UPC2 Uplink Power Control Unit

The MITEQ UPC2 Uplink Power Control Unit is a rack-mountable unit, designed for geo-stationary satellite communication systems. It adjusts the strength of uplink signals to compensate for varying weather conditions.

The UPC2 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. The UPC2 protocol set is backward-compatible with the well-known MITEQ UPC-A and UPC-L products.

A customer-supplied Beacon Receiver provides the UPC2 with a DC voltage proportional to the downlink signal strength.

The UPC2 can control up-to-ten uplink channels. Each channel can be either an attenuator channel resident in the UPC2 or an external MITEQ upconverter. The attenuator channels internal to the UPC2 are available for L-Band or 70/140 MHz IF frequencies. The UPC2 can adjust up to 20 dB of power correction for each channel. In the event of an internal attenuator fault or power loss to the UPC2, 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.

As an option, MITEQ offers the UPC2 with Diversity Site Switching to further reduce adverse effects of rain fade on uplink signals. Diversity Site Switching supports applications that employ two redundant uplink systems, in separate geographic locations such that uplink signals will only be transmitted from the site experiencing better weather conditions.

The UPC2 is equipped with fully redundant power supplies.

Features

- **L-Band and 70/140 MHz models**
- **Up to ten uplink channels**
- **Fully redundant power supplies**
- **10/100 Base-T Ethernet Interface**
  - **HTTP**
  - **Telnet**
  - **SNMPv1**
- **RS485/RS422 selectable remote interface**
- **Field expandable attenuator channels**
- **Color Touch Screen simplifies setup and operation**

Options

- **Up to ten attenuators with failsafe signal paths**
- **Site Diversity Switching (Option 3, see page 2)**
- **DC and 10 MHz by-pass for L-Band Options**
- **30 dB optional range for 50–180 MHz**

Specifications	Module UPC2-A-ATT	Module UPC2-L-ATT
Functional		
Frequency	50–180 MHz	950–2150 MHz
Insertion loss at min. atten.	3.0 dB	3.5 dB
Attenuation range	20 dB in 0.2 dB steps (30 dB optional for 50–180 MHz)	
Amplitude response	±0.2 dB/50–90 MHz, ±0.25 dB/100–180 MHz	±0.75 dB/950–2150 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 (P1dB)	+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
UPC2 Chassis features		
Summary alarm	Contact closure for attenuator channel status and summary fault	
Remote interface	10/100 Base-T Ethernet and RS485/RS422	
Beacon level voltage input	0 to +10 VDC or 0 to -10 VDC (no zero crossing)	

Options

Available Attenuator Options (total of ten channels maximum)

Option	70/140 MHz 75 ohms See specifications above	
1-1-A	One	UPC2-A-ATT
1-2-A	Two	UPC2-A-ATT
1-3-A	Three	UPC2-A-ATT
1-4-A	Four	UPC2-A-ATT
1-5-A	Five	UPC2-A-ATT
1-6-A	Six	UPC2-A-ATT
1-7-A	Seven	UPC2-A-ATT
1-8-A	Eight	UPC2-A-ATT
1-9-A	Nine	UPC2-A-ATT
1-10-A	Ten	UPC2-A-ATT

Option	70/140 MHz 50 ohms See specifications above	
15-1-A	One	UPC2-A-ATT-50
15-2-A	Two	UPC2-A-ATT-50
15-3-A	Three	UPC2-A-ATT-50
15-4-A	Four	UPC2-A-ATT-50
15-5-A	Five	UPC2-A-ATT-50
15-6-A	Six	UPC2-A-ATT-50
15-7-A	Seven	UPC2-A-ATT-50
15-8-A	Eight	UPC2-A-ATT-50
15-9-A	Nine	UPC2-A-ATT-50
15-10-A	Ten	UPC2-A-ATT-50

Option	950-2150 MHz 50 ohms See specifications above	
1-1-L	One	UPC2-L-ATT
1-2-L	Two	UPC2-L-ATT
1-3-L	Three	UPC2-L-ATT
1-4-L	Four	UPC2-L-ATT
1-5-L	Five	UPC2-L-ATT
1-6-L	Six	UPC2-L-ATT
1-7-L	Seven	UPC2-L-ATT
1-8-L	Eight	UPC2-L-ATT
1-9-L	Nine	UPC2-L-ATT
1-10-L	Ten	UPC2-L-ATT

3. Site Diversity.
Site Diversity Switching is used when there are two redundant, geographically separated sites. With this option, there are two UPCs, one at each site and they communicate via an Ethernet link. Redundant IF Signals are switched at each site on a channelized basis such that the signals are up-converted and transmitted from only one site at a time. Switching is based upon user-programmable Downlink Signal Strength thresholds adjusted to select the optimal uplink site based upon prevailing weather conditions.

