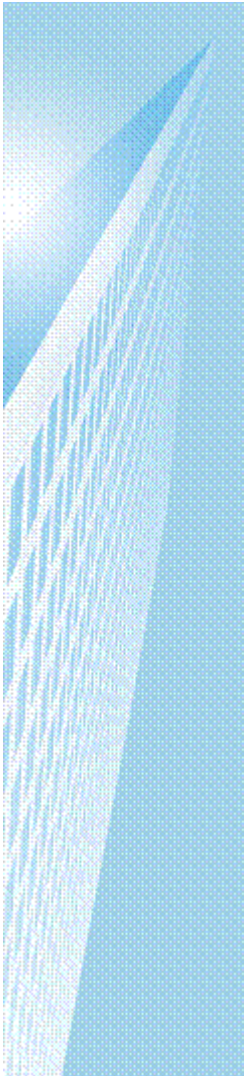


**Cimetrics, Inc**

**B6060 BACnet/IP to FP-93  
flow processor interface**

***User Manual***

**October, 2013**



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## Introduction



The B6060 enables integrating a FP-93 Emco Spirax Sarco FP-93 meter with an existing BACnet Compliant Building Automation System. Using this, you can offer solutions which save money and improve building comfort.

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 B6060 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 B6060 is complete and connected to the Building Automation Network, using a BACnet client like the Cimetrics BACnet Explorer, a user can look at the FP-93 meters as BACnet Devices. Meter data exposed to the BACnet network includes Power, Energy, Volume, Flow, Velocity, and more. Permanently available meter template is selected during the setup procedure using a drop down menu.

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

## Meters Configuration

### Settings for serial line devices (if any)

Parameter	Value	Description
Baud rate	9600 v	The baud rate of serial port (Default=9600)
Serial Mode	B N-1 v	Default mode: B N-1 (8 data bits, No parity, 1 stop bit)

### Common settings

Parameter	Value	Description
Idle time (in sec)	30	Idle time (in sec) between the end of one poll and the start of the next. Default=30 sec. Range:[5-3-600]. The Polling Delay is actual only for meters with "Polling" parameter set to "Periodically"

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

### Meter 1 Configuration

Meter Model	Emco FP-93 Flow Processor v	"None" means that polling is disabled for this meter
Unit number	1	Number with a range of 1 to 65535, used to identify individual units in a network
Polling	<input checked="" type="checkbox"/> Periodically <input type="checkbox"/> On demand	How to update values: On demand (by user) or Periodically (using Polling Delay)
Description		Meter description (up to 255 characters)

### Meter 2 Configuration

Meter Model	None v	"None" means that polling is disabled for this meter
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### Meters Configuration

**Settings for serial line devices (if any)**

Parameter	Value	Description
Baud rate	9600 <input type="button" value="v"/>	The baud rate of serial port. (Default=9600)
Serial Mode	8-N-1 <input type="button" value="v"/>	Default mode: 8-N-1 (8 data bits, No parity, 1 stop bit)

**Common settings**

Parameter	Value	Description
Polling Delay	30 <input type="text"/>	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	Emco FP-93 Flow Processor <input type="button" value="v"/>	"None" means that polling is disabled for this meter
Unit number	1 <input type="text"/>	Number with a range of 0 to 65535, using to identify individual units in a network.
Polling	<input checked="" type="radio"/> Periodically <input type="radio"/> On demand	How to update values: On demand(by user) or Periodically(using Polling Delay)
Description	<input type="text"/>	Meter description (up to 63 characters)

**Meter 2 Configuration**

Meter Model	None <input type="button" value="v"/>	"None" means that polling is disabled for this meter
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**Note:** You can integrate a second meter and it is an advanced configuration. For correct wiring, please, refer to Spirax Sarco FP-93 flow processor documentation.

## Logging in

Connect the B6060 Ethernet connector to an Ethernet hub, and run another Ethernet cable (patchable) 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 B6060 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 B6060 using the above mentioned IP address at ALL TIMES (even if you have changed the IP address under BACnet/IP settings)

## B6060 Home Page

The Home Page displays five important Objects of each meter that has been configured. The example below shows that this B6060 is connected to one Emco meter and shows five important objects from this meter. This is not user configurable as it is only a snapshot of the meters configured.

