# iKAN Series Display User Manual







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

# iKAN-208-PFB/iKAN-216-PFB/iKAN-224-PFB

Written by Jimmy Huang Edited by Tony Lee All products manufactured by ICP DAS are under warranty regarding defective materials for a period of one year, beginning from the date of delivery to the original purchaser.

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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 series display 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 iKAN display devices 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 increase 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 64 common messages and 10 instant messages, each containing a maximum of 40 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 features and capabilities in iKAN displays.

#### **PLC HMI**

The iKAN series can be employed as a large HMI with a memory storage of up to 64 common messages and 10 instant messages, 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.



#### **Supports 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 64 common messages and 10 instant messages 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 devices 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 requirement of 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-PFB/iKAN-116S-PFB/iKAN-124-PFB/iKAN-124S-PFB

Model		iKAN-116- PFB	iKAN-116S- PFB	iKAN-124- PFB	iKAN-124S- PFB	
Display						
Color		Red, Blue, Yello	Red, Blue, Yellow, Green, Light Blue, Purple or White			
Character Set		16-bit Unicode or 7-bit ASCII				
Dicplay Siza	ASCII	16 characters		24 characters		
Display Size	Unicode	8 characters		12 characters		
Message Pool		64 common messages and 10 instant messages Up to 40 Unicode characters or 100 ASCII characters each				
Data Pool		40 Coil values,	64 Float values, a	nd 64 Integer val	ues	
RTC (Real-tim	e Clock)	Date and time, 24 hour format, including hours, minutes, seconds, day of the week, date, month, year				
Ethernet						
Port		1 x RJ-45, 10/100 Base-TX				
Protocol		Modbus TCP Slave, Max. 8 connections				
Configuration		Web-based User Interface				
PROFIBUS						
Controller		Profichip VPC3+C				
Transceiver		ADI ADM2486				
Connector		9-pin female D-Sub				
Baud Rate(bp	s)	9.6k, 19.2k, 45.45k, 93.75k, 187.5k, 500k, 1.5M, 3M, 6M, 12M				
Transmission Distance(m)		Depend on baud rate(for example, max. 1200m at 9.6kbps)				
Isolation		3000 VDC for DC-to-DC, 2500 Vrms for bus-to-logic				
Protocol		DP-V0 & DP-V1				
COM Port						

Interface	RS-232 or RS-485. Note that the interfaces cannot be used simultaneously				
Baud rate (bps)	1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200				
Data Format	N81, E81, O81				
Protocol	Modbus RTU SI	ave			
Power					
Input Range	Input Range 100 to 240 VAC				
Consumption	0.25 A @ 110 VAC,		0.3A A @ 110 VAC,		
consumption	0.125 A @ 220	VAC	0.15 A @ 220 VAC		
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	
Mechanical					
Weight	4.0 Kg	2.0 Kg	4.6 Kg	2.5 Kg	
Installation	Wall mounting				
Housing Material	Aluminum				
Environment					
Operating Temperature	0 to 60°C				
Storage Temperature	-10 to 75°C				
Humidity	10 to 90% RH, Non-condensing				

# iKAN-208-PFB/iKAN-216-PFB/iKAN-224-PFB

Model		iKAN-208-PFB	iKAN-216-PFB	iKAN-224-PFB	
Display					
Color		Red, Blue, Yellow, Green, Light Blue, Purple or White			
Character Set	:	16-bit Unicode or 7-bit ASCII			
Dicplay Sizo	ASCII	8 characters	16 characters	24 characters	
Display Size	Unicode	4 characters	8 characters	12 characters	
Message Poo	I	128 common messages and 20 instant messages Up to 20 Unicode characters or 50 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, N	lax. 8 connections			
Configuration	Web-based User Interface				
PROFIBUS	PROFIBUS				
Controller	Profichip VPC3+C				
Transceiver	ADI ADM2486				
Connector	9-pin female D-Sub				
Baud Rate(bps)	9.6k, 19.2k, 45.45k, 9	93.75k, 187.5k, 500k, 1	.5M, 3M, 6M, 12M		
Transmission Distance(m)	Depend on baud rate	e(for example, max. 120	00m at 9.6kbps)		
Isolation	3000 VDC for DC-to-	DC, 2500 Vrms for bus-	to-logic		
Protocol	DP-V0 & DP-V1				
COM Port					
Interface	RS-232 x 1 or RS-485 x 2. Note that the interfaces cannot be used simultaneously				
Baud rate (bps) 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200			00, 115200		
Data Format	Data Format N81, E81, O81				
Protocol Modbus RTU Slave					
Power					
Input Range	100 to 240 VAC				
Consumption					
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				
Environment	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 several interfaces and peripherals that can be integrated with external systems. Here is an overview of the components and its descriptions.



The details of these items are as follows:

#### • Reset Button

The reset button is used to restore all settings to factory defaults. It is very useful especially when you forget the IP address to access the iKAN series display.

### • LED Indicator

LED Indicator/Label	State	Meaning
	Green	Power is on.
FVVN	Orange	OS is running.
Reset		

	Green	The LED indicators are used to indicate the status of
DIU, DI1, DOU, DO1		digital I/O.

## • Ethernet Port (E1 and E2)

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

Link/Act 10/100M

E1

E2

Each Ethernet port has two LED indicators that display the status of the iKAN series display. The details are shown as below.

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

## • Terminal Block

The iKAN series display has a terminal block. The label contents for the terminal block with 20 poles are shown below. For identification of wiring connections, please refer to section "1.4. Wire Connections"



# 1.4. Wire Connection

The iKAN series display has a terminal block which supports several communications. The following figures show 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									
	Close to GND	Open									
Dry Contact	Dixo-o-	Dix o Di.GND o									

# **DO Wiring**

Input Type	On State Readback as 1	OFF State Readback as 0
	+5 to +24 VDC	Open
DO (Sink, NPN)	DO.PWR O Load DOx O DO.GND O	DO.PWR O X Load DOx O DO.GND O

# 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**





Left Side View

iKAN-216



**Right Side View** 

# iKAN-208





# 2. Getting Started

If you are new to iKAN, you should read this chapter first. This chapter 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.





Two pieces of iKAN Display

<u>iKAN-116/iKAN-216</u>

Quick Start Guide



Screw Driver

<u>M3x6L Screw</u> iKAN-116: Screw \* 14

**111** ....

iKAN-216: Screw \* 24



iKAN-124: Screw \* 20

iKAN-224: Screw \* 32

# 2.2. Assembling the iKAN

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

# 2.2.1. One Piece of iKAN Display Installation

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

## iKAN-116S/iKAN-124



iKAN-208



# 2.2.2. Two Pieces of iKAN Display Installation

iKAN-116 and iKAN-216 consists of 2 modules: left end module and right end module. Each row of the module has two connectors for connecting the iKAN display.

# 1. Pull out the connectors from the opening of the side



2. Connect the connectors





3. Attach the modules and fasten the modules together with 6/8 supplied screws

	• •	•									٩													•
	•	•	1	 :	:	۵ ٥	•	0	_	:	•	:	•	•	_	۵ ٥	:	:	•	:	-	•		
	•••			-							Ð			·									Ċ	
ļ											۲													
٦	0	•			•		•	0		•		•	٠	•			٠		•	•		0		

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



# 2.2.3. Three Pieces of iKAN Display Installation

iKAN-124 and iKAN-224 consists of 3 modules: left end module, middle module and right end module. Each row of the module has two connectors for connecting the iKAN display.

1. Pull out the connectors from the opening of the side

## Left end module



#### middle module



# Right end module





# 2. Connect the connectors and attach the modules



				•				•			•	•					•			•		•		•	•		•	•		
•'		•																			•									•••
		·	 _					_						 			 			 _	 		 	 		 		 	_	 
0	•		•		6		•	0	•		•	9	0			•	•		9			•	•	ů.			•	•	9	
•			• •		·	,		•		0	•	0			0		•			- a			0	•	•		•	•		•
	•										•										•									
•						2 1		•				0	 					•	0					•					0	

3. Fasten the modules together with 6/8 supplied screws



<u>Top View</u>

<u>Bottom</u>



Back View





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




# 2.3. Connecting to the Power, PC and PROFIBUS Master

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

- 1. Connect the power to the iKAN
  - i. Verify that input power to the external power supply is turned off.
  - ii. Connect a 240 VAC+ terminal on the power supply to the Vs+ terminal on the iKAN
  - iii. Connect a 240 VAC- terminal on the power supply to the GND terminal on 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



#### 3. PROFIBUS Connection

The PROFIBUS interface of IKAN-PFB is a D-sub 9 pin female connector. Use the standard connector (D-sub 9 pin male) to connect the connector of IKAN-PFB display, IKAN-PFB display can connect other PROFIBUS devices through PROFIBUS cable, as the shown in the below.



If IKAN-PFB is the end (first or last node) of a PROFJBUS segment, it needs to be install equipped with an active terminal resistor. A standard PROFIBUS connector is usually already equipped with a terminal resistor. Therefore, the user only needs to switch on the terminal resistor when the IKAN-PFB display is the end of a PROFIBUS segment, as shown in the 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, Mask, and Gateway addresses for the device by setting the values that are valid for your network system.

The eSearch Utility is developed for searching ICP DAS Ethernet I/O modules based-on MiniOS7 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.

1. Get 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

Search Utility	eSearch		1.13, Nov.29, 2	016]			
	File Serve	er Tools					
	Name	Alias	IP Address	Sub-net Mask	Gateway	MAC Address	DHCP
Q	Status	ch Server	() Infiguration		Web	Ex	cit

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.

Configure Serve	r (UDP)					X
Server Name :	iKAN-124					
DHCP:	0: OFF 🗨	Sub-net Mask :	255.255.0.0	Alias:	LED Displa	у
IP Address :	10.1.0.120	Gateway :	10.1.0.254	MAC:	00:0d:e0:65	:0b:23
Warning!! Contact your Ne	twork Administrator to g	get correct configura	ation before any changing!		ОК	Cancel

# 2.5. PROFIBUS configuration

PROFIBUS master has its own PROFIBUS configuration tool. Therefore, PROFIBUS configuration has a little difference in different PROFIBUS configuration tool. Here we use Siemens PLC (CPU315-2PN/DP) and SIMATIC STEP 7 in this example.

#### 1. GSD file:

a. IKAN-PFB's GSD file can get from the following link. Add the link of IKAN-PFB's GSD file here.

b. Create a new project in SIMATIC STEP 7 and click "Hardware".

SIMATIC Manager - [S7_Pro]	3 C:\Program File	es\Siemens\Ste	p7\s7proj\\$7_Pro	<b>3</b> ]		
Ele Edit Insert PLC View	Options Window H	Help				- 8 ×
D 😅 🔡 🛲 🕉 🛍 🛍	💼 🖸 🔩 🖭	を推翻	😢 🛛 < No Filter	> _	- 70 22	
S7_Pro3	Handware	CPU313C-	2 DP(1)			
Press F1 to get Help.						1

c.	Click	"Option"	and	then	click	"Install	GSD	File".

<u>Station E</u> dit Insert <u>P</u> LC <u>V</u> iew	<u>Options</u> <u>W</u> indow <u>H</u> elp		
) 🗲 🎥 🖷 🖬 🖨 🛯 🖻 🖻	Customi <u>z</u> e	Ctrl+Alt+E	
0) UR     1     CPU315-2 PN/D     XI     MPI/DP	Specify Module Configure <u>N</u> etwork <u>S</u> ymbol Table <u>R</u> eport System Error	Ctrl+Alt+T	
X2         PN-IO           X2 PI         Port I           X2 P2         Port 2	<u>E</u> dit Catalog Profile <u>U</u> pdate Catalog		JS(1): DP ma
3	Install <u>H</u> W Updates		
3	Install <u>G</u> SD File.		
	Find in Service & Support.		
	<u>C</u> reate GSD file for I-Devic	:e	
(0) UR			
91.4 A 14.1.1	EWILOC	mment	

d. Select the directory of IKAN-PFB's GSD file(IKAN0c0d.gsd) and click "OK".

nstall GSD Files		
I <u>n</u> stall GSD Files:	from the directory	I 🚹
C:\PROGRAM FILES\SI	MENS%TEP7%7TMP	<u>B</u> rowse
File Release Versio	國覽資料夾	22
	Select a directory containing GSD files	
	Documents and Settings	
	GW7553	
	GW7557	
to an I		
บับราชน	E _ PCI_Driver	
Close		取消 Help

# e. Select IKAN0c0d.gsd and click "Install".

Install GSD Files		
Install GSD Files:	from the directory	*
'CAIKAN		Browse
The Release	Version Dengueges Default	
The file TKAN0c0d.gsd' cont	ains syntax errors.	
2		
Install	now Log Select <u>All</u> <u>D</u> ese	lect All

f. Confirm IKAN-PFB is successfully installed.

