ESC Utility User Manual

Industrial Redundant Ring Switch

Version 1.0

This document applied to models of
RS-405/405F, RSM-405/405F

Mar 28, 2007
Please print in double side

DOCUMENT CONTROL

Date	Author	Version	Description
Mar 28th, 2007	May Chang	1.0	First draft

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DISCLAIMER

Limited Warranty

All products manufactured by ICP DAS are warranted against defective materials for a period of one year from the date of delivery to the original purchaser. During this period, if a customer is unable to resolve a product problem with ICP DAS Technical Support, a Return Material Authorization (RMA) will be issued. If the product is not under warranty, the customer may have ICP DAS repair the unit on a fee basis or return it.

This warranty is voided if the customer uses the product in an unauthorized or improper way, or in an environment for which it was not designed.

Standards

The Ring Switch meets the following standards:

- EMC immunity - IEC61326-1, IEEE C37.90
- EMI emissions - FCC part 15, ICES 003, EN55022; Class B
- Electrical safety - UL 508, CSA C22/14; EN61010-1 (IEC1010)

Warning

ICP DAS assume no liability for damages consequent to the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, nor for any infringements of patents or other rights of third parties resulting from its use.

Safety

Install the Real Time Ring Switch in accordance with local and national electrical codes.

Lightning Danger: Do not work on equipment during periods of lightning activity.

Do not connect a telephone line into one of the Ethernet RJ45 connectors.

CONTENTS

Document Control i
Copyright & Trademarks ii
Disclaimer iii
Limited Warranty iii
Standards iii
Warning iii
Safety iii
Contents iv
Acronyms ..... a
Introduction ..... d
Key Features ..... e
Intended Hardware Product ..... e
Installation ..... f
Before Installing ..... g
Downloading & Updating ..... g
Operating System Requirement ..... g
Installation ..... h
Initial Setup ..... h
License agreement i
Customer Information ..... j
Installation Folder ..... k
Shortcut Folder l
Ready to install the program ..... m
Installing the program ..... n
Complete Installation ..... o
Configuration ..... p
Start the Program ..... q
Basic Interface ..... r
Configuration Page Overview ..... r
Network Status ..... s
Time Status ..... t
DIP Switch Status ..... t
Relay Setting ..... u
Program Options v
Upgrade Firmware ..... y
Default ..... y
Restart ..... z
Advanced Mode ..... z
Open Log File ..... z
About Utility ..... aa
Exit Program ..... aa
System Status ..... bb
Hardware Status Page Overview cc
DIP Switch(SW1) configuration ..... dd
Rotary Switch (SW2) configuration ..... ee
Power 1 & Power 2 Status ..... ff
Advanced Interface ii

Configuration Page Overview ii
Network Status ..... jj
Time Status ..... kk
DIP Switch Status ..... kk
Relay Setting ll
Program Options ..... mm
Upgrade Firmware ..... pp
Default ..... pp
Restart ..... qq
Advanced Mode ..... qq
Open Log File ..... qq
About Utility ..... rr
Exit Program ..... rr
System Status ..... ss
Link Status Page overview ..... tt
Show Help vv
Link Lose Alarm Mask Status vv
Communication Status Page overview ..... ww
Show Help xx
Communication Lose Alarm Mask Status xx
Hardware Status Page overview ..... aaa
DIP Switch(SW1) configuration ..... bbb
Rotary Switch (SW2) configuration ccc
Power 1 & Power 2 Status ..... ddd
Alarm Output and Event Log ..... ddd

Event Type ..... eee
Event Type 1:Power 1 Error ..... fff
Event Type 2: Power 2 Error ..... fff
Event Type 3: RS-232/RS-485 Connection Error ..... fff
Event Type 4: Link Error ..... fff
Event Type 5: Firmware Error ..... fff
Event Type 6: Power or RS-232/RS-485 Connection Error ..... fff
Event Type 7: This switch has been assigned as the master switch. ..... fff
Event Type 8 :Unknown Error ..... ggg

Troubleshooting ..... hhh
Event Type 1: Power 1 Error iii
Event Type 2: Power 2 Error iii
Event Type 3: RS-232/RS-485 Connection Error iii
Event Type 4: Link Error iii
Event Type 5: Firmware Error ..... jjj
Event Type 6: Power or RS-232/RS-485 Connection Error ..... jjj

Service Information ..... kkk
On-line support ..... kkk
Contact Worldwide ..... kkk

ACRONYMS

ATM	Acronym for Asynchronous Transfer Mode, a high performance networking technology based on the switching of fixed length, 53 byte cells. ATM switching supports the switching of voice, video, and data; also supports isochronous communication.
BPV	Acronym for Bi-Polar Violation.
B-ISDN	Broadband ISDN. A network standard from the CCITT and ANSI committee. It supports voice, data and video in the same network.
CCITT	Acronym for Consultative Committee, International Telephone and Telegraph. An international standards body responsible for setting international communications standards that allow interoperability among telephony and data communications equipment.
CD (DCD)	Acronym for Carrier Detect (Detect Carrier Detect).
CDDI	The use of unshielded or shielded twisted pair cable to transmit the FDDI signal.
CO	Acronym for Central Office. The local telephone company switch that terminates subscribers' lines for switching and connecting to the public network.
CSMA/CD	Acronym for Carrier Sense Multiple Access with Collision Detection. Access protocol for Ethernet.
CSU	Acronym for Channel Service Unit, a device furnished as an integral part of a digital access line where a user wishes to supply the bipolar signals. It provides the network with protection against user side electrical anomalies such as surges, and provides the user with network clocking.
CTS	Acronym for Clear To Send.
DCE	Acronym for Data Communication Equipment, aka. Data Circuit-Terminating Equipment.
DCR	Acronym for Data Communication Ready.
DS1	Digital Signal, Level 1 is the North American data rate used for T1 carriers. It operates at 1.544Mbps and supports 24 phone lines.
DS2	Digital Signal, Level 2 is the North American data rate used for T2 carriers. It operates at 6.312 Mbps and supports four T1 lines or 96 phone calls
DS3	Digital signal, Level 3 is the North American data rate used for T3 carriers. It operates at 44.736 Mbps and supports 28 T1 lines.
DSU	Acronym for Data Service Unit, a DCE used with digital communications circuits to provide digital data services interface. Located on the users premises, the DSU interfaces directly with the DTE, and provides loop equalization, remote and local test

	capabilities, and the logic and timing necessary to provide a standard EIA/TIA or CCITT interface. Converts signals between those used at the DTE's serial interface and bipolar signals used on the digital network. Also Network Terminal Unit (NTU).
DTE	Acronym for Data Terminating or Data Terminal Equipment.
DTR	Acronym for Data Terminal Ready.
E1	The European standard for high speed, point to point transmission operating at 2.048 Mbps and defines 64 Kbps sub-channels.
EIA	Acronym for Electronic Industries Association. EIA, a standards body, has a set of standards which includes data communications and interface standards among others.
EMI	Acronym for Electro-Magnetic Interference.
FEP	Stands for Front End Processor. It is an IBM communication controller that routes traffic to and from cluster controllers.
FDDI	Acronym for Fiber Distributed Data Interface, is a shared medium, ring topology LAN that operates at 100 Mbps. It is ANSI standard X3T9.5, using fiber optic cable as the medium.
FPGA	Acronym for Field Programmable Gate Array.
LAN	A local area network is a group of PCs connected over a common medium within a building.
MAC	Acronym for Medium Access Control. A designated hardware address for each device on a LAN or MAN. This address is burnt into The network interface card (NIC) by its manufacturer.
MAN	A metropolitan area network is a group of PCs connected over a common medium within a campus environment or the same city.
NA	Acronym for Numerical Aperture.
OC1	Optical Carrier Signal Level 1 refers to SONET data transmission at 51.840Mbps.
OC3	Acronym for Optical Carrier 3, a transmission rate standard for fiber optic telephony or data communications circuits. OC3 operates at 155 Mbps speed and is part of the SONET hierarchy.
OC12	Optical Carrier Signal Level 12 refers to SONET data transmission at 622.080Mbps.
OSI	(Open Data Interconnection Reference Model) - This is the International Standards Organization (ISO) model of how data communications systems can be interconnected. Communication is partitioned into seven function layers. Each layer builds on the services provided by those under it.
PBX	Acronym for Private Branch Exchange, is a small private version of a phone company's larger central switching office.

PCM	Acronym for Pulse-Coded Modulation, a means of converting analog to digital form.
RING	Path or channel; usually electrical, where devices along the path receive transmissions sequentially from one device to the next along the ring.
RS-232	An interface used between DTE and DCE employing serial binary data interchange, defined by EIA, aka. EIA-232. Similar to standard V.24 of CCITT.
RS-422	Standard defined by EIA, aka. EIA-422. Deals with the electrical characteristics of balanced voltage digital interface circuits. Similar to standard V.11 of CCITT.
RS-423	Standard defined by EIA, aka. EIA 423. Deals with electrical characteristics of unbalanced voltage digital interface circuits. Similar to standard V.10 of CCITT.
RS-449	Standard defined by EIA, aka. EIA-449. Deals with general-purpose 37- and 9-position interface for data terminal equipment and data circuit-terminating equipment employing serial binary data interchange.
RS-485	Standard defined by EIA, aka. EIA-485. Standard for electrical characteristics of generators and receivers for use in balanced multipoint systems.
RTS	Acronym for Request To Send.
SCADA	Acronym for Supervisory Control and Data Acquisition.
SNMP	Acronym for Simple Network Management Protocol. A standard management protocol used to provide a common means of managing network devices.
SONET	Acronym for Synchronous Optical NETwork, is a hierarchical standard for a high speed (45 Mbps to 2.4 Gbps) transport network.
T1	Transmission rate standard for telephony or data communications circuits. T1 operates at 1.544 Mbps speed. Usually this circuit is subdivided into many 64 Kb channels.
TCP/IP	Acronym for Transmission Control Protocol/Internet Protocol.
WAN	Acronym for Wide Area Network, a computer network interconnected over distances beyond a city or metropolitan area.
802.3	Commonly referred to as Ethernet. It is a local area network protocol that operates at 10Mbps.
802.5	Commonly referred to as Token Ring. Operates at either 4 or 16Mbps.

INTRODUCTION

- Key Features
- Intended Hardware Product

Welcome to **ICP DAS Industrial Redundant Ring Switch - *RS Series***, one of the world's best Industrial Ethernet Switch designed for connecting Ethernet-enabled devices in industrial field applications. This manual is for the ICP DAS *RS-405 Series,* Ethernet network switch.

Overview

The Ethernet Switch Configuration Utility software is a graphical user interface program that allows you to configure settings and monitor status for RS-405 series. The easy-to-use GUI design helps reduce learning curve and enables technicians to perform tasks intuitively without full IT knowledge. With this specifically designed software, just a few clicks away, you are able to take advantage of all the features and resources available from this advanced ring switch.

This manual details how to install and configure various settings in this ESC Utility software. To take full advantage of all the features and resources available from the switch, please follow the steps to initiate installation and configuration.

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Key Features

- ✓ Multi-language interface supported (English/Simplified Chinese/ Traditional Chinese)
- ✓ Easy-to-use Graphic user interface (GUI)
- ✓ Real-Time access and configuration (via RS232 & RS485)
- ✓ Real-Time event log monitoring and notification

Intended Hardware Product

This manual applies to ESC Utility Ver. 1.00 in the following products:

- ✓ • RS-405: 5-Port Redundant Ring Switch
- ✓ • RS-405F: 3-Port 10/100 Base-T with 2-Port 100 Base-FX Fiber Redundant Ring Switch
- ✓ • RSM-405: 5-Port Redundant Ring Switch with metal case
- ✓ • RSM-405F: 3-Port 10/100 Base-T with 2-Port 100 Base-FX Fiber Redundant Ring Switch with metal case

INSTALLATION

- Before Installing
- Installation

Overview

This chapter provides general information you need to know before you start installing ESC Utility.

