Installation/Operation Manual
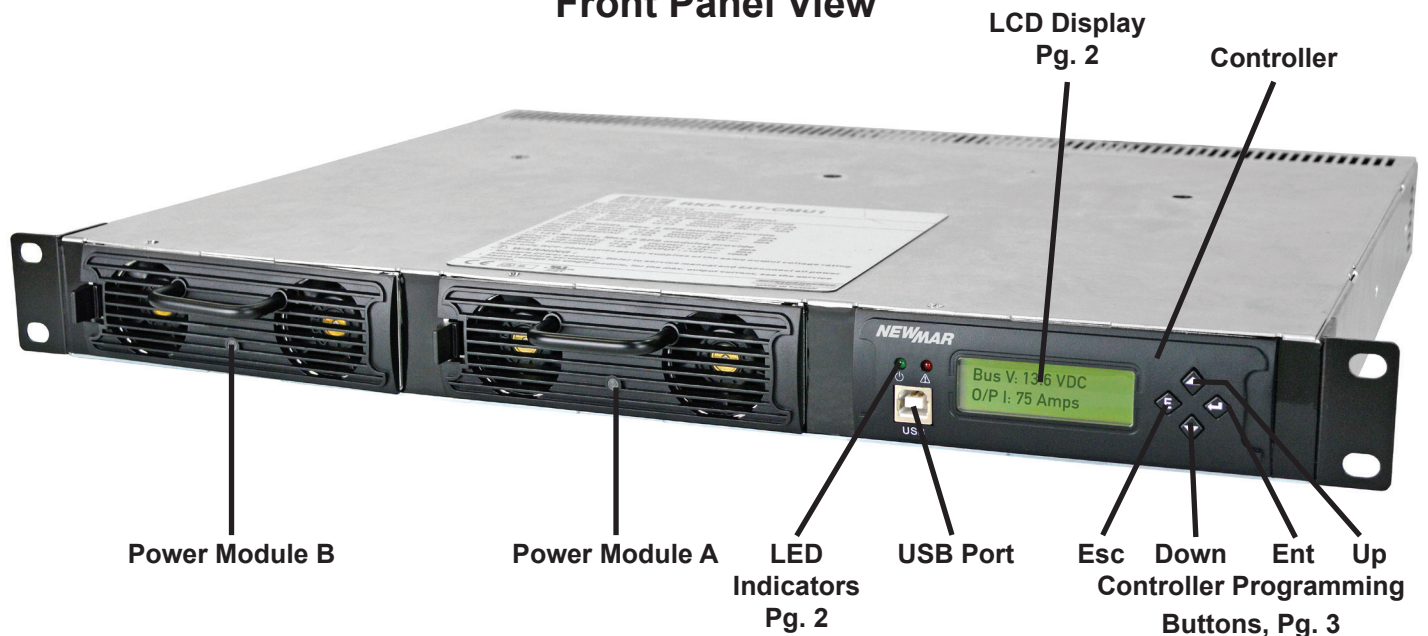# Model: Scout Power System, 12V
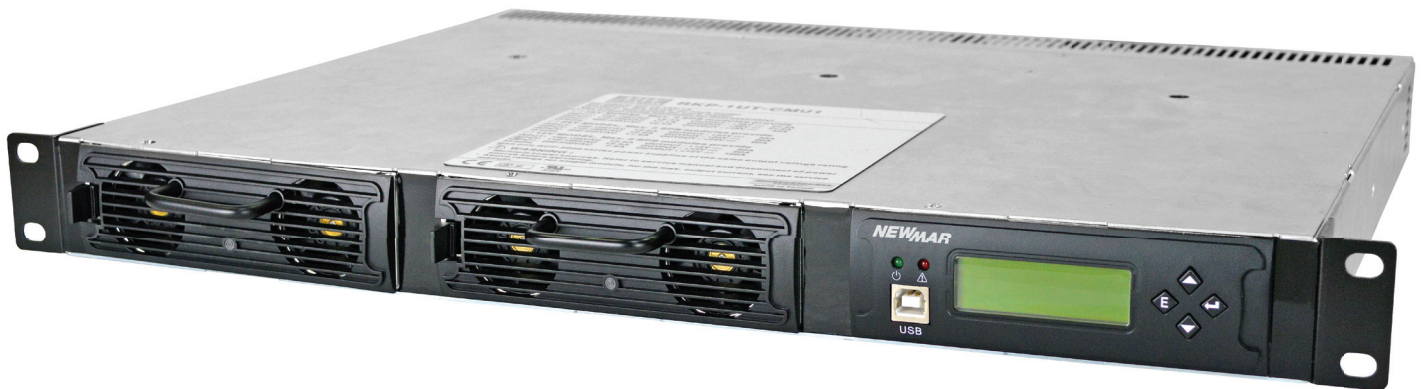
Features

- 1 RU low profile, 19 inch rack mounting
- Programable digital controller and system monitor
- Front panel LCD display provides system status
- USB, RS-232 or Ethernet interface for PC connection locally or remote monitoring and control via modem
- Alarm/event log with time and date
- Windows based PC communication software
- Easy wire connections on rear panel
- 4 user programmable relay outputs for traditional remote monitoring or warning
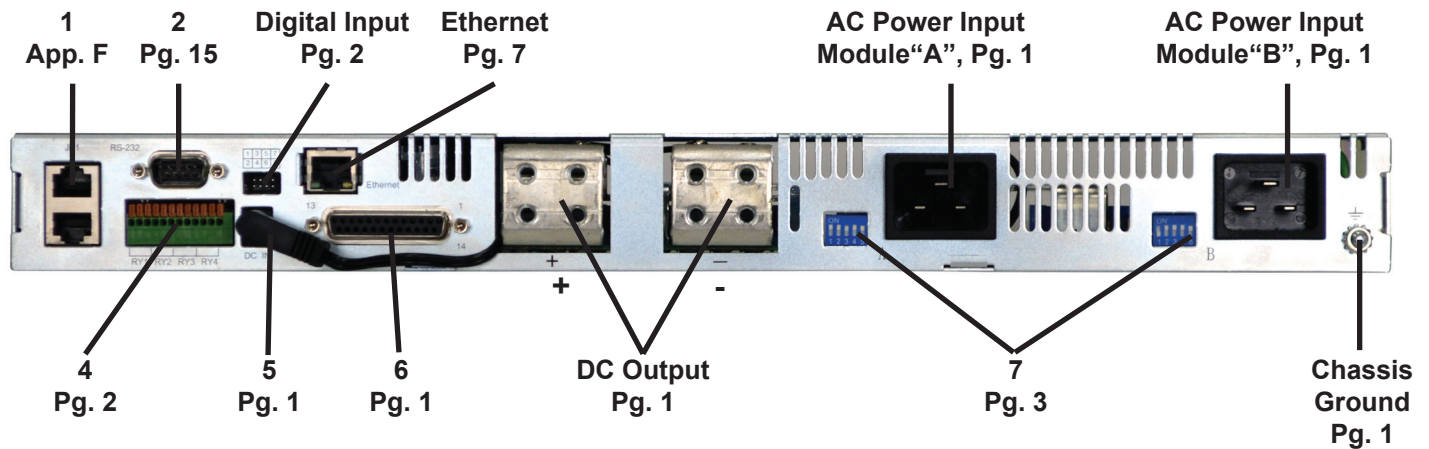- 2 year waranty

P.O. Box 1306
Newport Beach
California 92663

Powering the Network
www.newmartelecom.com

Phone: 714-751-0488
Fax: 714-957-1621
E-Mail: techservice@newmarpower.com

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7) Power module address setting for serial SMBus for remote monitoring,

Factory preset: Module A on-on-on-on-on
Module B off-on-on-on-on

0. Safety Guidelines

• Risk of electrical shock and energy hazard. All failure should be examined by a qualified technician. Please do not remove the case cover from the unit
• Please do not change any component on the unit by yourself or make any kind of modification on it
• Please do not install the unit in places with high moisture, high ambient temperature or under direct sunlight
• Please do not feed in voltage that is over or less than 10% of the rated value. Refer to the safety label on the unit
• The safety protection level of this unit in class 1. As a result, the "Frame Ground" ⏚ on the rear of the racks unit must be well connected to earth ground. The total leakage current of the whole system, including two Scout Rectifiers (Scout-R), is less than 2.3mA

1. Materials Provided

Materials Provided with Shelf*	
Quantity	**Description**
1	Scout-S System Shelf
2	19" Mounting Ears
4	10/32 x 3/8" Flat Head Mounting Ear Screws
2	1/0 AWG Termnal Lugs
1	Rectifier Blank Plate
8	10/32 x 3/4" Load Screws
1	RKP-1U Connector (must be installed for system operation)
1	PC Cross-Over Cable
1	Installation/Operation Manual Short Form

* Note, AC power cord provided in box with rectifier

2. Quick Start Installation/Wiring/Start-up

1) Attach rack mounting ears to shelf using the provided #10-32 x ¾" flat head screws.

2) Install in a 19" rack with a minimum of 4" clearance from front and back of shelf to allow for adequate fan ventilation (for installation in a 23" rack, contact Newmar and request SRS-1U 23" adapter set).

3) Insert power modules in shelf, and blank plate provided if only one power module is installed. Ensure that the securing latch located on left edge of rectifier face clicks in to place.

4) Plug in power cords provided with rectifiers into IEC sockets at rear of shelf. Rectifiers accept universal input 90-264 VAC 46-63 Hz. Maximum current draw per rectifiers is 13 amps @ 115 VAC / 7 amps @ 230 VAC. Remove and replace the NEMA 5-15 end plug if necessary to match the outlet configuration at your site. If replacing, the power cord utilizes 14 AWG minimum wire size for 115 VAC input or 16 AWG for 220 VAC input.

5) Attach DC output wiring directly to 12 volt load, distribution panel or battery. Lugs for 1/0 wire are provided for bulk output connection, or attach multiple smaller gauge cables if necessary for your wire routing configuration. Reference table 1 wire size guide. When making a connection to a battery install a fuse on the +12 VDC side (Hot) as close to the battery terminal as practical.

6) Connect interface cable(s) (USB/RS 232), programmable relays, digital input signals depending on your application.

7) Install RKP-1U in location 6.

8) Power on system: LCD read out on front panel will display system data, use key pad buttons to scroll through menu and make settings.

SCOUT-S / SCOUT-R
# Installation/Operation Manual

0.Safety Guidelines

◎ Risk of electrical shock and energy hazard. All failure should be examined by a qualified technician. Please do not remove the case from the unit.

◎ Please do not change any component on the unit by yourself or make any kind of modification on it.

◎ Please do not install the unit in places with high moisture, high ambient temperature or under direct sunlight.

