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Four Channel – Rack Mount Inductive Loop Detector

Model N524 Features:

- IN Eurocard Format
- 4 selectable sensitivities.
- 16 selectable frequencies per channel.
- Remote control of detector operations including Sensitivity, Frequency and Channel Disable.
- Selectable Main and Axle Modes.
- Separate detect and fault indicators per channel.
- Fault diagnostics differentiate between open and short circuit loop conditions.
- Detector reset from the front panel or card edge.



The N524 has been specifically designed and engineered for use in vehicle classification systems for tolling applications. The data provided by the N524 enables the latest algorithms to develop highly accurate vehicle classification.

The wide frequency range of the N524 along with the number of frequency selections enables it to be installed easily on the specialized loop configurations used in the Tolling industry.

Separate indicators for detect and fault provide quick visual verification of proper operation. Loop diagnostics are easily viewed with the front panel fault indicator, differentiating between current and historical faults facilitating effective troubleshooting.

N524 Specifications

Specifications

Operating Modes:

Axle Loop Mode: Standard resolution data used in normal situations.
Main Loop Mode: High resolution data used to enhance classification under challenging conditions.
The selected mode is for all channels.

Scanning:

Each channel is activated independently, minimizing crosstalk between adjacent loops connected to different channels of the same unit. Additionally the N524 will synchronize with other detectors using a sync signal via the rear connector to greatly enhance the prevention of crosstalk with adjacent detectors;/loops.

Front Panel Selections

Each channel has 5 DIP switch positions allowing selection of frequency and channel disable.

Channel Disable:

Each channel may be disabled by switching the respective channel disable switch to ON. The oscillator for that channel will be de-energized and will not interfere with adjacent detectors. Channel disable may also be controlled remotely via the data channel.

Frequency:

One of 16 separate loop frequencies may be selected. The actual frequency will depend upon the loop size, configuration and lead-in length. The frequency may also be set via the data channel allowing remote tuning of the detector.

Reset:

The detector may be reset by depressing the front panel Reset button. The detector may also be reset by the application of a logic-ground true signal applied to RESET pin of the rear connector. Data transmission will halt on detector power-on or reset or Mode change.

Sensitivity:

Sensitivity may be selected using the main board mounted DIP switch. Sensitivity is for all of the channels. The setting will only affect the detection of vehicles indicated by the detect leds and discrete outputs not the resolution of the transmitted data. Sensitivity setting may also be set via the data channel 4 levels of sensitivity are available to be selected.

- 1 = Low Sensitivity (0.64%)
- 4 = High sensitivity (0.01%)

Mode Selection:

Mode may be selected using the board mounted DIP switch and also via the data channel

Tuning:

Automatically tunes to proper loop and lead-in with application of power or upon reset or change of mode setting. Each channel will retune on change of frequency.

Detector Synchronization:

The N524 allows synchronization with other detectors by means of a signal via the rear connector. A sync out signal enables the N524 to operate as the master and a signal via the sync in pin will force the N524 to synchronize with another detector operating as the master.

Inductance Range:

50uH to 1000uH with a Q factor greater than 5. The N524 is designed to interface with loops typically found in the tolling and related industries, including the IDRIS® patented axle loops.

Lead-In Length:

Consult factory.

Supply Voltage:

10.8 to 14.4VDC, 150mA max

Temperature Range:

-34 C to +74 C.

Discrete Outputs:

Optically Isolated Solid State Transistor.
Solid State Outputs are rated Maximum Collector Voltage 47V, ON voltage <1.5V at 50mA.

Lightning and Transient Protection:

Loop inputs will withstand discharge of 2000V from a 10uF capacitor across the loop connections or from either loop input to ground.

Mechanical:

DIN 3U Eurocard: 160mm x 100mm, conformal coated, DIN41612B connector. 1.0" (5HP) Wide front panel.

Weight:

9 oz.

Communications:

Data is transmitted to and from the unit via the rear connector (see pinout). Signal levels are 5V CMOS and transmission rate is 38.4kbps.

Remote Operation:

Remote control of the detector allows monitoring of the detector frequencies and ability to modify frequency, sensitivity mode and channel disable from a remote location via the serial communications channel.

Indicators:

Front panel indicators include:

Detect – Red, solid during detect. Flashes to indicate current fault.
Fault – Yellow, solid for current fault or flashing for historical fault.
Fault flash sequence is related to the type of fault sensed.

- Open = 1 blink, 1 space
- Short = 2 blinks, 1 space
- 25% inductance change = 3 blinks, 1 space

N524 Detector Connector – DIN41612B

Pin #	Functions
32b	D.C. (-) Common
30b	D.C. (+) Power
29a	Reset
5a	Loop Ch. 1
6b	Loop Ch. 1
1a	Output Ch. 1, Collector
2b	Output Ch. 1, Emitter
12b	Loop Ch. 2
13a	Loop Ch. 2
14b	Chassis Ground
26a	Sync Out
27b	Sync In
19a	Loop Ch. 3
20b	Loop Ch. 3
15a	Output Ch. 3, Collector
16b	Output Ch. 3, Emitter
26b	Loop Ch. 4
27a	Loop Ch. 4
25a	Data Transmit
28b	Data Receive
8b	Output Ch. 2, Collector
9a	Output Ch. 2, Emitter
22b	Output Ch. 4, Collector
23a	Output Ch. 4, Emitter

Specifications are subject to change without notice.

Northstar Controls L.L.C. warrants this product against defects in Manufacturing and workmanship for two years from date of shipment from the Northstar Controls L.L.C. factory.



L N524-Rev A