



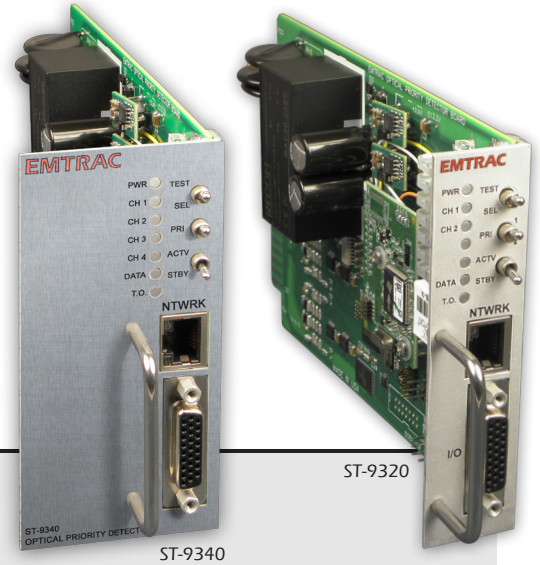
EMTRAC

Optical Priority Detectors

ST-9320/ST-9340

The ST-9320 and ST-9340 Optical Priority Detectors are single-card, two and four channel devices to be used for encoded or non-encoded optical priority requests from all major brands of optical emitters. The Priority Detectors respond to frequencies from all major optical emitter brands, and recognize the frequency rates of requesting vehicles to differentiate their levels of priority. The Priority Detectors are capable of prioritizing simultaneous signal requests by priority level and class of vehicle.

The Priority Detectors can be installed directly into the input file of Type 170 controller cabinets or may be provided with a Priority Detector Case for NEMA cabinets (when input-file space is not available).



The ST-9320 and ST-9340 Priority Detectors are equipped with robust onboard memory and are capable of storing up to 5,000 detailed activity logs, which include the following information:

- Intersection ID
- Vehicle ID (if provided by emitting system)
- Vehicle Class (if provided by emitting system)
- Vehicle Priority Level
- Directional Code
- Priority Request Duration
- Signal Controller Priority Confirmation (Optional)
- Priority Request Start/Stop Date and Time

Specifications:

Priority Detector	
Dimensions:	Rack-Mount: 4.5" (H) x 1.125" (W) x 6.95" (D)
Compatibility:	All Major NEMA and 170 Type Cabinets
Mounting:	Rack-Mount, Shelf-Mount
Comm. Ports:	100Base-T Ethernet, 26-Pin Serial (RS-232)
Outputs:	4 Standard (more available with optional case)
Inputs:	4 Optical Directional
Power:	89 to 135 VAC, 50/60 Hz
Temperature:	-34°C (-30°F) to +74°C (+165°F)
Humidity:	5% to 95% Relative
Connections:	<p>Card-Edge: Up to four optical inputs</p> <p>Detector Case Rear D-Sub (shelf-mount controller connections): Up to four optical inputs</p> <p>RJ45 Ethernet (local computer or network)</p> <p>26-Pin D-Sub (serial): See connections on back</p> <p><i>Additional inputs are available to allow for signal-request confirmation and signal-phase recognition.</i></p>

Priority Detector Features

- Detects & calls up to four optical channels from all major brands of optical emitters.
- Records vehicle-request activity, logging each event by request type
- Logs up to 5,000 locally-stored events
- Capable of monitoring and logging signal phase states as well as priority-request confirmations
- Standby/Active switch enables testing and configuration without affecting live signal
- Receives two-channel (ST-9320) and four-channel (ST-9340) ranging probe frequencies
- 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)
- Allow/Deny signal priority by Vehicle ID
- Configurable Output Channels (by direction)
- Vehicles Allowance or Denial (by vehicle ID)
- Optical Signal-Range Thresholds by Direction: Range up to 2,500 feet (3,000 feet in optimal conditions)
- Activity Log Display of Most Recent Events

Card-Edge Connections:

Pin	Connections	
	2-Channel (ST-9320)	4-Channel (ST-9340)
A	DC Ground	
B	+24V DC (optional - jumper required)	
C	No Connection	
D	Optical Sensor INPUT, Ch. 1*	
E	Optical Sensor +24V DC Output	
F	OUTPUT, Ch. 1 collector (+)*	
H	Output, Ch. 1 emitter (-)	
J	Optical Sensor INPUT, Ch. 2*	
K	Optical Sensor Ground	
L	Chassis Ground	
M	AC Neutral (AC-)	
N	120V (AC+)	
P	(NC)	Optical Sensor INPUT, Ch. 3*
R	(NC)	Optical +24V DC Output
S	(NC)	OUTPUT, Ch. 3 collector (+)*
T	(NC)	Output, Ch. 3 emitter (-)
U	(NC)	Optical Sensor INPUT, Ch. 4*
V	(NC)	Optical Sensor Gnd.
W	OUTPUT, Ch. 2 collector (+)*	
X	Output, Ch. 2 emitter (-)	
Y	(NC)	OUTPUT, Ch. 4 collector (+)*
Z	(NC)	Output, Ch. 4 emitter (-)

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

26-Pin Front Connector (high-density Sub-D):

Pins	Wire Color	Connections
1 - 4	Blck, Brwn, Red, Orange	OUTPUTS 1 - 4 respectively
5 - 12	No Wires	No Connection
13	Brown/Orange	NEMA Logic Ground (outputs)
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 (inputs)

Detector Case Rear Connectors (optional):

37-Pin High-Density Sub-D		
Pins	Wire Color	Connections
1	White/Orange	Optical Sensor INPUT, Ch. 1
2	White/Purple	Optical Sensor +24V DC
3	White/Gray	Optical Sensor INPUT, Ch. 2
4	Brown/Yellow	Optical Sensor Ground
5	Brown/Black	Optical Sensor INPUT, Ch. 3
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. 4
10	Brown/Gray	Optical Sensor Ground
11	Brown/Purple	OUTPUT, Ch. 4 collector (+)
12*	Yellow/Black	Output, Ch. 4 emitter (-)
13	Yellow/Red	Ground Negative
14	Yellow/Blue	+24V DC
Remaining	See Manual	

*Connect to controller logic ground.

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	NC
5	White/Black	NC
6	Blue	OUTPUT, Channel 3**
7	Red	OUTPUT, Channel 1
8	White/Yellow	NC
9	Orange	OUTPUT, Channel 4**
10	Brown	OUTPUT, Channel 2
11	White/Blue	NC
12	Purple	NC
13	White/Green	NC
14	Gray	NC
15	Green	Chassis Ground

**Pins 6 and 9 have NO CONNECTION when used with the ST-9320, two-channel Optical Priority Detector.