◎ Please do not feed in voltage that is over or less than 10% of the rated value. Refer to the safety label on the unit.

◎ The safety protection level of this unit is class I. As a result, the "Frame Ground" (⏚) on the rear of the rack unit must be well connected to earth ground. The total leakage current of the whole system, including two Scout-R units, is less than 2.3mA.

1. Introduction

The Scout-S is a dedicated monitor unit for SCOUT-R 12V 100 Amp Rectifiers . It provides the management task of Scout-R for use in telecommunication, monitoring systems, servers, etc. It can be stand-alone operated or integrated into a 19-inch rack.

1.2 Features

◎1U low profile/19-inch rack mounting.

◎Control and monitor Scout-R units.

◎Front panel LCD and buttons for on-site service without PC.

◎USB, RS-232, or Ethernet interface for PC connection locally or remote monitoring and control via GSM modem.

◎Alarm/event log with time and date.

◎Windows-based PC communication software.

◎Easy wire connections on rear side.

◎4 user programmable relay outputs for traditional remote monitoring or warning.

◎2 years warranty.
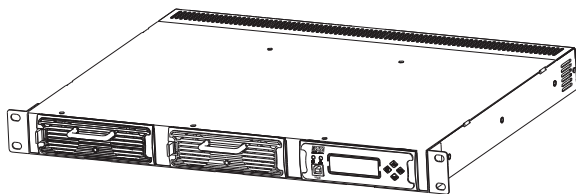
2. Quick Start

◎ **AC wiring-**
An IEC C19 style power cord with standard 115 VAC/15 A plug is provided with each rectifier. If you require a different plug end this plug can be cut off and the correct plug end for the outlet at your site attached. Rectifiers have universal input of 90-264 vac, 46-63 Hz. Maximum ac current draw is 13 Amps @ 115 vac or 7 Amps @ 230 vac.

◎ **DC wiring-**
Connect the Scout-S shelf DC output terminals using the #10-32 hardware provided to either the load, 12 vdc load distribution panel or directly to a 12 vdc battery. We recommend a battery fuse be installed as close to the battery HOT terminal as practical. Size the fuse to protect the wire size chosen. We recommend fuse value of 125-150% of maximum current.

Scout controller power note: The input power for the controller is provided via a 2.1mm ID, 5.5mm OD barrel plug on the rear panel (SK100). The power source is pre-wired from the factory to allow the Scout-S shelf output voltage to provide this power, ***RKP-1U connector must be installed on CN500 located at rear of Scout-S or system will not power up(*(Figure 1)** . When using 12 volt batteries the batteries will keep the controller powered during an ac power interruption. If not using batteries an external 12V / 1Amp DC adapter connected to a UPS should be used for system monitoring to be maintained.

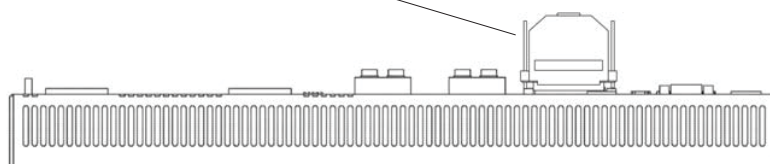RKP-1U must be installed unless external 12V (DC IN) is supplied to SK100

Figure 1

Installation Method

◎ Mount the Scout-S in a 19" rack before operating.
◎ Insert 1~2 units of Scout-R with the identical output voltage and current into the Scout-S.
◎ Assign their addresses through the 5-pole Address Switches (refer to App. I). Definition of the module position: A is in the middle and B is on the left.
◎ This unit is equipped with built-in DC fans and requires clearance for cooling. There should be no barriers within 4 inches of the ventilation holes.
◎ Connet the AC inputs of A and B units to AC source.
◎ Recommended input/output wires are in App. C .
◎ Wire up your interface cable (USB/RS232), programmable relays, and digital input signals, depending on your application. Apply a 12~15 VDC to the SK100 port on the rear of the Scout-S (if external 12V suppy used).

3. Functions

3.1 Scout-S monitoring functions

As a power management device, the Scout-S is capable of monitoring 32 units of Scout-R at the same time. It not only can read the operating parameters or data (such as output voltage, output current, internal temperature, working status, series number, and firmware version) from the units, but also can be used to adjust the values of bus voltage and PSU current. In addition, it can remotely turn the Scout-R units on/off by the command of "PMBus OPERATION" (pin6,7 JK1).

3.2 LED Indicators and LCD User Interface

There are LED indicators on the front panel of theScout-S that are used to display system operating status. Refer to App. E for details.

Besides that, there are also a LCD screen and control buttons on the front panel, the LCD user interface. It can be used to monitor,manage, and control your system without using other equipment.

3.3 Communication and Operation Interface

The Scout-S uses PMBus as the communication interface to communicate with Scout-R units to monitor, manage, and control these units.
The Scout-S can link to a PC (personal computer) via USB, RS232, or Ethernet, and through the operation interface at the PC side (like monitoring software or Microsoft Internet Explorer), management of the rack power can be consolidated at the PC side as shown in Figure 3. Details will be described in the following chapters.

PMBus

USB

RS-232

Ethernet

Figure 3 Diagram of the communication interface of the Scout-S

3.4 Real Time Clock, Data Log and Event Log

The Scout-S has a built-in real time clock to display actual date/time for log timestamp. The Data Log is used to store the operating data of the rack power system. It has 1000 records and the interval of log is programmable from 1 to 60 minutes. The Event Log is designed to store abnormal system condition when an alarm occurs and removes. There are up to 600 records of Event Log that can be stored in the Scout-S.

3.5 Programmable Relays and Digital Input Signals

To fulfill the requirements of industrial applications for the rack power system, the Scout-S offers 4 digital input signals in CN503 and 4 programmable relays in TB4. In addition, these relays provide both normally-open (N.O.) and normally-closed (N.C.) operations for selection. The operating conditions of the relays are shown in App. H.

3.6 Alarm

When an abnormal situation occurs, the red LED indicator on the front panel will flash. The abnormal situation detected can be interpreted on the LCD screen or your computer. Abnormal situations and the descriptions are shown as below.

	Status	Description
Scout-R's abnormal situations	OVP	Over voltage protection
	OLP	Overload protection
	Short circuit	Output short circuit protection
	OTP	Over temperature protection
	High temp.	Internal over temperature alarm
	AC fail	Low AC power shutdown
	Fan lock	Fan malfunction protection

3.7 PMBus Communication Interface

The Scout-S is equipped with all the PMBus commands that Scout-R needs. This makes it easy for users to monitor, manage, and control their Scout-R power systems by means of the LCD user interface or the Windows based user interface. Moreover, the unit is compliant with PMBus Rev. 1.1 (the maximum communication speed is 100 KHz) and has the capability of identifying up to 32 addressed units.

3.7.1 PMBus Device Addressing

Each Scout-R unit should have their unique and own device address to communicate over the PMbus. 7-bit address setting pins are used to assign a device address for a Scout-R unit, as the description shows below .

MSB   LSB

1	0	A4	A3	A2	A1	A0
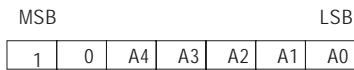
A0~A4, five of the bits, can be set via a 5-pole DIP switch on the rear panel of a rack unit. The "ON" position represents logic "0" while the "OFF" position represents logic "1".
There are 32 different addresses available to be assigned by the DIP switch. The switch settings show in App. I

3.7.2 PMBus Command List

App. J shows the command list of Scout-R. It is compliant with the standard protocol of PMBus Rev. 1.1. For more detailed information, please refer to PMBus official website (http://pmbus.org/specs.html).

3.7.3 PMBus Data Range and Tolerance

All of the PMBus data are fully digitalized. TheScout-S uses the data read from Scout-R units to display their operating values and control these units. Please refer to the definition of Scout-R, as shown in App. K, for Display / Control tolerance.
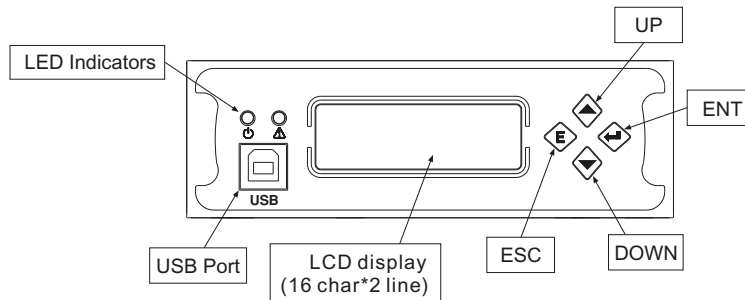
4.   Scout-S LCD User Interface 4.1

Figure 2 Diagram of Scout-S front panel

4.1 Description of Front Panel

4.1.1 Main Page

The "Main Page" displays the current Bus voltage and total output current.

In the "Main Page", once you press the "ESC" button for over 1.5 sec, you will enter the "Sub Screen", where you can adjust the brightness of LCD backlight and the LCD contrast ratio. There are 8 levels available for both the LCD backlight and the LCD contrast to be selected.

In the "Main Page", once you press the "ENT" button, you will enter the "Menu Page". There are "Status Menu",

"Settings Menu", "Maintenance Menu", and "Network Menu" that can be selected through the "UP"/"DOWN" buttons in

this screen.

Under the "Status Menu", status information, including Bus voltage, total output current, numbers of PSUs in parallel, PSU

4.2 Status Menu

current, PSU temperature, PSU status, PSU serial number, PSU manufacture date, PSU firmware version, condition of

digital input signal, condition of programmable relay, date, and Scout-S information, can be selected through the "UP"/"DOWN" buttons.

4.2.1 PSU Current

In the "PSU Current" section, each of the PSU's output currents can be displayed by pressing the "ENT" button.

Once you entered this page, you can choose one of the PSU's output currents to be displayed on the screen through the "UP"/"DOWN" buttons. "xx" indicates PSU's number.

When "N/A" is displayed on the screen, it means that the number of unit is offline.

4.2.2 PSU Temperature

In the "PSU Temperature" section, each of the PSU's temperatures can be displayed by pressing the "ENT" button.

Once you entered this page, you can choose one of the PSU's temperatures to be displayed on the screen through the "UP"/"DOWN" buttons.

When "N/A" is displayed on the screen, it means that the number of unit is offline.

4.2.3 PSU Status

In the "PSU Status" section, each of the PSU's statuses can be displayed by pressing the "ENT" button.

Once you entered this page, you can choose one of the PSU's statuses to be displayed on the screen through the "UP"/ "DOWN" buttons. If an abnormal situation occurs, the screen will display which PSU unit is and its situation, no matter which unit you have chosen. Abnormal situations that can be displayed include OVP, OLP, OTP, Short Ckt, High temp., AC fail, and fan lock.

