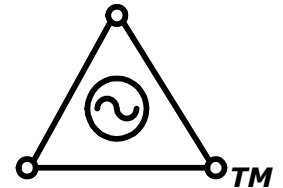


# ***TCW Technologies***

*Intelligent Products, Engineered to be smarter*



## *Intelligent Lighting Controller*

### **Model: ILC- 4ch**

Intelligent Lighting Controller (*ILC-4ch*) is an electronic controller designed specifically to operate the lighting circuits used in homebuilt aircraft. *ILC* provides control of up to 4 lighting circuits plus dimmable control of up to 3 channels of instrument and cabin lights. The 4 lighting circuits may be used to control landing lights, taxi lights, strobe lights and navigation lights. Each channel is independently powered and controlled. *ILC* also provides a wig-wag function between two of the lighting circuits. Each lighting circuit may control up to 10 amps of load. The 3 channels of dimmable lighting may be independently controlled. Each dimmable channel may include incandescent or LED lighting up to 1 amp.

*ILC-4ch* utilizes a remote mounted power electronics module that communicates to instrument panel mounted switches and potentiometers. This system allows for considerably less wiring behind the aircraft instrument panel. The remote mounted power electronic module may be mounted in the aft area of the aircraft allowing for short wire runs for the power wiring between the aircraft power bus and lighting loads. The ILC works with any standard switches and supports both backlighting and switch indicator lighting. Additionally, ergonomic, environmentally sealed, back-lit switches are available for use with the ILC system as well as other electrical loads. A single multi-conductor cable may be used to link the switches and potentiometers on the instrument panel to the power electronics module. The switches are operated at very low power levels, thereby providing extremely long service life.

The power electronics module contains no relays and each lighting circuit is independent from the other thereby providing very high reliability. Each dimming channel is independently controlled and is over temperature and over current protected. *ILC-4ch* also contains a wig-wag function for improved aircraft visibility. Lighting circuits 1 and 2 (typically connected to the landing light and taxi light) may be alternated flashed at a 40 cycle per minute interval providing additional collision avoidance for the aircraft. The wig-wag function is independently controlled, however, is overridden by the selection of the landing light or the taxi light. Additionally, the wig-wag function provides a 1 minute start-up delay.

*IFC-4ch* must be installed using the current aircraft standards and practices. Refer to AC 43.13-2A/1B. The installer/builder is solely responsible for determining the suitability of the installation and use of this product.

## **Installation instructions:**

1. Mount the lighting switches in the instrument panel in a suitable location, route a 13 conductor cable (shielding not required) to the mounting area for the power electronics control module. (24 awg. conductors minimum). Connect the switches to the multi-conductor cable as shown in the wiring diagram. NOTE: if no taxi light is used and the wig-wag function is to be utilized follow the alternate wiring diagram.
2. Mount the dimmer potentiometers in a suitable location, wire per the wiring diagram.
3. Mount the power electronics control module in a suitable location. The module may be mounted in any orientation. The power electronics module must not be mounted in the firewall forward area.
4. It is recommended that a dedicated fuse block for providing power to the lighting circuits be mounted in close proximity to the power electronics control module.
5. Provide up to 4 separate 10 amp fused power circuits from the aircraft power bus to the *ILC-4ch* power electronics control module. Provide 1 separately fused 3 amp power circuit for the instrument lighting circuit.
6. Provide a ground connection to the terminal marked using at least 18 gauge wire.
7. Connect the lighting loads to the respective Switched Outputs #1 thru #4.  
Switched Output #1 = Landing Light  
Switched Output #2 = Taxi Light ( or second landing light)  
Switched Output #3 = Strobe Lights  
Switched Output #4 = Navigation Lights

8. Connect the dimmed lighting loads to the respective Dimmed Channels #1-3. Note: Dimmed Channel #1 provides dimming of the back-lit switches on the control panel, therefore, it is recommended that any other illuminated switches requiring dimmer control are recommended to be connected to Dimmed Channel #1.

