



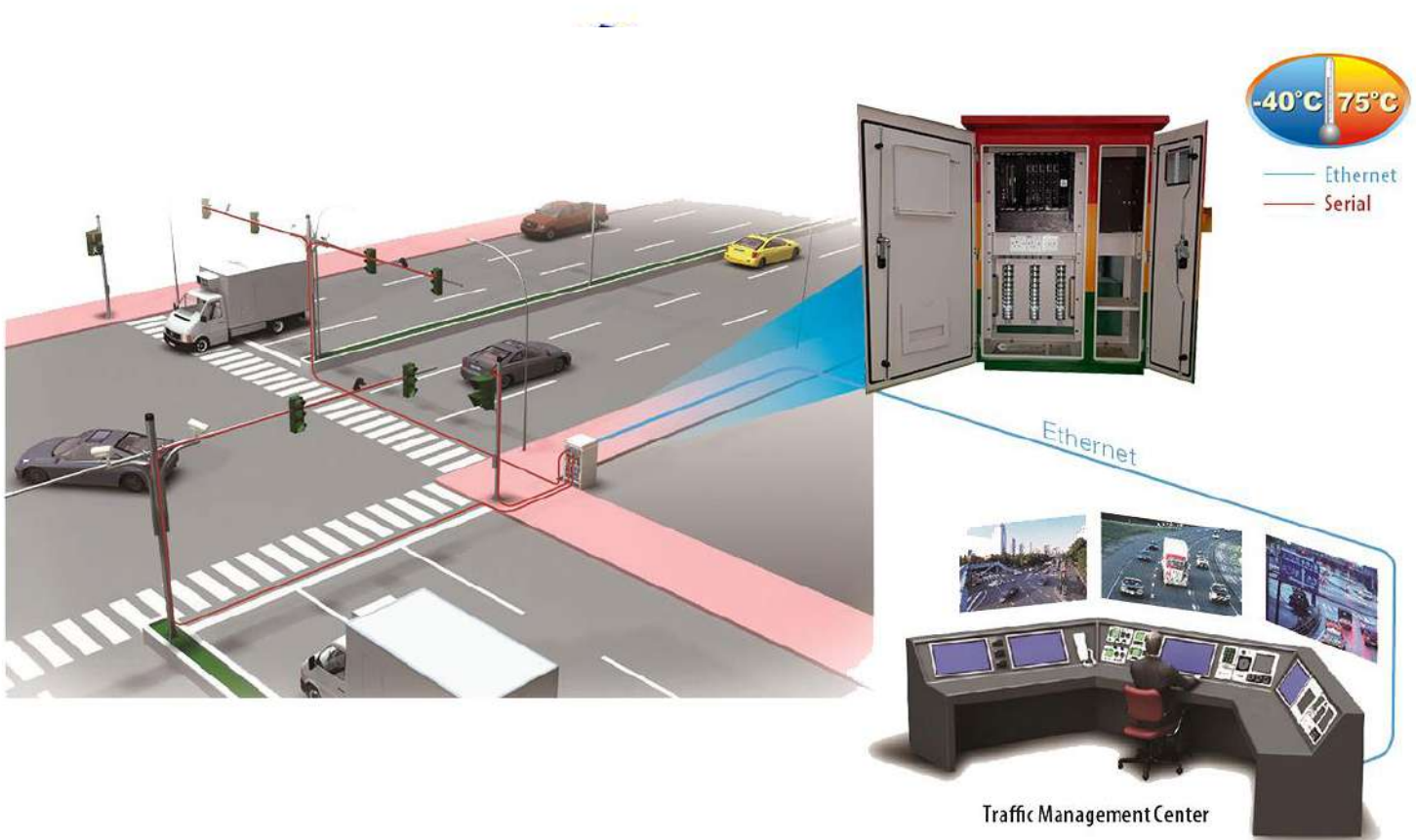
**PAK GERMAN  
ENGINEERS**

- Traffic System
- Automation System
- Solar & LED System

- Security System
- Road Safeties
- Consultancies

PROPOSAL FOR:

## PGE ADVANCED TRAFFIC SIGNAL MANAGEMENT SYSTEM



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OUR ASSOCIATES





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## Company Introduction

**PAK GERMAN ENGINEERS (PGE)** is a multi-service Company with a specialized focus on traffic and transport engineering, traffic management and automation services throughout Pakistan. We design and implement traffic and electrical solutions that work. We're a company that likes to do things right, which is why we ensure all our services comply with Our Partner Company Australian Standards, Codes of Practice, legislation and are in line with your expectations.

In business since 1990, PGE is a leading Traffic Control, home and industrial automation solution provider and manufacturer and importers of LED Traffic Light, Pedestrian Traffic Light, Traffic Countdown signal display, Variable Message Signs, vehicle detection systems, parking control and ancillary products, customized Traffic light & street light Pole, road safety products and Intelligent Traffic Controllers with absolute traffic management systems. We also provide Video vehicle detection systems, GSM based message display boards, toll plaza solutions, complete video surveillance-based parking solutions with e-tag facility, arterial systems masters, traffic control cabinets, data collection and management services (DCMS), Intelligent Intersection technology, and a full line of transportation maintenance services. We also provide alternative Energy Source i.e. solar street LED Lighting, solar power system, solar water heater and Wind Turbine solutions. We are provider, manufacturer and importers of advanced automation solutions. We combine experience and flexibility with a strong desire for progress, without curbing on safety, to achieve maximum satisfaction among our clients.

The energy-saving effect of all products, tested by domestic and overseas authorities, is proved to have reached the leading level domestically as well as internationally. PGE is committed to employing advanced technologies that reduce traveler time, ease congestion, enhance transit operations, provide safer mobility, and improve quality of life to meet customer specific requirements in the PGE products for safe, secure & reliable as entire satisfaction of our clients.



PGE is committed to employing advanced technologies that reduce traveler time, ease congestion, enhance transit operations, provide safer mobility, and improve quality of life. We are a quality assured company and our dedicated and experienced team are equipped with the latest technology, enabling the timely production of detailed, accurate and superior quality engineering grade CAD drawings and designs.

Our premium electrical and engineering services allow us to provide exceptional advice, and with technological advancements we are now looking at ecologically friendlier options. With PGE's

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**OUR ASSOCIATES**







recent solar accreditation, we are not only working with partners to provide solar solutions to our traffic signal, street lighting and ITS capabilities, but also to provide environmentally friendly alternatives to home and business power needs.

## PGE DESIGNED POLES FOR TRAFFIC SIGNALS

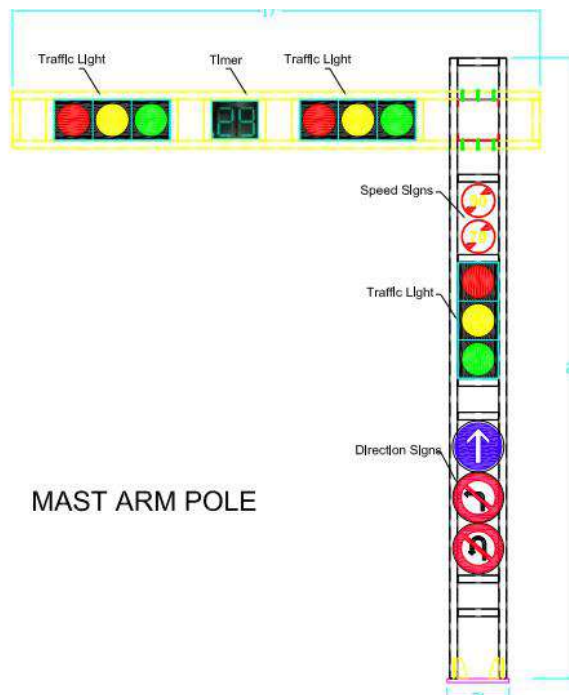
We are a trusted resource for Department of Transportation in traffic and signal lighting poles built to the exact specifications of individual departments and municipalities. Poles can be supplied with a galvanized finish, paint over galvanized finish, or a factory finish paint coat in a decorative urban application.



Design is not just what it looks and feels like; design is how it works. We also construct custom decorative signal poles built to match the designer's vision. From decorative cast bases to custom colors, the only limit is your imagination. Decorative signal poles are available with round, octagonal, or fluted shafts & mast-arms.

