

WatchDog®

Always Safe - Always Start



Table of Contents and Warranty Disclaimer

Page	Content
3	Watch Dog[®] Introduction
4	Characteristics and Specifications
5	Time Delay Programming
6-7	Watch Dog[®] Mounting and Dimensions
8-9	Wiring / Wiring Diagrams
11	Additional Switches

LITTLEFUSE guarantees the product 24 months (from the time of sale) against fabrication defects in compliance with applicable laws and terms of liability. All damages caused by improper - handling, installation, use, service or lack of service will void warranty. It is all so excluded malfunctions attributable to outside phenomena. Member's will take over possible replacement of the defective product at its discretion. In case of controversies or disputes related to the product and / or interpretation of the warranty conditions the competent FORMUM OF VERONA.

WARRANTY DISCLAIMER:

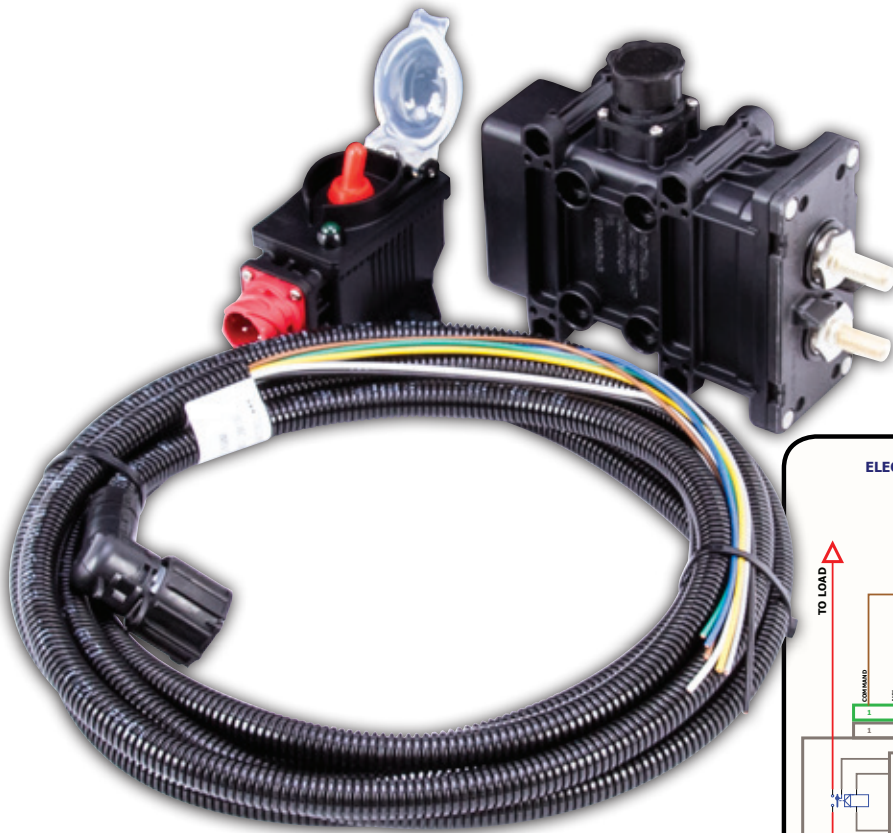
Flaming River's Limited Warranty

Flaming River warrants its products to be free from defects in material and workmanship for a period of one (1) year after the date of purchase, except that: All steering columns are warranted for a period of three (3) years from the date of purchase. The Big Switch (part number FR1005) is warranted for a period of three (3) years from the date of purchase, provided that it is not mounted with a steel bracket and provided further that it is adequately protected from environmental conditions. All electrical products other than the Big Switch are warranted for a period of ninety (90) days from the date of purchase. Flaming River's warranty liability is limited to the replacement of defective products. Flaming River is not liable for any labor costs associated with any warranty claim, or for any incidental or consequential damages. Improper installation, abuse, racing, and/or modification of the products voids this warranty. No warranty of merchantability or fitness for a particular purpose is made by Flaming River with respect to any of its products.

