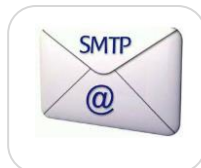


USER MANUAL

ECOM MICRO™



Ethernet 100 Base-T



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Technology **I**ntegration for **E**nergy **C**onservation & **H**igher **E**fficiency

Document conventions

The following symbols are used to draw attention to important information.



The exclamation symbol is used to highlight material that requires caution or thought before implementation.



The light bulb symbol is used to highlight helpful information and practices.

Abbreviations



TCP/IP	: Transmission Control Protocol/Internet Protocol
IP address	: Internet Protocol address
SSL	: Secure Sockets Layer
LAN	: Local Area Network
NO/NC	: Normally Open/Normally Close
I/O	: Input/Output
LED	: Light Emitting Diode
CSV	: Comma Separated Values
CE	: European Conformity
FCC	: Federal Communications Commission
RoHS	: Restriction of Hazardous Substances Directive
MAC address	: Media Access Control address
SP	: Set Point
DB	: Dead Band
RTC	: Real Time Clock
Sec	: Seconds
Min	: Minutes
IE	: Internet Explorer
SMTP	: Simple Mail Transfer Protocol
XML	: Extensible Markup Language
+/-	: Positive (+)/Negative (-)

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1 OVERVIEW

ECOM MICRO is an IP based programmable controller that can be used for a variety of control, monitoring and energy conservation applications. The user friendly interface and advanced design of ECOM MICRO provide simple setup, installation and programming options. This controller combines the convenience of web access with real-time onboard control & data logging to provide a cost-efficient and powerful solution for managing your facility systems. ECOM MICRO can be set up as a standalone facilities management system or integrated to any IT or BAS platform by means of XML communication.

ECOM MICRO incorporates a web server, analog/digital inputs, relay outputs, schedules, alarms and control programs. The ECOM MICRO serves up static web pages with dynamic data updates. This controller is technology rich with built-in Ethernet-ready hardware and TCP/IP stacks that enable the controller to be accessible across a LAN, and the internet. It is preloaded with HTML and XML data exchange technology. The built-in control logic allows for control of digital channels with complex programming conditions. The system supports data logging as well as email notification.

 **ECOM MICRO** is an ideal low-cost solution for remote industrial/commercial/residential monitoring/controlling applications.



1.1 PACKAGE CONTENTS

The ECOM MICRO is shipped ready to install. This package contains the below items.

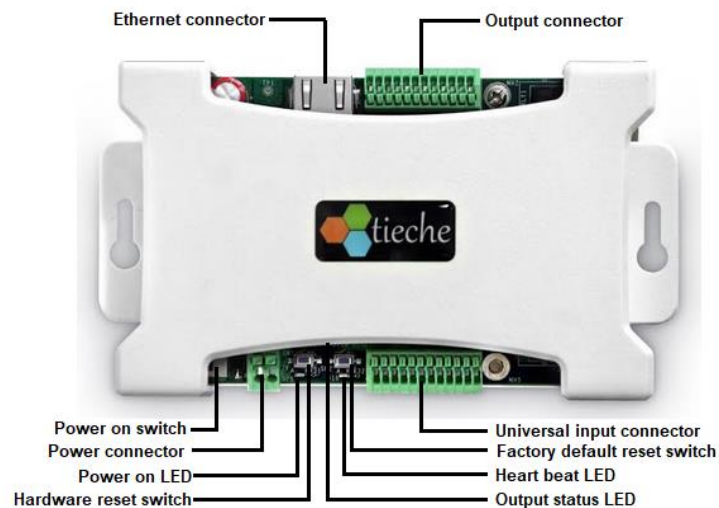
1. ECOM MICRO
2. Ethernet cable
3. Power supply
4. Mounting screws
5. Quick start guide



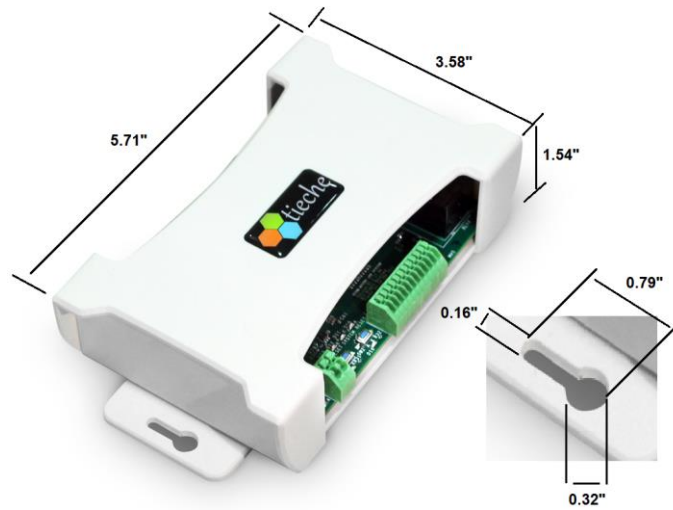
1.2 GETTING STARTED

The following pages detail the physical layout, physical dimensions, and product features of the ECOM MICRO controller.

1.2.1 PHYSICAL LAYOUT



1.2.2 PHYSICAL DIMENSIONS



1.2.3 PRODUCT FEATURES

Protocol

TCP/IP (IPv4 and IPv6)

DHCP: Dynamic Host Configuration Protocol

XML: Extensible Markup Language

SMTP: Provides standard email communication for broadcasting email alarms. Supports SSL security

User Interface

User friendly web interface

Email alerts

Power on LED

Heart beat LED

Digital output LED

User Access

Password protected user access

4 Schedules

Daily/Weekly/Monthly

4 Alarms

Alarms with email notification

Data logging

On board memory data log (2048 samples per I/O)

CSV download option

Data log graphing capability

Alerts

Controller power on alert email

Alarm email notification

Alarm notification on web pages

Recovery

Factory default reset option

Real Time Clock**Certification**

RoHS

CE

FCC Part 15 – Subpart B – Class A

2 INSTALLATION

2.1 REQUIREMENTS

The ECOM MICRO requires a PC with an Ethernet connection for programming and basic tools for mounting and installing the ECOM MICRO.



Flat-head screwdriver



Phillips-head screwdriver



Pliers



Wire stripper



2.2 UNPACKING

To begin the installation process, unpack the contents of the box. The package contains the below items.