RW Config - [SIMATIC 300 Station (Configuration) S7_Pro52]	
🖓 Station Edit Insert PLC Yiew Options Window Help	
Image: CPU315-2 PN/DP(1)     Image: CPU315-2 PN/DP(1)       X1     MP/DP       X2     PN-IO       X2 PI     Port I       X2 P2     Port 2       3     Image: CPU315-2	Find:         Profile:       Standard         PROFIBUS DP         Additional Field Devices         Switching Devices         IO         Gateway         DP/DP Coupler         DP/DP Coupler         GW-7552         GW-7553 (DPV1)         GW-7557         Find GW-7557
(1) IKAN-PFB	

#### 2. Set IKAN-PFB's address

a. Click IKAN-PFB icon and drag it to PROFIBUS DP master system.

🖳 HW Config - [SIMATIC 300 Station (Configuration) S7_Pro52]			
🕅 Station Edit Insert PLC View Options Window Help			
D 😅 🐎 🖩 🐘 🎒   🖻 🛍 🛍 🗊 🗖 🔡 院			
⇒(0) UR	^	Find	[
2 CPU315-2 PN/DP(1) XI MEI/DP PROFIBUS(1); DP master sys	tem (1)	Profile:	Standard
X2 PN-10 X2 P1 Port 1 X2 P2 Port 2			ROFIBUS DP Additional Field Devi Switching Device
			- Cateway
			E I I AS-I E I I I I I I I I I I I I I I I I I I I
	>		GW-7557
			IKAN-PFB

b. Set IKAN-PFB's address and click "OK".

General Parameters	AA-110-FPD		
Address:			
Tenneninian mtu 10 Mbas			
Transmission rate. 12 Mops			
Subnet:		11	ew/
PROFIBUS(1)	12 Mbps	Prop	erties
		D	elete
1. C.			- 20 00

- c. Open a web browser.
- d. Type the IP address of the iKAN display in the address bar, and then press **Enter** to display the web interface

← ()	<b>♀ ♂</b> 10.0.9.248	× 6 ☆ 🕸

e. Click in the following of "System", "Serial Port", and "COM3". Set IKAN-PFB's PROFIBUS ID (PROFIBUS ID must be same with IKAN-PFB's address which you set in SIMATIC STEP 7).

Then click "Update Settings".

	MESSAGE POOL	DATA POOL	PROFIBUS	DIO SYSTEM	
		ICP D	<u> </u>		
IMPORT/EXPORT	ETHERNET SERIA	L PORT MISC.			3
					<b>F</b>

#### 3. Set the parameters of IKAN-PFB and the module of IKAN-PFB.

a. Double click "IKAN-PFB", and click "Parameter Assignment" and "Device-specific parameter". Set the parameters of IKAN-PFB here and then click "OK".

🖳 H W Config - [SIMATIC 300 Station (Configuration) S7_Pro52]	
🕅 Station Edit Insert PLC View Options Window Help	
I       Image: CPU315-2 PN/DP(1)         XI       MPI/DP         X2       PN-IO         X2 PI       Port I         X2 P2       Port 2         3       Image: CPU315-2 PN/DP(1)	
	>
Propertie Image: Slave     General Parameter Assignment     Parameters Value     Parameters Value     Image: Slave <	
OK Cancel Help	

b. Click "IKAN-PFB" icon and then double click "System setting module". Confirm "System setting module" is added in IKAN-PFB.

🖳 HW Config - [SIMATI	C 300 Station (Configuration)	\$7_Pro52]					- 6 ×
D Station Edit Insert Pl	.C ⊻iew Options <u>W</u> indow <u>H</u> e	elp					- 8 ×
		182 №?					
🚍 (0) UR					~		
1	<u> </u>					Find:	nt ni
2 CPU31 XI MELDE	5-2 PN/DP(1)					Profile:	Standard 💌
A2 PI A2 PI Rort1 A2 P2 Rort2 3 *			1	(1) IKAN-I DP-NORM	-		ROFIBUS DP       ▲         Additional Field Devices       ●         Switching Devices       ●         IO       ■         Gateway       ●         ●       DP/DP Coupler         ●       DP/RS232C Link         ●       GW-7552         ●       GW-7557         ●       GW-7557         ●       GW-7557         ●       Universal module
Slot DP ID	Order Number / Designation	I Address	O Address	Comment	Í.		System-setting
1 192	System-setting	063	063	Comment			The DP/DP Coupler Release
2 192	> System-setting	64127	64127				+ 🥅 Compatible PROFIBIIS DI
3 192	> System-setting	128191	128191			<	
4 192	> System-setting	192239	192239			-	<del>عر</del>
5							

c. Compile and download the setting to PLC.

🖳 H W Config	SIMATIC	C 300 Station (Configuratio	n) S7_Pro52]					- 7
DI Station Ed.	Lisert PL	C <u>View</u> Options <u>W</u> indow	<u>H</u> elp					_ @ ×
│D 😅 ≌∽ 🖪	R: 🚭	Q 🙆 🚮 🕅 🗊 🗉	3 🔡 k?					
(0) UR 1 2 XI X2 PI X2 PI X2 PZ 3 -	CPU315 MEI/DP PN-10 Port 1 Fort 2	5-2 PN/DP(1) Select Target Modu Target modules: Module CPU315-2 PN/DP(1	<b>le</b>	Rack	Slot 2	-	Find: Profile:	DFIBUS DP Additional Field Devices Switching Devices Of IO Gateway DP/DP Coupler DP/DP Coupler DP/RS232C Link
(1) Slot D 1 192 2 192 7 192	IKAN-116-PF	System-setting	063 64127 1/28.101	ancel	Help			GW-7552 GW-7553(DP∀1) GW-7557 GW-7557 GW-7550 KAN-116-PFB Universal module System-setting FIKAN-116-PFB DP/DP Coupler, Relea: Commetible PROFIBUS D
$\frac{3}{4}$ 192 5		> System-setting	192239	192239				<del>د</del>
6			-	-				

# 2.6. Editing Your First iKAN Message

The 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
- 2. Type the IP address of the iKAN display in the address bar, and then press **Enter** to display the web interface

🔁 🖉 http://10.0.9.248/ D - C 叠 10.0.9.248 × 分ど

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

		MESSAGE POOL	ATA POOL DIO	SYSTEM	
		ICP	<u>DAS -</u>	KAN	• •
1	NO. 1	Display Status	Display Ro	w(s)	Message
	0	NO. 1	Display Status	Display Row(s)	

- 5. In the **No. 1** form, specify the following parameters:
  - i. Enter the following string in the **Message** text field: Hello World!
  - ii. Click the **Update** button

NO. 1
Display Status 🗷 Instant 🔲
Message Moving Mode 0 •
Row(s) 1 •
Color Yellow •
Message
Hello World!
Update

6. Click in the following order "PROFIBUS", "Message Listo", "Update", and "Preview". After you click "Preview", you can see the output address of "Message Listo" in IKAN-PFB

	(	1				
MESSAGE POOL	DATA POOL	PROFIBUS	DIO	SYSTEM		EN 繁中
PROFIBUS Command Table					Profibus Connection	Online
Brightness & Speed						
Message List 2 Message List0 Message List1	Message List2	Message List3	Mess	age List4	Message List5	Message List6
3 Brightness & Spec	ed <u>Message List</u>	<u>Coil Variables</u> In	<u>teger Vari</u>	<u>ables Floa</u>	at Variables <u>DO</u> D	Preview Update
	5 PROFIB	US Comma	and Ta	able		
	NO Profibu 1	is Output Addres 0	is M	Descriptio Iessage Lis	on st_0	
	NO Prof	ibus Input Addre	ess (	Descriptior		

- 7. Calculate PROFIBUS output address of "Message List0" in PROFIBUS master.
  - a. The output address of "Message List0" in IKAN-PFB (The value is 0 in this example).



#### b. The first output address of IKAN-PFB in PROFIBUS master (The value is 20 in this example).

-	(1) IKAN-116-	PFB			
Slot	DP ID	. Order Number / Designation	I Address	Q Address	1
1	192	System-setting	3699	20. 83	Ť
2	192	> System-setting	100163	84147	T
3	192	> System-setting	164227	148211	T
4	192	> System-setting	256303	256303	T
5					T

#### c. The output address of "Message List0" in PROFIBUS master= 0+20=20.

-	(1) IKAN-116-PI	FB	-		3	_	-						
		fair and a second second		1		Adda	ess	Symbol	Display format	Status value	Modify value		
Slot		Order Number / Designation	I Address	Q Address		QB	20		HEX	B#16#24	B#16#24		
1	192	System-setting	3699	2085		OP	-01		UEV	D#16800	DHICHOOL		
2	192	> System-setting	100163	84147		QD	21		псл	D#ID#W	D#10#00		
3	192	> System-setting	164227	148211		QB	22		HEX	B#16#00			
4	192	> System-setting	256303	256303		QB	23		HEX	B#16#00			
	PROF	IBUS Command Table	ł	×				The firs	t output ad	dress of Ik	(AN-PFB in PF	IOFIBUS master	(20
	NO Prot	fibus Address Des	cription E及速度			3		The o 0+20=	utput addre	ess of "Me	ssage List0" ir	PROFIBUS mas	ter

(20)

8. Create the variable table in SIMATIC STEP 7, Change the value of PROFIBUS output address of "Message List0" to 0x80



18 <b>(</b> 74	u - VAT	2									
Table	<u>E</u> dit Ins	ert P <u>L</u> (	C V <u>a</u> riable (	<u>V</u> iew Option:	s <u>W</u> indow ]	<u>H</u> elp					
<u> </u>		<u>.</u>   ~'I	140,0								
<b>120</b>	AT_2	@\$7_P	ro52\SIMAT	IC 300 Stati	on/CPU315-	2 P )					
6	Address	Symbol	Display format	Status value	Modify value						
1 2	QB 20		HEX	B#16#80	B#16#80	3					
			*************************************	hand the many stars of							
2											
2											

9. The messages will be shown on the display.



# 3. Configuration

The iKAN series device can be accessed and configured using a standard web-browser (such as Internet Explorer, Firefox, Mac Safari etc) or Internet enabled mobile device.

# 3.1. Web Interface

The iKAN display has a built-in web interface. It provides lots of functions needed to manage all message displayed in iKAN as well as to set up parameters, variables and operation behavior. Most of the common operations can be done by using the iKAN Web Interface.

The following table lists the major function 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	_	Edit and message messages.	3.1.1 Error! Reference source not found. Error! Reference source not found.
	INTEGER		3.1.2
	FLOAT		Error!
DATA POOL	COIL	Specify a value to a variable and define the data type mappings	Reference source not found. Error! Reference source not found.
	IMPORT/EXPORT	Import/Export pre-configured messages	3.1.3
SYSTEM		Set the network address.	3.1.4
	ETHERNET	Set the network address of the DL- 302.	3.1.5

SERIAL PORT	Set the communication parameters of the serial port	3.1.6
	Assign a Modbus address to the iKAN display.	3.1.7
	Adjust the LED Brightness.	3.1.8
	Adjust the message moving speed.	3.1.9
MISC.	Reset the iKAN display to factory default settings.	3.1.10
	Adjust the LED Brightness.	3.1.11
	Reset the iKAN display.	3.1.12
	Check the firmware information.	3.1.13

# **3.1.1. Editing and Managing Messages**

A maximum of 128 Common Messages and 20 Instant Messages can be stored on the iKAN series device, and each message can contain a maximum of 40 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 managing the message displayed, please refer

to Chapter "4. Message"

## 3.1.2. Applying the Variable Maps

The variable maps provide a mechanism for mapping data to a variable regardless of the data source. The variable maps are listed at the DATA POOL page. The value of most variables can be pre-specified individually via the variable maps.

