

ver. A

# LED DRIVER 4CH



1. LED

1-1.

LED

LED

1-1-1.

- LED ( 200 ns)
- /
- 
- (dual mode)

1-1-2.

LED

가

- 5 W LED
- , 가 DC 가

1-1-3.

- PC USB , 4
- LED 가 , 25V 0.1 V

1-1-4.

tm ing

trigger

1-1-5. Busrt Mode

( )

( 16 Mega counter) /

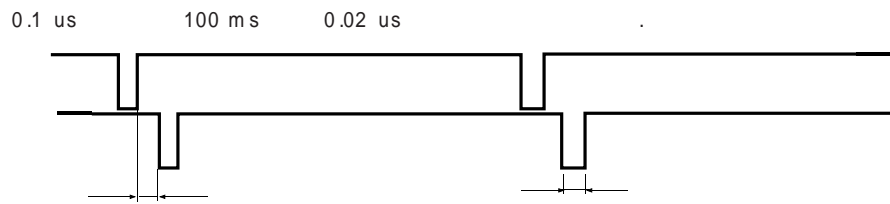
1-2.

1-2-1.

: 12V ~ 24 V ( + 1 V . )  
: (LED ) + ( ) , 0.1 A .

1-2-2.

- : 4 .
- : 0 ~ 25 V , 0.1 V , ±0.2V .
- : 800 mA 가 .
- : 0.2 us 80 us 0.02 us .
- :



1-2-3.

- / 가
- TTL

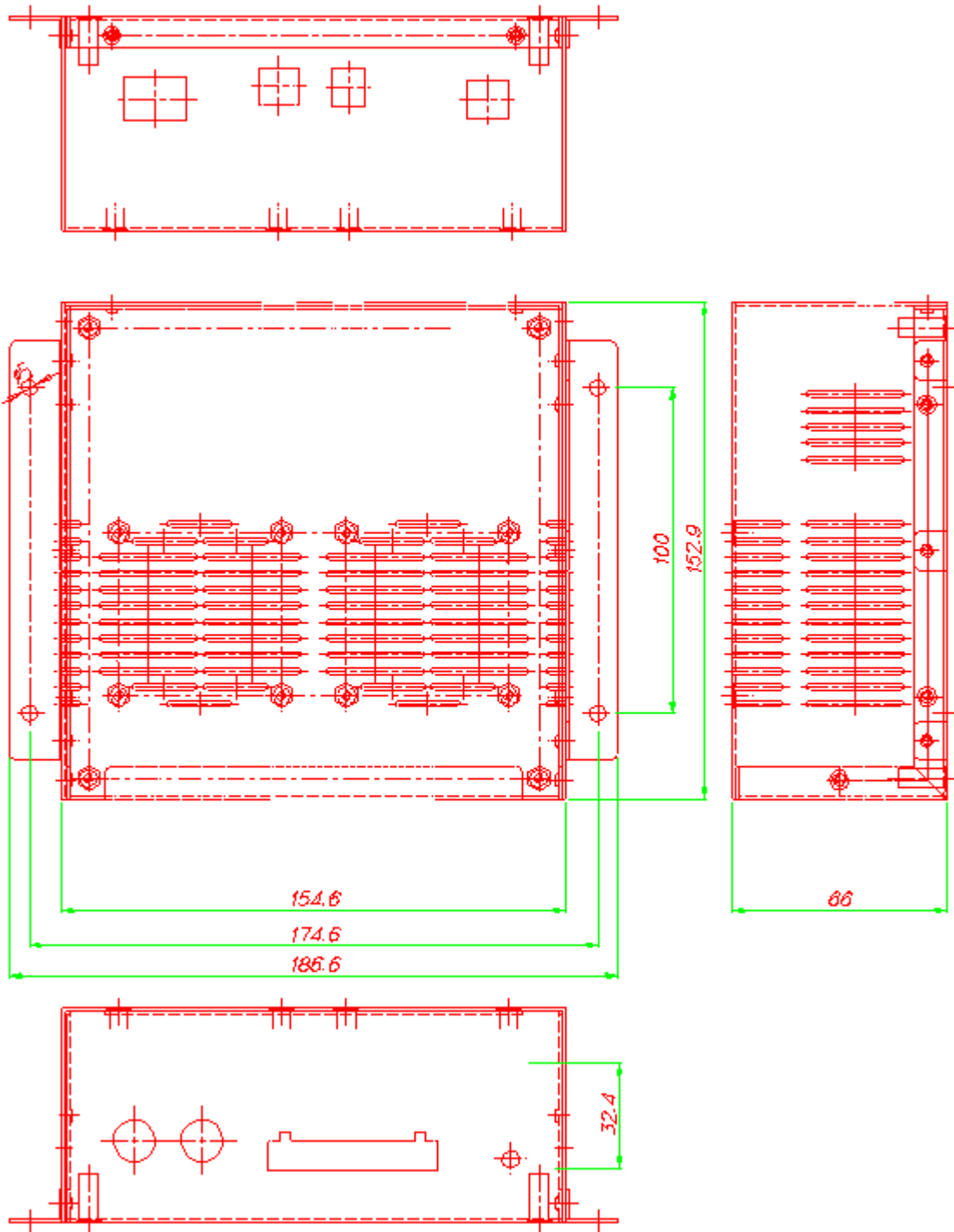
1-2-4.

