

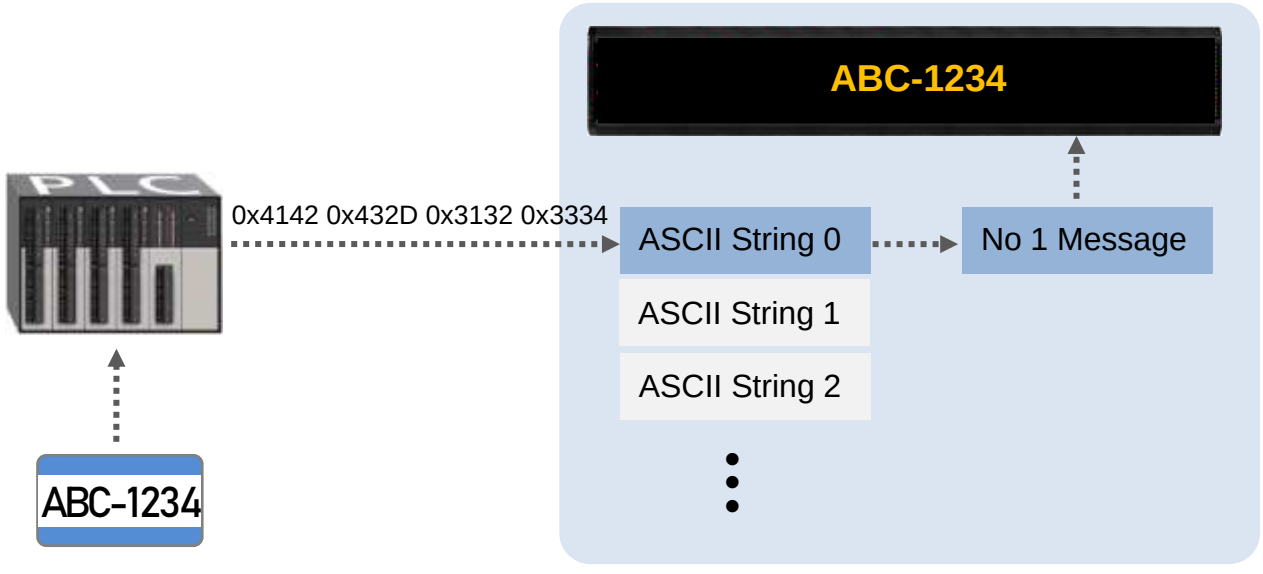
Classification	☑ iKAN LED Message Display Series				
Author	Sunny Chiu	**Date**	2023-05-22	**NO.**	FAQ001

Displaying the license plate number and entry time real-time in an automated parking management system

The iKAN series LED message display provides Modbus registers for 8 ASCII strings and 1 Unicode string, allowing the Host PC or PLC to read or write data via the Modbus TCP/ RTU protocol. Each ASCII string can be up to 64 characters in length, that is, up to 32 Modbus registers with 2 ASCII characters in each. The Unicode string has a maximum of 32 characters in length (up to 32 Modbus registers with 1 Unicode character in each).

Here we will focus on how to use Modbus commands to control an iKAN device to display the license plate number extracted from a real-time automated parking management system. The steps in this article assume that you are familiar with how to edit messages and insert variables from the web interface.

Displaying real-time string messages on iKAN is mainly divided into two steps. First, you need to specify the string variable in a message field and disable the display of the message. After that, encode the license plate number in ASCII format and send it to Modbus registers mapping for the string variable and enable the message display.



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Take using No1 message to display ASCII string 0 as an example. At first, we have to get information about variable format for string 0 and time, and the Modbus addresses for the time from the user manual.

The variable format for ASCII string is a 3-byte string:

1	2	3
Delimiter Character	Variable Type (ASCII)	ASCII String Number
%	a	0 to 7

The variable format for current time in iKAN display is a 5-byte string:

1	2	3 to 5		
Delimiter Character	Variable Type (System)	Modbus Address (3-digit decimal number)		
%	y	X	X	X

Modbus address for current hour and minute: (0-based)

Modbus Address	Description	Value Range
30018	Hours (24-hour format)	0 to 23
30019	Minutes	0 to 59

Available values in ASCII strings:

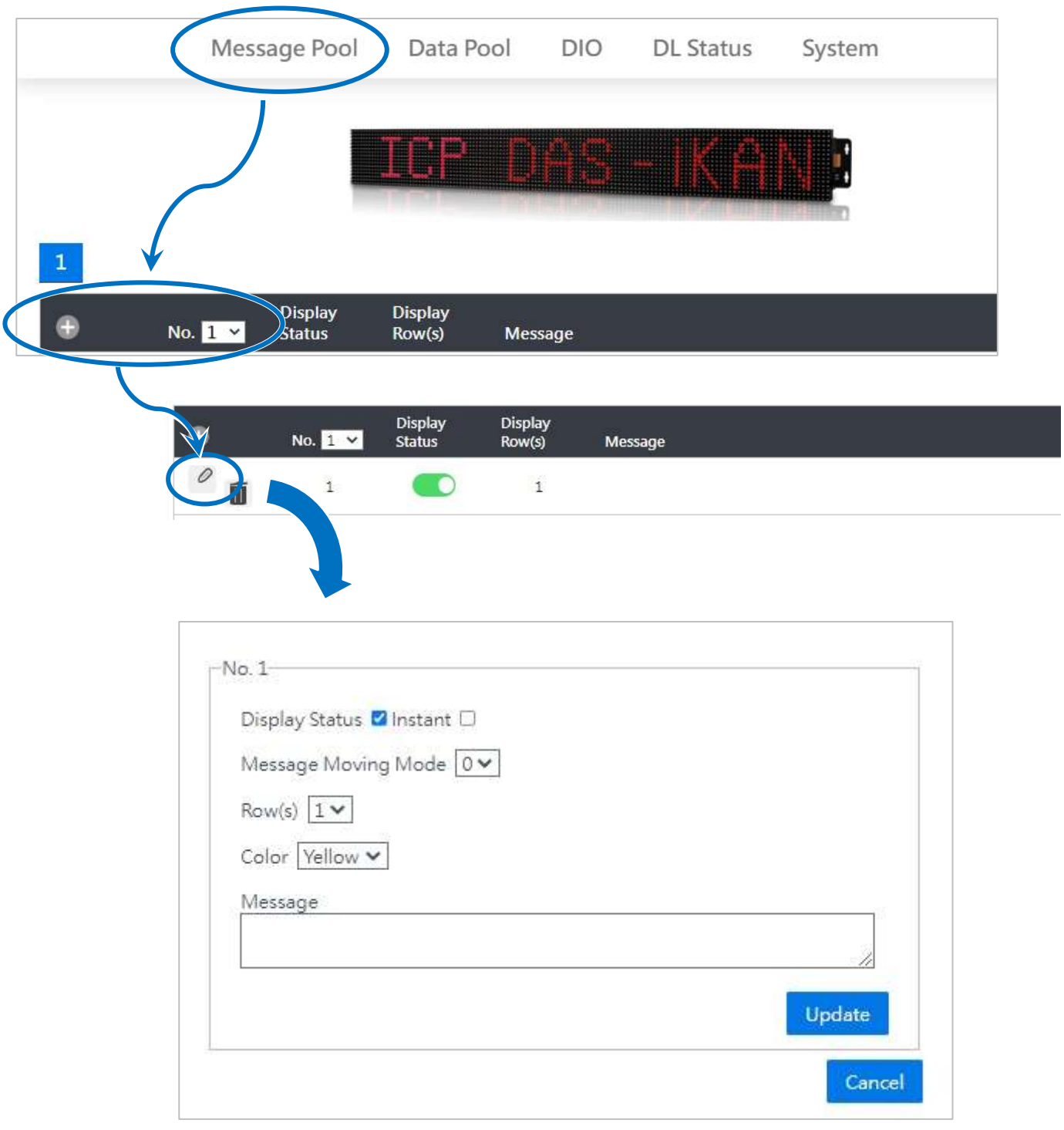
<table>
<tr><th>Value</th><th colspan="4">Description</th></tr>
<tr><td>0</td><td colspan="4">End Character</td></tr>
<tr><td rowspan="3">0x01 ~ 0x08</td><td colspan="4">Character Colo</td></tr>
<tr><td colspan="2">For Small Size iKAN</td><td colspan="2">For Normal Size iKAN</td></tr>
<tr><td>1: Blue
2: Green
3: Sky Blue
4: Red</td><td>5: Purple
6: Yellow
7: White
8: Auto</td><td>1: Red
2: Green
3: Yellow
4: Blue</td><td>5: Purple
6: Sky Blue
7: White
8: Auto</td></tr>
<tr><td>0x20~0x7F</td><td colspan="4">ASCII Characters</td></tr>
</table>

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Then connect to the iKAN web interface and edit the No 1 message.