Before Installing

Downloading & Updating

To get the latest version of this user manual and to download/update the latest firmware, please go to :

http://www.icpdas.com/

Operating System Requirement

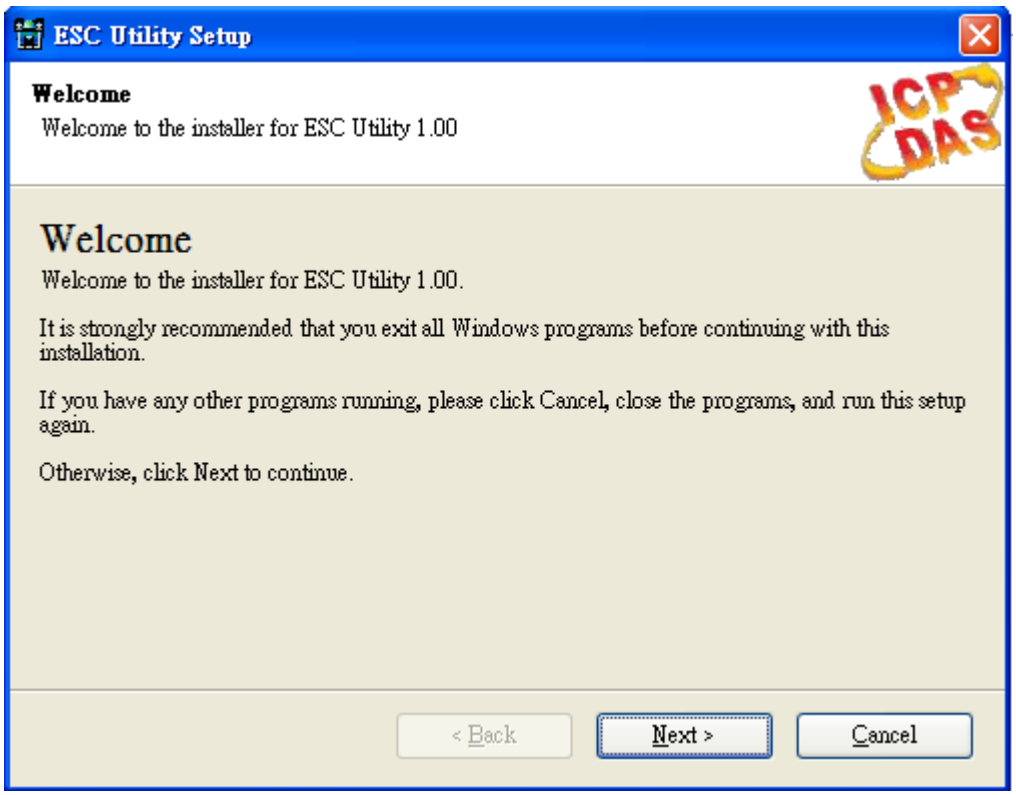
Windows 95 / 98 / ME / 2000 / NT / XP

Installation

Once you download and decompress the file, double click ESC Utility 1.00.exe to start the Installation Wizard.

Initial Setup

The Installation Wizard will guide you through the installation process:

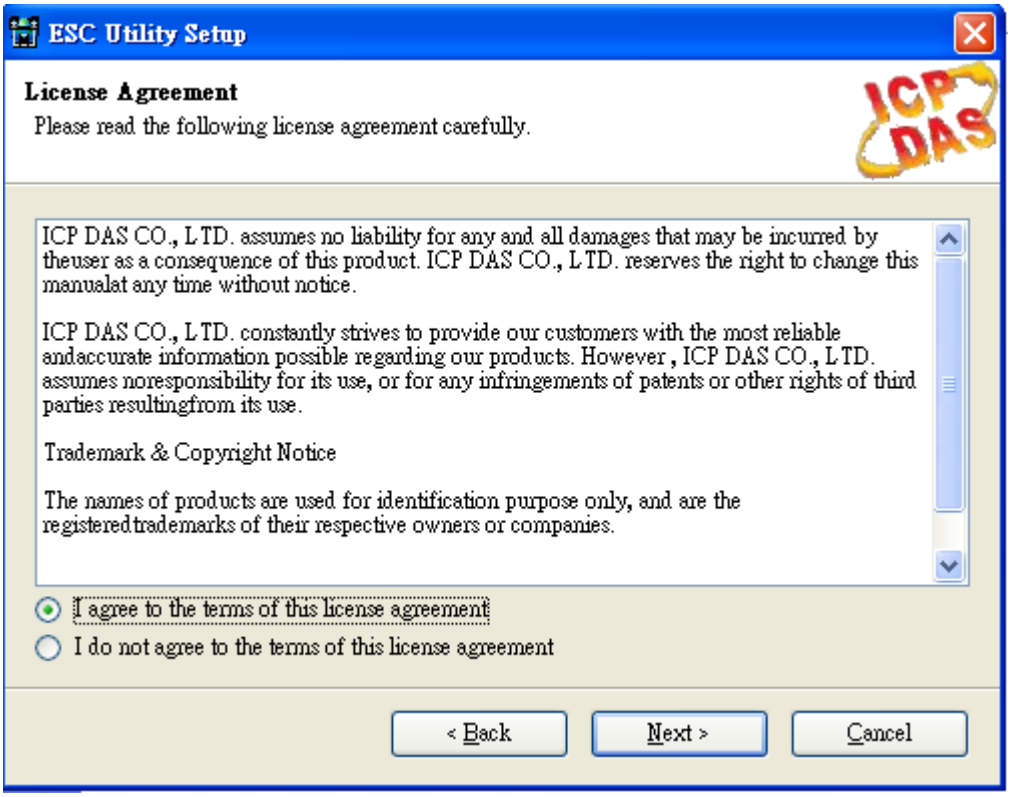


It is strongly recommended that you exit all Windows programs before continuing with this installation.

If you have any other programs running, please click Cancel, close the programs, and run this setup again.

Otherwise, click Next to continue.

License agreement



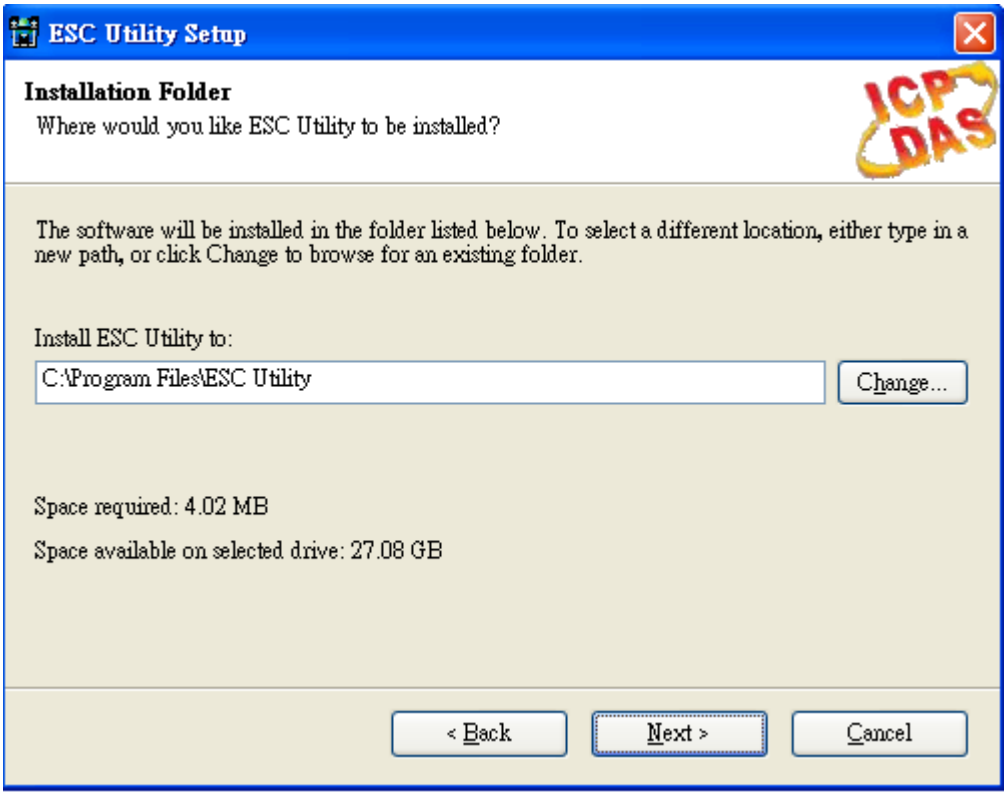
Please read the license agreement carefully, click “I accept the terms in the license agreement” and then click “Next” to continue.

Customer Information

Enter your name and company name.

Then click “Next” to continue.

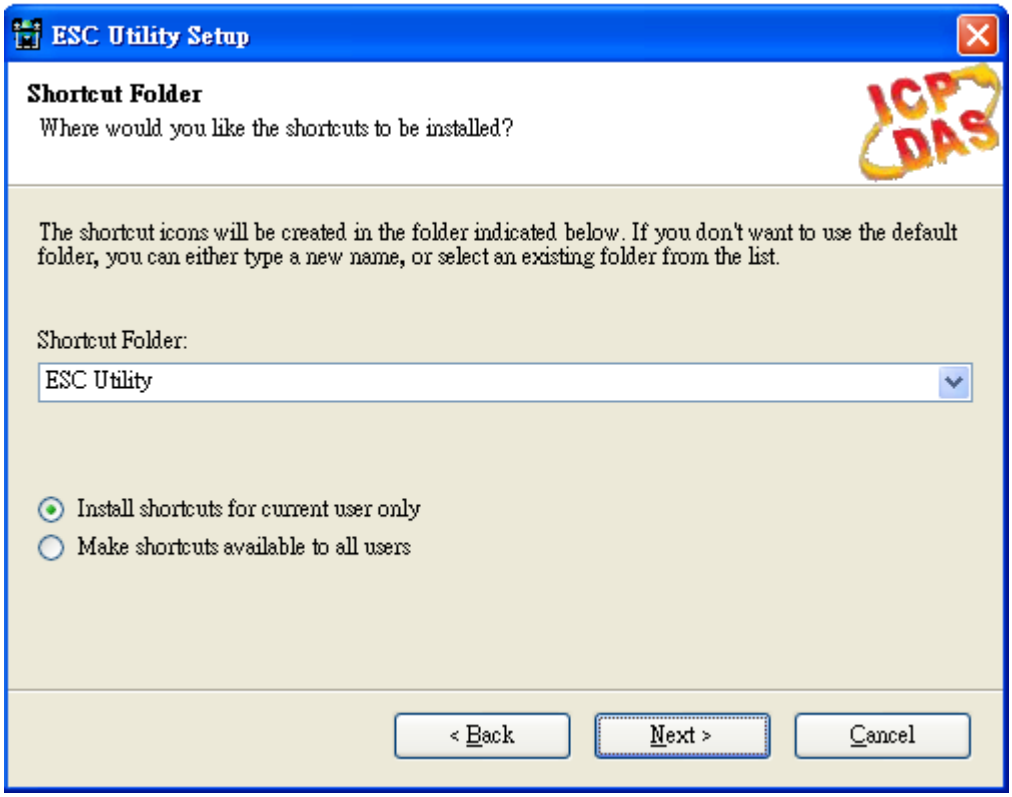
Installation Folder



The software will be installed in the folder listed. To select a different location, either type in a new path, or click change to browse for an existing folder.

Then click “Next” to continue.

Shortcut Folder

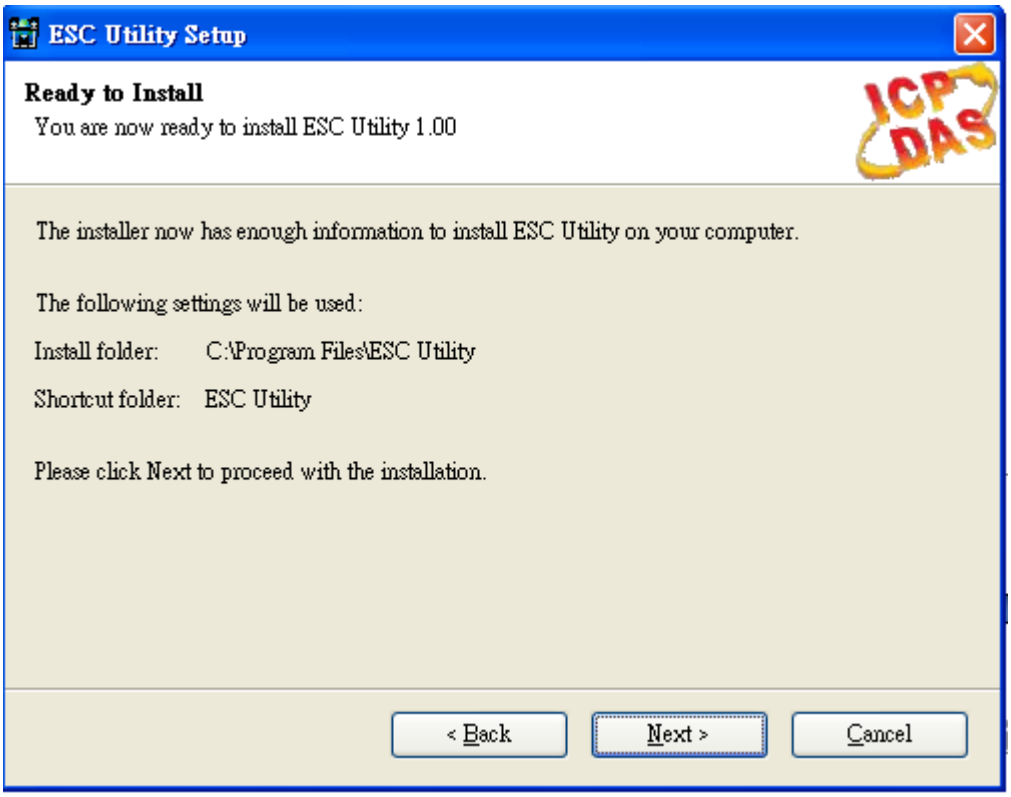


The shortcut icons will be created in the folder indicated below. If you don't want to use the default folder, you can either type a new name, or select an existing folder from the list.

If you want to install shortcuts for current user only, click "Install shortcuts for current user only".

