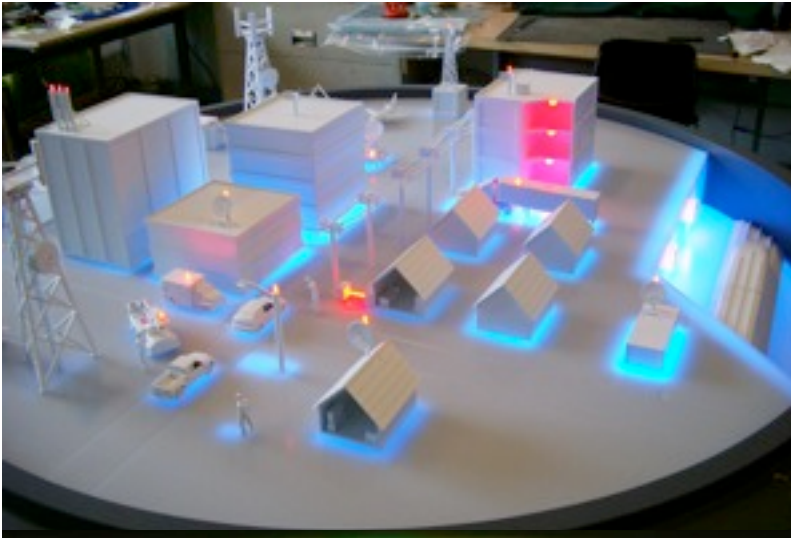




LuzLab

LIGHTING DESIGN
& TECHNOLOGY



ABOUT THE COVER

LuzLab engineered the lighting component of a tradeshow booth for Andrews Communication. The lighting changed in color and brightness as users navigated a touchscreen.

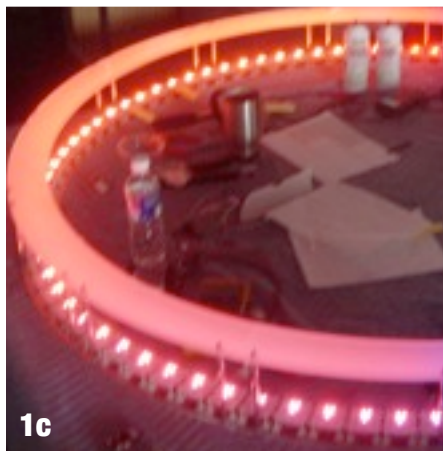


ABOUT LUZLAB

LuzLab specializes in one-off and short-run lighting projects. We have extensive experienced in automotive and architectural lighting projects.

LuzLab produces solution for intricate lighting of prototypes:

- ▶ Small single-color LED emitters are easily installed and available in 24 different colors and brightnesses.
- ▶ Multicolored LED emitters and drivers are available in sizes ranging from .5 in² to 4 in² and simple controller that allows you to easily select colors.
- ▶ A dimmer can be used to add delays and fades to nearly any light source.
- ▶ Specialized engineering and fabrication services.

