



EMTRAC

RF/Optical Priority Detector ST-9365 and ST-9366

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 ST-9365 is capable of receiving both optical and RF requests, while the ST-9366 model contains the electrical connections necessary to receive RF signals but is not radio equipped.

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)

Specifications - Priority Detector	
Dimensions:	Rack-Mount: H - 4.5" (11.43cm); D - 6.95" (17.66cm); W - 1.125" (2.86cm)
Comm Ports:	100Base-T (2), USB Mini-B, RS-232 serial
I/O:	IN - 4 optical, 12 aux.; OUT - 4 std., 12 NEMA aux.
Power:	89 to 135 VAC, 50/60 Hz
Temp:	-34°C (-30°F) to +74°C (+165°F)
Humidity:	5% to 95% Relative

Specifications - Antennas (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 Temp:	-40 ° to +85 ° C

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 (ST-9750): 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 (ST-9750): 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 (pins 14 - 26 are jumper configurable)

Pin	Wire Color	Connection
1	Black	Output 1
2	Brown	Output 2
3	Red	Output 3
4	Orange	Output 4
5	Yellow	Output 5
6	Green	Output 6
7	Blue	Output 7
8	Purple	Output 8
9	Gray	Output 9
10	White	Output 10
11	Brown/Black	Output 11
12	Brown/Red	Output 12
13	Brown/Orange	NEMA Logic Gnd (out)

Pin	Wire Color	Connection (jumper configurable)
14	Brown/Yellow	Input 1 DC Ground
15	Brown/Green	Input 2 +3.3VDC
16	Brown/Blue	Input 3 RX Port F (RS-232)
17	Brown/Purple	Input 4 TX Port F (RS-232)
18	Brown/Gray	Input 5 Serial Data Gnd
19	Yellow/Black	Input 6 Synch. Data Clock
20	Yellow/Red	Input 7 Serial Data
21	Yellow/Orange	Input 8 No Connection
22	Yellow/Green	Input 9 Output 13
23	Yellow/Blue	Input 10 Output 14
24	Yellow/Purple	Input 11 Output 15
25	Yellow/Gray	Input 12 Output 16
26	White/Purple	Reserved NEMA Gnd (in)