

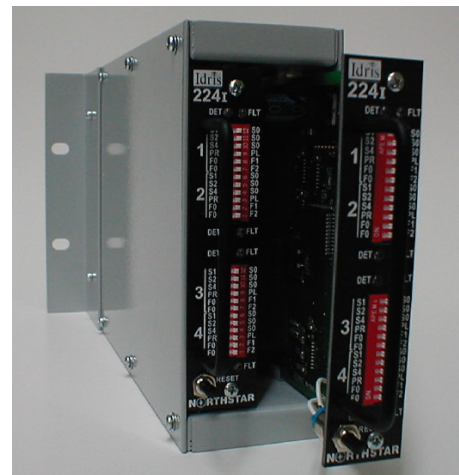


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Four Channel – Rack Mount Detector

Model N224-I Features:

- Idris® enabled
- 7 selectable sensitivities per channel.
- 4 selectable frequencies per channel .
- Selectable Main and Axle Modes.
- Separate detect and fault indicators per channel.
- Fault diagnostics differentiate between open, short and excessive inductance changes.
- Detector reset from the front panel or card edge.



The N224-I has been specifically designed and engineered for use with the Idris[®] Technology developed by Diamond Consulting Services Ltd. (DCS). The N224-I incorporates a proprietary high speed data channel which interfaces with the Idris[®] system. The data provided by the N224-I enables the Idris[®] algorithms to develop the highly accurate vehicle detection and classification demanded by the tolling industry.

The wide inductance range of the N224-I allows its use with the wide variety of loops found in the Tolling and Traffic Control industries (for recommended traffic loop sizes please consult the Northstar Loop Information Guide).

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

Reliable operation and long field life are key engineering goals in every Northstar product.

N224-I Specifications

Specifications/Selections

Operating Modes:

Axle Loop Mode: High data rate with standard resolution data.
Main Loop Mode: High resolution data with a lower data rate.
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.

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.

7 levels of sensitivity are available selected by front panel DIP switch.

- 0 = Channel Disabled.
- 1 = Low Sensitivity (0.64%)
- 7 = High sensitivity (0.01%)

Setting	Level dL/L	Setting	Level dL/L
S0+S0+S0	OFF	S0+S0+S4	0.08%
S1+S0+S0	0.64%	S1+S0+S4	0.04%
S0+S2+S0	0.32%	S0+S2+S4	0.02%
S1+S2+S0	0.16%	S1+S2+S4	0.01%

* Set to position S1+S0+S4 initially and adjust to obtain detection of desired vehicles.

Response Time:

15mS ± 2.5mS

Frequency:

Four separate settings controlled by front panel DIP switches.
Frequency range: 15 to 150 KHz.

- F1+F2 = High
- F0+F2 = Medium High
- F1+F0 = Medium Low
- F0+F0 = Low

* 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+S4)

Ordering Information:

N224-I = Four channel Idris[®] enabled rack mount detector

Idris[®] is protected by one or more of the following patents: EP0879457, USA 6345228, 6337640 & 937741.

Patent Applications Pending in other Countries.

Idris[®] is a registered trademark of Diamond Consulting Services Ltd.

For further information contact: E-mail: ldris@diamond.demon.co.uk

Web address: www.idris-technology.com

Supply Voltage:

10.8 to 30VDC, 120mA max

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, including the IDRIS patented axle loops.

Temperature Range:

-34 C to +74 C.

Lead-In Length:

Up to 2000 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. 1.0" 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 (Main Mode) or 38.4 Kbps (Axle Mode)

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

N224-I Detector 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

L N224-I-Rev C

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.

