TD250 Series Dual Channel Vehicle Detectors

Product Description

The TD250 series of microprocessor based dual channel vehicle detectors is ideal for use in traffic control and toll equipment vehicle detection applications.

Vehicle presence is detected by means of an inductance change caused by the vehicle passing over a loop buried in the road surface. The detector is designed for ease of installation with front panel DIP switches for setting presence times and sensitivities for each channel individually, and for setting the operating frequency. Four different operating modes may also be selected using the DIP switches.

The detector provides outputs in the form of LED's on the faceplate and change-over relay contacts. A common fault relay provides an output in the event of a faulty loop or a power failure.

Two main models are available:

The TD250D provides separate vehicle presence outputs per channel and may also be configured to operate in any of the following modes:

▶ Direction Logic (AB)

▶ Delay Mode

▶ Extend Mode

The TD250L provides separate vehicle presence outputs per channel and may be configured to operate in any of the following modes:

▶ Direction Logic (AB)

▶ Speed Logic

▶ Headway Logic

An output will be provided when pre-set speed or headway threshold has been exceeded, and can be utilised for switching variable warning signs or for gathering traffic statistics.

Applications

▶ Traffic control applications

▶ Toll systems

▶ Vehicle counting

▶ Traffic analysis

Features

▶ **Diagnostic Capabilities:** The internal software allows comprehensive diagnostics capabilities in conjunction with separate DU100 hand-held diagnostics readout.

▶ **Loop Isolation Protection:** The loop isolation transformer provides protection against lightning and transient damage and allows for operation with single point to ground sensor loops.

▶ **Loop Fault Monitor:** The fault monitor signal becomes active in the event of the loop/feeder combination becoming faulty, and will assist in localising faults during commissioning/maintenance call-outs.

▶ **Adjustable Presence time:** The output of the presence relay can be selected to limit a detect output to a fixed time (1 second, 4 minutes or 40 minutes) while a vehicle remains on the loop.

▶ **Direction Logic Option:** An Integral direction logic option is used to establish the direction of vehicle travel with an output provided for each direction.
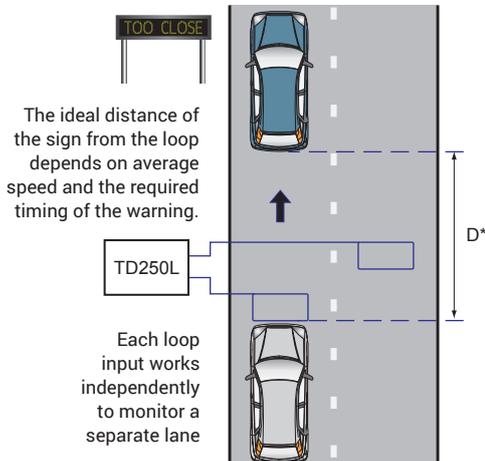
▶ **Delay Mode (TD250D):** A vehicle must be present for a pre-set time before the detector will operate.

▶ **Extend Mode (TD250D):** In this mode the detector output responds immediately to a vehicle's presence and remains for the selected time after a vehicle has departed the loop.

▶ **Speed Mode (TD250L):** In this mode an output relay provides a pulse output when a pre-set speed threshold has been exceeded. This requires the two loops to be spaced at exactly one metre between adjacent edges. The output can be used to control variable warning signs, for traffic analysis, or for extending phases in a traffic control application. It is not suitable for speed prosecution applications.

▶ **Headway Mode (TD250L):** In this mode, the headway (the following interval between vehicles) can be monitored and measured in seconds. Each channel independently provides a pulse output in the event of the vehicle headway being less than the pre-set threshold. The outputs can be used to switch a variable warning sign or for traffic analysis.

TD250 Series Dual Channel Vehicle Detectors

Example Applications

Headway Logic With Warning Sign

TOO CLOSE

The ideal distance of the sign from the loop depends on average speed and the required timing of the warning.