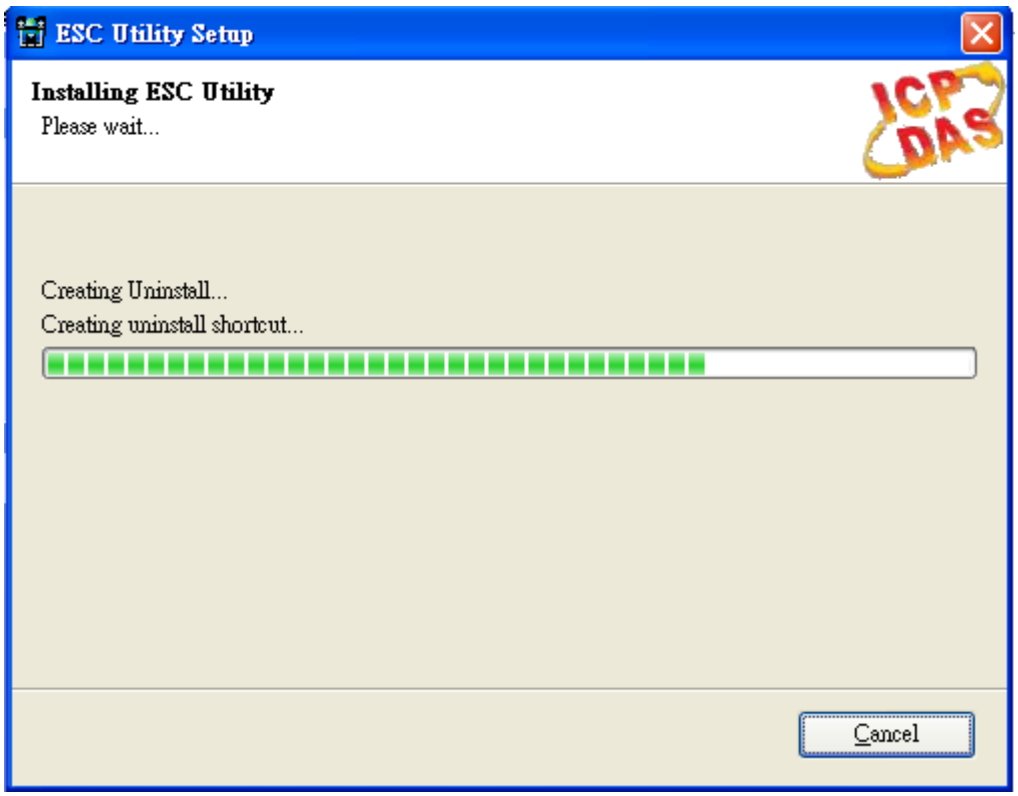
If you want to install shortcuts for all users, click "Make shortcuts available to all users". Then click "Next" to continue.

Ready to install the program



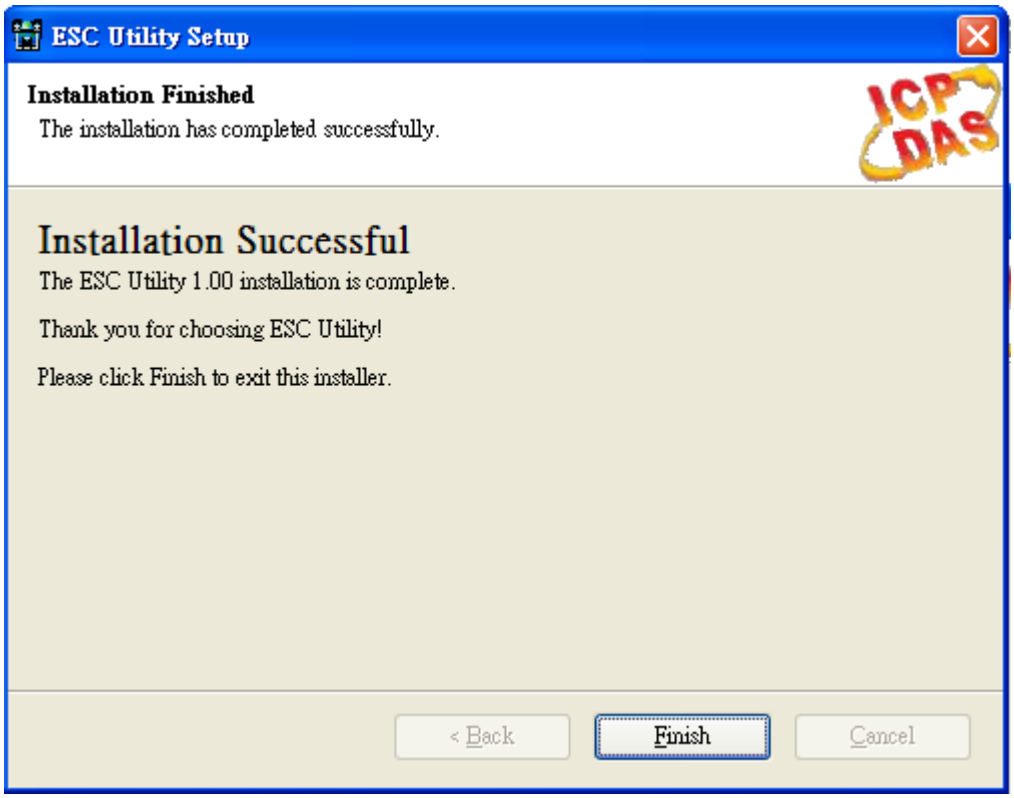
Click “Next” to begin the installation. If you want to review or change any of your installation settings, click “Back”. Click “Cancel” will exit the wizard and quit installation.

Installing the program



It may take a few seconds to install this program.

Complete Installation



To close this wizard, click Finish

CONFIGURATION

- Start the Program
- Basic Interface
- Advanced Interface

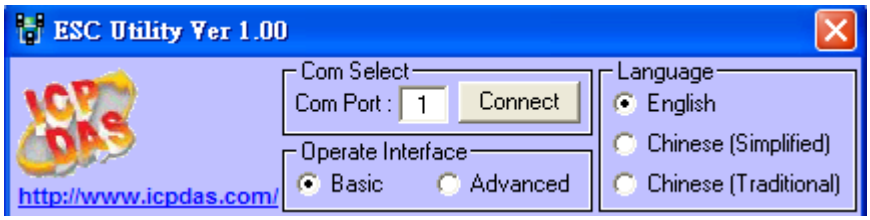
Overview

This chapter provides information about how to configure an existing device by ESC Utility.

Start the Program

To start the program, please do the following steps:

1.From the window desktop, click on Start -> Programs ->ESC Utility -> ESC Utility Ver 1.00 to run the program (or the route you previously set up for this program).



2.Input the com port: 1 for com1, 2 for com2, etc.

3.Please select the Interface of you preference: Basic interface is designed for beginners and Advanced interface is designed for advanced users.

4.Please select the language of you preference: click on English for English Interface, or click on Chinese (Simplified or Traditional) for Chinese interface*.

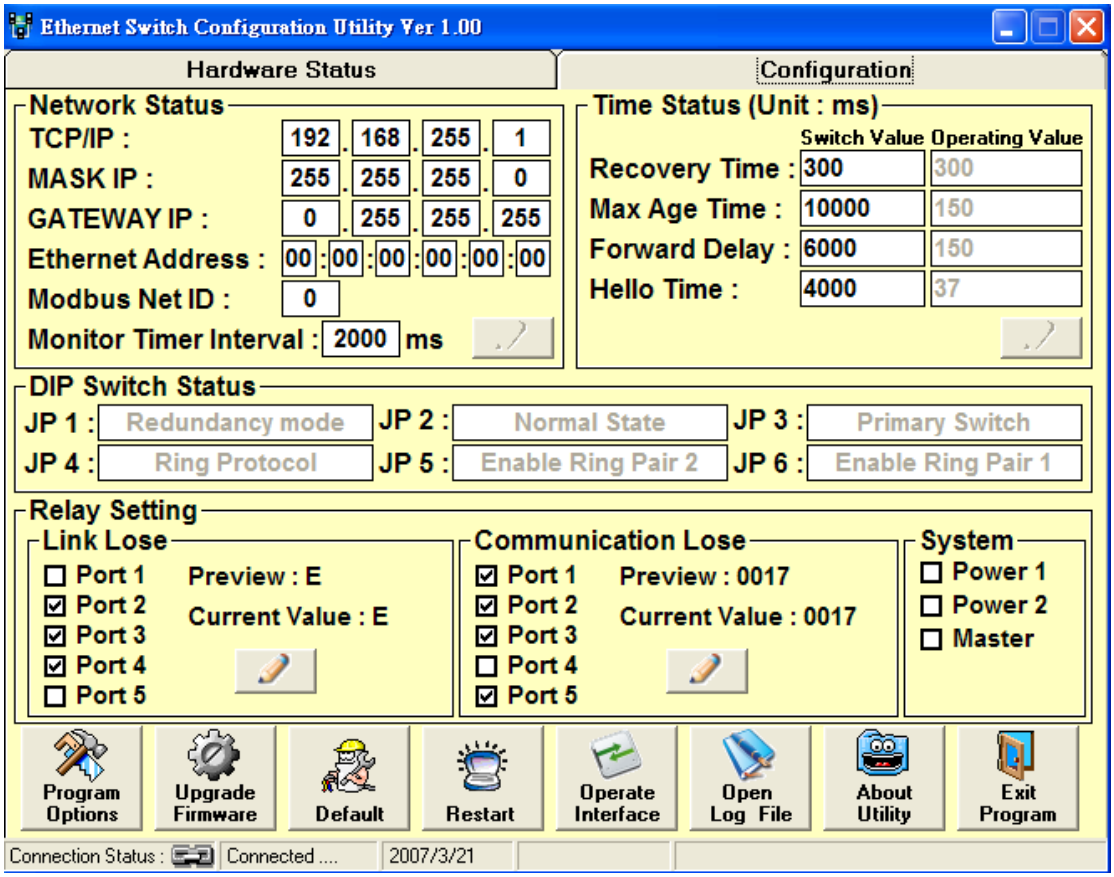
5.Click on “connect” to make a connection to the serial port.

Basic Interface

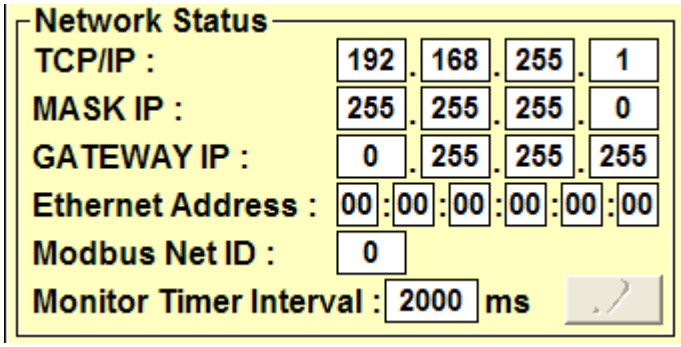
Click on tags to go to the following pages: Hardware Status and Configuration pages.

Configuration Page Overview

Configuration page displays current settings. From here, you can monitor and modify current settings.



Network Status



Upper left section displays Network Status. You can monitor and configure current Network settings in this section: TCP/IP address, MASK IP, GATEWAY IP, Ethernet Address, Modbus Net ID, and Monitor Timer Interval. To make a modification, please type new values in the fields that you would like to make a change of, and then click on the button. Please note: the button will appear (gray out) before you input new values.

The first field in this section: TCP/IP displays current TCP/IP address. Its default value is: 192.168.255.1. To assign an IP address for TCP/IP, please input IP address in the form: “ip1.ip2.ip3.ip4”(in the range 0.0.0.0-223.255.255.255).

The second field in this section: MASK IP display current MASK IP address. Its default value is: 255.255.255.0. To assign a mask address for TCP/IP, please input mask address in the form of “m1.m2.m3.m4”(each field contains a value in the range 0 – 255).

The third field in this section: GATEWAY IP display current GATEWAY IP address. To assign a gateway address for TCP/IP, please input gateway IP address in the form of “ip1.ip2.ip3.ip4” (each field contains a value in the range 0 – 255). The default value is 255.255.255.255.

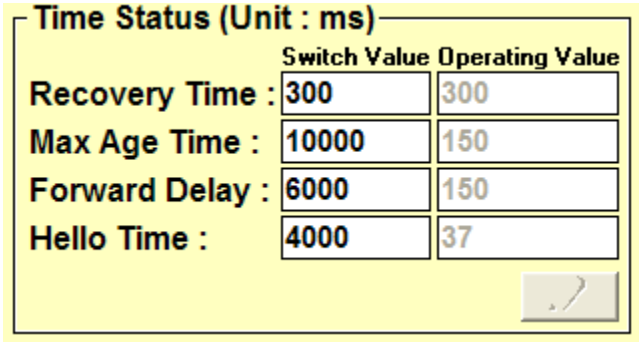
The fourth field in this section: Ethernet Address display current Ethernet MAC address. The default value is a factory-set unique MAC address. To assign a Ethernet MAC address, please input gateway IP address in the form of “e1:e2:e3:e4:e5:e6” (each field contains a value in the range 0 – 255).

Note: Each RS is shipped from the factory with a unique MAC address. DO NOT change this address unless you have a good reason to do so.

The fifth field in this section: Modbus Net ID display current Modbus Net ID. The default value is set as 1. Please assign a unique number to each switch in the same ring.

The last field in this section is: Monitor Timer Interval. Please input an appropriate monitoring time interval for your system. Its default value is 2000 ms (1000ms = 1 sec). Maximum value is 60,000ms (60 sec).

