

How to Use LMD Switch IO Board

The LMD controller is commonly used for receiving constantly changing message data from various devices or systems and displaying it on the LED signboard in real time.

However, by using DabitChe software, if you create various types of image files and save them as a BG(BackGround) Playlist, you can display them by calling only the list number as follows.

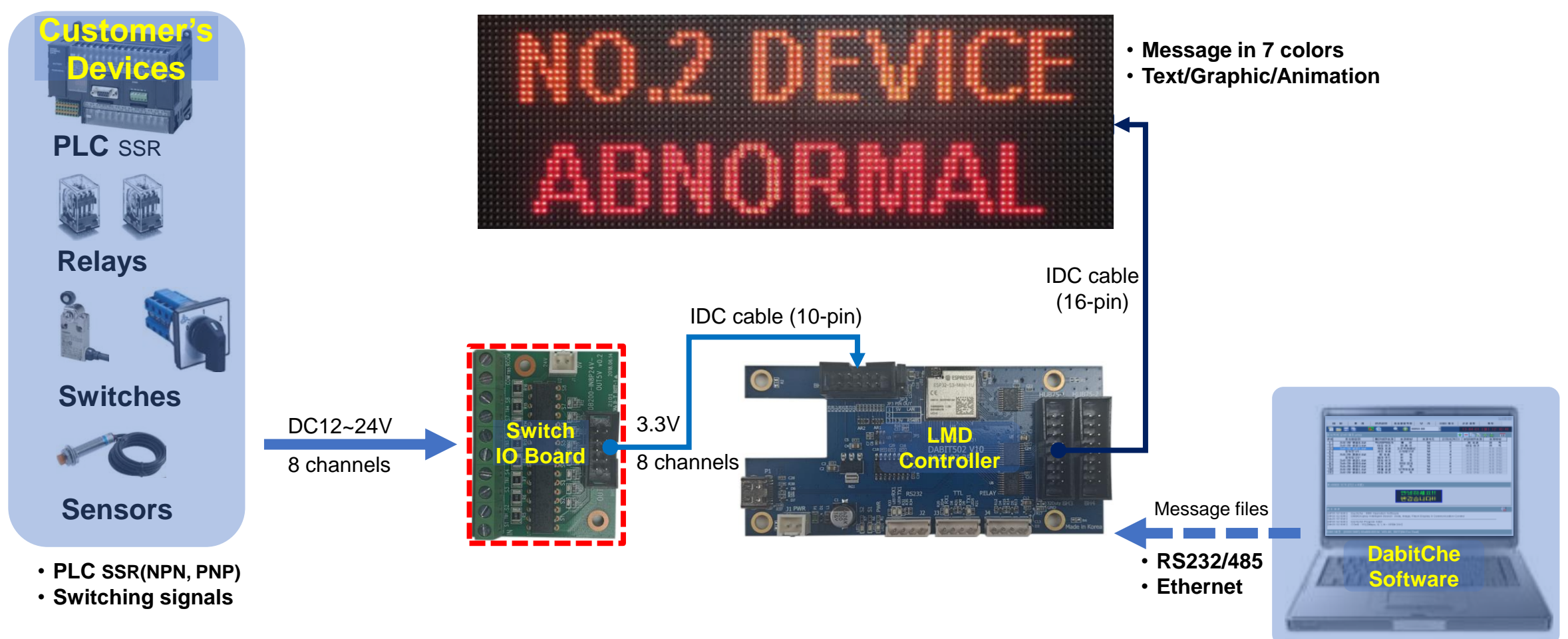
➤ Displaying the image file by sending a **simple protocol** by RS232/485 or Ethernet communication.

Ex.) “![0020003!]” ... to display file “003”.

➤ Displaying the image file by sending **discrete(ON/OFF) signals** from PLC, switch/relay blocks via this **LMD-IO Board**.

Here, the second method is explained.

Configuration diagram



A. Customer's Devices

- Transmits PLC SSR (NPN, PNP) signals (DC12/24V) or relay/switch dry-contact signals.
- A maximum of “ $2^8=256$ ” can be created with 8 channels.

B. Switch IO Board

- Converts DC12/24V signals to DC3.3V level.
- For the dry contact of switch/relay, supply DC12/24V to the “J1” port of the Board.

C. LMD Controller

- Receives ON/OFF signals and call to displays the image file of the corresponding number in BG Playlist.