The screenshot shows the B6060 Home Page interface. On the left is a sidebar menu with the following items: Home, BACnet/IP Settings, Meters Configuration, BACnet Objects Status, Change Password, Statistics, Reset Configuration, and Activate Configuration. The main content area is titled "BACnet/IP to 2 ch. EMCO FP-93" with a MAC address of "00-20-4A-E9-0D-2B". Below this is a "Data Snapshot" table with the following data:

Object	Value	Units
METER-1/TEMP_1	3367.85006	degrees-Celsius
METER-1/TEMP_2	3367.85006	degrees-Celsius
METER-1/VOLUME_FLOW	0	liters-per-second
METER-1/MASS_FLOW	0	kilograms-per-second
METER-1/ENERGY_FLOW	0	btus-per-hour

Below the table are three buttons: "Download configuration", "Upload configuration", and "Download BFP93data.csv". At the bottom of the main content area, it says "Boston, MA; tel: 617-350-7550; [products@cimetrics.com](mailto:products@cimetrics.com); [www.cimetrics.com](http://www.cimetrics.com)". The footer contains "Copyright © 2010-2013 Cimetrics Inc." on the left and "BFP93 v1.1-k3-c3254-2.01" on the right.

Using the Download BFP93data feature, a user can export all the information into a comma separated value format file. An example of this file shown below:

Seconds	Name	Object	Value	Units	Description
		AI-			
612036	METER-1/TEMP_1	100010	3367.85	degrees-Celsius	Temperature #1
		AI-			
	METER-1/TEMP_2	100014	3367.85	degrees-Celsius	Temperature #2
	METER-1/VOLUME_FLOW	100030	0	liters-per-second	Volume flow
		AI-			
	METER-1/MASS_FLOW	100040	0	kilograms-per-second	Mass flow
		AI-			
	METER-1/ENERGY_FLOW	100045	0	btus-per-hour	Energy flow
		AI-			
612085	METER-1/TEMP_1	100010	3367.85	degrees-Celsius	Temperature #1
	METER-1/TEMP_2	AI-	3367.85	degrees-Celsius	Temperature #2

**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:

```
BFP93 configuration:
BaudRate=9600 SerialMode=8-
N-1 PollingInterval=30
M1_Model=Emco FP-93 Flow Processor
M1_ID=1
M1_Polling=Periodically
M1_Description=
M2_Model=None
M2_ID=0
M2_Polling=Periodically
M2_Description=
# IP=192.168.33.7/255.255.255.0; gtw=192.168.33.1; deviceID=1473259; MAC=00-20-
4A-E9-0D-2B
```

**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.



## BACnet/IP Settings

On this screen, a user can configure the following parameters

1. **IP Address** – IP address of device.
2. **Network Mask** – Subnet mask for the subnet your device is on.
3. **Default Gateway** – IP address of default gateway
4. **BACnet UDP Port** – BACnet UDP port (Default is 47808. In some cases e.g. a situation where it is desirable for two groups of BACnet devices to coexist independently on the same IP subnet, the UDP port may be configured locally to a different value.
5. **BACnet Device Number – Or Device ID.** It is a numeric code that is used to identify the BACnet Device. Default ID is generated from the MAC address of B6060.
6. **BBMD IP Address** – If you want B6060 to be a foreign device then here you specify IP address of target BBMD. It will enable Foreign Device mode.

To find out more about Foreign device and BBMD visit: <http://www.bacnet.org/Bibliography/ES-7-99/IPPART2.HTM> <http://www.bacnet.org/Tutorial/BACnetIP/sld015.html>

7. **A Description for the Device** – Location/application string (0-63 characters) to help user find the Device Object Name.

**Advanced Setting** – If you enabled B6060 as a foreign device specify here Subscription time to live (TTL). It is recommended you leave default value in this field.

Upon receipt of the message, the BBMD adds the foreign device to its Foreign-Device-Table (FDT) and starts a timer equal to the Time-to-Live parameter (hereafter "TTL") plus a fixed "grace period" of 30 seconds. If the foreign device fails to re-register before the timer expires, the BBMD may delete the foreign device from its FDT.

### BACnet/IP Settings

This page allows you view current BACnet/IP settings, change BACnet/IP settings or restore them to factory default.

Parameter	Value	Description
IP Address	<input type="text" value="192.168.0.22"/>	IP address of the Device.
Network Mask	<input type="text" value="255.255.255.0"/>	Subnet mask.
Default Gateway	<input type="text" value="192.168.0.1"/>	IP address of default gateway.
BACnet UDP Port	<input type="text" value="47808"/>	BACnet/IP UDP port number.
BACnet Device Number	<input type="text" value="1473259"/>	Device ID. Default = 1473259 generated from MAC.
BBMD IP Address	<input type="text"/>	IP address of target BBMD for the Foreign Device to register. Entering IP address of target BBMD enables Foreign Device mode.
BACnet Device Location/Application	<input type="text"/>	Location/application string (0-63 characters) to help user find the Device Object Name.

Advanced settings are better kept to factory default values. Changes to these settings might negatively impact operation of the device.

