

1



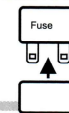
### BEFORE YOU START

1. The Receiver is designed to carry a maximum of 15 Amps. That is, for example, 15 Amps through one output or 5 Amps each through 3 outputs.
2. Master Output. This can be configured to Continuous or Parallel operation, see below right for more details.
3. If Receiver outputs are connected in parallel with an external switching device (wired remote) the Receiver will instantly switch off when the wired remote is operated
4. Lodar Receivers **MUST** have an **isolation switch** for safety, to allow for registering a replacement Transmitter.
5. Safety Feature. Both the Transmitter and the Receiver will "time out" after 30 minutes of inactivity. This can be altered, ask your dealer.

2

### IDENTIFY POWER CONNECTION POINT AND ISOLATE SUPPLY

Remove fuse



or Disconnect Battery



3

### MOUNT RECEIVER



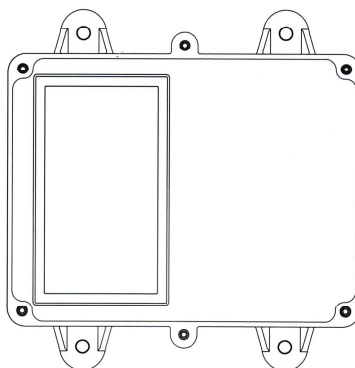
### CAUTION

#### TAKE TIME TO LOCATE THE BEST POSITION

If necessary, power the Receiver and move it around the vehicle until the required performance is achieved. Operate the Transmitter and observe the Receiver internal LED's.

Mount as **HIGH** as possible  
**AVOID** surfaces with **HEAVY VIBRATION**  
**AVOID DIRECT SPRAY** from wheels  
 In a **HOT CLIMATE** fit in a **SHADED** position  
 Cable gland should face **DOWN** or **BACK**

Receiver 92 20 RX and 93 20 RX shown,



Secure using 5mm (3/16") bolts (not supplied) through the 4 mounting feet

4

### What is the MASTER Output for ?

It is used to operate the pump of an electro-hydraulic power pack or maybe a clutch pump. It can also be used for powering a dump valve, master valve etc.

It can be configured to work **continuously**, that is ON when SET is pressed and OFF when STOP is pressed;

or in **parallel** with any output, that is, it is active only a function is operated. If it is needed with certain functions only, this can easily be configured.

5

### CONNECTION DETAIL

**IMPORTANT**  
 TAKE CARE NOT TO SHORT OUT THE MOSFET's WHEN MAKING CONNECTIONS



### IMPORTANT

ENSURE THAT THE GAUGE OF WIRE USED CAN CARRY 15 AMPS (THIS IS THE MAXIMUM TOTAL CURRENT THAT LODAR CAN SWITCH) OVER THE DISTANCE FROM THE BATTERY WITH NO SIGNIFICANT VOLTS DROP!



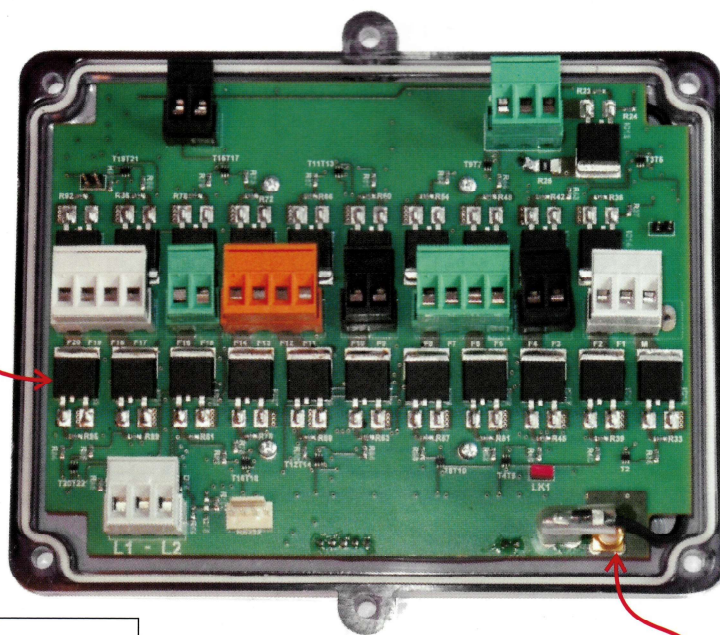
### NOTE

The STOP input can be used for **OVERLOAD** or **OVER-TEMPERATURE** etc. If the chassis is **GROUND**, then a return wire is not required.



### SAFETY FEATURE

The Receiver switches itself off after 30 minutes of inactivity.



