iKAN Series Display

User Manual

V1.0.1, September 2019

iKAN-116/iKAN-116S/iKAN-124/iKAN-124S

iKAN-208/iKAN-216/iKAN-224

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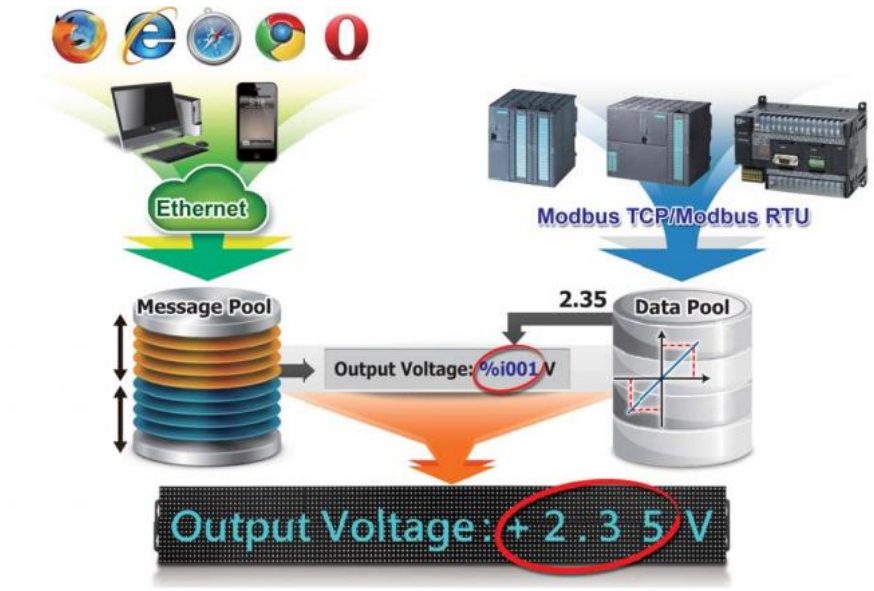
1. Introduction

The iKAN series is a family of industrial Modbus LED display devices that deliver industrial-grade anti-noise capabilities, as well as reliability and stability. The device is highly suitable for presenting formatted messages in indoor areas using either Unicode characters, which can be used to display multiple languages, or ASCII characters. Support for the popular Modbus industrial protocol is provided meaning that the iKAN display device can be easily integrated into existing PLC and SCADA environments.

168 variables are provided to allow data written from a PC or a PLC to be displayed in a formatted message in real-time. Seven colors are available for the text, which can be used to indicate different degrees of importance of the message, as well as significantly increasing the readability of the message in an industrial arena.



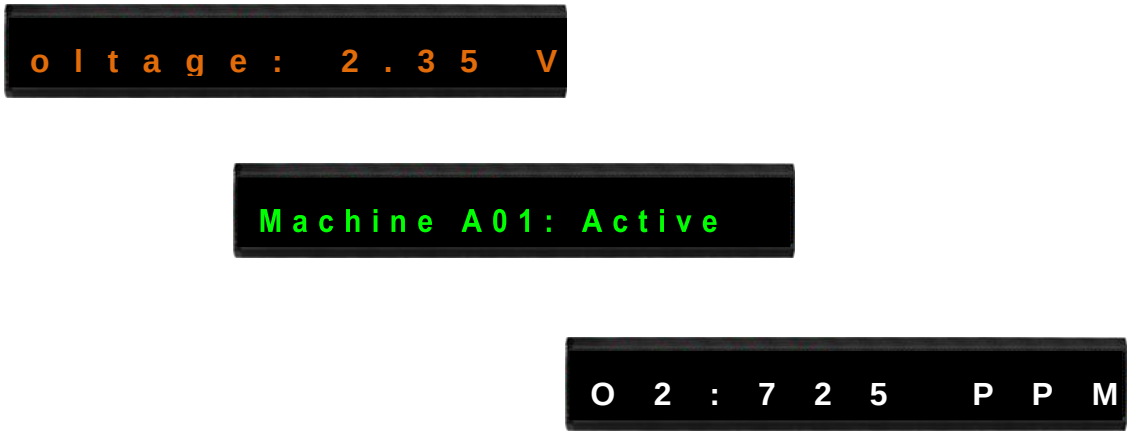
Messages can be edited using a standard web browser, such as Google Chrome, Firefox, or IE, etc., on a PC, mobile device, or smartphone without any limitations related to specific control tools or programs. The display of individual messages can also be remotely enabled or disabled as necessary using the same standard web browser. Each model in the iKAN series provides storage space for up to 128 messages with user-defined priority, each containing a maximum of 20 Unicode characters or 100 ASCII characters. With an open user interface and the ability to display real-time data, the iKAN series display can be installed in a variety of indoor spaces, including shopping malls, railway stations, and industrial areas.

1.1. Features

The following is a brief summary of the features and capabilities of iKAN displays.

PLC HMI

The iKAN series can be employed as a large HMI with a memory storage of up to 128 messages with user-defined priority, each of which can be used to display information generated by a PLC. Message text can be displayed in a range of seven colors, including red, blue, yellow, green, light blue, purple, and white, which can be used to indicate warnings or alarms, as well as increasing the readability of a message.



Support for Multiple Languages

The iKAN series of display device supports Unicode input, meaning that messages can be configured to be displayed in multiple languages.

Message Editing

A maximum of 128 messages with user-defined priority can be preconfigured from the first moment that the iKAN series display is switched on. When the display is in operation, the focus needs only be on message management rather than the need to frequently update the messages.

Message Priority

Instant messages have a higher priority than common messages. Once an instant message is enabled, the common message currently being displayed will be suspended until the instant message is disabled. This feature allows the most important information to be displayed in an emergency situation.

Integer-type variables enable data mapping

The iKAN series of display devices provide the ability to perform data mapping to translate a computer integer value to a readable physical value, such as the voltage, temperature, or relative humidity, etc. In the industrial field, this is a commonly performed task between the host computer and the data-acquisition device via the Modbus protocol, enabling a reduction in the resources and programming required for the host computer

Import/Export the message configuration

The iKAN series allows a message and the parameters of the variables to be saved as a configuration file, which can then be loaded onto another iKAN series device to avoid the need to repeat the configuration.

Smartphone Application

Users can manage messages via a regular smartphone without requiring a specific connection device, meaning that emergency information can be quickly sent to the display using the smartphone.

1.2. Specification

The table below summarizes the specifications of the iKAN series of displays.

iKAN-116/iKAN-116S/iKAN-124/iKAN-124S

Model		iKAN-116	iKAN-116S	iKAN-124	iKAN-124S
Display					
Color		Red, Blue, Yellow, Green, Light Blue, Purple or White			
Character Set		16-bit Unicode or 7-bit ASCII			
Display Size	ASCII	16 characters		24 characters	
	Unicode	8 characters		12 characters	
Message Pool		128 messages with user-defined priority Up to 20 Unicode characters or 100 ASCII characters each			
Data Pool		40 Coil values, 64 Float values, and 64 Integer values			
RTC (Real-time Clock)		Date and time, 24 hour format, including hours, minutes, seconds, day of the week, date, month, year			
Ethernet					
Port		2 x RJ-45, 10/100 Base-TX			
Protocol		Modbus TCP Slave, Max. 8 Connections			
Configuration		Web-based User Interface			
COM Port					
Interface		1 x RS-232 and 2 x RS-485			
Baud rate (bps)		1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200			
Data Format		N81, E81, O81			
Protocol		Modbus RTU Slave			
Mechanical					
Dimensions (W x H x D, unit: mm)		1346 x 160 x 49	835 x 115 x 37.5	1986 x 160 x 49	1218 x 115 x 37.5
Weight		4.0 Kg	2.0 Kg	4.6 Kg	2.5 Kg
Installation		Wall mounting			
Housing Material		Aluminum			

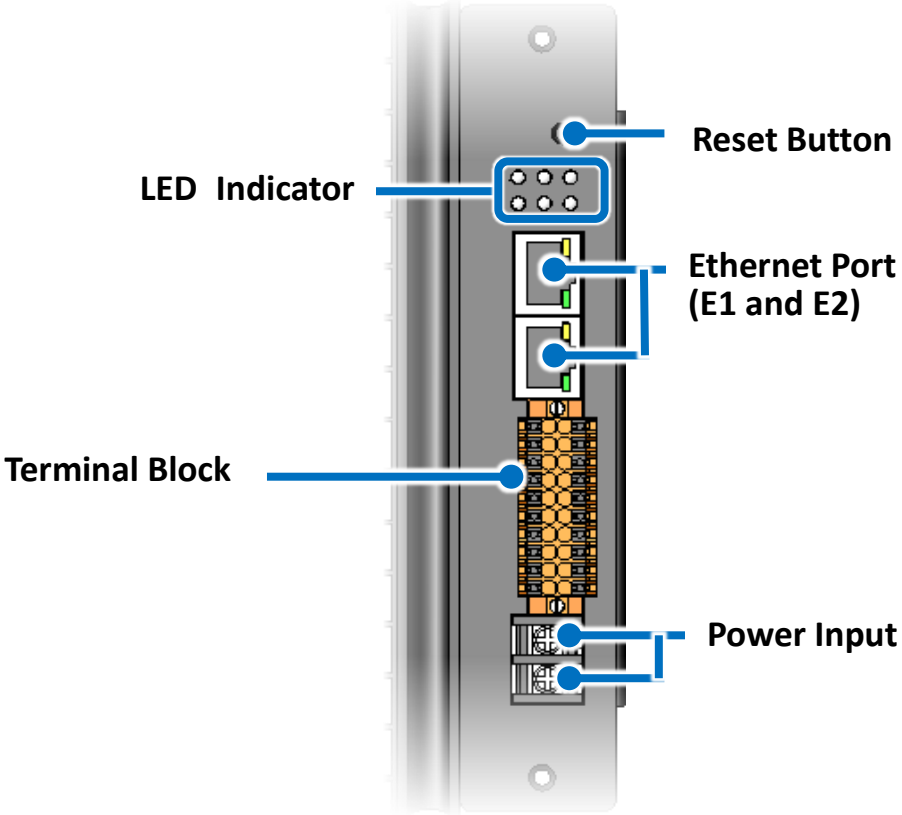
Model	iKAN-116	iKAN-116S	iKAN-124	iKAN-124S
Power				
Input Range	100 to 240 VAC			
Consumption	0.3A @ AC 120 V		0.35 A @ AC 120 V	
Environment				
Operating Temperature	0 to 60°C			
Storage Temperature	-10 to 75°C			
Humidity	10 to 90% RH, Non-condensing			

iKAN-208/iKAN-216/iKAN-224

Model		iKAN-208	iKAN-216	iKAN-224
Display				
Color		Red, Blue, Yellow, Green, Light Blue, Purple or White		
Character Set		16-bit Unicode or 7-bit ASCII		
Display Size	ASCII	16 characters	32 characters	48 characters
	Unicode	8 characters	16 characters	24 characters
Message Pool		128 messages with user-defined priority Up to 20 Unicode characters or 100 ASCII characters each		
Data Pool		40 Coil values, 64 Float values, and 64 Integer values		
RTC (Real-time Clock)		Date and time, 24 hour format, including hours, minutes, seconds, day of the week, date, month, year		
Ethernet				
Port		2 x RJ-45, 10/100 Base-TX		
Protocol		Modbus TCP Slave, Max. 8 Connections		
Configuration		Web-based User Interface		
COM Port				
Interface		1 x RS-232 and 2 x RS-485		
Baud rate (bps)		1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200		
Data Format		N81, E81, O81		
Protocol		Modbus RTU Slave		
Mechanical				
Dimensions (W x H x D, unit: mm)		707 x 320 x 50	1346 x 160 x 49	1986 x 160 x 49
Weight		4 Kg	8 Kg	12 Kg
Installation		Wall mounting		
Housing Material		Aluminum		
Power				
Input Range		100 to 240 VAC		
Consumption		0.3 A @ AC 120 V	0.4 A @ AC 120 V	0.5 A @ AC 120 V
Environment				
Operating Temperature		0 to 60°C		
Storage Temperature		-10 to 75°C		
Humidity		10 to 90% RH, Non-condensing		

1.3. Overview

The iKAN series display is equipped with a number of interfaces and peripherals that can be integrated with external systems. Here is an overview of the components and a description of each.



The details of these items are as follows:

- **Reset Button**

  The reset button is used to check the IP address and restore all settings to the factory default.

  By pressing the Reset button for 5 seconds, the IP address for the iKAN series device will be shown on the display. This is very useful, especially when you have forgotten the IP address needed to access the iKAN series display.

  By pressing the Reset button for 8 seconds, all messages and variable configuration settings will be reset to the factory defaults.

- **LED Indicator**

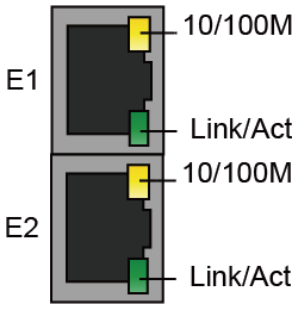
The iKAN series display contains six LED indiators that display the status of the iKAN series display. The details are:

LED Indicator/Label	State	Meaning
PWR	Red	The power is on.
	Red-Blinking	The OS is functioning.
Reset	Red	The Reset button is activated.
DI1, DO1	Orange	These LED indicators are used to indicate the status of the Digital I/O.
DI0, DO0	Green	These LED indicators are used to indicate the status of the Digital I/O.

- **Ethernet Port (E1 and E2)**

The iKAN series display contains two Ethernet ports that can be used to connect a router to the Internet, or to other devices.

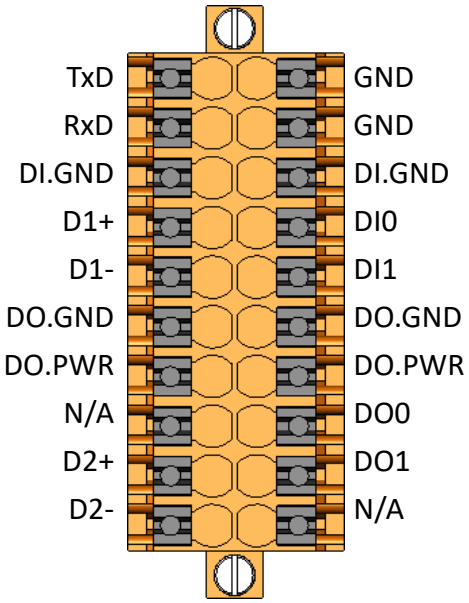
Each Ethernet port provides two LED indicators that display the status of the iKAN series display. The details are:



LED Indicator/Label	Label	State	Meaning
E1、E2	10/100M	Orange	Network Speed: 100 M
		-	Network Speed: 10 M
	Link/Act	Green	The Link is active.
		-	The Link is inactive.
		Green-Blinking	Network activity.

- **Terminal Block**

The iKAN series display contains a terminal block with 20 poles, as illustrated below. For more information related to the identification of the wiring connections, refer to Section “1.4. Wire Connections”.



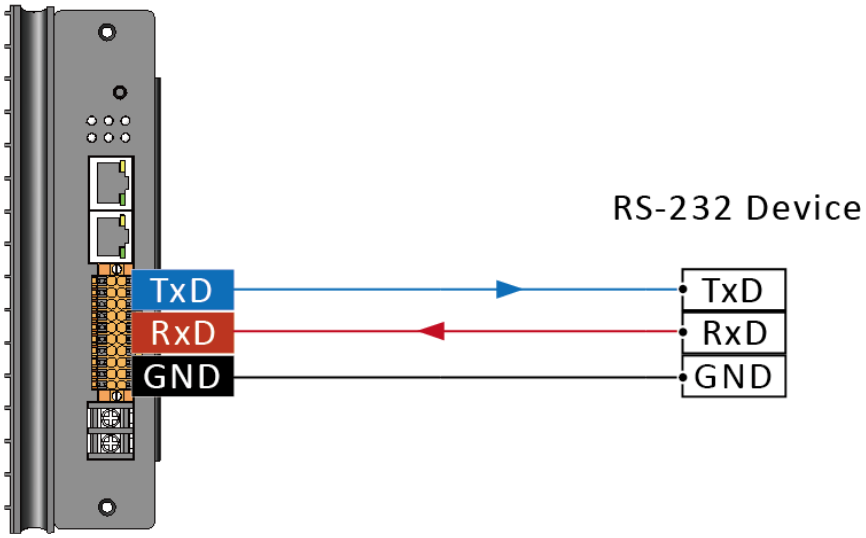
COM Ports	
COM1: RS-485	D1+ and D1-
COM2: RS-232	TxD, RxD and GND
COM3: RS-485	D2+ and D2-

Digital Input/Digital Output	
Digital Input 1	DI0 and DI.GND
Digital Input 2	DI1 and DI. GND
Digital Output 1	DO.PWR, DO0 and DO.GND
Digital Output 2	DO.PWR, DO1 and DO.GND

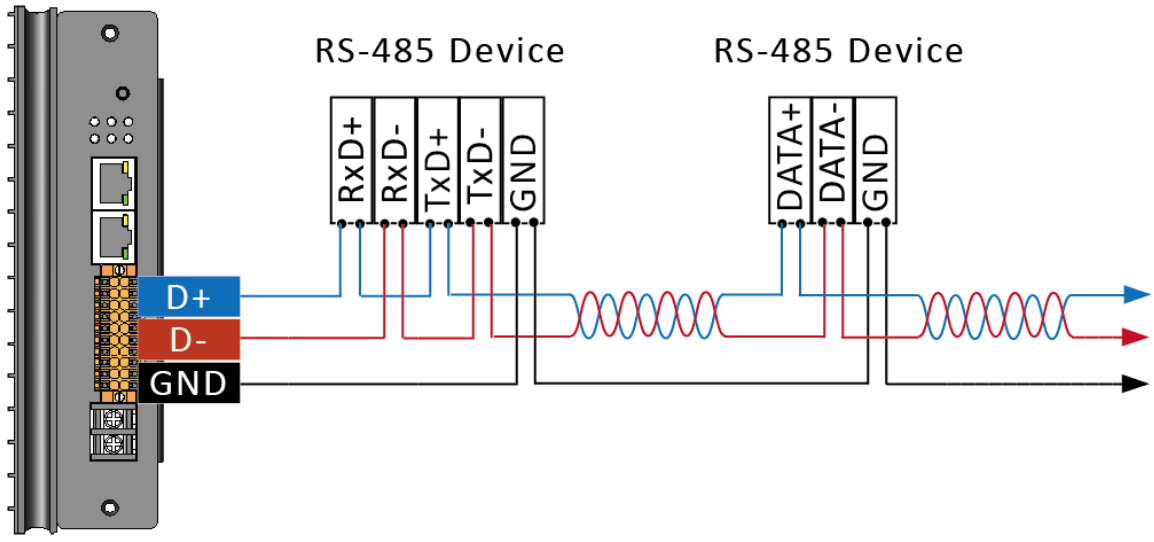
1.4. Wire Connection

The iKAN series display contains a terminal block which provides access to a number of communication formats. The following illustrates the wiring information for the terminal block.

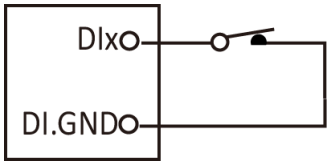
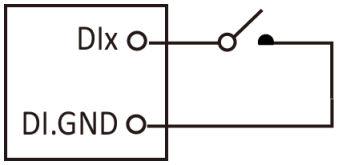
RS-232 Wiring



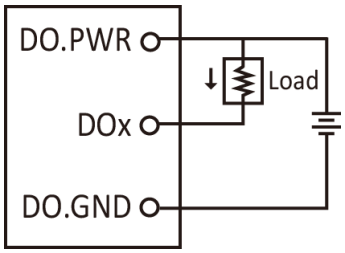
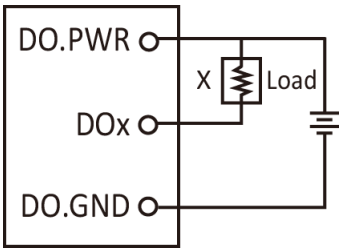
RS- 485 Wiring



DI Wiring

Input Type	On State as 0	OFF State as 1
Dry Contact	Close to GND	Open
		

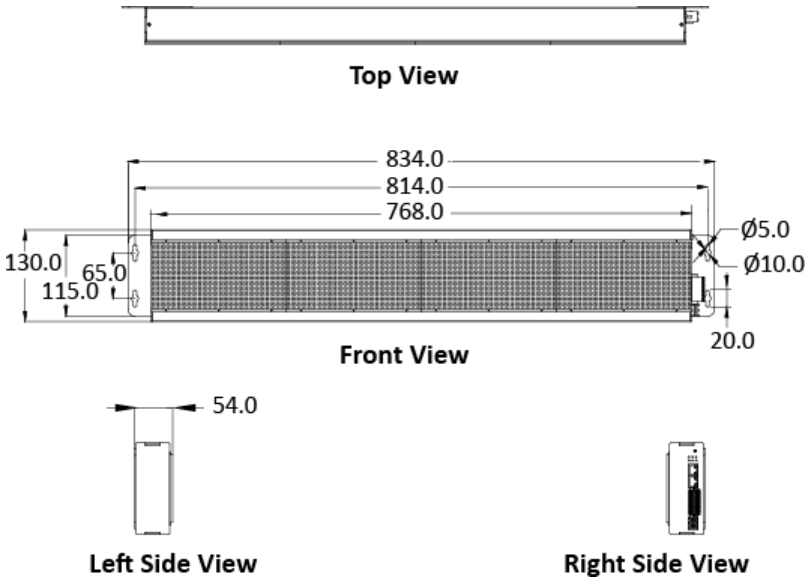
DO Wiring

Input Type	On State Readback as 1	OFF State Readback as 0
DO (Sink, NPN)	+5 to +24 VDC	Open
		

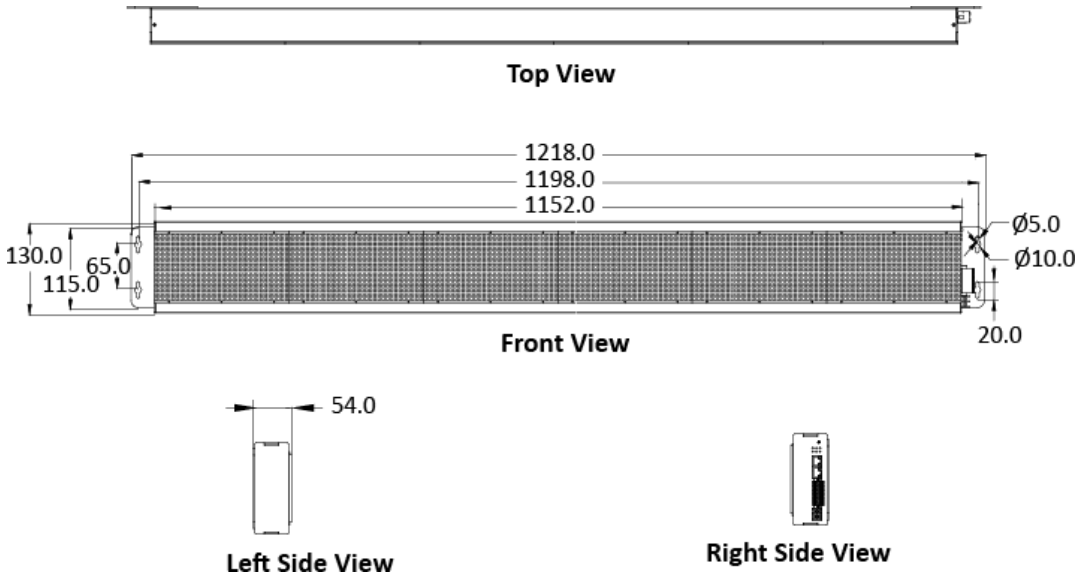
1.5. Dimension

The diagrams below provide details of the dimensions for the iKAN series of displays that can be used when defining the specifications for any enclosures to be installed. All dimensions are in millimeters.

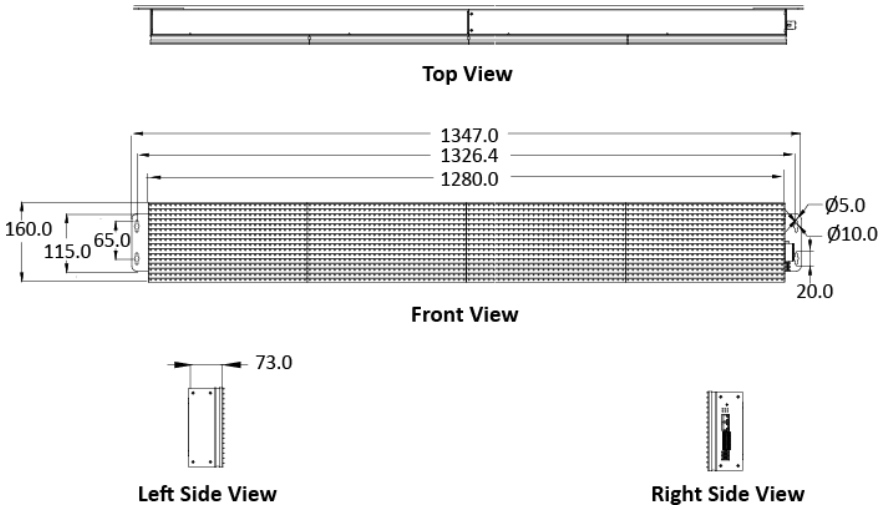
iKAN-116S



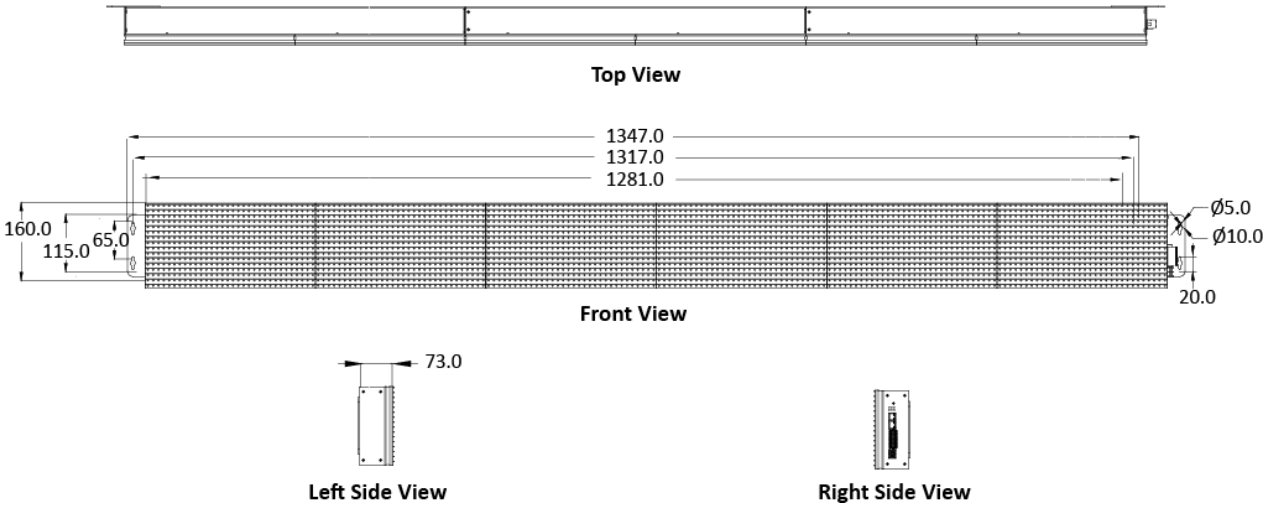
iKAN-124S



iKAN-116

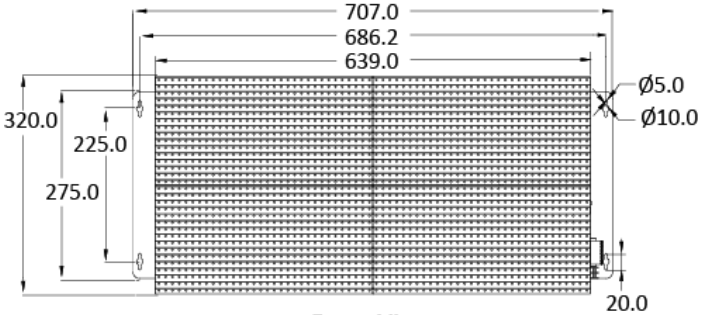


iKAN-124

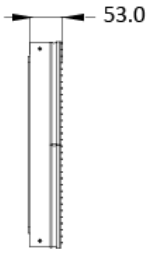


iKAN-208

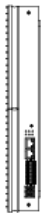
Top View



Front View

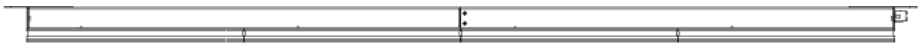


Left Side View

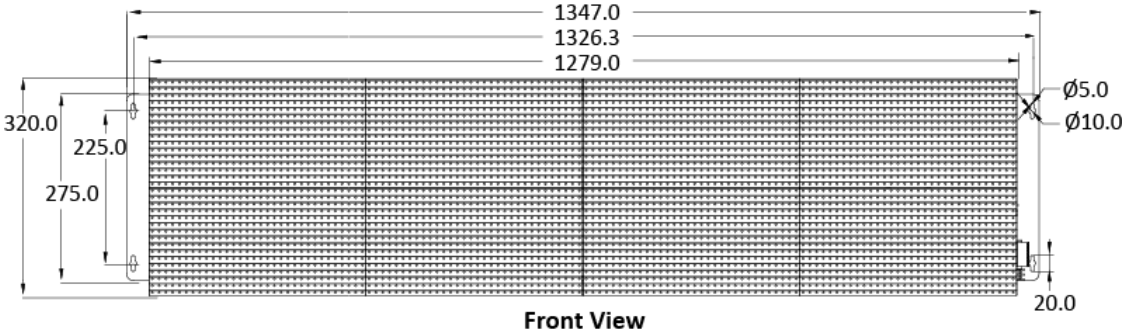


Right Side View

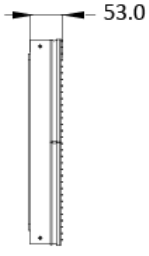
iKAN-216



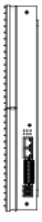
Top View



Front View



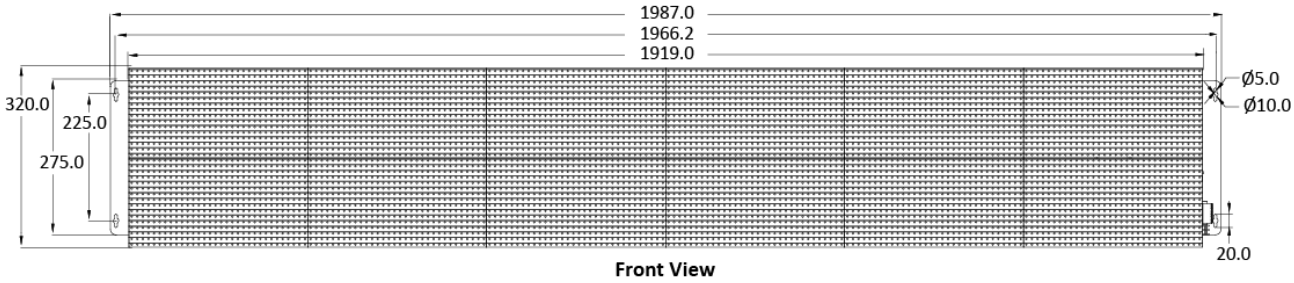
Left Side View



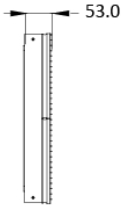
Right Side View

iKAN-224

Top View



Front View



Left Side View

Right Side View

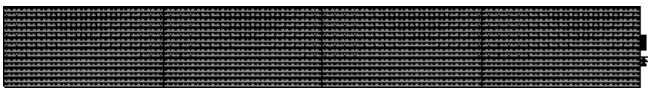
2. Getting Started

If you are new to iKAN, you should read this chapter first, as it provides a description of the basic procedures that need to be followed when installing, configuring, and activating the iKAN system, before operating the iKAN for the first time.

