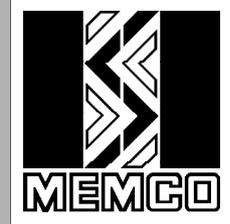


MODEL 616

INSTALLATION SHEET



PART NO. 616 850

ISSUE 4

SYSTEM DESCRIPTION

The 616 safety system consists of a transmitter detector (TX) and a receiver detector (RX) mounted on, or beside, the lift car doors. The detectors generate a light curtain of infra-red beams across the lift entrance. If a beam is broken then an output is switched to re-open the lift doors.

INSTALLATION

(a) Dynamic Installation

The 616 can be mounted on the car doors using the standard fixing kit provided (Fig 1).

1. Position each detector on the car door. Check the detectors will be:-
 - fitted approximately 5mm above the sill
 - aligned level and straight with each other
2. Mark or spot through the five fixing holes.
3. Remove the detectors from the door before drilling to avoid swarf entering the detectors.
4. Drill the five fixing holes in the door using a 3.0mm drill.
5. Screw the detectors to the door using the No 6x16 self-tapping screws and shakeproof washers provided.
6. Secure the cables with the P-clips and No 8x12mm self-tapping screws provided. Ensure the cables are securely held, there are no tight bends and they are not stressed or stretched as the doors move.
7. **Important!** Screw the earth wire ring tag to the lift door using the No 8 screw and shakeproof washer provided. The earth wire *must* be fitted to ensure the unit is properly grounded. Check also that the door itself is grounded to the lift.

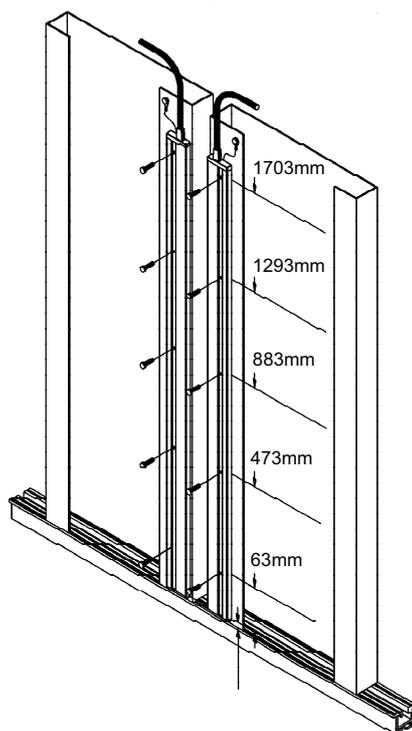


Fig 1: Dynamic Installation

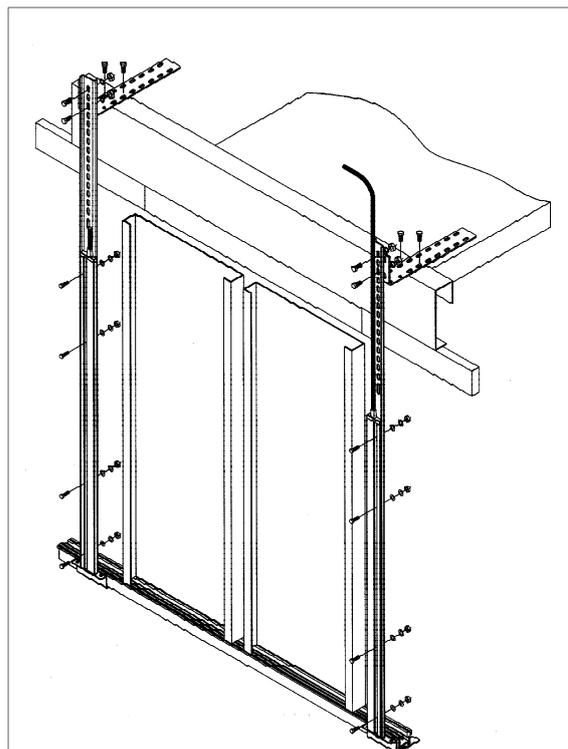


Fig 2: Static Installation

(b) Static Installation

The 616 can be mounted to the car using the static fixing kit (Figs 2, 3, 4). This fixing kit must be ordered separately (Part No 616 800-005).

