B6030 BACnet/IP to Utility Meters

User Manual

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1 Introduction

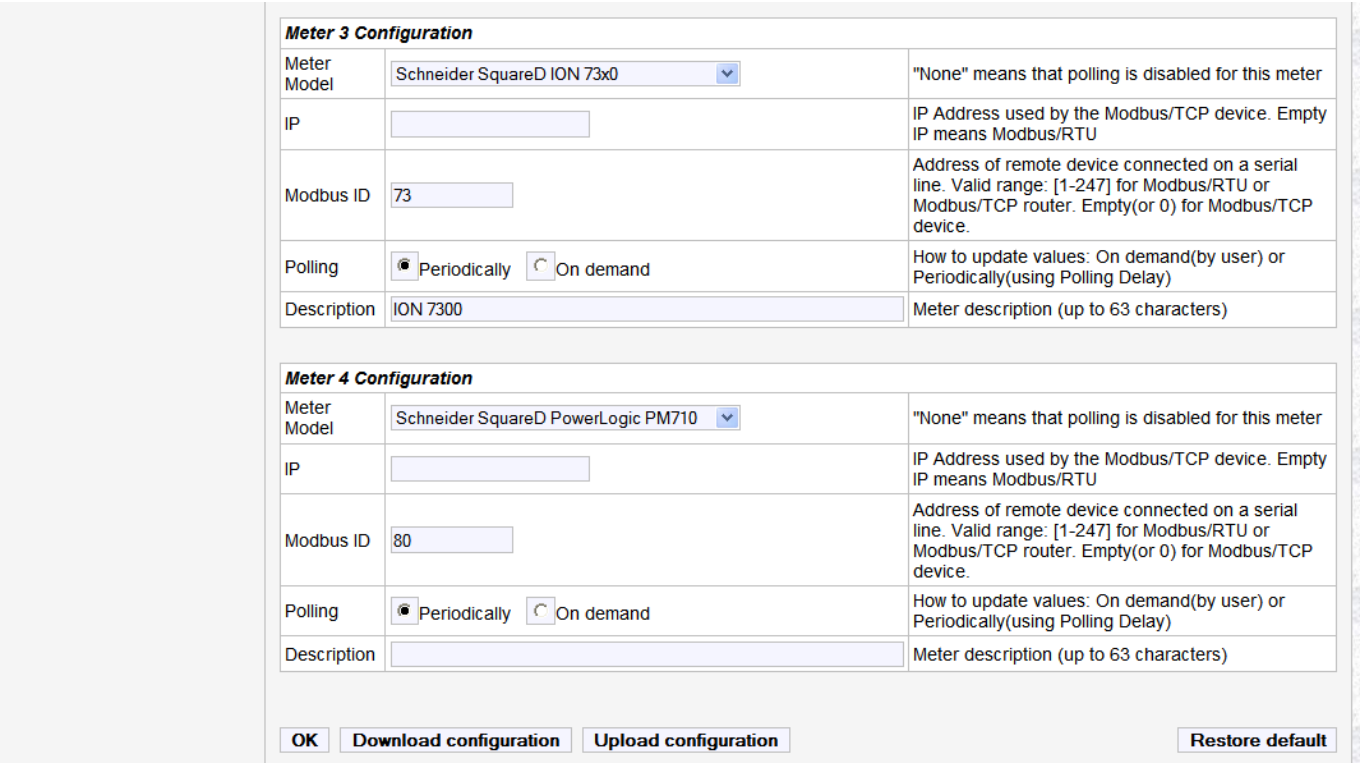
The B6030 enables integrating four Modbus TCP or RTU Steam, BTU or Electrical Meters with an existing BACnet Compliant Building Automation System. Using this, you can offer solutions which save money and improve building comfort. The B6030 supports the following list of meters.

- Controlotron 1010 with 1015N COMM
- Conzerv Power Max EM6400
- Cutler Hammer IQ 230M
- Danfoss Magflo 6000
- EIG Nexus 1260
- EIG Shark 100-S
- EIG Shark 200
- Emco FP-93 Flow Processor
- Emco Magflo 6000
- Emon 3000
- GE EPM ION 73x0
- GE EPM ION 75x0
- GE EPM ION 7700
- KEP SUPERtrol Flow Computer ST-II
- Onicon F-2500
- Power Measurement ION 73x0
- Power Measurement ION 75x0
- Power Measurement ION 7700
- Power Measurement ION 83x0
- Eaton Power Xpert Gateway + DigiTrip 810
- Eaton Power Xpert Gateway + DigiTrip MV
- Eaton Power Xpert Gateway + IQ Analyzer 6x00
- Schneider SquareD Energy-Monitor EMxx
- Schneider SquareD ION 62x0

- Schneider SquareD ION 73x0
- Schneider SquareD ION 75x0
- Schneider SquareD ION 7700
- Schneider SquareD ION 83x0/8600
- Schneider SquareD PowerLogic PM710
- Schneider SquareD PowerLogic PM750
- Schneider SquareD PowerLogic PM800
- Schneider SquareD PowerLogic PM820
- Schneider SquareD PowerLogic PM850
- Schneider SquareD PowerLogic CM3000
- Siemens ION 83x0/8600
- Siemens ION 92x0
- Siemens ION 93x0
- Siemens ION 95x0
- Siemens ION 9700
- Siemens Magflo MAG 6000
- Siemens Sitrans FUS 1010 with 1015N
- Siemens Static Trip III
- Siemens 4720
- Spirax Sarco FP-93
- Temco Tstat5 (thermostat)
- Veris Commercial H8163
- Veris Hawkeye H8036
- Generic meter: 16-bit Integers
- Generic meter: 32-bit Floats
- Generic meter: 32-bit Integers

The Ethernet connection conforms to the BACnet/IP standard which is complemented by many network friendly features such as Foreign Device support to connect to multiple networks and password protected browser based setup screens. The B6030 has a built in web server that allows users to log in using a web browser. Once a user is logged in, configuration is easy and very self explanatory.