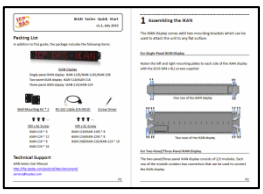
2.1. Checking the Package

Before starting any task, check the contents of the shipping package. If any of the following items are missing or damaged, contact your dealer or distributor.

- **For Single-Panel iKAN Display: iKAN-116S, iKAN-124S and iKAN-208**



iKAN-116S/iKAN-124S/iKAN-208



Quick Start Guide

Wall Mounting Kit * 2

CA-0910

RS-232 Cable

Screw Driver

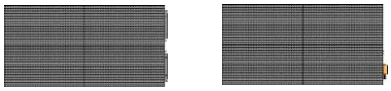
M4x8L Screw

iKAN-116S: Screw * 8

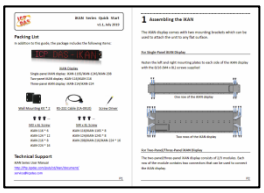
iKAN-124S: Screw * 8

iKAN-208: Screw *16

- **For Two-Panel iKAN Display: iKAN-116 and iKAN-216**



iKAN-116/iKAN-216



Quick Start Guide

Wall Mounting Kit * 2

CA-0910

RS-232 Cable

Screw Driver

M4x8L Screw

iKAN-116: Screw * 8

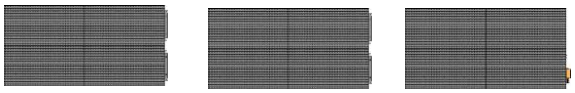
iKAN-216: Screw *16

M3x6L Screw

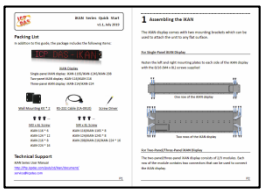
iKAN-116: Screw * 6

iKAN-216: Screw *8

- **For Three-Panel iKAN Display: iKAN-124 and iKAN-224**



iKAN-124/iKAN-224



Quick Start Guide

Wall Mounting Kit * 2

CA-0910

RS-232 Cable

Screw Driver

M4x8L Screw

iKAN-124: Screw * 8

iKAN-224: Screw *16

M3x6L Screw

iKAN-124: Screw * 12

iKAN-224: Screw *16

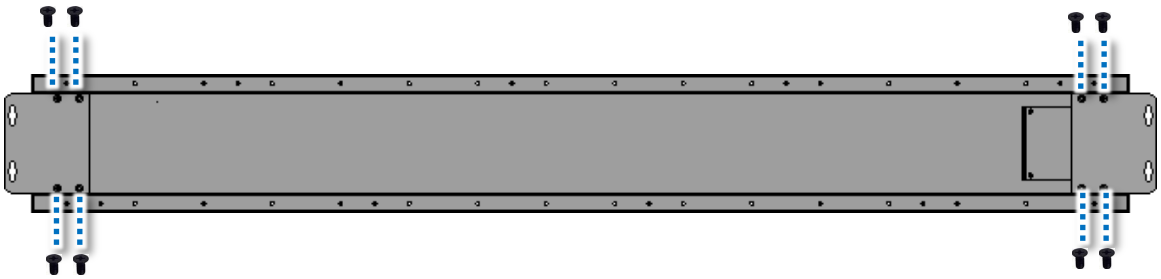
2.2. Assembling the iKAN

Before installation, ensure that the surface dedicated for installation is suitable for supporting the weight of the device. We do not recommend soft and fragile surfaces, such as polystyrene foam, mineral wool, plaster boards, or wooden walls with a thickness of less than 30 mm, etc.

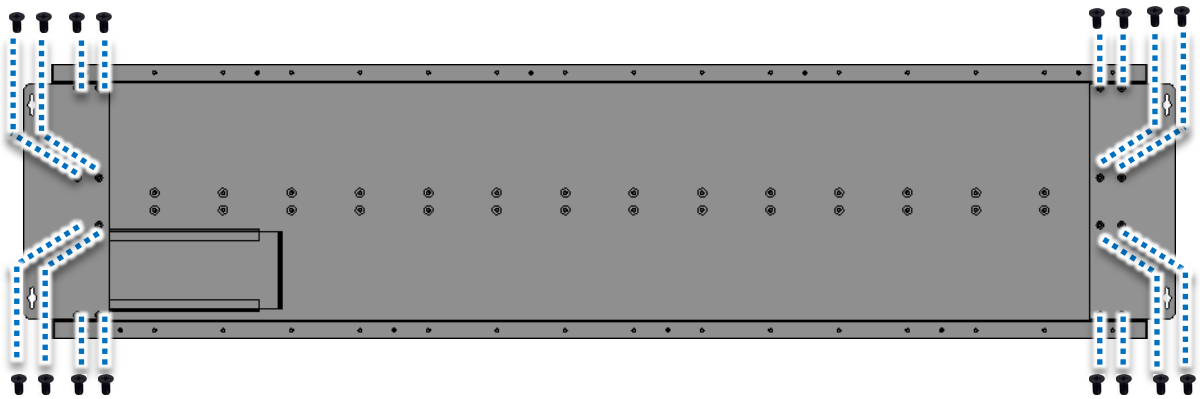
2.2.1. Installing a Single-Panel iKAN Display

Fasten the left and right mounting plates to each side of the iKAN display with the 8/16 screws supplied.

iKAN-116S/iKAN-124S



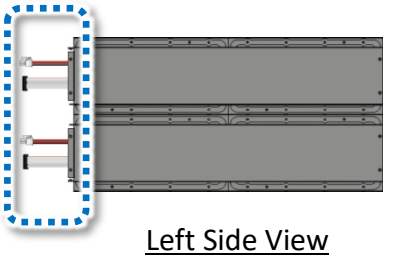
iKAN-208



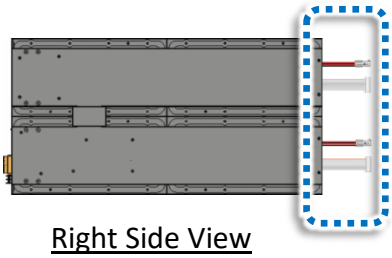
2.2.2. Installing a Two-Panel iKAN Display

Both the iKAN-116 and iKAN-216 consist of two modules, the left hand module and the right hand module. Each row of the module contains two connectors that can be used to connect the iKAN display.

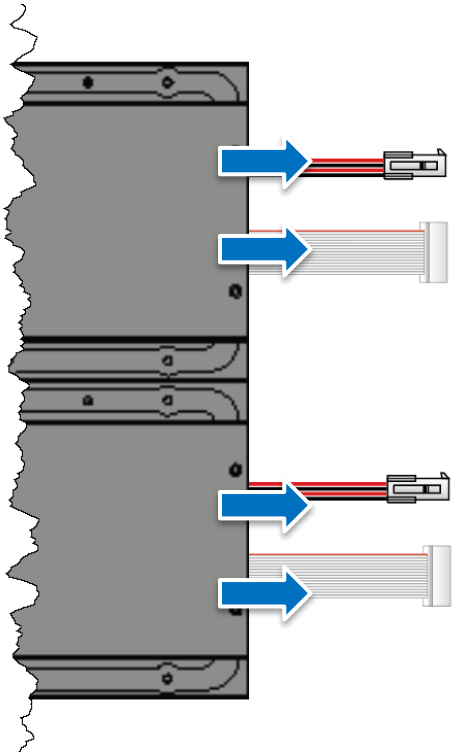
1. Remove the connectors from the opening on the side of the module:



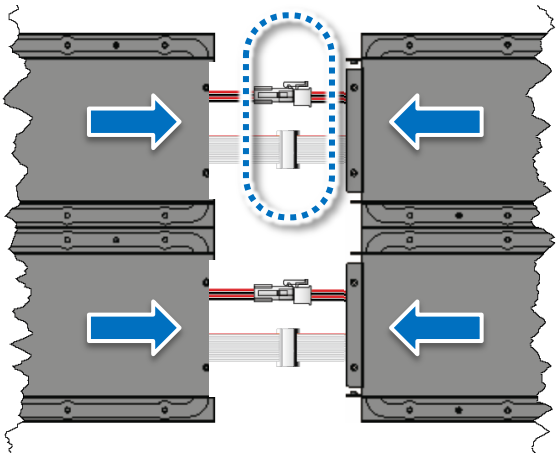
Left Side View

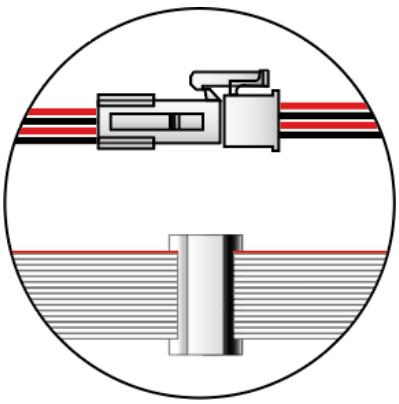


Right Side View



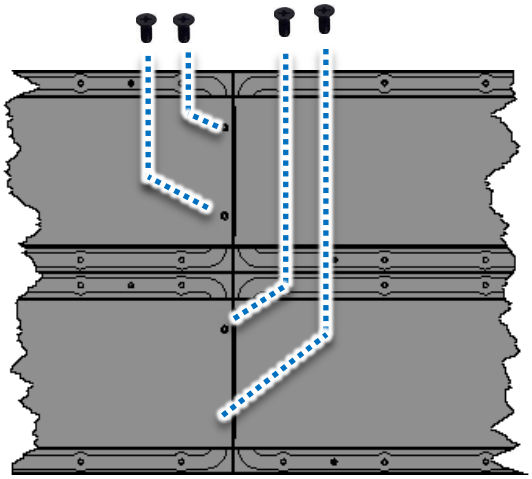
2. Connect the connectors and attach the modules



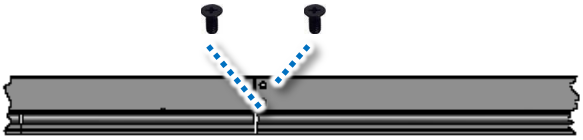


3. Fasten the modules together using the 6/8/12/16 (M4 x 8L) screws supplied

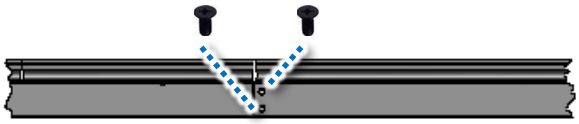
Rear View



Top View

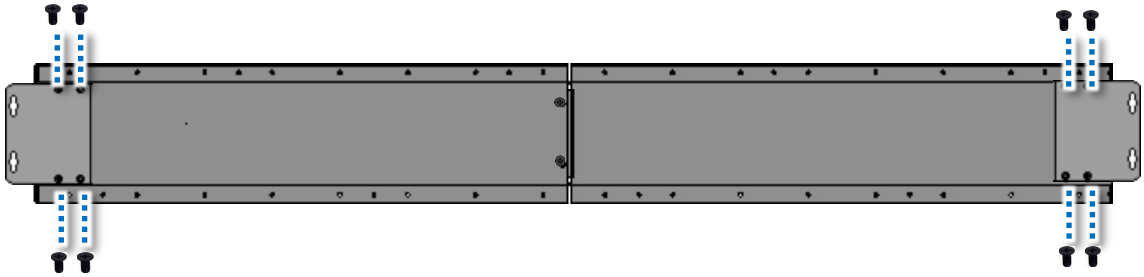


Bottom View

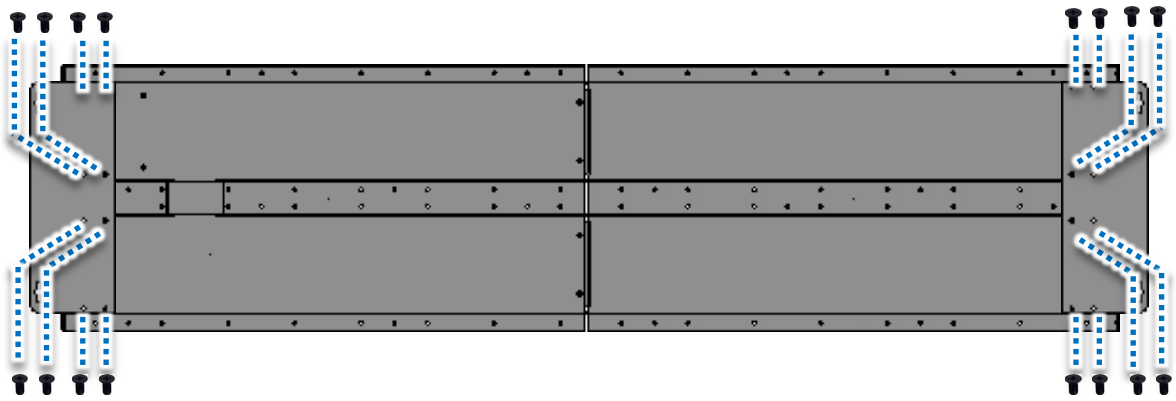


4. Fasten the left and right mounting plates to each side of the iKAN display with the 8/16 (M3 x 6L) screws supplied

iKAN-116



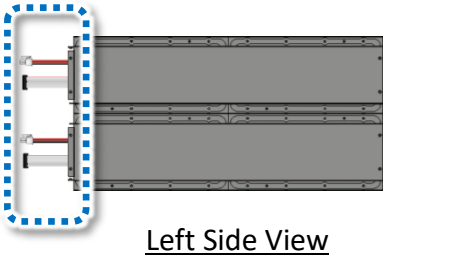
iKAN-216



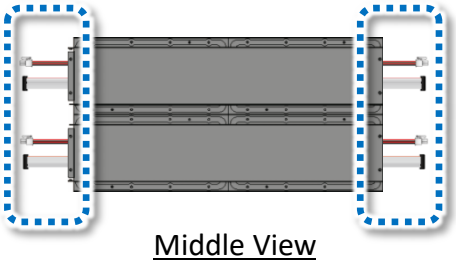
2.2.3. Installing Three-Panel iKAN Display

Both the iKAN-124 and iKAN-224 consist of three modules, the left hand module, the middle module, and the right hand module. Each row of the module contains two connectors that can be used to connect the iKAN display.

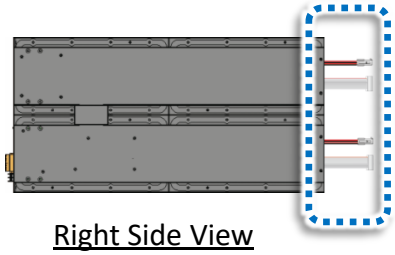
1. Remove the connectors from the opening on the side of the module:



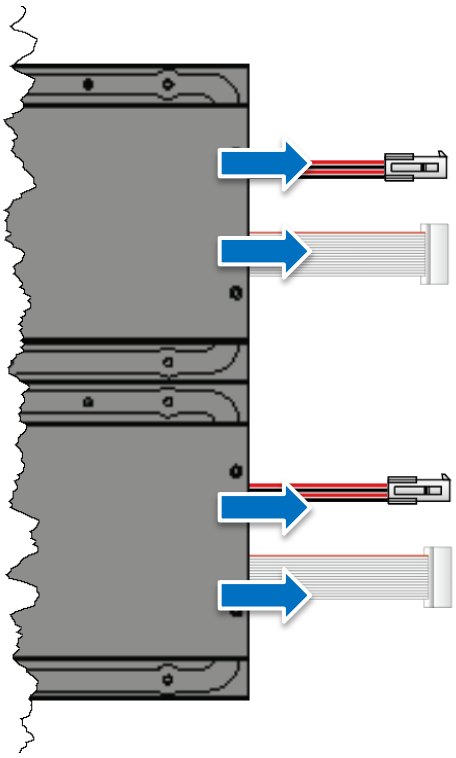
Left Side View



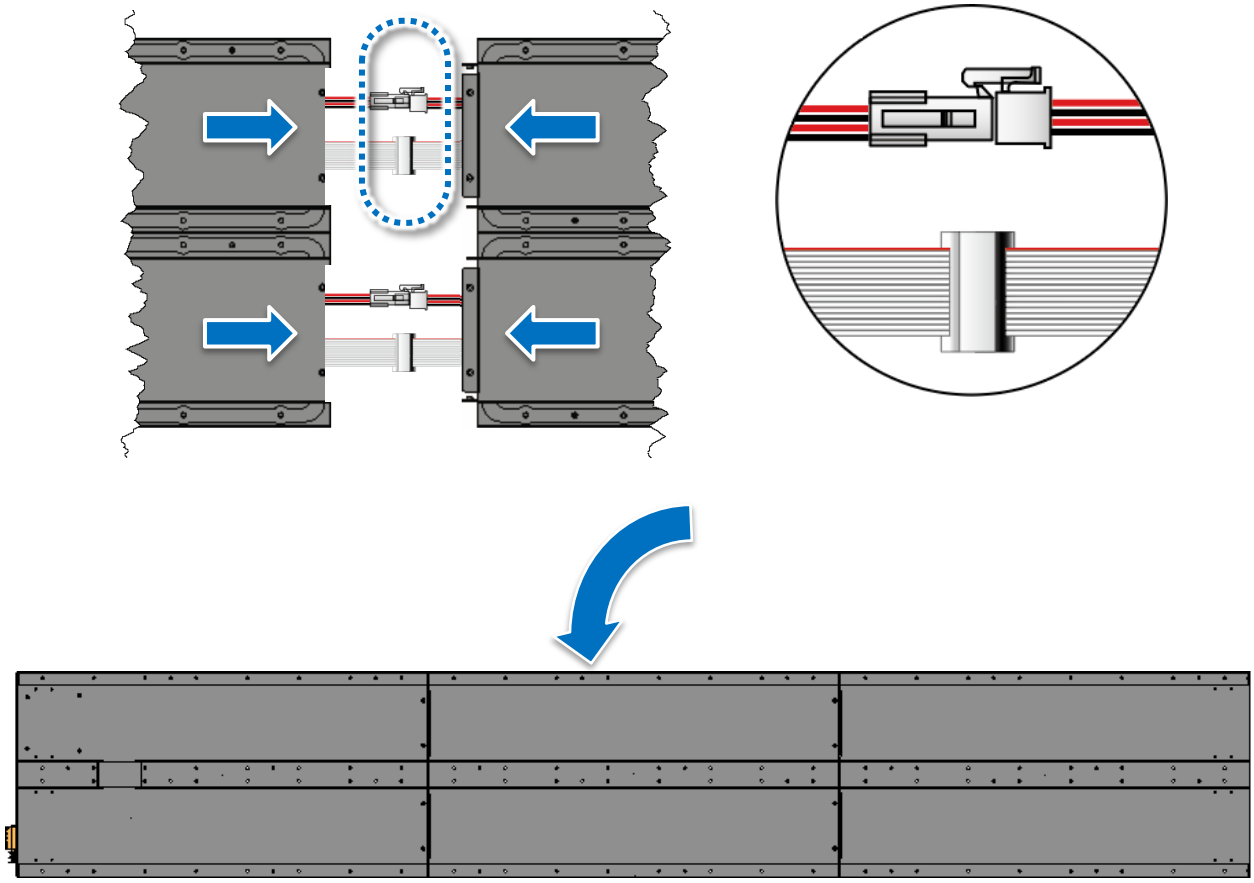
Middle View



Right Side View

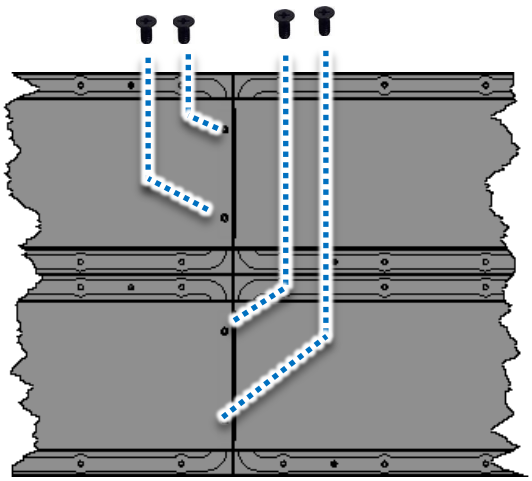


2. Connect the connectors and attach the modules

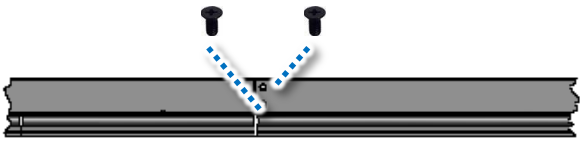


3. Fasten the modules together using the 6/8/12/16 (M4 x 8L) screws supplied

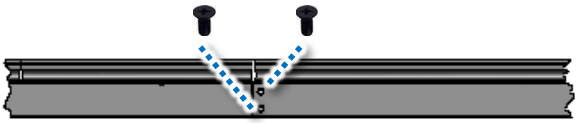
Rear View



Top View

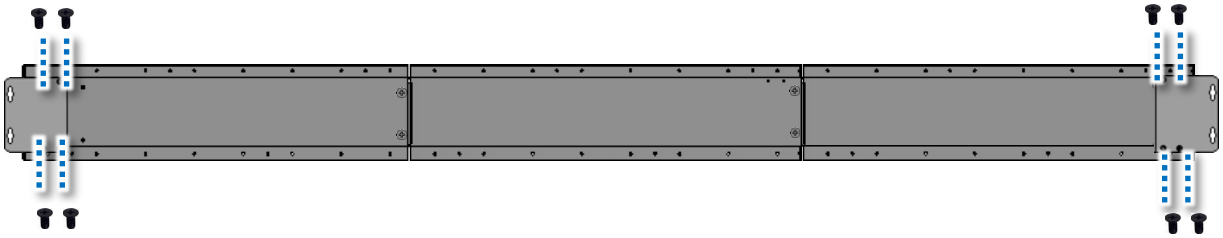


Bottom View

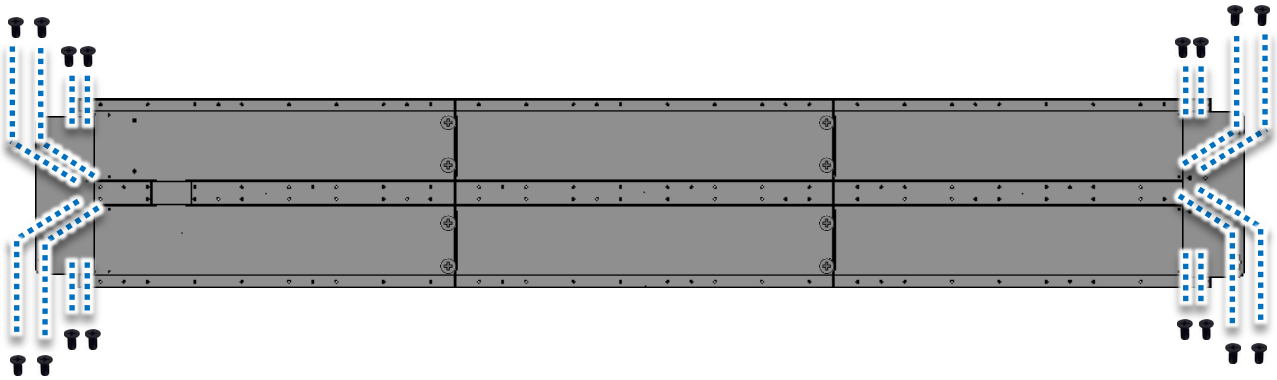


4. Fasten the left and right mounting plates to each side of the iKAN display with the 8/16 (M3 x 6L) screws supplied

iKAN-124



iKAN-224

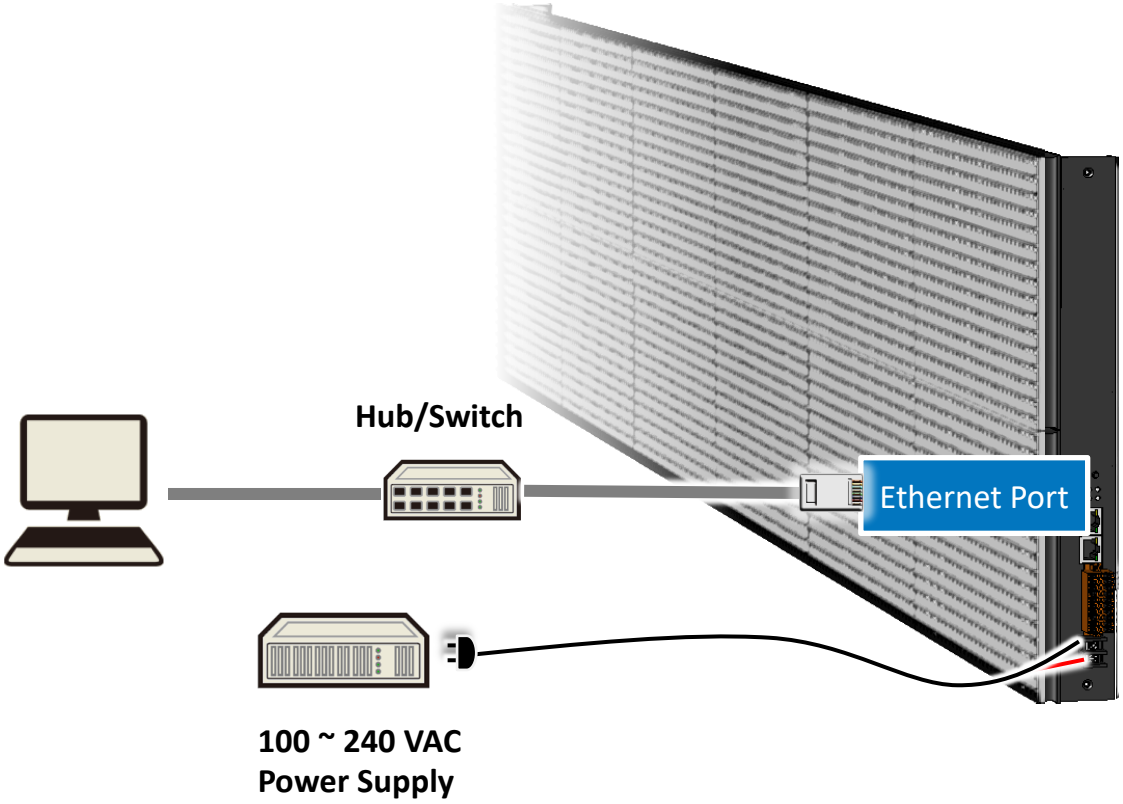


2.3. Connecting to the Power and PC

The iKAN display includes two standard Ethernet ports (RJ-45) which provide access to the iKAN via a PC. To configure the iKAN using the PC, you must first establish a connection between the iKAN and the PC.

