C. Special Function 1 and 2 Inputs.

PIN 8, Special Function 1: Shall provide an AC input to the Monitor, which will DISABLE only the RED FAIL monitoring functions while it is active (e.g. during Railroad Preempt).

PIN 6, Special Function 2: Reserved for future use.

A means shall be provided to select either a PRESENCE of, or LACK of AC+ to enable these inputs.

962.09 Electrical Requirements.

A. Operation Range. The Monitor shall be fully operational from an 85 to 135 V ac power source.

B. Isolation. Chassis Ground and AC shall be isolated from one another.

C. Monitored AC Inputs. The following voltage and time thresholds apply to all monitored AC inputs.
1. Green and Yellow Inputs:
   Any inputs < 15.0 V rms shall be considered OFF.
   Any inputs > 25.0 V rms shall be considered ON.
   Both sinusoidal and half-wave inputs of the specified RMS values shall meet these thresholds.
2. Red, Red Enable and Special Function Inputs:
   Any inputs < 50.0 V rms shall be considered OFF.
   Any inputs > 70.0 V rms shall be considered ON.
   Red inputs, both sinusoidal and half-wave, of the specified RMS values, shall meet these thresholds.
   Red enable and special function inputs need meet these thresholds for sinusoidal waveforms only.
3. Timing of Conflicting Inputs or Multiple Inputs:
   Inputs ON < 200 ms shall **NOT** be considered a FAULT.
   Inputs ON > 500 ms shall be considered a FAULT.
4. Timing of Red Fail:
   Lack of output < 1200 ms shall **NOT** be considered a FAULT.
   Lack of output > 1500 ms shall be considered a FAULT.

D. Monitored DC Inputs.
1. 24VDC Input:
   Input < 18.0 VDC shall be considered Low VDC input.
   Input > 22.0 VDC shall **NOT** be considered Low VDC input.
2. 24VDC Timing:
   Low VDC input < 200 ms shall **NOT** be considered a FAULT.
   Low VDC input > 500 ms shall be considered a FAULT.
3. Watchdog Monitor Input:
   Input < 4.0 VDC shall be considered a LOW STATE.
   Input > 12.0 VDC (or OPEN) shall be considered a HIGH STATE.

4. Watchdog Error Timing:
   Lack of valid input state changes for < 1400 ms shall **NOT** be a FAULT.
   Lack of valid input state changes for > 1600 ms shall be a FAULT.

962.10 Communications and Software.

A. An RS232 port shall be installed for laptop communications on the front panel of the Monitor.

B. The Monitor shall be provided with compatible communications software for installation on a laptop computer, capable of interfacing with the Monitor via the RS232 port on the front panel. The software shall be provided on a 3 ½ inch (85 mm) floppy disk with each Monitor. Each disk shall be labeled with revision number and date.

C. The Monitor shall be capable of being programmed and set-up for intersection operation without the use of a laptop computer and communication software; programming the Monitor via the laptop computer shall be considered a secondary method of set-up.

D. The Monitor communications software shall be capable of showing and/or programming the status of all programmable set-up parameters of the unit. The communications software shall be capable of displaying the following data:
1. Fault type
2. Field status (must update status continuously)
3. AC line voltage (must update status continuously)
4. Status of Red Enable
5. Previous fault data
6. Program card matrix
7. Yellow disable jumpers (if applicable)
8. Switch settings per channel (as applicable)
9. Option switches
10. Current time
11. Temperature (must update status continuously)
12. Event logs

E. The Monitor shall be capable of storing events into memory. Typical events are fault events, AC line events, reset events, etc. When a fault event is stored into memory, the Monitor will store the fault condition (type), channel status, date, time, temperature and line voltage. The log history shall store a minimum of 100 total events.

962.11 Diode Matrix and Software. The Monitor shall load the diode matrix programming into a non-volatile memory device. When the diode matrix is loaded into memory, the memory will regularly compare with diode card and fault condition will occur if memory does not match the diode card matrix.