

## **ATTACHMENT K.**

- Operational Description -

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## 3.3 Operation Software Guide

### 3.3.1 Installation of Operating Software

#### 3.3.1.1 System Requirements

- PC Installed Microsoft Internet Explorer 5.01 or later version
- WINDOWS 98/2000/XP or equivalent operating system
- Personal computer with a 500MHz microprocessor or better (INTEL PENTIUM Processor recommended)
- 128 MB or more of RAM
- 100MB of hard disk space available
- Available serial port
- USB driver or CD driver

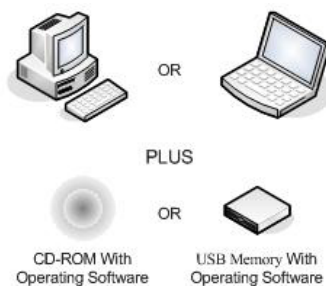


Figure 20 Required Items for Installation

#### 3.3.1.2 Starting Installation of the Operating Software

##### ■ Installation of Operating Software

- Double click 'Setup.exe' in the folder of 'D:\SDMCenter-Eng-Setup' operating software.

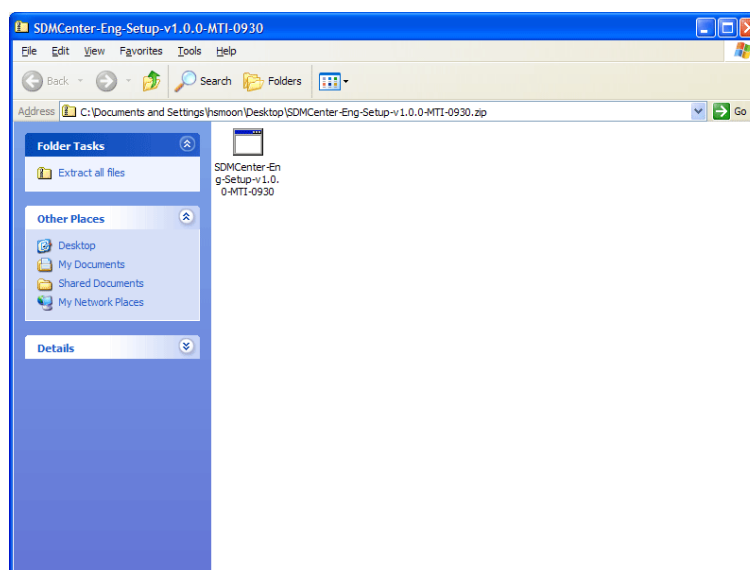
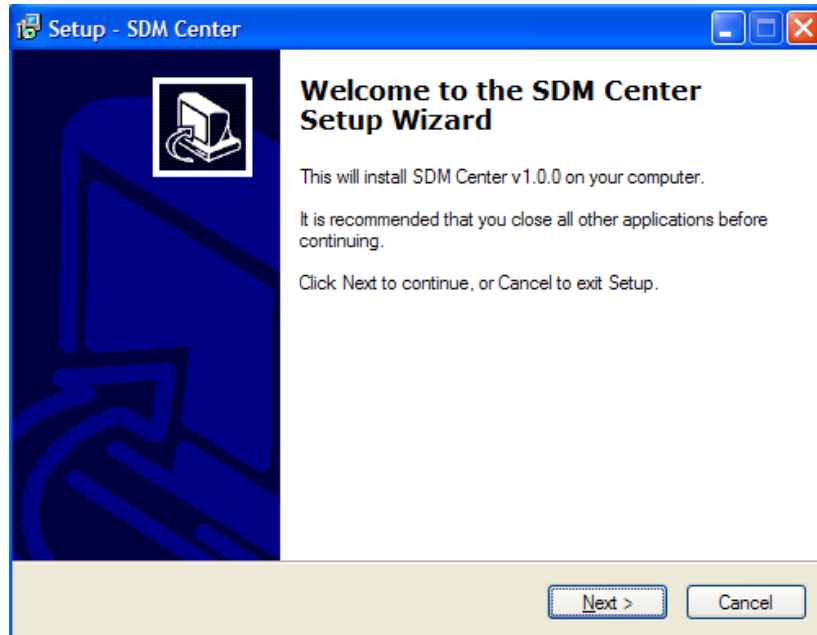


