

◆ Product Description

MPAC-020060-50E is a 2-6GHz high accuracy programmable phase & amplitude controller. It can change phase and amplitude of RF signal with minimum step 1° and 0.1dB, dynamic range 360° and 50dB. The absolute accuracy is ±2° and ±0.2dB Max. from ideal setup of any phase and amplitude combination at any frequency.

It can be controlled through USB and Ethernet with user-friendly GUI. The unit provides DLL for users to program.

The applications include 5G signal simulator, massive MIMO channel simulation, 5G Antenna OTA test, accurate beamforming producing and algorithm research, phase array antenna test, complicated signals environment producing etc.

Besides 2-6GHz system, there are different models can cover 0.2-3GHz, 0.5-2GHz, 0.6-4GHz, 1.7-6GHz, 6-18GHz, 2-18GHz, 18-40GHz and 24~40GHz respectively.

◆ Key Features

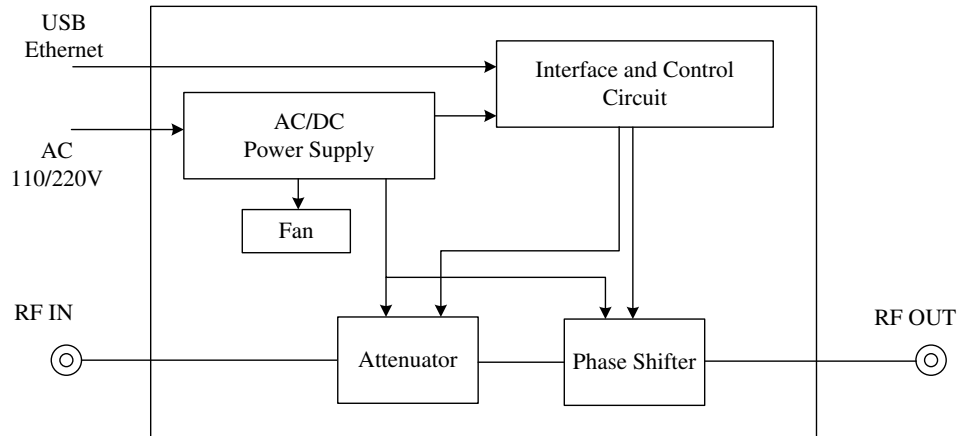
- Wide frequency range, one unit covers 2 to 6GHz
- Fine resolution, phase 1° and amplitude 0.1dB
- Super high absolute accuracy, phase ±2° Max., ±1° Typ., amplitude ±0.2dB Max., ±0.1dB Typ.
- Low insertion loss: 16dB Typ., 18dB Max.
- USB/Ethernet control, Easy to install and use
- User friendly Graphical User Interface for any Windows® 32 or 64 bit computer

◆ Specifications (25℃)

Parameter	Conditions	Min.	Typ.	Max.	Unit
Attenuation Range ¹	0.1 dB Step	0		50	dB
Attenuation Step		0.1			dB
Attenuation Accuracy	@ 0-50 dB Att		±0.1	±0.2	dB
Phase Shift Range	1° Step	0°		360°	
Phase Shift Step	0-360°	1°			
Phase Accuracy	0-50 dB & 0-360°		±1°	±2°	
Insertion Loss	0 dB & 0° Set		16	18	dB
VSWR			1.6:1	2.0:1	
Input Power without Performance Degradation				20	dBm
Survival Input Power				30	dBm
Supply Voltage		100		240	VAC
Control Mode	USB / Ethernet				
RF In / Out Connector	SMA-F				
Size	TBD				mm
Operating Temperature	0 ~ 50				°C
Storage Temperature	-20 ~ 70				°C

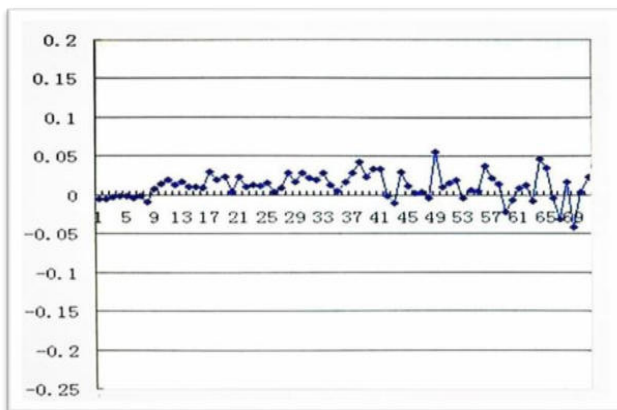
Note 1: Attenuation range can be customized up to 120dB Max.

