

CoreSense™ PC Communication Software User's Manual

Revised September 2018



ABSTRACT

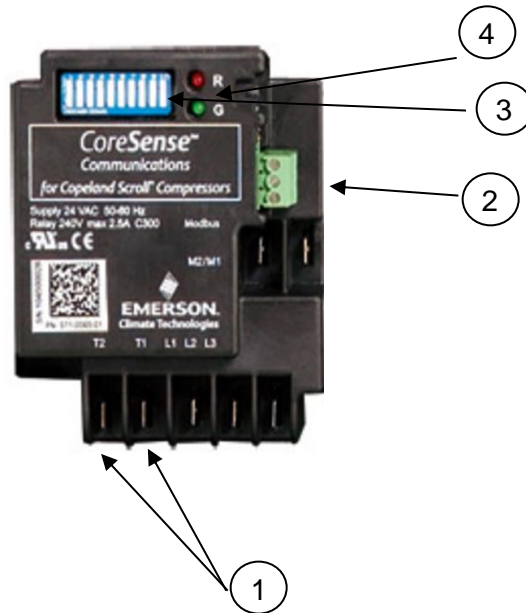
Emerson's CoreSense™ AC Interface(PCIF) software is an accessory item for personal computers that unlocks advanced history and diagnostic capability when used in conjunction with existing CoreSense™ modules. Designed to help contractors troubleshoot residential or commercial air conditioning systems, CoreSense™ PCIF software extracts valuable history information directly from the installed modules to help guide the contractor to the root cause of system issues.

This document will guide one through the necessary steps to enable and troubleshoot CoreSense™ PCIF software in conjunction with Emerson's CoreSense™ Communication module.

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Getting Started: Installation



Necessary Equipment:

- 571 – 0064 – 0X or 571-0065 – 0X Module
- USB – RS485 Connector
- CoreSense™ AC PCIF Software
- Laptop/PC with USB Port 2.0/3.0

Note:

1. T1 and T2, powers the module
2. RS485 Connector
3. DIP Switch Settings
4. LED Alerts. Green (G). Red (R)

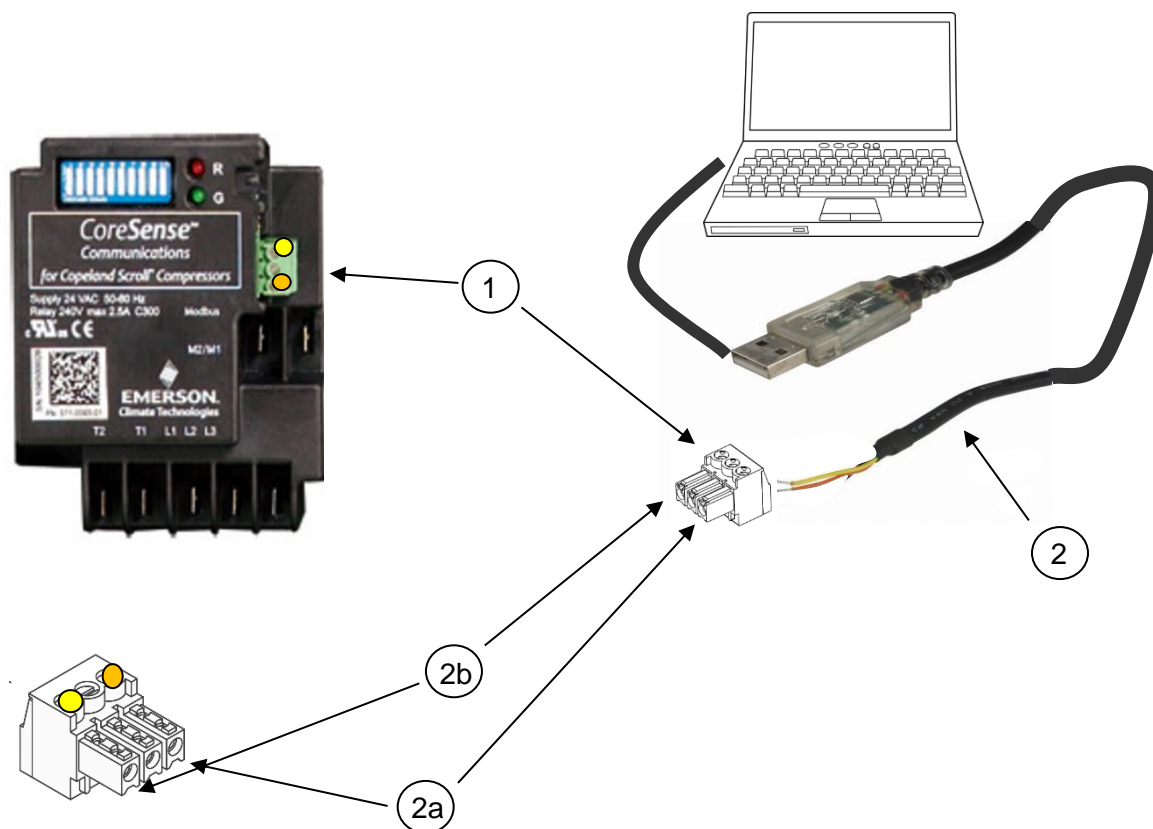
Module Power



Note:

1. T1 and T2, powers the module

RS485 Connectivity



Note:

1. RS485 Connector, P/N: 571-284507-3 or Tyco P/N: 284507-3 or Equiv.
2. USB to RS485 Serial Converter Cable, P/N: 768-1041-ND or FTDI P/N: USB-RS485-WE-1800-BT or Equiv.
 - a. Orange Wire
 - b. Yellow Wire

DIP Switch Setting



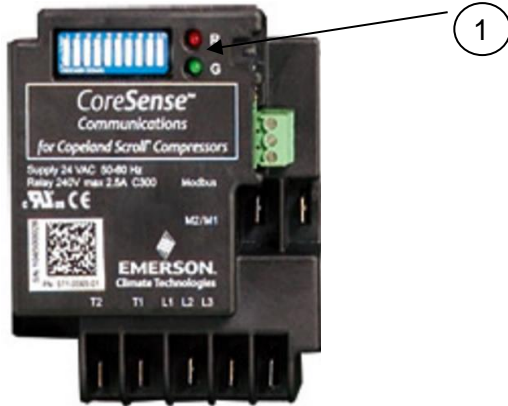
DIP Switch Number	On	Off
1 through 5	Modbus Module Address	
6	Baud Rate = 9600	Baud Rate = 19200
7	Even Parity	No Parity
8	Network Mode	Stand Alone
9 ¹	TE*	TW*
10	Enable Short Cycle Protection	Disable Short Cycle Protection

¹ Thermistor Configuration: TE* = PTC & NTC, TW* = PTC Only

Note:

1. DIP Switch Settings
 - a. Default settings
 - i. Modbus Module Address: 1
 1. Refer to page 32 for address examples
 2. **0 is NOT a networkable address.**
 - ii. Baud Rate: 19200
 - iii. Parity: None
 - iv. Stand Alone
 - v. TE
 - vi. Disable Short Cycle Protection

LED Flash Code



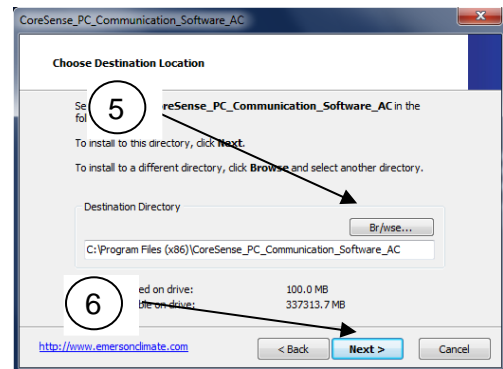
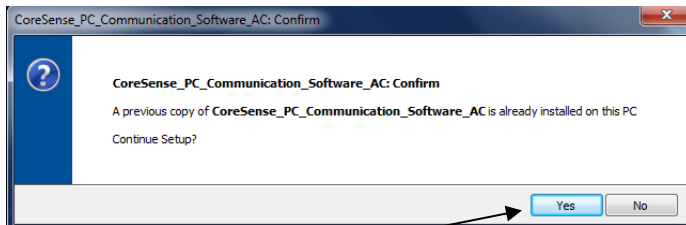
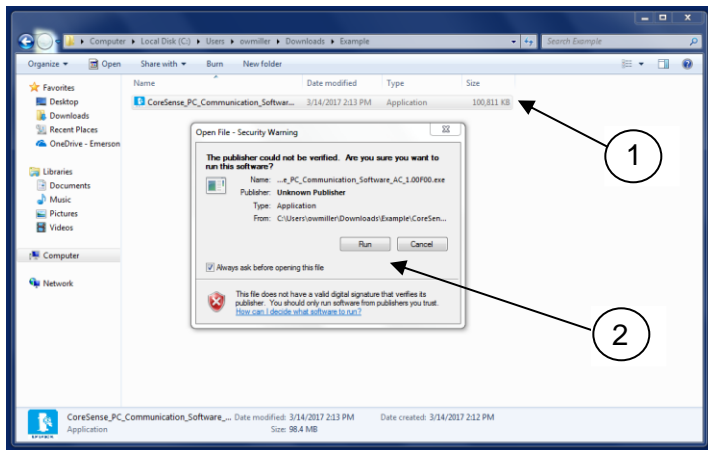
Status	Fault Condition	Code Fault Description
Solid Green	Normal Operation	Module is powered and operation is normal
Solid Red	Module Malfunction	Module has internal fault
Warning LED Flash Codes		
Green Flash Code 1	Loss of Communication	Module and master controller have lost communications with each other for more than 5 minutes
Green Flash Code 2	Future Use	N/A
Green Flash Code 3	Short Cycling	Run time of less than 1 minute; number of short cycles exceeds 48 in 24 hours
Green Flash Code 4	Open/Shorted Scroll Thermistor	$\Omega > 370K$ or $\Omega < 1K$
Green Flash Code 5	Future Use	N/A

Alert/Lockout LED Flash Codes		
Red Flash Code 1	Motor High Temperature	$\Omega > 4.5K$; Lockout after 5 Alerts
Red Flash Code 2	Open/Shorted Motor Thermistor	$\Omega > 220K$ or $\Omega < 40$; Lockout after 6 hours
Red Flash Code 3	Short Cycling	Run time of less than 1 minute; Lockout if the number of Alerts exceeds the number configured by the user in 24 hours
Red Flash Code 4	Scroll High Temperature	$\Omega < 2.4K$; Lockout if the number of Alerts exceeds the number configured by the user in 24 hours
Red Flash Code 5	Future Use	N/A
Red Flash Code 6	Missing Phase	Missing phase; Lockout after 10 consecutive Alerts
Red Flash Code 7	Reverse Phase	Reverse phase; Lockout after 1 Alert
Red Flash Code 8	Future Use	N/A
Red Flash Code 9	Module Low Voltage	Low voltage on T2-T1 terminals ¹

Note:

1. LED Alerts. Green (G). Red (R).
 - a. See AE Bulletin for CoreSense™ Communications for additional information on Alert/Lockout LED Flash codes.

