



FOREWORD

Thank you for purchasing the TARGET LRC 100. With this system you possess a very advanced laser product that can be used for a wide range of applications. The TARGET LRC 100 has been specially developed for the European market in collaboration with a former division of Synrad Inc., worldwide one of the foremost specialists in the area of industrial laser applications.

In order to become fully conversant with the operation of the TARGET LRC 100, we recommend that you read this manual carefully.

We trust that our system will make a considerable contribution to a comfortable driving style and we wish you much pleasure in using your TARGET LRC 100.

Target Automotive BV

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TARGET LRC 100 APPLICATION AREA



1. OUTSIDE LIGHTING CONTROL SYSTEM



2. ACCESS CONTROL SYSTEM



3. GARAGE DOOR CONTROL SYSTEM



4. ACTIVE LASER DETECTOR

The TARGET LRC 100 package includes:

- 1 transponder with connecting cable
- 1 cable for feed-through to the interior
- 1 switch for switching the system on/off, including fuse holder with 3A fuse
- 1 LED for optical indication
- 1 piezo buzzer for acoustic indication
- 1 spirit level
- All the necessary mounting material, brackets and screws

Accessoires (Optional)

- Extra transponders for the vehicle.
- External transponders for controlling doors, lighting etc. (an unlimited number may be used in combination with the Target LRC 100).
- Adapter set for motorcycles. In this case the TARGET LRC 100-M version must be ordered. This set is completely waterproof and weather resistant and is also provided with a special optical indicator that is visible for motorcyclists in all circumstances.

How does the TARGET LRC 100 work in combination with external transponders?

The separately available external transponders for the TARGET LRC 100 make it possible for you to operate doors, gates and lighting automatically from a distance. This transponder, a separate module that can be mounted inconspicuously on the wall of your garage, for example, looks for automatic contact with the transponder on your vehicle at the moment that it comes within range. As soon as the transponder concerned is registered by the TARGET LRC 100, this responds to the signal and the connected system (garage door, lighting or gate) is activated. The distance that can be bridged between the two transponders is approximately 50 metres. Comprehensive instructions with regard to installation and use will be found in the packaging of the external transponders.

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How does a laser gun work?

A laser gun uses infra-red (invisible) laser light that functions best when it is aimed at optimum reflecting components such as the licence plate or the headlamps. The computer, that forms an integral part of the laser gun, calculates the time that the emitted laser beam takes before it is returned and subsequently displays the speed of the vehicle at which it is aimed.

On average, a laser gun emits approximately 100 separate pulses in the 0.3 second that is necessary in order to determine the speed of a vehicle. In contrast with radar measurements, a laser gun can pick out a particular vehicle from a group with considerable accuracy (see figure 1). At a distance of 300 metres the width of the beam is approximately 1 metre. A radar beam is many times wider (see figure 2).

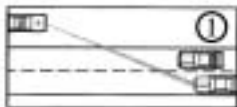


figure 1

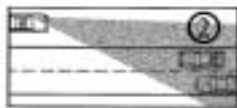


figure 2

How does a laser detector work?

Laser detectors that can be mounted behind the windscreen provide little or no protection against laser guns because in most cases, they only detect the laser beam when it is aimed at the vehicle. If a laser detector nevertheless gives an alarm, it will be too late to apply the brakes because the laser gun will already have established the speed of the vehicle.

Aan what does the TARGET LRC 100 do in this case?

The Target LRC 100 is an active laser detector. The receiver part (the infra-red photo diode), is so adjusted that no false alarms can occur. However, as soon as a laser gun is aimed at your vehicle the system comes into operation.

In that case the TARGET LRC 100 emits a signal with a duration of 7 seconds that will be picked up by the laser gun. At the same time you will be warned by the light/sound signals on the display in the vehicle. During this 7 second period, the laser gun cannot establish the speed of your vehicle and you have sufficient time in which to check, and if necessary reduce your speed. After a transmission session of 7 seconds the system functions only as detector for the next 60 seconds (you will then be warned when your vehicle is being shot with a laser gun but the system will not transmit a

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corresponding signal). Thereafter, the system automatically returns to standby. The only reason that the TARGET LRC 100 discontinues the laser transmission after 7 seconds is to give police the opportunity to determine the speed of your vehicle at a moment that is best for you.