1. Connect the AC power to the iKAN

2. Connect the Ethernet cable to the printer port, and then connect the other end of the cable to an available port on the network router, switch, or hub, as illustrated below



2.4. Connecting the iKAN to a Network

The factory default IP address for each iKAN device is **192.168.255.1**.

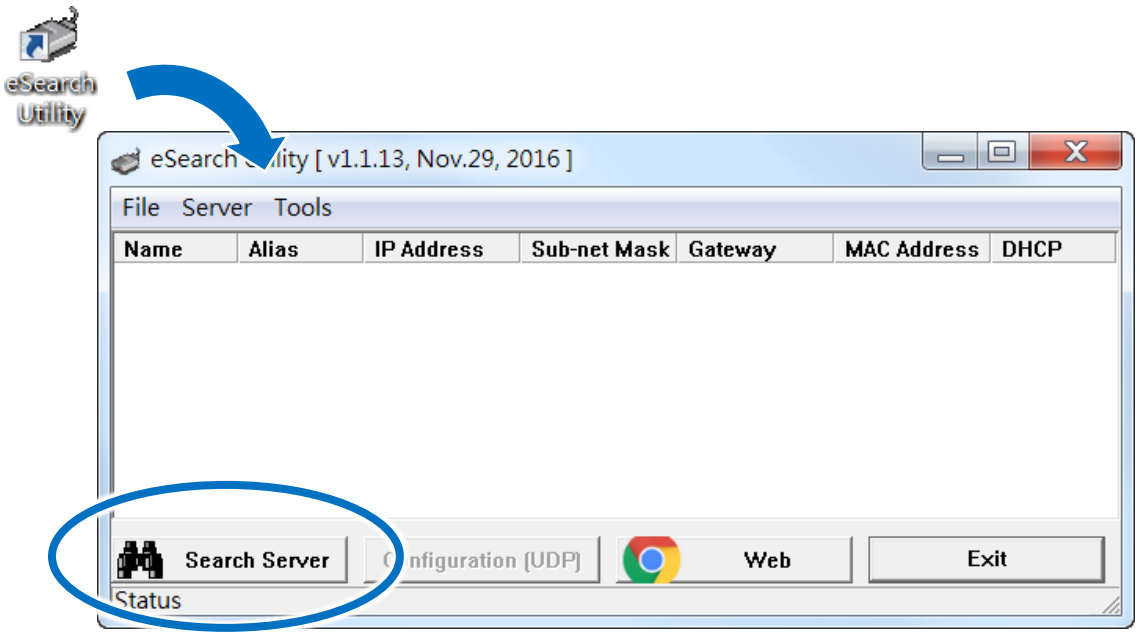
Before integrating an iKAN series display into your network, you should configure the IP, Subnet Mask, and Gateway addresses for the device by setting the values that are valid for your network system.

The eSearch Utility has been developed to allow you to search for ICP DAS Ethernet I/O modules based-on MiniOS7 which are connected to the same subnetwork as the Host PC, and then you can configure the Ethernet parameters such as the IP Address, Subnet Mask and Gateway etc., or update the firmware.

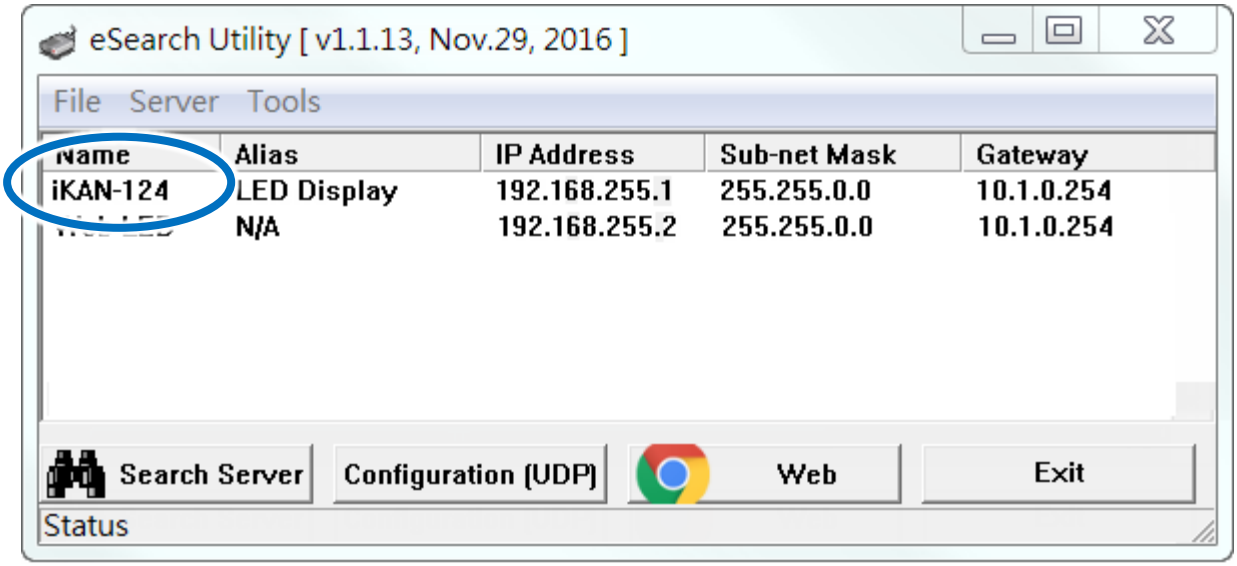
1. Download the latest version of the eSearch Utility

The eSearch Utility can be obtained from:
http://ftp.icpdas.com/pub/cd/tinymodules/napdos/software/esearch/

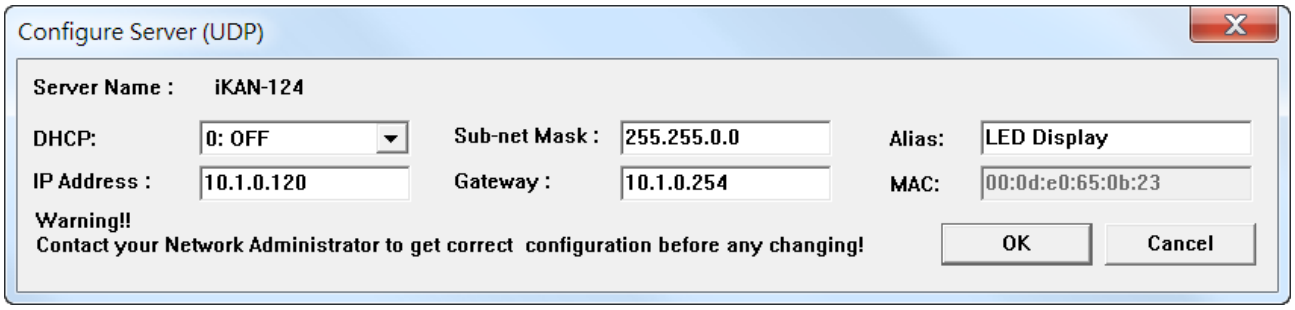
2. Launch the **eSearch utility** and click the **Search Server** button



3. Once the search process has completed, double-click the name of iKAN display to open the **Configure Server (UDP)** dialog box



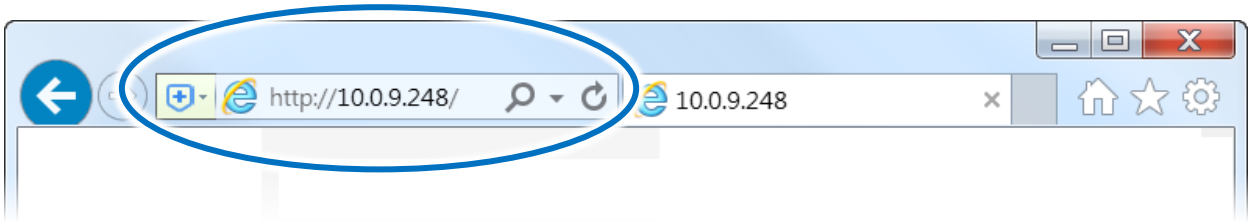
4. Enter the relevant values for the IP Address, Subnet Mask and Gateway, etc., and then click the **OK** button. The new settings for the iKAN display will take effect within 2 seconds.



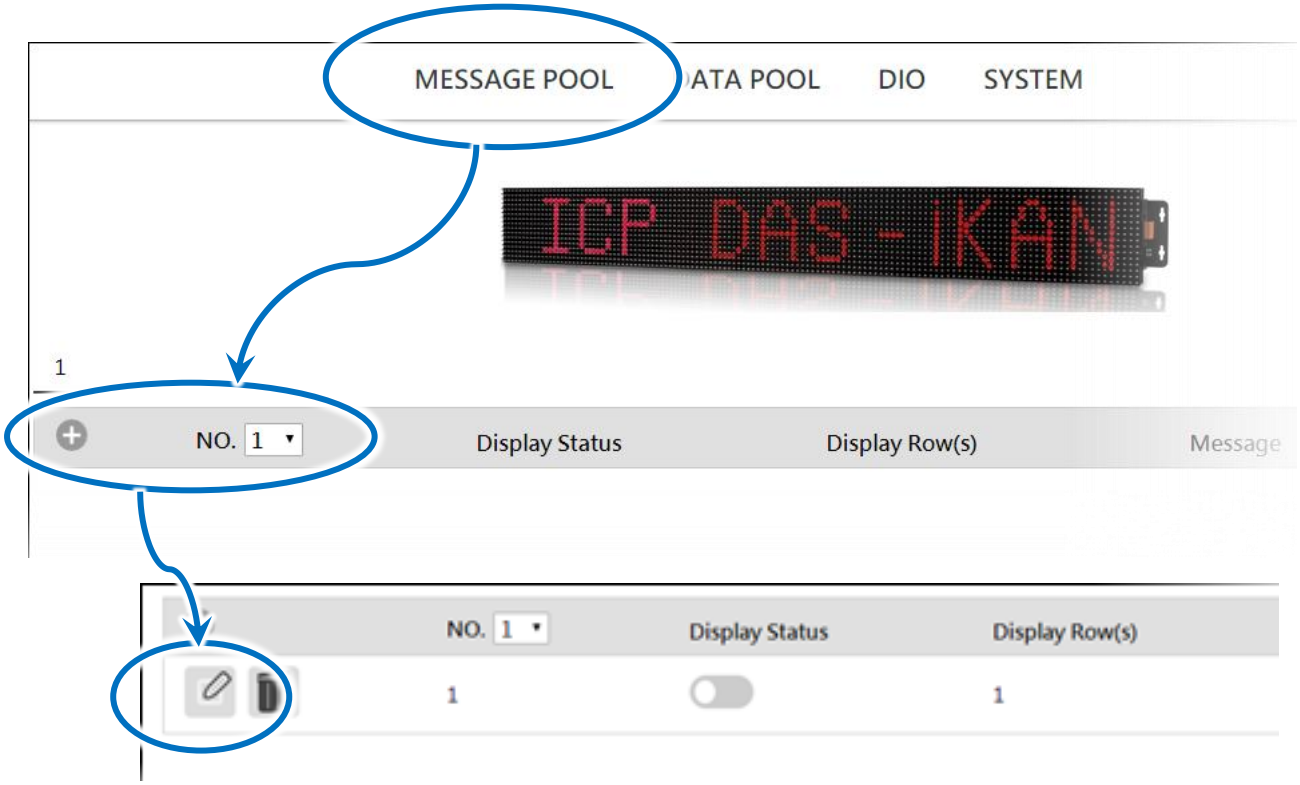
2.5. Editing Your First iKAN Message

A message can be configured using the built-in web interface. To edit your first message, follow the instructions given below.

1. Open a web browser such as Google Chrome, Firefox or IE, etc.
2. Type the IP address of the iKAN display in the address bar, and then press **Enter** to display the web interface



3. Click the **MESSAGE POOL** menu at the top of the page, select the message number you wish to add, and then click the button
4. Click the button



5. In the form for message **No. 1**, specify the following parameters:

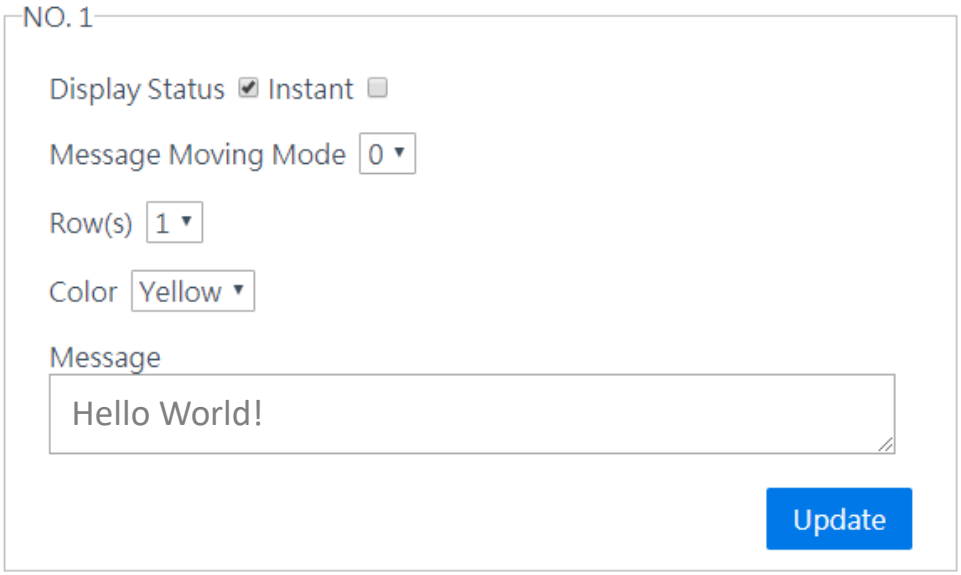
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

   iii. Enter the following string in the **Message** text field:

   Hello World!

   iv. Click the **Update** button



6. The IP address for the iKAN series device will be shown on the display.

3. Configuration

The iKAN series device can be accessed and configured using a standard web-browser, such as Google Chrome, Firefox, or IE, etc., or Safari on a Mac, or via an Internet-enabled mobile device.

3.1. Web Interface

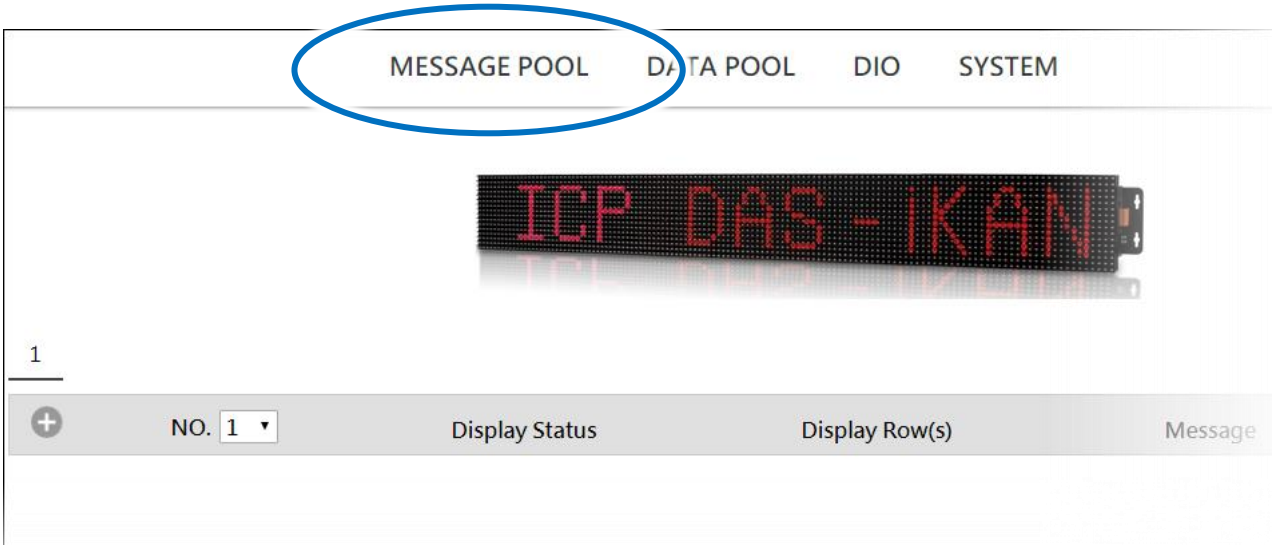
The iKAN display contains a built-in web interface that provides a range of functions needed to manage all messages displayed on the iKAN, as well as to set up the parameters, variables, and operational behavior. The majority of common operations can be carried out using the iKAN Web Interface.

The following is an overview of the major functions of the web interface, and provides a link to more information about the function.

Menu	Sub-Menu	This menu is used to	Refer to section
MESSAGE POOL	-	Allows you to edit and manage messages.	3.1.1 4.1 4.2
DATA POOL	INTEGER	Allows you to specify a value for a variable and define the data type mapping	3.1.2 4.2 4.3
	FLOAT		
	COIL		
SYSTEM	IMPORT/EXPORT	Allows you to import/export pre-configured messages	3.1.3
	ETHERNET	Allows you to set the network address.	3.1.4
	SERIAL PORT	Allows you to set the communication parameters for the serial port	3.1.5
	MISC.	Allows you to assign a Modbus address to the iKAN display.	3.1.6
		Allows you to adjust the brightness of the LED.	3.1.7
		Allows you to adjust the speed at which a message moves.	3.1.8
		Allows you to reset the iKAN display to the factory default settings.	3.1.9
		Allows you to adjust the brightness of the LED.	3.1.10
		Allows you to reset the iKAN display.	3.1.11
		Allows you to assign a Modbus address to the iKAN display.	3.1.12

3.1.1. Editing and Managing Messages

A maximum of 128 messages with user-defined priority can be stored on the iKAN series device, and each message can contain a maximum of 20 Unicode characters or 100 ASCII characters. The contents of each common message and instant message can be pre-configured individually via the MESSAGE POOL page on the web interface.



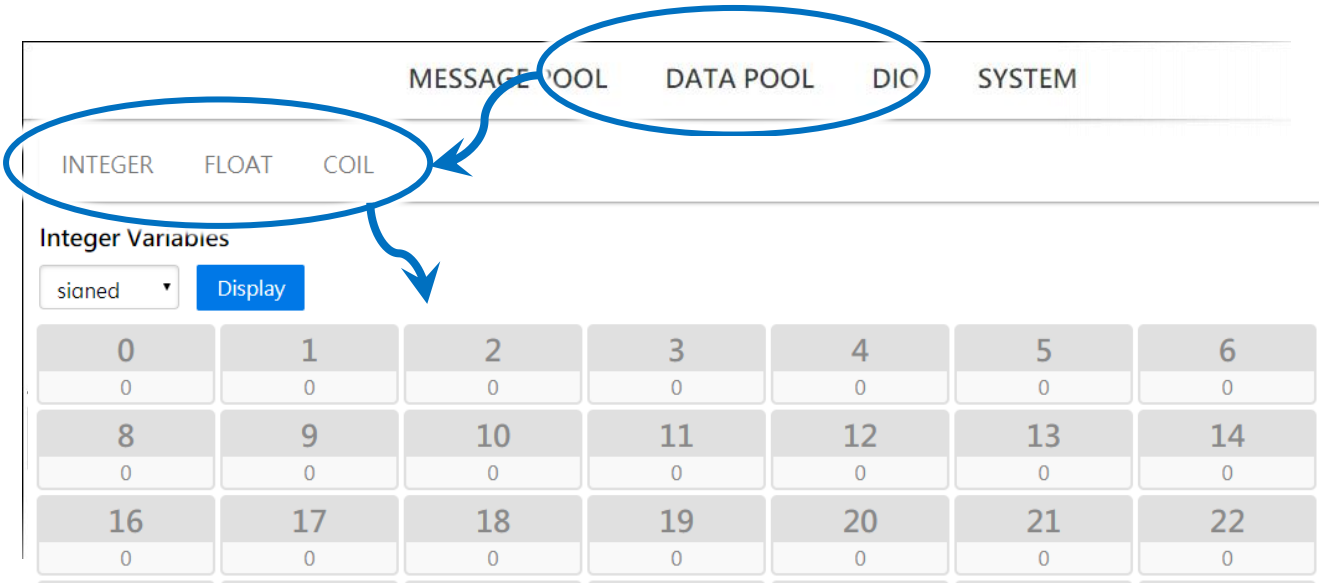
For more detailed information on how to edit and manage the messages displayed, refer to Chapter “4. Messages”

3.1.2. Applying the Variable Maps

Variable maps provide a mechanism for mapping data to a variable regardless of the data source, and are listed on the DATA POOL page. The value of most variables can be individually specified via a variable map.

To specify a value for a variable, follow the instructions given below.

1. Click the **DATA POOL** menu item, and then click the item in the menu for the variable type you want to edit
2. Click the address of the variable you would like to configure.



The configuration area will be registered depending on the selected address. The configuration area provides the following functions:

- **Assign a value to a variable**
  In the text box, enter the relevant values for the selected variable, and then click the **Update** button

- **Specify the color of a variable displayed in the variable map**
  From the drop-down menu, select the desired color for the variable, and then click the **Update** button

For more details about displaying values using a variable map, refer to Section “4.3. Displaying a Value Applied using a Variable Map”.

3.1.2.1. Mapping Physical Values to Integer-Type Variables

Most industrial measuring devices use 16-bit integers to convert a value from a data source to a real physical value, such as the voltage, temperature, or relative humidity, etc. For example, using the range -32768 to 36767 to convert to -10V to +10V. The iKAN series device is able to perform data mapping to translate an integer value that has been read from a remote data source to a readable physical value.

For more detailed information on how to increase the decimal places for the number of float-type variable, please refer to section “4.3.1. Displaying the Mapping Data for Integer-type Variables”

3.1.2.2. Increasing the Number of Decimal Places for the Value of a Float-type Variable

The number of decimal places to be used for a float-type variable can be set from the FLOAT VARIABLES page. The offset value is 40128, which means that variable 0 is equal to 40128 and variable 2 is equal to 40130, and so on.

For more detailed information about how to increase the number of decimal places for the value of a float-type variable, refer to Section “4.3.2. Displaying a Value with an Increased Number of Decimal Places for Float-type Variables”.

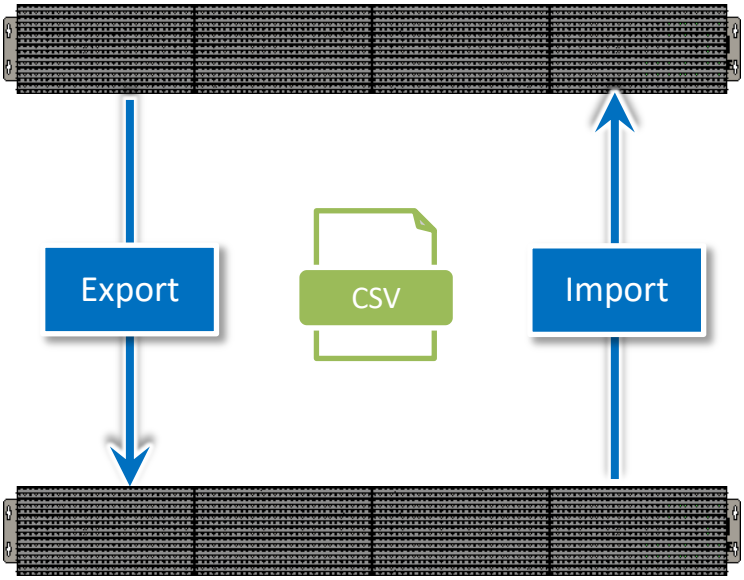
3.1.2.3. Assigning Strings to Coil Variables

iKAN series devices provide a string mapping function that allows the value of a coil variable to be mapped in order to make the coil value more meaningful when reading the message. The text mapping function allows a maximum of 10 Unicode characters or 30 ASCII characters to be entered to represent a value of 0 or 1.

For more detailed information about how to increase the number of decimal places for the value of a float-type variable, refer to Section “4.3.3. Displaying the Value of a Coil Variable using Replacement Text”.

3.1.3. Importing/Exporting pre-configured messages

If your system includes more than one iKAN series device, it could take a lot of time to individually configure each one. To simplify this process, the Import/Export function can be used to pre-configure the contents of a message or variable on the iKAN series device before using Modbus TCP/RTU commands to manage the message pool, thereby reducing the need to repeat the configuration tasks multiple times.



3.1.3.1. Importing a configuration file

The contents of a message and/or variable can be imported from a CSV file. The following is a description of how to import a previously stored configuration file. Note that the Import function will only load configuration information related to messages and variables.

