

Four Channel – Rack Mount Detector

Model N224-I Features:

- High speed data channel available from edge connector.
- Synchronizing capability via card edge.
- 3 selectable sensitivities per channel.
- 8 selectable frequencies per channel.
- Separate detect and fault indicators per channel.
- Fault diagnostics differentiate between open and short circuit loop.
- Detector reset from the front panel or card edge.



N224I Specifications

Specifications/Selections

Operating Modes:

The selected mode is for all channels (Located on board mounted switch)
AX (fast) mode, 5msec scan rate (1.25msec/channel)
MA (slow) mode, 10msec scan rate (2.5msec/channel)

Scanning:

Each channel is activated independently, minimizing crosstalk between adjacent loops connected to different channels of the same unit.

Front Panel Selections

Sensitivity:

Front panel sensitivity setting will only affect the detection of vehicles indicated by the detect leds and discrete outputs not the resolution of the transmitted data.
3 levels of sensitivity are available selected by front panel DIP switch.

- 0 = Channel Disabled.
- 1 = Low Sensitivity (0.32%)
- 2 = Medium Sensitivity (0.08%)
- 3 = High sensitivity (0.02%)

Response Time:

15mS ± 2.5mS (AX Mode)

Frequency:

Eight separate settings controlled by front panel DIP switches.
Frequency range: 15 to 120 KHz.

F0 + F0 + F0 - Lowest Frequency (all switches ON)

F1 + F2 + F4 - Highest Frequency (all switches OFF)

* Frequency changes by a minimum of 15% between settings. The wide frequency shift settings improve operation where there are large numbers of adjacent loops.

Reset:

The detector may be reset by depressing the front panel Reset button. Each channel may be individually reset by temporarily selecting another sensitivity setting then returning to the desired value. The detector may also be reset by the application of a logic-ground true signal applied to pin C of the edge connector. Data transmission will halt on detector power-on or reset.

Channel Disable:

Each channel may be disabled by a selecting sensitivity 0. This will de-energize the loop for the selected channel.

Discrete Outputs:

Optically Isolated Solid State Transistor.

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

Factory Settings:

- Set to HI frequency
- Set to Medium sensitivity (S1+S0)
- AX Mode

Ordering Information:

N224-I = Four channel rack mount detector

Supply Voltage:

10.8 to 14.4VDC, 120mA max

Specifications are subject to change without notice.

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

Tuning:

Automatically tunes to proper loop and lead-in with application of power or upon reset or change of sensitivity/mode setting.

Inductance Range:

50uH to 1000uH with a Q factor greater than 5. The N224-I is designed to interface with loops typically found in the tolling and related industries.

Temperature Range:

-34 C to +74 C.

Lead-In Length:

Up to 500 ft. with proper lead-in and loop.

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:

International size card: 4.5" H x 7" L, conformal coated, 44 contact (2 x 22), gold plated double sided edge connector. 2.0" Wide panel with 3" x 1" handle.

Weight:

9 oz.

Communications:

Data is transmitted to and from the unit via the edge connector pins 19 (Detector Transmit) and 21 (Detector Receive). Signal levels are RS232 compliant and transmission rate is 19.2kbps (MA Mode) or 38.4 Kbps (AX Mode) 8bit, no parity, 1 stop bit.

Synchronization:

When inserted into a rack with sync signal capability, each detector in the rack will synchronize loop scanning with the left-most rack position greatly improving tuning across multiple detector/loop arrays.

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

N224-I Detector Connector –

Double sided 44 pin edge connector

Pin #	Functions
A	D.C. (-) Common
B	D.C. (+) Power
C	Reset
D & 4	Loop Ch. 1
E & 5	Loop Ch. 1
F	Output Ch. 1, Collector
H	Output Ch. 1, Emitter
J & 8	Loop Ch. 2
K & 9	Loop Ch. 2
L	Chassis Ground
M	No Connection
N	No Connection
P & 13	Loop Ch. 3
R & 14	Loop Ch. 3
S	Output Ch. 3, Collector
T	Output Ch. 3, Emitter
U & 17	Loop Ch. 4
V & 18	Loop Ch. 4
19	Data Transmit
21	Data Receive
W	Output Ch. 2, Collector
X	Output Ch. 2, Emitter
Y	Output Ch. 4, Collector
Z	Output Ch. 4, Emitter
20	Slave Sync In
22	Master Sync Out

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