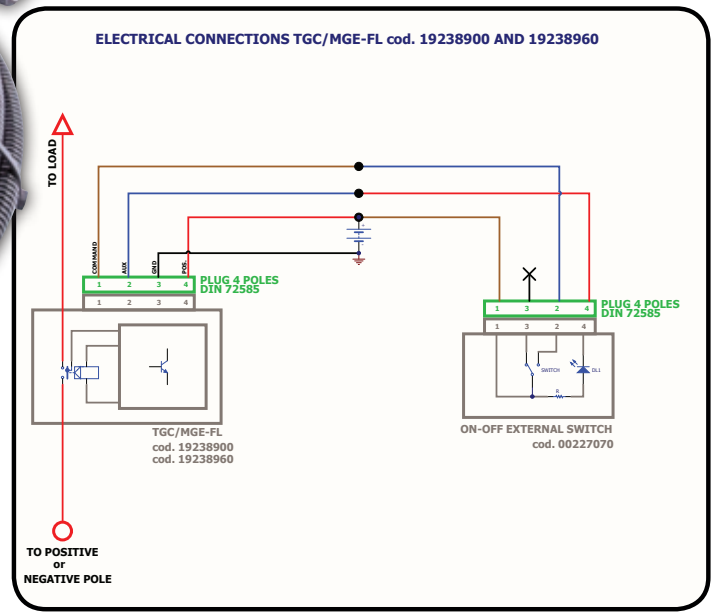
WARNINGS AND RECOMMENDATIONS:

It is the customer's responsibility to determine the suitability of a given Flaming River product for the customer's uses. Likewise, it is the customer's responsibility to install a Flaming River product. Contact the vehicle manufacturer whenever installing a switch to confirm the appropriateness of using such a switch and the recommended placement of the switch on the vehicle. Use qualified chassis specialists for the installation of all steering related components. Be aware that the installation of certain Flaming River products may adversely impact a manufacturer's warranty with respect to certain vehicles and other manufactured goods. Flaming River will repair or replace any product found to be defective in material or workmanship. Improper installation, abuse, racing and/or modification VOID WARRANTY. Flaming River is not responsible for any labor costs associated with any warranty.

Note: The information contained in this catalog is correct to the best of our knowledge and belief, having been compiled from reliable and official sources of information. However, Flaming River Industries, Inc. cannot assume responsibility for possible error.



Note: Terminals on battery disconnect switches are live parts of the electrical system and should be treated just like battery terminals. Covers are recommended, but not included, for each kit. Contact your vehicle's manufacturer to determine proper placement and suitability.



Watch Dog® Advanced Automatic Battery Disconnect Switch

- **Powerful (300 Amps).** Designed for heavy loads.
- **Bistable “magnetic latch” technology.** Main switch can maintain either of its two positions without current consumption.
- **Reliable.** Excels in tough conditions, operating more than 100,000 cycles. Automatically works with your vehicle’s ignition system.
- **Durable.** Maximum protection from dust and water ingress with an IP76 and IP69K rating. High corrosion resistance (salt spray test, 300h). Requires more than 80G of force to mechanically manipulate internal contacts.

- **Versatile.** Available for 12V and 24V systems. Can be used in simple installations or in demanding ADR (Dangerous Goods Transportation) environments. Multiple installation orientations, and positive or negative battery disconnect supported. Time delay duration can be adjusted on the main switch.
- **Safe.** Emergency external battery disconnect switch is available. Built-in LED indicates electrical system status: ON, OFF, or counting down time delay.

