

3M

Opticom™

Priority Control System

Phase Selector Models 752N and 754N

Reporter Series: Opticom™ System Matched Component Products

Description

The Model 752N phase selector is a plug-in *two-channel*, dual priority, encoded signal device designed for use 3M™ Opticom™ Priority Control System emitters and detectors. The Model 754N phase selector is a plug-in *four-channel*, dual priority, encoded signal device designed for use with Opticom emitters and detectors. The 752N/754N phase selectors are designed for use with NEMA traffic controllers that do not have internal preemption capabilities. Phaseselectors are powered from AC mains and contain their own internal power supply to support Opticom detectors. A Model 760 Card Rack is required.

Models 752N and 754N recognize and discriminate among three distinct Opticom emitter frequency rates via Opticom detectors: Command priority, Advantage priority and probe vehicles. Within each of these three frequency rates the phase selectors further discriminate among 10 classes of vehicle identification codes, with 1000 individual vehicle codes per class — 10,000 total per frequency rate.



—Models 752N and 754N

Models 752N and 754N internally record each activation of the system. Each entry contains:

- Intersection name
- Date and time of the activity
- Vehicle class code of the activating vehicle
- Activating vehicle's ID number
- Channel called
- Priority of the activity
- Final green signal indications displayed at the end of the call
- Time spent in the final greens
- Duration of the activation
- Near intersection location information

The Models 752N and 754N also include RS232 interface capability to communicate with computers or controllers. Optional interface software is available for system setup and maintenance.

The primary Opticom detector inputs and power outputs are on the card edge connector. Two additional auxiliary detector inputs are available for each channel through a front panel connector. The connector also contains signal indication sensing inputs.

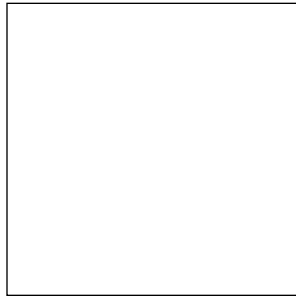
Each channel delivers a constant output for Command (high priority) activation and a pulsed output for Advantage (low priority) activation. A high priority signal received on any channel will override any low priority activation.

The probe vehicle frequency does not place a call request to the signal controller, but does log vehicles by ID number when they are in range.

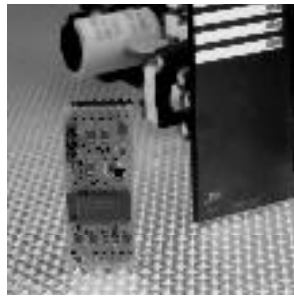
Features

- Four channels of detection with the 754N
- Two channels of detection with the 752N
- Designed for use with NEMA controllers without internal preemption capabilities
- Two auxiliary detectors per channel
- Green sensing
- Solid state circuitry for long life and reliability
- Compatible with encoded signal and non-encoded signal Opticom emitters
- Command and Advantage priority, as well as probe vehicle discrimination
- "First-come, first-served" priority within each priority level
- Priority by class can be implemented via the interface software
- Plugs directly into CA/NY Type 170 input files
- Signal intensity threshold can be automatically set using an encoded emitter
- User adjustable signal intensity threshold from 200 to 2500 feet of operation
- Easy installation
- Compatible with most traffic controllers
- Computer based interface
 - RS232 communications front port and backplane
 - User selected communications baud rate 1200 to 9600 bits per second
 - Customizable signal intensity thresholds
 - Customizable ID code validation
 - Flexible programming options for priority control parameters
 - Detailed current Opticom system parameter information
 - History log of most recent Opticom system activities (1000 entries)
- 30,000 frequency/class/vehicle code ID combinations
- Front panel switches and diagnostic indicators for testing
- Erasable write-on pads for phase or movement labeling
- Unit can be operated without computer configuration
- Crystal controlled circuitry
 - Accurate optical signal recognition circuitry
 - Precise output pulse
 - Definitive call verification
- Regulated detector power supply
- Optically isolated outputs
- Multi-function test switch
 - High and low test calls
 - Reset to default parameters
 - Range setting
 - Diagnostic test
- Advanced built in diagnostics and testing
- Tested to NEMA and CalTrans environmental and electrical test specifications

Accessories



Interface Software Package



Communications Daughter Board

- IS Link Interface software package
- Opticom communications daughter board

Pin Index

- Card Edge – 44 pin STD on the main PCB

Pins	Function
A	Ground
D	Channel A primary detector input
E	Detector 24 VDC power output
F	Channel A output, collector (+)
H	Channel A output, emitter (-)
J	Channel B primary detector input
K	Detector Ground
L	Earth Ground
M	AC - (in)
N	AC + (in)
P	Channel C primary detector input (Not used 752N)
R	Detector 24 VDC power output
S	Channel C output collector (+) (Not used 752N)
T	Channel C output emitter (-) (Not used 752N)
U	Channel D primary input (Not used 752N)
V	Detector ground
W	Channel B output collector (+)
19	TxD (output)
X	Channel B output emitter (-)
Y	Channel D output collector (+) (Not used 752N)
21	RxD (input)
Z	Channel D output emitter (-) (Not used 752N)