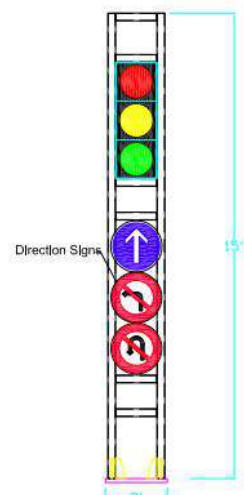
Whether your needs include an attractive, decorative design or a more traditional traffic signal light structure, the PGE technical team integrates quality, functionality and visual appeal to craft traffic control structures which meet or exceed specified local, provincial or federal departments requirements.

### Option #01:



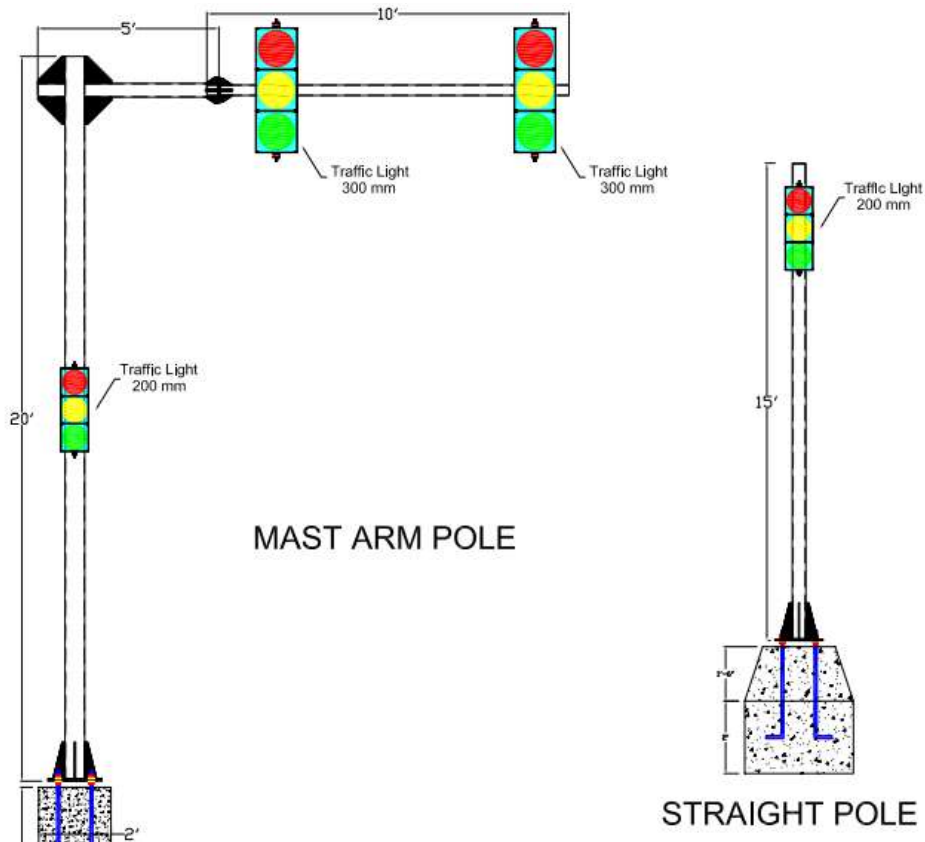
MAST ARM POLE

### STRAIGHT POLE

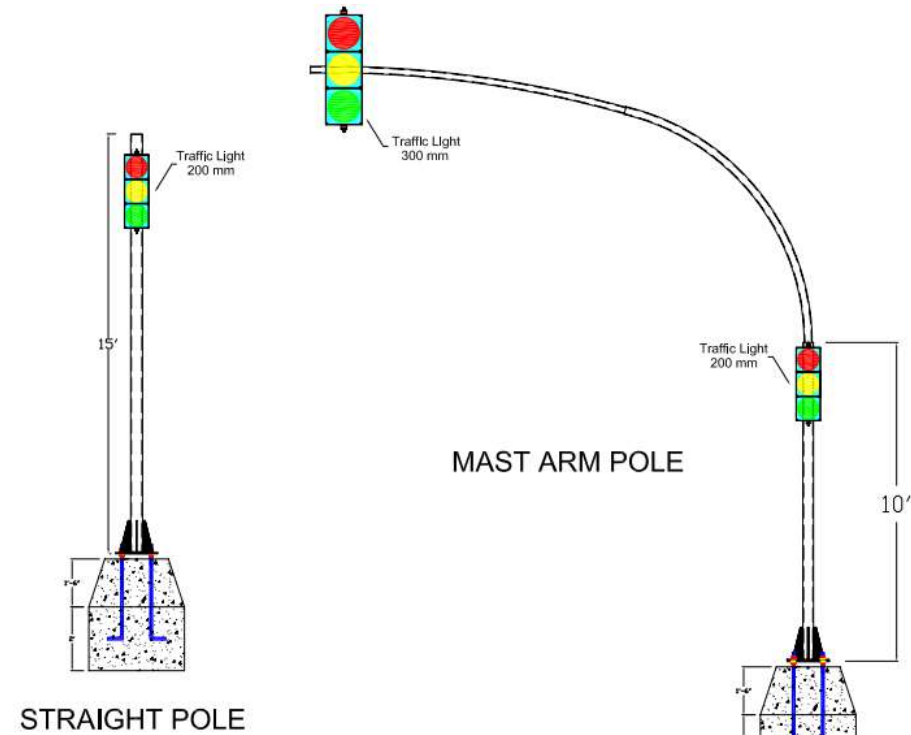




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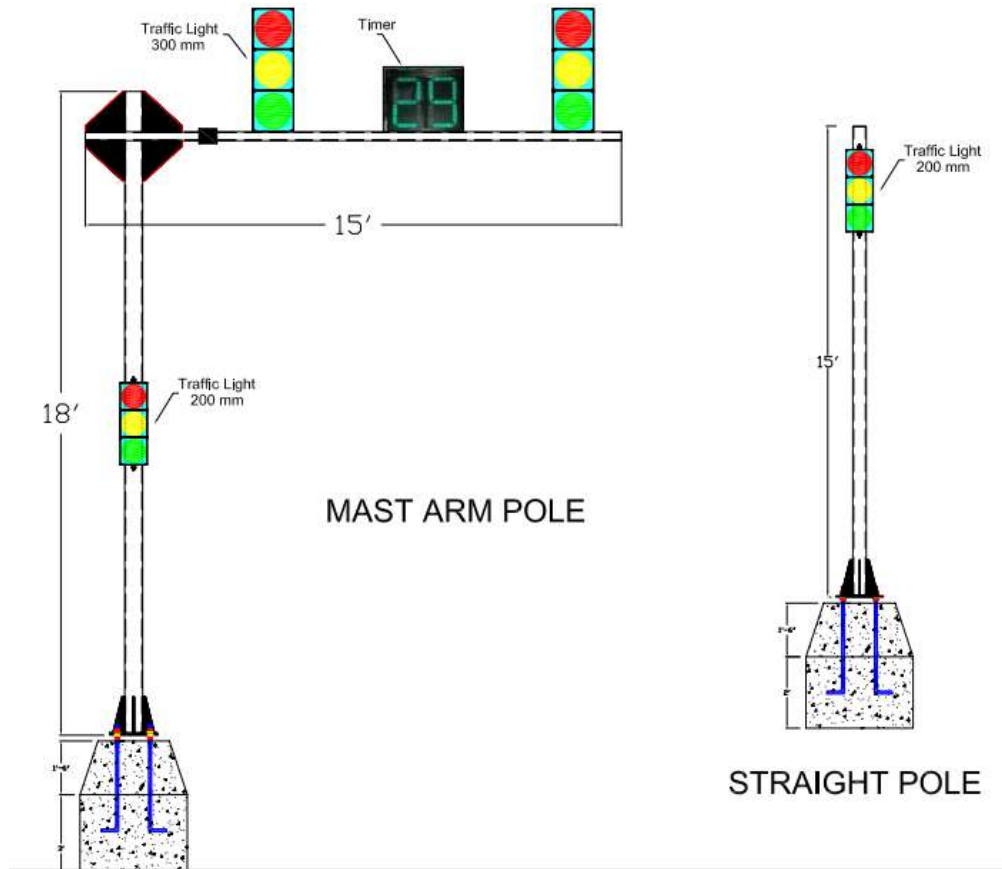


