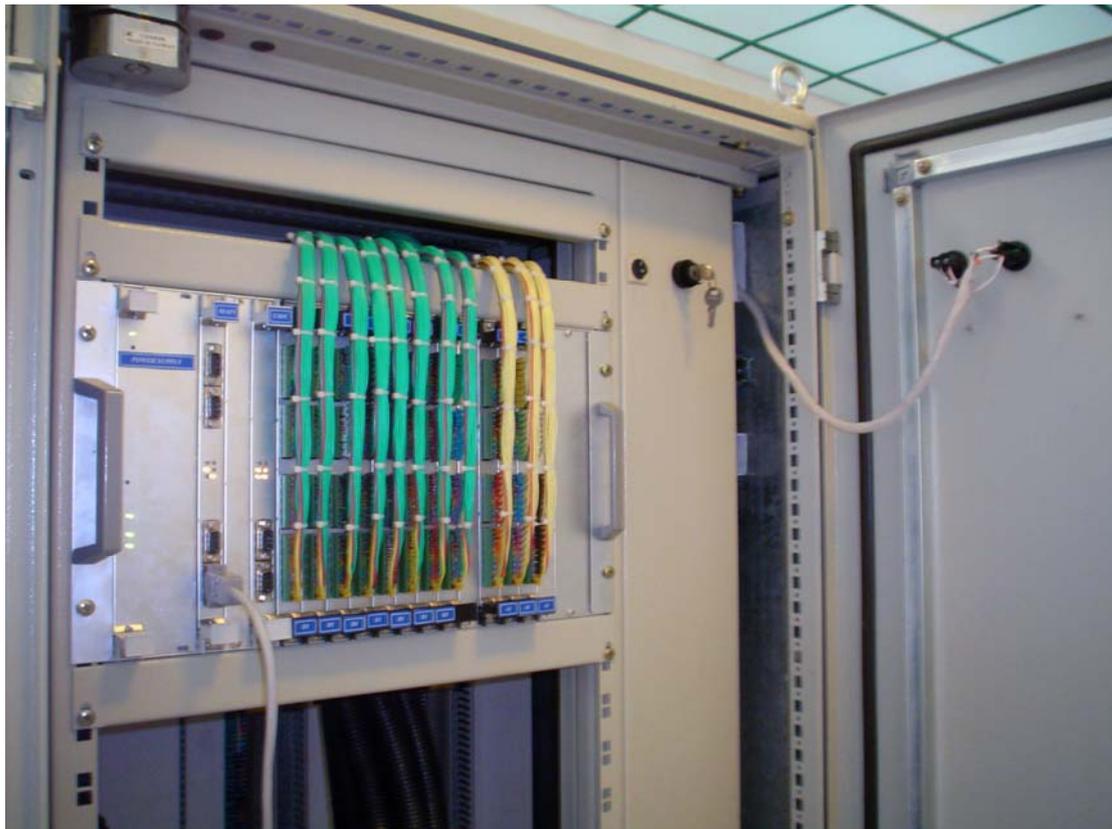




# PAYA RTU 744

## Remote Terminal Units

### To meet all automation needs



#### OVERVIEW

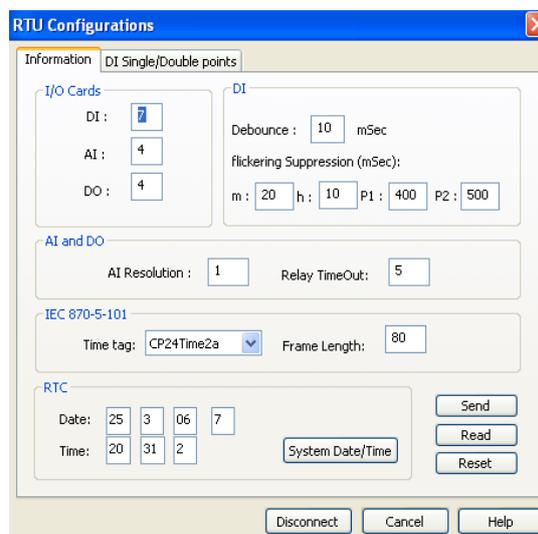
PAYA RTU is a large I/O capacity design to meet the many and varied demand of today's Power SCADA applications.