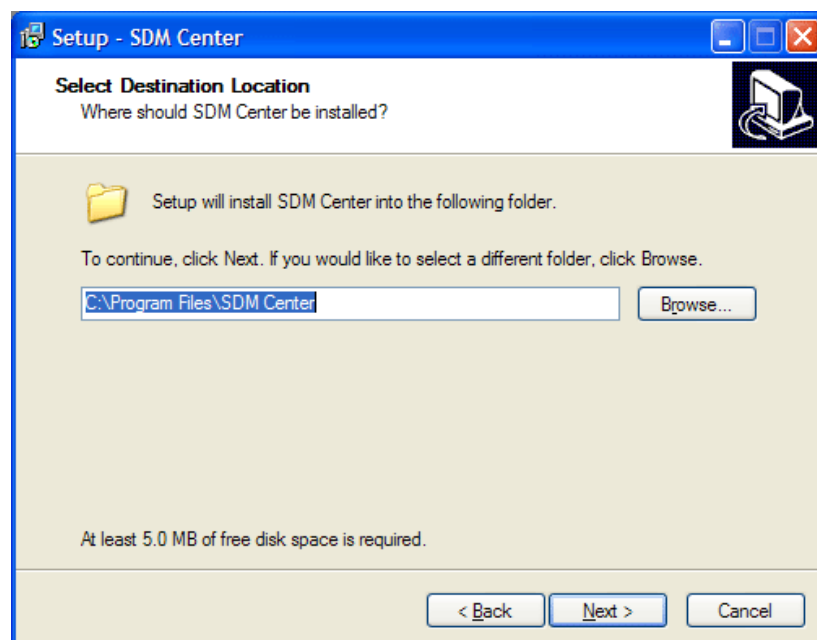
Figure 21 Installation of Operating Software (GUI)

- The below windows shows installation starting of the operating software.



**Figure 22 Installation starting of Operating Software**

- The setup program generates a folder automatically and installs the program in the folder of 'C:\Program Files\SDM Center'. If you prefer another folder, you can choose it where the program is installed by clicking the 'Browse...' button. Click 'Next' button when the folder is chosen.