1. ECOM MICRO
2. Ethernet cable
3. Power supply
4. Mounting screws
5. Quick start guide

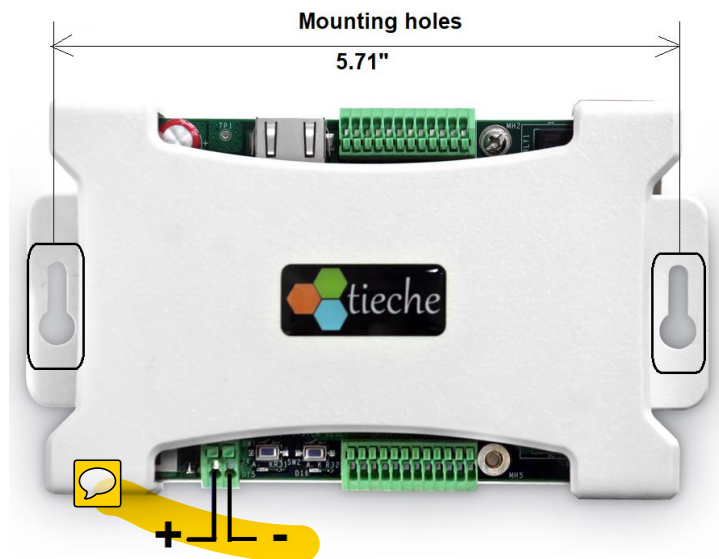


2.3 INSTALLATION & POWER CONNECTION



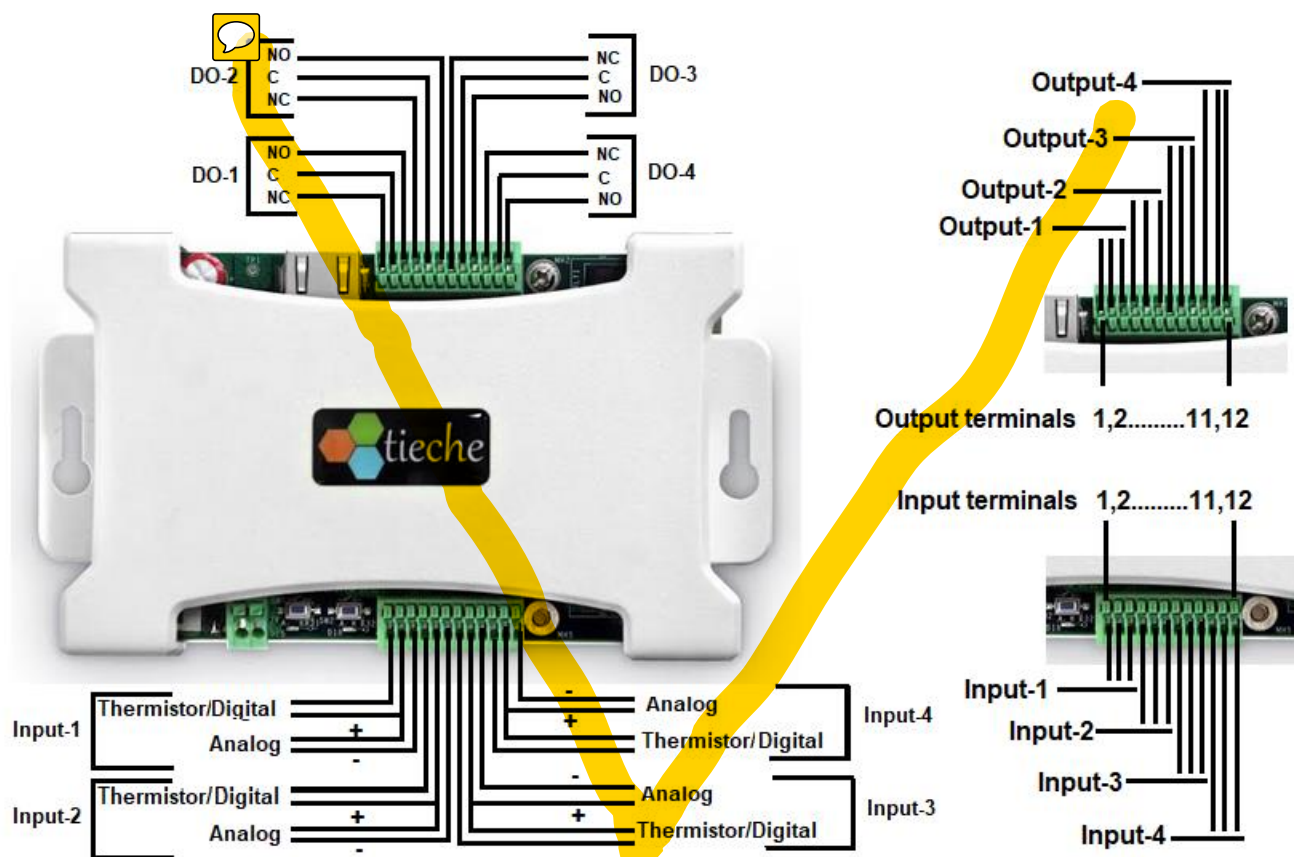
- Disconnect power supply before installation to prevent electrical shock and equipment damage.
- Make all connections in accordance with national and local electrical codes. Use stranded copper conductors only.
- Use electrostatic discharge precautions (e.g., use of wrist straps) during installation and wiring to prevent equipment damage.
- Avoid locations where severe shock or vibration, excessive moisture or corrosive fumes are present.
- Power supply should not exceed 12.6 VDC.
- Digital and Analog input should not exceed 10 VDC.

- Secure the ECOM MICRO module to the wall using screws.
- Connect 12 VDC positive (+) and negative (-) wires to the power connector.
- Toggle the power switch to the ON position. The power LED will turn ON.
- It takes approximately 10 seconds for ECOM MICRO to boot up. Once ready, heart beat LED starts blinking in one-second interval.



2.4 WIRING DIAGRAM

Input and output wiring details are given below.



3 COMMUNICATION

3.1 SETTING UP ECOM MICRO

Power on the ECOM MICRO, connect the Ethernet cable from ECOM MICRO to the PC directly or via Ethernet switch.

ECOM MICRO and PC direct connection



ECOM MICRO and PC connection via Ethernet switch

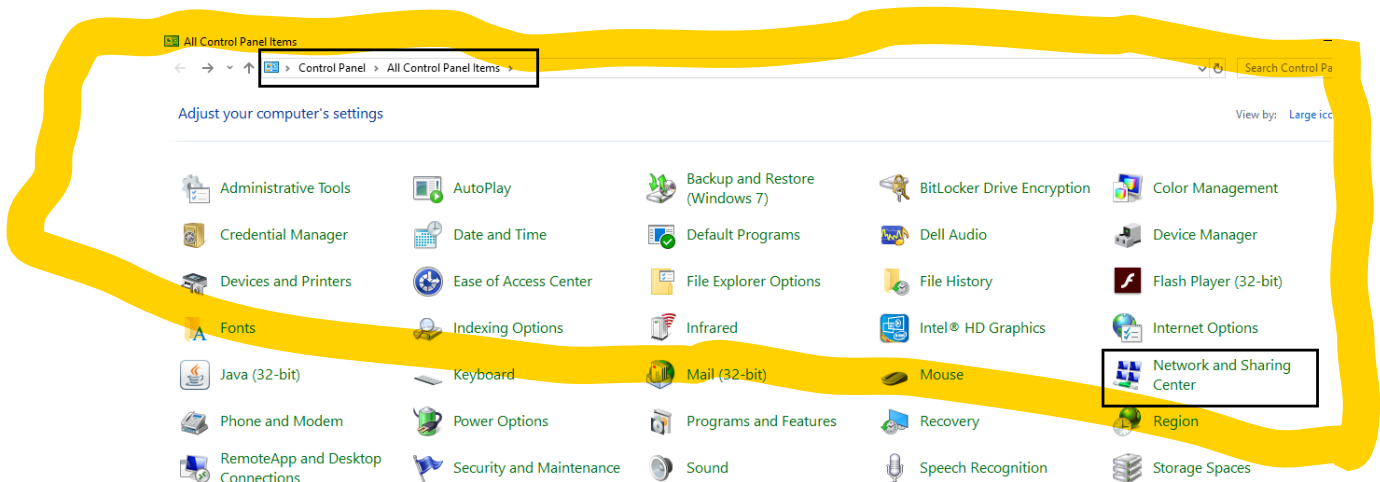


3.2 SETTING UP THE PC

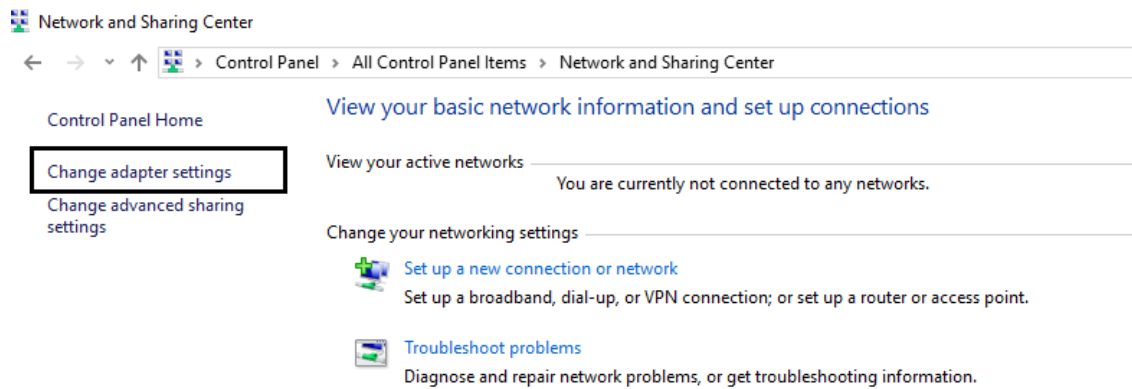


The pictures shown below are with reference to Microsoft Windows 10. The settings may vary for different versions of Windows.