**Option #03:**

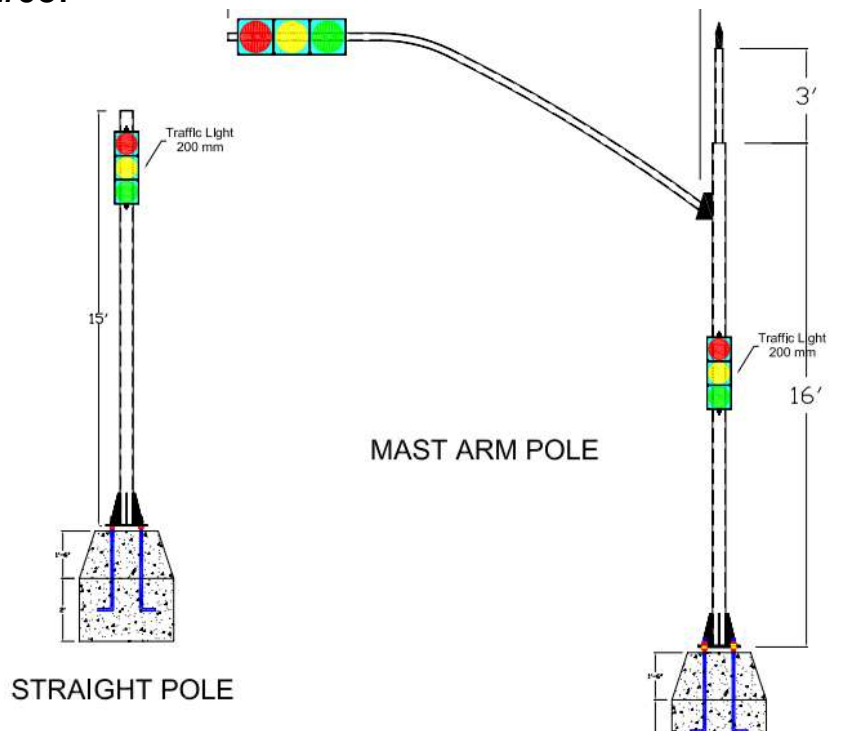




**Option #04:**

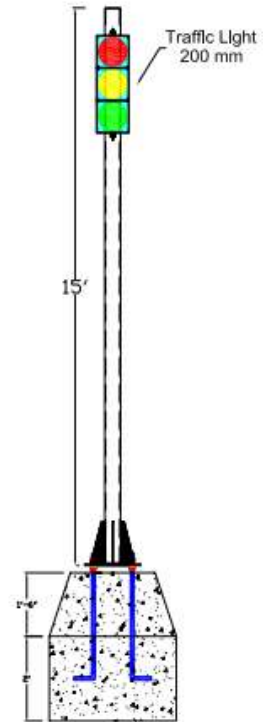
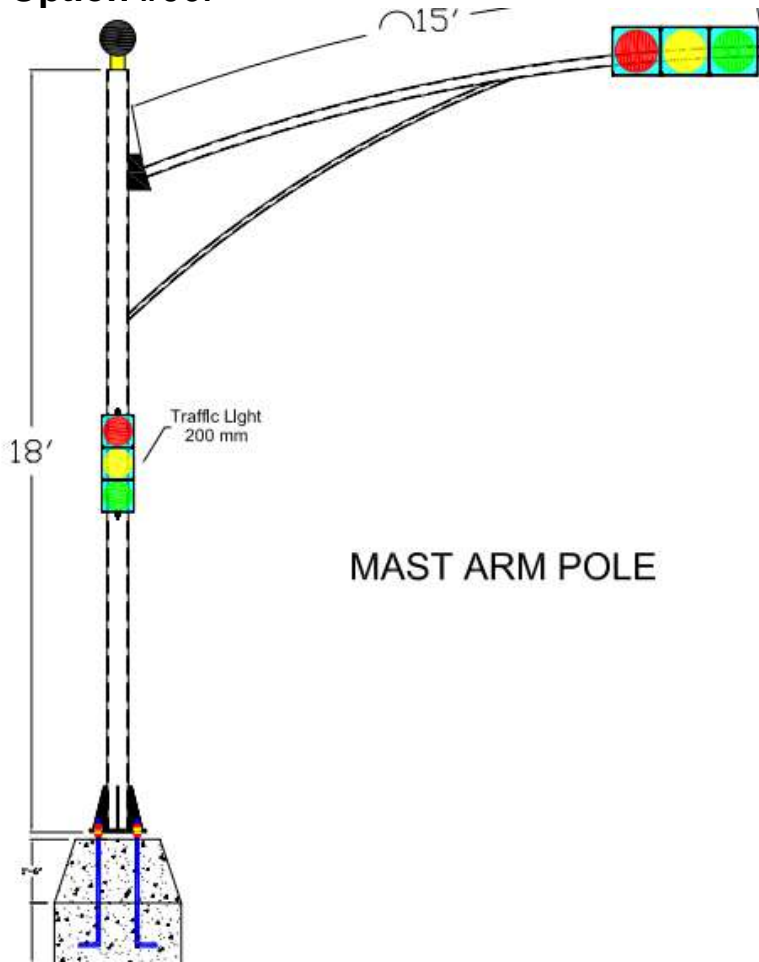


**Option #05:**





**Option #06:**



**STRAIGHT POLE**





## PGE TRAFFIC SIGNALS LIGHTS

### 1. PG Series, LED Traffic Lights:



PGE offers poly carbonat signal visors to increas signal visibility in sunlight.

\* Visors and brackets accompan the traffic lights along with th standard shipment.

Developed over the past few decades by Pak Germai Engineer and its partners engineering and technical team in Pakistan and China, PGE PG-Series, LED traffic light combines the functionality of old fashioned incandescen bulb standard traffic light with enhanced power savings o latest technologies of LED Lighting solutions.

The PG Series HI-Flux traffic lights can be provided in a variety of arrangements and sizes, subject to legislative requirements and the clients need.

Our PG SERIES traffic lights 200mm / 300mm made of UV-stabilize polycarbonate are highly resistant to unfavorable weather conditions an mechanical stress. The worldwide proven housing type supports differer light sources such as LEDs and electrical specifications such as high an low voltage. With its optical system being specifically adapted to each lam type, these traffic lights always achieve optimum light intensity. PG SERIES will suit you if you are looking for a universal, modular, ageless robust and durable traffic light solution for your applications.





## 2. PG Series, Hi-Flux LED Traffic Light Modules:

### PRODUCT Images:



#### KEY FEATURES

- Highly efficient LEDs enhance power savings
- Dimming function allows even further power savings
- Architecturally robust design
- The separate system controller is fully-SCATS compatible
- Available in 12 / 24V DC & 110 / 230V AC working voltages
- Modular, Vandal-proof design
- Suitable for inductive loop sensors
- Dust-proof, IP65 rated
- Also available in 100 and 300mm diameter specification



### EN12368 & CE Approved

### Red, Yellow & Green LED Traffic Light Modules:

PGE high flux traffic signal light modules are energy-efficient products and systems that are primary for smooth and safe vehicular as well as pedestrian movement.

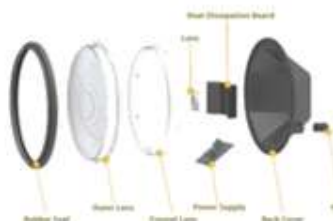
These are high quality and maintenance-free with clear visibility in all-weather & all-light conditions.

### Features & Benefits:

- Conform to EN12368 standard.
- Highest anti-phantom performance (class 5).
- Wide viewing angles & low power consumption
- No LED dots visible, very uniform signal glow – high power led.
- Compatibility with most traffic housings and controllers.
- Standard or customized symbols can be supplied on cut plastic masks. The mask is mounted inside the outer lens or supplied to customers separately.
- Color and colorless less options are available.