To achieve an ideal RTU design, PAYA RTU is fully modularized in I/O units, intelligent processing in system operation and powerful communication ability. It provides flexible, cost effective solution to many challenges that face the engineering, operations, and maintenance departments of today's power utilities.

PAYA RTU offers a single RTU family meeting the entire range of requirements, from small distribution and cogeneration sites to large substations and generating stations, using the same components in a modular, block-building approach, it introduces an open architecture permitting the addition of new units, each linked by well-known standard serial buses. Nothing becomes obsolete in the course of expanding an RTU from the smallest to the largest, most complex configuration.

## MAIN FEATURES

- Supports synchronous and asynchronous communication protocols even simultaneously
- Up to 15 I/O cards can be configured per sub-rack (Auto detection) and up to 15 sub-racks can linked together.
- Fully modularize and plug-in designed to ease RTU maintenance
- Local/Remote maintenance supported
- Comprehensive configuration facilities via PC software
- In application programming (IAP) system via a loader firmware



## Data Acquisition Processing

### UIOC (Universal Input Output Controller) Card

UIOC card controls I/O cards in a real time multi tasking system and also supports **IEC60870-5-101** in slave mode which might be connected directly to Controlling station when UPC card dose not need to exist. It Controls I/O cards As follows:

**Measured data Values (Analogue inputs):** Generally receive signals from Transducers (Watt, Voltage, Current, Position, Temperature, Resistance).

**Digital data inputs (Digital inputs):** supports two basic indication types (single Indication (1-Bit Status) and double indication (2-bit Status), the de-bounce time for All digital inputs can be 2ms to 30ms adjustable and it also provides programmable flickering suppression.

**Control Outputs (Digital outputs):** supports two types of Trip/Close control command, one is Select-Before-Operate command to control the high degree of security devices and the other is Execute-Immediate command to control the normal devices.

## Communication

### UPC (Universal Protocol Converter) Card

UPC card provides various types of communication protocols (synchronous and asynchronous such as **IEC60870-5-101**, **IEC60870-5-104**, HDLC, INDACTIC 2033, Modbus for communication with controlling stations, slave RTUs and IEDs.

## Specification

### UIOC Card

- Intel based micro-computer with 300MHz CPU Clock.
- 2MB flash memory.
- 2MB RAM.
- Battery backed-up real time clock.
- Four RS-232 asynchronous serial port.

### UPC Card

- Intel based micro-computer with 300MHz CPU Clock.
- 2MB flash memory.
- 2MB RAM.
- Battery backed-up real time clock.
- Four RS-232 serial port.
- Up to four RS-232 asynchronous serial port.

### Analogue Input Card

- 12Bit resolution
- 4-20mA, 0-20mA,  $\pm 1$ mA and  $\pm 10$ mA Input ranges
- Temperature Coefficient less than 20ppm/ $^{\circ}$ C
- Insulation w.r.t Earth >1KV and on other I/O cards >1KV
- 16 differential analogue input points for each card
- Scanning time for all AI points 1.5sec
- Surge immunity  $\pm 2$ KV(D.M) 1.2 $\mu$ Sec/50 for each pair of input

### Digital Input Card

- 32 points for each card.
- Up to 15 DI card per sub rack.
- De-bouncing time 1msec up to 7 cards and 2 msec for more than 7 cards.
- Insulation voltage >1.5KV.
- Programmable flickering suppression.

### Digital Output card

- 16 points close and trip output
- Direct and select/execute procedures
- Programmable command duration (1 to 30 sec)
- Insulation voltage 1.5KV

### Modem Card

- 300, 600 and 1200bps baud rate supported.
- 2 wire and 4 wire communication supported.
- FSK modulation type.
- Harmonic distortion better than  $-40$ db.
- Balance to ground greater than 40db.
- Return loss greater than 18db.
- Insulation 2KV (1min 50Hz).
- LED indicators (TX, RX, CD, CTS and RTS).
- Output level  $-12$  to 0 dbm0.
- Input level.
- Single to noise ratio: Down to 15 db working properly.