1. Click the **SYSTEM** menu item, and then click the **IMPORT/EXPORT** menu item
2. Click the **Choose File** button to select the desired CSV file, and then click the **Import** button to load the contents of the configuration file into the system

3.1.3.2. Exporting a configuration file

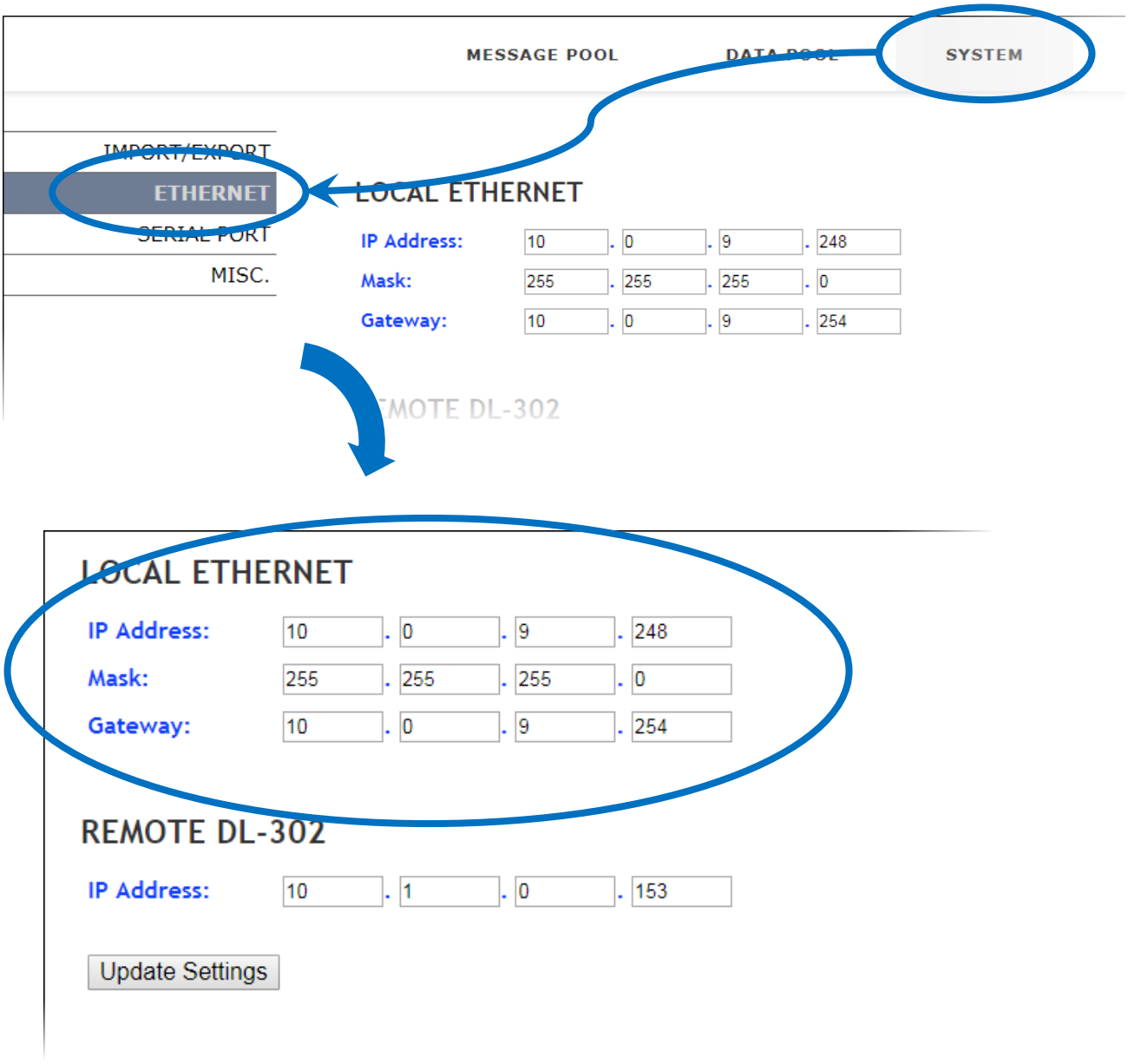
The contents of a message and/or variable can be exported as a CSV file. The default file name is msg_con.csv, which can be changed to a preferred file name if desired.

1. Click the **SYSTEM** menu item, and then click the **IMPORT/EXPORT** menu item
2. Click the **Choose File** button to select the desired CSV file, and then click the **Import** button to load the contents of the configuration file

3.1.4. Changing the IP Address

The IP address for the iKAN device can be changed if necessary. To change the IP address, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **ETHERNET** menu item
2. Enter the IP address for the iKAN device in the relevant fields, and then click the **Update Settings** button to save your changes.



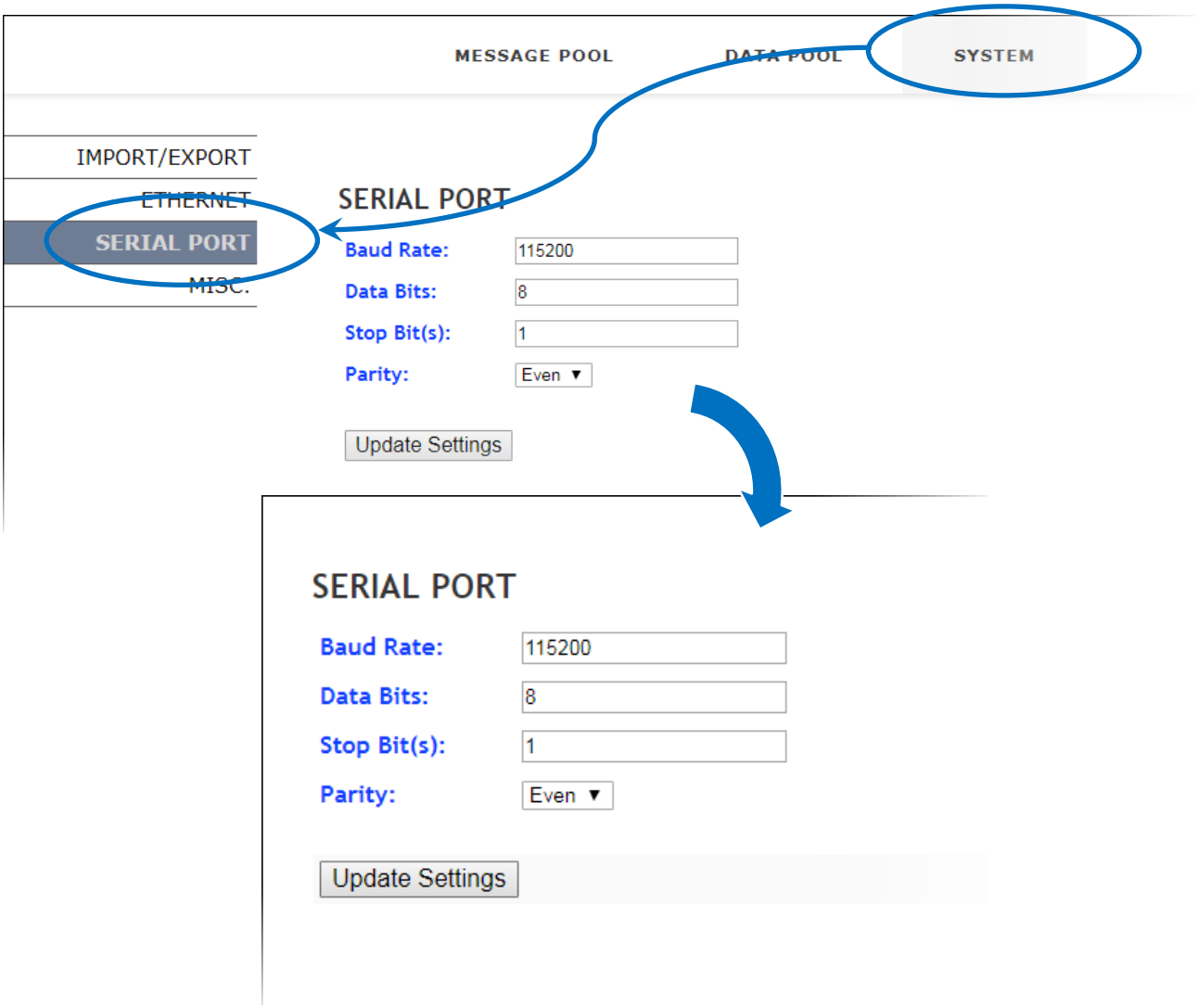
3.1.5. Setting the Serial Port

The serial port can be configured to establish a connection between the iKAN device and the serial I/O devices. The default parameters are:

Baud Rate:	115200
Data Bits:	8
Stop Bit(s):	1
Parity:	None

To configure the serial port, follow the instructions given below.

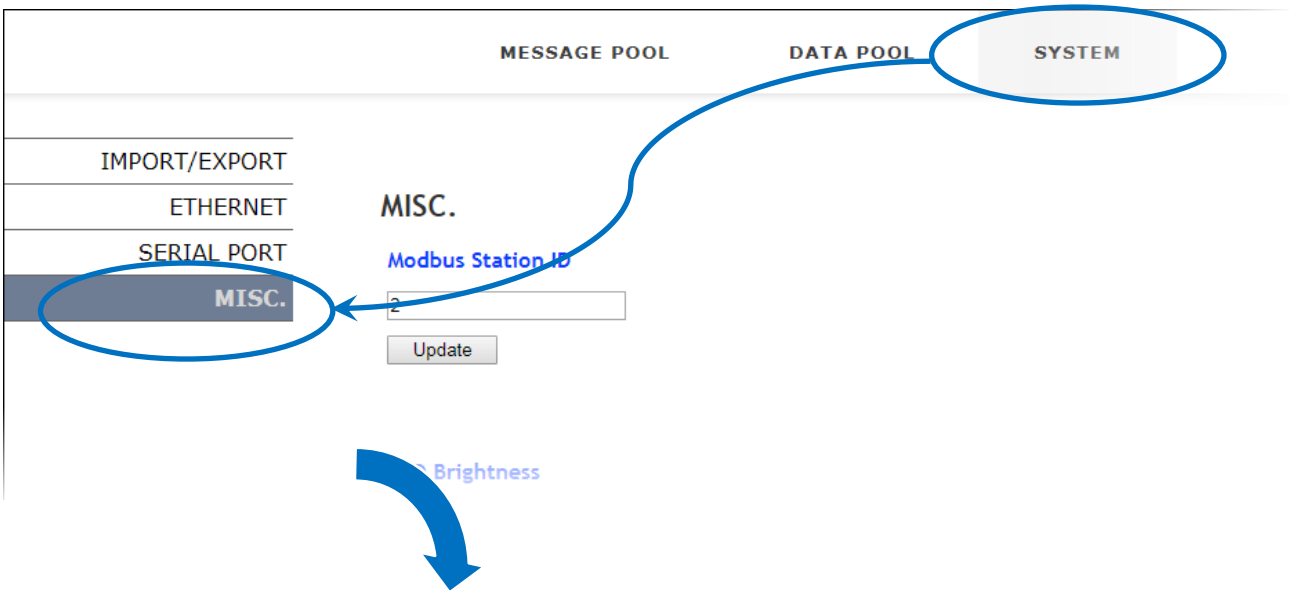
1. Click the **SYSTEM** menu item, and then click the **SERIAL PORT** menu item
2. Configure the relevant parameters for the serial port, and then click the **Update Settings** button to complete the process



3.1.6. Setting the Modbus ID

The Modbus Station ID is the identification used for communication between the iKAN device and other devices which use Modbus protocol. To set the Modbus Station ID, follow the instructions given below.

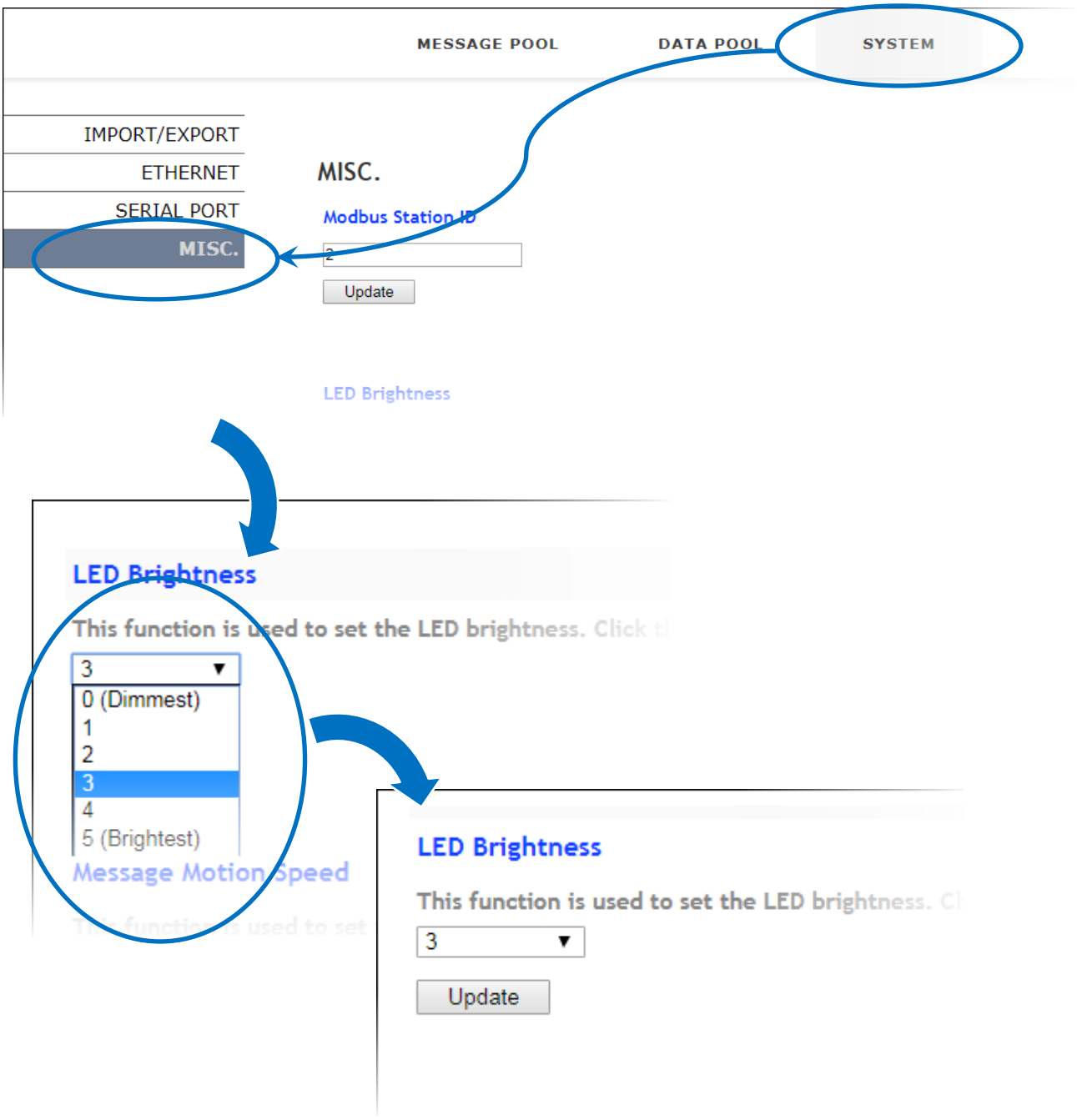
1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. Enter the relevant Modbus Station ID, and then click the **Update** button to complete the process



3.1.7. Adjusting the LED Brightness

There are five levels of brightness on the iKAN display that are easily adjustable. Higher values indicate a brighter setting for the LED. To adjust the LED brightness, follow the instructions given below.

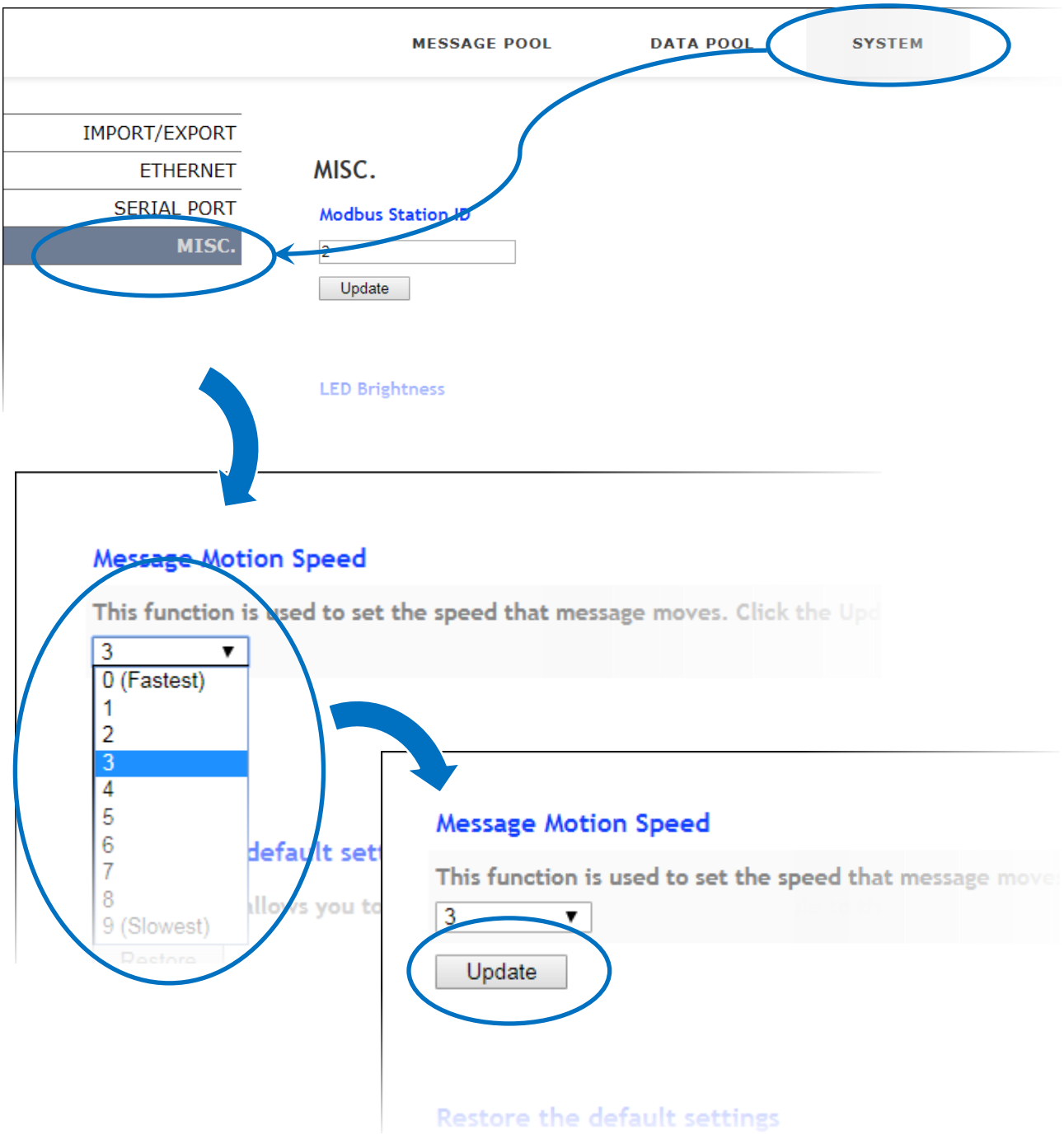
1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. In the **LED Brightness** section, select a value from the drop-down menu, and then click the **Update** button to save your changes



3.1.8. Adjusting the Message Motion Speed

There are 10 adjustable levels for the message motion speed on the iKAN display. Lower values are indicate a higher scrolling speed. To adjust the message speed, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2: In the **Message Motion Speed** section, select a value from the drop-down menu, and then click the **Update** button to save your changes



3.1.9. Restoring the Default Settings

This function provides the ability to perform a safe reset for the iKAN display. All messages and variable configuration settings will be reset to the factory defaults. To restore the default settings, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. In the **Restore the default settings** section, click the **Restore** button. All messages and variable configuration settings will be reset to the factory defaults.

3.1.10. Updating Date and Time

The **Update Date & Time** function is used to synchronize the date and time values on the iKAN display with those on the PC. To synchronize the date and time values with the PC, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. Scroll down this page until you see the **Update Date & Time** section, and then click the **Update** button. The date and time values will then be synchronized with the PC.

3.1.11. Resetting the Display

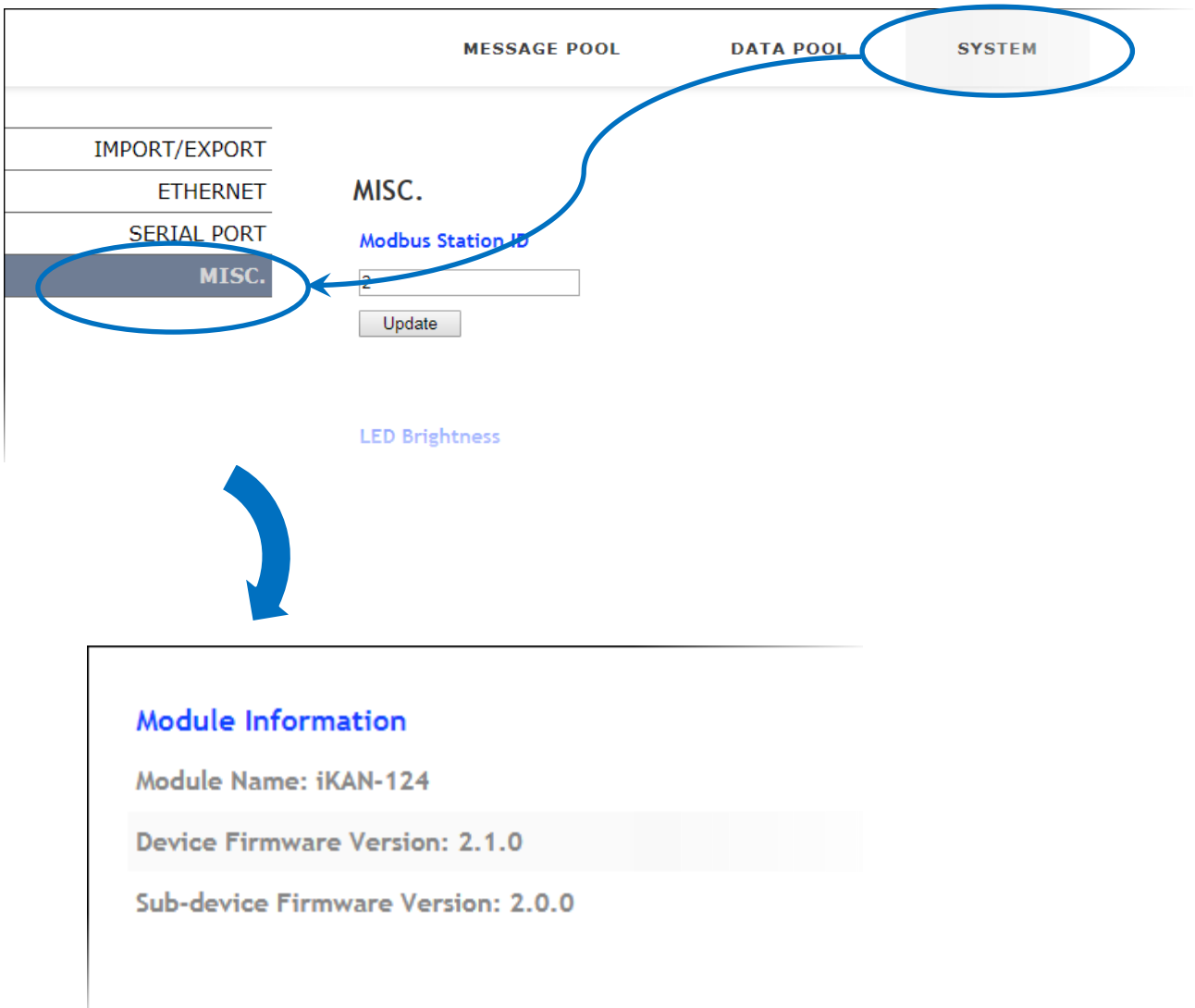
This function provides a safe reset option for the iKAN display. To reset the display, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. Scroll down this page until you see the **Software Reset** section, and then click the **Reset** button. The iKAN display will then be reset.

3.1.12. Checking the Firmware Information

This function provides the ability to check the firmware version and sub-device firmware version information. To check the firmware version, follow the instructions given below.

1. Click the **SYSTEM** menu item, and then click the **Misc.** menu item
2. Scroll down this page until you see the **Module Information** section, where you can check the version information to determine whether the firmware for the iKAN series device needs to be updated.



3.2. eSearch Utility

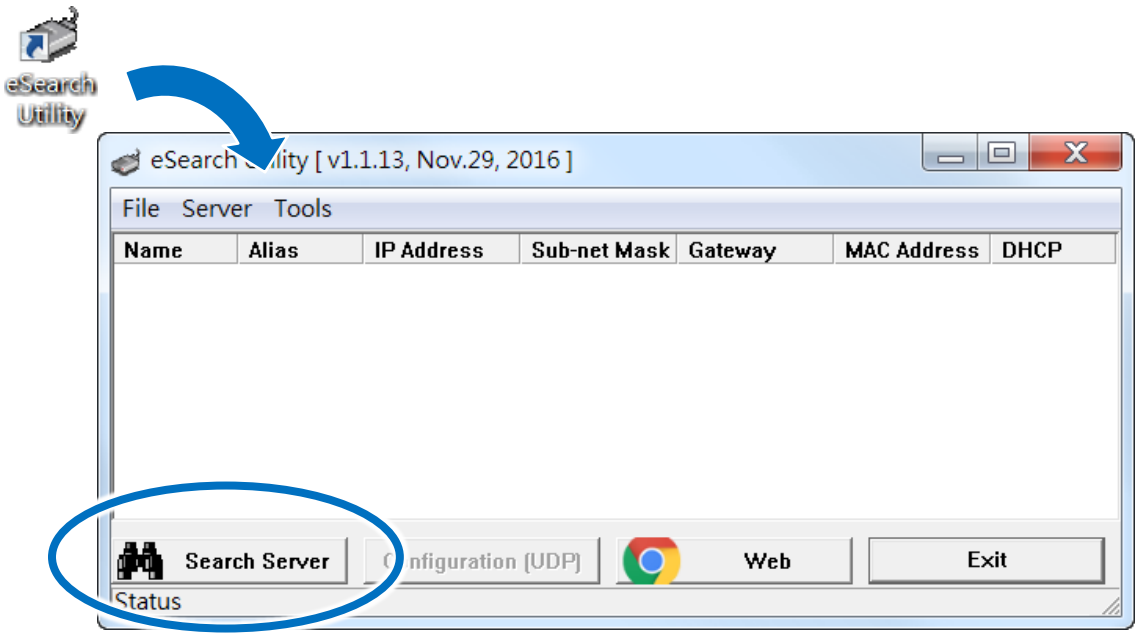
The eSearch utility is an application specifically designed for use with products embedded with the ICP DAS MiniOS7 operating system. It has been developed so that you can search for ICP DAS Ethernet I/O modules which are connected to the same subnetwork as the Host PC, configuring the Ethernet parameters, such as IP address, subnet mask and gateway etc., or updating firmware.

The eSearch Utility can be obtained from:
http://ftp.icpdas.com/pub/cd/tinymodules/napdos/software/esearch/

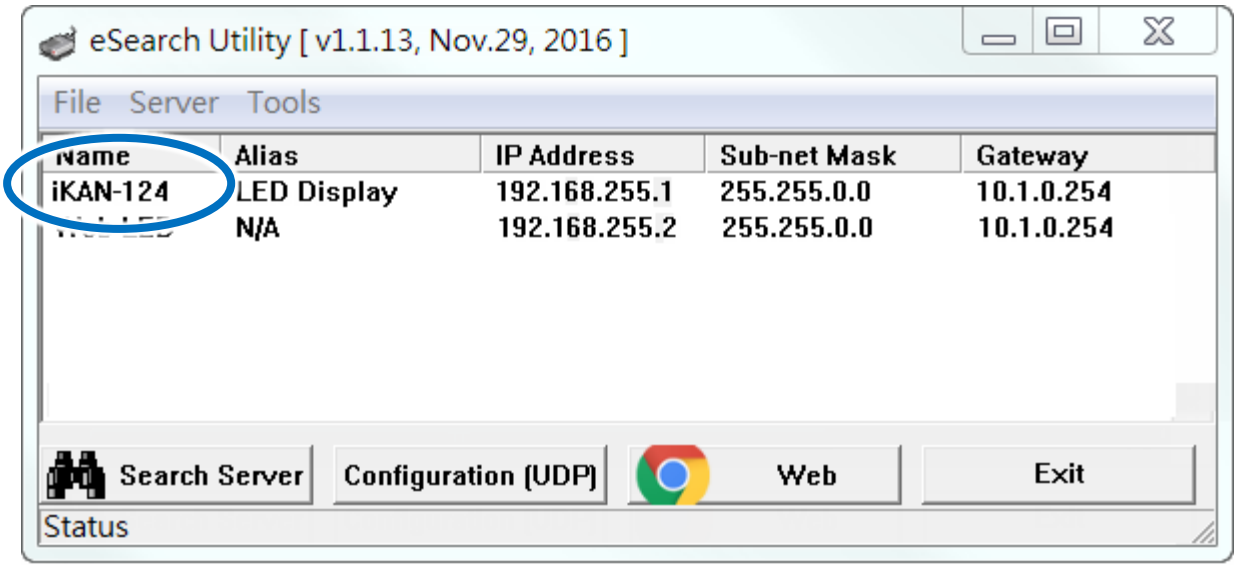
3.2.1. Configuring the IP Address

The IP address can be changed using the eSearch utility. To change the IP address, follow the instructions given below.