4.2.4 PSU Serial Number

In the "PSU Serial No." section, each of the PSU's serial numbers can be displayed by pressing the "ENT" button.

Once you entered this page, you can choose one of the PSU's serial numbers to be displayed on the screen through the "UP"/"DOWN" buttons.

Once you entered this page, you can choose one of the PSU's manufacture dates to be displayed on the screen through the "UP"/"DOWN" buttons.

Once you enter this page, you can choose one of the PSU's firmware versions to be displayed on the screen through the "UP"/"DOWN" buttons.

4.2.5 Condition of Programmable Relay

In the "Prog. Relay" section, it displays the condition of each programmable relays. "x" indicates that the relay is inactive and its COM contacts the "NC". "o" indicates that the relay is activated, and its COM is contacting the "NO".

4.2.6 RKP-CMU1 Information

In the "RKP-CMU1 Info." section, there are the serial number, the manufacture date, the firmware version, country of production, and the GSM phone number of theScout-S that can be displayed by pressing the "ENT" button.

4.3 Settings Menu

Under the "Settings Menu", there are PSU ON/OFF setting, Bus voltage setting, PSU current setting, PSU alarm setting, programmable relay setting, Data Log Interval, communication port setting (USB/RS232), date and time setting, buzzer ON/OFF setting, and Scout-S address setting that can be selected through the "UP"/"DOWN" buttons.

4.3.1 PSU ON/OFF Setting

In this page, you can enter PSU ON/OFF setting by pressing the "ENT" button when this option is on the screen.

Once you entered this screen, you can choose which PSU you would like to turn on or off through the "UP"/"DOWN" buttons. It is also possible to control the whole units by changing "xxx" to "ALL". "xxx" indicates PSU's number.

If "OFF (Alarm)", or "N/A" is displayed, that means the PSU is in an abnormal situation or offline. In this case, the PSU cannot be controlled.

Once you have chosen a PSU, pressing the "ENT" button will change its setting (on or off).

Once you chose all units, the displayed screen will show as below. "yy" indicates numbers of units set to be ON, "zz" indicates numbers of units set to be OFF, "FULL OFF" indicates all the units set to be OFF, and "FULL ON" indicates all the units set to be ON. For changing the setting (on or off), press the "ENT" button.

P	S	U		O	N	/	O	F	F						
A	l	l	:	y	y		O	N	,	z	z		O	F	F

A	l	l	:		F	U	L	L		O	F	F			

A	l	l	:		F	U	L	L		O	N				
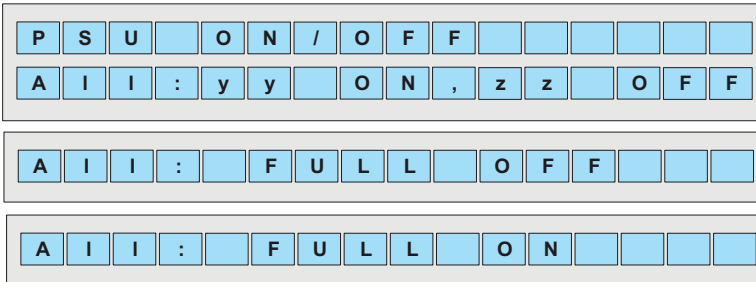
4.3.2 Bus Voltage Setting

Once you entered this page, you can trim the Bus voltage through the "UP"/"DOWN" buttons. Refer to the Table of PSU adjustable voltage range.

PSU adjustable voltage range:

Model	Bus Voltage Range	Default
12V	10.5 ~ 14V	13.6V

4.3.3 PSU Current Setting

In the "Set PSU Current" section, you can enter PSU current setting by pressing the "ENT" button when this option is on the screen.

Once you entered this page, you can trim the output current through the "UP"/"DOWN" buttons. Refer to the Table of PSU adjustable current range.

PSU adjustable current range:

Model	PSU Current Range	Default
12V	30 ~ 112A	100A

Note : If the set PSU current exceeds 100A, the maximum rated current, OTP might be triggered after operating a period of time.

4.3.4 Programmable Relay Setting

When the "Set Prog. Relay" option is on the screen, you can enter programmable relay settings by pressing the "ENT" button. (Default value: Alarm (activate) Any Alarm)

Once you entered this page, you can choose which relay you would like to modify through the "UP"/"DOWN" buttons. There are four relays available to be selected.

Each relay can be set for the functions below :
1.Alarm activating: Any Alarm, OVP, OLP, OTP, Short circuit, High Temp., AC Fail, Fan lock, or PMBus Error.
2.PSU ON activating: Immediately, or Delay (1~600 sec).
3.PSU OFF activating: Immediately, or Delay (1~600 sec).
4.Digital I/P activating: Control by DI1, control by DI2, control by DI3, or control by DI4.

4.3.5 Data Log Interval Setting

Once you entered this page, you can set Data Log's time interval, from 1 to 60 minutes, through the "UP"/"DOWN" buttons. (Default value: 5 minutes)

4.3.6 Communication Port Setting (USB/RS232)

In the "Set USB/RS232" section, there are USB, RS232, and RS232 for GSM interface that can be selected. (Default: USB)

4.3.7 Date and Time Setting

Under "Set Date/Time", "yy" indicates year, "mm/dd" indicates month/day, and "HH/MM" indicates hour/minute. Press the "ENT" button to select year, month, day, hour, or minute. Then, use the "UP"/"DOWN" buttons to choose a number.

4.3.8 Buzzer ON/OFF Setting

Under "Buzzer Control", you can turn buzzer on or off by pressing the "ENT" button. (Default:OFF Buzzer)

4.3.9 Scout-S Address Setting

In the "Scout-S address" section, you can set Scout-S's address by pressing the "ENT" button. (Default: 1)

4.4 Maintenance Menu

A password is required to enter this menu. Once you entered this menu, there are "view Event Log", "clear Event Log", "clear Data Log", "change password", and "load default settings" that can be selected.

Four digits are needed for a password, entering a password can use the "UP"/"DOWN" buttons to choose a number, from 0 to 9, then press the "ENT" button to the next digit. (Default password: 0000)

4.4.1 View Event Log

The Event log stores abnormal system conditions when alarms occur. It is capable of saving up to 600 records and the contents include time, type of alarm, which PSU.

Once you entered this page, you can choose a LOG number or a date through the "UP"/"DOWN" buttons to access the information you need.

Once you chose a LOG number/date, it will display when it occurs and which types of alarm it is.

4.4.2 Clear Event Log

The "Clear Event Log" function is used to clear all the data that Event log has stored.

4.4.3 Clear Data Log

The "Clear Data Log" function is used to clear all the data that Data log has stored.

The content of Data log include AC voltage, relay condition, condition of digital input signal, output voltage, total output current, each PSU's currents, and time. The content of Data log is possible to be accessed by the built-in web page or monitoring software.

4.4.4 Change Password

The "Change Password" function is used to change a password for entering the "Maintenance Menu".

4.4.5 Load Default Setting

The "Load Default" is used to reset the parameters of the "Settings Menu" to its default value.

4.5 Network Menu

Once you entered the "Network Menu", there are MAC address, IP address, subnet mask, and gateway (support IP v4) that can be selected.

4.5.2 MAC Address

Each Scout-S unit has a different MAC address, and the address is assigned by the internal hardware.

4.5.2 IP Address

IP address can be changed by the built-in web page, but doing so requires the Scout-S and the PC you use in the same domain. (Default IP: 169.254.1.1)

4.5.3 Subnet Mask

Subnet mask can be changed by the built-in web page, but doing so requires the Scout-S and the PC you use in the same domain. (Default IP: 255.255.0.0)

4.5.4 Gateway

Gateway can be changed by the built-in web page, but doing so requires the Scout-S and the PC you use in the same domain. (Default IP: 169.254.1.1)

5.Scout-S Web Page Monitoring Functions

◎System requirements

    1.Windows XP, Windows Vista, or Windows 7 operating system

    2.AMD or Intel Pentium 133MHz or better based computer

    3.10/100 BASE-T Ethernet port

    4.Microsoft IE6(and above)

◎Connection diagram

RJ-45 cable
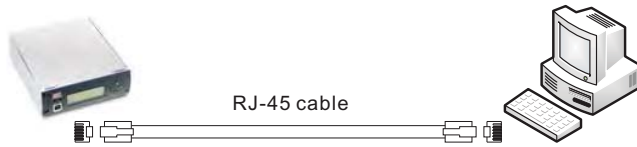
◎Before accessing the built-in web page, please make sure that the Scout-S and the PC you use are set in the same domain. If this is the first time you access the built-in web page, you will need to change the IP address of your PC. Once your connected to the built-in web page, change of the Scout-S's address settings (like to another domain) can be done.

    ※Default address of Scout-S

Address	Default
IP address	169.254.1.1
Subnet mask	255.255.0.0
Default gateway	169.254.1.1

5.1 IP Setting of PC

Please follow the following instruction to set the IP address of your PC.

(1)Only connect your PC to the Scout-S, and verify that there are no other devices connecting to your PC like a modem.

(2)Click the "Network and Internet Connections" option. Then click the "Local Area Connection". Select "Internet Protocol (TCP/IP)", and then click the "Properties" button. If there are "Internet Protocol Version 4 (TCP/IPv4)" and "Internet Protocol Version 6 (TCP/IPv6)" shown on the table, choose "Internet Protocol Version 4 (TCP/IPv4)".
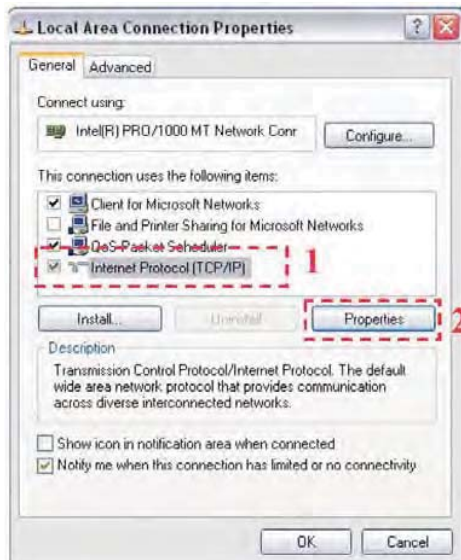
(3)Click the "Use the following IP address", and then type addresses in "IP address", "Subnet mask", and "Default gateway" boxes. After that click the "OK" button. The IP address you set should be in the same domain Scout-S but not the identical IP. There is an example below for your reference.

Address	Default (for ex.)
IP address	169.254.1.2
Subnet mask	255.255.0.0
Default gateway	169.254.1.1

Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically
⊙ Use the following IP address:

IP address: 169 . 254 . 1 . 2
Subnet mask: 255 . 255 . 0 . 0
Default gateway: 169 . 254 . 1 . 1

1

○ Obtain DNS server address automatically
⊙ Use the following DNS server addresses:

Preferred DNS server: 0 . 0 . 0 . 0
Alternate DNS server: . . .