Configuration: Step 1

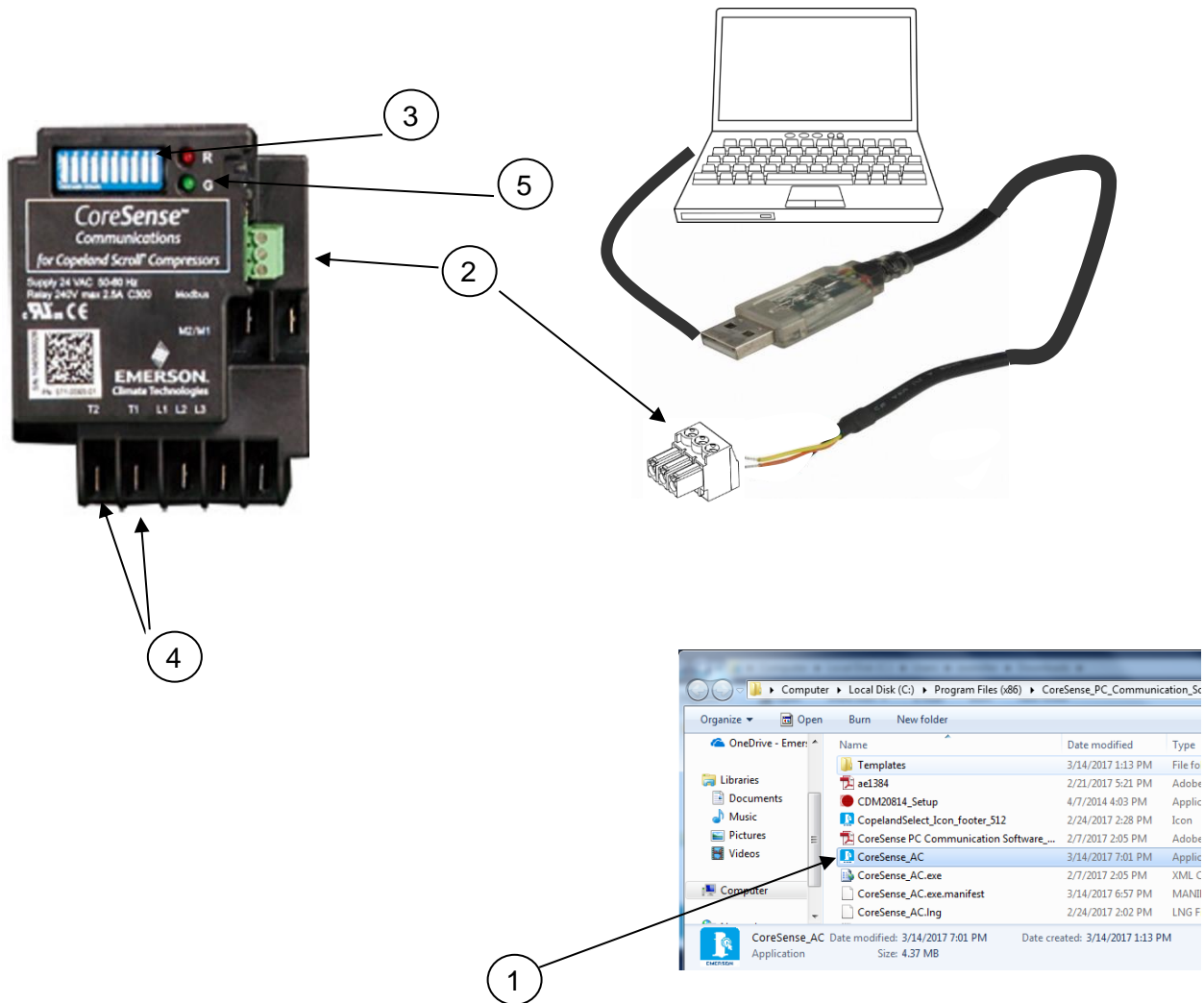


Note:

If latest CoreSense™ Software, '**CoreSense_PC_Communication_Software_AC.exe**', is already downloaded, you may skip these steps and go onto the next page.

1. Create a new folder and place '**CoreSense_PC_Communication_Software_AC.exe**' in it. Click on '**CoreSense_PC_Communication_Software_AC.exe**'
2. Click '**Run**' to extract CoreSense™ files
3. Click '**Yes**'
4. Click '**Next**'
5. Click '**Browse...**' and choose folder to save the CoreSense™ Software.
 - a. It is recommended to save the files in the new folder created in the first step.
6. Click '**Next**'
7. Click '**Finish**'

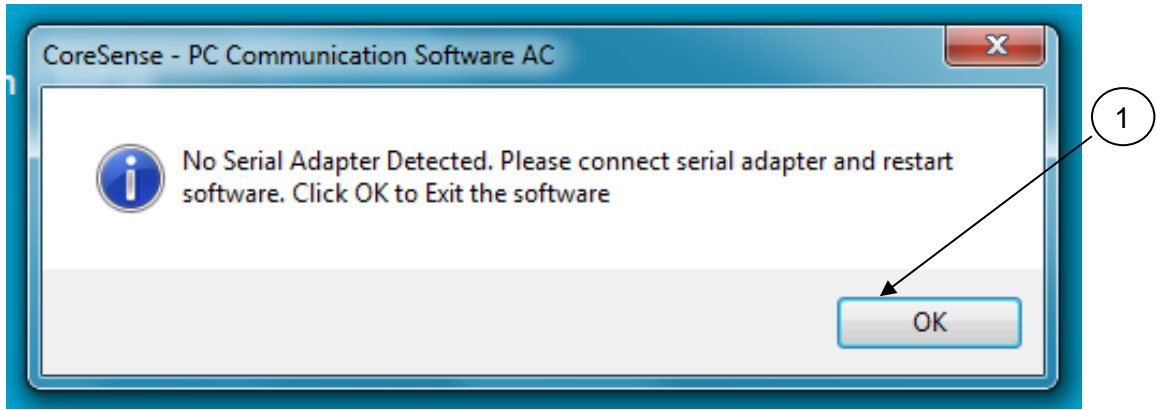
Configuration: Step 2



Note:

- Connect the USB to RS485 Serial Converter Cable to the computer and the CoreSense module. **(2)**.
- See Page 4 to verify correct DIP switch positions **(3)**.
- Power Cycle the CoreSense Communications module **(4)**.
- Wait 12-15 seconds after the power cycle, make sure green LED (G) is ON **(5)**.
- Open the Software by clicking on "CoreSense_PC_Communication_Software_AC.exe" **(1)**

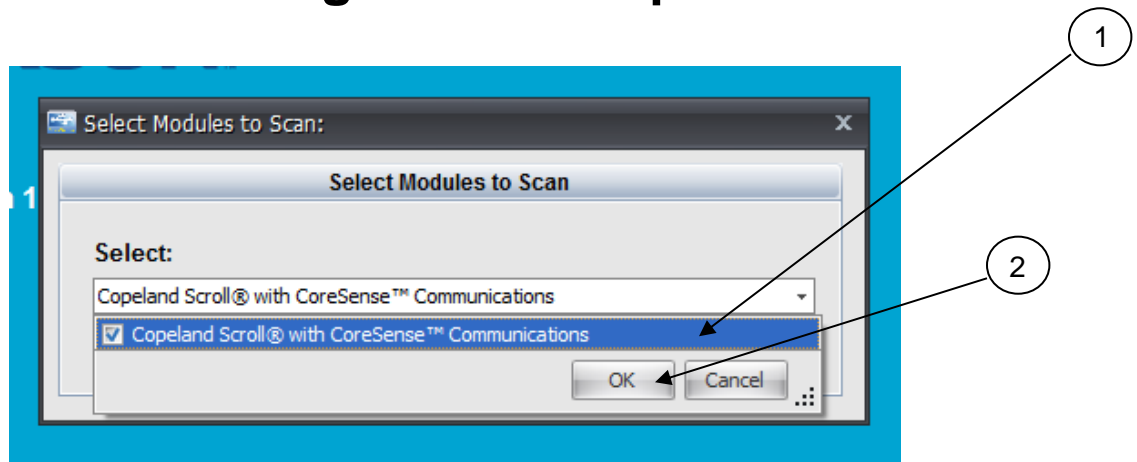
Configuration: Step 3



Note:

1. If this message box appears make sure the serial adapter is connected to the computer, click **OK**
 - a. Repeat Configuration Step 2 if this does not auto-connect a second time
 - b. If repeating Configuration Step 2 does not solve the issue, please refer to the [Troubleshooting steps](#) at the end of the document