Once configuration of the B6030 is complete and connected to the Building Automation Network, using a BACnet client like the Cimetrics BACnert Explorer, a user can look at the newly configured meters as BACnet Devices. Meter data exposed to the BACnet network includes Power, Energy, Demand, MaxDemand, Power_Factor, Flow, Consumption, and more. Current, Voltage, and Phase are also represented if this is supported by the meter. Permanently available meter templates can be selected during the setup procedure using a drop down menu.



Meter 3 Configuration

Meter Model	Schneider SquareD ION 73x0	"None" means that polling is disabled for this meter
IP		IP Address used by the Modbus/TCP device. Empty IP means Modbus/RTU
Modbus ID	73	Address of remote device connected on a serial line. Valid range: [1-247] for Modbus/RTU or Modbus/TCP router. Empty(or 0) for Modbus/TCP device.
Polling	Periodically / On demand	How to update values: On demand(by user) or Periodically(using Polling Delay)
Description	ION 7300	Meter description (up to 63 characters)

Meter 4 Configuration

Meter Model	Schneider SquareD PowerLogic PM710	"None" means that polling is disabled for this meter
IP		IP Address used by the Modbus/TCP device. Empty IP means Modbus/RTU
Modbus ID	80	Address of remote device connected on a serial line. Valid range: [1-247] for Modbus/RTU or Modbus/TCP router. Empty(or 0) for Modbus/TCP device.
Polling	Periodically / On demand	How to update values: On demand(by user) or Periodically(using Polling Delay)
Description		Meter description (up to 63 characters)

OK **Download configuration** **Upload configuration** **Restore default**

Note! We strongly recommend that the power be recycled on the unit at least once every six months.

2 Logging in

Connect the B6030 Ethernet connector to an Ethernet hub, and run another Ethernet cable (patch able) from that hub to your laptop or PC. Make sure that the laptop or PC is the *only* other unit in this small LAN.

NOTE: If you do not have a hub, you can use a "crossover cable" to connect between the B6030 and your laptop.

Set your PC's IP address to **192.168.88.90** with a subnet mask of **255.255.255.252**

Open your browser and enter the following URL: http://192.168.88.89

You will be prompted to login: The username is = admin and the password = admin

From within the browser interface you can change all settings in the entry fields to configure your router

For improved access security, you should change your password from the default values. **Make sure you SAVE your new password!** When you click on "Activate Configuration" and “confirm” then the configuration process is completed.

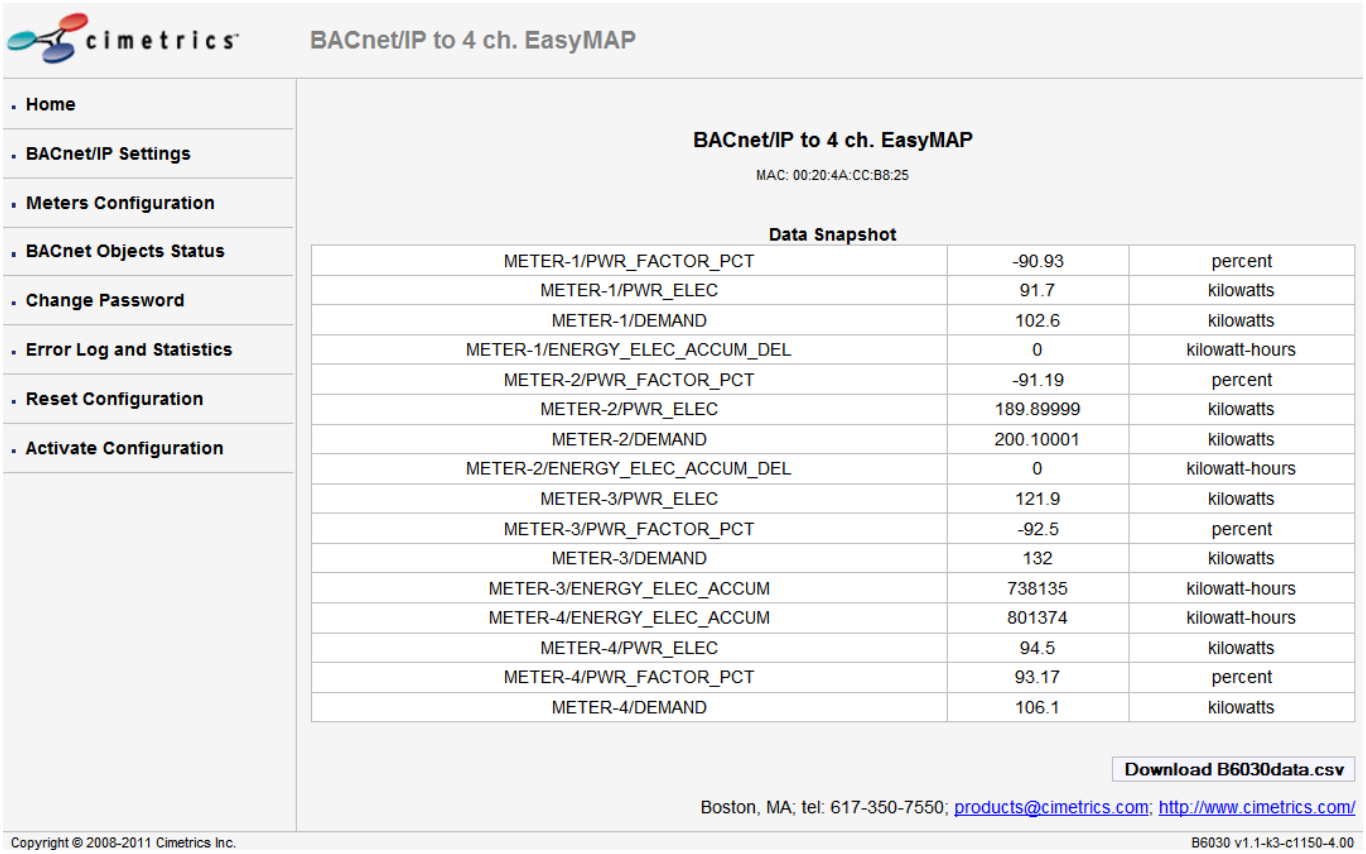
Please Note:

A user will be able to access the B6030 using the above mentioned IP address at ALL TIMES (even if you have changed the IP address under BACnet/IP settings)

3 B6030 Home Page

The Home Page displays four important Objects of each meter that has been configured. The example below shows that this B6030 is connected to four different meters and four important objects from each of those meters. This is not user configurable as it is only a snapshot of the meters configured.