- 
- Hz , . 0.02 us 0.04 us 100 ms
- 10 Hz ~ 1000 kHz 가 .

1-2-5.

- / (burst )
- 24 , 16 Mega count 가 .

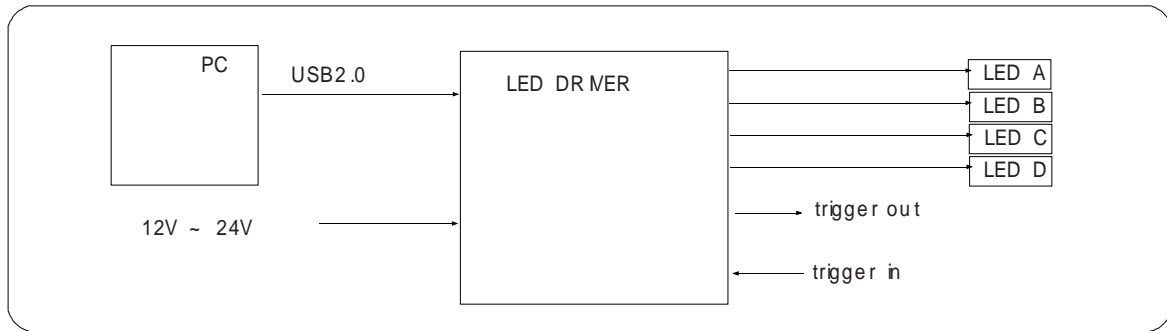
1-3.



2.

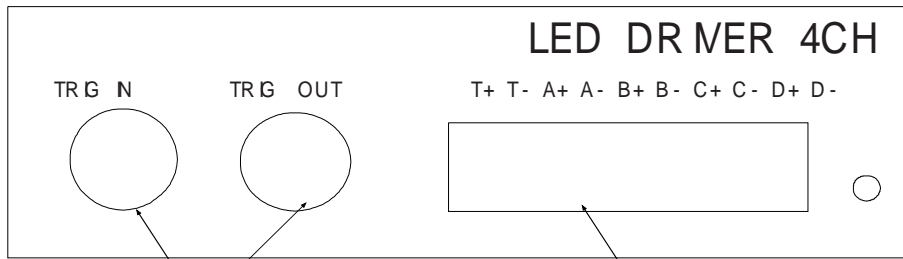
2-1.

PC USB 2.0 ( 2.0 ), LED



1.