1. Fix each detector to a long vertical bracket using the M3.5 nuts, bolts and washers provided.
2. Fix the sill bracket to the sill of the lift car using the M6 nuts, bolts and washers provided. Ensure the detectors will be positioned no more than 4m (14 ft) apart.
3. Insert the tongue of the vertical bracket into the sill bracket (Fig 3).
4. Use the 'L' brackets to fix the tops of the vertical brackets to an appropriate fixing on the lift car (Fig 4). Ensure the detectors are aligned vertical and straight with each other.

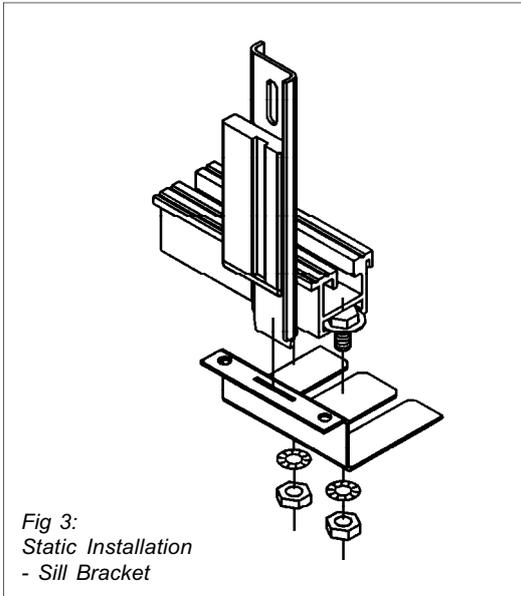


Fig 3:
Static Installation
- Sill Bracket

5. Secure the cables with the P-clips and No 8x12mm selftapping screws provided. Ensure the cables are securely held, there are no tight bends and they are not stressed or stretched as the doors move.
6. Screw the earth wire ring tag to the fixing bracket using the No 8 screw and shakeproof washer provided.

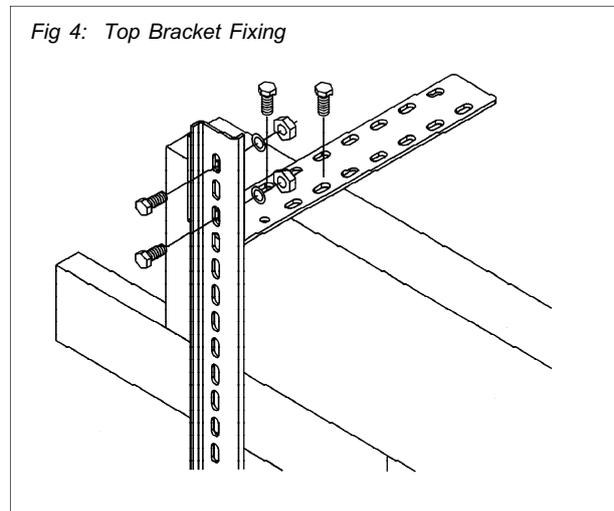


Fig 4: Top Bracket Fixing

SYSTEM CONNECTION

(a) Using a Model 280/281 Power Supply

For worry-free installation, we recommend using a Memco Model 280 or 281 power supply. This provides a regulated DC supply for the detectors and a "clean-contact" relay to re-open the lift doors.

