Non-Programmable Device Server User Manual



Model: iDS-718i-D/iDS-718iM-D



Model: iDS-728i-T/iDS-728iM-T



Model: iDS-448iM-D

iDS-718i-D	Intelligent Device Server with 1 RS-232/422/485 (Isolated, RoHS, DB9)
iDS-718iM-D CR	Intelligent Device Server with 1 RS-232/422/485 (Isolated, Metal Case, RoHS, DB9)
iDS-728i-T CR	Intelligent Device Server with 2 RS-232/422/485 (Isolated, RoHS, Terminal block)
iDS-728iM-T CR	Intelligent Device Server with 2 RS-232/422/485 (Isolated, Metal Case, RoHS, Terminal block)
iDS-448iM-D	Intelligent Device Server with 4 RS-232/422/485 (Isolated, RoHS, DB9)

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Warranty

All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, starting from the date of delivery to the original purchaser.

Warning

ICP DAS assumes no liability for damages resulting from 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.

Copyright

Copyright © 2020 by ICP DAS. All rights are reserved.

Trademark

The names used for identification only may be registered trademarks of their respective companies.

Contact US

If you have any question, please feel free to contact us.
We will give you quick response within 2 workdays.

Email: service@icpdas.com , service.icpdas@gmail.com

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Table of Contents

1. INTRODUCTION ---- 5

1.1 PACKING LIST ---- 6
1.2 FEATURES ---- 7
1.3 SPECIFICATIONS ---- 8
1.4 ORDERING INFORMATION ---- 9
1.5 OPTION ACCESSORIES ---- 9

2. GETTING STARTED ---- 10

2.1 DIMENSIONS AND MOUNTING ---- 10
2.2 PIN ASSIGNMENT ---- 14
2.2.1 iDS-718 Series ---- *14*
2.2.2 iDS-728 Series ---- *16*
2.2.3 iDS-448 Series ---- *17*
2.3 LED INDICATORS ---- 18
2.4 CONFIGURATION METHOD ---- 19
2.4.1 Factory Setting ---- *19*
2.4.2 Setting IP Address ---- *19*

3. WEB MANAGEMENT INTERFACE ---- 21

3.1 WEB BROWSER ---- 21
3.2 INITIALIZE SETTING ---- 22
3.2.1 Basic Setting ---- *22*
3.2.2 Network Setting ---- *23*
3.2.3 SNMP ---- *24*
3.2.4 Account/Password Table ---- *25*
3.2.5 Accessible IP Table ---- *26*
3.2.6 Monitor ---- *27*
3.2.7 Event Notification ---- *28*
3.2.8 Firmware Upgrade ---- *29*
3.2.9 Restart ---- *29*

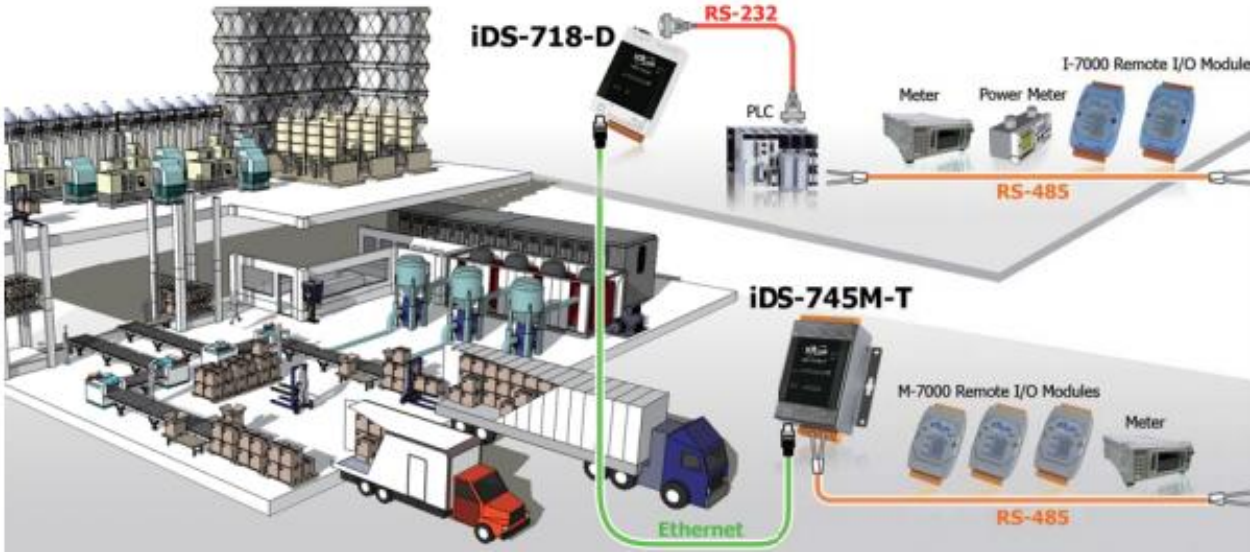
4. SERIAL PORT OPERATION MODES ---- 30

4.1 SERIAL PORT BASIC SETTING ---- 30
4.2 VIRTUAL COM ---- 32
4.2.1 Installing Virtual COM Utility ---- *32*
4.2.2 Network Setting ---- *32*
4.2.3 Configuring Virtual COM Ports ---- *33*
4.3 SOCKET MODES ---- 35

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.3.1 TCP Server ---- *35*
4.3.2 TCP Client ---- *36*
4.3.3 UDP ---- *37*
4.4 PAIR CONNECTION ---- 38
4.4.1 Pair Connection Server ---- *38*
4.4.2 Pair Connection Client ---- *39*
4.5 RFC2217 ---- 40
4.6 ETHERNET MODEM ---- 41

1. Introduction



The iDS-700/400 Series is a new generation Device Server from ICP DAS and is equipped with a powerful CPU module running on the open operating system, various connectivity (Ethernet, micro SD and serial port) and communication interfaces. Compared with the previous generation PDS, not only the CPU performance is higher but also more features are improved such as 256 MB flash, 256 MB DDR3 memory, unique 64-bit hardware serial number, and real-time clock, etc. These make the iDS Series becoming one of the most powerful system.

This device server is designed to add Ethernet and Internet connectivity to any RS-232 and RS-422/485 device, and to eliminate the cable length limitation of legacy serial communication, coupled with a large built-in RAM buffer, allows for fast transmission and prevents congestion of serial data on the network. Built-in powerful ARM-based processor offers excellent performance at low power consumption. The preloaded high-performance operating system is open, flexible, scalable and allows user to easily add or remove application/service from configuration mechanism.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.1 Packing List

The package includes the following items:

- One (Programmable) Device Server hardware module
- One software utility CD
- One RS-232 console/download cable, CA-0903
- One Quick Start Guide

Note: If any of these items are missed or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.2 Features

- Incorporate Serial Devices in an Ethernet network
- Virtual COM for 32-bit and 64-bit Windows XP/2003/Vista/7
- High-performance ARM-based Processor
- 256 MB DDR3 memory for data transmission and buffering
- Zero Data Loss
- UDP Support
- RFC2217 support
- Modem Emulator
- Open, Flexible and Scalable Platform
- SNMP Management Protocol

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

1.3 Specifications

Models	iDS-718i-D	iDS-728i-T	iDS-718iM-D	iDS-728iM-T	iDS-448iM-D
CPU Module					
CPU	32-bit High Performance Processor				
Peripheral	microSD, RTC, 64-bit Serial Number, Watchdog, Buzzer				
Communication Interface					
COM1	5-wire RS-232/422/485 (Isolated)				8-wire RS-232/422/485 (Isolated)
COM2	–	5-wire RS-232/422/485 (Isolated)	–	5-wire RS-232/422/485 (Isolated)	8-wire RS-232/422/485 (Isolated)
COM3	–	–	–	–	8-wire RS-232/422/485 (Isolated)
COM4	–	–	–	–	8-wire RS-232/422/485 (Isolated)
Ethernet	10/100 Base-TX, RJ-45 port (Auto-negotiating, Auto MDI/MDI-X, LED indicators), PoE (IEEE 802.3af, Class 1)				2-port 10/100 Base-TX Ethernet Switch with LAN Bypass, RJ-45 port (Auto-negotiating, Auto MDI/MDI-X, LED indicators), PoE (IEEE 802.3af, Class 1)
COM Port Signals					
3-wire RS-232	RxD, TxD and GND				
5-wire RS-232	RxD, TxD, CTS, RTS and GND				
8-wire RS-232	RxD, TxD, CTS, RTS ,DCD, DSR ,DTR, and GND				
RS-422/485	TxD+, TxD-, RxD+, RxD- and GND/Data+, Data- and GND				
RS-485	Data+, Data- and Iso.GND				
COM Port Formats					
Data Bits	5, 6, 7, 8				
Parity	None, Even, Odd, Mark, Space				
Stop Bits	1, 1.5, 2				
Baud Rate	921.6 kbps Max.				
Flow Control	RTS/CTS, XON/XOFF				
Pull High/Low Resistor	Switch-selectable (1 kΩ for RS-422/485, Non-Resistor for RS-232)				
Power					
ESD Protection	Yes (with Frame Ground)				
Protection	Power input reverse polarity protection				
Required Supply Voltage	+12 VDC ~ +48 VDC (non-regulated) or PoE (IEEE 802.3af, Class 1)				
Power Consumption	3.5 W				
Software					
Protocols	ICMP, IPv4, IPv6, TCP, UDP, DHCP, BOOTP, Telnet, SSH, FTP, SFTP, DNS, SNMP V1/V2c/V3, HTTP, SMTP, ARP				
Configuration Method	Web and eSearch Utility for Windows				
Virtual COM for Windows	Windows XP/2003/2008/7/8 x86/x64, 2012 x64, XP Embedded				
Virtual COM for Linux	Linux kernel 2.4.x, 2.6.x, 3.x				
SNMP Standards	RFC1213 MIB-II, RFC1317				
Application Modes	Virtual COM, TCP Server, TCP Client, UDP, Pair Connection, RFC2217, Terminal, Reverse Telnet, TCP Modem, Modbus Gateway				

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Mechanical			
Dimensions (W x H x D)	76 mm x 114 mm x 42 mm (97 mm x 114 mm x 42 mm for "M" versions)	76 mm x 120 mm x 42 mm (97 mm x 120 mm x 42 mm for "M" versions)	129 mm x 166 mm x 47 mm
Installation	DIN-Rail		
Casing	Plastic (Metal for "M" versions)		
Environment			
Operating Temperature	-25 °C ~ +75 °C		
Storage Temperature	-40 °C ~ +80 °C		
Humidity	5 ~ 90% RH, non-condensing		

1.4 Ordering Information

iDS-718i-D	Intelligent Device Server with 1 RS-232/422/485 (Isolated, RoHS, DB9)
iDS-718iM-D CR	Intelligent Device Server with 1 RS-232/422/485 (Isolated, Metal Case, RoHS, DB9)
iDS-728i-T CR	Intelligent Device Server with 2 RS-232/422/485 (Isolated, RoHS, Terminal block)
iDS-728iM-T CR	Intelligent Device Server with 2 RS-232/422/485 (Isolated, Metal Case, RoHS, Terminal block)
iDS-448iM-D CR	Intelligent Device Server with 4 RS-232/422/485 (Isolated, Metal Case, RoHS, DB9)

1.5 Option Accessories

GPSU06U-6 CR	24 VDC/0.25 A, 6 W Power Supply
MDR-20-24 CR	24 VDC/1 A, 24 W Power Supply with DIN-R
DIN-KA52F-48 CR	48V/0.52A, 25 W Power Supply with DIN-Rail Mounting (RoHS, for NS-205PSE)
CA-0903	9-Pin Female D-Sub and RS-232 Connector Cable, 30 cm Cable
CA-0910	9-Pin Female D-Sub and 3-wire RS-232 Cable, 1 m Cable
NS-205 CR	Unmanaged 5-port Industrial Ethernet Switch (RoHS)
NS-205PSE CR	Unmanaged Ethernet Switch with 4 PoE Ports and 1 RJ-45 Uplink (RoHS)

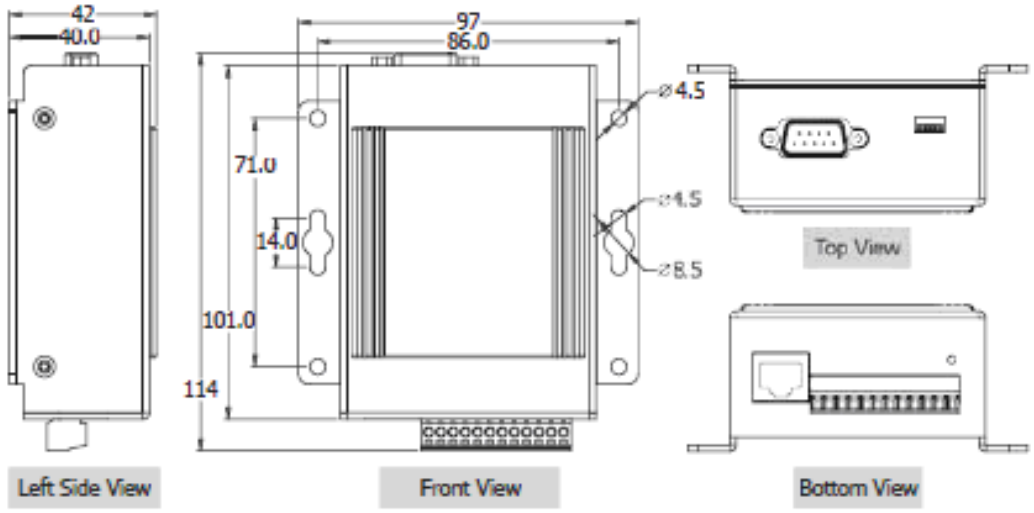
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2. Getting Started