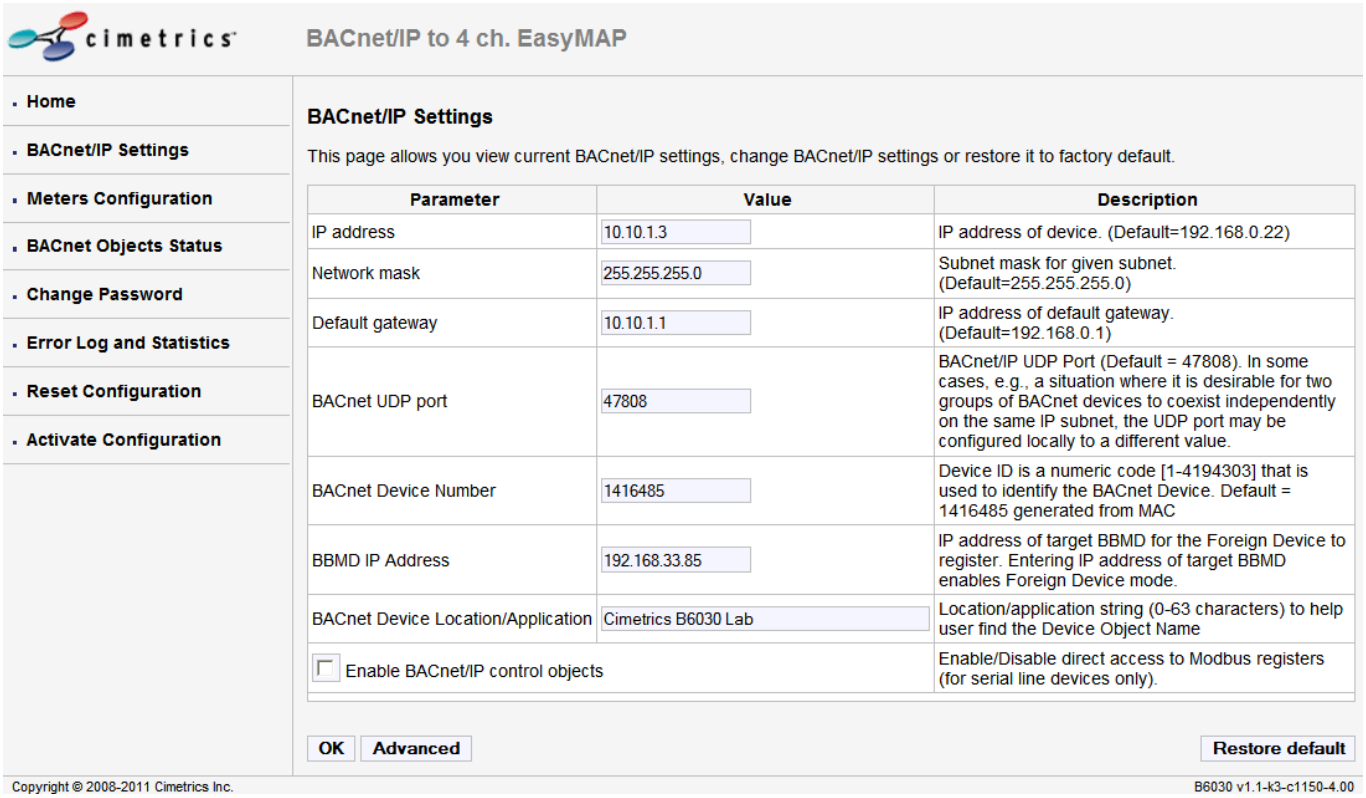
Using the **Download B6030data** feature, a user can export all the information into a comma separated value format file.



