

## Uplink Power Control System



The Uplink Power Control System (UPC) is a self-contained, rack-mountable unit, designed for geo-stationary satellite communication systems. It adjusts the strength of uplink signals at IF frequencies to compensate for varying weather conditions. The UPC can be setup completely from the front panel or over a remote bus via a host computer. All monitor and control functions are accessible at the front panel as well as over the remote bus.

A customer supplied Beacon Receiver provides the UPC with a DC voltage proportional to the downlink signal strength.

The UPC is configured with one attenuator channel and is capable of up to a total of ten attenuator channels. Each attenuator is capable of providing up to 20 dB of power correction. In the event of an attenuator fault or power loss to an attenuator, the signal will be switched to a failsafe path. This fail-safe path is routed through the rear panel via a "U" link connection. This connection allows the user to install a fixed attenuator in each path.

The UPC is equipped with fully redundant power supplies.

### Features

- Up to 10 attenuator channels
- 20 dB correction range
- Failsafe signal path
- Fully redundant power supplies
- RS485/RS422 selectable remote interface
- Field expandable attenuator channels
- DC and 10 MHz by-pass (UPC-L)

### Options

- Remote RS232 or IEEE-488 interface

RF Frequency (MHz)	Model Number
50–180	UPC-A
950–2150	UPC-L



Specifications	Model UPC-A	Model UPC-L
Functional		
Frequency	50–180 MHz	950–2150 MHz
Insertion loss at min. atten.	1.5 dB maximum	3.5 dB maximum
Attenuation range	20 dB in 0.2 dB steps	
Amplitude response	±0.2 dB/50–90 MHz ±0.25 dB/100–180 MHz	±0.75 dB/950–1750 MHz
Input return loss	20 dB minimum	15 dB minimum
Output return loss	20 dB minimum	15 dB minimum
Input/output impedance	75 ohms (50 ohms optional)	50 ohms
Input third order intercept point	+28 dBm minimum	
Power output (P1 dB)	+18 dBm minimum	
Failsafe path insertion loss	1 dB maximum	2 dB maximum
DC by-pass		
Power	N/A	24 VDC/2 amp maximum (no fuse)
Reference	N/A	5/10 MHz, 1 dB typical insertion loss 2 dB maximum
Attenuator channel status outputs	Normally closed	
Summary alarm	Form C	
Remote interface	User selectable RS485 or RS422	
Beacon level voltage input	0 to +10 VDC or 0 to -10 VDC	

### Options

- 1.** Optional configurations.
  - 1-2.** Two attenuator channels.
  - 1-3.** Three attenuator channels.
  - 1-4.** Four attenuator channels.
  - 1-5.** Five attenuator channels.
  - 1-6.** Six attenuator channels.
  - 1-7.** Seven attenuator channels.
  - 1-8.** Eight attenuator channels.
  - 1-9.** Nine attenuator channels.
  - 1-10.** Ten attenuator channels.
- 2.** Normally open attenuator channel status outputs.
- 15.** 50 ohm IF impedance (UPC-A only).
  - 15-1.** 50 ohm IF impedance Channel 1.
  - 15-2.** 50 ohm IF impedance Channel 2.
  - 15-3.** 50 ohm IF impedance Channel 3.
  - 15-4.** 50 ohm IF impedance Channel 4.
  - 15-5.** 50 ohm IF impedance Channel 5.
  - 15-6.** 50 ohm IF impedance Channel 6.
  - 15-7.** 50 ohm IF impedance Channel 7.
  - 15-8.** 50 ohm IF impedance Channel 8.
  - 15-9.** 50 ohm IF impedance Channel 9.
  - 15-10.** 50 ohm IF impedance Channel 10.
- 17.** Remote control.
  - C.** RS232.
  - F.** IEEE-488.