### MODULE COMPOSITION:



1. outer lens-
2. mask(for symbol lamp)-
3.fresnel lens-
4. power supply-
5. LED board and heat dissipation board-
6. back cover-



## TECHNICAL SPECIFICATIONS:

No.	Model:	PG/HF-300-R/Y/G-3A	PG/HF -200-R/Y/G-3A
1	Size (Module dia.):	300mm; 12 inch.	200mm; 8 inch.
2	Aspects arrangement:	1 / 2 / 3 / as per requirement.	
4	Housing Material:	Polycarbonate, UV-light-resistant.	
5	Fixing Bracket	Metal/ Plastic Brackets.	
6	Sun visor:	Poly carbonate visor with screw fitting for enhance visibility in Sun light.	
7	Phantom class:	> 3	
8	Color:	Red, Yellow, Green.	
9	Light Source:	Central Light Source (Optic LED).	
10	Optical Lens:	Fresnel Lens.	
11	Impact resistance:	IR3 (Compliance with EN60598-I).	
12	Luminous Intensity (cd):	R > 800 cd, Y > 800 cd, G > 800 cd.	
13	Luminance Uniformity:	Lmin: Lmax <1:10.	
14	Wavelength:	Red: 620~630 nm, Yellow: 590~595 nm, Green: 500~510 nm.	
15	Power Consumption:	R ≤ 11W Y ≤ 12W G ≤ 11W.	R ≤ 8W Y ≤ 9W G ≤ 8W.
16	Viewing Angle:	Compliance with the ± 30° requirement as per EN12368:2006. (L/R-30° U/D-30°)	
17	View Distance:	≥ 500 m	
18	THD:	<20%	
19	Switch on time	≤ 75 ms	
20	Rated Temperature:	Between -45°C and 74°C.	
21	Operation Voltage:	110 V AC / 220 V AC / 12 VDC / 24 V DC / 42 V AC.	
22	Frequency:	50/60HZ	
23	Power Factor:	> 90%	
24	Module material:	Polycarbonate (PMMA) – UV resistant, Optical Lens showing a very good color uniformity.	
25	Life Span:	>85,000 hours (9-10 years of continuous Light).	
26	Warranty:	2 Years.	
27	IP Grade:	Module: IP65 - compliant to IEC 60529:1989; Body: IP-54	
28	Certifications:	CE, ISO9001, EN-12368 & RoHS certified.	

## Reference Images:







### 3. PG Series, Hi-Intensity LED Traffic Lights Modules:

#### PRODUCT Images:



#### Red, Yellow & Green HI-Intensity LED Traffic Lights:

PGE high Intensity traffic signal light modules are energy-efficient products and systems that are primary for smooth and safe vehicular as well as pedestrian movement.

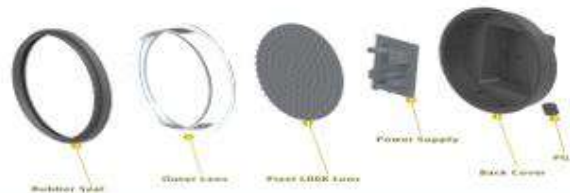
These are high quality and maintenance-free with clear visibility in all-weather & all-light conditions.

#### Features & Benefits:

- Wide viewing angles & low power consumption
- Compatibility with most traffic housings and controllers.
- Standard or customized symbols can be supplied with 5mm LED Lights.
- Colorless Glass lens for high visibility.



#### MODULE COMPOSITION:







## TECHNICAL SPECIFICATIONS:

No.	Model:	PG/HI-300-R/Y/G-3A	PG/HI -200-R/Y/G-3A
1	Size (Module dia.):	300mm; 12 inch.	200mm; 8 inch.
2	Aspects arrangement:	1 / 2 / 3 / as per requirement.	
4	Housing Material:	Polycarbonate, UV-light-resistant.	
5	Fixing Bracket	Metal/ Plastic Brackets.	
6	Sun visor:	Poly carbonate visor with screw fitting for enhance visibility in Sun light.	
7	Phantom class:	> 3	
8	Color:	Red, Yellow, Green.	
9	Light Source:	5mm LED.	
11	Impact resistance:	IR3 (Compliance with EN60598-I).	
12	Luminous Intensity (cd):	R>200cd, Y>400cd, G>220cd	
14	Wavelength:	Red: 620~630 nm, Yellow: 590~595 nm, Green: 500~510 nm.	
15	Power Consumption:	R ≤ 11W Y ≤ 12W G ≤ 11W.	R ≤ 8W Y ≤ 9W G ≤ 8W.
16	Viewing Angle:	Compliance with the ± 30° requirement as per EN12368:2006. (L/R-30° U/D-30°)	
17	View Distance:	≥ 500 m	
19	Switch on time	≤ 75 ms	
20	Rated Temperature:	Between -45°C and 74°C.	
21	Operation Voltage:	110 V AC / 220 V AC / 12 VDC / 24 V DC / 42 V AC.	
22	Frequency:	50/60HZ	
23	Power Factor:	> 90%	
24	Module material:	Polycarbonate (PMMA) – UV resistant, Optical Lens showing a very good color uniformity.	
25	Life Span:	>85,000 hours (9-10 years of continuous Light).	
26	Warranty:	1 Years.	
27	IP Grade:	Module: IP-65; Body: IP-54	
28	Compliance:	CE, ISO9001, EN-12368 & RoHS compliant.	

## Reference Images:





## Two Digits Red-Green Countdown Timer:

1. **Application** – junction traffic light signalling.
2. Available in learning, adaptive or communicative version.
3. Ability to be synchronized with any traffic signal controller.
4. Wide operating voltage.
5. Transparent poly-carbonate optical lens – impact resistant.
6. High intensity LED light source – low energy consumption.
7. 5mm LED (DIP) by EPISTAR.
8. Long life cycle – more than 80,000 working hours.
9. Highly durable poly-carbonate housing; UV-light resistant.
10. Fixation system with aluminium mounting brackets.
11. Compliance with CE, RoHS, EN12368, ISO9001.



## Technical Specifications:

Color	Red & Green
LED Qty	R/G: 128pcs
Light Intensity	R $\geq$ 10000cd/m <sup>2</sup> G $\geq$ 20000cd/m <sup>2</sup>
View Distance	$\geq$ 500m
Wave length	R:625nm~630nm
IP Grade	IP54
Viewing Angle	L/R-30° U/D-30°
Working Temp	-40°C~ + 80°C
Working Voltage	DC 12V,DC24V ; AC 85V-265V , 50-60HZ
Housing Material	Polycarbonate – UV Resistant
Life Span	$\geq$ 80,000hrs
Power Consumption	R $\leq$ 10W G $\leq$ 12W

## Note:

- 120 vac, 12 vdc or 24 vdc are available.
- Lens are clear of High-quality Polycarbonate material.





## 2.5 Digits Tri- Color Countdown Timer:

1. **Application** – junction traffic light signalling.
2. Available in learning, adaptive or communicative version.
3. Ability to be synchronized with any traffic signal controller.
4. Wide operating voltage.
5. Transparent poly-carbonate optical lens – impact resistant.
6. High intensity LED light source – low energy consumption.
7. 5mm LED (DIP) by EPISTAR.
8. Long life cycle – more than 80,000 working hours.
9. Highly durable poly-carbonate housing; UV-light resistant.
10. Fixation system with aluminium mounting brackets.
11. Compliance with CE, RoHS, EN12368, ISO9001.



## Technical Specifications:

#	Feature	PGE Proposed
1	Compatibility	Completely compatible (Tested with PSCA controllers)
2	Operating System	Micro-chip AVR (8-bit)
3	Adaptive	Fully adaptive for three colors timing with continuous intelligent learning.
4	Input Voltage	120V-230V AC
5	Light Source	5mm Dip-star LED
6	Counter	0 to 199
7	Power Consumption	8W-18 W
8	Display Type	2 and half digits (188)
9	Display Color	Tri- Color functionality.
10	LED's in Each Segment	> 50 No LEDs total in each segment.
11	Input Sensing	3 Cycles in standard. (Customizable)
11	Input Signal Source	Yes, Sense traffic light input in parallel.
12	Sensing Sequence	Show (--) until verified cycle occurs and display starts from Green. 3 cycle for same time verification before counting display. Will not time display on any interruption in cycle.
13	Minimum body Size	Minimum 500mm X 400mm
14	Body Material	MS Body with Powder Coating.
15	Bracket Material	Aluminum /MS clamp Brackets.
16	Storage Temperature	-40oC to 85oC
17	Operating Temperature	-20oC to 60oC
18	Humidity	95% at 60oC (Non-Condensing)
19	Least Digit of Count	Yes, Customizable
20	Life Span	Minimum 80,000 Hrs.
21	View Distance	> 500m
22	Light Intensity	Yes, Compatible.
23	IP Rating	Body: IP-54; Digits: IP-65
24	Segment Board (Material)	Yes, Digits/ Segments mounted on MS Housing with screws/ nut, bolts.
25	Controller Board	Smart design with single industrial power supply.
26	Display Size	Minimum 380mm X 254mm
27	Size of Each Segment	Minimum 173mm X 10mm
28	Warranty Period	One year





## PGE TRAFFIC SIGNAL CONTROLLERS

### I. PGE TSC-8G Microprocessor based Traffic Controller:

TSC- 8G Microprocessor based Traffic controller is known as economical and reliable solution for most complex intersections having special features.

