

3M

Opticom™

Priority Control System

Discriminator Models 452 and 454

Sentry Series: Opticom™ System Matched Component Products

Description

The Model 452 discriminator is a plug-in *two-channel*, dual priority, encoded signal device designed for use with 3M™ Opticom™ Priority Control System emitters and detectors. The Model 454 discriminator is a plug-in *four-channel*, dual priority, encoded signal device designed for use with Opticom emitters and detectors. Both can be installed directly into the input file of Type 170 traffic controllers equipped with priority phase selection software and in virtually any other traffic controller equipped with priority phase selection inputs and related software. Discriminators are powered from AC mains and contain their own internal power supply to support Opticom detectors.

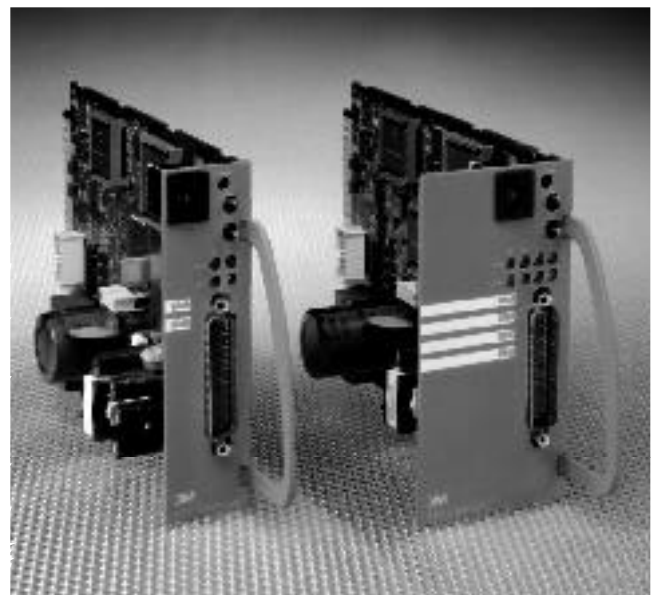
The Model 760 Card Rack is required when input file space is not available. Certain electromechanical controller units may require use of a Model 5168 interface card.

The Models 452 and 454 discriminators recognize and discern between two Opticom emitter frequency rates via Opticom detectors. Within each of these frequency rates the discriminators further discern between encoded and non-encoded emitters.

Certain intersection parameters may be modified via the use of onboard jumper selects.

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 front panel 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.



—Models 452 and 454

Features

- Four channels of detection with the 454
- Two channels of detection with the 452
- Two auxiliary detectors per channel
- Solid state circuitry for long life and reliability
- Compatible with encoded signal and non-encoded signal Opticom emitters
- Command and Advantage priority vehicle discrimination
- “First-come, first-served” priority within each priority level
- 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
- Jumper settings for intersection parameters
 - Maximum call time can be set to 2, 4 or 6 minutes or infinity
 - Call Hold time can be set to 6 or 12 seconds
 - Non-encoded emitters may be disabled
- Front panel switches and diagnostic indicators for testing
- Erasable write-on pads for phase or movement labeling
- Unit is designed to be operated without computer
- 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
- Model 755 four channel adapter card (optional)

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 452)
R	Detector 24 VDC power output
S	Channel C output collector (+) (Not used 452)
T	Channel C output emitter (-) (Not used 452)
U	Channel D primary input (Not used 452)
V	Detector ground
W	Channel B output collector (+)
X	Channel B output emitter (-)
Y	Channel D output collector (+) (Not used 452)
Z	Channel D output emitter (-) (Not used 452)

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

Pins	Function
1	Not used
2	Not used
3	Not used
4	Not used
5	Not used
6	Not used
7	Not used
8	Not used
9	Not used
10	Not used
11	Not used
12	Not used
13	Channel A aux. detector 2 input
14	Channel B aux. detector 2 input
15	Channel B aux. detector 1 input
16	Not used
17	Not used
18	Not used
19	24 VDC power output
20	24 VDC power output
21	Not used
22	Not used
23	Not used
24	Not used
25	Not used
26	Not used
27	Not used
28	Channel A aux. detector 1 input
29	Channel C aux. detector 2 input (Not used 452)
30	Channel C aux. detector 1 input (Not used 452)
31	Not used
32	Not used
33	Not used
34	Detector Ground
35	Detector Ground
36	Not used
37	Not used
38	Not used
39	Not used
40	Not used
41	Not used
42	Not used
43	Channel D aux. detector 2 input (Not used 452)
44	Channel D aux. detector 1 input (Not used 452)

Operating Parameters

- Four dual priority channels with the 454
- Two dual priority channels with the 452
- Priority within each level: First-come, first-served
- High priority will always override low priority
- Opticom detector input(s)...one per channel on the card edge connector and two auxiliary per channel through with the Auxiliary function harness
- 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	(452) 1.1 in. (2.8 cm)
	(454) 2.3 in. (5.8 cm)
Height	4.5 in. (11.4 cm)
Weight	(452) 0.53 lbs. (240 g)
	(454) 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.



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