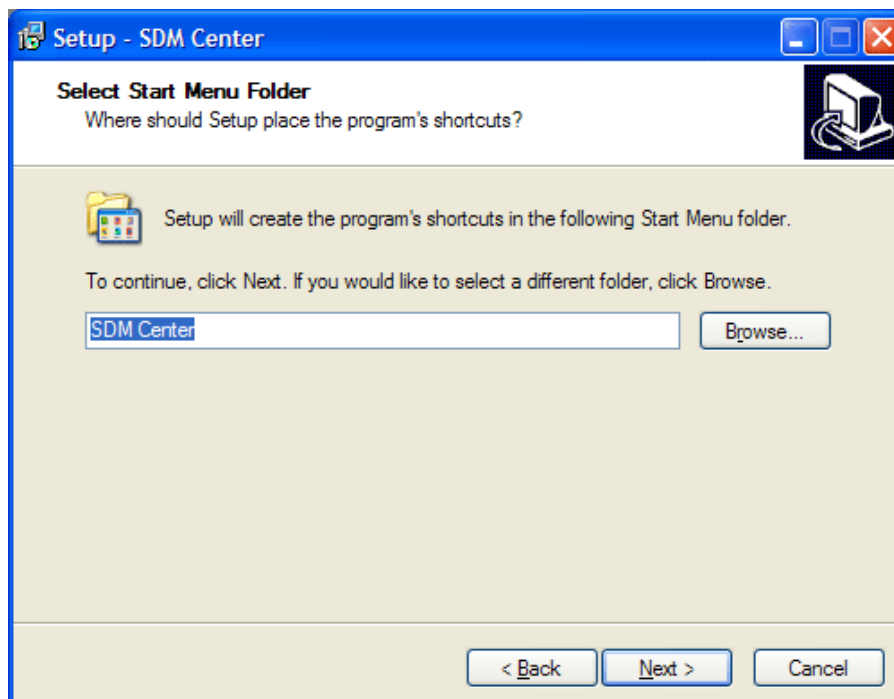


**Figure 23 Selection Folder of Operating Software Installation**



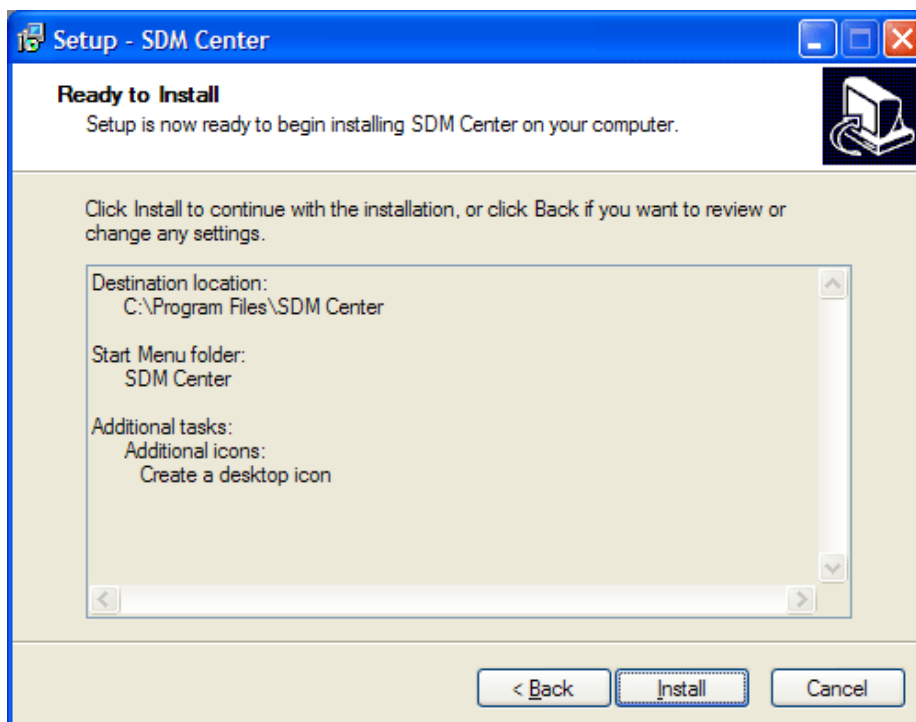
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- The following window is displayed for creation of a shortcut in a Start Menu folder.



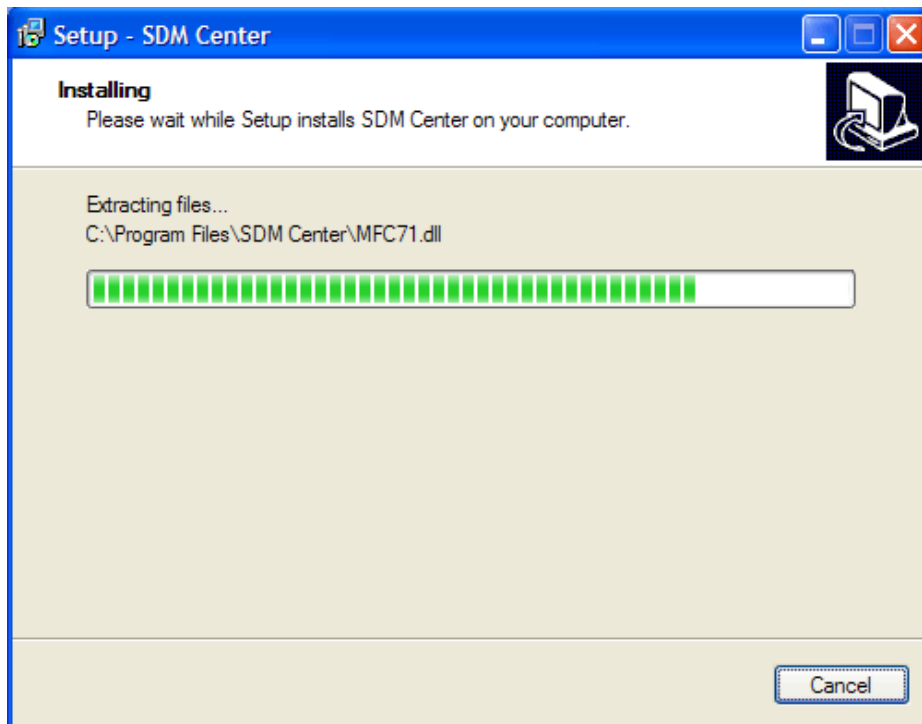
**Figure 24 Creation of a shortcut in a start menu folder**

- The Setup review window is displayed as follow.



