Wiring Instructions for TI-103 Series 1 to 16 Function, FET Receivers.

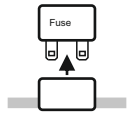
TI-103RX.01E

1 BEFORE YOU START

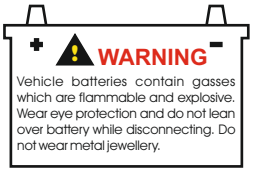
1. The Receiver is designed to carry a maximum of 15 Amps. That is, for example,15 Amps through one output or 5 Amps each through 3 outputs.
2. Master Output. This can be configured to Continuous or Parallel operation, see below right for more details.
3. If Receiver outputs are connected in parallel 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

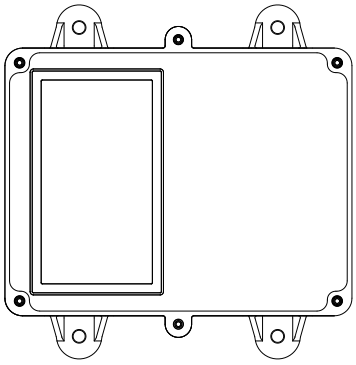
CAUTION

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

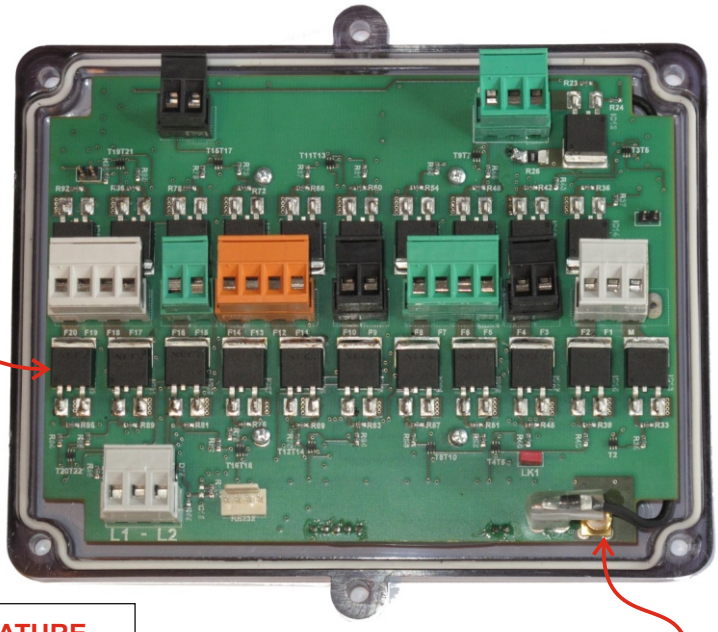
IMPORTANT
TAKE CARE NOT TO SHORT OUT THE MOSFET's WHEN MAKING CONNECTIONS

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.

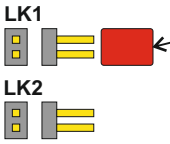


SAFETY FEATURE

The Receiver switches itself off after 30 minutes of inactivity.

OPTIONAL AERIAL CONNECTION

6



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

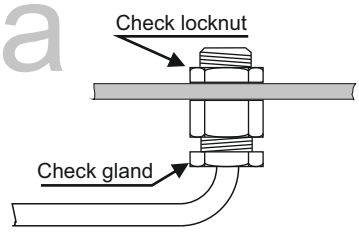
+ 12 / 24 VOLT COMMON	
− GROUND	
S+ (Safety Solenoid etc.)	
MASTER	
FUNCTION 1	
FUNCTION 2	
FUNCTION 3	
FUNCTION 4	
FUNCTION 5	
FUNCTION 6	
FUNCTION 7	
FUNCTION 8	
FUNCTION 9	
FUNCTION 10	
FUNCTION 11	
FUNCTION 12	
FUNCTION 13	
FUNCTION 14	
FUNCTION 15	
FUNCTION 16	
FUNCTION 17	
FUNCTION 18	
FUNCTION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