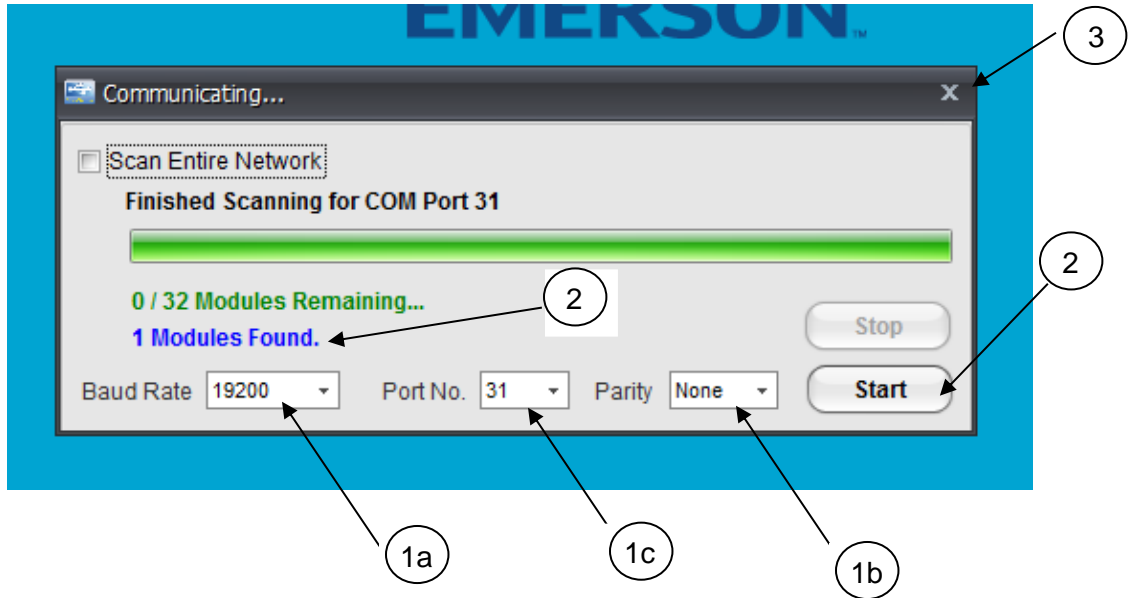
Configuration: Step 4



Note:

1. Select '**Copeland Scroll ® with CoreSense™ Communications.**'
2. Click '**OK**'

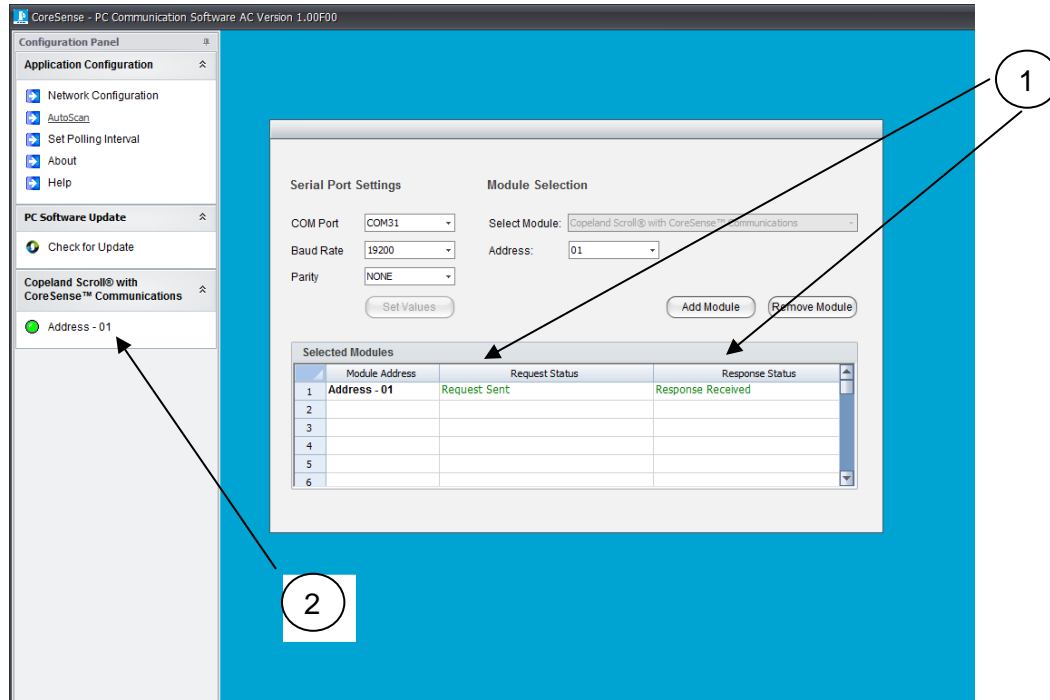
Configuration: Step 5



Note:

1. Ensure the module(s) are powered. **CHECK:**
 - a. Baud Rate: 19200
 - b. Parity: None
 - c. Port No.: Auto-filled dependent on laptop/PC's USB COM Port.
 - i. Generally, the highest number is selected.
2. Click '**Start**' to search for CoreSense Communications module(s)
3. Close the '**Communicating...**' window.

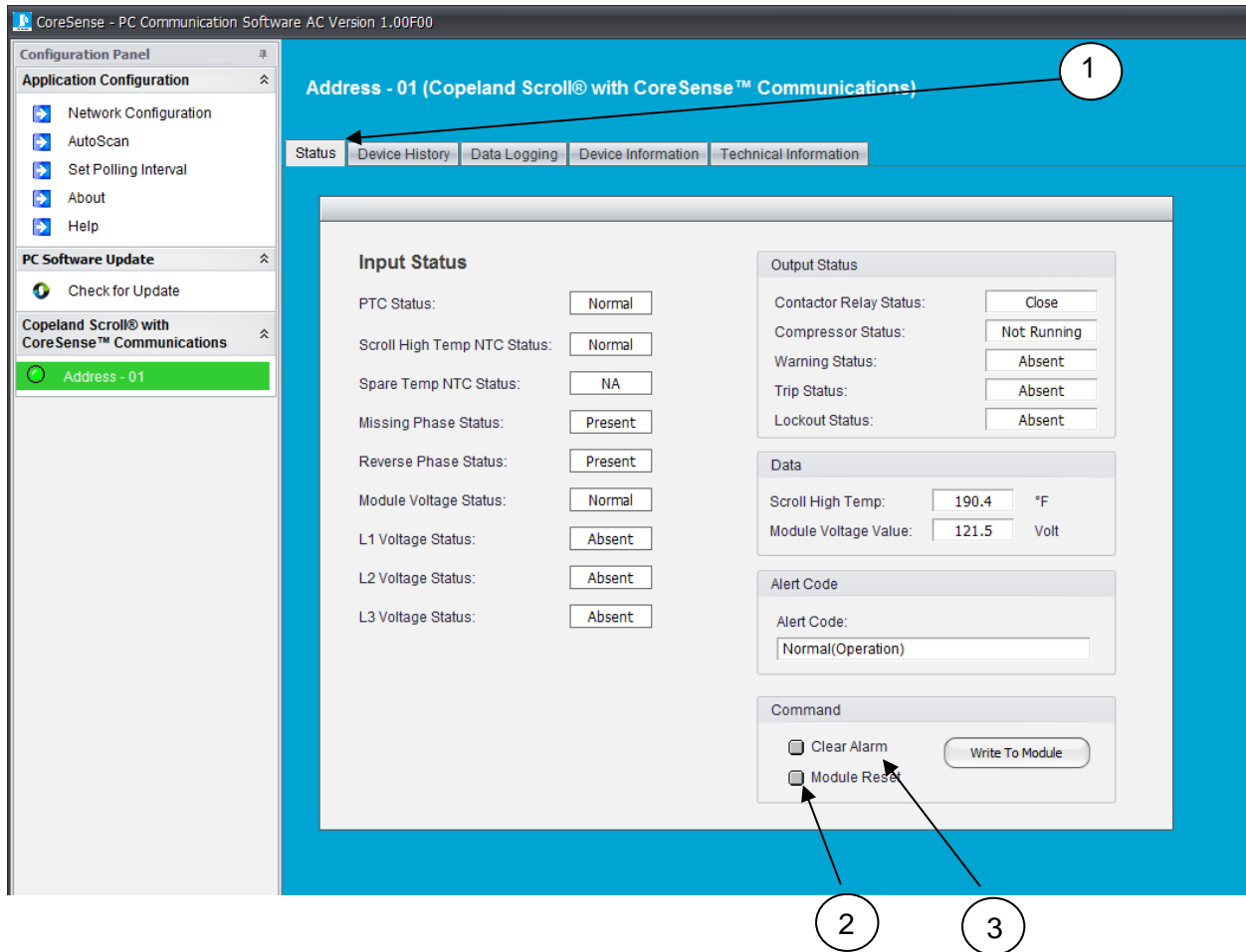
Configuration: Step 6



Note:

1. Confirm '**Request Status – Request Sent**' and '**Response Status – Response Received.**'
 - a. If '**Response Status**' is '**Error: No Response Received !!**'
 - i. Make sure module is powered
 - ii. USB to RS485 serial converter is connected and the yellow and orange wires are connected to the proper terminals
2. Click on '**Address – 01.**'