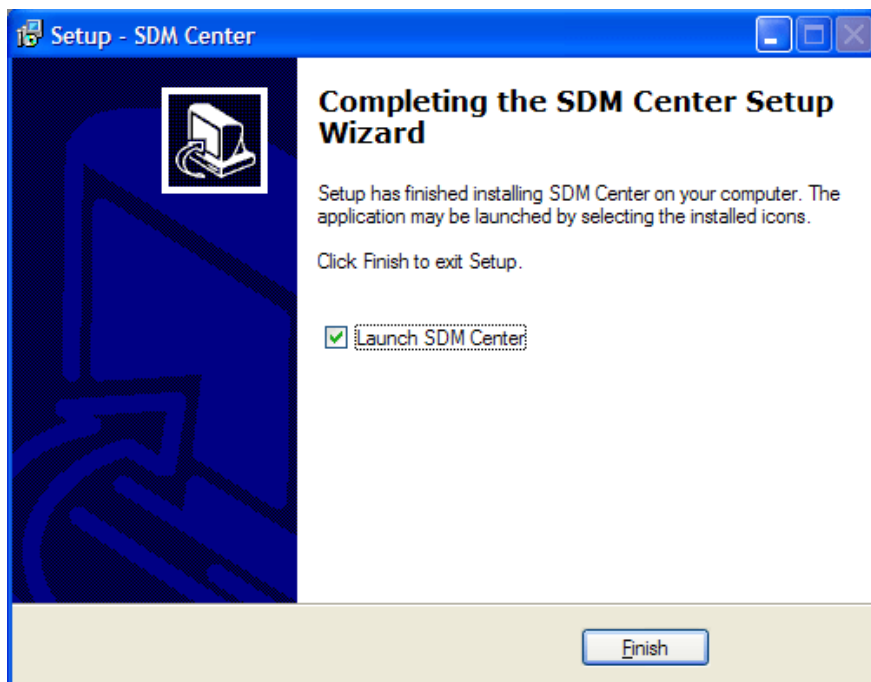
**Figure 25 Setup review window**

- The following window shows progress of Installation.



**Figure 26 Progress view of installation**

- The following window is displayed when installation is completed.



**Figure 27 Installed completed**



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- The following two initial operating window is displayed when 'finish' button is clicked.



Figure 28 Display launcher Window

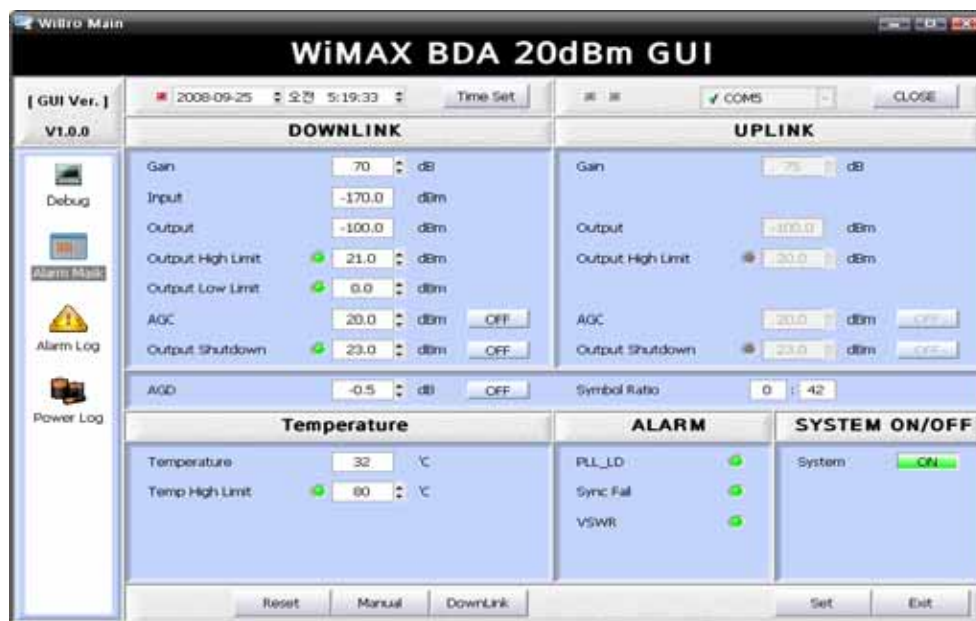


Figure 29 Initial window

### 3.3.2 Starting of Operating Software

- The Software will be started by double clicking 'SDM Center' icon of your Desktop or laptop.