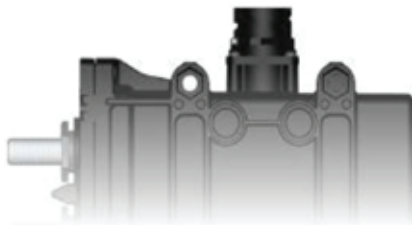
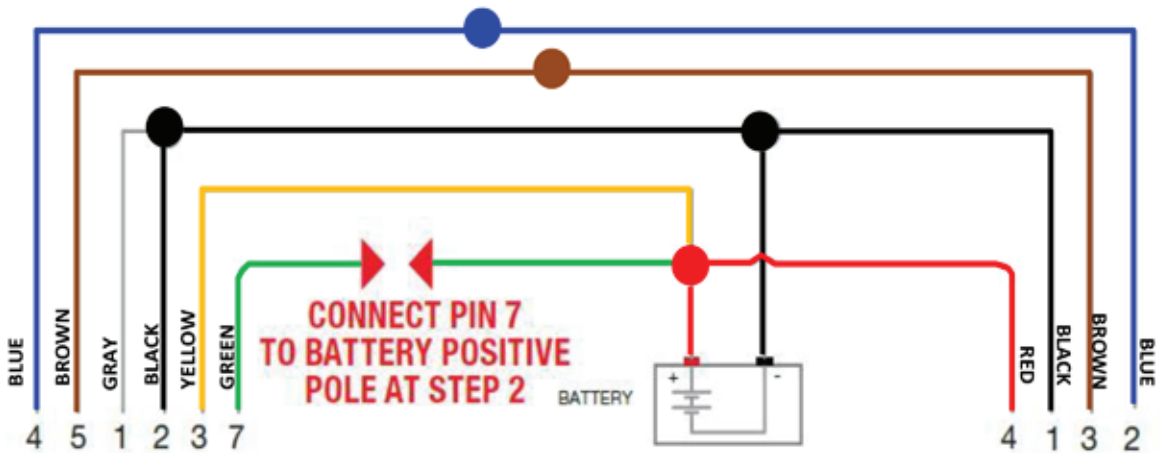
NOTE: The *Watch Dog*® system is an electromechanical battery disconnect switch. The emergency external switch will only disconnect the battery from the electrical system. This product is NOT designed to deactivate the alternator or shut down the vehicle completely.*

ELECTRICAL & MECHANICAL CHARACTERISTICS

CHARACTERISTIC	REF	VALUE	UNIT	CONDITIONS
Voltage				
Working Temperature Range	T_E	-40 - 185	°F	
Working Voltage Range	V_E	10-32	V	TE
MAIN CONTACTS CURRENT RATING				
Maximum continuous current	I_{mc}	250	A	73° F
Maximum short duration current	I_{mc}	1000	A	73° F @ 30 Seconds
Maximum short duration current	I_{mc}	2000	A	73° F @ 5 Seconds
DEVICE CONSUMPTIONS				
Average current consumption in switch OFF and Switch ON status with S1,S2 "OPEN" status and switched off key	I_{OFF} I_{ON}	.5	mA	
ION				
Light Indicator line current rating	3	A	mA	73° F
ENVIROMENTAL FEATURES				
Corrosion Resistace	300h Salt Spray			
IP Degree	IP 67 / IP 69K According to ISO 20653			

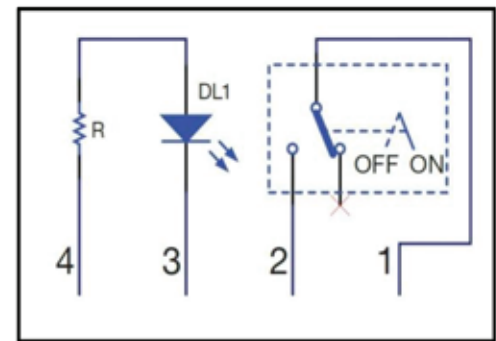
Working Voltage	12 or 24 Volts
To Disconnect	Positive OR Negative ("clean contact")
Connection	7-ways embedded DIN connector
Features	Programmable Time Delay
Equipment	<ul style="list-style-type: none"> • 7-ways harness with 7 ways DIN connector (OPTIONAL) • ON/OFF external emergency switch with LED • Seperate 4-ways DIN connector forthe external emergency switch (optional)

Watch Dog® Time Delay Programming



LED Time-Delay Sequence	
LED Blinks	Time Delay
1	30 Seconds
2	1 Minute
3	3 Minutes
4	6 minutes

Remember: Start Switch S2 in OFF position before starting the programming procedure.