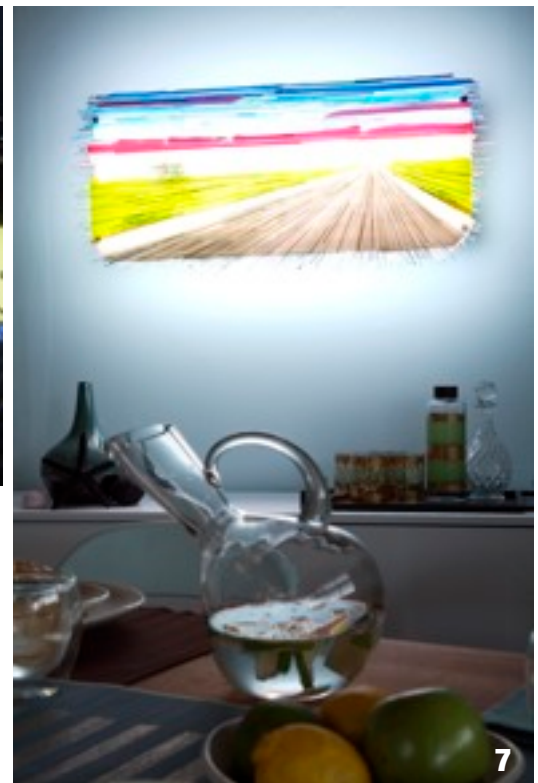
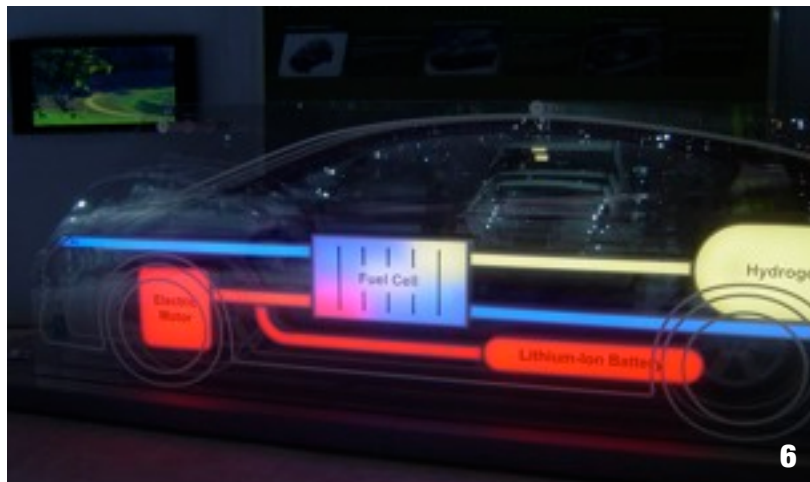
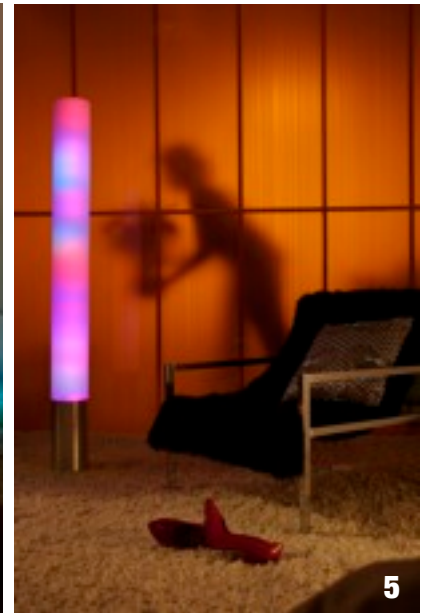
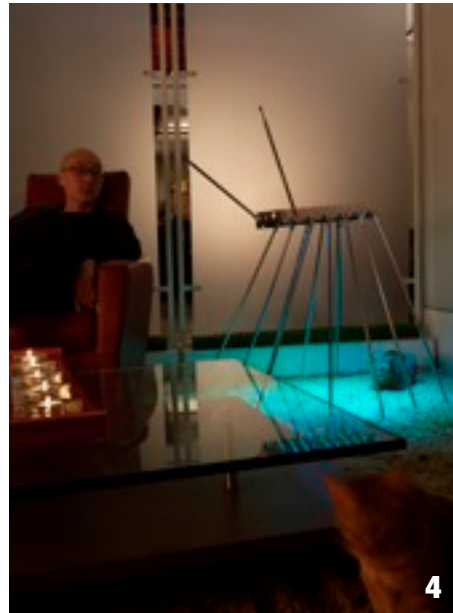