D. LED modules

You can use the common [HUB75 RGB Matrix LED modules](#).
For details, refer to “Protocol Simulator Manual([A-6](#), [A-7](#))”.

E. DabitChe Software

Using DabitChe software, you can create various image files in the format of text/graphic/animation, save them in a BGPlaylist (Max. 255 files) and upload them to the controller.
For details, refer to “[DabitChe Software Manual, Chapter 4](#)”.

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Setup Procedure

1. Connect the LMD-IO board between LMD controller and your devices(PLC, switches.)
>> Refer to "[Attachment1. How to connect the LMD-IO Board](#)".
2. Run **LEDmsg protocol simulator** on your Windows PC and proceed as follows.
 - 1) Set the communication (RS232 or Ethernet).
>> Refer to "LEDmsg protocol simulator manual([A-1](#) or [A-3](#))"
 - 2) Set "BH1" port function to "**8Pin Input(HEX)**" or "**8Pin Input(HEX)**" by "[LEDmsg protocol simulator manual\(A-9, Case.3\)](#)"
>> Refer "[Attachment2. How to call Image file number by 8-channel signals](#)".
3. Run DabitChe software and proceed as follows.
 - 1) Set the communication (RS232 or Ethernet).
>> Refer to "[DabitChe user manual\(A-1 or A-2\)](#)".
 - 2) Set the screen size.
>> Refer to "[DabitChe user manual\(chapter 6.2\)](#)"
 - 3) Create image files, save them in a BGPlaylist (Max. 255 files) and upload them to the controller.
>> Refer to "[DabitChe Software Manual\(chapter 2, 3, 4, 5\)](#)"
 - 4) Check to call the image file to display on LED sign.
>> Refer to "[DabitChe Software manual\(A-6-②\)](#)"

When there is no input signal (all OFF), the LED screen is in the initial screen state, displaying moving LED bars. If you want to display a specific message or blank screen at this state, please contact us for the advanced guide.

Download Links

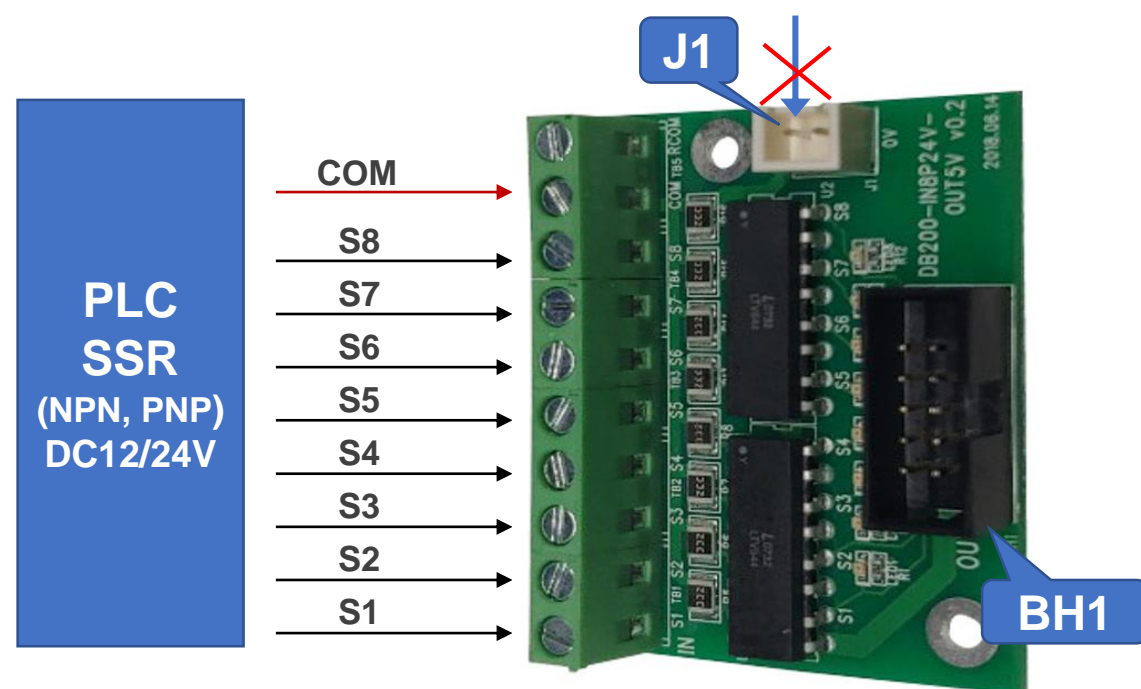
You can download the following files and manuals from www.LEDmsg.com/DOWNLOAD.