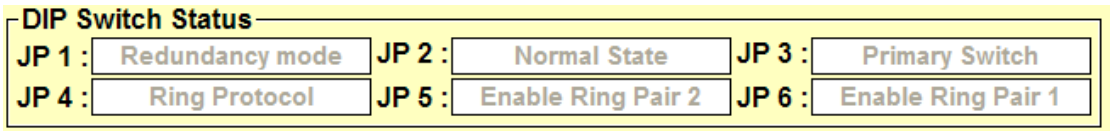
Time Status



Upper right section displays Time Status. You can monitor and configure current Time setting interval in this section: Recovery Time(in the range 100-65535ms), Max Age Time(in the range 6000-40000ms), Forward Delay(in the range 4000-30000ms), and Hello Time (in the range 1000-10000ms). To make a modification, please type new values in the fields that you would like to make a change of, and then click on the button. Please note: the button will appear (gray out) before you input new values. To make the value you input effectively, please click on “Restart” button.

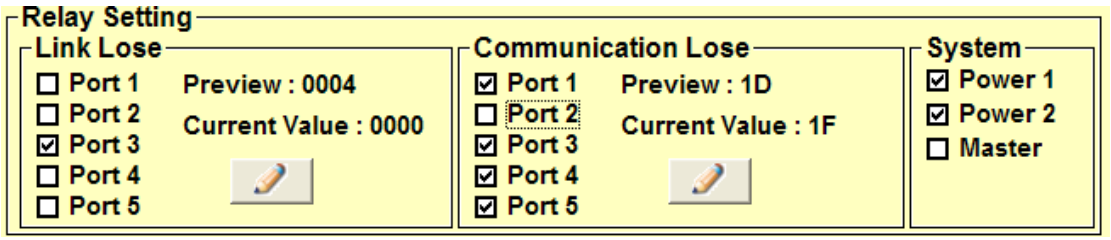
Note that the Switch Value indicates the value you configure and save on this Ring Switch. However, only the Switch Value being set on Master Switch will be adapt as the actual value (Operating Value) being applied to all switches in the same ring.

DIP Switch Status



This section shows current DIP Switch Status. Each jumper has two possible conditions: on or off. Each position indicates one configuration state. To make a change of the jumper state, please switch the jumpers on the Ring Switch directly and then click “Restart” button to make the newly changed settings effective.

Relay Setting



Relay Setting section allows you to monitor or configure current settings of Relay output. There are three kinds of relay output that you can set up with: Link Lose, Communication Lose, and System.

- **Link Lose relay output:**

To set up the relay output for port(s), please check the square box in front of the port. After you are done with your selections, please click button. When there is a link loss occurs on the port(s) you check, relay output will be activated. A warning sign will also be shown on Hardware Status page.

Note that Preview value is for you to easy preview the mask value when you are checking the ports you'd like to set relay output for, this value will be effective only after you click button.

- **Communication Lose relay output:**

To set up the relay output for port 1, port 2, please switch SW1 jumper 6 to "on" position and click "restart" button; for port 3, port 4, port 5, please switch SW1 jumper 5 to "on" position and click "restart" button.

Check the square box in front of the port you'd like to set relay output for. After you are done with your selections, please click button. When there is a communication loss occurs on the port(s) you check, relay output will be activated. A warning sign will also be shown on Hardware Status page.

Note that Preview value is for you to easy preview the mask value when you are checking the ports you'd like to set relay output for, this value will be effective only after you click button.

- **System relay output:**

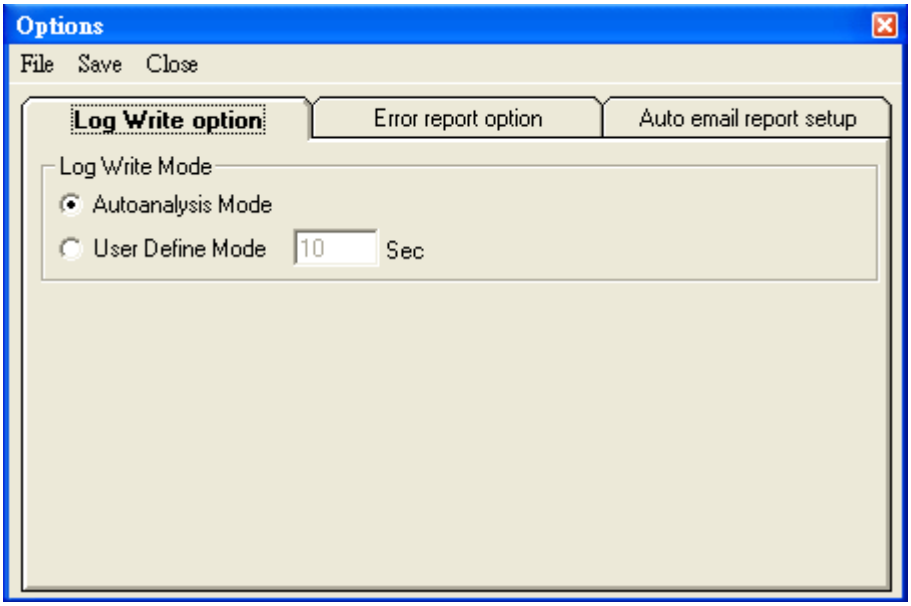
This section enables you to configure relay output activation status when there is power fail occurring on power 1 or power 2, or when the switch is being selected as the master switch. To set relay output for Power 1, please check the square box in front of Power 1. To set relay output for Power 2, please check the square box in front of Power 2. To set relay output when this switch is selected to be master switch, please check the square box in front of Master.

Program Options

Program Options allows you to set up Log write mode , Error report option and Auto email report setup. Note if you make any change of this section, you need to click on “Save” to make new settings effective.

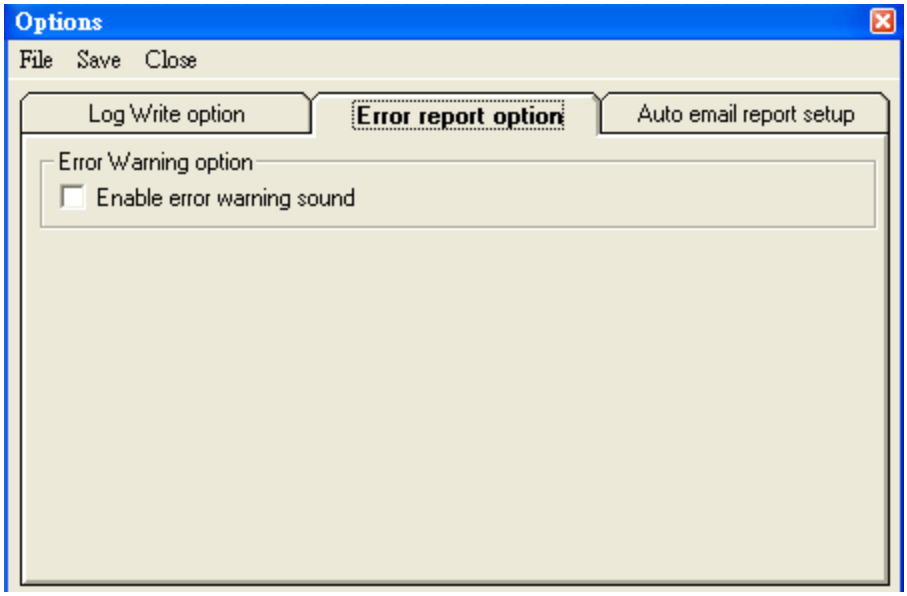
- **Log write option:**

Default is autoanalysis mode, this will write log every 10 sec. Or you can select User define mode, which allows you to set a time interval of your choice. Click on “Save” to make new setting effective if you make any change of settings.



● **Error report option:**

Check the square box to enable error warning sound or uncheck the square box to disable warning sound. Click on “Save” to save the new setting.



● **Auto email report setup:**

This section allows you to send out auto report by email. To enable auto report via email, please do the following steps:

1.Check “Enable auto report via email.

2.Input your SMTP (Simple Mail Transfer Protocol)server

3.Input sender email

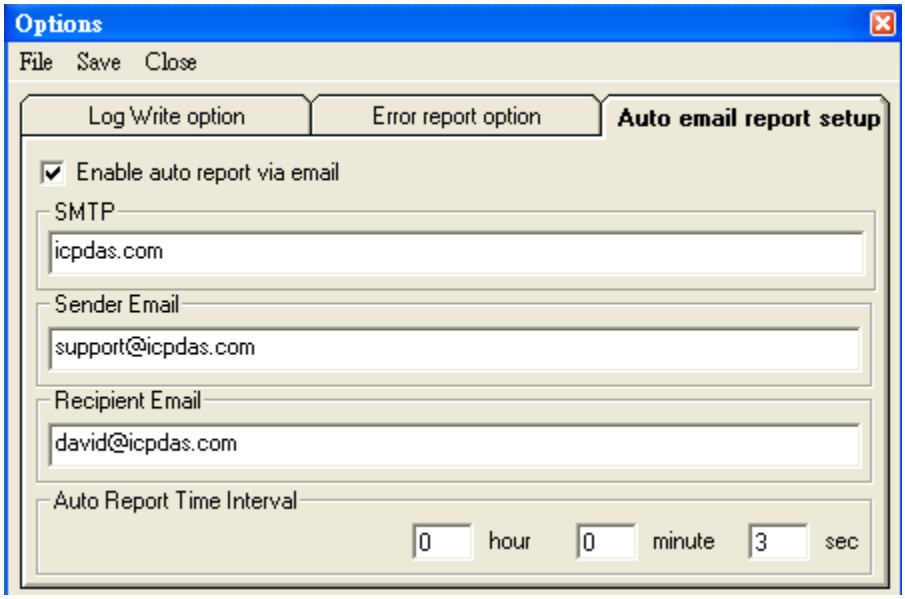
4.Input recipient email

5.Input auto report time interval

6.Click on “Save” to save and enable new settings

- **Disable email report:**

Uncheck “Enable auto report via email” and click on “Save” to disable auto report function.



Upgrade Firmware

To upgrade firmware, please do the following steps:

1.Download the newest version firmware from ICPDAS website.(?)

2.Click on the “Upgrade Firmware” button.

3.The system will prompt you if you really want to upgrade firmware. Click “Yes” to continue.

4.Browse the path to get the firmware you want to upgrade.

5.It may take a few minutes to upgrade firmware. Please do not power off or disconnect the device while upgrading the firmware. This may cause serious damage.

6.After the firmware has been upgraded successfully, a message will pop up to inform you the firmware upgrade is completed, click on “OK” to close the message.

Default

Click on “Default” button allows you to restore settings to factory default values. The system will prompt you if you really want to restore factory defaults. Click “Yes” to continue or “No” to cancel.

Restart

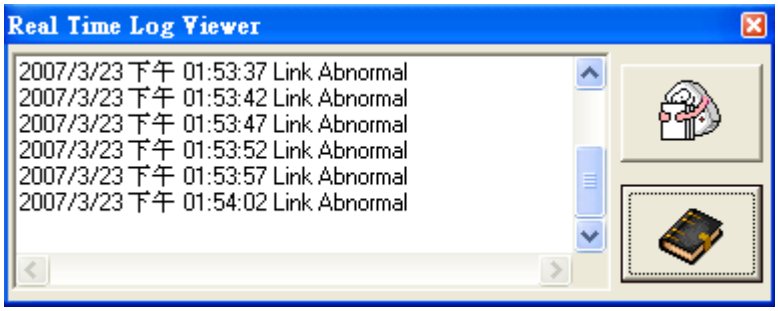
Click on “Restart” button will initiate Ring Switch a self-restart. All current setting values remain intact.

Advanced Mode

Click on “Advanced Mode” allows you to switch to Advanced Operating Interface.

Open Log File

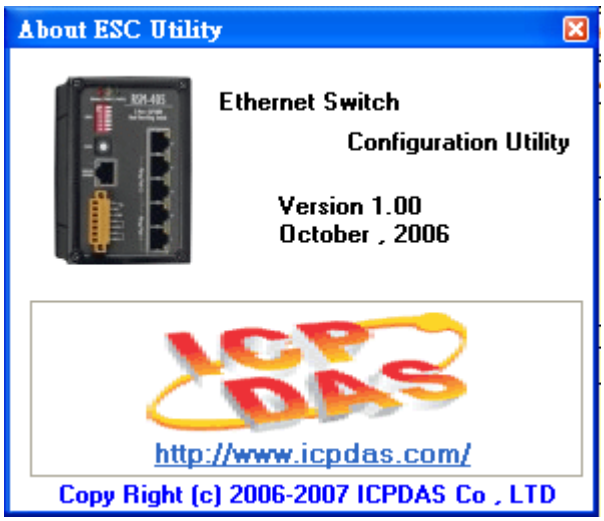
Click on “Open Log File” will bring up “Real time log viewer” that you can review recent events or error reports. Log file is saved under :\ESC Utility Ver1.00\Bin\ as txt file.



Click on to clear record, click on to close Real Time Log viewer.

About Utility

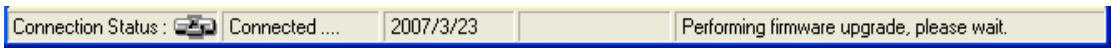
Click on “About Utility” will display software information.