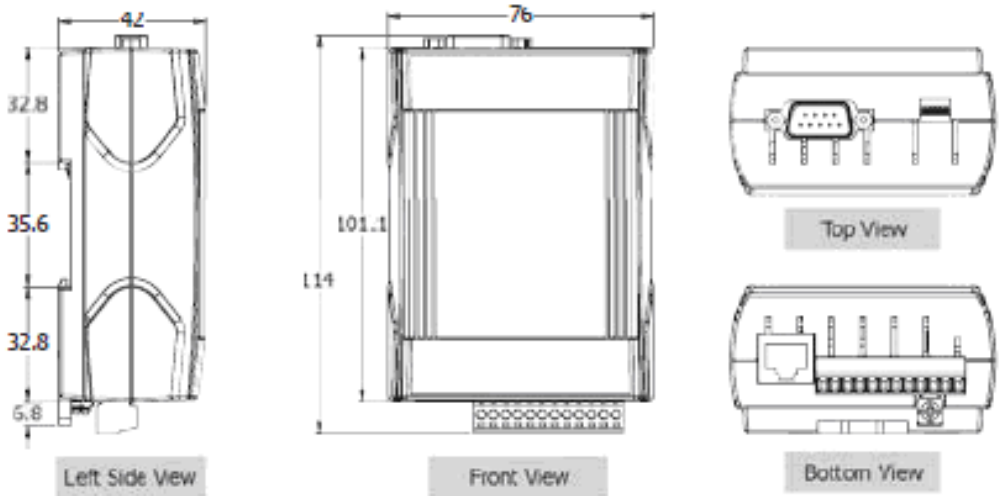
2.1 Dimensions and Mounting

- iDS Series

iDS-718iM-D



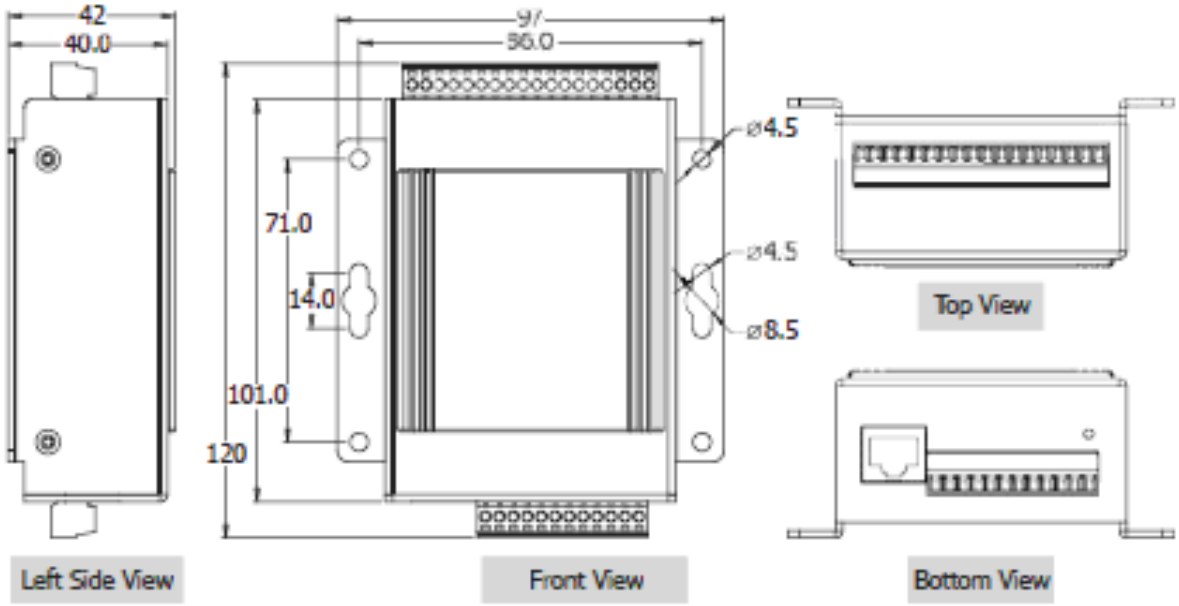
iDS-718i-D



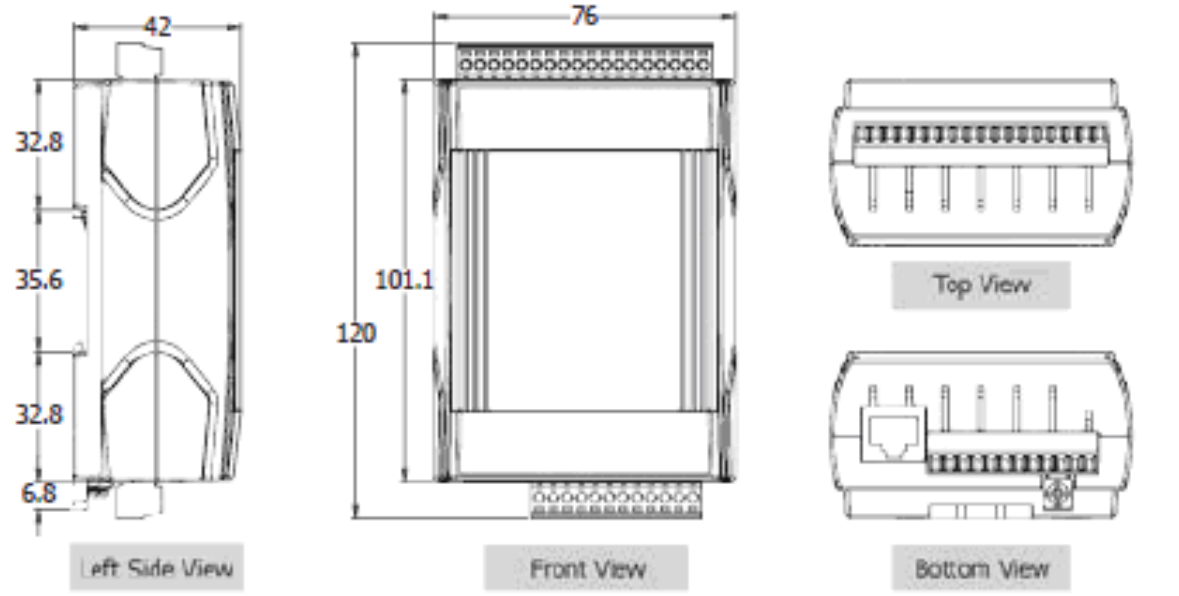
Unit: mm

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

iDS-728iM-T



iDS-728i-T

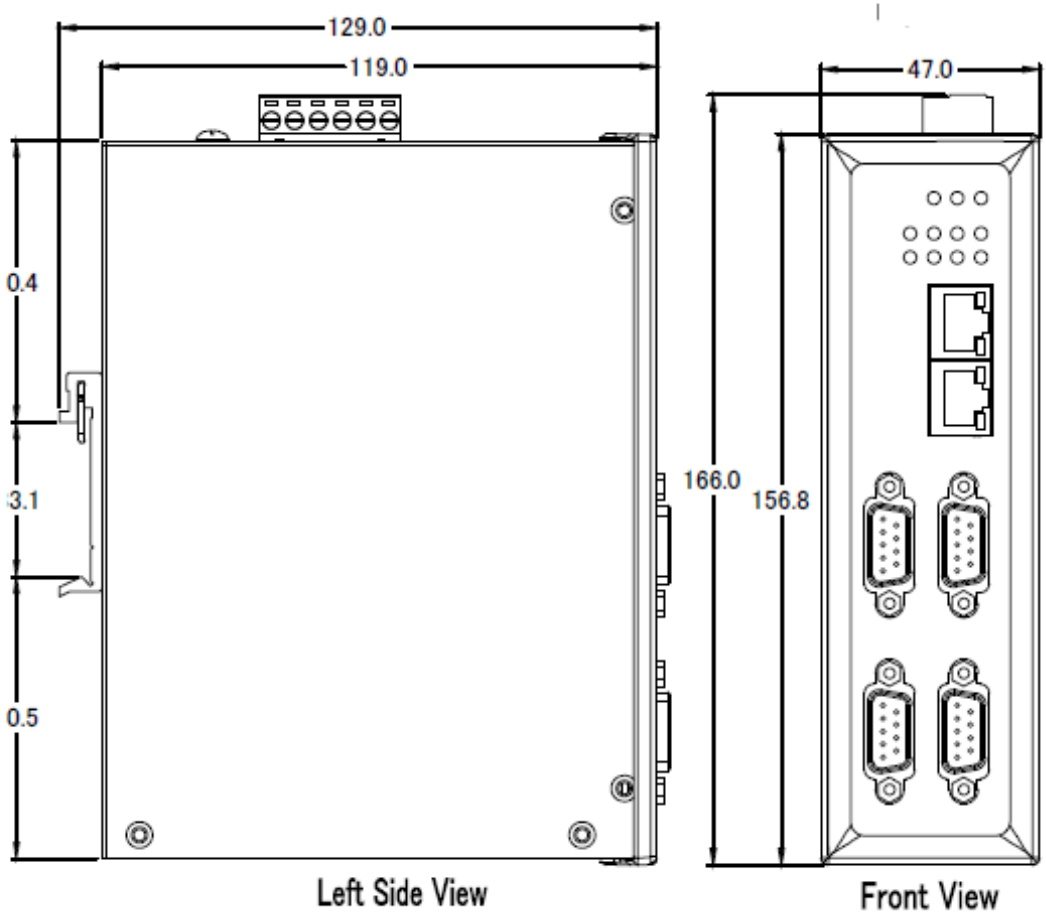


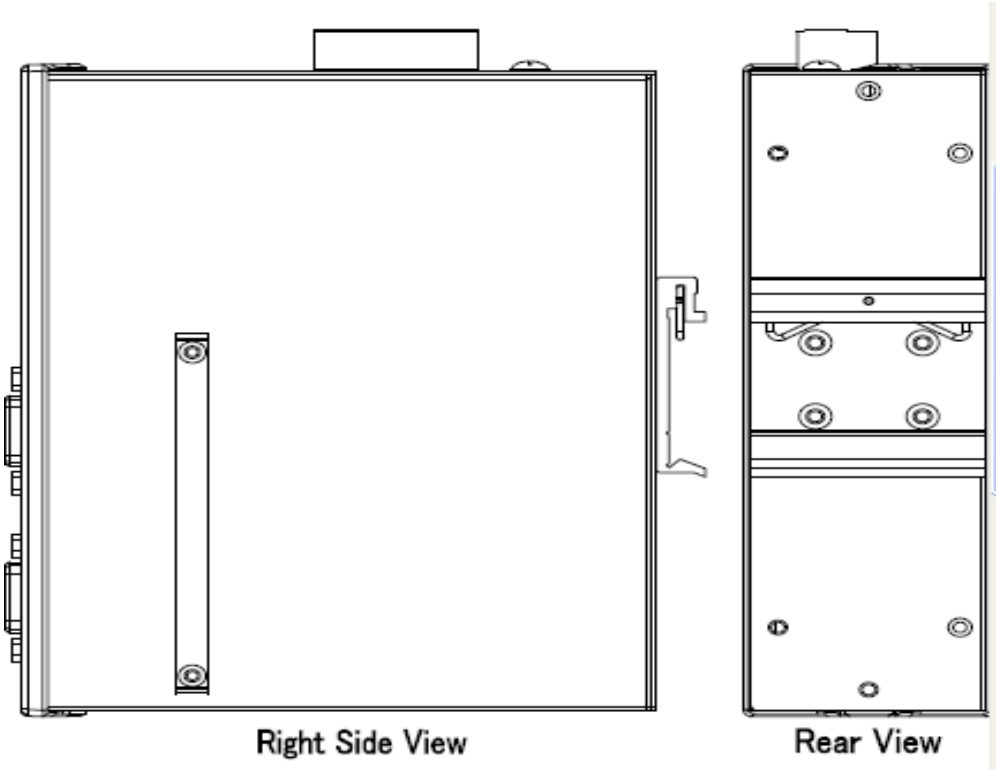
Unit: mm

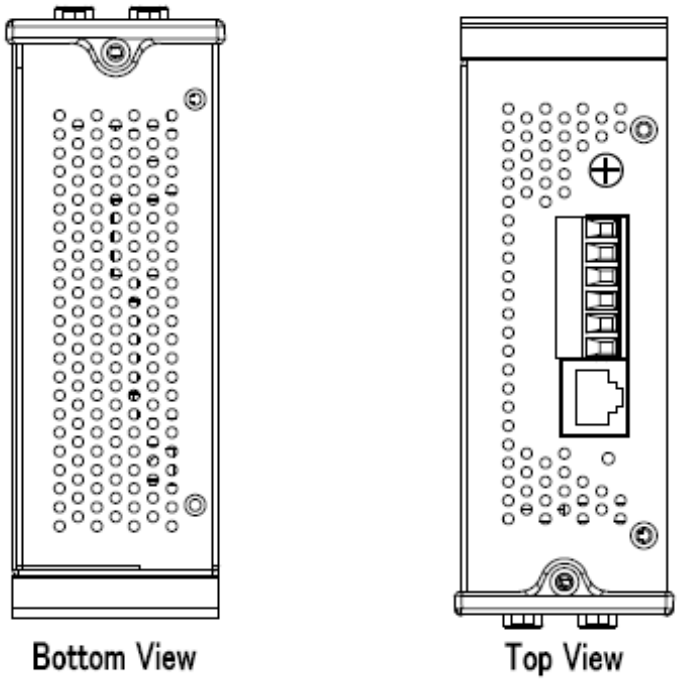
Fig 2-3

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

iDS-448iM-D


129.0
119.0
47.0
0.4
3.1
0.5
166.0
156.8
Left Side View
Front View


Right Side View
Rear View

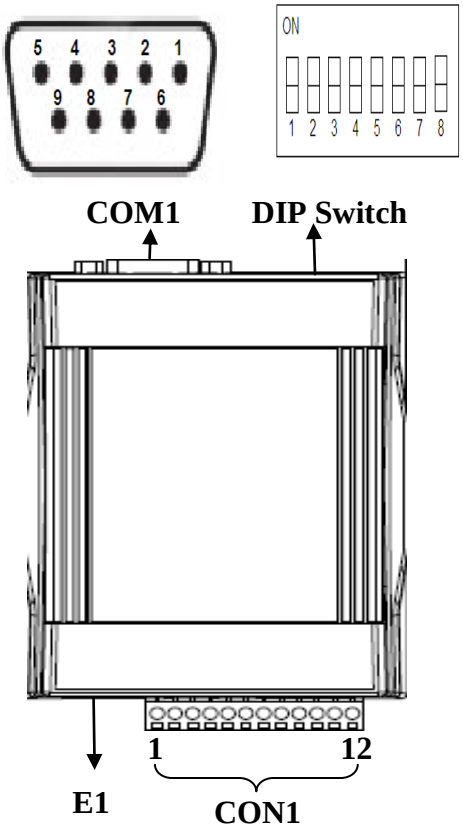


Unit: mm

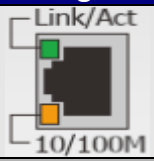
Fig 2-4

2.2 Pin Assignment

2.2.1 iDS-718 Series



E1 & CON1(1 ~ 12)

Terminal NO		Pin Assignment
E1		
1		-
2		-
3		-
4		-
5		-
6		-
7		-
8		-
9		-
10		-
DC (12~48V)	11	P.PWR
	12	P.GND

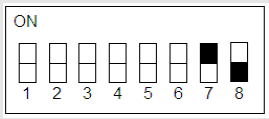
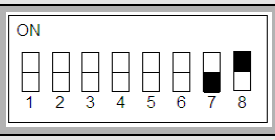
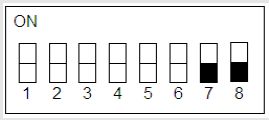
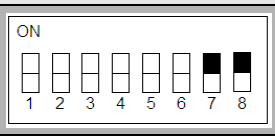
Pull high/low resistors for the RS-422/RS-485 Port

DIP Switch	1	2	3	4	5	6	7	8
	RS-485/RS-422				RS-485	RS-422	M1	M0
	Pull High/Low				Terminator			
ON	1 KΩ		1 KΩ		120 Ω	120 Ω	0	0
OFF	Default						1	1

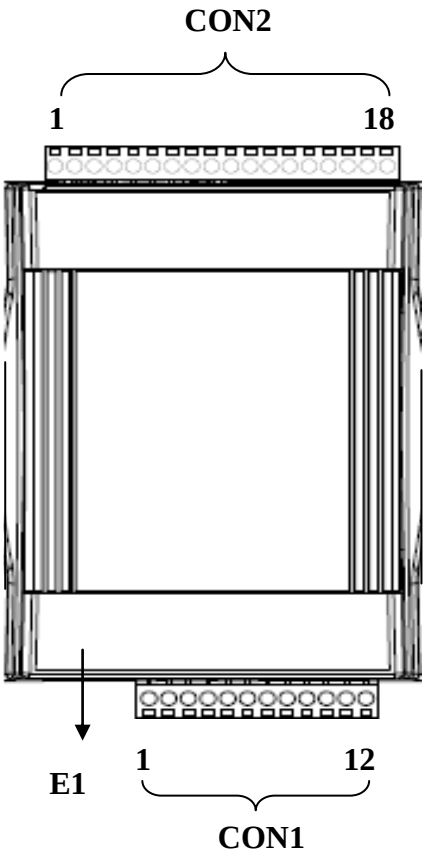
COM1 Pin Assignment

Pin	RS232	RS422	RS485
1	-	TXD-	Data-
2	RXD	TXD+	Data+
3	TXD	RXD+	-
4	-	RXD-	-
5	GND	GND	GND
6	-	-	-
7	RTS	-	-
8	CTS	-	-
9	-	-	-

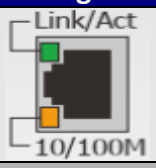
DIP Switch(COM1 Mode)

COM1	M1	M0	DIP Switch
RS232	ON	OFF	
RS422	OFF	ON	
RS485	OFF	OFF	
Software	ON	ON	

2.2.2 iDS-728 Series



E1 & CON1(1 ~ 12)