## Power Supply Card

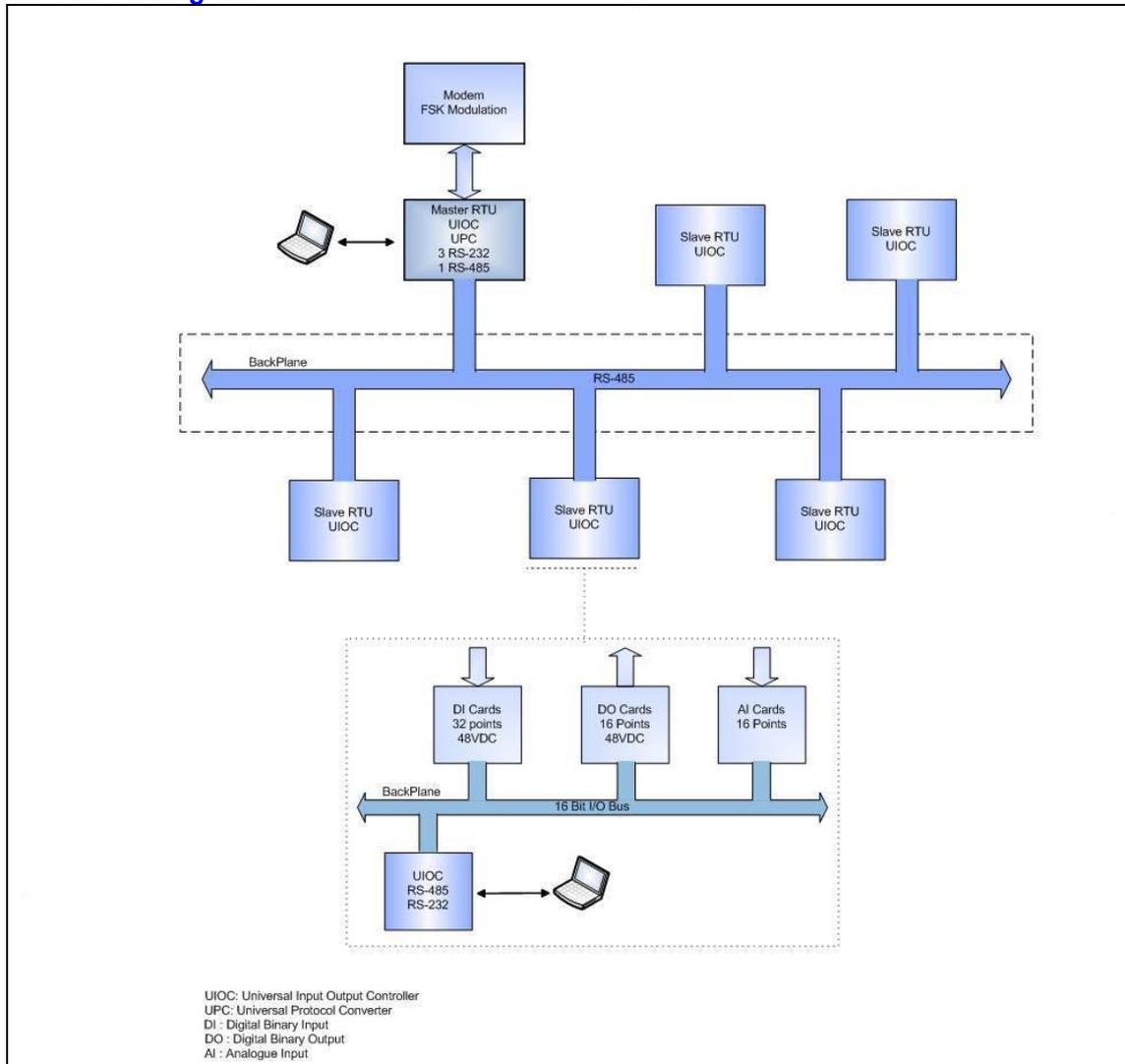
### Input Module

- 48V and 24V DC
- Reverse polarity protection
- Low DC shutdown
- Inrush current protection and soft start
- Surge immunity  $\pm 4\text{KV } 1.2 \mu\text{Sec}/50(\text{D.M})$  in comply with IEC61000-4-5

### Output Module

- 5V and  $\pm 12\text{V}$
- Crowbar protection on outputs
- Short circuit protection
- Supervisory on 5V
- Ripples on 5VDC less than 20mv p.p
- Insulation voltage w.r.t Earth 1KV and inputs 500V
- Impulse withstand voltage w.r.t Earth 2KV and on Input 1KV,  $1.2\mu\text{Sec}/50$
- Load regulation better than 0.2%
- Line regulation better than 0.1%

## RTU Block Diagram



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