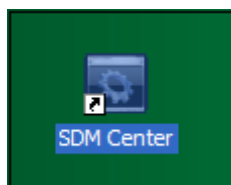


Figure 30 Starting of Operating Software

### 3.3.3 COM Port Set-up

- Prior to control the SDM Center program, vacant communication port, which is not occupied with other device, should be secured. This can be checked via control panel of Window OS. Conventionally, every communication devices have to occupy the unique resource "COM port" of PC even though such a COM port number are changed according to each PCs. Therefore, if you choose such an occupied COM port by other devices as the COM port of SDM Center program, you will encounter a port collision and not be able to run the SDM Center program properly. In order to run the SDM Center program normally, you should select an available COM port except COM port occupied by other programs.

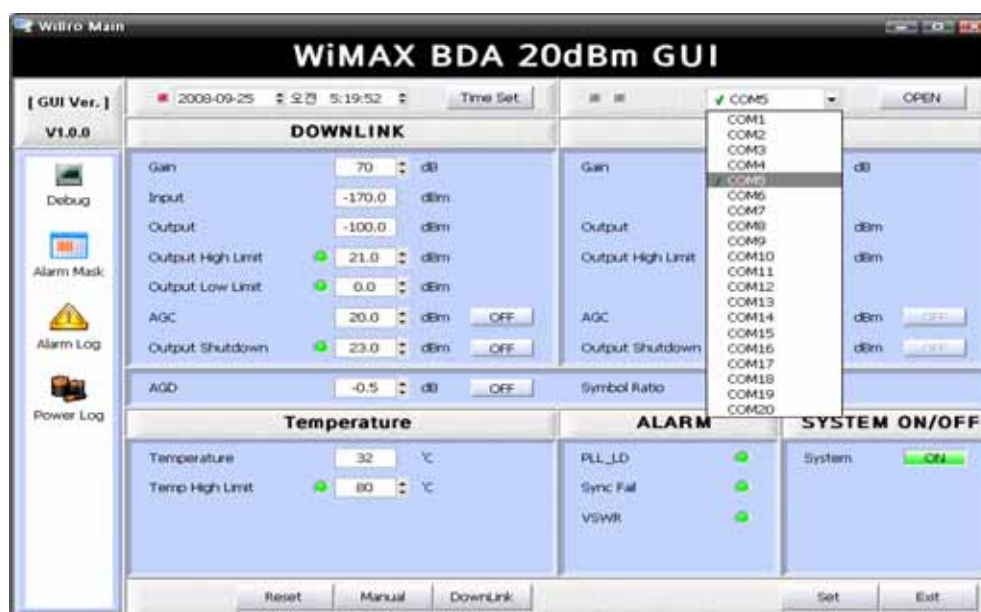
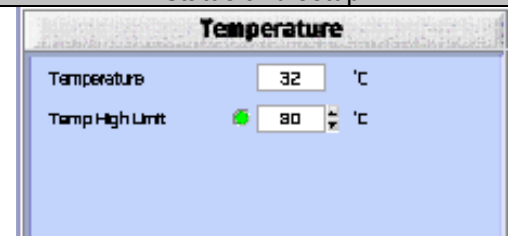


Figure 31 COM port set-up

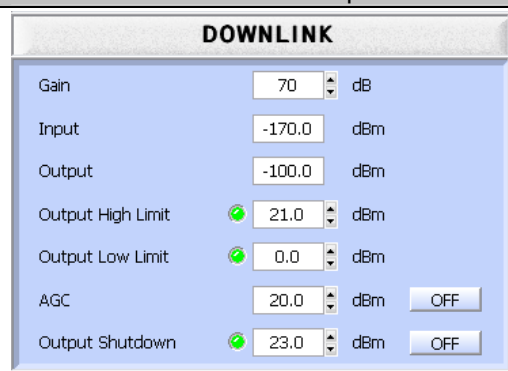
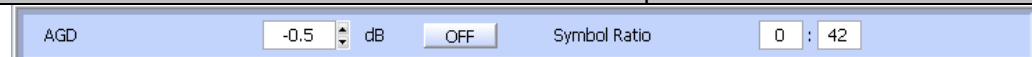
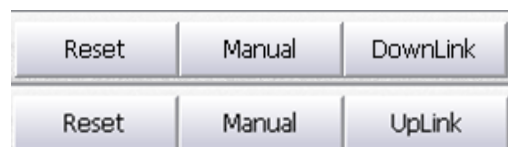