1. LEDmsg protocol simulate: [program](#), [manual](#)
2. DabitChe software: [program](#), [manual](#)
3. [How to use Switch IO Board](#)

Attachment 1. How to Connect LMD-IO Board

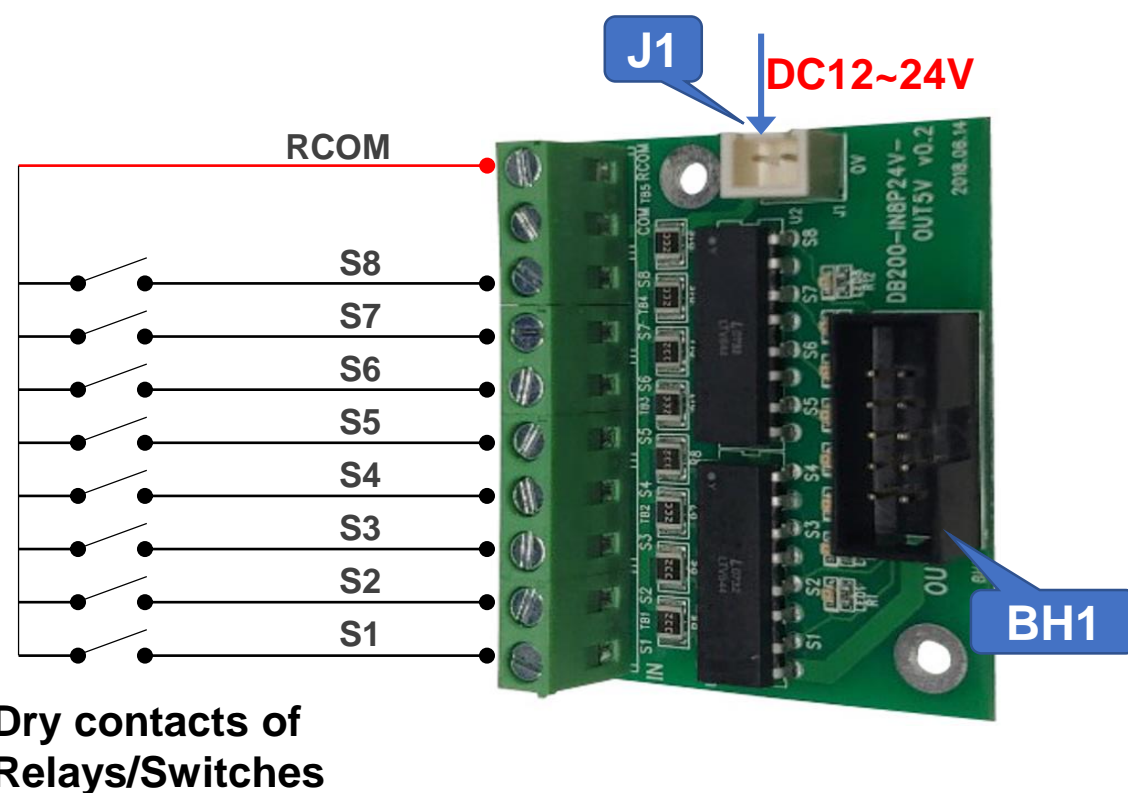
Case1: When using signals from PLC SSR(DC12~24V)

- Connect the SSR outputs and a GND(or Vout) of the PLC to the input (S1 ~ S8) and “COM” of the board.
- Connect “BH1” of the board and “BH1” of the LMD controller with a 10-pin cable.
- Do not supply power to the “J1” connector.



