



COMPUTER SYSTEMS & PROGRAMMING

PC Power Supply Unit

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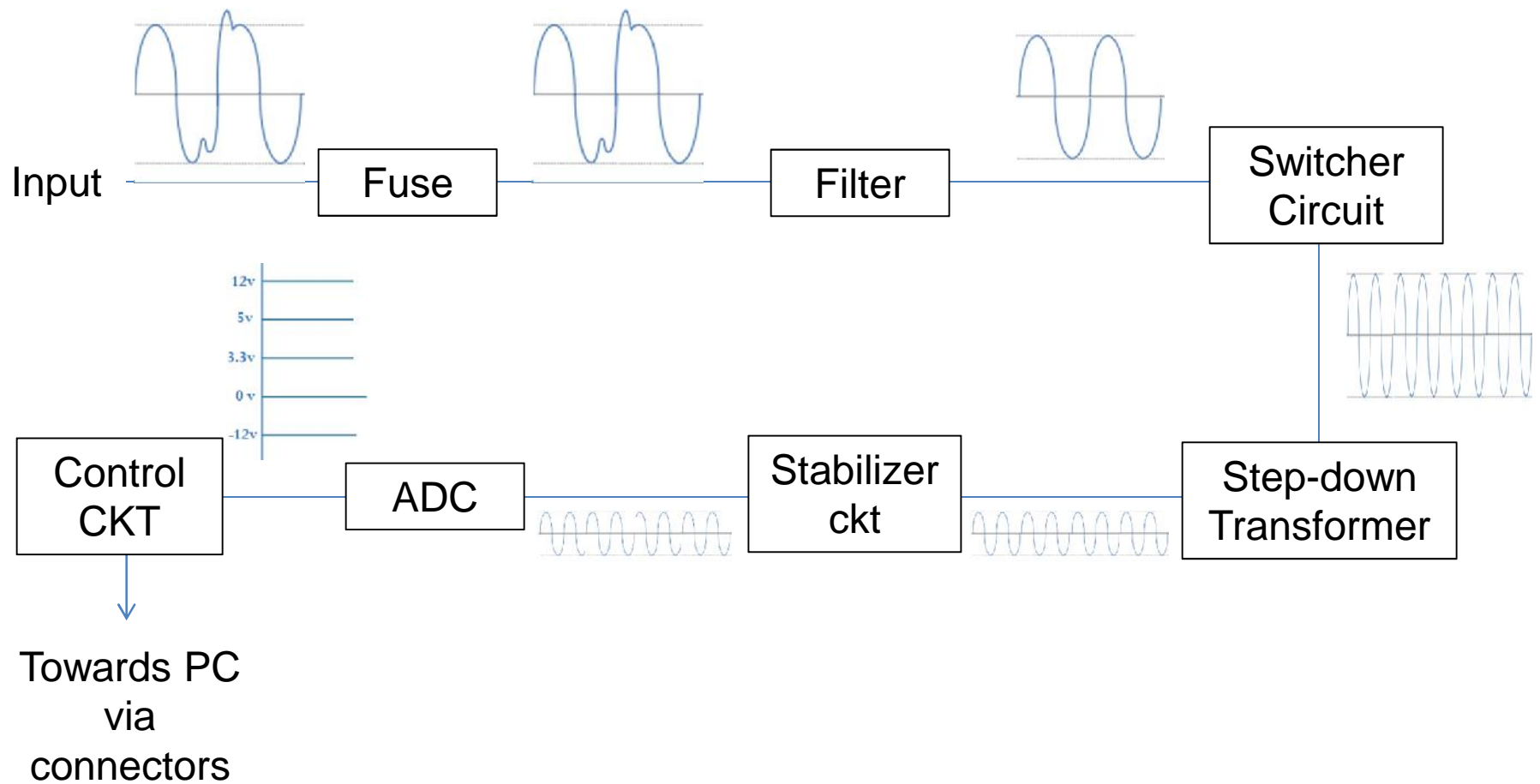


Introduction

- Also known as switcher power supply
- Converts high voltage AC into regulated low voltage DC power
- Typical voltage levels
 - 3.3v
 - 5v
 - 12v
- Power supply provides 5v VSB (Standby voltage) to turn system ON by pressing PC power button
- Power supply is rated in W, from 300W to 650W normally
- Switcher technology is used to increase frequency of AC for easier conversion
 - Enables small transformers to step-down voltage
- Power supply components:
 - Fuse and filter
 - Switcher circuit
 - Step-down transformers
 - Stabilizer circuit
 - ADC (Analog to Digital Converter)
 - Control circuit
 - Cooling system (fans and heat sinks)



Components & Working of PSU





Power Supply Standard

- Power supplies follows stands w.r.t the system standards
- Connectors:
 - Main Power Connector (e.g. ATX24pin connector) for motherboard
 - P4 or P6 power connector, dedicated power for microprocessor
 - Molex connector for IDE devices
 - Mini-Molex connector for FDD
 - SATA power connector
 - 6 pin/6+2 pin power connector for GPUs
 - Auxiliary power connector, for some motherboards to provide extra power
 - C14 connector for power input via C13 power cord
- Color coding of wires
 - Orange – +3.3v
 - Red – +5v
 - Yellow – +12v
 - Blue – -12V
 - White – -5v (was available in older standard)
 - Green – +5v Power good signal (Tell ckts to start when required power is achieved)
 - Purple – +5v VSB (To start power supply and system by pressing power button)
 - Green – +5v Power ON (Used to turn off the system via OS)
 - Black – Ground
 - Brown – +3.3v Sense (feedback to PSU to adjust 3.3 voltage level)



Questions