Advanced...

2   OK   Cancel

(4)Check if it is working correctly by clicking the "Support". If the addresses presented as you typed, it is successfully done. Then you can access the built-in web page.

Local Area Connection Status

General | Support

Connection status

Address Type: Manually Configured
IP Address: 169.254.1.2
Subnet Mask: 255.255.255.0
Default Gateway: 169.254.1.1

Details...

Windows did not detect problems with this connection. If you cannot connect, click Repair.

Repair

Close

If the table shows as below, it means that your RJ-45 cable is not properly connected or the IP address you have set is incorrect.

Local Area Connection Status

General | Support

Connection status

Address Type: Invalid IP Address
IP Address: 0.0.0.0
Subnet Mask: 0.0.0.0
Default Gateway:

Details...

Windows did not detect problems with this connection. If you cannot connect, click Repair.

Repair

Close

M-SCOUT-S AS of 102014

5.2 Description of Scout-S Built-in Web Page

5.2.1 How to open the website

Connect your PC to the Scout-S, then open a blank page and type the IP address of the Scout-S in the address bar. If you are not sure the IP address of Scout-S, refer to the LCD user interface. The route is "Main Page" → "Menu Page" → "IP Address". (Default IP: 169.254.1.1)
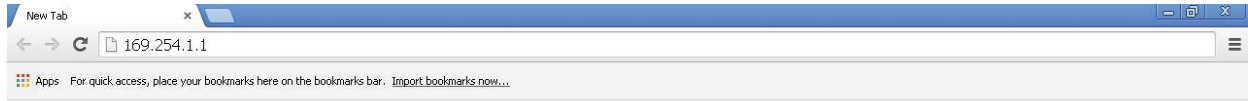
Default: 169.254.1.1
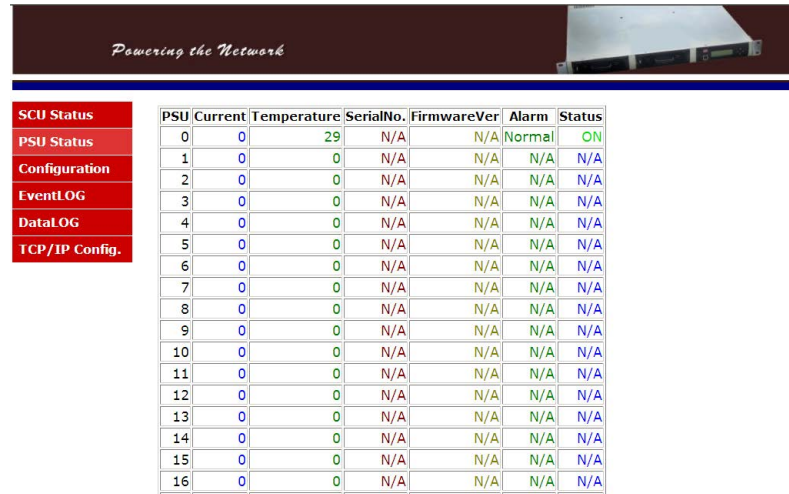
5.2.2 CMU Status Page

The home page of the built-in web page is the "SCU Status". This page displays important information including Bus voltage, total output current, the conditions of digital input signals, the conditions of programmable relays, the information of Scout-S, PSU status, and numbers of online units.

5.2.3 PSU Status Page

The "PSU Status" page displays the operating information of each PSU, including output current, internal temperature, serial number, firmware version, alarm, and status.

PSU	Current	Temperature	SerialNo.	FirmwareVer	Alarm	Status
0	0	29	N/A	N/A	Normal	ON
1	0	0	N/A	N/A	N/A	N/A
2	0	0	N/A	N/A	N/A	N/A
3	0	0	N/A	N/A	N/A	N/A
4	0	0	N/A	N/A	N/A	N/A
5	0	0	N/A	N/A	N/A	N/A
6	0	0	N/A	N/A	N/A	N/A
7	0	0	N/A	N/A	N/A	N/A
8	0	0	N/A	N/A	N/A	N/A
9	0	0	N/A	N/A	N/A	N/A
10	0	0	N/A	N/A	N/A	N/A
11	0	0	N/A	N/A	N/A	N/A
12	0	0	N/A	N/A	N/A	N/A
13	0	0	N/A	N/A	N/A	N/A
14	0	0	N/A	N/A	N/A	N/A
15	0	0	N/A	N/A	N/A	N/A
16	0	0	N/A	N/A	N/A	N/A

Navigation menu: SCU Status, PSU Status, Configuration, EventLOG, DataLOG, TCP/IP Config.

5.2.4 Configuration Page

Once you clicked the "Configuration" page, you will be asked to enter a user name and a passwordRefer to the label on the top panel for both the "User name" and "Password". This user name and password cannot be changed.

Note: See label on top panel for username and password.

Once you insert the correct user name and password, you will enter the settings page. On this page, there are Bus voltage, PSU over-current, clear Event Log/Data Log, Data Log time interval setting, programmable relay setting, and PSU ON/OFF that can be set and altered.

5.2.4.1 Bus Voltage / PSU Current

If the Bus voltage/PSU current you set is not within the adjustable range, it will become invalid. Make sure the parameters that you type in are not over or less than the range as below.
Adjustable range of Bus voltage/ PSU current:

Model	Bus voltage range	PSU current range
12V	10.5 ~ 14V	30 ~ 112A

Note : If the set PSU current exceeds 100A, the maximum rated current, OTP might be triggered after operating a period of time.
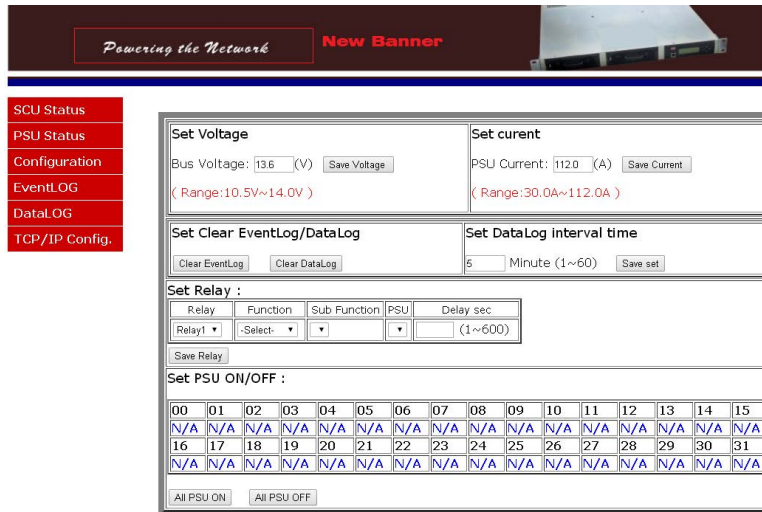
5.2.4.2 Setting of Clear EventLog/DataLog and DataLog Time Interval

The "Set Clear EventLog/DataLog" box is used to clear the data that Event log/Data log has stored, while the "Set DataLog time interval" box can set the time interval from 1 to 60 minutes.
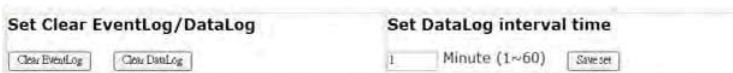
5.2.4.3 Setting of Programmable Relay

Each relay can be set for the functions below :
1. Alarm activating: Any Alarm, OVP, OLP, OTP, Short circuit, High Temp., AC Fail, Fan lock, or PMBus Error.
2. PSU* ON activating: Immediately, or Delay (1~600 sec).
3. PSU* OFF activating: Immediately, or Delay (1~600 sec).
4. Digital I/P activating: Control by DI1, control by DI2, control by DI3, or control by DI4.

*Note: PSU=Scout-R Rectifier

Then, click the scroll-down list of the "Sub Function" to choose an activation type

Type a delay time value to decide how much time it need to be delayed

5.2.4.3 PSU ON/OFF setting

If you would like to turn a PSU* on or off, double click its status bar under its number. "Green" indicates "PSU ON", "Red" indicates "PSU OFF", and "N/A" indicates "unconnected". If you double click a status bar displayed green, it will shift to red, whereas if the status bar you double clicked is red, it will switch to green. If a status bar displays "N/A", it cannot be controlled due to non-connection to the Scout-S. Turning the whole PSU units on or off is also possible by clicking the "ALL PSU ON"/ "ALL PSU OFF" buttons. The updated status will not immediately reflect in its status bar, it may delay 1~3 seconds.

Status bar

*Note: PSU= Scout Rectifier

5.3 Event Log Page

The Event Log stores abnormal system situations when alarms occur. It is capable of saving 600 records, but if the stored data is over its capacity, it will overwrite the previous data, from the first record. The contents that Event Log stores include time, type of alarm, and which PSU. The "EventLog" page displays 10 records in one page, and pages can be selected by the "scroll-down list".

Number	PSU/SCU	Alarm	Time
1	SCU	PMBus Error,	2014-09-23 09:43:58
2	PSU00	Fan2 Fault,	2014-09-23 09:46:26
3	SCU	Alarm Remove	2014-09-23 09:46:26
4	PSU00	AC Fault, Fan2 Fault,	2014-09-23 09:47:03
5	PSU00	Alarm Remove	2014-09-23 09:47:07
6	SCU	PMBus Error,	2014-09-23 09:47:08
7	SCU	Alarm Remove	2014-09-23 10:15:57
8	PSU00	Fan2 Fault,	2014-09-23 10:15:58
9	PSU00	Alarm Remove	2014-09-23 10:20:03
10	SCU	PMBus Error,	2014-09-23 10:20:04

5.4 Data Log Page

The Data Log will save operating data at regular intervals set by "Data log interval". The Data Log is capable of saving 1000 records, but if the stored data is over its capacity, it will overwrite the previous data, from the first record. The contents that Data Log stores include AC voltage, relay condition, condition of digital input signal, output voltage, total output current, each PSU's currents, and time. The "DataLog" page displays 10 groups of data in one page, and pages can be selected by the "scroll-down list".

5.5 TCP/IP Configuration Page

To enter the "TCP/IP Config." page, you will be asked to enter a user name and a password too. Refer to the label on the top panel for both the "User name" and "Password". This user name and password cannot be changed.

Once you insert the correct user name and password, you will enter this address settings page. On this page, there are IP address, subnet mask, gateway, primary DNS, and secondary DNS that can be set and changed. For example, if the Scout-S is not in your current domain, you can revise it to your current domain by changing those IP address parameters.