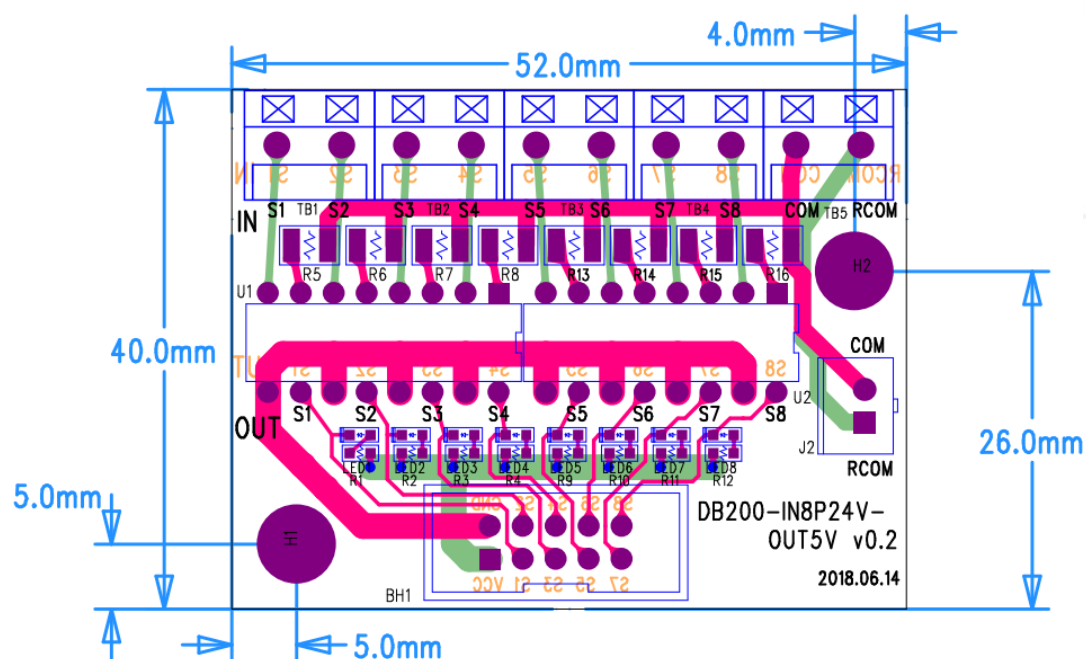
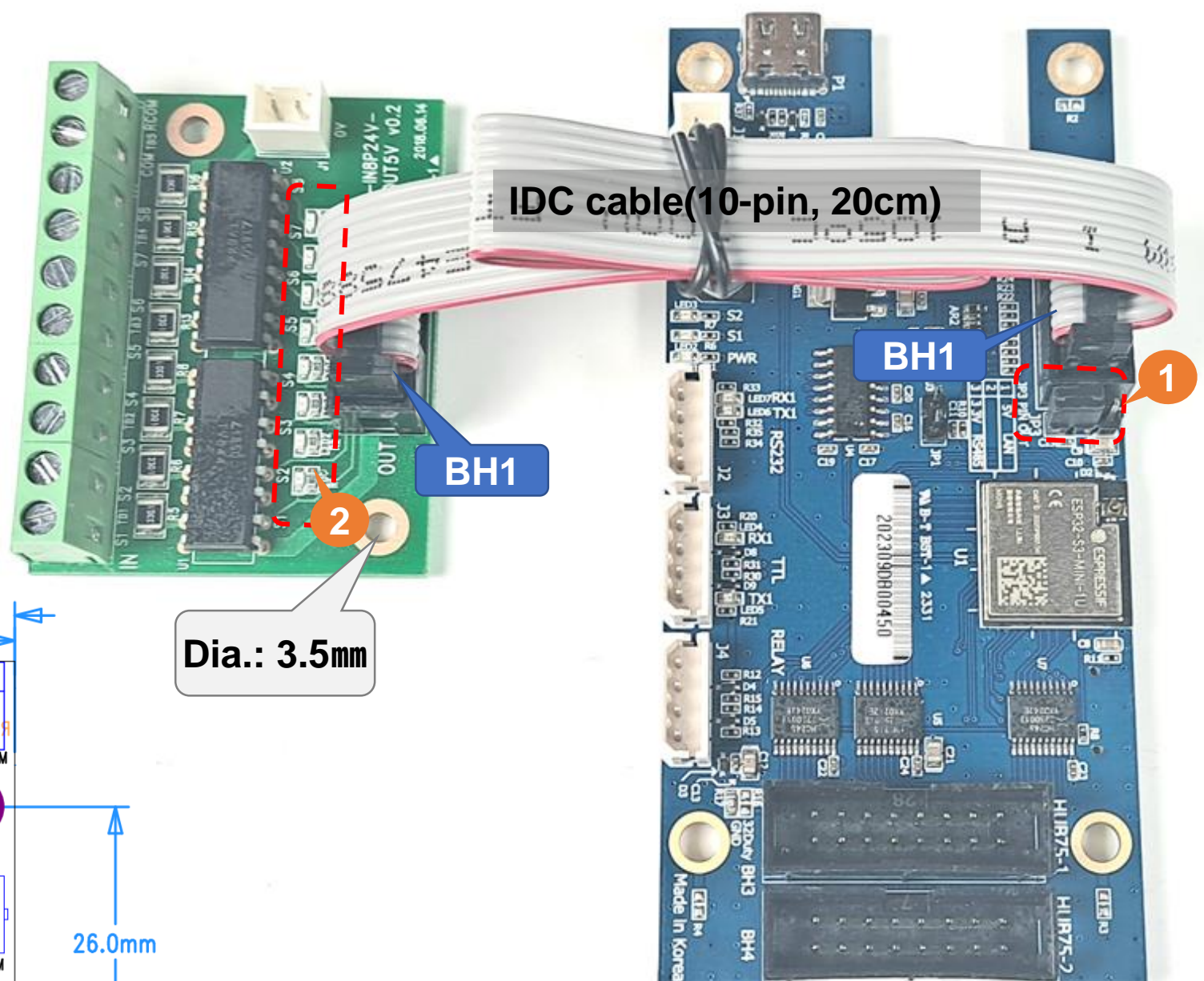
Case2: When using signals from dry contacts of relay/switch