LuzLab

LIGHTING DESIGN
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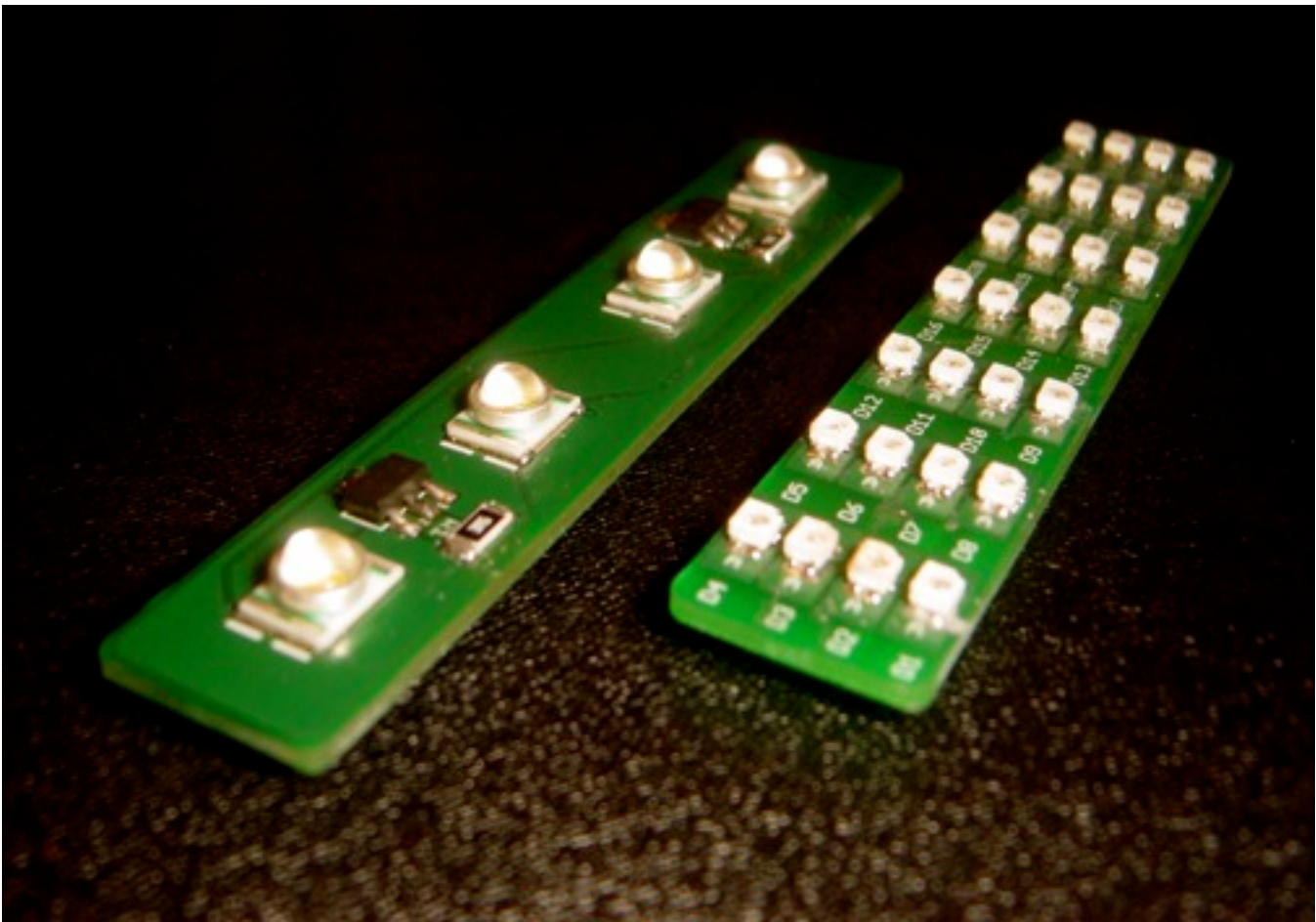
Opposite 1a-c Manufacture and display of Halo, a lighting installation designed by Snaut. **Top 2** Interior lighting system engineered for Toyota F3R. **Middle 3** Overhead lighting integrated into headliner of Chrysler Imperial. **Middle 4** *Critter* lamp that debuted at the Milan International Furniture Fair. **Middle 5** *EOS* floor lamp incorporates 108 LEDs and a wireless remote. **Bottom 6** Honda FCX Hydrogen Fuel Cell model illustrates conversion of hydrogen into electricity and water. **Bottom 7** *FastForward* sconce constructed using Corona technology outputs as much light as 100W incandescent light bulb.

Single Color Emitters

Standard and High-Brightness



The problem with backlighting a surface with standard LEDs is the appearance of hotspots. However, LuzLab single color emitters are ideal for backlighting a diffuser as well as casting light onto a surface. The tight spacing between the LEDs results in an easily diffused light. Finally, the Emitters are also offered in more colors than any competing product.



The high brightness XR emitters combine 4 large LEDs and precision current regulators. The XR emitters are available in 7 colors and two different temperatures of white (3500°K and 7500°K).

The standard power TOPLED emitters combine 28 small LEDs and all necessary ballast resistors. The TOPLED emitters are available in 12 colors and a cool white.

