AplusWEB

User Manual Version 1.0
Model: AW-920

Important!

Please read this user manual carefully before using this device.

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Chapter 1: Introduction

Thank you for your purchase of PICOBOX AplusWEB (AW-920). This device has lots of powerful built-in features and functionalities yet it is easy to setup and to use. You are advised to read through this manual to understand each feature in detail so as to fully utilize the capabilities of this product.

AplusWEB is an alarm controller and also a SMS gateway. When used as an alarm controller, the device can monitor up to 8 digital inputs from different equipments interfaced to it. It accepts dry contact (volt-free) inputs. The user can define each input according to the type of equipment the inputs are interfaced to. When the input changes state from normal to alarm or vice-versa, SMS are sent out to recipient's mobile phone. AplusWEB has powerful features and is flexible, allowing users to decide how the messages will be sent. It also has an analog input, allowing the user to interface to any industrial standard 4-20mA transmitter / sensor. Some examples are temperature, humidity, flow, current, power, pressure, and so on. Later part of this manual will describe each feature of the product in detail.

Chapter 2: Safe Use of Device

The following section contains important operating and maintenance (servicing) instructions. Please read it carefully.

Warnings

To reduce the risk of electric shock:

- Do not remove the cover (or back) of this device. There are no user-serviceable parts inside. Refer servicing to qualified service personnel.
- Do not expose this device to rain or moisture

To reduce the risk of electric shock and electromagnetic interference, use only recommended accessories.

Note

The serial number of this device is shown on the side of the product. You should record the number and other vital information here and retain this booklet as a permanent record of your purchase.

Model No.:

Serial No.:

Date of Purchase:

Dealer Purchased from:

Dealer Address:

Dealer Telephone No.:

Important Safety Instructions

In these safety instructions, the word [device] refers to AplusWEB and all its accessories.

Read Instructions – Read all the safety and operating instructions before operating the device.

- Retain Instructions – Save the safety and operating instructions for future reference.
- Heed Warnings – Heed all warnings on the device and in the operating instructions.
- Follow Instructions – Follow all operating and maintenance instructions.
- Cleaning – Unplug this device from the wall outlet before cleaning. Wipe the device with a clean soft cloth. If necessary, put a cloth in diluted neutral detergent and wring it well before wiping the device with it. Finally, clean the device with a clean dry cloth. Do not use benzene, thinner or other volatile

liquids or pesticides as they may damage the product's finishing. When using chemically treated cleaning cloths, observe their precautions accordingly.

- Accessories – Use only accessories recommended in this manual. Always use specified connection cables. Be careful to connect devices correctly.

- Water and Moisture (Hazard of electric shock) – Do not use the device near water or in rainy or moist situations.

- Ambient Temperature – Do not put this device near a heater.

- Placing or Moving – Do not place this device on an unstable cart, stand, tripod, bracket or table. The device may fall and cause serious damage to itself and serious injury to others. A device and cart combination should be moved with care. Quick stops, excessive force and uneven surfaces may cause the device and cart combination to overturn.

- Power Sources – The AC adapter should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supply to your premises, consult your device dealer or local power company.

- Power Cord Protection – Power cords should be routed so that they are not likely to be walked on, or pinched by items placed upon or against them. Pay particular attention to plugs and the point from which the cords exit the device.

- Outdoor Antenna Grounding – If an outside antenna is connected to the device, be sure the antenna is grounded so as to provide some protection against voltage surges and built-up static charges.

- Lightning – For added protection of this device during a lightning storm, or when it is left unattended and unused for long periods of time, disconnect it from the wall outlet and disconnect the antenna. This will prevent damage to the device due to lightning and power-line surges.

- Power Lines – An outside antenna system should not be located in the vicinity of overhead power lines or other electric light or power circuits, or where it can fall into such power lines or circuits. When installing an outside antenna system, extreme care should be taken to keep from touching such power lines or circuits, as contact with them might be fatal.

- Overloading – Do not overload wall outlets and extension cords as this can result in a risk of fire or electric shock.

- Object and Liquid Entry – Never push objects of any kind into this device through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Be careful not to spill liquid of any kind onto the device.

- Servicing – Do not attempt to service this device yourself as opening or removing covers may expose you to dangerous voltage or other hazards. Refer all servicing to qualified personnel. Opening the cover may void your warranty.

- Do not install the device in the following locations as this can cause a fire or electric shock:
  - Hot locations
  - Close to a fire
  - Very humid or dusty locations
  - Locations exposed to direct sunlight
  - Locations exposed to salt spray
  - Close to flammable solvents (alcohol, thinners, etc.)

- If any of the following occurs, immediately switch the device OFF, unplug it from the main power supply and contact your distributor or agent:
  - The device emits any smoke, heat, abnormal noise, or unusual odour
  - A metal object falls into the device
  - The device is damaged in some way

  Do not continue to use the device as this can cause a fire or electric shock.

- Please observe the following when using the device. Failure to do so can result in a fire or electric shock.
  - Do not use flammable sprays near the device.
  - Do not subject the device to strong impact.

Chapter 3: Product Overview

The AplusWEB is a standalone device built around a 32 bit microcontroller. It has a built-in dual band GSM modem along with associated circuitries like switching power supply, optically coupled digital inputs, relay outputs, indicators, etc. AplusWEB is IP based (Internet Protocol), comes with user friendly web user interface and powerful feature set.

Features

Table 3.1 shows the product features of AplusWEB.

Physical	
Operating Voltage	9 to 18VDC, 2W max power consumption
Processor	32 bit 50MHZ microcontroller
GSM modem	Quad Band GSM 850/900/1800/1900 Mhz
Humidity	0 - 90% non condensing
Operating Temperature	0 - 55 degree Celsius
Physical size	70 (L) x 110 (H) x 60 (D) mm
Weight	200 gm
Mounting	Industrial standard ABS housing with Din rail mounting, Pluggable 5mm screw terminal block
Security Feature	2 Level security, Administrator and User level
Date & Time	Support NTP server time zone synchronization
Real Time Clock	Date time with battery backup
LED Indicators	a) 1 green indicator for power
	b) 1 amber indicator for Telco network status
	c) 1 dual color red/green indicator for signal strength
Communication port	1 x RJ45 port, Ethernet 10/100Mbit
Interface	HTML interface, accessible via web browser software
Network	
Network support	Static IP support
Network protocol	a) TCP (Transmission Control Protocol)
	b) IP (Internet Protocol)
	c) HTTP (Hyper Text Transfer Protocol)

Digital Input	
No of Input points	8 optically coupled dry contacts digital inputs, opto-isolate
Configuration	Independent configuration of input description, open/close status description
Relay Output	
No of Output points	2 relay outputs, contact rated at 30VDC 2A
Configuration	User defined output description

Output control	Through SMS or locally On / Off relay outputs through web browser
Analog Input	
No of Analog points	2 analog inputs, 4-20mA
Configuration	Configurable input description, scaling, trigger delay, high/low alarm points.
Remote Management	
Remote Command	a) Add / Edit / Delete mobile phone groups, repeat time
	b) Query Operational / Authorizer / Forwarder mobile phone numbers
	c) Query health check
	d) Query input / output / analog status
	e) On / Off output equipments / devices
	f) Acknowledgements
SMS Alert	
Phone Groups	a) 8 mobile phone numbers for Operation Group
	b) 2 mobile phones numbers for Authorized Group
	c) 1 mobile phone number for Forward Number
	d) Accepts International Phone Number format and support Auto Roaming
Configurable SMS Message	Digital inputs, relay outputs & analog input (2 messages per input, One for On State and Off State Triggering)
Auto Health Check	Programmable daily/weekly system health check
Time Stamp	SMS sent & received with time stamps

Table 3.1 Product Features

Package contents

1. 1 unit of AplusWEB
2. Power Supply
3. 12 ways pluggable screw terminal – 1 piece
4. 8 ways pluggable screw terminal – 1 piece
5. GSM antenna, SMA mount
6. Ethernet Cross Cable
7. CD containing product brochure, application utility, user manual.
8. Warranty card

Getting to know your product

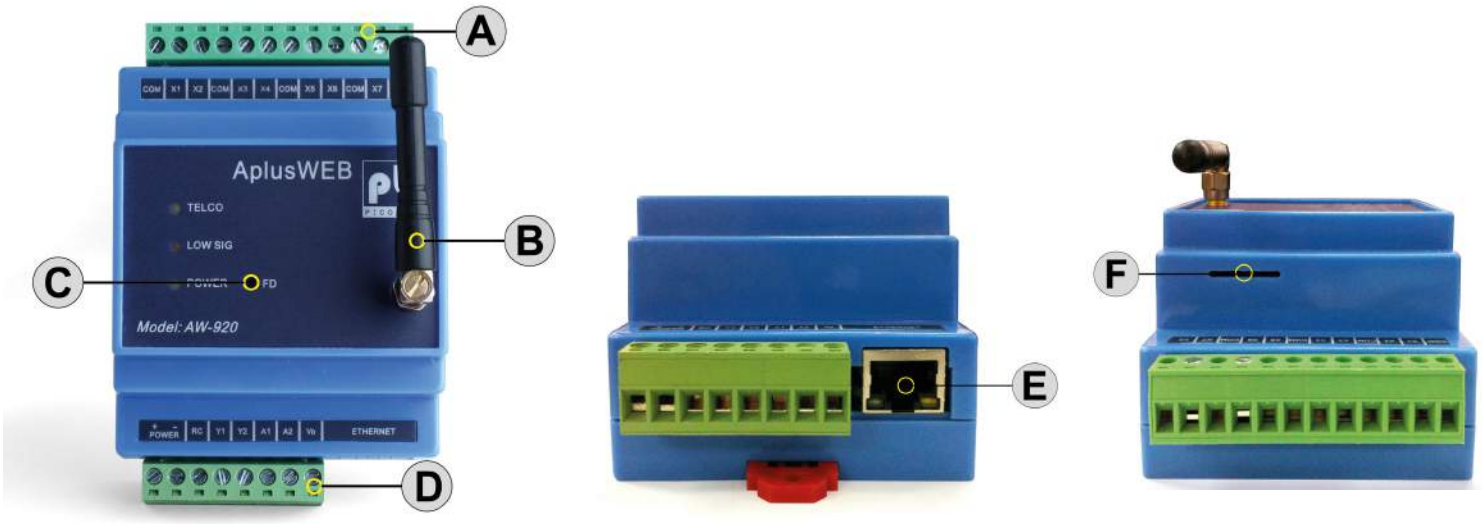


Figure 3.1

	Description	Comment
A	12 ways pluggable screw terminal	IO connectors
B	Antenna	SMA-mount Antenna
C	Reset Button	Reset device to Factory Default
D	8 ways pluggable screw terminal	Power and IO connectors
E	Ethernet port	Standard RJ-45 connector
F	SIM Card socket	Insert SIM card here

Table 3.2

LED Indicators Description

Table 3.3 shows the description of the LED Indicators colour and its functions.

Name	Colour	Function
Power	OFF	No power
	Green	Module is running in normal mode
Telco	Flashing Orange	GSM in operation
Low Sig	Red	No SIM card inserted or RF signal strength is below 30%

Table 3.3

Telco Signal Strength LED Indicators

After applying power to AplusWEB, the green Power LED and the Low Sig LED will light up. After few seconds the amber Telco LED will start to blink (0.5s on, 0.5s off). This rate of blinking indicates that AplusWEB is searching for a valid Telco network. When it succeeds logging onto a network, the Telco LED will flash (0.2s on, 0.8s off). If the received Telco signal strength is high enough (>30%), the Low Sig LED will turn off.

Under normal condition, the Error LED should be off. If lighted, it indicates either:

- SIM card is not present, or
- The card is locked and the mobile pin code is not supplied or wrongly entered. Refer to software configuration section on entering mobile pin code.

Low Sig LED with lighted, suggests that the signal strength is too low for reliable SMS operation. If this happened, either relocate AplusWEB to a nearby location where the RF reception is better, or if relocating is not possible or practical, use an external high gain antenna. Contact your distributor for a suitable recommendation to your situation.

Chapter 4: Hardware Installation

This section will guide you through the installation of your AplusWEB. Just follow the instructions here and you will have your AplusWEB installed very quickly.

Before starting installation, ensure that the unit is powered OFF and the power adapter plug disconnected from the POWER connectors of the unit

Mounting

Determine a suitable location for the AplusWEB. Mount the AplusWEB on the Din-Rail as illustrated below.