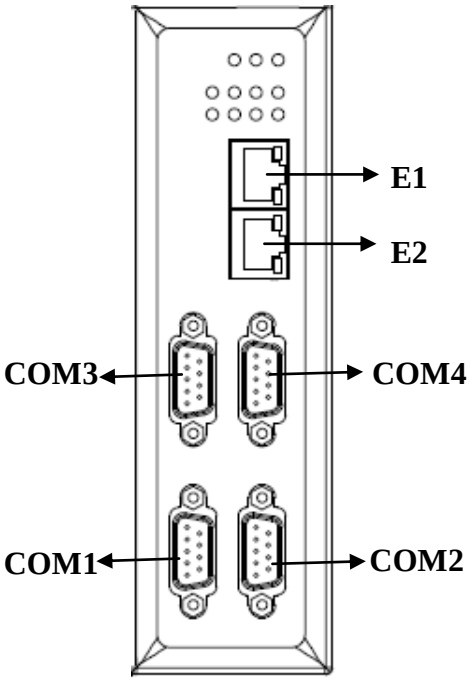
Terminal NO		Pin Assignment
E1		
1		-
2		-
3		-
4		-
5		-
6		-
7		-
8		-
9		-
10		-
DC (12V-48V)	11	P.PWR
	12	P.GND

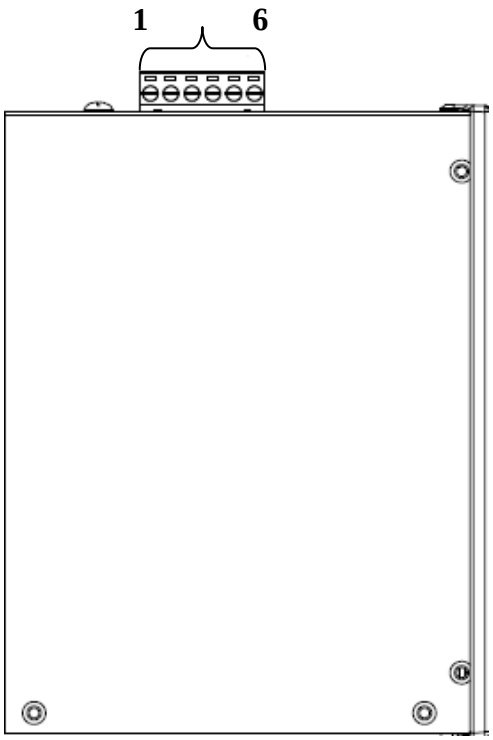
CON2(1 ~ 18)

Terminal NO		Pin Assignment
COM2	1	RS-422_RxD2-
	2	RS-422_RxD2+
	3	RS-422_TxD2/D2-
	4	RS-422_TxD2/D2+
	5	RS-232_CTS2
	6	RS-232_RTS2
	7	RS-232_RxD2
	8	RS-232_TxD2
	9	GND2
COM1	10	RS-422_RxD1-
	11	RS-422_RxD1+
	12	RS-422_TxD1/D1-
	13	RS-422_TxD1/D1+
	14	RS-232_CTS1
	15	RS-232_RTS1
	16	RS-232_RxD1
	17	RS-232_TxD1
	18	GND1

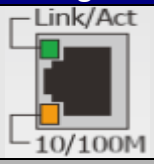
LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.2.3 iDS-448 Series





E1, E2 & CON1(1 ~ 6)

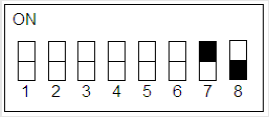
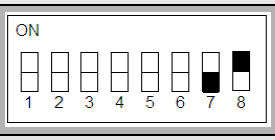
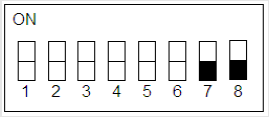
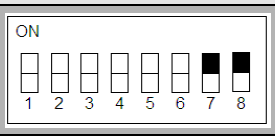
Terminal NO		Pin Assignment
E1、E2		
DC (12~48V)	1	P.PWR
	2	P.GND
	3	P.PWR
	4	P.GND
5		-
6		-

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

COM1~4 Pin Assignment

Pin	RS232	RS422	RS485
1	DCD	TXD-	Data-
2	RXD	TXD+	Data+
3	TXD	RXD+	-
4	DTR	RXD-	-
5	GND	GND	GND
6	DSR	-	-
7	RTS	-	-
8	CTS	-	-
9	-	-	-

DIP Switch (COM1~4 Mode)

COM1	M1	M0	DIP Switch
RS232	ON	OFF	
RS422	OFF	ON	
RS485	OFF	OFF	
Software	ON	ON	

2.3 LED Indicators

The iDS contains three LED indicators.

LED Indicators	Color	Meaning
PWR	Red	Power is on
RUN	Green	OS is running
Ethernet	Green	Ethernet Cable is connecting

Table 2-1

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

2.4 Configuration Method

2.4.1 Factory Setting

IP：192.168.255.1
NetMask：255.255.255.0
Gateway：192.168.255.254
Protocol : icpdas protocol

2.4.2 Setting IP Address

Using web browser (IE or Chrome) and typing the default IP (192.168.255.1) to connect to the iDS devices to set IP address(DHCP or Static). Please refer to the Fig 2-4、2-5:

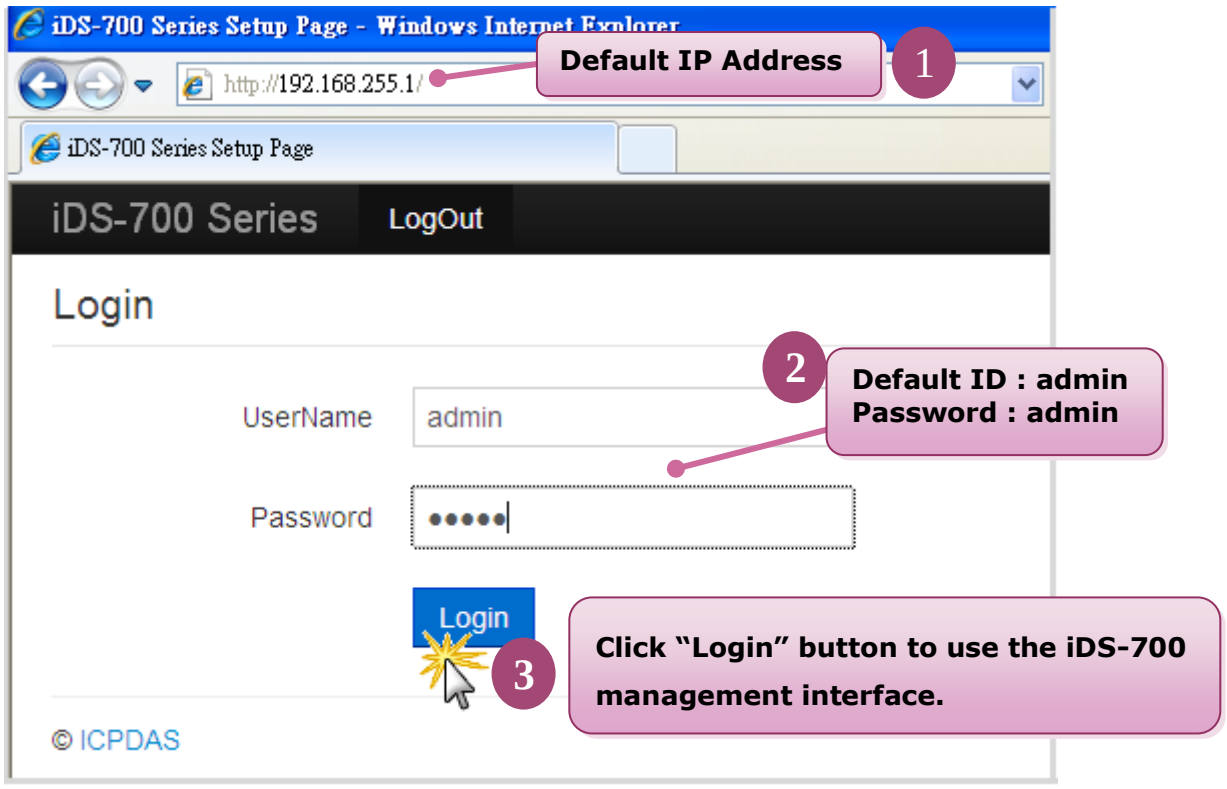


Fig 2-5 Login

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

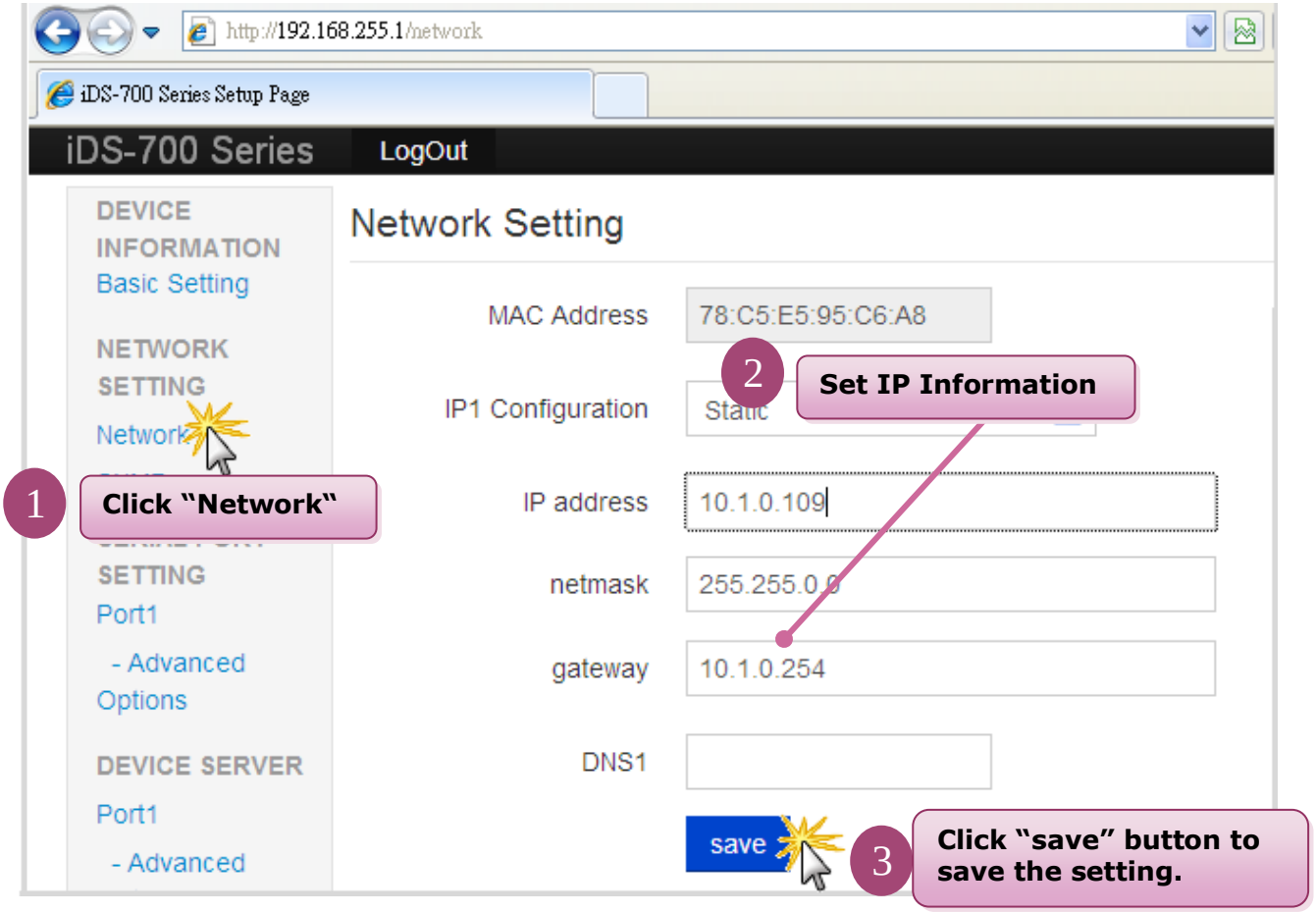


Fig 2-6 Network

3. Web Management Interface

3.1 Web Browser

User can use the web browser (IE 8 or later version, Chrome) to operate the iDS-700 series web management interface. User can input the IP address to connect to the "**login**" interface of iDS-700 device. Please refer to the Fig 3-1:

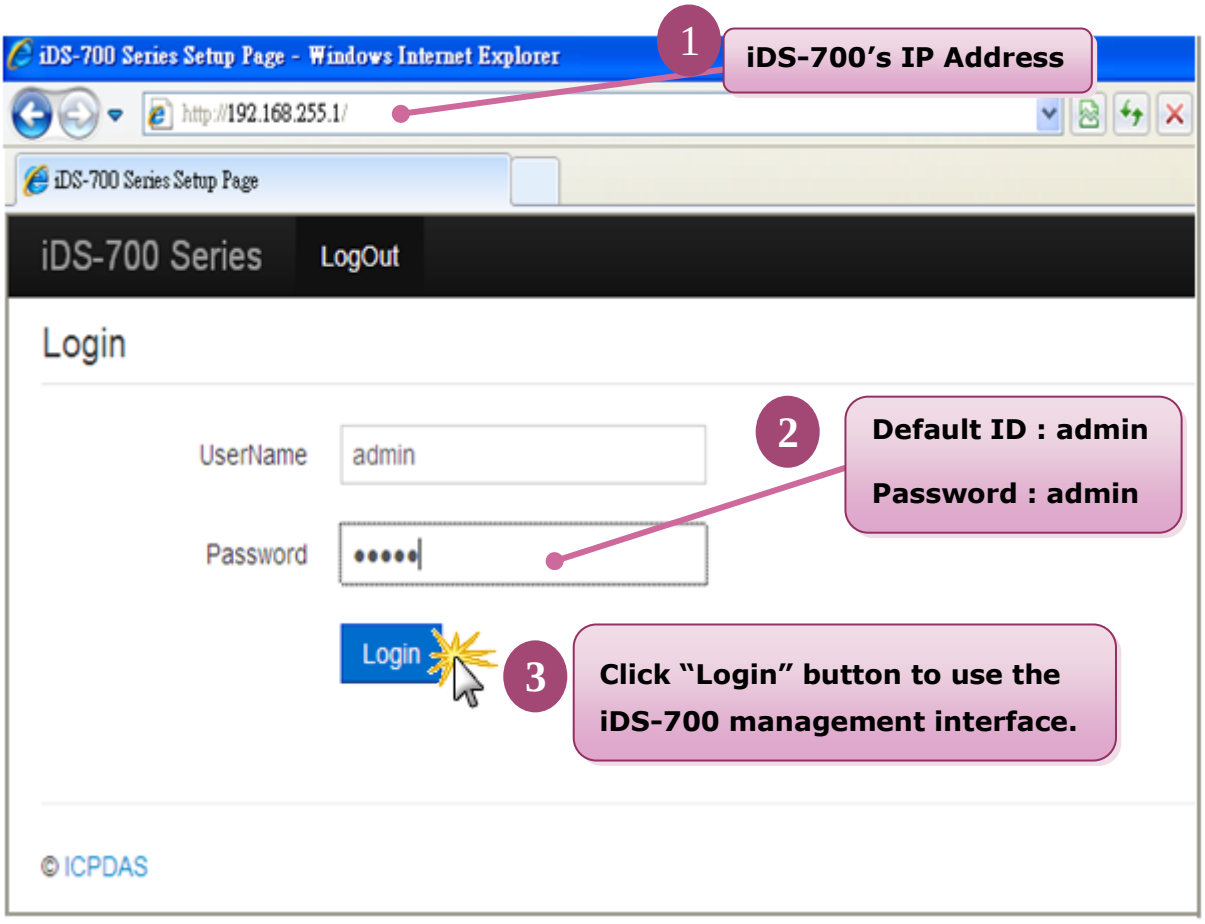


Fig 3-1 Login

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.2 Initialize Setting

3.2.1 Basic Setting

Clicking the "**Basic Setting**" to set the iDS's hostname or enable/disable the function "**UDP search**" (the system default don't enable). Please refer to the Fig 3-2:

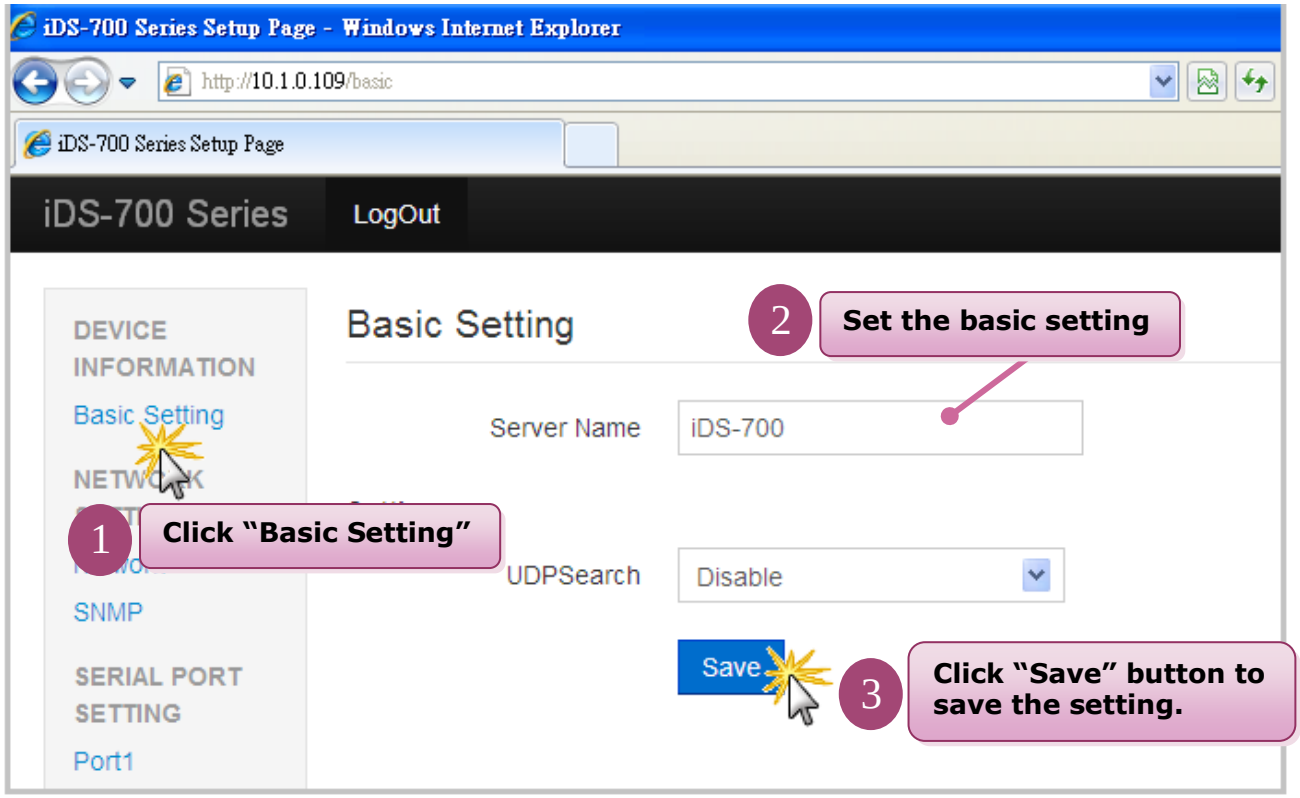


Fig 3-2 Basic Setting

3.2.2 Network Setting

Clicking the "**Network**" to set the IP address. Please refer to the Fig 3-3:

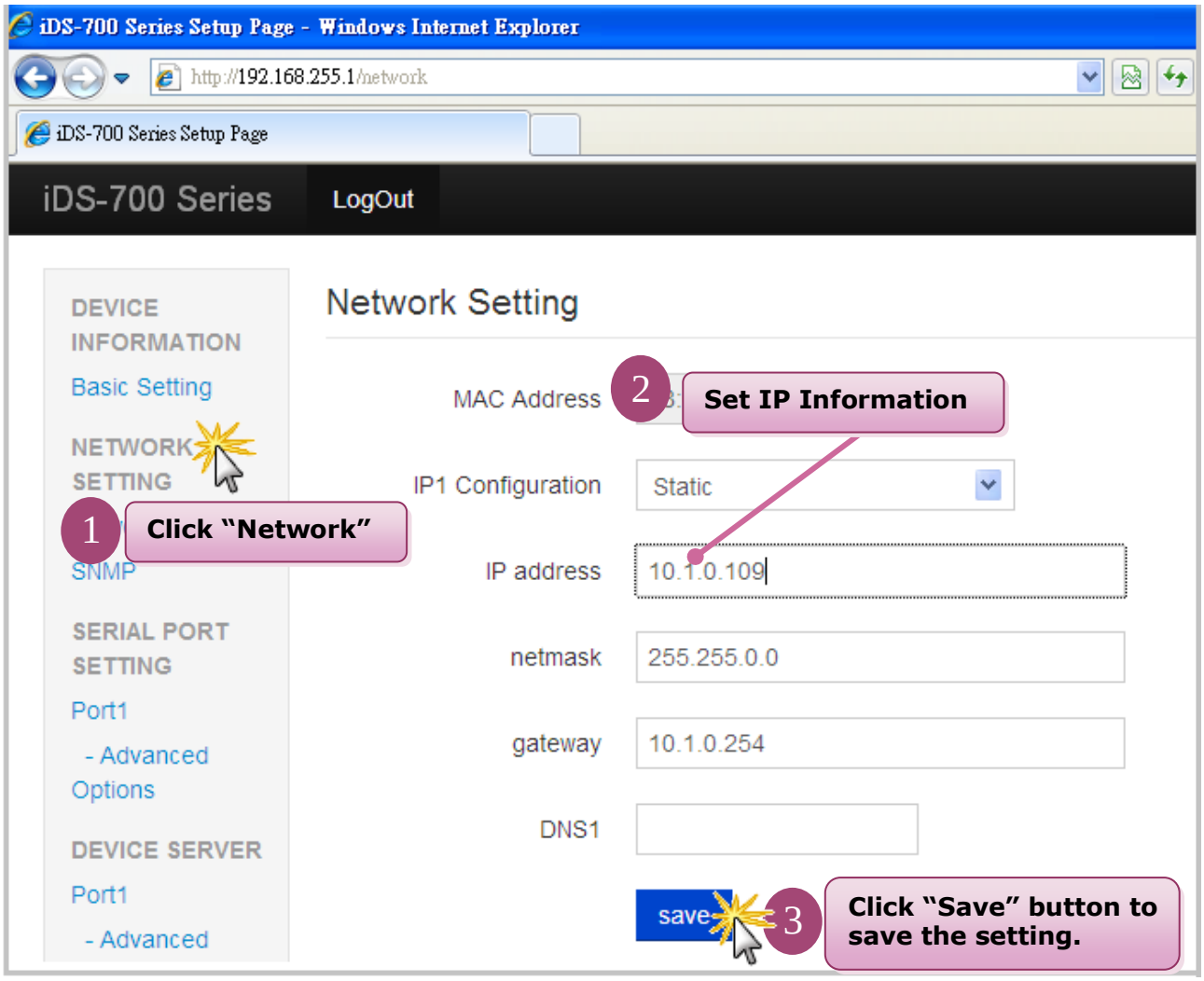


Fig 3-3 Network

3.2.3 SNMP

Clicking the "**SNMP**" to set the SNMP Agent. Please refer to the Fig 3-4:

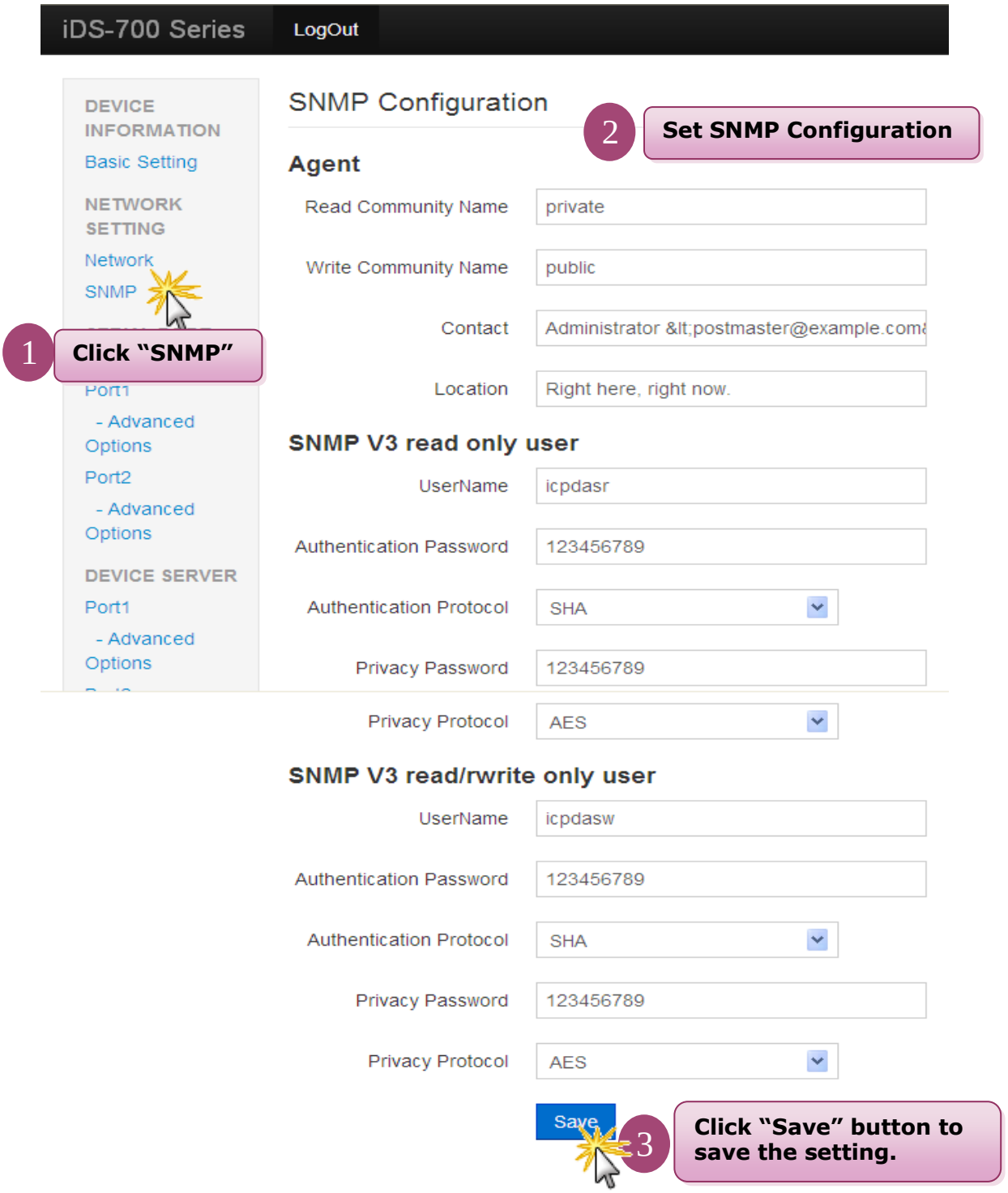


Fig 3-4 SNMP

3.2.4 Account/Password Table

Clicking the "**Account/Password Table**" to set the account information. Please refer to the Fig 3-5:

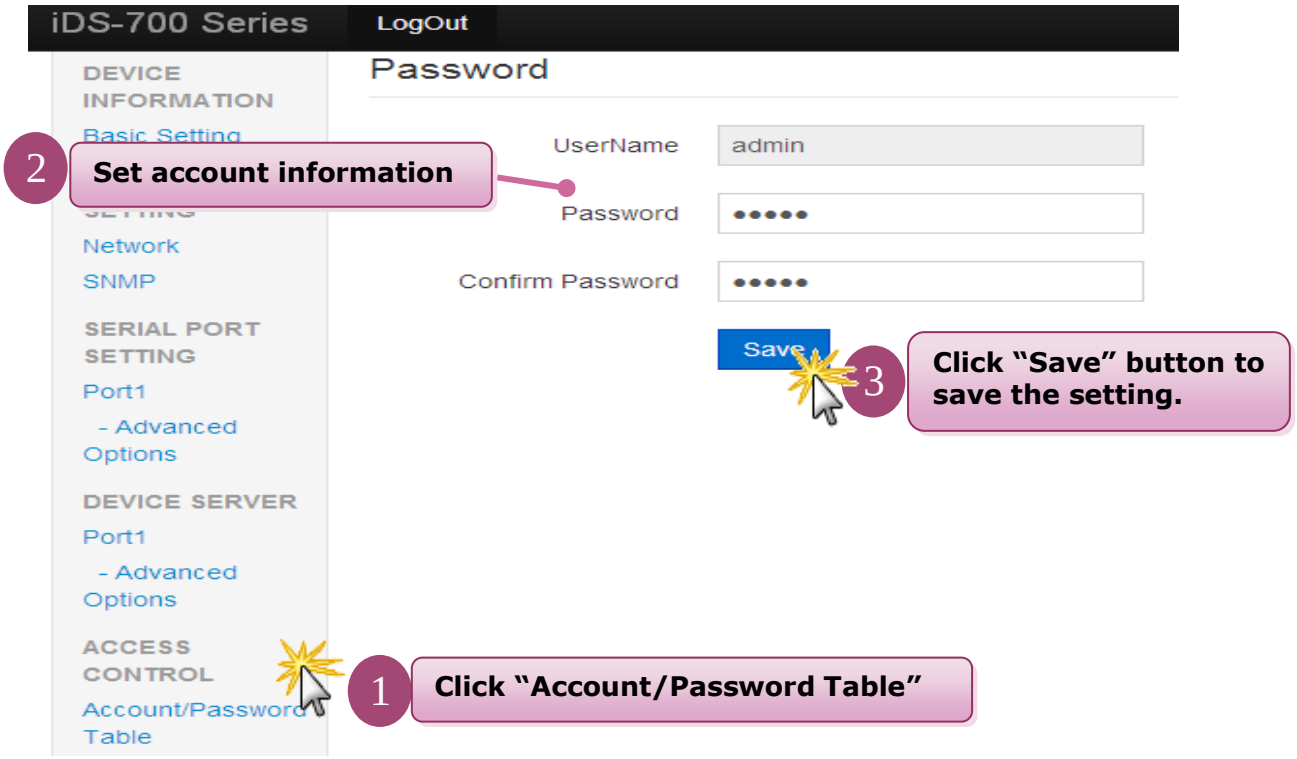


Fig 3-5 Account/Password Table

3.2.5 Accessible IP Table

Clicking the "**Accessible IP Table**" to enable/disable the rules of IP filter. Please refer to the Fig 3-6:

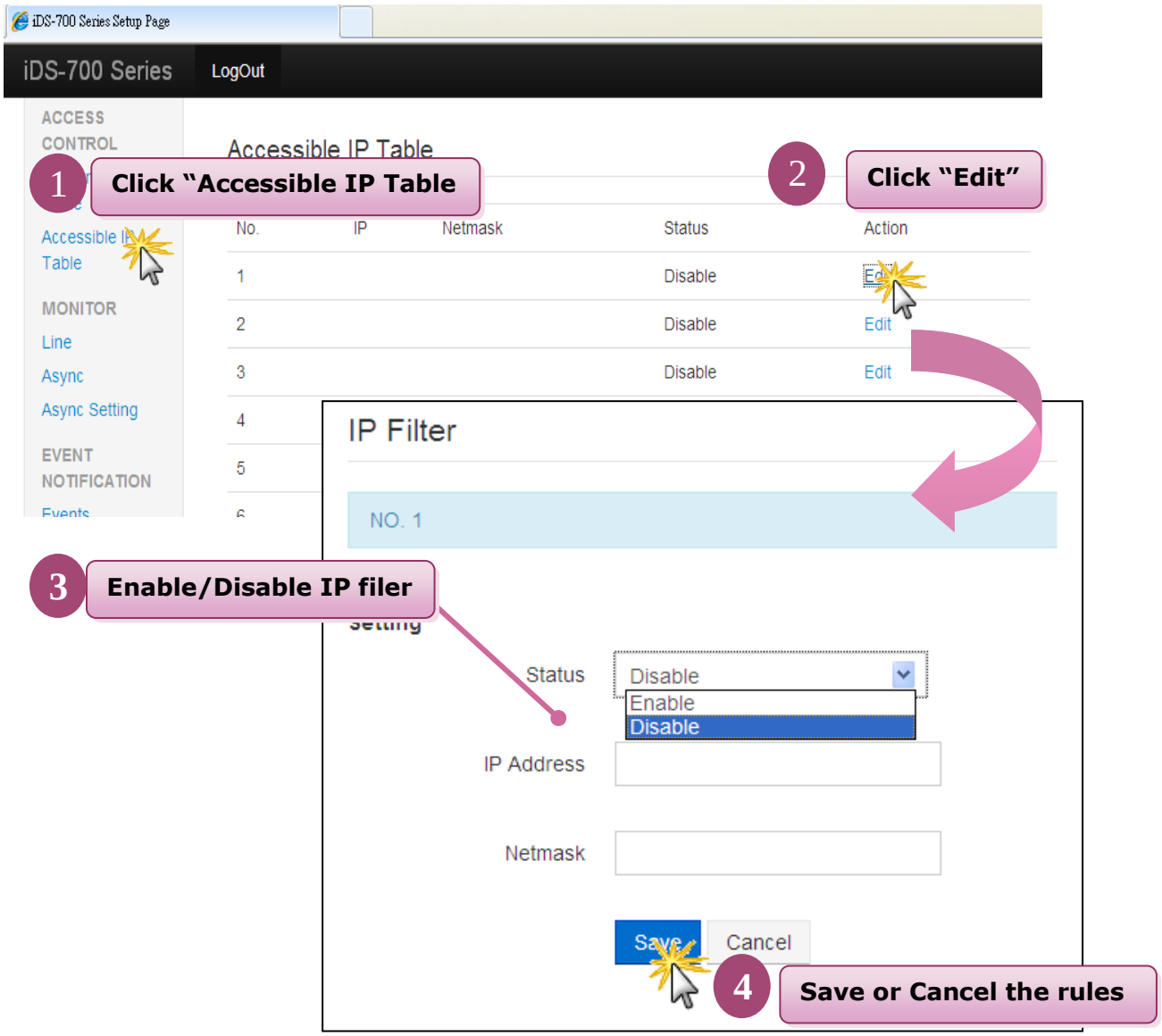


Fig 3-6 Accessible IP Table

3.2.6 Monitor

Clicking the "**Line/Async/Async Setting**" to get the COM's information. Please refer to the Fig 3-7 and Fig 3-8:

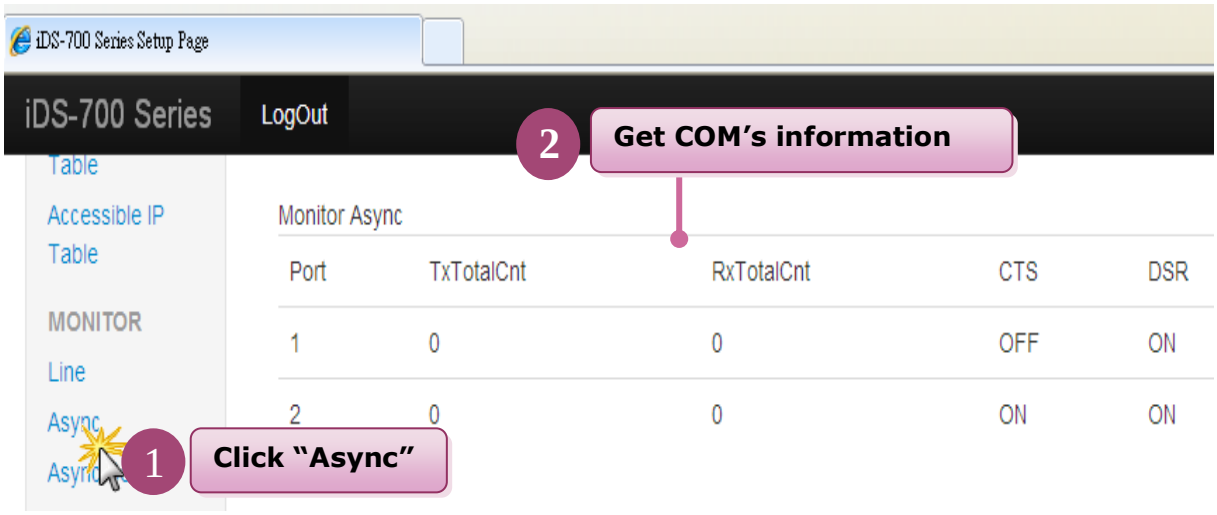


Fig 3-7 Async

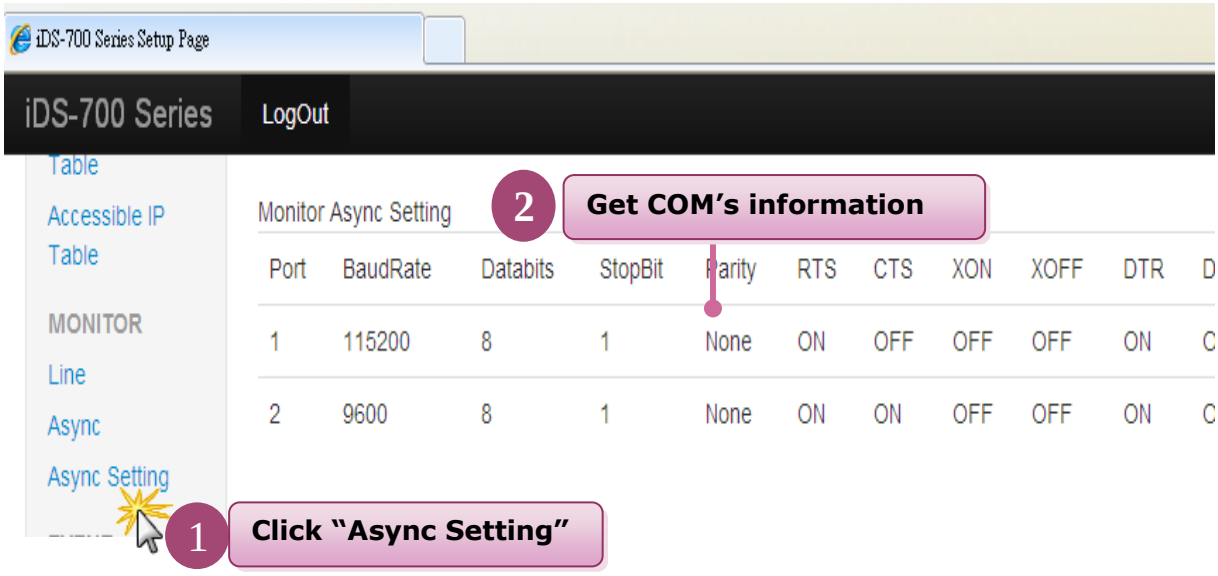


Fig 3-8 Async Setting

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.2.7 Event Notification

Clicking the "**Events**" and "**Email/SNMP Trap**" to set the function of events notification and inform the system administrator. Please refer to the Fig 3-9, Fig 3-10:

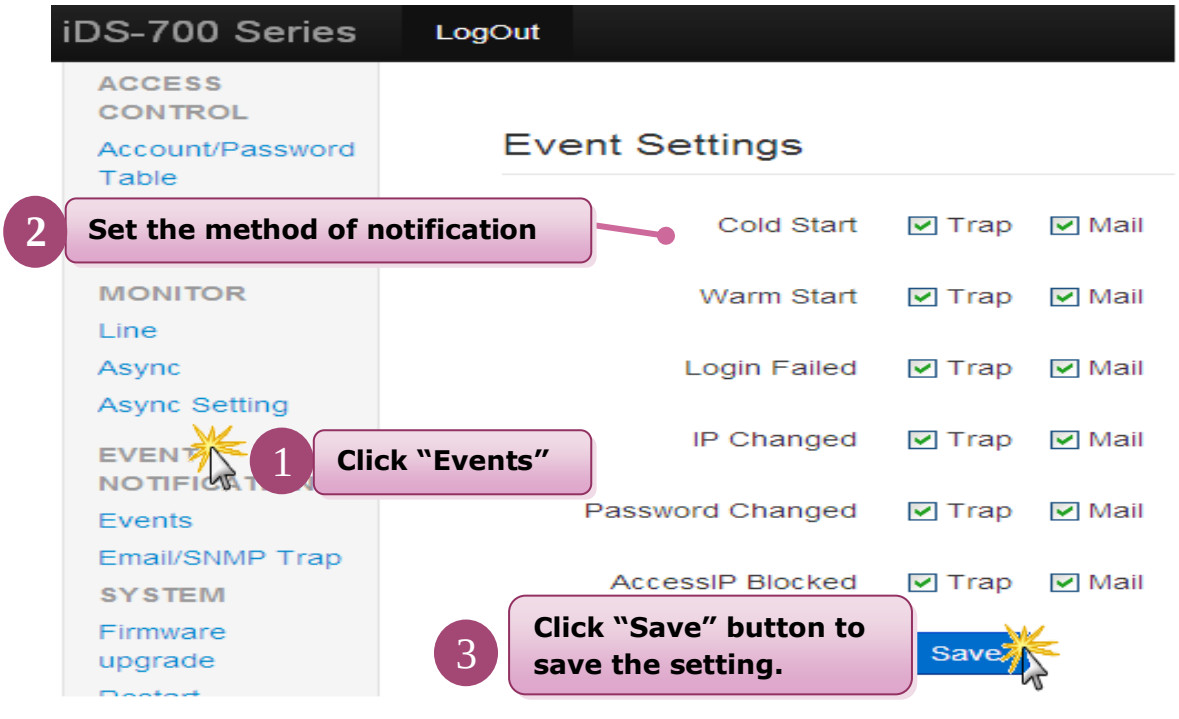


Fig 3-9 Events

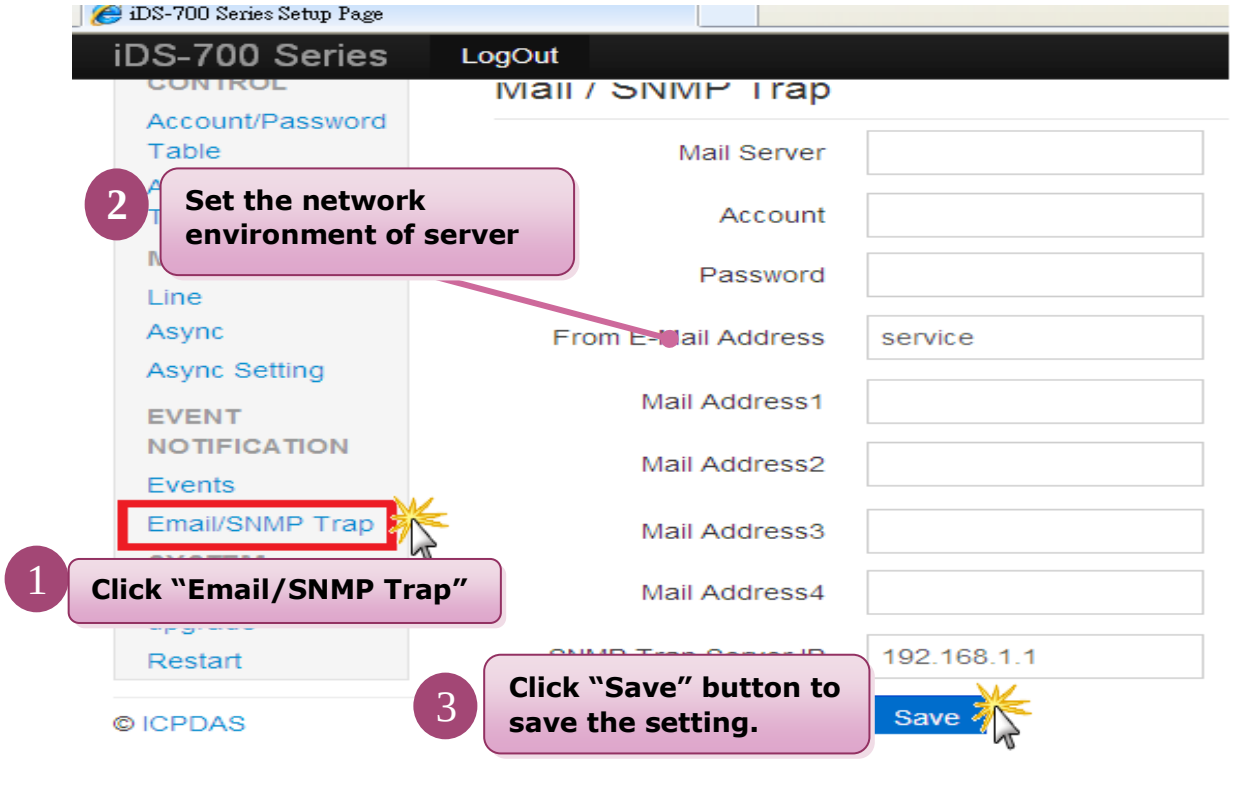


Fig 3-10 Email/SNMP Trap

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

3.2.8 Firmware Upgrade

Clicking the "**Firmware upgrade**" to update the iDS's firmware. Please refer to the Fig 3-11:

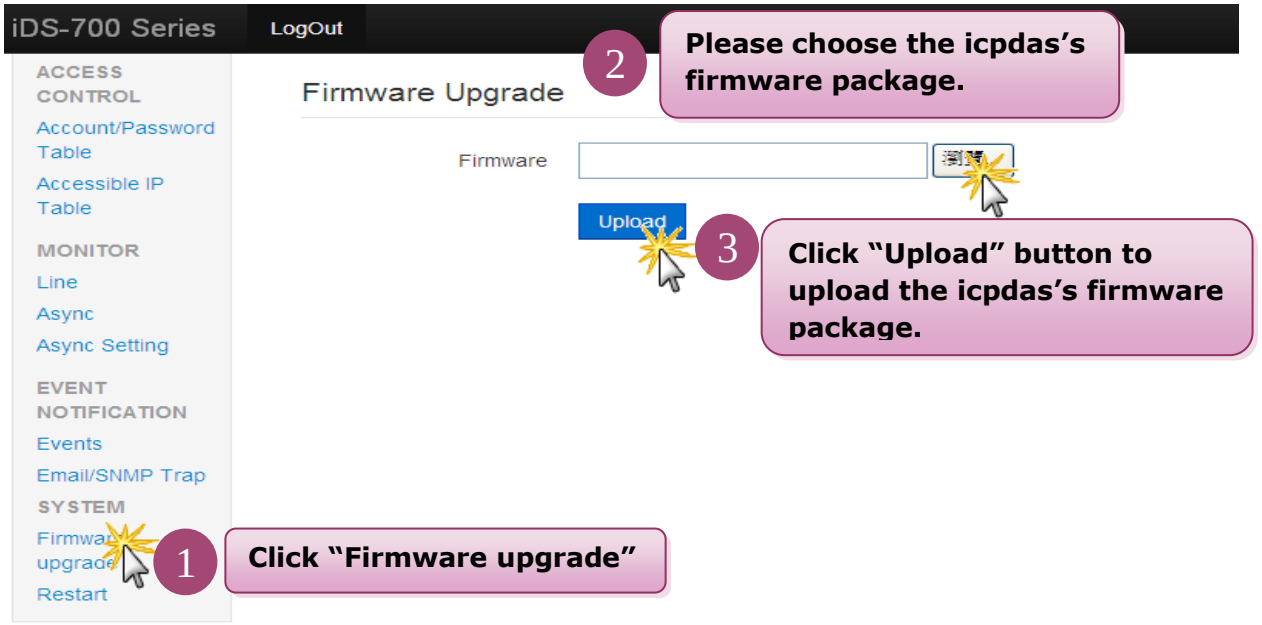
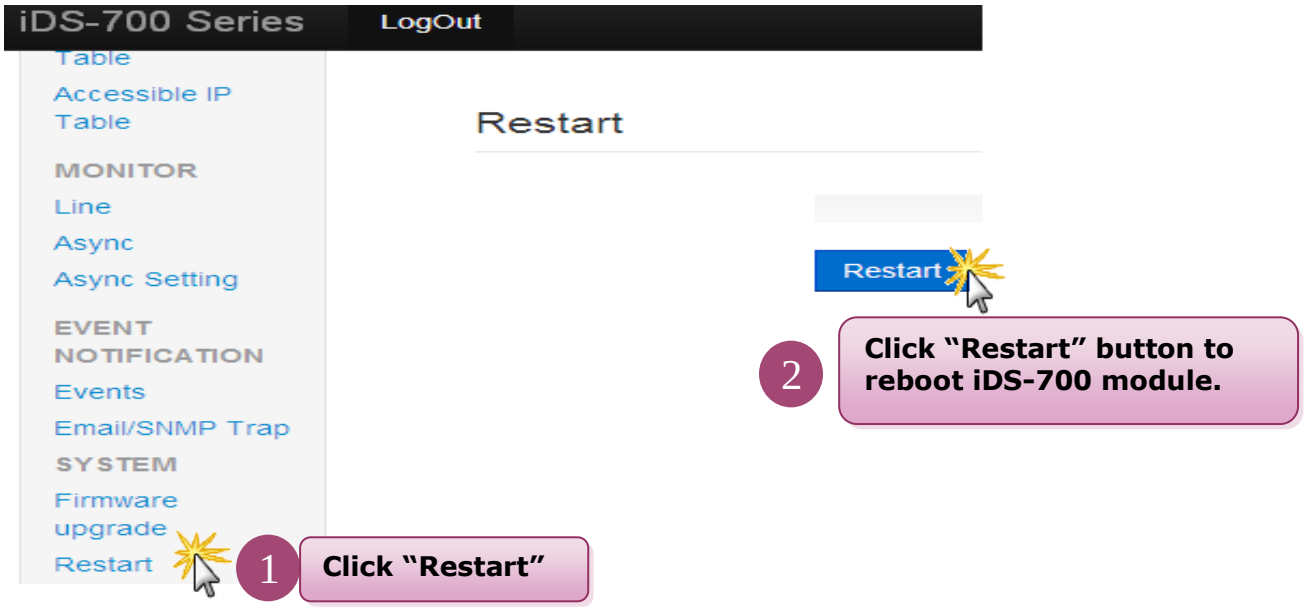


Fig 3-11 Firmware upgrade

3.2.9 Restart

Clicking the "**Restart**" to reboot the iDS-700 module. Please refer to the Fig 3-12:



LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

Fig 3-12 Restart

4. Serial Port Operation Modes

4.1 Serial Port Basic Setting

Clicking the SERIAL PORT SETTING "**Port1**" to set the serial port's basic configuration or click the SERIAL PORT SETTING "**Advanced Options**" to set the serial port's modem control and command setting. Please refer to the Fig 4-1, Fig 4-2:

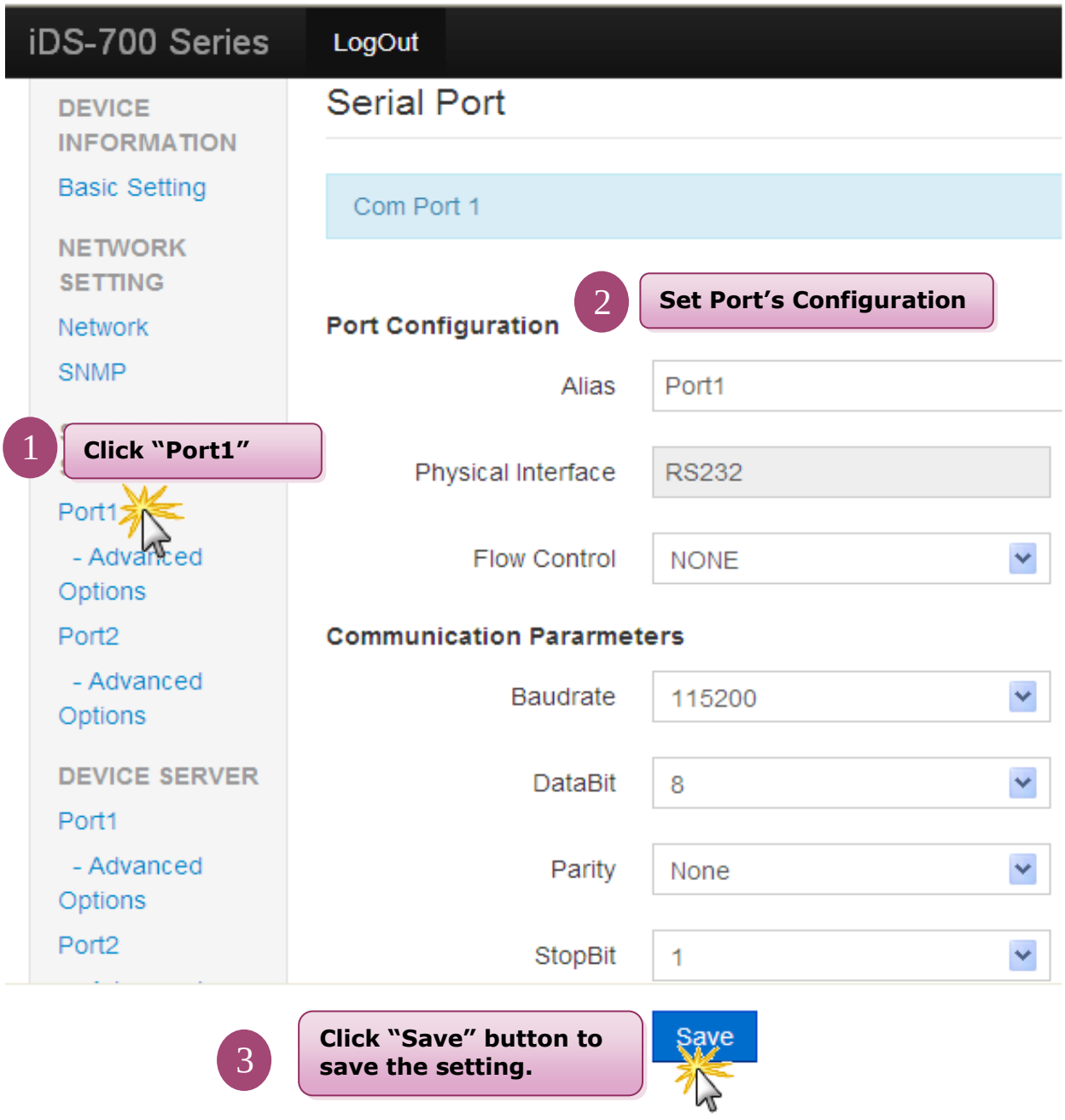


Fig 4-1 Port1

Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

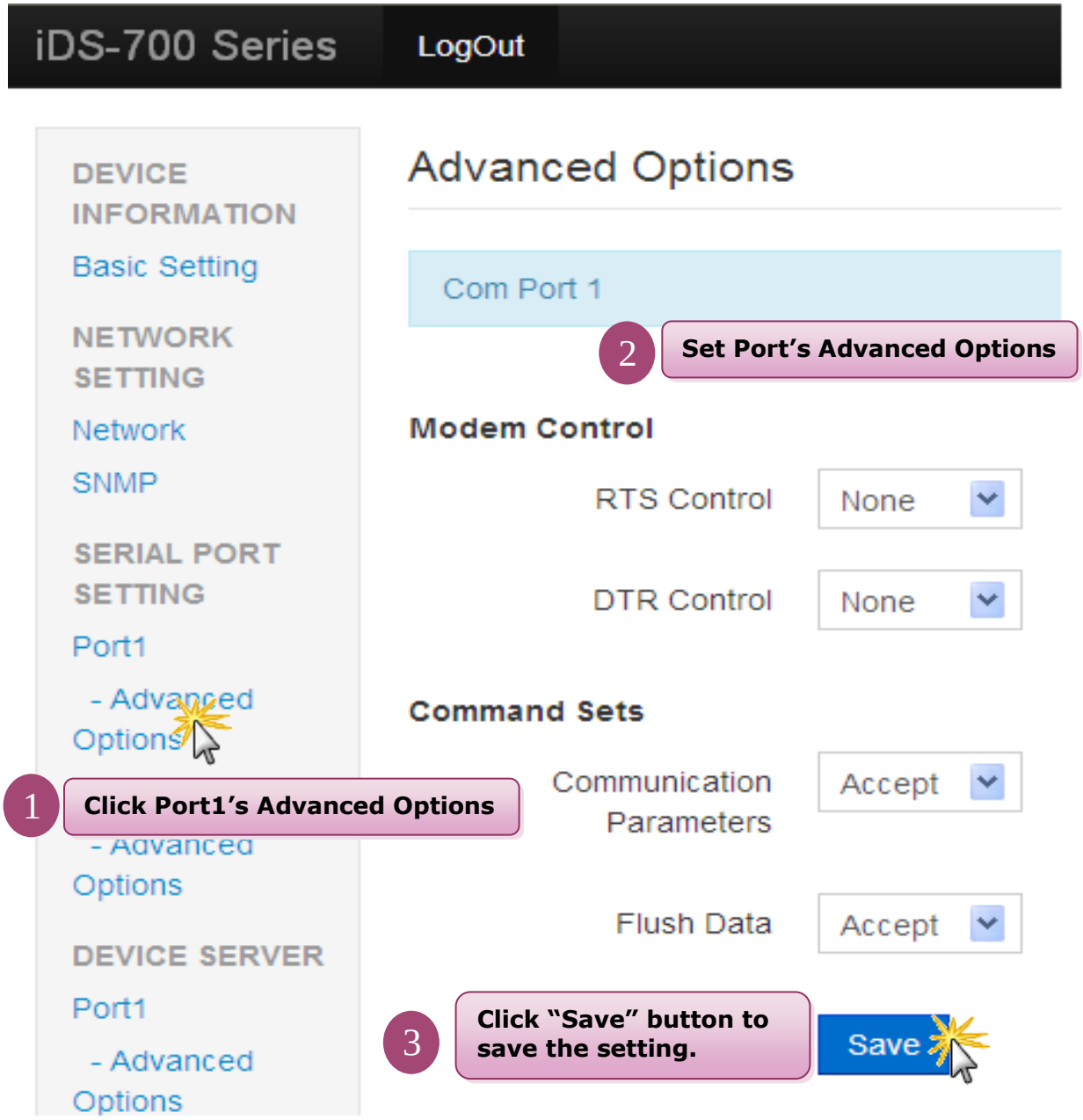


Fig 4-2 Port1's Advanced Option

4.2 Virtual COM

4.2.1 Installing Virtual COM Utility

Please install **VxComm Utility** (v 2.12.07 or later version), the software can download from below web link: http://ftp.icpdas.com/pub/cd/8000cd/napdos/driver/vxcomm_driver/

4.2.2 Network Setting

Please refer to chapter “3.2.2” to set network environment of iDS modules.

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4.2.3 Configuring Virtual COM Ports

Please refer to below steps to set and use the virtual COM ports.

1. Double click the **VxComm Utility** shortcut on the desktop.
2. Click the **"Add Server[s]"** button to connect to the iDS-700, then user assign a COM Port number and click **"OK"** to save your settings, please refer to Fig 4-3.