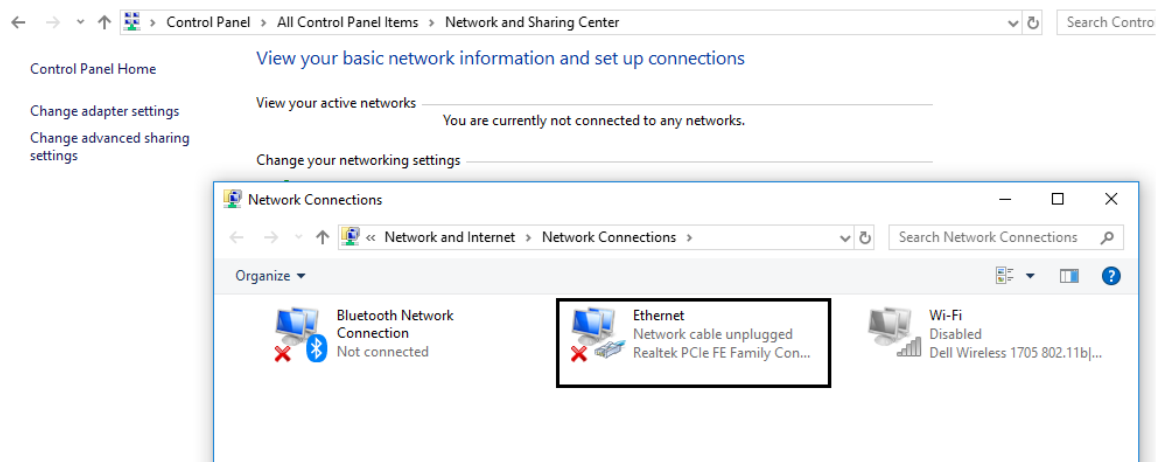
From the Windows start menu, go to Control Panel and click Network and Sharing Center.



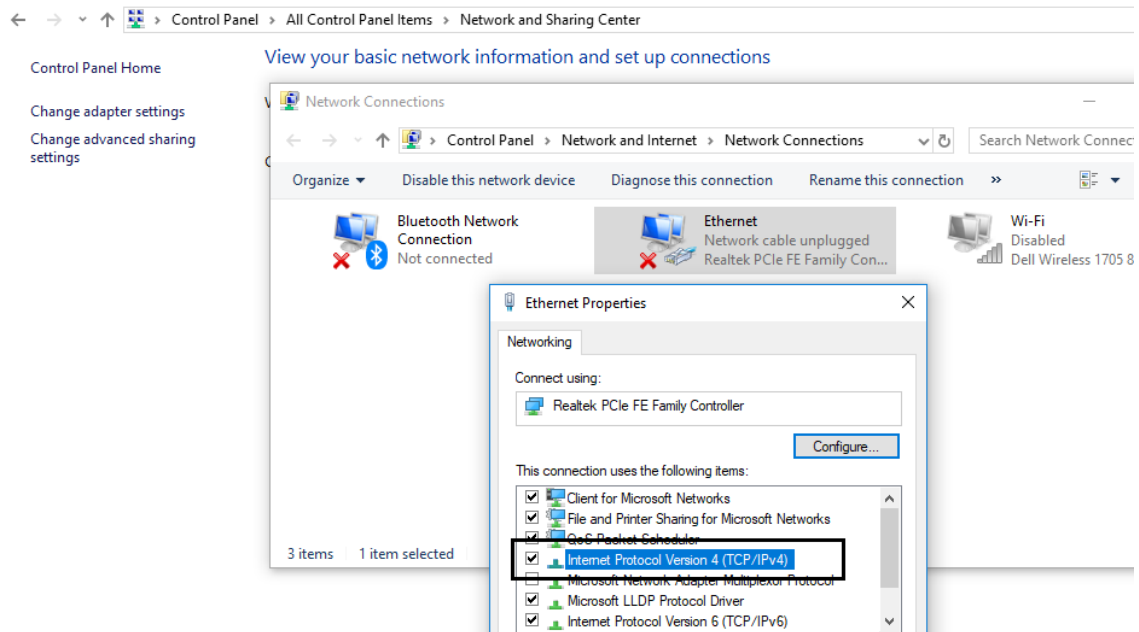
Open Change adapter settings.



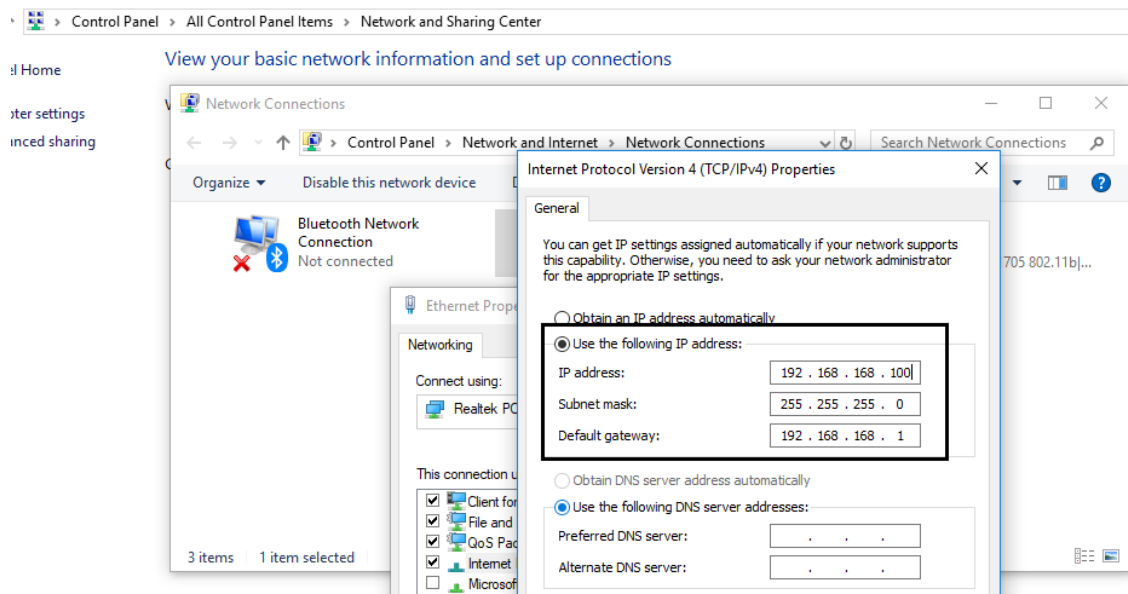
Double click on the Ethernet adapter.



Double click on Internet Protocol Version 4(TCP/IPv4).



Select "Use the following IP address".



The default IP address of the controller is 192.168.168.99. Configure PC with the IP configuration shown in the above picture.

DNS server is not required for initial setup. These fields can be left blank.

Click OK and Close out of the Network Connections.

4 USER INTERFACE

4.1 LOGIN



Browser compatibility – IE 11 & above, latest versions of Google Chrome, Safari and Mozilla Firefox

Launch web browser and enter 192.168.168.99 (default controller IP address) in the address bar.

Enter the default username and password.

User name : admin

Password : default@Ec0M\$

Once logged in, go to network settings page of ECOM MICRO and change the IP Address (Refer 4.5.1 NETWORK)

4.2 LOGOFF

Use the  button to log out the application.

4.3 HOME

Successful login displays the home page with the general settings for the ECOM MICRO.

ECOM-MICRO

HOME STATUS CONFIGURATION DATA LOG

Hi, admin
Log Off

General Settings

Controller Name
ECOM MICRO- FLOOR 1

Date and Time
29 JUN 2018 FRI 02:59:22

Firmware Version
M.3.18.05.9.T - INTERNAL

MAC Address
54:10:EC:C8:10:41

IPv4
192.168.168.99

IPv6
fe80:0:3ee:f321:23da:aae3:ffe2:ee2

SAVE

- Navigation menus : **HOME**, **STATUS**, **CONFIGURATION** and **DATA LOG**
- Controller Status : Controller Online .
: Controller Offline .
- Alarm Status : Active Alarms . Click to navigate to alarm page.
: No Alarms **No Alarms** . Click to navigate to alarm page.
- Controller Name : Change controller name by entering a new name and click .
- Date and Time : Date and Time.
- Firmware Version : Firmware Version.
- MAC Address : MAC Address.
- IPv4 Address : IPv4 Address.
- IPv6Address : IPv6 Address.