### 3.3.4 Operational Description

#### 3.3.4.1 Parameter Setting and Status Monitoring

##### ■ Temperature limit setting and monitoring


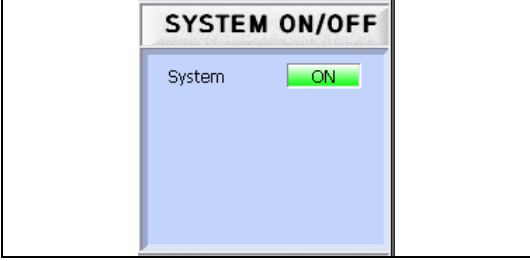
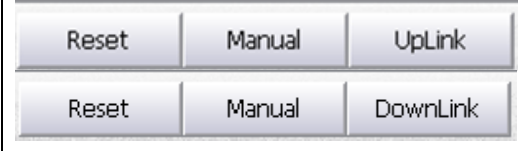
Status and setup	
 <p>The screenshot shows a 'Temperature' window with two fields: 'Temperature' set to 32 °C and 'Temp High Limit' set to 80 °C. The 'Temp High Limit' field has a green checkmark icon to its left.</p>	<ul style="list-style-type: none"> <li>■ It is to change parameters. <ul style="list-style-type: none"> <li>☞ Display current temperature of BDA</li> <li>☞ High temperature limit of the BDA for threshold of high temperature alarm.</li> </ul> </li> </ul>

##### ■ Monitoring and Control

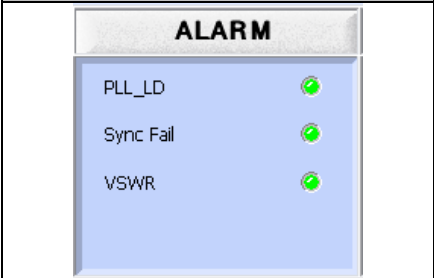
Status and setup	
 <p>The screenshot shows a 'DOWNLINK' window with several parameters: Gain (70 dB), Input (-170.0 dBm), Output (-100.0 dBm), Output High Limit (21.0 dBm), Output Low Limit (0.0 dBm), AGC (20.0 dBm), and Output Shutdown (23.0 dBm). Each parameter has a green checkmark icon to its left. There are 'OFF' buttons next to the AGC and Output Shutdown parameters.</p>	<ul style="list-style-type: none"> <li>■ It displays parameters and control parameters of down link. <ul style="list-style-type: none"> <li>☞ Display Gain, Input Level, Output High Limit, Output Low Limit, AGC and Shutdown level and ON/OFF for Down Link.</li> <li>☞ Control Gain, Output high limit, Output Low Limit, AGC Level and Output Shutdown Level.</li> </ul> </li> </ul>
AGD status and Setup	
 <p>The screenshot shows an 'AGD' window with 'AGD' set to -0.5 dB and 'Symbol Ratio' set to 0 : 42. There is an 'OFF' button next to the AGD parameter.</p>	
<ul style="list-style-type: none"> <li>■ It is to display and control AGD(Auto Gain Difference) status between DL and UL path.</li> </ul>	
Down/Up Link status and change	
 <p>The screenshot shows a window with two rows of buttons. The first row has 'Reset', 'Manual', and 'DownLink' buttons. The second row has 'Reset', 'Manual', and 'UpLink' buttons.</p>	<ul style="list-style-type: none"> <li>■ It is to change down or up link control. <ul style="list-style-type: none"> <li>☞ Reset CPU operation.</li> <li>☞ Parameters setup by manual.</li> <li>☞ If click 'DownLink' button, It will change to UpLink button.</li> </ul> </li> </ul>
Status and setup	
 <p>The screenshot shows a window with two buttons: 'Set' and 'Exit'.</p>	
<ul style="list-style-type: none"> <li>■ It is to control parameter setup or exit GUI program.</li> </ul>	