#### FEATURES:

- 5-12 Volt DC Inputs/Outputs,
- Microcontroller Based Traffic Controller with 08-time plans.
- Night Flashing mode
- Suitable for Green Wave System.
- LCD display for programming
- 24-Outputs, 8 Vehicular Groups
- 24-Inputs for various plans
- Built-in programming keys.
- Can work as Master or Slave.
- Green time hold & skip function key.
- Compatible with standard vehicle loop & microwave radar detectors.
- Menu driven programmable sequence.
- Suitable to Drive 12 Channel Solid state Lamp Switching Card.
- Suitable to configure for 3-way, 4-way, Road Crossings.



**BRAND:** Pak German Engineers (Made: China).

### PGE 12 Channel Power Card:

Traffic Signal Lamp Switch Board with SSR modules.

#### FEATURES:

- Power Load input 220 VAC
- 12 No. Switching Input 5-12 VDC
- 12 No. Output Channels 220 VAC (4-Group)
- Solid state Lamp Switching
- 10 Amp per Channel Complete with all respects.
- Compatible with PGE TSC-8G Traffic Controller Card.

**BRAND:** Pak German Engineers (Made: China).



## II. PGE-XIM Intelligent Traffic Signal Controller:

PGE-XIM is microprocessor based intelligent traffic signal controller design to control from small size intersection to large size intersections with the maximum throughput and efficiency. It has highly modular structure which allows to fully scalable configuration and design. XIM is embedded with intelligent algorithms which learns the traffic capacity of intersection and optimize the green time.

The signal controller can communicate with control center application and is fully adaptable to integrate various other ITS components such as CCTV, VMS, and ANPR to communication with control center, which makes it possible for the controller to link seamlessly with other systems under the same protocol so as to integrate and extend the present system. Its communication with the countdown timer conforms to the various adaptive, semi-adaptive and fixed time Road Traffic Signal Countdown Display.



### Features:

- Local and grid Connected Intelligent operational mode.
- Highly Adaptable.
- Time optimization.
- Fixed time mode.
- Multiplan mode.
- Vehicle actuated mode.
- Multiplan vehicle actuated mode.
- Police control mode.
- UTC-link mode.
- Pelican mode.
- Integrated Pelican mode.
- Grid connected mode.
- Flashing amber mode.
- Go-Green link mode.
- XITS (XIM Intelligent Transportation System) link mode of operations.
- Provision for SCATS link.
- XIM personal digital identity and incorporated Anti-Theft Technology.
- Programming by XIMP (XIM Programmer).
- Various VA (adaptable time based on vehicle volume instead of fixed time countdown) and non-VA mode of digital countdown operations.
- Ensured Safety by lamp monitoring.
- Module Architecture Design.
- Scalable to integrate others ITS systems i.e. VMS, Video cameras, ANPR, Red Light camera, Congestion monitoring system, Journey time monitoring system, etc.
- Economical and cost-efficient design for all type of intersections.

Standard 4-door Cabinet



### Operational Specifications:

Email: [info@pgepakistan.com](mailto:info@pgepakistan.com)

Website: [www.pgepakistan.com](http://www.pgepakistan.com)



Item	Specifications
Signal Groups	Available in 4, 8, 12, 16, 20 signal group configurations
Flow Control	Up to 10 phase pedestrian or vehicle
Inductive Loop Inputs	Up to 32 detector inputs
Wireless/Video vehicle detection inputs	Up to 48 digital detector inputs
Pelican demand inputs	Up to 12 inputs
Timing Plans	48x10x7 flexible timing plans
No of Countdown	8 individual and 4 redundant for every individual countdown
Logging and Data capacity	Yes, logs every event happens and operational data
	Fault log capacity up to 10 years, data log capacity up to 3 years
Programming/Configuration Interface	XIMP (XIM Programmer) available for all windows and mobile devices i.e. Laptop, Mini Note book, Android and IOS devices, Handheld Console
Priority Operations	Priority mode for Emergency vehicles and VIP's
Lamp Monitoring	Voltage monitoring per signal output
	Current Monitoring per signal output
Conflict and Fault Detection	Signal Lamp Fuse Blown, Green-on-Green conflict monitoring, Green-Yellow conflict monitoring, Green –Red conflict monitoring, Red-Yellow conflict monitoring, Conflicting red absence monitoring, Conflicting amber absence monitoring, Conflicting green absence monitoring
Safety action backup mode	Flashing amber and blanking traffic signal lamps
Command Control Center Connectivity	XITS (XIM Intelligent Transportation System) and SCATS

### Electro Mechanical Specifications

Item	Specifications
Operational Voltage	110/220 VAC
Operational Voltage Frequency	50 Hz
Power Consumption	60 ~ 150 Watt
Operating Temperature	-10 ~ 80 °C
Humidity Tolerance	95% Non-Condensing
Electrical Protection	Surge Arrestor and Lightning Arrestors provides protection to withstand transient voltage surge of up-to 6 KVA
Power Backup	UPS and Solar
Cards Rack	Detachable Rack for PCB cards sliding in (preferred by overseas market)
Cabinet	Front and rear accessible, 2/4 door epoxy coated GI cabinet
Dimensions	4 Door: (130H x 85W x 40D) mm
	2 Door: (130H x 55W x 40D) mm
Weight	Cabinet Weight 2 Door: 50 Kg (with installed electrical wiring and MCB's)
	Cabinet Weight 4 Door: 70 Kg (with installed electrical wiring and MCB's)
	Rack Weight: 20 KG (with 16 signal groups and 16 detector inputs)
	UPS Weight: 20 KG
Cooling Method	Ventilation via 4 air meshed vents
Ingress Protection (IP) Compliance	IP33 Compliant
Mechanical Compliance	Compliant to IEC 255-21-1, IEC 255-21-2
Electromagnetic Compliance	Compliant to BS EN 50293:2012





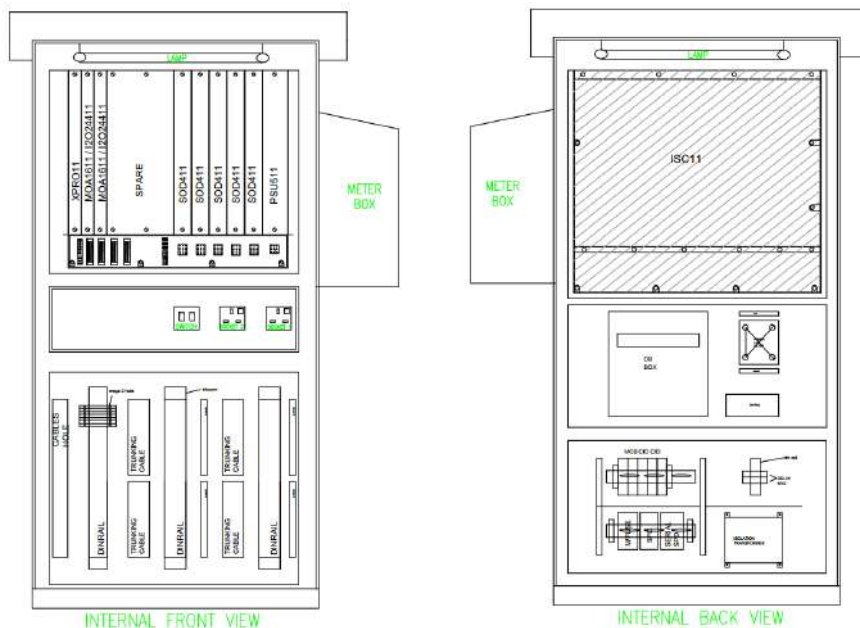
Environmental Compliance

Compliant to IEC 60068-2-2, IEC 60068-2-3, IEC 60068-2-30

## System Specifications

Item	Specifications
Microprocessor	32-bit, advanced Cortex M7 architecture processor-based CPU card
	32-bit, advanced Cortex M3 architecture processor-based Slave cards
Memory	16 MB on board flash memory
	SD card provision up to 64 GB
Vehicle Detection	Inductive Loop, Wireless Infrared/Radar and Video Vehicle Detectors
UPS	1.2 KVA, 2.0KVA and 3.0 KVA
Communication Interfaces	RF, LAN, Fiber, Wi-Fi, 3G/4G, Bluetooth
Controller Ports	USB, Ethernet, RS232 x 4, RS485, Console, Police
Alert System	SMS, Web Interface

## Isometric View



### III. PGE-XIM Wireless Intelligent Traffic Signal Controller:

PGE-XIM Wireless Traffic Light Control System is built with state-of-art modern wireless technologies to eliminate obstacles faced in existing conventional wired traffic light control systems. XIM Wireless Traffic Light Controller is completely wireless communicating over radio data being transmitted between master controller and signal group controllers. It is completely



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solar-powered, and environment friendly solution incorporated with all world modern traffic light systems.