6. Scout-S Monitoring Software

System requirements

1. Windows XP, Windows Vista, or Windows 7 operating system
2. AMD or Intel Pentium 133MHz or better based computer
3. USB 1.1 or higher
4. RKP-CMU1 monitoring software

6.1 Installation

(1)Install "Prolific USB driver" (PL2303_Prolific_DriverInstaller_v1417.exe) onto your PC if this is the first time to run this software.

Note: If there is the need for an updated driver version for your device, refer to Prolific official website.
http://www.prolific.com.tw/eng/downloads.asp?ID=31
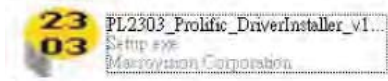
(2)Install Microsoft Framework4 (dotNetFx40_Full_x86_x64.exe).
   Note: If there is the need for an updated Framework4 version, refer to Microsoft website.
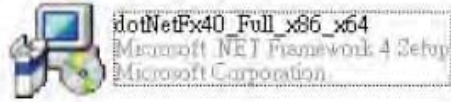   http://www.microsoft.com/download/en/details.aspx?id=17851

(3)Connect the Scout-S to your PC via a USB cable.(4)Execute RKP-CMU1.exe.

6.2 Using RS232 for Communication with Scout-S

The Scout-S can not only use USB interface for PC connection, but can also use the RS-232 interface. There is a RS-232 port (Male) on the rear of the Scout-S, you can use a DB9 Female - DB9 Female cable for connection between the Scout-S and your PC. Pin description shows as below.
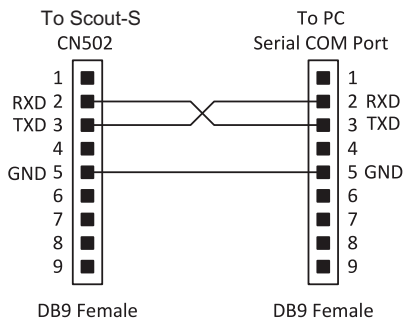
6.3 Description of Scout-S Monitoring Software

◎Before running the monitoring software, please make sure the following arrangement is done correctly. 1.Interface cable is connected between your PC and the Scout-S.
2.The Scout-S is powered on and ready.
3.Verify your interface settings are correct. Refer to the LCD user interface (section 4.4.6)

6.3.1 Comm. Setup Page

Once this software is running, there are some settings that must be done before accessing the Scout-S.
Step 1: COM Port Setting
   1.Select the correct port for your interface cable.
   2.Select a proper baud rate for data transmission. (Maximum: 115.2k).

Step 2: Address Setting
   Select the correct address for the Scout-S. Refer to the LCD user interface, Section 4.4.9: Scout-S Addess setting(Default:1).

Step 3：Connection
Click the "Connect" button to access the Scout-S. If a connection was successfully established with the Scout-S, it will display "COMx Connected". If a connection failed, it will display "Comm. fail".
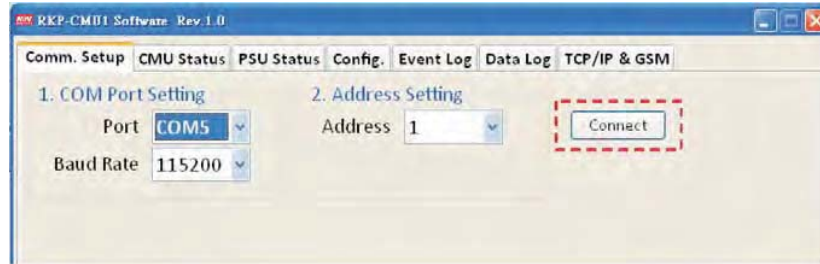
Connection was successful.

Connection failed. Make sure the interface cable is properly connected between your PC and the Scout-S, and make sure the parameters you set are correct.
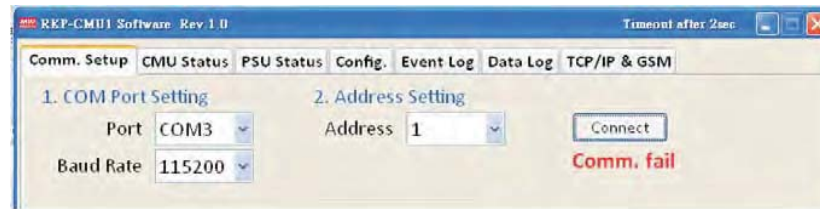
6.3.2 CMU Status Page
The "CMU Status" page displays information which is more important, including Bus voltage, total output current, the conditions of digital input signals, the conditions of programmable relays, the information of Scout-S, PSU status, and numbers of online units.

6.3.3 PSU Status Page
The "PSU Status" page displays the operating information of each PSU, including output current, internal temperature, serial number, firmware version, alarm, and status.

6.3.4 Config. Page
On this page, there are Bus voltage, PSU current, clear Event Log/Data Log, Data Log time interval setting, programmable relay setting, and PSU ON/OFF that can be set and altered.

6.3.4.1 Bus Voltage / PSU Current
If the Bus voltage/PSU current you set is not within the adjustable range, it will become invalid. Make sure the parameters that you type in are not over or less than the range as below. After settings, click the "Save" button to save your parameters.

Adjustable range of Bus voltage/ PSU current:

Type	Bus voltage range	PSU current (Output Current) range
12V	10.5 ~ 14V	30 ~ 112A

Note : If the set PSU current exceeds 100A, the maximum rated current, OTP might be triggered after operating a period of time.

6.3.4.2 Setting of Clear Event Log/Data Log and Data Log Time Interval

The "Event Log" and "Data Log" buttons are used to clear the data that Event log/Data log has stored. The "Data Log interval" is used to set the time interval from 1 to 60 minutes.

Adjustable range (1~60)
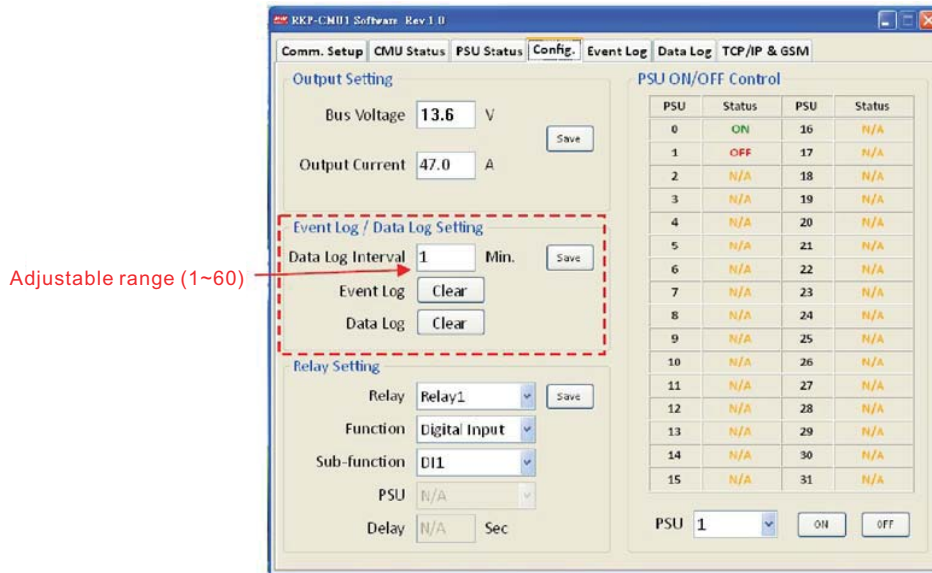
6.3.4.3 Setting of Programmable Relay

"Relay Setting" section is used to set activating conditions of the programmable relays. After setting, click the "save" button to save your setting values.

Each relay can be set for the functions below :

1. Alarm activating: Any Alarm, OVP, OLP, OTP, Short circuit, High Temp., AC Fail, Fan lock, or PMBus Error.
2. PSU ON activating: Immediately, or Delay (1~600 sec).
3. PSU OFF activating: Immediately, or Delay (1~600 sec).
4. Digital I/P activating: Control by DI1, control by DI2, control by DI3, or control by DI4.

6.3.4.4 PSU ON/OFF setting

Turning a unit or all the units on/off can be done by selecting the "scroll-down list". "ON(green)" indicates "PSU ON", "OFF(red)" indicates "PSU OFF", and "N/A(orange)" indicates "unconnected". Once you have chosen a PSU, you can click the "ON" or "OFF" buttons to turn it on/off. If the status column displays "N/A(orange)", it cannot be controlled due to non-connection to the Scout-S.

M-SCOUT-S AS of 102014

Status table

Scroll-down list and setting buttons

6.3.5 Event Log Page

The Event Log stores abnormal system situations when alarms occur. It is capable of saving up to 600 records, but if the stored data is over its capacity, it will overwrite the previous data, from the first record. The contents that Event Log stores include time, type of alarm, and which PSU it is. If you would like to check the data that Event Log has stored, click the "Read Log".

Blank page before reading data

Read button

After reading from the Scout-S, the data will be arranged in ascending order of Log No.. Sorting the data into other orders is also possible by clicking the column headers. Clicking the "Save Log" button can save the data onto your PC.

Sorting data can be done by clicking a column header

Blank area, if it is not used

Save button

6.3.6 Data Log Page

The Data Log will save operating data at regular intervals set by "Data log interval". The Data Log is capable of saving 1000 records, but if the stored data is over its capacity, it will overwrite the previous data, from the first record. The contents that Data Log stores include AC voltage, relay condition, condition of digital input signal, output voltage, total output current, each PSU's currents, and time. If you would like to check the data that Data Log has stored, click the "Read Log".

Blank page before reading data

Read button

After reading from the Scout-S, the data will be arranged in ascending order of Log No.. Sorting the data into other orders is also possible by clicking the column headers. Clicking the "Save Log" button can save the data onto your PC.

Sorting data can be done by clicking a column header

Save button   Chart button

This page also offers a function that presents the Data log data in column charts by clicking the "Chart" button. Once column charts are created, tendency of the data can be seen on your PC. Except for "Vbus" and "Iout" that are fixed on the page, others like I0~I7 (PSU0~7 Iout), I8~I15 (PSU8~15 Iout), I16~I31 (PSU16~31 Iout), and Vac max/min (the maximum/ minimum AC input) can be selected by the "scroll-down list".