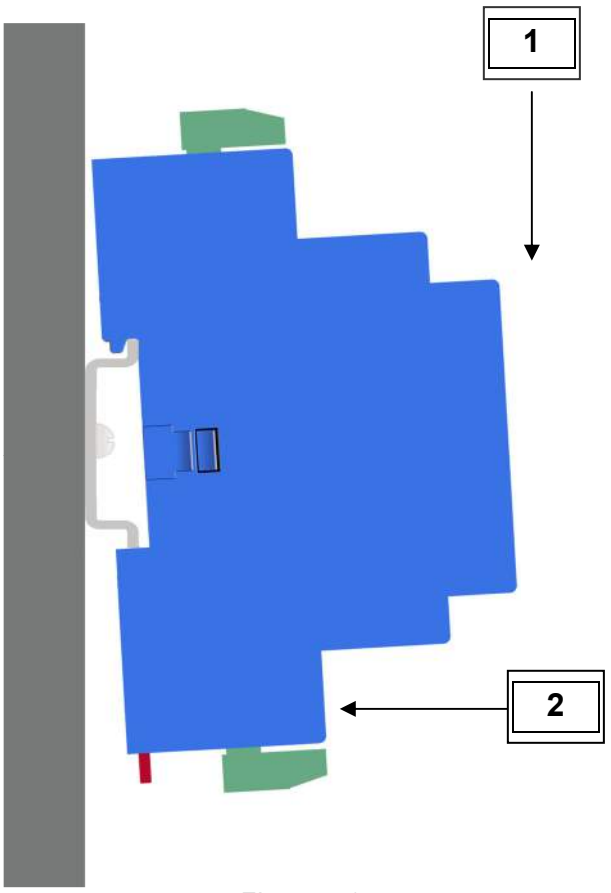


Figure 4.1

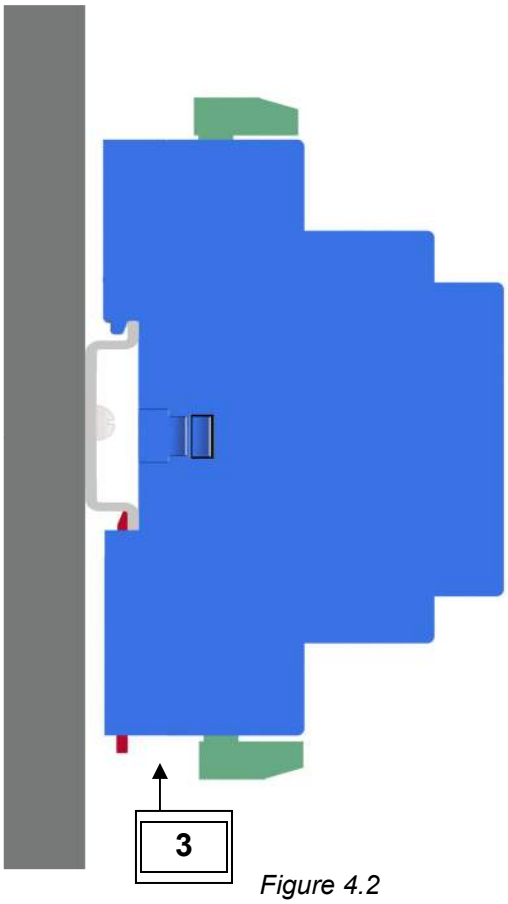


Figure 4.2

1 – Slide the top of AplusWEB on to the DIN-rail (Figure 4.1)

2 – Push the bottom of AplusWEB on to the DIN-rail (Figure 4.1)

3 – Use a screw driver to push the lock upwards. (Figure 4.2)

Step 1. Determine a suitable location for the AplusWEB when selecting a location, remember that you will need to connect the power adapter, termination blocks and Ethernet cable, and have suitable GSM reception. Follow carefully the instructions provided earlier in this manual on the safe use of this device and the instructions above on mounting the AplusWEB on to the Din-Rail.

Step 2. Insert a valid GSM mobile telephone SIM card into the SIM card socket slot on top of the AplusWEB.

- To insert the card, push the SIM card on to the slot (SIM card facing upwards as shown in figure 4.3). Do this using a small flat tool. Example: slot head screwdriver.

- Slide it in all the way until you feel it touching the end. To remove, gently press on the SIM card using a small slot head screwdriver.

Step 3. Attach the antenna provided in the package onto the antenna socket. If an external antenna is required, contact your distributor for more information on external high gain antenna.

Step 4. Wire the input/output connection between the equipment and AplusWEB using the pluggable screw terminal provided.

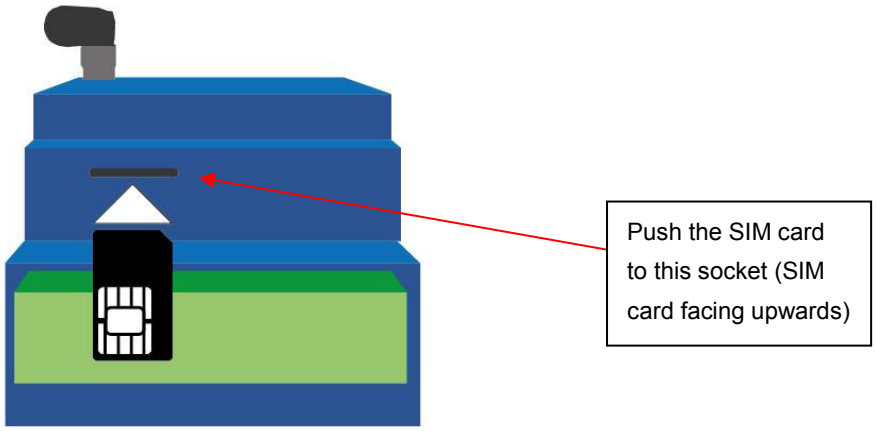


Figure 4.3 SIM card Socket

DC INPUT

Power to AplusWEB is supplied from the 12VDC power adapter via the DC jack input. If using user-supplied power supply, observe voltage polarity and voltage level. AplusWEB operates on 12VDC input but can accept supply voltage up to 18VDC. Do not exceed the recommended input voltage, exceeding which will damage the AplusWEB.

Ethernet

The RJ-45 connector connects AplusWEB to the computer or network using Cat5 UTP cable. For connection to a single PC, use the cross Ethernet cable supplied with the unit. A hub or Ethernet switch is not necessary for direct AplusWEB to PC interface. AplusWEB can be used as a standalone system, or connected to the local area network (LAN). A LAN connection gives greater flexibility as well as enabling AplusWEB to work with other networking devices.

Antenna

This SMA connector interfaces the external antenna to the internal GSM modem of AplusWEB. Choose suitable antenna for your installation. The SMA-mount Antenna supplied, as standard accessory is the unity gain antenna. This antenna is suitable for most installation. If the location has low GSM signal strength, use high gain antenna or outdoor type. Check with your distributor for suitable antenna alternatives.

FD (Factory Default)

This button allows user to reset the password and IP address to factory default.

To reset Administrator / Guest user password:

1) Power Off the device
2) Push and Hold FD button and power on the device Power On device
3) Continue to hold the button for 8 seconds or more
4) Release the blunt tool

To reset the IP address:

1) Attach the cross cable to PC or Ethernet switch
2) Power ON the device
3) Push and Hold FD button for 8 seconds with a blunt tool
4) Release the blunt tool

Note: To prevent unauthorized reset, the device should be installed in ABS housing with lock.

Interfacing to Equipments

(Figure 4.4) shows how alarm inputs are wired to AplusWEB. Up to 8 dry contacts can be monitored simultaneously. The contacts shown are either relay contact or switches from within the equipment. Cabling distance of up to 50 meters between the equipment and AplusWEB is possible without causing false triggering. In noisy environment, shielded cables are recommended. Unused inputs can be left unconnected.

Wiring Instruction: Example

(Figure 4.4) shows the power supply connection to AplusWEB. Power to AplusWEB can be from 12-18 Volts. A 12VDC adapter is supplied as a standard accessory. The digital inputs shown are dry contacts type. The two outputs are relay types with contact ratings of 30V, 2 amps DC max. Also shown in this figure are two 4-20mA transmitters, 2-wire loop powered. Depending on the power requirement of the transmitter, a higher voltage may be needed. In this case, change the power supply to a higher voltage type, but not higher than 18 volts. AplusWEB is also capable of driving low power loads directly without using relay interface. The output driver is an open-collector transistor; each can sink up to 500mA of load current. Maximum handling voltage is 30 VDC. Always connect a diode across the load to protect the transistor from damage due to back EMF, especially inductive loads.

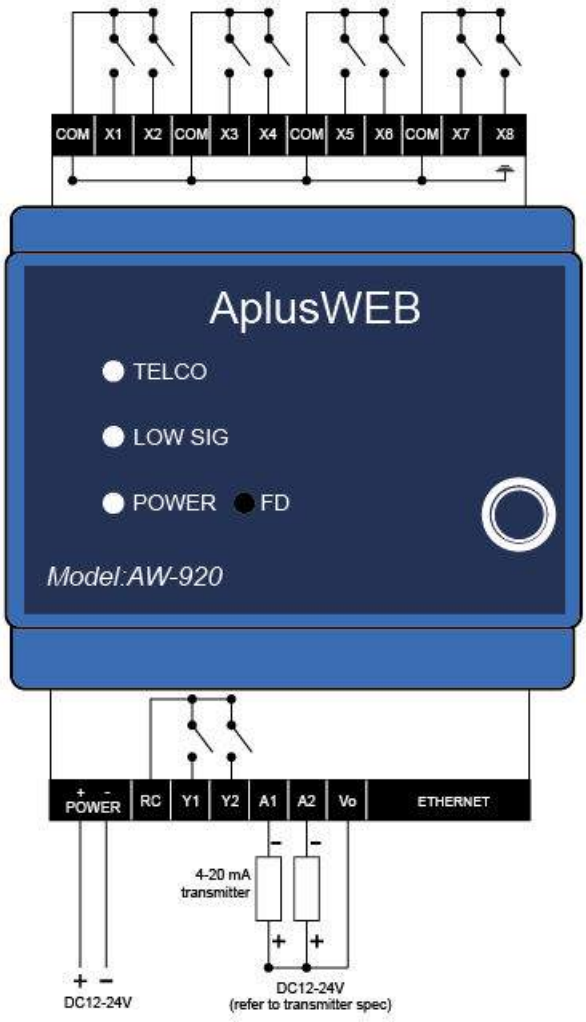


Figure 4.4 Wiring Diagram Example

Chapter 5: Software Configuration

Configuration of messages, phone groups etc are done via the Ethernet port.

Alarm Triggering

An alarm event happens when any one or more digital and analog input changes state. AplusWEB continuously monitor the input for these events. When an alarm event occurs, it picks up information from the configuration memory and performs the necessary SMS actions. In such an event, all mobile phone numbers stored in the memory will receive the SMS alert.

The format of the message is

[Date/Time] [Device ID] [Input description] → [Status]

Date/Time

The time of alarm event occurs. The real-time clock within AplusWEB provides the time stamping information.

Device ID

The identity assigned by the user during software configuration.

The user defines input description and status during software configuration. Each digital input will have its own unique input description name and status text.

Example of an SMS alarm message:

29/12/12 14:39> (AW920) Power Supply in Basement 1 → Fault

Up to 8 mobile phones can be alerted to. This group of phone numbers is known as operation phones. Additionally, if a forward phone number is specified, it will receive the alarm notification as well.

Please refer to the following pages on how to configure AplusWEB.

Configuring the Device

AplusWEB is a web-based product. Using any web-browser on the PC, the user with administrative rights can access all the user configuration pages.

IP Address

Setup the device with the RJ45 Ethernet cable plugged onto the RJ45 socket of the device on one end and the other either to the network Ethernet switch or directly to a PC. When connecting to a PC, use a cross Ethernet cable.

AplusWEB has static IP capability. Its default IP address is ***192.168.1.30***.

Standalone Configuration: Static IP

In a standalone environment with one AplusWEB directly connected to a standalone PC, requires a crossover Ethernet cable, which is supplied with the AplusWEB unit.

In order for the PC and the AplusWEB to connect to each other, the PC must be manually set to a static IP address that is within the same subnet as the AplusWEB. Given the default configuration of IP address *192.168.1.30* and 255.255.255.0 for the subnet mask, a suitable IP addresses for the PC would be *192.168.1.1* or any other IP address other then 1*92.168.1.30*.

