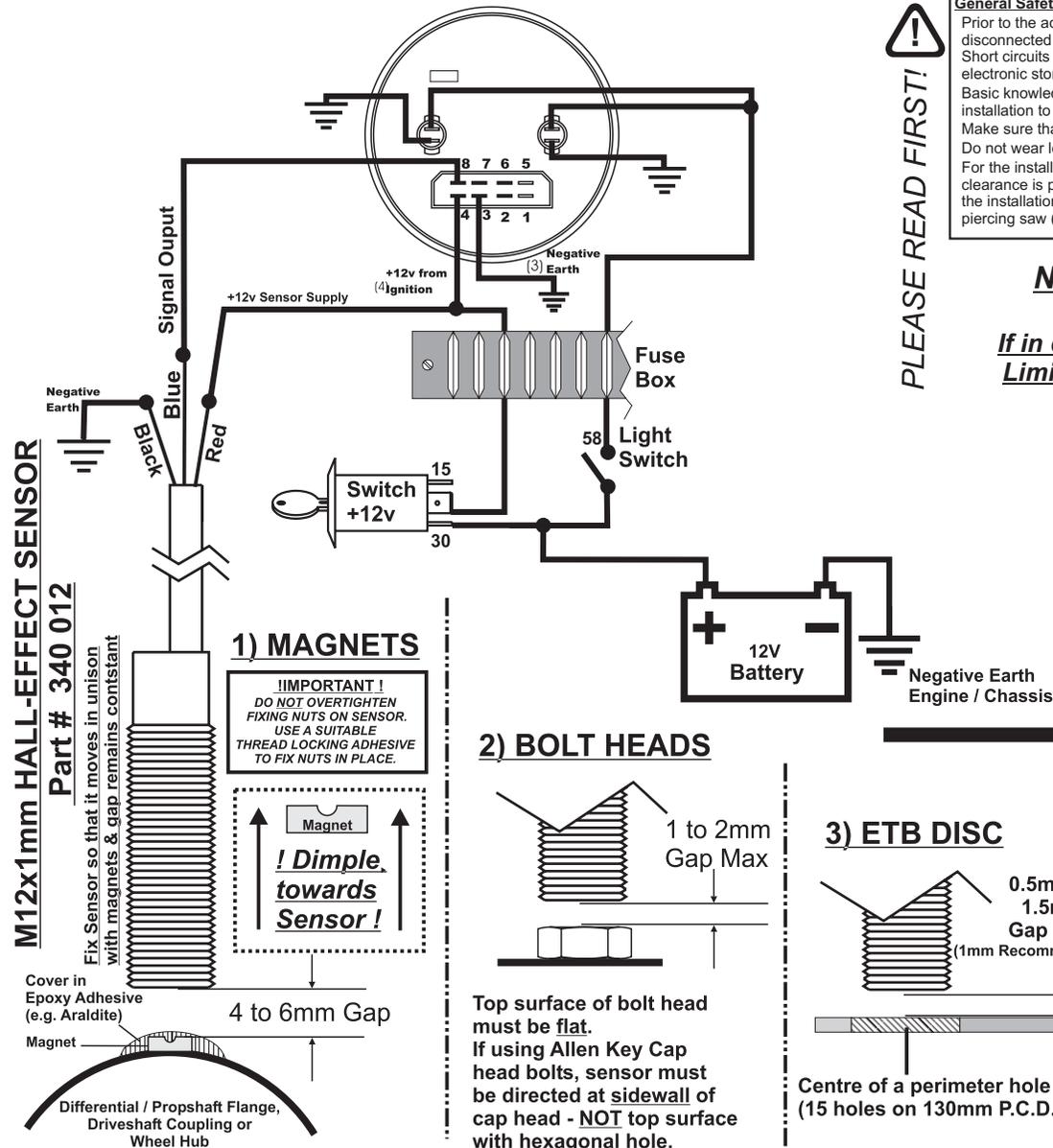


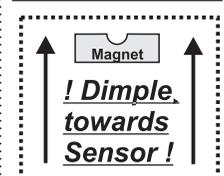
100mm Programmable Speedometer



M12x1mm HALL-EFFECT SENSOR
Part # 340 012

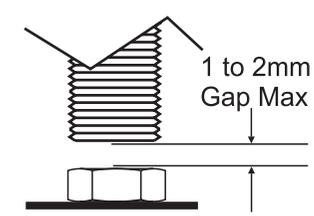
1) MAGNETS

!IMPORTANT!
DO NOT OVERTIGHTEN
FIXING NUTS ON SENSOR.
USE A SUITABLE
THREAD LOCKING ADHESIVE
TO FIX NUTS IN PLACE.



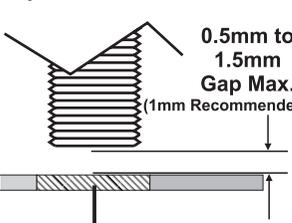
4 to 6mm Gap

2) BOLT HEADS



Top surface of bolt head must be flat.
If using Allen Key Cap head bolts, sensor must be directed at sidewall of cap head - NOT top surface with hexagonal hole.