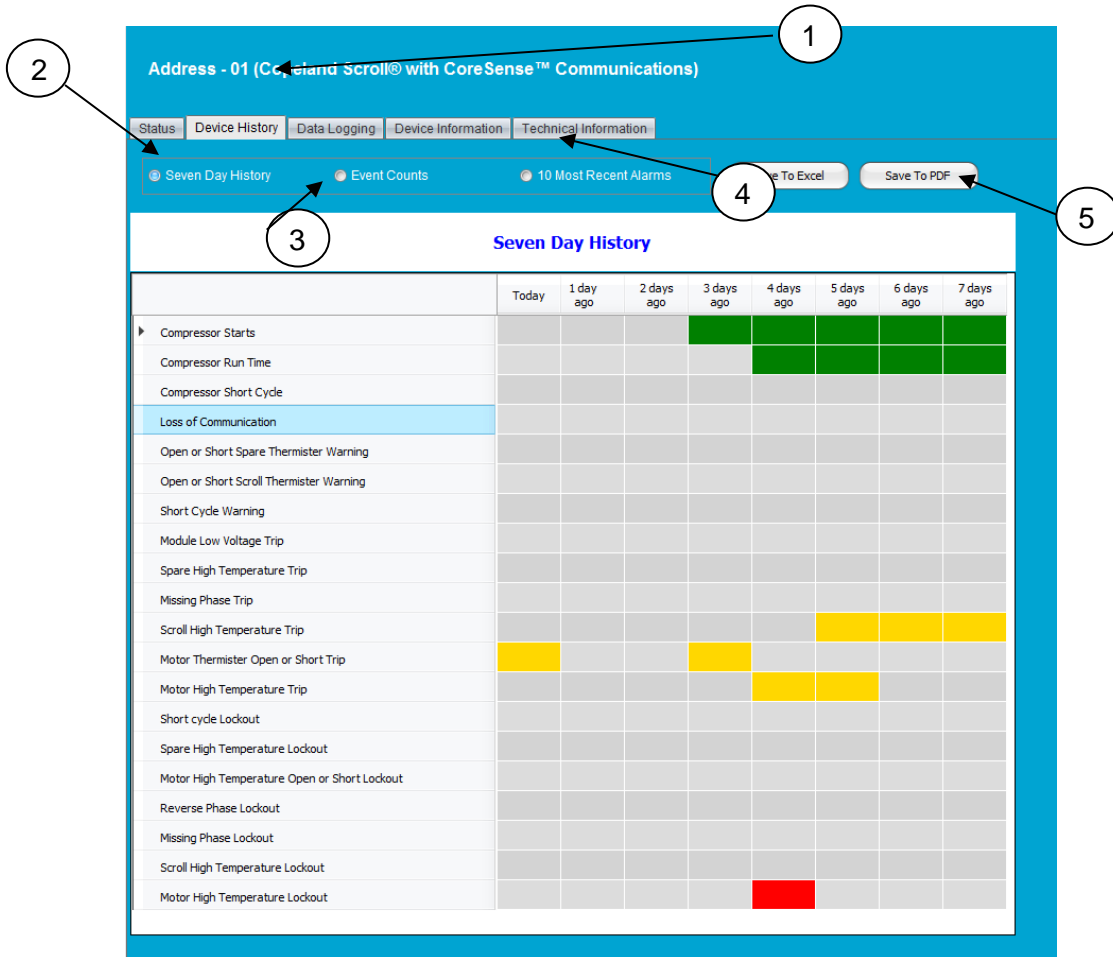
CoreSense™ Communications Status



Note:

1. Status Window
2. To clear alarms, toggle box '**Clear Alarm**', then click '**Write to Module.**'
3. To reset module, toggle box '**Module Reset**', then click '**Write to Module.**'
 - a. **DISCLAIMER!**
 - i. Synonymous with power cycling module

CoreSense™ Communications Device History



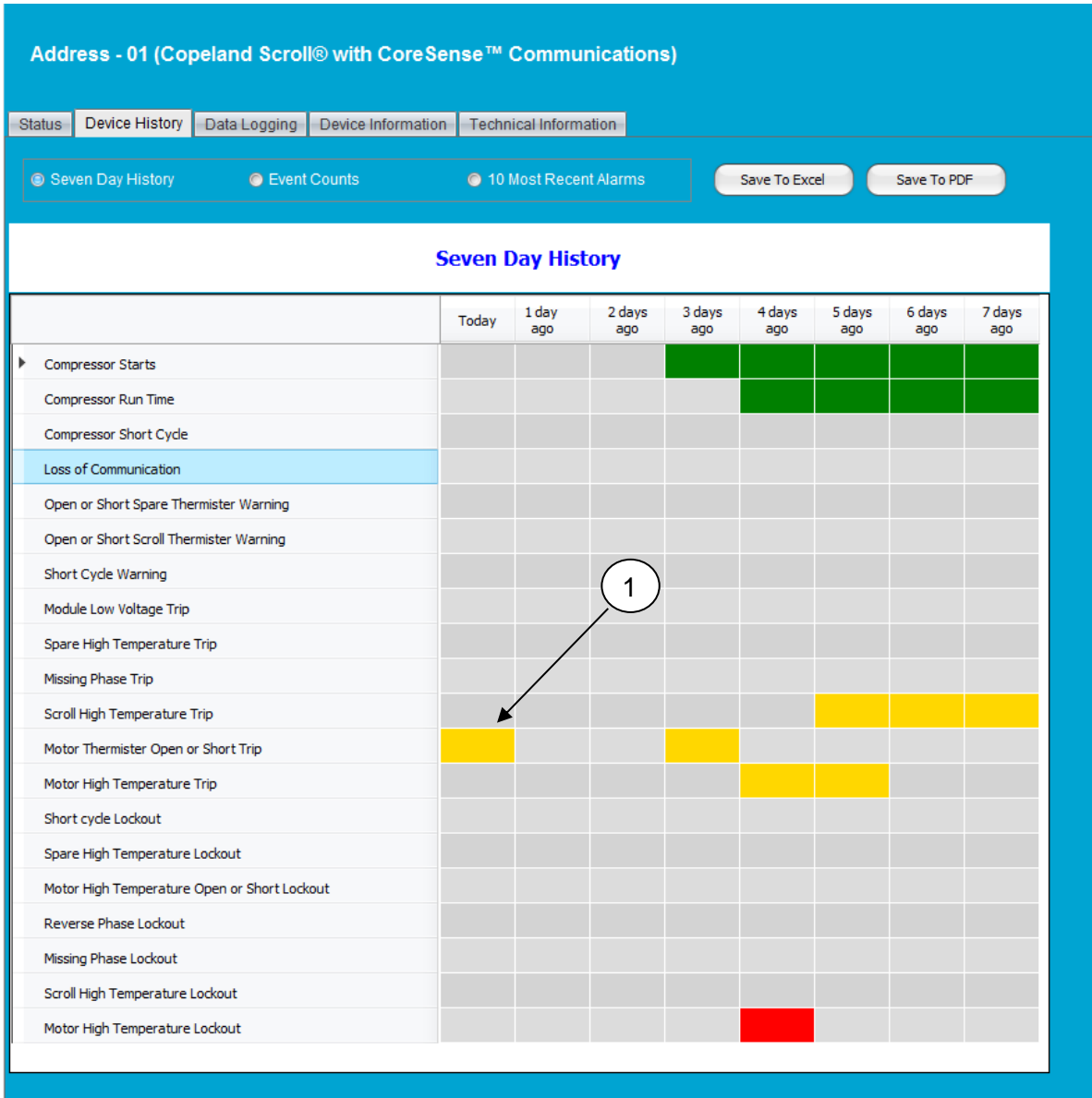
Color Code:

- Green: Normal
- Yellow: Trip
- Red: Lockout

Note:

1. Device History Window
2. Displays **'Seven Day History.'**
3. Displays **'Event Counts.'**
4. Displays **'10 Most Recent Alarms.'**
5. To obtain PDF version of module history, click **'Save To PDF'**, and select folder to save the documentation.
 - a. **SEE REPORT GUIDE FOR ADDITIONAL INFORMATION ON PDF**

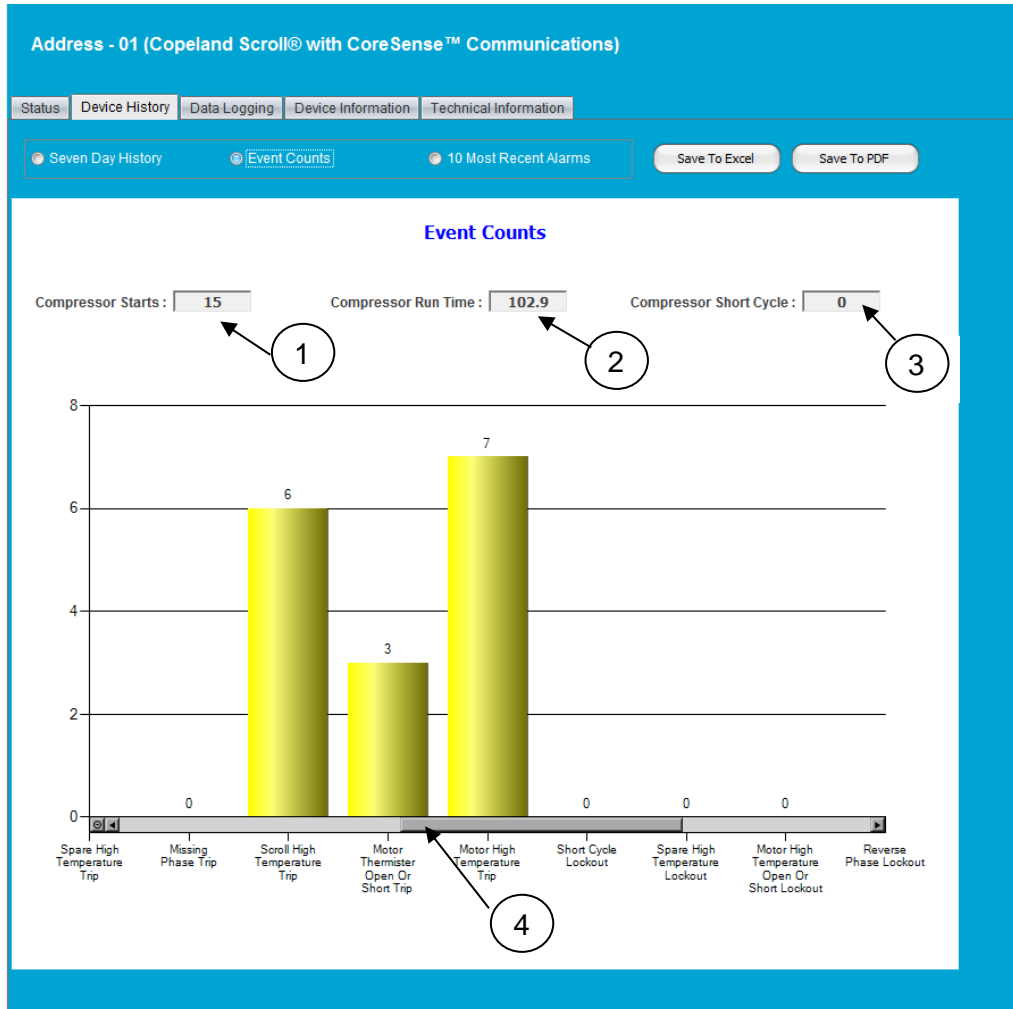
Device History – Seven Day History



Note:

1. Hover cursor over a rectangular box to read the number of times alert has occurred in specified time frame

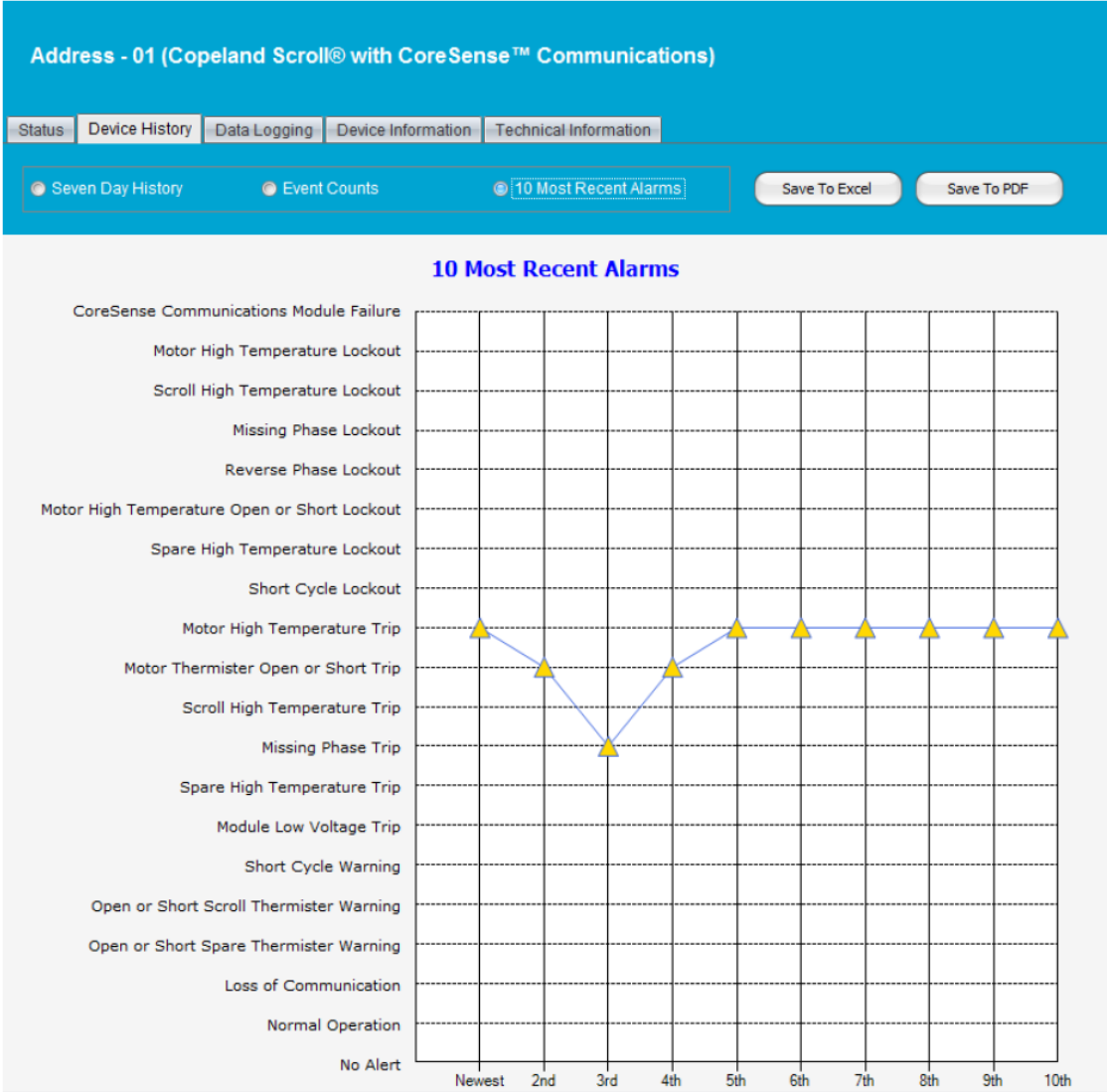
Device History - Event Counts



Note:

1. Compressor Starts – equal to number to compressor starts within 7-day history
2. Compressor Run Time – equal to total amount of compressor run time within 7-day history
 - a. Run-time is incremented every 6 minutes (1/10 of an hour)
 - i. Increments by 0.1
3. Compressor Short Cycle – equal to number of short cycles within 7-day history
4. Scroll bar used to see the counts of the other faults (trips/lockouts) within 7-day history

Device History – 10 Most Recent Alarms



Note:

- Lists the 10 most recent alarms with respect to each other

CoreSense™ Communications Data Logging

Address - 01 (Copeland Scroll® with CoreSense™ Communications)

Status | Device History | **Data Logging** | Device Information | Technical Information

Data Logging

Enable Disable

Auto Logging Manual Logging

Set time interval to log data: 10 seconds

Path: C:\Users\jvmiller\Documents

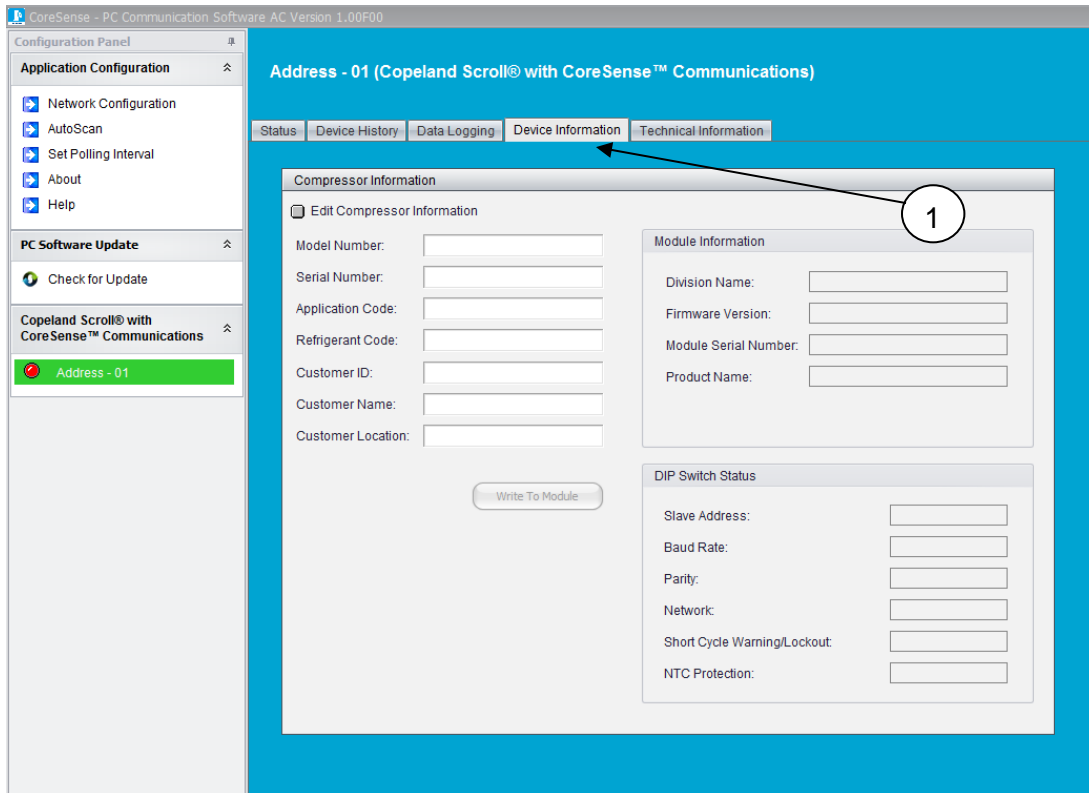
Browse Save

DATE TIME	INPUT STATUS								OUTPUT STATUS							DATA	
	PTC Status	Scroll High Temp NTC Status	Spare Temp NTC Status	Line Phase Voltage Status	Pilot Voltage Status	L1 Voltage Status	L2 Voltage Status	L3 Voltage Status	Line Reverse Voltage Status	Output Contactor Status	Compressor Status	Warning Status	Trip Status	Lockout Status	Configuration Status	Scroll High Temp	Pilot Voltage Value
3/14/2017 4:16:15 PM	Normal	Normal	NA	Present	Normal	Absent	Absent	Absent	Present	Open	Not Running	Absent	Absent	Absent	Absent	190.4	120.92
3/14/2017 4:16:05 PM	Normal	Normal	NA	Present	Normal	Absent	Absent	Absent	Present	Open	Not Running	Absent	Absent	Absent	Absent	190.4	120.92
3/14/2017 4:15:55 PM	Normal	Normal	NA	Present	Normal	Absent	Absent	Absent	Present	Close	Not Running	Absent	Absent	Absent	Absent	190.4	121.5
3/14/2017 4:15:45 PM	Normal	Normal	NA	Present	Normal	Absent	Absent	Absent	Present	Close	Not Running	Absent	Absent	Absent	Absent	190.4	120.92
3/14/2017 4:15:29 PM	Normal	Normal	NA	Present	Normal	Absent	Absent	Absent	Present	Close	Not Running	Absent	Absent	Absent	Absent	190.4	121.5

Note:

1. Data Logging Window
2. Toggle to 'Enable' or 'Disable' data logging
 - a. **DISCLAIMER!**
 - i. Toggling 'Enable' will clear all previous data obtained
3. Auto/Manual Logging
 - a. Choose between 2 seconds and 60 minutes for **manual logging** interval
 - b. Status of CoreSense™ Communications will **automatically log** in ¼ of a second if there is a trip/lockout alert; otherwise, the software will not log any data.
4. Click 'Browse' to determine folder for logged data
5. Click 'Save' to save an excel file in browsed folder