Warning

Remember that you SHOULD NOT use the same IP address *192.168.1.30* for your PC and AplusWEB and both PC and AplusWEB need to be within the same subnet.
If you are unsure of how to set static IP address for your PC, please consult your PC operating system's documentation for details.

Accessing AplusWEB Web Pages

Once the IP address of the PC has been configured, the user can setup the device using the PC browser. The PC IP address must be in the same network range as the device.

To learn more about IP address and subnet mask, visit www.learntosubnet.com
Open the web browser application on your PC. It can be Internet Explorer (version 6 and above), Firefox, Safari, Netscape, Opera or any other standard web browser. Open your web browser, at the address bar, type in the IP address of AplusWEB and press Enter, the Login Page is then loaded.

Chapter 6: Login Page

Enter the User Name and Password on the text box. The default user name for administrator is admin. Password: *admin*. Guest user login user name is *guest*. Password: *guest*. Administrator user can change the password in the Administration page.

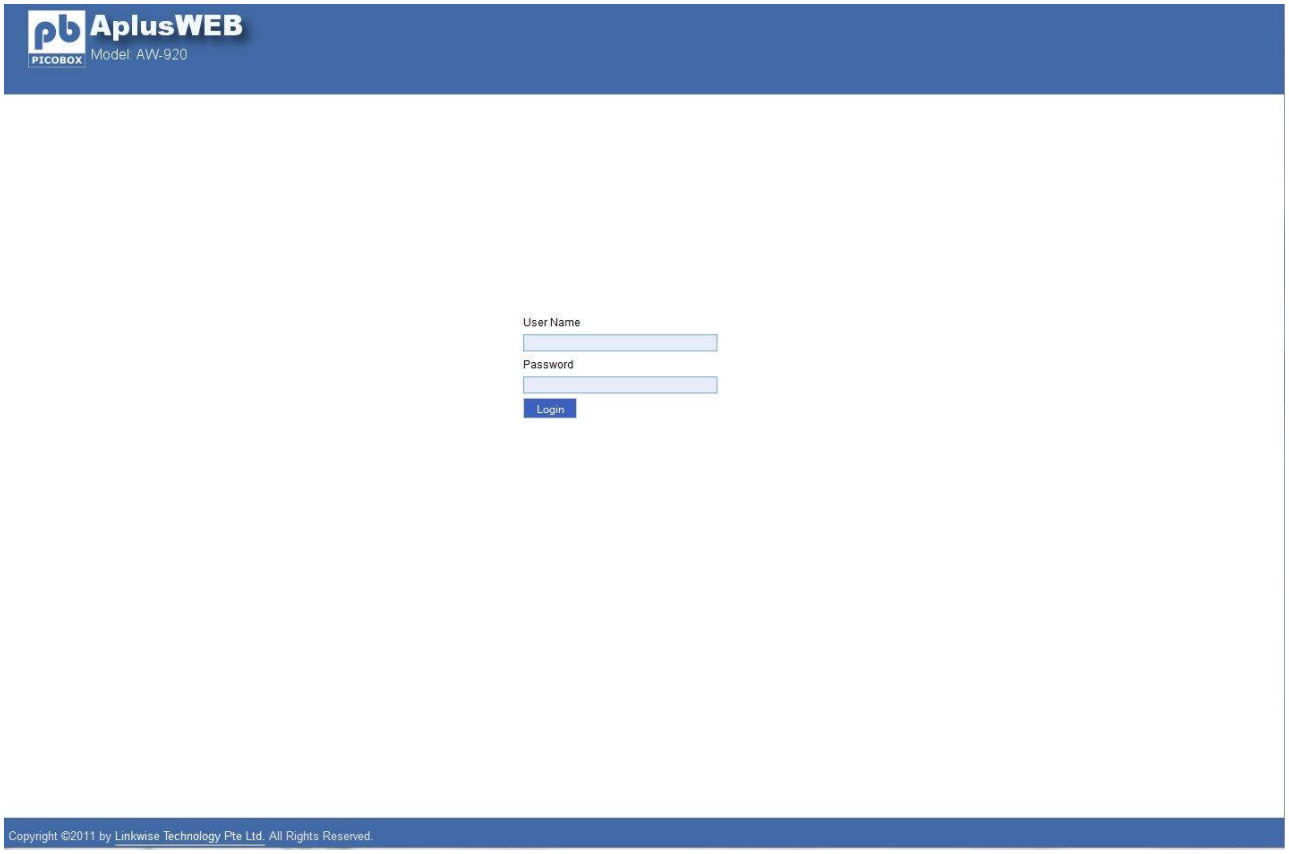


Figure 6.1: Login Page

Follow through the various pages to setup the parameters according to the user requirement.

Chapter 7: Status Page

Once the user successfully logs in, the status page appears. In a new un-configured unit, the status page shows all preset information about the input and output states.

Figure 7.1 Status Page

The left hand side of the page has a set of menu or navigation buttons. On the right side is the page of the currently selected choice. Click on any of the buttons will bring the respective pages out.

Figure 7.2 Menu or Navigation Buttons

The top of the page contains the device information like Device ID, IP address, GSM Network name, Signal Strength, Login user and Date/time.

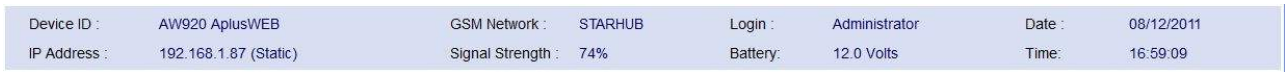


Figure 7.3 Device Information

In a configured unit, the status of the inputs, outputs and analog channels are displayed. Any change in the digital input, output and analog state are automatically updated live.

Description
These fields display what has been typed into the description field of digital input, analog input and relay output on the IO configuration pages.

Status
This field displays the status of each equipment connected to AplusWEB.

Input status
This field will display what has been typed into the open / close fields of digital input (IO Config page).

Output status
This field will display either ON (the contact of the output is close) or OFF (contact of the output is opened).

Analog status
This field will display Normal when the reading is within the normal range. High (Alarm) when reading rises the preset High Alarm and Low (Alarm) when reading falls to the preset Low Alarm.

Value
This field displays the analog input 4-20mA transmitter reading.

Chapter 8: IO Config Page

This page shows the template for defining input description as well as the status. Each input can assume 2 statuses, one is when the input contact is closed, and another when the input contact opens. The administrator is free to define the labels according to the device characteristics.

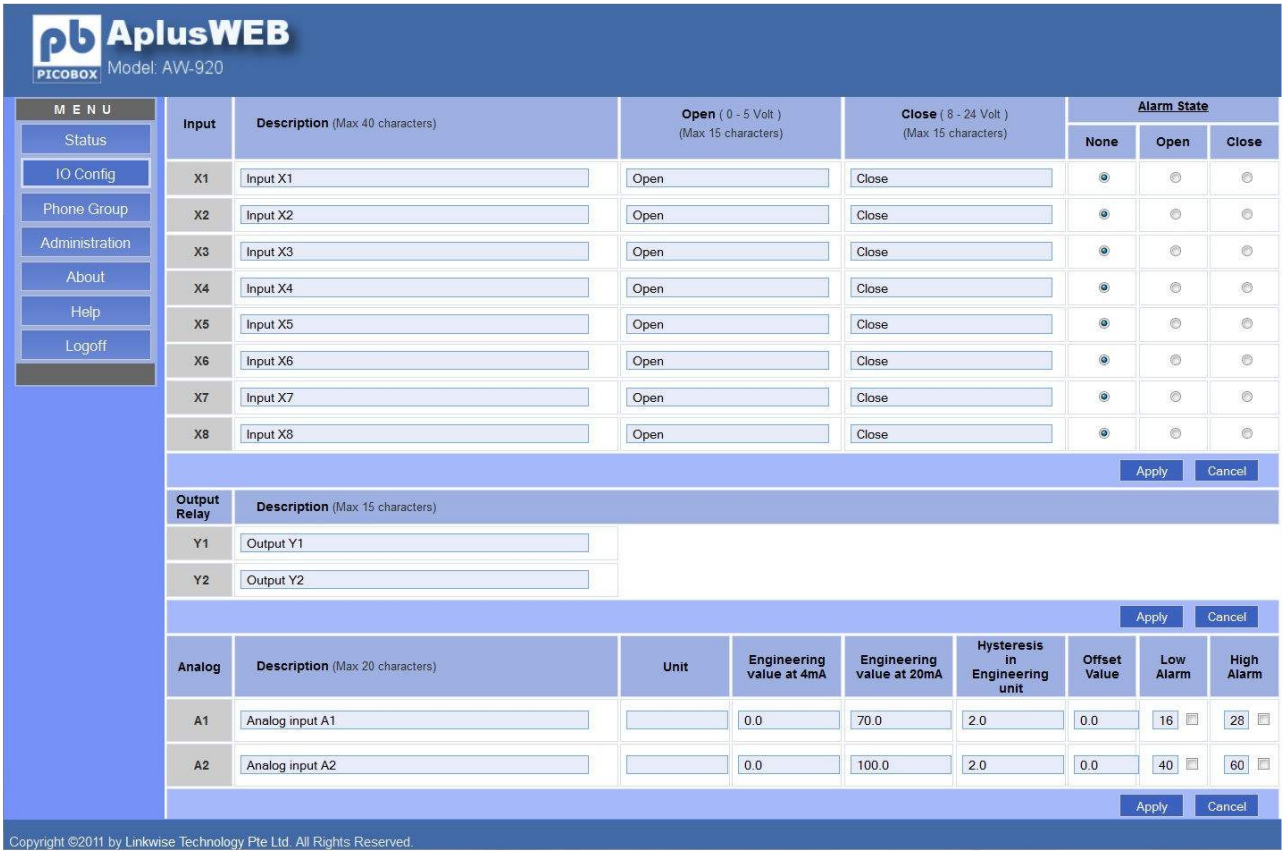


Figure 8.1 Input Configurations

Click on the IO Config button on the Menu buttons. The Input configuration page will appear. This page and all other pages are designed for ease of use. Explanation is provided whenever necessary.

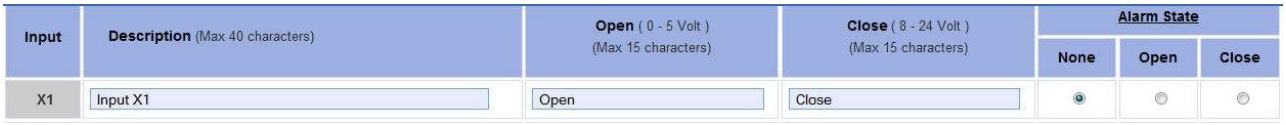


Figure 8.2 Digital Input X1

Each digital alarm input has a set of variables for the user can enter. Following is the description of each field that the user can configure. AplusWEB has 8 digital inputs X1-X8.

Description: This field is for the user to provide meaning name for the point to be monitored. The description can be up to 40 characters long.

Open: This field describes the state of the input when the input voltage level is low (0-5V). This is also the contact open state. It can be of any wordings up to 15 characters long. Examples are: Alarm, Normal, Start Stop, System reset, Fault, etc.

Close: This field describes the state of the input when the input voltage level is high (8-24V). This is also the contact close state. It can be of any wordings up to 15 characters long. Examples are: Alarm, Normal, Start Stop, System reset, Fault etc.

Alarm state: Three possible settings can be selected – None, Open, Close. This setting defines what the alarm state is. The status page will show the state of the input, based on the state description configured.

Input Config: Example 1

Below is an example of defining the input state X1 as a non-critical alarm.

Input Config: Alarm state None

(Figure 8.3 - 8.5) shows Input X1 set to Alarm State None. If X1 is use as a status monitoring input, select the 'None' radio button. In this selection, no SMS is sent when the input changes states.

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Alarm State		
				None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	◉	○	○

Figure 8.3 Digital Input X1 Alarm:None

Status:- Alarm state None

Input	Description	Status
X1	Power Supply in Basement 1	Normal

Figure 8.4 Status X1 Contact Open

Input	Description	Status
X1	Power Supply in Basement 1	Fault

Figure 8.5 Status X1 Contact Close

Input Config: Example 2

Below is an example of defining the input state X1 as a contact Close as alarm.

Input Config: Alarm state Close

(Figure 8.6 - 8.8) shows Input X1 set to Alarm State Close. If X1 is set as contact close on alarm, select the 'Close' radio button. In this selection, SMS will be sent out when the input X1 changes from Open to Close state.