## **PRODUCT OPERATION:**

Each switch connected to the remote power electronics module controls one of the switched outputs. The switch used with the Taxi/wig-wag inputs must be a center off SPDT type switch. This enables the selection of Taxi lights OR Wig-Wag function. The wig-wag function will alternately drive the landing light and taxi light at a 40 cycles per minute interval. Each light will be on for approximately one second then the other light will be energized. The wig-wag function is started after a 1 minute warm-up period. During the warm up period both the landing light and the taxi light are driven continuously at full power. After the 1 minute warm up period the lights will begin flashing at the 40 Hz interval. The wig-wag function is cancelled by moving the taxi light switch to the Taxi position; this allows the taxi lights to be continuously on. The wig-wag function can also be cancelled by turning on the landing light. If the landing light is turned on and the taxi light switch is left in the wig-wag position the taxi light will remain off. If the landing light is turned on and the taxi light switch is moved to the on position, both lights will be on continuously.

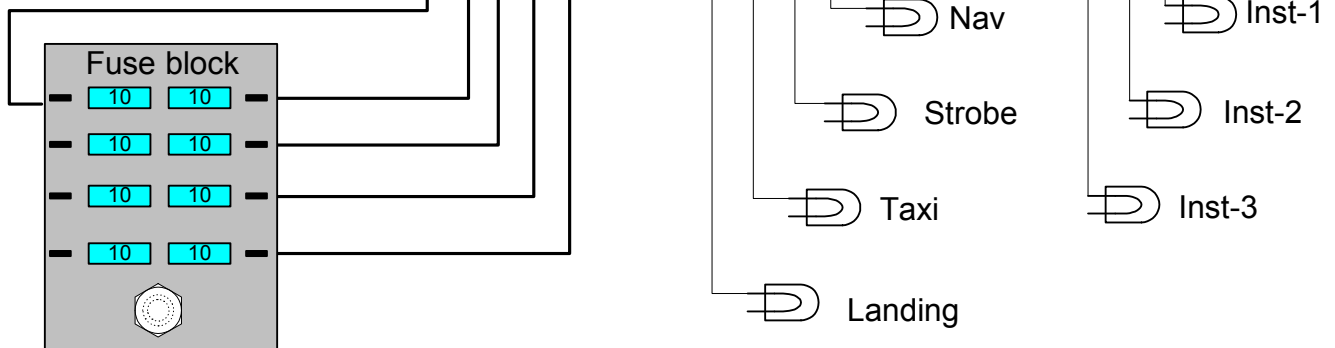
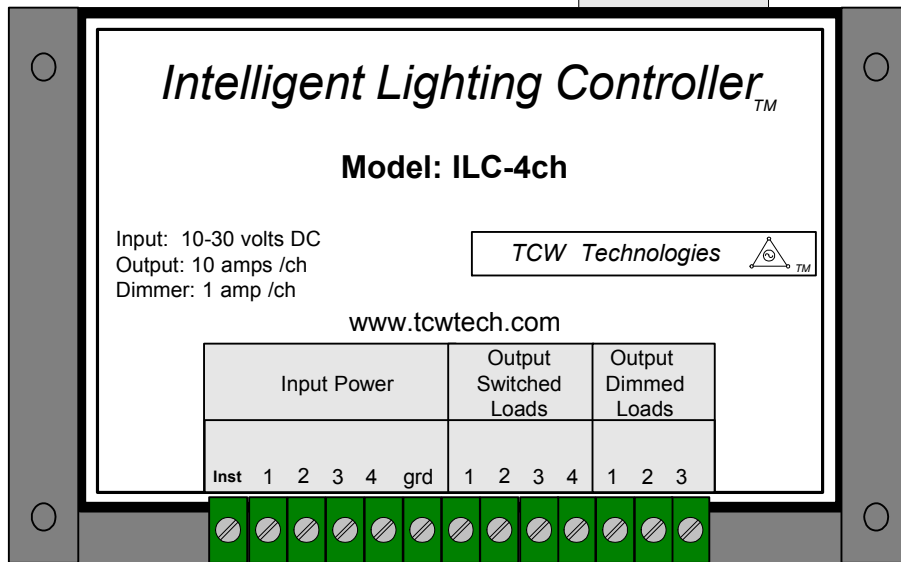
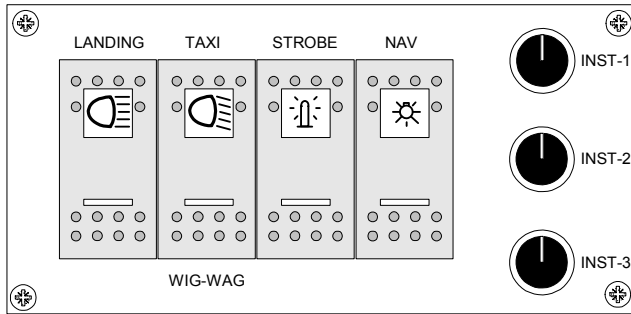
The three dimming channels are controlled by the potentiometers labeled. When the pots are turned fully counterclockwise the respective dimmed channel will be at minimum power.

