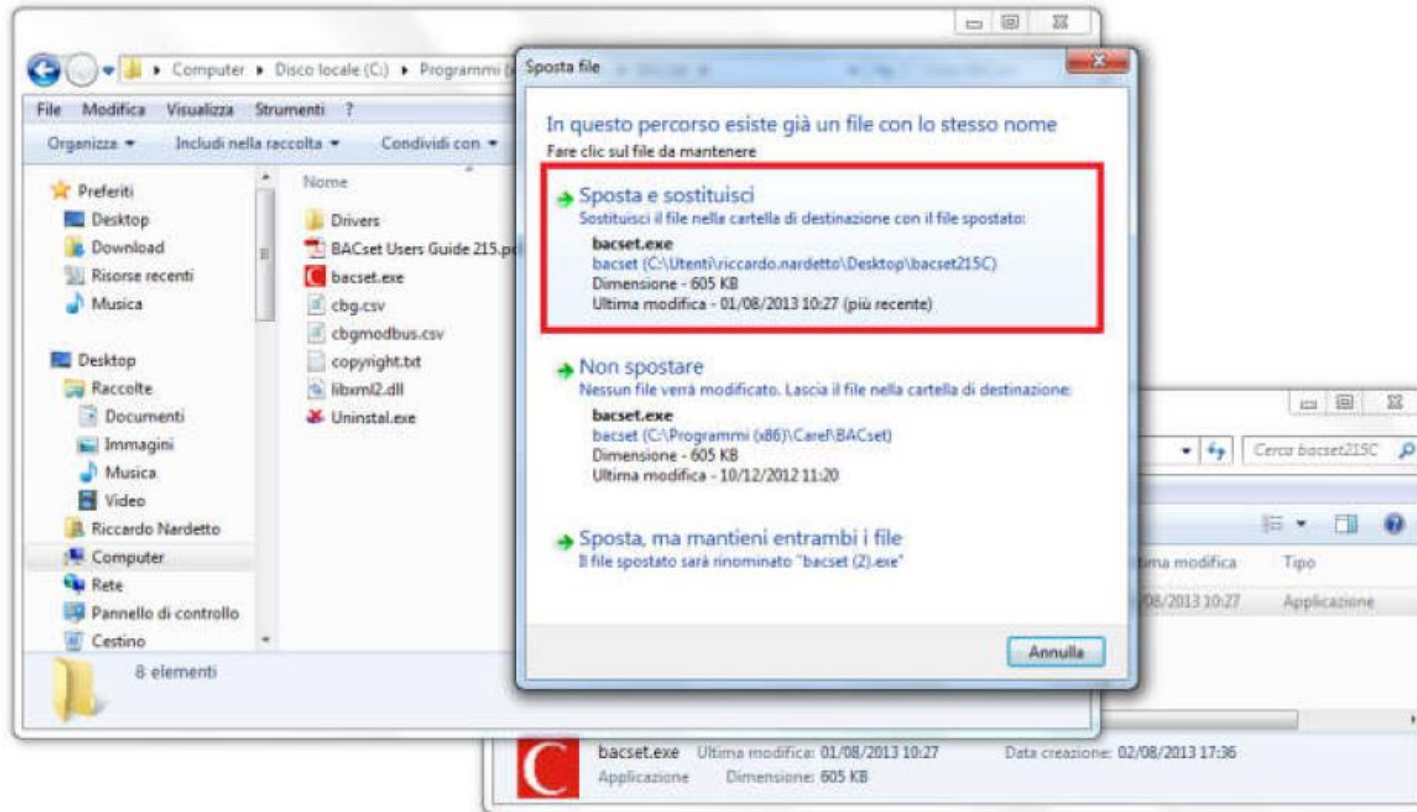
C:\Program Files (x86)\Carel\BACset

C:\Program Files (x86)\Carel\BACset



How to Install BACset version 2.15.4