Input Config: Alarm state Close

Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Alarm State		
				None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	○	○	◉

Figure 8.6 Digital Input X1 Alarm: Close

Status: Alarm state Close

Input	Description	Status
X1	Power Supply in Basement 1	Normal

Figure 8.7 Status X1 Contact Open

Input	Description	Status
X1	Power Supply in Basement 1	Fault

Figure 8.8 Status X1 Contact Close

Input Config: Completed Table

Figure 8.9 shows an example of a completed input configuration table.

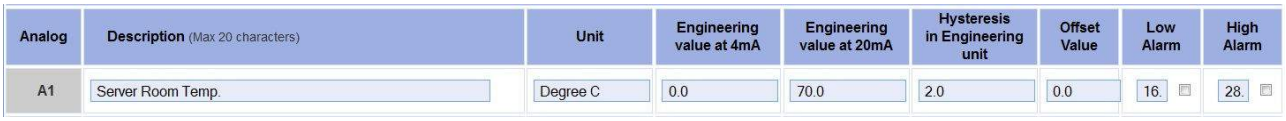
Input	Description (Max 40 characters)	Open (0 - 5 Volt) (Max 15 characters)	Close (8 - 24 Volt) (Max 15 characters)	Alarm State		
				None	Open	Close
X1	Power Supply in Basement 1	Normal	Fault	○	○	◉
X2	Water Detection System	Water Detected	Normal	○	◉	○
X3	Aircon in Server Room	Running	Fault	○	○	◉
X4	Poolside Emergency Button	Normal	Help	○	○	◉
X5	UPS in Server Room	Normal	Battery Mode	○	○	◉
X6	Fire Alam Panel in Security Room	Normal	Alarm	○	○	◉
X7	Booster Pump in Pump Room	Running	Failed	○	○	◉
X8	Main Door in Reception	Door Opened	Door Closed	◉	○	○
					Apply	Cancel

Figure 8.9 Digital Input X1-X8

Analog Config

Two channels of 4-20mA analog input interface to any industrial standards transmitter. Any such transmitters can be used with AplusWEB to monitor temperature, humidity, pressure, current, voltage, power, etc. Setting up is very easy. Refer to the transmitter manufacturer specification for help in inputting the fields in this page.

Example of Analog Config: Temperature



Analog	Description (Max 20 characters)	Unit	Engineering value at 4mA	Engineering value at 20mA	Hysteresis in Engineering unit	Offset Value	Low Alarm	High Alarm
A1	Server Room Temp.	Degree C	0.0	70.0	2.0	0.0	16.	28.

Figure 8.10 Example of Analog Input A1: Temperature

Unit
Input the unit for the analog input value.

Engineering Value at 4mA – 20mA
Refer to the transmitter manufacture specification.

Hysteresis
Set the minimal change required to revert from High/Low alarm state.

Low Alarm
Set the minimum analog input Low Alarm value.

Low Alarm checkbox
Check this box to enable Low Alarm. SMS will be sent out when the Analog input state changes from Normal to Low.

High Alarm
Set the maximum analog input High Alarm value.

High Alarm checkbox
Check this box to enable High Alarm. SMS will be sent out when the Analog input state changes from Normal to High.

Tips: Set the **Hysteresis** higher to prevent the transmitter from flickering between two states.
For example, if you set the **Hysteresis** at *3* degrees, **High Alarm** is set to *30* degrees and the room temperature varies between *27* and *30* you could be faced with a very large number of SMS and events logged.
In the example below the **Hysteresis** is set to *4* then the transmitter would have to drop from *30* to *26* before the status would change from **High (Alarm)** back to normal.

Warning and Error Messages
If the user input any values that are out of range, AplusWEB will prompt an error. The user must re-enter the correct value.

Analog Config: Temperature High(Alarm)

Normal Range

Analog	Description	Status	Value
A1	Server Room Temp	Normal	23.0 degree

Figure 8.11 Analog Input A1

High Alarm

(Figure 8.12- 8.13) shows Analog Input A1 in High Temperature Stage. When temperature rises to *30.0* degree, SMS will be send out stating Server Room Temp→ High (Alarm). When temperature falls to *26.0* degree, SMS will be sent out stating Server Room Temp→ Normal.

Analog	Description	Status	Value
A1	Server Room Temp	High (Alarm)	30.0 degree

Figure 8.12 Status Analog Input A1 Alarm State

Analog	Description	Status	Value
A1	Server Room Temp	Normal	26.0 degree

Figure 8.13 Status Analog Input A1 Normal State

Low Alarm

(Figure 8.14- 8.15) shows Analog Input A1 in Low Temperature Stage. When temperature falls to *16.0* degree, SMS will be sent out stating Server Room Temp→ Low (Alarm). When temperature rises to *20.0* degree, SMS will be sent out stating Server Room Temp→ Normal.

Analog	Description	Status	Value
A1	Server Room Temp	Low (Alarm)	16.0 degree

Figure 8.14 Status Analog Input A1 Low Alarm

Analog	Description	Status	Value
A1	Server Room Temp	Normal	20.0 degree

Figure 8.15 Status Analog Input A1 Normal State

Chapter 9: Phone Group Page

This page shows the user telephone numbers, organized into 8 indexes operational group, 2 users in authorizer group & 1 user in forward group. Click *Apply* for any changes to take effect. If applicable, contact your mobile telephone service provider for the correct way to represent overseas and local telephone numbers.

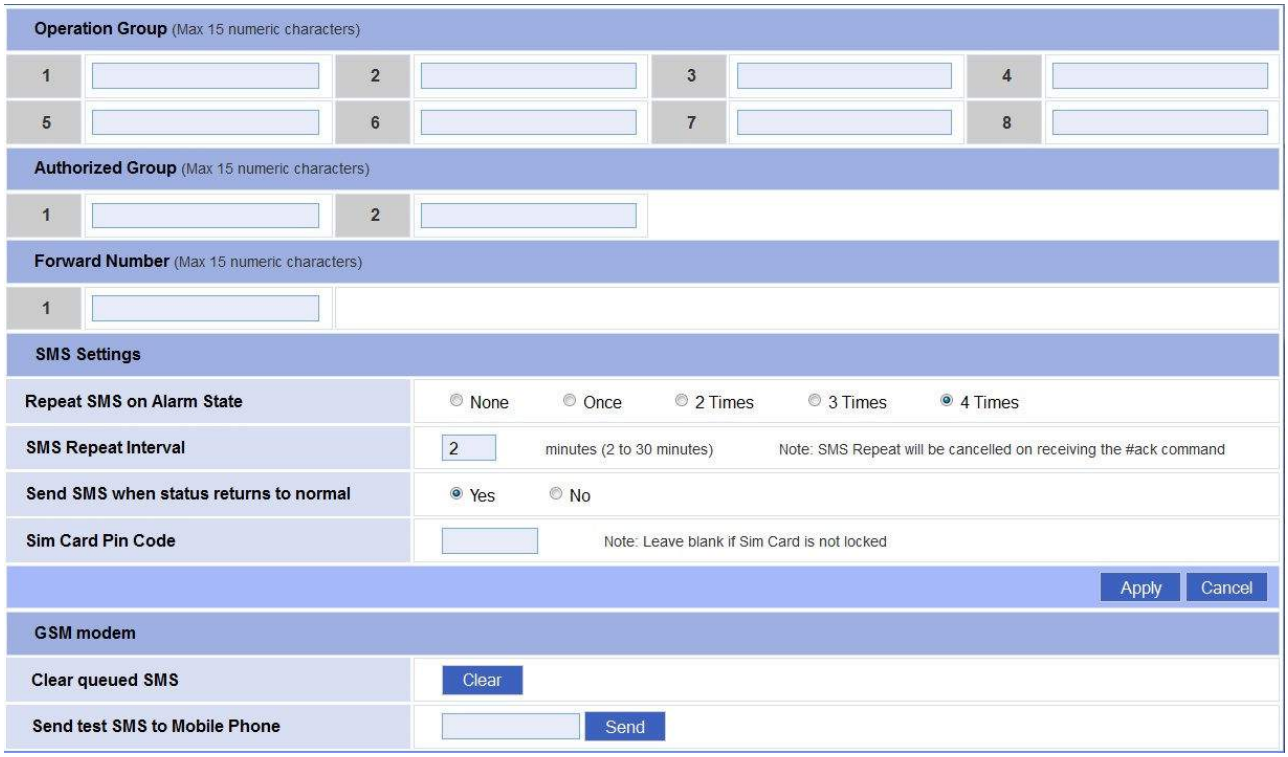


Figure 9.1 Phone Group

Operation Group

This group of users is those that will receive alarm SMS when one or more digital inputs are activated (open → close, close → open). Analog Input are activated (normal → high, high → normal, normal → low, low → normal). Up to 8 mobile phone numbers can be assigned to this group. Phone numbers of up to 20 numbers and (+) are valid formats. Example 98175004, +6590889650.

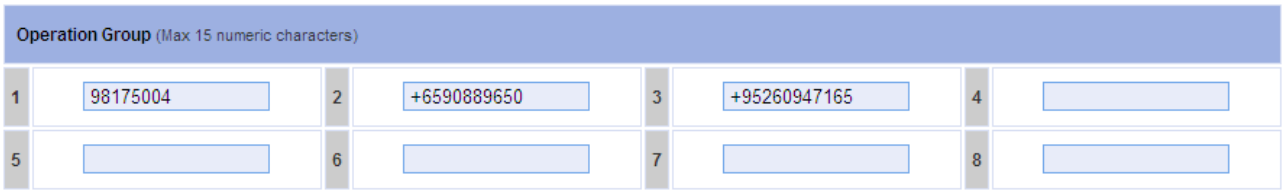


Figure 9.2 Operation Group

Authorized Group

This group can perform query and changing of Operation, Forward, and Authorizer mobile phone numbers stored in the unit's memory. Users in this group can also change the configuration of IO. This group of users will not receive any alarm SMS when digital inputs are activated.

Figure 9.3 Authorized Group

Forward Number

This number (if assigned) will receive alarm SMS like the operation numbers. Any incoming SMS to AplusWEB will also be forwarded to this number as well. This is a very useful feature where an organization wishes to have a central logging of all activities (alarms, in-out SMS) of AplusWEBs. When many AplusWEBs are deployed in the field, the usefulness becomes more evident.

All incoming SMS either correct or invalid commands as well as any other SMS messages from any mobile phones will be forwarded to this number for logging. This function is in effect serves as a remote event logger.

Figure 9.4 Forward Number

WARNING

Never set the forward mobile phone number to be the same as the SIM card number in AplusWEB. This will cause the device to send no-ending SMS to itself.

SMS Settings

This feature, when enabled will send the alarm SMS repeatedly maximum of 4 times to the operation and forward mobile phones. The repeat interval can be set between 2-30 minutes.

Repeat SMS on Alarm State

If set, when an alarm is triggered, the SMS will be sent repeatedly according to the number of times specified, to the operation and forward group.

SMS Repeat Interval

SMS repeat duration (2- 30mins).

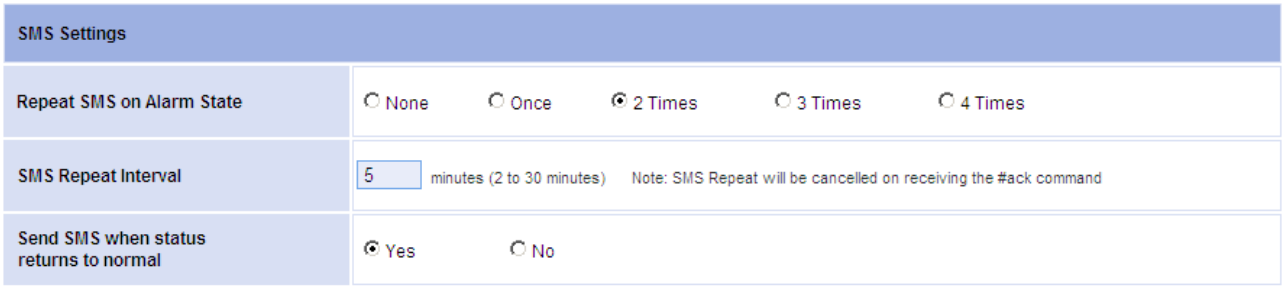


Figure 9.5 SMS Settings

To cancel repeat sending, any mobile phone from the operation or forward must acknowledge to AplusWEB by replying the acknowledge command (**#ack**). This command is non-case sensitive. **#ack, #ACK, #Ack** are valid strings. AplusWEB upon receipt of the acknowledge command stop sending further SMS to this alarm.