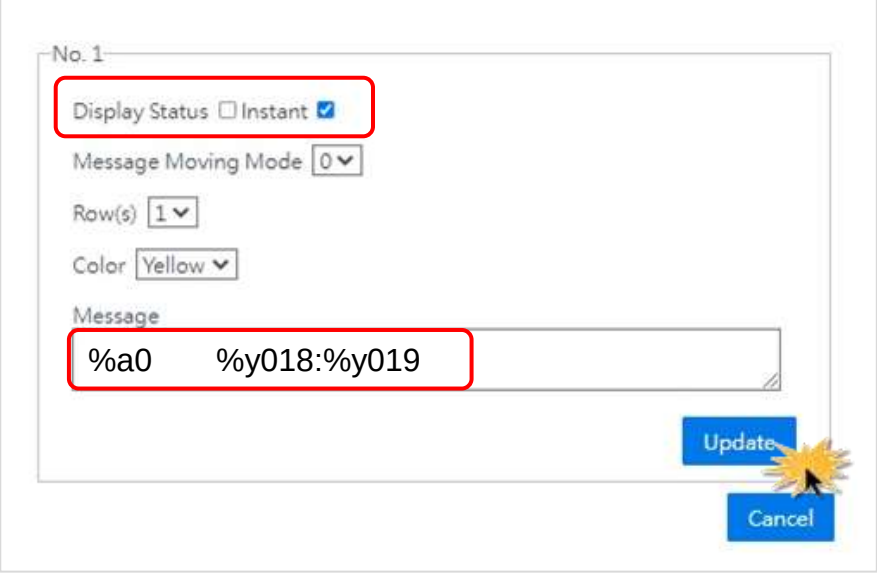
1. Select 1 on the **No**. drop-down menu number, click the ⊕ button, and then click the icon ✎ to open the message edit form.



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2. Uncheck the **Display Status** box, check the **Instant** box, and then enter the message as "**%a0 %y018 : %y019**", and click the Update button.



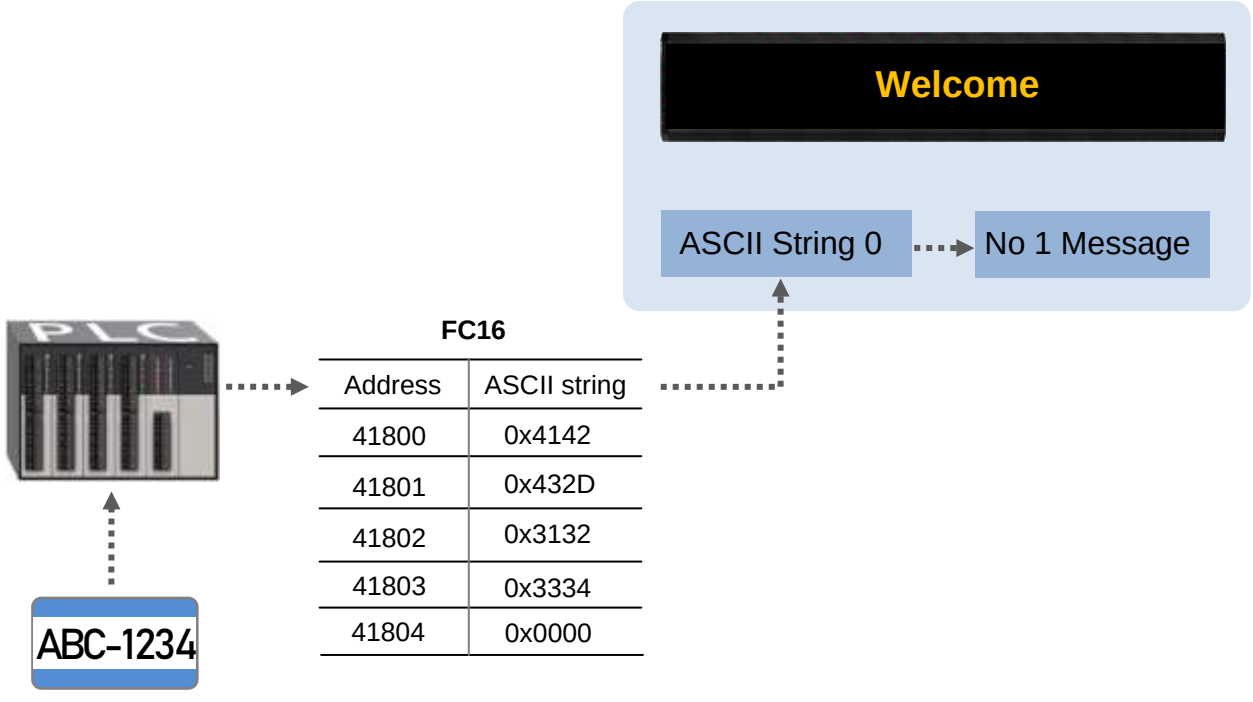
When the **Display Status** box is unchecked, the No. 1 message will not display until the box is checked manually, or the Modbus register 00100 is set to 1 to enable the display. Since an instant message has a higher priority, the display of all common messages will be suspended as soon as the display of No. 1 message is enabled.