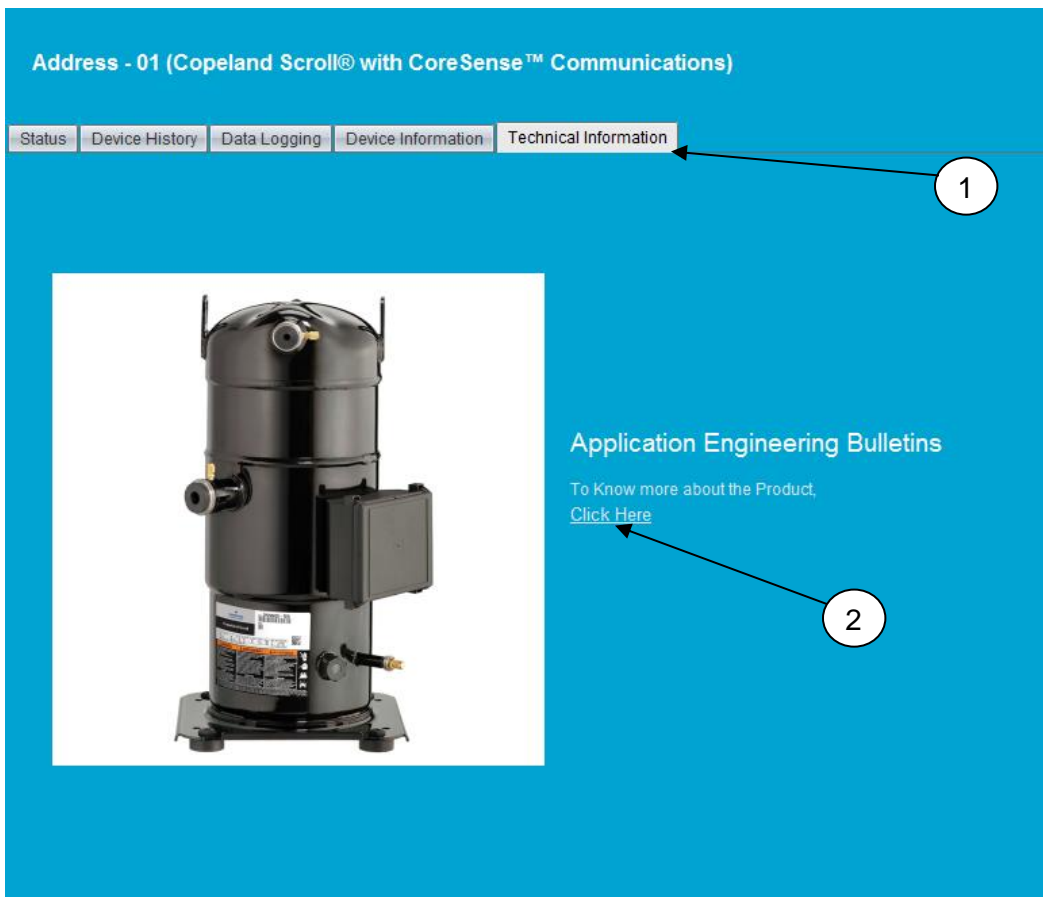
CoreSense™ Communications Device Information



Note:

1. Device Information Window
 - a. The Compressor Information portion of the window will be automatically populated, but can be edited
 - i. Click the Edit Compressor Information checkbox
 - ii. The compressor information data fields can now be modified
 - iii. Click the Write To Module Button to save your modifications to the Module
 - b. The Module Information portion of the window will be automatically populated and cannot be edited
 - c. The DIP Switch Status portion of the window will be automatically populated and cannot be edited

CoreSense™ Communications Technical Information



Note:

1. Technical Information Window
2. Additional information about the CoreSense™ Communications

Report Guide

1

2

3

Device Information

Compressor Information

Model Number :	COMPRESSORMODELNUN
Serial Number :	COMPRESSORS
Application Code :	AP
Refrigerant Code :	REFRIG
Customer Id :	CUS
Customer Name :	CUSTOMERNAME-XXX
Customer Location :	CUSTOMERLOCATION

Module Information

Division Name :	EMERSON-CLIMATE-TECHNOLOGIES
Firmware Version :	3.04F02
Module Serial Number :	SERIAL-123
Product Name :	CoreSense Communications

DIP Switch Status

Slave Address :	1
Baud Rate :	19200
Parity :	None
Network :	Stand alone
Short Cycle Warning/Lockout :	Warning
NTC Protection :	Disable

Note:

1. Sections of report document generated by PCIF
2. Compressor and Module information
3. DIP Switch Status

Report Guide - Status

Status Information

Input Status

PTC Status :	Normal
Scroll High Temp NTC Status :	Normal
Spare Temp NTC Status :	NA
Missing Phase Status :	Present
Reverse Phase Status :	Present
Module Voltage Status :	Normal
L1 Voltage Status :	Present
L2 Voltage Status :	Present
L3 Voltage Status :	Present

Output Status

Contactor Relay Status :	Close
Compressor Status :	Running
Warning Status :	Absent
Trip Status :	Absent
Lockout Status :	Absent

Data

Scroll High Temp. :	57.2 °F or 14 °C
Module Voltage Value :	257.11 Volt

Alert Code

Alert Code :	Normal(Operation)
--------------	-------------------

Note:

- Input/output Status of the module

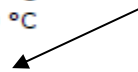
Report Guide – Configuration

Configuration Information

Module Configuration

Scroll High Temp. - Trip :	284 °F or 140 °C
Scroll High Temp. - Reset :	230 °F or 110 °C
No. of Events for Phase Lockout :	10
No. of Events for SHT Lockout :	20
Compressor Runtime as Short Cycle :	3
No. of Events for Short Cycle Warning :	48

1



Note:

1. Configurations for faults (trips/lockouts)

Report Guide – History

History Information

1 Alarm History 2 Today 3 Cumulative Count

	Today	1 day ago	2 days ago	3 days ago	4 days ago	5 days ago	6 days ago	7 days ago	Cummulative Count
Loss of Communication	0	0	0	0	0	0	0	0	0
Open or Short Spare Thermister Warning	0	0	0	0	0	0	0	0	0
Open or Short Scroll Thermister Warning	0	0	0	0	0	0	0	0	0
Short Cycle Warning	0	0	0	0	0	0	0	0	0
Module Low Voltage Trip	0	0	0	0	0	0	0	0	0
Spare High Temperature Trip	0	0	0	0	0	0	0	0	0
Missing Phase Trip	1	31	4	0	0	0	0	0	36
Scroll High Temperature Trip	0	0	0	0	0	0	0	0	0
Motor Thermister Open or Short Trip	2	7	2	0	0	0	0	0	11
Motor High Temperature Trip	2	22	2	1	0	0	0	0	27
Short cycle Lockout	0	0	0	0	0	0	0	0	0
Spare High Temperature Lockout	0	0	0	0	0	0	0	0	0
Motor High Temperature Open or Short Lockout	0	1	0	0	0	0	0	0	1
Reverse Phase Lockout	0	1	0	0	0	0	0	0	1
Missing Phase Lockout	0	0	0	0	0	0	0	0	0
Scroll High Temperature Lockout	0	0	0	0	0	0	0	0	0
Motor High Temperature Lockout	0	0	0	0	0	0	0	0	0

4 Compressor History

	Today	1 day ago	2 days ago	3 days ago	4 days ago	5 days ago	6 days ago	7 days ago	Cummulative Count
Compressor Starts	8	2	2	4	1	0	1	0	46
Compressor Runtime	6.1	22.1	4.1	21.4	11.2	0	2.2	0	67.7
Compressor Short Cycle	0	0	0	0	0	0	0	0	0

5 Ten Most Recent Alarms

Alarm Description	Run Time (Hours)
Motor Thermister Open or Short Trip	66.9
Motor Thermister Open or Short Trip	66.7
Motor High Temperature Trip	62.8
Motor High Temperature Trip	62.7
Missing Phase Trip	62.6
Missing Phase Trip	61.1
Missing Phase Trip	61.1
Missing Phase Trip	58.8
Missing Phase Trip	56.5
Missing Phase Trip	55.6

Note:

1. Faults (trips/lockouts)
2. 7-day history with following rows for trips/faults
3. **Cumulative Count** – total amount of trip/lockout within the 7-day history
4. **Compressor Run Time**
 - a. Run-time is incremented every 6 minutes (1/10 of an hour)
5. List of the 10 most recent alarms

Report Guide – Seven Day History

Seven Day History

	Today	1 day ago	2 days ago	3 days ago	4 days ago	5 days ago	6 days ago	7 days ago
▶ Compressor Starts	Green	Green	Green	Green	Green	Grey	Green	Grey
Compressor Run Time	Green	Green	Green	Green	Green	Grey	Green	Grey
Compressor Short Cycle	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Loss of Communication	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Open or Short Spare Thermister Warning	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Open or Short Scroll Thermister Warning	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Short Cycle Warning	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Module Low Voltage Trip	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Spare High Temperature Trip	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Missing Phase Trip	Yellow	Yellow	Yellow	Grey	Grey	Grey	Grey	Grey
Scroll High Temperature Trip	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Motor Thermister Open or Short Trip	Yellow	Yellow	Yellow	Grey	Grey	Grey	Grey	Grey
Motor High Temperature Trip	Yellow	Yellow	Yellow	Yellow	Grey	Grey	Grey	Grey
Short cycle Lockout	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Spare High Temperature Lockout	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Motor High Temperature Open or Short Lockout	Grey	Red	Grey	Grey	Grey	Grey	Grey	Grey
Reverse Phase Lockout	Grey	Red	Grey	Grey	Grey	Grey	Grey	Grey
Missing Phase Lockout	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Scroll High Temperature Lockout	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey
Motor High Temperature Lockout	Grey	Grey	Grey	Grey	Grey	Grey	Grey	Grey

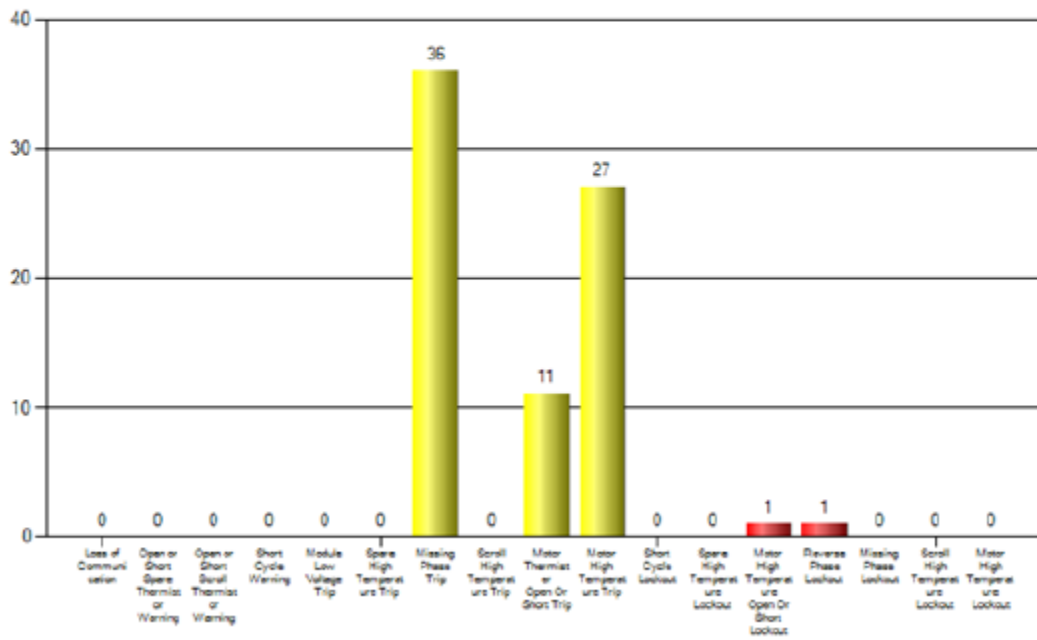
Note:

- **Seven Day History**
 - **Green:** Normal Operation
 - **Yellow:** Trips
 - **Red:** Lockout

Report Guide – Event Counts

Event Counts

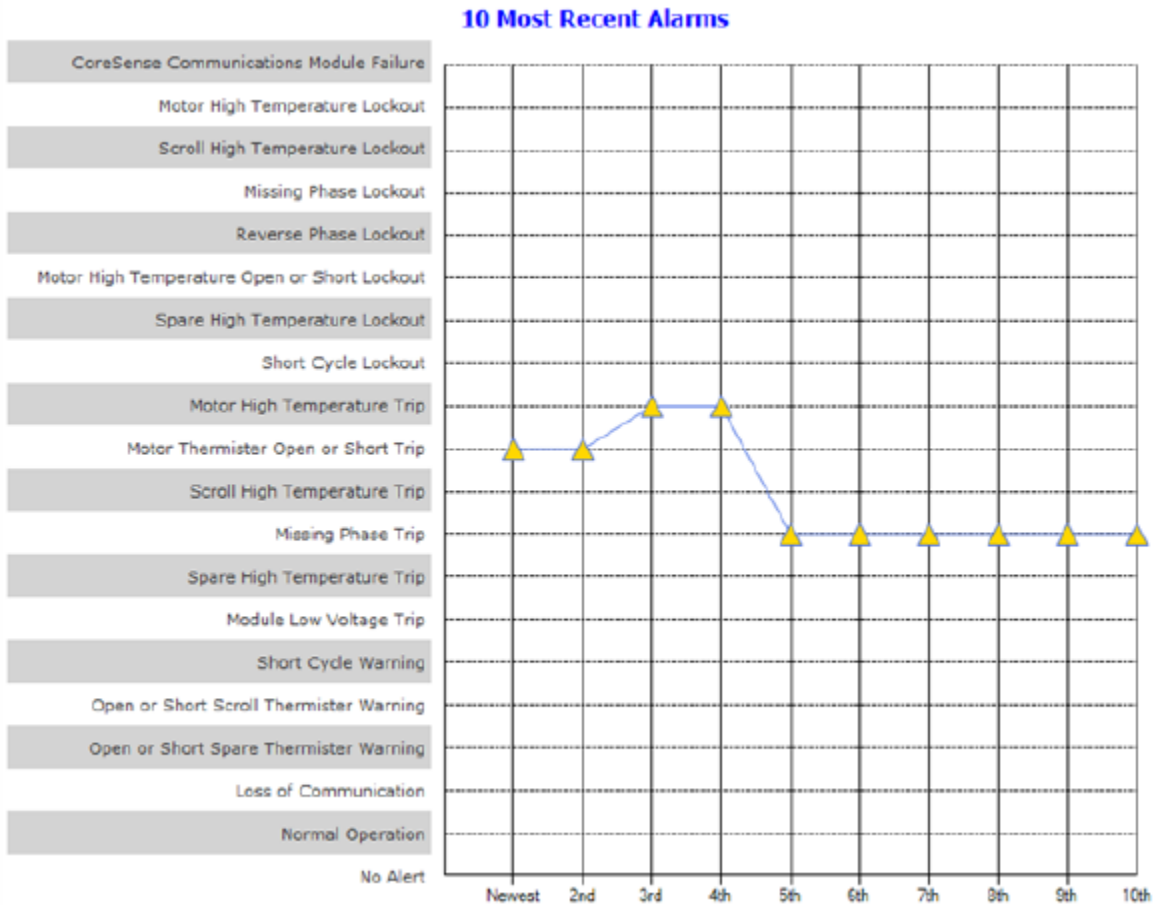
Compressor Starts : **46** Compressor Run Time : **67.7** Compressor Short Cycle : **0**



Note:

- **Event Counts**
 - Counts are with respect to the 7-day history

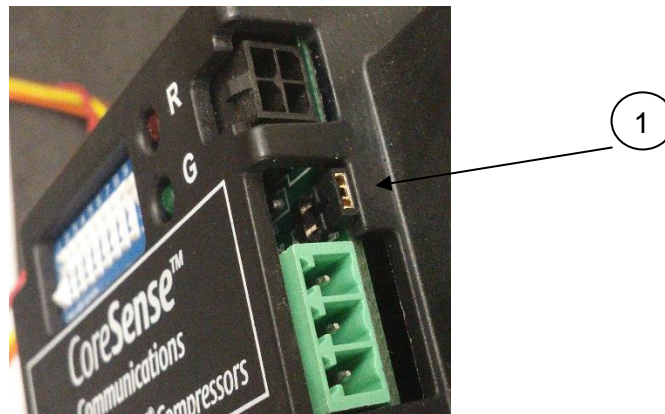
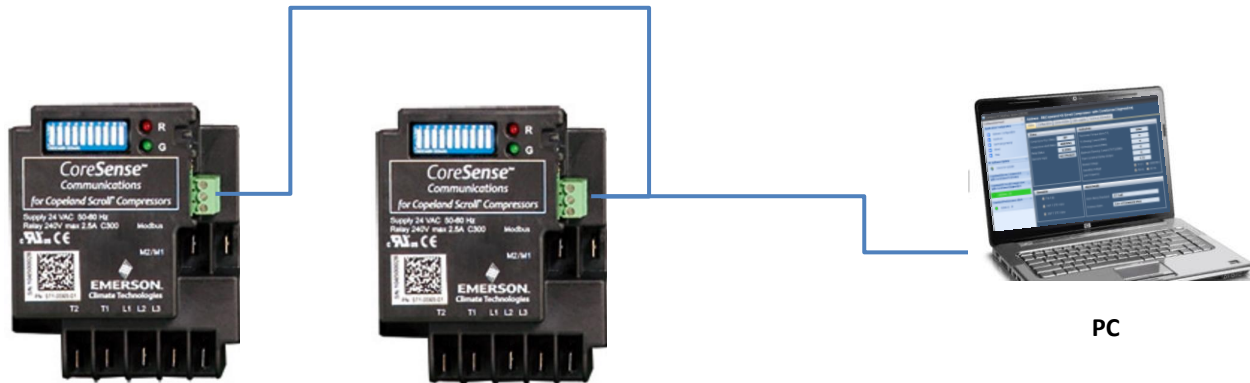
Report Guide – 10 Most Recent Alarms



Note:

- **10 Most Recent Alarms**

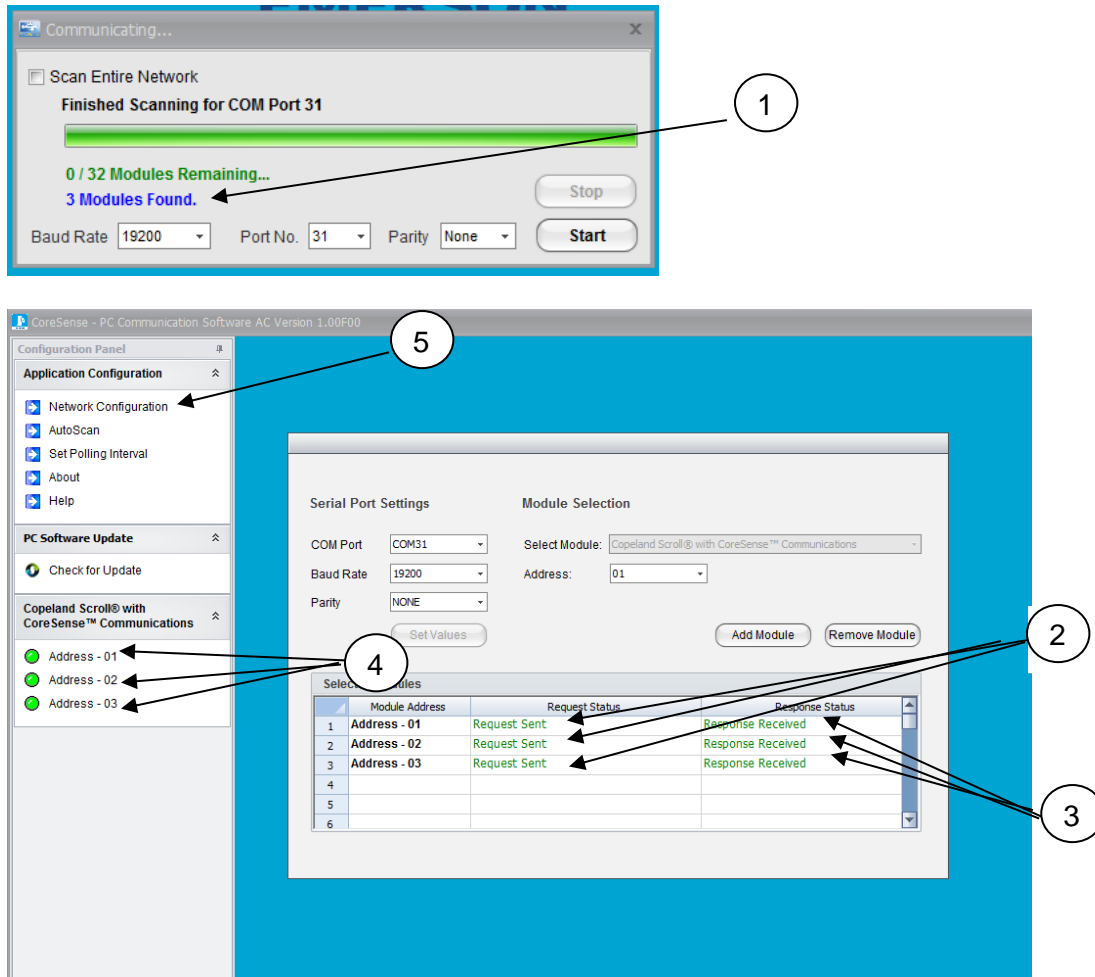
Interconnectivity to Networked Modules



Note:

- For standalone operation the termination resistor should remain installed.
 - **For daisy chained applications the termination resistor should remain installed for the modules on the ends of the daisy chain. All other termination resistors in the sequence of daisy chained modules should be removed.** The termination resistor can be removed using miniature electronics needle nose pliers
1. Location of termination resistor on CoreSense™ Communications module

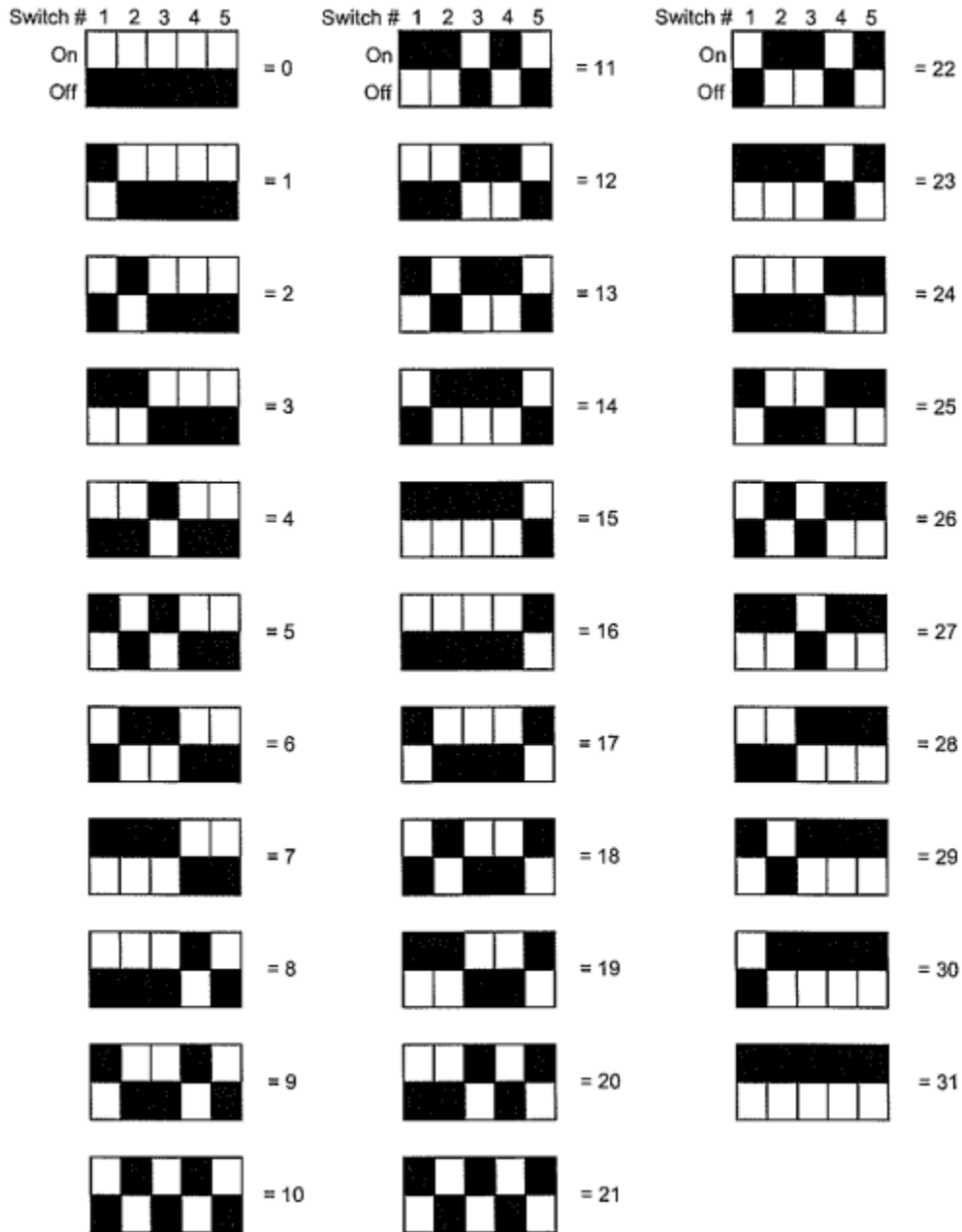
Interconnectivity to Networked Modules



Note:

1. Confirm that for networked modules, the number of modules found by PCIF corresponds with the number of modules in network.
 - a. Ex.: 3 Modules Found corresponds with the 3 modules currently networked
2. Confirm for 'Request Status,' each module address responds with 'Request Sent'
3. Confirm for 'Response Status,' each module's response is 'Response Received'
4. Switch between modules by clicking on corresponding addresses
5. 'Network Configuration' will return you to this page
 - For additional help, look at 'Configuration of PCIF,' starting with page 6.

Module Addressing



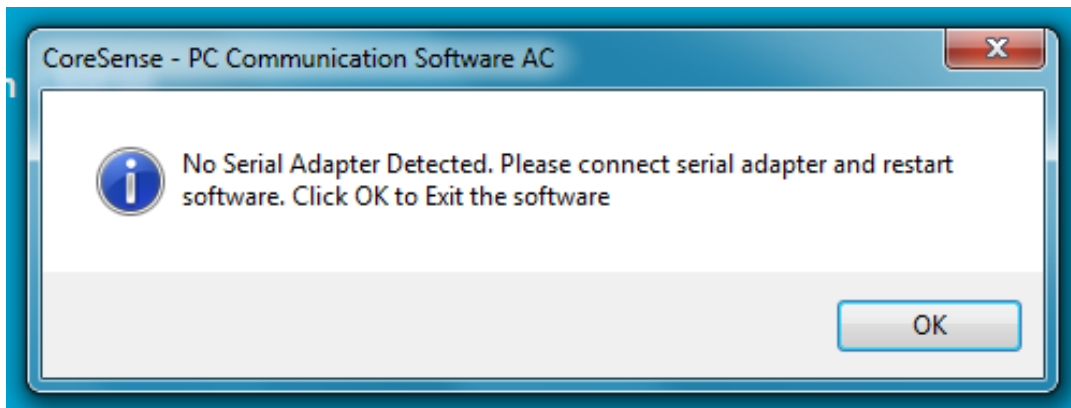
Note:

- Networked Modules **must** have different addresses per module
- Address 0 is reserved as the broadcast address. Do **not** set module address to 0

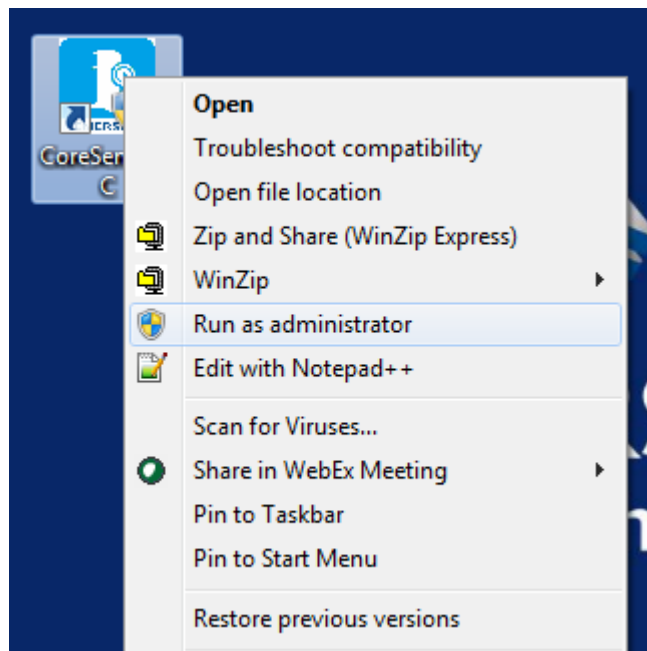
Troubleshooting

The steps below can be used to troubleshoot issues that may occur while using PCIF

Serial Adapter not connected / not detected

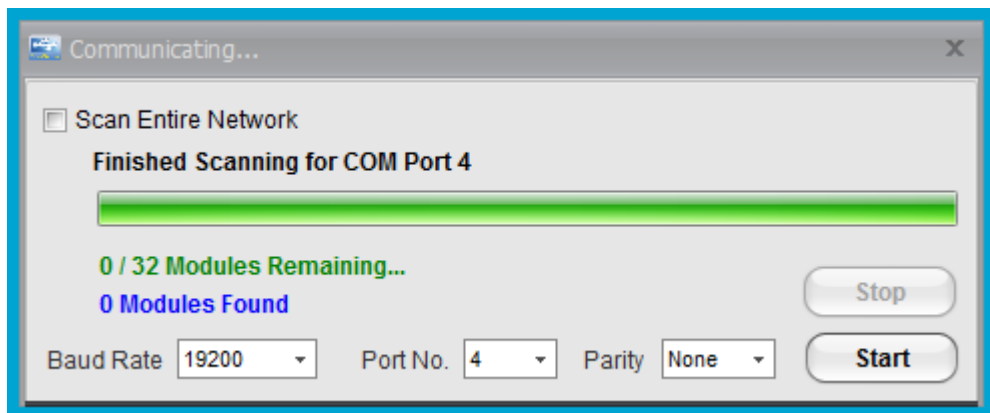


- If possible, run the program as an administrator as shown below
 - Right click PCIF
 - Click “Run as Administrator”



- Disconnect and reconnect the USB cable to the computer
- Ensure that the latest driver for the chipset in the approved cables is installed (As of 1/10/2018, v2.12.28 has been verified, updates can be found at [FTDI's site](#))

Module not detected in scan when plugged in



- Verify that COM port number is correct, try different port number
- Disconnect and reconnect the RS485 connection to the module
- Disconnect and reconnect the USB cable to the computer
- Verify DIP Switch settings match Baud rate and Parity set in application (shown [above](#))
- Restart application and scan again

About Emerson

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