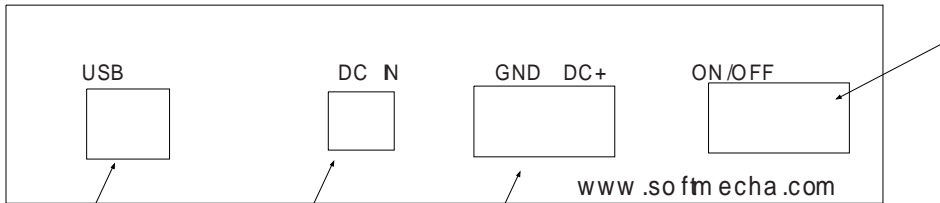
2-2. LED



2.

TRG\_N : TTL , BNC T- /T+ TRG\_N T- /T+  
 T+ , T-  
 TRG\_OUT : 가 TTL TRG\_N TRG\_N  
 가 TRG\_OUT  
 가 가  
 A,B,C,D : A, B, C, D , (+) LED ANODE , (-) CATHODE  
 A+ , A- turn off fbatng , turn on 0 V 가

2-3. LED



USB DC CPF5-2 ON/OFF 3.

USB : USB-A USB 2.0  
 DC N : 5mm

\* : = STELVDO , = CPF5

3.

LEDDL.DLL : Borland C++ Builder 6.0, Visual C++ 6.0, LabView 7.0 가 DLL  
LEDDL.H :  
LEDDL.LB : Borland C++ Builder (LEDDL.DLL )  
LEDDLVC.LB : Visual C++ (LEDDL.DLL )  
Borland C++ Builder  
USB

3-1.

DLL , Borland C++ Builder, Visual C++, LabView  
LEDDL.H , .

```
#ifndef LEDDLH
#define LEDDLH

extern "C" {
int __declspec(dllimport) LEDSelectDevice(int device); // device = 0 ~ 9
int __declspec(dllimport) LEDInit(int id); // id = 0 , default
void __declspec(dllimport) LEDsetBrightness(int channel, double volt); // ch=0~3, value=0~25.0
void __declspec(dllimport) LEDsetLEDelay(int channel, double us); // ch=0~3, 0~ period of trigger frequency
void __declspec(dllimport) LEDsetLEDWidth(int channel, double us); // 0 ~ 80.0 us
void __declspec(dllimport) LEDsetTriggerFrequency(double Hz); // 10 Hz ~ 1000 kHz
void __declspec(dllimport) LEDsetTriggerWidth(double us); // 0~ 5.0 us
void __declspec(dllimport) LEDenableTrigger(int onoff); // turn on/off : 1=on, 0=off
void __declspec(dllimport) LEDsetTrigger(int external, int posedge); // external: 0=default internal, 1=external, posedge: 0=pos, 1=neg
void __declspec(dllimport) LEDsetDropCount(int count); // 24 bits counter : 16 Mega count, if count = 0 , then infinite.
int __declspec(dllimport) LEDDropCompleted(void); // 0: burst counter is running, 1: finish counting.
void __declspec(dllimport) LEDsetMode(int mode); // mode: 0=single (default), 1=double
int __declspec(dllimport) LEDwriteD(int id); // D = 1 ~ 127
int __declspec(dllimport) LEDreadD(void);
int __declspec(dllimport) LEDbadFirmware(char *filepath);
void __declspec(dllimport) LEDsetTriggerAIter(int option); // option = 0 : trigger signal, 1 : sync signal of port A
void __declspec(dllimport) LEDsetInterval(int interval); // 1 ~ 255 1 = continuous
}

#endif
```

3-2.