A Starter Kit is available with two of every SC Emitter and includes connectors and crimp contacts. The Fabrication Kit includes seven of every TOPLED and XR emitters and includes connectors

P/N	DESCRIPTION	PRICE
Starter Kits		
KIT-300	Sampler Pack <ul style="list-style-type: none"> • Two of each emitter • 100x connectors • Rugged organizer & storage case 	\$4,500
KIT-301	Shop Pack <ul style="list-style-type: none"> • Seven of each emitter • Crimp tool • 200x connectors • Rugged organizer & storage case 	\$12,500
Refill Packs (Five of each emitter)		
KIT-002	Purple TOPLED	\$850
KIT-003	Royal Blue TOPLED	\$425
KIT-004	Blue TOPLED	\$650
KIT-005	Cyan TOPLED	\$650
KIT-006	Aqua TOPLED	\$650
KIT-007	Mint Green TOPLED	\$850
KIT-008	Green TOPLED	\$650
KIT-009	Yellow TOPLED	\$425
KIT-010	Amber TOPLED	\$300
KIT-011	Orange TOPLED	\$300
KIT-012	Red TOPLED	\$300
KIT-013	Crimson Red TOPLED	\$300
KIT-014	White TOPLED	\$300
KIT-015	Royal Blue XR	\$300
KIT-016	Blue XR	\$300
KIT-017	Cyan XR	\$300
KIT-018	Green XR	\$300
KIT-019	Amber XR	\$300
KIT-020	Orange XR	\$300
KIT-021	Red XR	\$300
KIT-022	Warm White, XR	\$300
KIT-023	Cool White, XR	\$300
Miscellaneous		
TOL-001	Crimp Tool	\$550
ELM-007	Connector housing, pkg of 10	\$10
ELM-808	Crimp contact, pkg of 100	\$10

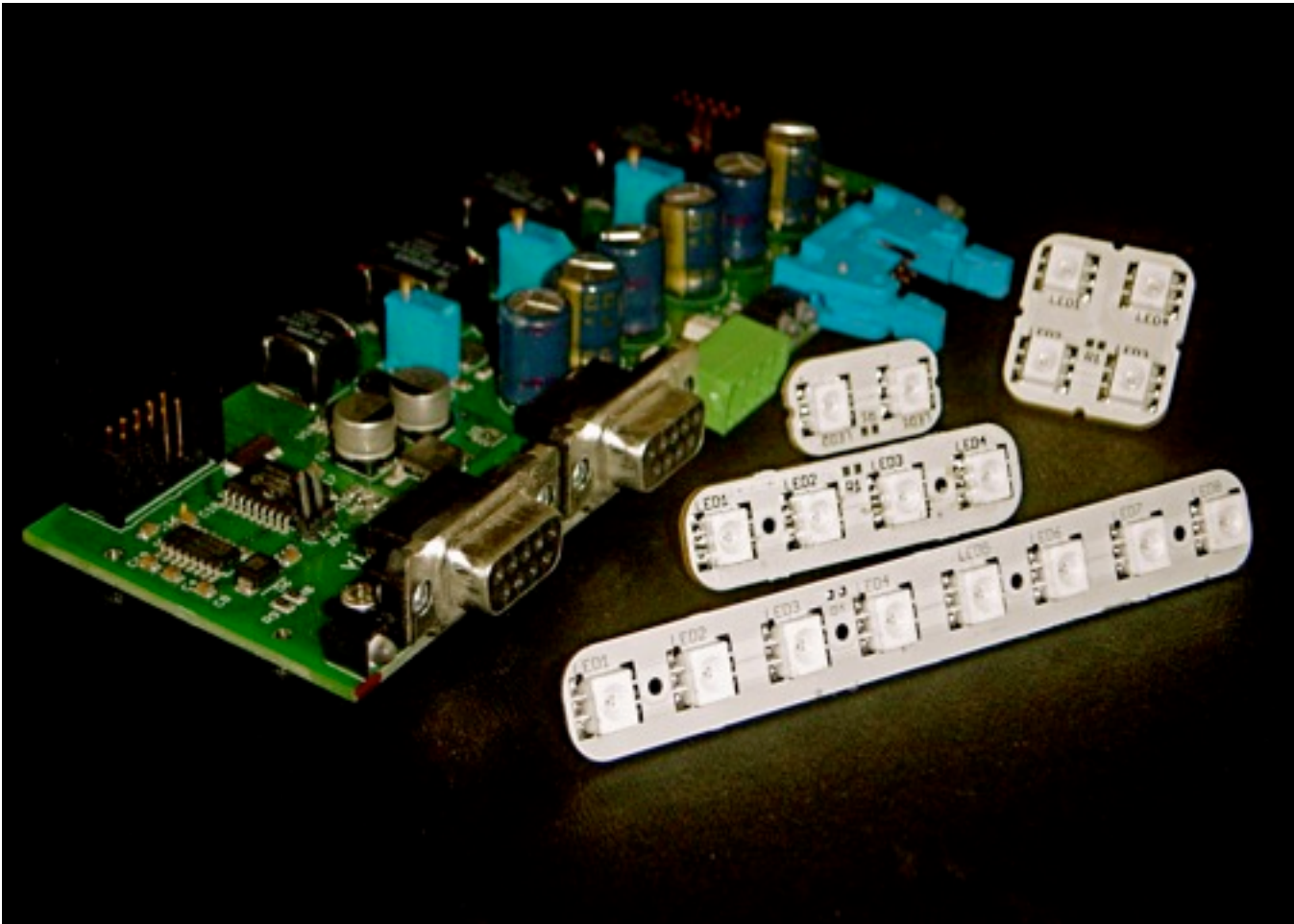
TABLE 1. TECHNICAL SPECIFICATIONS		
PHYSICAL CHARACTERISTICS		
Dimensions, Length	100	mm
Dimensions, Width	19	mm
Dimensions, Thickness (XR Emitter)	10	mm
Dimensions, Thickness (TOPLED Emitter)	8	mm
Weight	8	grams
OPERATING CHARACTERISTICS		
Voltage, minimum	12	volts
Voltage, maximum	15	volts
Operating temperature, maximum	75	C
Current, XR emitters	0.7	Amps
Current, TOPLED emitters Purple, Royal Blue, Blue, Cyan, Aqua	0.5	Amps
Current, TOPLED emitters, all others	0.25	Amps