FD Subscription TTL	<input type="text" value="30"/> min	Effective only if BBMD address is set. It is recommended to set this number between 30 minutes and an hour.
---------------------	-------------------------------------	---

## Meters Configuration

On this screen, a user can configure an FP-93 that will be integrated into the BACnet/IP network. The user will need to choose the appropriate baud rate and the serial mode. Please note that if you intend to configure multiple FP-93 meters, their baud rates need to be the same and for the second meter correct wiring refer to Spirax Sarco FP-93 flow processor configuration documentation.

FP-93 meter is selected from the drop down list in Meter Model field. Once the selection is made, the unit number is entered. Choose if you want to poll meters periodically or on demand. Once this process is completed for one or two FP-93 meters, the configuration is complete.

### Meters Configuration

**Settings for serial line devices (if any)**

Parameter	Value	Description
Baud rate	9600 <input type="button" value="v"/>	The baud rate of serial port. (Default=9600)
Serial Mode	8-N-1 <input type="button" value="v"/>	Default mode: 8-N-1 (8 data bits, No parity, 1 stop bit)

**Common settings**

Parameter	Value	Description
Polling Delay	30 <input type="text"/>	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	Emco FP-93 Flow Processor <input type="button" value="v"/>	"None" means that polling is disabled for this meter
Unit number	1 <input type="text"/>	Number with a range of 0 to 65535, using to identify individual units in a network.
Polling	<input checked="" type="radio"/> Periodically <input type="radio"/> On demand	How to update values: On demand (by user) or Periodically(using Polling Delay)
Description	<input type="text"/>	Meter description (up to 63 characters)

## 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
- Description

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

### BACnet Objects Status

*Configuration: IP=192.168.0.22/255.255.255.0; Default gateway=192.168.0.1; BACnet port=47808; Baud rate=9600; Mode=8-N-1*

Object Name	Object ID	Present Value	Units	OK	Description
BFP93-1473259	1473259	-	-	-	Meter 1= (Unit 1)
POLL_DELAY	AV-1	30	seconds	yes	Polling Delay
METER-1/RTD_1_RESISTANCE	AI-100001	988.38903	ohms	yes	RTD #1 resistance
METER-1/RTD_2_RESISTANCE	AI-100002	990.25805	ohms	yes	RTD #2 resistance
METER-1/ANALOG_INPUT-1	AI-100003	16.0661	-	yes	Analog input #1 current
METER-1/ANALOG_INPUT-2	AI-100004	1.62721	-	yes	Analog input #2 current
METER-1/ANALOG_INPUT-3	AI-100005	16.0482	-	yes	Analog input #3 current
METER-1/ANALOG_INPUT-4	AI-100006	1.62229	-	yes	Analog input #4 current
METER-1/FREQUENCY	AI-100007	0	hertz	yes	Frequency
METER-1/FLOW_DIR	AI-100008	1	-	yes	Flow direction (1=forward,0=reverse)
METER-1/TEMP_1	AI-100010	3367.85006	degrees-Celsius	yes	Temperature #1
METER-1/TEMP_AVG_1	AI-100011	3367.85006	degrees-Celsius	yes	Average temperature #1
METER-1/TEMP_MIN_1	AI-100012	-17.7778	degrees-Celsius	yes	Minimum temperature #1
METER-1/TEMP_MAX_1	AI-100013	3367.85006	degrees-Celsius	yes	Maximum temperature #1
METER-1/TEMP_2	AI-100014	3367.85006	degrees-Celsius	yes	Temperature #2
METER-1/TEMP_AVG_2	AI-100015	3367.85006	degrees-Celsius	yes	Average temperature #2
METER-1/TEMP_MIN_2	AI-100016	-17.7778	degrees-Celsius	yes	Minimum temperature #2

## Error Log and Statistics

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

**Statistics**

Statistics

Parameter	Value	Description
Count of Reboots	12	How many times the box has restarted
Last polling time	19671 ms	Total time of the last polling for all Periodically polled meters.
Current Seconds	66200	Time elapsed since power on.
FD Status	Disabled	BBMD address not configured
BACnet/IP Packets	19 sent, 0 received	
FP93 Packets	109175 sent, 109174 received	Packets passed through serial port using the FP93 ASCII protocol