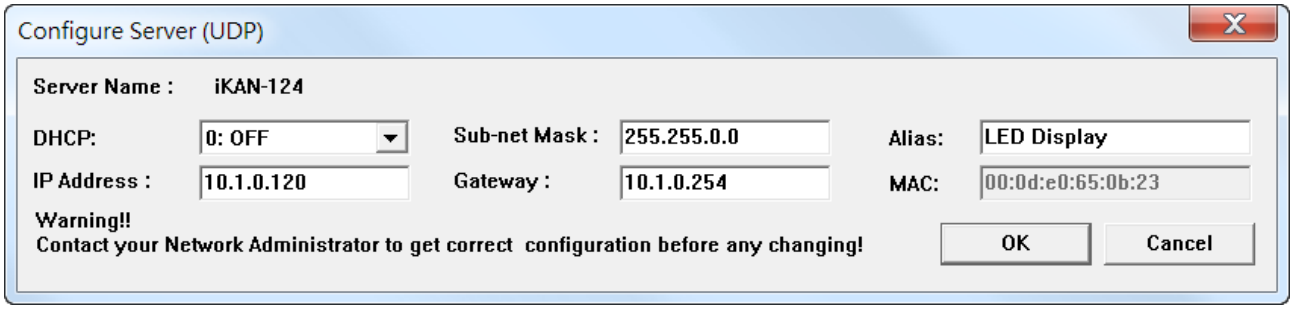
1. Launch the **eSearch utility** and click the **Search Server** button



2. Once the search process has completed, double-click the name of iKAN display to open the **Configure Server (UDP)** dialog box

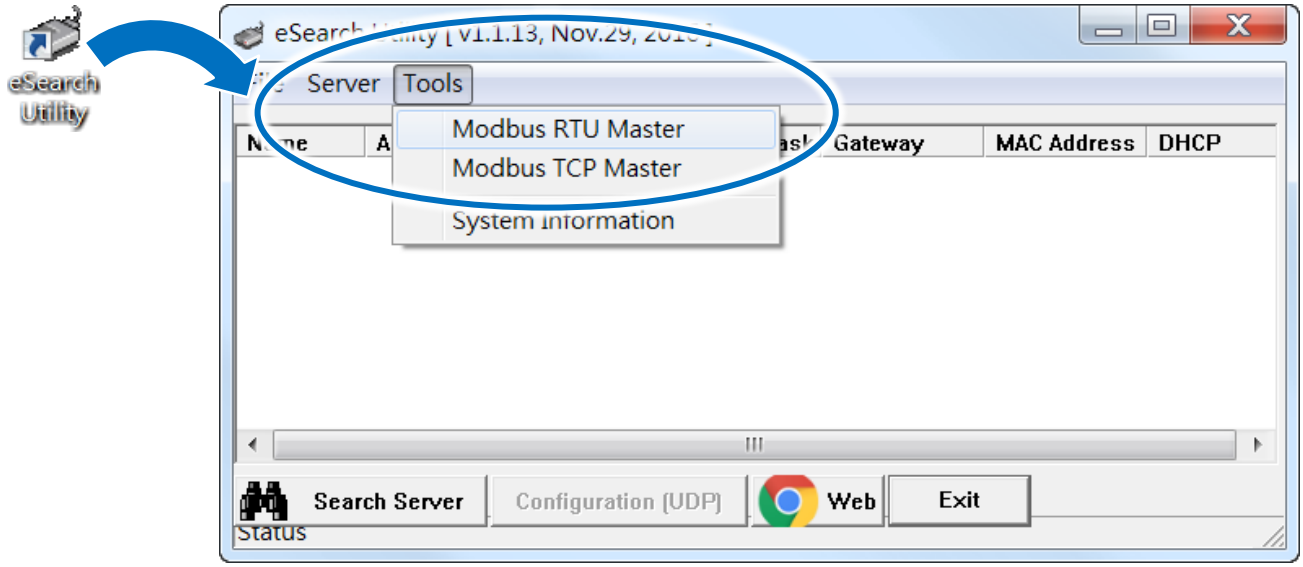


3. Enter the relevant values for the IP Address, Subnet Mask and Gateway, etc., and then click the **OK** button. The new settings for the iKAN display will take effect within 2 seconds.



3.2.2. Sending the Modbus Command to iKAN

The eSearch Utility includes two embedded configuration tools, the Modbus RTU Master and the Modbus TCP Master, which can be used to send Modbus commands to the iKAN display.



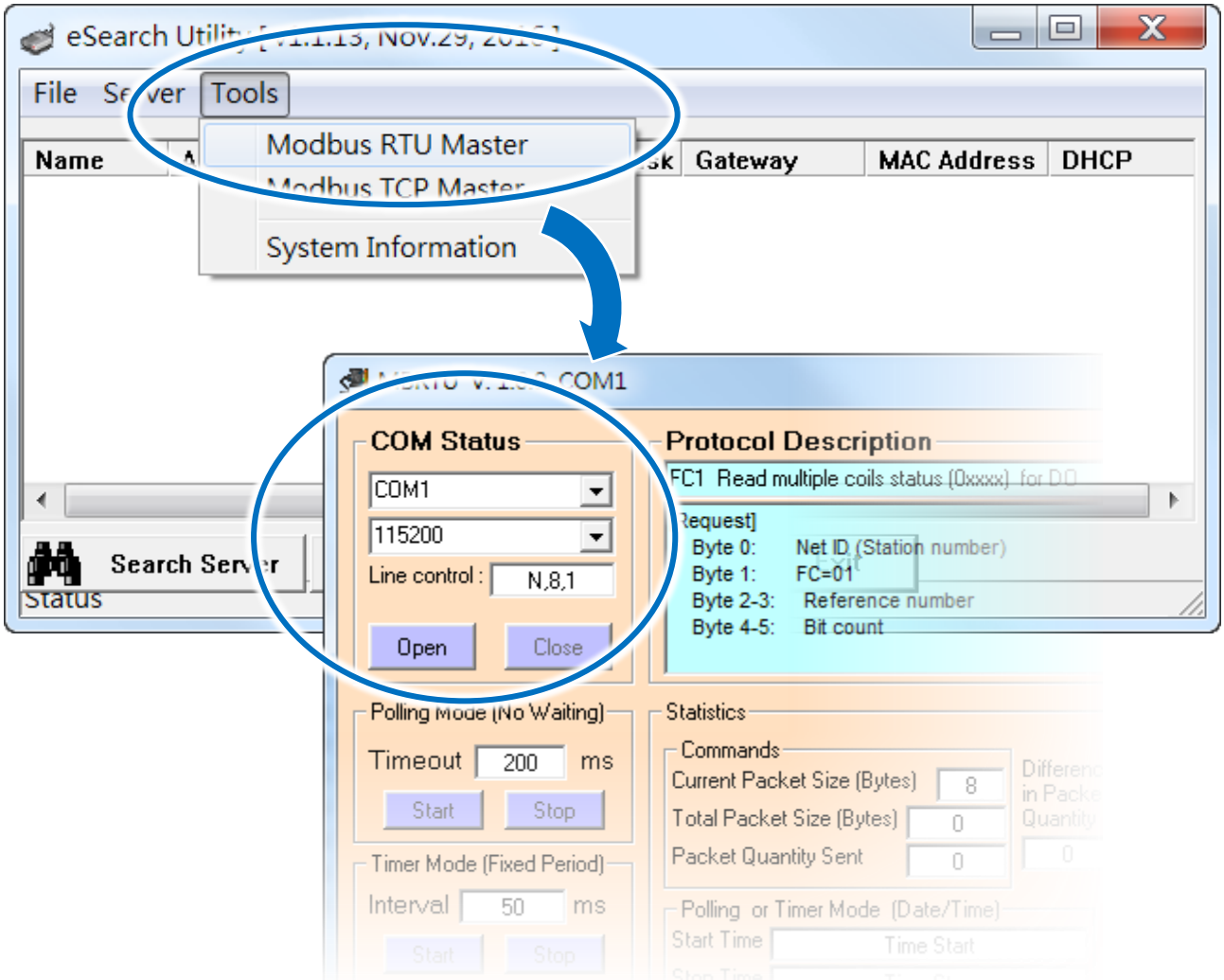
The **Modbus RTU Master** tool can be used to send a Modbus message to either read or write I/O values via the COM port.

The **Modbus TCP Master** tool can be used to send a Modbus message to either read or write I/O values via the Ethernet.

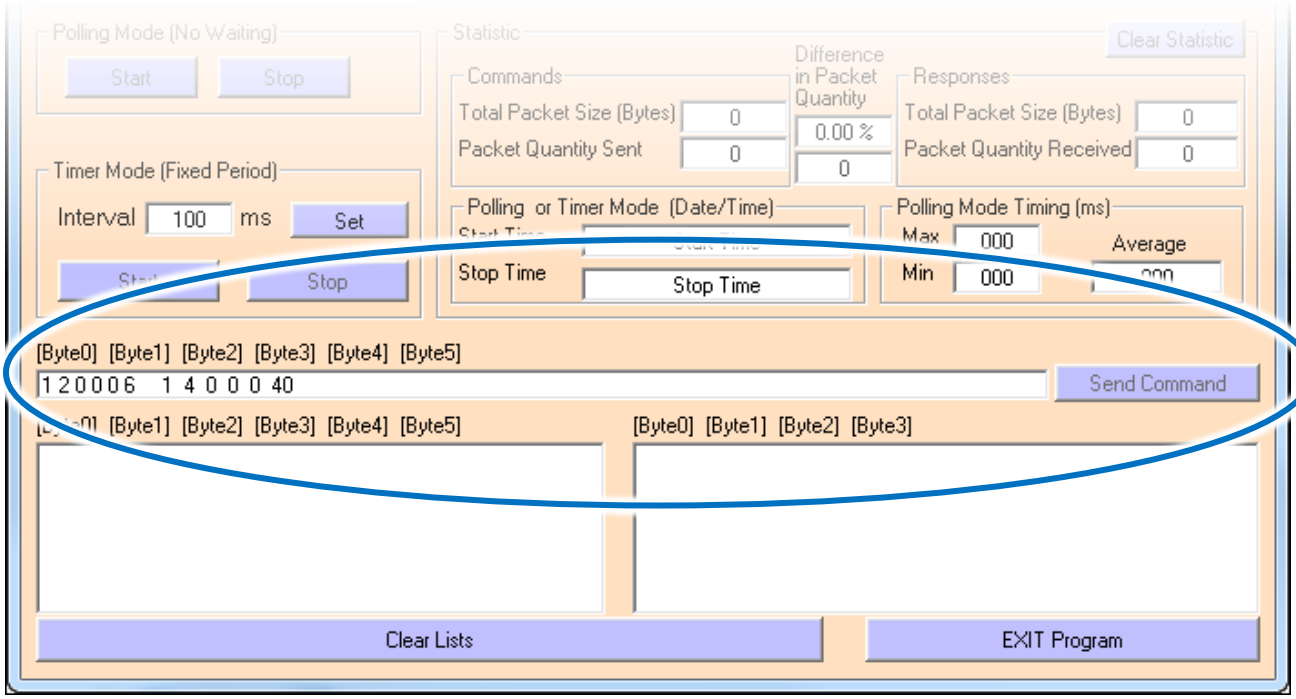
3.2.2.1. Using Modbus RTU Command to Configure the iKAN display

Before using the Modbus RTU Command tool, the iKAN display must be set to Modbus configuration mode. For more information about how to set the iKAN display to Modbus Configuration Mode, refer to Appendix “A.1. How to set the iKAN display to Modbus Configuration Mode”.

1. Select the **Modbus RTU Master** option from the **Tools** menu
2. Select the COM Port and Baud Rate from the respective drop-down menus, and then click the **Open** button



3. Enter a command in the command line field and then click the **Send Command** button to transmit the command

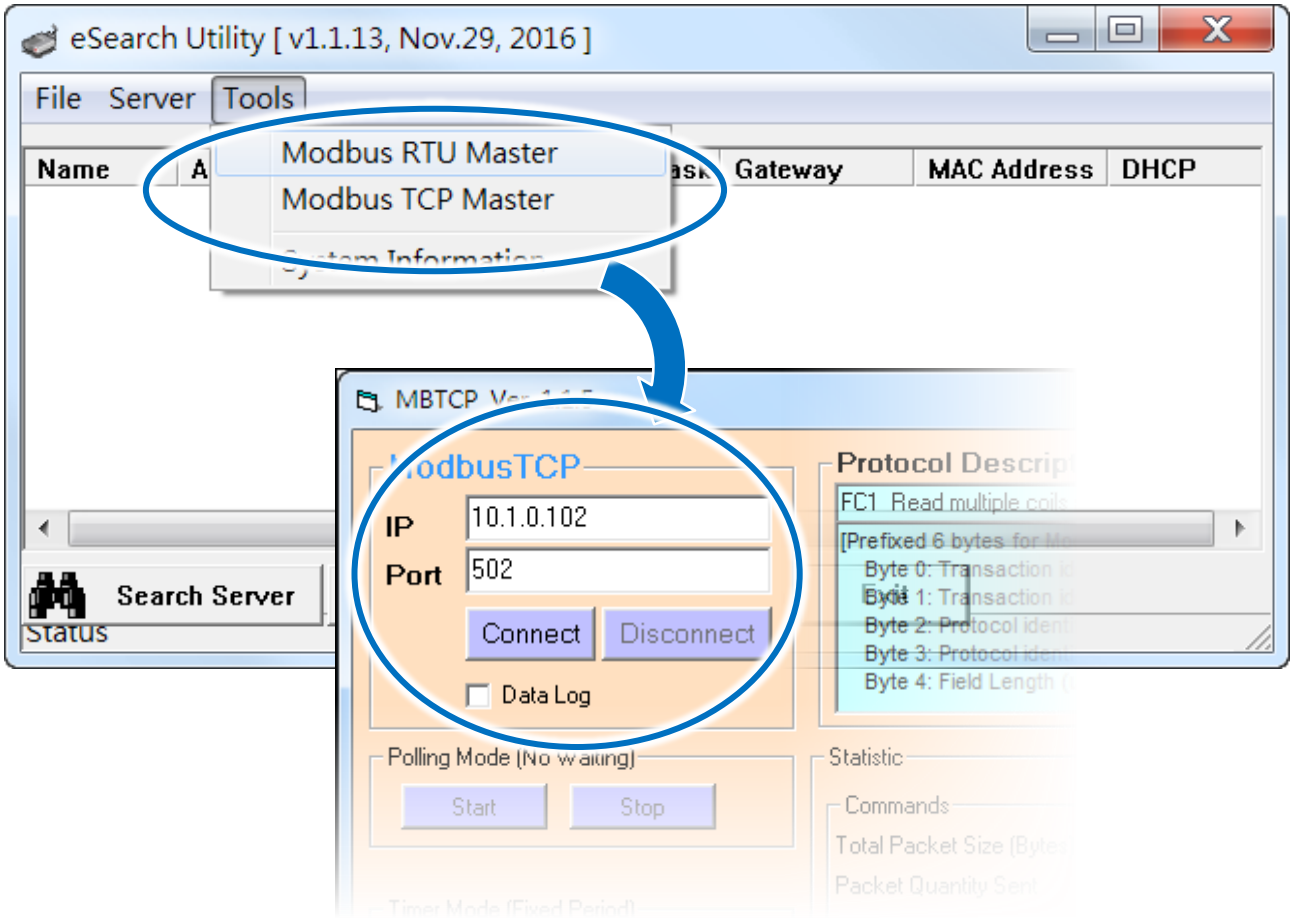


4. The command will be displayed on the left-hand side of the text box area, and the response will be shown on the right-hand side

3.2.2.2. Using a Modbus TCP Command to configure the iKAN display

Before using the Modbus TCP Command tool, the iKAN display must be set to Modbus configuration mode. For more information about how to set the iKAN display to Modbus Configuration Mode, refer to Appendix “A.1. How to set the iKAN display to Modbus Configuration Mode”.

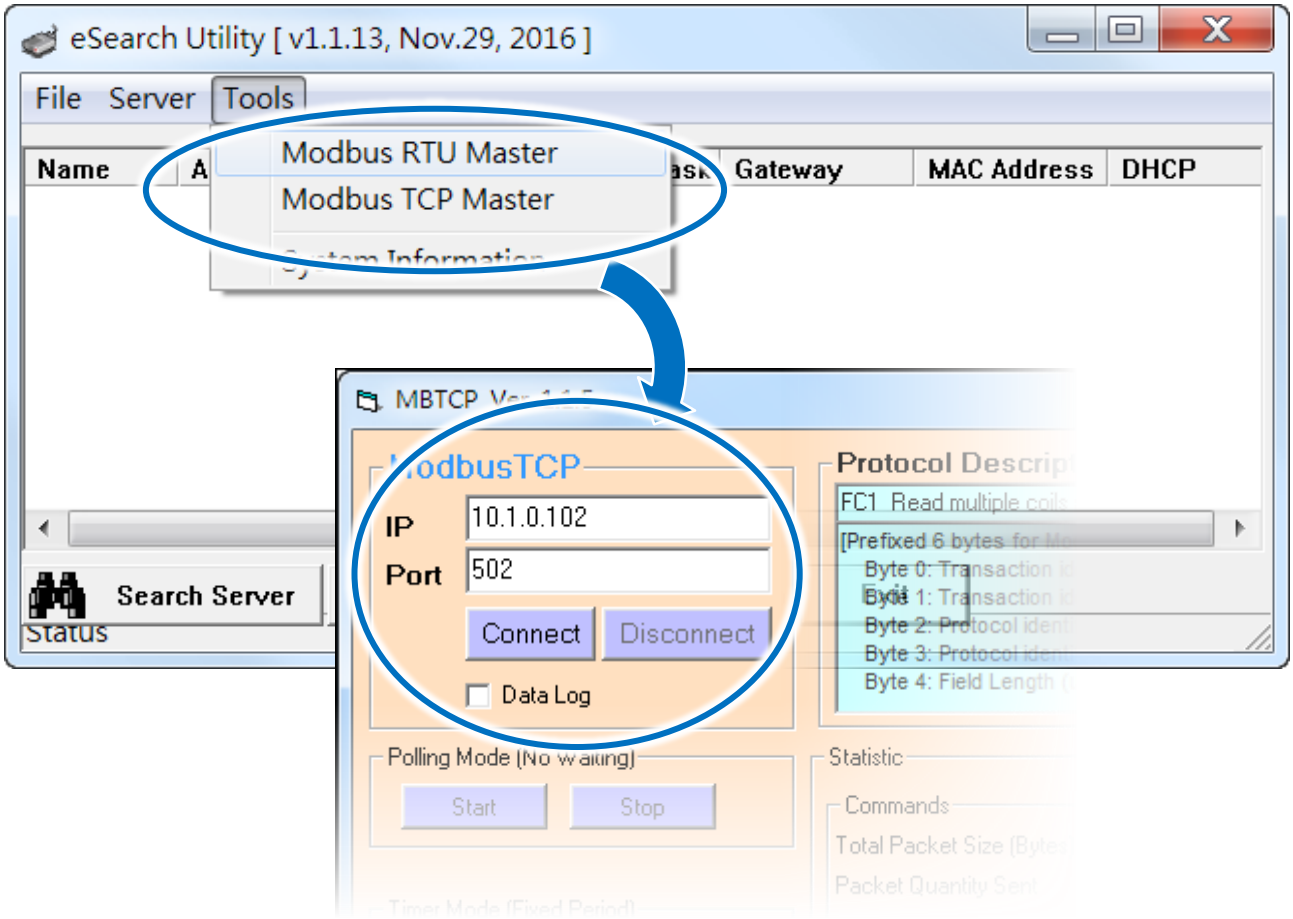
1. Select the **Modbus TCP Master** option from the **Tools** menu
2. Enter the IP address and the Port number in the respective text fields and then click the **Connect** button



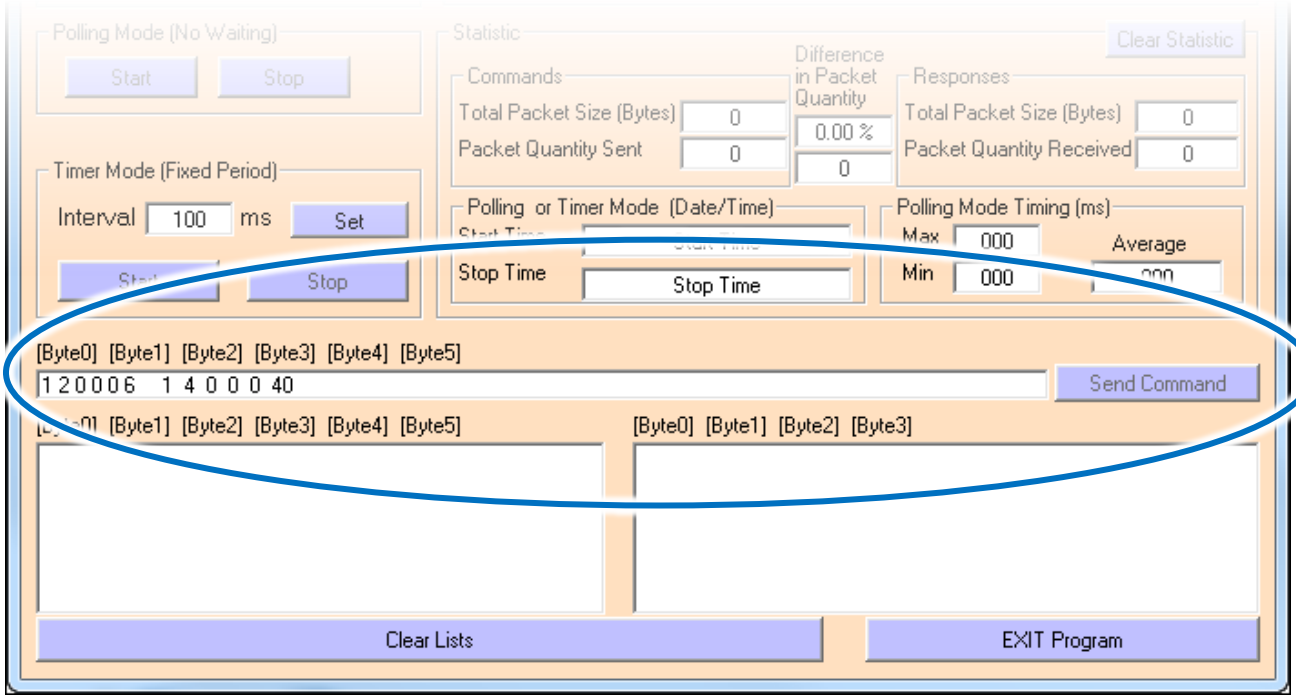
3.2.2.3. Using Modbus TCP Command to configure the iKAN display

Before using the Modbus TCP Command tool, the iKAN display must be set to Modbus configuration mode. For more information about how to set the iKAN display to Modbus Configuration Mode, refer to Appendix “A.1. How to set the iKAN display to Modbus Configuration Mode”.

1. Select the **Modbus TCP Master** option from the **Tools** menu
2. Enter the IP address and the Port number in the respective text fields and then click the **Connect** button



3. Enter a command in the command line field and then click the **Send Command** button to transmit the command



4. The command will be displayed on the left-hand side of the text box area, and the response will be shown on the right-hand side

4. Messages

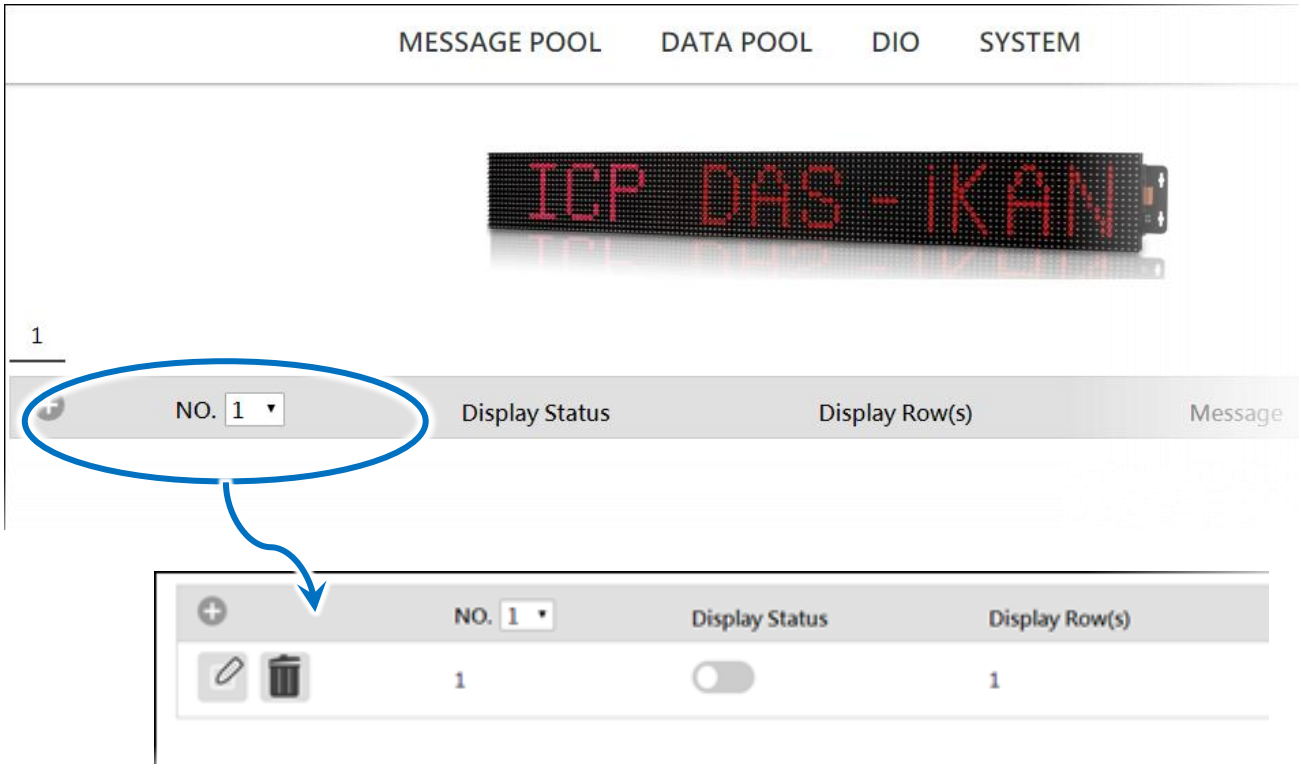
The iKAN web configuration interface provides a convenient and simple method to easily manage the message contents and its effects.

A maximum of 128 messages with user-defined priority can be stored on the iKAN series device, and each message can contain a maximum of 20 Unicode characters or 100 ASCII characters.

4.1. Editing and Managing Messages

The contents of each common message or instant message can be individually pre-configured via the **MESSAGE POOL** page on the web interface.

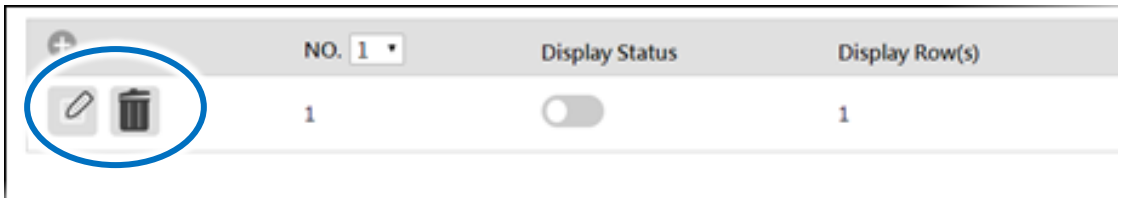
Select the number of the message that you would like to add, and then click the  button. The message item will be added to the message queue.