Full Color Emitters

Multiple sizes and Corona Drivers



Full color (FC) emitters break free of the standard colors by offering the ability to choose the exact color, while keeping the ease of installation of the TOPLED and XR emitters.



The Corona Driver powers ten FC emitters using a single cable. The separate Corona Programmer (not shown) sets the desired color using intuitive hue, saturation, and brightness controls.

FC Emitters are available in four sizes and use multicolor LEDs. All of the FC Emitter boards connected to the same Driver will be the same color.

A Corona Driver is also capable of playing back animations and patterns from an SD Card To learn more about this capability, please see Development Services.

A Sampler Kit is available with four FC Emitters of every size, a Corona Driver, Corona Programmer, and all necessary connectors and cable. The Fabrication Kit includes thirty-two FC emitters of every size, four Corona Drivers, and all necessary connectors and cable.

P/N	DESCRIPTION	PRICE
Starter Kits		
KIT-302	Sampler Pack <ul style="list-style-type: none"> • Four of each emitter • Corona Driver • Corona Programmer • 48V desktop power supply • 40x connectors • 25' of ribbon cable • Rugged organizer & storage case 	\$2,000
KIT-301	Shop Pack <ul style="list-style-type: none"> • Thirty-two of each emitter • Four Corona Drivers • Corona Programmer • 48V desktop power supply • Two 12V to 48V power supply • 200x connectors • 100' of ribbon cable • Rugged organizer & storage case 	\$10,000
Refill Packs (Eight of each emitter)		
KIT-024	100mm x 12.5mm	\$550
KIT-025	50mm x 12.5mm	\$375
KIT-026	25mm x 25mm	\$375
KIT-027	25mm x 12.5mm	\$250
Corona Components		
COR-001	Corona Programmer	\$750
COR-002	Corona Driver	\$190
COR-003	12V to 48V Power Supply	\$250
Miscellaneous		
TOL-004	Crimp Tool	\$125
ELM-009	Connector, pkg of 10	\$25
ELM-809	Ribbon cable, black 10'	\$45