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<p><b>Status and setup</b></p> 	<ul style="list-style-type: none"> <li>■ It displays parameters and control parameters of up link. <ul style="list-style-type: none"> <li>☞ Display Gain, Input Level, Output High Limit, Output Low Limit, AGC and Shutdown level and ON/OFF for Down Link.</li> <li>☞ Control Gain, Output high limit, Output Low Limit, AGC Level and Output Shutdown Level.</li> </ul> </li> </ul>
<p><b>System ON/OFF status and setup</b></p> 	<ul style="list-style-type: none"> <li>■ It is to change parameters. <ul style="list-style-type: none"> <li>☞ Display current temperature of BDA</li> <li>☞ High temperature limit of the BDA for threshold of high temperature alarm.</li> </ul> </li> </ul>
<p><b>Up/Down Link status and change</b></p> 	<ul style="list-style-type: none"> <li>■ It is to change down or up link control. <ul style="list-style-type: none"> <li>☞ Reset CPU operation.</li> <li>☞ Parameters setup by manual.</li> <li>☞ If click 'UpLink' button, It will change to DownLink button.</li> </ul> </li> </ul>

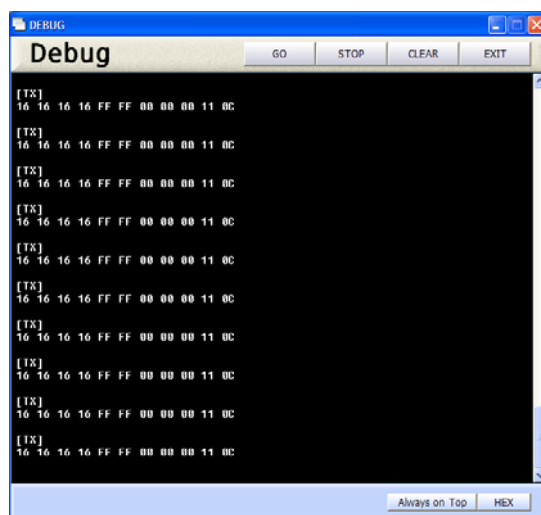
### 3.3.4.2 Alarm Description

<p><b>Status</b></p> <div> <span>● Normal Operation</span> <span>● Alarm</span> </div>	
<ul style="list-style-type: none"> <li>■ It is to display alarm status in the BDA. Red color means "Alarm."</li> </ul>	
<p><b>DOWN link and UP link alarms</b></p> 	<ul style="list-style-type: none"> <li>☞ PLL lock or unlock alarm status of the BDA.</li> <li>☞ Synchronization detectin fail alarm status of the BDA.</li> <li>☞ VSWR alarm status of the BDA.</li> </ul>

## 3.3.4.3 Sub-function Menu

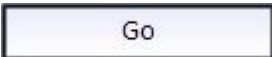

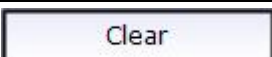

 Debug   Alarm Mask   Alarm Log   Power Log	Debug windows shows Tx/Rx communication data between CPU and operating software.
	Administrator can mask an alarm. Masked alarms can be monitored.
	User can log the alarm history into CPU and can monitor all alarms occurred in the unit.
	User can periodically check the logged input/ output power status stored in the memory of BDA CPU.

- **Debug**  
Debug windows shows Tx/Rx communication data between CPU and operating software.  
- Click 'Debug' button in sub-functions menu.



