Schnittstellenbeschreibung PE-9441

PE-9441 7x50 LED Display Board Communications

Version no. : 1.0
Date : April 13, 2005

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1 Scope

This document is to provide a definition for the communication Protocol and hardware requirement of the LED Display System.

2. Applicable System

Any LED Display Board that transfer data from a PC via the RS232 communication port or equivalent equipment is applicable to this document. System could use whole or part of this protocol.

3. Interfacing Method

RS232 Baud Rate : 9600 (8,N,1.)

4. Data Structure

All Data will have an ID no., Data Content, Xor Result and an ending code, except ID setting, there will not have xor Result.

4.1 ID Setting

Each sign needs to have an ID, so you should set the sign ID first by the using PC software, (Use this command only when you want to change the sign ID) only one sign could be set at a time.

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Command Format

PC -> MCU : **<ID><XX><E>**

<, >	Are ASCII code 3C, 3D
ID	Are character "I" & "D" (Upper case)
XX	Are the Hex number 01 to FF in ASCII format (i.e. maximum 255).

MCU -> PC : **XX**

XX	Are the Hex number 01 to FF in ASCII format return from MCU

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4.2 Message / Control

There are 6 kind of message / control transfer

- Real Time Clock Setting
- Sending Page Message

Format :

PC -> MCU **<IDXX> | Data packet | CS | <E>**

<IDXX>	are the ID of the designated LED board
<, I,D & >	are ASCII character “<”, “I”, “D” & “>”
XX	denotes the ID of the designated LED Board Values are two ASCII character from 00-FF
Data packet	denotes data content of this transmission string
[CS]	denotes the Xor Result of the data content(Data Package).
[,C,S &]	are two ASCII character from 00-FF
<E>	Denotes the Ending code of transmission
<,E & >	are ASCII character “<”,”E”, and “>”

Data Packet

4.2.1 Real Time Clock Setting <SC>

Format :

<SC>	YYWWMMDDHHmmSS

<SC>	Denotes the code for Real Time Clock setting
<,S,C & >	Are ASCII characters “<”,”S”,”C” & “>”
YY	Denotes the Year will be set into the LED Board
	Values are two ASCII character from 00-99
WW	Denotes the Week will be set into the LED Board
	Values are Two ASCII character from 01-07, 01=Monday and 07=Sunday
MM	Denotes the Month will be set into the LED Board
	Values are two ASCII character from 01-12, 01= January and 12=December
DD	Denotes the Day will be set into the LED Board
	Values are two ASCII character from 00-31
HH	Denotes the Hour will be set into the LED Board
	Values are two ASCII character from 00-23
mm	Denotes the Minute will be set into the LED Board
	Values are two ASCII character from 00-59
SS	Denotes the Second will be set into the LED Board
	Values are two ASCII character from 00-59

4.2.2 Sending Page content <Ln><Pn>

Format :

<Ln>	<Pn>	<FX>	<MX>	<WA>	<FA>	… MESSAGE…

4.2.2.1 <Ln>

Denotes which Line this message belongs to :

<, L & >	Are ASCII character “<”,” L” & “>” .
n	The Line number in ASCII character, i.e.
	1 = Line 1

4.2.2.2 <Pn>

Denotes which page this message belongs to

<,P&>	Are ASCII characters “<”,”P” & “>”
n	The Page number in ACSII character, ie.
	A = Page A (LOGO Page)
	B = Page B (Message Page)

4.2.2.3 <FX>

Denotes the leading command of this page

<,F&> Are ASCII characters “<”,”F” & “>”

X Code for the leading command in ACSII character, ie.

A = Auto

If Message is less than the screen width, display will be centered.

If Message is longer than the screen width, display will be scrolling left

4.2.2.4 <MX>

Denotes the effect speed

<,M&> Are ASCII characters “<”,”M” & “>”

X Code for effect Speed in ACSII character, ie.

A = Fastest

B = Fast

C = Normal

D = Slow

E = Slowest

4.2.2.5 <WA>

Must fill <WA>

4.2.2.6 <FA>

Must fill <FA>

4.2.2.7 ---Message---

Contents message data of page including display data (ASCII 20H-7FH) and The following extended ASCII code.

Ã 87H	Â 88H	Á 89H	À 8AH	Ä 8BH	Å 8CH	Æ 8DH	ß 8EH	Ç 8FH	Ð 90H
É 91H	Ê 92H	È 93H	Ë 94H	Í 95H	Î 96H	Ï 97H	Ì 98H	Ñ 99H	Ó 9AH
Ô 9BH	Ò 9CH	Ö 9DH	Õ 9EH	Ø 9FH	Þ A0H	Ú A1H	Û A2H	Ù A3H	Ü A4H
Ý A5H	Ÿ A6H	ã A7H	â A8H	á A9H	à AAH	ä ABH	å ACH	æ ADH	ç AEH
é AFH	ê B0H	è B1H	ë B2H	í B3H	ì B4H	î B5H	ï B6H	ñ B7H	ó B8H
ô B9H	ò BAH	ö BBH	õ BCH	ø BDH	þ BEH	ú BFH	ù C0H	û C1H	ü C2H
ÿ C3H	ý C4H	¥ C5H	£ C6H	€ C7H					

Important notes for programming:

1. **For the Xor Result of the message send, Refer to Item 4.1 & 4.2**
   ID setting has no Xor result sent .
   All message other than ID setting should have a Xor result (2 digit from 00-FF hex number)for the data package placed before the Ending code ' <E>'.

2. **When it is first time initialize, You should first set the follow parameters**
   - **ID**
   - **Time/Date**

- END -