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Now you can control the iKAN to display a license plate number recognized from a real-time automated parking management system via a remote PC or PLC. Using Modbus Function code 16 (0x10) to send the license plate number in ASCII format to consecutive addresses starting from 41800 (0-based) with 2 characters in each register. And then write 1 to address 00100 (0-based) with Function code 05 or 15 (0x0F) to enable the display of No. 1 message.

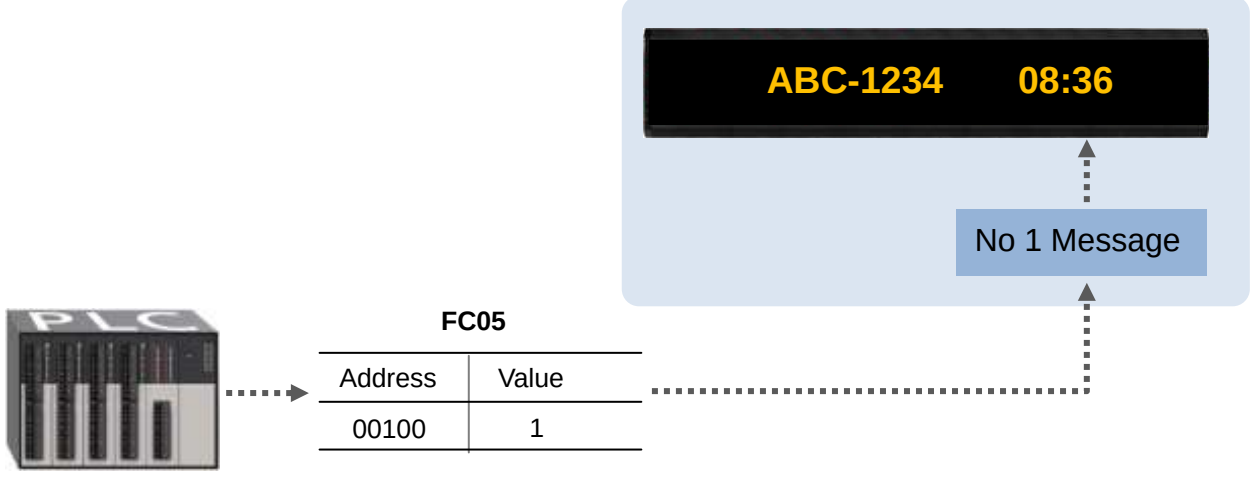
1. Send the license plate number in ASCII format to registers for ASCII string 0.



FC16

Address	ASCII string
41800	0x4142
41801	0x432D
41802	0x3132
41803	0x3334
41804	0x0000

2. Send 1 to address 00100 to enable the display of No. 1 message.



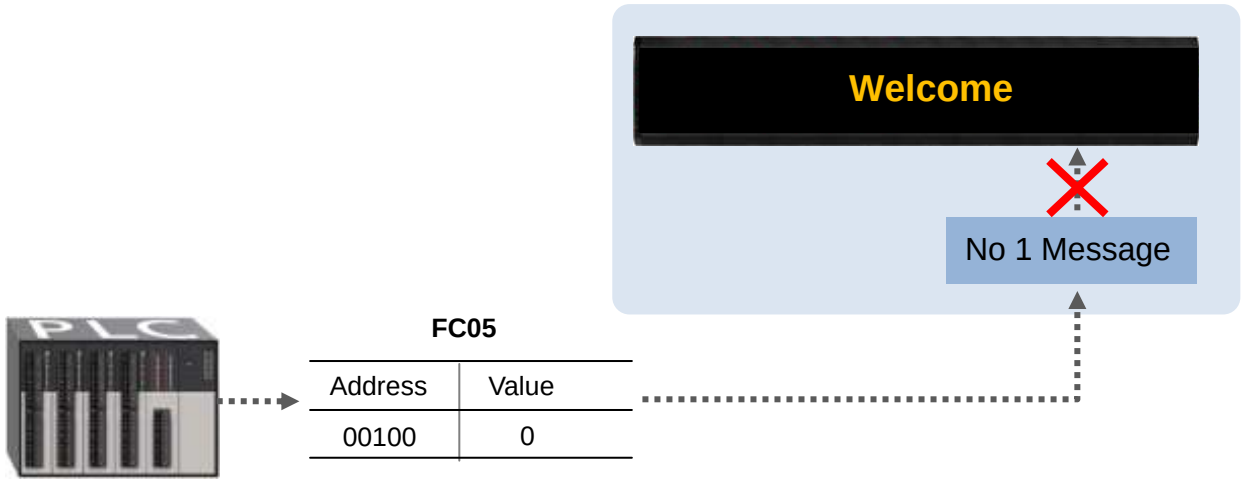
FC05

Address	Value
00100	1

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3. Send 0 to address 00100 to disable the display of No. 1 message.



Due to the instant property of the No 1 message is checked, the display of all common messages will be suspended during the display period of No. 1 message.

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