Switch S2 Diagram
(External Emergency Switch)

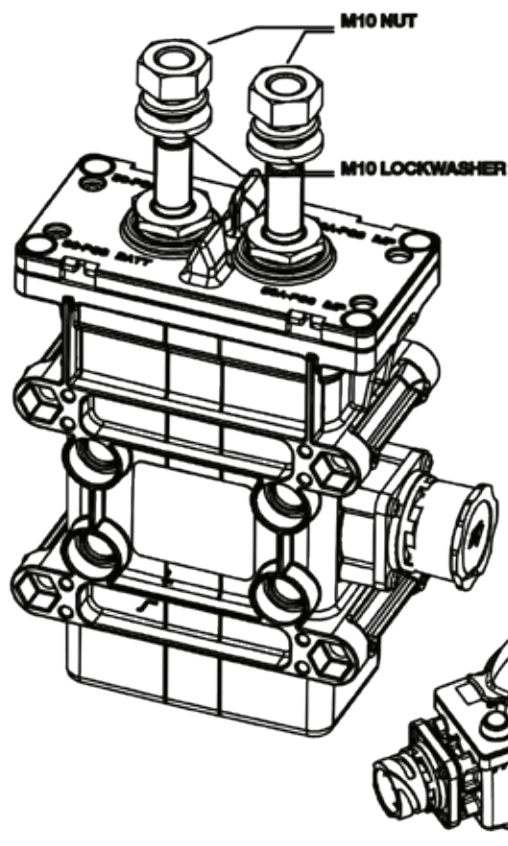
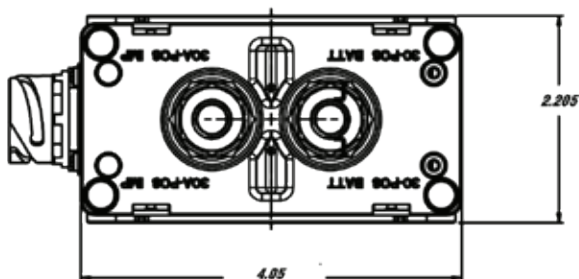
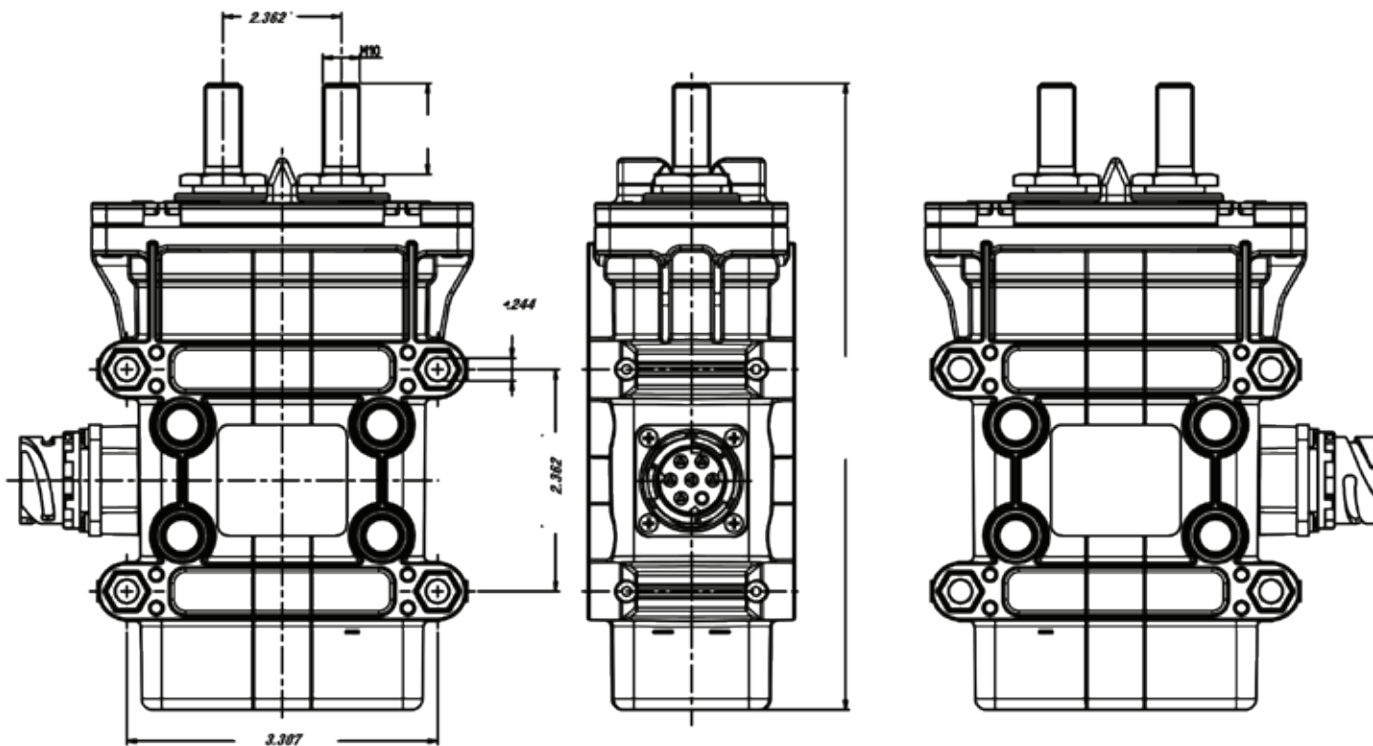
NOTE:

- If an error occurs during the programming procedure, the device enters into normal operating mode and the S2 (Emergency Switch) light blinks for 10 seconds. - Disconnect pin 7 from the battery and the repeat steps 1-4.
- The Time Delay is set in the Watch Dog® memory and is present even after the switch is disconnected from a power supply.
- Every time the Watch Dog is powered on, the S2 light will blink to show the Time Delay.

Programming Instructions

1. **NOTE:** The default value for the time delay is 6 minutes.
2. To start the programming procedure, connect the Watch Dog® as illustrated in the wiring diagram.
 - A. **NOTE:** The Switch S2 (External Emergency Switch) should be in the OFF position. The GREEN wire (Pos. Battery) should NOT be connected.
3. Now connect the GREEN wire to the positive battery terminal.
4. The light will blink a specified number of times depending on the current time delay setting (see time delay table above) memorized by the device. The green LED on Switch S2 will then turn on for 2.5 seconds. Within 3 seconds after the green LED turns off, toggle Switch S2 ON and then OFF.
5. Wait for the green LED to blink the required number of times for the chosen time delay (see time delay table above). The light will blink slowly to give you enough time to select your preferred time delay. Once the green LED has blinked the desired number of times, toggle Switch S2 ON and then OFF.

Watch Dog® and Emergency Switch Mounting



Set of terminals covers INCLUDED



ATTENTION

The following information must be reviewed before beginning the assembly:

- The installation instructions are to be thoroughly read.
- The installation should be carried out by qualified personnel with the relevant technical knowledge.
- The vehicle manufacturer's current technical notices and information on retrofitting must be followed.
- MEMBER'S is not responsible for improper use of the product once installed.

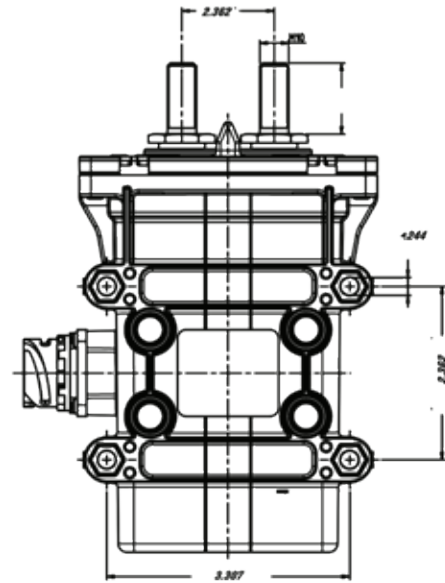
S2 - External Emergency Switch

Watch Dog[®] and Emergency Switch Mounting (Continued)

1. Using M4 bolts mount the Watch Dog[®] to the chassis following these requirements:

- A. Mount the Watch Dog[®] as close as possible to the battery - No more than 20" away**
- B. At least 32" from the ground**
- C. Mount the studs upward or to the side do not mount the switch with the studs facing the ground.**
- D. Ensure the Watch Dog[®] is shielded from impact from debris.**