## Features and Specifications



Independent wireless solar powered traffic light units without electricity input.



Self-support package contained solar energy system and wireless communication receiver.



The host and receivers for traffic signal control and wireless communication.

## Components of wireless solar traffic light system

1. (Traffic lights) 12V and 24V DC LED traffic lights (vehicle and pedestrian lights)
2. (Solar Panel) High efficiency PV solar panel to collect sunshine energy
3. (Light Pole) Rugged steel light pole specially designed for traffic
4. (Cabinet) Steel container for Battery, traffic light controllers and charge controller
5. (Wireless Solar Traffic Light Controllers) 1pc host controller and multiple receiver controllers
6. (Battery) Power up traffic lights and traffic light controllers with storage energy in the daytime





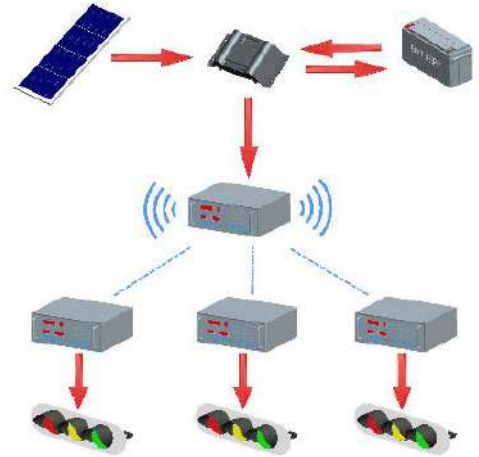
7. (Charge Controller) Transfer solar energy to traffic lights, traffic light controllers and battery

### Operation principle of wireless solar traffic light system

PGE-XIM wireless traffic signal controller is designed to cater the need where conventional cable or wired system is not possible. It has highly modular structure which allows to fully scalable configuration and design.

### Benefits of wireless solar traffic light system

- Powered by solar energy, whole traffic light systems save massive cost of electricity and cables, also cable installation.
- Adopt wireless transmission system, no cable layout underground is needed. Not only save the cost of cable, but also reduce construction work and avoid damage to the road.
- Solar panel and battery mounted up on the post strongly guarded from thieves.



### 1. Operational Specifications

Item	Specifications
Signal Groups	Available in 4 signal group configurations
Flow Control	Up to 10 phase/pre-defined vehicle routes
Demand inputs	Up to 10 inputs
Programming/Configuration Interface	Application for Laptop
Safety action backup mode	Flashing amber and blanking traffic signal lamps

### 2. Electro Mechanical Specifications

Item	Specifications
Operational Voltage	12 VDC
Power Consumption	3~5 Watt
Operating Temperature	-10 ~ 80 °C
Humidity Tolerance	95% Non-Condensing
Power Backup	Battery
Cabinet	Front accessible epoxy coated GI cabinet
Cooling Method	Ventilation via 4 air meshed vents
Ingress Protection (IP) Compliance	IP33 Compliant
Mechanical Compliance	Compliant to IEC 255-21-1, IEC 255-21-2
Electromagnetic Compliance	Compliant to BS EN 50293:2012
Environmental Compliance	Compliant to IEC 60068-2-2, IEC 60068-2-3, IEC 60068-2-30
Communication Interfaces	RF, RS232





## **VEHICLE DETECTOR/ ACTUATION SENSORS**

### **1. In-Road Buried WVD Solution (Magnetic Sensors):**

By using the magnetic and wireless technology, we have developed the wireless vehicle detection for urban traffic that is the smart road traffic signal control system.

**The system normally has two parts:**

a) Data collection (Road Sensors):

The in-road vehicle sensor will detect the traffic data (presence, count, volume, direction, etc.). At the meantime, it will transmit the data to the receiver over wireless interface.

b) Receiver (Wireless Access Point):

The Access point will coordinate data collection from all sensors, process, analyze and sends output to traffic signal controller.

#### **Wireless Access Point (WAP)**

The wireless access point acts as a gate way between the user systems and wireless sensor network, which is formed among the WVD sensors installed in the road surface. WAP is used to gather traffic information collected by WVDs for intelligent transportation system such as intelligent traffic light control, traffic flow, and traffic guiding. It transmits information to application platform; as well as receives commands from application platform and deliver to WVDs. WAP is also responsible for the wireless sensor network management. It also run some algorithm and output controlling signal to applicable systems, besides data collection and transmission.



#### **Application:**

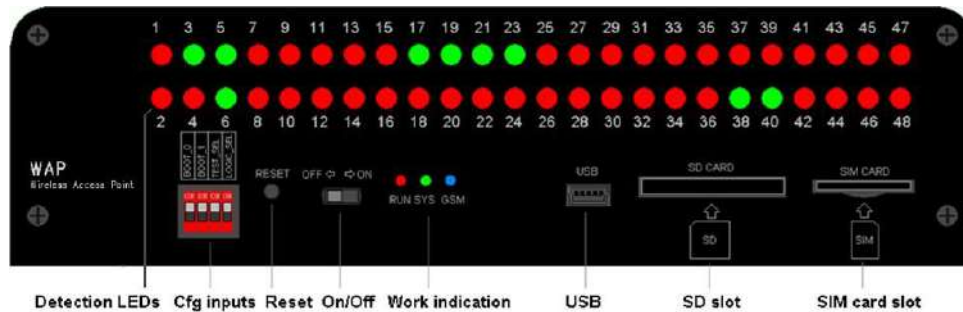
- ◆ Traffic signal light optimization control
- ◆ Travel information guiding
- ◆ Traffic flow monitoring
- ◆ Corridor management
- ◆ Traffic performance measurement



## Features:

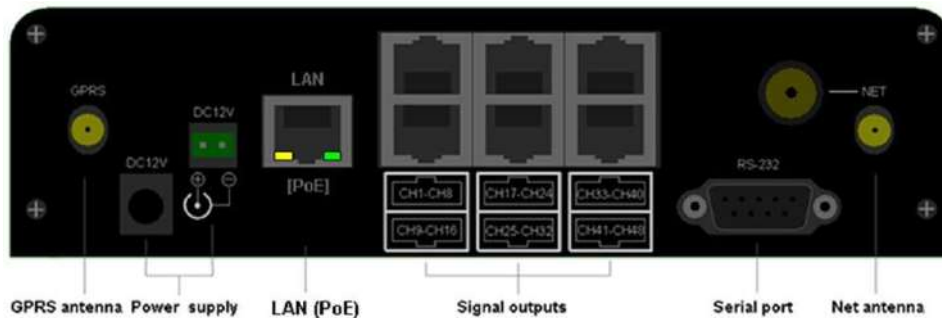
- ◆ Data collection
- ◆ Network management
- ◆ LEDs indication of detection results
- ◆ Vehicle existence output
- ◆ Support up to 48 detection channels
- ◆ Wide communication range
- ◆ RS-232, Ethernet, USB, GPRS communication
- ◆ PoE

## Panels:



**Fig1. Front panel**

- ◆ Detection LEDs: 48 bi-color LED indicate the WVD detection result of each lanes;
- ◆ Cfg inputs: 4 toggle switches for selecting the output signal level of the 48 OCs;
- ◆ Reset: For restarting the device;
- ◆ ON/OFF: Power on/off
- ◆ USB port: For users to debug and maintain the system;
- ◆ Working indication: System running indicators;
- ◆ SD slot: Memory card for data back-up (optional);
- ◆ SIM card: For GPRS communication (optional);



**Fig2. Rear panel**

- ◆ Power supply: 9-36V power supply / PoE
- ◆ Signal outputs: 48 OC signal outputs by 6 RJ45 connectors
- ◆ Data port: RS-232, Ethernet and USB port to communicate with user system

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- ◆ Net antenna: Connecting wireless networks antenna
- ◆ GPRS antenna: Used for connecting GPRS antenna (optional)

### Technical Specifications

Technical Info.	Parameters
Wireless radio frequency	433MHz
Communicate range	120m
Detect channel	48 lanes
Output signal	48 OCs
Output logic	Configurable
Power supply	DC9~36V/PoE
Debug interface	USB
Data interface	RS232/Ethernet/GPRS
Product size	Length 230mm/Width 100mm/High 49mm
Operation temperature	-40~85°C
Storage temperature	-40~85°C
Application	Traffic systems

### Road Sensor:

Wireless vehicle detector is based on magnetic induction technology and wireless communication technology. It can be easily installed on road without any wiring needs. It can collect data of traffic flow, counting vehicle, occupy rate and moving direction, provide this to system integrator.