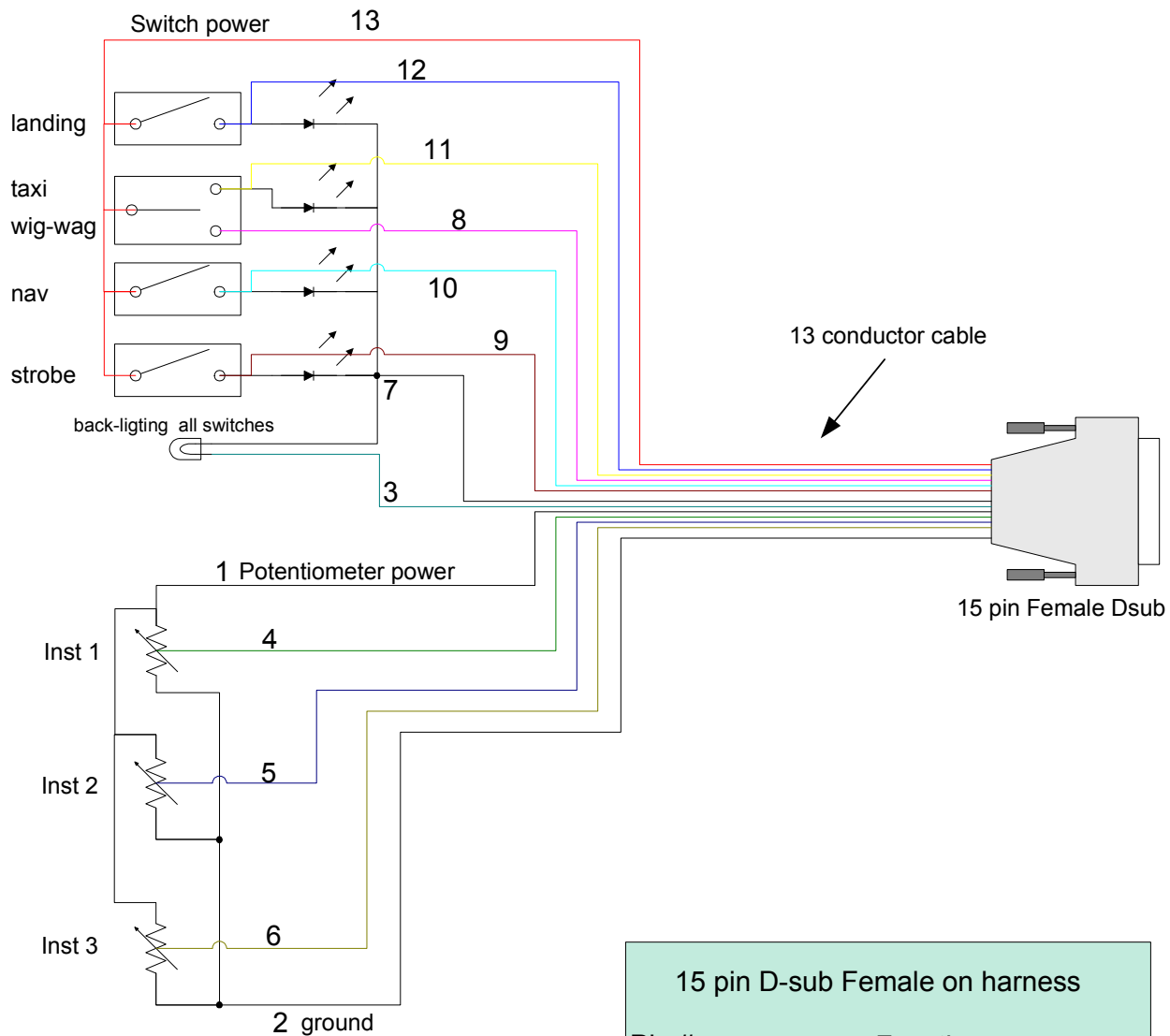
Dim1 channel also controls the back lighting for the switches on the switch panel. It is recommended to use Inst 1 channel to control the backlighting on other switches on the instrument panel.