Exit Program

Click on “Exit Program” will exit the program and close the window. The system will prompt you if you really want to exit the program. Click “Yes” to quit or “No” to cancel.

System Status



- **Connection Status:**

Indicate RS-232/RS-485 is connected.

Indicate RS-232/RS-485 is disconnected.

- **System time:**

2007/3/23 Display current system time.

- **Current status:**

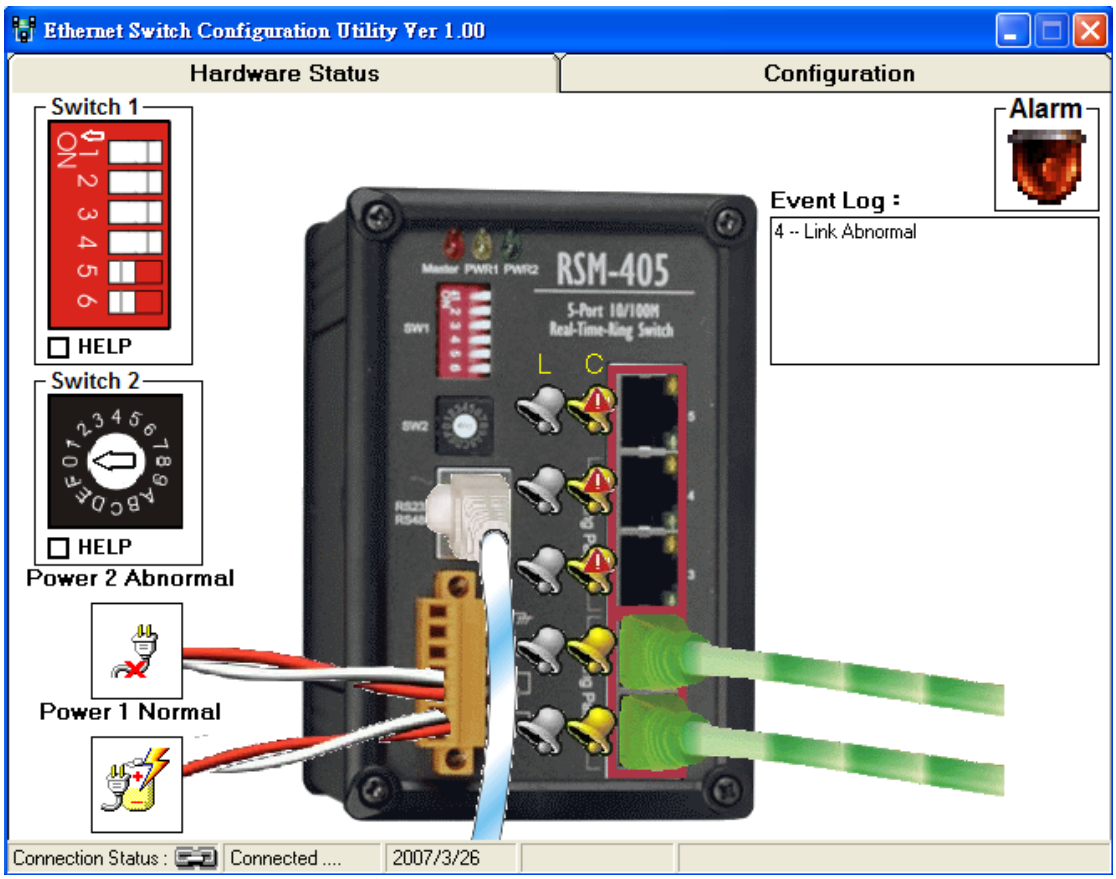
Display a message illustrating current status, for example:

When you are upgrading firmware, a message “Performing firmware upgrade, please wait” will be displayed.

.

Hardware Status Page Overview

This page displays information of the hardware features. With this integrated and realistic display, you can easy monitor current status in a glance.



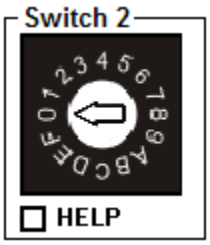
DIP Switch(SW1) configuration

You can monitor current Switch 1 settings by this realistic image displayed. Check the square box in front of “HELP” to get more information.

SW1 is a set of 6 jumpers on the front panel. It is a DIP toggle switch with two possible positions -- on or off. Each position indicates one configuration state:

SW1 : DIP Switch Configuration		
State Jumper	OFF	ON
1	Redundancy mode	Tradition mode
2	Normal State	Default Setting
3	Primary Switch	Secondary Switch
4	Ring Protocol	STP Protocol
5	Disable Ring Pair 2	Enable Ring Pair 2
6	Disable Ring Pair 1	Enable Ring Pair 1

Rotary Switch (SW2) configuration



You can monitor current Switch 2 settings by this realistic image displayed. Check the square box in front of “HELP” to get more information.

W2 is a 16 position rotary switch on the front panel, right below the SW1. When the arm of SW2 is switched to position "0", you would be able to set up specific values(Please go to configuration page.) for recovery time(rtime), forward delay(ftime) , maximum age(mtime), and hello time(htime) manually.

If it's on positions other than "0" ("1" to "F"), a set of preset values will be applied:

Roteray SW position	F	E	D	C	B	A	9	8
Recovery Time	1.5s	1.4s	1.3s	1.2s	1.1s	1.0s	900 ms	800 ms
Forwarding Delay	30s	28s	26s	24s	22s	20s	18s	16s
Hello Time	10s	10s	10s	10s	10s	10s	10s	10s
Max Age	40s	40s	40s	40s	40s	38s	34s	30s

Roteray SW position	7	6	5	4	3	2	1	0
Recovery Time	700 ms	600 ms	500 ms	400 ms	300 ms	200 ms	100 ms	N/A
Forwarding Delay	14s	12s	10s	8s	6s	4s	4s	N/A
Hello Time	10s	10s	8s	6s	4s	2s	1s	N/A
Max Age	26s	22s	18s	14s	10s	6s	6s	N/A

Power 1 & Power 2 Status

indicate power is function normally.

indicate there is a power fail occurring.

Indicate RS232/RS485 serial connection is connected

Indicate RS232/RS485 serial connection is disconnected

Indicate the line of the corresponding port is connected.

Link loss status and communication loss status

- **Link loss status (L):**

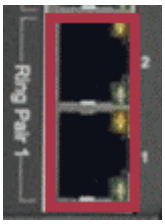
Indicate mask is disabled.
When mask is disabled, no mater whether the link status is disconnected or connected, no relay output will be activated.

Indicate mask is enabled.
When there is a link loss (disconnection) occurs, a relay output will be activated and a warning sign will be shown.

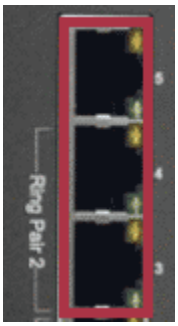
- **Communication loss status (C):**

Indicate mask is disabled.
When mask is disabled, no mater whether the link status is disconnected or connected, no relay output will be activated.

Indicate mask is enabled.



Indicate Ring Pair 1 is enabled (Jumper 6 is “ON”)



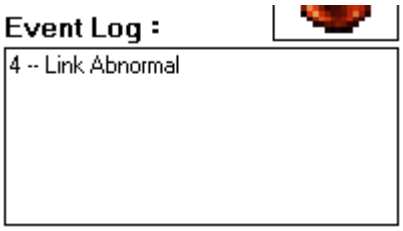
Indicate Ring Pair 2 is enabled (Jumper 5 is “ON”)

To activate relay output, you will need to enable both mask setting and corresponding ring pair setting. When there is a communication loss (disconnection) occurs, a relay output will be activated and a warning sign will be shown.

Alarm Output and Event Log

Green alarm sign indicate there is no unusual event.

Red alarm sign indicate there is unusual event(s) happening. It is recommended to check the error message and solve the problems.



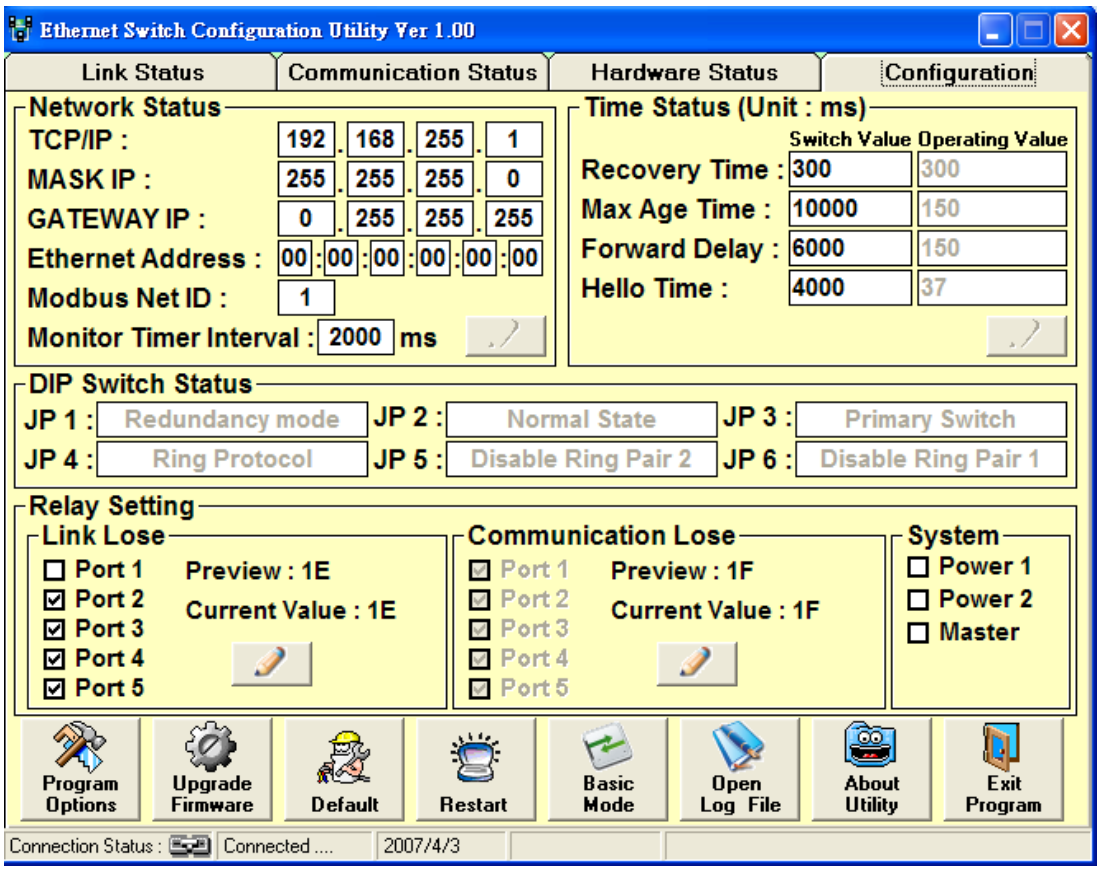
Event Log record current events. You can monitor current status and recognize the problems easily by reading messages displayed on this Event Log Viewer.

Advanced Interface

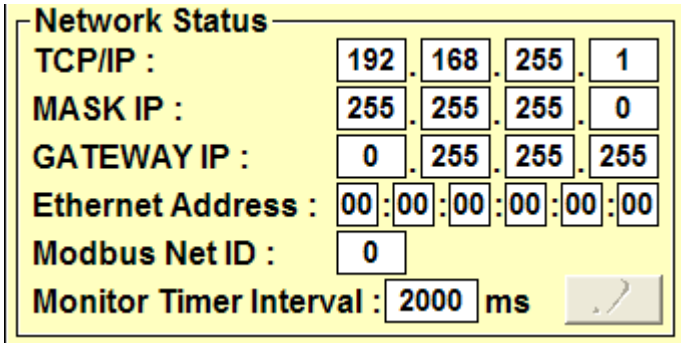
Click on tags to go to the following pages: Link Status, Communication Status, Hardware Status and Configuration pages.

Configuration Page Overview

Configuration page displays current settings. From here, you can monitor and modify current settings.



Network Status



Upper left section displays Network Status. You can monitor and configure current Network settings in this section: TCP/IP address, MASK IP, GATEWAY IP, Ethernet Address, Modbus Net ID, and Monitor Timer Interval. To make a modification, please type new values in the fields that you would like to make a change of, and then click on the button. Please note: the button will appear (gray out) before you input new values.

The first field in this section: TCP/IP displays current TCP/IP address. Its default value is: 192.168.255.1. To assign an IP address for TCP/IP, please input IP address in the form: “ip1.ip2.ip3.ip4”(in the range 0.0.0.0-223.255.255.255).

The second field in this section: MASK IP display current MASK IP address. Its default value is: 255.255.255.0. To assign a mask address for TCP/IP, please input mask address in the form of “m1.m2.m3.m4”(each field contains a value in the range 0 – 255).

The third field in this section: GATEWAY IP display current GATEWAY IP address. To assign a gateway address for TCP/IP, please input gateway IP address in the form of “ip1.ip2.ip3.ip4” (each field contains a value in the range 0 – 255). The default value is 255.255.255.255.

