BL100B BARRIER LOGIC LOOP DETECTOR

The BL100B combines the features of a loop detector and barrier logic into a single unit. The unit has been developed to control barriers using magnetic motors with ease of installation and without the need for a separate loop detector and external relay.

Standard features of the logic on the unit are :

- **Selectable Memory/Non Memory input**.
  The Memory input feature will allow opening inputs to be memorised. This will then enable a number of vehicles to pass over the closing loop before the barrier lower output is enabled. The purpose of this feature is to enable vehicles to pass the barrier without opening and closing for each vehicle and hence allowing rapid entry or exit of vehicles.

- **Automatic/Manual mode**.
  This mode allows the barrier to be manually operated for maintenance purposes.

- **Barrier raise/lower relay output**.
  This output is used to control the motor which raises or lowers the barrier.

- **Ticket vend interlock output**.
  This output is used to prevent tickets from being issued when the barrier is in the raised position.

- **Time out if vehicle reverses out**.
  On some occasions a vehicle may raise the barrier and then reverse out. In this situation the logic will time-out (switch selectable) and automatically lower the barrier.

- **Roll-back protection**.
  After a vehicle has passed the closing loop and the barrier is closing, it is possible for the vehicle to roll backwards under the closing barrier. In this situation the logic will raise the barrier again until the vehicle moves forward off the closing loop.

- **Automatic closing from loop detector output**.
  The loop detector is connected internally to the logic and is used to close the barrier when the vehicle has passed over the loop.

- **Facility for extra loop detector for opening input interlock**.
  Another loop detector may be used to prevent the barrier from being raised when there is no vehicle present. This is done by placing this loop in front of the barrier and a vehicle must be present on this loop to allow opening of the barrier.

- **Facility for Free Exit loop detector**.
  Another loop detector may be placed after the barrier and used to raise the barrier as a free exit option. This feature is normally used in a bi-directional lane.

Standard features of the loop detector are :

- **Switch selectable Sensitivity**.
  Four sensitivity settings are available on the switches.

- **Switch selectable Frequency**.
  Two frequency settings are available to prevent cross-talk between adjacent loops.

- **Selectable Sensitivity Boost**.
  This feature automatically boosts the sensitivity to a maximum on detection of a vehicle and is used to prevent loss of detection of high-bed vehicles.

TECHNICAL SPECIFICATIONS:

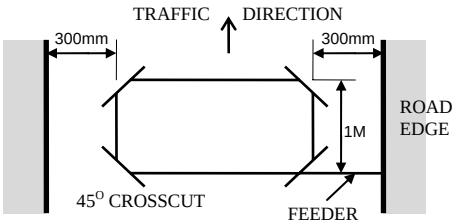
1. **POWER REQUIREMENT**: 200 - 260VAC 50/60Hz.
2. **NMI/MI INPUT**: This input may be activated by a potential free relay contact or open collector NPN transistor output. This input is isolated from the logic.
3. **BEAM INPUT**: This input may be activated by a potential free relay contact or open collector NPN transistor output. This input is isolated from the logic and is used to keep the barrier open when a vehicle has broken the beam.
4. **RAISE/LOWER OUTPUT**: These outputs are a relay contact rated at 5A/220VAC.
5. **TVI OUTPUT**: This output is a normally closed solid state transistor output rated at 100mA/35VDC.
6. **INDICATORS**: LED indicators show power, barrier raised and state of loop detector.
7. **DETECTOR TUNING RANGE**: 15 - 1500 uH.
8. **SENSITIVITY**:

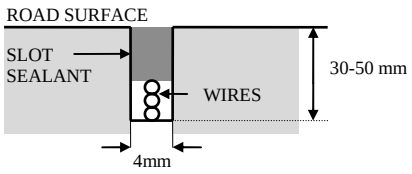
High	-	0.02%
Medium High	-	0.05%
Medium Low	-	0.1%
Low	-	0.5%

9. **FREQUENCY**: Two step adjustable.
10. **PROTECTION**: Loop isolation transformer, tranzorb and MOV protection on loop input.
11. **CONNECTOR**: 11 Pin Connector on rear of unit.

LOOP INSTALLATION GUIDE:

1. The loop and feeder should be made from insulated copper wire with a minimum cross-sectional area of 1.5mm^2. The feeder should be twisted with at least 20 turns per metre. Joints in the wire are not recommended and must be soldered and made waterproof. Faulty joints could lead to incorrect operation of the detector. Feeders which may pick up electrical noise should use screened cable, with the screen earthed at the detector.
2. The loop should be either square or rectangular in shape with a minimum distance of 1 metre between opposite sides. Normally 3 turns of wire are used in the loop. Large loops with a circumference of greater than 10 metres should use 2 turns while small loops with a circumference of less than 6 metres should use 4 turns. When two loops are used in close proximity to each other it is recommended that 3 turns are used in one and 4 turns in the other to prevent cross-talk.
3. Cross-talk is a term used to describe the interference between two adjacent loops. To avoid incorrect operation of the detector, the loops should be at least 2 metres apart and on different frequency settings.
4. For loop installation, slots should be cut in the road using a masonry cutting tool. A 45^o cut should be made across the corners to prevent damage to the wire on the corners. The slot should be about 4mm wide and 30mm to 50mm deep. Remember to extend the slot from one of the corners to the road-side to accommodate the feeder.
5. Best results are obtained when a single length of wire is used with no joints. This may be achieved by running the wire from the detector to the loop, around the loop for 3 turns and then back to the detector. The feeder portion of the wire is then twisted. Remember that twisting the feeder will shorten its length, so ensure a long enough feeder wire is used.
6. After the loop and feeder wires have been placed in the slot, the slot is filled with an epoxy compound or bitumen filler.