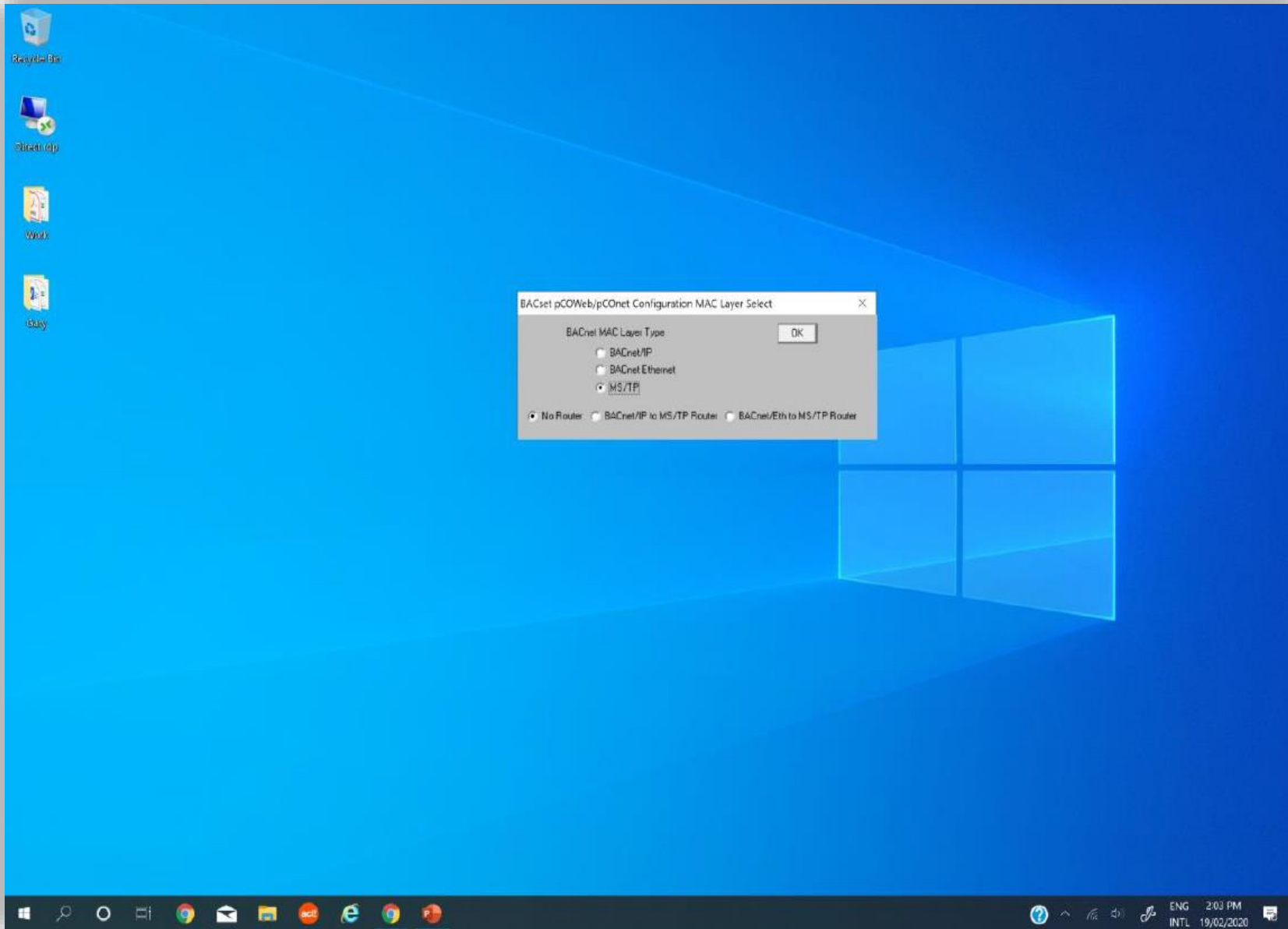
Here select the first option, Move and replace:



Now opening BACset you will see:

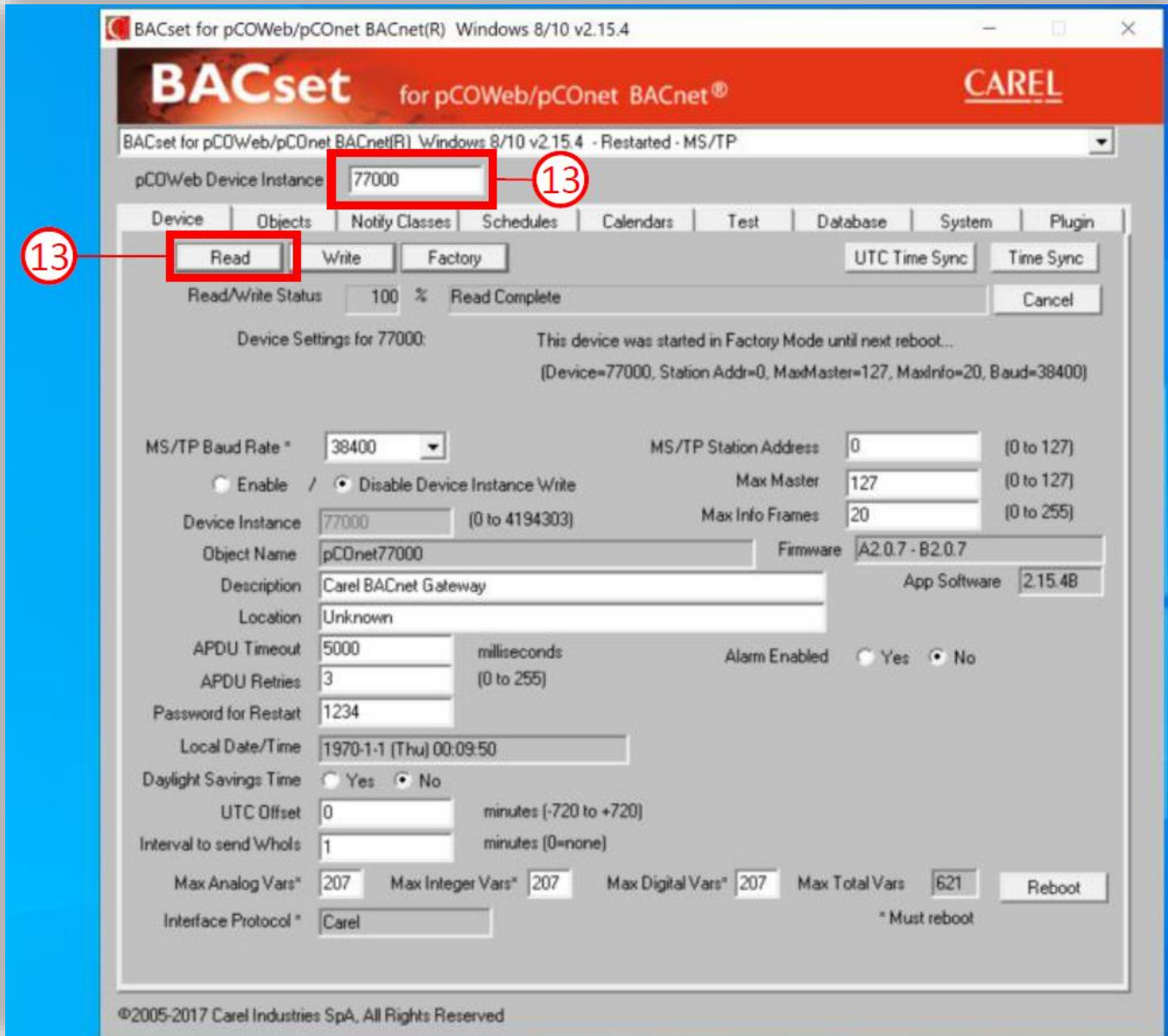


Card Configuration via Laptop/PC



11. Open up the BACSet program.
12. Select MS/TP and No Router and press OK.

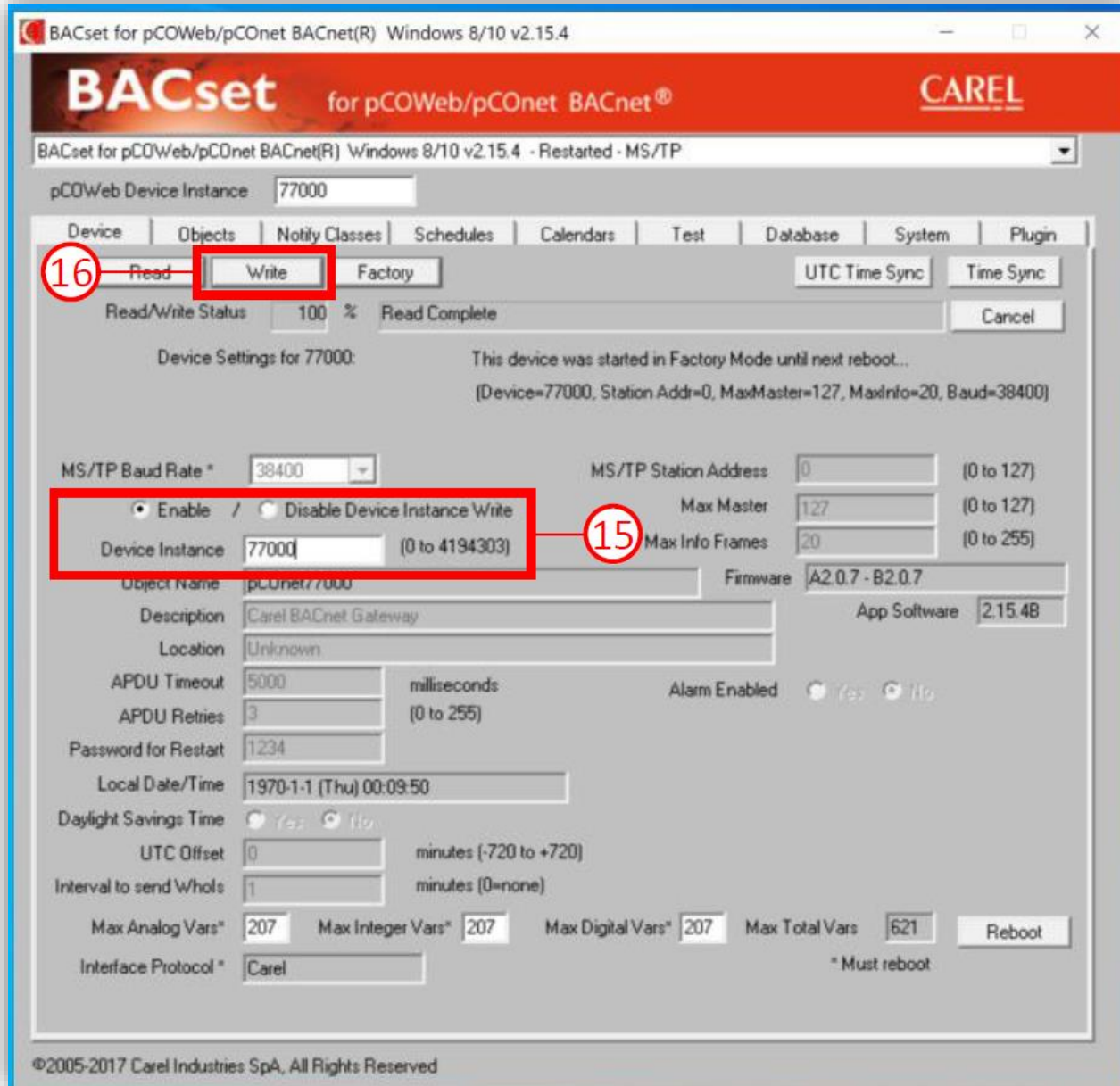
Card Configuration via Laptop/PC



13. Leave the pCOWeb device instance as 77000 and select the READ button. The progress bar should count up to 100% Read Complete. (Both LEDs will flash on the convertor)
14. Once the read is complete, you will see some text stating that the device was started in Factory Mode until next reboot. This will allow you to make changes to the parameters which will not take effect until the next reboot.