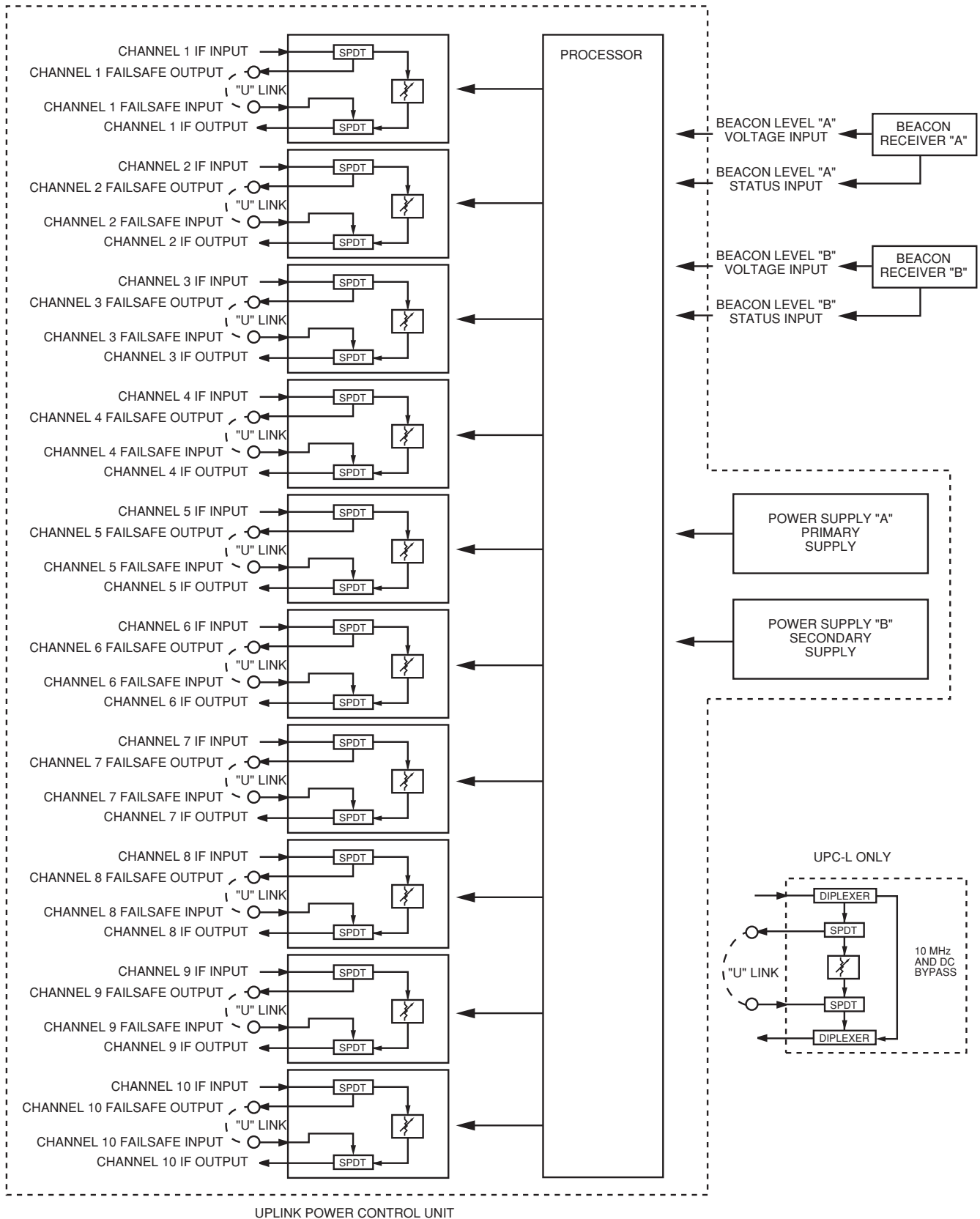
Note: Missing option numbers are not applicable for this system.

### Beacon Receiver Requirements

Voltage output..... 0 to +10 VDC or 0 to -10 VDC  
 Contact closure status outputs ..... Closure for fault or open fault

Note: For more detailed descriptions of the Uplink Power Control System, refer to MITEQ's Technical Note 25T029.

## Functional Block Diagram



## General Specifications

### Primary Power Requirements

Voltage ..... 90-250 VAC  
Frequency ..... 47-63 Hz  
Power consumption ..... 40 W typical

### Physical

Weight ..... 25 pounds nominal  
Overall dimensions ..... 19" x 5.25" panel height x 20" maximum

#### Connectors

##### Signal Path

UPC-A..... BNC female  
UPC-L..... SMA female  
Beacon level voltage inputs ..... BNC female  
Receiver fault inputs..... DE-9P  
Status output ..... DB-25S  
Remote interface  
RS485, RS422, RS232..... DE-9S  
IEEE-488 ..... GPIB receptacle

### Environmental

#### Operating

Ambient temperature..... 0 to 50°C  
Relative humidity..... Up to 95% at 30°C  
Atmospheric pressure ..... Up to 10,000 feet

#### Nonoperating

Ambient temperature..... -50 to +70°C  
Relative humidity..... Up to 95% at 40°C  
Atmospheric pressure ..... Up to 40,000 feet  
Shock and vibration..... Normal handling by commercial carriers