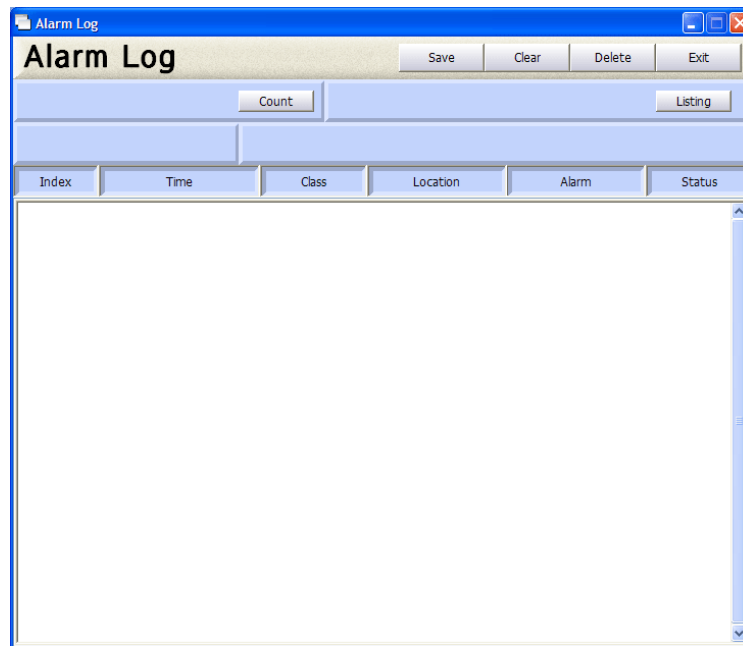
**Figure 32 Debug Window**

- sub-functions of debug

	Start the display of Tx/Rx communication data.
	Stop the display of Tx/Rx communication data.
	Clear the display of Tx/Rx communication data.
	Exit the debug windows.

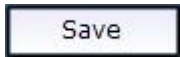

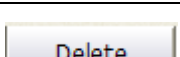
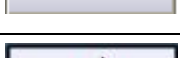
- Alarm Log
  - ✓ User can log the alarm history into CPU.
  - ✓ User can monitor all alarms occurred in the unit.
  - ✓ Alarm log will be updated whenever it is changed comparing with the existing one.

- Click 'Alarm Log' button in Sub-Function Menu.



**Figure 33 Alarm Log Window**

- Sub-function of Alarm Log

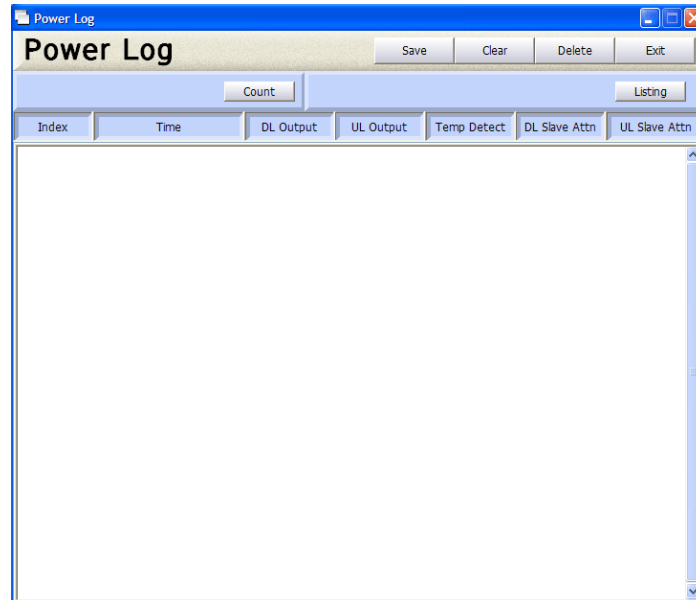
	Save overall alarms logged as Excel file format.
	Clear overall alarms displayed in the windows.
	delete overall alarms logged.
	Exit the Alarm Log windows



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### ■ Power Log

- ✓ User can periodically check the logged input/ output power status stored in the memory of BDA CPU.



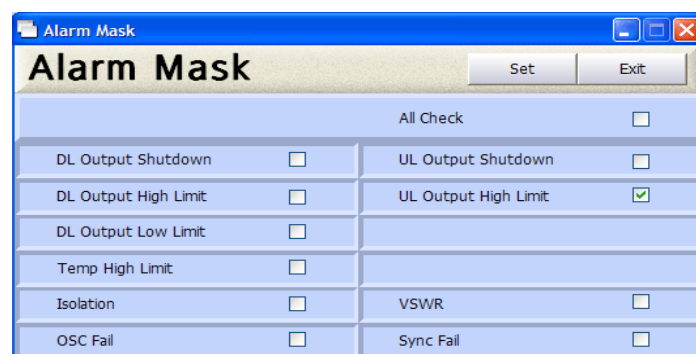
**Figure 34 Power Log Window**

- Sub-function of Power Log

	Save overall Power logged as Excel file format.
	Clear overall Power displayed in the windows.
	delete overall Power logged.
	Exit the power Log windows.

### ■ Alarm Mask

- ✓ Click 'Alarm Mask' button in the Sub-Function Menu.
- ✓ Select alarm items can be inactivated.



**Figure 35 Alarm Mask Window**