If you receive an error message, refer to the last page of this guide for definition.

Card Configuration via Laptop/PC



15. Select the Enable button and enter the desired Device Instance (based on the customer's network).
16. Select the Write button.
17. A warning message with pop-up as shown below. Select Yes to confirm the BACnet configuration overwrite.



18. Wait for the progress bar to read 'Write Complete' (this may take a few seconds before anything happens)

Card Configuration via Laptop/PC

19. Change the 'enable' selection back to 'Disable Device Instance'.
20. Select and change the MS/TP Station. Address to the desired value.
21. Select Write again and watch the status change from 0% back to 100% and confirm 'Write Complete'.

BACset for pCOWeb/pCOnet BACnet(R) Windows 8/10 v2.15.4

BACset for pCOWeb/pCOnet BACnet® **CAREL**

BACset for pCOWeb/pCOnet BACnet(R) Windows 8/10 v2.15.4 - Restarted - MS/TP

pCOWeb Device Instance: 77000

Device | Objects | Notify Classes | Schedules | Calendars | Test | Database | System | Plugin

Read | Write | Factory | UTC Time Sync | Time Sync

Read/Write Status: 100 % Write Complete | Cancel

Device Settings for 77000: This device was started in Factory Mode until next reboot...
(Device=77000, Station Addr=0, MaxMaster=127, MaxInfo=20, Baud=38400)

MS/TP Baud Rate * 38400

MS/TP Station Address [] (to 127) **20**

Max Master 127 (0 to 127)

Max Info Frames 20 (0 to 255)

19 Enable Disable Device Instance Write

Device Instance 77000 (0 to 4194303)

Object Name pCOnet77000 Firmware A2.0.7 - B2.0.7

Description Carel BACnet Gateway App Software 2.15.4B

Location Unknown

APDU Timeout 5000 milliseconds Alarm Enabled Yes No

APDU Retries 3 (0 to 255)

Password for Restart 1234

Local Date/Time 1970-1-1 (Thu) 00:09:50

Daylight Savings Time Yes No

UTC Offset 0 minutes (-720 to +720)

Interval to send Whols 1 minutes (0=none)

Max Analog Vars* 207 Max Integer Vars* 207 Max Digital Vars* 207 Max Total Vars 621 Reboot

Interface Protocol * Carel * Must reboot

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Card Configuration via Laptop/PC

BACset for pCOWeb/pCOnet BACnet(R) Windows 8/10 v2.15.4

BACset for pCOWeb/pCOnet BACnet® **CAREL**

BACset for pCOWeb/pCOnet BACnet(R) Windows 8/10 v2.15.4 - Restarted - MS/TP

pCOWeb Device Instance: 77000

Device | Objects | Notify Classes | Schedules | Calendars | Test | Database | System | Plugin

Read Write Factory UTC Time Sync Time Sync

Read/Write Status: 100 % Write Complete Cancel

Device Settings for 77000: This device was started in Factory Mode until next reboot...
(Device=77000, Station Addr=0, MaxMaster=127, MaxInfo=20, Baud=38400)

MS/TP Baud Rate * 38400 (0 to 4194303) MS/TP Station Address 0 (0 to 127)
Enable / 9600 Max Master 127 (0 to 127)
19200
Device Instance 38400 (0 to 4194303) Max Info Frames 20 (0 to 255)
76800

Object Name pCOnet77000 Firmware A2.0.7 - B2.0.7
Description Carel BACnet Gateway App Software 2.15.4B
Location Unknown
APDU Timeout 5000 milliseconds Alarm Enabled Yes No
APDU Retries 3 (0 to 255)
Password for Restart 1234
Local Date/Time 1970-1-1 (Thu) 00:09:50
Daylight Savings Time Yes No
UTC Offset 0 minutes (-720 to +720)
Interval to send Whols 1 minutes (0=none)
Max Analog Vars* 207 Max Integer Vars* 207 Max Digital Vars* 207 Max Total Vars 621 Reboot
Interface Protocol * Carel * Must reboot

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22. Change the MS/TP Baud Rate to the desired value.

