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 240 VAC, 50/60 Hz OR 24 VDC
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	Card	Pin	Connection
Logic (J12)	D	**Optical Input 1*†**	**Power Supply (J13)**	D	**Optical Input 3***
	E	Optical +24V DC Output (optional)*		E	Optical +24V DC Output (optional)*
	F	**Output, Channel 1*†**		F	**Output, Channel 3***
	H	NEMA Logic Ground		H	NEMA Logic Ground
	J	**Optical Input 2***		J	**Optical Input 4***
	K	Optical Detector Ground (DC)		K	Optical Ground
	L	Chassis Ground		L	Chassis Ground
	M	AC Neutral (AC-)		M	AC Neutral (AC-)
	N	120V (AC+)		N	120V (AC+)
	P	Aux. Input 1 (available only w/Detector Case)*		P	**Optical Input, 1***
	R	Aux. Input 2 (available only w/Detector Case)*		R	Optical +24V DC Output (optional)*
	U	Aux. Input 3 (available only w/Detector Case)*		U	**Optical Input, 2***
	V	Aux. Input 4 (available only w/Detector Case)*		V	Optical Detector Ground (DC)*
	W	**Output, Channel 2***		W	**Output, Channel 4***
	X	NEMA Logic Ground		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	Pin	Wire Color	Connection	(jumper configurable)
1	Black	Output 1	14	Brown/Yellow	Input 1	DC Ground
2	Brown	Output 2	15	Brown/Green	Input 2	+3.3VDC
3	Red	Output 3	16	Brown/Blue	Input 3	RX Port F (RS-232)
4	Orange	Output 4	17	Brown/Purple	Input 4	TX Port F (RS-232)
5	Yellow	Output 5	18	Brown/Gray	Input 5	Serial Data Gnd
6	Green	Output 6	19	Yellow/Black	Input 6	Synch. Data Clock
7	Blue	Output 7	20	Yellow/Red	Input 7	Serial Data
8	Purple	Output 8	21	Yellow/Orange	Input 8	No Connection
9	Gray	Output 9	22	Yellow/Green	Input 9	Output 13
10	White	Output 10	23	Yellow/Blue	Input 10	Output 14
11	Brown/Black	Output 11	24	Yellow/Purple	Input 11	Output 15
12	Brown/Red	Output 12	25	Yellow/Gray	Input 12	Output 16
13	Brown/Orange	NEMA Logic Gnd (out)	26	White/Purple	Reserved	NEMA Gnd (in)