3-2-1. int LEDSelectDevice(int device); // device = 0 ~ 9

LED 2 , PC 1 LED  
 가 ,  
 10

3-2-2. int LEDInit(int id); // id = 0 , default

LED 가  
 1 ,  
 id PC LED 가 1 , 0  
 LED 가 , D  
 LED read D , LEDwrite D

3-2-3. void LEDSetBrightness(int channel, double volt); // ch=0~3, value=0~25.0

channel 0 = A , channel 1 = B , channel 2 = C , channel 3 = D  
 , volt 0 ~ 25.0 , 6mV (25 V / 4096 )  
 LEDInit , 0  
 LEDInit

3-2-4. void LEDSetLEDDelay(int channel, double us); // ch=0~3, 0~ period of trigger frequency

delay  
 channel 가 , 0 = A , 1 = B , 2 = C , 3 = D  
 micro second 0.1 us ~ 100 ms. 0.02 us.  
 0.1 us 0.1 us  
 , delay  
 LEDInit 0.0 us ( 0.1 us )

3-2-5. void LEDSetLEDWidth(int channel, double us); // 0~80.0 us

, 0.04 us ~ 80.0 us 0.02 us  
 LEDInit 1.0 us

3-2-6. void LEDSetTriggerFrequency(double Hz); // 10 Hz ~ 1000 kHz

, 10 Hz 1,000,000 Hz 가  
 0.02 us  
 500 kHz LEDSetTriggerWidth 1 us  
 LEDInit 1000 Hz

3-2-7. void LEDSetTriggerWidth(double us); // 0~5.0 us

TRIG\_OUT , LEDInit 1.0 us

3-2-8. void LEDEnableTrigger(int onoff); // turn on /off : 1=on, 0=off

on/off

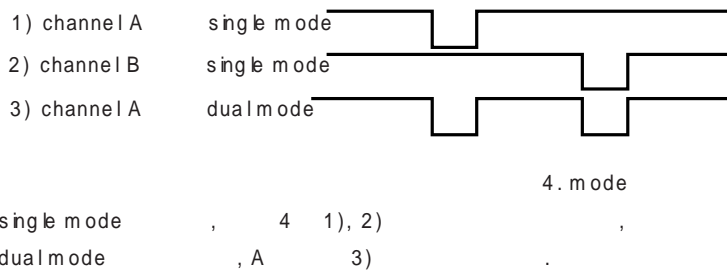
3-2-9. void LEDSetTrigger(int external, int posedge); // external: 0=default internal, 1=external, posedge: 0=pos, 1=neg

external : 1 , 0  
 posedge : 1 , positive edge . 0 negative edge  
 LEDInit external=1, posedge = 1

3-2-10. void LEDsetDropCount(int count); // 24 bits counter : 16 Mega count, if count = 0 , then infinite.  
 Burst 가  
 24 bit 16 M 가 가 / 가  
 LEDenableTrigger (1)  
 count = 0 , Burst 가 disable  
 0 count Burst 가 enable

3-2-11. int LEDdropCompleted(void); // 0: burst counter is running, 1: finish counting.  
 Burst  
 LEDdropCompleted  
 Burst 1 , Burst 0

3-2-12. void LEDsetMode(int mode); // mode: 0=single (default), 1=double channel 0 channel 1



3-2-13. int LEDwriteD(int id); // D = 1 ~ 127 , int LEDreadD(void);  
 D LED , 가 가

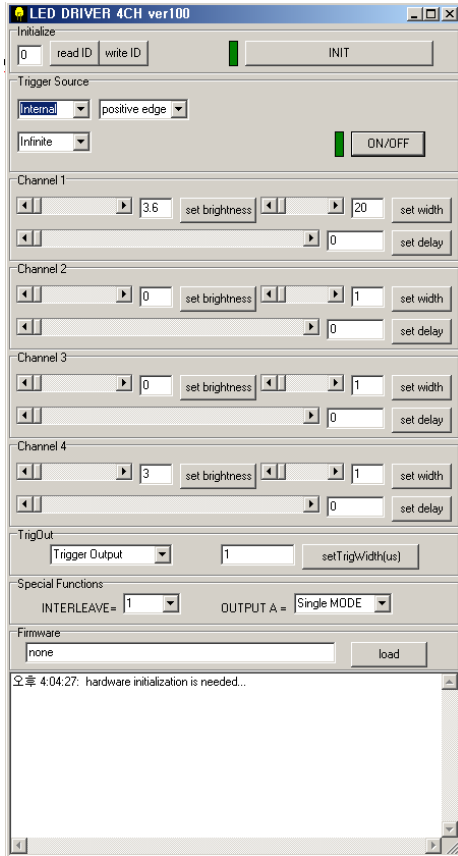
3-2-14. int LEDbadFirmware(char \*filepath);  
 firmware

3-2-15. LEDsetTriggerAlter(int option); // option = 0 : trigger signal, 1 : sync signal of port A  
 0 trigger 가 trig\_out . option=1 , channel A  
 trig\_out . sync

3-2-16. LEDsetInterval(int interval); // 1 ~ 255 1 = continuous  
 가 10kHz , interval = 10 , LED 10 trigger  
 1 kHz

3-3.

5 Borland C++ Builder 6



5.

Initialize

- INIT
- read ID, write ID ( LED 가 ( LED .))

Trigger Source

- External/Internal
  - External positive / negative edge
  - Internal frequency Hz ( 가 ) , set frequency
- Infinite/Burst
  - Infinite , ON/OFF ON/OFF
  - Burst , Burst Count , set Burst Count
  - ON/OFF , Burst Count trigger 가 OFF
  - ( OFF . ON/OFF update
  - LEDD ropCom p le ted Burst .)
- ON/OFF
  - ON/OFF
  - Burst Mode OFF

Channel 1,2,3,4

- setBrightness
  - EditBox , 가 가
  - vo lt
- setWidth

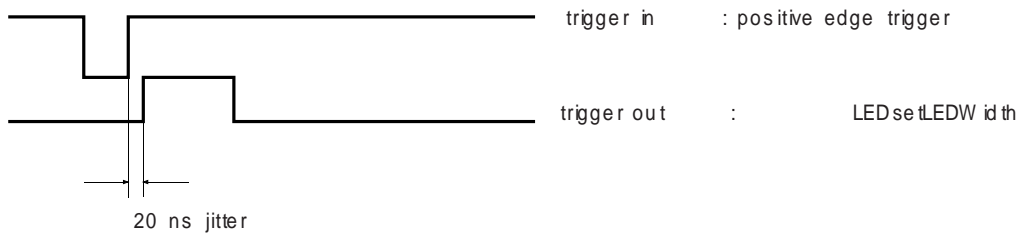
- setDelay  
trigger

Firmware

- firmware

3-4. sync

trigger out      trigger      A port  
void LEDsetTriggerAlter(int option); // option = 0 : trigger signal, 1 : sync signal of port A  
가      , option = 0      trigger      가      ,  
option = 1      , port A  
positive pulse



3-5. LED D

PC LED

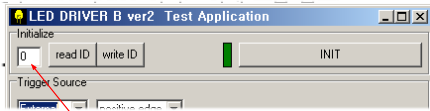
3-5-1. PC, LED, application

가) LED A, B

) A

) LED in it(0)

, D 0 NIT



D

) LEDw rite D

D D 1 ~ 127  
D 1, w rite D (A D=1 .)

) A , B

) LED in it(0)

, D 0 NIT

) LEDw rite D

D D 1 ~ 127  
D 2, w rite D (B D=2 .)

)

)

```

LEDSelecDevice(0);
LEDinit(1); // 0 D=1 (A 0 .)
LEDSelecDevice(1);
LEDinit(2); // 1 D=2 (B 1 .)
...
// A
LEDSelecDevice(0);
LEDsetTriggerWidth(1.2);
LEDenableTrigger(1);
...
// B
LEDSelecDevice(1);
LEDenableTrigger(1); // B
...
    
```

3-5-2. PC, LED, application

LEDSelecDevice 가

3-5-1 (가) ~ ( )

)

Application P A . Application Q B

Application P:

```

LEDinit(1);
LEDenableTrigger(1);
...
    
```

Application Q:

```

LEDinit(2);
LEDenableTrigger(1); ...
    
```

#### 4. Support

- :
- : [www.softmecha.com](http://www.softmecha.com)
- : 031-603-6249, : 031-601-8173  
kjon@softmecha.com