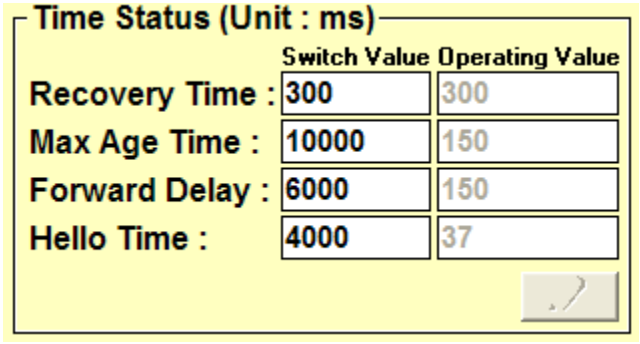
The fourth field in this section: Ethernet Address display current Ethernet MAC address. The default value is a factory-set unique MAC address. To assign a Ethernet MAC address, please input gateway IP address in the form of “e1:e2:e3:e4:e5:e6” (each field contains a value in the range 0 – 255).

Note: Each RS is shipped from the factory with a unique MAC address. DO NOT change this address unless you have a good reason to do so.

The fifth field in this section: Modbus Net ID display current Modbus Net ID. The default value is set as 1. Please assign a unique number to each switch in one ring.

The last field in this section is: Monitor Timer Interval. Please input an appropriate monitoring time interval for your system. Its default value is 2000 ms (1000ms = 1 sec). Maximum value is 60,000ms (60 sec).

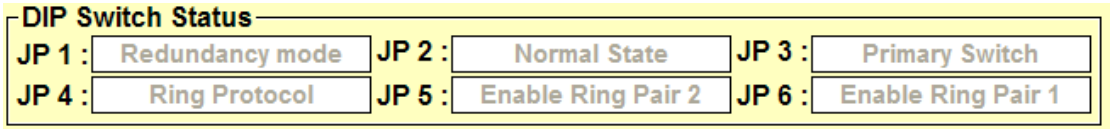
Time Status



Upper right section displays Time Status. You can monitor and configure current Time setting interval in this section: Recovery Time(in the range 100-65535ms), Max Age Time(in the range 6000-40000ms), Forward Delay(in the range 4000-30000ms), and Hello Time (in the range 1000-10000ms). To make a modification, please type new values in the fields that you would like to make a change of, and then click on the button. Please note: the button will appear (gray out) before you input new values. To make the value you input effectively, please click on “Restart” button.

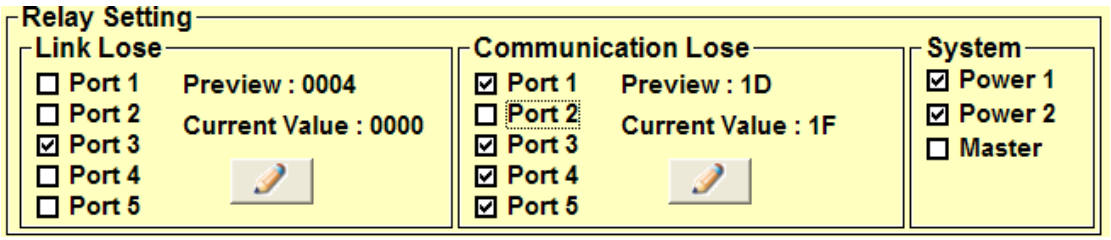
Note that the Switch Value indicates the value you configure and save on this Ring Switch. However, only the Switch Value being set on Master Switch will be adapt as the actual value (Operating Value) being applied to all switches in the same ring.

DIP Switch Status



This section shows current DIP Switch Status. Each jumper has two possible conditions: on or off. Each position indicates one configuration state. To make a change of the jumper state, please switch the jumpers on the Ring Switch directly and then click “Restart” button to make the newly changed settings effective.

Relay Setting



Relay Setting section allows you to monitor or configure current settings of Relay output. There are three kinds of relay output that you can set up with: Link Lose, Communication Lose, and System.

- **Link Lose relay output:**

To set up the relay output for port(s), please check the square box in front of the port. After you are done with your selections, please click button. When there is a link loss occurs on the port(s) you check, relay output will be activated. A warning sign will also be shown on Hardware Status page.

Note that Preview value is for you to easy preview the mask value when you are checking the ports you'd like to set relay output for, this value will be effective only after you click button.

- **Communication Lose relay output:**

To set up the relay output for port 1, port 2, please switch SW1 jumper 6 to "on" position and click "restart" button; for port 3, port 4, port 5, please switch SW1 jumper 5 to "on" position and click "restart" button.

Check the square box in front of the port you'd like to set relay output for. After you are done with your selections, please click button. When there is a communication loss occurs on the port(s) you check, relay output will be activated. A warning sign will also be shown on Hardware Status page.

Note that Preview value is for you to easy preview the mask value when you are checking the ports you'd like to set relay output for, this value will be effective only after you click button.

- **System relay output:**

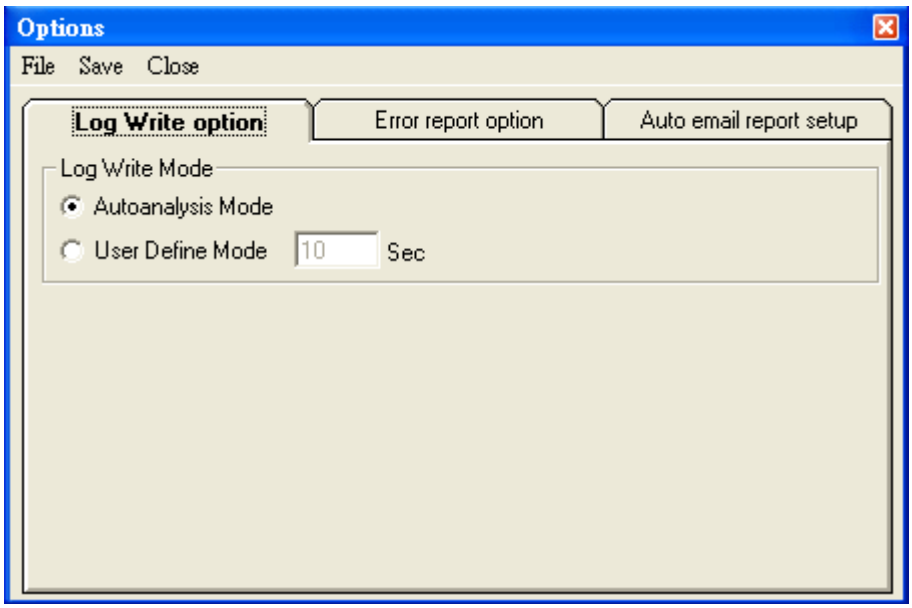
This section enables you to configure relay output activation status when there is power fail occurring on power 1 or power 2, or when the switch is being selected as the master switch. To set relay output for Power 1, please check the square box in front of Power 1. To set relay output for Power 2, please check the square box in front of Power 2. To set relay output when this switch is selected to be master switch, please check the square box in front of Master.

Program Options

Program Options allows you to set up Log write mode , Error report option and Auto email report setup. Note if you make any change of this section, you need to click on “Save” to make new settings effective.

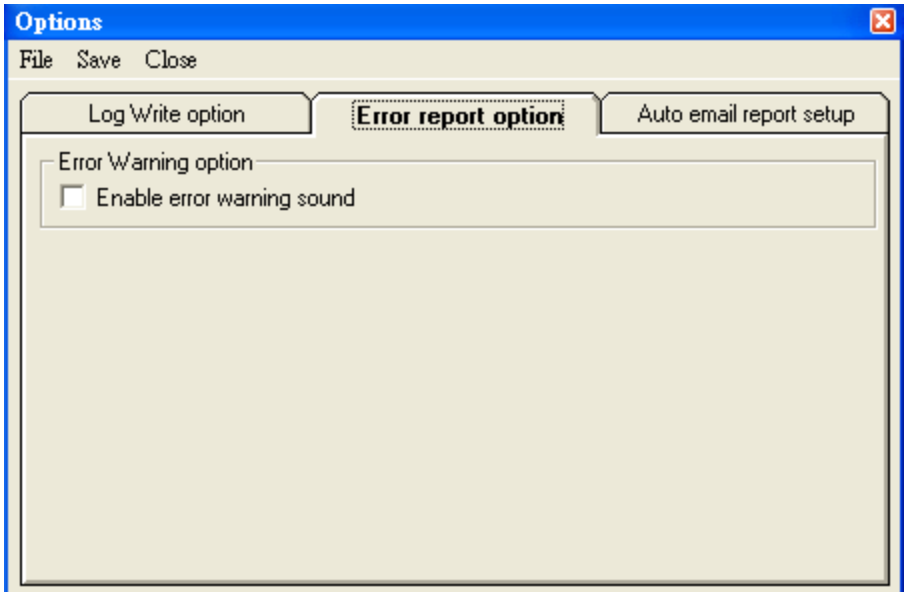
- **Log write option:**

Default is autoanalysis mode, this will write log every 10 sec. Or you can select User define mode, which allows you to set a time interval of your choice. Click on “Save” to make new setting effective if you make any change of settings.



● **Error report option:**

Check the square box to enable error warning sound or uncheck the square box to disable warning sound. Click on “Save” to save the new setting.



● **Auto email report setup:**

This section allows you to send out auto report by email. To enable auto report via email, please do the following steps:

7.Check “Enable auto report via email.

8.Input your SMTP (Simple Mail Transfer Protocol)server

9.Input sender email

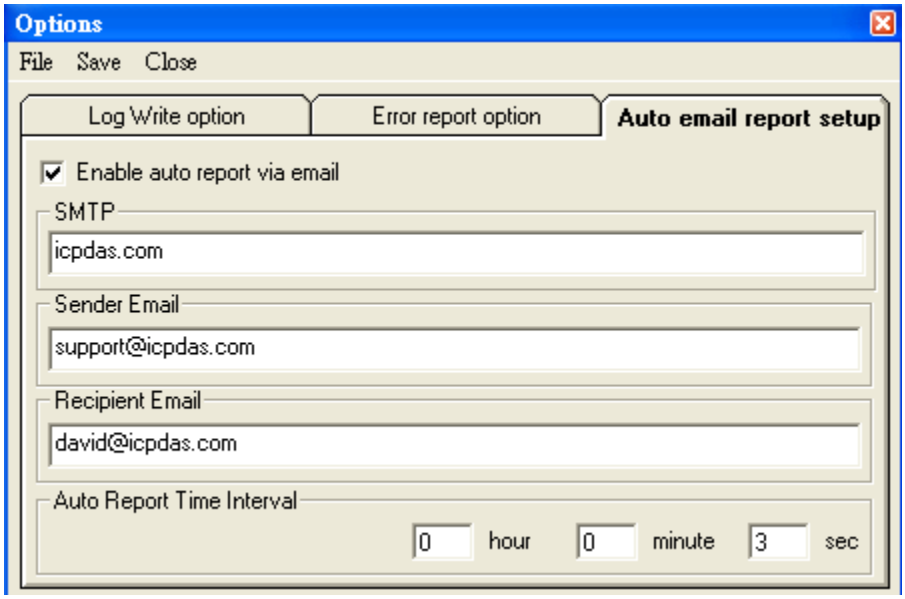
10. Input recipient email

11. Input auto report time interval

12. Click on “Save” to save and enable new settings

- **Disable email report:**

Uncheck “Enable auto report via email” and click on “Save” to disable auto report function.



Upgrade Firmware

To upgrade firmware, please do the following steps:

1.Download the newest version firmware from ICPDAS website.(?)

2.Click on the “Upgrade Firmware” button.

3.The system will prompt you if you really want to upgrade firmware. Click “Yes” to continue.

4.Browse the path to get the firmware you want to upgrade.

5.It may take a few minutes to upgrade firmware. Please do not power off or disconnect the device while upgrading the firmware. This may cause serious damage.

6.After the firmware has been upgraded successfully, a message will pop up to inform you the firmware upgrade is completed, click on “OK” to close the message.

Default

Click on “Default” button allows you to restore settings to factory default values. The system will prompt you if you really want to restore factory defaults. Click “Yes” to continue or “No” to cancel.

Restart

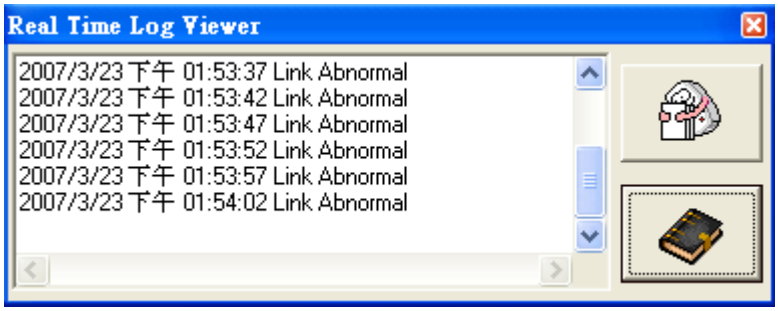
Click on “Restart” button will initiate Ring Switch a self-restart. All current setting values remain intact.

Advanced Mode

Click on “Advanced Mode” allows you to switch to Advanced Operating Interface.