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

1. Click the **DATA POOL** menu, and then click the menu of the variable type which you want to edit

2. Click the address number of the variable which you would like to configure.

_									
2	MESSAGE OOL DATA POOL DIC SYSTEM								
	INTEGER F	loat coil	X						
	Integer Variable	is							
	sianed 🔻	Display	V						
	0	1	2	3	4	5	6		
3	0	0	0	0	0	0	0		
	8	9	10	11	12	13	14		
3	0	0	0	0	0	0	0		
	16	17	18	19	20	21	22		
	0	0	0	0	0	0	0		

The configuration area has been registered according to the selected address number. The configuration area provides the following functions:

·					,
1	0	Red •	Update	Adv. Config	Cancel
·					i

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

For more details, please refer to section "4.3. Displaying the Value Applied with the 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 floattype variable, please refer to section "4.3.1. Displaying the Mapping Data for Integer-type Variables"

#### 3.1.2.2. Increasing the Decimal Places for the Number of Float-Type Variable

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.

For more detailed information on how to increase the decimal places for the number of floattype variable, please refer to section "4.3.2. Displaying the Number with Increased 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 the 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 on how to increase the decimal places for the number of floattype variable, please refer to section "4.3.3. Displaying the Value of a Coil Variable with the Replacement Text"

## **3.1.3.** Importing/Exporting pre-configured messages

If your system contains more than one iKAN series device, it could take a lot of time to configure each one individually. To simplify this process, the Import/Export function that 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 variable can be imported to 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, and then click the IMPORT/EXPORT menu
- 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



# 3.1.3.2. Exporting a configuration file

The contents of a message and 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.

- 1. Click the SYSTEM menu, and then click the IMPORT/EXPORT menu
- 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 can be changed. To change the IP address, follow the instructions given below.

- 1. Click the SYSTEM menu, and then click the ETHERNET menu
- 2. Enter the IP address for the iKAN

IMPORT/EXPOS ETHERNE SERIAL POR MISC MISC IP Address: Mask: Gateway:	ERNET	THERNET 10 255 10 DL-302	. 0 . 255 . 0	]. 9 . ]. 255 . ]. 9 .	248 0 254	
ETHERNE SERIAL FOR MISC LOCAL ETH IP Address: Mask: Gateway:	ERNET	THERNET 10 255 10 DL-302	. 0 . 255 . 0	. 9 . . 255 . . 9 .	248 0 254	
LOCAL ETH IP Address: Mask: Gateway:	ERNET	DL-302				
LOCAL ETH IP Address: Mask: Gateway:	ERNET					
LOCAL ETH IP Address: Mask: Gateway:	<b>ERNET</b>					
IP Address: Mask: Gateway:	10 . 0	0				
Mask: Gateway:		. 9	. 248			
Gateway:	255 . 255	. 255	. 0		)	
	10 . 0	. 9	. 254			
REMOTE DL	-302					
IP Address:	10 . 1	. 0	. 153			
Update Setting	S					

## 3.1.5. Connecting to a remote DL-302 device

The iKAN series devices can be used to display data such as the temperature, humidity and CO2 values sourced from a specific remote DL-302 device that is connected to the same network as the iKAN device.

Once the IP address for the DL-302 device has been configured, the data recorded by the DL-302 can be automatically obtained. To specify the IP address of the required DL-302 device, follow the instructions given below.

1. Click the SYSTEM menu, and then click the ETHERNET menu

2. Enter the IP address for the desired DL-302, and then click the Update Settings button

	ME	SSAGE POOL	DAT		SYSTEM	$\mathbf{)}$
IMPORT/EXPORT						
SERIAL PORT MISC.	IP Address: Mask: Gateway:	10. 255. 10.	0 . 9 255 . 255 0 . 9	. 248 . 0 . 254		
	MOTE DI	302				
LOCAL ETH	ERNET					
IP Address:	10 . 0	. 9	. 248	]		
Mask:	255 . 255	. 255	. 0	]		
Gateway:	10 . 0	. 9	. 254	]		
REMOTE DL	-302	0	153			
Update Setting	s		. 153			

## 3.1.6. Setting the Serial Port

The serial port can be set up to establish a connection between the iKAN and the serial I/O devices. The default parameters are 11520 baud, 8 data bits, 1 stop bit, and NO Parity. To set the serial port, follow the instructions given below.

1. Click the SYSTEM menu, and then click the SERIAL PORT menu

2: Set the serial port parameters, and then click **Update Settings** button to complete the process

IPORT/EXPORT				
ETHERNET	SERIAL PO	RT		
SERIAL PORT	Baud Rate:	115200		
MISC.	Data Bits:	8		
	Stop Bit(s):	1		
	Parity:	Even <b>v</b>		
	Update Settin	gs		
		-		
	1			
SERIAL PO	RT			
SERIAL PO	RT 115200			
SERIAL PO Baud Rate:	RT 115200			
SERIAL PO Baud Rate: Data Bits:	RT 115200 8			
SERIAL PO Baud Rate: Data Bits: Stop Bit(s):	RT 115200 8 1			
SERIAL PO Baud Rate: Data Bits: Stop Bit(s): Parity:	RT 115200 8 1 Even ▼			
SERIAL PO Baud Rate: Data Bits: Stop Bit(s): Parity:	RT 115200 8 1 Even T			
## 3.1.7. \*Setting the Modbus ID

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

1. Click the SYSTEM menu, and then click the Misc. menu

2: Set the Modbus ID, and then click Update button to complete the process



## 3.1.8. \*Adjusting the LED Brightness

5 levels of brightness are adjustable on the iKAN display. Smaller setting numbers are paired with brighter. To adjust the LED brightness, follow the instructions given below.

- 1. Click the SYSTEM menu, and then click the Misc. menu
- 2: In the **LED Brightness** section, select the setting number from the drop and down menu, and then click the **Update** button



## 3.1.9. \*Adjusting the Message Motion Speed

10 levels of message motion speed are adjustable on the iKAN display. Smaller setting numbers are paired with higher scrolling speeds. To adjust the message motion speed, follow the instructions given below.

- 1. Click the SYSTEM menu, and then click the Misc. menu
- 2: In the **Message Motion Speed** section, select the setting number from the drop and down menu, and then click the **Update** button



## 3.1.10. Restoring the Default Settings

This is function to provide a safe reset option for the iKAN display. All messages and variables configuration settings will be reset to factory default. To restore the default settings, follow the instructions given below.

1. Click the SYSTEM menu, and then click the Misc. menu

#### 2: In the Restore the default settings section, click the Restore button



## 3.1.11. Updating Date and Time

This is function to synchronize date and time values on the iKAN display to PC. To synchronize the date and time value with PC, follow the instructions given below.

- 1. Click the **SYSTEM** menu, and then click the **Misc.** menu
- 2: Scroll down this page until you see the **Update Date & Time** section, and then click the **Update** button



## 3.1.12. 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, and then click the Misc. menu

2: Scroll down this page until you see the **Software Reset** section, and then click the **Reset** button



## 3.1.13. Checking the Firmware Information

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

- 1. Click the SYSTEM menu, and then click the Misc. menu
- 2: Scroll down this page until you see the **Module Information** section, you can check the version here to see if the iKAN series device needs a firmware update.

	MESSAGE POOL	DATA POOL	SYSTEM	>
IMPORT/EXPORT ETHERNET SERIAL PORT MISC.	MISC. Modbus Station Ko 2 Update LED Brightness			
Module Info Module Name Device Firmw Sub-device Fi	rmation : iKAN-124 are Version: 2.1.0 rmware Version: 2.0.0			

## 3.2. PROFIBUS configuration

In chapter 3.2, we will teach the user how to set the communication between PROFIBUS master and IKAN-PFB display. Please refer and finish all the PROFIBUS settings from chapter 3.2.1 to chapter 3.2.6. Additionally, PROFIBUS master has its own PROFIBUS configuration tool. Therefore, PROFIBUS configuration has a little difference in different PROFIBUS configuration tool. Here we use Siemens PLC (CPU315-2PN/DP) and SIMATIC STEP 7 in this manual.

### 3.2.1. PROFIBUS wire connection.

#### 1. Wire connection:

The PROFIBUS interface of the GW-7552-B / GW-7552-M is a DB9 female connector. The connector uses the standard PROFIBUS 9 pin assignment. It is recommended to use a standard PROFIBUS cable and connector (DB9 male). It is only needed to use D-type connector via PROFIBUS cable to connect PROFIBUS master station and IKAN-PFB display and other PROFIBUS devices, as shown in the below.



2. PROFIBUS DB9 Female Connector

Pin	Name	Description	
1		N/A	
2		N/A	
3	В	Non-inverting Bus Line	(
4	ISODE	Isolated DE output for use in PROFIBUS applications where the state of the isolated drive enable node needs to be monitored.	1
5	GND	Power supply ground for the first node and the last node	5-
6	VP	+5V Power Supply for the first node and the last node	(
7	-	N/A	1
8	А	Inverting Bus Line	1
9	-	N/A	1

#### 3. Terminal resistor:

In order to minimize the reflection effect of signal transmission, both ends (first node and last node) of a PROFIBUS segment needs to be equipped with an active terminal resistor. A standard PROFIBUS connector is usually already equipped with a terminal resistor. The user therefore only has to switch on the resistor of the devices stationed at the ends of a segment, as shown in the two picture below.



**PROFIBUS** connector



**PROFIBUS** connection

The number of stations in a PROFIBUS network is restricted to 126. According to the PROFIBUS specification up to 32 stations are allowed per segment. A repeater has to be used to link the bus segments.

## 3.2.2. GSD file

The parameters (ex: baud rate, message length, number of input / output data and etc) of each PROFIBUS DP device are described in a GSD file. The GSD file of the IKAN-PFB can be downloaded from the following link.

Add the link of IKAN-PFB's GSD file here.

#### NOTE:

Before the user install the GSD file, the user needs to create the new project in PROFIBUS configuration tool. If the user doesn't know how to create the new project in PROFIBUS configuration tool, please refer to Appendix A.3.

1. The example of installing the GSD file.

(1) Copy the GSD file(IKAN0c0d.gsd) to the destination folder.

(2) Create the new project in SIMATIC STEP 7 and double click "Hardware".



(2) Click "Option" and "Install GSD file" in HW Config.

Station       Edit       Insert       PLC       View       Options       Window       Help         Customize       Ctrl+Alt+E       Customize       Ctrl+Alt+E         Customize       Ctrl+Alt+E       Specify Module         Configure       Network       Symbol         The customize customize       Symbol       Ctrl+Alt+T	
Customize     Ctrl+Alt+E       Customize     Ctrl+Alt+E       Customize     Ctrl+Alt+E       Configure Network     Symbol Table       Ctrl+Alt+T	
Image: Specify Module     Specify Module       Configure Network     Symbol Table       Ctrl+Alt+T	
2       Image: CPU315-2 PATD XI       Report System Enor         XI       MPI/DP         X2       PW-IO         X2 PI       Fort I         X2 PZ       Port 2         3       Imstall HW Updates         4       Imstall GSD File.         Find in Service & Support	: DP mast
<u>C</u> reate GSD file for I-Device	
(0) UR Slot Module O Fi M I Q Comment	

(3) Click "Browse" to choose where the GSD file located.

tall (	GSD Files:		from the directory	1 1
<b>P</b> R	OGRAM F	ILES'SIEM	ENS'STEP7'S7TMP	<u>B</u> rowse .
ile	Release	Version	潮覽資料夾	? 🛛
			Select a directory containing GSD files	
			🗊 🛅 Documents and Settings	
			⊕ (⊖ GW7552 ⊕ (⊖ GW7553	
			⊕ 🔂 G ₩7557	
			2 HWUpdates	
			- Cos7	
	Install		🔂 os75	
			🖻 🧰 PCI_Driver	-

(4) Select the GSD file(IKAN0c0d.gsd) and click "Install".