3) ETB DISC



Centre of a perimeter hole
(15 holes on 130mm P.C.D.)

PLEASE READ FIRST!

General Safety Instructions for ALL Instruments
Prior to the actual installation work, the negative pole of the battery must be disconnected first, since otherwise there is danger of creating short circuits. Short circuits can cause cable fires, battery explosions, and damages in other electronic storage systems.
Basic knowledge of vehicle electrics and mechanics is necessary for installation to prevent harm to people, property and the environment. Make sure that the engine cannot be unintentionally started during installation. Do not wear lose fitting clothes!
For the installation location of the equipment unit, make sure that sufficient clearance is provided behind the installation aperture. Use a drill to pre-drill the installation opening and complete the opening using a compass saw or piercing saw (observe the safety instructions of the hand tool manufacturer.)

Electrical Wiring Safety Instructions for ALL Instruments

- Prior to the actual installation work, the negative pole of the battery must be disconnected first, since otherwise there is danger of creating short circuits. Short circuits can cause cable fires, battery explosions, and damages in other electronic storage systems.
- Connect the cables in accordance with the electrical connection diagram
- Take account of the cable cross section - a reduction in cable cross section results in a higher current density. This can cause the cable to heat up.
- When laying electric cables, use existing cable ducts and routes but without laying cables parallel to ignition or cables leading to high current consumers. Fix the cables with cable tape or adhesive tape.
- Do not route the cables over mobile components.
- Do not fasten cables to the steering column.
- Make sure that the cables are not exposed to tensile, compressive or shear forces.
- If the cables are routed through drilled holes, protect them with rubber sleeves or the like.
- Strip cables only with a cable stripper. Adjust the stripper so that no strands are damaged or severed.
- Crimp connections should only be made with a crimping tool.
- Insulate exposed strands so that no short circuiting can occur.

NEGATIVE EARTH ONLY

**If in doubt telephone ETB Instruments
Limited on (01702) 601055 for advice!**

ETB Limited Warranty

ETB Instruments Limited warrants all merchandise against defects in factory workmanship and materials for a period of 12 months from date of purchase. This warranty applies to the first retail purchaser and covers only those products exposed to normal use or service. Provisions of the warranty shall not apply to an ETB product used for a purpose for which it is not designed, or which has been altered in any way that would be detrimental to the performance or life of the product, or misapplication, misuse, negligence or accident. On any part or product found to be defective after examination by ETB Instruments Limited, ETB Instruments Limited will only repair or replace the merchandise through the original selling dealer or on a direct basis. ETB Instruments Limited assumes no responsibility for diagnosis, removal and/or installation labour, loss of vehicle use, loss of time, inconvenience or any other consequential expenses. In the event of merchandise being returned to ETB Instruments Limited, The responsibility for payment of delivery rests with the customer. The warranties herein are in lieu of any other expressed or implied warranties, including any implied warranty of merchantability or fitness, and any other obligation on the part of ETB Instruments Limited, or selling dealer. Your statutory rights as a consumer are not affected.

Wiring Instructions

1. Always disconnect the battery prior to installation.
2. Connect **Pin 3** on the speedometer to a good dedicated ground / earth location (i.e. where the negative (-) battery pole is connected to the chassis of the vehicle).
3. Connect **Pin 4** on the speedometer to the positive (+) terminal on the battery (after the ignition switch, and after the fuse box)
4. The signal input should be connected in either of the following ways:-
 - a) Magnetic Induction Sensors** - Connect Pins 7 & 8 on the speedometer to the terminals on the heavy duty magnetic induction sensor or to the red and black wires on the light duty induction sensor. It does NOT matter which way round you wire the sensor to the speedometer.
 - b) Hall effect Sensor** - (AS SHOWN)
The signal output wire from the sensor should be connected to Pin 8. (For OEM hall-effect gearbox sensors, please contact the sensor or vehicle manufacturer to obtain wiring information with regard to the hall-effect sensor wiring configuration)
 - c) OEM Gearbox Sensors** - Please contact sensor / vehicle manufacturer to obtain specification of gearbox sensors. Alternatively please contact ETB Instruments Limited on (01702) 601055 for advice.
 - d) Reed Switch Sensor** - Connect Pins 7 & 8 on the speedometer to the terminals or wires on the reed switch.

SETTING UP THE HALL - EFFECT SENSOR
Regardless of whether magnets, bolt heads or ETB's Speedometer Disc are used with the hall-effect sensor, the most important factor is to ensure that as the shaft or hub rotates with vehicle speed, the gap between the sensor and trigger (e.g. magnet or bolt head) remains constant. To ensure this gap remains constant, the sensor must be bolted to a location that moves in unison with the trigger. For example, if placing magnets on the outside circumference of a drive-shaft coupling, the sensor must be fixed to the gearbox or differential.
FIXING MAGNETS
Clean the surface to be used, attach the magnet, (which will stay in place if the surface is ferrous) and apply a fixing adhesive (e.g. araldite or chemical metal) over the magnet to permanently hold it in place. If possible, it is preferable to drill a small, 6mm diameter hole, approximately 1 to 3mm deep to locate the magnet and then smother in a strong adhesive.