



Model: AT-Q000-HD

Description:	Digital Controlled PIN Attenuator
Operating Frequency:	6 - 12 GHz
Insertion Loss (0dB Attn. Ref.):	2.5 dB Max
Attenuation Range:	0 - 60dB Nominal Min
Attenuation Flatness:	0.8 dB PK-PK up to 10 dB
	1.8 dB PK-PK up to 20 dB
	2.8 dB PK-PK up to 30 dB
	3.2 dB PK-PK up to 40 dB
	3.6 dB PK-PK up to 60 dB
Control Function:	8 Bit Positive Binary TTL (LSB=0.25 dB, MSB=32dB)
Transfer Function Accuracy:	0 – 0.8 dB ±50% Max
	> 0.8 – 10 dB ±0.40 dB Max
	> 10 - 30 dB ±0.50 dB Max
	> 30 - 50 dB ±0.90 dB Max
	> 50 - 60 dB ±1.20 dB Max
VSWR (all settings):	1.5:1 Max
Settling Time ("±1dB of Target Setting"):	500 ns Max, (5µs<PW<0.1s)
Power Handling:	Operating..... +20 dBm CW/Peak Max
	Survival..... +30 dBm CW/AVG Max
Connectors (RF):	SMA (f), Removable
Connector (Supply & Controls):	15-Pin D-Type Male
Temperature Coefficient (Over Operating Temperature):	±0.025dB/°C Max
Power Supply (internally regulated):	+12 to +15vdc @ 60mA Max
	-12 to -15vdc @ 60mA Max
Impedance:	50 Ohms Nominal
Quality:	Best-Commercial-Grade

Environmental Ratings:

Temperature:	{Operating: -40°C to +85°C} & {Storage: -50°C to +100°C}
Humidity:	MIL-STD-202F, Method 103B, Cond. B (96 hours at 95% R.H.)
Shock:	MIL-STD-202F, Method 213B, Cond. B (75G, 6mSec)
Vibration:	MIL-STD-202F, Method 204D, Cond. B (.06" double amplitude, or 15G)
Altitude:	MIL-STD-202F, Method 105C, Cond. B (50,000 Feet)
Temp. Shock:	MIL-STD-202F, Method 107D, Cond. A (5 cycles)

Available Options:

(Units with listed options here may be subject to some specification tradeoffs from the standard, consult factory)

■ RF Connectors

B1 [J1 SMA (male)]

B2 [All SMA (male)]

■ Control Function Resolution

E1 [LSB = 1/8 dB <> 9-Bits <> "fractional steps"]

R1 [LSB = 0.1 dB <> 10-Bits <> "decimal steps"]

E2 [LSB = 1/16 dB <> 10-Bits <> "fractional steps"]

R2 [LSB = 0.05 dB <> 11-Bits <> "decimal steps"]

E3 [LSB = 1/32 dB <> 11-Bits <> "fractional steps"]

E4 [LSB = 1/64 dB <> 12-Bits <> "fractional steps"]

■ Transfer Functions

F3 [Inverse Logic ("00...00" = Max Attenuation)

■ Attenuation <> Limited Range

G1 [31.875 dB Range <> LSB = 1/8 dB <> 8-Bits]

G2 [25.5 dB Range <> LSB = 0.1 dB <> 8-Bits]



Outline

Technical drawing of the UMCC (Universal Microwave Control Circuit) showing front and side views with dimensions in inches and millimeters.

Front View Dimensions:

- Top width: 1.600" [40.6mm]
- Left side height (top section): 0.400" [10.2mm]
- Left side height (bottom section): 1.800" [45.7mm]
- Bottom width (left section): 1.500" [38.1mm]
- Bottom width (right section): 0.100" [2.5mm]
- Right side height (total): 2.300" [58.4mm]
- Right side height (top section): 1.300" - A/2
- Right side height (bottom section): 0.380" [9.7mm]

Side View Dimensions:

- Top width: 0.500" [12.7mm]
- Left side height (top section): 0.400" [10.2mm]
- Left side height (bottom section): 1.800" [45.7mm]
- Bottom width (left section): 1.500" [38.1mm]
- Bottom width (right section): 0.100" [2.5mm]
- Right side height (total): 2.300" [58.4mm]
- Right side height (top section): 1.300" - A/2
- Right side height (bottom section): 0.380" [9.7mm]

Labels and Features:

- UMCC
- J1
- J2
- 15PIN D-TYPE SUBMINIATURE MALE
- SMA(F) 2 PLACES
- 0.104" [2.6mm] DIA THRU, 2 PLACES

PIN	Function
1	N/C
2	N/C
3	N/C
4	N/C
5	0.25 dB
6	0.5 dB
7	1.0 dB
8	2.0 dB
9	4.0 dB
10	8.0 dB
11	16.0 dB
12	32.0 dB
13	+VDC
14	-VDC
15	GND (Chassis & Digital)