All text entry fields support 9 special characters.
space ! @ # \$ * _ - .

4.4 STATUS

This section displays the real-time status of configured inputs and outputs.

4.4.1 INPUT

Displays real-time status of the configured inputs.
Navigation: **HOME → STATUS → INPUT**

 ECOM-MICRO

HOME STATUS CONFIGURATION DATA LOG

Hi, admin
Log Off

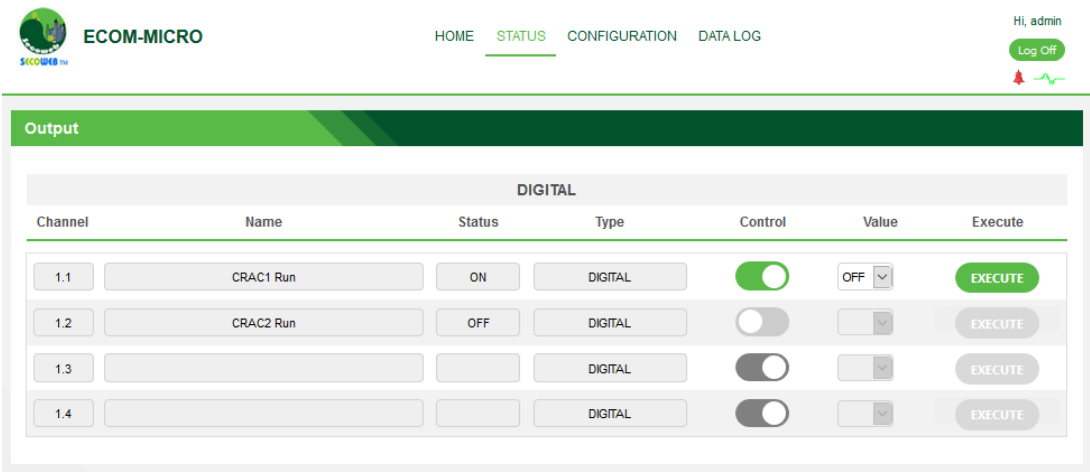
Input					
UNIVERSAL INPUT					
Channel	Name	Status	Unit	Type	Data log
1.1	Room Temp.	91.7		THERMISTOR T2	ENABLED
1.2	CRAC1 Fail	OFF		DIGITAL	ENABLED
1.3	CRAC2 Fail	OFF		DIGITAL	ENABLED
1.4	Fire Alarm	OFF		DIGITAL	ENABLED

Inputs are configured in the **HOME → CONFIGURATION → INPUT** page.

4.4.2 OUTPUT

Displays real-time status of the configured outputs.

Navigation: **HOME → STATUS → OUTPUT**



☒ Manual mode: Toggle the Control to the right, select Value ON or OFF, and click **EXECUTE** to change the output status.

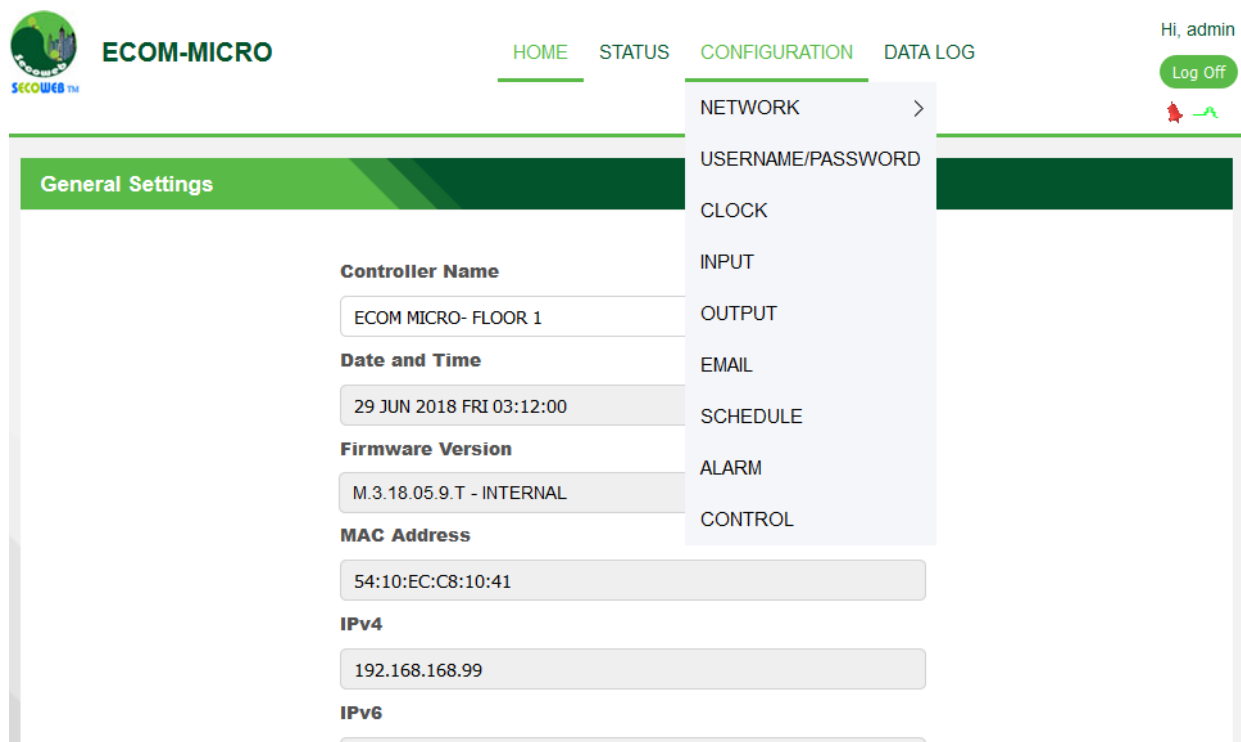
☐ Auto mode: Toggle the Control to the left to control outputs using control program.

Outputs are configured in the **HOME → CONFIGURATION → OUTPUT** page.

4.5 CONFIGURATION

This section is used to configure **NETWORK, USERNAME/PASSWORD, CLOCK, INPUT, OUTPUT, EMAIL, SCHEDULE, ALARM** and **CONTROL**.

Navigation: **HOME → CONFIGURATION**



- **NETWORK**
 - IPv4 : Configure IPv4 network settings.
 - IPv6 : Configure IPv6 network settings.
- **USERNAME/PASSWORD** : Configure username/password.
- **CLOCK** : Configure time and date.
- **INPUT** : Configure up to four input points.
- **OUTPUT** : Configure up to four output points.
- **SCHEDULE** : Configure up to four schedules.
- **EMAIL** : Configure email settings and up to two email addresses.
- **ALARM** : Configure upto four alarms.
- **CONTROL** : Configure up to four onboard control programs.

4.5.1 NETWORK

This section is used to configure **IPv4** and **IPv6** network settings.

Navigation: **HOME → CONFIGURATION → NETWORK**

4.5.1.1 IPv4

Configure IPv4 network settings.

Navigation: **HOME → STATUS → CONFIGURATION → NETWORK → IPv4**

Static IP address configuration

ECOM-MICRO

HOME STATUS **CONFIGURATION** DATA LOG

Hi, admin
Log Off

Network > IPv4

DHCP Address ☐ Enable ☒ Disable

Device IP Address

192 168 168 99

Subnet Mask

255 255 255 0

Gateway

192 168 168 1

DNS Server

8 8 8 8

SAVE

- Select DHCP Address Disable.
- Provide the IPv4 address, Subnet Mask, Gateway and DNS Server (Optional).
- Click **SAVE**.
- Connect the controller and PC to the network having the same IP address range of ECOM MICRO.
- Restart ECOM MICRO. Type in the newly configured IP address in the browser to access the controller.

