



Orange traffic+

# RF/Optical Priority Detector

## ST-9365

# EMTRAC

The ST-9365 Priority Detector is a dual-card, two or four channel device to be used for encoded or non-encoded optical priority requests from all major brands of optical emitters, as well as EMTRAC 900 MHz FHSS radio. The Priority Detector responds to frequencies from all major optical emitter brands, and it recognizes the frequency rates of requesting vehicles to differentiate their priority levels. The Priority Detector is capable of receiving both optical and RF requests and prioritizing them by priority level and class of vehicle.

The Priority Detector is compatible with all major NEMA and 170-type cabinets. It can be installed directly into the input file of Type 170 controller cabinets or may be provided with a Priority Detector Case (ST-9194) for NEMA cabinets (when input-file space is not available).



The ST-9365 Priority Detector is equipped with both onboard and removable flash memory and is capable of storing up to 10,000 detailed activity logs, which include the following information:

- Intersection ID
- Zone Type (optical or GPS) and ID
- Vehicle ID (if provided by emitting system)
- Vehicle Class (if provided by emitting system)
- Vehicle Priority Level
- Directional Code
- Signal-Priority Confirmation
- Vehicle Heading (EMTRAC RF system only)
- Priority Request Start/Stop Date and Time
- Termination Cause (EMTRAC RF system only)

### Priority Detector Features

- Detects & calls up to four optical channels while simultaneously detecting EMTRAC RF requests
- Records both optical and RF activity, logging each event by request type
- Logs up to 5,000 locally-stored events (up to 10,000 events with removable memory)
- Light status monitoring and priority-request confirmation
- Standby/Active switch enables testing and configuration without affecting live signal
- Multiple vehicle priority levels (to accommodate EVP and TSP)
- Compatible with all major brands of NEMA and 170/2070 controllers
- Optically-isolated outputs (and auxiliary inputs)

### Software Settings and Features

- Time to Hold Request After Loss of Signal
- Max. Request Time/Min. Request Times (by channel)
- Priority Service Control (define how simultaneous priority requests are served)
- Communications Baud Rate
- Configurable Output Channels (by direction)
- Activity Log Display of Most Recent Events
- Vehicles Allowance or Denial (by vehicle ID)
- Optical Signal-Strength Thresholds by Direction: Range up to 2,500 feet (3,000 feet in optimal conditions)
- Audible Indicator (on Priority Detector): On or off

### Card-Edge Connections (Circuit-Board Backplanes)

Card	Pin	Connection
Logic (J12)	D	Optical Input 1*
	E	Optical +24V DC Output (optional)*
	F	Output, Channel 1*†
	H	NEMA Logic Ground
	J	Optical Input 2*
	K	Optical Detector Ground (DC)
	L	Chassis Ground
	M	AC Neutral (AC-)
	N	120V (AC+)
	P	Aux. Input 1 (available only w/Detector Case)*
	R	Aux. Input 2 (available only w/Detector Case)*
	U	Aux. Input 3 (available only w/Detector Case)*
	V	Aux. Input 4 (available only w/Detector Case)*
	W	Output, Channel 2*
X	NEMA Logic Ground	

Card	Pin	Connection
Power Supply (J13)	D	Optical Input 3*
	E	Optical +24V DC Output (optional)*
	F	Output, Channel 3*
	H	NEMA Logic Ground
	J	Optical Input 4*
	K	Optical Ground
	L	Chassis Ground
	M	AC Neutral (AC-)
	N	120V (AC+)
	P	Optical Input, 1*
	R	Optical +24V DC Output (optional)*
	U	Optical Input, 2*
	V	Optical Detector Ground (DC)*
	W	Output, Channel 4*
X	NEMA Logic Ground	

\*Default connections shown. Inputs and outputs are software configurable.

†All physical optical inputs are on J13, and are interconnected to J12 through the input file.

### Detector-Case Rear (optional): 15-Pin Sub-D (DB-15)

Pin	Wire Color	Connection
1	White	120V AC Neutral
2	Yellow	NEMA Logic Ground
3	Black	120V (AC+)
4	White/Red	Aux. Output 1
5	White/Black	Aux. Output 2
6	Blue	Rear Output, Channel 1
7	Red	Rear Output, Channel 3
8	White/Yellow	Aux. Output 3
9	Orange	Rear Output, Channel 2
10	Brown	Rear Output, Channel 4
11	White/Blue	Aux. Input, Channel 1
12	Purple	Aux. Input, Channel 2
13	White/Green	Aux. Input, Channel 3
14	Gray	Aux. Input, Channel 4
15	Green	Chassis Ground

### Detector-Case Rear (optional): 37-Pin High-Density Sub-D

Pin	Wire Color	Connection
1	White/Orange	Optical Sensor INPUT, Ch. 3
2	White/Purple	Optical Sensor +24V DC
3	White/Gray	Optical Sensor INPUT, Ch. 4
4	Brown/Yellow	Optical Sensor Ground
5	Brown/Black	Optical Sensor INPUT, Ch. 1
6	Brown/Red	Optical Sensor +24V DC Output
7	Brown/Blue	OUTPUT, Ch. 3 collector (+)
8	Brown/Orange	Output, Ch. 3 emitter (-)
9	Brown/Green	Optical Sensor INPUT, Ch. 2
10	Brown/Gray	Optical Sensor Ground
11	Brown/Purple	OUTPUT, Ch. 4 collector (+)
12	Yellow/Black	Output, Ch. 4 emitter (-)
21	Green	Chassis Ground
22	Yellow	NEMA Logic Ground
Remaining		See Manual

### Front-Panel 26-Pin Connector

Pin	Wire Color	Connection
1 - 4	Blck, Brwn, Red, Orange	OUTPUTS 1 - 4 respectively
5 - 12	No Wires	No Connection
13	Brown/Orange	NEMA Logic Ground (out)
14	Brown/Yellow	DC Ground
15	Brown/Green	+3.3V DC
16	Brown/Blue	RX Port D (RS-232)
17	Brown/Purple	TX Port D (RS-232)
18	Brown/Gray	Serial Data Ground
19	Yellow/Black	I2C Serial Data
20	Yellow/Red	I2C Serial Clock
21	Yellow/Gray	+5 DC Bus Voltage
22 - 25	Ylw w/Grn, Blu, Prpl, & Gry	INPUTS 1 - 4 respectively
26	White/Purple	NEMA Logic Ground (in)

### Specifications - Priority Detector

Dimensions:	<b>Rack-Mount:</b> 4.5" (H) x 2.3" (W) x 6.95" (D) <b>Detector In Case:</b> 5.25" (H) x 2.75" (W) x 8" (D)
Comm. Ports:	100Base-T Ethernet (2), USB Mini-B, Serial (RS-232)
Inputs/Outputs:	<b>IN</b> - 4 optical, 12 aux.; <b>OUT</b> - 4 std., 12 NEMA aux.
Power:	89 to 135 VAC, 50/60 Hz
Temperature:	-34°C (-30°F) to +74°C (+165°F)
Humidity:	5% to 95% Relative

### Specifications - Antennas (required only for RF applications)

Gain (Ant.):	18" Antenna - 3 dBi typical; 36" Antenna - 6 dBi typical
Impedance:	50 Ohm nominal
Connectors:	BNC (f) Standard, N (f) Optional
Operational Temperature:	-40 ° to +85 ° C