There are two buttons for each message item.

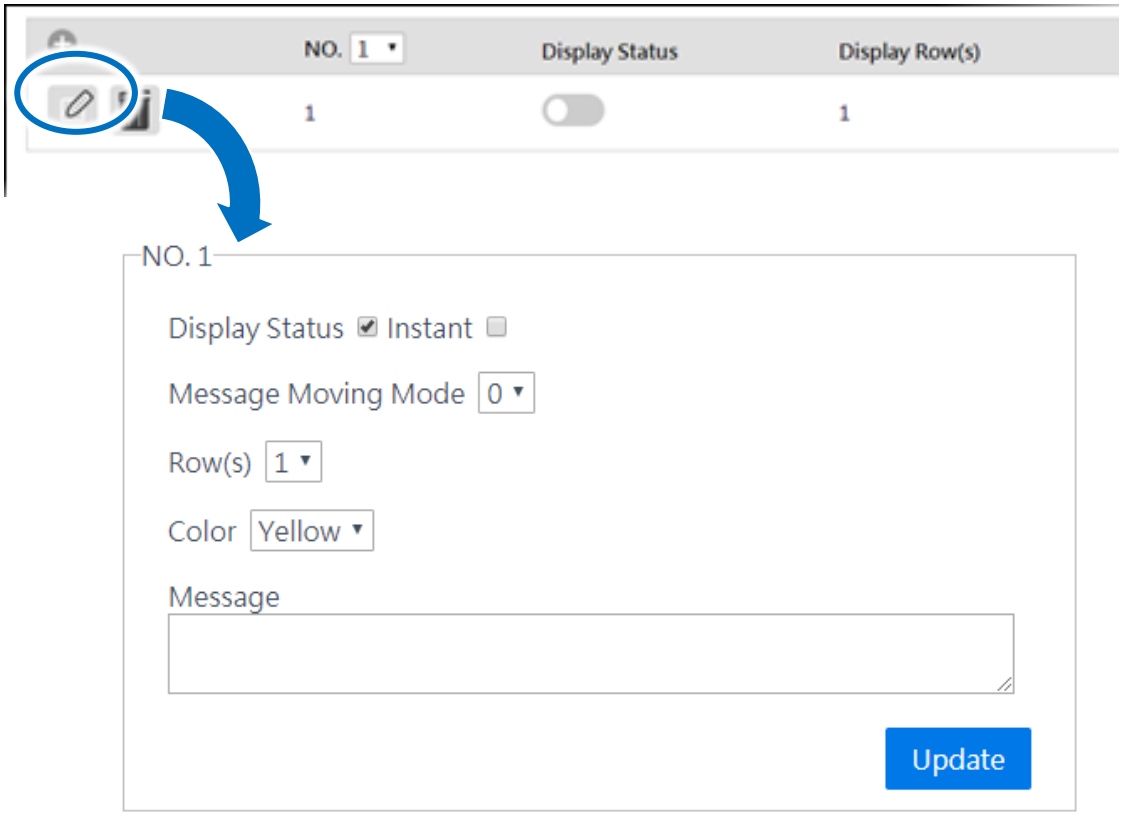
The button is used to edit the message.

The button is used to delete the message.



By default, any message that is added has no effect until you add parameters to the message form.

Click the button to enter the message form.



The following is a summary of the items contained in the message form:

Item	Function
Display Status	Check this checkbox to enable the contents of the message to be displayed on the iKAN series device.
Instant	Check this checkbox to set this message as an instant message.
Message Moving Mode	Select a value from the drop-down menu to specify the message moving mode.
Row(s)	Select a value from the drop-down menu to specify the row where the message will be displayed.
Color	Select a value from the drop-down menu to specify the color for the message to be displayed.
Message	Enter the contents of the message.
Update	Click this button to allow the settings to take effect.

Tips & Warnings

1. Instant messages have a higher priority than common messages, meaning that if any of the instant messages have been enabled, any scheduled common messages in the sequence will be ignored until all instant messages have been disabled.
2. Each time the settings for a message are changed, you will need to click the respective Update button for that message.

4.2. Displaying Messages with Variables

The iKAN series device allows data related to items such as the Ethernet configuration, the RTC value, and other information, to be inserted into a message as a system variable. The format for using a system variable in a message that has a length of 5 bytes is as follows:

1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	y: System variable	X	X	X
	a: ASCII string			
	b: Coil			
	u: Unsigned integer (0 to 65535)			
	i: Signed integer (-32768 to 32767)			
	f: Float (-3.4E+38 to +3.4E+38)			

The following describes the Modbus register map for the iKAN device that can be used on the iKAN display.

Coil-type variables (0xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	**Hex.**				
00000 : 00039	0000 : 0027	40	Coil-type variables	-	R/W
00100 : 00227	0064 : 00E3	128	Enables or disables the display of common messages 0 to 127.	0: Disabled 1: Enabled	R/W

System variables (3xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
30000 : 30003	0000 : 0003	4	The IP address for the iKAN series device	0 to 255	R
30004 : 30007	0004 : 0007	4	The Mask address for the iKAN series device	0 to 255	R
30008 : 30011	0008 : 000B	4	The Gateway address for the iKAN series device	0 to 255	R
30012	000C	1	Year	0 to 9999	R
30013	000D	1	Month	1 to 12	R
30014	000E	1	Day	1 to 31	R
30015	000F	1	Abbreviated day of the week: SUN, MON, TUE, WED, THU, FRI, SAT	0 to 6	R
30016	0010	1	Day of the week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday	0 to 6	R
30017	0011	1	Day of the week in Chinese characters: 日、一、二、三、四、五、六	0 to 6	R
30018	0012	1	Hours (24-hour format)	0 to 23	R
30019	0013	1	Minutes	0 to 59	R
30020	0014	1	Seconds	0 to 59	R

Integer-type variables/Float-type variables/misc. (4xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
40000 : 40063	0000 : 003F	64	Integer-type variables	0 to 65535	R/W
40128 : 40255	0080 : 00FF	64	Float-type variables	3.4E+38 to +3. 4E+38	R/W
40384 : 40447	0180 : 01BF	64	Data mapping arguments: Source Low	0 to 65535	R/W
40512 : 40475	0200 : 023F	64	Data mapping arguments: Source High	0 to 65535	R/W
40640 : 40703	0280 : 02BF	64	Data mapping arguments: Target Low	0 to 65535	R/W
40768 : 40831	0300 : 033F	64	Data mapping arguments: Target High	0 to 65535	R/W
40896 : 40959	0380 : 03BF	64	Data mapping arguments: Decimal Places	0 to 2	R/W
41024 : 41087	0400 : 043F	64	Decimal Places for float-type variables	1 to 3	R/W
41408 : 41535	0580 : 05FF	128	Color for common messages 0 to 127 in the first row.	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W

41600	0640	1	Brightness for the display, a smaller number means a brighter screen	0 to 4	R/W
41601	0641	1	Message scrolling speed. A smaller value denotes a greater speed.	0 to 9	R/W
41602	0642	1	Modbus Station ID	1 to 254	R/W
41604	0644	1	Modbus TCP Slave port	0 to 65535	R/W
41612	0652	1	The response timeout value for Modbus TCP communication	0 to 65535	R/W
41613	0653	1	The delay between polls for Modbus TCP communication	0 to 65535	R/W
41632 : 41759	0660 : 06DF	128	The priority for messages 0 to 127	0: Common 1: Instant	R/W
41800 : 41831	0708 : 0727	32	The contents of ASCII string 0	ASCII	R/W
41832 : 41863	0728 : 0747	32	The contents of ASCII string 1	ASCII	R/W
41864 : 41895	0748 : 0767	32	The contents of ASCII string 2	ASCII	R/W
41896 : 41927	0768 : 0787	32	The contents of ASCII string 3	ASCII	R/W
41928 : 41959	0788 : 07A7	32	The contents of ASCII string 4	ASCII	R/W
41960 : 41991	07A8 : 07C7	32	The contents of ASCII string 5	ASCII	R/W
41992 : 42023	07C8 : 07E7	32	The contents of ASCII string 6	ASCII	R/W

42024 : 42055	07E8 : 0808	32	The contents of ASCII string 7	ASCII	R/W
42100 : 42227	0834 : 08B3	128	The color of messages 0 to 127 on the second row.	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W
42300 : 42427	08FC : 097B	128	The message moving type for messages 0 to 127	0 to 3	R/W
42500 : 42539	08FC : 09EB	40	The color for the coil variables 0 to 39	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W
42700 : 42763	0A8C : 0ACB	64	The color for integer variables 0 to 63		R/W
42700 : 42763	0A8C : 0ACB	64	The color for float variables 0 to 63		R/W

4.2.1. Inserting System Variables into a Message

The iKAN series device allows data related to items such as the Ethernet configuration, the RTC value, and other information, to be inserted into a message as a system variable. The format for using a system variable in a message that has a length of 5 bytes is as follows:

1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	y: System variable	X	X	X

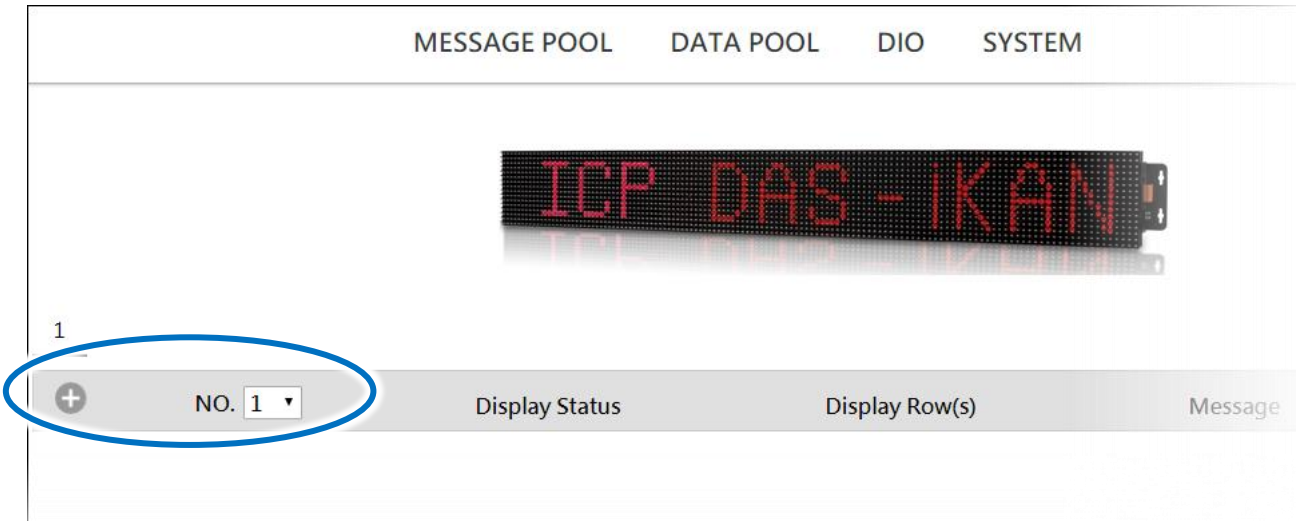
4.2.1.1. Displaying the IP Address

Modbus register addresses 30000 to 30011 can be used to read the current IP, Mask, and Gateway address values. The following is an overview of how to read these addresses.

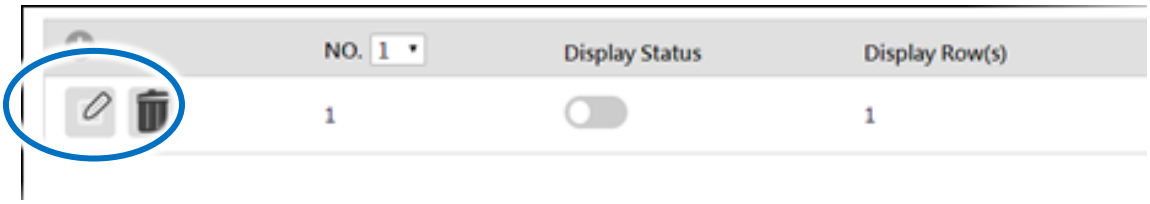
Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
30000 : 30003	0000 : 0003	4	The IP address for the iKAN series device	0 to 255	R
30004 : 30007	0004 : 0007	4	The Mask address for the iKAN series device	0 to 255	R
30008 : 30011	0008 : 000B	4	The Gateway address for the iKAN series device	0 to 255	R

For example, the following explains how to configure a message to display the IP address for the iKAN series device in message 1.

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the form for message **No. 1**, specify the following parameters:

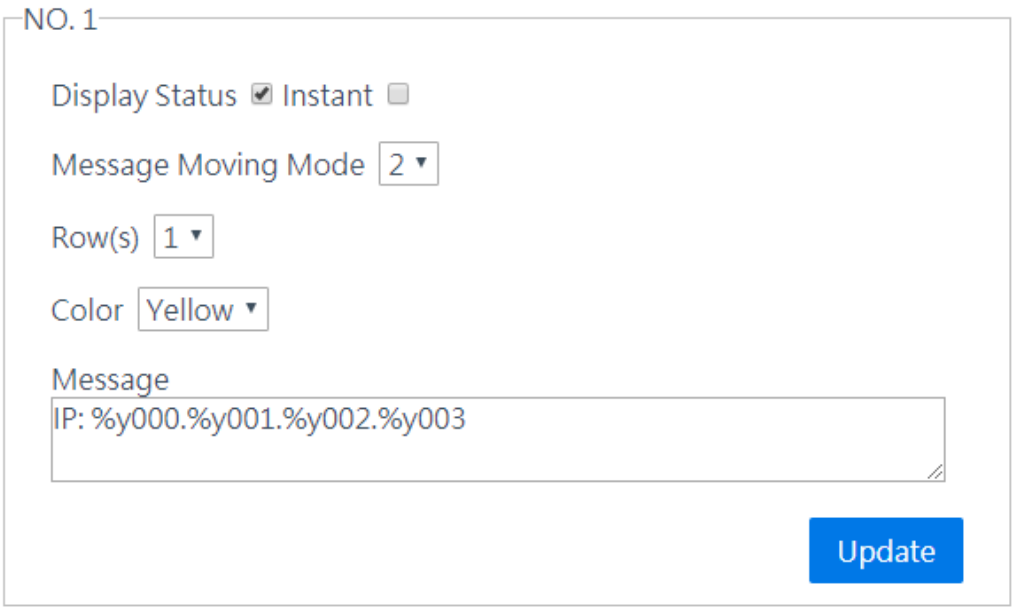
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

   iii. Enter the following string in the **Message** text field:

   IP: %y000.%y001.%y002.%y003

   iv. Click the **Update** button



The IP address for the iKAN series device will be shown on the display.

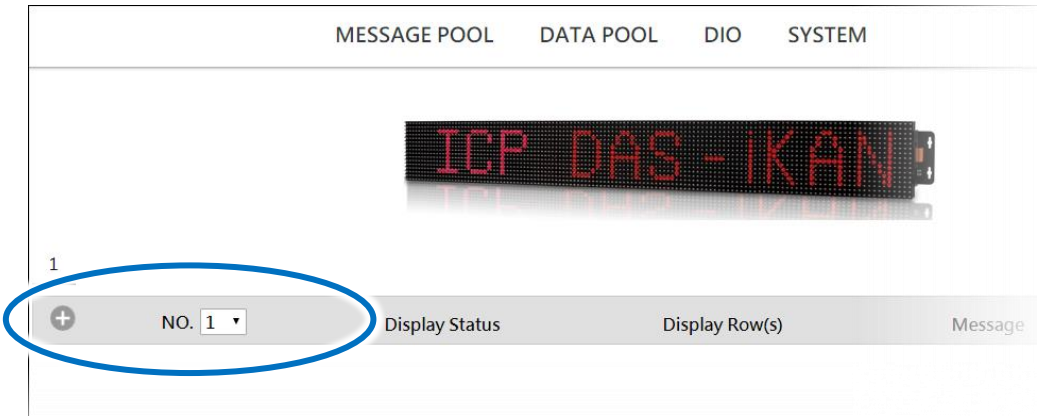
4.2.1.2. Displaying the Current Date and Time

Modbus register addresses 30012 to 30020 can be used to read the current date and time value. The following is an overview of how to read these values.

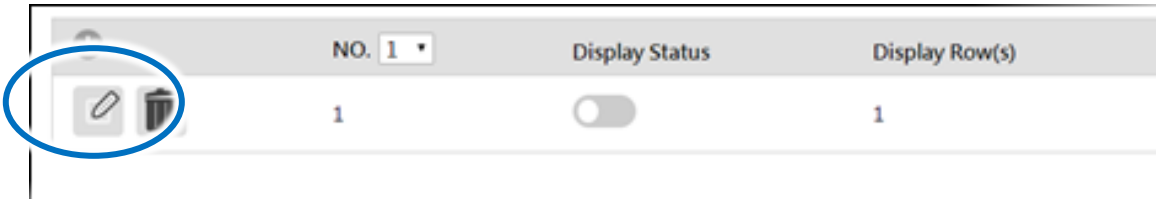
Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
30012	000C	1	Year	0 to 9999	R
30013	000D	1	Month	1 to 12	R
30014	000E	1	Day	1 to 31	R
30015	000F	1	Abbreviated day of the week: SUN, MON, TUE, WED, THU, FRI, SAT	0 to 6	R
30016	0010	1	Day of the week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday	0 to 6	R
30017	0011	1	Day of the week in Chinese characters: 日、一、二、三、四、五、六	0 to 6	R
30018	0012	1	Hours (24-hour format)	0 to 23	R
30019	0013	1	Minutes	0 to 59	R
30020	0014	1	Seconds	0 to 59	R

For example, the following explains how to configure a message to display the current date for the iKAN series device in message 1:

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the form for message **No. 1**, specify the following parameters:

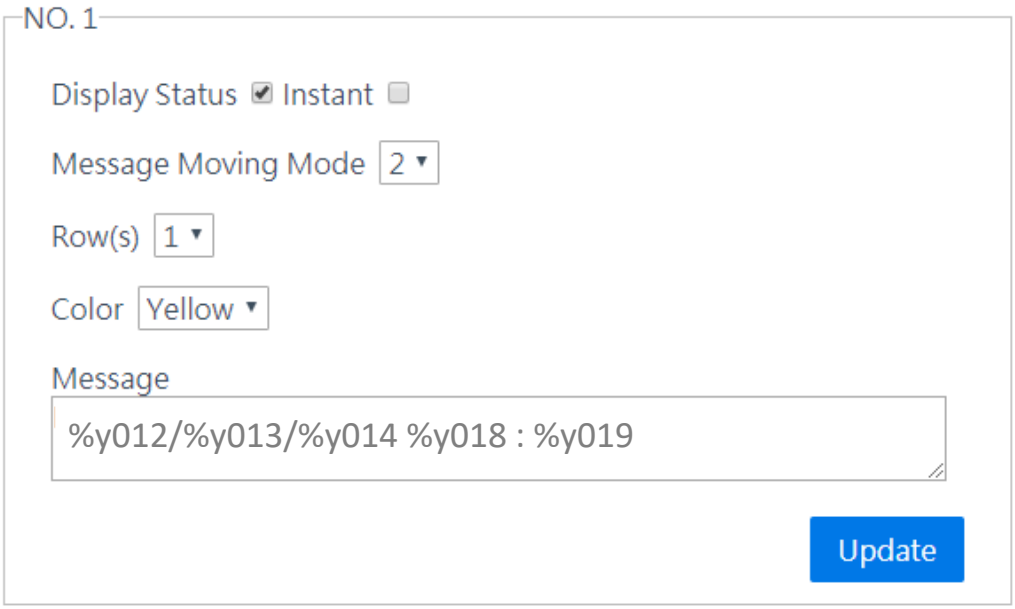
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

   iii. Enter the following string in the **Message** text field:

   %y012/%y013/%y014 %y018 : %y019

   iv. Click the **Update** button



The IP address for the iKAN series device will be shown on the display.

4.2.2. Inserting Integer-type Variables into a Message

iKAN display devices provide Modbus registers for 64 integer variables, allowing the Host PC or a PLC to read or write data via the Modbus TCP/ RTU protocol. These values can also be inserted into a message. If these inserted values are modified via a remote Host or a PLC, the value will be automatically refreshed when it is displayed on the iKAN series device.

The format for using a variable in a message is a 5-byte string as follows:

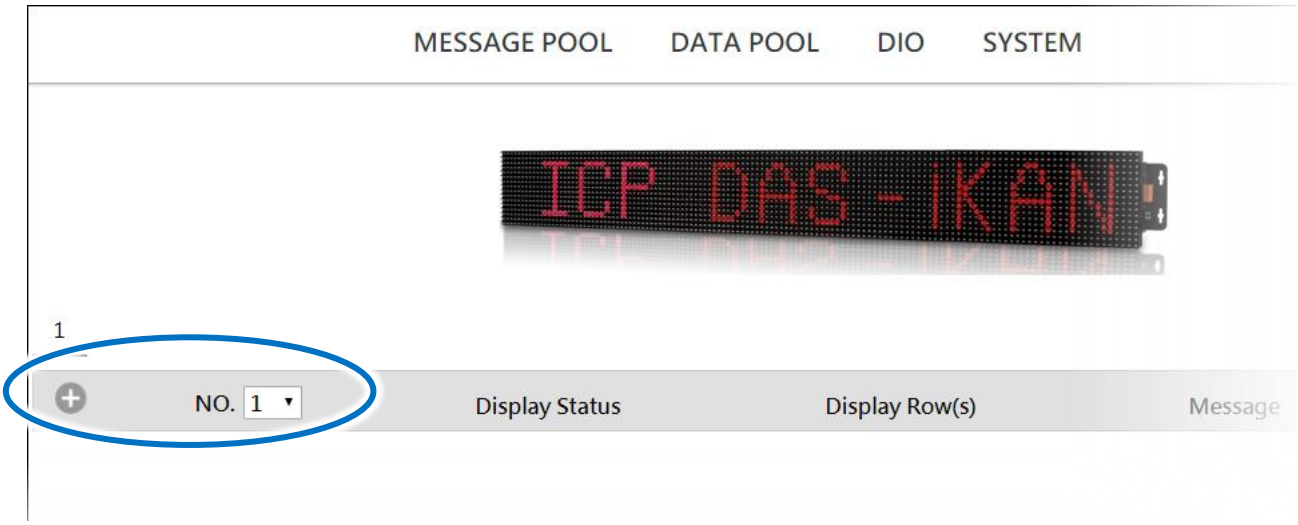
1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	u: Unsigned integer (0 to 65535) i: Signed integer (-32768 to 32767)	X	X	X

A maximum of 64 integer variables can be stored on the iKAN series device, and are accessed using Modbus register addresses 40000 to 40063.

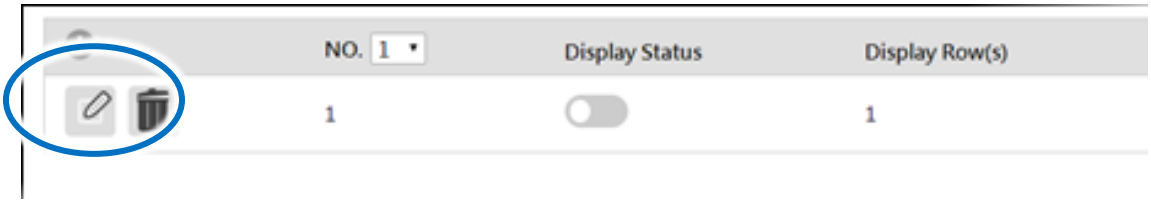
Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
40000 : 40063	0000 : 003F	64	Integer-type variables	0 to 65535	R/W

For example, the following explains how to insert a signed type integer variable into Modbus register 40001 using message address 1.

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the **No. 1** form, specify the following parameters:

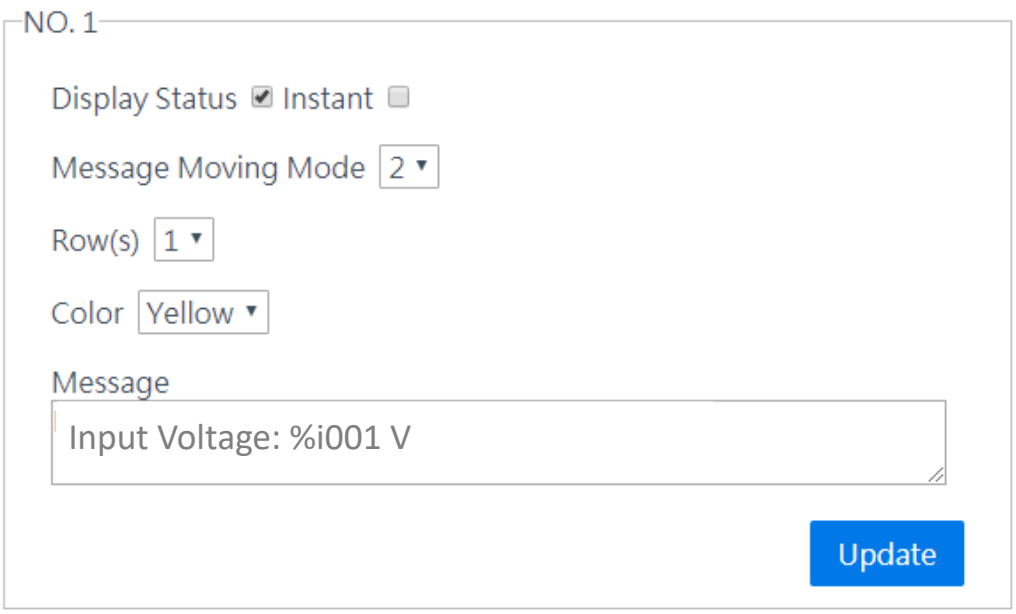
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

   iii. Enter the following string in the **Message** text field:

   Input Voltage: %i001 V

   iv. Click the **Update** button



The value for integer variable 1 will be shown on the iKAN display.

The iKAN series device provides a data mapping function for Integer-type variables. Refer to Section “4.3.1. Displaying the Mapping Data for Integer-type Variables” for more details.

4.2.3. Inserting float-type Variables into a Message

The iKAN display device provides Modbus registers for 64 float variables, allowing the Host PC or a PLC to read or write data via the Modbus TCP/ RTU protocol. These values can also be inserted into a message. If these values are modified via a remote Host or a PLC, the value will be automatically refreshed when it is displayed on the iKAN series device.

The format for using a variable in a message is a 5-byte string, as follows:

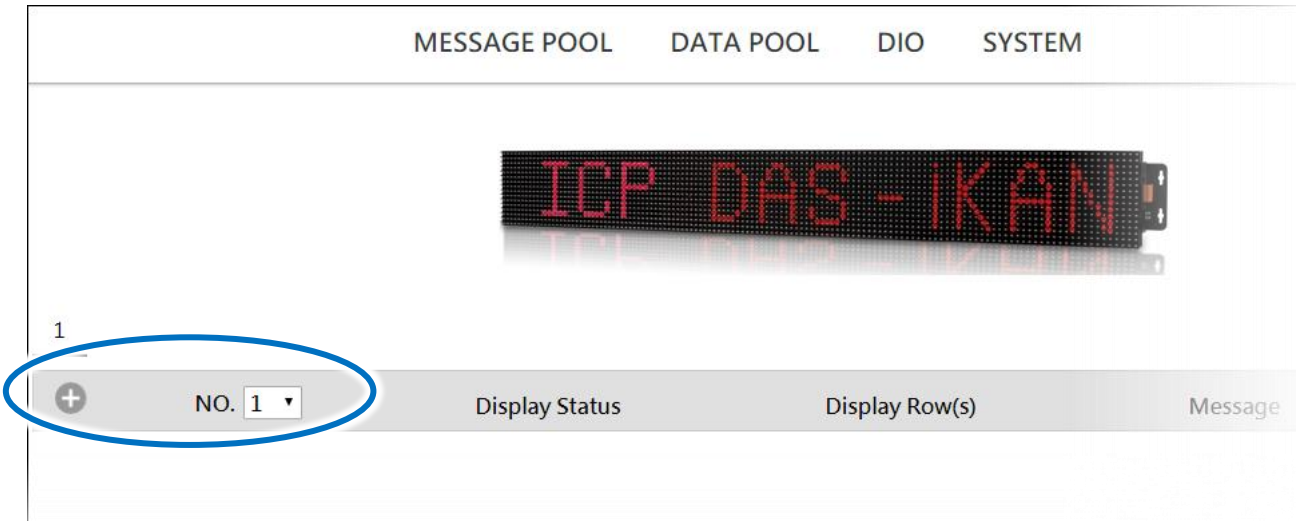
1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	f: Float variable (-3.4E+38 to +3.4E+38)	X	X	X

A maximum of 64 float variables can be stored on the iKAN series device, and are accessed using Modbus register addresses 40000 to 40063.