OPTIONAL AERIAL CONNECTION



JUMPER may be **RED** or **BLUE**

LK1, when bridged causes the Master Output to be **Parallel**

LK2, when bridged causes the Master Output to be **Continuous**

**JUMPER MUST BE FITTED FOR LODAR TO WORK**

**POWER DOWN RECEIVER BEFORE MAKING CHANGES**

**Make connections as detailed below  
and record wire colours in the boxes**

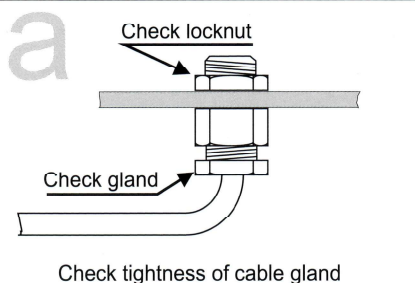
	+ 12 / 24 VOLT COMMON			FUNCTION 11	
	- GROUND			FUNCTION 12	
	S+ (Safety Solenoid etc.)			FUNCTION 13	
	MASTER			FUNCTION 14	
	FUNCTION 1			FUNCTION 15	
	FUNCTION 2			FUNCTION 16	
	FUNCTION 3			FUNCTION 17	
	FUNCTION 4			FUNCTION 18	
	FUNCTION 5			FUNCTION 19	
	FUNCTION 6			FUNCTION 20	
	FUNCTION 7			STOP	STOP Connections
	FUNCTION 8			0 Volts	
	FUNCTION 9			L1 = LIMIT 1	LIMIT INPUTS
	FUNCTION 10			- GROUND	
				L2 = LIMIT 2	
					SPECIAL
					ORDER
					ONLY

7

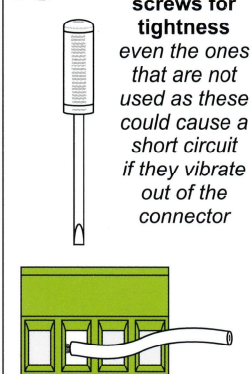
### FINAL CHECK

**ALL ITEMS  
IMPORTANT**

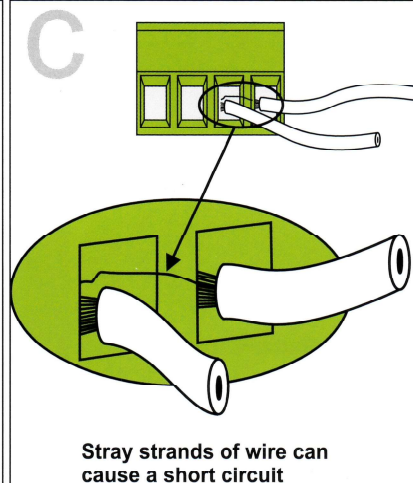
a



b

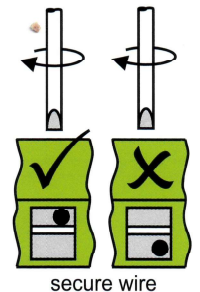


c



d

### CONNECTOR BLOCK



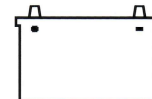
e

**IT IS NOW SAFE TO RECONNECT THE POWER SUPPLY**

Refit fuse



or Connect Battery



**WARNING**

Vehicle batteries contain gasses  
which are flammable and  
explosive. Wear eye protection  
and do not lean over battery while



Indicator LED - Master

5 Volts LED

Indicator LED's 1 through 20

#### LED's indicate the following

**LED** marked "5V" indicates power supply for control circuits is OK

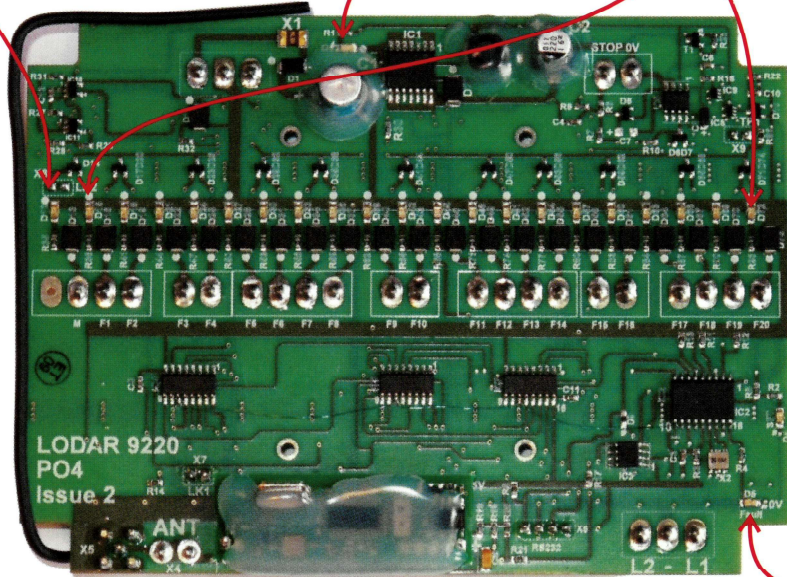
**LED** marked "SET" indicates the system active.