General Specifications

Primary Power Requirements

Voltage ..... 100-240 VAC
Frequency ..... 47-63 Hz
Power consumption ..... 40 W typical

Physical

Weight ..... 25 pounds nominal
Overall dimensions ..... 19" [482.6mm] x 5.25" [133.35mm] panel height x 20" [508mm] maximum
Connectors Signal Path
UPC2-A ..... BNC female, UPC2-L ..... SMA female
Beacon level voltage inputs ..... BNC female or DE-9P
Receiver fault inputs DE-9P
Remote interface
RS485/RS422 ..... DE-9S
Ethernet RJ-45

Environmental

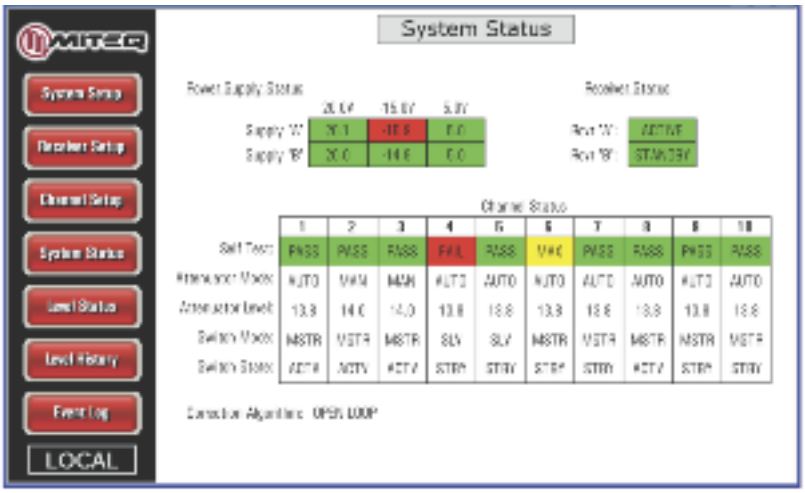
Operating
Ambient temperature ..... 0 to 50°C
Relative humidity ..... Up to 95% at 30°C
Atmospheric pressure ..... Up to 10,000 feet

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

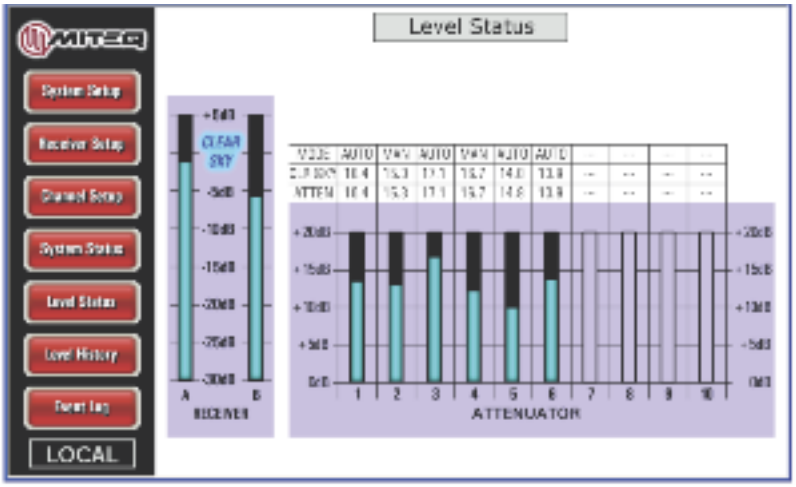
Touch Screen Displays

Typical control functions available;
Three of seven primary screens illustrated below