4 BACnet/IP Settings

On this screen, a user can configure the following parameters

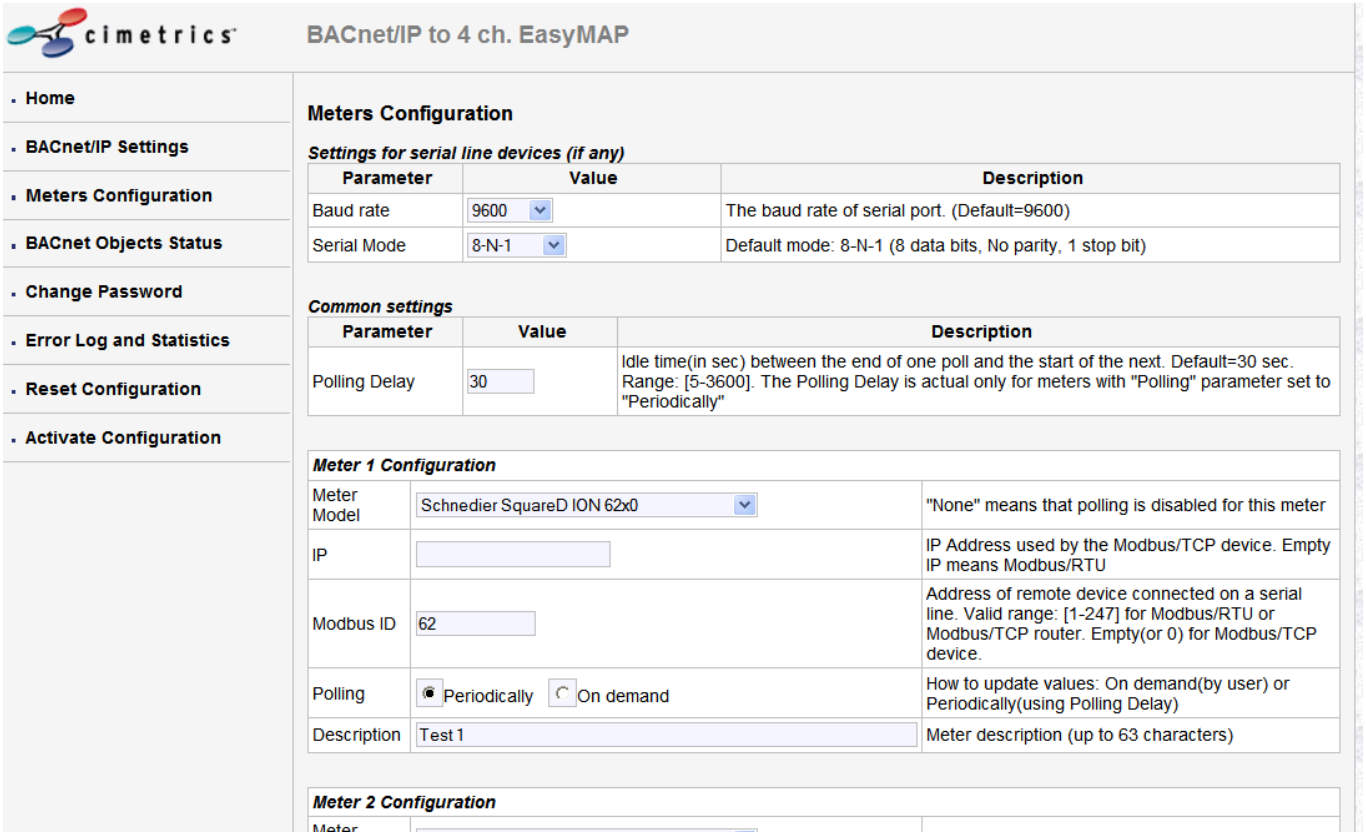
1. IP Address
2. Network Mask
3. Default Gateway
4. BACnet UDP Port
5. BACnet Device ID
6. BBMD IP Address
7. A Description for the Device

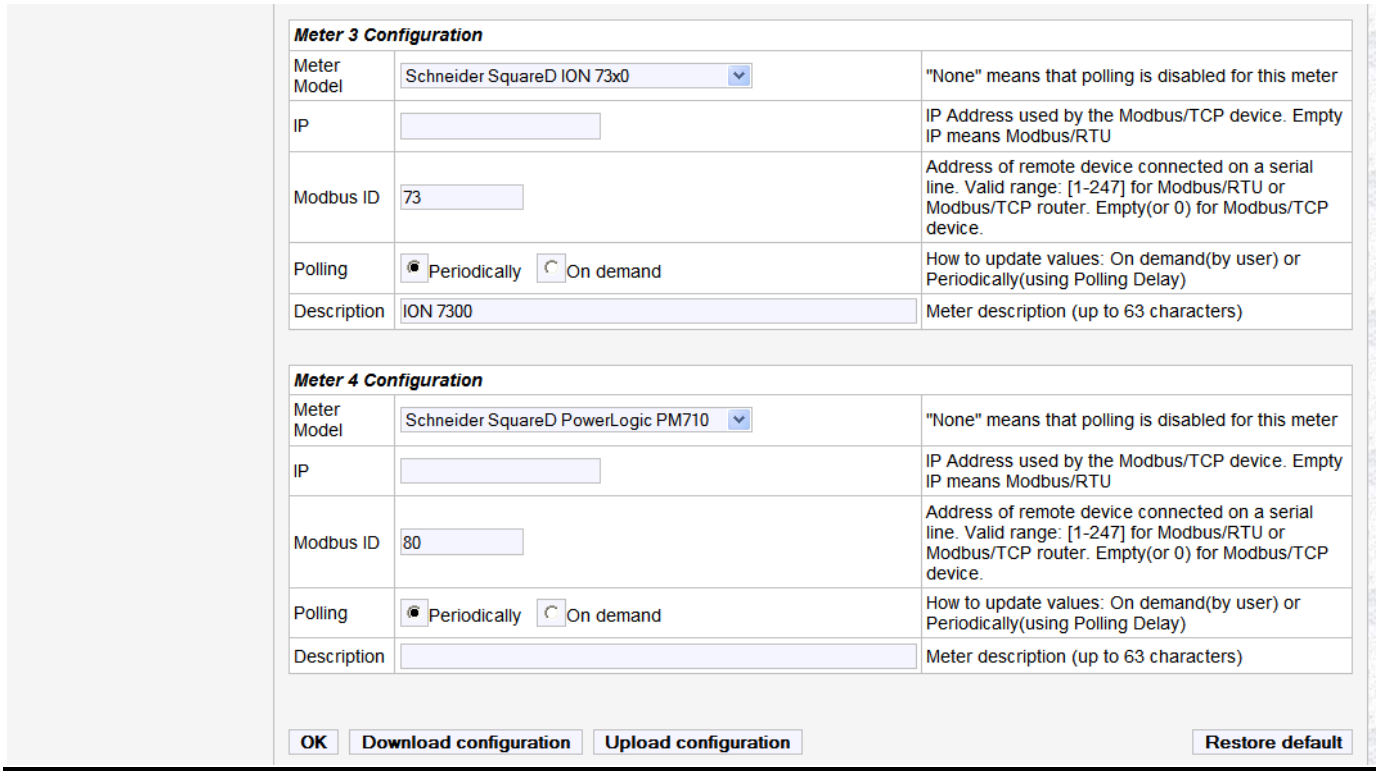


5 Meters Configuration

On this screen, a user can configure the four meters that will be integrated into the BACnet/IP network. If the configuration involves a Modbus RTU meter, the user will need to choose the appropriate baud rate and the serial mode. Please note that if you intend to configure multiple Modbus RTU meters, their baud rates need to be the same.

