



DATArec LOOP MONITOR

is a simplified 4 or 8 lane loop monitor that delivers vehicle information to a motorway system or to other Intelligent Transportation Systems (ITS).

Datarec Loop Monitor advantages:

- Customized classification according to national standards
- Possibility of inductive pattern recognition
- 5+1 length categories
- 8+1 or 9+1 vehicle categories
- Smart sensor technology
- Low current drain
- Low maintenance needs
- Time of passage resolution: 1/100s
- Vehicle speed range: up to 300km/h
- Vehicle length range: up to 25.0m
- Communication: RS-232, USB
- GSM modem handling

The Datarec Loop Monitor is shielded in a rugged aluminum housing. The loop monitor can deliver vehicle information to a motorway system, an ITS or similar.

The Datarec Loop Monitor can be configured for 8 or 16 inductive loops which cover 4 or 8 lanes. Each lane must be equipped with two inductive loops; each lane has identical and independent algorithms.

A vehicle passing the embedded loops in a lane will change the systems characteristic frequency and set up an inductive pattern. The Datarec Loop Monitor reads the inductive signals from the loops, and calculates the time of the passage, direction, speed, length and inductive pattern.

Optionally, Datarec LM can classify the vehicle by analyzing the signal-strength and shape of the inductive signal. This method of classification gives an expanded set of classification categories.

The Datarec Loop Monitor has the capacity to detect 60 vehicles in each lane each minute. Peak performance is up to 70 vehicles each lane each minute. Datarec LM is able to buffer the last 25 vehicles in each lane.

Datarec LM detects failure or changes in the loop status and sends a message, refer overleaf. Traffic counting proceeds even though one of the loops in the lane is failing, making the system highly reliable as basis for traffic studies and planning/management of local roads/motorways.

Datarec Loop Monitor communicates with the motorways system/ITS by sending telegrams in simple ASCII file format. The output parameters are given in engineering units.

All user interface is through serial communication lines; communication will not influence the process for vehicle registration.

Specifications

Preliminary

Datarec Loop Monitor processors:

The Datarec Loop Monitor is equipped with 2 front end processors to serve the inductive loops. One front end processor per each 8 loops. The front-end processors are of the same type as in Datarec7 Signature, and are equipped with the same software and improved algorithms.

The loop monitor is also equipped with a digital signal processor. Communication between the front-end processors and the signal processor uses SPI-communication.

The TMS-processor take care of the vehicle algorithms and necessary communication.

Loop failure:

If one of the loops embedded in a lane is failing, the Datarec Loop Monitor continues to detect vehicles with the remaining functional loop. In this case, the Datarec Loop Monitor does not have enough information to present the vehicles direction, speed, length, length category or profile.

When the loop-status is changed, the Datarec LM sends a message telegram giving the new status. Status telegrams are send maximum once a minute. Loop status: connected, disconnected, short-circuited or failing.

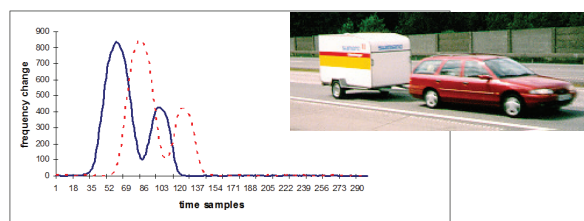
Loop requirements:

The Datarec Loop Monitor requires 2 inductive loops per lane to perform classification calculations.

Each loop must be installed according to TN304. Datarec LM is configurable for different loop sizes.

Figures below: examples of typical inductive pattern

Classification of a vehicle can be more correct when studying the details in the inductive pattern of the vehicle than looking at the registered length of the vehicle only. In the figures, a car with a follower can easily be mistaken for a longer bus if classified by the length of the inductive pattern only. The y-axis gives the change in frequency, and the x-axis gives the time samples.

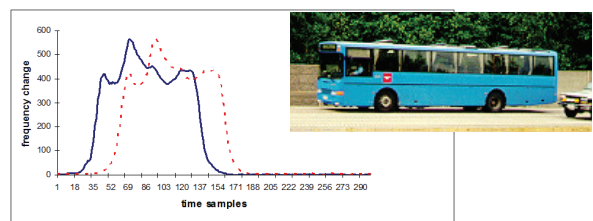


Detection capacity:	70 vehicles per minute per lane
Buffer capacity:	last 200 vehicles
Classification categories:	8+1 or 9+1
Length categories:	5+1 standard
Speed range:	up to 300km/h ¹⁾
Length range:	up to 25m
Time of passage resolution:	1/100s
Communication:	two serial interfaces: one for RS-232, GSM modem one for USB
Supply voltage:	10 to 14VDC
Maximum current drain:	50mA@12V. The current drain depends on the traffic density
Operating temperature:	-40 to +75°C
Dimensions:	290x220x65mm
Material:	aluminium
Output parameters:	direction, speed, length, length category
Optional parameters:	classification based on inductive pattern
Accessories:	
not included:	loop connection cable K151A Serial cable from Datarec LM to ITS or modem CE
Certifications:	
Loop requirements:	
Inductance:	150 - 200μH
Connection cable length:	nominal: 50m, maximum: 100m

Refer TN 304 for our recommendations regarding the inductive loops and cable connection between the loops and the Datarec LM.

¹⁾ If the vehicle speed is below 7km/h, the vehicle will be detected, but not classified.

Specifications subject to change without prior notice.



xylem
Let's Solve Water

Visit our Web site for the latest version of this document and more information
www.aadi.no

Aanderaa is a trademark of Xylem Inc. or one of its subsidiaries.
© 2012 Xylem, Inc. D398 December 2012

Aanderaa Data Instruments AS
Sanddalsringen 5b, P.O. Box 103
Midtun, 5828 Bergen, Norway
Tel +47 55 60 48 00
Fax +47 55 60 48 01