TCW Technologies  
2955 Main Road East  
Emmaus, PA 18049

610-390-7195  
[www.tcwtech.com](http://www.tcwtech.com)  
email: [support@tcwtech.com](mailto:support@tcwtech.com)

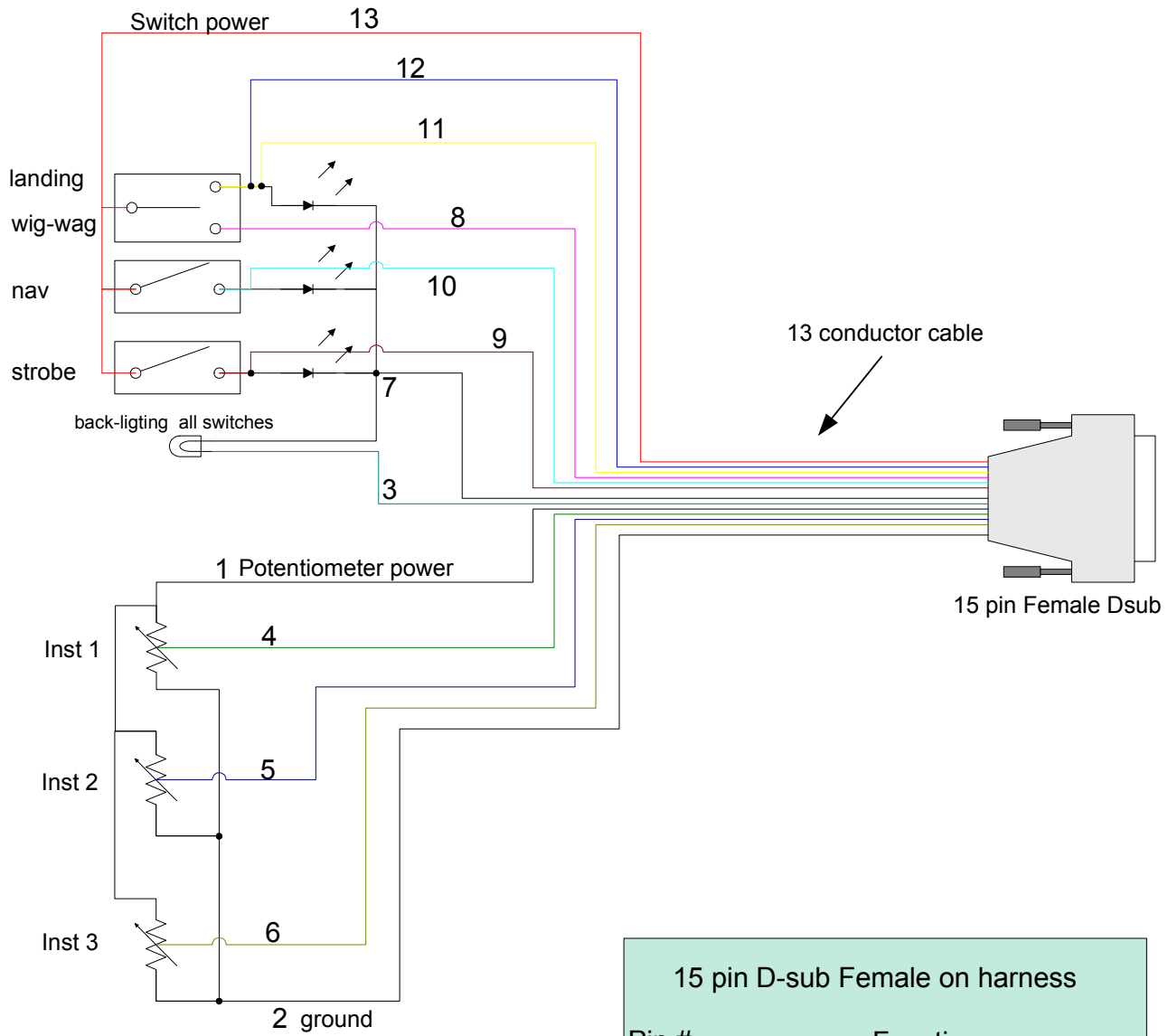
# Intelligent Lighting Controller <sup>TM</sup>