Laser guns are provided with special narrow-band filters that prevent light sources originating from LEDs (Light Emitting Diodes), headlamps, sunlight reflectors, etc., from disturbing the measurement. The LRC 100 accordingly makes use of an indium gallium arsenide laser diode. This is exactly the same type of diode as that used in the guns. The LRC 100 sends a powerful laser signal with the wavelength that is normally used by laser guns to receive reflected signals. The signal produced by the LRC 100 reaches the laser gun before it receives the reflected signal. In this way the laser gun is prevented from determining the speed of the vehicle concerned. For many questions arising concerning laser guns and the TARGET LRC 100 we refer you to the section "The most frequently asked questions concerning the TARGET LRC 100" on page 10-11.

System components and their functions



TRANSPONDER

1. Laser opening
Check regularly for contamination and clean with water and a soft cloth for maximum performance.
2. Mounting brackets.

SYSTEM COMPONENTS

- | | |
|------------------|--|
| 3. On/off switch | :to enable the system to be switched off independently of the vehicle ignition system. |
| 4. LED | :for optical warning |
| 5. Piezo buzzer | :for acoustic warning |



Installation

Ensure optimum performance of the Target LRC 100. In order to be certain that the system will function in an optimum manner you must follow the instructions given below.

Mounting the transponder

For preference, mount the transponder in the immediate vicinity of the licence plate on the front of the vehicle. This may also be in or behind the grille. Note that when the transponder is mounted behind the grille the necessary "window opening" must be larger the further the transponder is behind the opening. For this refer to the conversion table on page 8.

One transponder is sufficient for:

- Practically all private cars.
- All vehicles for which the distance between the licence plate and one of the two headlamps is not more than 55 cm. (measured from the edge of the licence plate to the inside edge of the headlamp).

Two transponders are necessary for:

- Situations in which measurements with a laser gun are regularly made over a short distance (<100 metres).
NB. This situation does not occur very often in practice.
- All vehicles for which the distance between the licence

plate and one of the two headlamps is greater than 55 cm. When two transponders are fitted, it is recommended that the transponders be mounted with the licence plate as the middle point, with a distance of 1/3 of the width of the vehicle between them. The assembly and wiring instructions for a second transponder are included in the packaging of this transponder.

For the installation of the TARGET LRC 100 proceed as follows:

1. Determine the number of transponders required and the installation position (1 transponder on the front of the vehicle is nearly always sufficient).
2. Mount the transponder with the aid of the mounting brackets included in the package. Depending on the situation, make use of the U or L sections (see figures 1 and 2).

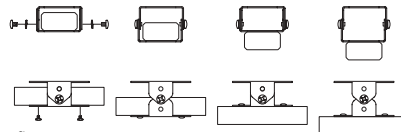


figure 1

3. Ensure the correct alignment of the transponder (figure 6).

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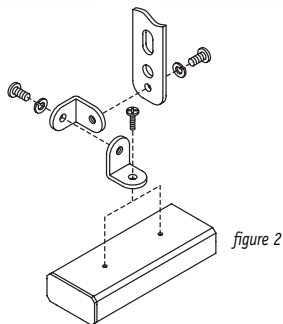


figure 2

4. Feed the cable of the transponder through the engine compartment. For this, make as much use as possible of the existing cable guides. Do not pull the cable too tightly and ensure that there are no sharp kinks in the cable. Feed the cable through an existing grommet to the interior of the vehicle. Make all connections as shown in figure 4.

5. **IMPORTANT!** Connect the power supply cable (this is the cable with the switch and the 3A fuse) to a switched +12V wire (+15). This is the wire to which voltage is applied when the vehicle ignition is switched on. Connect the black (-) wire to a ground (chassis).

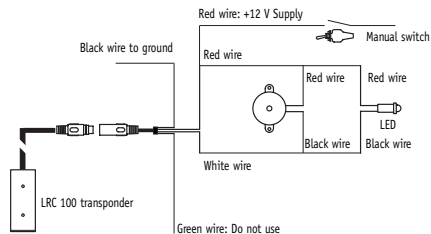


figure 4

6. Mount the switch and the piezo buzzer under the dashboard for preference. It is not essential to connect the LED but it can be fitted in a visible position on the dashboard if desired.