23. Select Write again and watch the status change from 0% back to 100% and confirm 'Write Complete'.

Note: If finalised, you may reboot the card for the new settings to take place.

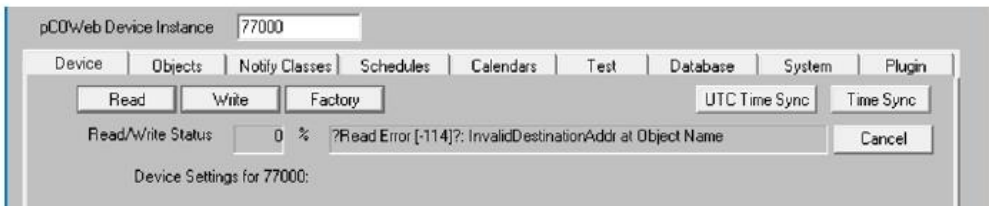
Card Configuration Test



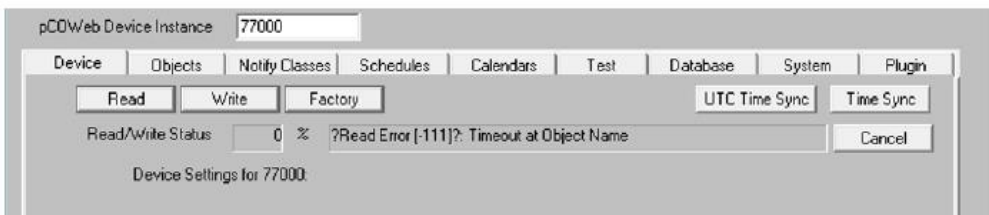
24. If Connected to a heat pump, you may select the Test tab and read the values from the heat pump controller display.
25. If no values appear, confirm that the BMS settings on the heat pump display have the Protocol set to CAREL and the Speed set to 19200. (Go to the Service menu - Password 0022>BMS Config)



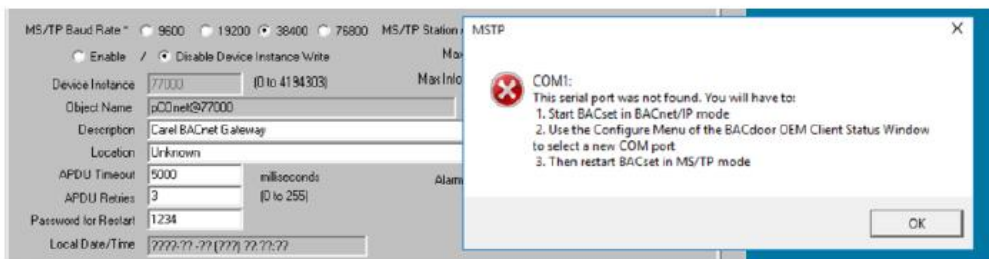
BACnet MS-TP Common Errors



The error refers to the wrong device instance being searched for. Both LEDs will appear on the USB-RS485 converter. Perform a factory reset as outlined in steps 1,2 and 3 of this guide to check what has been configured



The error indicates incorrect polarity or open circuit with the connection cables. There will also be only 1 led lit on the USB-RS485 converter.



The above message indicates that the Com Port settings are incorrect. No LEDs will be shown on the USB-RS485 Converter. Change the port to COM1 as indicated in step 10 of this guide

For further assistance, call Rheem Service on 131 031.