The meter to be integrated is selected from the drop down list provided. Once the selection is made, the IP address is entered. This value can be omitted if the meter is a Modbus RTU meter. The Modbus ID along with the option of polling and a description is entered. Once this process is completed for the four meters, the configuration is complete.


cimetrics
BACnet/IP to 4 ch. EasyMAP
Home
BACnet/IP Settings
Meters Configuration
BACnet Objects Status
Change Password
Error Log and Statistics
Reset Configuration
Activate Configuration
Meters Configuration
Settings for serial line devices (if any)
Parameter
Value
Description
Baud rate
9600
The baud rate of serial port. (Default=9600)
Serial Mode
8-N-1
Default mode: 8-N-1 (8 data bits, No parity, 1 stop bit)
Common settings
Parameter
Value
Description
Polling Delay
30
Idle time(in sec) between the end of one poll and the start of the next. Default=30 sec. Range: [5-3600]. The Polling Delay is actual only for meters with "Polling" parameter set to "Periodically"
Meter 1 Configuration
Meter Model
Schnedier SquareD ION 62x0
"None" means that polling is disabled for this meter
IP
IP Address used by the Modbus/TCP device. Empty IP means Modbus/RTU
Modbus ID
62
Address of remote device connected on a serial line. Valid range: [1-247] for Modbus/RTU or Modbus/TCP router. Empty(or 0) for Modbus/TCP device.
Polling
Periodically
On demand
How to update values: On demand(by user) or Periodically(using Polling Delay)
Description
Test 1
Meter description (up to 63 characters)
Meter 2 Configuration


Meter 3 Configuration
Meter Model
Schneider SquareD ION 73x0
"None" means that polling is disabled for this meter
IP
IP Address used by the Modbus/TCP device. Empty IP means Modbus/RTU
Modbus ID
73
Address of remote device connected on a serial line. Valid range: [1-247] for Modbus/RTU or Modbus/TCP router. Empty(or 0) for Modbus/TCP device.
Polling
Periodically
On demand
How to update values: On demand(by user) or Periodically(using Polling Delay)
Description
ION 7300
Meter description (up to 63 characters)
Meter 4 Configuration
Meter Model
Schneider SquareD PowerLogic PM710
"None" means that polling is disabled for this meter
IP
IP Address used by the Modbus/TCP device. Empty IP means Modbus/RTU
Modbus ID
80
Address of remote device connected on a serial line. Valid range: [1-247] for Modbus/RTU or Modbus/TCP router. Empty(or 0) for Modbus/TCP device.
Polling
Periodically
On demand
How to update values: On demand(by user) or Periodically(using Polling Delay)
Description
Meter description (up to 63 characters)
OK
Download configuration
Upload configuration
Restore default

Download configuration :

Clicking on this button will initiate a download of the existing configuration. This will be downloaded as a text file. This file can be saved for uploading (without any edits) in the future to restore a previous configuration.

An example of the configuration file that is downloaded is shown below:

```
B6030 configuration:
DeviceNameTag=Cimetrics B6030 Lab
BaudRate=9600
SerialMode=8-N-1
PollingInterval=30
M1_Model=22 (ION62x0)
M1_Protocol=RTU
M1_ID=62
M1_Polling=Periodically
M1_Description=Test 1
M2_Model=22 (ION62x0)
M2_Protocol=RTU
M2_ID=63
M2_Polling=Periodically
M2_Description=Test 2
M3_Model=23 (ION73x0)
M3_Protocol=RTU
M3_ID=73
M3_Polling=Periodically
M3_Description=ION 7300
M4_Model=27 (PM710)
M4_Protocol=RTU
M4_ID=80
M4_Polling=Periodically
M4_Description=
```

Upload Configuration :

By Clicking on this button, a user can upload a previously saved configuration file (text). This will restore the configurations in the uploaded file.

Restore Default:

Clicking on this button will reset the page to factory default.