7

FINAL CHECK

ALL ITEMS IMPORTANT

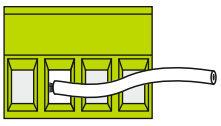
a



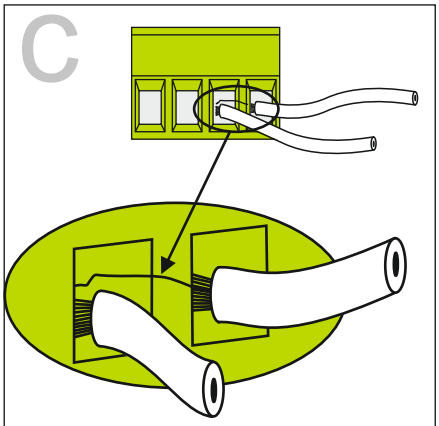
Check tightness of cable gland

b

Check all connector screws for tightness *even the ones that are not used as these could cause a short circuit if they vibrate out of the connector*



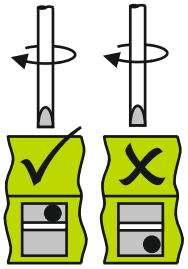
c



Stray strands of wire can cause a short circuit

d

CONNECTOR BLOCK



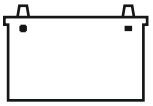
secure wire

e

IT IS NOW SAFE TO RECONNECT THE POWER SUPPLY

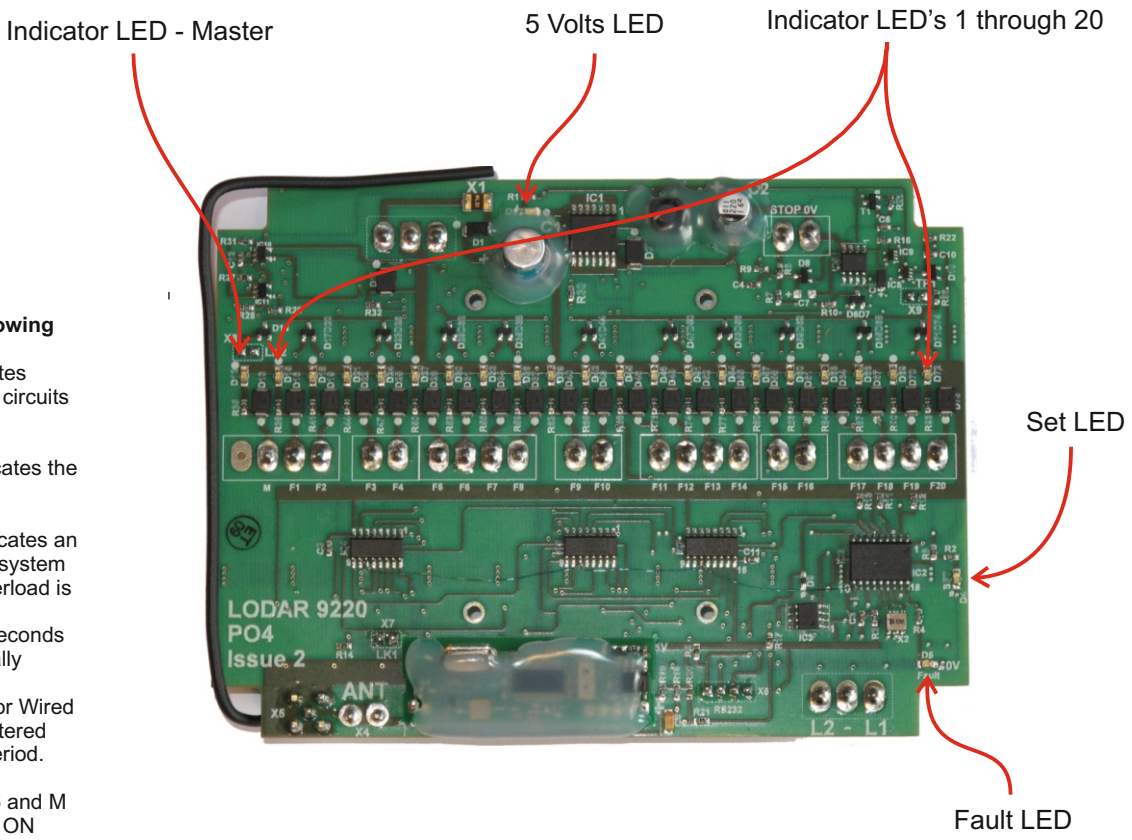
Refit fuse

or Connect Battery



WARNING

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



COMPONENT DETAIL

LED's indicate the following

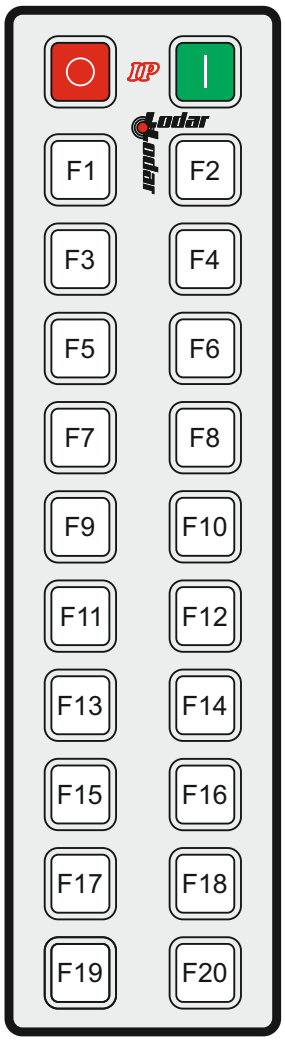
LED marked "5V" indicates power supply for control circuits is OK

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)



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.

