

# POSTEC

## COMMUNICATIONS CONTROLLER



### Product Overview

The Postec Communications Controller (PCC) is a technology platform from which control systems for the Oil Industry can be created.

The PCC applications can be divided into two broad categories:

**Retail Service Stations:** where the prime function is controlling dispensers and serving them to a self-serve console or Integrated Point of Sale Terminal system

**Commercial Unmanned Refueling:** where the prime function is controlling the dispensers and serving them to an outdoor authorization terminal

eg outdoor payment terminals on unmanned Truck stop, Marina, or “offroad” Homebase sites.

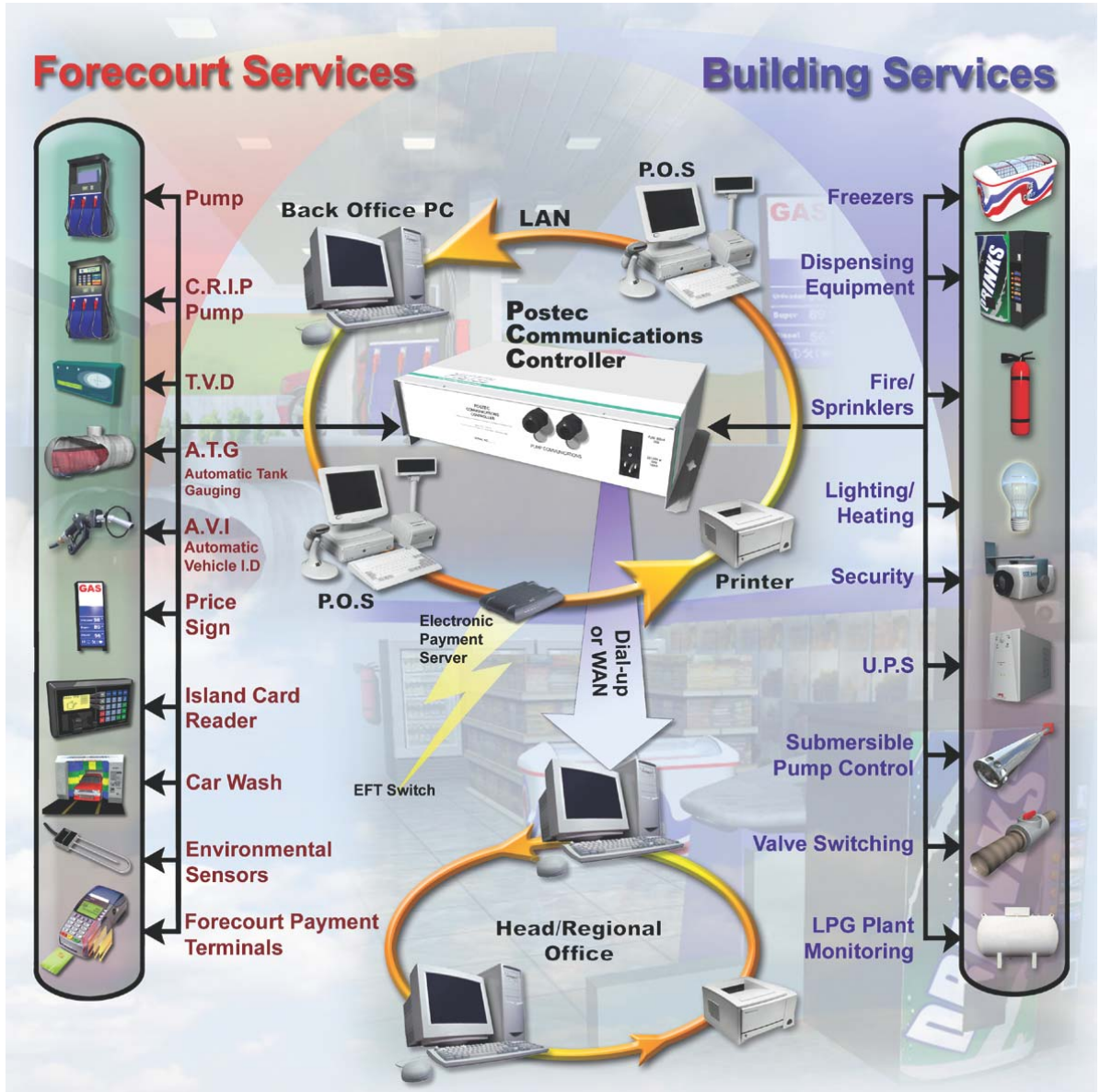
The PCC’s modular hardware and software architecture facilitates a vast range of optional application add-ons including: Automatic Tank Gauging, Price Sign, Vending machines, Automatic Car Wash, Card Readers in Dispensers, Automatic Vehicle Identification, Attendant Tagging, Alarm monitoring and Remote communications.

As well as providing site control, the PCC acts as a data acquisition system, accumulating

For Universal Forecourt Control

## The Design

The PCC has been designed specifically to provide concurrent, real time interfaces to the wide range of electronic devices that are being used in the marketing of petroleum products. A main feature in the PCC's design was the selection of a solid state architecture which is not reliant on mechanical disk drives or third party operating systems for its core operation. This was to ensure that the PCC would be online 24 hours a day, 365 days a year, and able to operate unattended, in the sometimes harsh environmental conditions that exist in the petroleum industry. The PCC, has been designed to fully integrate its functionality with Personal Computer based equipment which is used widely on fueling sites and/or in remote head offices. The solution provides high reliability and seamless computer integrated functionality – *“the best of both worlds”*. The following schematic illustrates the superset connectivity available from the PCC.



The PCC enclosure has also been designed with modularity and expansion capabilities in mind. It has a back plane designed to accommodate the vast range of interface boards available for communicating with the various forecourt devices.

The PCC application software can be downloaded into the PCC's Flash memory remotely, or locally on site from a PC or laptop. Extensive diagnostic monitoring, data logging and online access is built in to provide the highest level of support for trouble-shooting site related problems.

The end result of these design considerations is a very robust and versatile data acquisition and control device with practically unlimited expansion and concurrent connectivity – THE PCC.

# The Applications

The PCC provides the basis from which a range of communications control systems can be created. These systems applications are created by selecting the appropriate modules from Postec's extensive software library and matching peripheral equipment, and configuring / customizing a solution which will best meet the Clients' requirements. The PCC can be scaled down to support any subset of the applications listed.

## The applications modules and peripheral equipment available include:

### Dispenser Control & Monitoring

#### *Dispenser Control Retail*

Full self serve control including

- Authorization operating modes
- Selling price
- Totals Management
- Grade and limit authorization

#### *Dispenser Control Unattended*

- Authorization (grade and limit controls)
- Selling price
- Totals Management

#### *Dispenser Monitoring Active*

- Attended mode operation
- Selling price
- Totals Management

#### *Dispenser Monitoring Passive*

- Monitoring dispenser sales from third party controller

### Integrated Site Totals Monitoring

#### *Dispenser Sales totalled by hose:*

Daily, On selling price change, Hourly, Shift change

#### *Totals Record includes:*

Dispenser, Hose, Unit price, Money total, Volume total, number of sales

Dispenser Electronic Meter Totals logging for reconciliation

### Point of Sale / Console Integration

#### *C-Store / Kiosk / Island OPT*

- Real-time forecourt status update
- Full dispenser control
- Wetstock Management
- Site Configuration Load
- File Transfer
- Diagnostics

### Integrated Automatic Tank Gauging Application

#### *Inventory monitoring*

- Product Volume, Volume Temperature compensated, Ullage, Water level, Temperature

#### *Delivery Measurement*

- Including dispenser sales made during delivery process
- Automatic Historical Wetstock Reconciliation
- Tank volumes, deliveries and dispenser sales

#### *Alarm monitoring*

- high/low product, high water, sudden loss, leak

#### *Automatic Tank Calibration Process*

- Generates a 500 coordinate strapping chart which is interpolated between to a resolution only limited by the probe

*Supports range of popular ATG consoles and also a direct probe interface*

### Alarm Monitoring

#### *8 input contactor Interface card*

- Refrigerator, Security, Fire Extinguisher, Environmental sensors etc...