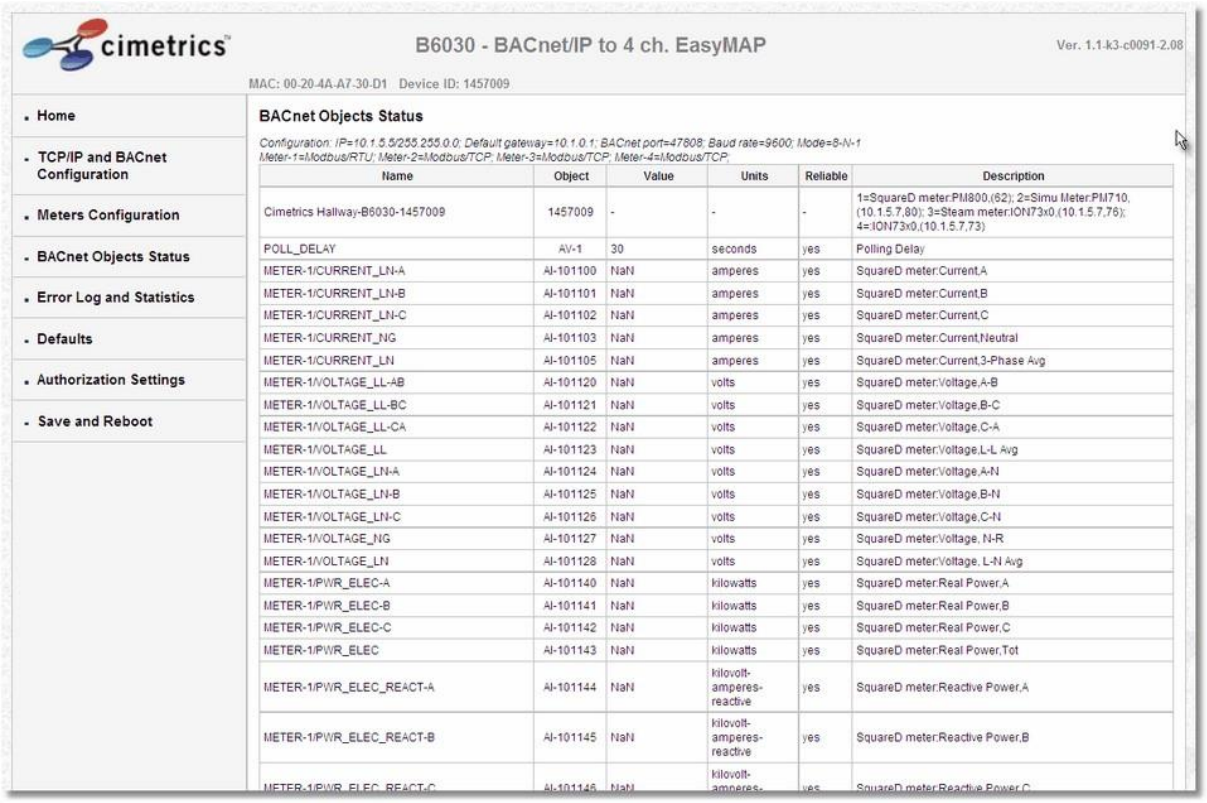
6 BACnet Object Status

On this screen, a user can view the BACnet Objects of each of the configured Meters. The following parameters of each BACnet Object are viewable

- Name
- Object
- Value
- Units
- Status
- Reliability
- D

- Description

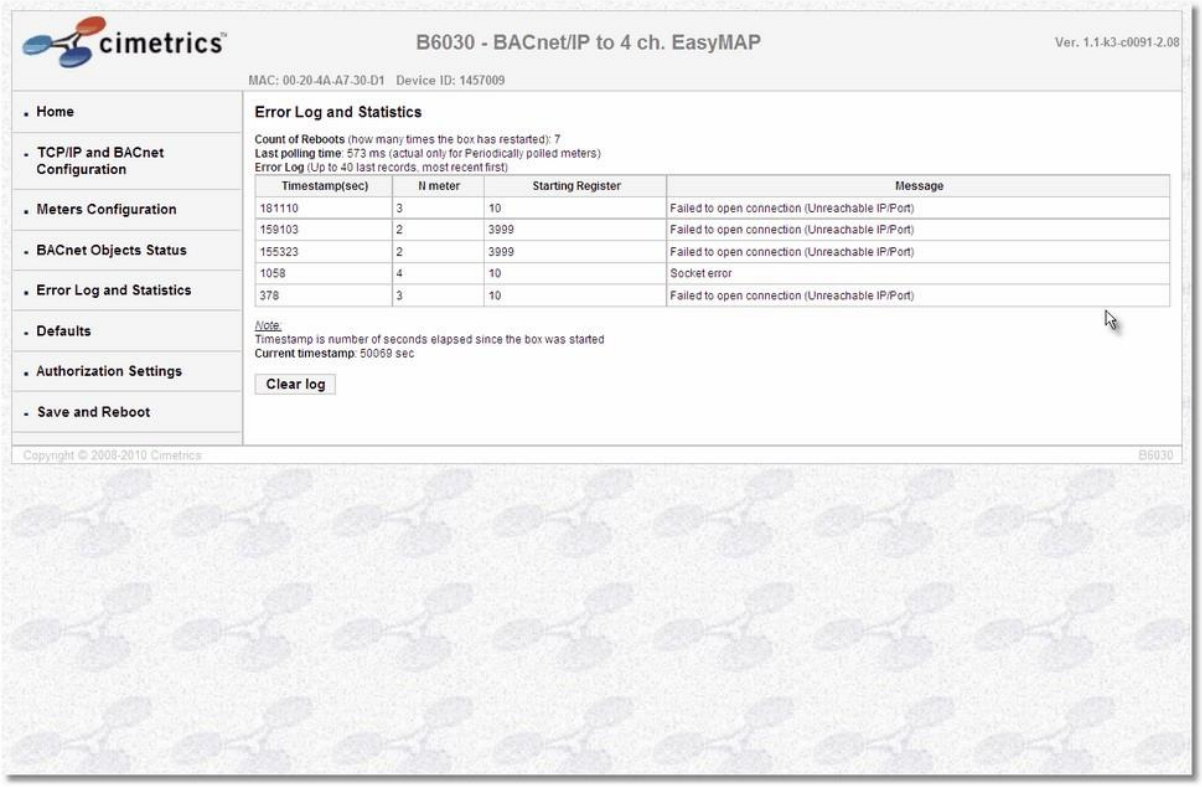
The information on the page gives the user a snapshot of the entire configuration