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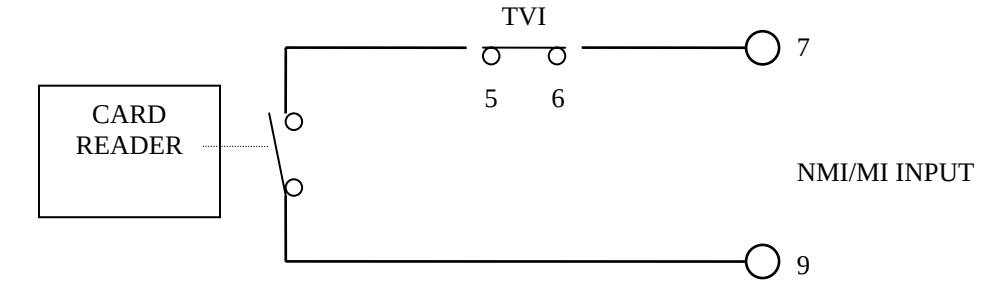
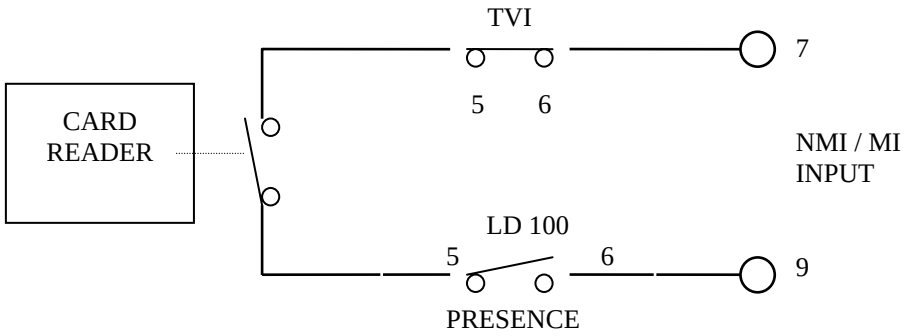
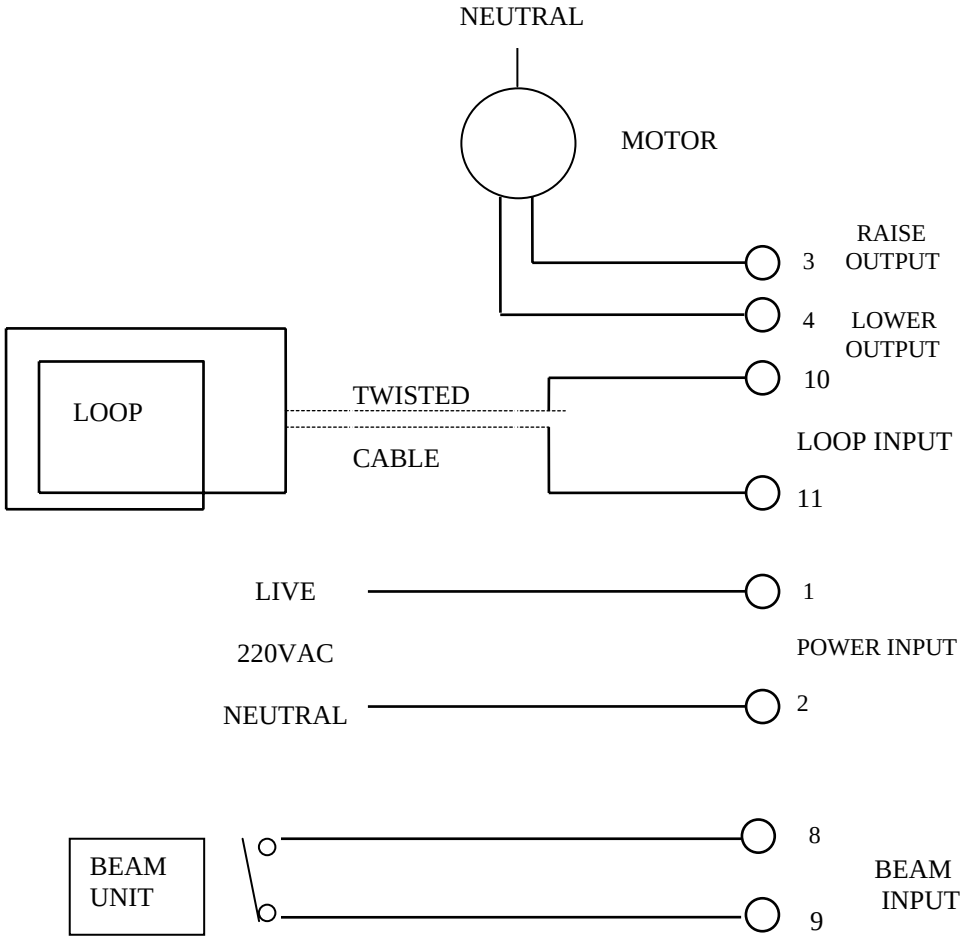
TYPICAL WIRING DIAGRAMS:

[A] BASIC CONFIGURATION:



[B] CONFIGURATION WITH ARMING LOOP DETECTOR.





[C] CONFIGURATION WITH FREE EXIT LOOP DETECTOR: