

# MATC 4000 SERIES TRAFFIC CONTROLLER

## Innovative Traffic Control For Signalised Intersections

PPK Technology has been involved in the manufacturing of traffic control systems for more than 25 years with over 3500 traffic controllers operational in more than 50 towns and cities across Malaysia and globally. PPK's release of the MATC 4000 controller combines microprocessor technology with the best in quality manufacturing standards.

This controller is fully vehicle actuated (VA) and has a very diverse range of programmable timing parameters with wide ranging multiplan and VA time plans. The MATC controller can be programmed to operate individually, in a linked configuration for greenwave and can be connected to a control center for networked traffic control coordination. It incorporates intelligent cycle time distribution, automatic self-determination and implementation of minimum and maximum VA and multiplan parameters. This controller is easily configurable using the controller configuration software "MATCSet".

Safety wise, the MATC controller has a built in efficient lamp failure and conflict monitoring system. Each output circuit is monitored and configured to trigger amber flashing or shut down upon detection of faults such as green conflict, double lamp, lamp short circuit, red lamp missing or surge protection fuse blown. Built with a robust surge protection system, the controller is resilient against naturally induced surges. Optional accessories such as the Uninterruptable Power Supply (UPS) and auto resetting ELCB/ELR provide added protection and ease of maintenance.



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## • Scalability and Adaptability:

Designed for ease of use and adaptability, the MATC 4000 traffic controller features PPK's latest microprocessor engine, a full line of communication options including serial ports, USB, memory, Bluetooth and a range of I/O modules. The MATC 4000 has a fully dedicated microprocessor and is designed in a highly modular format that makes the system highly flexible, diverse and scalable.

## • Coordination:

The MATC 4000 controller can be connected to the MATC Intelligent Traffic System software via a range of communication methods such as GPRS/EDGE, 3G/4G, PSTN modem, Wifi, fiber optic and leased line. The MITS system provides control centre remote monitoring and control of the traffic controller operating parameters. In the case of lost communication, the MATC 4000 automatically reverts to local controller intelligence mode. For green wave coordination, in an urban area with many traffic junctions, the MATC 4000 controllers which are linked locally via RF wireless module pairs can be overridden by the MITS control centre to accommodate unpredictable and complex traffic flows.

## • Key Features:

- \* Fixed time control.
- \* Vehicle actuated (VA) control.
- \* Phase oriented controller.
- \* Dynamic real time adaptive operations (DRAS).
- \* Fail-secure IP-based inter module communication architecture.
- \* Vehicle detection via inductive loop and wireless infrared/radar.
- \* Flexible control centre communication link supported i.e. IP-based, GPRS/EDGE, 3G/4G, fiber optic, leased line.
- \* Greenwave priority links using wireless RF module (for VA operation) and GPS clock synchronisation (for non-VA/Multiplan operation).
- \* SMS alerts and prompt controller status checks.
- \* Controller digital identification number.
- \* Remote controller firmware updating.
- \* Fully customised to integrate with other Intelligent Transportation Systems (ITS) i.e. variable message signs (VMS), flood warning system, video detection system, CCTV, red light camera, speed detection.
- \* Incorporated with Anti Theft Technology

## • Benefits:

- \* Incorporates advanced local intelligence
- \* Highly adaptable phase succession
- \* Employs distributed control strategy
- \* Compliance of safety standards with lamp conflict detection
- \* Designed with a modular architecture
- \* Cost efficient

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## • Operational Specifications:

Item	Specifications
No. of Signal Groups	Up to 24 per cabinet
Lamp monitoring	Each lamp output
No. of Vehicle Detector Inputs	Up to 24 per cabinet
No. of Pedestrian Push Button Inputs	8 (max)
No. of Timing Plans	16 x 10 x 7 plans (max)
No. of traffic phases per timing plan	10 (max)
Greenwave Linking	Wireless RF module (up to 1km line of sight), GPS synchronisation or control center initiated synchronisation
Mode Switching	Changeable from full VA to semi-VA or Multiplan modes
Programming / Configuration	Portable programming unit (PPU) i.e. laptop or android/ios device *
Local intelligence	Equipped with fixed time, flashing yellow and self checking capabilities
Vehicle detector mechanism	Individual fault - Automatically reverts to Multiplan for detector on affected phase only. Demand loop and anti-defacto red facility available
Control center compatibility	MATC Intelligent Traffic System
Digital countdown compatibility	Provides Vehicle Actuated data to control countdowns operating in: (i) DASH (ii) semi-VA and (iii) Skip phase (iv) Jump down mode
No. of digital countdowns	8 (max)
Countdown communication to controller	Supports both wireless or wired
Logging Data and Events	Logs and stores data for any event occurring affecting controller functions
Database back up / Event Log	Controller log data can be backed up to PPU from flash memory or SD card
Vehicle Priority / Preemption	Prioritises and pre-empt green phase for VVIP's, emergency vehicles or public transport *

\* terms and conditions apply

## • Mechanical and Electrical Specifications:

Item	Specifications
Cabinet format	Front and rear accessible. Available in 4 door or 2 door cabinet
Dimensions in cm (4 door cabinet)	136H x 60W x 43D
Dimensions in cm (2 door cabinet)	136H x 92W x 43D
Cabinet material	1.5 mm thick epoxy coated oven baked (grey) stainless steel (ss 304), galvanised iron (GI) or electroorganised (EG) plate
Access	Push key handle and key
Ventilation	Via roof and 4 meshed air vents on side
Weight	Approximately 80-110 kg (depending on signal group and UPS)
Main Cards Enclosure	4U front/rear accessible rack (swing hinges)
Incoming voltage and frequency	230V, Vac $\pm$ 10% at 50Hz
Power Consumption	80W (controller only)
UPS Compatibility	4 door cabinets fits 1.2, 2, 2.5 and 3kVA UPS with 2 maintenance free SLA batteries. Additional batteries require separate cabinet
Operating Temperature	-10°C to 75°C
Humidity Tolerance	Non-condensing
Degree of Protection	IP33 compliant
Electromagnetic Compatibility Standard	BS EN 50293 : 2012 compliant
Logging Data and Events	Logs and stores data for any event occurring affecting controller functions
Mechanical Standard	IEC 255-21-1; IEC 255-21-2 compliant
Environmental Standard	IEC 60068-2-2; IEC 60068-2-3; IEC 60068-2-30 compliant

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## • System Specifications:

Item	Specifications
Microprocessor	Advanced Processing Unit (APU) containing 32 bit microprocessor chip
Compatibility	Hybrid backward compatible
On board and external memory	8MB with backup battery and provision for SD card slot (size depends on client requirements)
Logging capacity	Fault / event storage capacity: average 10 events / day Data storage capacity: 7 years (max)
PPU connection interface	USB / Bluetooth *
Lamp status monitoring	Fuse blown detection, green conflict detection, double lamp detection, lamp failure detection
Current monitoring system	Conducts power consumption monitoring
Lamp conflict or lamp missing	Configurable to trigger amber or traffic system shutdown
LED and halogen based aspects compatibility (brands and models)	Must be tested with Current Monitoring Board (CMB) to ensure lamp conflict and missing detection system is functional Contact PPK for details
Vehicle detection	Using inductive loop sensors or wireless radar/infrared detectors
Inductive loop sensor format	Vehicle detector cards are 4 channel (per card) slotted into a Detector Interface Module (DIM)  Each rack DIM accommodates 3 detector cards. 2 DIM cards can fit into one 4U rack i.e. 6 detector cards (24 channel loops)
Communication methods from controller to control centre	GPRS/EDGE, 3G/4G, Wifi, Leased line, Fiber optic
Communication and SMS module	Used for connection to MITS and fault alert SMS to mobile device and MIMIC panel systems

PPK Technology products are available nationwide in Malaysia or overseas through selected agents. Products can be supplied, installed, configured and tested by PPK Technology or an approved contractor. For a complete list of products and services available and technical support staff, contact our office or visit our website.

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