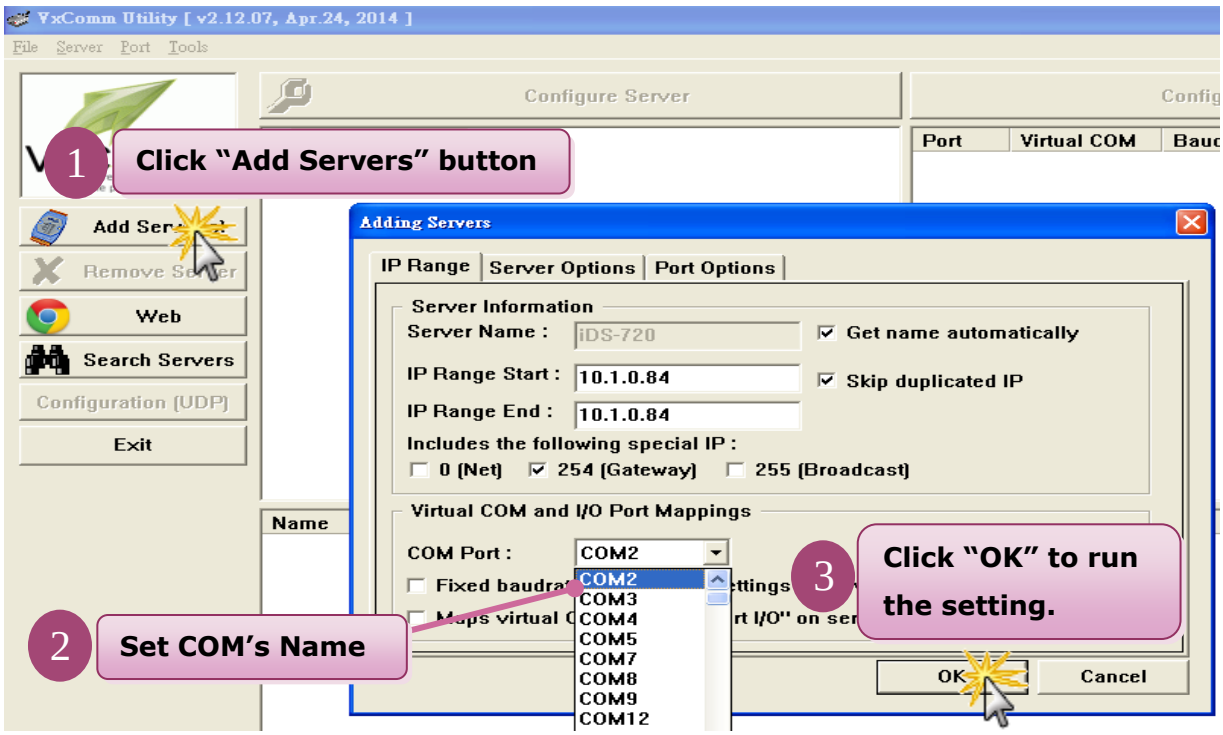


Fig 4-3

3. Click on **iDS-700's name** and check the virtual COM port mappings on the PC, please refer to Fig 4-4.

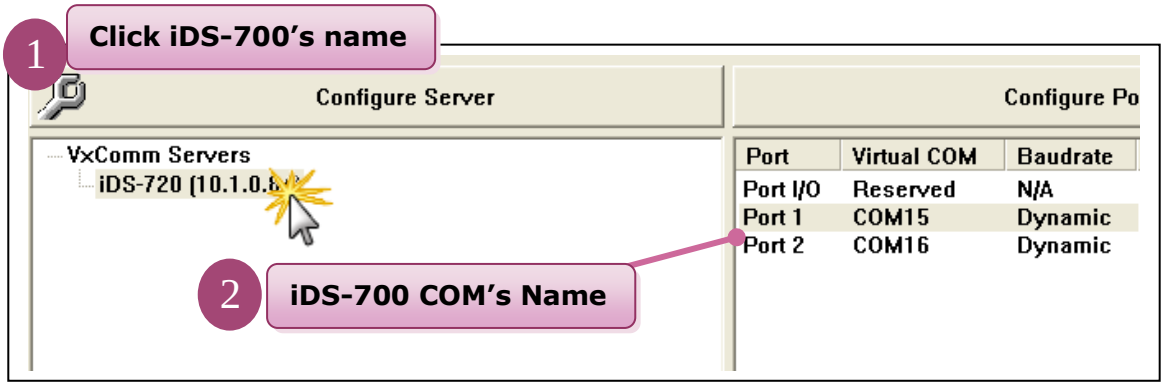


Fig 4-4

LRI Distribuída no Brasil pela LRI | vendas@lri.com.br | 51 2129-3000

4. Click **“Tools” >> “Restart Driver”**, and then click the **“Restart Driver”** button, please refer to Fig 4-5.

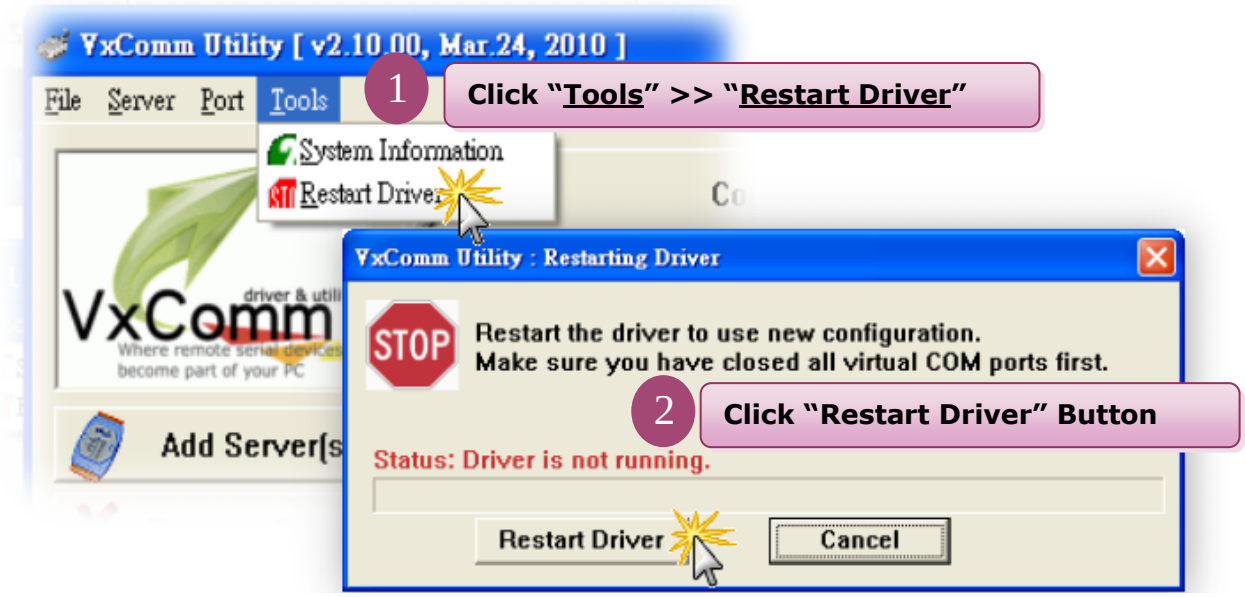


Fig 4-5

4.3 Socket Modes

4.3.1 TCP Server

To click **"DEVICE SERVER" >> "Port1"** to choose **"TCP Server"** mode, please refer to Fig 4-6. **After user had saved the setting, user must reboot iDS modules (please refer to the chapter "3.2.9 restart").**

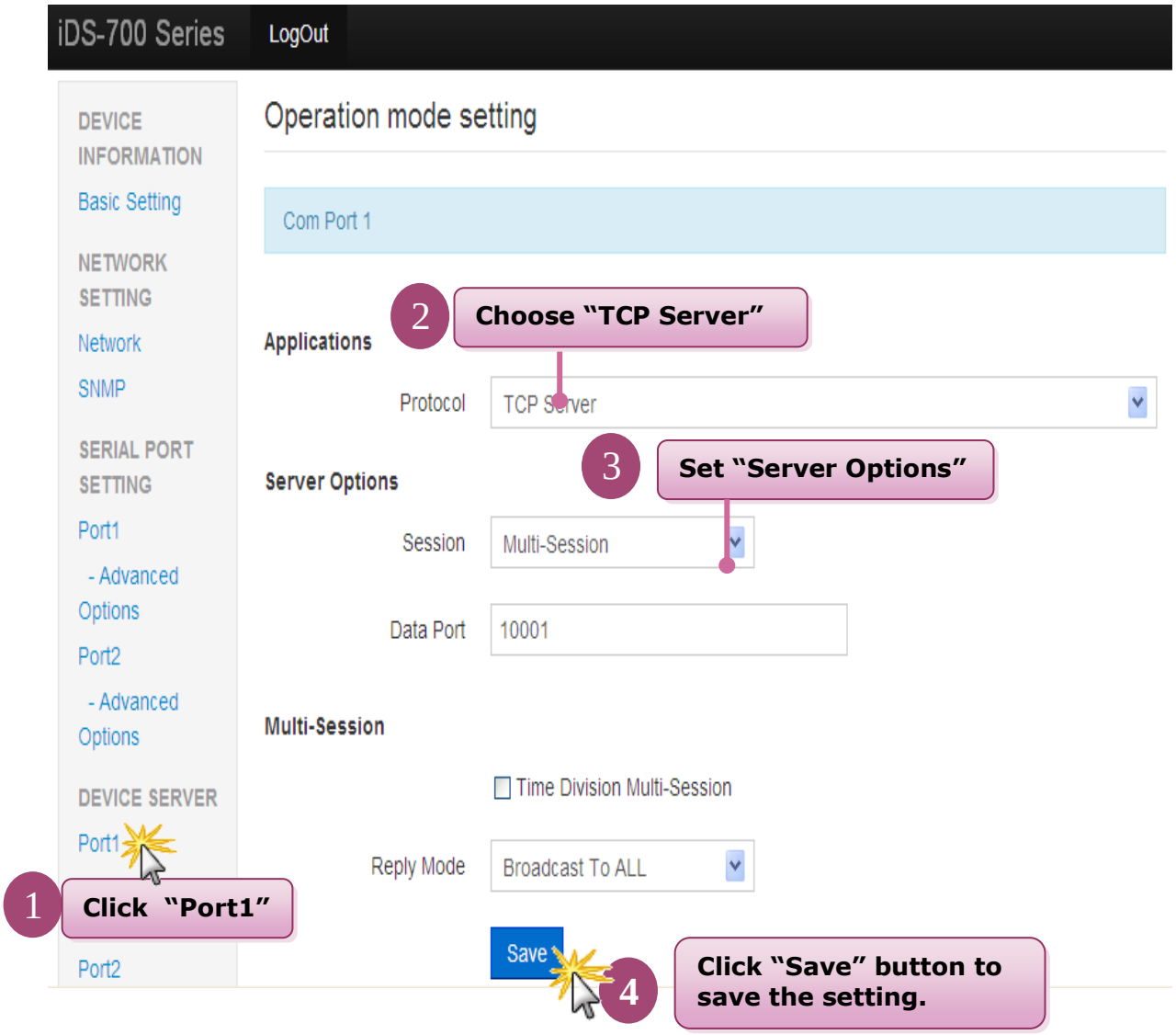


Fig 4-6 TCP Server Mode

4.3.2 TCP Client

To click **“DEVICE SERVER” >> “Port1”** to choose **“TCP Client”** mode, please refer to Fig 4-7. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

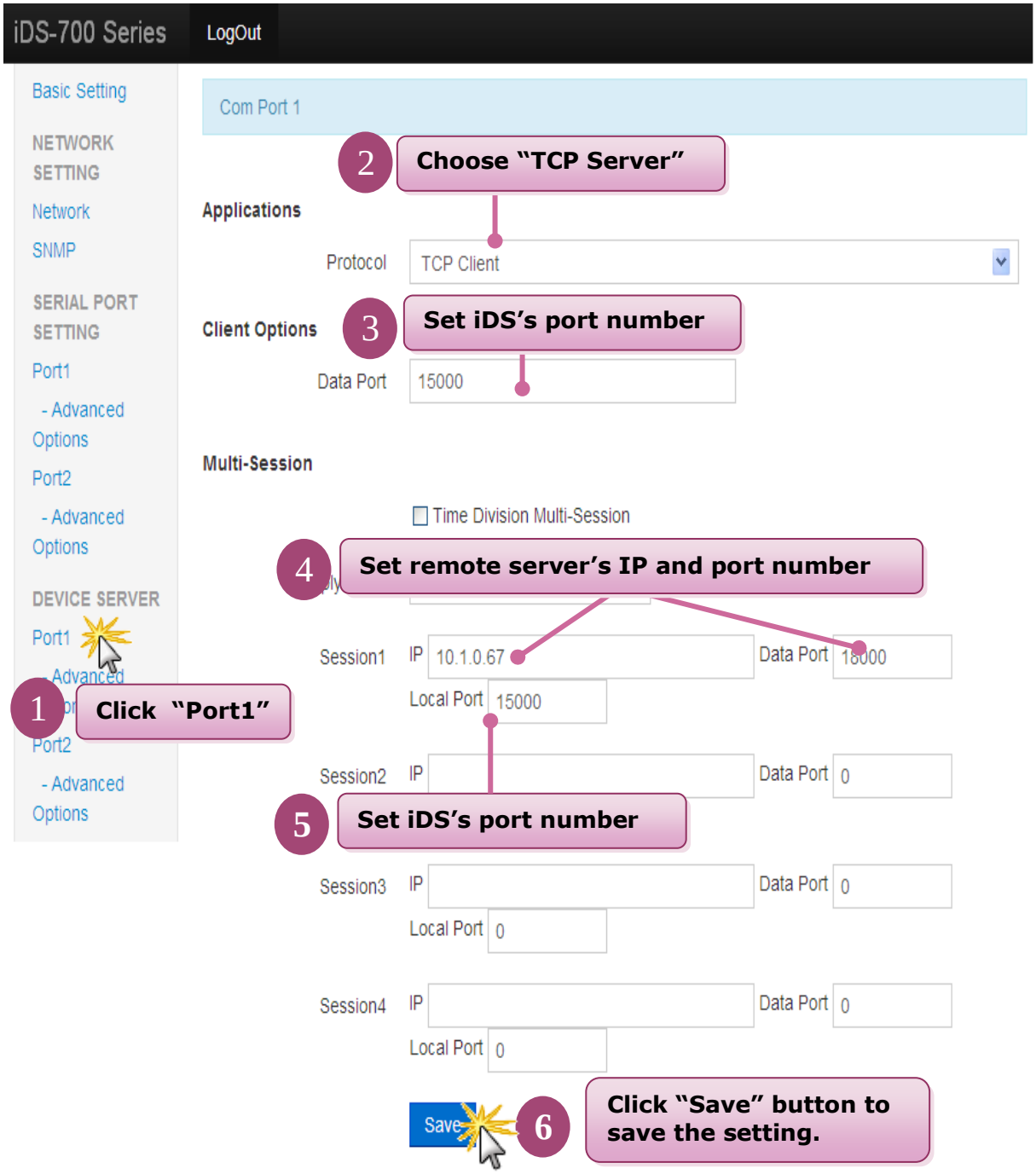


Fig 4-7 TCP Client Mode

4.3.3 UDP

To click **“DEVICE SERVER” >> “Port1”** to choose **“UDP”** mode, please refer to Fig 4-8. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

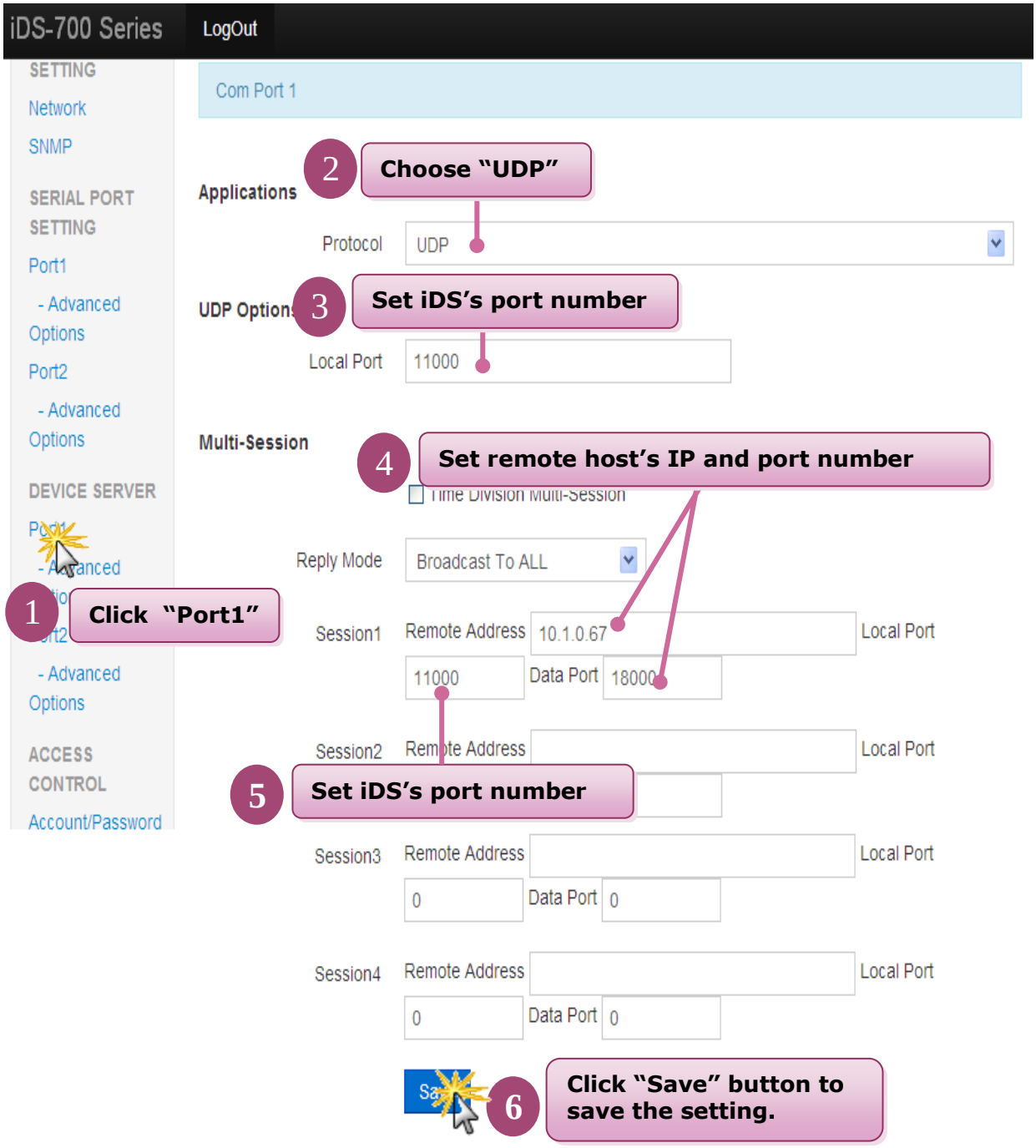


Fig 4-8 UDP Mode

4.4 Pair Connection

4.4.1 Pair Connection Server

To click **“DEVICE SERVER” >> “Port1”** to choose **“Pair Connection”** mode, please refer to Fig 4-9. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