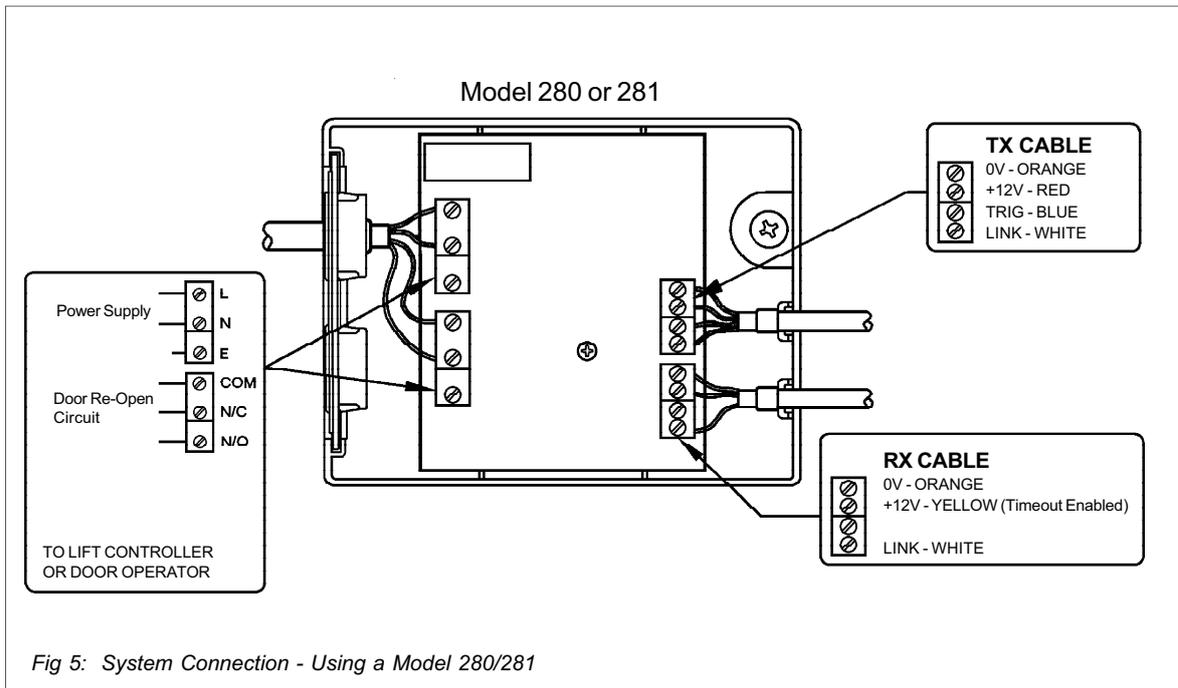
1. Position the Model 280/281 in an appropriate place. Ensure both RX and TX cables will reach.
2. Connect the 616 TX cable as shown in Fig 5. Connect the 616 RX cable as shown in Fig 5.

Important:

- Do not shorten Memco cables by cutting them. (Different wire colours may be used inside).
- Only use Memco cable between the RX/TX detectors and the Model 280/281.
- Ensure cables are kept away from AC mains or high voltages.
- Be very careful not to confuse wire colours in the dim light of the lift shaft.
- 'Timeout' Option - Normally the timeout option is enabled by connecting the yellow wire to the '+12V' terminal as shown in Fig 5. If desired it can be disabled by connecting the yellow wire instead to the '0V' terminal.

3. Connect the "door re-open" input of the lift controller or door operator. The Model 280/281 provides "clean" relay contacts as follows:-
 - 'COM' = common
 - 'N/C' = normally closed
 - 'N/O' = normally open
4. Connect the power supply.
 - Model 280 - connect 230V AC/115V AC. (check the selector switch!)
 - Model 281 - connect 15-35V DC.

5. Set SW2 and SW3 to match the version marked on the TX detector. (Usually this will be 'PNP' and 'N/C' and the switches will not require changing, but other combinations are possible).
6. Turn on power to the Model 280/281 and test the installation. A tone will be heard when a person or object is detected. This tone can be disabled using SW1.



(b) Using Direct Connection

Often the 616 can be directly connected to the lift-controller or door-operator. In such cases the output transistor inside the 616 TX detector directly drives the "door-reopen" circuit on the lift.

Warning – direct connection requires good understanding of both lift and detector electronics. Any incompatibility between the two systems may cause permanent damage to either. If you have any doubts then you should use a Memco 280/281 Power Supply instead.

- 1 Check the 'Door Reopen' input on the lift is compatible with the 632 output transistor.

The 632 output transistor is factory-configured and cannot be changed afterwards. It may be NPN or PNP as shown in fig 6. It may also be Normally-Open (N/O) or Normally-Closed (N/C). Each version has a different part number. The Memco standard is PNP-N/C because this provides a "failsafe" connection.

Check :-

- The 'Door Reopen' input accepts a transistor drive of the appropriate type.
- The 'Door Reopen' input is not connected to any other lift circuit (e.g. the 'Reopen' button inside the lift car);
- *The voltage on the transistor output (blue wire) will never be more than the supply voltage or less than 0V;*
- *The current through the transistor will never exceed 250mA (e.g. load resistance >150W);*
- *The current through the transistor will never be negative or AC;*

Note - if you have any doubts then you should use a Model 280/281 Power Supply.