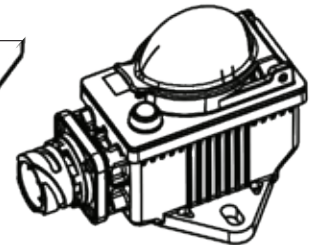
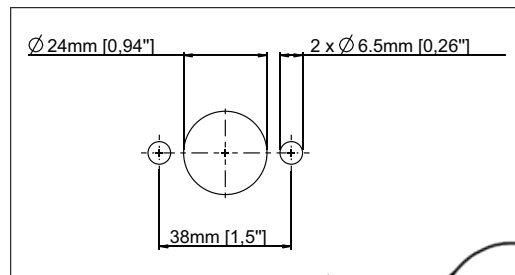
Torque the mounting bolts to 53 (+/- 17) in lbs.



2. Using M6 bolts, mount the external emergency switch to the chassis as close as possible to the drivers door following these requirements:

- A. Switch should be clearly visible and easily accessible.**
- B. At least 32" from the ground**
- C. Ensure the Emergency Switch is shielded from impact from debris.**

Torque the mounting bolts to 70 (+/- 17) in lbs.



Watch Dog® Normal Operating Mode

System Activation

1. **Switch S2 (External Emergency Switch) must be in the ON position.**
2. **Push Switch S1 (Dash/Cabin Pushbutton).**
3. **The Watch Dog® will enter ON status, and close the main contacts allowing current to flow from the battery to the vehicle. The green LED located on Switch S2 will turn ON.**

NOTE: The ignition key does not need to be in the ON position to activate the Watch Dog®.

Time-Delayed Shutdown

1. **With Switch S2 in the ON position, turn the ignition key to the OFF position. This will start the preprogrammed time delay and cause the LED on Switch S2 to blink.**
2. **Once the time delay cycle is complete, the LED on Switch S2 will turn OFF and the main contacts on the Watch Dog® unit will open.**
3. **If at any time the user wishes to abort the time delay sequence, simply turn the key back to the ON position, or push Switch S1. The time delay will stop and the system will remain in operation.**

Emergency Shutdown

1. **Flipping Switch S2 to the OFF position any time during operation will force the Watch Dog® into emergency deactivation. This will open the main contacts, turn off the LED on Switch S2 and aborts the time delay sequence if active.**

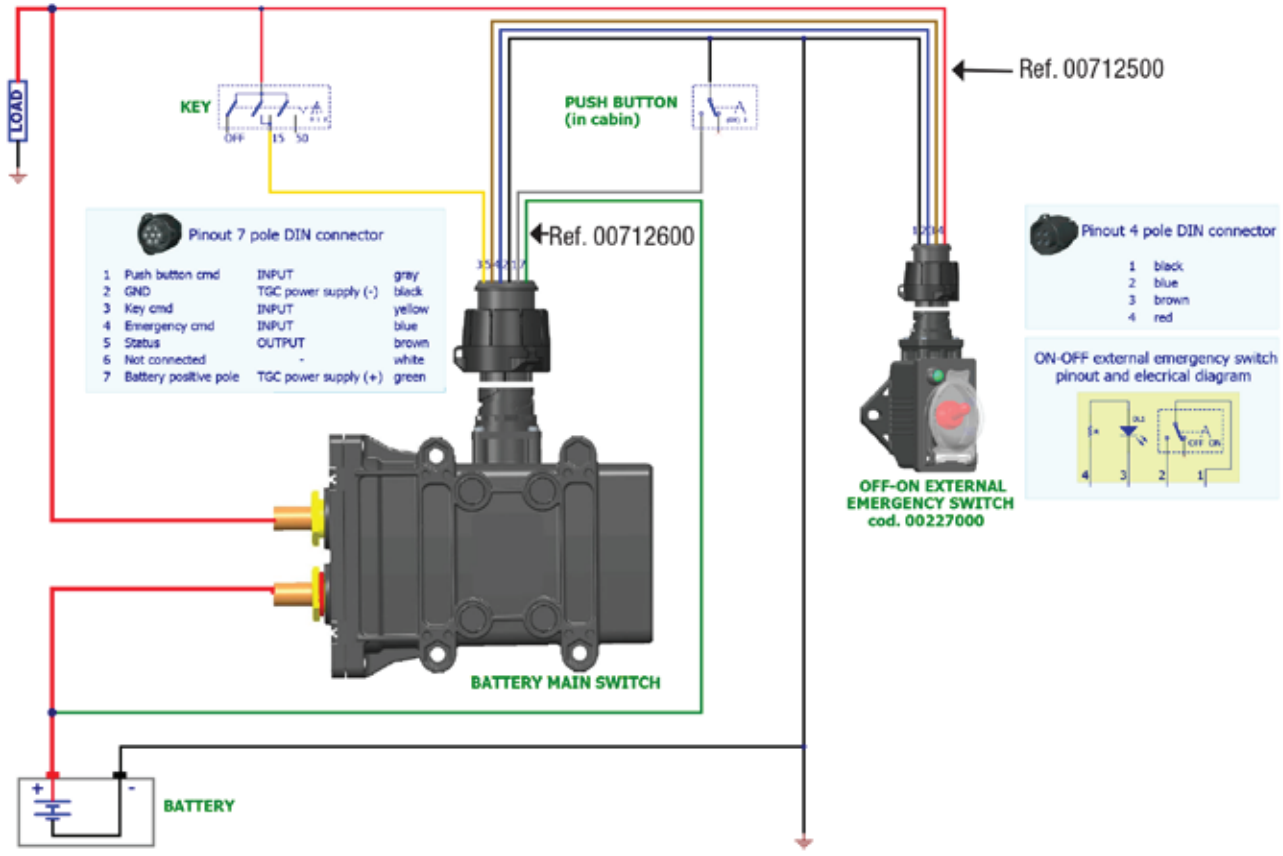
Installation layout - Example



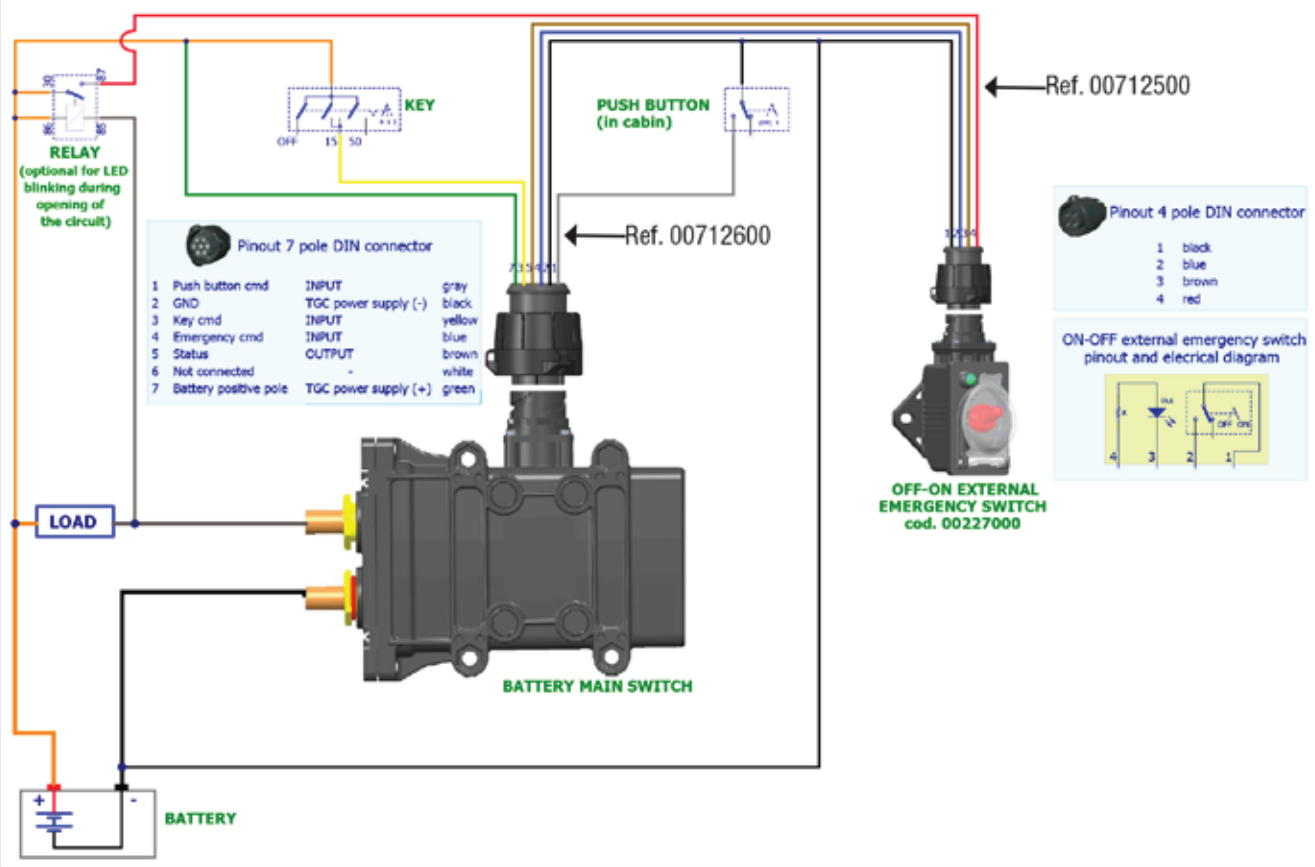
Watch Dog Wiring

7-Pin Wire Harness Pin-Out		4-Pin Wire Harness Pin-Out	
Gray	Push Button Command	Black	Neg. Battery Terminal
Black	Neg. Battery Terminal	Blue	Emergency Switch Command
Yellow	Ignition Key Command	Brown	System Status - Controls External Emergency Light LED
Blue	Emergency Switch Command	Red	Pos. Battery Terminal
Brown	System Status - Controls External Emergency Light LED		
White	Not Connected		
Green	Pos. Battery Terminal		

Positive battery pole disconnection



ELECTRICAL CONNECTIONS TGC/MGE-FL (Watchdog) cod. 19238961
Negative battery pole disconnection





30A-POS
IMP

LIFE 30A-POS

LIFE 30A-IMP

Additional Battery Disconnect Switches

“Electro-Wizard” Automatic Battery Disconnect Switch

Part No.	Description
FR1051	12V Electro Wizard – Grounded Solenoid (Positive Disconnection ONLY)
FR1052	12V Electro Wizard – Insulated Solenoid (Positive AND Negative Disconnection Supported)

- **12 Volt Electronic Battery Disconnect Switch. 24V system available upon request.**
- **Passive Magnetic Solenoid Operation – No mechanical switch to forget to operate**
- **Sealed Waterproof Design Can withstand severe operating condition**

Ideal Protection For:

- **Construction & Farm Equipment / Mining & Off-Highway Vehicles**
- **Heavy-Duty Trucks**
- **Automotive / Racing**
- **Marine**
- **DEF System Compatible**



The Big Switch with Lock-Out - FR1044 (Replaces Part # FR1005)

- **Increased Terminal Space**
- **Waterproof and Corrosion Resistant Design**
- **Rated Capacity of 250 Amps Continuous 12V/24V**
- **Nickel Plated Brass Terminal and Hardware**
- **Silver Plated Contacts**
- **Mounting Bracket and Hardware Included**
- **Fleet Discounts Available**



FR1043 HD Amp Battery Disconnect Switch with Terminal Covers

This heavy-duty battery disconnect switch, with larger diameter terminal studs, is ideal for Class 8 Trucks, RVs, Chippers and other construction vehicles. Clip on terminal covers are designed to protect against arcing. Proprietary brass attaching nut allows 180 degree rotation. Higher Amp capacity – 2500 amps/350 continuous.

- **Waterproof**
- **Silver plated copper internal contact plates**
- **Increased insulation to H Class rating**
- **Larger diameter studs – .4725 inch (M12)**
- **Longer studs – 1.25" to allow easier double cable connection**
- **Stainless Steel Fasteners for corrosion resistance**
- **LED option: Illuminated LED indicates whether system is on or off**
- **Lock-out option: Enables use of padlock for security**



FLAMING[®] RIVER



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