Dynamic IP address configuration



The only way to identify the IP address of the ECOM MICRO once it is set to DHCP is by means of the email sent out during boot up of the controller. Make sure the email settings are properly configured and working before changing the settings to DHCP.

ECOM-MICRO

HOME STATUS CONFIGURATION DATA LOG

Hi, admin
Log Off

Network > IPv4

DHCP Address ☒ Enable ☐ Disable

Device IP Address

Subnet Mask

Gateway

DNS Server

SAVE

- Select DHCP Address Enable.
- Click **SAVE**.
- Restart ECOM MICRO. Type in the dynamically assigned IP address from the boot up email to access the controller.

For sample boot up email refer APPENDIX C – EMAIL SAMPLES

4.5.1.2 IPv6

Configure IPv6 network settings.

Navigation: **HOME → STATUS → CONFIGURATION → NETWORK → IPv6**

Static IP address configuration

Hi, admin
Log Off

HOME STATUS **CONFIGURATION** DATA LOG

Network > IPv6

DHCP Address ☐ Enable ☒ Disable

Device IP Address

fe80 0 3ee f321 23da aae3 ffe2 ee2

Subnet Mask

0

Gateway

0 0 0 0 0 0 0 0

DNS Server

0 0 0 0 0 0 0 0

SAVE

- Select DHCP Address Disable.
- Provide the IPv6 address, Subnet Mask, Gateway and DNS Server (Optional).
- Click **SAVE**.
- Connect the controller and PC to the network having the same IP address range of ECOM MICRO.
- Restart ECOM MICRO. Type in the newly configured IP address in the browser to access the controller.

Dynamic IP address configuration



The only way to identify the IP address of the ECOM MICRO once it is set to DHCP is by means of the email sent out during boot up of the controller. Make sure the email settings are properly configured and working before changing the settings to DHCP.

ECOM-MICRO

HOME STATUS CONFIGURATION DATA LOG

Hi, admin
Log Off

Network > IPv6

DHCP Address ☒ Enable ☐ Disable

Device IP Address

Subnet Mask

Gateway

DNS Server

SAVE

- Select DHCP Address Enable.
- Click **SAVE**.
- Restart ECOM MICRO. Type in the dynamically assigned IP address from the boot up email to access the controller.

For sample boot up email refer APPENDIX C – EMAIL SAMPLES

4.5.2 USERNAME/PASSWORD

Configure username and password

Navigation: **HOME → CONFIGURATION → USERNAME/PASSWORD**

Change username

- Enter Current Username (Default username is admin).
- Enter New Username. (Maximum 16 characters).
- Re-enter New Username.
- Click **SAVE**.

Change password

- Enter Current Password (Default password is default@EcOM\$).
- Enter New Password (Refer password policy below).
- Re-enter New Password.
- Click **SAVE**.



Password policy

- Password must contain 8 characters.
- Maximum password length is 16 characters.
- Password must contain one capital letter (A-Z).
- Password must contain one small letter (a-z).
- Password must contain one of the following special characters
- **_ @ \$ # . * space !**
- Password must contain one number.
- Password field is case sensitive.

4.5.3 CLOCK

Set the time and date.

Navigation: **HOME → CONFIGURATION → CLOCK**

ECOM-MICRO

HOME STATUS **CONFIGURATION** DATA LOG

Hi, admin
Log Off

Clock

Time (hh:mm:ss)

03 17 05

Date

29 JUN 2018

SAVE

- Set time.
- Set date.
- Click **SAVE**.

New date and time is displayed on the Home page.

4.5.4 INPUT

Configure inputs.

Navigation: **HOME → CONFIGURATION → INPUT**

Channel	Name	Type	Min	Max	Offset	Unit	Data log
1.1	Room Temp.	THERMISTOR T2			0.00		ENABLED
1.2	CRAC1 Fail	DIGITAL					ENABLED
1.3	CRAC2 Fail	DIGITAL					ENABLED
1.4	Fire Alarm	DIGITAL					ENABLED

SAVE

- **Name** : Enter name of the input (up to 20 characters).
- **Type** : Select Analog 5V, Analog 10V, Digital, Thermistor (10K-Type II).
- **Min** : Enter minimum value for analog input.
- **Max** : Enter maximum value for analog input.
- **Offset** : Enter the value for offset correction for Analog 5V/Analog 10V/Thermistor.
Value can be positive or negative.
- **Unit** : Enter description for unit of measure for Analog 5V/Analog 10V/Thermistor.
- **Data log** : Select enable/disable data logging.

Once configured, the status of inputs can be viewed on the **HOME → STATUS → INPUT** page.

4.5.5 OUTPUT

Configure outputs.

Navigation: **HOME → CONFIGURATION → OUTPUT**

DIGITAL				
Channel	Name	Type	Logic	Data log
1.1	CRAC1 Run	DIGITAL	DIRECT	ENABLED
1.2	CRAC2 Run	DIGITAL	DIRECT	DISABLED
1.3		DIGITAL		
1.4		DIGITAL		

SAVE

- Name : Enter name of the output (up to 20 characters).
- Type : Digital.
- Logic : Select direct/reverse.
 - Direct - ON : Relay Energized.
 - Direct - OFF : Relay De-energized.
 - Reverse - ON : Relay De-energized.
 - Reverse - OFF : Relay Energized.
- Data log : Select enable/disable data logging.

Once configured, the status of inputs can be viewed on the **HOME → STATUS → OUTPUT** page.

4.5.6 EMAIL

Configure email settings.

Navigation: **HOME → CONFIGURATION → EMAIL**

- SMTP Server Address : Enter SMTP server address.
- Port : Enter SMTP port number.
- SMTP server authentication : Select if authentication is required for the email server.
- User name/Login name : Enter username for the account.
- Password : Enter password for the account.
- Name : Enter name of the sender.
- Email Address : Enter email address of the sender.
- Email #1 : Enter recipient1 email address. This email address is used to send boot up email and alarm emails (Not mandatory).
- Email #2 : Enter recipient2 email address. This email address is used to send boot up email and alarm emails (Not mandatory).
- Click **SAVE**.
- Click clear to remove email settings.
- Click **SEND TEST MAIL**. A test email is sent to the recipient email address.
- For sample test email refer APPENDIX C – EMAIL SAMPLES.

4.5.7 SCHEDULE

Configure and view up to four schedules.

Navigation: **HOME → CONFIGURATION → SCHEDULE**

#	Name	Value	Edit	Delete
1	Weekdays	OFF	EDIT	DELETE
2	Lead Schedule	ON	EDIT	DELETE
3	Lag Schedule	OFF	EDIT	DELETE
4			EDIT	DELETE

- Click **EDIT** to add/edit daily, weekly or monthly schedule.
- Click **DELETE** to delete the schedule.

Are you sure you want to delete Schedule?

Yes **No**

- Click **Yes** to delete the schedule.
- Click **No** to return without deleting the schedule.

Daily schedule

ECOM-MICRO

Schedule

Name: 8AM to 5PM

Schedule: DAILY

Time Between: 08:00:00 And 17:00:00 (In 24 Hrs)

Daily

Every: 1 day(s)

SAVE CLEAR CLOSE

- Name : Enter name of the schedule (Up to 20 characters).
- Schedule : Select DAILY.
- Time Between : Enter start time and end time in 24-hour format.
- Every : Enter duration/frequency of days for this schedule. For example, setting Every 5 days will run the schedule on every 5th day.
- Click **SAVE** .
- Click **CLEAR** to clear the configuration.
- Click **CLOSE** to close the screen.

The schedule in the above picture turn on at 8.00 AM and turn off at 5.00 PM every single day. In the daily section, if Every is configured for 2 days, the schedule will turn on every alternate day.

Weekly schedule

ECOM-MICRO

Schedule

Name: Weekdays

Schedule: WEEKLY

Time Between: 08:00:00 And 17:00:00 (In 24 Hrs)

Weekly

Every: 1 week(s)

On: ☐ Sun ☒ Mon ☒ Tue ☒ Wed
☒ Thu ☒ Fri ☐ Sat

SAVE CLEAR CLOSE

- Name : Enter name of the schedule (Up to 20 characters).
- Schedule : Select WEEKLY.
- Time Between : Enter start time and end time in 24-hour format.
- Every : Enter the duration/frequency of weeks.
- On : Select day of the week on which the schedule need to run.
For example, setting Every 2 weeks and selecting Monday will run the schedule on Monday every alternate week.