Select charts
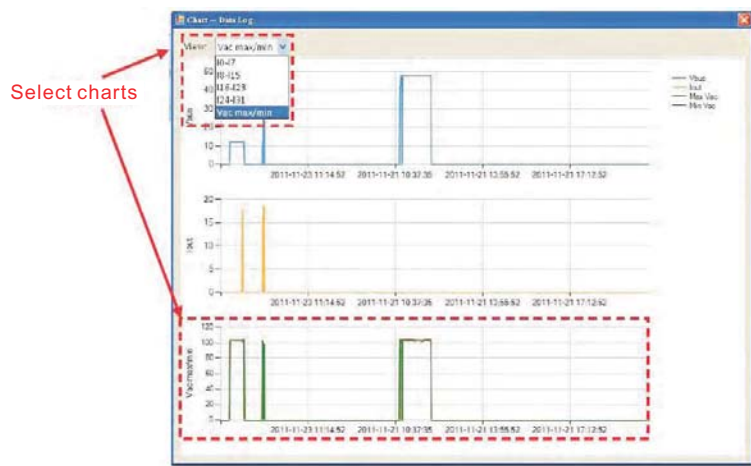
6.3.7 TCP/IP & GSM Page

This page can be split into 2 parts. One is for displaying the information of TCP/IP, including MAC address, IP address, subnet mask, and gateway. The other is for setting your GSM phone number. After typing your numbers in the column, click the "Save" button to save your phone number. "Unspecified" indicates that there's no phone number been stored yet.

TCP/IP information

GSM phone number setting

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Type a GSM phone number。(ex: 1234567890)

RKP-CMU1 Software Rev.1.0

Comm. Setup | CMU Status | PSU Status | Config. | Event Log | Data Log | **TCP/IP & GSM**

TCP/IP

MAC Address 00-04-A3-2A-28-C3
IP Address 169.254.001.001
Subnet Mask 255.255.000.000
Gateway 169.254.001.001

GSM Short Message

Phone Number 1234567890 [Save]

Type a GSM phone number
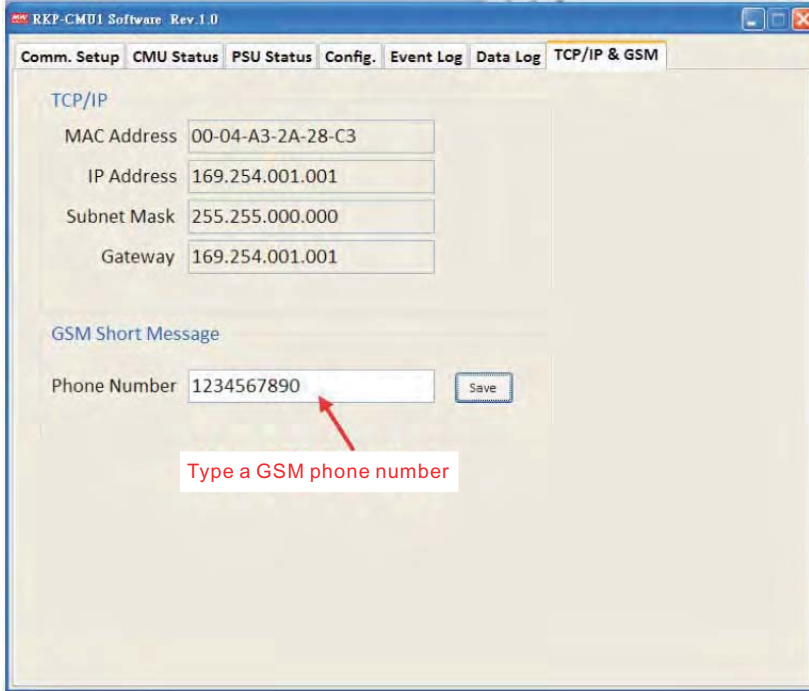
7.GSM Short Message Functions

◎System Requirements:
　1.GSM modem with antenna
　2.Interface cable for GSM modem
　3.SIM card

◎Notes:
　1.The Scout-S is in compliance with AT-commands for sending GSM messages. For using this function, a GSM modem equipped
　　with those AT-commands that "Section 7.3" mentioned is needed. Refer to the product below.
　　Sierra Wireless, AirLink™ Programmable Modems
　　http://www.sierrawireless.com/productsandservices/AirLink/Programmable_Modems.aspx
　2.Follow the instruction of the user manual of your GSM modem and the instruction below to properly set the connection
　　between your GSM modem and the Scout-S. Also make sure the baud rate of the GSM modem is set at 115200bps.

7.1 Installation and Settings
　(1) Insert a SIM card into your GSM modem. Make sure that there is no PIN (Personal Identification Number) recorded in the
　　　SIM card.
　(2) After installing a GSM antenna to your GSM modem and connecting an interface cable between the Scout-S and your GSM
　　　modem, turn the GSM modem on.
　　　The figure below shows the connection diagram for a Scout-S and a GSM modem.

DB9 Female
(Standard RS-232)

CN502

Scout-S

Short
message

GSM
modem

antenna   mobile phone
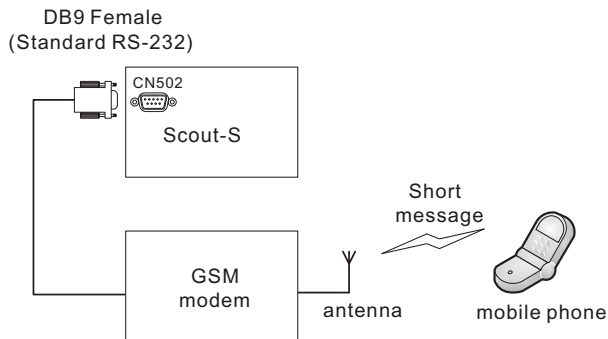
(3) Set a GSM phone number in the Scout-S. Refer to "Section 6.3.7".
(4) Select "3: RS232 for GSM" in the "Communication Port Setting" through the LCD user interface. Refer to "Section 4.4.6".

7.2 Test of Sending a Short Message
(1) Turn devices on in the following order:, Scout-S, and then GSM modem.
(2) Unplug the power of the Scout-R.
(3) In this case, there is a "PMBus Error" alarm that will occur. Then, you should receive a text message sent by the Scout-S after a few seconds.

7.3 AT-Command List forScout-S

Command	Description
AT	Attention Command
AT+CNMI	New Message Indication
AT+CSMP	Set Text Mode Parameters
AT+CMGF	Preferred Message Format
AT+CMGS	Send Message

8 EMI Suppression Arrangement
◎EMI radiation test is greatly affected by wiring. Attaching an EMI suppressor (ferrite core) to the AC cable as close as possible to the AC inlet to reduce the noise is recommended. There are suggested components for reducing EMI radiation interference including TDK HF70RU26*29*13S, NEC ESD-SR-250H, and EROCORE FH29.7*13*25.9.
◎When using a RJ-45 cable as your interface cable, it might be needed to attach an EMI suppressor (ferrite core) to the cable as close as possible to the Ethernet connector (JK1) to reduce EMI radiation interference. There are TDK ZCAT2032-0930, NEC ESD-SR-160, and EROCORE FH 28×9×16 available for that purpose.

9 Troubleshooting

Issue	Possible Cause	Solution
No Power	1) RKP-1U not installed on SK1000	1) Verify
	2) No AC Input	2) Verify proper AC input
	3) Defective Scout-R Rectifier	3) Contact Technical Service
Controller does not turn on	1) DC is not connected	1) Verify that DC barrel connector is fully plugged in at rear of unit
	2) Blown "DC In" fuse	2) Contact Technical Service
	3) All Scout-R Rectifiers were turned off and no battery connected	3) External 12V, 1A supply must be connected to DC In to re-enable DC output on at least one rectifier
Cannot connect to web interface	1) Computer and system not in same domain	1a) Use crossover cable to connect directly to Scout-S and verify correct IP configuration 1b) use USB and RKP-Cmu-1 software to connect to Scout and verify correct IP configuration
	2) Network conflict	2) Contact your IT department. Verify Firewall and IP configuration
Cannot connect through USB	1) Software nont installed	1) install Prolific driver
	2) Incorrect port selection in Comm settings	2) On PC, verify port number in windows device manager

10 Warranty & Contact
◎Newmar warrents that the ScoutPower System to be free from defects in material an workmanship for two years from date of purchase. If youhave a problem with your unit or if you have any questions about the instillation or proper operation of the unit, please contact NEWMAR's Technical Service Department:
Phone (714)751-0488 From the hours of 7:30 a.m. to 5:00 p.m. weekdays P.S.T.
Fax (714) 957-1621
E-mail: techservice@newmarpower.com

APPENDIX:

App. A Main Specification

MODEL		Scout-S
OUTPUT	DIGITAL METER	Display the DC output voltage, current, and internal temperature of each Scout-R unit
	CONTROL OUTPUT	PM Bus signal for each Scout-R unit
	LED INDICATOR	Green: Power on Red:Alarm
	RELAY CONTACT	4 user programmable relay, relay contact rating(max.): 30V/1A resistive
DC Input	VOLTAGE RANGE	12 ~ 15VDC
	CURRENT	1A/12VDC 0.8A/15VDC
FUNCTION	DISPLAY	LCD 16x2 Alphanumeric Matrix Display / PC Web Page Display
	MONITOR	Output Voltage / Load Current / Temperature / Input Voltage
	CONTROL	Output Voltage, Current Limit, ON/OFF
	COMM. INTERFACE	USB, RS-232, Ethernet
ENVIRONMENT	WORKING TEMP. Note.1	-25 ~ +70℃
	WORKING HUMIDITY	20 ~ 90% RH non-condensing
	STORAGE TEMP., HUMIDITY	-40 ~ +85℃, 10 ~ 95% RH
	VIBRATION	10 ~ 500Hz, 2G 10min./1cycle, 60min. each along X, Y, Z axes
SAFETY & EMC	SAFETY STANDARDS	UL60950-1, TUV EN60950-1 approved
	WITHSTAND VOLTAGE Note.2	I/P-O/P:3KVAC I/P-FG:1.5KVAC O/P-FG:0.7KVDC
	ISOLATION RESISTANCE Note.2	I/P-O/P, I/P-FG,O/P-FG:100M Ohms / 500VDC / 25℃ / 70% RH
	EMC EMISSION	Compliance to EN55022 (CISPR22) Conduction Class B, Radiation Class A ; EN61000-3-2,-3
	EMC IMMUNITY	Compliance to EN61000-4-2,3,4,5,6,8,11, EN61000-6-1(EN5008-2), light industry level, criteria A
OTHERS	MTBF	110.5K hrs min. MIL-HDBK-217F (25℃)
	DIMENSION	486.6*350.8*44mm (L*W*H)
	PACKING	4.4Kg; 3pcs/14.2Kg/2.67CUFT
NOTE		1. LCD may freeze under -10 ℃ 2. SK100 and all of signal connectors (except CN502, CN503, and USB port) are considered as O/P.