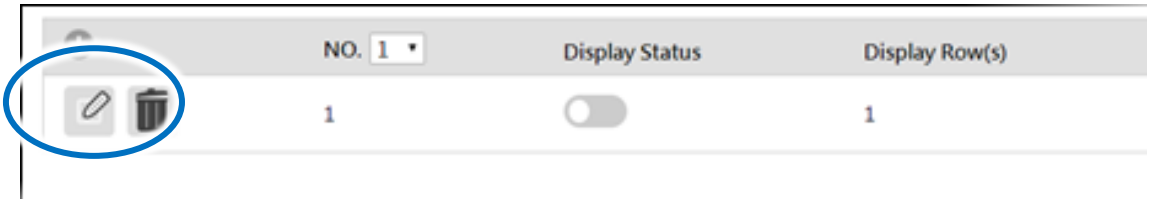
Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
40128 : 40255	0080 : 00FF	64	Float-type variables	3.4E+38 to +3.4E+38	R/W

For example, the following explains how to insert a float-type variable into Modbus register 40130 using message address 1.

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the **No. 1** form, specify the following parameters:

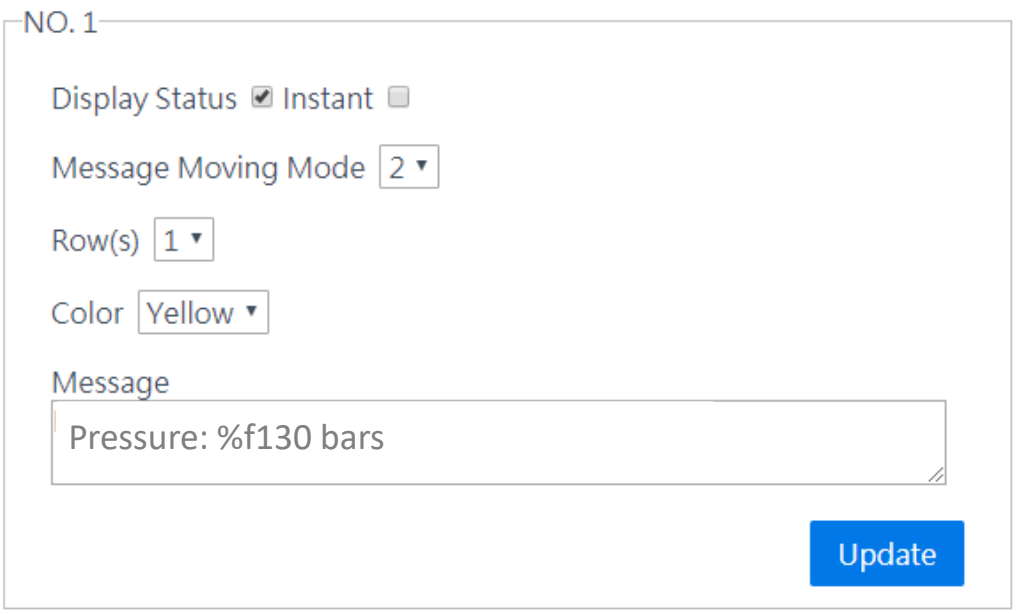
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

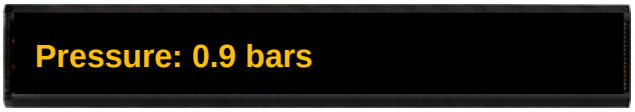
   iii. Enter the following string in the **Message** text field:

   Pressure: %f130 bars

   iv. Click the **Update** button



The value for float-type variable 1 will be shown on the iKAN display.



The iKAN series device allows the number of decimal places to be increased for Float-type variables. Refer to Section “4.3.2. Displaying a Value with an Increased number of Decimal Places for Float-Type Variables” for more details.

4.2.4. Inserting Coil –type Variables into a Message

The iKAN display device provides Modbus registers for 40 coil variables, allowing the Host PC or a PLC to read or write data via the Modbus TCP/ RTU protocol. These values can also be inserted into a message. If these values are modified via a remote Host or a PLC, the value will be automatically refreshed when it is displayed on the iKAN series device.

The format for using a variable in a message is a 5-byte string, as follows:

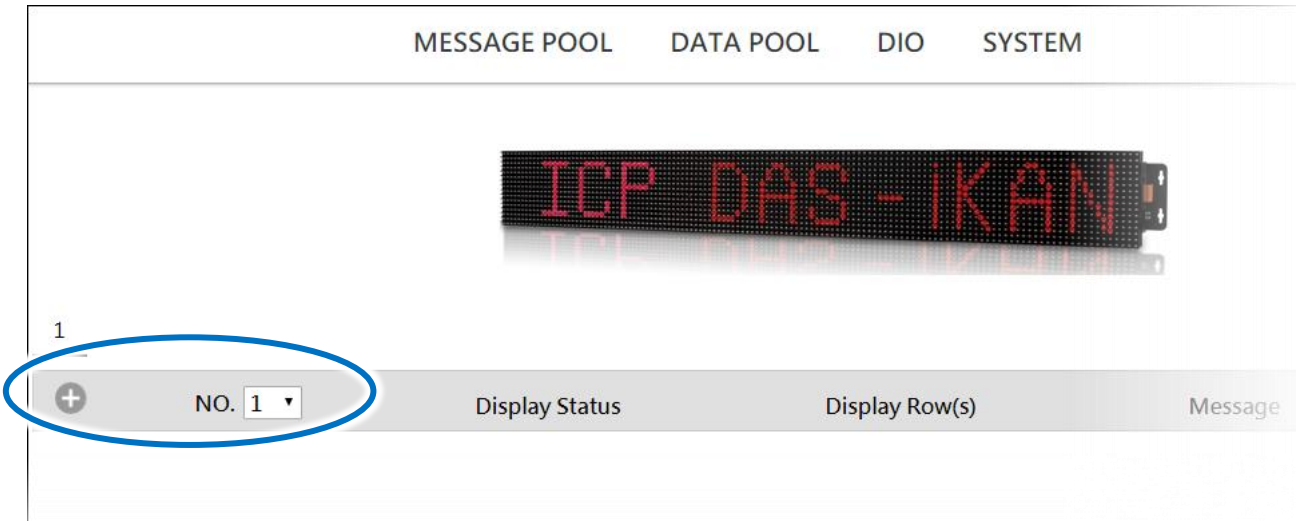
1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	b: Coil	X	X	X

A maximum of 40 Coil type variables can be stored on the iKAN series device, and are accessed using Modbus register addresses 00000 to 00039.

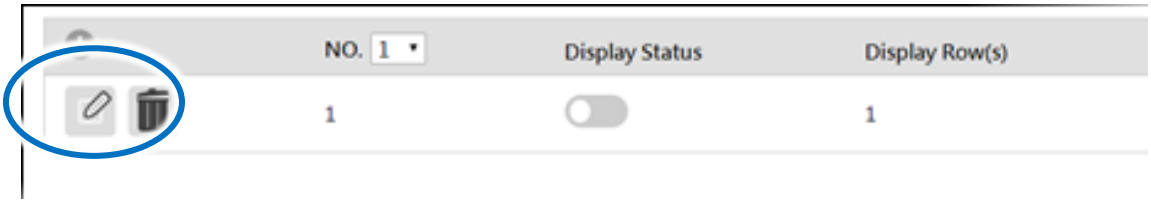
Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
00000 : 00039	0000 : 0027	40	Coil-type variables	-	R/W
00100 : 00227	0064 : 00E3	128	Enables or disables the display of Common Messages 0 to 127.	0: Disabled 1: Enabled	R/W

For example, the following explains how to insert a coil variable into Modbus register 00000 using message 1:

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the **No. 1** form, specify the following parameters:

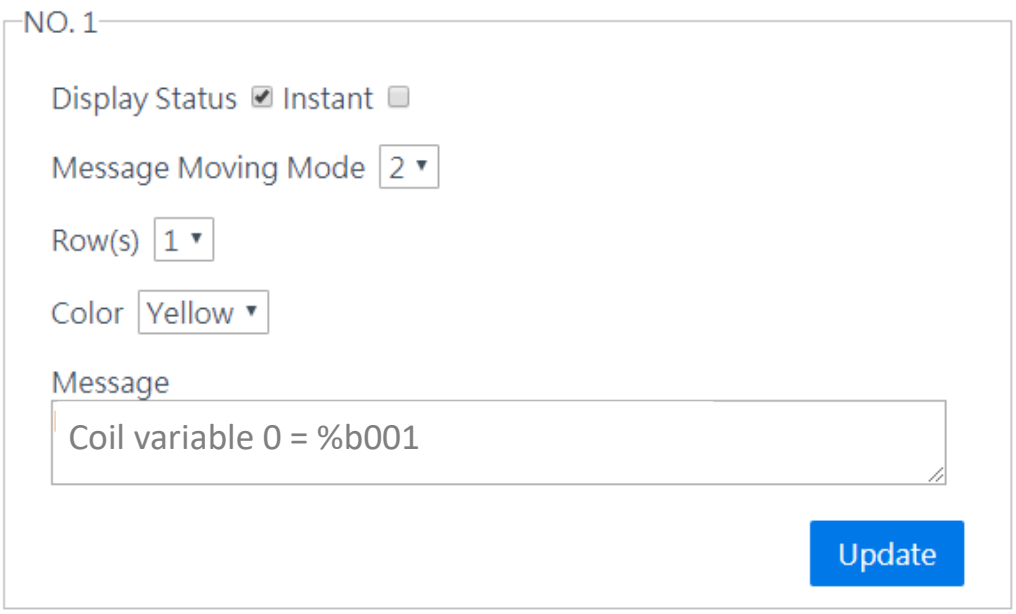
   i. Check the **Display Status** checkbox

   ii. Select the desired color from the **Color** drop-down menu

   iii. Enter the following string in the **Message** text field:

   Coil variable 0 = %b001

   iv. Click the **Update** button



The value for Coil variable 1 will be shown on the iKAN display.

The iKAN series device provides a string mapping function that allows the value of the coil variable to be mapped. Refer to Section “4.3.3. Displaying the Value of a Coil using Replacement Text” for more details.

4.2.5. Inserting ASCII Strings into a Message

iKAN display devices provide Modbus registers for 8 ASCII strings, allowing the Host PC or a PLC to read or write data via the Modbus TCP/ RTU protocol. These values can also be inserted into a message. If these inserted values are modified via a remote Host or a PLC, the value will be automatically refreshed when it is displayed on the iKAN series device.

The format for using a variable in a message is a 5-byte string as follows:

1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	a: ASCII string	X	X	X

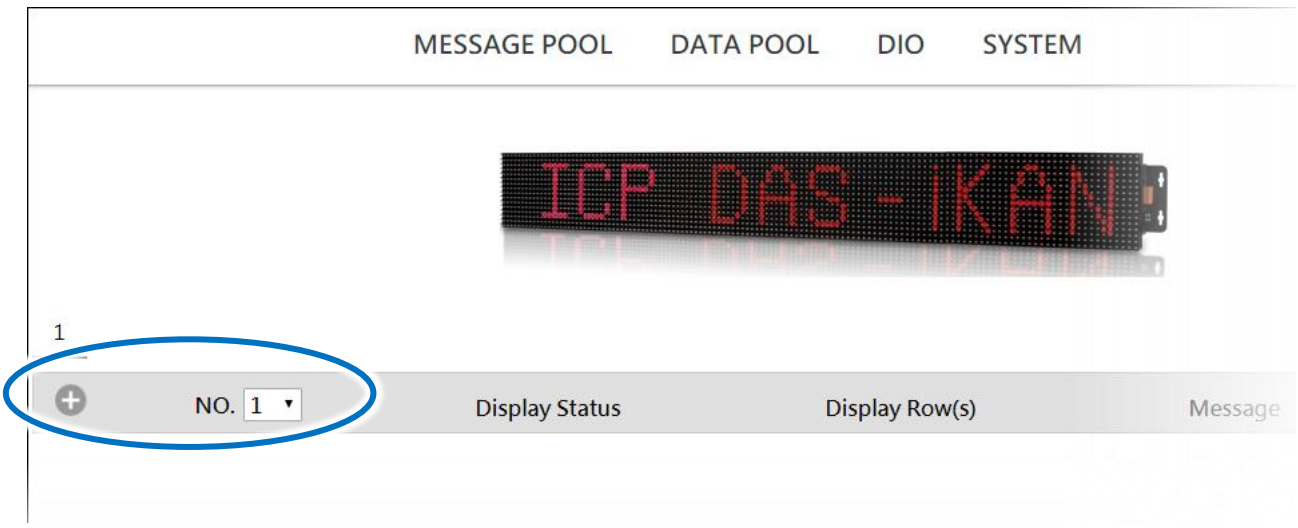
A maximum of 8 ASCII strings can be stored on the iKAN series device, and are accessed using Modbus register addresses 41800 to 41927.

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
41800 : 41831	0708 : 0727	32	Contents of ASCII string 0	ASCII	R/W
41832 : 41863	0728 : 0747	32	Contents of ASCII string 1	ASCII	R/W
41864 : 41895	0748 : 0767	32	Contents of ASCII string 2	ASCII	R/W
41896 : 41927	0768 : 0787	32	Contents of ASCII string 3	ASCII	R/W

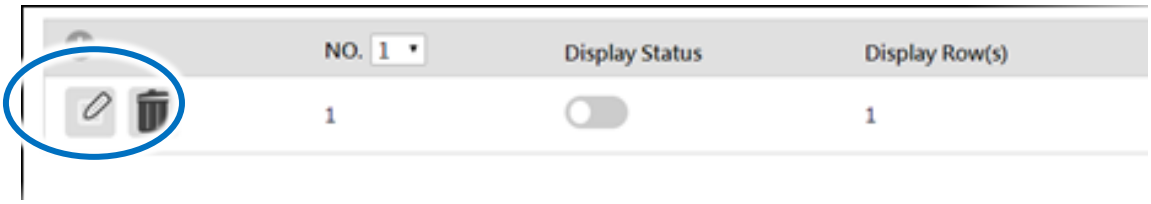
41928 : 41959	0788 : 07A7	32	Contents of ASCII string 4	ASCII	R/W
41960 : 41991	07A8 : 07C7	32	Contents of ASCII string 5	ASCII	R/W
41992 : 42023	07C8 : 07E7	32	Contents of ASCII string 6	ASCII	R/W
42024 : 42055	07E8 : 0808	32	Contents of ASCII string 7	ASCII	R/W

For example, the following explains how to configure a message to display the contents of an ASCII string in a message at address 1:

1. Select message **No. 1** from the message pool, and then click the button



2. Click the button



3. In the **No. 1** form, specify the following parameters:

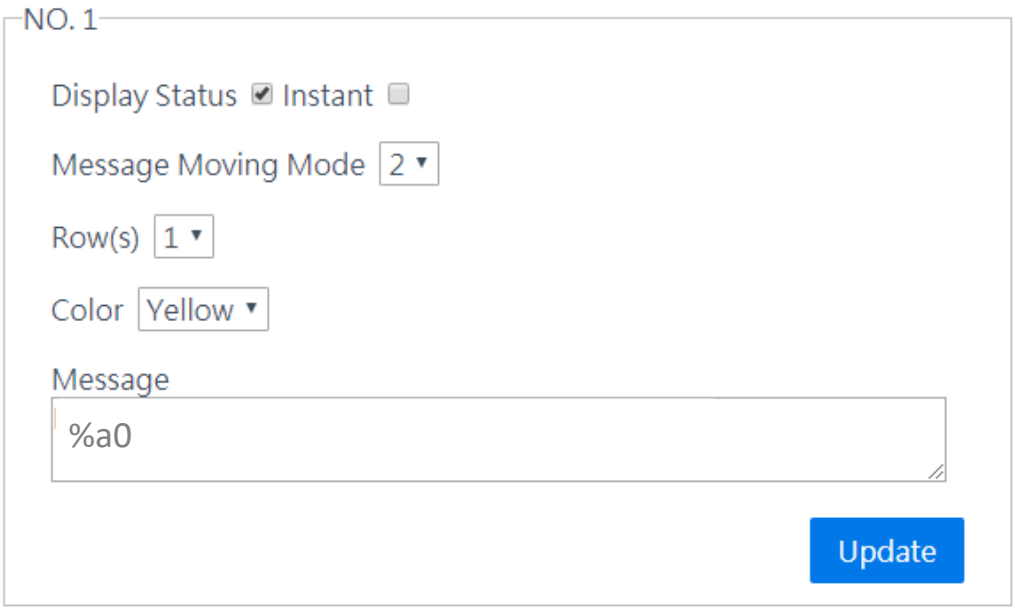
i. Check the **Display Status** checkbox

ii. Select the desired color from the **Color** drop-down menu

iii. Enter the following string in the **Message** text field:

%a0

iv. Click the **Update** button

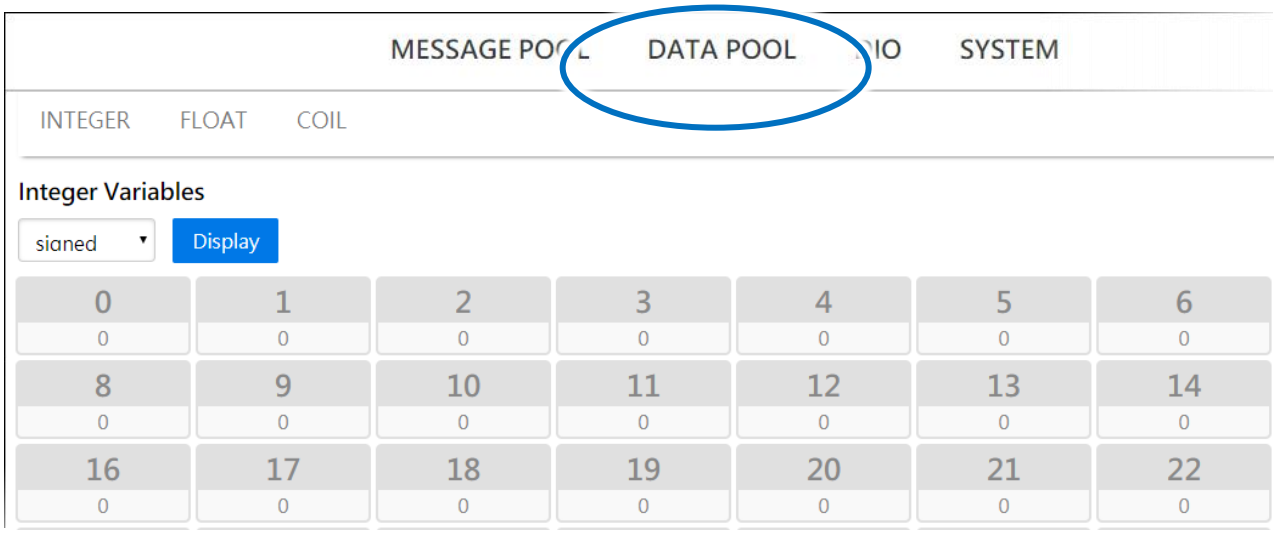


The stored value for ASCII string 0 will be shown on the iKAN display.

4.3. Displaying a Value Applied using a Variable Map

Variable maps provide a mechanism for mapping data to a variable regardless of the data source.

Current variable maps are listed on the DATA POOL page. The value of most variables can be individually pre-configured via the variable maps page.



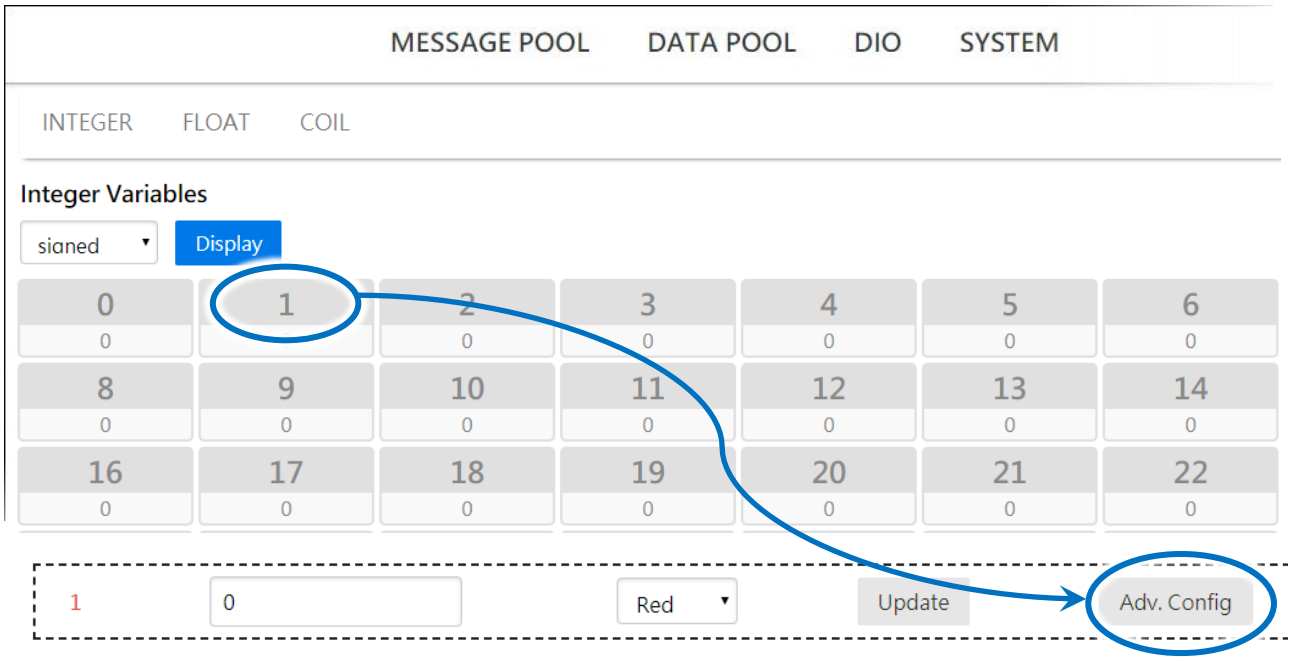
4.3.1. Displaying Mapping Data for Integer-type Variables

Most industrial measuring devices use 16-bit integers to convert a value from a data source to a real physical value, such as the voltage, temperature, or relative humidity, etc. For example, using the value range -32768 to 36767 to convert to the voltage range -10 V to +10 V. The iKAN series device is able to perform data mapping to translate an integer value that has been read from a remote data source to a readable physical value.

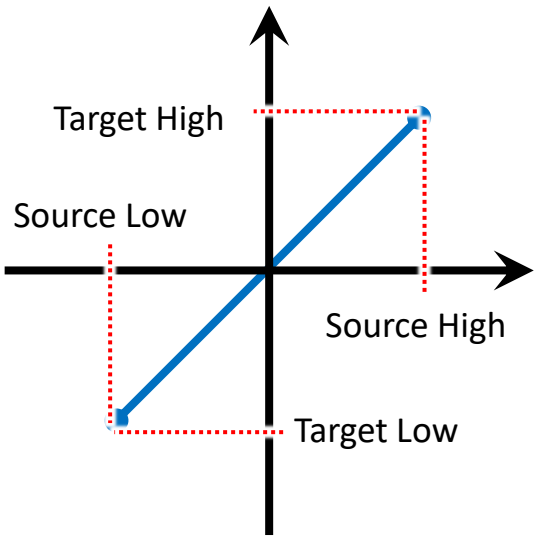
For example, the following explains how to configure the data mapping function for an integer-type variable at address 1.

Note that this example is a continuation of the example given in Section 4.2.2.

1. On the **INTEGER** page, click the option for address **1**, and then click the **Adv. Config** button



2. Consider the arguments for data mapping



For example, to convert a 16-bit unsigned integer (0 to 65535) to the voltage 0 to 10 V, set the following arguments:

Argument	Value	Description
Source Low	0	The minimum value of the integer
Target Low	0	The minimum value of the physical value
Source High	65535	The maximum value of the integer
Target High	10	The maximum value of the physical value
Decimal Places	-	The number of decimal places to be used for the converted value

3. Enter the following value, and then click the **Update** button

   i. In the **Source Low** column, enter the minimum value of the integer value.

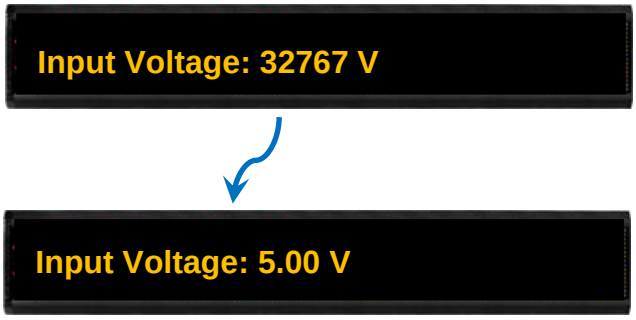
   ii. In the **Source High** column, enter the maximum value of the integer value.

   iii. In the **Target Low** column, enter the minimum value of the physical value.

   iv. In the **Target High** column, enter the maximum value of the physical value.

   v. From the **Decimal Places** column, select the desired number of decimal places to be used for the converted value.

The value for integer variable 1 will be shown on the iKAN display, but will now use the scaled value text rather than the integer value.



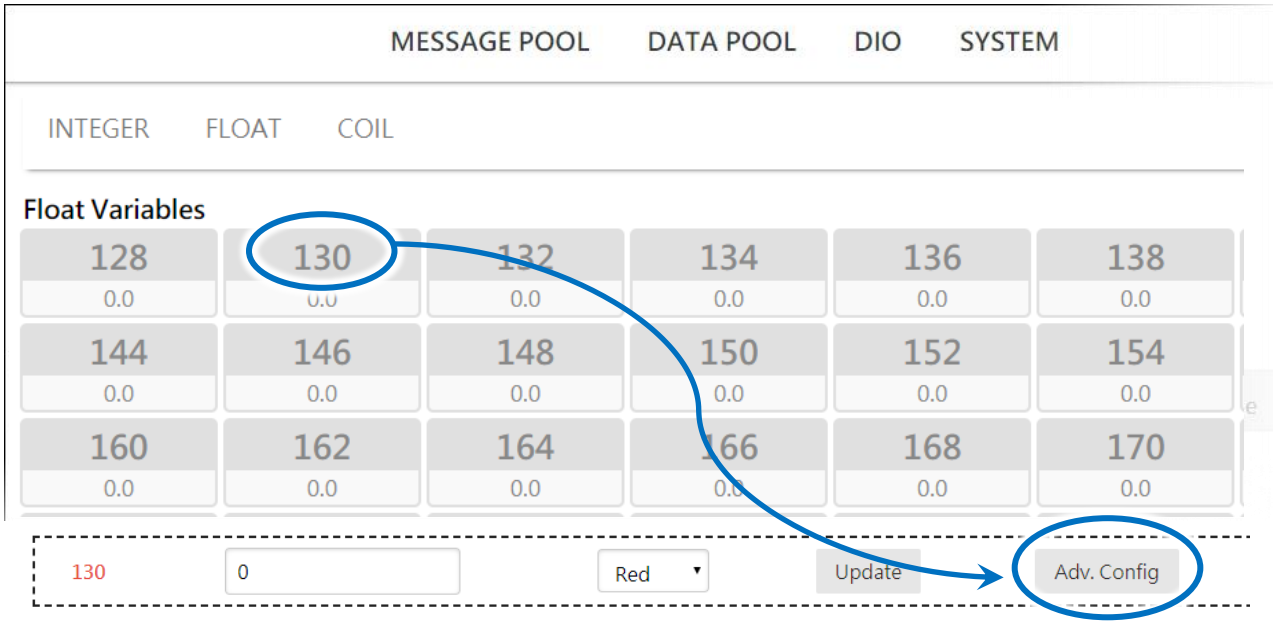
4.3.2. Displaying a Value with an Increased Number of Decimal Places for Float-type Variables

The number of the decimal places to be used for a float-type variable can be set from the FLOAT VARIABLES page. The offset value is 40128, which means variable 0 is equal to 40128 and variable 2 is equal to 40130, and so on. A maximum of three decimal places can be set.