If multiple alarms are triggered, only the first SMS alert will be repeated. Subsequent alarms are sent once. This is to prevent the recipients from unnecessary annoyance, and saving on SMS costs. After the alarm or alarms was acknowledged, new alarms triggered will be sent and repeated until the next #ACK command is received by AplusWEB. Set to None if repeat SMS is not required.

Send SMS when status returns to normal

If *Yes* is selected, SMS will be sent once when status of Digital Input or Analog Input changes from Alarm to Normal state. There is no repeat for this 'Normal' SMS. If *No* is selected, SMS will not be sent out when status of Digital Input or Analog Input changes from Alarm to Normal state.

SIM Card Pin Code

The user can opt to lock the SIM card to prevent unauthorized use of the SIM card. To enable to pin lock feature, place the SIM card on any mobile phone and use the phone function to lock the SIM card. (Refer to the phone manufacturer user manual for instruction). On the SIM Card Pin Code field, supply the same lock code as you have set using the mobile phone. Place the SIM card back to AplusWEB. (Refer to the section on SIM card insertion for detail)

Figure 9.6 SMS Card Pin Lock

Clear queued SMS

If there is a situation of multiple alarms, the alarms are stored in memory queue for the GSM modem to perform SMS'ing of messages. If during the process of sending SMS, a power failure occurs, the queue information remains in memory. When power is restored, AplusWEB will resume the sending of SMS. The Administrator can click on the Clear button to delete the queued SMS alarms.

Send test SMS to Mobile Phone

To test whether the unit is able to send out SMS, type in the Mobile Phone number in the field and click *Send* to send out a test SMS.

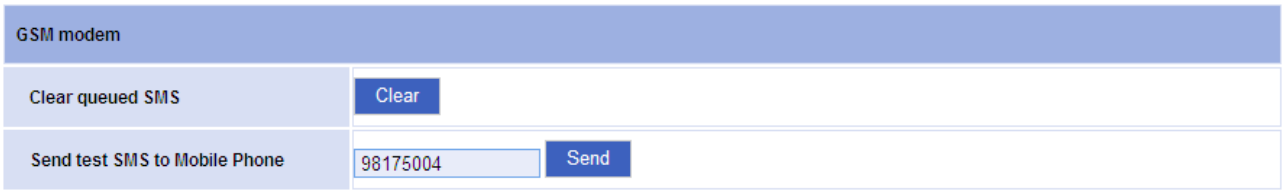


Figure 9.7 Send test SMS

Chapter 10: Relay Output Configuration

AplusWEB has 2 relay outputs. These outputs can be turn on, off, or pulse remotely via SMS commands. It can also be controlled from locally in or remotely from the web page access (Status page).

Figure 10.1 Relay Output Configuration

The 2 relay outputs are Y1 and Y2. The user can create a description for each input of up to 20 characters long. The two output description should not be identical. Each Relay output has its own sets of settings.

Remote Control Output using SMS

This feature enables user to switch any of the 2 outputs on (contacts close), off (contacts open) by sending the appropriate *Action SMS* message to the AplusWEB unit. The AplusWEB is **non-case sensitive** to the received Action SMS messages. After performing the required action, AplusWEB replies to the sender with the corresponding *Reply SMS* message.

In the example shown in (Figure 10.3), to switch Relay 1 on (i.e. to close the contacts), send an SMS "**#on Buzzer**" message to AplusWEB. Upon closing the Relay 1 contacts, AplusWEB will reply with the SMS message "***29/12/20011 15:05 (AW920) Buzzer → ON Triggered***". To prevent ambiguities, each Action SMS message must be unique. Remember that the messages are case insensitive.

Another way to control output relay without going through SMS is by clicking on the output control section in the Status page.

Status: Completed Input / Output and Analog Input Example

This page shows the example of a completed input/output configuration Status Page. Once the administrator configured successfully, the screen on the right side of the browser will display the updated table, showing the description the devices or equipment and the present status. The devices or equipment are those that are interfaced to AplusWEB termination block. Relay outputs and Analog input are also shown on this same screen.

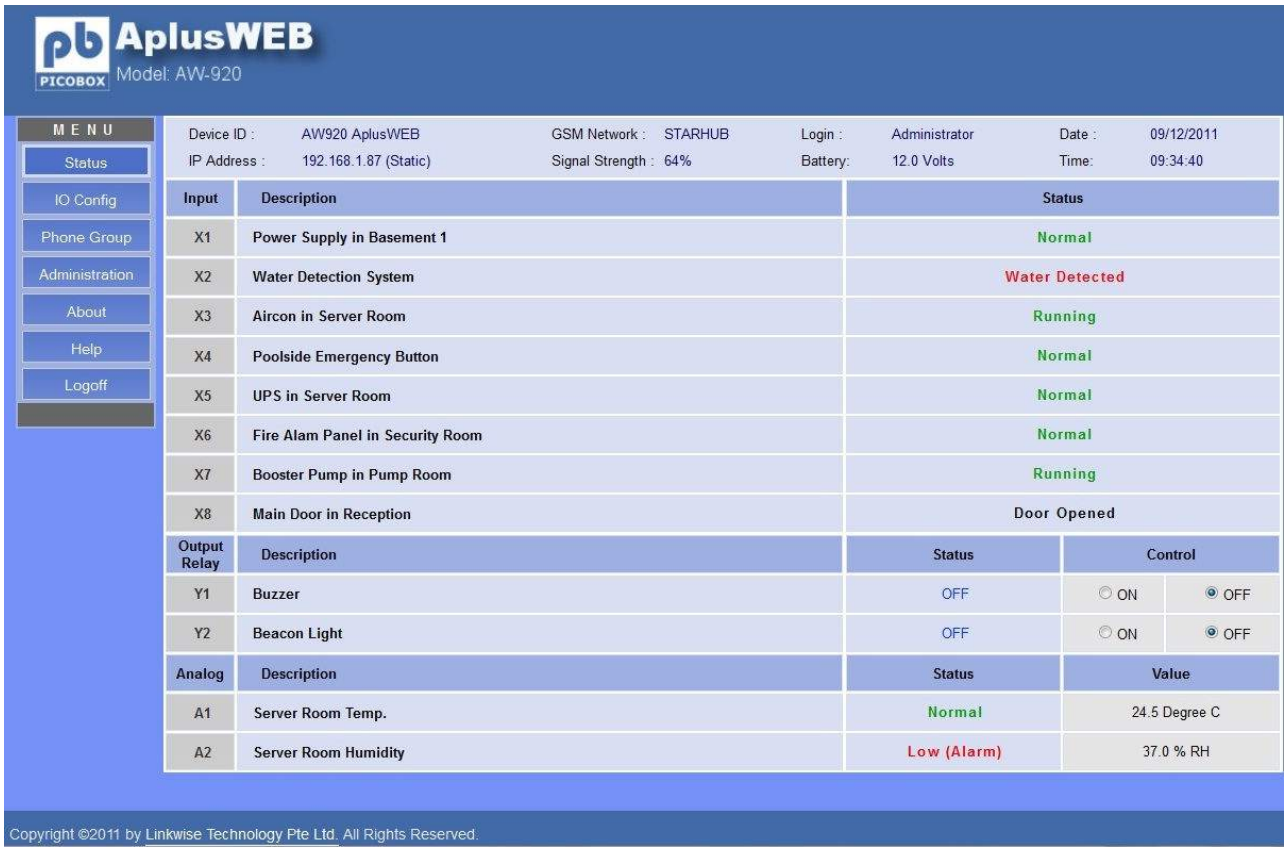


Figure 10.2 Status Page example

Sensor status colour indicator

The colours **Red** and **Green** indicate at a glance the status, red is critical and green is in the normal state. **Black** indicates user had defined the equipment as non-critical.

Chapter 11: Administration Page

This page gives you administrator control over AplusWEB.

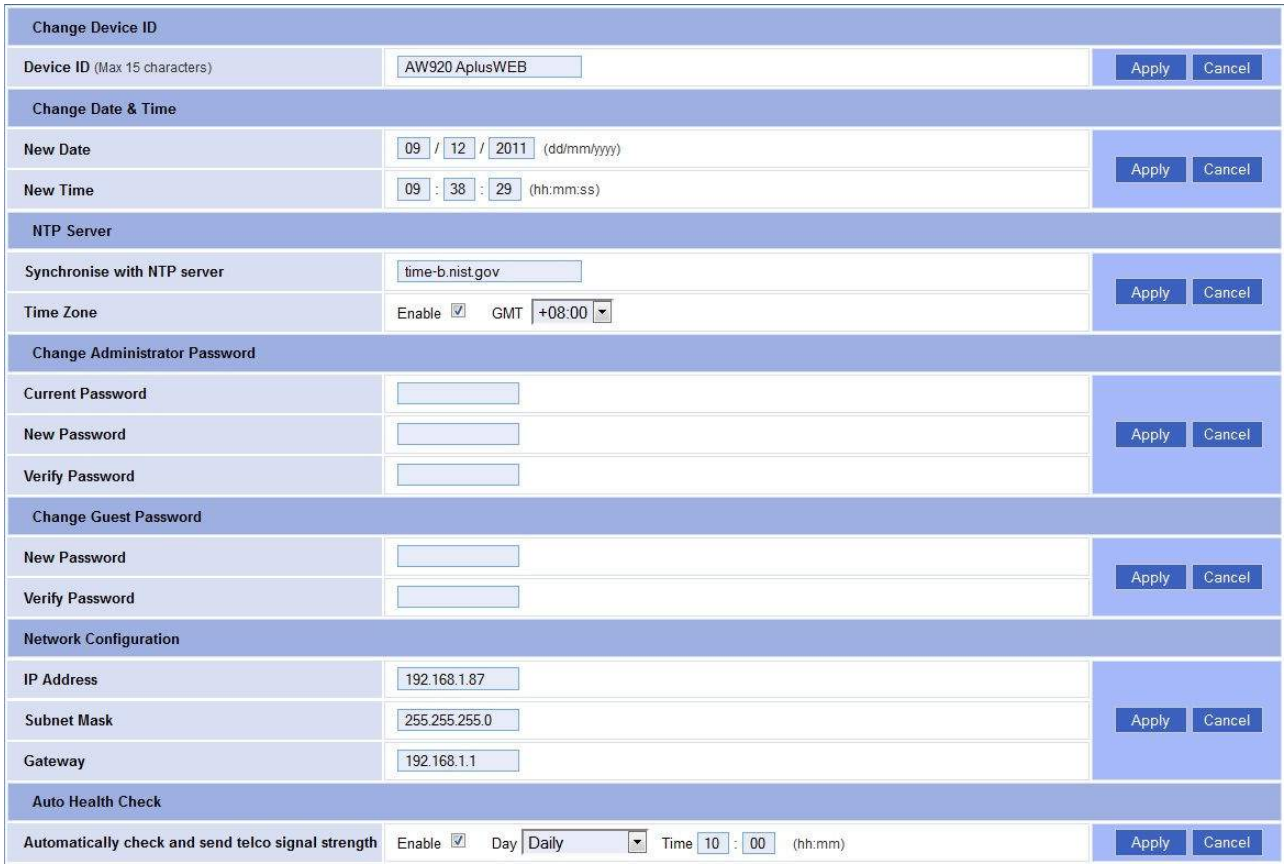


Figure 11.1 Admin Page

Change Device ID

This entry is for the Administrator to assign a unique name to AplusWEB. It accepts up to 15 alphanumeric characters. The device's name will be SMS along with other information when an alarm is triggered. It is advisable to change the Device ID according to the location or site name, as the user will still know which location the SMS alert came from even if there was a change in the device's SIM card number.

Figure 11.2 Device ID

Change Date & Time

Enter the new date and time in this field. The date and time should use the following format: date/month/year (*dd/mm/yyyy*) and hour:minute:second (*hh:mm:ss*). For setting the real-time clock of AplusWEB. Date and time information are also sent to mobile phone(s) when an alarm is triggered.