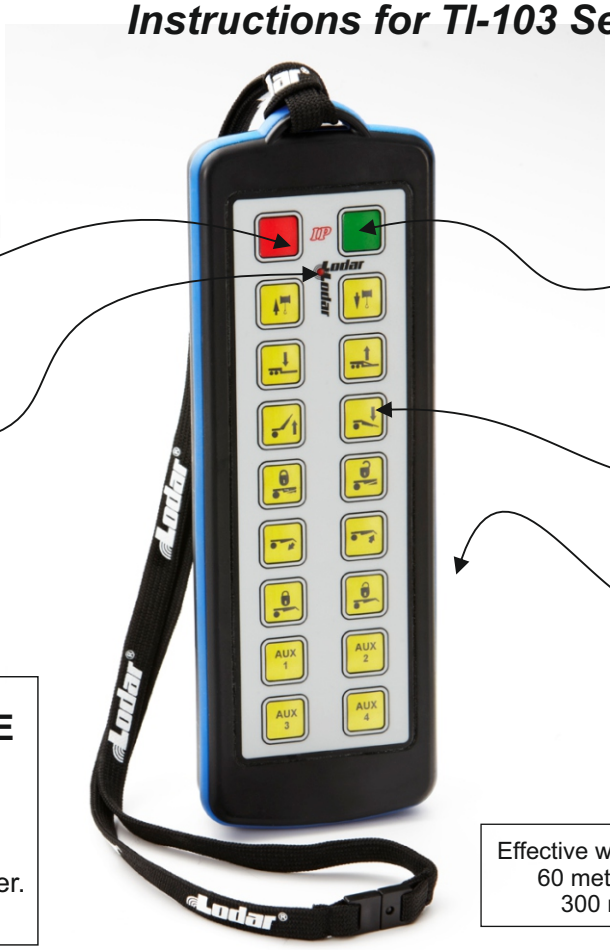
Your product is marked with this symbol. It means that used electrical and electronic products should not be mixed with general household waste. There is a separate collection system for these products.

In the EEC - Please contact your National Distributor (see www.lodar.com 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 TI 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 TI-103 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.

RESET Button activates the Receiver and the keypad function buttons

Function Buttons

4 Release Screws for Battery Compartment at rear.

4 x AAA batteries

SAFETY FEATURE

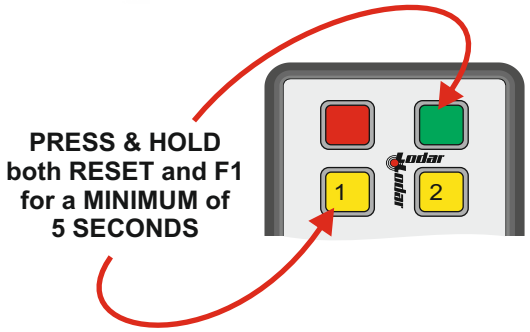
The Transmitter automatically transmits a **STOP** signal after 30 minutes; this de-activates the Receiver and the Transmitter.

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.

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.