		101	
Install GSD Files:	from the directory	-	
CARAN			Browse
The Release	Version Danguages Default		
The file TKAN0c0d.gsd' cont	ains syntax errors.		
The file TKAN0c0d.gad'cont	ains syntax errors.	Developt #11	
The file TKAN0c0d gad' cont	ains syntax errors. how Log Select <u>All</u>	Deselect All	

(5) Check if the IKAN-PFB can be found, if yes then IKAN-PFB is successfully added.

Image: Station Edit Insert PLC View Options Window Help         Image: Station Edit Insert PLC View	🙀 HW Config - [SIMATIC 300 Station (Configuration) S7_Pro52]	
□ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □ □	🛍 Station Edit Insert PLC View Options Window Help	
Image: CPU315-2 PW/DP(1)         Image: CPU315-2 PW/DP(1)		
X1       MPIDP         X2       PN-IO         X2 PI       Port1         X2 P2       Port2         3       Gateway         Gateway       Gateway         Gateway       Gateway         MPIDP Coupler       MPSDP Coupler         MPIDP Coupler       MPIDP Coupler	Image: CPU315-2 PN/DP(1)   X1   MPI/DP   X2   PN-IO   X2 PI   Port I   X2 PZ   Port 2   3   Image: CPU315-2 PN/DP(1)   Image: C	Pield Devices ing Devices ay 3-I P/DP Coupler P/R\$232C Lin' W-7552 W-7553(DPV1 W-7557 7550 (AN-PFE)

## 3.2.3. PROFIBUS device address

Before PROFIBUS system starts communication, the user needs to configure a PROFIBUS device address to IKAN-PFB display. The range of PROFIBUS device address is from 0 to 126. Please refer to the following steps to finish the setting of PROFIBUS device address.

1. Open the website of IKAN-PFB and configure a PROFIBUS device address(PROFIBUS ID) to IKAN-PFB.

	MESSACE DOOL		PROFIRING		
	MESSAGE POOL	DATA POOL	PROFIBUS	DIO	
		trp n	<u>ac</u> _		
	2				
IMPORT/EXPORT	ETHERNET SERIA	AL PORT MISC.			3
					<b>-</b>
arial part > Com?					COM 1 CO
L	(0~126				
Undate Cattings					

- 2. Configure a PROFIBUS device address to IKAN-PFB in SIMATIC STEP 7.
  - a. Click IKAN-PFB icon and drag it to PROFIBUS DP master system.

Image: HW Config - [SIMATIC 300 Station (Configuration) S7_Pro52]         Image: Station Edit Insert PLC View Options Window Help         Image: Several State         Image:			
0) UR       1       2       CPU315-2 PN/DP(1)       XI       MAPL/DP       X2       PN-10       X2 PI       Port 1       X2 P2       Port 2       3	PROFIBUS(1): DP master system (1)	Find: Profile:	Standard ROFIBUS DP Additional Field Dev: Switching Device IO Gateway Gateway DP/DP Coup DP/RS232C DP/RS232C GW-7552 GW-7553(D GW-7557 GW-7577 GW-7577 GW-7577 GW-7577 GW-7577 GW-7577

b. Set IKAN-PFB's address and click "OK".

Address:	
Transmission rate: 12 Mbps	
Subnet: not networked PROPIEUS(1) 12 Mbrs	<u>N</u> ew
	P <u>r</u> operties
	Delete

NOTICE:

The PROFIBUS device address of IKAN-PFB must be same in SIMATIC STEP 7 and the website of IKAN-PFB.

## 3.2.4. The configuration of the device parameters and the modules

After the user finishes the setting of PROFIBUS device address of IKAN-PFB, the user needs to configure the device parameters and module to IKAN-PFB display. IKAN-PFB has one device parameter and one module. Please refer to the following step to configure device parameters and module.

#### 1. The device parameters of IKAN-PFB

(1) The description of the device parameters of IKAN-PFB

• Clear Diagnostic Data: ON/OFF

PS:

• When "Clear Diagnostic Data" is ON, IKAN-PFB won't send any diagnostic message when it occurs error. (Please refer to chapter 3.2.7 about the diagnostic data)

🖳 H W Config - [S	SIMATIC 300 Station (Configuration) S7_Pro52]	
Di Station Edit In	nsert PLC View Options Window Help	
1 2 XI X2 X2 Y2 3 -	CPU315-2 PN/DP(1) MFI/DP PN-IO Port I Port 2 PN-IO Port 2 PN-IO	
1		~
	2 slov Prameter Assignment meters Station parameters Device-specific parameters Device-specific parameters Device-specific parameters Device-specific parameters Device-specific parameters Cancel Help	
1	Double click "IKAN-PFB"	
2	Select "Parameter Assignment"	
3	configure the device parameters	
4	Click "OK"	

(2) The example of configuring the device parameters

2. The module of IKAN-PFB: System setting module

(1) The description of System setting module

- PROFIBUS output data length: 240 Bytes
- PROFIBUS input data length: 240 Bytes

#### (2) The example of configuring the module

.



1	Click "IKAN-PFB"
2	Double click System setting module
3	Confirm that System setting module is added in IKAN-PFB

3. When the user finishes the configuration of the device parameters and module, please compile and download the setting to PROFIBUS master.



# 3.2.5. Confirm the connection between IKAN-PFB and PROFIBUS master

When the user finishes all the setting from chapter 3.2.1 to chapter 3.2.4, it means that PROFIBUS configuration of IKAN-PFB is finished. The user can confirm the connection status in the website of IKAN-PFB and PROFIBUS master.

1. Confirm the connection status in SIMATIC STEP 7, if the status is "Module available and ok", it means that the connection is OK.

Charations 17.414 Toronto	W.C. Winn, Ortigan Window, U.b.	
) 🕞 🖁 🖓 🖬 👘	Download Ctrl+L Upload	
	Download Module Identification	
CPU315-2 PN/DP	C - Module Identification to PG	-
MPI/DP PNLI/D	Modules	OFIBUS(1):
Port I	Module Information Ctrl+D	TALL IKAN-P
Port2	Grand Grand Ctrl+I	
	Se Time of Day	
	Muitor/Modify	
	Upt g Firmware	
	Save veyice Name to Memory Card	
	Ethen t	
	- PROFUS	
() Module Informa	tion - IKAN-PFB	
A Module Informa Security OK	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU:	T RUN
Bit Module Informa           :         S7_Pro52'SIM           :         S7_Pro52'SIM           :         OK           :         DP Slave Di           Description:         Description:	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification:	RUN PROFIBUS DP
Module Informa : S7_Pro52'SIM : S7_Pro52'SIM	tion - IKAN-PFB A TIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification: IKAN-PFB	RUN PROFIBUS DP
B       Module Informa         :       [S7_Pro52'SIM         :       ST_Pro52'SIM         :       OK         :       OK         :       OK         :       DP Slave Di         Description:       Name:         Yersion:	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification: IKAN-PFB Order No / Description Component	RUN PROFIBUS DP Version
Module Informa : S7_Pro52/SIM solut: OK General DP Slave Di Description: Name: Yersion: DP master system:	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification: IKAN-PFB Order No / Description Component 1 Address: I 2043	TROFIBUS DP Version
B       Module Informa         :       [S7_Pro52VSIM         smuss:       OK         General       DP Slave Di         Description:       Name:         Version:       Version:         DP master system:       5         ion:       5	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU; agnostics   IKAN-PFB System Identification: IKAN-PFB Order No / Description Component 1 Address: I 2043 1	RUN PROFIBUS DP Version
Module Informa : S7_Pro52/SIM soluts: OK General DP Slave Dr Description: Name: Yersion: DP master system: 5 ion: Status:	hon - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification: IKAN-PFB Order No / Description Component 1 Address: I 2043 1	♥ RUN PROFIBUS DP Version
Module Informa : S7_Pro52'SIM sous: OK General DP Slave Di Description: Name: ¥ersion: DP master system: 5 ion: Status:	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics IKAN-PFB System Identification: IKAN-PFB Order No / Description Component 1 Address: I 2043 1 Module available and o.k.	RUN PROFIBUS DP Version
Image: Status:       Status:         Image: Status:       Status:         Image: Status:       Status:	tion - IKAN-PFB ATIC 300 Station/CPU315-2 Operating mode of the CPU: agnostics   IKAN-PFB System Identification: IKAN-PFB Order No / Description Component 1 Address: I 2043 1 Module available and o.k.	♥ RUN

2. Confirm the connection status in the webpage of IKAN-PFB, if the PROFIBUS Connection is "Online", it means that the connection is OK.

MESSAGE POOL	DATA POOL	PROFIBUS		SYSTEM		0	EN 1
PROFIBUS Command Table				Pri	ofibus Connection	Online	
Brightness & Speed Brightness & Speed							
Message List Message List	Message List2	Message List3	Messag	e List4	Message List5	Message List6	
			)				

## 3.2.6. The configuration of the control item

IKAN-PFB provides the max length of input/output data which is 240/240 bytes, the user needs to choose the control items (e.g. LED brightness, message motion speed, and message list) and assign them an input/output data address in the website of IKAN-PFB. It notes that the total input/output data length can't exceed 240/240 bytes.

1. Webpage introduction:

Brightness & Speed     Profibus Connection     Online       Brightness & Speed     Image: Connection     Image: Connection     Online       Message List     Image: Connection     Image: Connection     Image: Connection     Online       Message List     Image: Connection     Image: C		AGE POOL DATA POOL	PROFIBUS			E
Brightness & Speed       Image: Control item which is selected         Message List       Image: Control item which is n't select         Message List0       Message List2       Message List3       Message List4       Message List5       Message List6         Image: Control item which is not item which item whi	PROFIBUS Command Ta	able			Profibus Connection	Online
Message List the control item which isn't select           Message List0         Message List2         Message List3         Message List4         Message List5         Message List6         3	Brightness & Speed	the contro	l item which	n is selecte	ed	
Message List0     Message List1     Message List2     Message List3     Message List4     Message List5     Message List6						
	Message List			the	control item which	n isn't select
	Message List Message List0 Message 10 Brig	List1 Message List2 htness & Speed Message List	Message List3 Coil Variables In	Message List	Control item which t4 Message List5 Eloat Variables DQ DI	Message Listő

	PROFIBUS Command Table					
NO	Profibus Output Address	Description				
1	0	Brightness & Speed				
2	1	Message List_2				
3	2	Coil Variables16~23				
4	3~4	Integer Variables9				
5	5~8	Float Variables0				
6	9	D00~1				
٢	IO Profibus Input Addi	ess Description				
	1 0	DI0~1				

1	PROFIBUS connection state. Online: the connection between PROFIBUS master and IKAN-PFB is OK. Offline: the connection between PROFIBUS master and IKAN-PFB is not OK.
2	All the control items.
3	After the user clicks "Preview" button, "PROFIBUS Command Table" will be shown. The user can confirm the PROFIBUS output(input) address of each control items.
4	After the user clicks the "Update" button, the new configuration of "control items" will store into IKAN-PFB.
5	The PROFIBUS output(input) address of the control items in IKAN-PFB.
6	The description of the control items

#### 2. Control items

Each kinds of control item has its own data type and data length, the control items are described in the below.

## (1) Output data

Туре	Data length of each item
LED brightness and message motion speed	1 byte
Message list	1 byte
Coil-type variable	1 byte
Integer-type variable	2 bytes
Float-type variable	4 bytes

DO	1 byte
(2) Input data	
Туре	Data length of each item
DI	1 byte

3. The example of configuring the control items.

MESSAGE POOL DATA POOL	PROFIBUS	DIO SYSTEM	I	E	N ≌⊄
PROFIBUS Command Table 3			Profibus Connection	Online	
Brightness & Speed					6
Brightness & Speed					
Message List					
Message List0         Message List1         Message List2         Image: Comparison of the state o	Message List3	Message List4	Message List5	Message List6	
3 Brightness & Speed Message List	Coil Variables	Integer Variables <u>Flo</u> a	at Variables DO DI	Preview	Update

1	Click "PROFIBUS"
2	Confirm that PROFIBUS Connection is online
3	Select the control items
<b>4</b>	Click "Update" button

4. Calculate the PROFIBUS Output(Input) address in PROFIBUS master.

The PROFIBUS output(input) address which is in PROFIBUS Command Table isn't correct, the user needs to confirm the first PROFIBUS output(input) address of IKAN-PFB in PROFIBUS master. The correct PROFIBUS output(input) address equals "the first PROFIBUS output(input) address of IKAN-PFB in PROFIBUS master" plus "the PROFIBUS output(input) addresses in PROFIBUS Command Table".