Name	Object	Value	Units	Reliable	Description
Cimetrics Hallway-B6030-1457009	1457009	-	-	-	1=SquareD meter:PM800,(62); 2=Simu Meter:PM710,(10.1.5.7,80); 3=Steam meter:ION73x0,(10.1.5.7,76); 4=:ION73x0,(10.1.5.7,73)
POLL_DELAY	AV-1	30	seconds	yes	Polling Delay
METER-1/CURRENT_LN-A	AI-101100	NaN	amperes	yes	SquareD meter:Current,A
METER-1/CURRENT_LN-B	AI-101101	NaN	amperes	yes	SquareD meter:Current,B
METER-1/CURRENT_LN-C	AI-101102	NaN	amperes	yes	SquareD meter:Current,C
METER-1/CURRENT_NG	AI-101103	NaN	amperes	yes	SquareD meter:Current,Neutral
METER-1/CURRENT_LN	AI-101105	NaN	amperes	yes	SquareD meter:Current,3-Phase Avg
METER-1/VOLTAGE_LL-AB	AI-101120	NaN	volts	yes	SquareD meter:Voltage,A-B
METER-1/VOLTAGE_LL-BC	AI-101121	NaN	volts	yes	SquareD meter:Voltage,B-C
METER-1/VOLTAGE_LL-CA	AI-101122	NaN	volts	yes	SquareD meter:Voltage,C-A
METER-1/VOLTAGE_LL	AI-101123	NaN	volts	yes	SquareD meter:Voltage,L-L Avg
METER-1/VOLTAGE_LN-A	AI-101124	NaN	volts	yes	SquareD meter:Voltage,A-N
METER-1/VOLTAGE_LN-B	AI-101125	NaN	volts	yes	SquareD meter:Voltage,B-N
METER-1/VOLTAGE_LN-C	AI-101126	NaN	volts	yes	SquareD meter:Voltage,C-N
METER-1/VOLTAGE_NG	AI-101127	NaN	volts	yes	SquareD meter:Voltage, N-R
METER-1/VOLTAGE_LN	AI-101128	NaN	volts	yes	SquareD meter:Voltage, L-N Avg
METER-1/PWR_ELEC-A	AI-101140	NaN	kilowatts	yes	SquareD meter:Real Power,A
METER-1/PWR_ELEC-B	AI-101141	NaN	kilowatts	yes	SquareD meter:Real Power,B
METER-1/PWR_ELEC-C	AI-101142	NaN	kilowatts	yes	SquareD meter:Real Power,C
METER-1/PWR_ELEC	AI-101143	NaN	kilowatts	yes	SquareD meter:Real Power,Tot
METER-1/PWR_ELEC_REACT-A	AI-101144	NaN	kilovolt-amperes-reactive	yes	SquareD meter:Reactive Power,A
METER-1/PWR_ELEC_REACT-B	AI-101145	NaN	kilovolt-amperes-reactive	yes	SquareD meter:Reactive Power,B
METER-1/PWR_ELEC_REACT-C	AI-101146	NaN	kilovolt-amperes-	yes	SquareD meter:Reactive Power,C

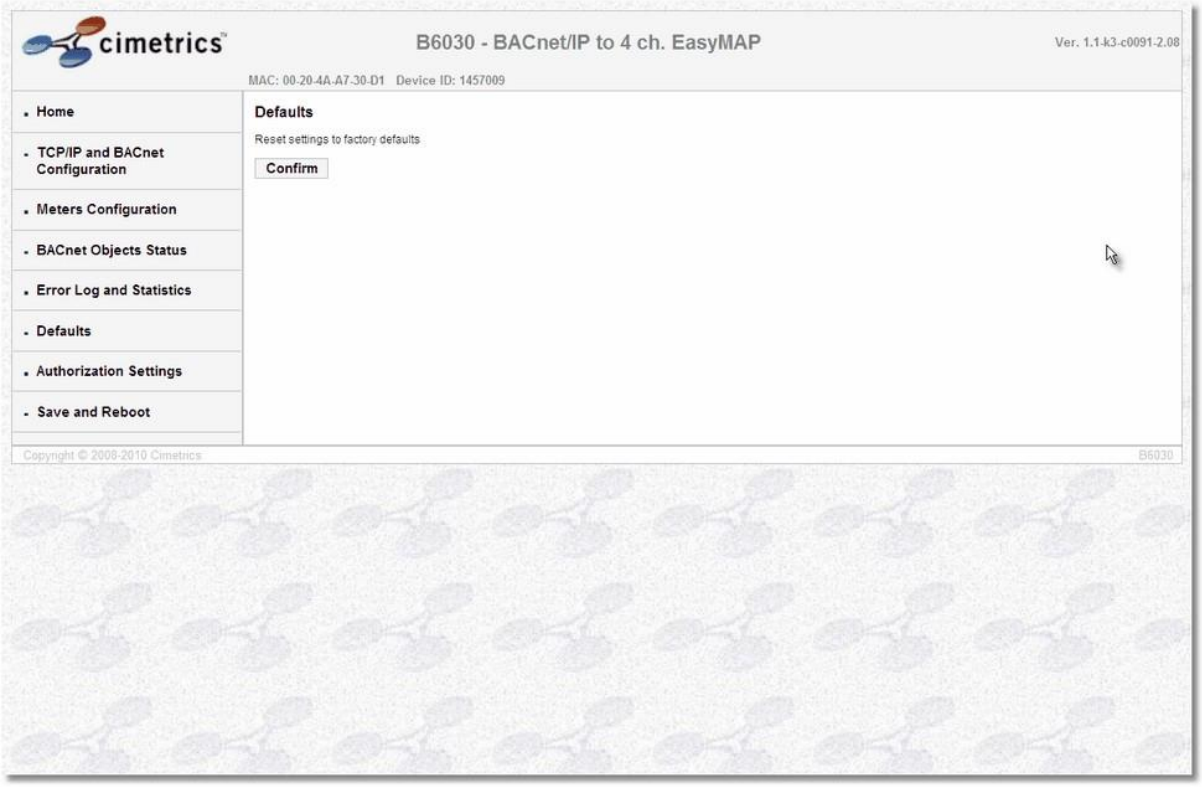
7 Error Log and Statistics

This page provides Statistics and Error logs on the configured meters.