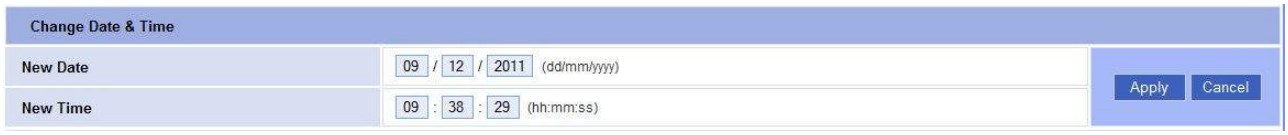


Figure 11.3 Date & Time

NTP server

To enable time synchronize with NTP server. Set the Host or IP address of the NTP server to be used. Select the GMT from the drop down box and check the Enable checkbox. The NTP will synchronize the time with the server that has less number of the stratum.

Figure 11.4 NTP Server

Change Administrator Password

This feature enables the administrator to change the username and password for the Administrator account. Ensure that the setting is recorded and kept in a safe place. Entering wrong username and password will prevent access to AplusWEB menu. Contact your distributor if this happens. This login account for a user does have full administrator privileges. The default username and password for this user account is “admin”.

To change the Administrator password, inside this field under **Current Password**, type the current administrator password, followed by a new password in both **New Password** and **Verify Password** fields, then click on the *Apply* button.

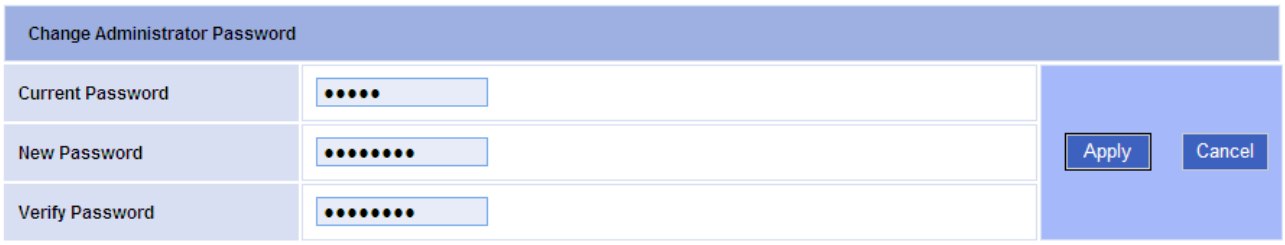


Figure 11.5 Change Administrator Password

Change Guest Password

This feature enables the administrator to change the password for the Guest account. The Guest account does not have administrator privileges. Guest user is not allowed to make any changes in configuration or view all the administrative pages. The default username and password for this user account is “guest”.

To change the Guest password, type a new password in both **New Password** and **Verify Password** fields, then click on the *Apply* button.

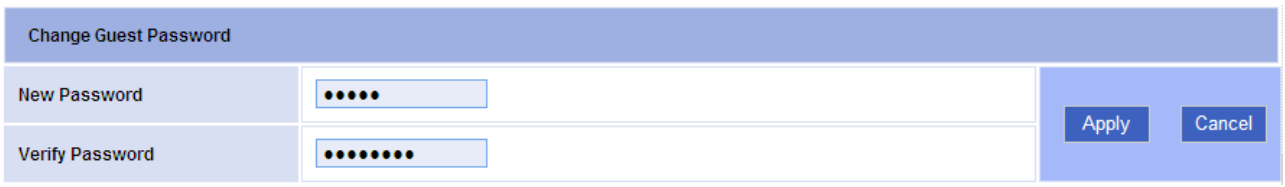


Figure 11.6 Change Guest Password

Network Configuration

This setting is self explanatory. Care is to be exercised in setting the IP address and subnet mask values. Incorrect IP address /subnet mask setting will render AplusWEB inaccessible from the network. Invalid IP/Subnet range will also cause AplusWEB to be inaccessible from the network. AplusWEB do have error trapping and will warn of any invalid settings. If for some reason, the trapping misses and the invalid values are accepted by the unit and cause network connection difficulties, contact your distributor for assistance.

Figure 11.7 Network Configuration Dynamic IP Mode

By default, AplusWEB's IP address is *192.168.1.30* and the default subnet mask is *255.255.255.0*. This means the IP address of your PC may be set in the range *192.168.1.1* to *192.168.1.254* inclusive but obviously excluding *192.168.1.30*, which is the address for the AplusWEB.

IP Address

You can change the IP address of AplusWEB using this option. Enter the new IP address.

Subnet Mask

Set the subnet mask of the device using this option.

Gateway

Set the default gateway of the device using this option.

Auto Health Check

This feature automatically reports to recipients the telco signal strength of AplusWEB over SMS: If enabled, AplusWEB will send an SMS message on the preset day and time. The **Enable** checkbox enables the auto health check SMS to be sent at the scheduled date & time and to the appointed operation phone group.

Figure 11.8 Auto Health Check Configuration

Chapter 12: Help Page

AplusWEB allows a number of important functions to be accessed and controlled remotely via SMS by the listed and authorized mobile phones. The three categories of users (Operation, Forward, and Authorizer) have specific rights in the use of various remote control functions. This page summarizes each function and rights.

Two important arguments are used in conjunction with the action commands. [**?**] Is a query and [**#**] is a set argument.

Example: ?ROP is to query the device: Read Operation Phone
#WOP is to write to the device: Write Operation Phone

Note: If a command sent to AplusWEB does not match the required format or is invalid, AplusWEB will not respond to the querying mobile phone and no action is taken by it. Similarly, if any unauthorized mobile phones try to query a status or to do a set command, it will also not respond to that mobile phone.

Query Mobile Phone Numbers

An authorized person can perform query and hanging of Operation, Forward, and Authorizer mobile phone numbers stored in the unit's memory.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Query Operation number(s)	?rop N	?rop 1	N = Operation phone 1-8 Query whole group leave N empty	yes	yes
	?rop	?rop			
Query Forward number	?rfp N	?rfp 1	N = Forward phone 1	yes	yes
Query Authorizer number(s)	?rap N	?rap 1	N = Authorizer phone 1-3 Query whole group leave N empty	no	yes
	?rap	?rap			

Table 12.1 Query Mobile Phone Numbers

Phone Management

An authorized person can remotely phone manage the Operation, Forward, and Authorizer mobile phone numbers stored in the unit's memory. The Authorizers are allowed to perform Addition, Replacement, and Deletion of mobile phone numbers remotely using SMS commands.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Add / Delete / Replace Operation number	#wop N,phn_number	#wop 1,98765432	N = Operation phone 1-8 Delete number leave phn_number empty	no	yes
	#wop N,	#wop 1,			
Add / Delete / Replace Forward	#wfp N,phn_number	#wfp 1,98765432	N = Forward phone 1 Delete number leave phn_number empty	no	yes
	#wfp N,	#wfp 1,			

number					
Add / Delete / Replace Authorizer number	#wap N,phn_number	#wap 1,98765432	N = Authorizer phone 1-3 Delete number leave phn_number empty	no	yes
	#wap N,	#wap 1,			

Table 12.2 Phone Management

Query IO & system status

Operation and authorized users can query the status of Inputs/outputs and perform system checks. AplusWEB will reply the current state of the Input and Output, and the System status using the respective commands.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Query Input status	?ip XN	?ip X1	N = input 1 - 8 input_alarm = none or open or close	yes	yes
	?ip input_name	?ip ups			
Query Output status	?op YN	?op Y1	N = output 1 or 2 output_name = output description	yes	yes
	?op output_name	?op siren			
Query Analog Input status	?ai AN	?ai A1	N = analog input analog_input_name = analog description	yes	yes
	?ai analog_input_name	?ai room temp			
Query all I/Os	?io	?io	System reply with IO status N = Normal or A = Alarm	yes	yes
Query system status	?syscheck	?syscheck	System reply with Telco signal strength	yes	yes

Table 12.3 Query IO & system status

Output Control

Operation and authorized users can switch the 2 outputs ON or OFF by sending the commands below.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Switch on output	#on output_name	#on siren	output_name = output description	yes	yes
Switch off output	#off output_name	#off siren	output_name = output description	yes	yes

Table 12.4 Output Control

IO Configuration

Authorized users can change IO configuration description and alarm state by sending the commands below.

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Add / Replace Input description	#ipd XN,d,o,c	#ipd X1,UPS,Normal,Alarm	N = input 1-8 d = description o = open state c = close state	no	yes
		#ipd X1,UPS,Alarm,Normal			
Add / Replace Output description	#opd YN,d	#opd Y1,siren	N = output 1 or 2	no	yes
Set / Change Input alarm state	#ipa XN,input_alarm	#ipa X1,close	N = input 1 - 8	no	yes
		#ipa X2,open	input_alarm = none or open or close		

Table 12.5 I/O Configuration

Repeat Configuration

Authorized users can change the SMS alarm repeat settings sending the commands below. To cancel repeat sending, any mobile phone from the operation or forward must acknowledge to AplusWEB by replying the acknowledge command (*#ack*).

SMS Remote Action	SMS Command	Sample Command	Comment	Rights	
				Operation	Authorizer
Set number of repeat times	#rpt N	#rpt 2	N = number of times SMS repeat	no	yes
		#rpt 0	0= disable repeat		
Set repeat interval	#rpt-time N	#rpt-time 5	N = repeat time interval in minutes	no	yes
Query repeat status	?rpt	?rpt	System reply with repeat interval	yes	yes
Acknowledge repeat alarm	#ack	#ack	System reply with Ack received. Sms repeat stops	yes	yes

Table 12.6 Repeat Configuration

Remote SMS command Benefits

With the remote command functionality above it saves time and effort.

- Re-assigning of operation personnel, a change of mobile phone number is also common. Rather than having to physically go to the installation site with a notebook computer, the authorized personnel can perform the change from anywhere using their mobile phone. Where there are many installed sites this becomes very efficient.

- Remotely add, change or clear any setting of repeat time interval in AplusWEB memory. Flexibility to change / clear the repeat SMS, once users are familiar with the monitored site and wish to stop receiving repeat SMS . Or a new site that you wish to receive the repeat SMS. All these control are just as simple by using the above remote command from anywhere using you mobile phone.

Chapter 13: About Page

The page shows the product information of the AplusWEB, Product Name, Model, Serial Number, Mac Address, Firmware and the network setting of the device.

Product Details	
Product Name	AplusWEB
Device ID	AW920 AplusWEB
Model	AW-920
Serial Number	PB1001
Mac Address	00:1C:96:00:00:30
Firmware Version	v2.0.9
IP Address	192.168.1.87 (Static)
Subnet Mask	255.255.255.0
Gateway	192.168.1.1
Modem IMEI	012207001991006

Figure 13.1 About Page

Chapter 14: Logoff Page

This page quits and logs out the menu function. Once the user logs out, the usual User Name and Password is required to access the Menus. Always remember to logout at the end of each session to prevent any unauthorized user to access the pages unless user needs to monitor the device and equipments at all times. Click *Yes* to logout or *No* to return to previous page.

Figure 14.1 Logoff Page

Appendix

Setting Static IP Addresses

Upon powering up AplusWEB, it will search for the presence of a DHCP server. If the DHCP server present it will accept the IP address assigned by the DHCP server, otherwise, it will assume a default IP address of *192.168.1.30*.

That is, the default IP address is *192.168.1.30* and the default subnet mask is *255.255.255.0*. This means the IP address of your PC may be set in the range *192.168.1.1* to *192.168.1.254* inclusive but obviously excluding *192.168.1.30*, which is the address for the AplusWEB unit. For the examples below, we are using the address *192.168.1.100* for the PC.