			Address	Symbol Display format	Status value
(1) I	KAN-116-PFB		QB 20	HEX	B#16#24
Slot DP	ID Order Number /	Designation 🕛 🔟 Address 🗛 Address 📋	QB 21	HEX	B#16#BF
1 192	System-setting	3699 20 <del></del>		HEX	B#16#27
2 192	> System-setting	100163 84147	QW 23	HEX	W#16#1453
4 192	> System-setting	256303 256303	QD 25	HEX	DW#16#42F6CCCX
5			QB 29	HEX	B#16#01
			B 36	HEX	B#16#02
P	ROFIBUS Com	mand Table		30) <sup>200</sup>	
	Koribos com				
NO	Profibus Output Addre	ess Description			
1	2 0	Brightness & Speed			
2	1	Message List_2			
3	2	Coil Variables16~23			
3	2 3~4	Coil Variables16~23 Integer Variables9			
3 4 5	2 3~4 5~8	Coil Variables16~23 Integer Variables9 Float Variables0			

Example:

1	The first PROFIBUS output address of IKAN-PFB is 20. The first PROFIBUS input address of IKAN-PFB is 36.
	The PROFIBUS output(input) address in "PROFIBUS Command Table" :
2	PROFIBUS output address: Brightness & Speed: 0 Message List_2: 1 Coil Variables 16~23: 2 Integer Variables 9: 3~4 Float Variables 0: 5~8 DO 0~1: 9
	PROFIBUS input address: DI 0~1: 0
3	The PROFIBUS output(input) address in PROFIBUS master:
	PROFIBUS output address Brightness & Speed: $20+0=20$ Message List_2: $20+1=21$ Coil Variables $16\sim23$ : $20+2=22$ Integer Variables 9: $20+3=23$ , $23\sim24$ Float Variables 0: $20+5=25$ , $25\sim28$ DO $0\sim1$ : $20+9=29$
	PROFIBUS input address: DI 0~1 : 0+36=36

## 3.2.7. Diagnostic message

When IKAN-PFB occurs error, IKAN-PFB will send the diagnostic messages to PROFIBUS master. The diagnostic messages are described in the below.

- 1. Diagnostic message:
- IKAN No Response ! (0x64)

PS:

 IKAN No Response !: When IKAN-PFB internal communication occurs error, IKAN-PFB will send this diagnostic message to PROFIBUS master. The user can clear this diagnostic message first by changing the device parameters of IKAN-PFB (Set "Clear Diagnostic Data" ON), and check if IKAN-PFB can work normally. If IKAN-PFB still can't work normally, please contact with technical staff of ICP DAS.

# 3.3. eSearch Utility

eSearch utility is a program specifically made for the use of products rooted with ICP DAS MiniOS7.

Its main functions are to facilitate updating firmware, configuring the Ethernet parameters such as IP address, subnet mask and gateway etc., or updating firmware. The eSearch Utility is developed for searching ICP DAS Ethernet I/O modules based-on MiniOS7 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/

## 3.3.1. Configuring the IP Address

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

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

eSearch Utility	🥑 eSearch	ity [ v1.:	1.13, Nov.29, 2	016]			
	File Serv	er Tools					
	Name	Alias	IP Address	Sub-net Mask	Gateway	MAC Address	DHCP
	ľ						
	Status	ch Server	() Infiguration		Web	E	cit

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

🥩 eSearch Utility [ v1.1.13, No	ov.29, 2016 ]		
File Server Tools			
Name Alias IKAN-124 LED Display N/A	IP Address 192.168.255.1 192.168.255.2	Sub-net Mask 255.255.0.0 255.255.0.0	Gateway 10.1.0.254 10.1.0.254
Status	tion (VDP)	Web	Exit
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.

Configure Serve	r (UDP)					×
Server Name :	iKAN-124					
DHCP:	0: OFF 🗨	Sub-net Mask :	255.255.0.0	Alias:	LED Displa	y
IP Address :	10.1.0.120	Gateway :	10.1.0.254	MAC:	00:0d:e0:6!	5:0b:23
Warning!! Contact your Ne	twork Administrator to g		0K	Cancel		

## 3.3.2. Sending the Modbus Command to iKAN

The eSearch Utility has 2 embedded configuration tools, Modbus RTU Master and Modbus TCP Master, which can be used to send the Modbus command to the iKAN display.

eSearch Utillity	eSearch ' entry [VI.1.13, Nov.29, 2010] Server Tools Nore A Modbus RTU Master Modbus TCP Master System Information
	Status

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



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



## **3.3.2.1.** Using Modbus RTU Command to Configure the iKAN display

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

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

🥩 eSearch Utility 🖓 🗤	.5, NOV.29, 2010]	
File SF ver Tools		
Name Modb	us RTU Mastersk Gateway MAC Address DHCP	_
Modb	us TCP Master	
System	n Information	
	MINTO V. 102 COM1	
	COM Status Protocol Description	
	COM1	•
	115200 Request] Byte 0: Net ID (Station number)	
Search Server	Line control: N.8.1 Byte 1: FC=01 Byte 2-3: Reference number	
	Open Close Byte 4-5: Bit count	_//_
	Polling Mode (No Waiting) Statistics	
	Timeout 200 ms Commands Current Packet Size (Bytes)	
	Start Stop Total Packet Size (Bytes) 0 Uantity	
	Timer Mode (Fixed Period) Packet Quantity Sent 0	
	Interval 50 ms Polling or Timer Mode (Date/Time)	
	Start Stop Start Time Time Start	

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

Polling Mode (No Waiting)	Statistic Commands Total Packet Size (Bytes) Packet Quantity Sent Commands Comman	Clear Statistic acket Intity 00 % 0 Packet Quantity Received 0
Interval 100 ms Set   Stop St	Start Time Stop Time	Max 000 Average Min 000 Send Command
L, M [Byte1] [Byte2] [Byte3] [Byte4] [Byte	5] [Byte0] [Byte1] [Byte2	2] [Byte3]
Clear L	ists	EXIT Program

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 of the text box area

## 3.3.2.2. Using Modbus TCP Command to configure the iKAN display

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

- 1. Select the Modbus TCP Master 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

Stop Stop Stop Time   [Byte0] [Byte1] [Byte2] [Byte3] [Byte4] [Byte5] [1 2 0 0 0 6 1 4 0 0 0 40 [L., -01] [Byte1] [Byte2] [Byte3] [Byte4] [Byte5]	Stop Time	Min 000	1 000
	[Byte0] [Byte1] [E	[Byte2] [Byte3]	Send 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 of the text box area

# 4. Message, LED Brightness, Message Motion and Speed

# 4.1. LED Brightness and Message motion speed

## 4.1.1. Introduction

5 levels of brightness and 10 levels of message motion speed are adjustable on the iKAN-PFB display. Smaller setting numbers are paired with brighter and higher scrolling speeds. To adjust the LED brightness and message motion speed, follow the instructions given below.

ltem	Bit position	Value range	Description
LED	Bit0~bit3	0~4	Brightest:0
Brightness			Darkest:4
Message	Bit4~bit7	0~9	Fastest:0
motion			Slowest:9
speed			

## 4.1.2. Adjusting LED Brightness and Message motion speed

	MESSAGE POO	DATA POOL	PROFIBUS	DIO SYSTEM	ř.	EN
OFIBUS Comm	nand Table				Profibus Connection	Online
ightness & Sp	eed 📀					
Brightness & Sp	pred					
Brightness & Sy	pred					
Brightness & Sp essage List	peed					

1. Click the **PROFIBUS** menu and select the "Brightness & Speed", and press update botton.

1	Click "PROFIBUS" menu
2	Select "Brightness & Speed"
3	press "Update" botton

2. Modify the value 0x24 in PROFIBUS master. You can see the LED brightness is 4, and the

Addø	ss	Symbol I	Display format	Stat	Modify value	
QB	20	F	IEX	B#16 <mark>1</mark> 24	B#16#24	2 LED Brightness
QB	21	F	IEX	B#16#00	B#16#00	This function is used to set the L
QB	22	Ē	IEX	B#16#00		
QB	23	F	IEX	B#16#00		4
						Message Moving Speed This function is used to set the m
	1	E	Enter the	e value	0x24	

message motion speed is 2.

#### 3. You can see the LED brightness and message motion speed on the web interface.

	MESSAGE F	POOL	DATA POOL	PROFIBUS	DIO	SYSTEM 1
				ihs -		
IMPORT/EXPORT	ETHERNET	SERIAL	PORT MISC	. 2		
Misc.						
LED Brightness This function is us	sed to set the LED	) brightnes:	s. Click the Updat	te button to update	the conf	iguration on the module.
Message Movi This function is us	ng Speed sed to set the me	ssage movi	ng speed. Click t	he Update button t	o update	the configuration on the module.

item	Brightness & Speed							
Bit position	7	6	5	4	3	2	1	0
Value (BIN)	0	0	1	0	0	1	0	0
Туре		LED Brightness Message motion speed						
Value (HEX)			2			2	4	

4. The description of the value of "Brightness & Speed"

# 4.2. Message

The iKAN web configuration interface provides a convenient and simple interface for the user, easily managing the message content and its effect.

A maximum of 128 Common Messages can be stored on the iKAN-PFB series device, and each message can contain a maximum of 40 Unicode characters or 100 ASCII characters.

## 4.2.1. Editing and Managing Messages

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

Select the message number which you would like to add, and then click the  $\bigcirc$  button. The message item has been added to the message queue.

	MESSAGE POOL	DATA POOL	DIO S	SYSTEM
		DAS	- <u>j</u> (	ANE
NO. 1 •	Display Status	Dis	play Row(s)	Message
	NO. 1 •	Display Status		Display Row(s) 1
	1			1

There are 2 buttons in each message item.

0

button is used to edit the message.

button is used to delete the message.



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

Click the 🧭 button to enter the message form

	NO. 1 •	Display Status		Display Row(s)
	1			1
		MESSAGE POOL	DATA POOL	SYSTEM
IMPORT/EXP	ORT			
IMPORT/EXP ETHERI	ORT NET LOCAL I	ETHERNET		
IMPORT/EXP ETHERI SERIAL P	ORT NET LOCAL I ORT IP Address	ETHERNET 5: 10 . 0	. 248	
IMPORT/EXP Etheri Serial P Mi	ORT NET LOCAL F ORT IP Address ISC. Mask:	ETHERNET s: 10 . 0 . ( 255 . 255 . [	) 248 255 D	

The details of these items are as follows:

#### • Display Status \*

Enable the contents of the message to be displayed on the iKAN series device.

#### • Instant \*

Set this message to be an instant message.

#### • Message Moving Mode

Specify the message moving mode.

• Row(s)

Specify the row for the message displayed.

• Color\*

Specify the color for the message displayed.

• Message

Edit the contents of the message.

#### • Update

Allow the settings to take effect.

#### **Tips & Warnings**



- 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.
- 3. \* means this item can't be modified through the website of iKAN-PFB, it only can be modified through PROFIBUS master.

#### 4.2.2. Modify the message item through PROFIBUS master

There are three message items which only can be modified by PROFIBUS master, Display Status, Instant, and Color. Before the user modifies those message items, he needs to select "Message List" and update in the PROFIBUS menu. Please refer to the following example.

Each message has its own "Message List". E.g., if you want to modify the message items of message NO.1, select "Message List0". If you want to modify the message items of message NO.2, select "Message List1", and so on.

1. Click the **PROFIBUS** menu, and select "Message List" which message number you want to modify, and press update button. We select from Message List0 to Message List3 in this example.