App. B: Rear View

Rear View

AC Input (B)   AC Input (A)

ADDRESS SWITCH   ADDRESS SWITCH   DC Output   CN500   SK100   TB4   JK1

Scout-S   IEC320-C20   IEC320-C20   JK500 CN503 CN502   Mounting Bracket
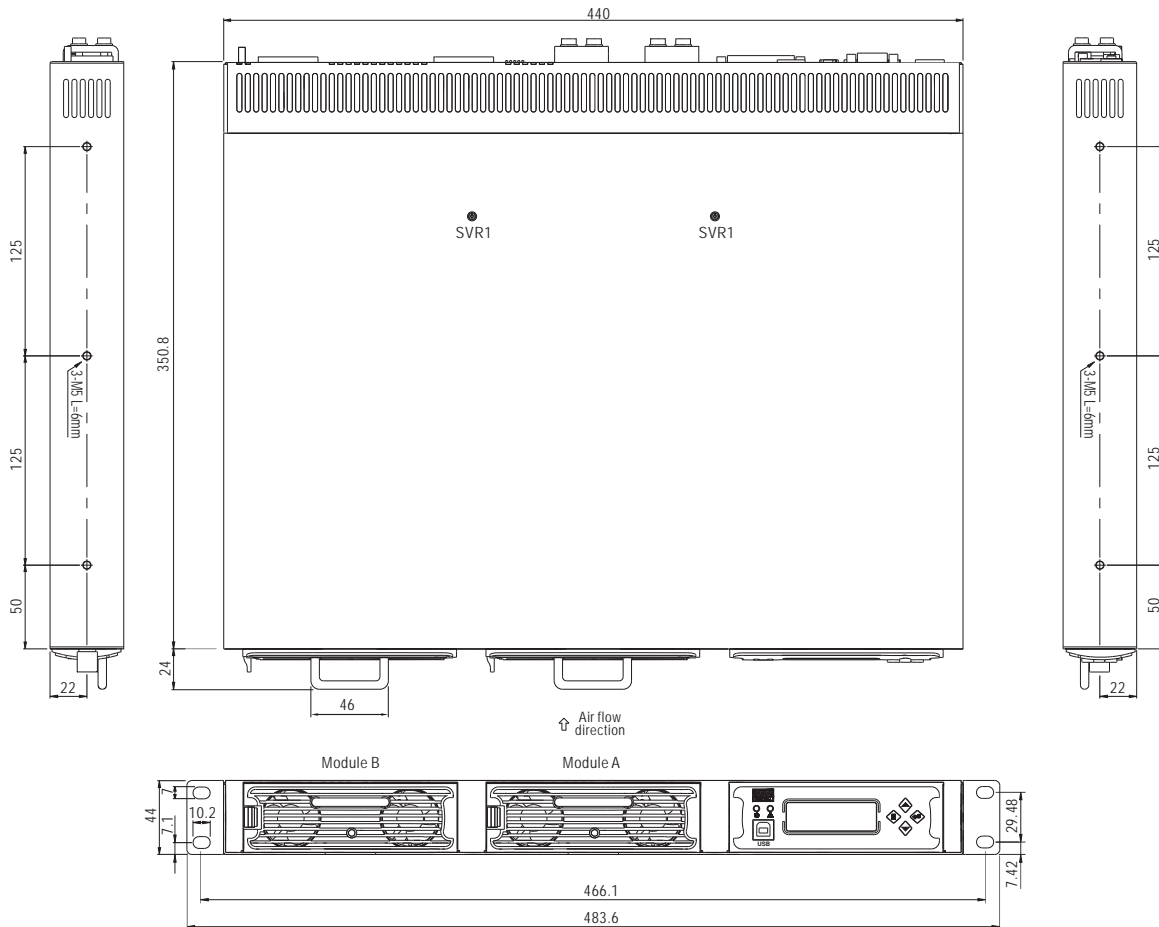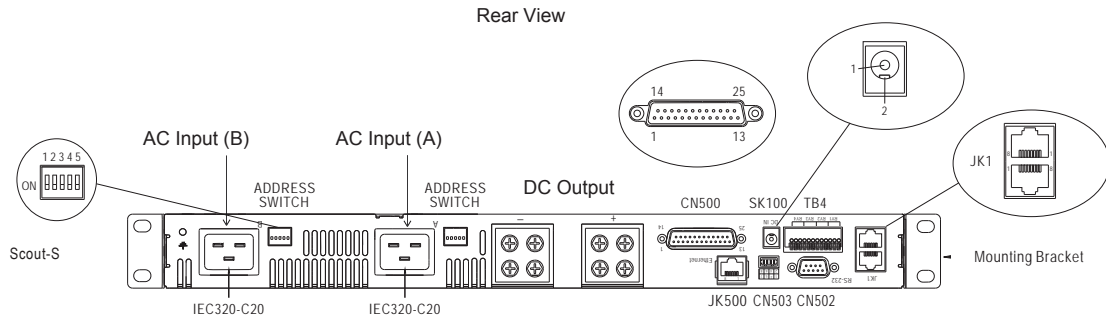
App. C: Recomended Input/Output Wire Sizes

Input/Output	Module	Current	Minimum Cross-section of Copper Wire	Maximum Current
115VAC	1 unit	16Arms	14AWG UL1015	12A
230VAC	1 unit	10Arms	18AWG UL1015	6A
+12VDC	1 unit	100Adc	2 AWG/22mm^2	115A
	2 unit	200Adc	0 AWG/60mm^2	217A

App. D: De-rating

◎When Scout-R units are operating in high ambient temperature or at a low AC input voltage, these units will de-rate their output current automatically to protect themselves.
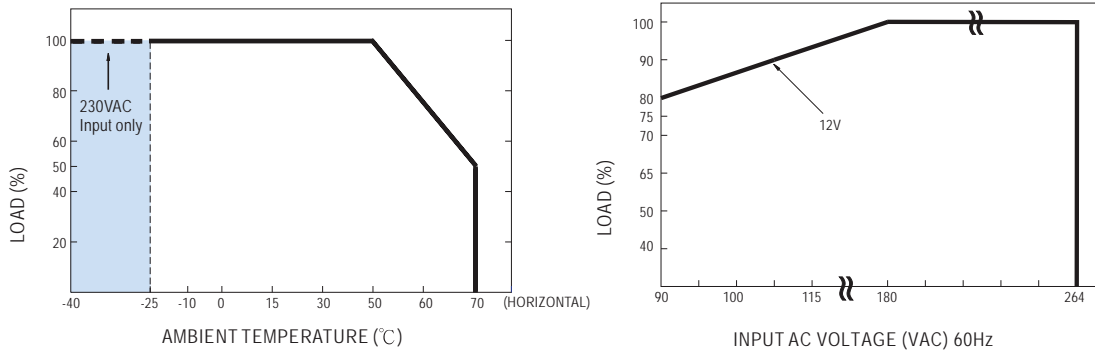
App. D Output de-rating curve for Scout-R

App. E: LED Status

LED	Status	Description
⏻	Green	Power on indicator of Scout-S. It will be green while normal operation.
⚠	Flashing red	Scout-S or Scout-R is under an abnormal situation.
	No indication	Normal condition.

App. F: Pin Assignments

◎CN500 Pin No. Assignment
Connector Pin No. Assignment(CN500) : D-Type Right Angle 25 positions

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment
1	ON/OFF-A	6	FAN FAIL-A	11	T-ALARM-B	16~21	N.C.
2	AC-OK-A	7	ON/OFF-B	12	FAN FAIL-B	22	+S
3	DC-OK-A	8	AC-OK-B	13	+5V-AUX	23	-S
4	PV-A	9	DC-OK-B	14	+12V-AUX	24	+V
5	T-ALARM-A	10	PV-B	15	GND-AUX	25	-V

◎JK1 Pin No. Assignment
Connector Pin No. Assignment(JK1) : RJ45 8 positions

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment
1	DA	4	CONTROL	7	SCL
2	DB	5	NC	8	GND-AUX
3	-V	6	SDA		

◎CN502 Pin No. Assignment
　Connector Pin No. Assignment(CN502) : D-type Male 9 positions

Pin No.	Assignment	Pin No.	Assignment
1,4,6,7,8,9	NC	3	TXD
2	RXD	5	GND-FG

◎CN503 Pin No. Assignment
　Connector Pin No. Assignment(CN503) : HRS DF11-8DP-2DS or equivalent

Pin No.	Assignment	Pin No.	Assignment
1	D-IN1	5	D-IN3
2,4,6,8	GND-FG	7	D-IN4
3	D-IN2		

◎JK500 Pin No. Assignment
　Connector Pin No. Assignment(JK500) : RJ45 8 position

Pin No.	Assignment	Pin No.	Assignment
1	TX+	4,5,7,8	NC
2	TX-	6	RX-
3	RX+		

◎TB4 Pin No. Assignment : Connector Pin No. Assignment(TB4)
　DECA MX422-25412 or equivalent

Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment	Pin No.	Assignment
1	Relay1-NO	4	Relay2-NO	7	Relay3-NO	10	Relay4-NO
2	Relay1-NC	5	Relay2-NC	8	Relay3-NC	11	Relay4-NC
3	Relay1-COM	6	Relay2-COM	9	Relay3-COM	12	Relay4-COM

◎SK100 Pin No. Assignment : Connector Pin No. Assignment(SK100)
　Schurter 4840.2201 or equivalent

Pin No.	Assignment	Pin No.	Assignment
1	+VIN	2	-VIN

◎Description of CN502 connection pins

Pin No.	Function	Description
1,4,6,7,8,9	NC	Not used.
2	RXD	Data receiving pin of RS-232 interface.
3	TXD	Data transmitting pin of RS-232 interface.
5	GND-FG	RS-232 common GND. This signal connects to FG and isolated from -V and GND-AUX.

◎Description of CN503 connection pins

Pin No.	Function	Description
1,3,5,6	D-IN1	The isolated digital input signal and referenced to GND-FG (pin2, 4, 6,
	D-IN2	8). Open from GND-FG or +5V : Logic "1" input to Scout-S
	D-IN3	short to GND-FG or 0V : Logic "0" input to Scout-S
	D-IN4	
2,4,6,8	GND-FG	Common GND for D-IN. This signal connects to FG and isolated from -V and GND-AUX.

◎Description of JK500 connection pins

Pin No.	Function	Description
1,2	TX+/TX-	Data transmitting pin of the Ethernet interface.
3,6	RX+/RX-	Data receiving pin of the Ethernet interface.
4,5,7,8	NC	Not used.

◎Description of TB4 connection pins

Pin No.	Function	Description
1,4,7,10	Relay-NO	Normal-open contact of programmable relay.
2,5,8,11	Relay-NC	Normal-close contact of programmable relay.
3,6,9,12	Relay-COM	Common for NO/NC contact.

Note: Relay contact rating (max.): 30Vdc/1A resistive.

◎Description of SK100 connection pins

Pin No.	Function	Description
1	+VIN	Positive input voltage for Scout-S controller.
2	-VIN	Negative input voltage for Scout-S controller.