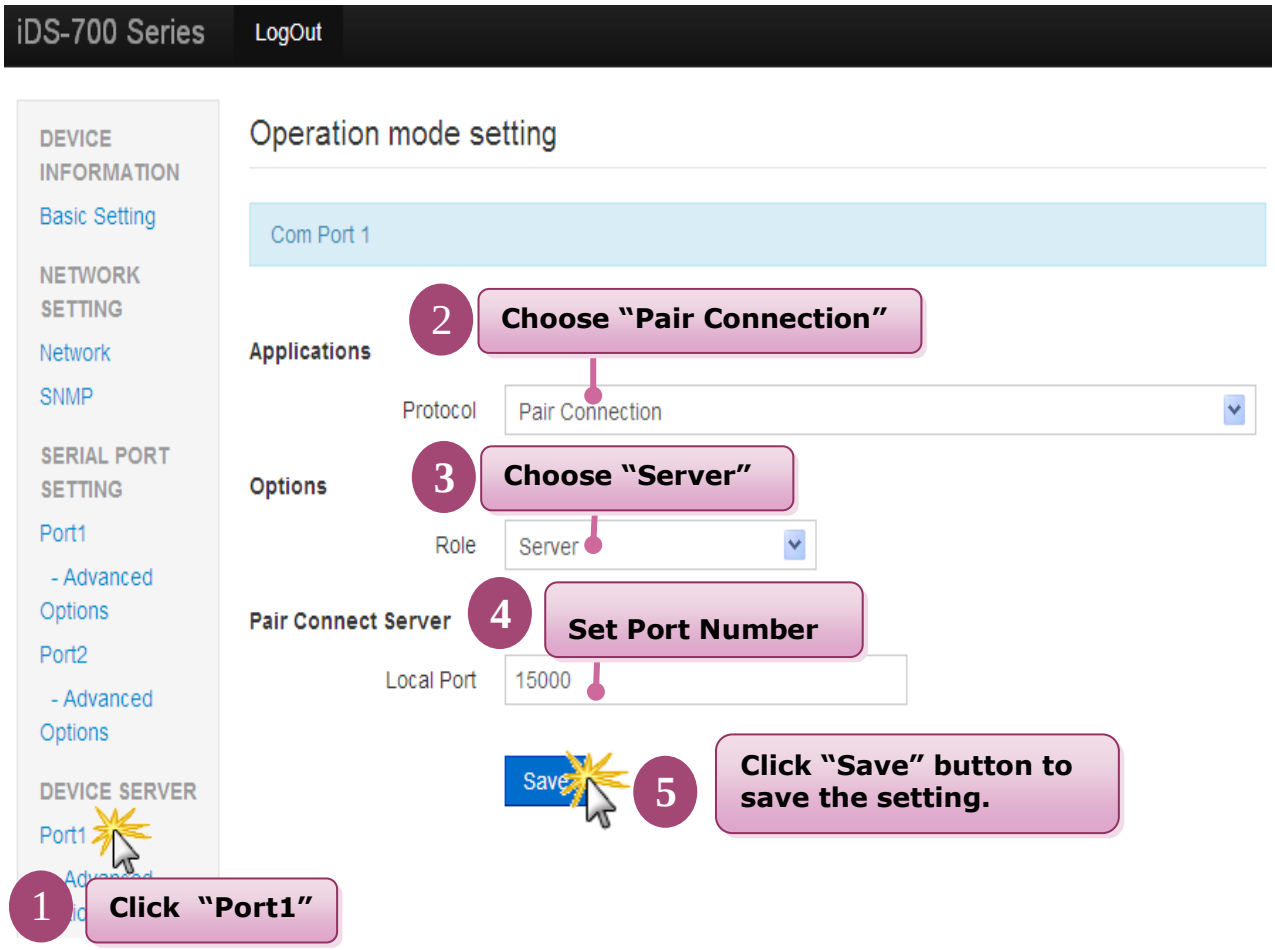


Fig 4-9 Pair Connection Server

4.4.2 Pair Connection Client

To click **“DEVICE SERVER” >> “Port1”** to choose **“Pair Connection”** mode, please refer to Fig 4-10. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

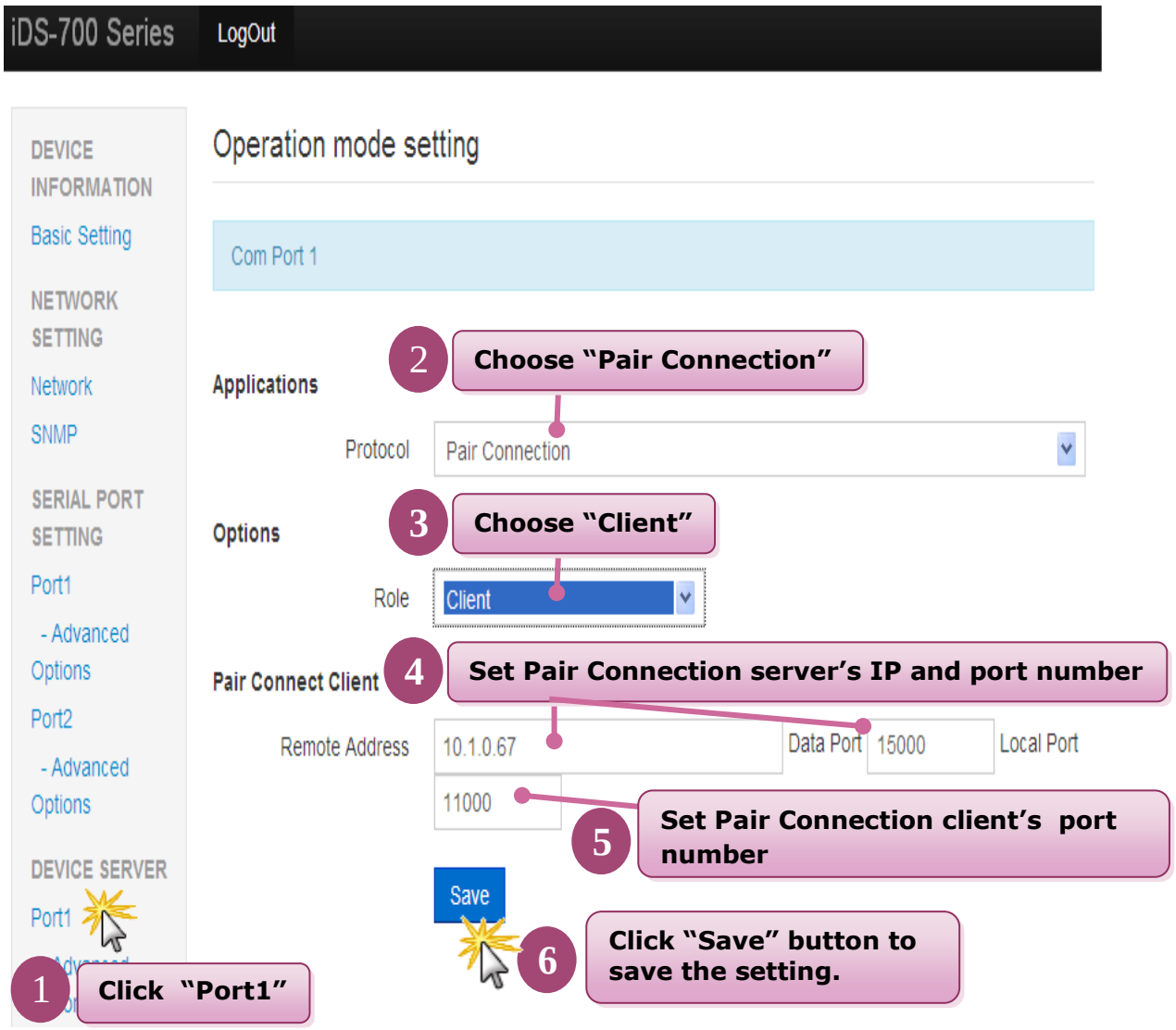


Fig 4-10 Pair Connection Client

4.5 RFC2217

To click **“DEVICE SERVER” >> “Port1”** to choose **“RFC-2217”** mode, please refer to Fig 4-10. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

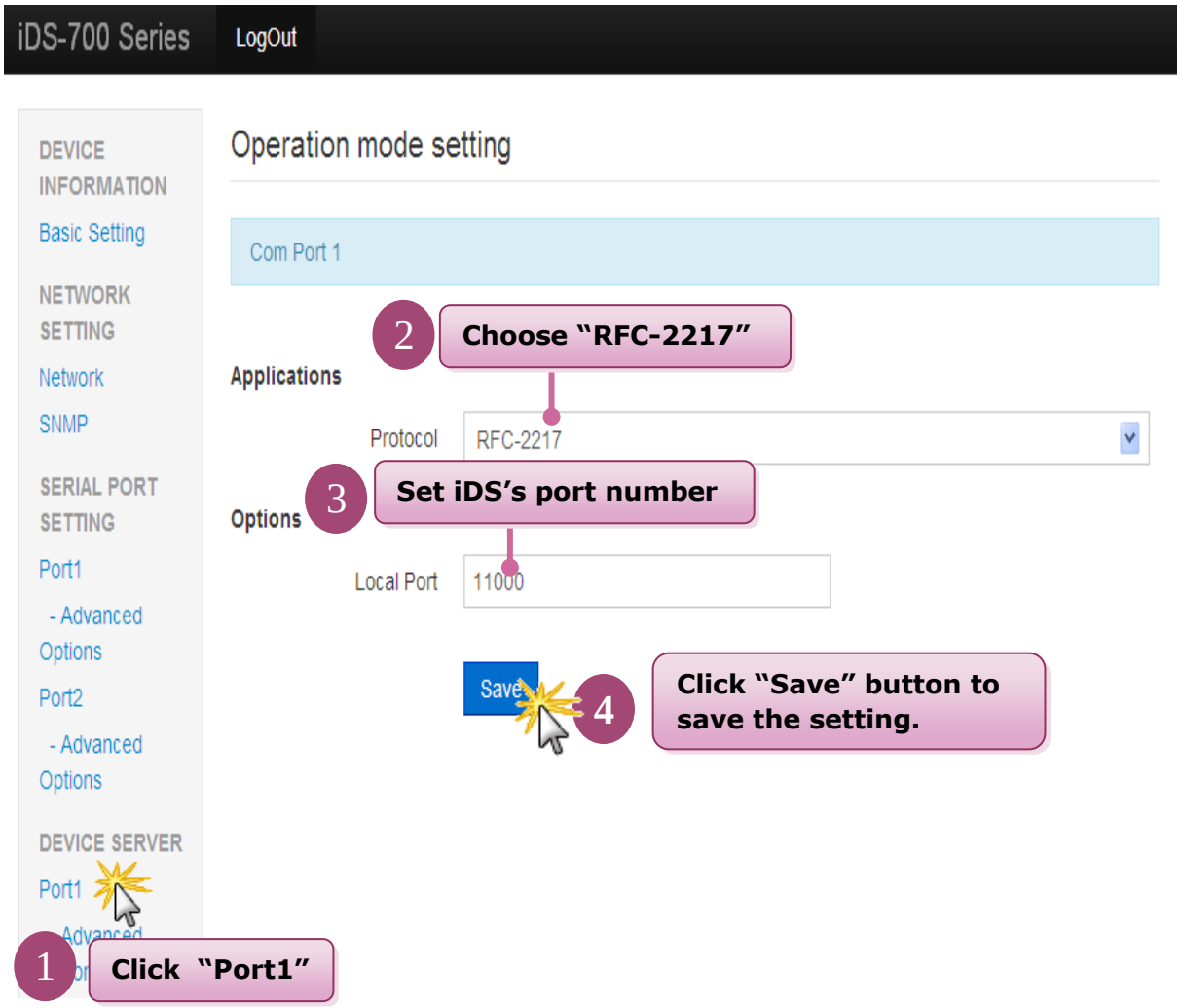


Fig 4-10

4.6 Ethernet Modem

To click **“DEVICE SERVER” >> “Port1”** to choose **“Ethernet Modem”** mode, please refer to Fig 4-11. **After user had saved the setting, user must reboot iDS modules(please refer to the chapter “3.2.9 restart”).**

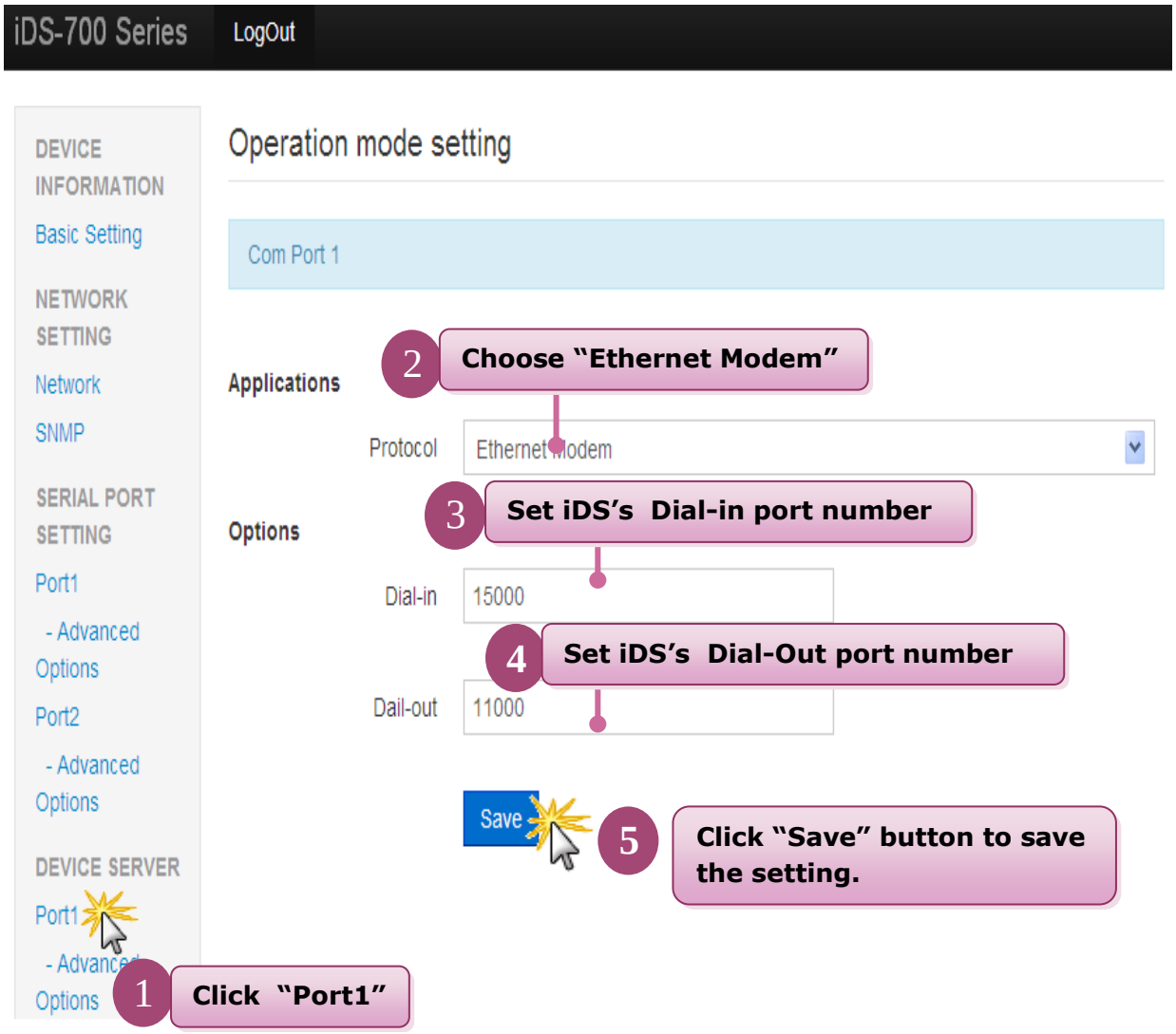


Fig 4-11 Ethernet Modem