Setting a Static IP Address for Windows 98

Step 1. Click on the *Start* button and select *Control Panel*. (Figure 15.1)

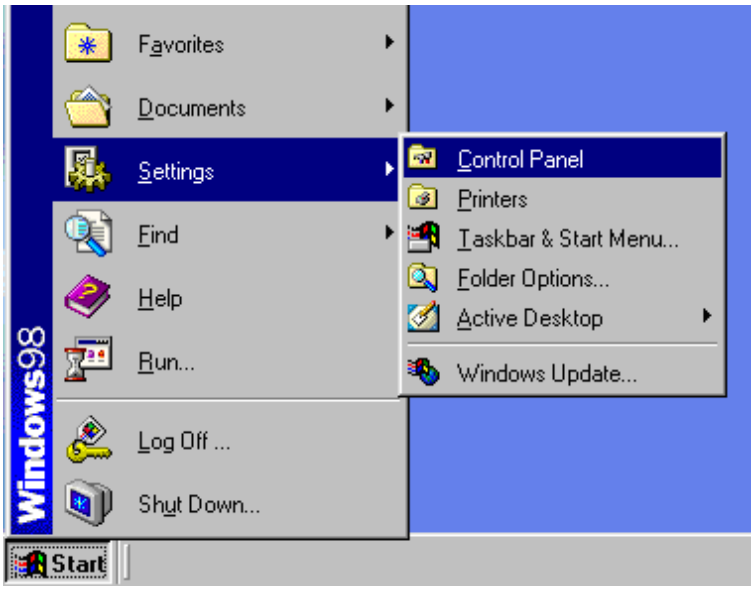


Figure 15.1 Start Button

Step 2. In the *Control Panel* window, double-click the *Network* icon. (Figure 15.2)

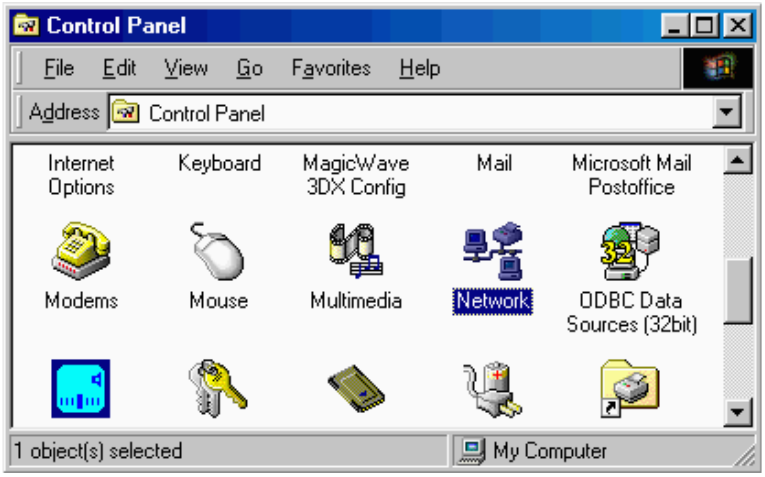


Figure 15.2 Control Panel

Step 3. You will see the Network settings window (Figure 15.3). Select the correct *TCP/IP -> Ethernet Adapter* (Ethernet card) configuration. The figure below only shows an example; the correct one in your situation will be the TCP/IP-to-Ethernet setting for the Ethernet card that is connected to the AplusWEB. Select the correct adapter and click the *Properties* button.

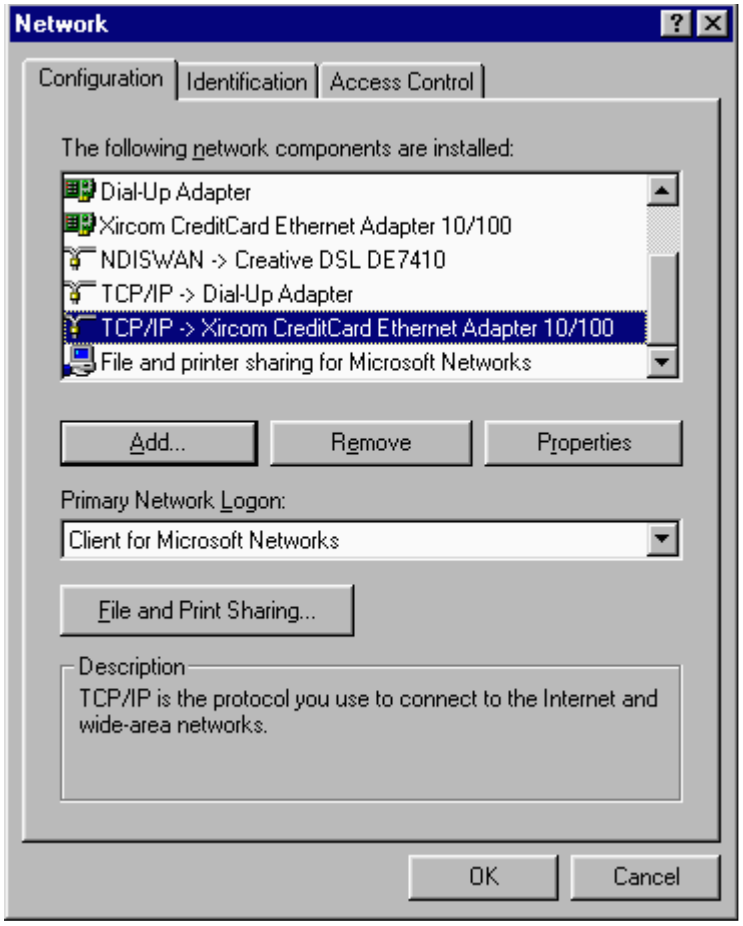


Figure 15.3 Network Settings

Step 4. You will then see the TCP/IP settings window as shown in (Figure 15.4). Enter the fixed IP address for the PC. If you are keeping the default IP settings for the AplusWEB and are using it in a standalone environment, a suitable setting for the PC is an IP address of *192.168.1.100* and a subnet mask of *255.255.255.0*. Click *OK* to close the window and accept the changes.

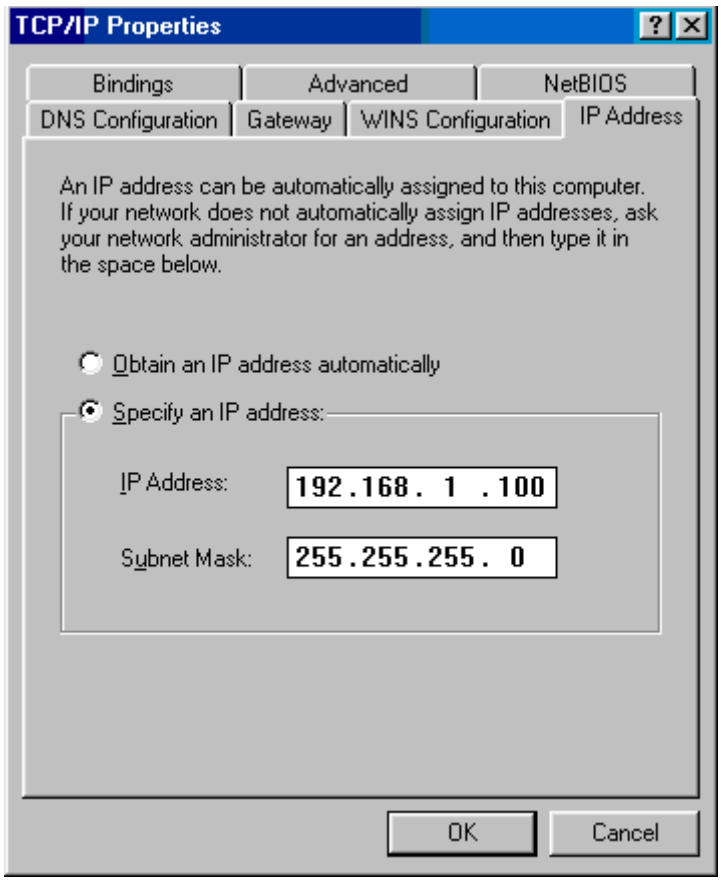


Figure 15.4 TCP/IP Settings

Step 5. Restart the PC for the settings to take effect. (Figure 16.5)

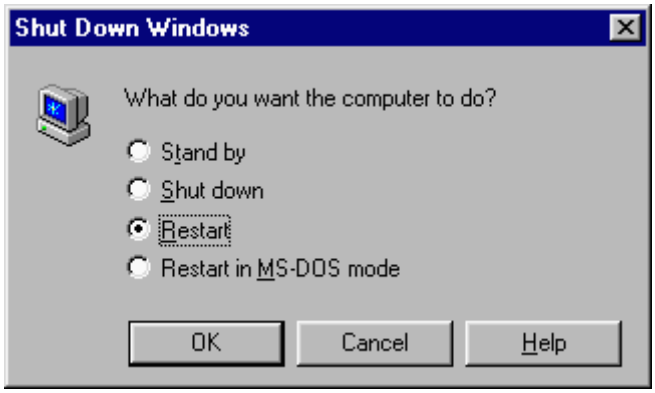


Figure 15.5 Shutdown Menu

Setting a Static IP Address for Windows 2000 / Windows XP

Step 1. Right click on the *My Network Places* icon on your desktop and select *Properties*.

Figure 15.6 My Network Places icon

Step 2. Right click on the *Local Area Connection* icon and select *Properties*.

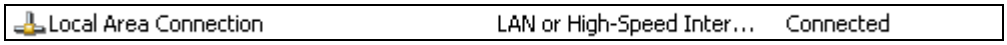


Figure 15.7 Local Area Connection icon

Step 3. Double-click on *Internet Protocol (TCP/IP)* and you will see the window. (Figure 15.8)

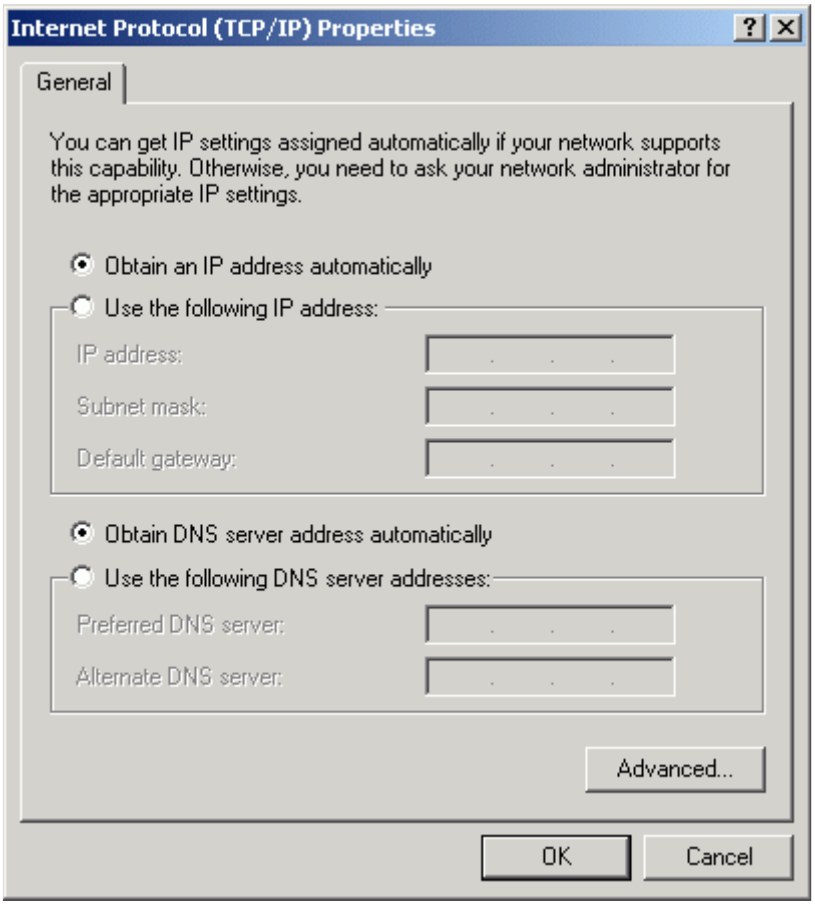


Figure 15.8 IP Configuration

Step 4. Select *Use the following IP address* and in the *IP address* field, enter a suitable IP address for your PC, such as *192.168.1.100*. This is your PC's static IP address. In the *Subnet mask* field, enter *255.255.255.0*. Leave the *Default gateway* field blank. You may leave the *Obtain DNS server address automatically* as it is.