- Din connector – mini-6 pin female (front panel)

Pins	Function
1	RxD (data in)
2	Ground
3	TxD (data out)
4	RTS
5	CTS
6	Shield

- D-Shell connector – 44 pin male (front panel)

Pins	Function
1	Phase 1 green input
2	Phase 2 green input
3	Phase 3 green input
4	Optoisolator return
5	Optoisolator return
6	Not used
7	NEMA Phase 2 output
8	NEMA Phase 8 output
9	NEMA Phase 6 output
10	Confirmation light 1
11	Confirmation light 2
12	Preemption inhibit
13	Channel A aux. detector 2 input
14	Channel B aux. detector 2 input
15	Channel B aux. detector 1 input
16	Phase 4 green input
17	Phase 5 green input
18	Phase 6 green input
19	24 VDC power output
20	24 VDC power output
21	NEMA Phase 4 output
22	NEMA Phase 3 output
23	NEMA Phase 1 output
24	NEMA Phase 7 output
25	NEMA Phase 5 output
26	Confirmation light 3
27	Confirmation light 4
28	Channel A aux. detector 1 input
29	Channel C aux. detector 2 input (Not used 752N)
30	Channel C aux. detector 1 input (Not used 752N)
31	Phase 7 green input
32	Phase 8 green input
33	Common green input
34	Detector Ground
35	Detector Ground
36	Not used
37	Not used
38	24 VDC input
39	NEMA manual enable control
40	NEMA interval advance
41	NEMA coordination isolation
42	NEMA free
43	Channel D aux. detector 2 input (Not used 752N)
44	Channel D aux. detector 1 input (Not used 752N)

Operating Parameters

- Four dual priority, and probe frequency, channels (754N)
- Two dual priority, and probe frequency, channels (752N)
- “First-come, first-served” for vehicles with the same priority
- Higher priority will always override lower priority
- Direct interface with NEMA controllers lacking internal preemption capabilities
- Opticom detector input(s)...one per channel on the card edge connector and two auxiliary per channel through the Auxiliary function harness
- Optional interface software allows flexible programming options and call history
- Solid state indicators
 - Power on
 - High signal/call per channel
 - Low signal/call per channel

- Multi function test switch enables diagnostics and test calls to each channel
- Voltage . . . 89 to 135 VAC, 60Hz
- Temperature . . . -37° C to +74° C
- Humidity. . . 5% to 95% relative

Physical Dimensions

Length	7.0 in. (17.8 cm)
	8.2 in. (20.8 cm) including handle
Width	(752N) 1.1 in. (2.8 cm)
	(754N) 2.3 in. (5.8 cm)
Height	4.5 in. (11.4 cm)
Weight	(752N) 0.53 lbs. (240 g)
	(754N) 0.57 lbs. (260 g)

Important Notice to the Purchaser

THE FOLLOWING IS MADE IN LIEU OF ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

3M will repair or replace any Opticom™ Priority Control System component found to be defective in materials or manufacture within five (5) years from the date of shipment from 3M. See “Summary of Warranty Coverage” for details of extended five year coverage under the Opticom 5/10 warranty. This warranty shall not apply to incandescent lamps or to any system component which has been (1) repaired or modified by persons not authorized by 3M; (2) subjected to misuse, neglect or accident; or (3) has been damaged by extreme atmospheric or weather-related conditions.

In no event shall 3M be liable in contract or in part for any injury, loss, or damage, whether direct, indirect, incidental, special or consequential, arising out of the use or inability to use the Opticom system or any component thereof. THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE.

3M has designed, developed and tested each Opticom priority control system component as part of a matched component system. 3M makes no warranty whatsoever concerning the reliability or safety of Opticom system components when used with non-Opticom system products. 3M shall not be responsible for any Opticom component which 3M determines has been damaged in whole or in part by its use with a non-Opticom system product.

Sale and use of the Opticom priority control system is expressly restricted to authorized agencies of government customers, within their respective jurisdictions. However, because the optical signal generated by the Opticom system is not exclusive, 3M cannot ensure exclusive activation by purchaser. Authorized users who desire to use or coordinate use of the Opticom system with that of other jurisdictions must first obtain the prior written approval of each authorized user in the jurisdiction where use is sought.



Intelligent Transportation Systems 3M Safety and Security Systems Division

3M Center, Building 225-4N-14
St. Paul, MN 55144-1000

1-800-328-7098
1-800-224-2085 fax

612-575-5794
612-737-1055 fax

3M Canada Inc.

P.O. Box 5757
London, Ontario, Canada
N6A 4T1

1-800-3MHELPS
519-451-2500