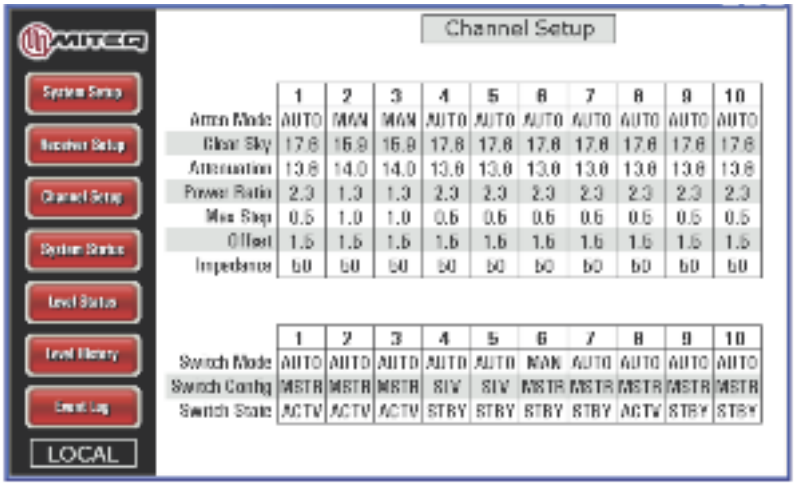
System Status



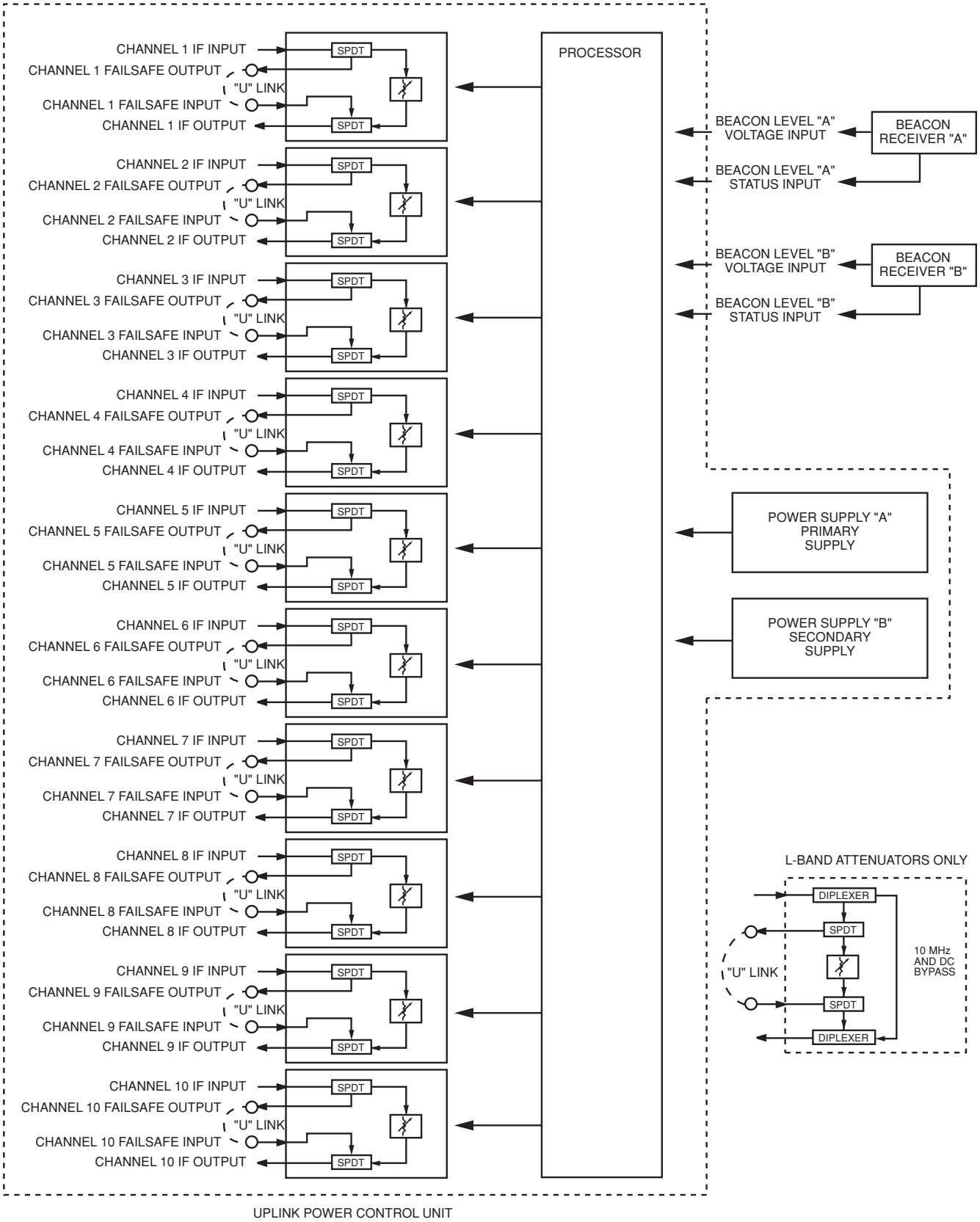
Level Status



Channel Setup



Functional Block Diagram



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