ME	SSAGE POOL	DATA POOL	PROFIBUS	DIO	SYSTEM		EI	N 繁中
PROFIBUS Command	Table				Ρ	rofibus Connection	Online	
Brightness & Speed								-
			2					
Message List				1				
Message List0 Mess	sage List1 M	lessage List2	Message List3	Messa	ge List4	Message List5	Message List6	3
4 [	Brightness & Speed	<u>Message List</u>	Coil Variables In	teger Varia	bles Float V	Variables <u>DO DI</u>	Preview	Update
1	Click	"PROF	-IBUS"	mer	nu			
2	Selec	t Mess	sage Lis	st 0~	Mess	sage Lis	t 3	

Press "Update" button

2. Modify the value in PROFIBUS master, the users can see the message items which are modified.

					1		The value of each Message List in PROFIBUS master
1 2	QB QB	20 20 21	Symbol	Display format HEX HEX	Status value B#16#BF B#16#DC	Modify value B#16#BF B#16#DC	Message List_0: 0xBF Message List_1: 0xDC
3	QB QB	22 23		HEX	B#16#CB B#16#80	B#16#CB B#16#80	Message List_2: 0xCB Message List_3: 0x80
(	2						The message status in IKAN-PFB webpage
					ICP	DAS - J	AN:
	1	2	3 1 N	5 6 / 8	9 10 11 itatus Display	12 13 Row(s) Message	Messaar Prizzily
		01	<b>1</b> 1		2	Message0 R2Message0	
		01	2		2	Message1 R2Message0	
		01	<b>i</b> 1		2	Message2 R2Message2	
1	1	0	<b>i</b> 4		2	Message3 R?Message3	

#### 3. The description of the value of "message List"

#### (1) Data analysis

Item	Bit position	Value range	Description
Display	Bit7	0~1	0: Disable
status			1: Enable
Instant	Bit6	0~1	0: Disable
			1: Enable
Color	First row: bit3~bit5	0~7	0: Red
	Second row: bit0~bit2		1: Green
			2: Yellow
			3: Blue
			4: Purple
			5: Sky Blue
			6: White
			7: Random

#### (2) Data analysis in the example

ltem	Message List0							
Bit position	7	6	5	4	3	2	1	0
Value (BIN)	1	0	1	1	1	1	1	1
Туре	Display	Instant:	Color(f	Color(first row): Random		Color(second row): Random		
	status:	disable						
	enable							
Value (HEX)	B				F			

ltem	Message List1								
Bit position	7	6	5	4	3	2	1	0	
Value (BIN)	1	1	0	1	1	1	0	0	
Туре	Display	Instant:	Color(first row): B		Blue	e Color(second row): Purp		: Purple	
	status:	enable							
	disable								
Value (HEX)		D				С			

Item		Message List2							
Bit position	7	6	5	4	3	2	1	0	
Value (BIN)	1	1	0	0	1	0	1	1	
Туре	Display status: enable	Instant: enable	Color	(first row):	Green	Color(	second row	): Blue	
Value (HEX)		С				В			

ltem		Message List3						
Bit position	7	6	5	4	3	2	1	0
Value (BIN)	1	0	0	0	0	0	0	0
Туре	Display	Instant:	Color(first row): Re		: Red	Color(second row): Red		v): Red
	status:	disable						
	enable							
Value (HEX)		8	3		0			

#### 4.2.3. 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 has a length of 5 bytes as follows:

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

#### 4.2.3.1. Displaying the IP Address

Addresses 000 to 011 can be used to read the current IP, Mask, and Gateway address values. The following is an overview of how to read these addresses.

Address	Length	Description	Value Range	Attribute
000 : 003	4	The IP address for the iKAN series device	0~255	R
004 : 007	4	The Mask address for the iKAN series device	0 ~ 255	R
008 : 011	4	The Gateway address for the iKAN series device	0~255	R

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

		MESSAGE POOL	DATA POOL	DIO	SYSTEM	
		ICF	° das		(AN)	•
1	NO. 1 •	Display Status	Di	splay Row(	s)	Message

2. Click the 🖉 button

~	NO. 1 •	Display Status	Display Row(s)
	1		1

- 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:

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

iv. Click the **Update** button

NO. 1	
Display Status 🗷 Instant 🔲	
Message Moving Mode 2 •	
Row(s) 1 •	
Color Yellow •	
Message	
IP: %y000.%y001.%y002.%y003	
	Update

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



## 4.2.3.2. Displaying the Current Date and Time

Addresses 012 to 020 can be used to read the current date and time value. The following is an overview of how to read these values.

Address	Length	Description	Value Range	Attribute
012	1	Year	0~9999	R
013	1	Month	1~12	R
014	1	Day	1~31	R
015	1	Abbreviated day of the week: SUN, MON, TUE, WED, THU, FRI, SAT	0~6	R
016	1	Day of the week: Sunday, Monday, Tuesday, Wednesday, Thursday, Friday, Saturday	0~6	R
017	1	Day of the week in Chinese characters: 日、一、二、三、四、五、六	0~6	R
018	1	Hours (24-hour format)	0~23	R
019	1	Minutes	0~59	R
020	1	Seconds	0~59	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 the message **No. 1**, and then click the 🕀 button

	MESSAGE POOL	DATA POOL	DIO	SYSTEM	
	<u>IC</u> F	• DAS		KAN	+ +
1 NO. 1 •	Display Status	Di	isplay Row	(5)	Message

#### 2. Click the 🖉 button

-	NO. 1 •	Display Status	Display Row(s)
0	1		1

- 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:

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

iv. Click the **Update** button

-NO. 1	
Display Status 🗷 Instant 🗆	
Message Moving Mode 2 🔹	
Row(s) 1 •	
Color Yellow •	
Message	
%y012/%y013/%y014 %y018 : %y019	//
	Update

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



#### 4.2.3.3. Displaying the CO2 and Temperature Values from a Remote DL-302 Module

Addresses 021 to 026 can be used to read data from a remote DL-302 module. The following is an overview of how to read these values.

Address	Length	Description Value Range		Attribute
021	1	DL series module name (low word)	0x0301~0x0302	R
022	1	DL series module name (high word)	0x444C	R
023 : 029	7	Refer to DL series Modbus Address 30001~30007 or 40001~40007		R

For example, the following explains how to configure a message to display the CO2 and temperature data from a remote DL-302 module on the iKAN series device using message 1:

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



#### 2. Click the 🖉 button

	-	NO. 1 •	Display Status	Display Row(s)
(	0	1		1

- 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:
    - CO2: %y021 PPM, Temp: %y023
  - iv. Click the **Update** button

NO. 1	
Display Status 🗹 Instant 🗆	
Message Moving Mode 2 •	
Row(s) 1 •	
Color Yellow •	
Message	
CO2: %y021 PPM, Temp: %y023	/
	Update

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



## 4.2.4. 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	Address: 3-digit decimal number		
04	u: Unsigned integer (0~65535)	V	V	V
%	i: Signed integer (-32768~32767)	X	X	X

A maximum of 64 integer variables can be stored on the iKAN series device, and are accessed using addresses 000 to 063.

Address	Length	Description	Value Range	Attribute
000				
:	64	Integer-type variables	0 ~ 65535	R/W
063				

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

	MESSAGE POOL	DATA POOL	DIO	SYSTEM	
	ICF	<sup>2</sup> DAS	-		]
1 • NO. 1 •	Display Status	Di	splay Row(s		Message

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

-NO. 1
Display Status 🗷 Instant 🔲
Message Moving Mode 2 •
Row(s) 1 •
Color Yellow •
Message
Input Voltage: %i001 V
Update

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



iKAN series devices provide the data mapping function for Integer-type variables, please refer to section "4.3.1. Displaying the Mapping Data for Integer-type Variables" for more details.

## 4.2.5. Inserting float-type Variables into a Message

iKAN display devices provide Modbus registers for 60 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 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	Address: 3-digit decimal number			
%	f: Float variable (-3.4E+38 ~ +3.4E+38)	х	х	х	

A maximum of 64 float variables can be stored on the iKAN series device, and are accessed using addresses 128 to 246.

Address	Length	Description	Value Range	Attribute
128			3 VET38 ~ T3 VE	
:	60	Float-type variables	120	R/W
246			+30	

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

		MESSAGE POOL	DATA POOL	DIO	SYSTEM	
		ICF	° Das		KAN	
1	NO. 1	Display Status	מ	isplay Row	(5)	Message

# 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

NO. 1	
Display Status 🗷 Instant 🗆	
Message Moving Mode 2 •	
Row(s) 1 •	
Color Yellow •	
Message	
Pressure: %f130 bars	
	Update

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



iKAN series devices allow the number of decimal places increased for Float-type variables, please refer to section "4.3.2. Displaying the Number with Increased Decimal Places for Float-Type Variables" for more details.

### 4.2.6. Inserting Coil –type Variables into a Message

iKAN display devices provide 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 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	Address: 3-digit decimal number			
%	b: Coil	Х	Х	Х	

A maximum of 40 Coil type variables can be stored on the iKAN series device, and are accessed using addresses 000 to 039.

Address	Length	Description	Value Range	Attribute
000				
:	40	Coil-type variables	-	R/W
039				

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

- 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

-NO. 1
Display Status 🗷 Instant 🔲
Message Moving Mode 2 🔻
Row(s) 1 •
Color Yellow •
Message
Coil variable 0 = %b001
Update

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



iKAN series devices provide a string mapping function that allows the value of the coil variable to be mapped, please refer section "4.3.3. Displaying the Value of a Coil with the Replacement Text" for more details.

### 4.2.7. 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	Х	Х	Х

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	1	Description		
Decimal	Hex.	Length	Description	value kange	Attribute
41800	0708				
:	:	32	ASCII string 0 contents	ASCII	R/W
41831	0727				
41832	0728				
:	:	32	ASCII string 1 contents	ASCII	R/W
41863	0747				
41864	0748				
:	:	32	ASCII string 2 contents	ASCII	R/W
41895	0767				
41896	0768				
:	:	32	ASCII string 3 contents	ASCII	R/W
41927	0787				

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

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

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

		MESSAGE POOL	DATA POOL	DIO	SYSTEM	
		TOT	1 nar		17 A. I. I.	٦
			tunto Terrete			
1						
0	NO. 1	Display Status	D	isplay Row(	(s)	Message

#### 2. Click the 🖉 button

-	NO. 1 •	Display Status	Display Row(s)
	1		1

- 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

NO. 1	
Display Status 🗷 Instant 🔲	
Message Moving Mode 2 🔹	
Row(s) 1 •	
Color Yellow •	
Message	
%a0	
	Update

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



# 5. Writing Variables and DI, DO

# 5.1. Coil-type Variables

# 5.1.1. Modify the value of Coil-type variables through PROFIBUS master

1. Click the **PROFIBUS** menu, and select "Coil Variables" which Coil Variables you want to modify, and press update button. We select Coil variables 0~15 in this example.

lessage List119	Message List120	Message List121	Message List12	22 Message List123	Message List124	Message List125
fessage List126	Message List127					
l Variables						
Coil Variables07	Coil Variables8	-15 Coil Var	iables16~23	Coil Variables24-31	Coil Variables32-3	9



2. Enter the value in PROFIBUS master, you can see the value of Coil variables are changed in the data pool.

QB       20       HEX       B#16#7A       B#16#63         QB       21       HEX       B#16#63       B#16#60         QB       22       HEX       B#16#00       B#16#00         QB       23       HEX       B#16#00       B#16#00         MESSAGE POOL       DATA POOL       PROFIBUS       DIO       SYSTEM       E			Addue	ss Symbol	Display format	Status value	Modify value			
QB       21       HEX       B#16#0       B#16#0       B#16#0         QB       22       HEX       B#16#0       B#16#0       B#16#0         QB       23       HEX       B#16#0       B#16#0       B#16#0         MESSAGE POOL       DATA POOL       PROFIBUS       DIO       SYSTEM       E			QB	20	HEX	B#16#7A	B#16#7A			
QB 22 HEX B#16#00 B#16#00 QB 23 HEX B#16#00 B#16#00 MESSAGE POOL DATA POOL PROFIBUS DIO SYSTEM E			QB	21	HEX	B#16 <b>1</b> 63	B#16#63			
QB 23 HEX B#16#00 B#16#00 MESSAGE POOL DATA POOL PROFIBUS DIO SYSTEM			QB	22	HEX	B#16#00	B#16#00			
MESSAGE POOL DATA POOL PROFIBUS DIO SYSTEM			QB	23	HEX	B#16#00	B#16#00			
					PAIATOO	PROFIL	505 010	STSTEIVI		c.
	INTEGER ill Variable	FLOAT IS	COIL	2	ICP		- IKF			t
0 1 2 3 4 5 6 7	NTEGER il Variable 0	FLOAT	COIL	2	ICP				6	7
0         1         2         3         4         5         6         7           0         1         0         1         1         1         0         0	INTEGER il Variable 0 0	FLOAT IS	COIL 1	2 2 0	ICP			5 1	6	7
0         1         2         3         4         5         6         7           0         1         0         1         1         1         0         0           8         9         10         11         12         13         14         15	NTEGER il Variable 0 0 8	FLOAT	COIL 1 9	2 2 0 10	ICP			5 1 13	6 1 14	7 0 15