- 2 Check the power source is suitable. This power source is normally provided by the lift-controller or door operator.

Check :-

- DC – do not use an AC supply;
- Regulated – do not use an unsmoothed supply;
- Negative Ground – do not use a 'positive ground' supply (since the orange 0V wire is connected to the earthed metalwork);
- Common Referenced – the supply and 0V must be the same as for the 'Door-Reopen' circuit on the lift-controller or door-operator. Beware of earth-loops.
- Correct Voltage – the voltage must be at least 11V and *never exceed 36V DC under any circumstances*. Beware of any ripple or short transients on the supply. A standard DC voltmeter normally measures the average voltage present – *not* the maximum voltage! Check carefully.
- Sufficient Power – the supply must be capable of supplying at least 100mA plus whatever current is needed to drive the 'Door-Reopen' circuit on the lift.

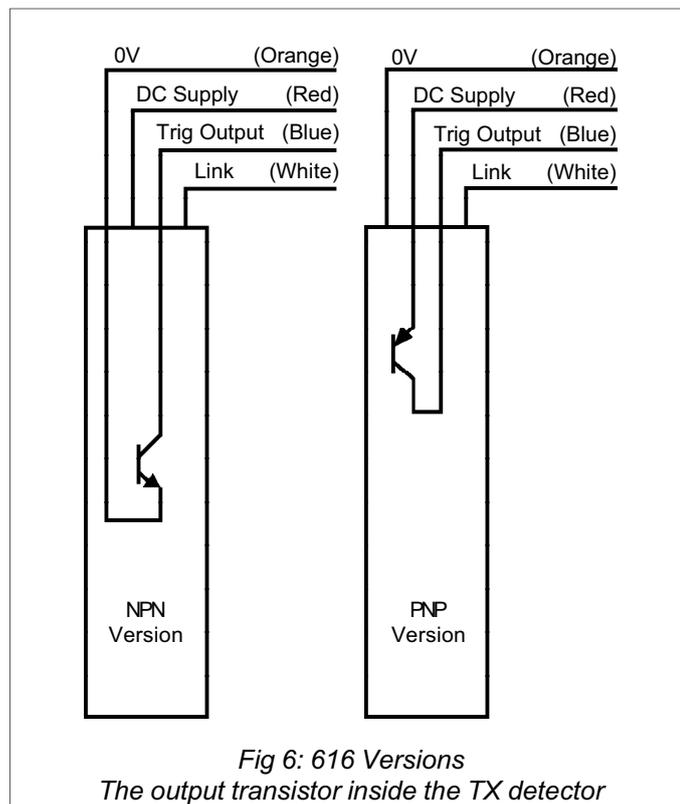
Note - if you have any doubts then you should use a Model 280/281 Power Supply.

- 3 Ensure all power to the lift is completely turned off while wiring the detectors.
- 4 Connect the TX and RX cables to a voltage-free terminal block on the lift car as shown in Fig 7. We recommend always connecting the '0V' (orange) wires first. Connect the car-top terminal block to the lift controller or door operator using three wires as shown.

Important

- Do not shorten Memco cables by cutting them. (Different wire colours may be used inside)
- Only use Memco cable between the RX/TX detectors and the car-top terminal block. (The Memco cable is specially shielded. In particular, the white and orange wires carry sensitive data between the TX and RX detectors and *must only be connected using Memco cable*)
- No more than three wires should go up the travelling cable to the lift controller ('DC supply', '0V' and 'Door Re-Open').
- Ensure all cables are kept away from AC mains or high voltages.
- Be very careful not to confuse wire colours in the dim light of the lift shaft.
- *'Timeout' Option* - Normally the timeout option is enabled by connecting the yellow wire to the supply voltage (red wire) as shown in Fig 7. If desired it can be disabled by connecting the yellow wire instead to 0V (orange wire).

- 5 Turn on power to the system and fully test the installation.