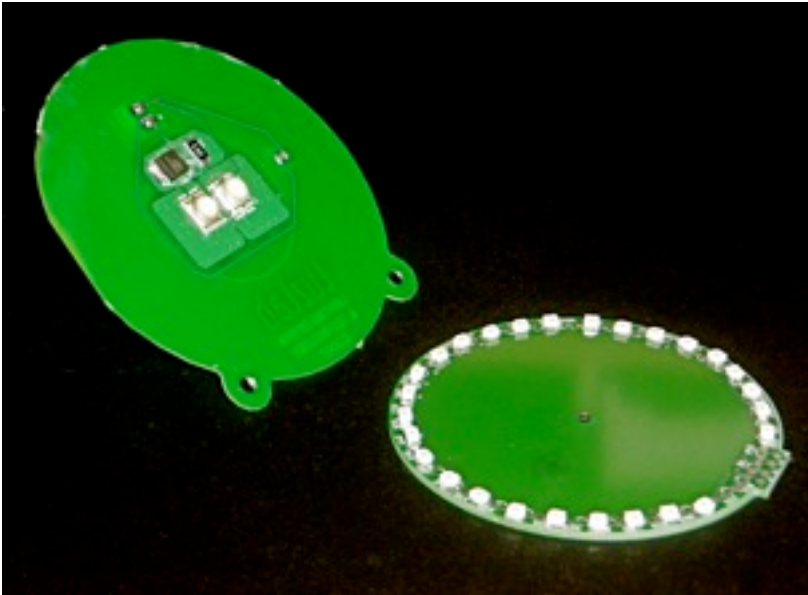
TABLE 1. TECHNICAL SPECIFICATIONS		
PHYSICAL CHARACTERISTICS		
Dimensions, Length		per emitter spec
Dimensions, Width		per emitter spec
Dimensions, Thickness	14	mm
Weight	8	grams
OPERATING CHARACTERISTICS		
Voltage, maximum	48	volts
Operating temperature, maximum	75	C
Current, maximum	0.15	Amps

Engineering Capabilities

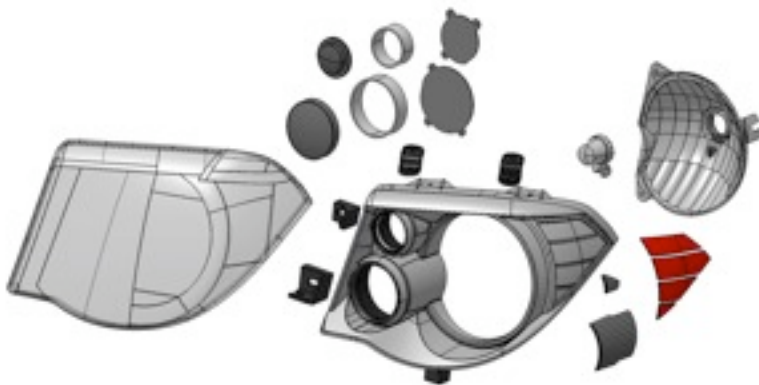
Custom Emitter and Luminaire Design



LuzLab can put its LED and luminaire experience to work at your specific project. Our capabilities range from custom emitters to entire lighting assemblies.



If the standard TOPLED, XR and FC emitters may not be appropriate for your project, LuzLab can easily fabricate emitters shaped to your specifications while still using the standard LEDs.



A complete lighting assembly can typically be designed and fabricated in less than two months, including emitters, surfacing, and finish work.

Engineering costs vary widely with the scope of the project, however custom emitter shapes are can typically be engineered in less than an hour from your DXF drawing. Please inquire for details.

P/N	DESCRIPTION	PRICE
CNS-001	Engineering, hour	\$200

The Corona Driver is based on LuzLab's Crystal architecture which can run dynamic light show. The programming language is similar to assembly and programs are run from SD cards.



```

int ftoi(float flt)
{
    int i;
    asm
    {
        mov     eax,flt; //load
        rcl    eax,1;   //left
        mov     ebx,eax; //save
        mov     edx,4278190080;
        and    eax,edx; //and
        shr    eax,24;
        sub    eax,7fh; //subt
        mov     edx,eax; //save
        mov     eax,ebx; //retr
        rcl    eax,8;   //tr
        mov     ebx,eax; //stor
        mov     ecx,1fh; //sub
    }
}
    
```



The Development Kit packages all of the necessary hardware and software to get started programming Crystal. Included in the kit are blank SD cards, a USB programmer, manuals, utilities and sample programs.