1	The value of Coil Variables in PROFIBUS master Coil Variables 0~7 :0x7A Coil Variables 8~15:0x63
2	The value of Coil Variables in IKAN-PFB webpage

3. You can check the value of Coil Variables on the web interface.

	MESSAGE	E POOL DAT	TA POOL PR	OFIBUS DIO	SYSTEM		
		IC	P DA:	3 - IK A			
				2 <u>    / k</u> .			
INTEGER FL		2					
INTEGER FL oil Variables	OAT COIL	2					
INTEGER FL Dil Variables 0	OAT COIL	2	3	4	5	6	7
INTEGER FL bil Variables 0 0	OAT COIL	2	3	4	5	6	<b>7</b> 0
INTEGER FL bil Variables 0 0 8	OAT COIL	2 0 10	3 1 11	4 1 12	5 1 13	6 1 14	7 0 15

#### 4. Data analysis in the example

item		Coil variables 0~7								
Bit position	7	6	5	4	3	2	1	0		
Value (BIN)	0	1	1	1	1	0	1	0		
Value (HEX)		-	7			ŀ	Ą			

item				Coil varia	bles 8~15			
Bit position	7	6	5	4	3	2	1	0
Value (BIN)	0	1	1	0	0	0	1	1
Value (HEX)		(	5				3	

#### 5.1.2. Displaying the Value of a Coil Variable with the 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.

Click the address number of the coil variable which you would like to configure. The configuration area has been registered according to the selected address number.

		MESS	AGE POOL	DATA POC	DIO DIO	SYSTEM		
INTEGER	FLO4 COIL	)						
Coil Variables								
0		2	3	4	5	6	7	
0	0	0	0	0	0	0	0	
8	9	10	11	12	13	14	15	
0	0	0	0	0	0	0	0	
16	17	18	19	20	21	22	23	te
0	0	0	0	0	0	0	0	
24	25	26	27	28	29	30	31	
0	0	0	0	0	0	0	0	
32	33	34	35	36	37	38	39	
0	0	0	0	0	0	0	0	
1	0		Red	Update	Adv. (	Config	Cancel	

iKAN series devices provide a string mapping function that allows the value of the 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 example, the following explains how to configure the text mapping for the Coil variable at address 1. This example is a continuation of the example in section 4.2.4.

		MESS	AGE POOL	DATA POO	L DIO	SYSTEM		
INTEGER	FLOAT COIL							
Coil Variables	$\frown$							-
0	$\begin{pmatrix} 1 \end{pmatrix}$	2	3	4	5	6	7	
0	0	U	0	0	0	0	0	
8	9	10	11	12	13	14	15	
0	0	0	2	0	0	0	0	
16	17	18	19	20	21	22	23	te.
0	0	0	0	0	0	0	0	
24	25	26	27	28	29	30	31	
0	0	0	0	0	0	0	0	
32	33	34	35	36	37	38	39	
0	0	0	0	0	0	0	0	
1	0		Red •	Update	Adv. (	Config	Cancel	

#### 1. Click the address 1 option, 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.



# 5.2. Integer-type Variables

# 5.2.1. Modify the value of Integer-type variables through PROFIBUS master

1. Click the **PROFIBUS** menu, and select "Integer-type variables" which Integer-type variables you want to modify, and press update button. We select "Integer-type variables 0" and "Integer-type variables1" in this example.

			PROFIBUS	DIO SYSTEM		EN	¥Ψ
0				]	L		
2 Ver Variabl	95						
er Variabler0	Integer Variables1	(Integer Variables)	(Integer Variables?)	Integer Variablerd	Integer Variabler5	(Integer Variables)	1
Jet Valiables0	integer variablest	integer variablesz	integer variabless	integer variables4	integer variabless	integer variableso	
ger Variables7	Integer Variables8	Integer Variables9	Integer Variables10	Integer Variables11	Integer Variables12	Integer Variables13	
,							
er Variables14	Integer Variables15	Integer Variables16	Integer Variables17	Integer Variables18	Integer Variables19	Integer Variables20	

1	Click "PROFIBUS" menu
2	Select "Integer Variables 0" and "Integer Variables 1"
3	Press "Update" button

2. Enter the value in PROFIBUS master, you can see the value of Integer-type variables are changed in the data pool.

ç	Addue QW	ess 20	Symbol	Display format HEX	Status value W#16#7FFF	Modify value W#16#7FFF		Integer V	ariab	les
	QW	22		HEX	W#16#2453	W#16#2453	2	signed	•	Display
								0		1
							1	3276	57	9299

1	The value of Integer Variables in PROFIBUS master: Integer Variables 0 : 0x7FFF Integer Varibales 1 : 0x2453
2	The value of Integer Variables in the webpage: Integer Variables 0 : 32767(DEC) Integer Variables 1 : 9299(DEC)

#### 3. You can check the value of Integer Variables on the web interface.

	MESSAGE	POOL DAT	A POOL PR	OFIBUS DIO	SYSTEM		1
		TO	<b>n</b> na				
			* Uhi	s - UKB	P P		
2							
INTEGER FLO	DAT COIL						
teger Variables							
signed 🔹 D	isplay						
0	1	2	3	4	5	6	7
32767	9299	0	0	0	0	0	0
8	9	10	11	12	13	14	15
0	0	0	0	0	0	0	0
16	17	18	19	20	21	22	23
2本坦盘 ]()	0	0	0	0	0	0	0

### 5.2.2. Displaying the 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 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 example, the following explains how to configure the data mapping function for an integertype variable at address 1.

This example is a continuation of the example in section 4.2.2.

#### 1. Click the address 1 option, and then click the Adv. Config button

		MESSAGE POC	DL DATA P	OOL DIO	SYSTEM	
INTEGER	FLOAT COIL					
Integer Variabl	es Display					
0	$\begin{pmatrix} 1 \end{pmatrix}$	2	3	4	5	6
0		0	0	0	0	0
8	9	10	11	12	13	14
0	0	0	0	0	0	0
16	17	18	19	20	21	22
0	0	0	0	0	0	0
1	0		Red •	Upd	ate	Adv. Config

2. Considering 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.

No.	Source Low	Source High	Target Low	Target High	Decimal Places	Update
1	0	65535	0	10	2 🔻	Update

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.



# 5.3. Float-type Variables

# 5.3.1. Modify the value of Float-type variables through PROFIBUS master

1. Click the **PROFIBUS** menu, and select "Float-type variables" which Float-type variables you want to modify, and press update button. We select "Float-type variables 0" and "Float-type variables1" in this example.

eger Variables63						
]	2					
at Variables						
at Variables loat Variables0	Float Variables1	Float Variables2	Float Variables3	Float Variables4	Float Variables5	Float Variables6
at Variables loat Variables0	Float Variables1	Float Variables2	Float Variables3	Float Variables4	Float Variables5	Float Variables6
at Variables Ioat Variables0 Ioat Variables7	Float Variables1 Float Variables8	Float Variables2 Float Variables9	Float Variables3	Float Variables4	Float Variables5	Float Variables6
oat Variables0 Ioat Variables7	Float Variables1 Float Variables8	Float Variables2 Float Variables9	Float Variables3 Float Variables10	Float Variables4	Float Variables5	Float Variables6

Click "PROFIBUS" menu
 Select Float Variables 0 and Float Variables 1
 Press "Update" button

2. Enter the value in PROFIBUS master, you can see the value of Float-type variables are changed in the data pool.



1	The value of Float Variables in PROFIBUS master: Float Variables_0 : 0x3F7B22D1 Float Variables_1 : 0x42F6CCCC
2	The value of Float Variables in the webpage: Float Variables_0 : 0.981 Float Variables_1 : 123.4

3. You can check the value of Float Variables on the web interface.

.



#### 5.3.2. Displaying the Number with Increased 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.

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

This example is a continuation of the example in section 4.2.3.

#### 1. Click the address **130** option, and then click the **Adv. Config** button

	ME	SSAGE POOL	DATA POOL	DIO SYSTE	M
INTEGER F	LOAT COIL				
Float Variables	$\frown$				
128	(130)	132	134	136	138
0.0	0.0	0.0	0.0	0.0	0.0
144	146	148	150	152	154
0.0	0.0	0.0	0.0	0.0	0.0
160	162	164	166	168	170
0.0	0.0	0.0	0.8	0.0	0.0
130	0	F	Red 🔻	Update	Adv. Config

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.



5.4. DI, DO

## 5.4.1. Wire connection

### **DI** Wiring

Input Type	On State as 1	OFF State as 0		
	Close to GND	Open		
Dry Contact	Dixo-o-	Dix o Di.GND o		

#### **DO Wiring**

Input Type	On State Readback as 1	OFF State Readback as 0		
	+5 to +24 VDC	Open		
DO (Sink, NPN)	DO.PWR O	DO.PWR O X Load DOx O DO.GND O		

## 5.4.2. Read or Write the DI and DO channel through PROFIBUS master

1. Click the **PROFIBUS** menu, and select "DI" or "DO" which DI, DO channel you want to modify or read, and press update button. We select "DI 0~1" and "DO 0~1" in this example.

-

2	MESSAG		DATA PO	OL (	PROFIBUS	DIO	SYST	TEM			EN	繁中
DO DO												
DI											3	
	1 <u>Brightr</u>	iess & Speed	<u>Message l</u>	<u>ist Co</u> i	il Variables	Integer Var	riables	Float Variable	<u>s DO D</u>	Preview	Up	date
	1	Click '	PROFIB	SUS" r	nenu							
	2	Select	DO, DI									
	3	Press	"Update	" butte	on							

2. Enter DO value 0x02 in PROFIBUS master, you can see the value of DO channel 1 are changed in the **DIO** menu. Close the DI 0 to DI.GND, you can see the value of DI channel 0 are changed in the **DIO** menu and the PROFIBUS master.



4. You can check the value of DO and DI on the web interface.



#### 5. Data analysis in the example

item		DO 0~1							
Bit position	7	6	5	4	3	2	1	0	
Value (BIN)	0	0	0	0	0	0	1	0	
Channel		Reserved						0	
Value (HEX)		0				2	2		

ltem				DI 0	~1			
Bit position	7	6	5	4	3	2	1	0
Value (BIN)	0	0	0	0	0	0	0	1
Channel		Reserved						0
Value (HEX)		0				-	1	

# 6. iKAN Updates

ICP DAS will continue to update the iKAN firmware for more useful functions and better performance. The latest firmware can be obtained from: <a href="http://ftp.icpdas.com/pub/cd/ikan/firmware/">http://ftp.icpdas.com/pub/cd/ikan/firmware/</a>

The firmware version is listed at the bottom of the MISC.page. You can check the version here to see if the iKAN series device needs a firmware update.



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

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



2. Get the latest version of the iKAN firmware

The latest version of the iKAN firmware can be obtained from: <a href="http://ftp.icpdas.com/pub/cd/ikan/firmware/">http://ftp.icpdas.com/pub/cd/ikan/firmware/</a>

3. Get the latest version of the 7188xw Utility and extract it

The latest version of the 7188xw Utility can be obtained from: <a href="http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/">http://ftp.icpdas.com/pub/cd/8000cd/napdos/minios7/utility/</a>

#### **Tips & Warnings**



- 4. Open the command prompt and change the current directory to the directory where the firmware is located
- 5. Enter command "7188xw /c1 /b115200 /n81" to execute the 7188xw Utility



6. Press the Enter to connect to the iKAN and press the F9 to download the firmware to iKAN



7. Wait until all files loading are completed and Reboot the iKAN

## Appendix A. How to -

## A.1. How to set iKAN Display in Modbus Configuration Mode

Before using the Modbus RTU/TCP Command tool, iKAN must be configured in Modbus configuration mode. To configure iKAN into a Modbus configuration mode, follow the instructions given below.

