

ABSTRACT

DETECTION SYSTEM

Provided is a technique for detecting a vehicle type and a traveling direction of a vehicle by an electromagnetic induction sensor.

A sensor unit (10), which is an electromagnetic induction sensor, includes a transmission coil (TX1), a first reception coil (RX1), and a second reception coil (RX2). A magnetic field of a vehicle (90) made of steel attracts a magnetic field emitted from the transmission coil (TX1) (S1). As the vehicle (90) approaches, a state 1 indicated by the broken line changes to a state 2 indicated by the dash-dot line (S2). A reduction in induced voltage and a phase change occur with respect to the induced voltage when the first reception coil (RX1) is in the magnetic field of state 1 (when the vehicle is not detected) (S3). The differential output signals of the second reception coil RX2 and the first reception coil RX1 change according to the advancement of the vehicle and according to the unevenness of the vehicle bottom portion 92 and the metal species (S4). The trajectory image representing a differential output signal in rectangular coordinates of a reception level and a phase difference is different for each vehicle, so the vehicle type may be distinguished.

Figure 1