Priority Request Server (PRS)

Highlights

- ✓ Supports Vehicle to Infrastructure (V2I) communications over SNMPv1, based on NTCIP 1211 standard, v. 1.38
- ✓ Remotely configurable software system
- ✓ Accessible non-volatile database of long-term performance criteria and data logging
- ✓ Linux OS for reliable system operation.
- ✓ Input and Output options to support Serial, Ethernet and GPIO signals
- ✓ Designed to meet the rugged requirements of electronic Traffic Control systems.
- ✓ Standard interfaces to meet TS1 and TS2 traffic signal controller (TSC) requirements.
- ✓ Data logging of up to 16 inputs from the TSC
- ✓ Six priority or pre-emption outputs, expandable up to 16 outputs
- ✓ Operates from nominal 24Vdc or 120Vac
- ✓ SD Card and USB External storage options

Novax PRS Software Functionality

The PRS software utilizes the Linux operating system for providing TSP control and remote management tools.

The application is designed to run in a stand-alone mode and performs several major functions. Watchdog processes continuously monitor these functions. This ensures the optimum uptime and performance of the equipment and system as a whole. The key functions are listed as follows:

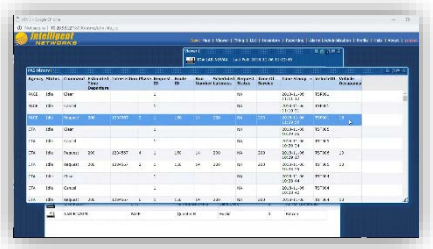


Figure 1. TSP Central Server

- ❑ Receive Transit Signal Priority (TSP) requests from the Bus Priority Request Generator (PRG) equipment
- ❑ Logic for priority processing of TSP requests from multiple buses
- ❑ Serve TSP calls as appropriate to the local Traffic Signal Controller (TSC)
- ❑ Collect TSC response data (Phase and Acknowledge), adjust TSP request as appropriate
- ❑ Maintain local Log files of all operating system messages and potential program errors
- ❑ Determine and report local equipment status.
- ❑ Communicate logs and status events from remote PRS to TSP Central system via the network
- ❑ Monitor and control miscellaneous signals at the PRS. (e.g.; Security door switch, UPS status, etc.)
- ❑ Manage automatic downloads of new firmware upgrades once they become available

The performance of the PRS is monitored by the PRS TSP Central server (HW or Cloud based) and can be observed by authorized access to the server database using the PRS TSP Central user interface software forming part of the Novax PRS system. A Nagios server is also generally recommended for performance monitoring of all IP systems.

Product Specifications

Physical Dimensions: 127 x 108 x 165 mm (H x W x D) [5” x 4.125” x 6.5”]

Operating Temperature: -34ºC to +74ºC (-35°F to 165°F)

Storage Temperature: -40ºC to +85ºC

Operating Voltage: nominal 24Vdc @ 600mA

Operating Voltage range: 15 to 28Vdc

Inputs: Twenty (16) solid-state AC/DC Inputs (optically isolated). Max. 36Vac/Vdc, nominal 5mA @ 12Vdc. User assignable.

Outputs: Twelve (16) optically isolated solid-state outputs, Max 36Vac/Vdc, Max current 40mA. User assignable.

Fault Output: one output relay (N.O. & N.C. contacts) Normally energized.

LED Indicators for diagnostic and Input/Output Status.

Mini-A USB Console port for local onsite configuration.

Mini-A USB B Port (reserved).

Type-A USB for local storage.

Micro SD Card holder for local data storage.

Applications:

- Transit signal priority /Emergency vehicle pre-emption
- Accessible Pedestrian Signal
- Traffic Signal Controller Interface
- Central Firmware Update

Figure 3. Cabinet view

Figure 2. Four plug n’ play connectors for easy maintenance

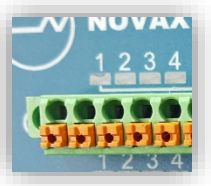
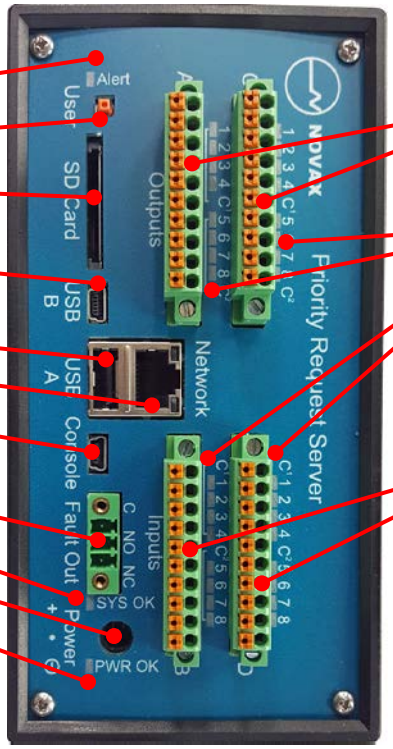


Figure 4. Quick push in wire termination

The Priority Request Server
Front Panel Services



Alert LED
User Button
SD Card Slot
Mini-A USB Port
External Storage Type A USB port
10Base-T Ethernet Port
Mini-A USB Port (Serial)
Fault Output Normally Energized
Fault Indicator
24Vdc Power Input
Power Indicator

Solid State Outputs (16)
Isolated Commons in groups of 4

I/O Status LED Indicators

Solid State Inputs (16)
Isolated Commons in groups of 4

Priority Request Server - Connector Assignment

Ethernet Port 1			
Terminal #	**Name**	**Function**	**Description**
1	TX+	Ethernet TX+	802.3 Transmit+ UTP 10 BaseT
2	TX-	Ethernet TX-	802.3 Transmit- UTP 10 BaseT
3	RX+	Ethernet RX+	802.3 Receive+ UTP 10 BaseT
4	PAIR3+	Spare pair 1a	N/C
5	PAIR3-	Spare pair 1b	N/C
6	RX-	Ethernet RX-	802.3 Receive- UTP 10 BaseT
7	PAIR4+	Spare pair 2a	N/C
8	PAIR4-	Spare pair 2b	N/C

USB Console/B			
1	Vcc	Power	+5Vdc
2	Data-	Data	Serial data Receive Line
3	Data+	Data	Serial data Transmit Line
4	ID	Host/Device	Ground for Host
5	GND	Common	5Vdc Common

USB A			
1	Vcc	Power	+5Vdc
2	Data-	Data	Serial data Receive Line
3	Data+	Data	Serial data Transmit Line
4	GND	Common	5Vdc Common

N/C - No Connection

Outputs	**Connectors A & C (10pin)**
Terminal #	**Description**
1	Output 1
2	Output 2
3	Output 3
4	Output 4
C^1	Common (Group1)
5	Output 5
6	Output 6
7	Output 7
8	Output 8
C^2	Common (Group2)

Inputs	**Connectors B & D (10pin)**
Terminal #	**Description**
1	Input 1
2	Input 2
3	Input 3
4	Input 4
C^1	Common (Group1)
5	Input 5
6	Input 6
7	Input 7
8	Input 8
C^2	Common (Group2

Fault Out

Terminal	**Description**
C	Common
NO	Normally Open (normally closed during operation)
NC	Normally Closed (normally open during operation)

Note: Fault Relay normally energized during operation