Open Log File

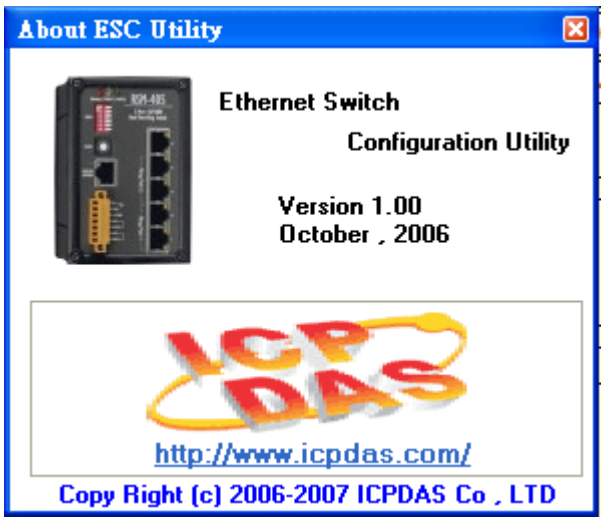
Click on “Open Log File” will bring up “Real time log viewer” that you can review recent events or error reports. Log file is saved under :\ESC Utility Ver1.00\Bin\ as txt file.



Click on to clear record, click on to close Real Time Log viewer.

About Utility

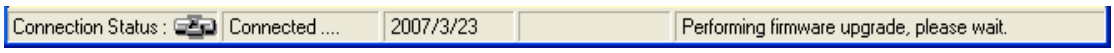
Click on “About Utility” will display software information.



Exit Program

Click on “Exit Program” will exit the program and close the window. The system will prompt you if you really want to exit the program. Click “Yes” to quit or “No” to cancel.

System Status



- **Connection Status:**

Indicate RS-232/RS-485 is connected.

Indicate RS-232/RS-485 is disconnected

- **System time:**

2007/3/23 display current system time.

- **Current status:**

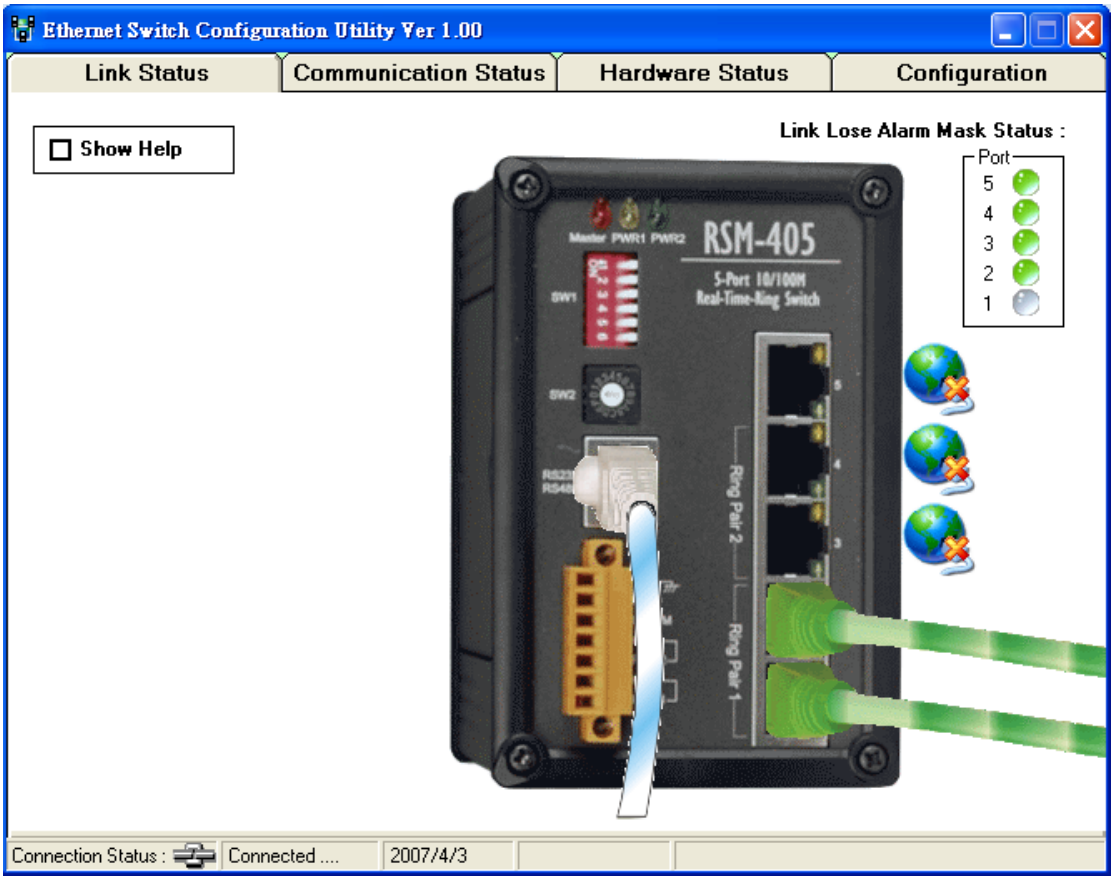
Display a message illustrating current status, for example:

When you are upgrading firmware, a message “Performing firmware upgrade, please wait” will be displayed.

.

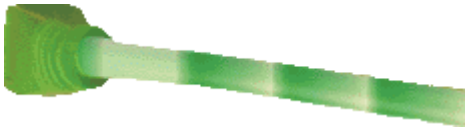
Link Status Page overview

This page displays various information of the link status.



Indicate RS232/RS485 serial connection is connected

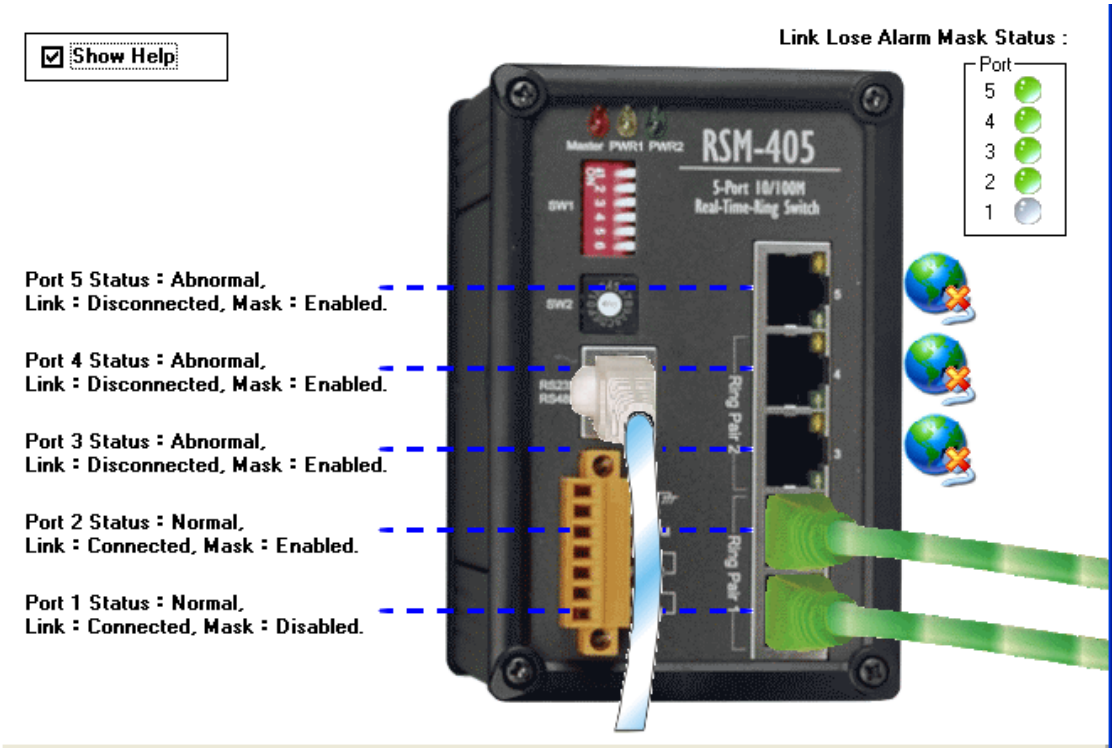
Indicate RS232/RS485 serial connection is disconnected



Indicate the line of the corresponding port is connected.

Show Help

Click on square box in front of Show Help will display current Port status.



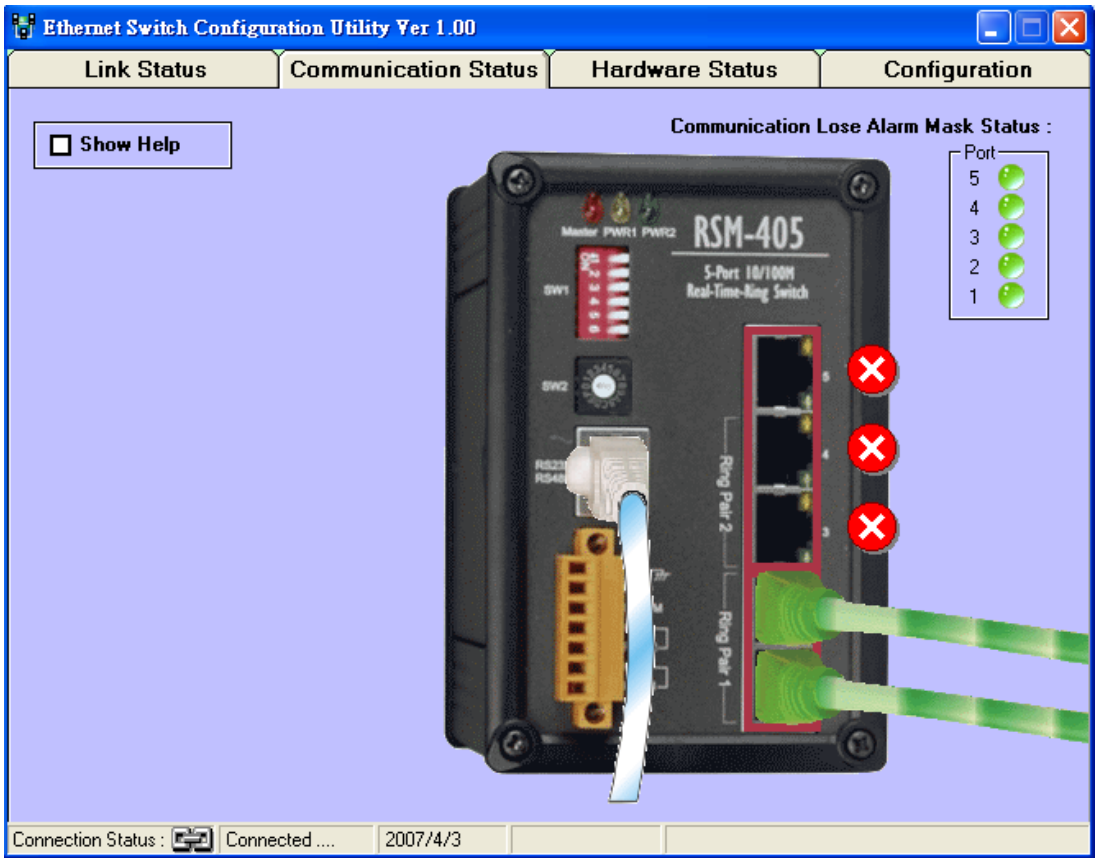
Link Lose Alarm Mask Status

Link Lose Alarm Mask Status indicate current link lose relay output mask setting. When the Led is green, the mask is enabled, and when the Led is grey, the mask is disabled.

When there is a link loss (disconnection) occurs, and if the mask is enabled, a relay output will be activated and a warning sign will be shown.

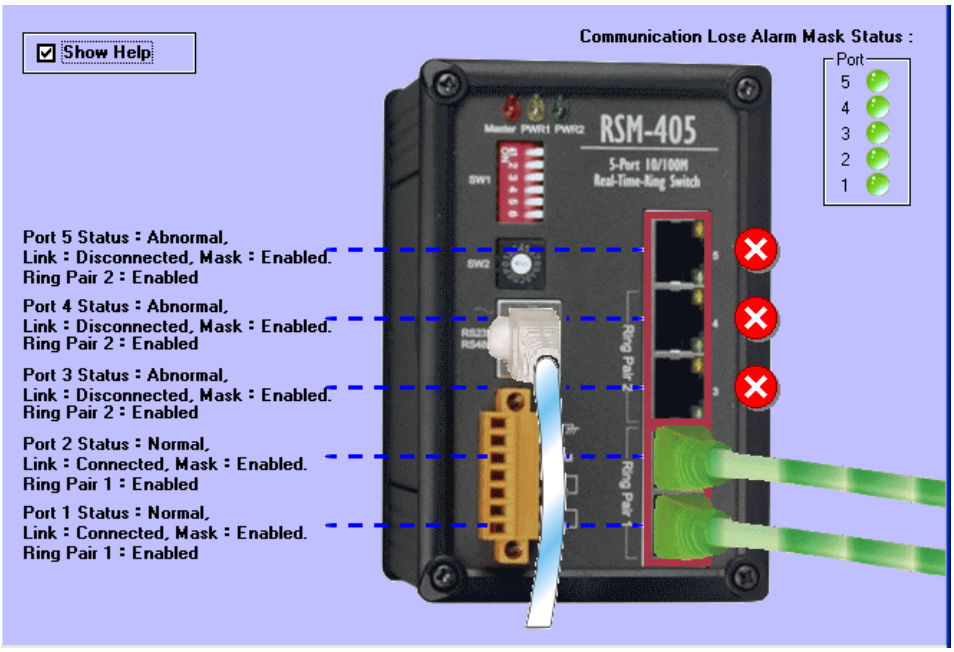
Communication Status Page overview

This page displays various information of the communication status.