D*

TD250L

Each loop input works independently to monitor a separate lane

*The distance between vehicles is calculated from average speed and the interval between vehicle detects:

Distance (metres) = Interval (seconds) x Speed (metres/sec)

If the interval between detects is less than the preset value, an output will trigger the warning sign.

Speed Logic for Traffic Analysis

TD250L

1 metre
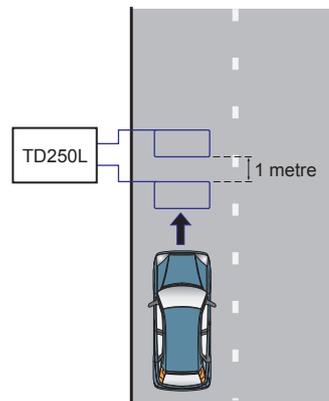
Vehicle speeds are calculated when they pass over both loops. An output is given when a vehicle exceeds the pre-set threshold.

A-B Logic to Detect the Direction of Vehicles

N
W E
S

LOOP A   LOOP B

TD250D

A to B   B to A
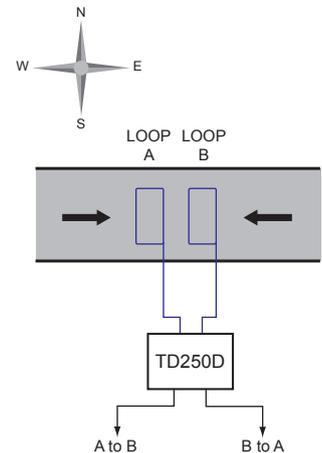
A vehicle travelling from West to East will provide an output pulse "A to B"

A vehicle travelling from East to West will produce an output pulse "B to A"

Specifications

Self-tuning range:	15 to 2000µH
Sensitivity:	Four step selectable:
	High - 0.02% ΔL/L; Medium-High - 0.05% ΔL/L
	Medium-Low - 0.1% ΔL/L; Low - 0.5% ΔL/L
Frequency:	Four step switch selectable - 20 to 150 kHz
	(Frequency dependent on loop geometry)
Presence Time:	Four step selectable:
	1 Second, 4 Minutes, 40 Minutes, infinity
Pulse:	Output Approximately 150ms
Indications:	1 x Run Indicator – Red Steady On
	1 x Tri-coloured LED per channel
Detect Outputs:	Sealed relays rated at 1A @ 220V AC
	Single changeover contact per channel
Output Relay:	Mode Switch selectable (Presence relays are fail-safe)
	1. Normal (Presence)
	2. Direction Logic
	3. TD250D – Delay; TD250L- Speed
	4. TD250D – Extend; TD250L - Headway

Fault Output:	Common fault output (change over relay contact)
Reset:	Push button on front panel
Delay Timings:	Delay turn-on 30 seconds in 2 second steps
Ext. Timing Delay:	turn-off 7.5 seconds in 0.2 second steps
Delay Ext. Override:	230V AC input overrides delay times
Speed Logic Option:	0 – 150kph in 10 kph steps
H/W Logic Option:	0 – 3 seconds in 0.2 second steps
Surge Protection:	Loop isolation transformers, Zener diode clamping on loop inputs and gas discharge tube protection
Power requirements:	TD252, TD250L: 230V AC +/- 15% (48 to 60Hz)
	TD254: 24V DC +/- 15%
	150mA maximum input current
Operating Temp:	-40°C to +80°C
Humidity:	Up to 95% RH without condensation
Housing material:	ABS blend
Mounting Position:	Shelf mounting
Connections:	TD252 / TD250L 2 x 11-pin submagnal type
Accessories:	All flying leads supplied

Ordering Information

TD252:	TD250D 2-Channel with Delay & Extend, 230V AC	**TD250L:**	Dual Channel with Speed & Headway, 230V AC
TD254:	TD250D 2-Channel with Delay & Extend, 12-24V AC/DC	**TD250LS:**	Uni-directional Speed Logic, 230V AC

PEOPLE & VEHICLE
ACCESS SOLUTIONS