*Fig 6: 616 Versions
The output transistor inside the TX detector*

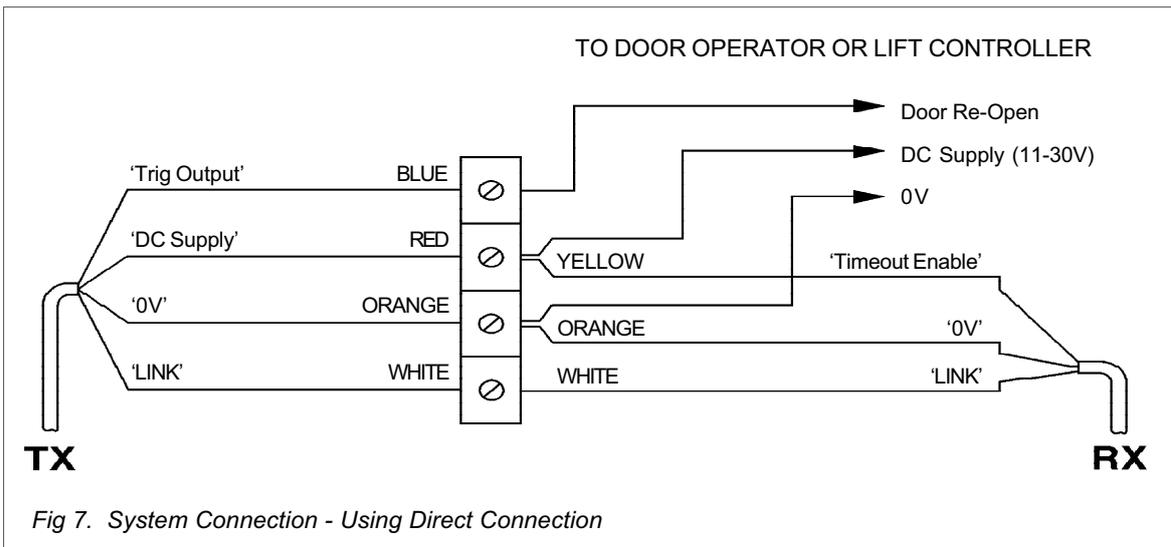
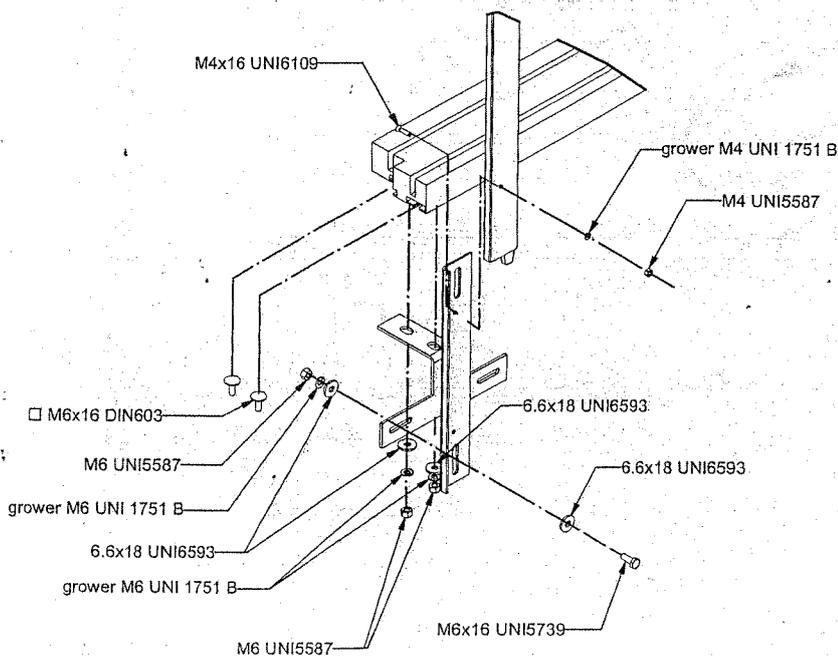
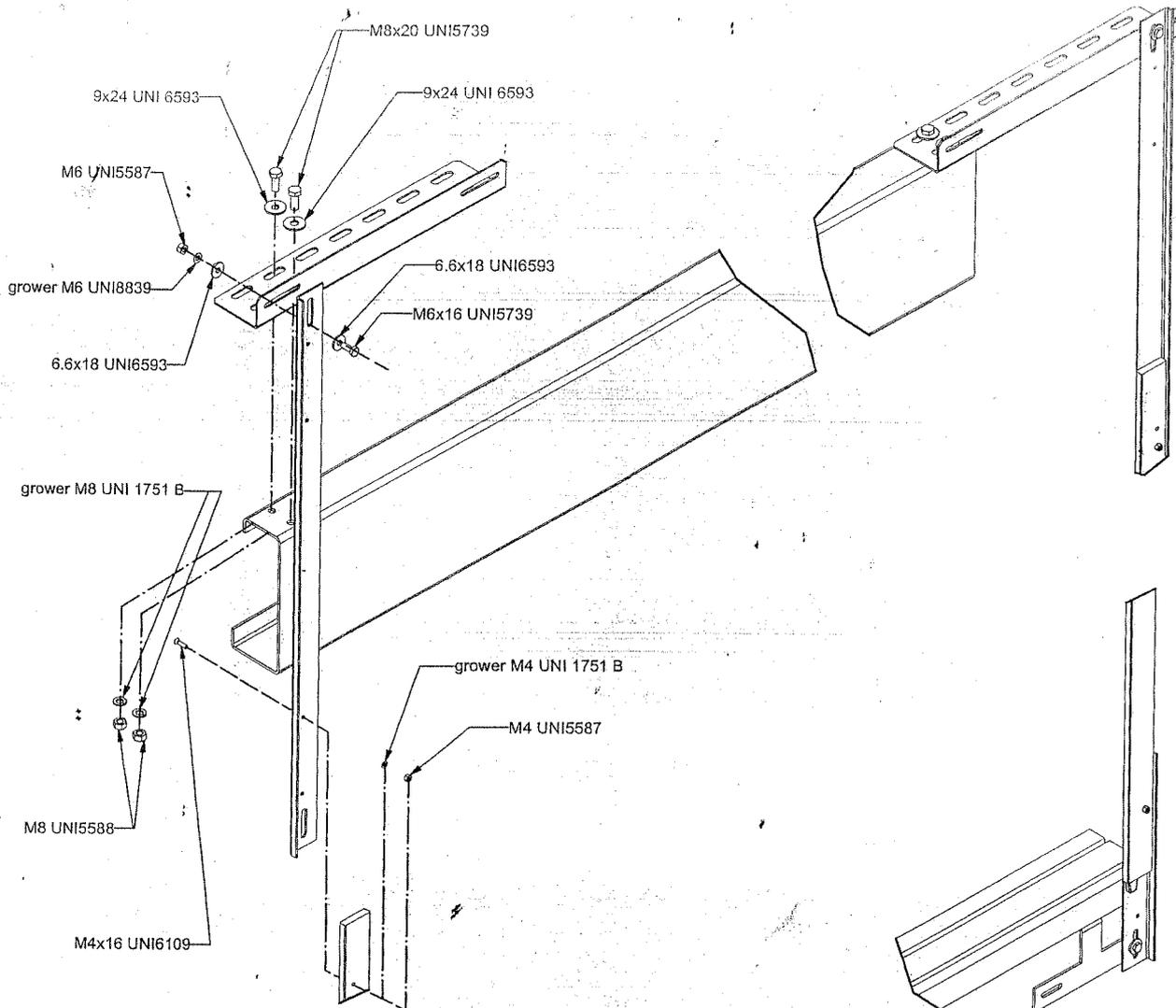


Fig 7. System Connection - Using Direct Connection

LED Operation

The TX detector has two LEDs for troubleshooting that are positioned at the top end of the detector.

LED STATUS	SYMPTOM	POSSIBLE CAUSE
<input type="checkbox"/> <input type="checkbox"/>	No LEDs visible	No Power Check the 'DC Power' (red) wire and '0V' (orange) wire
<input checked="" type="checkbox"/> <input type="checkbox"/>	Top LED flashing Bottom LED off	Link disconnected Check the 'Link' (white) wire and '0V' (orange) wire
<input checked="" type="checkbox"/> <input type="checkbox"/>	Top LED on Bottom LED off	Obstruction between detectors
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Both LEDs on	Normal (unobstructed) operation
<input checked="" type="checkbox"/> <input checked="" type="checkbox"/>	Top LED on Bottom LED flashing (fast rate)	A diode has been timed out



Installation infra-red detector
 TMC car
 1 0991 008 - release 2.0 - 01.02.2007

Installazione barriera elettronica
 per cabina TMC
 1 0991 008 - versione 2.0 - 01.02.2007