- Click **SAVE** .
- Click **CLEAR** to clear the configuration.
- Click **CLOSE** to close the screen.

The schedule in the above picture turn on at 8.00 AM and turn off at 5.00 PM from Monday to Friday every week.

Monthly schedule

ECOM-MICRO

Schedule

Name: Year end

Schedule: MONTHLY

Time Between: 23:00:00 And 23:59:59 (In 24 Hrs)

Monthly

Day: 31 (Day of the month)

Month:

☐ Jan	☐ Feb	☐ Mar	☐ Apr
☐ May	☐ Jun	☐ Jul	☐ Aug
☐ Sep	☐ Oct	☐ Nov	☒ Dec

SAVE CLEAR CLOSE

- Name : Enter name of the schedule (Up to 20 characters).
- Schedule : Select MONTHLY.
- Time Between : Enter start time and end time in 24-hour format.
- Day : Enter day of the month.
- Month : Select the month for the schedule.
For example, setting Day to 1 and selecting January will run the schedule every 1st day of January.
- Click **SAVE** .
- Click **CLEAR** to clear the configuration.
- Click **CLOSE** to close the screen.

The schedule in the above picture turn on at 11:00:00 PM and turn off at 11:59:59 PM on 31st December.

4.5.8 ALARM

Configure and view up to four alarms.

Navigation: **HOME → CONFIGURATION → ALARM**

Alarm							
#	Name	Status	Level	Date	Time	Edit	Delete
1	High Temp. Alarm	Alarm	High	30-Jun-2018	14:58:16	EDIT	DELETE
2	Intrusion	Normal	Critical	30-Jun-2018	15:02:38	EDIT	DELETE
3						EDIT	DELETE
4						EDIT	DELETE

- Name : Alarm Name.
- Status : Status of the alarm - Alarm/Normal.
- Level : Alarm severity level – Critical/High/Medium/Low.
- Date : Date of status change.
- Time : Time of status change.
- **EDIT** : Add/Edit Alarm
- **DELETE** : Delete the Alarm.

If any active alarms are present, all pages display an alarm icon  on the top right corner of the screen and display **No Alarms** when there are no active alarms.

Click **EDIT** to add/edit alarms.

ECOM-MICRO

Name

High Temp. Alarm

Condition

RMT

>

75

Level

HIGH

Email

Email #1 ☒

Email #2 ☐

Comment

Alarm when room temperature goes beyond 75F

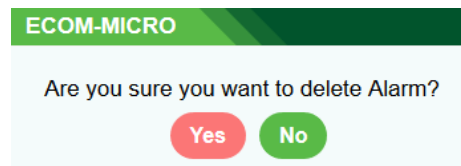
SAVE

CLEAR

CLOSE

- Name : Enter name of the alarm (Up to 20 characters).
- Condition : Configure condition for alarm.
- Level : Select CRITICAL, HIGH, MEDIUM, LOW.
- Email : Select recipient Email #1/ Email # 2 for sending email alerts to email IDs configured in the Email section.
- Comment : Enter comment for the alarm.

Use  to delete the alarm.



- Click  to delete the alarm.
- Click  to return without deleting.

For sample alarm email refer APPENDIX C – EMAIL SAMPLES

4.5.9 CONTROL

Configure and run up to 4 control programs.

Navigation: **HOME → CONFIGURATION → CONTROL**



- Status of outputs/conditional blocks/schedules/timers will be displayed in Green, Red or Grey. (Green=ON/TRUE, Red=OFF/FALSE, Grey=Not configured)
- Execution of conditional blocks is from left to right in sequential order.
- SP : Setpoint.
- DB : Dead Band. This is a range in which no action is performed.
(E.g. Setpoint = 70 , Dead band = 10. Then Dead band region= 65 to 75. There will be no action between 65 and 75).
- Outputs need to be configured as “Auto” for configuring and executing control programs. The control program will be disabled if Output is set to “Manual”.

ECOM-MICRO

HOME STATUS **CONFIGURATION** DATA LOG

Hi, admin Log Off

Control

	INPUT 1 (Room Temp.: 92.3)	INPUT 2 (CRAC1 Fail: OFF)	INPUT 3 (CRAC2 Fail: OFF)	INPUT 4 (Fire Alarm: OFF)	DELAY/SCHEDULE	ACTIONS
OUTPUT 1 CRAC1 Run AUTO	☒ Enable SP: 72.00 DB: 2.00 ON >	☐ Enable SP: SELECT DB: SELECT OR = ON	☒ Enable SP: OR = ON	☒ Enable SP: AND NOT = ON	00:00:10 00:00:00 Lead Schedule	SAVE CLEAR
OUTPUT 2 CRAC2 Run AUTO	☒ Enable SP: 72.00 DB: 2.00 ON >	☒ Enable SP: OR = ON	☐ Enable SP: SELECT SELECT	☒ Enable SP: OR NOT = ON	00:00:10 00:00:00 Lag Schedule	SAVE CLEAR
OUTPUT 3	☐ Enable SP: SELECT DB: SELECT	☐ Enable SP: SELECT SELECT	☐ Enable SP: SELECT SELECT	☐ Enable SP: SELECT SELECT	00:00:00 00:00:00 SELECT	SAVE CLEAR
OUTPUT 4	☐ Enable SP: SELECT DB: SELECT	☐ Enable SP: SELECT SELECT	☐ Enable SP: SELECT SELECT	☐ Enable SP: SELECT SELECT	00:00:00 00:00:00 SELECT	SAVE CLEAR

1 INPUT 1 (Room Temp.: 89.1) 2 INPUT 2 (CRAC1 Fail: ON) 3 INPUT 3 (CRAC2 Fail: ON) 4 INPUT 4 (Fire Alarm: OFF) DELAY/SCHEDULE ACTION

5 6 7 8 9 10 11

OUTPUT 1
CRAC1 Run
AUTO
ON

Enable SP DB
> 72.00 2.00

Enable SP
SELECT SELECT

Enable SP
OR = ON

Enable SP
AND NOT= ON

00 00 10
00:00:00
Weekdays

SAVE
CLEAR

1. Input 1 status.
2. Input 2 status.
3. Input 3 status.
4. Input 4 status.
5. Select output state (ON/OFF).

OUTPUT 1
CRAC1 Run
AUTO
ON

6. Condition based on input 1. Click Enable and enter the condition.

INPUT 1 (Room Temp.: 87.1)

Enable SP DB
> 72.00 2.00

7. Condition based on input 2. Click Enable and enter the condition. Select AND/OR to combine two conditions.

INPUT 2 (CRAC1 Fail: ON)

Enable SP
SELECT SELECT

8. Condition based on input 3. Click Enable and enter the condition. Select AND/OR to combine two conditions.

INPUT 3 (CRAC2 Fail: ON)

9. Condition based on input 4. Click Enable and enter the condition. Select AND/OR to combine two conditions.

INPUT 4 (Fire Alarm: OFF)

10. Output ON/OFF delay (Not mandatory). Once the condition is satisfied, the output will wait for the specified duration before it turns ON/OFF.

11. Select a schedule from the drop-down list (Not mandatory).

Click **SAVE** to save and run the control program.

Click **CLEAR** to clear the control program.

Example

In the below example, the two CRAC units are working in lead-lag mode.

The Lead Schedule is set to run on Sunday, Tuesday, Thursday and Saturday 8:00 AM to 8:00 PM.

The Lag Schedule is set to run on Monday, Wednesday and Friday 8:00 AM to 8:00 PM.

ECOM-MICRO

Schedule

Name:

Schedule:

Time Between: And (In 24 Hrs)

Weekly

Every: week(s)

On: ☒ Sun ☐ Mon ☒ Tue ☐ Wed
☒ Thu ☐ Fri ☒ Sat

ECOM-MICRO

Schedule

Name:

Schedule:

Time Between: And (In 24 Hrs)

Weekly

Every: week(s)

On: ☐ Sun ☒ Mon ☐ Tue ☒ Wed
☐ Thu ☒ Fri ☐ Sat

		INPUT 1 (Room Temp.: 85.9)	INPUT 2 (CRAC1 Fail: OFF)	INPUT 3 (CRAC2 Fail: OFF)	INPUT 4 (Fire Alarm: OFF)	DELAY/SCHEDULE	ACTIONS
OUTPUT 1 CRAC1 Run AUTO	☒ Enable	SP DB > 72.00 2.00	☐ Enable SP SELECT SELECT	☒ Enable SP OR = ON	☒ Enable SP AND NOT= ON	00 00 10 00:00:00	SAVE CLEAR
	☐ ON					Lead Schedule	
OUTPUT 2 CRAC2 Run AUTO	☒ Enable	SP DB > 72.00 2.00	☒ Enable SP OR = ON	☐ Enable SP SELECT SELECT	☒ Enable SP OR NOT= ON	00 00 10 00:00:00	SAVE CLEAR
	☐ ON					Lag Schedule	

The Output 1 (CRAC1 Run) is expected to turn ON when the temperature is above 72 F OR if CRAC2 fails AND Fire Alarm is OFF AND the Lead Schedule is True. Once the condition is satisfied, the output will wait for 10 seconds before it turns ON.

The Output 2 (CRAC2 Run) is expected to turn ON when the temperature is above 72 F OR if CRAC1 fails AND Fire Alarm is OFF AND the Lag Schedule is True. Once the condition is satisfied, the output will wait for 10 seconds before it turns ON.

Under normal conditions, the CRAC1 and CRAC2 will run as per the schedule and turns ON when Room Temperature is above 72 F.

When CRAC1 schedule is True and if it fails, then CRAC2 will turn ON and vice versa.

In case of a Fire Alarm, both units will turn OFF.

4.6 DATA LOG

View/download up to latest 2048 samples of logging enabled input and output points.

Navigation: **HOME → CONFIGURATION → DATA LOG**

Input data log can be enabled in **HOME → CONFIGURATION → INPUT**

Output data log can be enabled in **HOME → CONFIGURATION → OUTPUT**

 ECOM-MICRO

HOME STATUS CONFIGURATION DATA LOG

Hi, admin
Log Off
No Alarms

Data log Configuration

Channel	Log Interval	Download	View
INPUTS			
Room Temp.	10 SEC	DOWNLOAD	VIEW
CRAC1 Fail	10 SEC	DOWNLOAD	VIEW
CRAC2 Fail	SELECT	DOWNLOAD	VIEW
Fire Alarm	SELECT	DOWNLOAD	VIEW
OUTPUTS			
CRAC1 Run	01 HR	DOWNLOAD	VIEW
CRAC2 Run	SELECT	DOWNLOAD	VIEW
	SELECT	DOWNLOAD	VIEW
	SELECT	DOWNLOAD	VIEW

- Channel : Input/Output Channel.
- Log interval : Select log interval for the data.

SELECT

SELECT

05 SEC

10 SEC

15 SEC

30 SEC

01 MIN

10 MIN

30 MIN

01 HR

- **DOWNLOAD** : Click to download the data as CSV file. The file is downloaded to the Downloads folder of the logged in user.
- **VIEW** : Click to plot the graph.

Hi, admin
Log Off
No Alarms

HOME STATUS CONFIGURATION DATA LOG

Data log Plotting

Room Temp.

Please click PLOT button to plot graph.

Min: 0 Max: 100

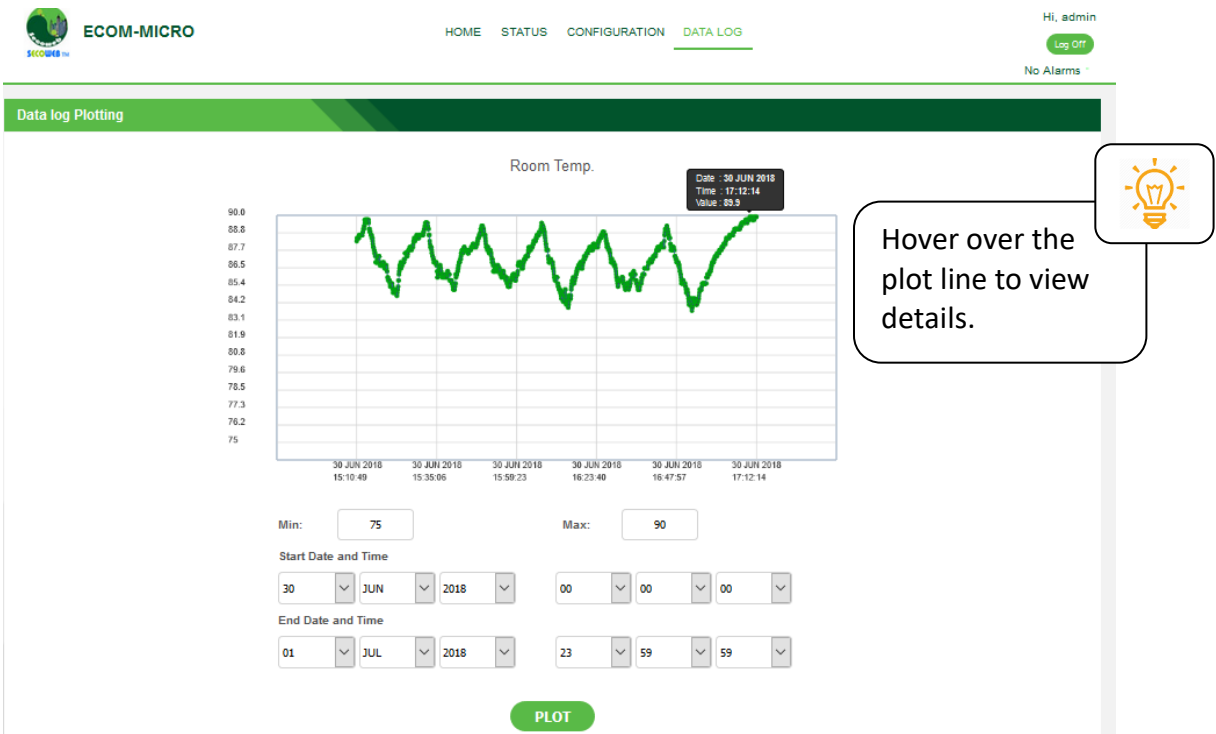
Start Date and Time
01 JUL 2018 00:00

End Date and Time
01 JUL 2018 23:59

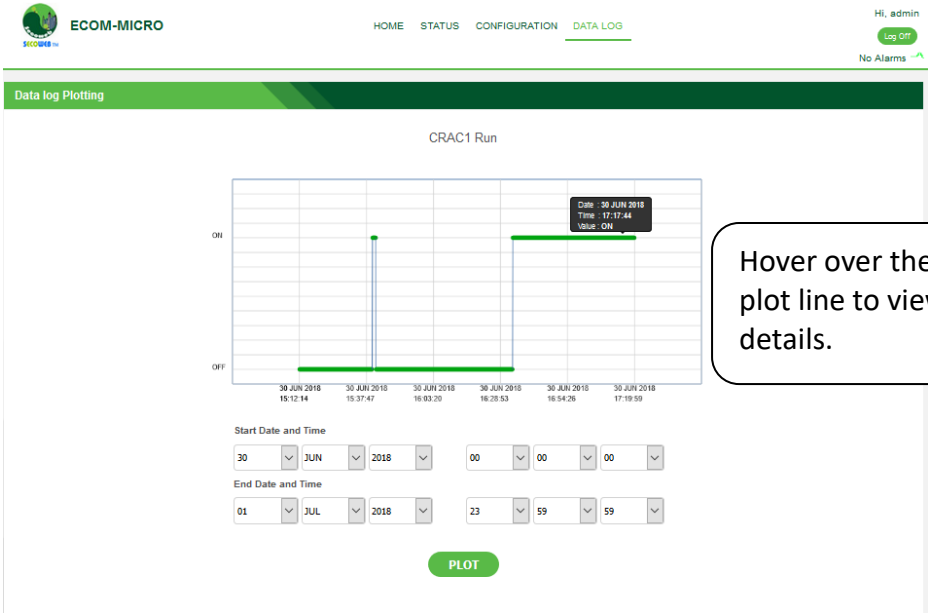
PLOT

- The plot can be customized by setting minimum and maximum values for the Y-axis and setting the start and end date/time.
- Click **PLOT** to view the graph.

Sample graph - Analog point.



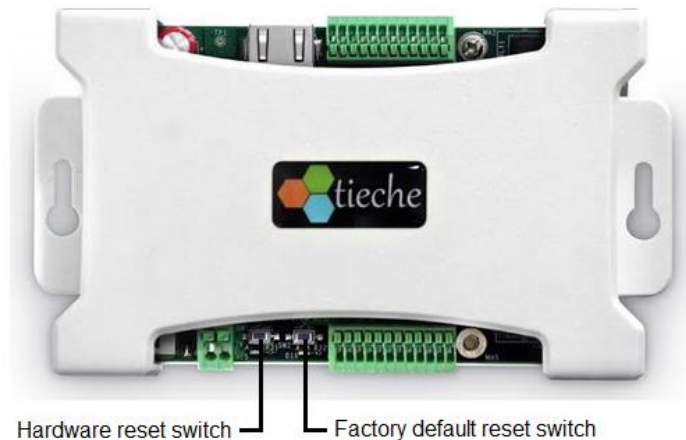
Sample graph - Digital point.



Hover over the plot line to view details.



APPENDIX A - RESET FUNCTION



Take a picture and blow up to show switches.

Show the blow up to the right and draw lines from the below detail 1 and 2 to the image

- Hardware reset switch : Reboot the controller.
- Factory default reset switch : Used for the following functions.
 1. Network & Password Reset
Press and hold the factory default reset switch for 10 seconds. After 10 seconds the heart beat LED starts blinking continuously in very short intervals. At this point release the switch and restart the controller.
This action resets user name, password and network configuration to default. All other configurations and data log are retained.
 2. Factory Default Reset
Press and hold the factory default reset switch for 20 seconds. After 10 seconds the heart beat LED starts blinking continuously in very short intervals. Continue to press and hold the switch. After 20 seconds the heart beat LED turns OFF. At this point release the switch and restart the controller.
This action resets all the configurations to factory default state and clears all data logs.

Factory Default Settings:

User Name : admin
Password : default@Ec0M\$
IP Address : 192.168.168.99

APPENDIX B - XML DATA

Data exchange links and formats.

XML data includes details for inputs, outputs, alarms and schedules.

IPv4 xml link : <http://192.168.168.99/cgi-bin/ECOM.xml>

IPv6 xml link : [http://\[IPv6 address\]/cgi-bin/ECOM.xml](http://[IPv6 address]/cgi-bin/ECOM.xml)

XML format

```
<NodeID>
<CurrentTime>12:38:01</CurrentTime>
<CurrentDate>Oct 26, 2017</CurrentDate>
- <Sensor id="0" Channel="1000">
  <SensorName>Input_1</SensorName>
  <SensorValue>5.00</SensorValue>
  <SensorUnits>V1</SensorUnits>
  <SensorAlert>None</SensorAlert>
  <SensorRelay>00.00</SensorRelay>
  <SensorLTValue>00.00</SensorLTValue>
  <SensorGTValue>00.00</SensorGTValue>
</Sensor>
- <Sensor id="1" Channel="1001">
  <SensorName>Input_2</SensorName>
  <SensorValue>10.00</SensorValue>
  <SensorUnits>V2</SensorUnits>
  <SensorAlert>None</SensorAlert>
  <SensorRelay>00.00</SensorRelay>
  <SensorLTValue>00.00</SensorLTValue>
  <SensorGTValue>00.00</SensorGTValue>
</Sensor>
- <Sensor id="2" Channel="1002">
  <SensorName>Input_3</SensorName>
  <SensorValue>15.02</SensorValue>
  <SensorUnits>V3</SensorUnits>
  <SensorAlert>None</SensorAlert>
  <SensorRelay>00.00</SensorRelay>
```

Change
screenshot
with new xml

APPENDIX C – EMAIL SAMPLES

Test email

ECOM MICRO: ECOM MICRO- FLOOR 1:Test Mail ➤ Inbox x

secoweb@tiechesystems.com

to me ▼

Controller name: ECOM MICRO- FLOOR 1

Wired IPv4 address: 192.168.1.51

Wired IPv6 address: fe80:0:0:5610:ecff:fec8:1041

Date and Time: 29 JUN 2018 FRI 09:11:26

Change
screenshot

Boot up email

ECOM-MICRO : ECOM MICRO- FLOOR 1 : Turned ON ➤ Inbox x

secoweb@tiechesystems.com

to me ▼

Controller name: ECOM MICRO- FLOOR 1

Wired IPv4 address: 192.168.1.51

Wired IPv6 address: fe80:0:0:5610:ecff:fec8:1041

Date and Time: 29 JUN 2018 FRI 09:40:51

Active Alarms

Alarm Name: RMT-HIGH-ALARM

Level: Critical

Date and Time: 29-Jun-2018 09:37:07

Alarm Name: OAT-HIGH-ALARM

Level: High

Date and Time: 29-Jun-2018 09:39:03

Alarm Name: SAT-HIGH-ALARM

Level: Medium

Date and Time: 29-Jun-2018 09:37:30

Alarm Name: RMT-1-HIGH-ALARM

Level: Low

Date and Time: 29-Jun-2018 09:39:28

Email when alarm is generated

ECOM MICRO : ECOM MICRO- FLOOR 1 : RMT-1-HIGH-ALARM : Low : Alarm
Generated ➤ Inbox x

secoweb@tiechesystems.com

to me ▼

Fri, Jun 29, 10:08 PM

Controller Name: ECOM MICRO- FLOOR 1

Alarm Name: RMT-1-HIGH-ALARM

Status: Alarm

Level: Low

Date and Time: 29-Jun-2018 09:37:37

Comments: Testing Alarm -4

Email when alarm returns to normal

ECOM MICRO : ECOM MICRO- FLOOR 1 : RMT-1-HIGH-ALARM : Low : Alarm
Returned to Normal ➤ Inbox x

secoweb@tiechesystems.com

to me ▼

Fri, Jun 29, 10:06 PM

Controller Name: ECOM MICRO- FLOOR 1

Alarm Name: RMT-1-HIGH-ALARM

Status: Normal

Level: Low

Date and Time: 29-Jun-2018 09:35:33

Comments: Testing Alarm -4

APPENDIX D - TECHNICAL SPECIFICATIONS

Processor

250 MHz, 32 bit embedded microcontroller

Memory

512 KB operating RAM

2 MB Flash for firmware and controller configuration

Supply Voltage

Rated: 12 VDC +/- 5%, 1.0 Amp

Communications

IEEE 802.3/802.3u Ethernet 10/100 BaseT

Inputs

4 selectable voltage/binary/thermistor inputs

12 bit A/D converter

Binary: Dry Contact

10K, thermistor (Type-II)

0 - 5/10 VDC analog

10V digital

11.7V over voltage protection

4 Relay Outputs

SPDT

Output relay rating:

7 Amps, 250 VAC

7 Amps, 30 VDC

Real Time clock

+/-1 minute per month

Memory Back up

10 years for Flash memory

Wiring Terminals

Power

Stranded copper wire

18 to 22 (AWG)

0.75 to 0.34 (mm²)

Inputs/Outputs

Stranded copper wire

20 to 24 (AWG)

0.50 to 0.25 (mm²)

Dimensions

5.71" L x 1.54" W x 3.58" H

Mounting

2 mounting holes 5.71" apart

Screw: M3 screw with 1" length

Weight

0.5 lbs

Enclosure

Material: ABS Plastic

Ambient Limits

Operating: -4°F to +131°F

Storage/Shipping: -40°F to +140°F

Humidity: 10% to 90% RH non-condensing

User Interfaces

User friendly web interface

Email alerts

Power on LED

Heart beat LED

Digital output LED

Certification

RoHS

CE

FCC Part 15 - Subpart B – Class A