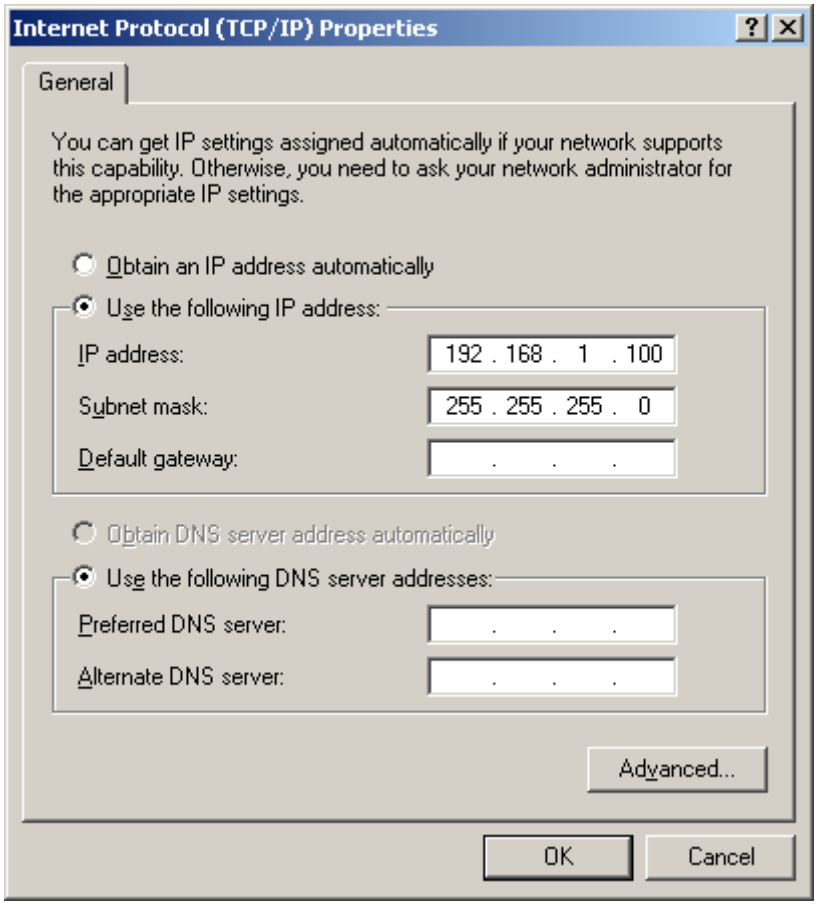


Figure 15.9 IP Configuration Example

Step 5. Click the subsequent *OK* buttons to accept the settings and to close the windows until you get back to the desktop. Your IP settings are now correct.

Setting a Static IP Address for Windows Vista

Step 1. Click Start->Settings->Network Connections

Step 2. In the Network Connections folder, select Local Area Connection.

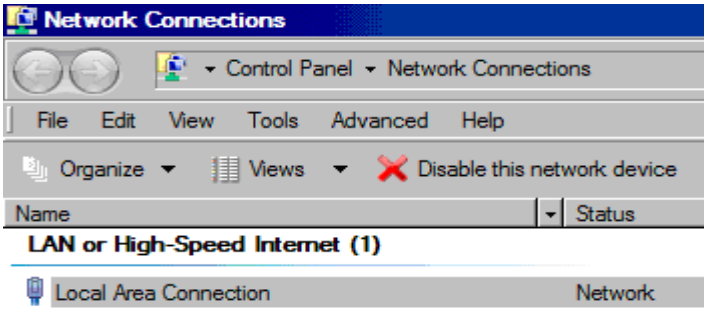


Figure 15.10 Local Area Connection icon

Step 3. Right-click the connection icon and choose Properties from the shortcut menu.

Step 4. Click Continue

Step 5. In the list of installed network components, select Internet Protocol Version 4 (TCP/IPv4) and then click the Properties button.

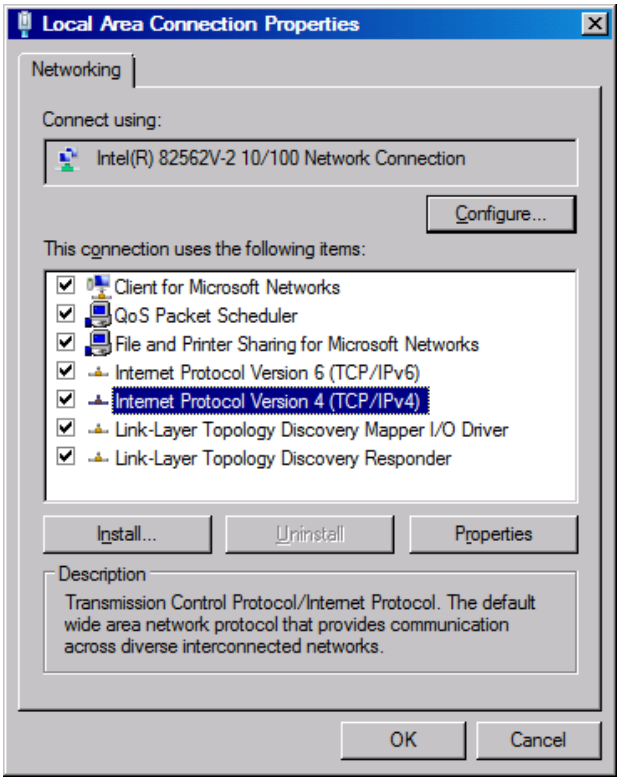


Figure 15.11 Internet Protocol Version 4 (TCP/IPv4)

Step 6. Select *Use the following IP address* and in the *IP address* field, enter a suitable IP address for your PC, such as *192.168.1.100*. This is your PC's static IP address. In the *Subnet mask* field, enter

255.255.255.0. Leave the *Default gateway* field blank. You may leave the *Obtain DNS server address automatically* as it is.

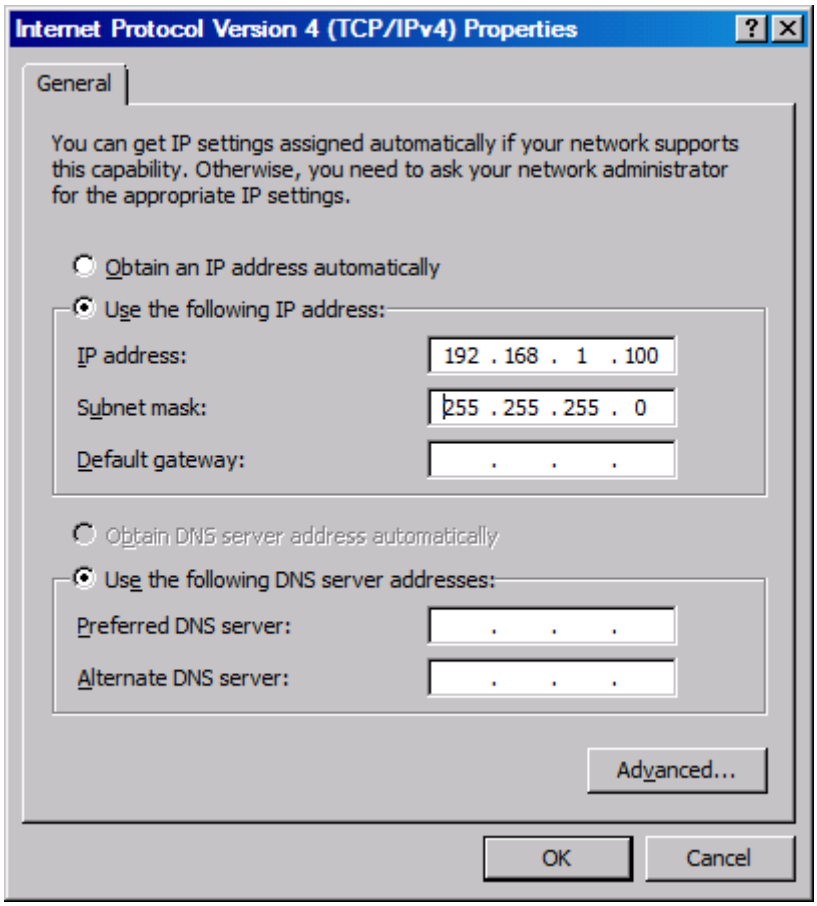


Figure 15.12 IP Configuration Example

Step 7. Click the subsequent *OK* buttons to accept the settings and to close the windows until you get back to the desktop. Your IP settings are now correct.

Setting a Static IP Address for Windows 7

Step 1. Click Start->Control Panel->Network and Sharing Center

Step 2. In the Network and Sharing Center folder, select Local Area Connection.

Figure 15.13 Local Area Connection icon

Step 2. In the Local Area Connection Status folder, click the Properties button.

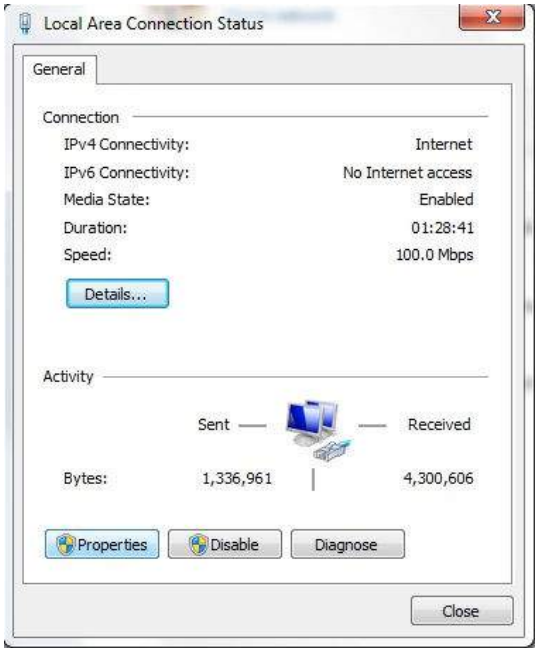


Figure 15.14 Properties Button

Step 3. In the list of installed network components, select Internet Protocol Version 4 (TCP/IPv4) and then click the Properties button.

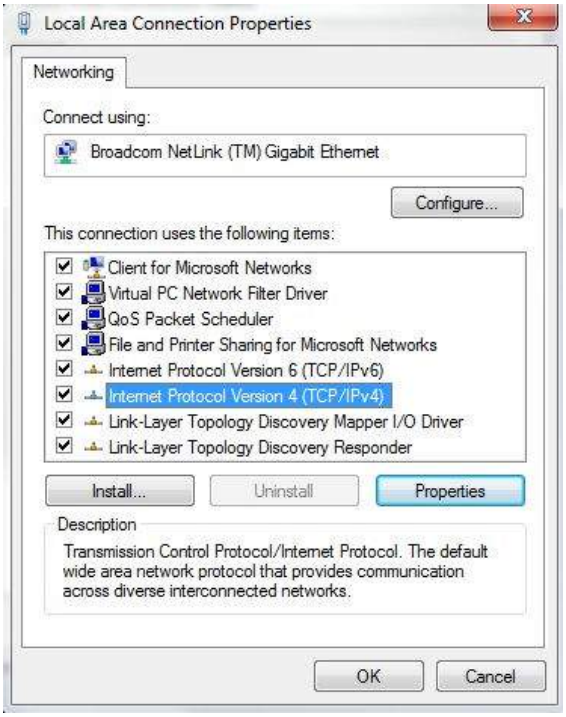


Figure 15.15 Internet Protocol Version 4 (TCP/IPv4)

Step 4. Select *Use the following IP address* and in the *IP address* field, enter a suitable IP address for your PC, such as *192.168.1.100*. This is your PC's static IP address. In the *Subnet mask* field, enter *255.255.255.0*. Leave the *Default gateway* field blank. You may leave the *Obtain DNS server address automatically* as it is.

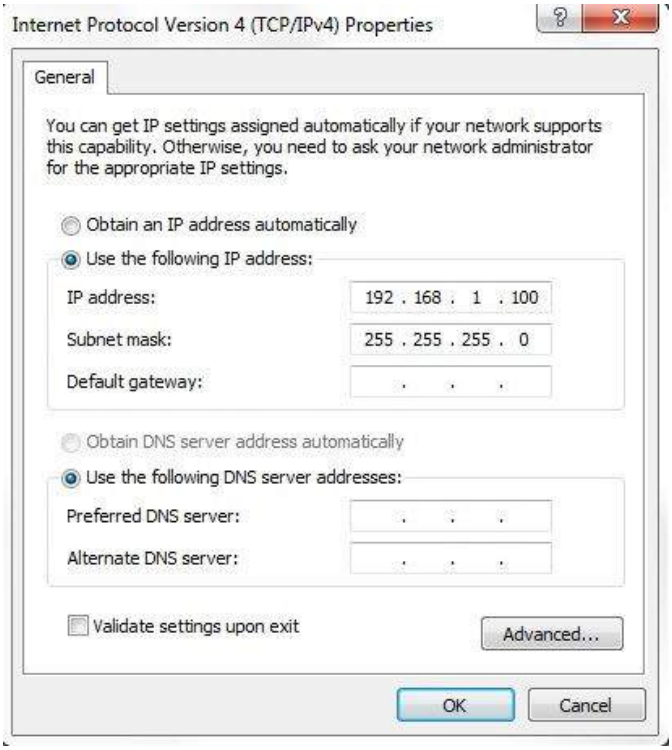


Figure 15.16 IP Configuration Example

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