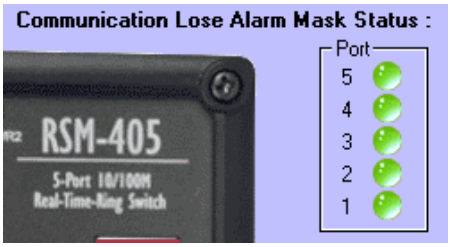


Show Help

Click on square box in front of Show Help will display current Port status.



Communication Lose Alarm Mask Status



Communication Lose Alarm Mask Status indicate current communication lose relay output mask setting. When the Led is green, the mask is enabled, and when the Led is grey, the mask is disabled.

Indicate RS232/RS485 serial connection is connected

Indicate RS232/RS485 serial connection is disconnected

Indicate the line of the corresponding port is connected.

Indicate Ring Pair 1 is enabled (Jumper 6 is “ON”)

Indicate Ring Pair 2 is enabled (Jumper 5 is “ON”)

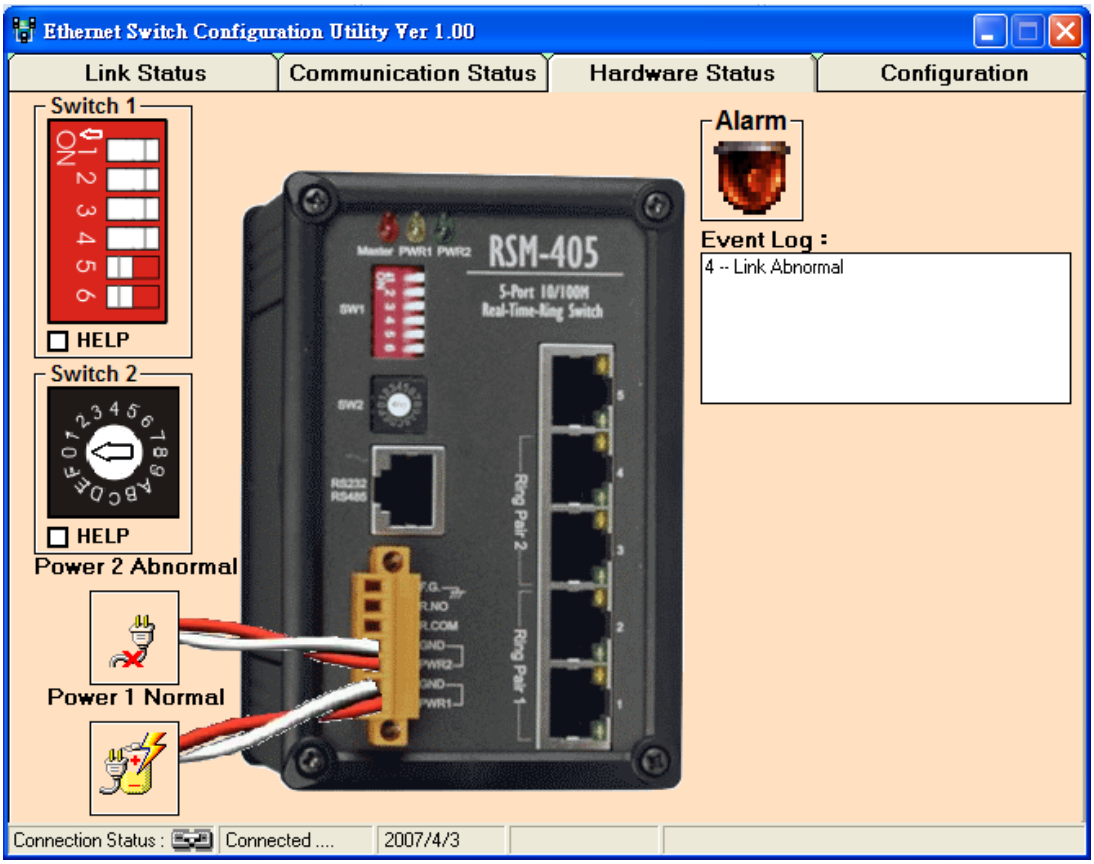
When mask is disabled, no mater whether the link status is disconnected or connected, no relay output will be activated.

To activate relay output for port 1 or port 2, you will need to enable both mask setting and corresponding ring pair setting (Ring Pair 1). When there is a communication loss (disconnection) occurs, a relay output will be activated and a warning sign will be shown.

To activate relay output for port 3, port 4, or port 5 you will need to enable both mask setting and corresponding ring pair setting (Ring Pair 2). When there is a communication loss (disconnection) occurs, a relay output will be activated and a warning sign will be shown.

Hardware Status Page overview

This page displays various information of the hardware features.



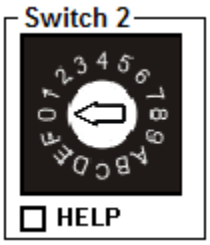
DIP Switch(SW1) configuration

You can monitor current Switch 1 settings by this realistic image displayed. Check the square box in front of “HELP” to get more information.

SW1 is a set of 6 jumpers on the front panel. It is a DIP toggle switch with two possible positions -- on or off. Each position indicates one configuration state:

SW1 : DIP Switch Configuration		
State Jumper	OFF	ON
1	Redundancy mode	Tradition mode
2	Normal State	Default Setting
3	Primary Switch	Secondary Switch
4	Ring Protocol	STP Protocol
5	Disable Ring Pair 2	Enable Ring Pair 2
6	Disable Ring Pair 1	Enable Ring Pair 1

Rotary Switch (SW2) configuration



You can monitor current Switch 2 settings by this realistic image displayed. Check the square box in front of “HELP” to get more information.

W2 is a 16 position rotary switch on the front panel, right below the SW1. When the arm of SW2 is switched to position "0", you would be able to set up specific values(Please go to configuration page.) for recovery time(rtime), forward delay(ftime) , maximum age(mtime), and hello time(htime) manually.

If it's on positions other than "0" ("1" to "F"), a set of preset values will be applied:

Roteray SW position	F	E	D	C	B	A	9	8
Recovery Time	1.5s	1.4s	1.3s	1.2s	1.1s	1.0s	900 ms	800 ms
Forwarding Delay	30s	28s	26s	24s	22s	20s	18s	16s
Hello Time	10s	10s	10s	10s	10s	10s	10s	10s
Max Age	40s	40s	40s	40s	40s	38s	34s	30s

Roteray SW position	7	6	5	4	3	2	1	0
Recovery Time	700 ms	600 ms	500 ms	400 ms	300 ms	200 ms	100 ms	N/A
Forwarding Delay	14s	12s	10s	8s	6s	4s	4s	N/A
Hello Time	10s	10s	8s	6s	4s	2s	1s	N/A
Max Age	26s	22s	18s	14s	10s	6s	6s	N/A

Power 1 & Power 2 Status

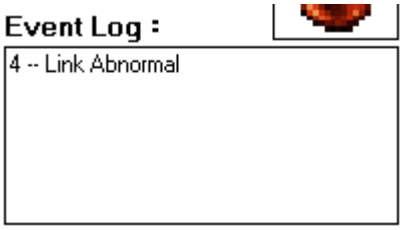
Indicate power is function normally.

Indicate there is a power fail occurring.

Alarm Output and Event Log

Green alarm sign indicate there is no unusual event.

Red alarm sign indicate there is unusual event(s) happening. It is recommended to check the error message and solve the problems.



Event Log record current events. You can monitor current status and recognize the problems easily by reading messages displayed on this Event Log Viewer.

EVENT TYPE

- Event Type 1:Power 1 Error
- Event Type 2: Power 2 Error
- Event Type 3: RS-232/RS-485 Connection Error
- Event Type 4: Link Error
- Event Type 5: Firmware Error
- Event Type 6: Power or RS-232/RS-485 Connection Error
- Event Type 7: This switch has been assigned as the master switch.
- Event Type 8 :Unknown Error

Overview

This chapter describe each event type shows on Event Log:

□ Event Type 1:Power 1 Error

□ Event Type 2: Power 2 Error

□ Event Type 3: RS-232/RS-485 Connection Error

□ Event Type 4: Link Error

□ Event Type 5: Firmware Error

□ Event Type 6: Power or RS-232/RS-485 Connection Error

□ Event Type 7: This switch has been assigned as the master switch.

□ Event Type 8 :Unknown Error

Event Type 1:Power 1 Error

Power 1 fail , Ethernet Switch can't receive signal from Power 1.

Event Type 2: Power 2 Error

Power 2 fail, Ethernet Switch can't receive signal from Power 2.

Event Type 3: RS-232/RS-485 Connection Error

Indicate disconnected serial cable of RS-232 port is detected.

A warning message will be displayed as follow:

Event Type 4: Link Error

Indicate disconnection of Link or Communication Status detected. You will see the warning sign when there is a disconnection:

Link Status disconnection (for Advanced Interface)

Communication Status disconnection (for Advanced Interface)

Link Status or Communication Status disconnection (for Basic Interface)

Event Type 5: Firmware Error

Indicate there is firmware error detected

Event Type 6: Power or RS-232/RS-485 Connection Error

Power fail or RS-232/RS-485 disconnection.

Event Type 7: This switch has been assigned as the master switch.

If you set the master mask for system, this message will be displayed when this switch is assigned as the master switch.

Event Type 8 :Unknown Error

An unknown error that the system can’t recognize has occurred.

TROUBLESHOOTING

- Event Type 1:Power 1 Error
- Event Type 2: Power 2 Error
- Event Type 3: RS-232/RS-485 Connection Error
- Event Type 4: Link Error
- Event Type 5: Firmware Error
- Event Type 6: Power or RS-232/RS-485 Connection Error

Overview

This chapter includes some information for general troubleshooting as follows:

- Event Type 1:Power 1 Error
- Event Type 2: Power 2 Error
- Event Type 3: RS-232/RS-485 Connection Error
- Event Type 4: Link Error
- Event Type 5: Firmware Error
- Event Type 6: Power or RS-232/RS-485 Connection Error

Event Type 1: Power 1 Error

- Check for faulty power cord.
- Check for loose or broken power connections.
- Check connections to ensure the power and ground are attached to the correct terminals.
- Check for power loss or power surges at the AC power outlet.
- Check Voltage of power coming into Power 1 to ensure it is within +10 - +30V DC.
- Ensure there are no shorts between power and ground.

If the above fails, contact support.

Event Type 2: Power 2 Error

- Check for faulty power cord.
- Check for loose or broken power connections.
- Check connections to ensure the power and ground are attached to the correct terminals.
- Check for power loss or power surges at the AC power outlet.
- Check Voltage of power coming into Power 2 to ensure it is within +10 - +30V DC.
- Ensure there are no shorts between power and ground.

If the above fails, contact support.

Event Type 3: RS-232/RS-485 Connection Error

- Check for faulty cable line.
- Check for loose or broken connections.

If the above fails, contact support.

Event Type 4: Link Error

- Check if the corresponding DIP Switch (SW1) is “on”.
- Check for faulty or loose Cables(both ends). Visually inspect for loose or faulty connections at all connectors and cables. If that does not correct the problem, try replacing the cable.

• Check the other device to see if it is powered up and operating correctly.

• Try moving the Ethernet cable that has the possible faulty connection to another port in the switch and check for link light.

If the above fails, contact support.

Event Type 5: Firmware Error

• Check if the firmware is the newest version , please go to http://www.icpdas.com/download/download-list.htm for downloading newest firmware version.

• Check if the firmware upgrading process is completed. If not, redo the upgrading sequence to complete firmware upgrading process.

If the above fails, contact support.

Event Type 6: Power or RS-232/RS-485 Connection Error

• Please refer to Event Type 1, 2, & 3 for more detail information.

SERVICE INFORMATION

We sincerely hope that you never experience a problem with any ICP DAS product. If you do need service, call ICP DAS at 886-3-5973366 and ask for Applications Engineering. Our well-trained specialist will help you to quickly determine the source of the problem. Many problems are easily resolved with a single phone call.

On-line support

HTTP://WWW.ICPDAS.COM.TW/SEVICES/SUPPORT.HTM

E-MAIL: SUPPORT@ICPDAS.COM

Contact Worldwide

		TELEPHONE	FAX
Taiwan	Hsinchu Headquarter	886-3-5973366	886-3-5973733
	Banchiao Office	886-2-29500655	886-2-29500807
	Hsintien Office	886-2-89192220	886-2-89192221
	Taichung Office	886-4-23582815	886-4-23589114
	Kaoshiung Office	886-7-2157688	886-7-2162602
USA	USA Office	1-310-517-9888 x101	1-310-517-0998
Europe	Europe Office	0049-711-9 97 37 75	0049-711- 9 97 37 84
Shanghai	Shanghai Office	8621-6247-1722	8621-6247-1725
Beijing	Beijing Office	8610-6298-0933	8610-6296-2890