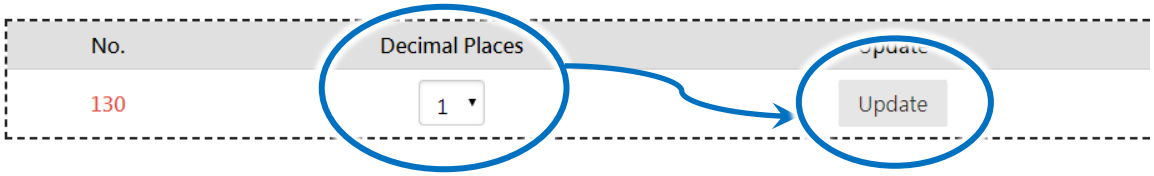
For example, the following explains how to set the number of decimal places for float-type variable 40130.

Note that this example is a continuation of the example given in Section 4.2.3.

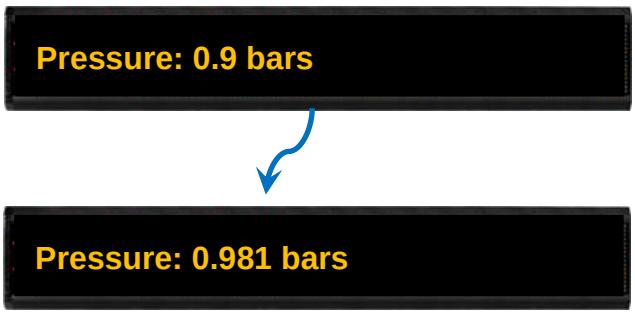
1. On the **FLOAT** page, click the option **for** address **130**, and then click the **Adv. Config** button



2. From the **Decimal Places** drop-down menu, select the desired number of decimal places to be used, and then click the **Update** button



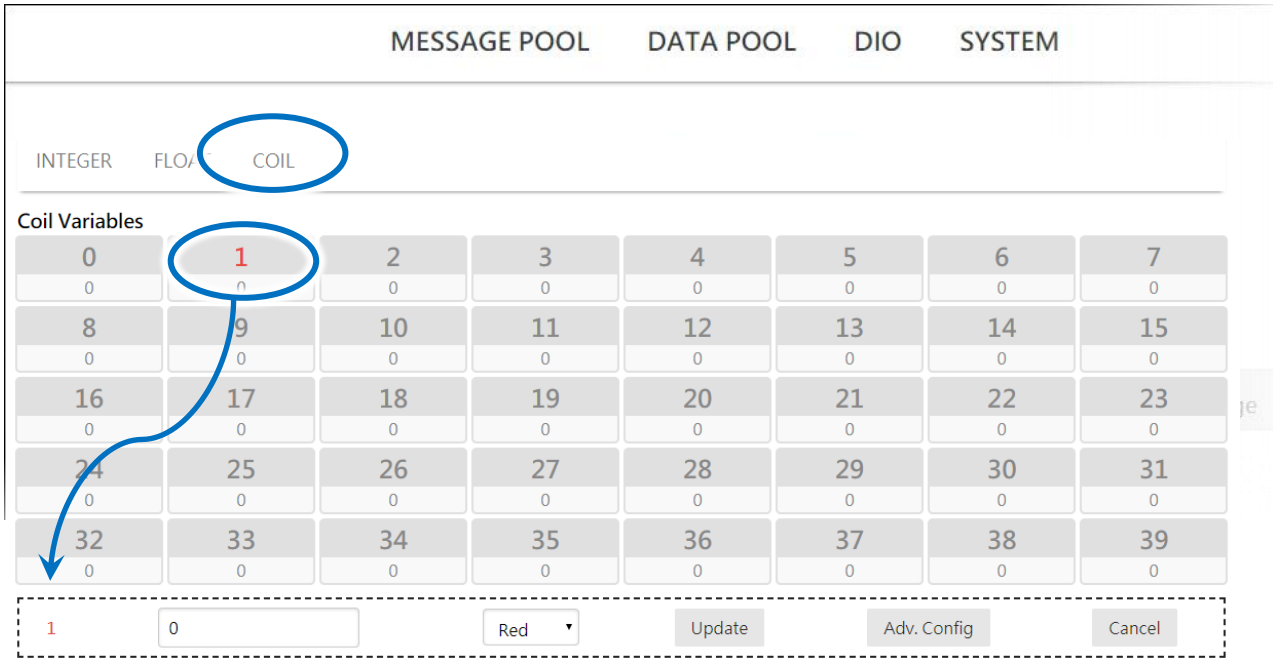
The value for float-type variable 1 will be shown on the iKAN display using the specified number of decimal places.



4.3.3. Displaying the Value of a Coil Variable using Replacement Text

The contents of a coil variable can be either 0 or 1, which is usually used to indicate the status of the Digital Output, i.e., ON or OFF.

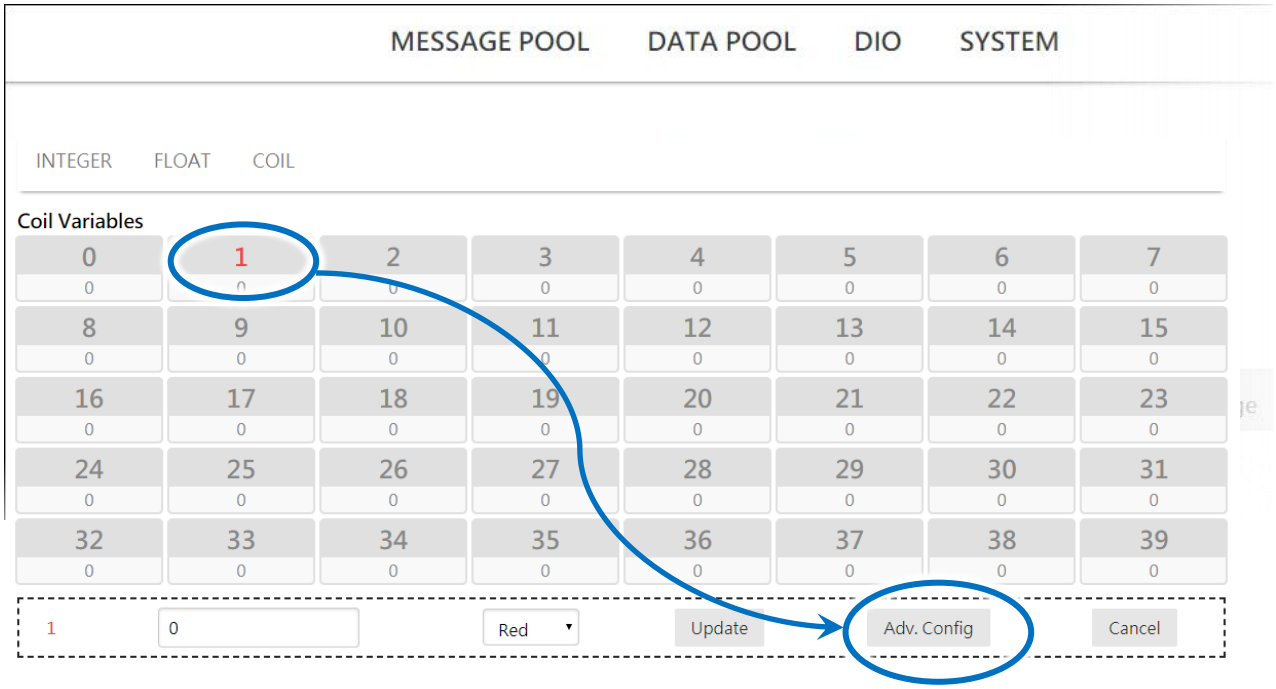
On the **COIL** page, click the number for the address of the coil variable which you would like to configure. The configuration area has been populated based on the number of the address selected.



The iKAN series device provides a string mapping function that allows the value of the coil variable to be mapped in order to make it more meaningful when reading the message. The text mapping function allows a maximum of 10 Unicode characters or 30 ASCII characters to be entered to represent a value of 0 or 1.

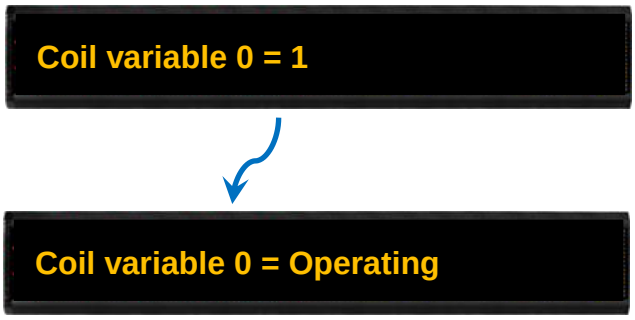
For example, the following explains how to configure the text mapping for the Coil variable at address 1. Note that this example is a continuation of the example given in Section 4.2.4.

1. On the **COIL** page, click the option for address **1**, and then click the **Adv. Config** button



2. Enter the following mapping text, and then click the **Update** button
   i. In the ON Text column, enter the mapping text in the text field for when the status of the coil-type variable is set to ON status.
   ii. In the OFF Text column, enter the mapping text in the text field for when the status of the coil-type variable is set to OFF status.

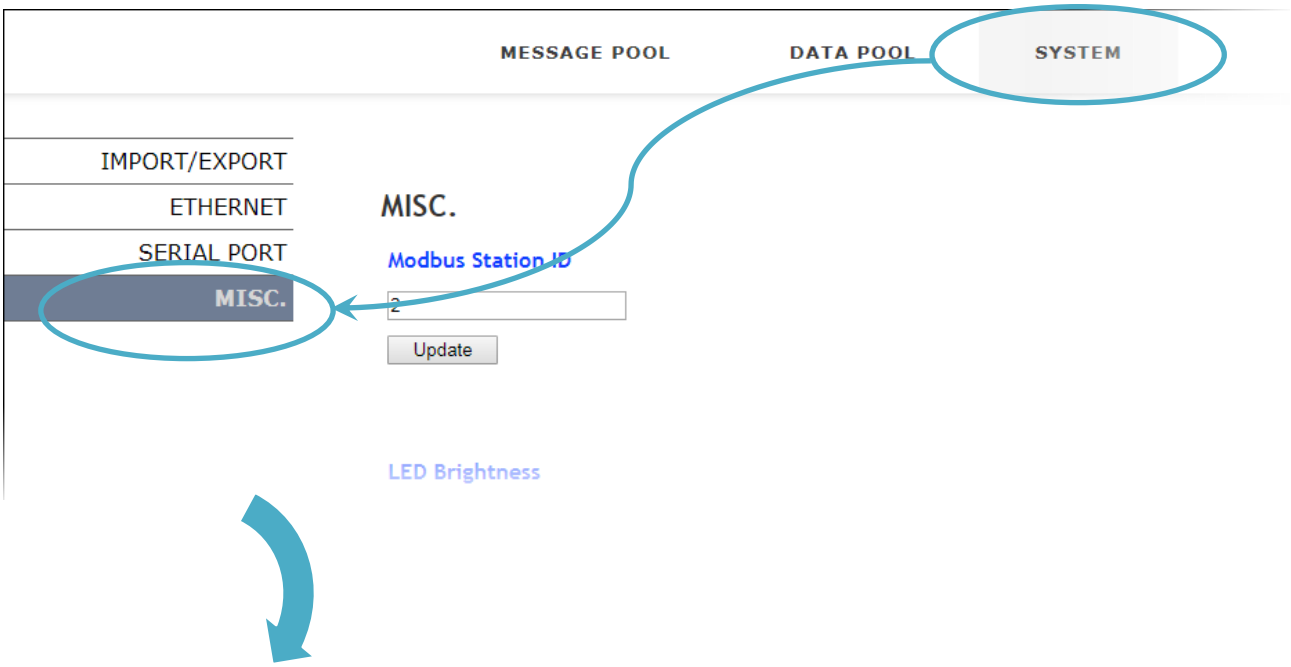
The value for coil variable 1 is now replaced by the mapping text on the display.



5. iKAN Updates

ICP DAS will continue to update the iKAN firmware with more useful functions and better performance. The latest firmware can be obtained from:
http://ftp.icpdas.com/pub/cd/ikan/firmware/

The firmware version information is listed at the bottom of the MISC. page. You can check the version number on this page to determine whether the firmware for the iKAN series device needs to be updated.



The 7188xw Utility is a Win32 console program that can be used to update the OS image and the firmware, and uses the COM port to communicate with the connected module.

To update either the firmware or the OS image, follow the instructions given below.

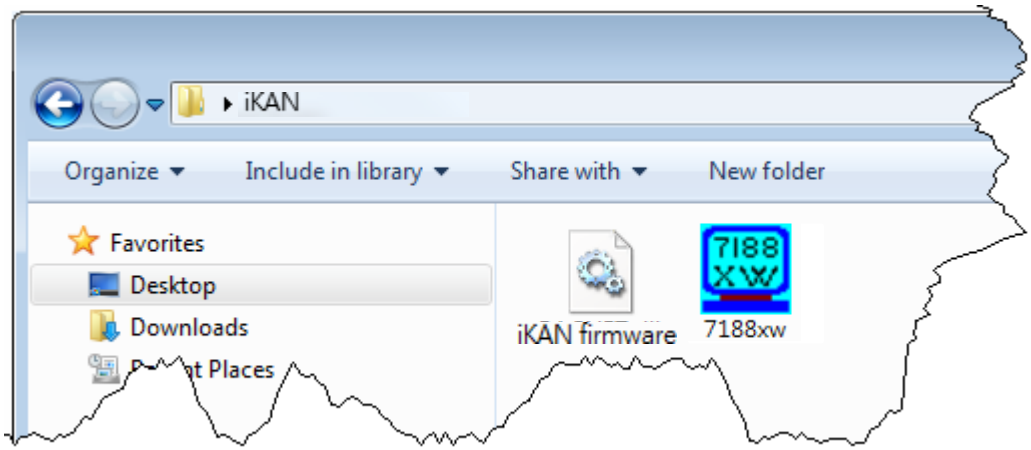
1. Connect the RS-232 port on the iKAN device to the RS-232 port on the PC

2. Download the latest version of the iKAN firmware, which can be obtained from: http://ftp.icpdas.com/pub/cd/ikan/firmware/

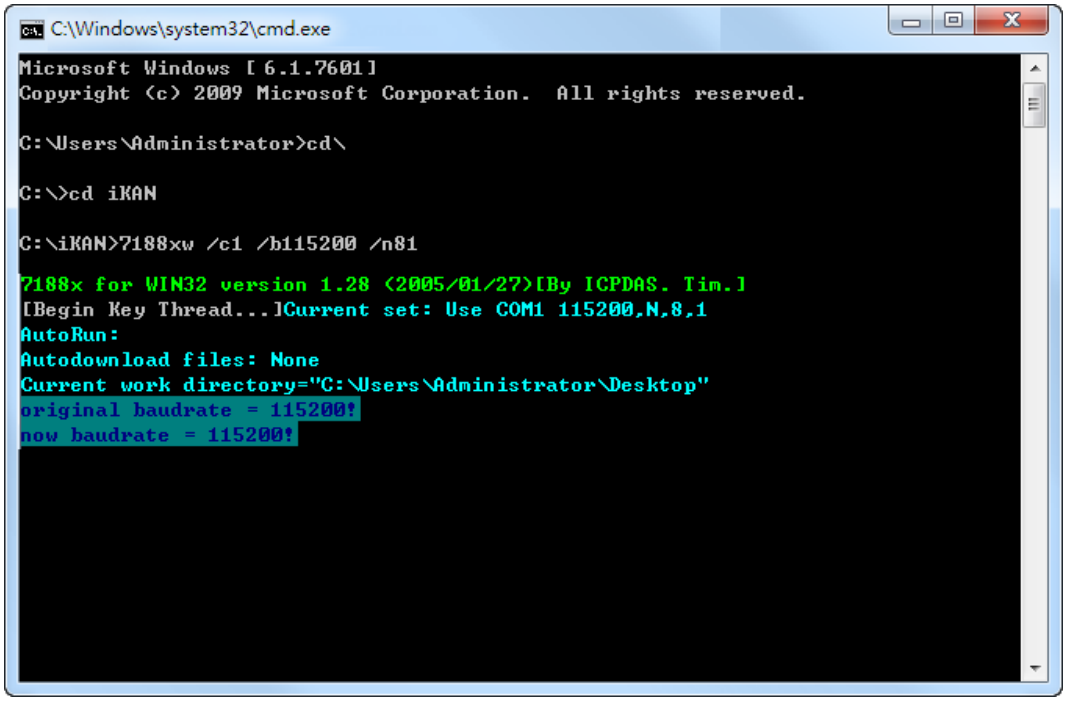
3. Download the latest version of the 7188xw Utility and extract it. The latest version of the 7188xw Utility can be obtained from: http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/

Tips & Warnings

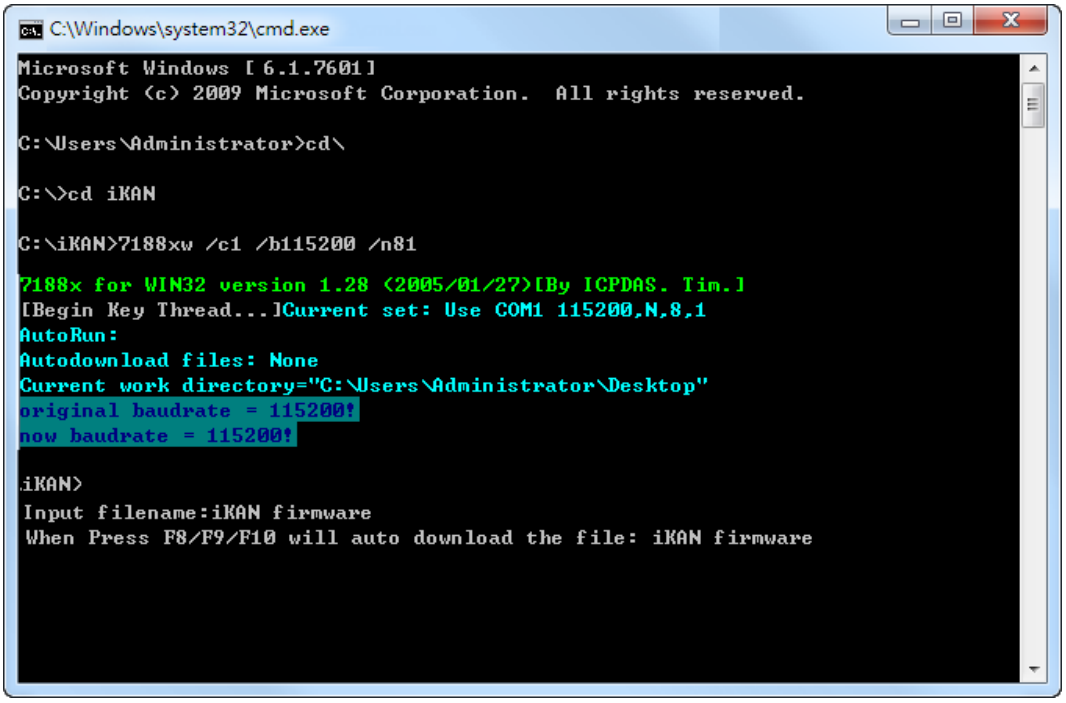
The iKAN firmware and 7188xw utility must be in the same directory.



4. Open a command prompt and change the current work directory to the directory where the firmware is located
5. Enter the command “7188xw /c1 /b115200 /n81” to launch the 7188xw Utility



6. iKANPress the Enter key to connect to the iKAN, and then press the F9 key to transfer the firmware to the iKAN device



7. Wait until all files have been transferred and then reboot the iKAN device

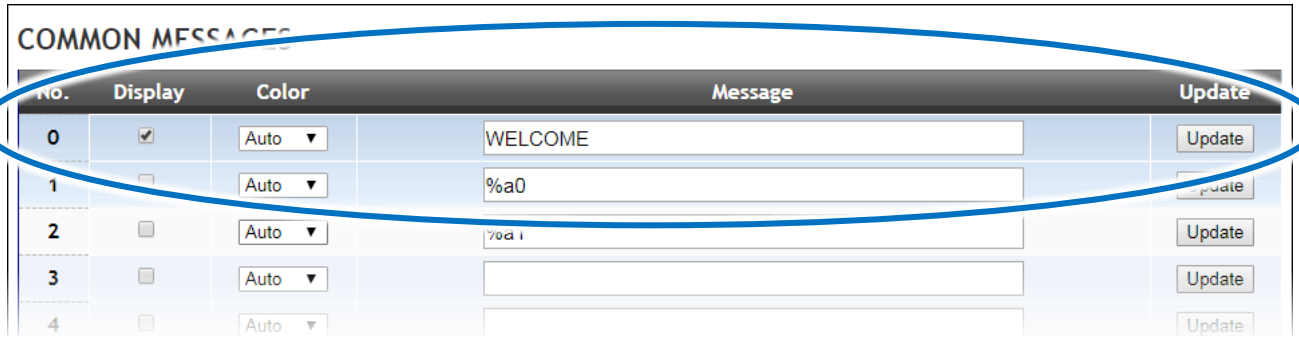
Appendix A. How to –

A.1. How to set the iKAN Display to Modbus Configuration Mode

Before using the Modbus RTU/TCP Command tool, the iKAN device must be configured in Modbus Configuration Mode. To do this, follow the instructions given below.

1. Click the **MESSAGE POOL** menu item, and then click the **ETHERNET** menu item
2. In the COMMON MESSAGES section, specify the following parameters:

   a. For Message 0, check the Display checkbox, and enter “WELCOME” in the Message text field
   b. In the Message 1 area, enter the “WELCOME” in the Message box.
   c. In the Message 1 area, enter the “%a0” in the Message box.



3. The iKAN display will then display the “WELCOME” message. The iKAN display has now been configured to Modbus Configuration Mode, and you can start sending Modbus commands to your iKAN display.

For more detailed information about how to use the Modbus RTU/TCP Command tool to communicate with the iKAN device, refer to Section “3.2.2. Sending a Modbus Command to the iKAN device”.

Appendix B. Variable Types and Modbus Register Map

B.1. Variable Types

The iKAN series device allows data related to items such as the Ethernet configuration, the RTC value, and other information, to be inserted into a message as a system variable.

The format for using a system variable in a message has a length of 5 bytes, as follows:

1	2	3 to 5		
Delimiter Character	**Variable Type**	**Modbus Address: 3-digit decimal number**		
%	y: System variable	X	X	X
	b: Coil			
	u: Unsigned integer (0 to 65535)			
	i: Signed integer (-32768 to 32767)			
	f: Float (-3.4E+38 to +3.4E+38)			

The valid range for each type of variable is:

Variable Type	Range
Coil Variables	%b000 to %b039
Integer Variables	%u000 to %u063
	%i000 to %i063
Float Variables	%f128 to %f254
System Variables	%y000 to %y026

B.2. Modbus Register Map

Coil-type variables (0xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
00000 : 00039	0000 : 0027	40	Coil-type variables	-	R/W
00100 : 00227	0064 : 00E3	128	Enables or disables the display of common messages 0 to 127.	0: Disabled 1: Enabled	R/W

System variables (3xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
30000 : 30003	0000 : 0003	4	The IP address for the iKAN series device	0 to 255	R
30004 : 30007	0004 : 0007	4	The Mask address for the iKAN series device	0 to 255	R
30008 : 30011	0008 : 000B	4	The Gateway address for the iKAN series device	0 to 255	R
30012	000C	1	Year	0 to 9999	R
30013	000D	1	Month	1 to 12	R
30014	000E	1	Day	1 to 31	R
30015	000F	1	Abbreviated day of the week: SUN, MON, TUE, WED, THU, FRI, SAT	0 to 6	R
30016	0010	1	Day of the week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday	0 to 6	R

30017	0011	1	Day of the week in Chinese characters: 日、一、二、三、四、五、六	0 to 6	R
30018	0012	1	Hours (24-hour format)	0 to 23	R
30019	0013	1	Minutes	0 to 59	R
30020	0014	1	Seconds	0 to 59	R

Integer-type variables/Float-type variables/misc. (4xxxx, 0 based)

Modbus Address		Length	Description	Value Range	Attribute
Decimal	Hex.				
40000 : 40063	0000 : 003F	64	Integer-type variables	0 to 65535	R/W
40128 : 40255	0080 : 00FF	64	Float-type variables	3.4E+38 to +3.4E+38	R/W
40384 : 40447	0180 : 01BF	64	Data mapping arguments: Source Low	0 to 65535	R/W
40512 : 40475	0200 : 023F	64	Data mapping arguments: Source High	0 to 65535	R/W
40640 : 40703	0280 : 02BF	64	Data mapping arguments: Target Low	0 to 65535	R/W
40768 : 40831	0300 : 033F	64	Data mapping arguments: Target High	0 to 65535	R/W
40896 : 40959	0380 : 03BF	64	Data mapping arguments: Decimal Places	0 to 2	R/W

41024 : 41087	0400 : 043F	64	Decimal Places for float-type variables	1 to 3	R/W
41408 : 41535	0580 : 05FF	128	Color for common messages 0 to 127 in the first row.	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W
41600	0640	1	Brightness for the display, a smaller number means a brighter screen	0 to 4	R/W
41601	0641	1	Message scrolling speed. A smaller value denotes a higher speed.	0 to 9	R/W
41602	0642	1	Modbus Station ID	1 to 254	R/W
41604	0644	1	Modbus TCP Slave port	0 to 65535	R/W
41612	0652	1	The response timeout value for Modbus TCP communication	0 to 65535	R/W
41613	0653	1	The delay between polls for Modbus TCP communication	0 to 65535	R/W
41632 : 41759	0660 : 06DF	128	The priority for messages 0 to 127	0: Common 1: Instant	R/W
41800 : 41831	0708 : 0727	32	The contents of ASCII string 0	ASCII	R/W
41832 : 41863	0728 : 0747	32	The contents of ASCII string 1	ASCII	R/W

41864 : 41895	0748 : 0767	32	The contents of ASCII string 2	ASCII	R/W
41896 : 41927	0768 : 0787	32	The contents of ASCII string 3	ASCII	R/W
41928 : 41959	0788 : 07A7	32	The contents of ASCII string 4	ASCII	R/W
41960 : 41991	07A8 : 07C7	32	The contents of ASCII string 5	ASCII	R/W
41992 : 42023	07C8 : 07E7	32	The contents of ASCII string 6	ASCII	R/W
42024 : 42055	07E8 : 0808	32	The contents of ASCII string 7	ASCII	R/W
42100 : 42227	0834 : 08B3	128	The color of messages 0 to 127 on the second row.	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W
42300 : 42427	08FC : 097B	128	The message moving type for messages 0 to 127	0 to 3	R/W

42500 : 42539	08FC : 09EB	40	The color for coil variables 0 to 39	1: Blue 2: Green 3: Sky Blue 4: Red 5: Purple 6: Yellow 7: White 8: Random	R/W
42700 : 42763	0A8C : 0ACB	64	The color for integer variables 0 to 63		R/W
42700 : 42763	0A8C : 0ACB	64	The color for float variables 0 to 63		R/W

Appendix B. Revision History

This chapter provides revision history information to this document.

The table below shows the revision history.

Revision	Date	Description
1.0.1	September 2019	Initial issue