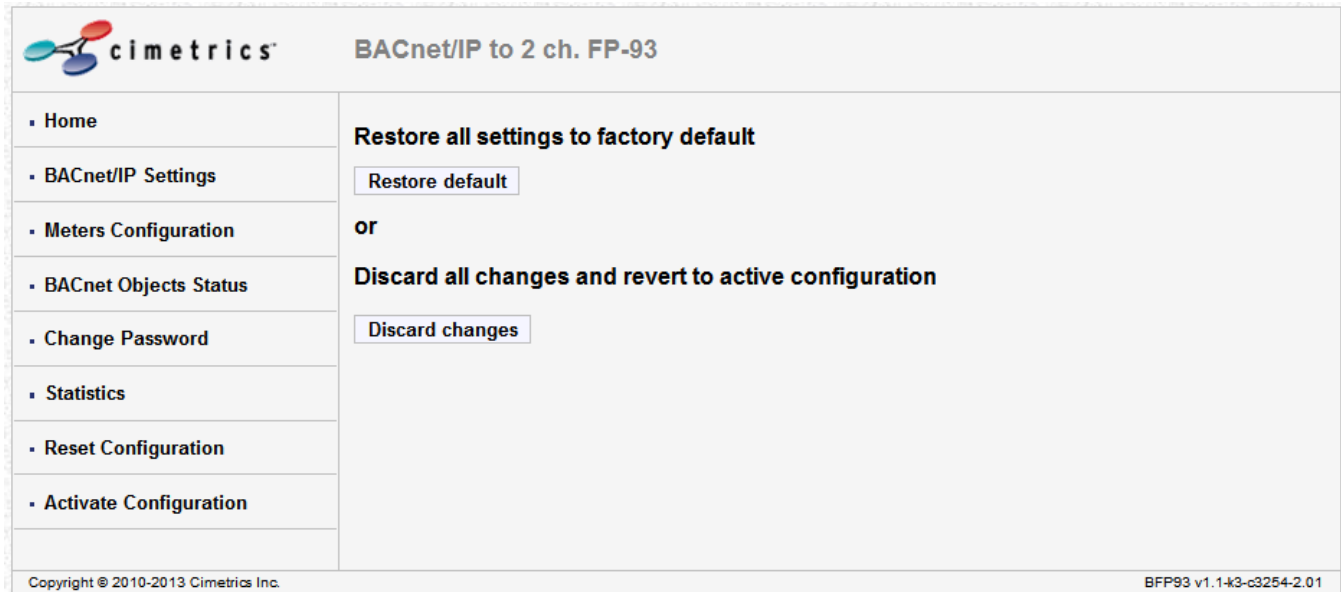
**Error Log** (Up to 40 last records, most recent first)

Timestamp(sec)	N meter	Register	Message

BFP93 v1.1-k3-c3254-2.01

## Reset Configuration

Clicking on **Restore default** will reset the entire device's configuration to factory defaults. Clicking on **Discard changes** will discard all changes and revert to active configuration.

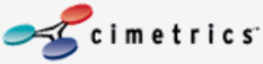


The screenshot shows the Cimetrics web interface for a BACnet/IP to 2 ch. FP-93 device. The left sidebar contains a navigation menu with the following items: Home, BACnet/IP Settings, Meters Configuration, BACnet Objects Status, Change Password, Statistics, Reset Configuration, and Activate Configuration. The main content area is titled "Restore all settings to factory default" and contains a "Restore default" button. Below this, it says "or" and "Discard all changes and revert to active configuration", followed by a "Discard changes" button. The footer of the interface includes "Copyright © 2010-2013 Cimetrics Inc." on the left and "BFP93 v1.1-k3-c3254-2.01" on the right.



## Change Password

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


**BACnet/IP to 2 ch. FP-93**
  
  

- Home
- BACnet/IP Settings
- Meters Configuration
- BACnet Objects Status
- **Change Password**
- Statistics
- Reset Configuration
- Activate Configuration


### Change Administrator Login and Password

Parameter	Value	Description
Login:	<input type="text" value="admin"/>	Login to access this WebSetup (up to 15 symbols).
Current password:	<input type="password"/>	Current administrator password.
New password:	<input type="password"/>	New administrator password (up to 15 symbols).
Confirm new password:	<input type="password"/>	The same password.

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## Activate Configuration

Once changes are made to any configuration on the B6060, the changes get saved only after clicking on the "Confirm" button in the Activate Configuration screen. Clicking on this will initiate a reboot of the device and will save the changes that have been made.

 <b>BACnet/IP to 2 ch. FP-93</b>	
<ul style="list-style-type: none"><li>• Home</li><li>• BACnet/IP Settings</li><li>• Meters Configuration</li><li>• BACnet Objects Status</li><li>• Change Password</li><li>• Statistics</li><li>• Reset Configuration</li><li>• <b>Activate Configuration</b></li></ul>	<h3>Activate Configuration</h3> <p>Press "Confirm" button if you are sure you want to activate changes and reboot the device. Rebooting may take up to ten seconds.</p> <p><input type="button" value="Confirm"/></p>
<small>Copyright © 2010-2013 Cimetrics Inc. <span style="float: right;">BFP93 v1.1-k3-c3254-2.01</span></small>	