#### *System Diagnostic Alarms*

- Dispenser errors
- ATG: low prod, high water, Theft etc...
- Power: Failure, low, Battery

#### *Reporting*

- To local POS/Console / Back Office
- Head office polling for reports
- Dial Out to Alarm Bureau - link to Internet/pagers/fax

### Forecourt Devices

- Automatic Car-Wash Interface (ACW)  
Serves ACW to multiple POS / CRIND /OPT
- Automatic Pole Price Sign
- Automatic Vehicle Identification (AVI)
- Attendant Tagging (RFID)
- Forecourt Logging / Journal Printer
- Postec Data Logger
- Vending Machines / Oil pack dispensers
- Island Card Readers – Integration with PCC allows dispenser to be shared between console and ICR
- Intelligent run box for sequencing Submersible Pumps

### Site Diagnosis

- Records all site events in a historical journal file for examination
- Provides online remote communications monitoring of any of the PCC's communications channels

### Optional PC Software

*FOCUS - On site Wetstock Management (see Focus Brochure)*

- Visual Console
- Forecourt Manager
- Forecourt Configuration
- Report Generator
- Multi-Site: Head/Regional/RAF office

*4COM Head Office Wetstock Management (see 4COM Brochure)*

- Automated Process Scheduler
- Wetstock data retrieval
- Reporting and Data Export
- Card File Management (Unattended Refuelling)
- Scheduled dispenser unit prices changes

# The Specifications

## Dispenser Control

4 Pump loops

64 filling positions

4 Protocols (any mix)

- PEC (Compac Fuelquip)
- Gilbarco Australia & USA
- Email Australia
- Dresser Wayne (Current loop & ISM Dartline)
- Tokheim
- Tatsuno
- Schlumberger
- A G Walker
- Nuovo Pignone
- Dong Hwa
- Midco
- Alternative Fuels: Batchen, Sulzer, Kraus, Universal

CRIPS/CRINDS

- Gilbarco

MECHANICAL PUMP

- Orpac SCU
- Postec MPC

Under development

- Bennett
- Larsen & Toubro
- Others as required

## Electronic Cash Register

Forman console interface for Transaction download via:

- Relay board
- RS-232

Emulation of popular self-serve console POS interfaces

## Point of Sale / Console Integration

- Multi-drop Serial com port interface (8 clients)  
RS-232 / RS-485 / RS-422
- LAN / WAN (16 clients) using IP based Protocols  
Ethernet 10Base-T

Drivers

- MS DOS Driver
- 32 bit Windows DLL
- XML messaging (using TCP/IP)
- Emulation of popular controllers

## Automatic Tank Gauging

Interfaces to popular ATG consoles including:

- Veeder Root
- Red Jacket
- Enraf Stic
- US-Test
- Tatsuno Micon

Direct Magneto-Strictive probe interface

## Remote Communications

- Battery backed Internal Modem with Industrial watchdog reliability (PSTN/GSM/GPRS)

- Programmable Auto-answer
- Industry Standard File Transfer Protocols
- Modem Emulation & Transparent comms to other devices
- Protocol conversion to other equipment
- External Modem support for ISDN, Wireless etc...
- WAN

## PCC Hardware Platform

Siemens 80c517 micro controller

64Kbyte Boot EPROM

512Kbyte FLASH memory for PCC software

512Kbyte CMOS battery backed memory for data storage

Serial EEPROM for hardware configuration setting

Real-time calendar clock chip (y2k compliant)

10 async serial com ports (not used for dispenser I/F)

4 synchronous serial com ports

Robust power supply providing multiple isolated outputs

12 Channel 10 bit A/D Converter

LCD Driver port

6 Counter Timer channels

2 Optically isolated inputs for reading forecourt switches

High Speed Sync Bus (HSSB) for Intelligent slave card communications

Sealed Lead Acid battery backup

Intelligent Universal Pump Interface (UPI) cards

Array of communications cards including

RS-232, RS-485/RS-422, Current Loop, Modem, LAN, Modular Parallel Input / Output cards for monitoring and control

Data Logger expansion memory

## General

Power Requirements

Nominal 220/230/240 VAC (110V supply option)

Power Max 30 Watts typical 15 watts

Operating Temperature

-10°C to 55°C

Approvals

- Australian National Standards Commission
- Pattern approval no S244A, S398 (OIML)
- Electrical: AS/NZ 3260
- Telecom: A-Tick, NZ Telepermit
- EMC - AS/NZS 3548
- Postec ISO 9001:2000 Certificate No 747
- South African Bureau Standard SABS

## Ongoing Development

Postec Data Systems is committed to the enhancement of existing products, and the development of new forecourt applications, to support the current and future requirements of the petroleum industry.

The above PCC specifications detailed are as at February 2004. For the latest information on the Postec products and services, visit our website at [www.postec.co.nz](http://www.postec.co.nz)

**The PCC - "best of both worlds"**