- Connect the relay/switch terminal and a common terminal to the input (S1 ~ S8) and “RCOM” of the board.
- Connect “BH1” of the board and “BH1” of the LMD controller with a 10-pin cable.
- Supply power(DC12~24V) to the “J1” connector.



[NOTE]

- ① **Jumper pin:**
For “LMD-C1” controller, Jumper shall insert at “**GND-3.3V**” of JP3.
- ② **LED indicators(8 pcs):**
When any input is ON and the output is valid, the output LED will turn on.



CASE 1 : 8Pin Input(HEX)

If the total number of images you want to display exceeds **8**, set "BH1" portfunction to this "8Pin Input(HEX)".

| Input Signal(8-channel) | | | | | | | | Image file number to display | |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------------|-----------------------------|
| S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | Number | Message(Example) |
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 0 | |
| ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 1 | NO.1 DEVICE ABNORMAL |
| OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | 2 | NO.2 DEVICE ABNORMAL |
| ON | ON | OFF | OFF | OFF | OFF | OFF | OFF | 3 | NO.3 DEVICE ABNORMAL |
| OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | 4 | NO.4 DEVICE ABNORMAL |
| ON | OFF | ON | OFF | OFF | OFF | OFF | OFF | 5 | |
| OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | 8 | |
| OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | 16 | |
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | 128 | |
| ON | ON | ON | ON | ON | ON | ON | ON | 255 | |

- 1) If "S1 ~ S8" signals are all OFF, the LED screen is in the initial screen state, displaying moving LED bars.
- 2) If only "S1" is ON, file number **1** in the BGPlaylist is displayed.
- 3) If "S1, S3" is ON, message file number **5** is displayed.
- 4) If "S1 ~ S8" are all ON, message file number **255** is displayed.

CASE 2 : 8Pin Input(Number)

If the total number of images you want to display is **8 or less**, set "BH1" portfunction to this "8Pin Input(Number)".

| Input Signal(8-channel) | | | | | | | | Image file number to display | |
|-------------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|------------------------------|-----------------------------|
| S1 | S2 | S3 | S4 | S5 | S6 | S7 | S8 | Number | Message(Example) |
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 0 | |
| ON | OFF | OFF | OFF | OFF | OFF | OFF | OFF | 1 | |
| OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | 2 | NO.1 DEVICE ABNORMAL |
| OFF | OFF | ON | OFF | OFF | OFF | OFF | OFF | 3 | NO.2 DEVICE ABNORMAL |
| OFF | OFF | OFF | ON | OFF | OFF | OFF | OFF | 4 | NO.3 DEVICE ABNORMAL |
| OFF | OFF | OFF | OFF | ON | OFF | OFF | OFF | 5 | NO.4 DEVICE ABNORMAL |
| OFF | OFF | OFF | OFF | OFF | ON | OFF | OFF | 6 | |
| OFF | OFF | OFF | OFF | OFF | OFF | ON | OFF | 7 | |
| OFF | OFF | OFF | OFF | OFF | OFF | OFF | ON | 8 | |

- 1) If "S1 ~ S8" signals are all OFF, the LED screen is in the initial screen state, displaying moving LED bars.
- 2) If only "S1" is ON, file number **1** in the BGPlaylist is displayed.
- 3) If only "S8" is ON, message file number **8** is displayed.