◆ Schematic Diagram

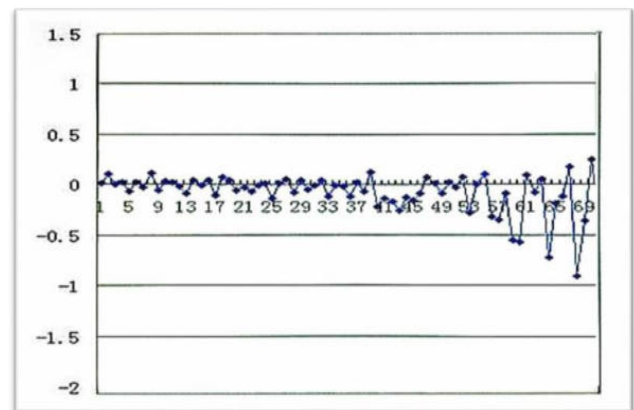


◆ Typical Tested Curve

Phase & Amplitude Control Accuracy



Amplitude accuracy tested data@ 3.5GHz,
Any combination of phase & attenuation
among 0~50dB & 0~360°



Phase accuracy tested data@3.5GHz,
Any combination of phase & attenuation
among 0~50dB & 0~360°

The X-coordinate shows the number of random sampled points within 0~50 dB & 0-360°

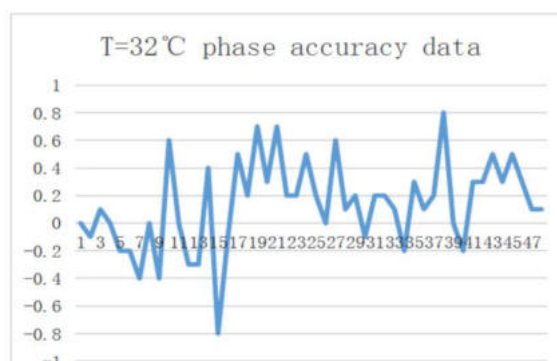
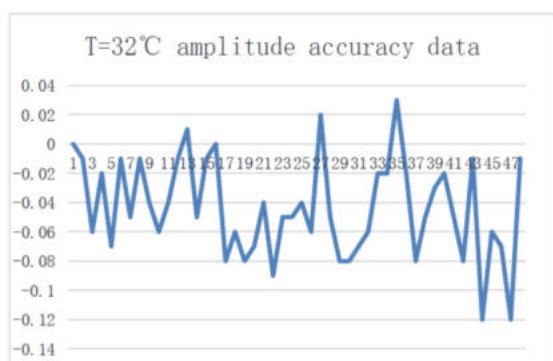
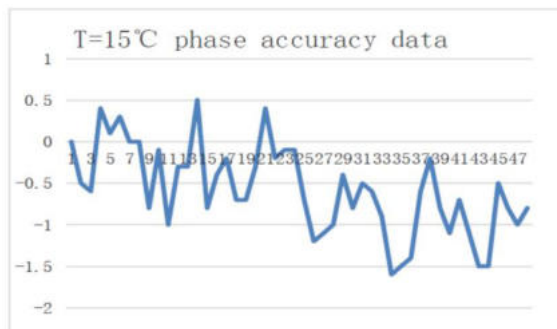
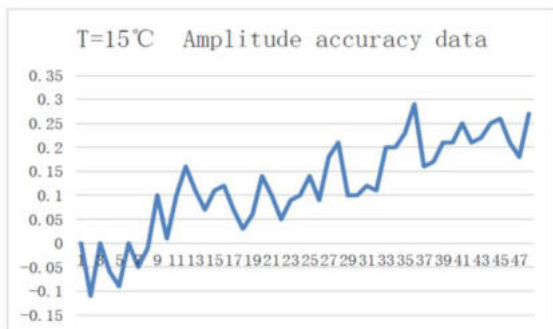
2~6GHz Phase Change over Frequency



Amplitude & Phase Set: 15dB, 50°

Phase Tested (Max: 50.635° Min: 37.187° Max-Min: 13.448°)

Phase & Amplitude Accuracy VS Temperature



Tested Frequency: 3.5GHz