**LED** marked "Fault" indicates an overload is present; the system cannot be reset until overload is removed.

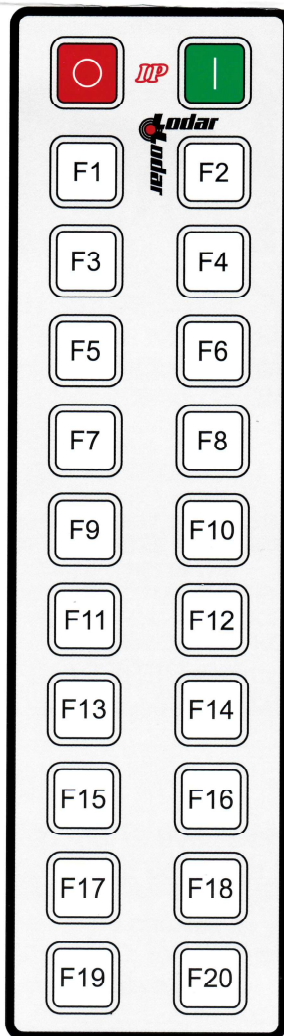
This LED blinks for 20 seconds when the system is initially powered. A replacement Transmitter (or Keypad or Wired Remote) has to be registered during this 20 second period.

LED's marked F1 to F16 and M (and optional MC) when ON indicate an output to that function

(MC is an extra Continuous Master output)



#### COMPONENT DETAIL



Numbering convention of Transmitter Keypad showing the Receiver output function number for that key.

#### LIMITS - What are these?

The new compact 20 function Receiver has an input for limit functions. The circuits between L1 and ground (-) or L2 and ground, which when the circuit is made, or broken, will allow a function to start or cause a function to stop. This requires special programming. We also have available an add-on PCB, Part No. 9220 that has a further 8 Limits. We have successfully used this feature on a number of projects to introduce a degree of logic using the on board Programmable IC or PIC. It may not be economical to program the Receiver PIC for a small batch, please ask.



Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

**In the EEC** - Please contact your National Distributor (see [www.lodar.com](http://www.lodar.com) for this information) who will inform you about the take-back of the product. You might be charged for the costs arising from the take-back and recycling. Small products might be taken back by your local collection facilities.

**Outside the EEC** - If you wish to discard this product please contact your local authorities and ask for the correct method of disposal

Lodar 9100 Series is guaranteed for a period of 24 months from the date of purchase, as long as it is wired in accordance with our instructions, and that the equipment is fitted with an isolation system to shut off all power in event of an emergency.

# Instructions for 92/93 Series IP Transmitters (16 Function shown)

**STOP** Button switches off the Receiver and the keypad function buttons

## L.E.D.

**Blinks** when Transmitter is active.

**ON** when a Transmitter Button is pressed.

**Pulses** while transmitting when Battery is low.



## SAFETY FEATURE

The Transmitter automatically transmits a **STOP** signal after 30 minutes; this de-activates the Receiver and the Transmitter.



**RESET** Button activates the Receiver and the keypad function buttons

Function Buttons

4 Release Screws for Battery Compartment at rear.

4 x AAA batteries

Effective working range up to a distance of 60 metres (200 feet) 92 Series and 300 metres (1000ft) 93 Series.

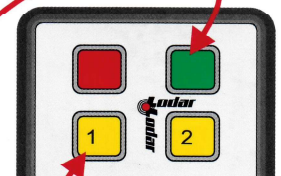
## To register Transmitters to the Receiver.

Switch OFF or DISCONNECT the power to the Receiver and briefly PRESS the STOP button on one or both Transmitter(s).

Switch ON or Reconnect the power to the Receiver. This opens a 20 second registration window in the Receiver processor.

If you are looking at the Receiver PCB the Fault LED Flashes. Immediately PRESS and HOLD both the Transmitter RESET Button and F1 Button (indicated). Continue to hold BOTH BUTTONS for a MINIMUM of 5 seconds during this 20 second window. When the Transmitter is Registered the Fault LED will be illuminated for **3 seconds**. Within this **3 second** period, FIRST release F1 and then the RESET button.

**PRESS & HOLD both RESET and F1 for a MINIMUM of 5 SECONDS**



## TO REGISTER TWO TRANSMITTERS:

When the fault light starts to flash again, immediately PRESS and HOLD both the Transmitter RESET and F1 Buttons of the second Transmitter. Continue to hold BOTH BUTTONS for a MINIMUM of 5 seconds or until the SET LED comes on. Both your Transmitters will now operate the Receiver.

## PRIORITY.

**Only one Transmitter can be active at any time.** For the second Transmitter to work you have to turn off the first Transmitter. Once the second Transmitter is being used then that has priority and it has to be turned off before the first Transmitter can work again.

If you have any problems please phone either your local Distributor or Lodar directly:-  
UK +44 1922 613633. US 1-877- 257-1581.