◎Description of JK1 connection pins

| Pin No.	Function	Description
1,2	DA,DB	Differential digital signal for parallel control. (Note.1)
3	-V	Negative output voltage. For parallel control, can't be connected directly to the load.
4	CONTROL	Remote ON/OFF control pin used in the PMBus interface. (Note.2)
5	NC	Not used.
6	SDA	Serial Data used in the PMBus interface. (Note.2)
7	SCL	Serial Clock used in the PMBus interface. (Note.2)
8	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).

Note.1: Non-isolated signal, referenced to the output terminals (-V).　　　　Note.2: Isolated signal, referenced to GND-AUX.

◎Description of CN500 connection pins

Pin No.	Function	Description
1,7	ON/OFF	Each unit can separately turn the output on and off by electrical signal or dry contact between ON/OFF A,B(pin 1,7) and +5V-AUX (pin 13). Short: ON, Open: OFF. (Note.2)
2,8	AC-OK	Low : When the input voltage is ≧ 87Vrms. High : when the input voltage is ≦ 75Vrms. (Note.2)
3,9	DC-OK	High : When the Vout is ≦ 80±5%. Low : When the Vout is ≧80±5% (Note.2)
4,10	PV	Connection for output voltage trimming. The voltage can be trimmed within its defined range. (Note.1)
5,11	T-ALARM	High：When the internal temperature (TSW1 or TSW2 open) exceeds the limit of temperature alarm. Low：When the internal temperature (TSW1 or TSW2 short) is under the limit temperature. (Note.2)
6,12	FAN FAIL	High：When the internal fan is failure. Low：When the internal fan is normal operating. (Note.2)
13	+5V-AUX	Auxiliary voltage output, 4.3~5.5V, referenced to GND-AUX (pin 15). The maximum load current is 0.3A. This output has the built-in "Oring diodes" and is not controlled by the remote ON/OFF control.
14	+12V-AUX	Auxiliary voltage output, 10.8~13.2V, referenced to GND-AUX (pin 15). The maximum load current is 0.8A. This output has the built-in "Oring diodes" and is not controlled by the remote ON/OFF control.
15	GND-AUX	Auxiliary voltage output GND. The signal return is isolated from the output terminals (+V & -V).
16~21	NC	Not used.
22	+S	Positive sensing. The +S signal should be connected to the positive terminal of the load. The +S and -S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
23	-S	Negative sensing. The -S signal should be connected to the negative terminal of the load. The -S and +S leads should be twisted in pair to minimize noise pick-up effect. The maximum line drop compensation is 0.5V.
24	+V	Positive output voltage. For local sense use only, cannot be connected directly to the load.
25	-V	Negative output voltage. For local sense use only, cannot be connected directly to the load.

App. G: LCD Display Menu Structure
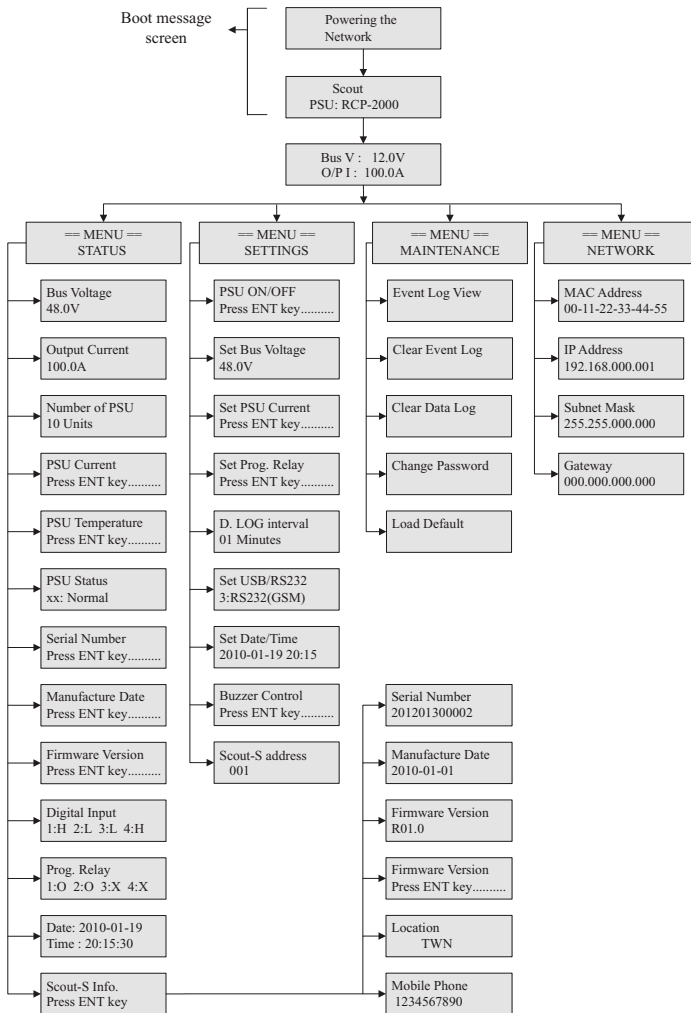
App. H   Programmable Relays and Digital Input Signal

Functions	Selections
Alarm	1.Any alarm 2.OVP 3.OLP 4.Short circuit 5.OTP 6.High temp. 7.AC fail 8.Fan lock 9.PMBus Error
PSU ON	1.Immediately 2.Delay 1 ~ 600 sec
PSU OFF	1.Immediately 2.Delay 1 ~ 600 sec
Digital Input	Control by Digital

App. I   PMBus Device Addressing

Module No.	DIP switch position 1	2	3	4	5	Module No.	DIP switch position 1	2	3	4	5
0	ON	ON	ON	ON	ON	16	ON	ON	ON	ON	OFF
1	OFF	ON	ON	ON	ON	17	OFF	ON	ON	ON	OFF
2	ON	OFF	ON	ON	ON	18	ON	OFF	ON	ON	OFF
3	OFF	OFF	ON	ON	ON	19	OFF	OFF	ON	ON	OFF
4	ON	ON	OFF	ON	ON	20	ON	ON	OFF	ON	OFF
5	OFF	ON	OFF	ON	ON	21	OFF	ON	OFF	ON	OFF
6	ON	OFF	OFF	ON	ON	22	ON	OFF	OFF	ON	OFF
7	OFF	OFF	OFF	ON	ON	23	OFF	OFF	OFF	ON	OFF
8	ON	ON	ON	OFF	ON	24	ON	ON	ON	OFF	OFF
9	OFF	ON	ON	OFF	ON	25	OFF	ON	ON	OFF	OFF
10	ON	OFF	ON	OFF	ON	26	ON	OFF	ON	OFF	OFF
11	OFF	OFF	ON	OFF	ON	27	OFF	OFF	ON	OFF	OFF
12	ON	ON	OFF	OFF	ON	28	ON	ON	OFF	OFF	OFF
13	OFF	ON	OFF	OFF	ON	29	OFF	ON	OFF	OFF	OFF
14	ON	OFF	OFF	OFF	ON	30	ON	OFF	OFF	OFF	OFF
15	OFF	OFF	OFF	OFF	ON	31	OFF	OFF	OFF	OFF	OFF

App. J   PMBus Command List

Command Code	Command Name	Transaction Type	# of data Bytes	Description
01h	OPERATION	R/W Byte	1	Remote ON/OFF control
02h	ON_OFF_CONFIG	Read Byte	1	ON/OFF function configuration
19h	CAPABILITY	Read Byte	1	Capabilities of a PMBus device
20h	VOUT_MODE	R Byte	1	Define data format for output voltage (format: Linear, N= -9)
21h	VOUT_COMMAND	R Word	2	Output voltage setting value (format: Linear, N= -9)
22h	VOUT_TRIM	R/W Word	2	Output voltage trimming value (format: Linear, N= -9)
46h	IOUT_OC_FAULT_LIMIT	R/W Word	2	Output overcurrent setting value
47h	IOUT_OC_FAULT_RESPONSE	R Byte	1	Define protection and response when an output overcurrent fault occurred
79h	STATUS_WORD	R Word	2	Summary status reporting
7Ah	STATUS_VOUT	R Byte	1	Output voltage status reporting

Command Code	Command Name	Transaction Type	# of data Bytes	Description
7Bh	STATUS_IOUT	R Byte	1	Output current status reporting
7Ch	STATUS_INPUT	R Byte	1	AC input voltage status reporting
7Dh	STATUS_TEMPERATURE	R Byte	1	Temperature status reporting
80h	STATUS_MFR_SPECIFIC	R Byte	1	Manufacture specific status reporting
81h	STATUS_FANS_1_2	R Byte	1	Fan1 and 2 status reporting
88h	READ_VIN	R Word	2	AC input voltage reading value (format: Linear, N=-1)
8Bh	READ_VOUT	R Word	2	Output voltage reading value (format: Linear, N= -9)
8Ch	READ_IOUT	R Word	2	Output current reading value (format: Linear, N= -3)
8Dh	READ_TEMPERATURE_1	R Word	2	Temperature 1 reading value (format: Linear, N= -3)
90h	READ_FAN_SPEED_1	R Word	2	Fan speed 1 reading value (format: Linear, N= 4)
91h	READ_FAN_SPEED_2	R Word	2	Fan speed 2 reading value (format: Linear, N= 4)
98h	PMBUS_REVISION	R Byte	1	The compliant revision of the PMBus (default: 11h for Rev. 1.1)
99h	MFR_ID	Block Read	12	Manufacturer's name
9Ah	MFR_MODEL	Block Read	12	Manufacturer's model name
9Bh	MFR_REVISION	Block Read	6	Firmware revision
9Ch	MFR_LOCATION	Block R/W	3	Manufacturer's factory location
9Dh	MFR_DATE	Block R/W	6	Manufacture date. (format: YYMMDD)
9Eh	MFR_SERIAL	Block R/W	12	Product serial number

App. K: PMBus Data Range and Toleranc

Display Parameters

PMBus command	Range	Tolerance
READ_VIN	0 ~ 264V	10V
READ_VOUT	0 ~ 14V	3%
READ_IOUT	0 ~125A	5A
READ_TEMPERATURE_1	0 ~ 100 °C	5 °C
READ_FAN_SPEED_1	0 ~ 20000 RPM	2000 RPM
READ_FAN_SPEED_2	0 ~ 20000 RPM	2000 RPM

Control parameters

PMBus command	Adjustable range	Tolerance	Default
OPERATION	00h(OFF) / 80h(ON)	N/A	80h(ON)
VOUT_COMMAND	12V	N/A	12V
VOUT_TRIM	-1.5~2V	5%	0V
IOUT_OC-FAULT_LIMIT	30~112A	5A	112A