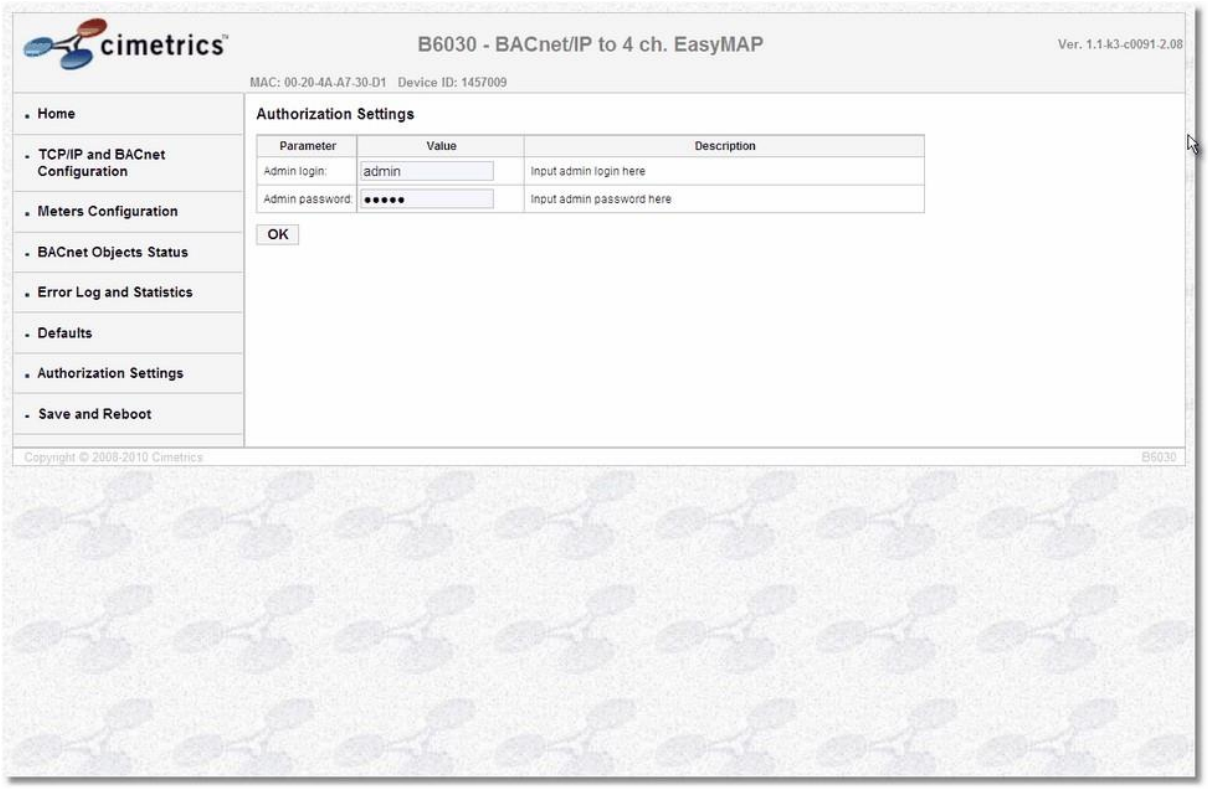
8 Defaults

Clicking on **Confirm** will reset the entire device's configuration to factory defaults.



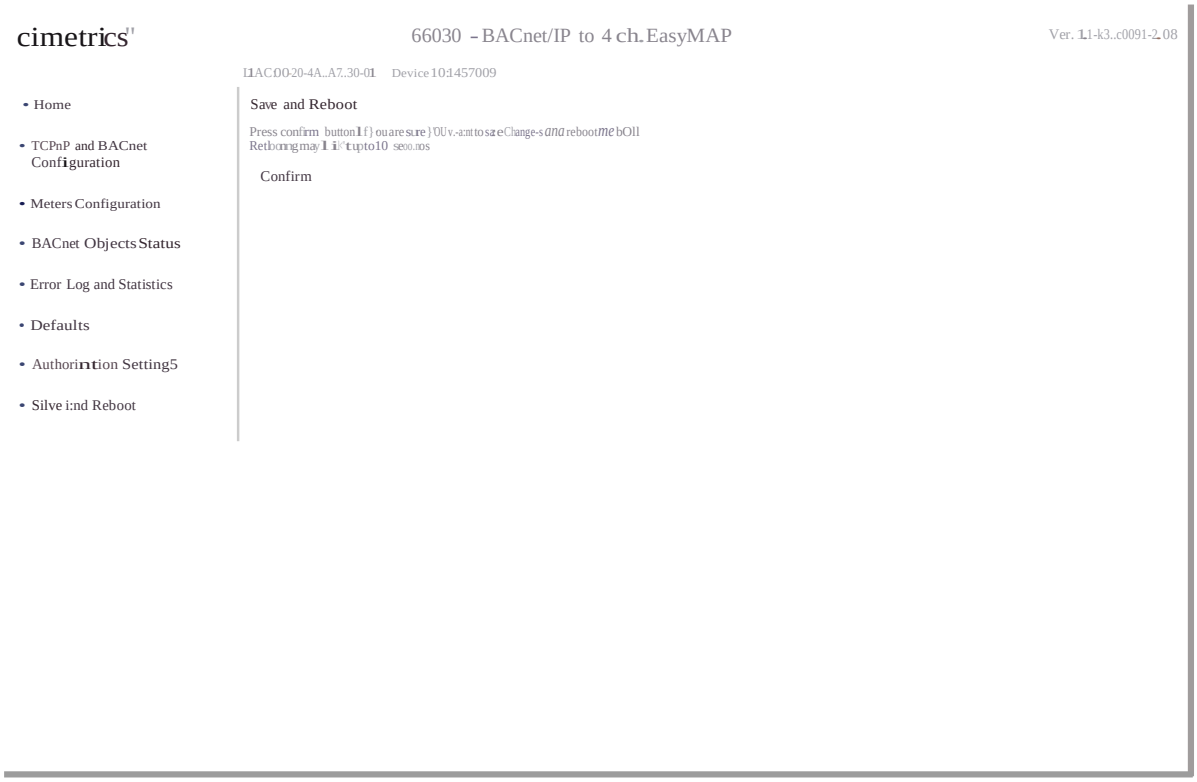
9 Authorization Settings

A user can change the username and password on this screen.



10 Save and Reboot

Once changes are made to any configuration on the B6030, the changes get saved only after clicking on the "Confirm" button in the "Save and Reboot" screen. Clicking on this will initiate a reboot of the device and will save the changes that have been made.


cimetrics
66030 - BACnet/IP to 4 ch. EasyMAP
Ver. 1.1-k3..c0091-2..08
Device 10:1457009
Home
TCPnP and BACnet Configuration
Meters Configuration
BACnet Objects Status
Error Log and Statistics
Defaults
Authorization Setting5
Silve i:nd Reboot
Save and Reboot
Confirm