The WVD wireless vehicle detection sensor is designed for pursuit of high efficiency and low cost ITS traffic application systems. Based on magnetic detection and wireless sensor networks, WVD sensors acquire the dynamic traffic flow information and send through wireless channel to user systems.

The WVD sensor can be easily installed in the road surface in few minutes, and work without maintenance for many years.

### Application:

Wireless vehicle detector can be widely used in urban artery, freeway, overhead road, bridge, urban and suburban road for intelligent transportation system, such as:

- ◆ Traffic signal light optimization control
- ◆ Travel information guiding
- ◆ Traffic flow monitoring
- ◆ Corridor management
- ◆ Traffic performance measurement







## Features:

- ◆ Vehicle existence measurement
- ◆ Vehicle move direction measurement
- ◆ Wireless OTA upgrade

## Technical Specifications

Technical Info.	Parameters
Wireless radio frequency	433MHz
Communicate range	120m
Detection technology	Magnetic
Detection accuracy	>97%
Reaction time	50ms
Power supply	Battery
Battery life	10 years
Maintenance	OTA
Product size	Diameter 116mm/Height 90mm
Load resistance	20 tons for static
Protection level	IP68
Work condition	All weather
Operation temperature	-40~85°C
Storage temperature	-40~85°C
Installation	Embedded
Application	Traffic systems

## System Installation



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## 2. Non-Buried WVD Solution (Doppler Radar Detectors):

The sensor has a microwave motion detector and an active infrared presence sensor built in the same housing. The microwave FALCON-type planar antenna stands for a comfortable activation quality. The signal treatment results in an accurate precision to filter out pedestrians, cross-traffic and possible interferences. The active infrared technology offers a presence area where every vehicle and object standing will be detected.





### Easy Installation and Fast Configuration

Motion and presence detector is easy to install. You can simply mount it on the existing infrastructure.

### Key Functionalities:

- The approach detection can be easily adjusted according to the environment.
- The home-made planar antenna features an accurate pedestrian/ vehicle filtering and a reliable cross-traffic rejection.
- The presence area is defined to detect every vehicle.
- The sensor stands for an alternative solution to induction loops with a faster installation and service.

### Technical Specification

Technologies	Microwave Doppler Radar	Active Infrared
		
Detection mode	Motion	Presence
Transmitter frequency/wavelength	24.150 GHz	875 nm
Transmitter power density	< 5 mW/cm <sup>2</sup>	< 250 mW/m <sup>2</sup>
Detection field	4 m x 5 m	4 m x 4m
Reaction time	100 ms	250 ms
Min. detection speed	5 cm/s	5 cm/s to activate detection
Tilt angle	-8° - 22° (relative to sensor front face)	15° - 45°
LED signals	Green	Red
Supply voltage	12V to 24V AC ± 10 % ; 12V to 24V DC +10 % / -3%	
Mains frequency	50 to 60 Hz	
Power consumption	< 3.5 W/ VA	
Output: Max. contact voltage Max. contact current; Max. switching power	2 relays (free of potential change-over contact); 42V AC/DC; 1A resistive; 30W (DC)/ 48VA (AC)	
Output hold time	0.5 s	
Temperature range	From -30°C to +60°C	
Cable length	10 m	
Mounting height	3.5 m - 6 m (depending on size and nature of the target)	
Dimensions	127 mm (L) x 102 mm (H) x 96 mm (W)	
Degree of protection	IP65	
Humidity	0-95 % non-condensing	
Materials	ABS/Polycarbonate (Color: black/smoked purple)	
Norm conformity	EMC: 2004/108/EC R&TTE: 1999/5/EC	

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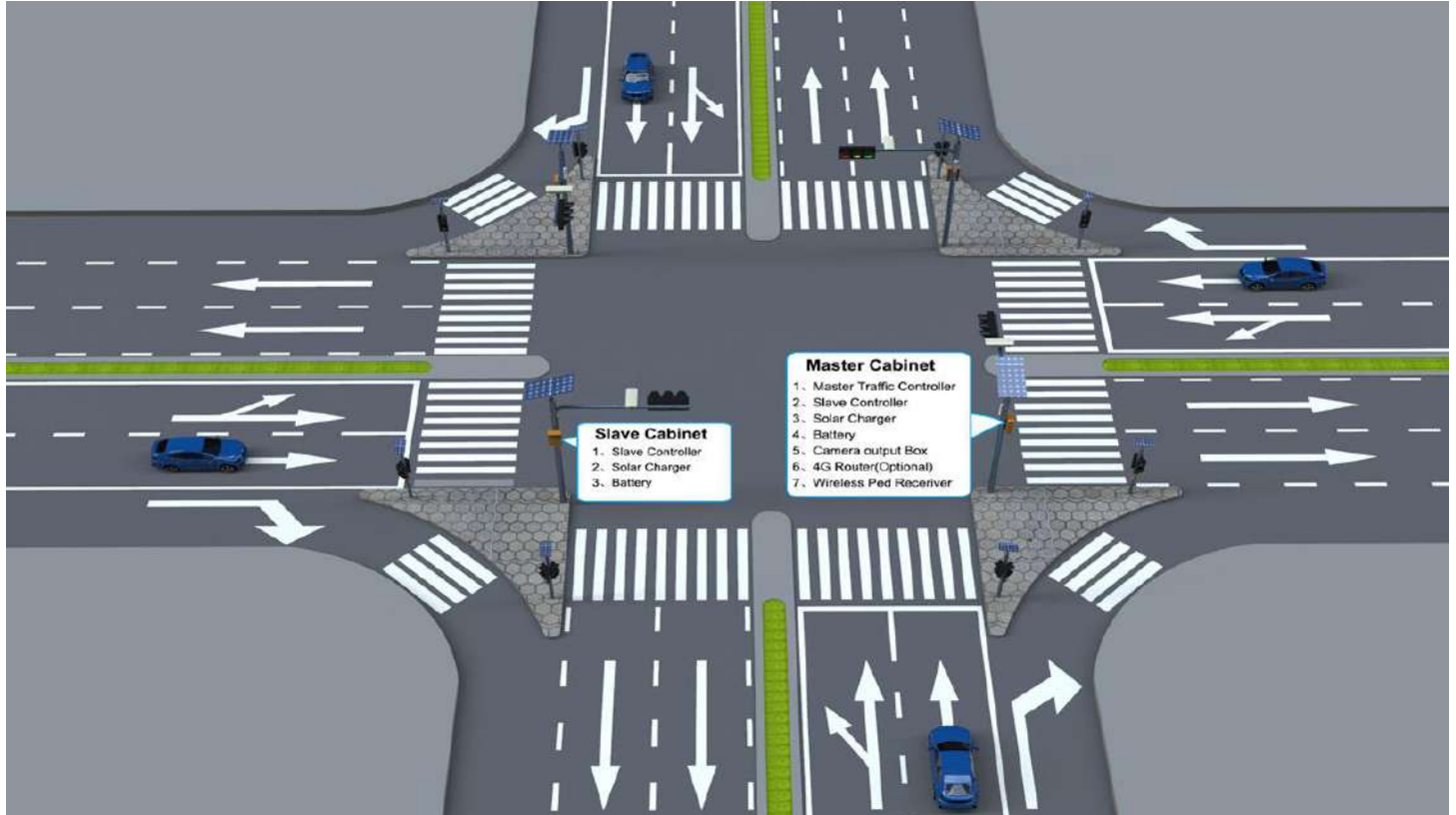
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### 3. Non-Buried VVD Solution (Video Vehicle Detector):



### PGE Video Camera Detector VVD:

#### Parameter:

Detection Functionalities: Vehicle presence + data + video.