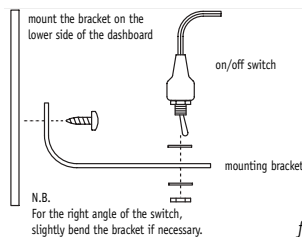


figure 5

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Aligning the transponder

It is of great importance to correctly align the transponder. This applies to both the vertical and the horizontal positions (see figure 6).

Vertical: Upward / downward. Ensure that the vehicle is level. For the adjustment of the vertical position use the spirit level supplied. Hold this with one of the ends at right angles to the lens of the transponder and screw the bracket in position when the correct alignment has been reached (see figure 1).

Horizontal: Left / right. The mounting brackets included provide you with the possibility to aim the transponder to the left or to the right. The transponder must be fixed at right angles to the long axis of the vehicle.

To achieve vertical and/or horizontal alignment it may be necessary to bend the fixing brackets used slightly to obtain an optimum result.

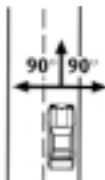


figure 6

TARGET LRC 100 conversion table for the installation of the transponder

Use the following conversion table when mounting the transponder in the grille or behind a ventilation opening in the vehicle. Mounting with the aid of these parameters guarantees maximum performance of the TARGET LRC 100.

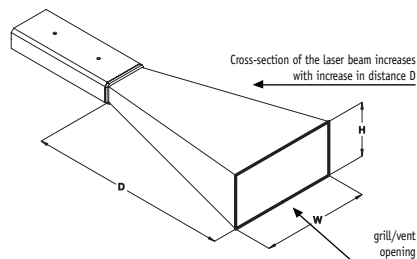
Dimensions in millimetres

figure 7

Minimum height H	6	8	9	10	11	13	14	15	16	18
Minimum width B	16	18	21	23	26	28	31	33	36	38
Maximum depth D	0	12	24	36	48	60	72	84	96	108

Minimum height H	19	20	21	23	24	25	26	28	29	30
Minimum width B	41	43	46	48	51	53	56	58	61	63
Maximum depth D	120	132	144	156	168	180	192	204	216	228

Minimum height H	32	33	34	35	37	38
Minimum width B	66	68	71	74	76	79
Maximum depth D	240	252	264	276	288	300





Testing for correct operation

After the TARGET LRC 100 has been installed in accordance with the instructions the system can be tested for correct operation.

Switch the system on by switching on the vehicle's ignition. Switch the LRC 100 on with the aid of the on/off switch.

Result: After several seconds the buzzer will give 2 short beeps and the LED (if connected) will light up at the same time. The system is now ready for use.

Statutory provisions

Throughout the world, the emission of laser light is not subject to statutory provisions and is thus permitted.

In the first place the TARGET LRC 100 was developed as an active outside lighting and access control system (garage door, gate, etc.) in which a greater degree of safety for the driver of the vehicle was the central issue.

In order not to interfere with laser speed measurements made by the police, you can decide to switch off the system while driving on the public highway.

Safety

The TARGET LRC 100 is a so-called Class I laser. This laser is safe for the eyes and because of its divergent beam (widely fanned out) and a number of safety measures built-in to the system, it is completely harmless.

The LRC 100 only transmits a signal when the system is activated by the external transponders or a laser gun. Use the LRC 100 exclusively for applications in road vehicles and vessels. If you wish to examine the transponder for damage, we recommend that you take the precaution of first switching off the vehicle ignition.

Important information for every user

- Check the lens of the transponder regularly for contamination. For preference, do this every time you make a stop for fuel. Dust and salt have only a limited adverse influence on the proper functioning of the system. Anything that completely covers the lens, such as leaves or insects, must be removed.
- Also check the housing and the lens of the transponder regularly for damage.
Switch off the system and contact your dealer if the lens appears to be damaged.
- Have the adjustment of the transponder checked periodically (for example 1 x per year) by your dealer.

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The most frequently asked questions concerning the TARGET LRC 100

1. Can the TARGET LRC 100 be used in place of a radar detector?

No, the TARGET LRC 100 only receives signals from laser guns and thus offers no protection against speed traps that function with the aid of radar equipment. In addition to the TARGET LRC 100 you need a good radar detector.