1. Click the MESSAGE POOL menu, and then click the ETHERNET menu

2. In the COMMON MESSAGES section, specify the following parameters:

- a. In the Message 0 area, select Display check box, and enter the "WELCOME" in the Message box.
- b. In the Message 1 area, enter the "%a0" in the Message box.
- c. In the Message 1 area, enter the "%a0" in the Message box.

COM	NON MES	SACE:		
NO.	Display	Color	Message	Update
0		Auto 🔻	WELCOME	Update
1	9	Auto 🔻	%a0	-puale
2		Auto 🔻	70a i	Update
3		Auto 🔻		Update
4		Auto 🔻		Update

3. The iKAN display will display "WELCOME". Now the iKAN display is in the Modbus configuration mode, you can start sending Modbus commands to your iKAN display.

For more detailed information on how to use the Modbus RTU/TCP Command tool to communicate with iKAN, please refer to section **"3.2.2. Sending Modbus Command to iKAN"** 

# A.2. How to set up the new Project in the PROFIBUS master software. (SIMATIC STEP7 in this example)

1. Double Click "SIMATIC Manager" icon to open "SIMATIC Manager"



#### 2. Open " New Project Wizard "

	SIMATIC Manager
	PLC View Options Window Help
Ctrl+N	Hew
	New Project Wigard
Ctt/+0	Open O
•	S7 Memory Card
•	Memory Card Elle
	Delete
	Reorganize
	Monage
	Archive
	Retriege
	Page Setup
pm)%7_Pm2	187_Pro2 (Project) CAWiemens/Step7%7proj/87_Pro2
prof@7_Pro1	2 S7_Pro1 (Project) CA\Siemens\Step7\s7proj\S7_Pro1
Alt+F4	E <sub>S</sub> it /
	An example of the second s
f a wizard.	ates a new project step-by-step with the help of a wizard.

## 3. Set up Project

#### a. Click"Next"

. Introduction	•			1
	S Ye 7 C Y 7 C Y Y 7 C Y Y 7 T F	TEP 7 Wizard: "Ne ou can create STEP 7 p Wizard. You can then s lick one of the followin lext" to create your pro finish" to create your pr	▼ Project <sup>®</sup> mojects quickly and e start programming im g options: ject step-by-step mject according to the	esily using the STE mediately. : pæview.
Display Wigard	on starting the SD	MATIC Manager		Previe <u>w</u> >>
				1

#### b. Select CPU type then click "Next"

STEP 7 Wizard: "Ne	w Project"		×
Which CPU are	you using in your project?		2(4)
CP <u>U</u> :	CPU Type CPU312C CPU312 CPU313C CPU313C-2 DF CPU313C-2 P4P CPU314 CPU314C-2 DF	Ordex No 6ES7 312 5ED00-0AB0 6ES7 312-1AD10-0AB0 6ES7 313-5EE00-0AB0 6ES7 313-6CE00-0AB0 6ES7 313-6EE00-0AB0 6ES7 314-1AE04-0AB0 6ES7 314-6CE00-0AB0	
<u>C</u> PU name: MPI <u>a</u> dduess:	CPU313C-2 DP(1) 2 32 KB DI16/D 3 chang	work memory; 0.1ms/1000 inst O16 integrated; 3 pulse outputs rels counting and measuring in	motions; s (2.5 kHz); czemental
< Back	Vext > Finish	Cancel	Pævie <u>w</u> >> Help

c. Select Blocks and Language for Selected Blocks then click "Next"

STEP 7 Wizard: "New )	Project"			×
- Which blocks do yo	want to add?			3(4)
Blooks:	Block Name	Symbolic Name		~
	✓ OB1	Cycle Execution		
	OB10	Time of Day Interrupt 0		
	🗆 OB11	Time of Day Interrupt 1		
	OB12	Time of Day Interrupt 2		
	🗆 OB13	Time of Day Interrupt 3		~
	Select All		Help on <u>O</u> B	
	-Language for Sela	oted Blooks		
	⊂ sīr	🛎 LAD	C FBI	>
Create with gourse files			Previe <u>w</u> >>	
< <u>B</u> ack Next	t> Finish	Cancel	Help	

### d. Set project name then click"Finish"

STEP 7 Wizard				
🐪 What do yo	u want to ca	ll <del>y</del> our project?		4(4)
Project name: Existing projects:		S7_Paol S7_Paol S7_Pao2 Check your new paoje Click "Finish" to cree	ect in the preview. The the project with the c	tisplayed structure. Previe <u>w</u> >>
< Back	Next >	Finish	Cancel	Help

4. Double click "Hardware" to open "HW Config"

SIMATIC Manager - [87_Pro3	C:\Program File	s\Siemens\St	ep7\s7proj\\$7_	Pro3]			
🛃 File Edit Insert PLC View (	Options Window H	lelp				- 6	P ×
D 📽 🔐 🛲 🖇 🛍 🖻 💧	🖕 🔍 🖕 🖕	を注意	No Fil	ter >	• 70	2 @	-
S7_Pro3		CPU313C	-2 DP(1)				
Press F1 to get Help.							-

#### 5. You can install the GSD file and configure the IKAN-PFB module and parameters in "HW Config"

👺 H W Config - [SIMATIC 300 Station (Configuration) 57_Pro52]							
💵 Station Edit Insert FLC Yiew Options Window Help							
	End: nt ni						
2 CPU315-2 PN/DP(1)	Pmfile: Standard						
X1 MRDPP PROFIDUS(1): DP master system (1)							
22 / Find	ROFIBUS DP     Additional Field Devices						
12 P2 Port2	😟 🦲 Switching Devices						
	H- IO						
	AS-I						
	🗉 🚡 DP/DP Coupler						
	DP/RS232C Link						
	🗄 🚡 GW-7553(DPV1)						
	⊞ 🚎 G₩-7557						
	+ IKAN-PFB						
(1) IKAN-PFB	🖭 🚡 DP/DP Coupler, Relea						
Stat D PED Order Number / Designation L O Comment	Compatible PROFIBUS DI     CiP. Object						
	E Closed-Loop Controller						
	Configured Stations						
3 4 4	DP VU slaves     DP/AS-i						
5	🕀 🦲 DP/PA Link						
	E ENCODER						
9	× ×						
	<u></u>						
Pross Fil to set Halp.	Chg						
### **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 b: Coil				
%	u: Unsigned integer (0~65535)	x x		х	
	f: Float (-3.4E+38 ~ +3.4E+38)				

The valid range for each type of variable is:

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

## **B.2. Modbus Register Map**

Modbus	Address	Loweth	Description	Value	<b>A + + - : : - : - :</b>
Decimal	Hex.	Length	Description	Range	Attribute
00000	0000				
:	:	40	Coil-type variables	-	R/W
00039	0027				
00100	0064		Fachles on dischlas the display of	0. Disablad	
:	:	128	Enables or disables the display of	0: Disabled	R/W
00227	00E3		common messages 0 ~ 127.	T: FUSPled	

### Coil-type variables (0xxxx, 0 based)

#### System variables (3xxxx, 0 based)

Modbus	Address	I a scath	Description		<b>A 44</b> (1) (1) (1)
Decimal	Hex.	Length	Description	value Range	Attribute
30000 : 30003	0000 : 0003	4	The IP address for the iKAN series device	0~255	R
30004 : 30007	0004 : 0007	4	The Mask address for the iKAN series device	0~255	R
30008 : 30011	0008 : 000B	4	The Gateway address for the iKAN series device	0~255	R
30012	000C	1	Year	0 ~ 9999	R
30013	000D	1	Month	1 ~ 12	R
30014	000E	1	Day	1~31	R
30015	000F	1	Abbreviated day of the week: SUN, MON, TUE, WED, THU, FRI, SAT	0~6	R
30016	0010	1	Day of the week: Sunday, Monday, Tuesday,	0~6	R

			Wednesday, Thursday, Friday, Saturday		
30017	0011	1	Day of the week in Chinese characters: 日、一、二、三、四、五、 六	0~6	R
30018	0012	1	Hours (24-hour format)	0~23	R
30019	0013	1	Minutes	0 ~ 59	R
30020	0014	1	Seconds	0 ~ 59	R
30021	0015	1	DL series module name (low word)	0x0301~0x0302	R
30022	0016	1	DL series module name (high word)	0x444C	R
30023 : 30029	0017 : 001D	7	Refer to DL series Modbus Addı 30001~30007 or 40001~40007	ress	R

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

Modbus A	Address	I a sa at la	Description	Malua Davaa	6.44 × 16 × 14 ×
Decimal	Hex.	Length	Description	value Range	Attribute
40000	0000				
:	:	64	Integer-type variables	0 ~ 65535	R/W
40063	003F				
40128	0080				
:	:	64	Float-type variables	3.4E+38 * +3.4E	R/W
40255	00FF			+38	
40384	0180		Data magning average		
:	:	64	Data mapping arguments:	0 ~ 65535	R/W
40447	01BF		Source Low		
40512	0200	C A	Data mapping arguments:	0~0	
:	:	64	Source High	U ~ 65535	K/ W

40475	023F				
40640 : 40703	0280 : 02BF	64	Data mapping arguments: Target Low	0 ~ 65535	R/W
40768 : 40831	0300 : 033F	64	Data mapping arguments: Target High	0 ~ 65535	R/W
40896 : 40959	0380 : 03BF	64	Data mapping arguments: Decimal Places	0~2	R/W
41024 : 41087	0400 : 043F	64	Decimal Places for float-type variables	1~3	R/W
41408 : 41535	0580 : 05FF	128	Color for common messages 0 ~ 127 at first row.	<ol> <li>Blue</li> <li>Green</li> <li>Sky Blue</li> <li>Red</li> <li>Purple</li> <li>Yellow</li> <li>White</li> <li>Random</li> </ol>	R/W
41600	0640	1	Brightness for the display, a smaller number means a brighter screen	0~4	R/W
41601	0641	1	Message scrolling speed, a smaller number means a higher speed	0~9	R/W
41602	0642	1	Modbus station ID	1~254	R/W
41604	0644	1	Modbus TCP Slave port	0~65535	R/W
41605	0645	1	Connect to DL-300 series module	0:Disabled 1:Enabled	R/W
41606 : 41609	0646 : 0649	4	The IP address for the DL-300 series device	0~255	R/W

41610	0650	1	The Modbus TCP port for the DL-300 series device	0~65535	R/W
41611	0651	1	The Modbus TCP ID for the DL- 300 series device	1~247	R/W
41612	0652	1	The response timeout value for Modbus TCP communication	0~65535	R/W
41613	0653	1	The Delay between polls value for Modbus TCP communication	0~65535	R/W
41632 : 41759	0660 : 06DF	128	Message priority for messages 0 ~ 127	0: Common 1:Instant	R/W
41800 : 41831	0708 : 0727	32	ASCII string 0 contents	ASCII	R/W
41832 : 41863	0728 : 0747	32	ASCII string 1 contents	ASCII	R/W
41864 : 41895	0748 : 0767	32	ASCII string 2 contents	ASCII	R/W
41896 : 41927	0768 : 0787	32	ASCII string 3 contents	ASCII	R/W
41928 : 41959	0788 : 07A7	32	ASCII string 4 contents	ASCII	R/W
41960 : 41991	07A8 : 07C7	32	ASCII string 5 contents	ASCII	R/W
41992 : 42023	07C8 : 07E7	32	ASCII string 6 contents	ASCII	R/W
42024 :	07E8 :	32	ASCII string 7 contents	ASCII	R/W

42055	0808				
42100 : 42227	0834 : 08B3	128	Color for messages 0 ~ 127 at 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	Message moving type for messages 0 ~ 127	0:Common 1:Instant	R/W
42500 : 42539	08FC : 09EB	40	Color for coil variable 0 ~ 39	1: Blue 2: Green	R/W
42700 : 42763	0A8C : 0ACB	64	Color for integer variable 0 ~ 63	3: Sky Blue 4: Red 5: Purple	R/W
42700 : 42763	0A8C : 0ACB	64	Color for float variable 0 ~ 63	5: Yellow 7: White 8: Random	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
1.0.0	July 2019	Initial issue