LuzLab is also available to create Crystal programs to your specifications. Many simple lighting effects such as color chases or fades can be readily created in less than an hour. Please inquire for details.

P/N	DESCRIPTION	PRICE
KIT-304	Development Kit <ul style="list-style-type: none"> • Manuals • CD with utilities and sample code • SD card programmer • SD cards 	\$350
Crystal Program Creation		
CNS-002	Hour of programming	\$400
Miscellaneous		
TOL-005	Blank Crystal Memory Space	\$25
TOL-006	USB-Memory Space Programmer	\$35

Terms and Conditions



TERMS

BY PURCHASING FROM LUZLAB, YOU AGREE TO THESE TERMS AND CONDITIONS. No other terms shall apply except as agreed in writing signed by LuzLab. We reserve the right to correct typographic errors and reject orders.

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Any quotation or the prices contained herein are for information purposes only and do not constitute a legal acceptance of any order placed by the seller. Prices are FOB our warehouse. Prices don't include taxes or shipment and may be changed without notice. Visa, MasterCard and American Express accepted for net invoice amount. Credit card arrangements subject to change.

SHIPPING

Shipping and handling charges will be add to the invoice to cover UPS or USPS Priority mail charges.

WARRANTY

LuzLab warrants all goods against defect in workmanship and materials for a period of three (3) months after purchase. This warranty only covers those products exposed to normal use or service. Provisions of this warranty shall not apply to goods which have been altered in any way that would be detrimental to the performance or life of the product, or misapplication, misuse, negligence or accident. On any part or product found to be defective after examination by LuzLab, LuzLab will repair or replace the part. LuzLab assumes no responsibility for diagnosis, removal and/or installation labor, loss of vehicle use, loss of time, inconvenience or any other consequential expenses. Customer must notify LuzLab within 30 days from date of shipment of any defective products.

LIMITED LIABILITY.

In no event shall LuzLab be liable for any special, incidental or consequential damages of any nature including, but not limited to, damages resulting from loss of profit or revenue, recall costs, claims for service interruptions or failure to supply downtime, testing, installations or removal costs,

costs of substitute products, property damage, personal injury, death or legal expenses. Customer's recover from LuzLab for any claim shall not exceed the purchase price paid by Customer for the goods, irrespective of the nature of the claim, whether in warrant, contract or otherwise. customer shall indemnify, defend and hold LuzLab harmless from any claims brought by any party regarding products supplied by LuzLab and incorporated into the customer's product.

USE OF PRODUCTS IN LIFE SUPPORT, NUCLEAR AND CERTAIN OTHER APPLICATIONS

Products are intended for commercial use only. Products are traceable at the manufacturer's level only. There is no lot level traceability. Products sold by LuzLab are not designed, intended or authorized for use in life support, life sustaining, human implantable, nuclear facilities, or other applications in which the failure of such Products could result in personal injury, loss of life or catastrophic property damage. If Customer uses or sells the Products for use in any such applications:

- (1) Customer acknowledges that such use or sales is at Customer's sole risk;
- (2) Customer agrees that LuzLab is not liable in whole or in part, for any claim or damage arising from such use; and
- (3) Customer agrees to indemnify, defend and hold LuzLab blameless from and against any and all claims, damages, losses, costs, expenses, and liabilities arising our of or in connection with such use or sales.

LIMITATIONS ON REVERSE ENGINEERING, DE-COMPILATION AND DISASSEMBLY

Client may not attempt to reverse engineer, decompile, or disassemble any software or hardware delivered by LuzLab, except and only to the extent that such activity is expressly permitted by applicable law notwithstanding this limitation.

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(323) 225-1065

Mail
LuzLab
620 Moulton Ave, Ste 111
Lincoln Heights, CA 90031

eMail
sales@luzlab.com

Part #	Description	QTY	Unit Price	Total
Merchandise Total				
CA Residents must add 8.5% Sales Tax				
ORDER TOTAL†				

METHOD OF PAYMENT‡

Check Money Order (payable to LuzLab)
 Visa Mastercard
 American Express
 Credit Card # _____ Exp Date _____
 Name on Card _____
 Signature _____

†Shipping will be calculated and added to your invoice.

‡You may leave METHOD OF PAYMENT blank and you will be billed and have an opportunity to enter your credit card information on our secure server.