2. Does the TARGET LRC 100 also generate a false alarm, as so often happens with some radar detectors?

No, a quieter travelling companion than the TARGET LRC 100 does not exist. Because of the active filters with which the system is provided, there is never any question of a false alarm. All non-infra-red light sources are accurately filtered out. The system reacts only to infra-red light sources with a wavelength of 904 nanometres. Your TARGET LRC 100 gives an alarm when you are within range of one of the transponders (garage door, etc.) or when your speed is being measured with a laser gun.

3. Is the TARGET LRC 100 effective against all laser guns?

Yes, every laser gun, irrespective of make and type, operating on 904 nanometres, will be recognized as such and will be neutralized by the TARGET LRC 100.

4. Does the TARGET LRC 100, separately or in combination with a good radar detector, offer protection against all speed traps?

No, it cannot offer protection against inconspicuous surveillance vehicles that follow you and which make use of a calibrated speedometer to establish your speed. Neither is the system in a position to detect those systems that function with the aid of a loop arrangement embedded in the road surface (think about combined red traffic lights and speed cameras, etc.).

5. Does an ordinary laser detector offer no protection against speed traps using a laser gun?

No, an ordinary laser detector, such as is often present in many radar detectors, is absolutely not effective. At the moment that such a detector is activated, your speed has already been recorded. Actually, you will only be warned for the payment of a fine that arrives on your doormat several weeks later.

6. Can the laser of the TARGET LRC 100 result in eye injury?

No, the TARGET LRC 100 is a class 1 laser system (safe for the eyes) and is provided with a special lens by means of which the laser beam fans out over a wide angle (25° x 10°). The amount of energy that is released in this way is very low and is accordingly completely harmless.

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7. Can I also use the TARGET LRC 100 to control systems / equipment other than those referred to in the manual?

Yes, in principle any electrical system can be switched on and off at a distance with the TARGET LRC 100. However, before you consider doing this we recommend that you contact the dealer from whom you purchased your TARGET LRC 100.

8. Is the use of the TARGET LRC 100 as an active laser detector also permitted in foreign countries?

In the way that it works, the TARGET LRC 100 is actually identical to the infra-red remote control you use for controlling audio and video equipment. As a remote control for doors, gates and lighting there is no limitation anywhere in the world on the use of the TARGET LRC 100. Interference with the functioning of a laser gun is only a side effect of the Target LRC 100, comparable with the disturbance caused by the adaptive cruise control systems fitted by various vehicle manufacturers and which are based on laser technology.

9. What makes the Target LRC 100 so exceptional in comparison with other active laser detectors?

The Target LRC 100 is the only system that can be used as a fully-fledged remote control. All other products are so-called laser jammers or laser shifters, which are exclusively intended to prevent a laser measurement

being made. This type of interference with a laser measurement can be seen as "obstruction of justice" and can accordingly be regarded as an offence. For the Target LRC 100 this is only a side effect comparable with the adaptive cruise control of, for example, the Nissan Primera, which is based on laser technology and in the first instance is intended measure the distance to a vehicle in front but which at the same time makes a laser measurement impossible.

In addition, the Target LRC 100 by far the smallest and the only laser detector in the world that makes use of patented laser technology. The LRC 100 employs the same laser diode as that used in most laser guns throughout the world. All other active laser detectors make use of infra-red LED technology and are accordingly less reliable when compared with more advanced laser guns.



SPECIFICATIONS

Specifications

TYPE NUMBER	: LRC 100
TRANSMITTER TYPE	: Indium Gallium Arsenide laser diode, Class 1
RECEIVER TYPE	: IR photo diode with amplification
WAVELENGTH	: 904 nanometres
DIMENSIONS IN MM.	: transponder 75 x 30 x 15 (l x w x h)
TRANSPONDER HOUSING	: CNC milled aluminium, waterproof
POWER SUPPLY VOLTAGE	: 13.8 Volt DC nominal
ACOUSTIC WARNING SIGNAL	: 7 seconds, 87 dBA.
OPTICAL WARNING SIGNAL	: 7 seconds, LED
TRANSMISSION-TIME AFTER TRIGGERING	: 7 seconds, reset time amounts to 60 seconds
CURRENT USAGE	: 500 mA. maximum