**ILC-4ch Wiring diagram  
Switch connections**

15 pin D-sub Female on harness	
Pin #	Function
1	Potentiometer + power
2	Potentiometer - ground
3	Backlighting + power
4	Pot #1 signal
5	Pot #2 signal
6	Pot #3 signal
7	Indicator & Backlighting - grd
8	Wig-wag switch
9	Strobe switch
10	Nav lights switch
11	Taxi lights switch
12	Landing lights switch
13	All switches power +



**ILC-4ch Wiring diagram  
Switch connections**

**Alternate diagram for  
use with two landing  
lights and no taxi lights**

Note, Wires #11 and #12 connected together

15 pin D-sub Female on harness	
Pin #	Function
1	Potentiometer + power
2	Potentiometer - ground
3	Backlighting + power
4	Pot #1 signal
5	Pot #2 signal
6	Pot #3 signal
7	Indicator & Backlighting - grd
8	Wig-wag switch
9	Strobe switch
10	Nav lights switch
11	Landing lights #1 switch
12	Landing lights #2 switch
13	All switches power +

## TCW Technologies

During the first 24 months from the date of purchase and subject to the conditions hereinafter set forth, TCW Technologies (TCW) will repair or replace to the original user or consumer any portion of your new Safety-Trim product which proves defective due to defective materials or workmanship of TCW. Contact TCW Technologies for warranty service. TCW shall have and possess the sole right and option to determine whether to repair or replace defective equipment, parts or components. Damage due to equipment, environment or conditions beyond the control of TCW Technologies are NOT COVERED BY THIS WARRANTY.

LABOR, COSTS: TCW shall IN NO EVENT be responsible or liable for the cost of field labor or other charges incurred by any customer in removing and/or reaffixing any TCW product, part or component thereof.

THIS WARRANTY WILL NOT APPLY: (a) to defects or malfunctions resulting from failure to properly install, operate or maintain the unit in accordance with printed instructions provided; (b) to failures resulting from abuse, accident, or negligence; (c) to normal maintenance services and the parts used in connection with such service; (d) to units which are not installed in accordance good trade practices; or (e) to unit used for purposes other than for what it was designed and manufactured.

RETURN OR REPLACED COMPONENTS: any item to be replaced under this Warranty must be returned to TCW Technologies in Emmaus, PA, or such place as TCW may designate, freight prepaid.

PRODUCT IMPROVEMENTS: TCW reserves the right to change or improve its products or any portions thereof without being obligated to provide such a change or improvement for units sold and /or shipped prior to such change or improvement.

WARRANTY EXCLUSIONS: as to any specific TCW product, after the expiration of the time period of the warranty applicable thereto as set forth above. THERE WILL BE NO WARRANTIES, INCLUDING ANY IMPLIED WARRANTIES OR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. No warranties or representations at any time made by any representative of TCW shall vary or expand the provisions hereof.

LIABILITY LIMITATION: IN NO EVENT SHALL TCW OR ITS AFFILIATES BE LIABLE OR RESPONSIBLE FOR CONSEQUENTIAL, INCIDENTAL OR SPECIAL DAMAGES RESULTING FROM OR RELATED IN ANY MANNER TO ANY TCW PRODUCT OR PARTS THEREOF. THE SUITABILITY OF USE OF THE SAFETY-TRIM PRODUCT IS TO BE DETERMINED BY THE AIRCRAFT HOMEBUILDER.

Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

This Warranty gives you specific legal rights and you may also have other rights which vary from state to state. In the absence of other suitable proof of this installation date, the effective date of this Warranty will be based upon the date of manufacture plus one year. Direct All Notices To: Warranty and Product Service Department, TCW Technologies, 4906 Raymond Ct. Emmaus, PA 18049