1. Detection Zones: 8.
2. Detection Outputs: 8.
3. Communication with Controller: via 485 & Ethernet & wireless.
4. Resolution: 640x480 pixels.
5. Frame rate: 20 FPS.
6. Lens Types Focal Detection Distance:
  - a. Wide Angle 2.8mm; 0-30m.
  - b. Narrow Angle 6.0mm 15-75m.
7. Mounting Height: 3.5-12 m.
8. Compression: MJPEG, H.264.
9. Housing Material: Aluminum, Weatherproof (UV-resistant).
10. Operating voltage: 12-42VAC.
11. Communication with PC - Sensor: Interface & Via Ethernet.
12. PC Tool for Setup: Traffic Configuration Tool.
13. EMC: Electromagnetic Compatibility 2004/108/EG.
14. Protection grade:



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- a. Housing = IP68.
- b. Connectors = IP67.

## Features:

- Small size (with camera & controller)
- Dynamic, high sensitivity
- Non-intrusive ground installation.
- Adapted to day and night operations.
- Real-time traffic view and surveillance.
  - Continuous Video Transmission.
  - Queue Detection.
  - Traffic Monitoring
- Road vehicle detection



## PGE Video output board:

### Specifications:

- Ports: COM interface of RS-45, including 485x1.
- Ethernet (TCP/IP) communication: LAN port x 2,
- Connect to pc & NVR/ POE port.
- 4 x POE ports for traffic camera connection.
- Protocol Compatibility: Customized protocols
- Address dialing: 7 pins.
- Detection result output: Each camera is equipped with 4 output channels for a total of 16
- Camera connection indicators: 4 No.
- Camera fault indicators: 4 No.
- Connector: double row 30-pin horn stand.
- Power supply: 12-48VDC; 2A.
- Protection level: IP54.
- Working voltage: -40 °C -85°C.
- Certification: CE.





## **XIM INTELLIGENT TRANSPORTATION SYSTEM (XITS)**

The commitment of the XIM ITS system is to alleviate the city traffic pressure, saving traffic energy, improving traffic safety, exploring integrated computer hardware and software technology, developing automatic control techniques and network communications technology in order to realize a city traffic control system characterized by networking, smartness and integration. XITS applies an effective, multi-leveled, real-time and self-adaptive control mode to get an optimized control over all the intersections within a region so as to meet the changing traffic circumstances like the morning peak, evening peak, holidays, night or large-scale activities, accidental events, etc.

XIM Intelligent Transportation System is a traffic monitoring, controlling, directing, planning, recommending and central data hub solution for useful data transmitted by site installed traffic signal controllers. It can analyze traffic volumes and hence can predict upcoming congestions. It has very power route flow link tool that provides you to plan your route flow by per second connection of traffic signal controller with XIM Intelligent Transportation System. Real time monitoring is one of most promising feature it is powered with plus with the complete history of alarms and events to attract the attention of operators to minimize breakdown time hence increased efficiency.



### **System Structure:**

The system is mainly composed of the intersection subsystem, the communication subsystem, the center subsystem.

- The intersection subsystem is mainly composed of a XIM traffic signal coordinate controller and associated hardware.
- The communication subsystem is mainly composed of wireless/wired devices for internet connection.
- The control center subsystem mainly consists of a database server, a GIS and application server, a data exchange sever, a regional control server, firewall, core switches, workstations, and some other devices.

### **Features**

- Area coordinate control

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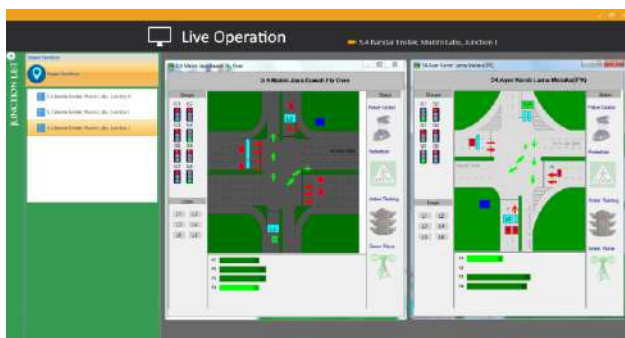
- Congestion control
- Special traffic service control
- Central manual control
- Multi-intersection centralized monitoring
- Traffic time and vehicle data archiving
- Parameter upload and download
- Real-time fault alarm
- Statistics and analysis of traffic flow
- Operation log recording and management
- Hierarchical intersection display based on GIS platform
- Unified timing
- CCTV integration
- Scalability to Integrate other ITS components
- GIS information of intersection on real map
- Multi-user group management
- Remote maintenance



**Main interface of system**



**Intersection parameters**

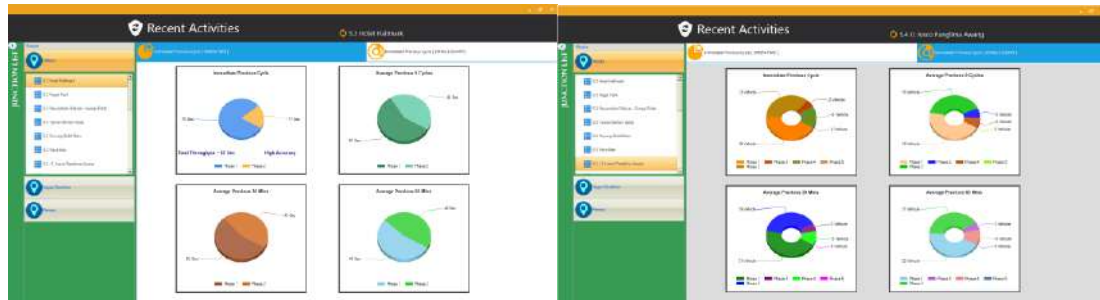


**Live operation of intersection**



**CCTV view of intersection**

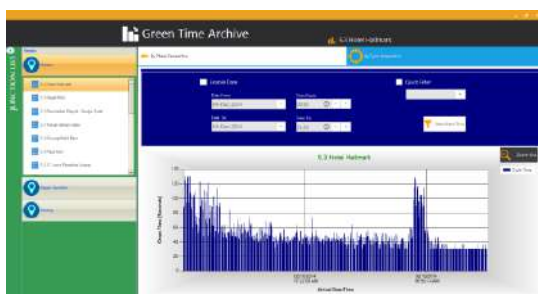




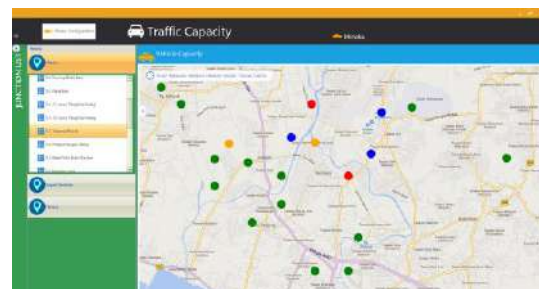
Recent intersection analysis



Traffic count statistics

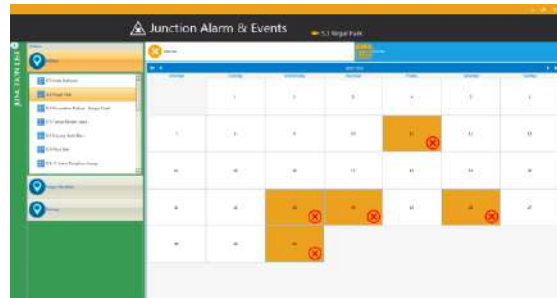
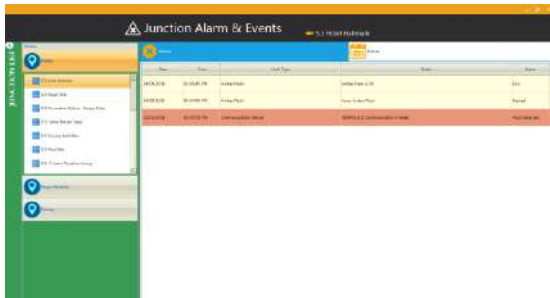


Traffic time statistics





## Traffic capacity analysis



## Alarms and fault logs



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